Sun Rack II User's Guide

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Using This Documentation

- **Overview** – Provides specifications and describes how to install, administer, and service Oracle's Sun Rack II.
- **Audience** – Technicians, system administrators, and authorized service providers.
- **Required knowledge** – This guide is intended for trained technicians and authorized service personnel who have been instructed on the hazards within the equipment and qualified to remove and replace hardware.

Product Documentation Library

Documentation and resources for this product and related products are available at https://www.oracle.com/goto/sunrackii/docs.

Feedback

Provide feedback about this documentation at https://www.oracle.com/goto/docfeedback.

Understanding the Rack

These topics describe how to install equipment in the rack and lists the new features in the enhanced rack.

Note - Contact your service representative to confirm that your equipment is qualified for installation and use in a rack. Oracle is not liable for any rack issues when installing or using nonqualified equipment.

- "Rack Task Installation Overview" on page 11
- "Features on the Enhanced Sun Rack II" on page 12
- "Safety Guidelines and Cautions" on page 13

Related Information

- "Confirming Specifications" on page 15
- "Preparing for Rack Installation" on page 25
- "Installing the Rack" on page 41
- "Installing PDUs" on page 49
- "Preparing to Install or Service Equipment" on page 65
- "Returning the Rack to Operation" on page 83
- "Servicing the Rack" on page 87
- "Repacking a Rack for Shipment" on page 111

Rack Task Installation Overview

Follow these general steps when installing a rack at an installation site.

Step	Description	Links
1.	Review all safety warnings and guidelines.	"Safety Guidelines and Cautions" on page 13

Step	Description	Links
2.	Determine if you have the original or enhanced rack.	“Features on the Enhanced Sun Rack II” on page 12
3.	Review the rack dimensions and requirements.	“Confirming Specifications” on page 15
4.	Prepare the installation site.	“Preparing for Rack Installation” on page 25
5.	Unpack and install the rack.	“Installing the Rack” on page 41
6.	Install PDUs into the rack, if not already installed at the factory.	If your PDUs were preinstalled at the factory, see “Prepare Factory-Installed PDUs” on page 49. Otherwise, refer to the *Sun Rack II Power Distribution Units User's Guide*, or your third-party PDU documentation, for instructions.
7.	Install and cable rackmountable equipment into the rack.	“Equipment Installation Task Overview” on page 65
8.	Install the optional components.	

Related Information

- “Features on the Enhanced Sun Rack II” on page 12
- “Safety Guidelines and Cautions” on page 13

Features on the Enhanced Sun Rack II

There are two models for the Sun Rack II 1042 and 1242: the original model and the enhanced model. The new features on the enhanced rack are listed below.

New Feature	Link
Larger bottom opening to allow enough clearance to pass six AC cables	“Rear Cabling Space (Sun Rack II 1042)” on page 31 “Rear Cabling Space (Sun Rack II 1242)” on page 36
Moveable front RETMA rails	“Adjust the Front RETMA Rails” on page 73
Telescopic support braces on the rear RETMA rails	“Adjust the Rear RETMA Rails” on page 77
Single key used for all locks in the rack	“Servicing Doors” on page 94
Improved pin design for door hinge	“Servicing Doors” on page 94
Interchangeable lock cylinder	“Servicing Doors” on page 94
Addition of one more grounding lug to both front and rear doors	“Servicing Grounding Straps” on page 87
Two-piece top panel with air brushes	“Two-Piece Top Panel With Air Brushes” on page 37 “Remove the Top Panel” on page 106

Related Information

- “Rack Task Installation Overview” on page 11
- “Safety Guidelines and Cautions” on page 13

Safety Guidelines and Cautions

Before installing the rack, or installing any server or equipment into the rack, read the *Important Safety Information for Sun Hardware Systems* document included with the rack.

Observe all safety notices printed on the packaging and listed in the *Sun Rack II Safety and Compliance Guide* and the *Sun Rack II Power Distribution Units Users Guide*. See “Product Documentation Library” on page 9 for the web site where you can download this guide.

Related Information

- “Rack Task Installation Overview” on page 11
- “Features on the Enhanced Sun Rack II” on page 12

Confirming Specifications

These topics describe the specifications for all racks.

Note - Contact your service representative to confirm that your equipment is qualified for installation and use in a rack cabinet. Oracle is not liable for any issues when installing or using nonqualified equipment.

- "Packaging Dimensions" on page 16
- "Sun Rack II 1042 Dimensions" on page 17
- "Sun Rack II 1042 Weights" on page 18
- "Sun Rack II 1242 Dimensions" on page 19
- "Sun Rack II 1242 Weights" on page 20
- "Access Route Guidelines" on page 21
- "Power Requirements" on page 21
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Related Information

- "Understanding the Rack" on page 11
- "Preparing for Rack Installation" on page 25
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- "Repacking a Rack for Shipment" on page 111

Packaging Dimensions

You can order the rack in either standard or enterprise packaging. See the following table for these packaging dimensions. Also, see “Rack Packaging” on page 42 for more information about these packaging options.

Description	Metric Sun Rack II 1042 Standard Packaging	U.S. Sun Rack II 1042 Standard Packaging	Metric Sun Rack II 1242 Standard Packaging	U.S. Sun Rack II 1242 Standard Packaging	Metric Sun Rack II 1042E & 1242E Enterprise Packaging	U.S. Sun Rack II 1042E & 1242E Enterprise Packaging
Shipping height	2145 mm	84.5 in.	2145 mm	84.5 in.	2159 mm	85.0 in.
Shipping width	770 mm	30.31 in.	770 mm	30.31 in.	1219 mm	48.0 in.
Shipping depth	1110 mm	43.7 in.	1125 mm	44.29 in.	1575 mm	62.0 in.
Shipping weight	Varies by configuration		Varies by configuration		Varies by configuration	
Shipping weight of packaging	Approx. 31 Kg	68.34 lb	Approx. 31 Kg	68.34 lb	120.20 Kg	265 lb

Related Information

- “Sun Rack II 1042 Dimensions” on page 17
- “Sun Rack II 1042 Weights” on page 18
- “Sun Rack II 1242 Dimensions” on page 19
- “Sun Rack II 1242 Weights” on page 20
- “Access Route Guidelines” on page 21
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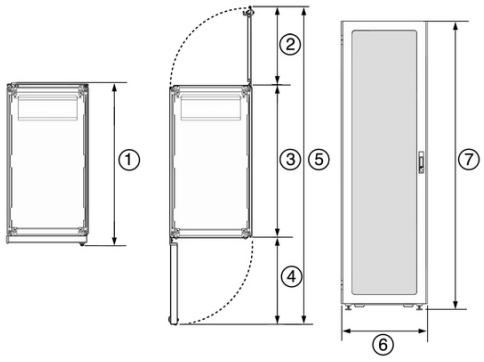
Sun Rack II 1042 Dimensions



Note - Adjusting the RETMA rails can make the rack less stable. If you adjust the RETMA rails, always install the equipment after you place the rack at the installation site. Do not move the rack after installing the equipment.

No.	Description	Metric	U.S.
1	Depth from front door handle to rear door handle	1058.2 mm	41.66 in.
2	Distance from rear of rack to opened rear door	590 mm	23.23 in.
3	Depth with doors removed	970.2 mm	38.20 in.
4	Distance from front of rack to opened front door	638 mm	25.12 in.
5	Depth with doors opened	2204.2 mm	86.78 in.
6	Width	600 mm	23.62 in.
7	Height	1998 mm	78.66 in.
Rack units (RU)		42 RU (1867 mm)	42 RU (73.5 in.)
Depth	Depth between front and rear RETMA rails	685.8 mm	27 in.
		Adjustable from 615.8 mm to 825.8 mm	Adjustable from 24.24 in. to 32.5 in.
Rear Access	Maintenance access requirement for rear	914 mm	36 in.
Top Access	Maintenance access requirement from top	914 mm	36 in.

Related Information

- “Packaging Dimensions” on page 16
- “Sun Rack II 1042 Weights” on page 18
- “Sun Rack II 1242 Dimensions” on page 19
- “Sun Rack II 1242 Weights” on page 20
- “Access Route Guidelines” on page 21
- “Power Requirements” on page 21
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- “ESD Precautions” on page 24

Sun Rack II 1042 Weights

Description	Metric	U.S.
Weight (empty)	123.4 Kg	272.0 lb
Maximum allowable weight of installed rack equipment	952.54 Kg (average of 22.7 Kg per RU)	2100 lb (average of 50 lb per RU)
Maximum allowable weight of installed PDUs	52.16 Kg	115 lb
Maximum dynamic load (maximum allowable weight of installed equipment plus PDUs)	1004.71 Kg	2215 lb
Airflow requirement for left and right sides	None (front-to-back cooling)	

Related Information

- “Packaging Dimensions” on page 16
- “Sun Rack II 1042 Dimensions” on page 17
- “Sun Rack II 1242 Dimensions” on page 19
- “Sun Rack II 1242 Weights” on page 20
- “Access Route Guidelines” on page 21
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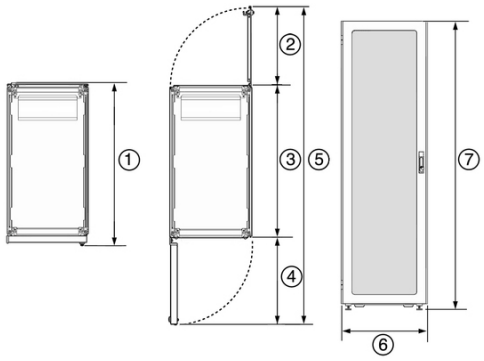
Sun Rack II 1242 Dimensions



Note - Adjusting the RETMA rails can make the rack less stable. If you adjust the RETMA rails, always install the equipment after you place the rack at the installation site. Do not move the rack after installing the equipment.

No.	Description	Metric	U.S.
1.	Depth from front door handle to rear door handle	1200 mm	47.24 in.
2.	Distance from rear of rack to opened rear door	590 mm	23.23 in.
3.	Depth with doors removed	1112 mm	43.78 in.
4.	Distance from front of rack to opened front door	638 mm	25.12 in.
5.	Depth with doors opened	2340 mm	92.1 in.
6.	Width	600 mm	23.62 in.
7.	Height	1998 mm	78.66 in.
Rack Units	Rack units (RU)	42 RU (1867 mm	42 RU (73.5 in.)
Depth	Depth between front and rear RETMA rails	685.8 mm	27 in.
		Adjustable from 615.8 mm to 825.8 mm.	Adjustable from 24.24 in. to 32.5 in.
Rear Access	Maintenance access requirement for rear	914 mm	36 in.
Top Access	Maintenance access requirement from top	914 mm	36 in.

Related Information

- “Packaging Dimensions” on page 16
- “Sun Rack II 1042 Dimensions” on page 17
- “Sun Rack II 1042 Weights” on page 18
- “Sun Rack II 1242 Weights” on page 20
- “Access Route Guidelines” on page 21
- “Power Requirements” on page 21
- “Grounding Requirements” on page 22
- “Airflow Precautions” on page 23
- “ESD Precautions” on page 24

Sun Rack II 1242 Weights

Description	Metric	U.S.
Weight (empty)	150.59 Kg	332 lb
Maximum allowable weight of installed rack equipment	952.54 Kg (average of 22.7 Kg per RU)	2100 lb (average of 50 lb per RU)
Maximum allowable weight of installed PDUs	52.16 Kg	115 lb
Maximum dynamic load (maximum allowable weight of installed equipment plus PDUs)	1004.71 Kg	2215 lb
Airflow requirement for left and right sides	None (front-to-back cooling)	

Related Information

- “Packaging Dimensions” on page 16
- “Sun Rack II 1042 Dimensions” on page 17
- “Sun Rack II 1042 Weights” on page 18
- “Sun Rack II 1242 Dimensions” on page 19
- “Access Route Guidelines” on page 21
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- “ESD Precautions” on page 24

Access Route Guidelines

If your existing loading dock meets height or ramp requirements for a standard freight carrier truck, you can use a pallet jack to unload the rack. If not, you must provide a standard forklift or other means to unload the rack, or request the rack be shipped in a truck with a lift gate.

Leave the rack in its shipping packaging until it reaches its final destination. The entire access route to the installation site should be free of raised patterns that can cause vibration, and the route must meet the requirements listed in the table below.

Description	Metric With Shipping Pallet	U.S. With Shipping Pallet	Metric Without Shipping Pallet	U.S. Without Shipping Pallet
Minimum door height	2184 mm	86 in.	2000 mm	78.74 in.
Minimum door width	1220 mm	48 in.	600 mm	23.62 in.
Minimum elevator depth	1575 mm	62 in.	1200 mm (SRII 1242)	47.24 in. (SRII 1242)
			1058.2 mm (SRII 1042)	41.66 in. (SRII 1042)
Maximum incline	6˚		6˚	
Minimum elevator, pallet jack, and floor loading capacity (maximum weight per rack)	1134 Kg / 2500 lb maximum weight of rack with full capacity. Verify weight capacities of elevators and shipping equipment before using them to transport rack.			

