



Cisco R42612 Rack and RP-Series Metered Input PDU Installation Guide

First Published: 2016-12-22

Last Modified: 2019-12-13

Americas Headquarters

Cisco Systems, Inc.
170 West Tasman Drive
San Jose, CA 95134-1706
USA
<http://www.cisco.com>
Tel: 408 526-4000
800 553-NETS (6387)
Fax: 408 527-0883

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CHAPTER 1

Overview

This chapter contains the following sections:

- [Cisco R-Series Racks, on page 1](#)
- [Cisco RP-Series Power Distribution Units, on page 3](#)

Cisco R-Series Racks

The Cisco R42612 R-Series rack is a 19-inch, 42U, industry standard EIA-310-D rack that is optimized for the integrated Cisco Unified Computing System (UCS). It supports all Cisco UCS blade, rack, and storage servers. Three versions of the rack are available for single-rack or multiple-rack UCS deployments:

- RACK2-UCS is the expansion rack that has no side panels
- RACK2-UCS2 is the standard rack that has side panels
- RACK2-UCS2-INT is the dynamic rack that has side panels

The design of the rack delivers power, cooling, and cable management features along with the strength and stability required in today's rack enclosures. In addition, the Cisco R42612 rack provides the highest level of reliability, structural integrity, and security for mission-critical environments.

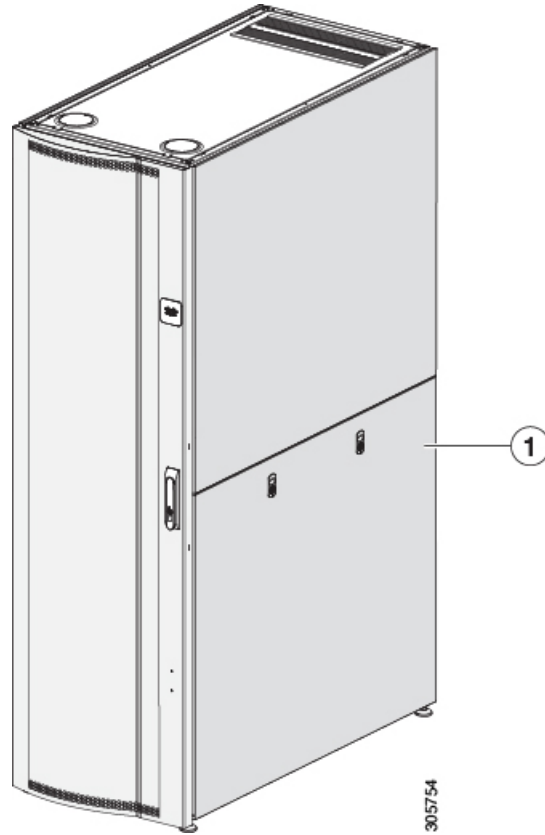
Features of the Cisco R42612 rack include the following:

- Front and rear doors are perforated to maximize air flow. Locks are included for added security. The doors also feature tool-less removal for convenient servicing. Split rear doors minimize the clearance required at the rear of the rack, and the adjustable front door can swing from right to left or from left to right.
- Lightweight, two-piece side panels are easy to install and remove, and locks provide extra security.
- The ventilated top canopy has cable access cutouts and a large cable access opening with a brush insert that ensures proper airflow.
- Integrated PDU trays enable tool-less mounting for the zero-RU Cisco RP-Series PDUs.
- Front and back stabilizer brackets are included with the racks.
- A joining kit is available to connect adjacent expansion racks within a row.
- Casters permit mobility if needed.

- RU markings on all rack rails simplify equipment installation.

The following figures show the front and back of the standard Cisco R42612 R-Series rack.

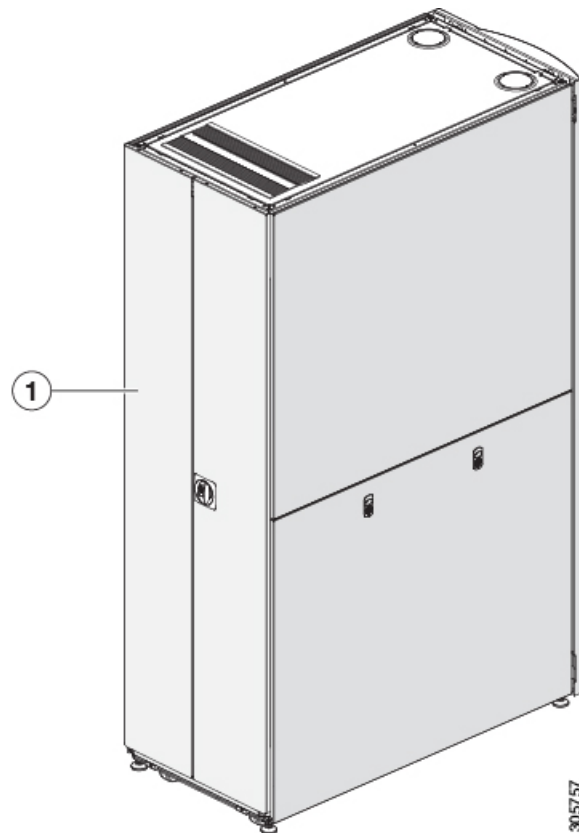
Figure 1: Front of the Cisco R42612 Rack



1

Front view of the standard Cisco R42612 R-Series Rack

Figure 2: Back of the Cisco R42612 Rack



1	Rear view of the standard Cisco R42612 R-Series Rack
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Cisco RP-Series Power Distribution Units

Cisco RP-Series Power Distribution Units (PDUs) offer flexible, reliable, easy-to-deploy power distribution with branch circuit protection. The PDUs come in various form factors, both 1RU and 0RU, and include metered and monitored models, and single-phase and three-phase models.

Cisco RP-Series 0RU PDU models are simple to install using pre-installed tool-less mounting screws that fit into key holes in the PDU trays. The flush profile of the 0RU PDUs also improves serviceability of the equipment installed in the rack.

The 0RU PDUs have color-coded outlet sections that match a corresponding circuit breaker, making it easy to identify which circuit breaker feeds which outlet. The branch circuit color coding also simplifies load balancing.

Outlet grip retention ensures that plugs stay securely in place and prevents disconnection due to bumps or vibrations.

For detailed information about all supported Cisco RP-Series PDUs, see [PDU Specifications, on page 50](#).



CHAPTER 2

Site Preparation

This chapter contains the following sections:

- [General Site Requirements and Recommendations, on page 5](#)
- [Required Tools, on page 6](#)
- [Prepare the Subflooring \(Optional\), on page 6](#)
- [Space and Clearances, on page 7](#)
- [Environment Required, on page 12](#)
- [Grounding, on page 13](#)
- [Power Source, on page 13](#)
- [Power Requirements, on page 13](#)
- [Site Preparation Checklist, on page 14](#)

General Site Requirements and Recommendations

When planning your installation of the Cisco R42612 rack, consider the following:

- The unpacking and installation process requires three logistical steps:
 - Unloading the unit from the vehicle in which it is shipped
 - Using a forklift or similar device to move the unit to an unpacking site
 - Moving the unpacked unit to the installation site
- Select an unpacking location with adequate surrounding space for the unloading process. You must allow for the pallet.
- Choose an installation site that can accommodate the Cisco R42612 rack. To provide for future installation of a joined configuration, you should plan enough space for additional cabinets that occupy the same amount of space as the initial cabinet.
- Make sure you have enough people to help you safely unload and install the system. A fully-loaded cabinet can weigh over 3000 lb (1360.8 kg) and moving it can present dangers to both personnel and the incorporate equipment.
- Plan a smooth and unobstructed route from the off-loading site to the installation site. You should only move the rack when it is empty of all equipment.

- Imperfections or obstructions in the floor between the unloading and installation site might hamper the movement of the unit. If you encounter an obstacle such as a sill or carpet, exercise care in navigating over it.
- Verify that you have adequate standard tools on hand.
- Ensure that your site contains an adequate power infrastructure.

Required Tools

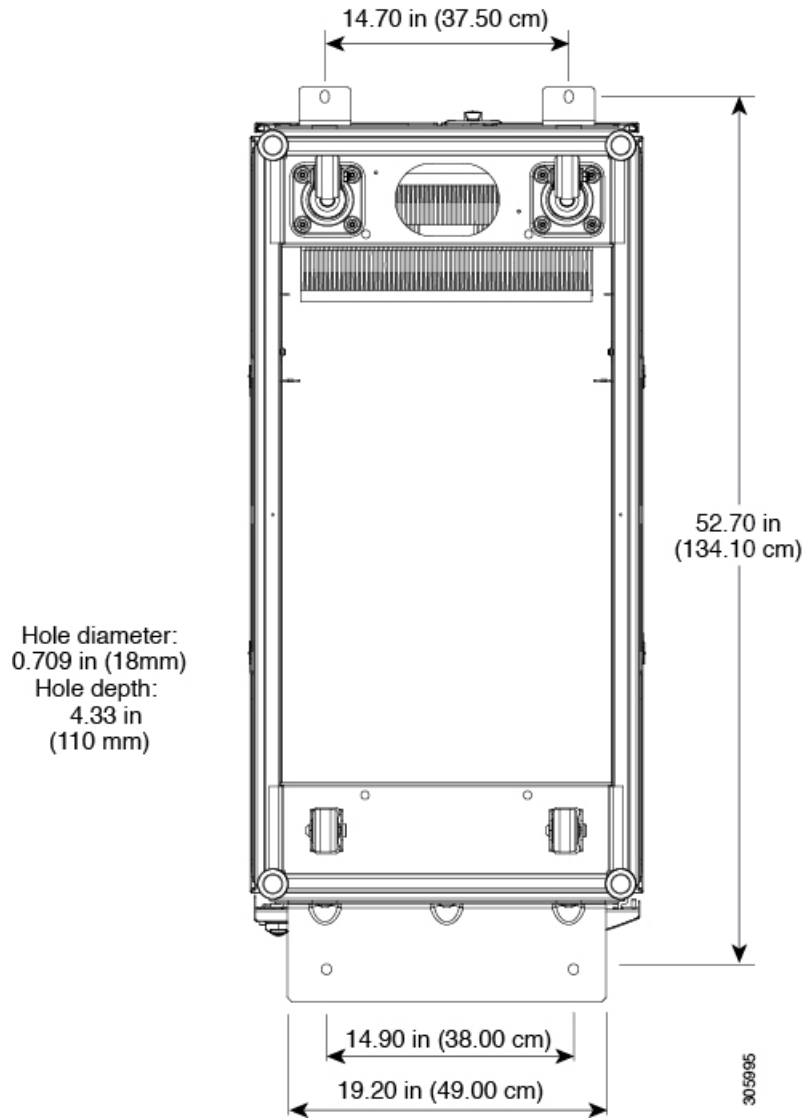
You may need the following tools and equipment to install the Cisco R-Series Rack:

- ESD-preventive wrist straps for each person
- Phillips head screwdriver (#2)
- 4 mm Hex driver
- Pozidriv screwdriver
- 3/8" or 1/2" flat-head screwdriver (to lower and raise stabilizers)
- Adjustable wrench (for unbolting system)
- Allen wrench (to disassemble caster assembly after the unit is sited)
- Standard clippers or knife (to cut packaging binding)
- Tape measure
- Level
- Anchoring bolts
- Rotary hammer drill
- Fork lift
- Chain hoist
- Documentation for the devices that you plan to install in the rack

Prepare the Subflooring (Optional)

To prepare your site for installation of the Cisco R42612 rack, you may need to reinforce the floor to support the rack when fully loaded with equipment. The following figure shows the reinforcement needed for secure anchoring of the rack.

Figure 3: Anchoring Pattern for the Cisco R42612 Rack

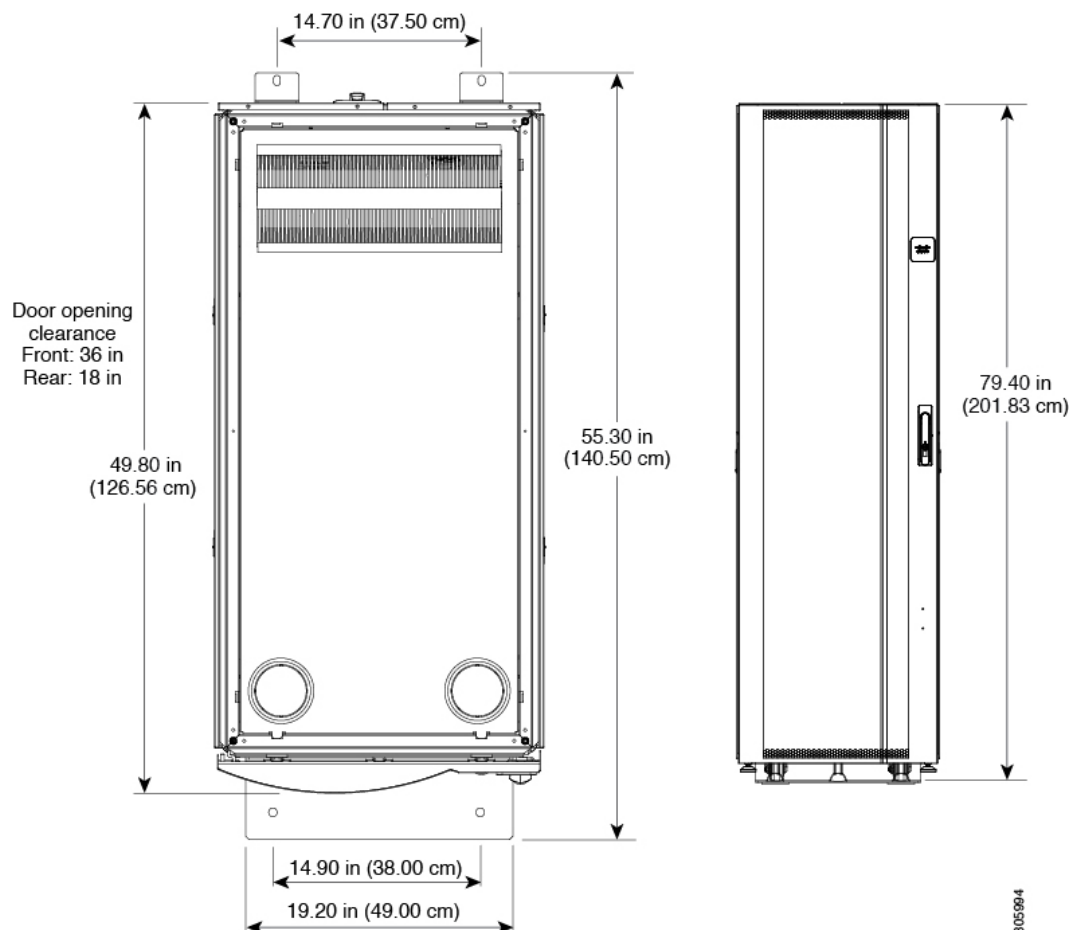


Note It is your responsibility to fulfill local seismic safety standards.

Space and Clearances

The following figure shows the dimensions and space requirements for the Cisco R42612 rack.

Figure 4: Space and Clearance Dimensions



Plan for at least 3 feet of clearance in front of the Cisco R42612 rack to install servers or networking equipment. Refer to the documentation for the equipment you plan to use to find out how much clearance is needed at the rear for ventilation or other uses.

Planning Considerations

When planning your rack installation, consider the following guidelines:

- Make sure that the system has adequate ventilation.
- Always install the heaviest equipment as low as possible in the Cisco R4612 rack to maintain a low center of gravity and prevent the Cisco R42612 rack from falling over.
- Use the cable management brackets and straps that are orderable for use with this system to keep cables organized and out of the way of the exhaust fans.
- Make sure that cables do not impair access to other devices or require you to disconnect cables unnecessarily to perform equipment maintenance or upgrades.
- To prevent device overheating, never install networking devices in a room that is not properly ventilated or air conditioned.

Safety Recommendations

The following guidelines are intended to help ensure your safety and protect the equipment. This list does not cover all potentially hazardous situations, so be alert.

- Review the safety warnings listed in Regulatory Compliance and Safety Information document before installing, configuring, troubleshooting, or maintaining the Cisco R42612 rack.
- Keep the area clear and dust free during and after the installation.
- Keep tools and components away from areas where people might accidentally step on them or kick them.
- Do not wear loose clothing, jewelry, or other items that might become trapped in the chassis during the installation.
- As a safety feature, the Cisco PDUs ship with locking 3-wire electrical grounding-type plugs that only fit into grounding-type power outlets. The equipment grounding should be in accordance with national and local electrical codes.
- Be sure to use the installed products in accordance with their marked electrical ratings and product usage instructions to guarantee safe operation.

Moving the Unit Safely



Note Before you install the system, make sure that your site is properly prepared so that you can avoid having to move the Cisco R42612 rack later. Specifically, choose your installation site to accommodate existing power sources and network connections.

Whenever you move the Cisco R42612 rack or any heavy object, follow these guidelines:

- Always disconnect all external cables before moving the Cisco R-Series rack.
- Do not attempt to move the unit by yourself.
- Never attempt to lift an object that might be too heavy for one person to lift alone. If you are not sure how much a particular object or device weighs, refer to the appropriate device specifications.
- Ensure that your footing is solid, and balance the weight of the object between your feet.
- Move the system slowly; never move suddenly or twist your body as you push.
- Keep your back straight and push with your legs, not your back. If you must bend down to move the Cisco R42612 rack, bend at the knees and not at the waist to reduce the strain on your lower back muscles.
- Move the rack from the middle. Grasp the middle of the Cisco R-Series Rack exterior with both hands.

Safety with Electricity

Most networking and data center devices are designed to be removed and replaced without presenting an electrical hazard or damage. In situations where you must completely remove power to a component, *always* remove the plug on the component side first, and then unplug all components connected to a PDU before

unplugging a PDU. Refer to the documentation for individual components for complete information about removing power from a component.

Follow these guidelines when working with any electrical equipment:

- Install the Cisco R42612 rack in compliance with national and local electrical codes. In the United States, the relevant code is National Fire Protection Association (NFPA) 70, United States National Electrical Code. In Canada, the relevant code is Canadian Electrical Code, part I, CC22.1. In other countries, you should observe the standards of the International Electrotechnical Commission (IEC) 364, part 1 through part 7.
- Remove all jewelry (including rings, necklaces, and watches) before working on equipment that is connected to power lines. Metal objects will heat up when connected to power and ground and can cause serious burns or weld the metal object to the terminals.
- Locate the emergency power-off breaker switch for the room where you are working before starting any procedures that require access to the interior of the rack.
- Disconnect all power and external cables before installing or removing a PDU or Cisco R42612 rack.
- Do not work alone when potentially hazardous conditions exist.
- Never assume that power has been disconnected from a circuit; always check.
- Do not perform any action that creates a potential hazard to people or makes the equipment unsafe.
- Never install equipment that appears damaged.
- Carefully examine your work area for possible hazards such as moist floors, ungrounded power extension cables, and missing safety grounds.

In addition, use the following guidelines when working with any equipment that is disconnected from a power source, but still connected to network cabling.

- Never install network wiring during a lightning storm.
- Never install network jacks in a wet location unless the jack is specifically designed for wet locations.
- Never touch non-insulated wires or terminals unless the line has been disconnected at the network interface.
- Use caution when installing or modifying lines.
- Read the installation instructions before you connect the system to its power source.



Warning Connect the device to a grounded power outlet.



Warning For Nordic countries (Norway, Finland, Sweden and Denmark) this system must be installed in a Restricted Access Location, where the voltage of the main ground connection of all equipment is the same (equipotential earth) and the system is connected to a grounded electrical outlet.



Warning Read the installation instructions before using, installing or connecting the system to the power source.



Warning This product relies on the building's installation for short-circuit (overcurrent) protection. To reduce risk of electric shock or fire, ensure that the protective device is rated not greater than:



Warning This equipment must be grounded. To reduce the risk of electric shock, never defeat the ground conductor or operate the equipment in the absence of a suitably installed ground conductor. Contact the appropriate electrical inspection authority or an electrician if you are uncertain that suitable grounding is available.

Preventing Electrostatic Discharge Damage

Electronic components are sensitive to Electrostatic discharge (ESD). ESD precautions should always be taken when handling electronic components. ESD damage occurs when electronic cards or components are improperly handled and can result in complete or intermittent system failures. Use an antistatic strap whenever handling electronic components. Touch the carriers edges only; never touch the boards or connector pins.



Note Always tighten the captive installation screws when present. These screws prevent accidental removal, provide proper grounding for the system, and help ensure the bus connectors are properly seated.

Follow these guidelines to prevent ESD damage:

- Always use an ESD wrist strap or ankle strap and ensure that it makes good skin contact.
- When handling a removed component, make sure the equipment end of you ESD wrist strap is attached to an unfinished chassis surface of the device in which it is housed. Do not touch the printed circuit board, and avoid contact between the printed circuit board and your clothing.
- Always place the component side up on an antistatic surface or in a static shielding bag. If you are returning the item to the factory, immediately place it in a static shielding bag.
- Ensure that any plugin device are fully inserted and their captive installation screws are tightened. The captive installation screws prevent accidental removal and provide proper grounding for the system.



Note For safety purposes, periodically check the resistance value of the antistatic strap. The measurement should be between 1 and 10 megaohms (Mohms).

Plant Wiring

When setting up the plant wiring and cabling at the site of the new system, consider the distance limitation imposed by power cable lengths and connector compatibility.

Environment Required

The Cisco R42612 rack and PDUs are operable beyond the specifications of the servers or networking equipment you are likely to install in them. Refer to the user documentation of the devices you will install to determine the required environment for these devices.

Environment specifications PDUs are in the following table.

Table 1: PDU Environmental Specifications

Item	Specification
Shipping or storage temperature	-40 to 60° C
Operating temperature	10 to 60° C
Shipping or storage relative humidity	5 to 95% (including condensing) with no droplets of liquid
Operating relative humidity	5 to 90% (including condensing)
Shipping or storage elevation	0 to 50,000 feet (0 to 15,240 meters)
Operating elevation	0 to 10,000 feet (0 to 3048 meters)
Acoustics	The unit does not produce significant sound

Most compute and networking equipment is designed to operate within the conditions as specified by The American Society of Heating, Refrigeration, and Air-Conditioning Engineers (ASHRAE).

ASHRAE has published a common set of guidelines for equipment manufacturers and data center designers to standardize on the following issues relating to a data center site:

- Operating environments for classes of equipment
- Equipment placement for optimum reliability and airflow
- Tests of performance and the operational health of the data center
- Equipment installation evaluations
- Methodology for reporting power, cooling, and environmental specifications

These guidelines were developed by an industry consortium as part of the ASHRAE Technical Committee 9.9 and are presented in the 2004 report Thermal Guidelines for Data Processing Environment. These guidelines were updated in 2008 by the ASHRAE Environmental Guidelines for Datacom Equipment.