Related Information

- “Packaging Dimensions” on page 16
- “Sun Rack II 1042 Dimensions” on page 17
- “Sun Rack II 1042 Weights” on page 18
- “Sun Rack II 1242 Dimensions” on page 19
- “Sun Rack II 1242 Weights” on page 20
- “Power Requirements” on page 21
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Power Requirements

Refer to the *Sun Rack II Power Distribution Units User's Guide* for information about the power requirements for the PDUs.

Related Information

- “Packaging Dimensions” on page 16
- “Sun Rack II 1042 Dimensions” on page 17
- “Sun Rack II 1042 Weights” on page 18
- “Sun Rack II 1242 Dimensions” on page 19
- “Sun Rack II 1242 Weights” on page 20
- “Access Route Guidelines” on page 21
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- “ESD Precautions” on page 24

Grounding Requirements

For proper operation and safety, all powered rackmounted equipment must be properly grounded. All PDUs, branch wiring, and receptacles must be listed as grounding-type devices. Connect each component and PDU into reliably grounded outlets.

Caution - To reduce the risk of electric shock or damage to installed equipment, never disable the grounding plug on any power cord.

For additional grounding, attach an earth ground cable to the rack. See “Attaching a Grounding Cable” on page 91 for instructions.

Related Information

- “Packaging Dimensions” on page 16
- “Sun Rack II 1042 Dimensions” on page 17
- “Sun Rack II 1042 Weights” on page 18
- “Sun Rack II 1242 Dimensions” on page 19
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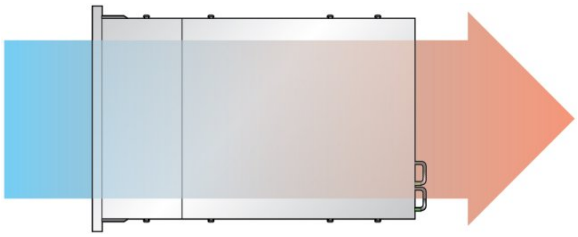
Airflow Precautions

Caution - Proper airflow is essential for keeping the equipment's internal temperatures within a safe operating range.

Air flows from the front to the rear of the equipment.



Follow these guidelines to ensure unrestricted airflow in the equipment:

- Adhere to the minimum airflow clearance specifications. See “Packaging Dimensions” on page 16.
- Install the equipment so the front faces the cool aisle and the rear faces the warm aisle.
- Do not direct warm air into the equipment.
- Prevent recirculation of air within the rack.
- When servicing equipment internal components, ensure that air ducts, baffles, and filler panels are properly installed.
- Route cables so they do not interfere with airflow.

Related Information

- “Packaging Dimensions” on page 16
- “Sun Rack II 1042 Dimensions” on page 17
- “Sun Rack II 1042 Weights” on page 18
- “Sun Rack II 1242 Dimensions” on page 19
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- “ESD Precautions” on page 24

ESD Precautions

If the rack is not completely filled with components, the remaining gaps between the components can adversely affect the air flow and cooling within the rack. Cover these gaps with filler panels. See “Install a Filler Panel” on page 104 for installation instructions.

Take measures to prevent static electricity from being generated at the installation location. Discharging static electricity from a finger or another conductor might damage static-sensitive equipment installed in the rack.

To prevent electrostatic discharge:

- Keep electrostatic-sensitive equipment in their antistatic packaging until they are installed in the rack.
- Always wear an antistatic wrist strap whenever installing or servicing rack equipment (see “Attach an Antistatic Wrist Strap” on page 71).
- Attach a chassis ground cable to the rack (for instructions, see “Servicing Grounding Straps” on page 87).

Related Information

- “Packaging Dimensions” on page 16
- “Sun Rack II 1042 Dimensions” on page 17
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- “Airflow Precautions” on page 23

Preparing for Rack Installation

These topics describe how to prepare for installing a rack at a site.

Note - Contact your service representative to confirm that your equipment is qualified for installation and use in a rack. Oracle is not liable for any issues when installing or using nonqualified equipment.

- "Site Preparation Task Overview" on page 26
- "Identifying Rack Installation Dimensions (Sun Rack II 1042)" on page 27
- "Identifying Rack Installations and Dimensions (Sun Rack II 1242)" on page 32
- "Understanding Top Cable Window Dimensions" on page 37
- "Cable Routing Holes" on page 40

Related Information

- "Understanding the Rack" on page 11
- "Confirming Specifications" on page 15
- "Installing the Rack" on page 41
- "Installing PDUs" on page 49
- "Preparing to Install or Service Equipment" on page 65
- "Returning the Rack to Operation" on page 83
- "Servicing the Rack" on page 87
- "Repacking a Rack for Shipment" on page 111

Site Preparation Task Overview

Step	Description	Links
1.	Thoroughly clean and vacuum the area in preparation of the installation.	
2.	Note any problems or peculiarities at the site that require special equipment.	
3.	Verify that the installation site flooring has a high enough strength rating to withstand the combined weight of the rack and any installed equipment.	
4.	Install all necessary electrical equipment and ensure that sufficient power is provided.	Refer to the *Sun Rack II Power Distribution Units User's Guide* for the power requirements of the rack PDUs.
5.	Ensure that the installation site provides adequate air conditioning.	
6.	Operate the air conditioning system for 48 hours to bring the room to the appropriate temperature.	
7.	Study the mounting holes and cable routing floor cutouts for your rack type.	“Floor Cutout Dimensions (Enhanced Sun Rack II 1042)” on page 28 “Floor Cutout Dimensions (Original Sun Rack II 1042)” on page 29 “Floor Cutout Dimensions (Enhanced Sun Rack II 1242)” on page 33 “Floor Cutout Dimensions (Original Sun Rack II 1242)” on page 34
8.	Study the leveling feet and caster dimensions for your rack.	“Feet and Caster Dimensions (Sun Rack II 1042)” on page 29 “Feet and Caster Dimensions (Sun Rack II 1242)” on page 34
9.	Study the rear cabling space for your rack.	“Rear Cabling Space (Sun Rack II 1042)” on page 31 “Rear Cabling Space (Sun Rack II 1242)” on page 36
10.	Determine the type of top panel for your rack and study the top cable window dimensions.	“Understanding Top Cable Window Dimensions” on page 37

Related Information

- “Identifying Rack Installation Dimensions (Sun Rack II 1042)” on page 27
- “Identifying Rack Installations and Dimensions (Sun Rack II 1242)” on page 32
- “Understanding Top Cable Window Dimensions” on page 37

Identifying Rack Installation Dimensions (Sun Rack II 1042)

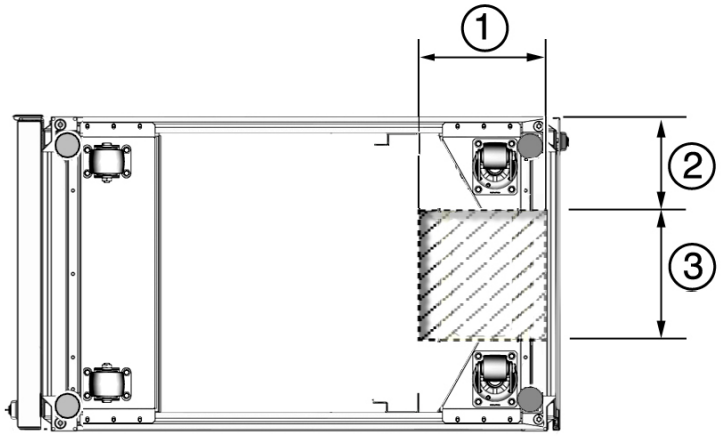
These topics describe rack dimensions for the enhanced and original Sun Rack II 1042.

Description	Links
Review rack installation dimensions for the enhanced Sun Rack II 1042.	“Floor Cutout Dimensions (Enhanced Sun Rack II 1042)” on page 28 “Feet and Caster Dimensions (Sun Rack II 1042)” on page 29 “Rear Cabling Space (Sun Rack II 1042)” on page 31
Review rack installation dimensions for the original Sun Rack II 1042.	“Floor Cutout Dimensions (Original Sun Rack II 1042)” on page 29 “Feet and Caster Dimensions (Sun Rack II 1042)” on page 29 “Rear Cabling Space (Sun Rack II 1042)” on page 31

Related Information

- “Site Preparation Task Overview” on page 26
- “Identifying Rack Installations and Dimensions (Sun Rack II 1242)” on page 32
- “Understanding Top Cable Window Dimensions” on page 37

Floor Cutout Dimensions (Enhanced Sun Rack II 1042)

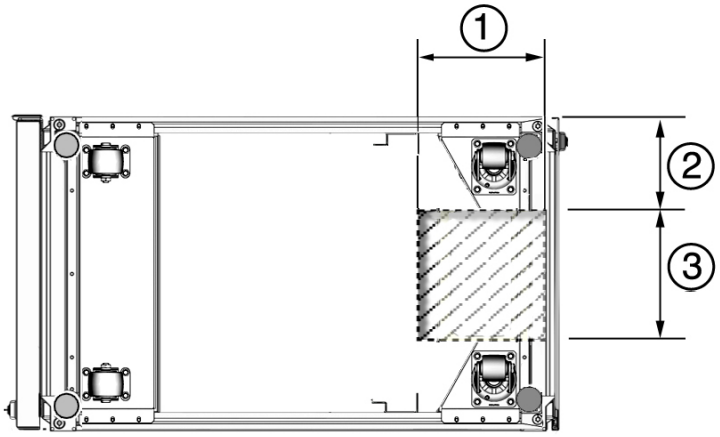


No.	Description	Metric	U.S.
1.	Depth of cable-routing floor cutout.	185.0 mm	7.25 in.
2.	Distance between the floor cutout and the edge of the rack.	160 mm	6.30 in.
3.	Width of the cable-routing floor cutout.	280.0 mm	11.00 in.

Related Information

- “Floor Cutout Dimensions (Original Sun Rack II 1042)” on page 29
- “Feet and Caster Dimensions (Sun Rack II 1042)” on page 29
- “Rear Cabling Space (Sun Rack II 1042)” on page 31

Floor Cutout Dimensions (Original Sun Rack II 1042)



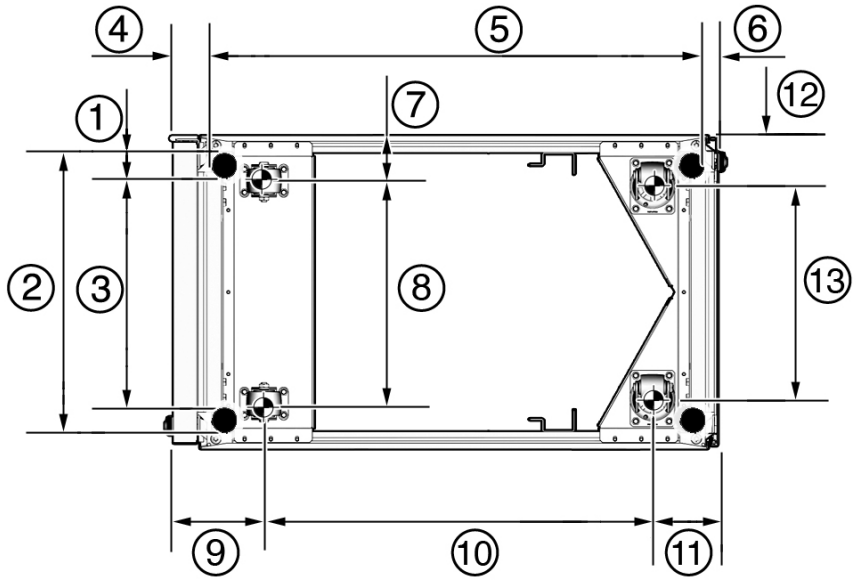
No.	Description	Metric	U.S.
1.	Depth of cable-routing floor cutout.	185.0 mm	7.25 in.
2.	Distance between the floor cutout and the edge of the rack.	160 mm	6.30 in.
3.	Width of the cable-routing floor cutout.	280.0 mm	11.00 in.

Related Information

- “Floor Cutout Dimensions (Enhanced Sun Rack II 1242)” on page 33
- “Feet and Caster Dimensions (Sun Rack II 1242)” on page 34
- “Rear Cabling Space (Sun Rack II 1242)” on page 36

Feet and Caster Dimensions (Sun Rack II 1042)

In the figure, the datum point symbols ⌖ denote the centers of the casters.

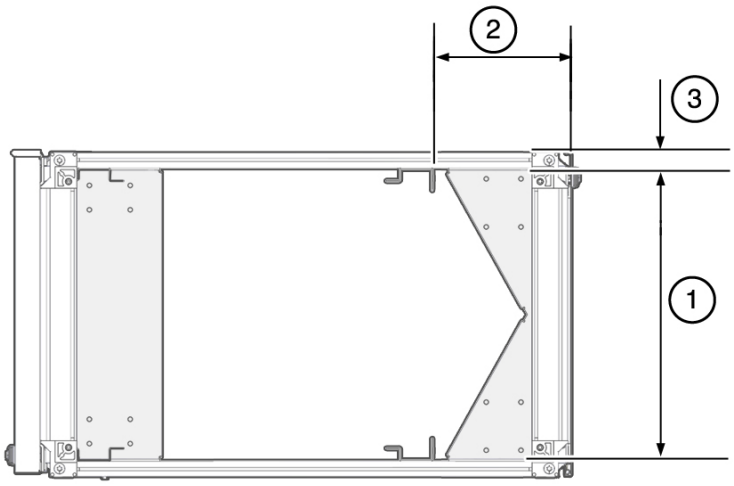


No.	Description	Metric	U.S.
1.	Distance from the edge of the mounting feet to the side of the rack.	33.75 mm	1.33 in.
2.	Width from the outside edges of the leveling feet.	532.5 mm	20.96 in.
3.	Width from the inside edges of the leveling feet.	429 mm	16.89 in.
4.	Distance from the edge of the feet to the front rack surface.	73.75 mm	2.90 in.
5.	Depth of the outside edges of the leveling feet.	918.5 mm	36.16 in.
6.	Distance from the edge of the leveling feet to the rear rack surface.	33.75 mm	1.33 in.
7.	Distance from the center of front casters to the side of the rack.	86.7 mm	3.41 in.
8.	Width between the center of the front casters.	426.6 mm	16.80 in.
9.	Distance from the center of the rear casters to the rear of the rack.	173.7 mm	6.84 in.
10.	Depth between the front and rear casters.	689.9 mm	27.16 in.
11.	Distance between the rear casters and the rear of the rack.	162.4 mm	6.39 in.
12.	Distance from the center of rear casters to the side of the rack.	96.4 mm	3.80 in.
13.	Width between the center of the rear casters.	407.2 mm	16.03 in.

Related Information

- “Floor Cutout Dimensions (Enhanced Sun Rack II 1242)” on page 33
- “Floor Cutout Dimensions (Original Sun Rack II 1242)” on page 34
- “Rear Cabling Space (Sun Rack II 1242)” on page 36

Rear Cabling Space (Sun Rack II 1042)



No.	Description	Metric	U.S.
1.	Distance between the PDU faces in the rack.	504.5 mm	19.86 in.
2.	Distance from the rear RETMA rails to the rear door.	261.7 mm	10.3 in.
3.	Distance from the front face of a PDU to the side of the rack.	47 mm	1.85 in.

Related Information

- “Floor Cutout Dimensions (Enhanced Sun Rack II 1242)” on page 33
- “Floor Cutout Dimensions (Original Sun Rack II 1242)” on page 34
- “Feet and Caster Dimensions (Sun Rack II 1242)” on page 34

Identifying Rack Installations and Dimensions (Sun Rack II 1242)

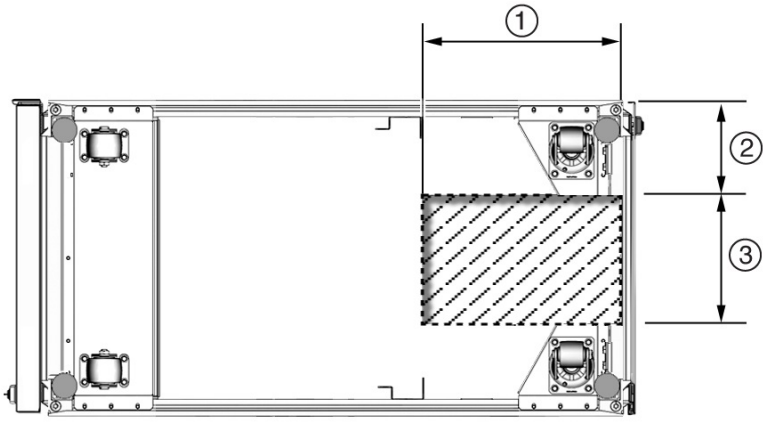
These topics describe rack dimensions for the enhanced and original Sun Rack II 1242.

Description	Links
Review rack installation dimensions for the enhanced Sun Rack II 1242.	"Floor Cutout Dimensions (Enhanced Sun Rack II 1242)" on page 33 "Feet and Caster Dimensions (Sun Rack II 1242)" on page 34 "Rear Cabling Space (Sun Rack II 1242)" on page 36
Review rack installation dimensions for the original Sun Rack II 1242.	"Floor Cutout Dimensions (Original Sun Rack II 1242)" on page 34 "Feet and Caster Dimensions (Sun Rack II 1242)" on page 34 "Rear Cabling Space (Sun Rack II 1242)" on page 36

Related Information

- "Site Preparation Task Overview" on page 26
- "Identifying Rack Installation Dimensions (Sun Rack II 1042)" on page 27
- "Understanding Top Cable Window Dimensions" on page 37

Floor Cutout Dimensions (Enhanced Sun Rack II 1242)

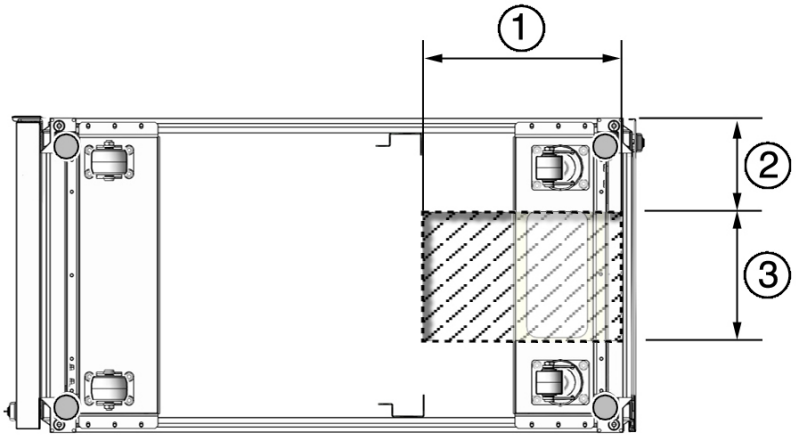


No.	Description	Metric	U.S.
1.	Depth of cable-routing floor cutout.	330 mm	13 in.
2.	Distance between the floor cutout and the edge of the rack.	160 mm	6.30 in.
3.	Width of the cable-routing floor cutout.	280.0 mm	11.00 in.

Related Information

- “Floor Cutout Dimensions (Original Sun Rack II 1242)” on page 34
- “Feet and Caster Dimensions (Sun Rack II 1242)” on page 34
- “Rear Cabling Space (Sun Rack II 1242)” on page 36

Floor Cutout Dimensions (Original Sun Rack II 1242)



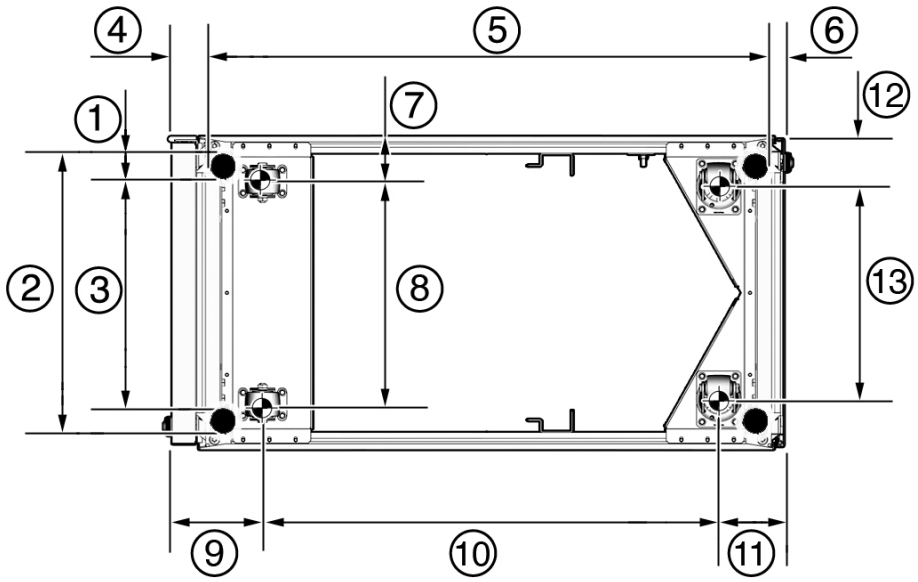
No.	Description	Metric	U.S.
1.	Depth of cable-routing floor cutout.	330 mm	13 in.
2.	Distance between the floor cutout and the edge of the rack.	160 mm	6.30 in.
3.	Width of the cable-routing floor cutout.	280.0 mm	11.00 in.

Related Information

- “Floor Cutout Dimensions (Enhanced Sun Rack II 1242)” on page 33
- “Feet and Caster Dimensions (Sun Rack II 1242)” on page 34
- “Rear Cabling Space (Sun Rack II 1242)” on page 36

Feet and Caster Dimensions (Sun Rack II 1242)

In the figure, the datum point symbols ◉ denote the centers of the casters.

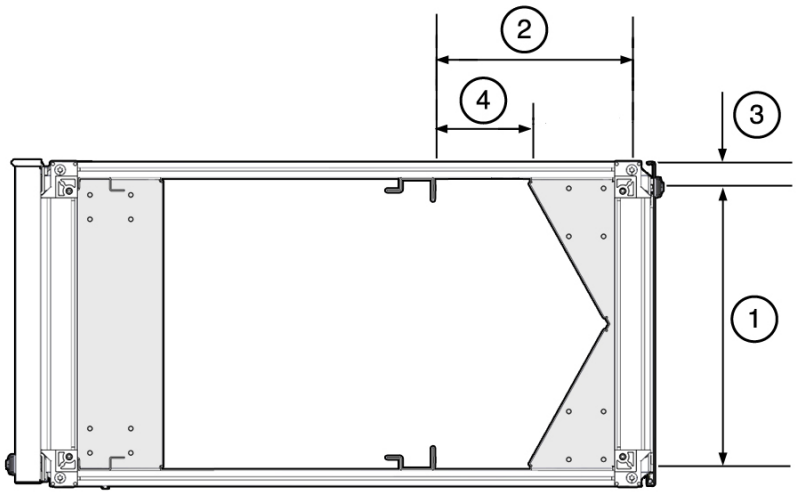


No.	Description	Metric	U.S.
1.	Distance from the edge of the mounting feet to the side of the rack.	33.75 mm	1.33 in.
2.	Width from the outside edges of the leveling feet.	532.5 mm	20.96 in.
3.	Width from the inside edges of the leveling feet.	429 mm	16.89 in.
4.	Distance from the edge of the feet to the front rack surface.	73.75 mm	2.90 in.
5.	Depth of the outside edges of the leveling feet.	1058.5 mm	41.67 in.
6.	Distance from the edge of the leveling feet to the rear rack surface.	33.75 mm	1.33 in.
7.	Distance from the center of front casters to the side of the rack.	86.7 mm	3.41 in.
8.	Width between the center of the front casters.	426.6 mm	16.80 in.
9.	Distance from the center of the rear casters to the rear of the rack.	173.7 mm	6.84 in.
10.	Depth between the front and rear casters.	828.6 mm	32.62 in.
11.	Distance between the rear casters and the rear of the rack.	162.4 mm	6.39 in.
12.	Distance from the center of rear casters to the side of the rack.	96.4 mm	3.80 in.
13.	Width between the center of the rear casters.	407.2 mm	16.03 in.

Related Information

- “Floor Cutout Dimensions (Enhanced Sun Rack II 1242)” on page 33
- “Floor Cutout Dimensions (Original Sun Rack II 1242)” on page 34
- “Rear Cabling Space (Sun Rack II 1242)” on page 36

Rear Cabling Space (Sun Rack II 1242)



No.	Description	Metric	U.S.
1.	Distance between the PDU faces in the rack.	504.5 mm	19.86 in.
2.	Distance from the rear RETMA rails to the rear door.	401.70 mm	15.815 in.
3.	Distance from the front face of a PDU to the side of the rack.	47 mm	1.85 in.
4.	Distance from the front edge of the PDU to the rear RETMA rails.	146.25 mm	5.758 in.

Related Information

- “Floor Cutout Dimensions (Enhanced Sun Rack II 1242)” on page 33
- “Floor Cutout Dimensions (Original Sun Rack II 1242)” on page 34
- “Feet and Caster Dimensions (Sun Rack II 1242)” on page 34

Understanding Top Cable Window Dimensions

Two types of top panels are available for the rack. Determine which type you have for appropriate instructions.