For information about ASHRAE and the report, see the ASHRAE website (<http://www.ashrae.org>).

Dust and Particles

Exhaust fans cool power supplies and system fan trays cool equipment by drawing in air and exhausting air out through various openings in the chassis. However, fans also ingest dust and other particles, causing contaminant buildup in the equipment and increased internal chassis temperature. A clean operating environment

can greatly reduce the negative effects of dust and other particles that act as insulators and interfere with the mechanical components in the equipment.

Corrosion

The corrosion of equipment connectors is a gradual process that can eventually lead to intermittent failures of electrical circuits. The oil from your fingers or prolonged exposure to high temperature or humidity can corrode the gold-plated edge connectors and pin connectors on various components in the equipment. To prevent corrosion, avoid touching contacts on modules and protect the equipment from extreme temperatures and moist, salty environments.

Electromagnetic and Radio Frequency Interference

To reduce the possibility of EMI and RFI, follow these guidelines:

- Cover all open slots with a metal filler.
- Always use shielded cables with metal connector shells for attaching peripherals to the equipment.



Note

To predict and prevent strong EMI, you might need to consult experts in radio frequency interference (RFI).

Grounding

Electronic equipment is sensitive to variations in voltage supplied by the AC power source. Over voltage, under voltage, and transients (or spikes) can erase data from the memory or cause components to fail. To protect against these types of problems, you should always make sure that the racks that hold the servers or networking devices are grounded. When the rack are grounded, the equipment installed in them is automatically grounded. See the instructions for the products that you install in the rack for grounding steps. For additional information, see [Installing the Grounding Kit, on page 32](#).

Power Source

You should use dedicated power circuits (rather than sharing circuits with other heavy electrical equipment) for each PDU you install in the Cisco R42612 rack. The circuits must be rated for 30 A or 32 A, 200 to 250 VAC. The receptacles for these circuits should be within 6 feet (1.8 m) of each PDU when it is installed in the Cisco R42612 rack. Check the power at your site before installation and periodically after installation to ensure that you are receiving clean power. Install a power conditioner if necessary.

Power Requirements

Refer to the documentation for the power requirements for the devices you plan to install in the Cisco R42612 rack.

Site Preparation Checklist

Planning the location and layout of your equipment rack or wiring closet is essential for successful network operation, ventilation, and accessibility. The following table lists the site planning that we recommend completing before installing a Cisco R42612 rack or PDU.

Table 2: Site Planning Checklist

Task No.	Activity	Verified By	Time	Date
1	Space evaluation: <ul style="list-style-type: none"> • Space and layout • Floor covering • Impact and vibration • Lighting • Maintenance access 			
2	Environmental evaluation: <ul style="list-style-type: none"> • Ambient temperature • Humidity • Altitude • Atmospheric contamination • Air flow 			

Task No.	Activity	Verified By	Time	Date
3	Power evaluation: <ul style="list-style-type: none"> • Input power type • Power receptacles (verify that the power supply installed in the chassis has a dedicated AC source circuit) • Receptacle proximity to the equipment • Dedicated circuit for power supply • Dedicated (separate) circuits for redundant power supplies • Uninterruptable power supply (UPS) for power supplies 			
4	Grounding evaluation: <ul style="list-style-type: none"> • Circuit breaker size • Ground 			
5	Cable and interface equipment evaluation: <ul style="list-style-type: none"> • Cable type • Connector type • Cable distance limitations • Interface equipment (transceivers) 			
6	Electromagnetic interference (EMI) evaluation: <ul style="list-style-type: none"> • Distance limitations for signaling • Site wiring • Radio frequency interference (RFI) 			



CHAPTER 3

Unpacking the Rack

This chapter contains the following sections:

- [Unpacking a Cisco R-Series Rack, on page 17](#)
- [Remove the Packaging, on page 17](#)
- [Accessories , on page 19](#)
- [Safety Guidelines, on page 20](#)
- [Removing the Cisco Cisco R42612 Rack from the Pallet, on page 21](#)

Unpacking a Cisco R-Series Rack

This section describes how to unpack and prepare a Cisco R42612 rack to be moved to its installation site. The Cisco R42612 rack ships on a wooden pallet with cardboard and plastic covering the rack.



Note You will probably need to perform this procedure in the loading dock area of the building. A fork lift or chain hoist may be needed.

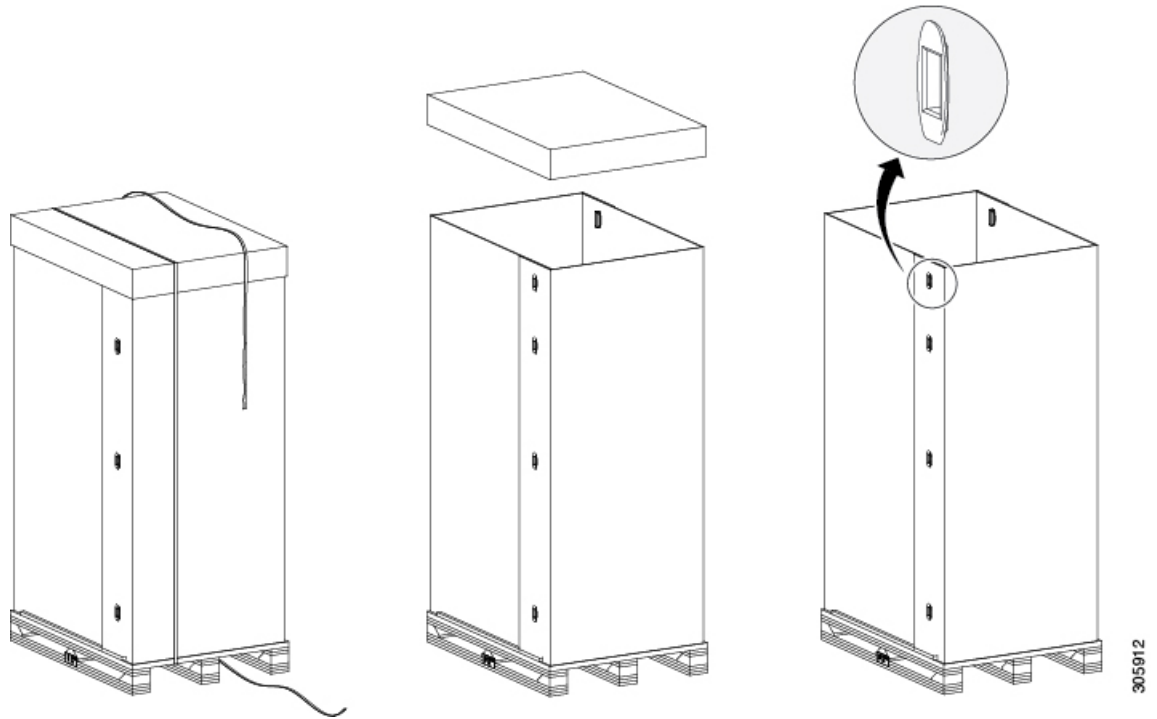
Remove the Packaging

To remove the protective packaging from the Cisco R42612 rack, complete the following steps:

Procedure

- Step 1** Remove the nylon straps that secure the cardboard sheathing.
- Step 2** Remove the cardboard top piece.
- Step 3** Remove the plastic latches that hold the cardboard sheathing together, as shown in the following figure.

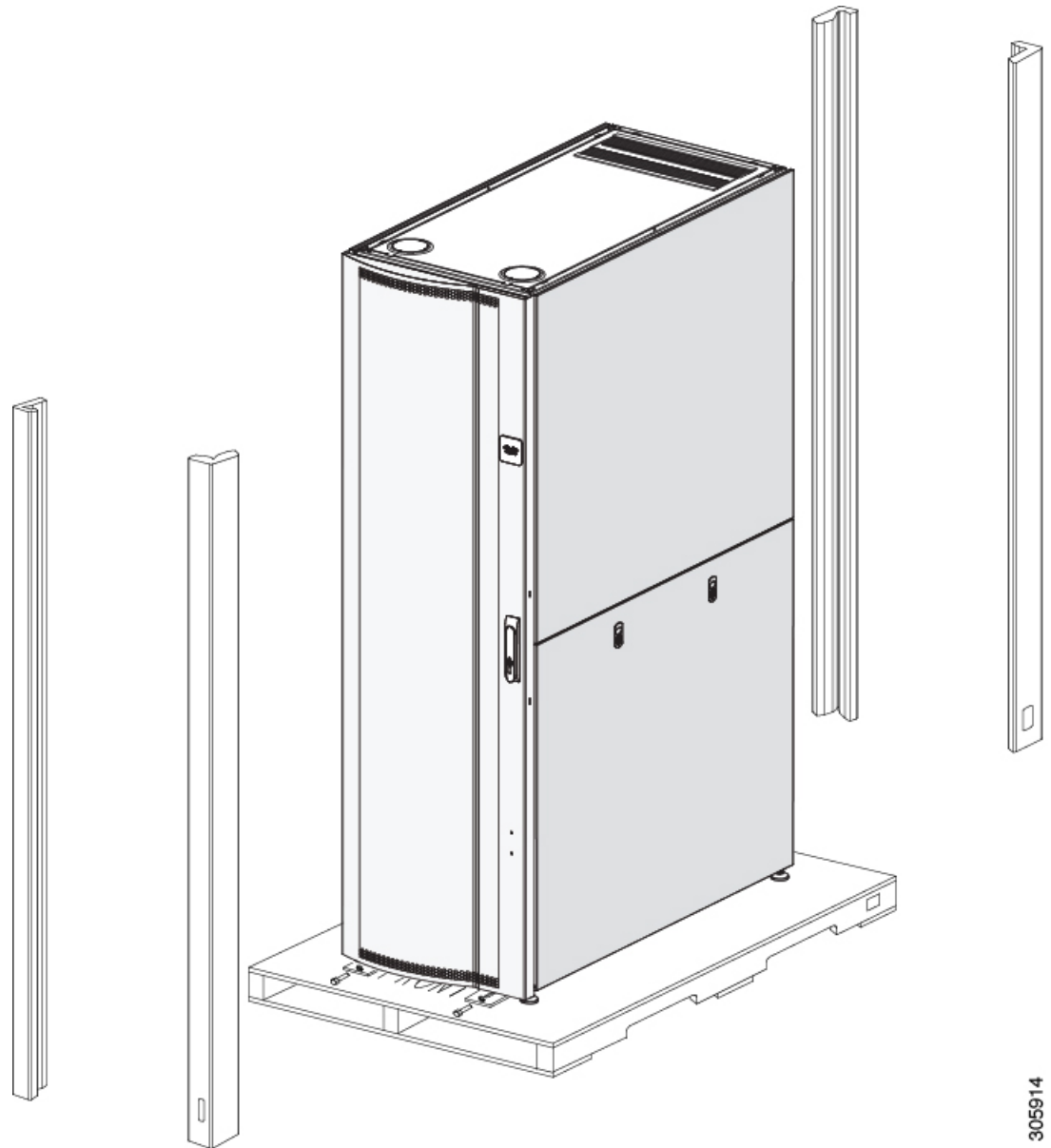
Figure 5: Removing the Straps, Cardboard Top, and Plastic Latches



Step 4 Remove the clear plastic that covers the rack and pallet.

Step 5 Remove the four cardboard corner frames and other packaging material that covers the Cisco R42612 rack.

Figure 6: Removing the Corner Frames



Accessories

The accessories that are available for the Cisco R42612 rack include the items listed in the following table.

Table 3: Cisco R42612 Accessories

PID	Quantity	Item
RACK2-JOIN-001	1	Cisco R42612 joining kit
RACK2_GRND-001	1	Cisco R42612 grounding kit
RACK_BLANK-001	1	Blanking panel
RACK-CBLMGT-001	1	D-ring
RACK-CBLMGT-003	1	Brush strip
RACK-CBLMGT-011	10	Velcro straps
RACK-FASTEN-001	100	Mounting screws, M6
RACK-FASTEN-002	50	Cage nuts, M6

Safety Guidelines

Before you move the Cisco R42612 rack cabinet off the pallet and to its final location, read the following important safety guidelines.



Warning

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

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



Warning

Make sure that your equipment rack is properly ventilated.



Warning

After installing system components in a rack, never pull more than one component out of the rack on its slide assemblies at one time. The weight of more than one extended component could cause the rack to tip over and injure someone.



Warning

Make sure that your rack is bolted to the floor.



Warning Three people are required to lift the rack. Grasp the rack underneath the lower edge and lift with both hands. To prevent injury, keep your back straight and lift with your legs, not your back.



Caution The Cisco R42612 rack weighs over 300 pounds. you will need a forklift, chain hoist, or professional mover to remove the rack from the pallet and move it to the installation location.



Caution If you must move the Cisco R42612 rack after installation, remove UCS and other installed components and move them separately.



Caution Install the heaviest devices at the bottom of the Cisco R42612 rack.



Caution If you have multiple cabinets joined together, they must be disconnected before moving.

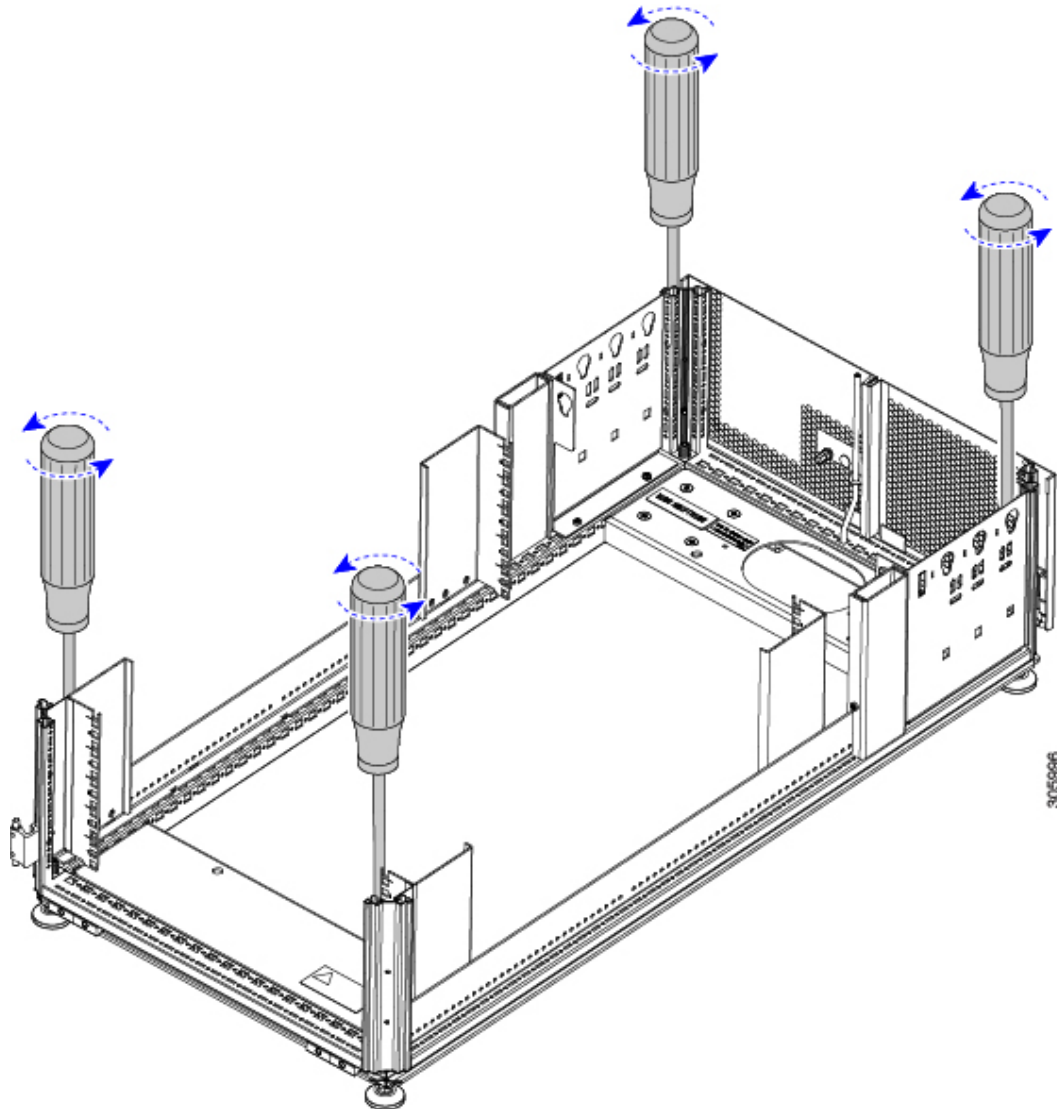
Removing the Cisco Cisco R42612 Rack from the Pallet

To remove the Cisco Cisco R42612 rack from the pallet, follow these steps:

Procedure

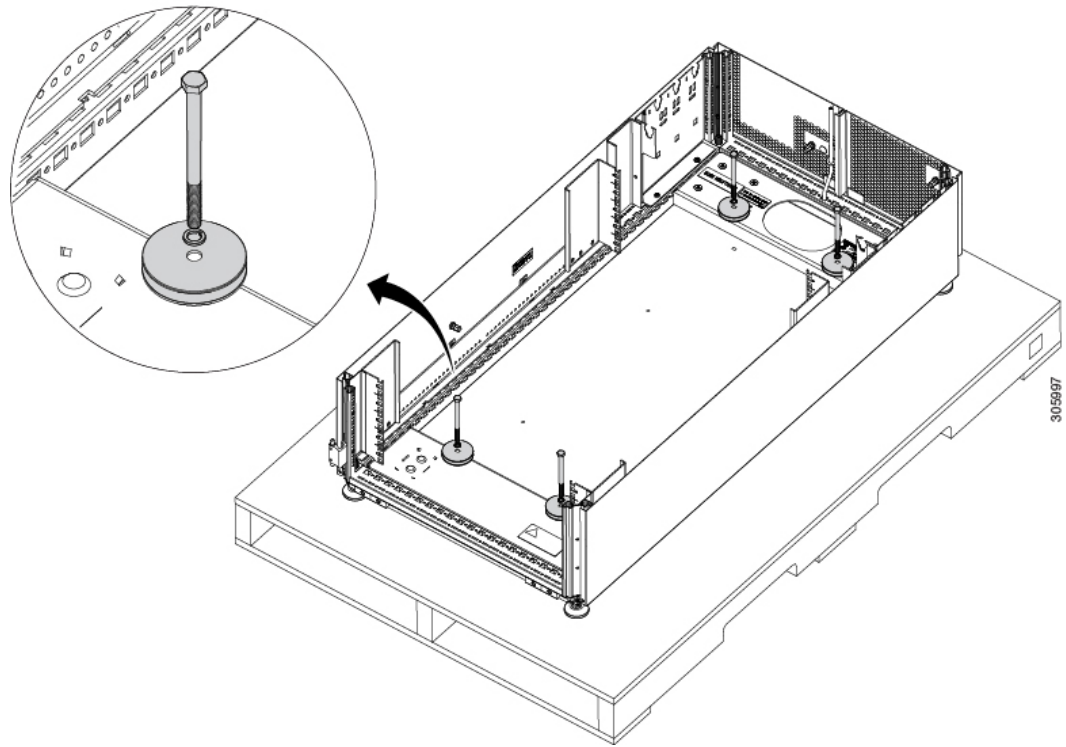
- Step 1** Read the safety information before you move the Cisco R42612 rack off the pallet.
- Step 2** Because the weight of the empty or populated Cisco R42612 rack cabinet is significant, be sure to have enough trained movers to move the cabinet off the pallet and to its installation site.
- Step 3** Use a 3/8" or 1/2" flat-blade screwdriver to raise the four leveling feet (one per corner) to their highest position so that you can roll the rack on its casters. See the following figure.

Figure 7: Raising the Leveling Feet



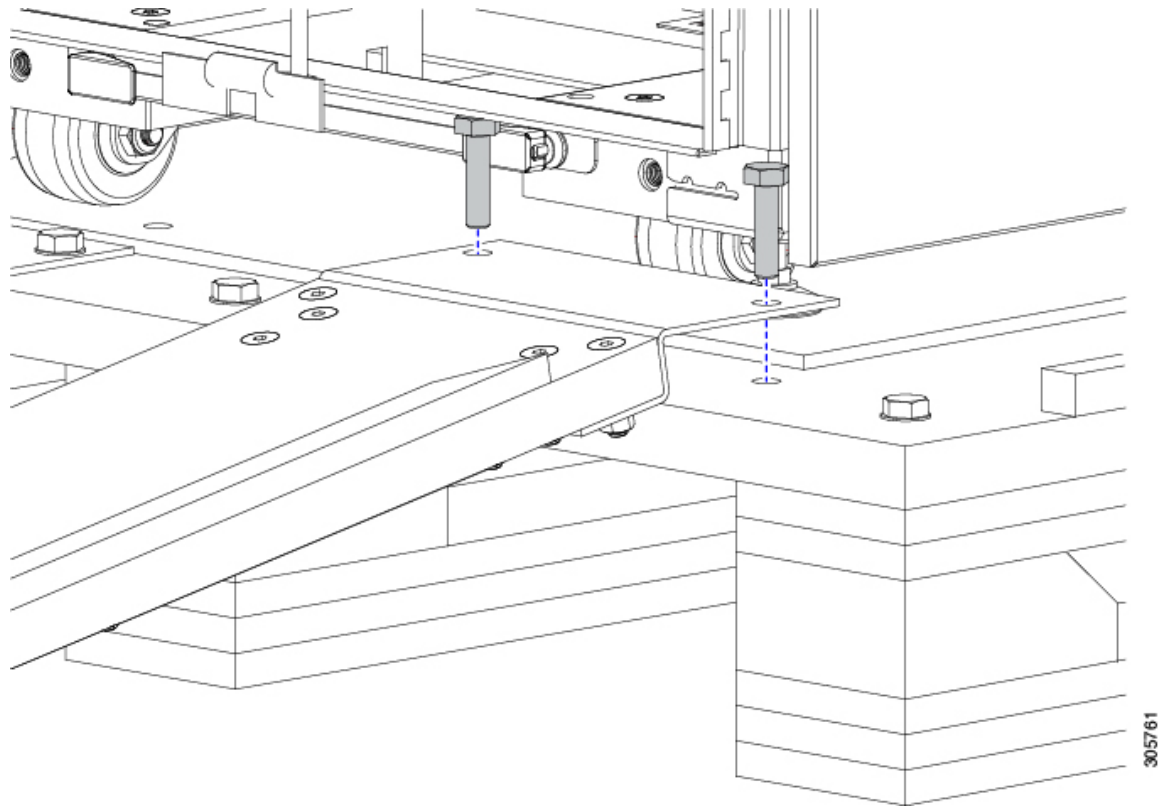
Step 4 Open the doors and remove the bolts that hold the rack-retaining brackets to the pallet and the Cisco R42612 rack. See the following figure. Save the brackets and the bolts.

Figure 8: Removing the Brackets



- Step 5** (Optional) To reduce the weight of the rack for easier handling, remove the side panels (if Included). See [Removing and Installing Side Panels, on page 43](#).
- Step 6** (Optional) To reduce the weight of the rack for easier handling, remove the front door. See [Removing and Installing the Front Door, on page 44](#).
- Step 7** (Optional) To reduce the weight of the rack for easier handling, remove the rear doors. See [Removing and Installing Rear Doors, on page 46](#).
- Step 8** For racks with equipment that is already installed, use the four bolts from the front of the rack that were set aside in Step 4 to secure the two ramps to the pallet at the rear of the rack. Predrilled holes and hardware are provided there. See the following figure.

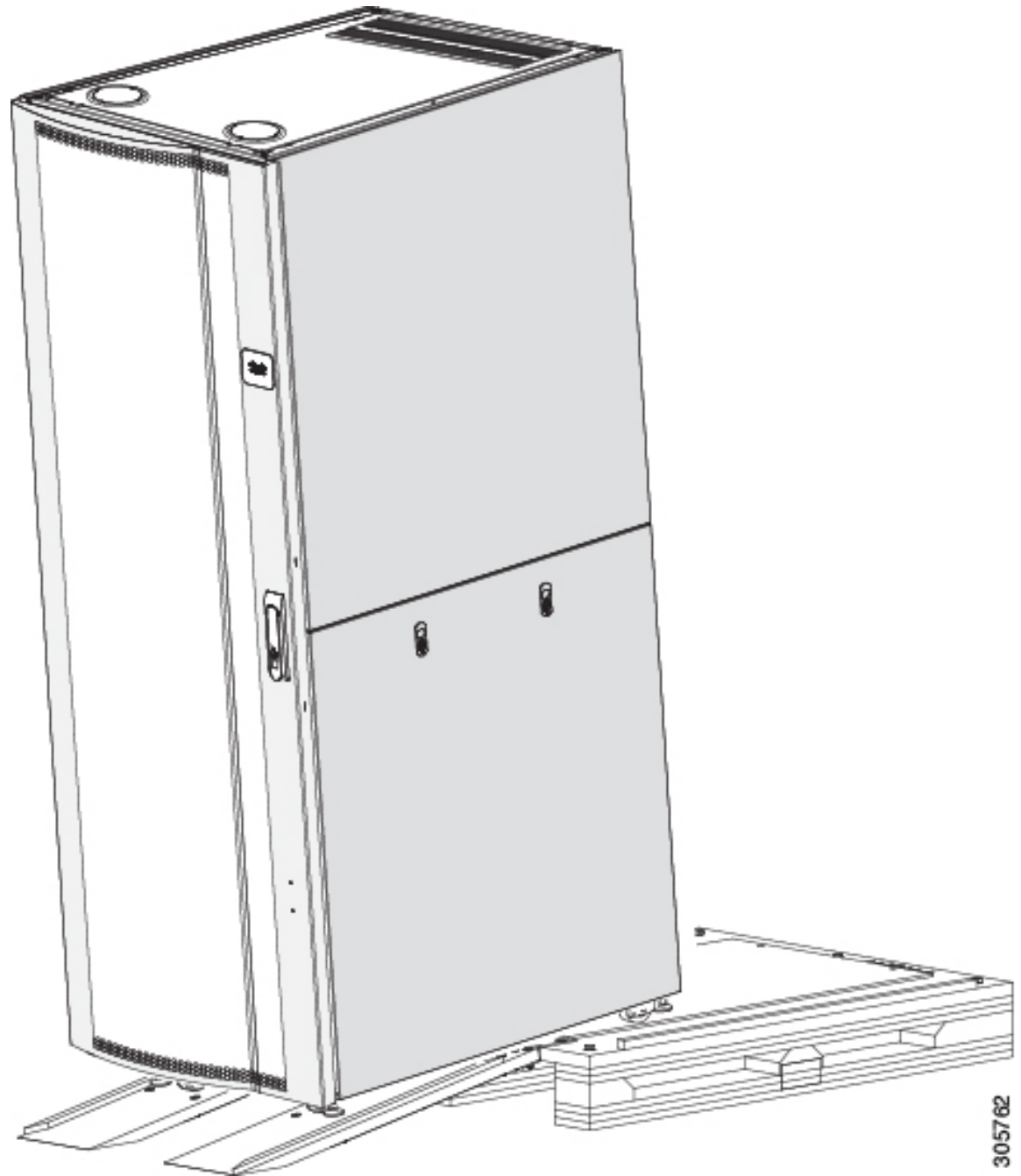
Figure 9: Installing the Ramps



Step 9

Remove the rack from the pallet. For racks that already have equipment installed, roll the rack to the rear of the pallet and down the ramps, as shown in the following figure.

Figure 10: Using the Ramps to Remove the Rack from the Pallet



For an empty rack, carefully roll the Cisco R42612 rack toward the front of the pallet. Lift the rack enough to slide the pallet out from under the rack. We recommend lifting the Cisco R42612 rack with a fork lift, a chain hoist, or professional movers. Empty racks are not shipped with ramps.

Caution Designate one person whose only job is to slide the pallet out from under the Cisco R42612 rack. The rack is too heavy for two or three people to lift; use a forklift, chain hoist, or professional movers.

- Step 10** Store the pallet and packaging material for future use if you have to ship the empty Cisco R42612 rack cabinet.
- Step 11** Make sure that the location where the rack will be installed has the required power and meets the description detailed [Power Source, on page 13](#).
- Step 12** Verify that the doors that you must pass through on the way to the installation location can accommodate the width and height of the Cisco R42612 rack on its wheels.
- Step 13** Verify that the flooring ready.
- Step 14** Roll the rack to the location where it will be installed.
-



CHAPTER 4

Installing the Cisco R42612 Rack

This chapter contains the following sections:

- [Securing the Cisco R-Series Rack to the Floor, on page 27](#)
- [Joining Cisco R-Series Racks Together, on page 29](#)
- [Installing Devices in the Rack, on page 32](#)
- [Installing the Grounding Kit, on page 32](#)

Securing the Cisco R-Series Rack to the Floor

For information about how to unpack and place the Cisco R42612 rack, see [Unpacking a Cisco R-Series Rack, on page 17](#). Once the rack is off the pallet, roll it to the desired location. To ensure that you have enough room at the intended location, see the footprint diagram, [Space and Clearances, on page 7](#).

Complete the following steps to lower the leveling feet and install the front stabilizer bracket:

Procedure

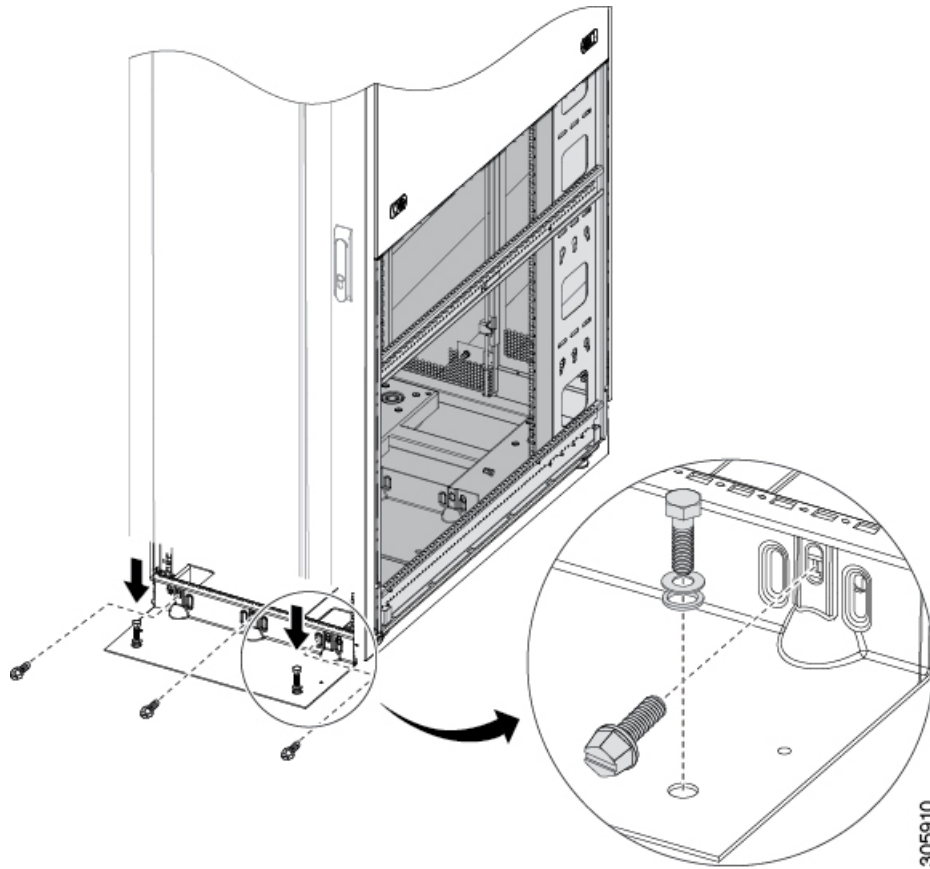
Step 1 Use a flat-blade screwdriver to lower each of the leveling feet so that they touch the floor. The rack casters support the weight of the rack, while the leveling feet prevent the rack from rolling.

Caution Unless you are moving the Cisco R42612 rack, the leveling feet should always be extended.

Step 2 Remove the stabilizer plate from the bottom floor of the rack.

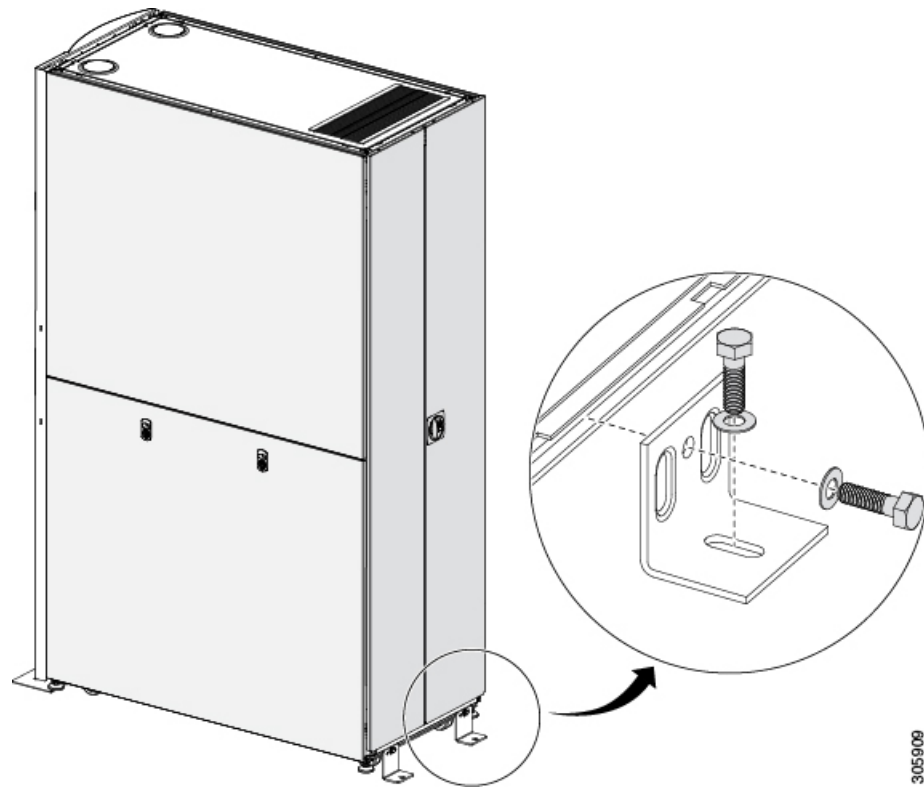
Step 3 Attach the stabilizer plate to the front of the rack as shown in the following figure.

Figure 11: Attaching the Front Stabilizer Bracket to the Rack



Step 4 Attach the stabilizer brackets to the rear of the Cisco R42612 rack as shown in the following figure.

Figure 12: Attaching the Rear Stabilizer Brackets to the Rack



Step 5 Bolt the Cisco R42612 rack to the floor surface through the holes in the front and rear stabilizer brackets.

What to do next

The Cisco R42612 rack is now installed. You may now:

- Join additional racks to the installed rack. See [Joining Cisco R-Series Racks Together, on page 29](#).
- Install optional Cisco PDUs. See [Preparing to Install an RP-Series PDU, on page 35](#).
- Install devices in the rack according to the instructions in the device documentation.

Joining Cisco R-Series Racks Together

An optional rack joining kit is available that allows you to attach two or more racks together. The kit includes all required hardware. You do not need to remove the doors to attach the racks together. When racks are joined together, there is no need for the side stabilizers.

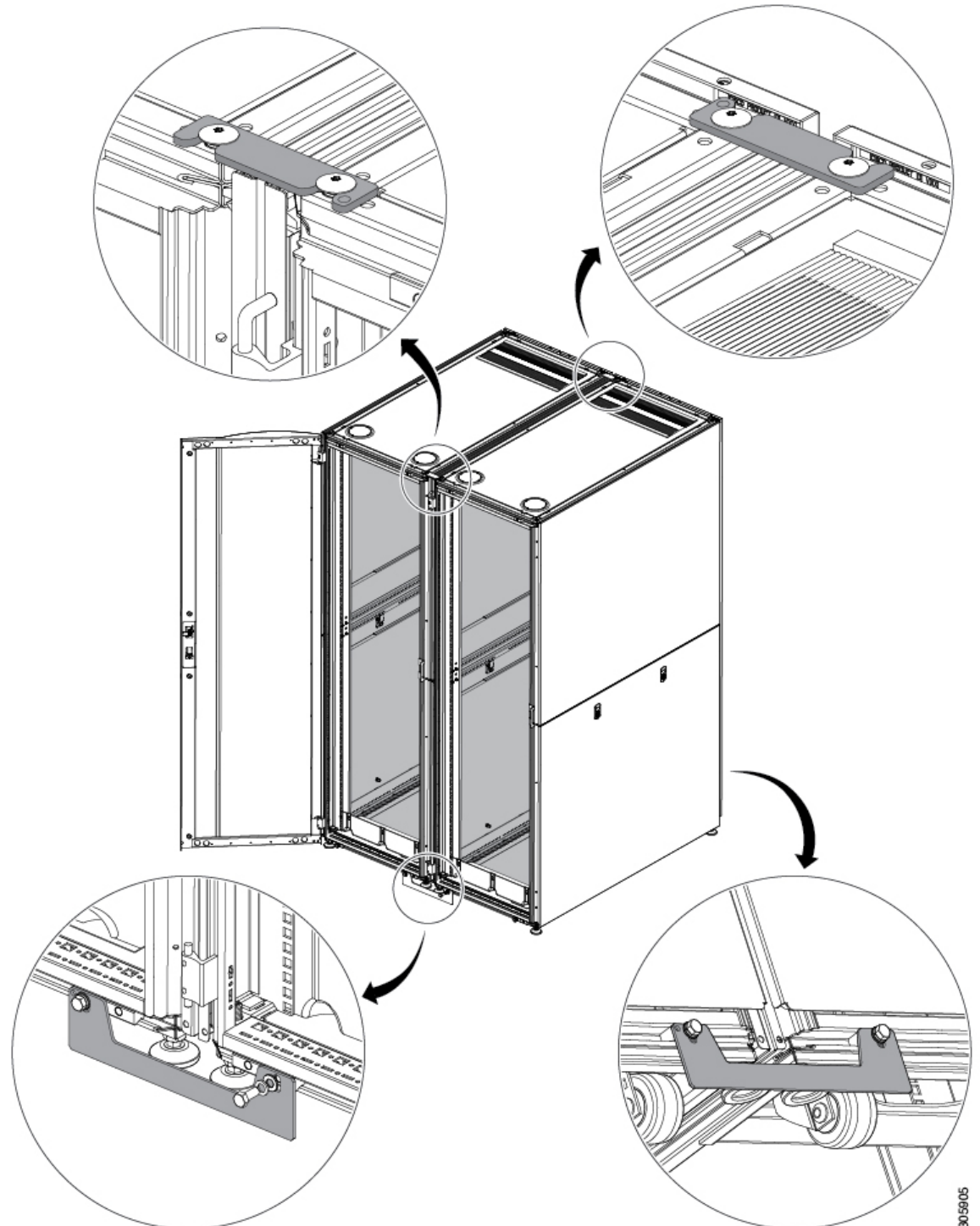
Before joining racks together, make sure that the floor can support the weight of all the equipment and the racks themselves.

To attach Cisco R42612 racks together, follow these steps:

Procedure

- Step 1** Install the first rack as described in [Securing the Cisco R-Series Rack to the Floor, on page 27](#).
- Step 2** Secure the racks together at the top and the bottom in both the front and the back. Use the bracket as shown in the following figure.

Figure 13: Connecting Two Racks



Step 3 Install the front and rear stabilizer brackets for the rack you have just added as described in [Securing the Cisco R-Series Rack to the Floor](#), on page 27.

- Step 4** Repeat this procedure to attach additional racks to the group.
-

Installing Devices in the Rack

See the documentation for each device for the instructions on how to install it in the rack. Always observe these guidelines:

- Contact your Cisco representative to access the latest information about Cisco products that have been tested with Cisco R42612 rack.
- Contact your Cisco representative to determine if a component has been certified to ship preracked. Prior to certification of components to ship preracked, a component must be shipped in its original packaging. Shipping a noncertified component in a rack will void the warranty.
- Always install devices in the bottom of the rack first, with the heaviest devices in the lowest possible RU space. Avoid making the rack top heavy because that situation is dangerous.
- If an installed component can slide forward, extend only one device at a time. Never extend any device that weighs over 225 lb (102 kg).
- Never install devices that are not approved by independent national safety labs that are appropriate for your country.
- Do not use the top of a rack-mounted device as a shelf unless it is intended for that use.

Installing the Grounding Kit

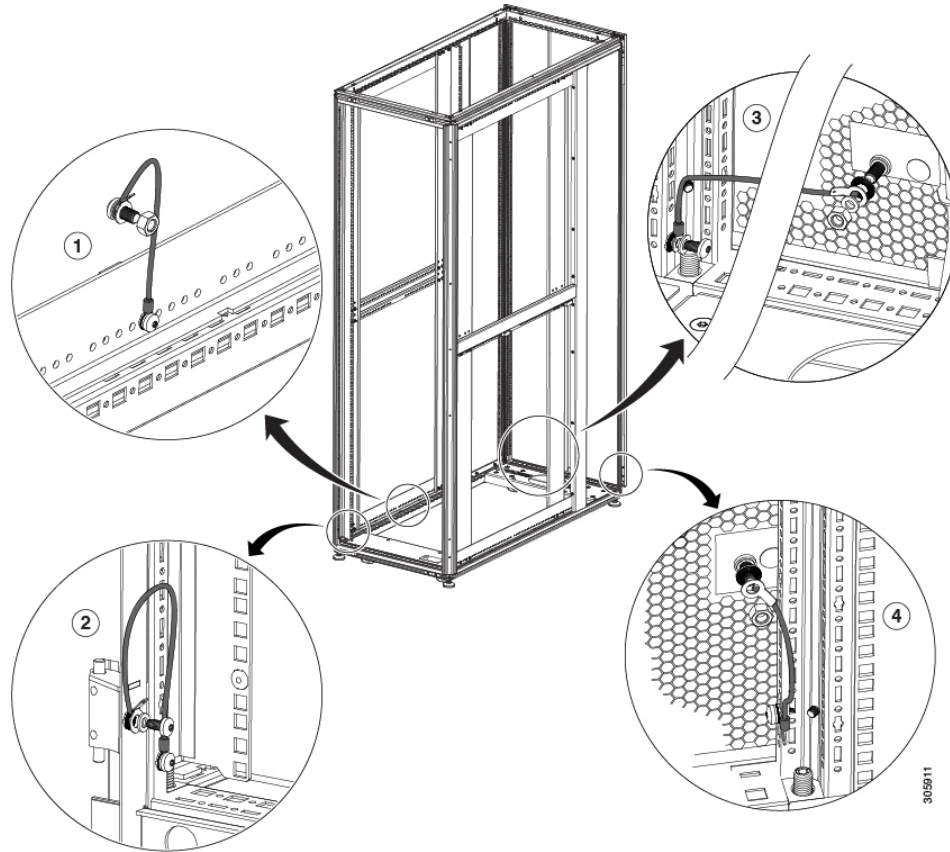
To install the grounding kit, follow these steps:

Procedure

- Step 1** Loosen the ground connector and either wrap around it the end of a 10 AWG wire with 1" of the end stripped, or attach a wire that has a ring connector attached.
- Step 2** Connect the other end of the grounding wire to the Cisco R42612 Rack.

The following figure shows locations where you can install the grounding connector.

Figure 14: Grounding Kit Installation



1	Bottom side panel nut earthing point	3	Master rear door nut earthing point
2	Front door screw earthing point	4	Slave rear door nut earthing point



CHAPTER 5

Installing Cisco RP-Series PDUs

This chapter contains the following sections:

- [Preparing to Install an RP-Series PDU, on page 35](#)
- [Installing a Zero-U PDU, on page 35](#)
- [Installing a 1RU or 2RU PDU, on page 40](#)

Preparing to Install an RP-Series PDU

Before you install a PDU, plan how to route the power cable. It can be routed through the bottom of the Cisco R42612 rack, through the two knockout cabling portholes on the top enclosure of the rack, or through the large opening with brushes at the rear of the top enclosure of the rack.

Installing a Zero-U PDU

There are five models of PDUs that can be mounted vertically in a Cisco R42612 Rack. These PDUs can be installed on the PDU trays on both sides of the rack; the PDUs do not require any RU space, so they are also referred to as zero-U PDUs.



Note The Cisco R42612 rack can accommodate up to six zero-U PDUs. When servicing Cisco UCS servers, some products may require the temporary removal of cables to provide service space for rear-facing field replaceable units (FRUs).

For additional information on how to install a PDU, see the [Eaton ePDU G3 Installation and Connectivity Quick Start](#) or the [Eaton Enclosure Power Distribution Unit \(ePDU\) G3 - Operations Manual](#).

The following table provides descriptions for these PDUs. For detailed specifications and illustrations, see [PDU Specifications, on page 50](#).