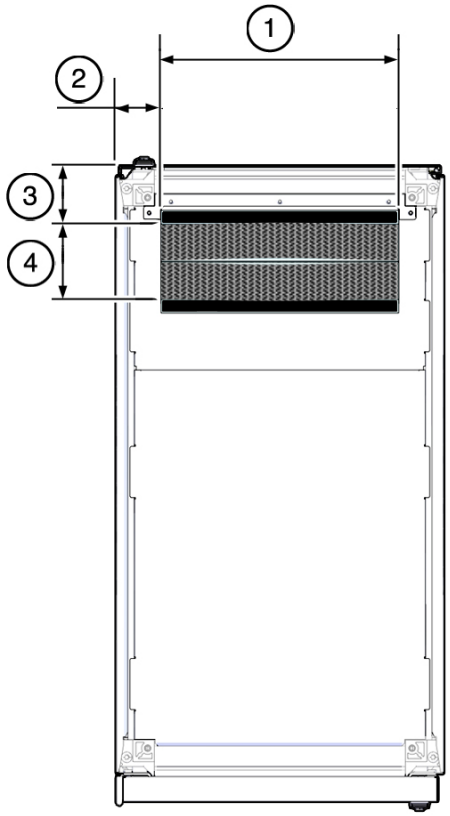
- “Two-Piece Top Panel With Air Brushes” on page 37
- “Single-Piece Top Panel” on page 38

Related Information

- “Site Preparation Task Overview” on page 26
- “Identifying Rack Installation Dimensions (Sun Rack II 1042)” on page 27
- “Identifying Rack Installations and Dimensions (Sun Rack II 1242)” on page 32

Two-Piece Top Panel With Air Brushes

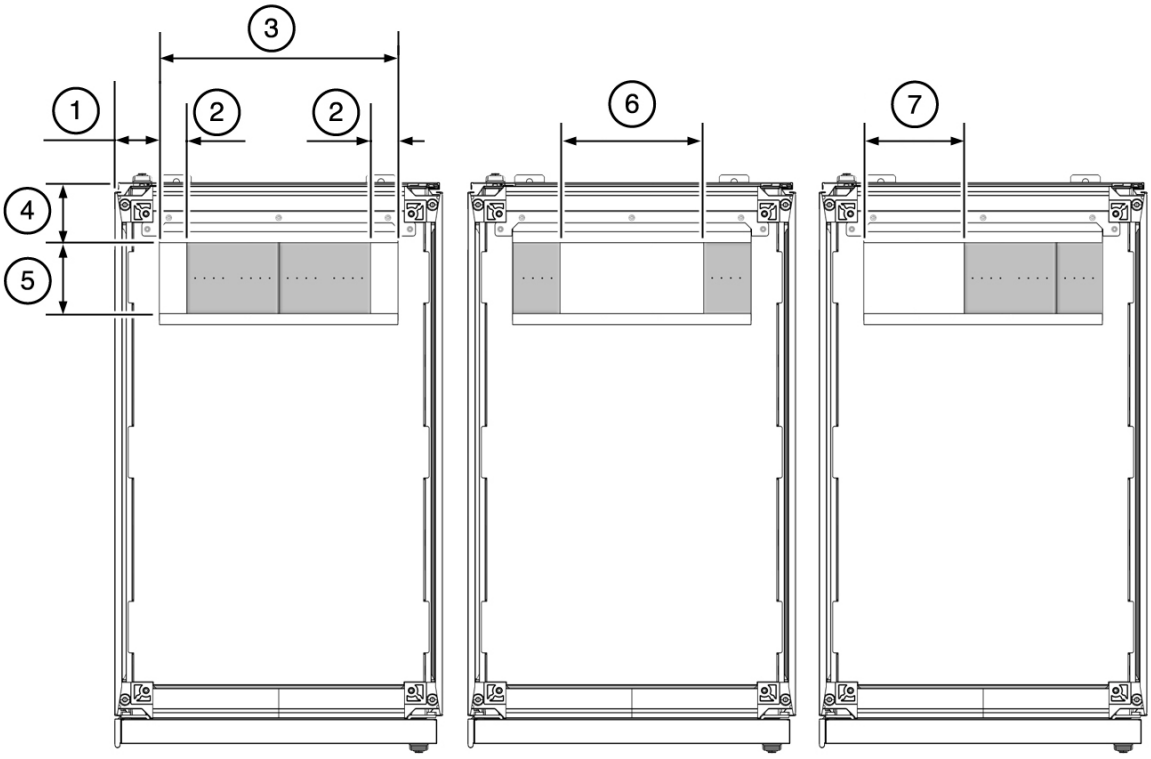
The two-piece top cable window with the air brushes at the opening is made up of a smaller panel that fits under the lip of the larger panel. The removal of the smaller panel provides a larger opening for routing cables out of the rack. The dimensions of these openings are the same for both the Sun Rack II 1042 and Sun Rack II 1242.



No.	Description	Metric	U.S.
1.	Distance between the PDU faces in the rack.	504.5 mm	19.86 in.
2.	Width of the top cable window.	436.626 mm	9.251 in.
3.	Distance from the rear of the rack to the edge of the top cable window.	436.626 mm	17.19 in.
4.	Depth of the top cable window.	130.048 mm	5.12 in.

Single-Piece Top Panel

The top cable window has three plastic panels that can be moved left or right to provide openings for routing cables out of the rack. The dimensions of these openings are the same for both the Sun Rack II 1042 and Sun Rack II 1242.



No.	Description	Metric	U.S.
1.	Distance from the side of the rack to the edge of the top cable window.	234.976 mm	9.251 in.
2.	Width of the two openings when the panels are centered in the top cable window.	50.8 mm	2 in.
3.	Width of the top cable window.	436.626 mm	17.19 in.
4.	Distance from the rear of the rack to the edge of the top cable window.	109.982 mm	4.33 in.
5.	Depth of the top cable window.	130.048 mm	5.12 in.
6.	Width of the window opening when the panels are moved all the way to the left and right.	260 mm	10.24 in.
7.	Width of the window opening when the panels are moved all the way to the left or right.	180 mm	7.1 in.

Cable Routing Holes

- **If you want to route data or PDU power cords down through the bottom of the rack, cut out a rectangular hole below the rear portion of the rack, safely between the two rear casters and behind the rear RETMA rails.**

Caution - Avoid creating a hole where the rack's casters or leveling feet will be. See “Identifying Rack Installation Dimensions (Sun Rack II 1042)” on page 27 or “Identifying Rack Installations and Dimensions (Sun Rack II 1242)” on page 32 for the location of these parts.

Related Information

- “Site Preparation Task Overview” on page 26
- “Identifying Rack Installation Dimensions (Sun Rack II 1042)” on page 27
- “Identifying Rack Installations and Dimensions (Sun Rack II 1242)” on page 32

Installing the Rack

These topics describe how to position, stabilize, and ground the rack.

- “Installation Task Overview” on page 41
- “Rack Packaging” on page 42
- “Tools Required” on page 44
- “Move the Rack to the Installation Site” on page 44
- “Stabilize the Rack (Leveling Feet)” on page 46

Related Information

- “Understanding the Rack” on page 11
- “Confirming Specifications” on page 15
- “Preparing for Rack Installation” on page 25
- “Installing PDUs” on page 49
- “Preparing to Install or Service Equipment” on page 65
- “Returning the Rack to Operation” on page 83
- “Servicing the Rack” on page 87
- “Repacking a Rack for Shipment” on page 111

Installation Task Overview

Follow these general steps when preparing to position, stabilize, and ground the rack.

Steps	Description	Links
1.	Unpack the rack.	“Rack Packaging” on page 42
2.	Move the rack to the installation sight.	“Move the Rack to the Installation Site” on page 44
3.	Stabilize the rack.	“Stabilize the Rack (Leveling Feet)” on page 46

Steps	Description	Links
		"Stabilize the Rack (Leveling Feet)" on page 46
4.	Determine if your rack has the one-piece or two-piece top panel.	"Understanding Top Cable Window Dimensions" on page 37
5.	(Optional) Attach a grounding strap.	"Servicing Grounding Straps" on page 87

Related Information

- "Rack Packaging" on page 42
- "Tools Required" on page 44
- "Move the Rack to the Installation Site" on page 44
- "Stabilize the Rack (Leveling Feet)" on page 46

Rack Packaging

Refer to the unpacking instructions included with the packaging when unpacking the rack from the shipping carton. After unpacking the rack, follow local laws and guidelines to recycle the packaging properly.

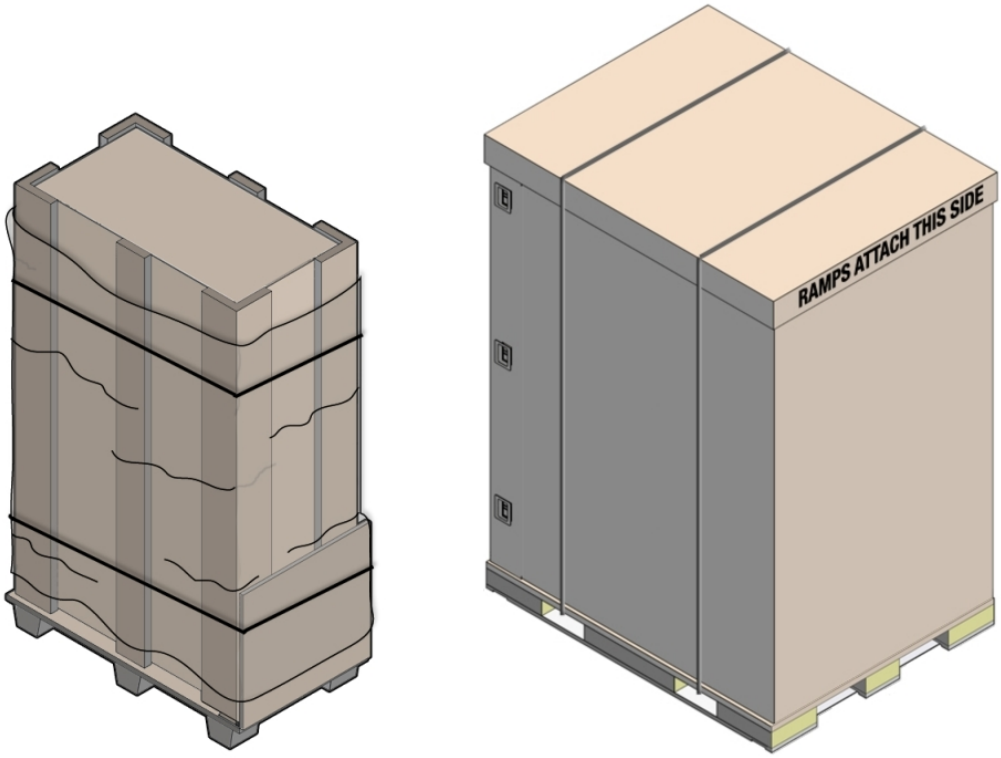
Caution - Carefully unpack the rack from the packaging and shipping pallet. Rocking or tilting the rack can cause it to fall over and cause serious injury or death. Always use professional movers when unpacking and installing the rack.

Caution - When unpacking at the installation site, or when repackaging and moving the rack to a new location, verify that the leveling feet are up before moving the rack.

After unpacking the rack from the packaging, save the shipping brackets used to secure the rack to the shipping pallet. Do not dispose of these brackets, because you cannot order replacement brackets.

Caution - Shipping brackets are not for use for bracing or anchoring the rack during seismic events.

The rack can ship in two different packaging options, the standard packaging and the enterprise packaging. The standard packaging is suitable only for shipping empty racks. The heavy-duty enterprise packaging is suitable for shipping racks with factory-installed or customer loaded equipment.



Caution - The standard packaging was designed solely for shipping an empty rack. Never install equipment in the rack while it is on this pallet, and never repack a rack in the standard packaging. If you must populate the rack prior to moving it to a new building or site, repack the rack in the enterprise packaging.

Contact your sales representative for information about ordering empty enterprise packaging. For instructions on how to repack a rack in the enterprise packaging, see “Repack the Rack in the Enterprise Packaging” on page 115.

Related Information

- “Installation Task Overview” on page 41
- “Tools Required” on page 44
- “Move the Rack to the Installation Site” on page 44
- “Stabilize the Rack (Leveling Feet)” on page 46

Tools Required

The rack shipping kit contains the following tools and equipment needed to install and service the rack:

- T-30 Torx wrench key
- T-25 Torx wrench key
- 6-mm hexagon Allen wrench key
- SW 12-mm single-headed wrench
- 2 square brackets with 4 M5 Torx screws
- 2 cable management hooks with 4 spring nuts
- Side panel removal tool
- Keys to the front door, rear door, and side panel locks
- 32 M6 cage nuts
- 32 M6 screws
- Cage nut mounting tool
- SW 17-mm single-headed wrench, included on the shipping pallet

Not included in the shipping kit are:

- No. 2 Phillips screwdriver
- Antistatic wrist strap
- Toque wrench (for repacking the rack in the enterprise packaging)

Refer to the equipment documentation for a list of any additional tools needed.