Table 4: Zero-RU PDU Descriptions

Product ID	Description	Plug	Country
RP208-30M1P-6-36	30 A, metered input, single-phase, vertical-mount PDU with 6 C19 and 36 C13 connectors	L6-30P	North America
RP208-30M3P-6-30	30 A, metered input, three-phase, vertical-mount PDU with 6 C19 and 30 C13 connectors	L15-30P	North America
RP208-60M3P-12-9	60 A, metered input, three-phase, vertical-mount PDU with 12 C19 and 9 C13 connectors	IEC60309 460P9	North America
RP230-32M1P-6-36	32 A, metered input, single-phase, button-mount (rear and sides) PDU with 6 C19 and 36 C13 connectors	IEC60309 332P6	International
RP230-32M3P-12-12	32 A, metered input, three-phase, button-mount (rear and sides) PDU with 12 C19 and 12 C13 connectors	IEC60309 532P6	International



Note The RP208-60M3P-12-9 PDU must be installed in the rear facing locations as shown in [Figure 19: One Zero-U PDU Installed on the Rear-Facing Flange, on page 40](#). The increased size of this PDU requires the rear-facing installation to avoid interference with equipment and cabling.



Warning No serviceable parts inside. To avoid risk of electric shock, do not open.



Warning Read the installation instructions before using, installing or connecting the system to the power source.



Warning This product relies on the building's installation for short-circuit (overcurrent) protection. To reduce risk of electric shock or fire, ensure that the protective device is rated not greater than:



Warning This equipment must be grounded. To reduce the risk of electric shock, never defeat the ground conductor or operate the equipment in the absence of a suitably installed ground conductor. Contact the appropriate electrical inspection authority or an electrician if you are uncertain that suitable grounding is available.

**Warning**

For Nordic countries (Norway, Finland, Sweden and Denmark) this system must be installed in a Restricted Access Location, where the voltage of the main ground connection of all equipment is the same (equipotential earth) and the system is connected to a grounded electrical outlet.

**Warning**

Connect the device to a grounded power outlet.

You can install up to six zero-U PDUs in the Cisco R42612 Rack. When servicing UCS servers, some products may require temporary removal of cables to provide service space for rear-facing field replaceable units (FRUs). Due to height restrictions, RP208-60M3P-12-9 must be installed facing the rear of the rack.

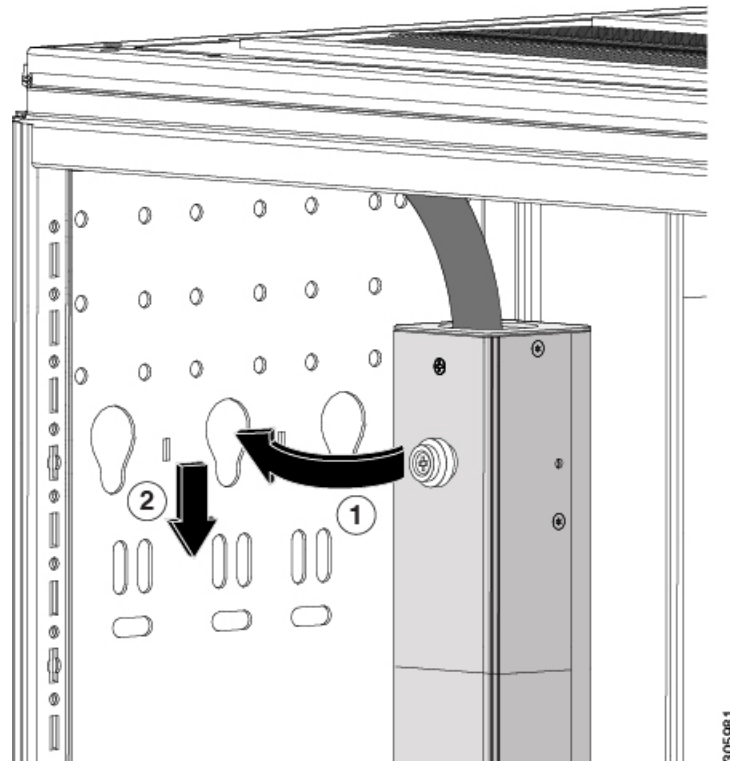
Each PDU needs a PDU retention bracket attached to the top of the PDU. When secured to the PDU tray, the PDU retention bracket ensures that each PDU is securely held in place.

With the rear of the rack open, follow these steps to install a zero-U PDU:

Procedure**Step 1**

Insert the mounting button on the back of the PDU into a key hole near the top of the PDU tray or into the top key hole of the rear-facing flange. Callout 1 in the following figure shows the mounting button and the key hole of the PDU tray on the side of the rack.

Figure 15: PDU Mounting Button



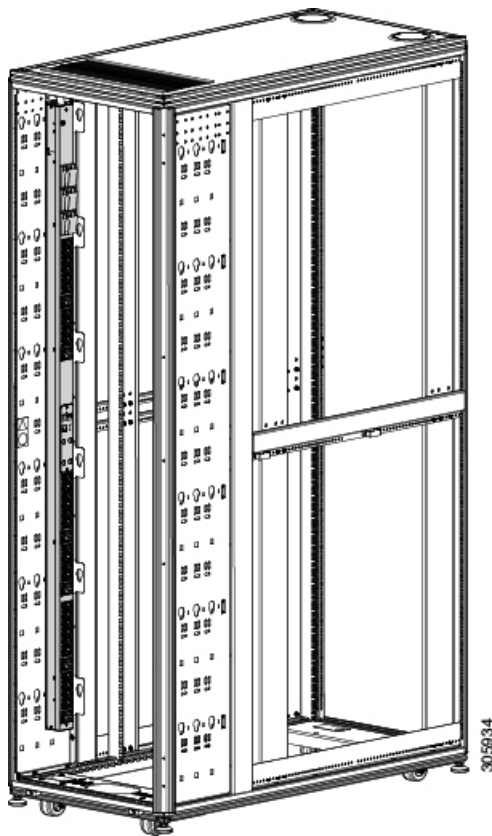
- Step 2** Slide the PDU down slightly so that it locks into place in the key hole on the PDU tray (see callout 2 in the preceding figure) or the rear-facing flange.
- Step 3** Secure the lower PDU mounting button into place as in steps 1 and 2.
- Step 4** Install a PDU retention bracket on the top of the PDU as shown in the following figure. Secure the bracket to the PDU tray with the screws provided.

Figure 16: Attaching the PDU Retention Bracket to the PDU Tray

- Step 5** Route the PDU power cable either through the large access opening in the back of the rack canopy.
- Step 6** Connect the PDU power cord to the AC power source.

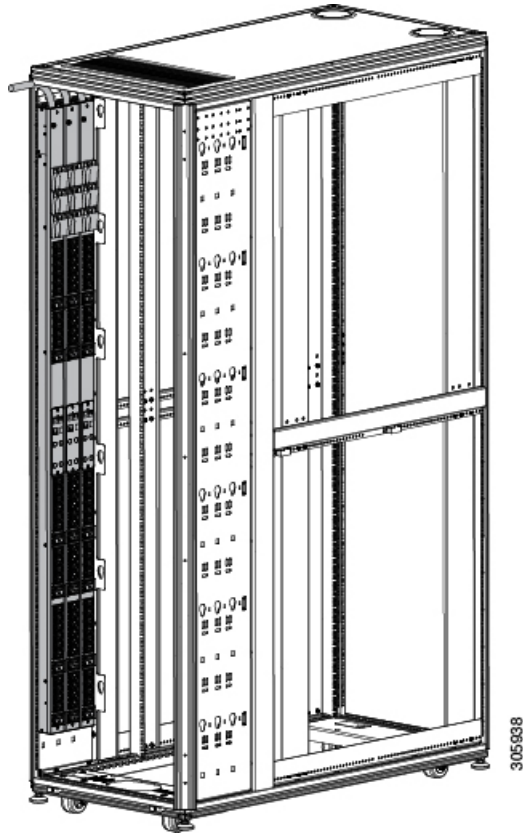
The following figure shows a single zero-U PDU installed in the PDU tray.

Figure 17: One Zero-U PDU Installed



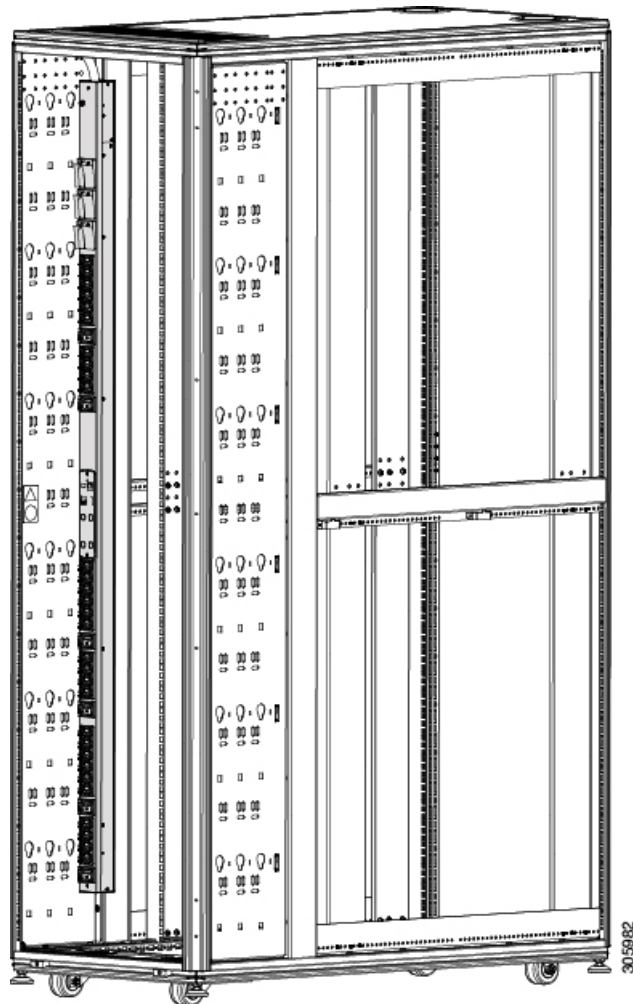
The following figure shows three zero-U PDUs installed side-by-side in the PDU tray.

Figure 18: Three Zero-U PDUs Installed



The following figure shows a single zero-U PDU installed on the rear-facing flange.

Figure 19: One Zero-U PDU Installed on the Rear-Facing Flange



Installing a 1RU or 2RU PDU

The RP208-30M1P-4-8 PDU and the RP208-60M3P-12 PDU mount horizontally in one of the available RU spaces.

For additional information on how to install a PDU, see the [Eaton ePDU G3 Installation and Connectivity Quick Start](#) or the [Eaton Enclosure Power Distribution Unit \(ePDU\) G3 - Operations Manual](#).

The following table provides the specifications for these PDUs. For detailed specifications and illustrations, see [PDU Specifications](#), on page 50.

Table 5: 1RU and 2RU PDU Specifications

Product ID	Description	Plug	Country
RP208-30M1P-4-8	30 A, metered input, single-phase, horizontal-mount PDU with 4 C19 and 8 C13 connectors	L6-30P	North America
RP208-60M3P-12	60 A, metered input, three-phase, horizontal mount PDU with 12 C 19 connectors	IEC 60309 460P9	North America



Warning No serviceable parts inside. To avoid risk of electric shock, do not open.



Warning Read the installation instructions before using, installing or connecting the system to the power source.



Warning This product relies on the building's installation for short-circuit (overcurrent) protection. To reduce risk of electric shock or fire, ensure that the protective device is rated not greater than:



Warning This equipment must be grounded. To reduce the risk of electric shock, never defeat the ground conductor or operate the equipment in the absence of a suitably installed ground conductor. Contact the appropriate electrical inspection authority or an electrician if you are uncertain that suitable grounding is available.



Warning For Nordic countries (Norway, Finland, Sweden and Denmark) this system must be installed in a Restricted Access Location, where the voltage of the main ground connection of all equipment is the same (equipotential earth) and the system is connected to a grounded electrical outlet.



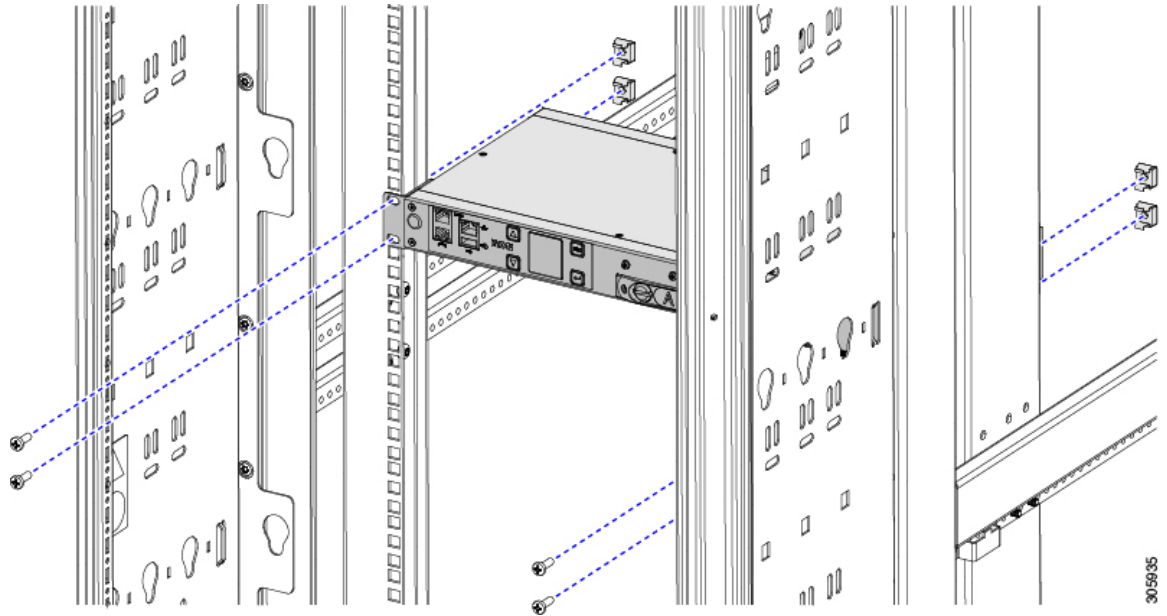
Warning Connect the device to a grounded power outlet.

To install a 1RU or 2RU PDU, follow these steps:

Procedure

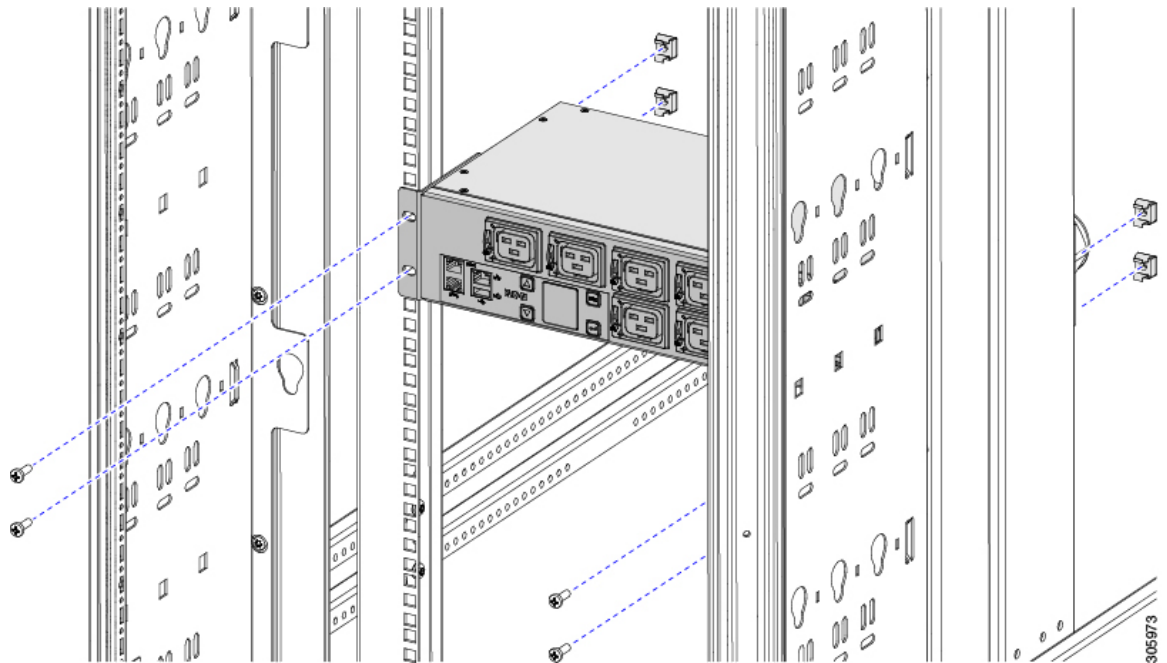
- Step 1** Attach the four cage nuts to the interior side of the rack posts, spacing the nuts apart to the 1RU or 2RU position, depending on which PDU you are installing.
- Step 2** Use the supplied mounting screws to secure the unit in place, as shown in the following figures.

Figure 20: Mounting the RP208-30M-P-4-8 1RU PDU



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Figure 21: Mounting the RP208-60M3P-12 2RU PDU



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CHAPTER 6

Replacing Components

This chapter contains the following sections:

- [Removing and Installing Side Panels, on page 43](#)
- [Removing and Installing Cisco R-Series Rack Doors, on page 44](#)
- [Using the Cabling Portholes, on page 47](#)

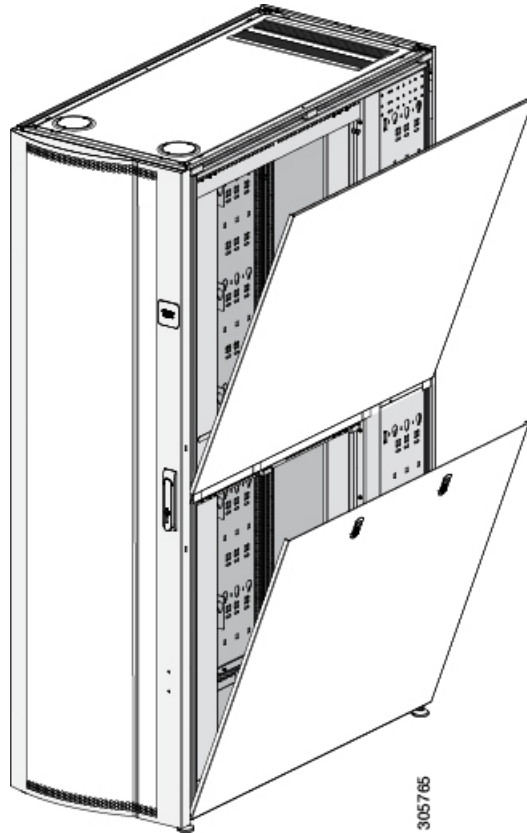
Removing and Installing Side Panels

The Cisco R-Series Rack may come with side panels installed. Removing the side panels may make it easier to install PDUs, servers, and other components.

Installing the panel is the reverse process of removing them. Complete the following steps to remove the side panels from the rack.

Procedure

- Step 1** Unlock both button locks with the provided key and then slide the latches toward each other to open the side panels.

Figure 22: Side Panels Open

- Step 2** Hold the top panel by its sides and slightly pull the bottom of the panel towards you; then lift the side panel and pull it away from the ridge on the top of the rack.
- Step 3** Hold the bottom panel by its sides and slightly pull up on the bottom of the panel; then lift the panel and pull it away from the ridge on the middle of the rack.
- Step 4** Store the side panel(s) in an upright position against a flat surface.
-

Removing and Installing Cisco R-Series Rack Doors

All Cisco R42612 Racks come with front and rear doors installed. Removing the doors when installing and removing devices in the rack is only required if part of the rack is obstructed by the door as you install the device. Most devices can be installed without removing the doors.

Removing and Installing the Front Door

Installing the front door on the rack is the reverse of removing the front door. Complete the following steps to remove the front door from the Cisco R42612 Rack.

Procedure

- Step 1** Unlock and open the door by pulling the handle bottom out and rotating the handle 90° clockwise.
- Step 2** While holding the door steady, lift the captive hinge pins until they unlock. See the following figure.
- Tip** One person should be able to remove the front door unassisted, but having a second person present to hold the door while the other slides the pins out can speed up the process.
- Step 3** Hold the door with both hands and pull it away from the hinges; once removed, store the door in an upright position against a flat surface.
-

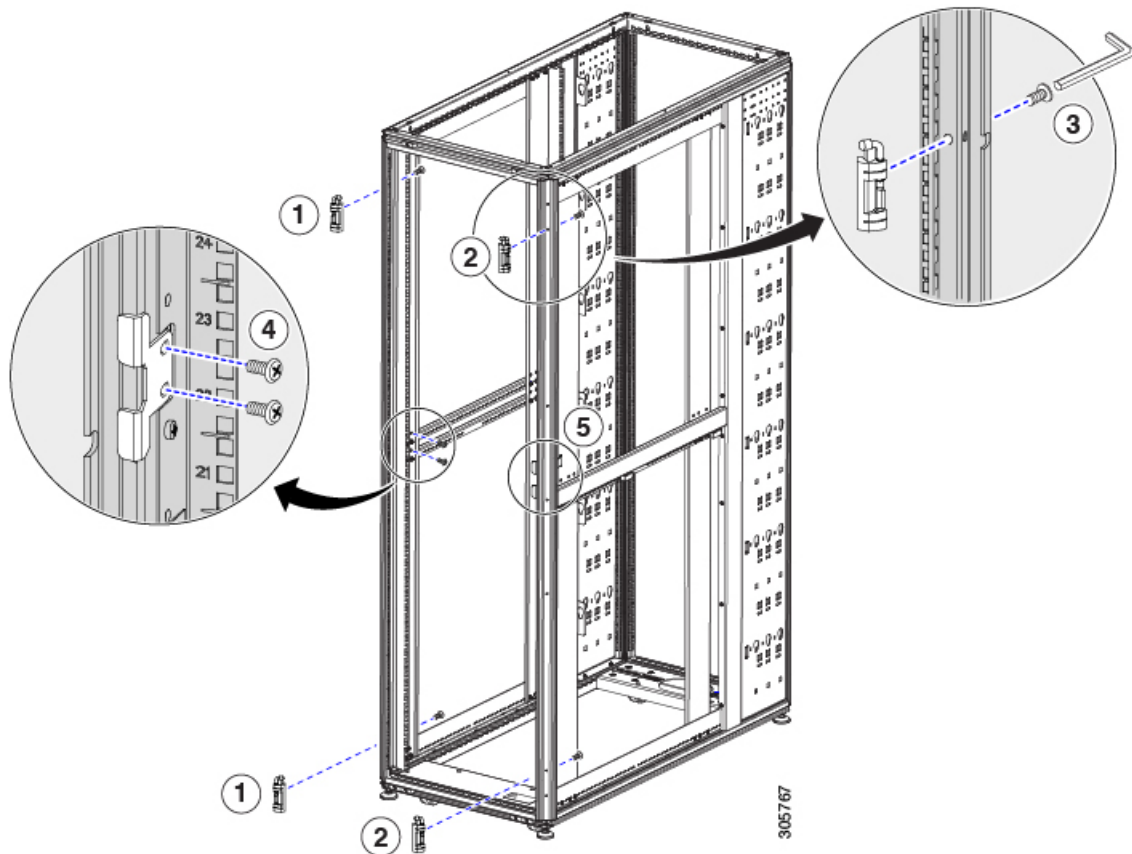
Reversing the Front Door

To reverse the front door on the Cisco R42612 Rack so that it opens in the opposite direction, follow these steps:

Procedure

- Step 1** Remove the door as described in [Removing and Installing the Front Door, on page 44](#).
- Step 2** Use a 4 mm hex wrench to remove the top and bottom hinges from the rack. See the following figure, callout 1.

Figure 23: Removing the Hinges



- Step 3** Install the hinges on the other side of the rack. See callouts 2 and 3.
- Step 4** Remove the front door latch. See callout 4.
- Step 5** Attach the front door latch to the other side of the rack. See callout 5.
- Step 6** Rotate the door 180°; then install the door on the other side of the rack.
- Step 7** Remove the Cisco logo from the right side of the door and snap it into the holes on the left side of the door.

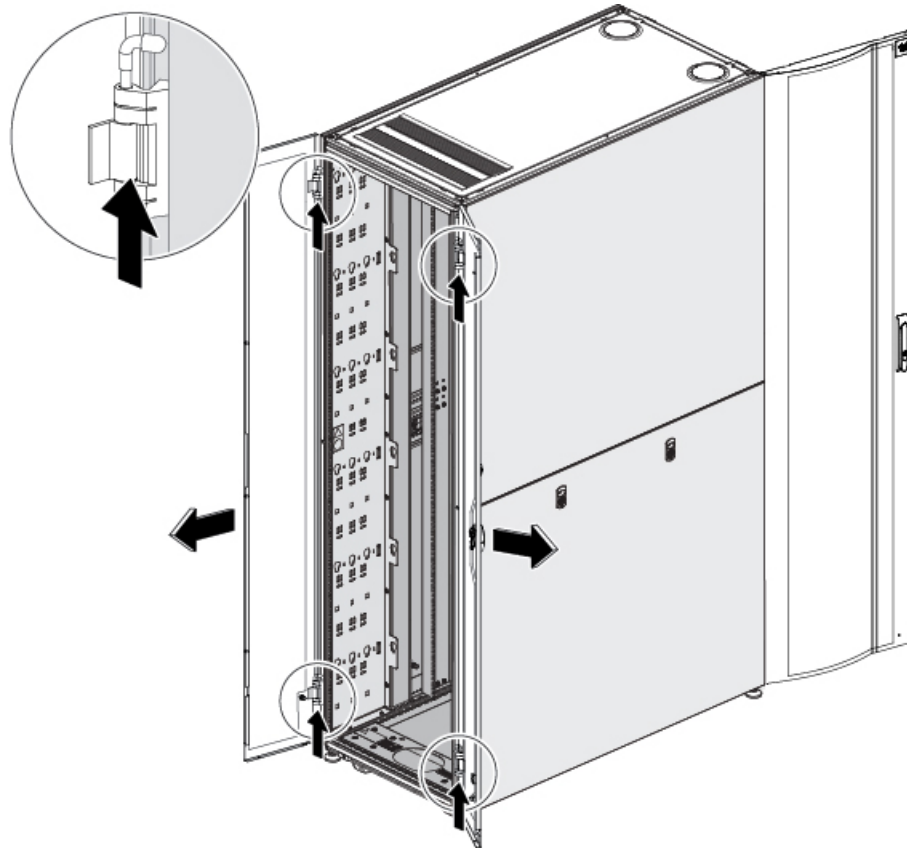
Removing and Installing Rear Doors

Installing the rear doors is the reverse of removing the rear doors. Complete the following steps to remove the rear doors from the Cisco R42612 Rack.

Procedure

- Step 1** Unlock and open the right-side door.
- Step 2** While holding the door steady, lift both captive hinge pins until they unlock. See the following figure.

Figure 24: Removing the Hinge Pins and the Door



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- Step 3** Hold the door steady with both hands and pull it away from the hinges; once removed, store the door in an upright position against a flat surface.
- Step 4** Repeat steps 1 to 3 for the left-side door.

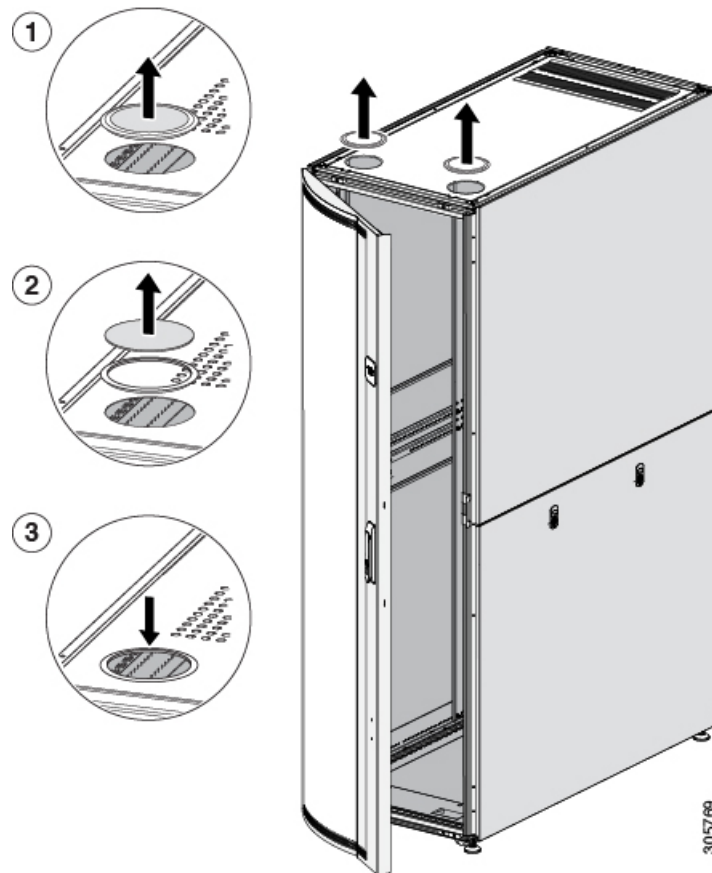
Using the Cabling Portholes

To use the cabling portholes on the top canopy of the rack, follow these steps:

Procedure

- Step 1** Use a flat-blade screwdriver to pry off a knockout cabling porthole from the top canopy of the Cisco R42612 Rack. See the following figure, callout 1.

Figure 25: Removing the Cabling Portholes



Step 2 Snap and discard the center of the cabling porthole. See callout 2.

Step 3 Replace the grommet ring of the cabling porthole in the opening. See callout 3.

Caution Failure to replace the grommet ring may lead to damaged power or network cables.



APPENDIX **A**

Specifications

This chapter contains the following sections:

- [Rack Specifications, on page 49](#)
- [PDU Specifications, on page 50](#)

Rack Specifications

The following table lists the specifications for the Cisco R42612 R-Series rack.

Table 6. Specifications

Cisco R42612 Rack	Standard (Static with side panels)	Expansion (Static without Side Panels)	Dynamic (Preracked with Side Panels)
Dimensions (H x W x D)	79.25 x 23.94 x 50.51 in. (2013 x 608 x 1283 mm)	79.25 x 23.50 x 50.51 in. (2013 x 597 x 1283 mm)	79.25 x 23.94 x 50.51 in. (2013 x 608 x 1283 mm)
Dimensions (H x W x D) with packaging	84.25 x 32 x 54.84 in. (2140 x 813 x 1393 mm)	84.25 x 32 x 54.84 in. (2140 x 813 x 1393 mm)	86.4 x 46.4 x 57.4 in. (2195 x 1180 x 1460 mm)
Distance from front mounting rail to rear mounting rail	29.19 in. (741.5 mm)	29.19 in. (741.5 mm)	29.19 in. (741.5 mm)
Weight	339.51 lb (154 kg)	264.55 lb (120 kg)	359.35 lb (163 kg)
Weight with packaging	410.06 lb (186 kg)	335.10 lb (152 kg)	705.48 lb (320 kg)
Side panels included	Yes	No	Yes
Equipment mounting capacity	42 RU	42 RU	42 RU
Static load capacity	3000 lb (1360.8 kg) of IT gear	3000 lb (1360.8 kg) of IT gear	2700 lb (1224.7 kg) of IT gear

Cisco R42612 Rack	Standard (Static with side panels)	Expansion (Static without Side Panels)	Dynamic (Preracked with Side Panels)
Dynamic load capacity	N/A	N/A	2700 lb (1224.7 kg) of IT gear

PDU Specifications

The following specifications are for the PDUs that can be used in the Cisco R42612 rack.

RP208-30M1P-4-8

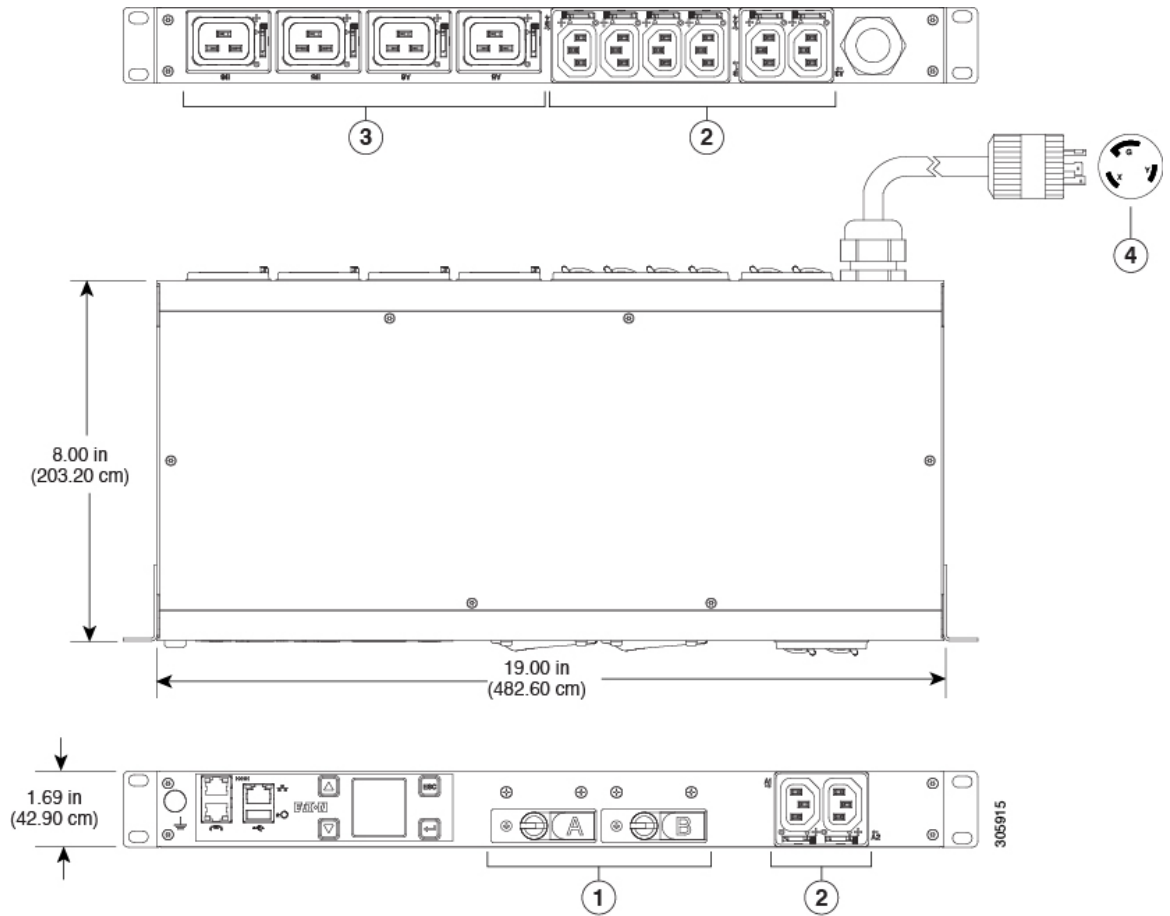
Table 7: Specifications for RP208-30M1P-4-8 PDU

Feature	Description
PID	RP208-30M1P-4-8
Country	North America
RU size	1U
Dimensions (H x W x D)	1.69 x 19.0 x 8.0 in. (42.9 x 482.6 x 203.2 mm)
Mounting style	Horizontal
Cable length	10 ft (3.04 m)
Plug	NEMA L6-30P
Maximum kW	5.76
Input voltage	200 to 240 V
Output voltage	200 to 240 V
Amperage	24 A
Phase	Single phase
Frequency	50 to 60 Hz
Circuit breakers	2 two-pole 20 A
Outlets	8 IEC 60320 C13 outlets with outlet grip 4 IEC 60320 C19 outlets with outlet grip
Serial interface	RS-232
Ethernet interface	10/100 Ethernet

Feature	Description
Voltage monitoring	Yes
Operating temperature	32° to 140°F (0° to 60°C)

The following figure shows rear, top-down, and front views of the RP208-30M1P-4-8 PDU.

Figure 26: RP208-30M1P-4-8 PDU



1	20 A circuit breakers	3	IEC 60320 C19 outlets
2	IEC 60320 C13 outlets	4	NEMA L6-30P plug

RP208-60M3P-12

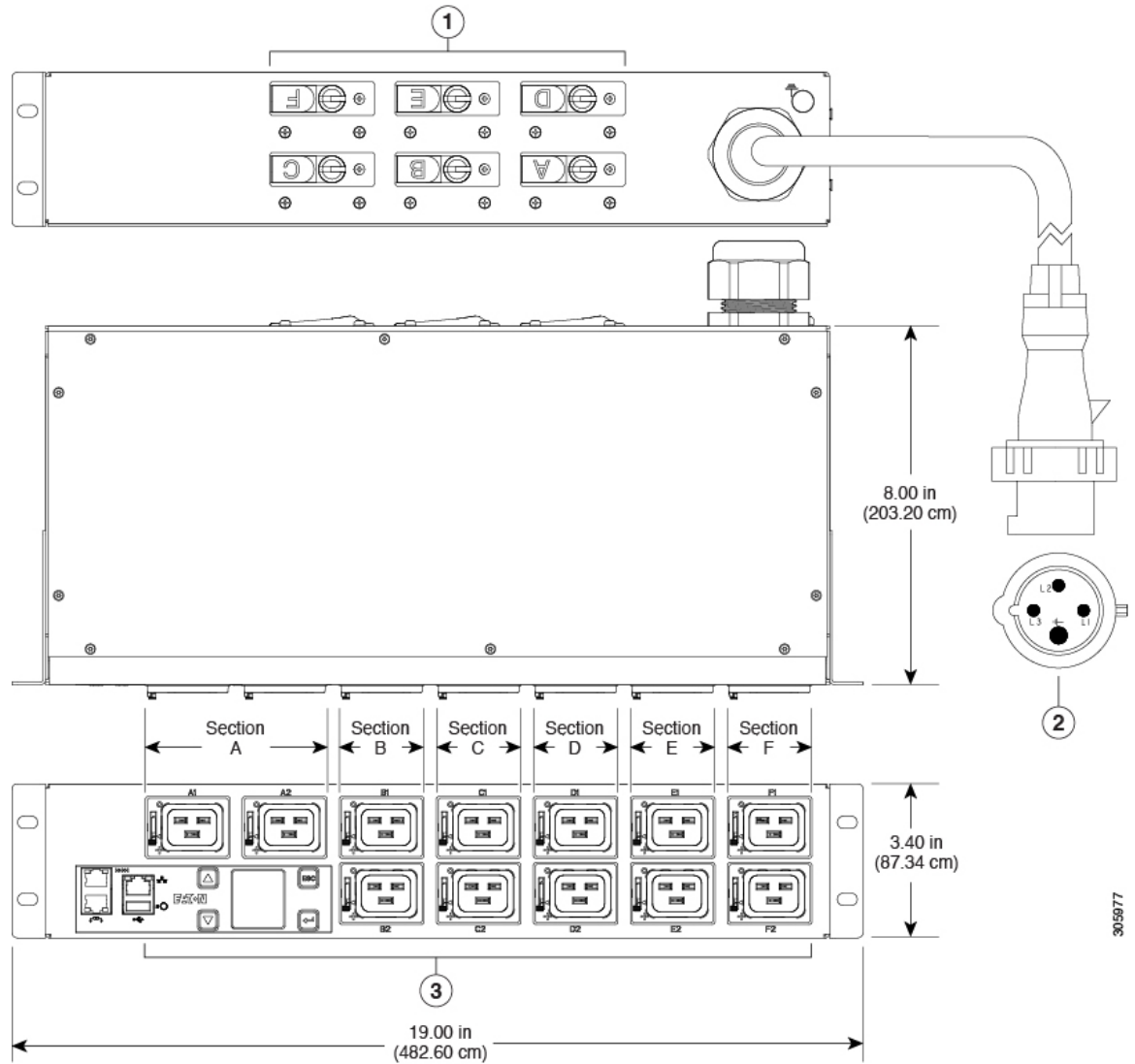
Table 8: Specifications for RP208-60M3P-12 PDU

Feature	Description
PID	RP208-60M3P-12

Feature	Description
Country	North America
RU size	2U
Dimensions (H x W x D)	3.44 x 19.0 x 8.0 in. (87.34 x 482.6 x 203.2 mm)
Mounting style	Horizontal
Cable length	10 ft (3.04 m)
Plug	IEC 60309 460P9
Maximum kW	17.3 kW
Input voltage	200 to 240 V
Output voltage	200 to 240 V
Amperage	48 A
Phase	Three phase
Frequency	50 to 60 Hz
Circuit breakers	6 two-pole 20 A
Outlets	12 IEC 60320 C19 outlets with outlet grip
Serial interface	RS-232
Ethernet interface	10/100 Ethernet
Voltage monitoring	Yes
Operating temperature	32° to 140°F (0° to 60°C)

The following figure shows rear, top-down, and front views of the RP208-60M3P-12 PDU.

Figure 27: RP208-60M3P-12 PDU



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1	6 20 A circuit breakers	3	12 IEC 60320 C19 outlets
2	IEC 60309 460P9 plug		

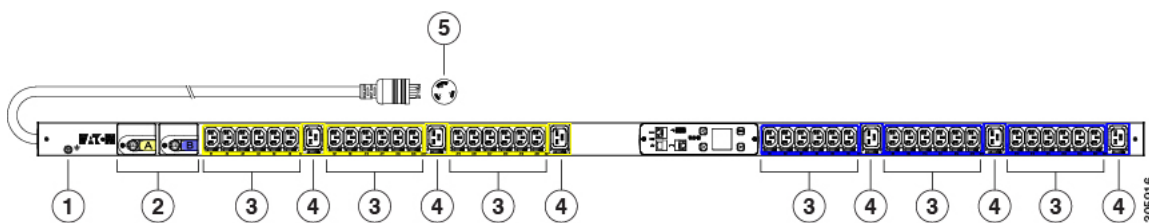
RP208-30M1P-6-36

Table 9: Specifications for RP208-30M1P-6-36 PDU

Feature	Description
PID	RP208-30M1P-6-36
Country	North America

Feature	Description
RU size	0U
Dimensions (H x W x D)	66.5 x 2.05 x 2.1 in. (1689 x 52 x 53 mm)
Mounting style	Vertical
Cable length	10 ft (3.04 m)
Plug	NEMA L6-30P
Maximum kW	5.76
Input voltage	200 to 240 V
Output voltage	200 to 240 V
Amperage	24 A
Phase	Single phase
Frequency	50 to 60 Hz
Circuit breakers	2 two-pole 20 A
Outlets	36 IEC 60320 C13 outlets with outlet grip 6 IEC 60320 C19 outlets with outlet grip
Serial interface	RS-232
Ethernet interface	10/100 Ethernet
Voltage monitoring	Yes
Operating temperature	32° to 140°F (0° to 60°C)

Figure 28: RP208-30M1P-6-36 PDU



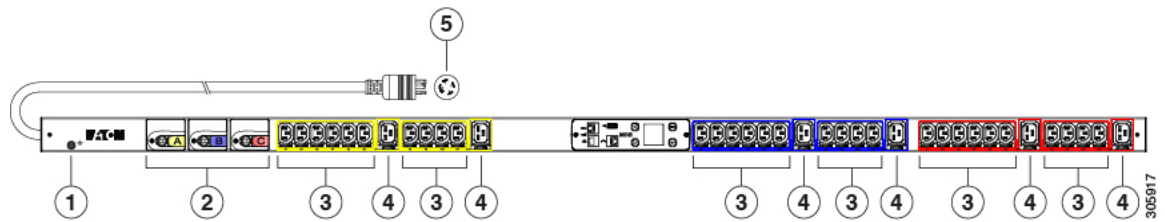
1	Ground	4	IEC 60320 C19 outlets
2	20 A circuit breakers	5	NEMA L6-30P plug
3	IEC 60320 C13 outlets		

RP208-30M3P-6-30

Table 10: Specifications for RP208-30M3P-6-30 PDU

Feature	Description
PID	RP208-30M3P-6-30
Country	North America
RU size	0U
Dimensions (H x W x D)	66.5 x 2.05 x 2.1 in. (1689 x 52 x 53 mm)
Mounting style	Vertical
Cable length	10 ft (3.04 m)
Plug	NEMA L15-30P
Maximum kW	8.64
Input voltage	200 to 240 V
Output voltage	200 to 240 V
Amperage	24 A
Phase	Three-phase
Frequency	50 to 60 Hz
Circuit breakers	3 two-pole 20 A
Outlets	30 IEC 60320 C13 outlets with outlet grip 6 IEC 60320 C19 outlets with outlet grip
Serial interface	RS-232
Ethernet interface	10/100 Ethernet
Voltage monitoring	Yes
Operating temperature	32° to 140°F (0° to 60°C)