Related Information

- “Installation Task Overview” on page 41
- “Rack Packaging” on page 42
- “Move the Rack to the Installation Site” on page 44
- “Stabilize the Rack (Leveling Feet)” on page 46

▼ Move the Rack to the Installation Site

The rack's front casters are fixed, so you must steer using the rear casters. You can maneuver the rack safely by pushing it from behind.

Caution - When unpacking the rack at the installation site, verify that the leveling feet are up before moving the rack.

- **Push the rack from behind to the installation site.**

Caution - Never attempt to move the rack by pushing on the side panels. Pushing on the side panels can make the rack tip over, which can damage the equipment and cause serious personal injury or death.

Caution - Always avoid tipping or rocking the rack, especially if you have installed equipment into it, as the rack can fall over.

Related Information

- "Installation Task Overview" on page 41
- "Rack Packaging" on page 42
- "Tools Required" on page 44
- "Stabilize the Rack (Leveling Feet)" on page 46

Stabilize the Rack (Leveling Feet)

After you move the rack to the installation site, stabilize the rack using the leveling feet to ensure it does not move or tip over when you install equipment.

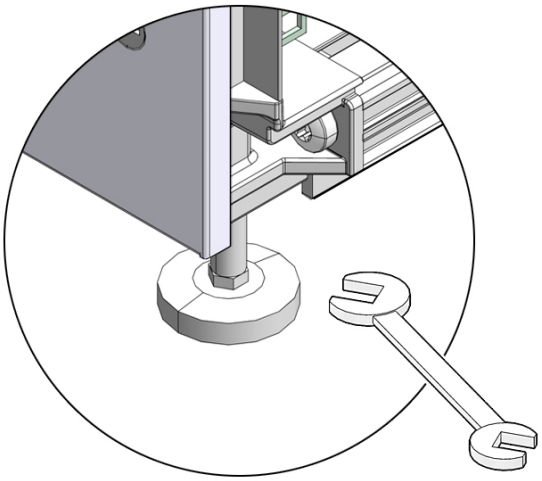
Lower the four leveling feet to share the load with the casters. This increases the footprint of the rack which improves stability and helps prevent rack movement.

1. **Locate the four leveling feet located at the bottom four corners of the rack.**

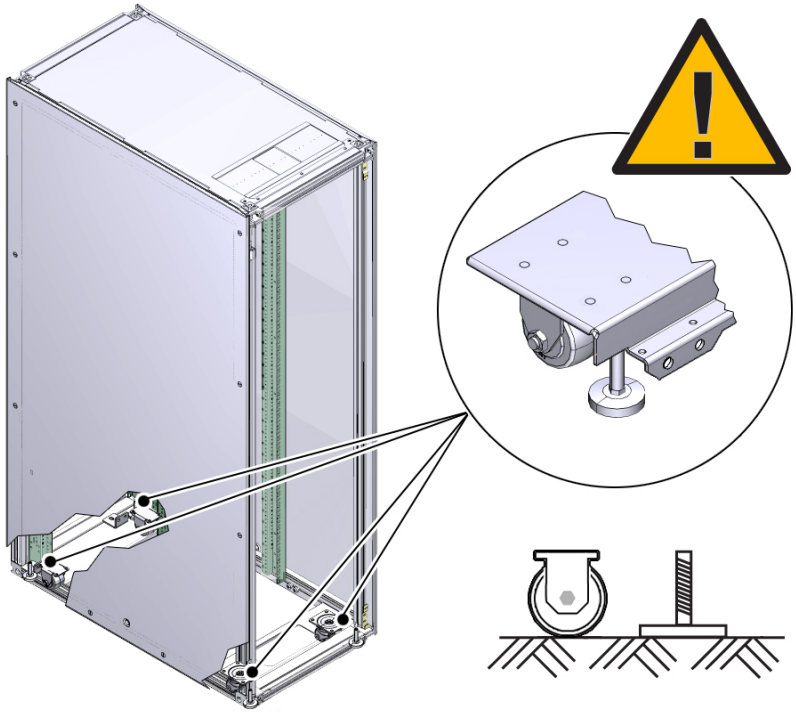
   See “Feet and Caster Dimensions (Sun Rack II 1042)” on page 29 or “Feet and Caster Dimensions (Sun Rack II 1242)” on page 34for the location and dimensions of the leveling feet.

2. **Use the SW 12-mm wrench to lower the leveling feet down to the floor and secure the four leveling feet, finger-tight.**

Caution - When moving the rack to a new location, including repacking, verify that the leveling feet are up before moving the rack.



The four leveling feet should share the rack load with the casters.



Related Information

- “Installation Task Overview” on page 41
- “Rack Packaging” on page 42
- “Tools Required” on page 44

Installing PDUs

For detailed instructions on installing and cabling PDUs in the rack, refer to the *Sun Rack II Power Distribution Units User's Guide*. Besides installation instructions, this user's guide provides service procedures and specifications for the PDUs designed for Sun Rack II.

If you plan to install PDUs or power strips not designed specifically for the Sun Rack II, refer to the documentation that came with that power equipment.

- "Prepare Factory-Installed PDUs" on page 49
- "Insert Cage Nuts Into Rail Holes" on page 58
- "Install a Cable Management Hook" on page 60

Related Information

- "Understanding the Rack" on page 11
- "Confirming Specifications" on page 15
- "Preparing for Rack Installation" on page 25
- "Installing the Rack" on page 41
- "Preparing to Install or Service Equipment" on page 65
- "Returning the Rack to Operation" on page 83
- "Servicing the Rack" on page 87
- "Repacking a Rack for Shipment" on page 111

▼ Prepare Factory-Installed PDUs

If you ordered a rack with factory-installed PDUs, you must prepare these PDUs for use.

Note - Refer to the *Sun Rack II Power Distribution Units User's Guide* for instructions on how to install, service, and use these PDUs.

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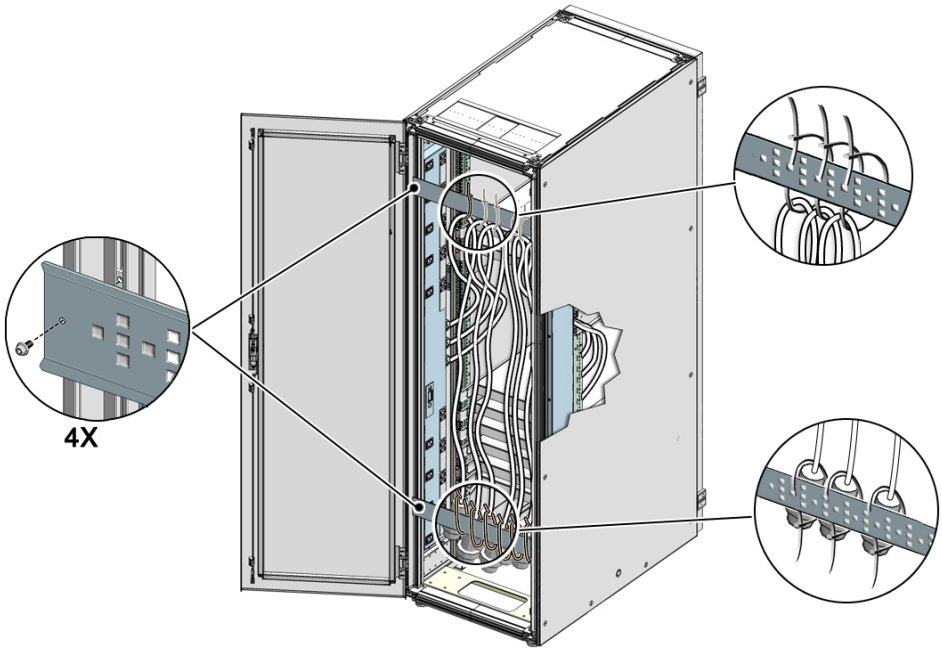
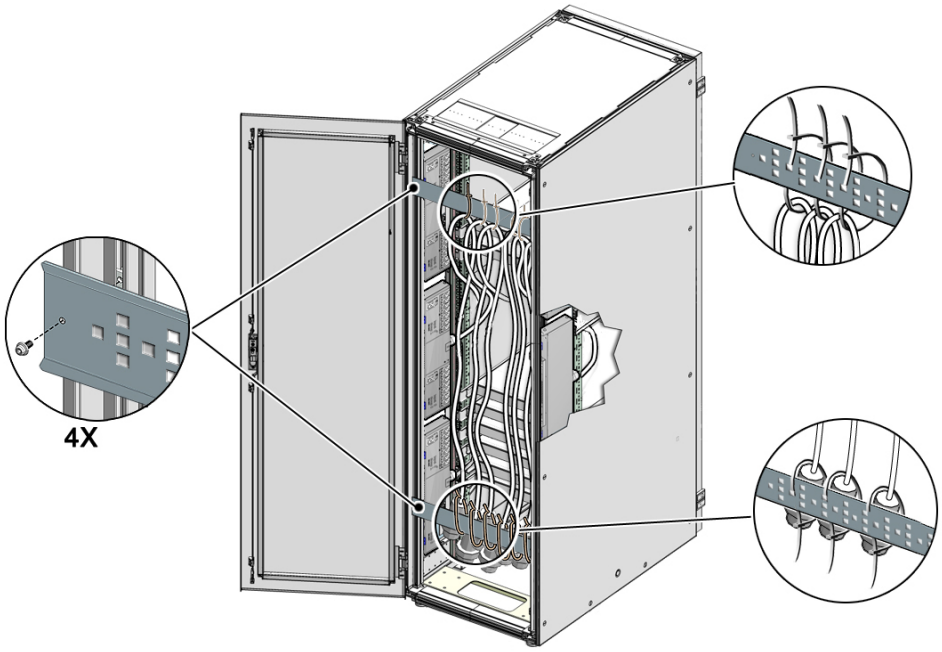
1. **Open the rear door and attach an antistatic wrist strap.**

   See “Attach an Antistatic Wrist Strap” on page 71 for instructions.

2. **Use a box cutter to cut the tie-wraps securing the PDU power lead cords to the shipping brackets.**

   The standard (first figure) and compact PDUs (second figure) are secured to the rack using the same type of shipping brackets.

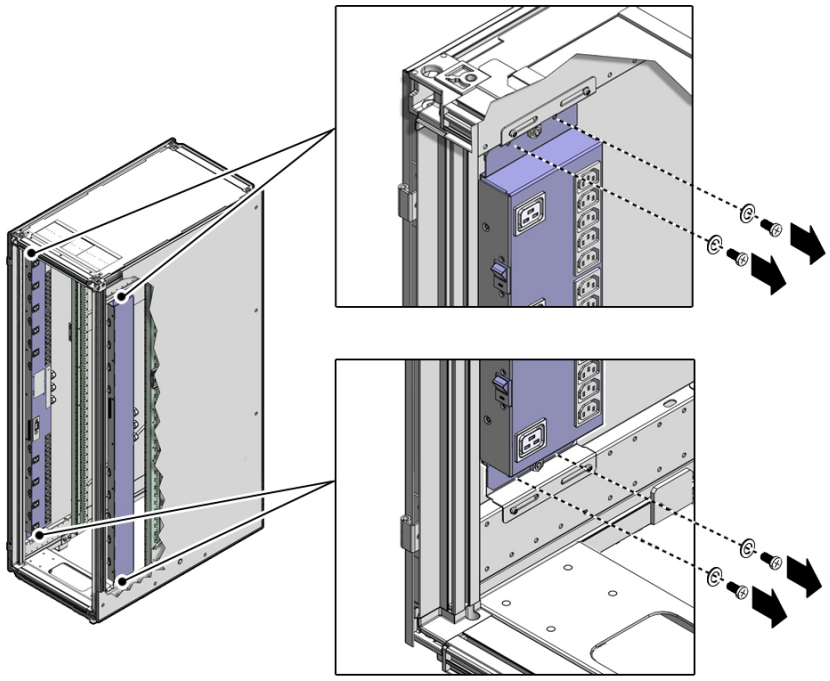




3. **If your rack contains standard PDUs, use a T-25 Torx wrench key to remove the screws securing the two shipping brackets to the rack.**

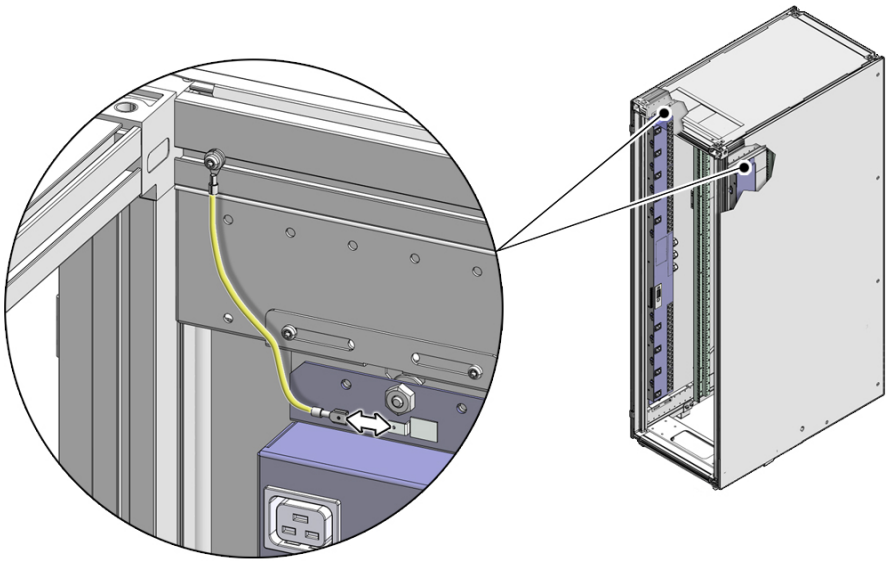
4. **(Optional) If your rack contains standard PDUs, use a T-25 Torx wrench key to remove the four screws and washers securing the standard PDU to the mounting brackets (two screws per mounting bracket).**

Leaving these screws and washers in place secures the standard PDU firmly to the rack. However, you must remove these screws and washers if you move or service the PDU in the future.