Figure 29: RP208-30M3P-6-30 PDU



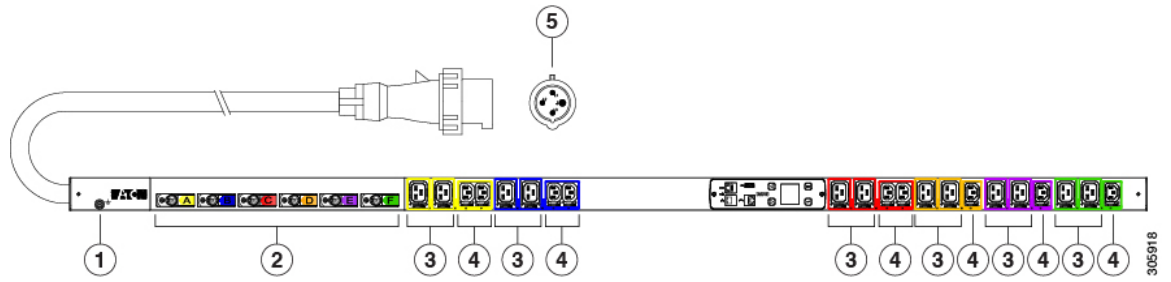
1	Ground	4	IEC 60320 C19 outlets
2	20 A circuit breakers	5	NEMA L15-30P
3	IEC 60320 C13 outlets		

RP208-60M3P-12-9

Table 11: Specifications for RP208-60M3P-12-9 PDU

Feature	Description
PID	RP208-60M3P-12-9
Country	North America
RU size	0U
Dimensions (H x W x D)	66.5 x 2.05 x 3.89 in. (1689 x 52 x 98.8 mm)
Mounting style	Vertical
Cable length	6 ft (1.82 m)
Plug	IEC 60309 460P9
Maximum kW	17.3
Input voltage	200 to 240 V
Output voltage	200 to 240 V
Amperage	48A
Phase	Three-phase
Frequency	50 to 60 Hz
Circuit breakers	6 two-pole 20 A
Outlets	9 IEC 320 C13 outlets with outlet grip 6 IEC 320 C19 outlets with outlet grip
Serial interface	RS-232
Ethernet interface	10/100 Ethernet
Voltage monitoring	Yes
Operating temperature	32° to 140°F (0° to 60°C)

Figure 30: RP208-60M3P-12-9 PDU



1	Ground	4	IEC 60320 C19 outlets
2	20 A circuit breakers	5	IEC 60309 460P9
3	IEC 60320 C13 outlets		

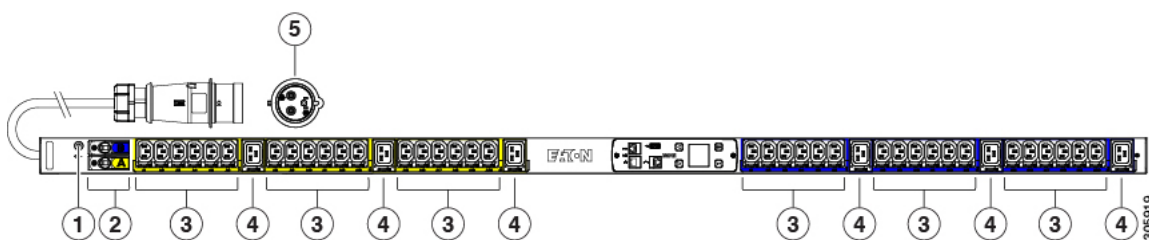
RP230-32M1P-6-36

Table 12: Specifications for RP230-32M1P-6-36 PDU

Feature	Description
PID	RP230-32M1P-6-36
Country	International
RU size	0U
Dimensions (H x W x D)	41.88 x 2.04 x 2.08 in. (1064 x 52 x 53 mm)
Mounting style	Vertical
Cable length	10 ft (3.04 m)
Plug	IEC 60309 332P6
Maximum kW	7
Input voltage	200 to 240 V
Output voltage	200 to 240 V
Amperage	32 A
Phase	Single phase
Frequency	50 to 60 Hz
Circuit breakers	2 16 A one-pole

Feature	Description
Outlets	36 IEC 320 C13 outlets 6 IEC 320 C19 outlets
Serial interface	Yes
Ethernet interface	Yes
Voltage monitoring	Yes
Operating temperature	32° to 140°F (0° to 60°C)

Figure 31: RP230-32M1P-6-36 PDU



1	Ground	4	IEC 60320 C19 outlets
2	Single pole circuit breakers	5	IEC 60309 332P6 plug
3	IEC 60320 C13 outlets		

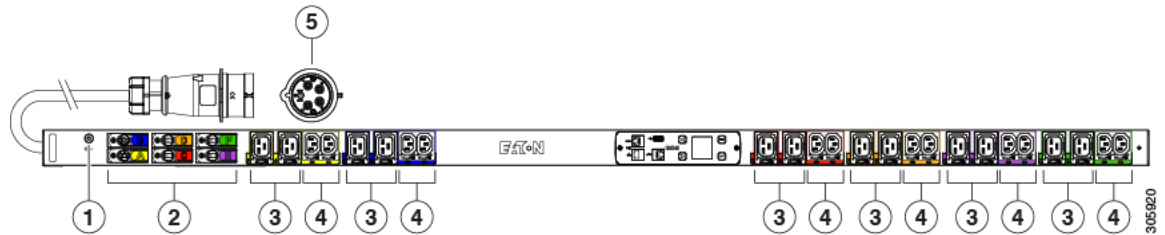
RP230-32M3P-12-12

Table 13: Specifications for RP230-32M3P-12-12 PDU

Feature	Description
PID	RP230-32M3P-12-12
Country	International
RU size	0U
Dimensions (H x W x D)	41.88 x 2.04 x 2.08 in. (1064 x 52 x 53 mm)
Mounting style	Vertical
Cable length	10 ft (3.04 m)
Plug	IEC 60309 532P6
Maximum kW	22
Input voltage	346 to 415 V

Feature	Description
Output voltage	200 to 240 V
Amperage	32 A
Phase	Three-phase
Frequency	50 to 60 Hz
Circuit breakers	6 one-pole 16 A
Outlets	12 IEC 320 C13 outlets 12 IEC 320 C19 outlets
Serial interface	Yes
Ethernet interface	Yes
Voltage monitoring	Yes
Operating temperature	32° to 140°F (0° to 60°C)

Figure 32: RP-230-32M3P-12-2 PDU



1	Ground	4	IEC 60320 C19 outlets
2	Single pole circuit breakers	5	IEC 60309 532P6 plug
3	IEC 60320 C13 outlets		



APPENDIX **B**

Integrating UCS Components in the Dynamic Rack

This chapter contains the following sections:

- [Introduction](#), on page 62
- [Preparation](#), on page 62
- [Equipment Placement Guidelines](#), on page 62
- [Weight Considerations](#), on page 62
- [Chassis Installation and Cabling](#), on page 63
- [Cable Management](#), on page 70
- [Airflow](#), on page 71
- [Installing Fabric Interconnects](#), on page 71
- [Installing a UCS Rack Server](#), on page 72
- [Running Diagnostics](#), on page 72
- [Component Testing](#), on page 72
- [System Testing and Verification](#), on page 73
- [Configure the Blade Chassis](#), on page 77
- [Blade Connectivity Verification](#), on page 78
- [Event Logs](#), on page 79
- [Configure the Rack Server](#), on page 80
- [Reset Fabric Interconnects](#), on page 80
- [Cleanup](#), on page 80
- [C-Series Rack Integration](#), on page 81
- [All C-Series Rack Servers \(Except 3160 and 3260\)](#), on page 81
- [C-Series 3160 and 3260 Rack Servers](#), on page 82
- [Shipping the Rack](#), on page 83
- [Shipping Guidelines](#), on page 83
- [Cisco Certified Products for Rack Integration and Approved Third-Party Racks](#), on page 86
- [Cisco Certified UCS Products for Rack Integration](#), on page 86
- [Third-Party Approved Racks](#), on page 86

Introduction

This chapter provides the guidelines for preintegrating and preracking Cisco UCS equipment in a Cisco R-Series Rack and all approved third-party racks. Use this information in conjunction with the following Cisco UCS product documentation:

- [Cisco UCS Site Preparation Guide](#)
- [Cisco UCS 5108 Server Chassis Installation Guide](#) (which covers both the UCS 5108 blade server chassis and the UCS Mini blade server chassis)
- [Cisco UCS 6300 Series Fabric Interconnect Hardware Installation Guide](#)
- [Cisco UCS 6200 Series Fabric Interconnect Hardware Installation Guide](#)
- [Cisco UCS C-Series Rack Servers Install and Upgrade Guides](#) See the Installation and Service Guide for the particular rack server that you are installing.

Preparation

Keep the rack bolted to the shock pallet and carefully remove the rack packaging. Retain the packaging so that you can reuse it to protect the integrated rack during shipment to its final destination.

Ensure that all the equipment that you ordered has arrived and is available.

For instructions on how to remove the rack doors and side panels, see the [Replacing Components, on page 43](#) chapter in this guide.

Install the PDUs prior to racking the blade server chassis or fabric interconnects. PDU descriptions and installation instructions are available in the [Installing Cisco RP-Series PDUs, on page 35](#) chapter in this guide.

Equipment Placement Guidelines

Refer to the production documentation for the devices you intend to install and observe the following guidelines:

A list of Cisco products that are certified to ship in approved racks is maintained on an internal Cisco website. Contact your Cisco representative to access the latest information on this site. Shipping a non-certified Cisco UCS component in a rack voids the warranty.

Weight Considerations

The Cisco R42612 R-Series rack is designed to support a dynamic load of up to 2700 lb of IT gear. However, other considerations may make it necessary to limit the weight below that maximum load value. For instance, while moving a fully-loaded rack across an uneven or tilted surface, tipping may be a factor that makes it necessary to reduce the weight.

Always install devices in the bottom of the rack first, heaviest devices in the lowest possible RU space to maintain the lowest center of gravity within the rack. Racks with high centers of gravity can be extremely hazardous.

If different blade server models are inserted in a single chassis, install the chassis with the heaviest total weight in the lowest possible RU space and proceed to install the progressively lighter chassis above it.

Chassis Installation and Cabling

Review the maximum supported chassis configurations mentioned previously and install the UCS 5108 Server Chassis or UCS Mini chassis according to the instructions in the [Cisco UCS 5108 Server Chassis Installation Guide](#). Use the illustrations in this section as a guide to installing power cables and data cables.

Installing the L-Shaped Brackets

Before shipping a preracked UCS 5108 or UCS Mini blade server chassis, install the L-shaped brackets that come in the Accessory Kit that ships with the UCS 5108 blade server chassis .

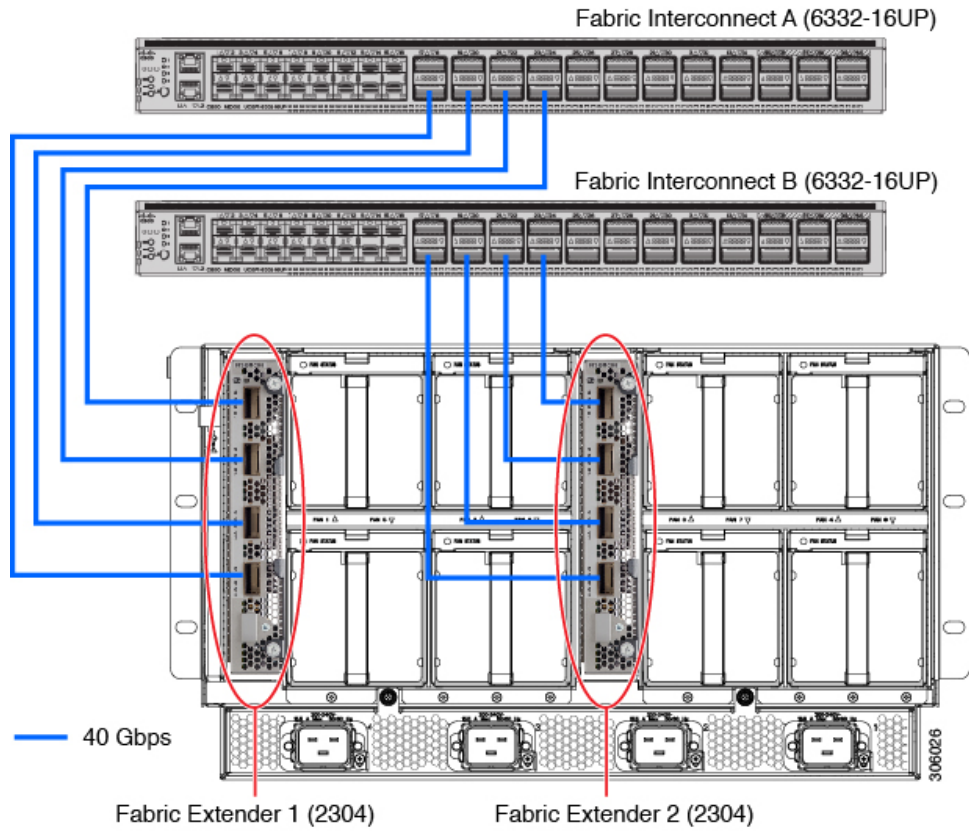
Procedure

- Step 1** Install the UCS 5108 or UCS Mini blade server chassis.
 - Step 2** See the "Installation" chapter of the [Cisco UCS 5108 Server Chassis Installation Guide](#).
-

Data Cables for the UCS 5108 Server Chassis

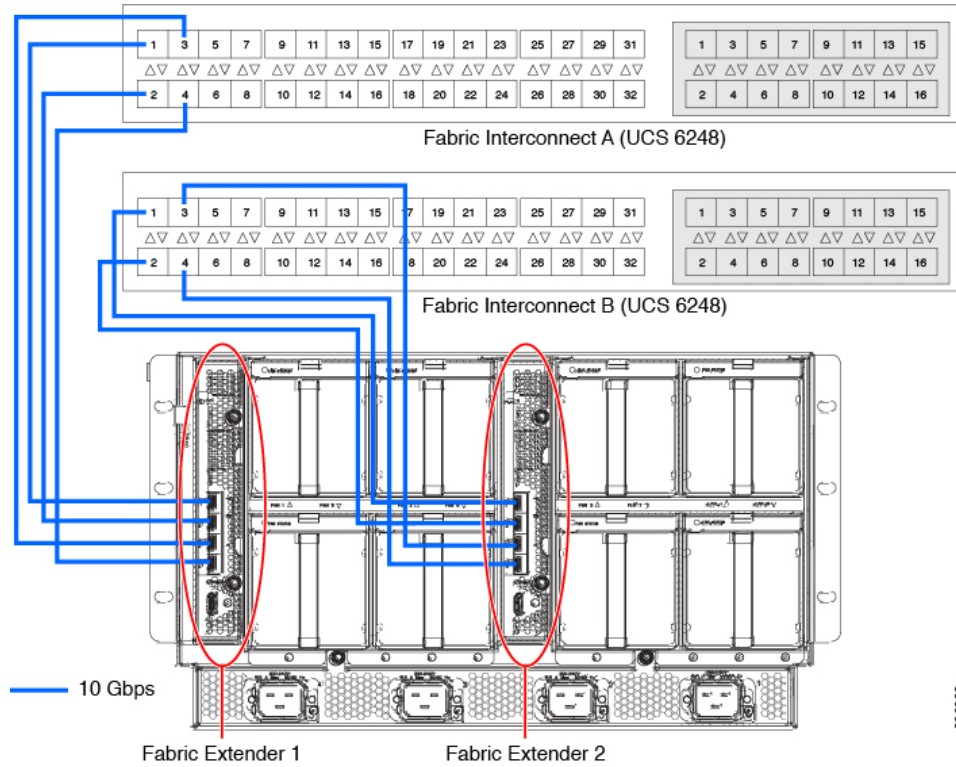
The following figure shows how a 40-Gbps Fabric Extender module connects to an external UCS 6332-16UP Fabric Interconnect.

Figure 33: Data Cabling for the UCS 5108 Blade Server Chassis and 6300 Series Fabric Interconnects



The following figure shows how a 10-Gbps Fabric Extender module connects to an external UCS 6248 Fabric Extender.

Figure 34: Data Cabling for the UCS 5108 Server Chassis and UCS 6248 Fabric Interconnect



Power Cables for the UCS 5108 Server Chassis

The following figures show separate power feeds connect to each PDU and the routing of power cables from the PDUs to the chassis. This connection method allows for redundancy in case of a power feed failure.

Figure 35: PDUs and Power Cabling for the UCS 5108 Blade Server Chassis (AC Power)

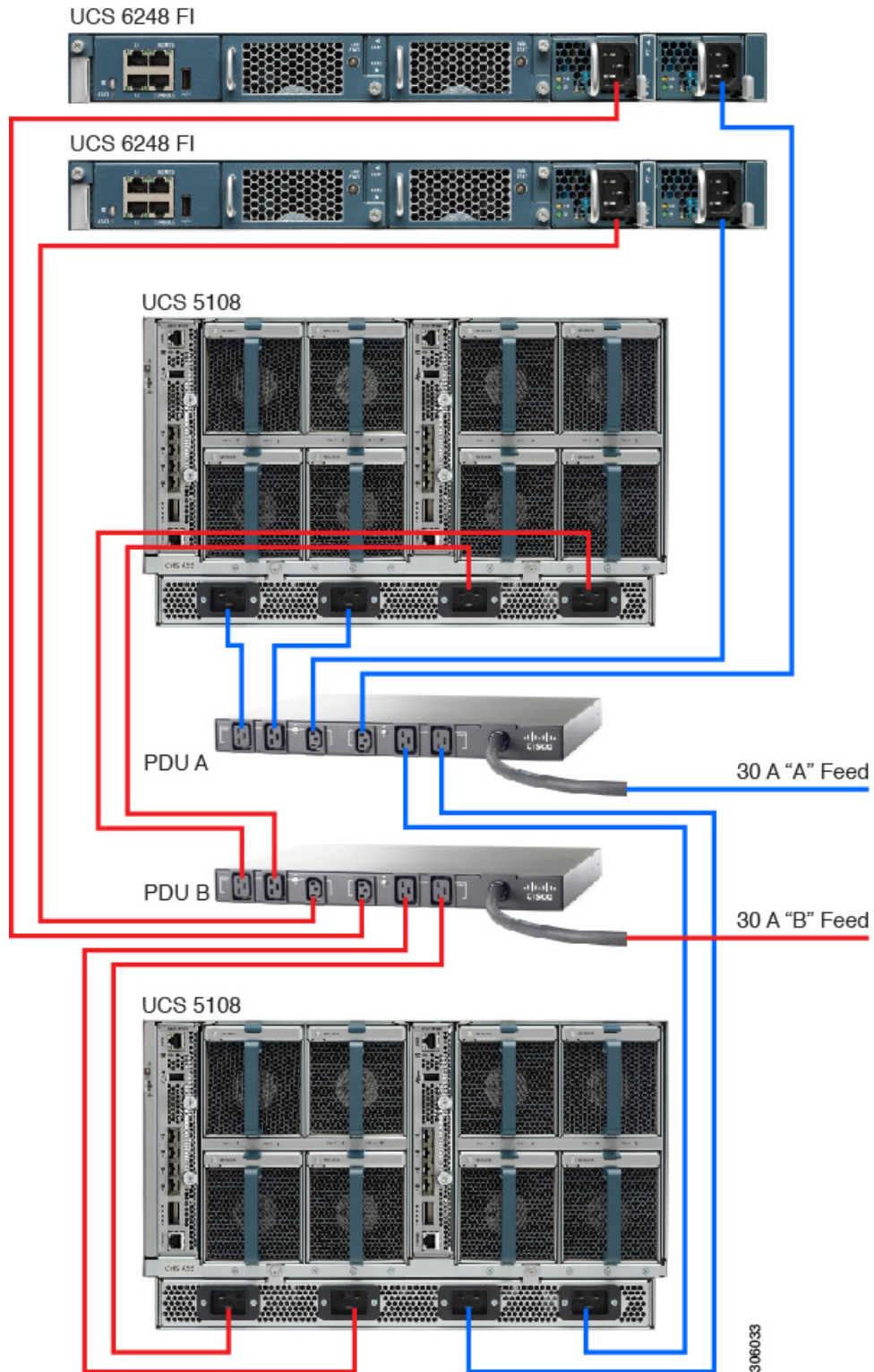
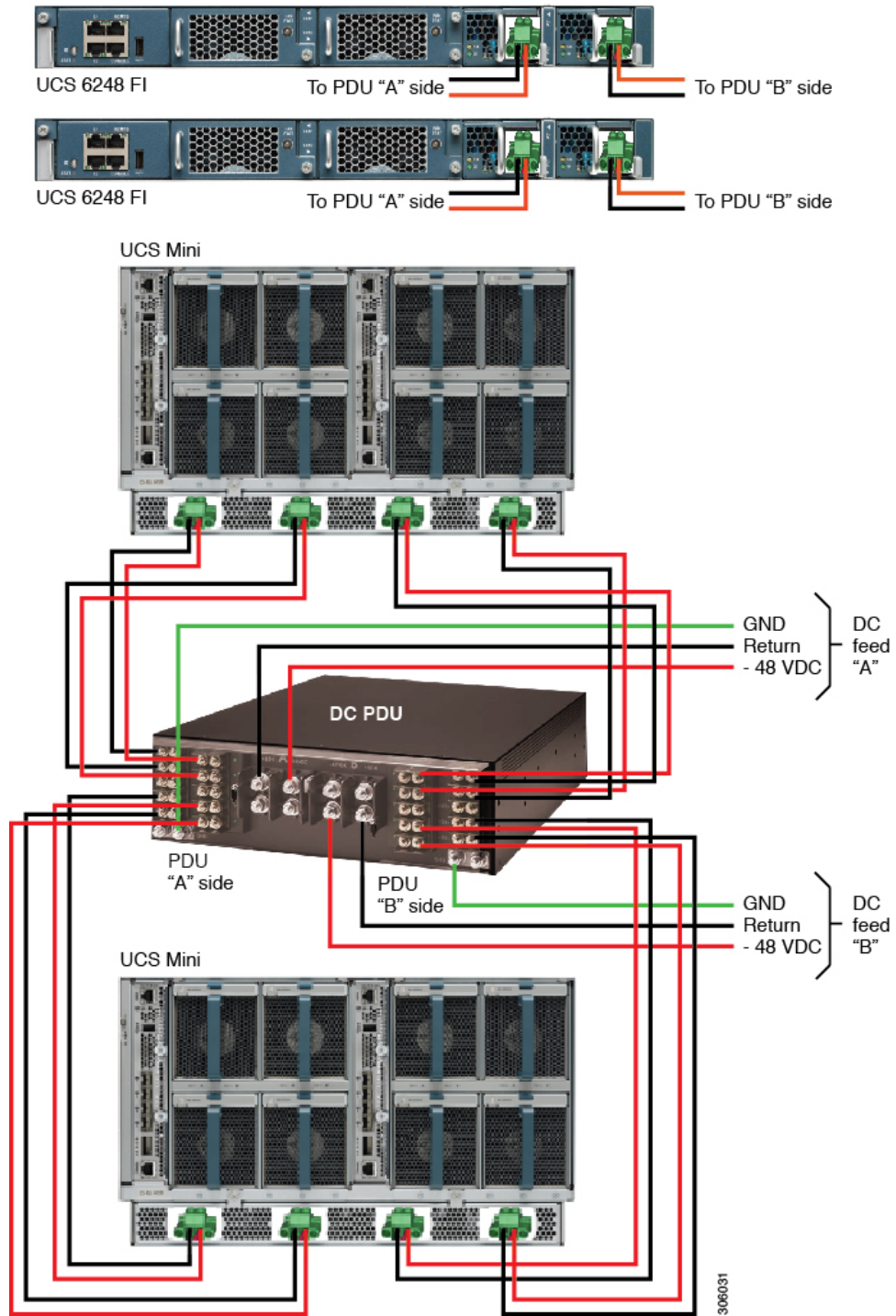


Figure 36: PDUs and Power Cabling for the UCS 5108 Blade Server Chassis (DC Power)

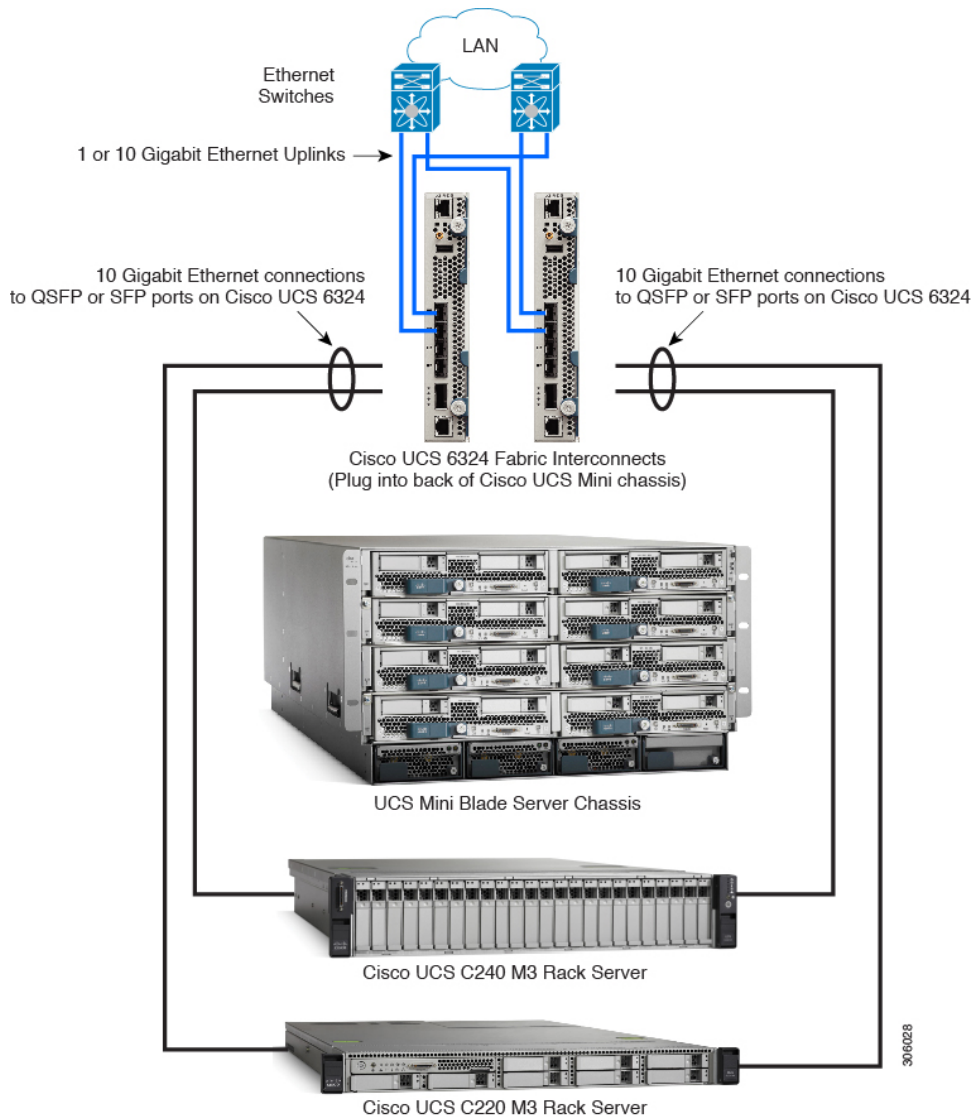


Note The UCS 5108 Server Chassis can accommodate two types of power supplies. The first operates from -48 VDC to -60 VDC. The second is a high-voltage DC power supply that operates from -200 VDC to -380 VDC.

Data Cables for the UCS Mini Server Chassis

The UCS 6324 Fabric Interconnect is installed in the back of Cisco UCS Mini Server Chassis. Because it is internal to the chassis, there are no data cables to connect it to the UCS Mini chassis. The only data cables that are connected to the UCS Mini chassis are those that connect the UCS 6324 Fabric Interconnect to external switches and servers. See the following figure.

Figure 37: Data Cables Connected to UCS Mini



Power Cables for the Cisco UCS Mini Server Chassis

The following figures show separate power feeds connected to each PDU and the routing of the power cables from the PDUs to the chassis. This connection method provides redundancy in case of a power feed failure.

Figure 38: PDUs and Power Cabling for UCS Mini (AC Power)

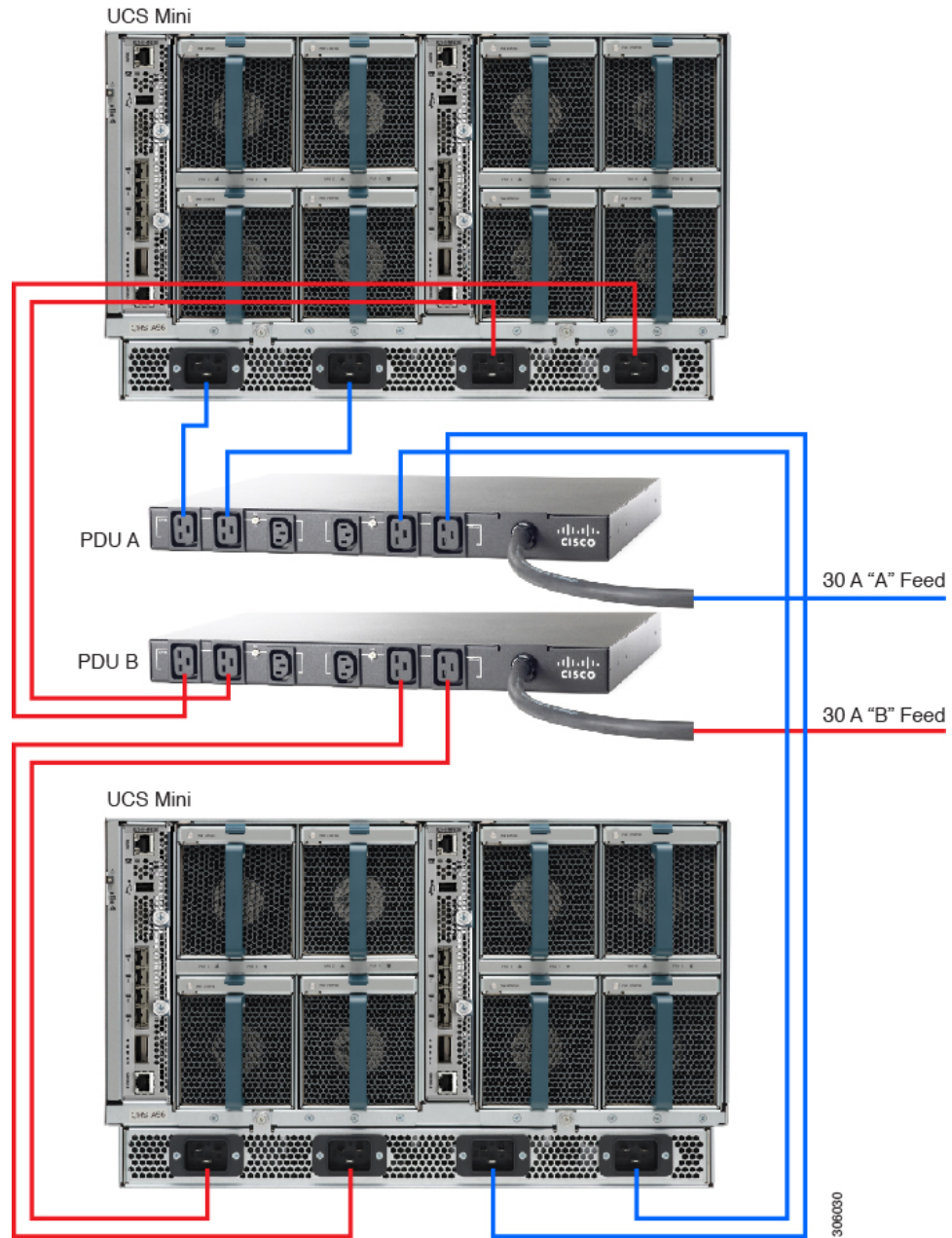
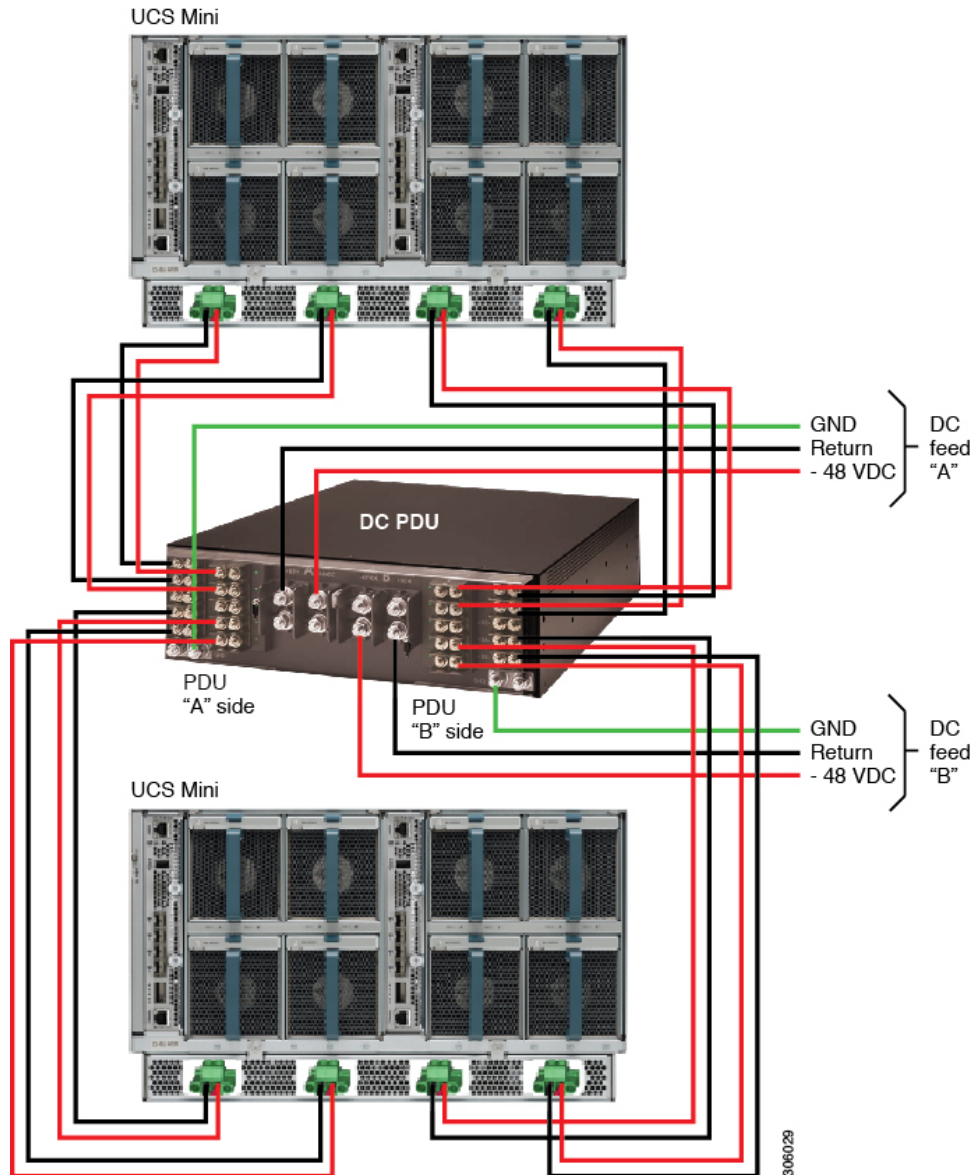


Figure 39: PDUs and Power Cabling for UCS Mini (DC Power)

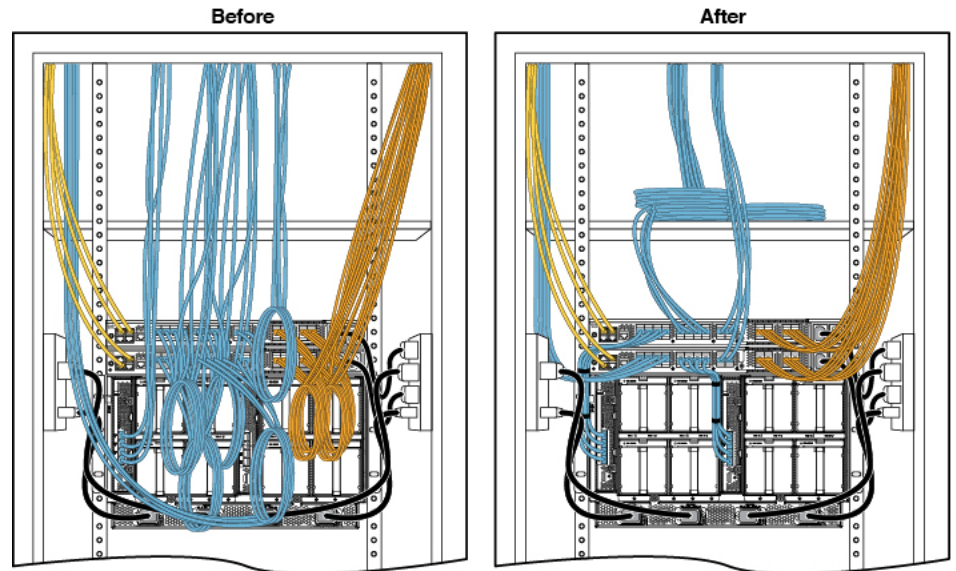


Cable Management

Use the cable management brackets and straps that are available for this rack to keep cables organized and out of the way of the exhaust fans.

Make sure that the cables do not impair access to the fabric extenders and expansion modules. In addition, make sure that the cables are installed in such a way that you do not have to disconnect them to perform equipment maintenance or upgrades.

Figure 40: Cable Management



Airflow

Remove airflow obstructions from the intake and exhaust openings of the equipment mounted in the chassis. Lack of sufficient airflow may cause increased equipment fan power consumption to compensate for increased airflow impedance.

Installing Fabric Interconnects

Install the fabric interconnects in the topmost RUs of the rack. Having the fabric interconnects in this position ensures that you can subsequently add a UCS rack server or UCS 5108 Server Chassis between the highest positioned chassis and the lowest positioned fabric interconnect.

Installing a UCS 6300 Series Fabric Interconnect

For information about, and instructions on how to install a Cisco UCS 6300 Series Fabric Interconnect, see the [Cisco UCS 6300 Series Fabric Interconnect Hardware Installation Guide](#).

Installing a UCS 6200 Series Fabric Interconnect

For information about, and instructions on how to install a UCS 6200 Series Fabric Interconnect, see the [Cisco UCS 6200 Series Fabric Interconnect Hardware Installation Guide](#).

Installing a UCS Rack Server

Cisco UCS rack servers chassis include 1RU, 2RU, and 4RU sizes. The rack servers are designed to mount to a standard IEC rack with two types of rail kits: friction rail kit and ball-bearing rail kit. We recommend using the ball-bearing rail kit, but refer to the product documentation for information about the rail kit for your particular server.



Note Two people are needed to install a 2RU or 4RU UCS rack server chassis, one positioned at the left side of the front of the rack and one positioned at the right side of the front of the rack.

For detailed instructions on installing Cisco UCS C-Series Rack Servers, see the product documentation located here: <http://www.cisco.com/c/en/us/support/servers-unified-computing/ucs-c-series-rack-servers/products-installation-guides-list.html>

Running Diagnostics

There are diagnostic procedures for component-level testing and system-level discovery, setup, and verification of the following Cisco UCS B-Series and C-Series equipment:

- Fabric interconnects
- Blade chassis and IO modules (IOM)
- Blade servers
- Rack servers

All components will be tested according to Cisco guidelines. Upon completion of component level testing, the components will be interconnected as a system and powered up. Basic setup will then be initiated to discover and verify system functionality.



Note The Cisco UCS 5108 Blade Server chassis connects to the external fabric interconnect chassis using data cables. The UCS Mini Blade Server chassis uses the UCS 6324 Fabric Interconnect module that plugs into the back of the UCS Mini chassis. Therefore, no data cables are required to make this connection.

Component Testing

All fabric interconnects must be brought to the same software and firmware level as the IO Modules (IOMs) per Cisco guidelines.

All blade (B-Series) server chassis and rack (C-Series) server chassis, including IOMs and blade servers must be built and tested per the customer order and per Cisco integration and test guidelines.

System Testing and Verification

In the following procedures, the console port is referred to as follows:

- On the UCS 5108 Blade Server chassis with an external fabric interconnect, the console port is located on the front left side of the fabric interconnect chassis and is labeled "Console."
- On the UCS Mini chassis, the console port is located on the UCS 6324 Fabric Interconnect module that plugs into the back of the UCS Mini chassis. The console port is located at the bottom of the module and is labeled "Console."

Upgrade Fabric Interconnects

Procedure

- Step 1** Ensure that the fabric interconnects are running the latest software image.
- Step 2** If needed, download the latest software image and upgrade the fabric interconnects with the new image.
-

Connect the Console Port

Procedure

- Step 1** Connect the console port to a Digi Console server using a Cisco Console to Digi Console Cable.
- Step 2** Connect the Mgmt0 port to the Cisco PE VLAN.
- Step 3** Open Putty.
- Step 4** Connect to the Digi console server.
- Step 5** Select the port you are connected to.
- Step 6** If the connection does not automatically appear, press **Enter** to verify connectivity.
-

Configure Fabric Interconnect A

Before you begin

This procedure applies to the Cisco UCS 5108 Blade Server chassis. It does not apply to the UCS Mini chassis.

- Ensure that the console port is properly configured and connected to the designated external fabric interconnect.
- When setting up a cluster, ensure that ports L1 and L2 from the primary fabric interconnect are connected to the L1 and L2 ports, respectively, on the subordinate fabric interconnect.

- Plug in the power cables to both AC power connectors in the fabric interconnect.
- Wait for the fabric interconnect to initialize.

Procedure

Step 1 Set the following initial settings:

Example:

```
Enter the configuration method. (console/gui) ? console
Enter the setup mode (restore from backup or initial setup) [restore/setup]? setup
You have chosen to setup a new Fabric interconnect.
Continue? (y/n): y
Enter the password for "admin": Disti100
Confirm the password for "admin": Disti100
Is this Fabric interconnect part of a cluster (select 'no' for standalone)? (yes/no) [n]:
yes
Enter the switch fabric (A/B) []: A
Enter the system name: Fabric
Physical Switch Mgmt0 IPv4 address : 192.168.65.x
Physical Switch Mgmt0 IPv4 netmask : 255.255.255.0
IPv4 address of the default gateway : 192.168.65.1
Cluster IPv4 address : 192.168.65.x
Configure the DNS Server IPv4 address? (yes/no) [n]: n
Configure the default domain name? (yes/no) [n]: n
Verify the system configuration before accepting the settings
Apply and save the configuration (select 'no' if you want to re-enter)? (yes/no): yes
```

Step 2 Be aware that the designated IP address range for the interconnect Mgmt interfaces is: 192.168.65.101 - 192.168.65.151 (255.255.255.0). Any unused IP addresses can be used as needed.

Step 3 Ensure that all IP addresses, such as Mgmt0 and Cluster, are unique.

Configure Fabric Interconnect B

Before you begin

This procedure applies to the Cisco UCS 5108 Blade Server chassis. It does not apply to the UCS Mini chassis.

- Ensure that the console port is properly configured and connected to the designated external fabric interconnect.
- Plug in the power cables to both AC power connectors in the fabric interconnect.
- Wait for the fabric interconnect to initialize.

Procedure

Step 1 Set the following initial settings:

Example:

```

Enter the configuration method. (console/gui) ? console
Installer has detected the presence of a peer Fabric interconnect. This Fabric interconnect
will be added to
the cluster. Continue (y/n) ? y
Enter the admin password of the peer Fabric interconnect:
Disti100
Physical Switch Mgmt0 IPv4 address : 192.168.65.x

```

Step 2 Verify the system configuration before accepting the settings.

Example:

```
Apply and save the configuration (select 'no' if you want to re-enter)? (yes/no): yes
```

Step 3 Verify the cluster is properly configured.

Step 4 Log into Fabric Interconnect A.

Step 5 Enter the following command to show the cluster state: Fabric-A# **sh cluster state**

Step 6 Confirm that the fabric interconnects are listed at UP (Primary and Subordinate) and that the HA cluster is in Ready state:

Example:

```

Cluster Id: 0xc0993f80539311df-0x9063000decd52504

A: UP, PRIMARY

B: UP, SUBORDINATE

HA READY

```

Step 7 Upon confirmation, exit to the login prompt.

Configure Fabric Interconnect A for UCS Mini

Before you begin

This procedure applies to the UCS Mini chassis. It does not apply to the Cisco UCS 5108 Blade Server chassis.

Procedure

Set the following initial settings:

Example:

```

Enter the configuration method. (console/gui) ? console
Enter the setup mode (restore from backup or initial setup) [restore/setup]? setup
You have chosen to setup a new Fabric interconnect.
Continue? (y/n): y
Enforce strong password? (y/n) [y]: n
Enter the password for "admin":
Confirm the password for "admin":
Admin password confirmation failed. Please try again.
Enter the password for "admin":
Confirm the password for "admin":
Is this Fabric interconnect part of a cluster (select 'no' for standalone)? (yes/no) [n]:

```

```

yes
Enter the switch fabric (A/B) []: A
Enter the system name: Fabric
Physical Switch Mgmt0 IPv4 address : 192.168.65.x
Physical Switch Mgmt0 IPv4 netmask : 255.255.255.0
IPv4 address of the default gateway : 192.168.65.1
Cluster IPv4 address : 192.168.65.x
Configure the DNS Server IPv4 address? (yes/no) [n]: n
Configure the default domain name? (yes/no) [n]: n
Join centralized management environment (UCS Central)? (yes/no) [n]: n
Apply and save the configuration (select 'no' if you want to re-enter)? (yes/no):Yes
Verify the system configuration before accepting the settings
Apply and save the configuration (select 'no' if you want to re-enter)? (yes/no): yes

```

Configure Fabric Interconnect B for UCS Mini

Before you begin

This procedure applies to the UCS Mini chassis. It does not apply to the Cisco UCS 5108 Blade Server chassis.