5. **If you have a standard PDU, connect the grounding strap from the rack frame to the standard PDU.**

Note - If your rack contains compact PDUs, the grounding straps are already attached to the rack.



6. **Route the power input lead cords between the rear RETMA rail and side panel.**

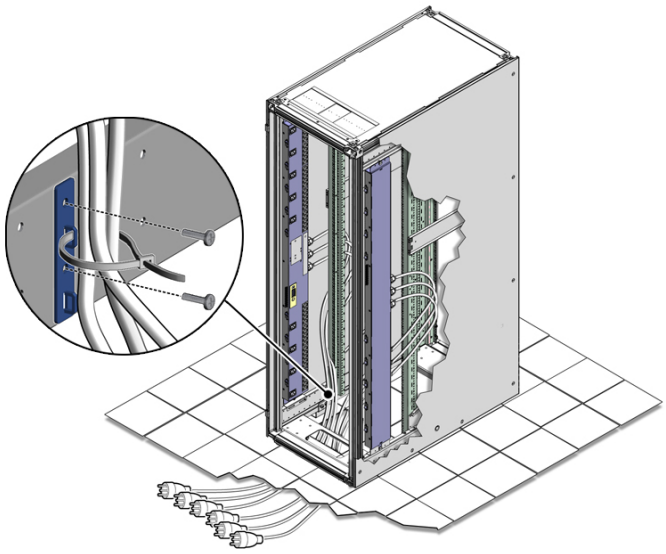
A PDU has one to three power input lead cords, which you must route between the side panel and the rear RETMA rail.

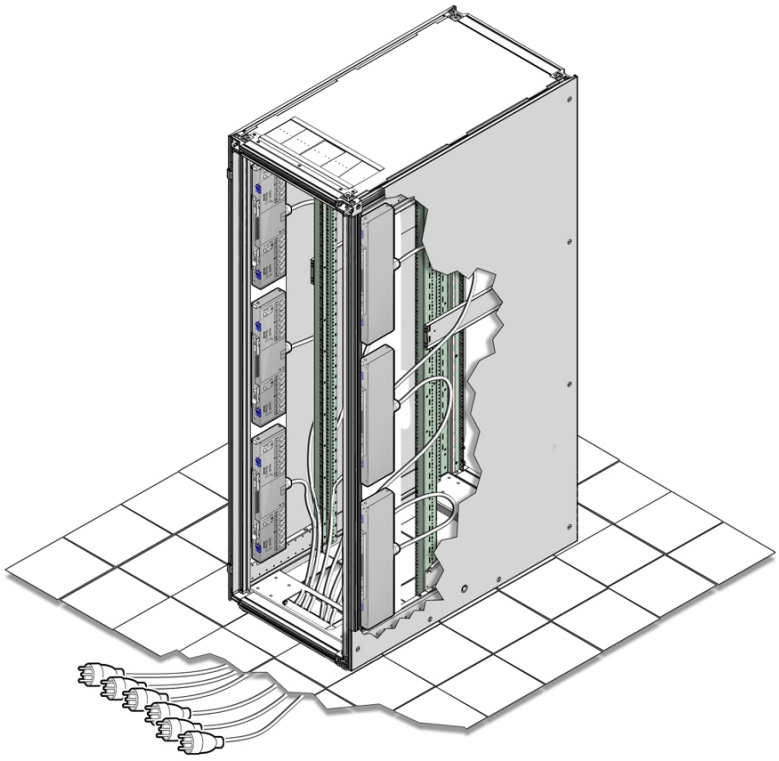
Route the power input lead cords either down through the bottom of the rack or up through the top of the rack, depending on where you plan to connect the cords to the main power source.

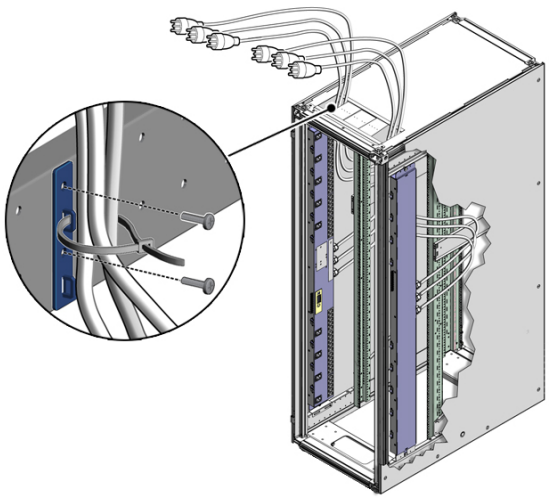
Caution - Never twist, kink, or tightly bend a power input lead.

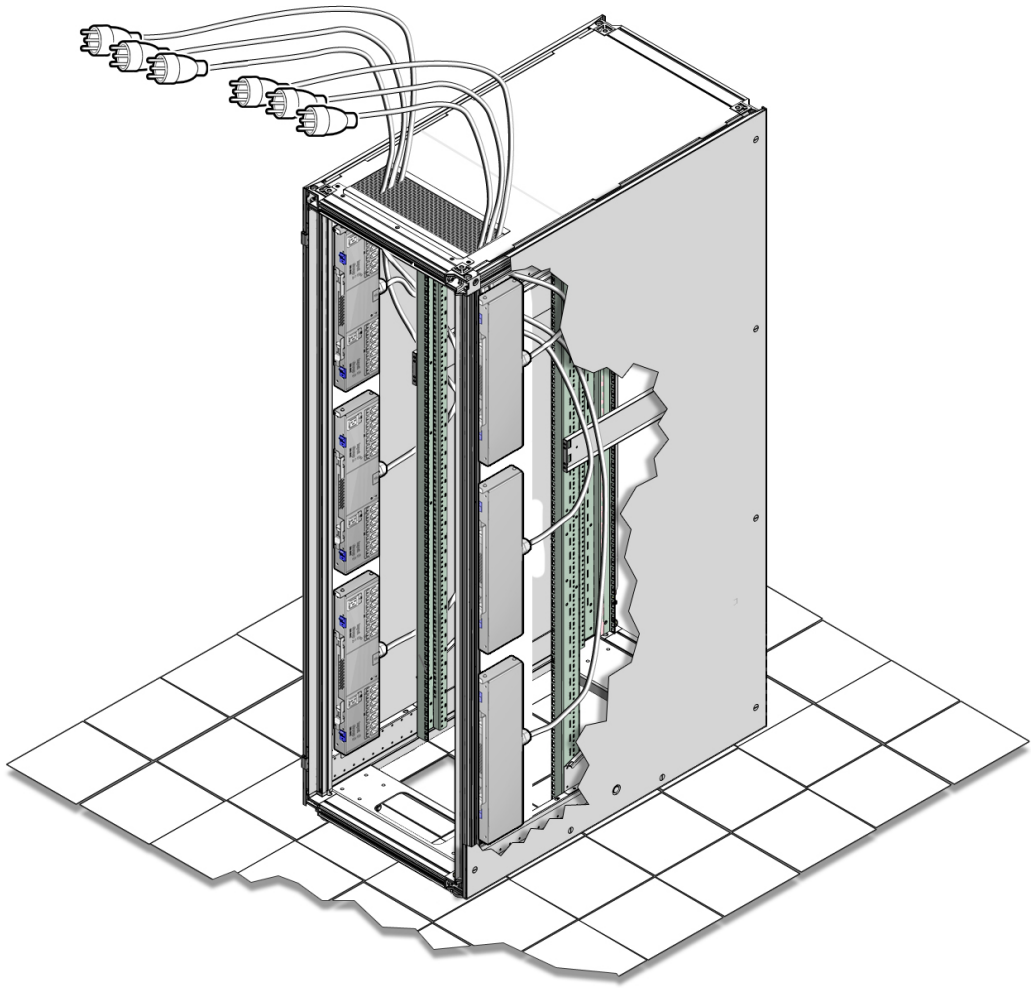
- The first figure shows how to route standard PDU power input lead cords down through the bottom of the rack.
- The second figure shows how to route compact PDU power input lead cords down through the bottom of the rack.
- The third figure shows how to route standard PDU power input lead cords up through the top cable window.

- The fourth figure shows how to route compact PDU power input lead cords up through the top cable window.









Caution - If you route power input lead cords through the top cable window, do not rest the cables on the plastic sliding doors.

7. **If your rack contains standard PDUs, use a T-30 Torx wrench key to secure cable routing brackets to the rack frame using two M6 screws per bracket.**

   Install these brackets near where the power input lead cords exit the rack.

   Note - The compact PDUs do not ship with cable routing brackets. Route and secure the power input leads using a method that works best for your environment.

8. **If your rack contains standard PDUs, use tie-wraps to secure the standard PDU input lead cords to the tie-down brackets.**

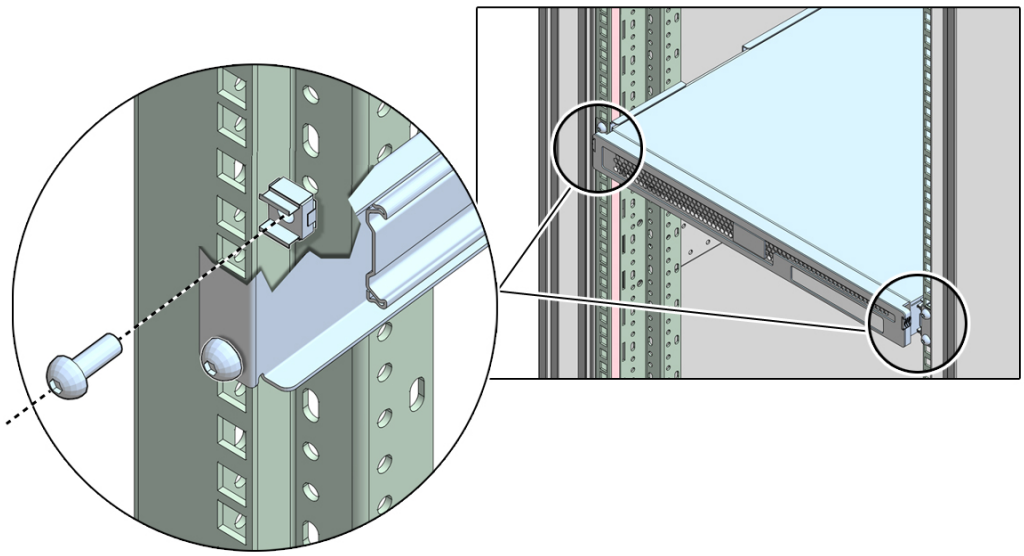
Related Information

- “Insert Cage Nuts Into Rail Holes” on page 58
- “Install a Cable Management Hook” on page 60

▼ Insert Cage Nuts Into Rail Holes

Because the RETMA rails have square holes, you might need to use cage nuts to secure the equipment into the rack. The rack shipping kit contains M6 cage nuts and M6 screws. If possible, use the cage nuts that shipped with the equipment's rackmounting hardware.

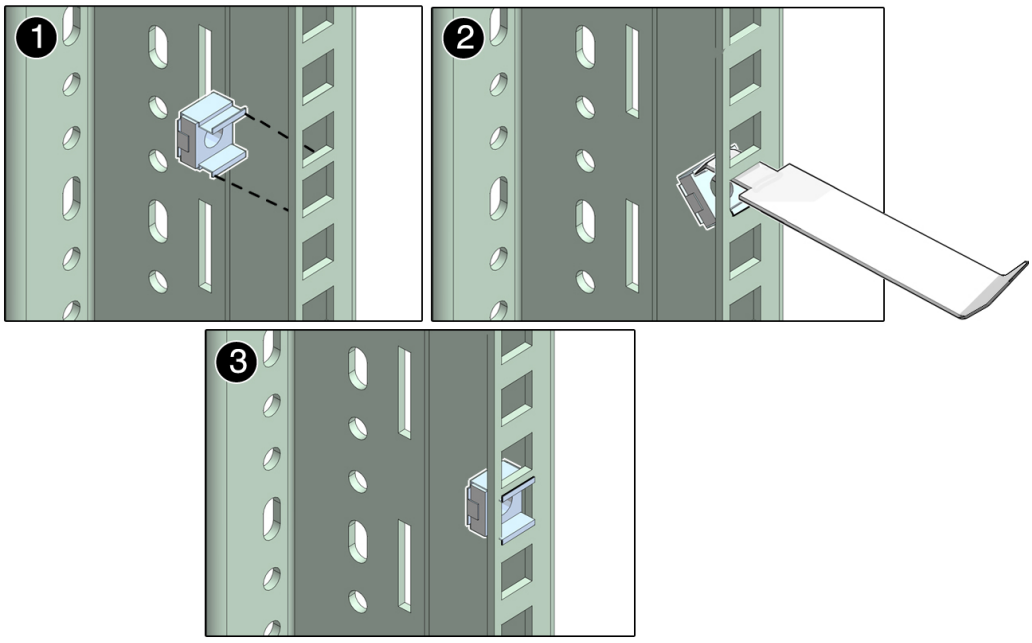
1. **Using your equipment's rack alignment template, or other equipment documentation, locate the rail holes you are using to install the equipment.**



Note - Use the cage nut insertion tool in the shipping kit to install the cage nuts in the rails.

2. **Retrieve a cage nut and hook the bottom lip of the nut in the square rail hole.**

3. **Insert the tip of the cage nut insertion tool through the rail hole and hook the top lip of the cage nut.**



4. **Using the insertion tool, pull the cage nut through the hole until the top lip snaps into place.**

Related Information

- “Prepare Factory-Installed PDUs” on page 49
- “Install a Cable Management Hook” on page 60

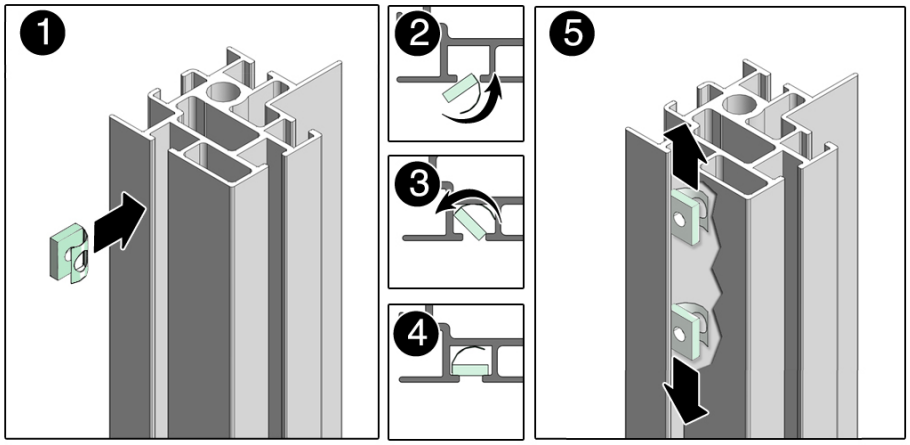
▼ Install a Cable Management Hook

You can route the equipment's data cables using the cable management hooks and spring nuts found in the shipping kit.

1. **Retrieve a cable management hook, M5 screws, and a spring nut from the shipping kit.**

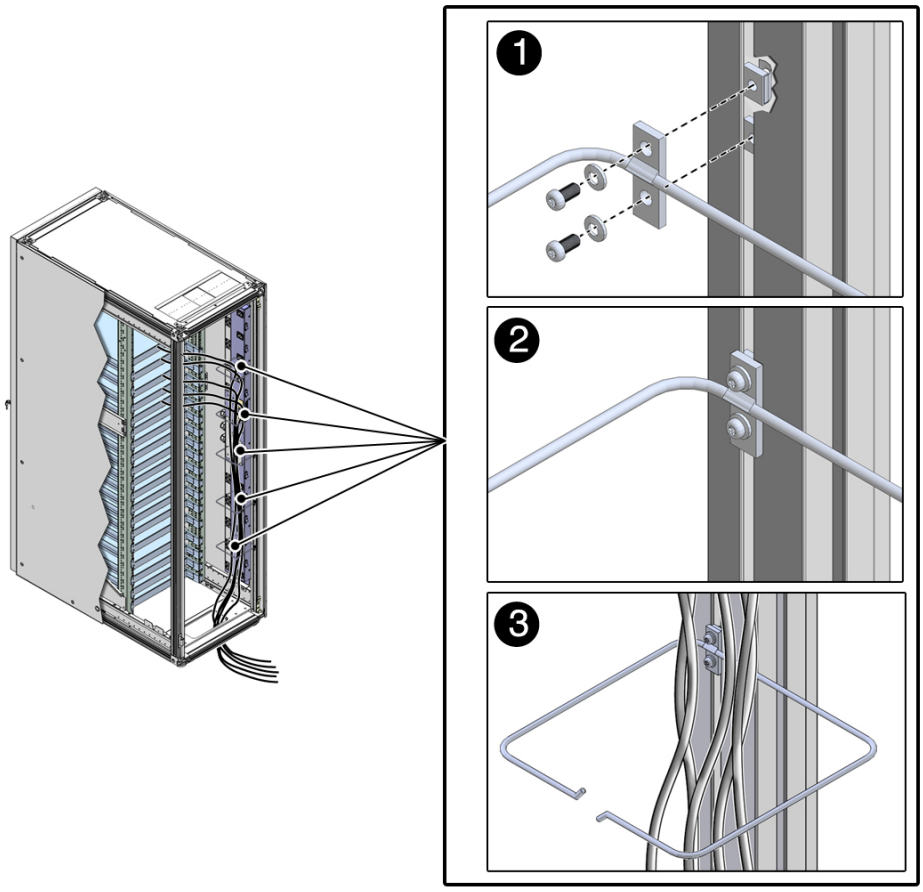
2. **Insert a spring nut at a 45-degree angle into the desired rack frame groove.**

   Once in the groove, position the spring nut so that the threaded nut is showing through the rack frame.



3. **Move the spring nut up or down the rack frame groove to where you are installing the cable management hook.**

4. **Place the cable management hook over the spring nut, and using a No. 2 screwdriver, tighten an M5 screw to secure the hook into the spring nut.**



5. **Route data cables from the installed equipment through the installed cable management hooks out of the rack.**

Note -Refer to the equipment documentation for additional cable routing instructions or guidelines.

Related Information

- “Prepare Factory-Installed PDUs” on page 49

- “Insert Cage Nuts Into Rail Holes” on page 58

Preparing to Install or Service Equipment

This topic describes how to prepare to install or service equipment in the rack.

- “Equipment Installation Task Overview” on page 65
- “Service Equipment in the Rack” on page 67
- “Install Third-Party Cable Trays” on page 68
- “Extend the Antitilt Legs” on page 70
- “Attach an Antistatic Wrist Strap” on page 71
- “Adjusting the RETMA Rails” on page 73
- “Power Off the Rack” on page 81

Related Information

- “Understanding the Rack” on page 11
- “Confirming Specifications” on page 15
- “Preparing for Rack Installation” on page 25
- “Installing the Rack” on page 41
- “Installing PDUs” on page 49
- “Returning the Rack to Operation” on page 83
- “Servicing the Rack” on page 87
- “Repacking a Rack for Shipment” on page 111

Equipment Installation Task Overview

Follow these general steps when installing equipment into the rack.

Step	Description	Links
1.	Follow all safety guidelines for the rack and the equipment.	“Equipment Installation Task Overview” on page 65
2.	Extend the antitilt legs.	“Extend the Antitilt Legs” on page 70

Step	Description	Links
3.	Attach an antistatic wrist strap.	"Attach an Antistatic Wrist Strap" on page 71
4.	(Optional) Adjust the RETMA rails, if needed for your equipment.	"Adjusting the RETMA Rails" on page 73
5.	Prepare factory-installed PDUs by removing shipping screws and routing cords. Or, install PDUs into the rack, if not already installed at the factory.	"Prepare Factory-Installed PDUs" on page 49 Refer to the *Sun Rack II Power Distribution Units User's Guide*, or your third-party PDU documentation, for instructions.
6.	Install and cable the component into the rack, using cage nuts and cable management hooks when needed.	Refer to the equipment documentation for the installation instructions, plus: "Insert Cage Nuts Into Rail Holes" on page 58 "Install a Cable Management Hook" on page 60
7.	Prepare to service equipment in the rack.	"Service Equipment in the Rack" on page 67
8.	(Optional) To improve air flow through the rack, install filler panels over any open slots.	"Install a Filler Panel" on page 104

Refer to the equipment or system documentation for the specific instructions on installing and servicing the equipment into the rack. Most equipment include a *Rack Alignment Template*, which provides specific rackmounting instructions. For additional instructions, refer to the product installation guide or rackmounting guide.

Select the appropriate rack for the equipment you plan to install. For large equipment, or equipment that requires a large amount of space for cabling, select the deeper Sun Rack II 1242.

Ensure that your installation adequately protects equipment from excessive vibration and shock. Do not attach external devices or machinery to the rack that create excessive vibration. The vibration can damage sensitive equipment installed inside the rack.

Note - Equipment weighing 36.2 Kg (80 lb) or more must be installed within the bottom 10 U (445 mm/17.5 in.) of the rack.

Note - Ensure that installed equipment or cables do not impede the air flow through the rack.

Note - Never exceed the maximum allowable weight of installed equipment in the rack.

Related Information

- "Equipment Installation Task Overview" on page 65
- "Service Equipment in the Rack" on page 67

- "Install Third-Party Cable Trays" on page 68
- "Extend the Antitilt Legs" on page 70
- "Attach an Antistatic Wrist Strap" on page 71
- "Adjusting the RETMA Rails" on page 73
- "Power Off the Rack" on page 81

Service Equipment in the Rack

These steps provide general instructions for servicing equipment in the rack. Always refer to the equipment documentation for specific instructions.

Note - Extend only one piece of equipment out of the rack at a time. Secure a component into a rack completely before installing another component.

Note - If you need to remove equipment from the rack, use a mechanical lift to lift the equipment. Otherwise, get help before attempting to lift heavy equipment.

Caution - To reduce the risk of personal injury or damage to the equipment, always load the heaviest item first from the bottom of the rack up. This arrangement makes the rack bottom-heavy and helps prevent the rack from becoming unstable.

Caution - To reduce the risk of personal injury, ensure that the rack is adequately stabilized before extending a component outside the rack. A rack might become unstable and tip over if more than one component is extended for any reason.

1. **If necessary, shut down and power off the equipment about to be serviced.**

   Refer to the equipment documentation for the specific instructions.

   Note - Depending on the serviceable component, you might be able to service the component without powering off the equipment. For example, you might be able to replace air filters or hot-swap disk drives without powering off the equipment. Refer to your equipment documentation for these servicing procedures.

2. **If required, power off the rack.**

   You might not need to power off the rack to service installed equipment. However, if you need to power off the rack, see "Power Off the Rack" on page 81 for instructions.

3. **Extend the rack's antitilt legs.**

   See “Extend the Antitilt Legs” on page 70 for instructions.

4. **Attach an antistatic wrist strap.**

   See “Attach an Antistatic Wrist Strap” on page 71 for instructions.

5. **Service the installed equipment.**

   Refer to the equipment service manual, or other documentation, for the specific service procedures.