Procedure

Set the following initial settings:

Example:

```

Enter the configuration method. (console/gui) ? console
Installer has detected the presence of a peer Fabric interconnect. This Fabric interconnect
will be added
to the cluster. Continue (y/n) ? y
Enter the admin password of the peer Fabric interconnect:

Connecting to peer Fabric interconnect... done

Retrieving config from peer Fabric interconnect... done

Peer Fabric interconnect Mgmt0 IPv4 Address: 192.168.65.x

Peer Fabric interconnect Mgmt0 IPv4 Netmask: 255.255.255.0

Cluster IPv4 address:192.168.65.1

Peer FI is IPv4 Cluster enabled. Please Provide Local Fabric Interconnect Mgmt0 IPv4
Address

Physical Switch Mgmt0 IP address : 192.168.65.x

Apply and save the configuration (select 'no' if you want to re-enter)? (yes/no): yes

Applying configuration. Please wait

```

Configure the Blade Chassis

To configure the blade chassis, follow these steps:

Procedure

- Step 1** Launch a web browser and enter the cluster IP address in the URL address field.
- Step 2** Click **Launch UCS Manager**.
- Step 3** Log into UCS Manager using the following parameters:
- User ID: **admin**
 - Password: **Disti100**
- Step 4** Configure the Equipment Policies.
- In the Navigation Pane, select the **Equipment** tab.
 - Click the Equipment node and select the **Policies** tab in the Work Pane.

Chassis/FEX Discovery Policy

- On the **Action** list, select the number of physical links (server port links) to be used by the chassis under the section. This number is the number of links of Twinax connections used under the Cabling section.
- Under **Link Grouping Preference**, select **None**.

Rack Server Discovery Policy

- Select **Immediate**.
- Scrub Policy <not set>.

Rack Management Connection Policy

- In the **Action** list, select **Auto Acknowledged**.

Power Policy

- In the Redundancy list, select the following for the UCS 5108 Blade Server chassis:
 - For two power supplies, select **Non-Redundant**.
 - For three power supplies, select **N+1**.
 - For four power supplies, select **Grid**.

Mac Address Table Aging

- On the **Aging Time** list, leave the setting as **Default Mode**.

Global Power Allocation Policy

- On the **Allocation Method** list, leave the setting as **Policy Driven Chassis Group Cap**.

Firmware Auto Sync Server Policy

- On the **Sync State** list, select **Auto Acknowledge**.

Step 5 Click **Save Changes**.

Note The remainder of the steps in this section do not apply to systems using a UCS Mini chassis with a UCS 6324 Fabric Interconnect. If using a UCS Mini Chassis, proceed to .

Step 6 Configure server ports.

- a) In the Navigation pane, click the **Equipment** tab.
- b) Select **Fabric Interconnect > Fabric Interconnect [A-B] > Fixed Module > Unconfigured Ports**.
- c) Choose one or more of the ports in the **Ethernet Ports** folder.
- d) Right click and select **Configure as Server Port**.
- e) Answer **Yes** to the question prompt.
- f) Verify that the ports were successfully designated as Server Port.
- g) Repeat the previous steps for all ports that are connected from the chassis IOM 1 to Fabric Interconnect A.
- h) Repeat the previous steps for all ports that are connect from the Chassis IOM 2 to Fabric Interconnect B.
- i) Repeat the previous steps for all chassis connected to Fabric Interconnect A and B.

Step 7 Verify that the chassis connected to Fabric Interconnect (A and B) are present in the Equipment **Main Topology View** or under the **Chassis** tab in the Navigation Pane.

Step 8 Verify the Connection Topology.

- a) In the Navigation pane, click the **Equipment** tab.
- b) For the UCS 5108 Blade Server Chassis, select **Chassis > Chassis Number > IO Modules > IO Module Number**.
- c) Click the **Fabric Ports** tab.
- d) Right click and select **Configure as Server Port**.
- e) Use the information on this tab to verify your Server Port connections.

IO Module 1 should be connected to Fabric Interconnect A on ports 1/1 and 1/2. The ports should be up.

IO Module 2 should be connected to Fabric Interconnect B on ports 2/1 and 2/2. The ports should be up.

Blade Connectivity Verification

Before you begin

Use the following procedure along with the Cisco B-Series Checklist to configure the system parameters. If the customer has not provided specific information, use the checklist default.

Procedure

Step 1 At the Fabric Interconnect A console, enter the following command to commission the external Fabric Interconnect chassis or UCS 6324 Fabric Interconnect and show the chassis inventory:

Example:

```
Fabric-A# show chassis detail
```


The fields of interest in the output are shown here:

```
Chassis:
Chassis: 1
...
Vendor: Cisco Systems Inc Model: N20-C6508
Serial (SN): FOX1325G5G3
Fabric-A# recommission chassis "Cisco Systems Inc" "N20-C6508" "FOX1325G5G3" Fabric-A* #
commit
Repeat above steps for each connected chassis Fabric-A# show chassis
Chassis:
Chassis      Overall Status Admin State
-----
1             Operable           Acknowledged
```

Step 2 Ensure that all chassis are present in the Operable state.

Step 3 Verify the Server Inventory by executing the following commands to see the servers on each chassis:

Example:

```
Fabric-A# ack chassis 1

Fabric-A# scope chassis 1

Fabric-A# show server inventory
```

The output is a sample for a UCS 5108 Blade Server chassis:

Server	Equipped PID	Equipped VID	Equipped Serial (SN)	Slot	Status	Ackd	Memory (MB)
1/1	N20-B6620-1 V01	QCI1404A3MG	Equipped	49152			8
1/2	N20-B6620-1 V01	QCI1405A1K0	Equipped	49152			8
1/3					Empty		
1/4					Empty		
1/5					Empty		
1/6					Empty		
1/7					Empty		
1/8					Empty		

Step 4 Verify that all chassis and servers are listed, and that the Memory and Cores match the BOM.

Step 5 Make sure that your Putty session is set to a minimum of 5000 lines to scroll back.

Step 6 At the console session, enter the following command to inventory the server-specific list: Fabric-A# **show server inventory expand**

Step 7 Review the results to ensure that they include data for all server nodes.

Step 8 Repeat the preceding commands for Fabric Interconnect B to verify redundancy.

Event Logs

Make sure that there no Non-recoverable or Critical errors in the event logs. Enter the following command to display the content of the log: Fabric-A# **show fault**

Configure the Rack Server

To configure and check connectivity for a rack server, follow the steps in the [Configure Fabric Interconnect A for UCS Mini, on page 75](#) section through the "Event Logs" subsection.

Reset Fabric Interconnects

To reset the fabric interconnects, follow these steps:

Before you begin

After completion of examining the text log files, save the files in the designated location.

Procedure

- Step 1** At the Fabric Interconnect B console, enter the following command:
- Example:**
- ```
Fabric-B# connect local
Fabric-B (local-mgt)# erase config
```
- Step 2** At the warning prompt, enter **Yes**.
- Step 3** Do not disconnect the fabric interconnect until it starts to reboot.
- Step 4** After the fabric interconnect power cycles and initializes, disconnect the power cords.
- Step 5** Repeat the preceding steps for Fabric Interconnect A.
- Step 6** When the configurations on both fabric interconnects have been erased, reconnect the power cords.
- Step 7** Verify that both fabric interconnects reboot and prompt you to **Enter the configuration method**.
- 

## Cleanup

To clean up after running diagnostics, follow these steps:

### Procedure

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- Step 1** Power off all applicable PDUs in the rack.
- Step 2** Disconnect the Digi Console and the Mgmt0 cables.
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# C-Series Rack Integration

## All C-Series Rack Servers (Except 3160 and 3260)

This section assumes that the C-Series rack servers will be integrated into a rack with a 1 Gbps network management switch and a pair of 10 Gbps switches for data path.

### Procedure

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- Step 1** Install the 1-Gbps management switch and power it on. This switch will provide connectivity to the C-series server CIMC management software.
- Step 2** Install the 10-Gbps switch and power it on. If the default settings of the switch ports are set to disabled, enable the ports using the commands provided in the user's manual for the specific switch. Most network switch will have the ports enabled by default.
- Step 3** Install the UCS C-series server per the installation guide for that specific model.
- Step 4** If the rack configuration calls for the C-series server to be connected and managed via the dedicated management port, connect the dedicated LOM port on the server to the 1-Gbps management switch. If dedicated mode is not required, connect the first LOM port (eth0) on the server to the 1-Gbps management switch.

**Note** By default, C-Series servers ship in shared-lom mode.

- Step 5** Connect a keyboard and monitor to the server and power it on. During power on, press F8 to configure the Cisco IMC for dedicated LOM management and set an IP address as described in the following documents.

An example of this step is shown in the following documents:

- <http://goo.gl/Gi6F2h>
- <http://goo.gl/pniYFY>

An example of this step is shown in the following documents:

- Step 6** Connect to the Cisco IMC URL of the server using the IP address you set in step 5 and verify consistent SW versions across platforms. See the following document for more information regarding the use of the Cisco IMC GUI.

<http://goo.gl/QVR7GU>

- Step 7** Connect the 10GbaseT ports from the 10Gps PCIe NIC/HBA card to the 10Gps switch and verify the link light comes on.

- Step 8** Reset the Cisco IMC to factory defaults and reboot.

- <http://goo.gl/h4oUKI>

- Step 9** (Optional) If the server was ordered with the DLLOM option, connect a keyboard and monitor to the server and use the F8 CIMC configuration option at boot to configure Dedicated LOM management.

- <http://goo.gl/Gi6F2h>

- <http://goo.gl/pniYFY>

## C-Series 3160 and 3260 Rack Servers

### Procedure

#### Step 1

Connect Cables.

- Connect KVM Cable to Server Node 1 Console Port (top server node for both 3160 and 3260) – used for initial (F8) CIMC configuration.
- For 3160: Connect 1-Gb Ethernet Cable to SIOC-1 dedicated management port (left SIOC module) – used for launching KVM window through CIMC after initial IP address configuration.
- For 3260: Connect 1-Gb Ethernet Cable to SIOC-1 (left SIOC module) dedicated management port (not console port) and 1-Gb Ethernet Cable to SIOC-2 (right SIOC module) dedicated management port (not console port) used for launching KVM window through CIMC after initial IP address configuration.

#### Step 2

Configure CIMC IP Address

- Power on the system by pressing the front panel power button for 4 seconds.
  - LED Amber = Standby Power
  - LED Green = On
- Connect Keyboard/Video/Mouse to KVM connector. Reboot server node and choose **<F8>Cisco IMC Configuration** to enter CIMC Configuration Utility.
- Configure IP address information utilizing Dedicated NIC Mode (Shared LOM method is not available on 3160/3260) and NIC Redundancy set to **None**, and uncheck **DHCP enabled** if IP address will be entered manually.
  - For 3160: Single Server Node; Single IP address applies only to server node 1 management IP.
  - For 3260: Single or Dual Server Node; Single IP address applies to both server node 1 and server node 2 management IP.
- Choose **<F10>** to save CIMC IP configuration.

#### Step 3

Verify Firmware and Ethernet Link Status

Connect by means of a browser to the UCS 3160 or 3260 Management IP address and verify consistent firmware across components/nodes/platforms.

- For the 3260: Launching KVM console access through CIMC Management GUI is not available until IP addresses are assigned to Server 1 BMC-1 and CMC-1 and Server 2 (if installed) BMC-2 and CMC-2. BMC-1/2 and CMC-1/2 IP Addresses are assigned in the CIMC Management GUI in the Admin/Networking tab. The Single IP address initially configured in the **<F8> Cisco IMC Configuration Utility** is still utilized for CIMC GUI management.
- For the 3160/3260: Connect the Ethernet ports from the SIOCs to the rack network infrastructure and verify that the link lights on the SIOC Ethernet ports are green.

**Step 4** Reset CIMC to Factory Defaults

For the 3160/3260: Log off the CIMC Management GUI and exit the CIMC GUI Management KVM console.

For the 3160:

- a) Reboot server node and choose <F8> **Cisco IMC Configuration** to enter CIMC Configuration Utility from the server node KVM connection.
- b) Choose <F1>**Additional Settings**.
- c) Down arrow to **FactoryDefaults**[field].
- d) Click the **spacebar** so that there is a[X].
- e) Choose <F10>**Save**.

For the 3260:

- a) Reboot server node and choose <F8> **Cisco IMC Configuration** to enter CIMC Configuration Utility from the server node KVM connection.
- b) Choose <F1>**Additional Settings**.
- c) Down arrow to **FactoryDefaults/Chassis Controller Configuration**[field]. (The Server Controller Configuration can be ignored as all CMC/BMC IP address information will be reset to factory defaults with the Chassis Controller Configuration option).
- d) Click the **spacebar** so that there is a[X].
- e) Choose <F10>**Save**.

## Shipping the Rack

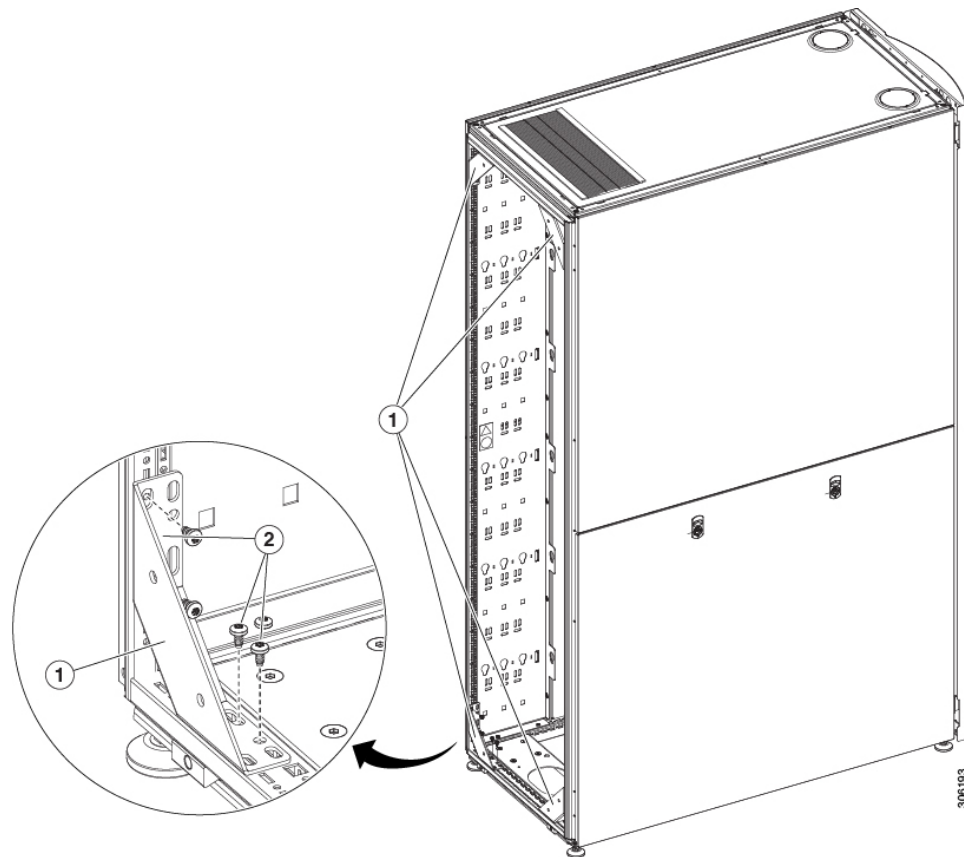
### Shipping Guidelines

After you complete the testing of a preracked UCS system, prepare the rack for shipment by following these guidelines:

- To reduce the possibility of equipment damage or personal injury, remove all of the equipment that is not mechanically secured to the rack rails before shipment. The only Cisco UCS components that can be shipped preracked are certified Cisco UCS components with supplemental hardware. See [Equipment Placement Guidelines, on page 62](#) for more information.
- Tool-less rail kits must be secured into the rack rails using screws.
- The cables that connect to the fabric interconnect chassis may be bundled and secured using Velcro straps prior to shipping. Secure all data and power cables.
- Special shock pallets must be used to ship approved racks with preinstalled UCS components. These pallets were designed and tested for approved racks. They are designed only for one-way shipping and must not be reused after the integrated rack reaches its final destination.
- The original packing materials that come with approved racks can be reused. These packaging materials are designed for use with the approved racks.
- Carriers offering specialized, air-ride, padded vans are recommended for shipping all configured racks. White glove service is encouraged and recommended.

- Cisco preconfigured racks have not been certified for air transport.
- The preracked Cisco UCS system must ship in an upright position.
- Angle brackets should be installed in the corners of the rack to ensure that the equipment is secure and does not move during transport. See the following illustration to see the locations of the brackets and the screws required to install them. These brackets should be removed when the rack reaches its final destination.

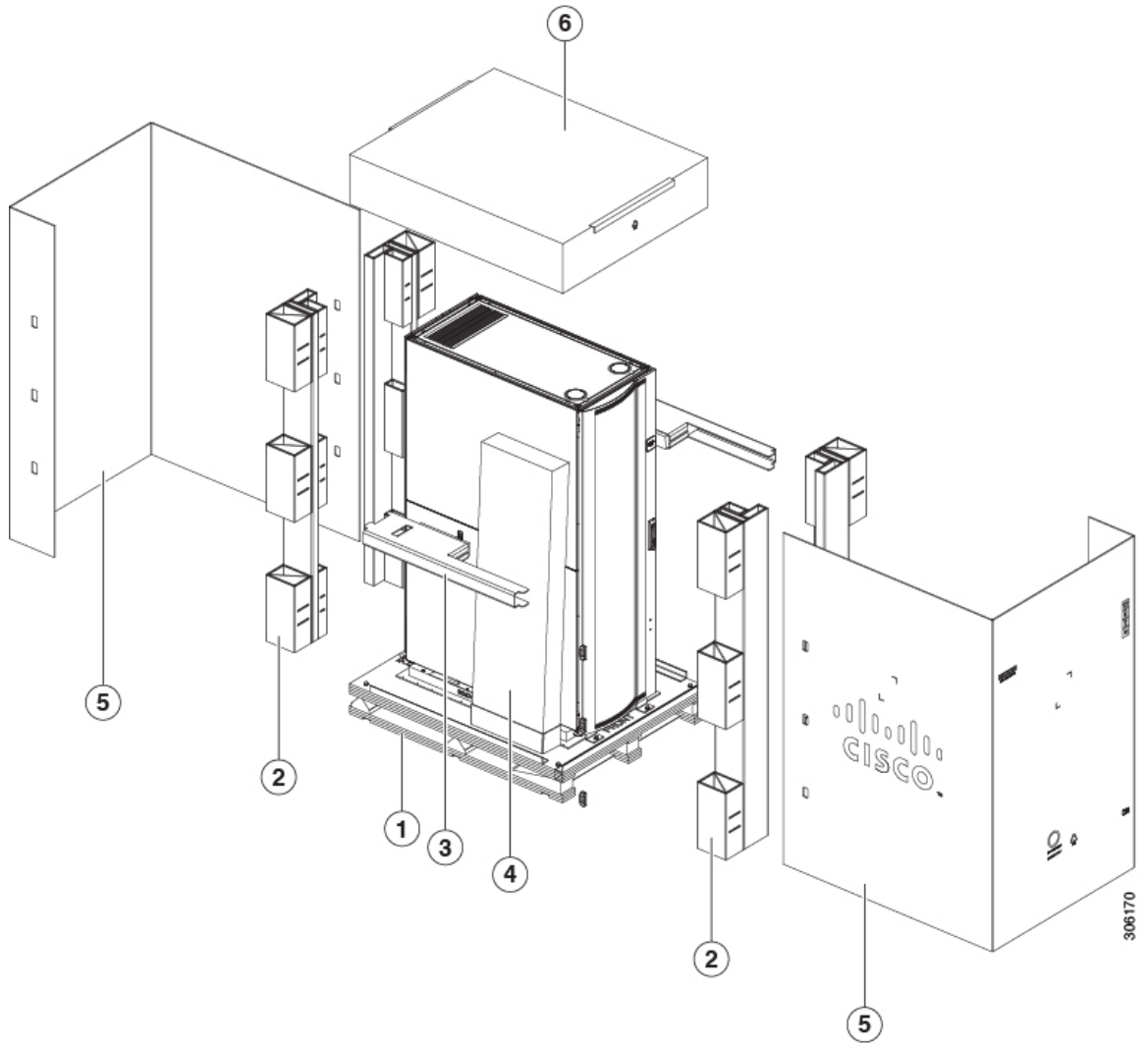
**Figure 41: Installing and Removing Rear Corner Angle Brackets**



|   |                                              |   |                                        |
|---|----------------------------------------------|---|----------------------------------------|
| 1 | Bracket installed in the corner of the rack. | 2 | Screws that hold the bracket in place. |
|---|----------------------------------------------|---|----------------------------------------|

- UCS components may be damaged if the rack tips over during shipment. To avoid such damage, secure the racks by strapping them down in the truck. Strapping the rack will help prevent it from tipping over during transport to the customer site.
- On a Cisco R-Series rack, check to ensure that the rack mounting brackets are properly secured to the pallet. The bracket with keyhole cutouts should be at an angle to the pallet deck and should not be loose. The front hold-downs for Cisco R-Series rack are right-angled and sit flush to the pallet and frame. Ensure that the bolt that secures the bracket to the frame is torqued to 70-100 in-lb. (6-9 N-m).
- Prepare the rack for shipment by attaching the packaging shown in the following illustration.

Figure 42: Preparing the Cisco R42612 Rack for Shipping



|   |                  |   |                |
|---|------------------|---|----------------|
| 1 | Pallet           | 2 | Corner posts   |
| 3 | Side buffer      | 4 | Side packaging |
| 5 | Packaging sleeve | 6 | Top cap        |

# Cisco Certified Products for Rack Integration and Approved Third-Party Racks

## Cisco Certified UCS Products for Rack Integration

Contact Cisco for the latest list of certified equipment. See the Cisco Certified Equipment for Rack Integration document.



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**Note** You must use an Approved Rack and specified UCS integration hardware; otherwise the Cisco warranty is void.

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## Third-Party Approved Racks

The following third-party rack is approved for preracking and preintegrating UCS products:

- Rittal TS IT Dynaload - 24U 600mm wide x 1200mm deep, including shock pallet