Related Information

- “Equipment Installation Task Overview” on page 65
- “Install Third-Party Cable Trays” on page 68
- “Extend the Antitilt Legs” on page 70
- “Attach an Antistatic Wrist Strap” on page 71
- “Adjusting the RETMA Rails” on page 73
- “Power Off the Rack” on page 81

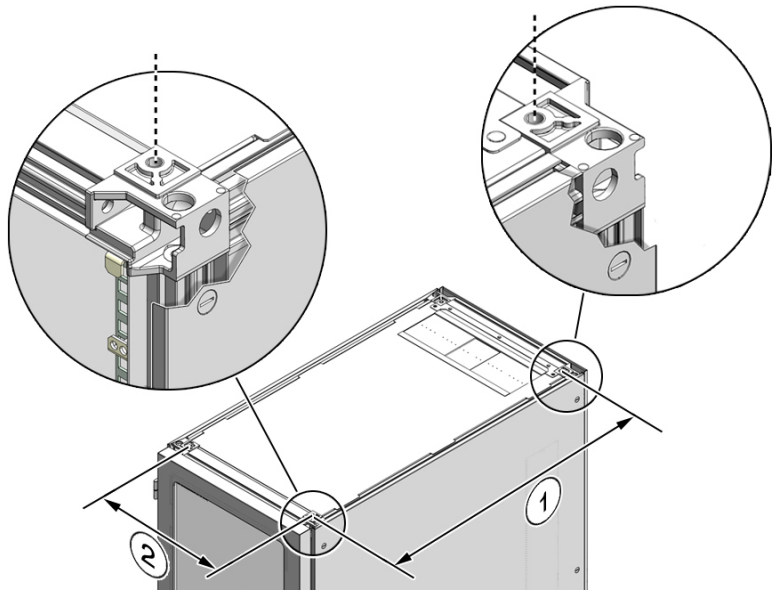
▼ Install Third-Party Cable Trays

Cable trays for routing cables out the top of the rack cabinet are not packaged with the rack. However, there are four threaded holes on the top of the rack where you can attach cable trays using M12 bolts.

Caution - The standard packaging is designed solely for shipping an empty rack. Never install equipment in the rack while it is on this pallet, and never repack a rack in the standard packaging. If you must populate the rack prior to moving it to a new building or site, repack the rack in the enterprise packaging.

- **Attach cable trays to the rack.**

Use this illustration and the dimensions in this table to guide you.



No.	Description	Metric	U.S.
1.	Depth of the mounting holes	871 mm (Sun Rack II 1042)	34.29 in. (Sun Rack II 1042)
		1011 mm (Sun Rack II 1242)	43.35 in. (Sun Rack II 1242)
2.	Width of mounting holes	485 mm	19.09 in.

Caution - Do not attempt to use these four holes to lift the rack off the floor or pallet, because they do not support the weight of the rack.

Related Information

- “Equipment Installation Task Overview” on page 65
- “Service Equipment in the Rack” on page 67
- “Extend the Antitilt Legs” on page 70
- “Attach an Antistatic Wrist Strap” on page 71
- “Adjusting the RETMA Rails” on page 73

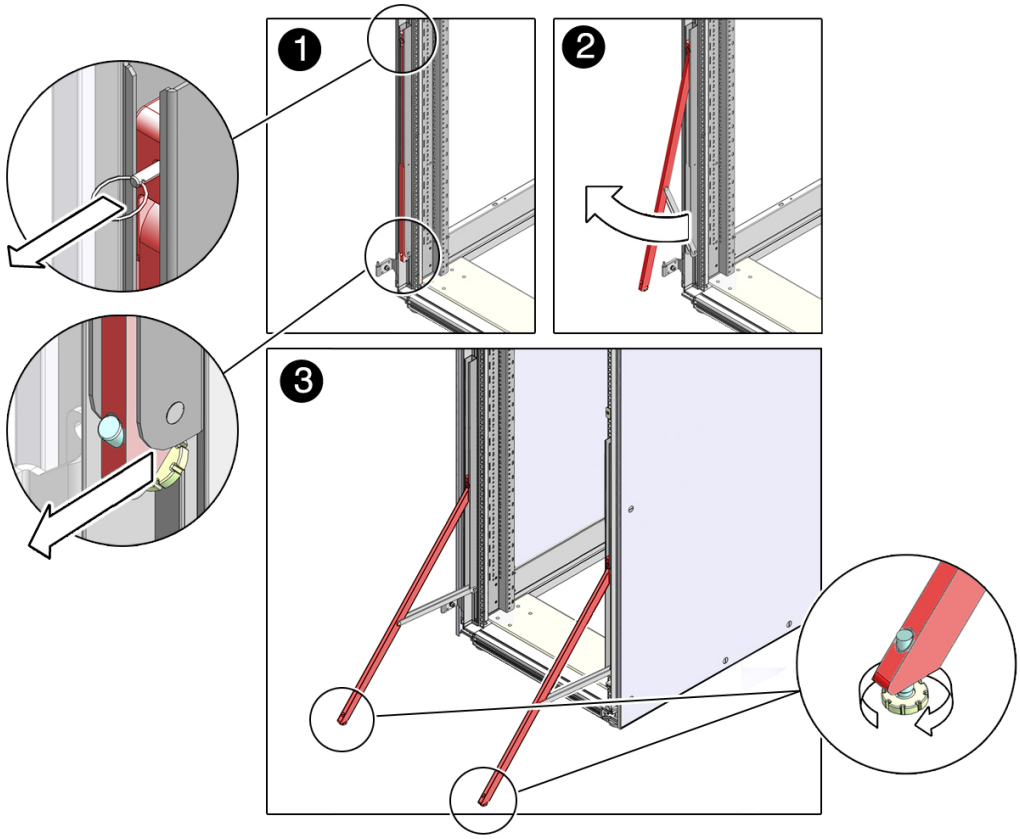
- “Power Off the Rack” on page 81

Extend the Antitilt Legs

1. **Open the front door.**

2. **Pull the top release pin to unlock the antitilt leg from the rack frame, and then pull the bottom foot of the antitilt leg away from the rack until it extends completely.**

   The leg support makes a clicking sound when it fully extends and locks in place.



3. **Rotate the leg's leveling foot clockwise until it touches the floor.**

The foot must touch the floor to stabilize the rack securely.

4. **Repeat Step 2 and Step 3 to extend the other antitilt leg.**

Related Information

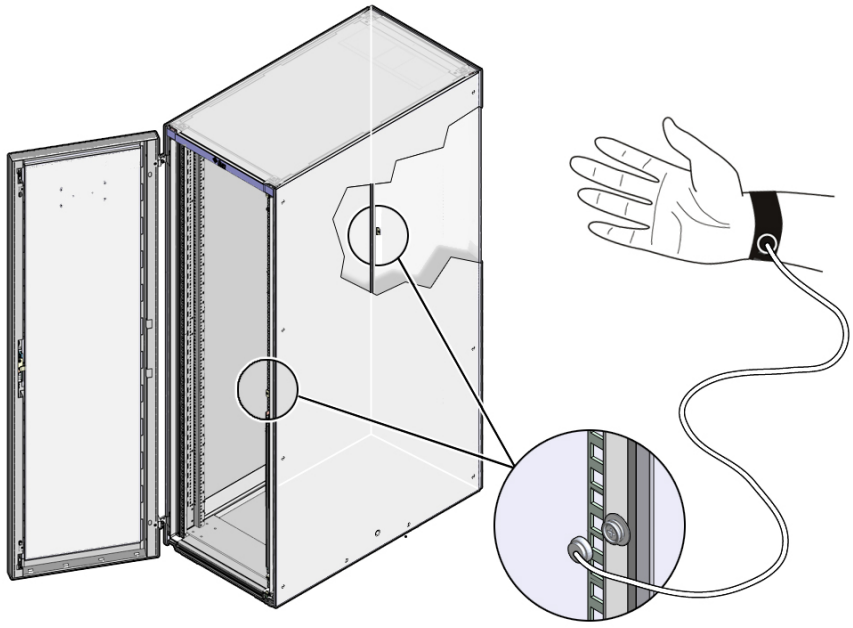
- “Equipment Installation Task Overview” on page 65
- “Service Equipment in the Rack” on page 67
- “Install Third-Party Cable Trays” on page 68
- “Attach an Antistatic Wrist Strap” on page 71
- “Adjusting the RETMA Rails” on page 73
- “Power Off the Rack” on page 81

▼ Attach an Antistatic Wrist Strap

Caution - To protect rack equipment from damaging static shock, always wear an antistatic wrist strap connected to an ESD ground jack whenever installing or servicing equipment. The ESD ground jacks provide adequate static protection only if the rack is grounded to a building ground.

- **Attach a wrist strap to an ESD ground jack on the rack.**

You can find the ESD ground jacks on the front and rear of the rack. These ground jacks accommodate 10 mm (0.39 in.) snap connectors.



Related Information

- “Equipment Installation Task Overview” on page 65
- “Service Equipment in the Rack” on page 67
- “Install Third-Party Cable Trays” on page 68
- “Extend the Antitilt Legs” on page 70
- “Adjusting the RETMA Rails” on page 73
- “Power Off the Rack” on page 81

Adjusting the RETMA Rails

The default depth of the RETMA rails should provide adequate space to install the majority of equipment. However, you can adjust the front and rear rails to accommodate equipment of different sizes and to provide additional room for cabling and large bezels.

Note - Moving the rear rails back might decrease the number of PDUs you can install in your rack. Refer to the *Sun Rack II Power Distribution Units User's Guide* for the dimensions of the PDUs.

Caution - Adjusting the rear RETMA rails can make the rack less stable. If you adjust the rear RETMA rails, you must install the equipment only after you have stabilized the rack at the installation site (see "Stabilize the Rack (Leveling Feet)" on page 46). Do not move the rack after installing the equipment.

- "Adjust the Front RETMA Rails" on page 73
- "Adjust the Rear RETMA Rails" on page 77

Related Information

- "Equipment Installation Task Overview" on page 65
- "Service Equipment in the Rack" on page 67
- "Install Third-Party Cable Trays" on page 68
- "Extend the Antitilt Legs" on page 70
- "Attach an Antistatic Wrist Strap" on page 71
- "Adjusting the RETMA Rails" on page 73
- "Power Off the Rack" on page 81

▼ Adjust the Front RETMA Rails

Note - With the new racks, you can move the front rails back 150 mm (5.90 in.) into the rack from the default position. For older racks, you can move the front rails back 35 mm (1.4 in.) from the default position.

1. **Open both rack doors.**

You might prefer to remove the doors from the rack before adjusting the RETMA rails. For instructions, see “Servicing Doors” on page 94.

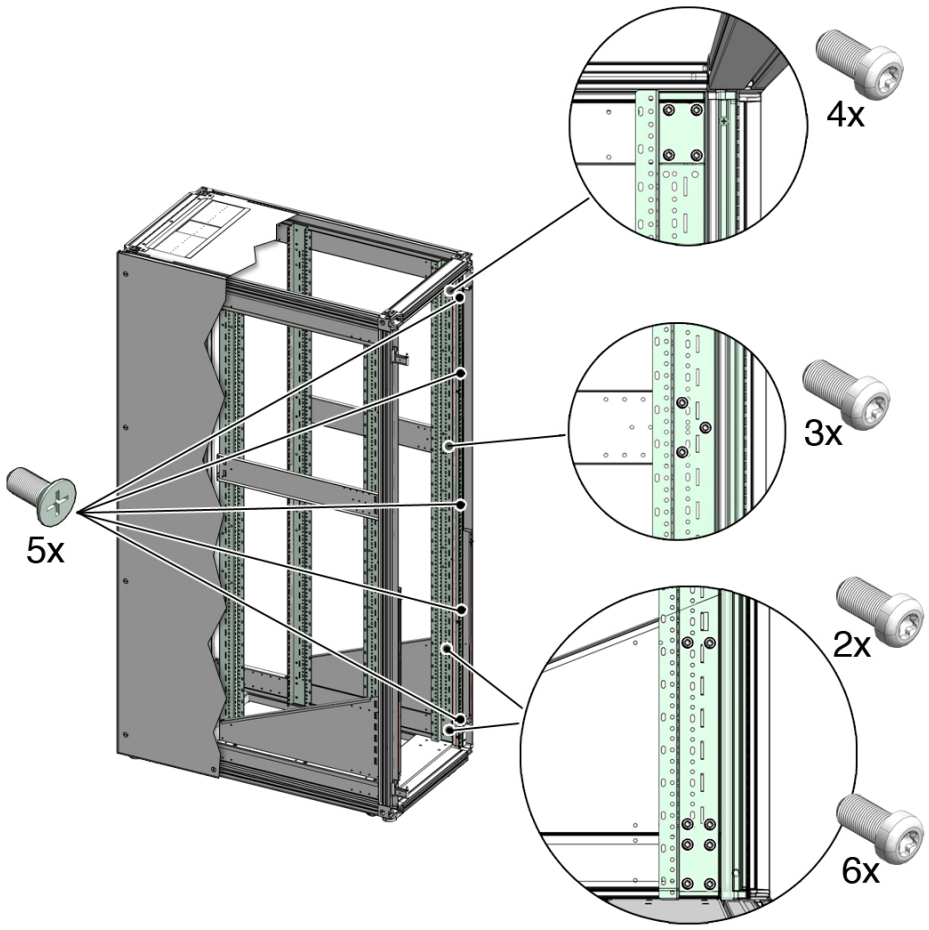
2. **Using a No. 2 Phillips screwdriver, remove the five No. 2 Phillips screws securing the right, front RETMA rail to the front rack frame.**

3. **Using a T-30 Torx wrench key, remove and save the 15 self-tapping M6 screws securing the right rail to the rack frame.**

Note - Do not discard these self-tapping screws.

- 4 screws at the top the rail
- 3 screws securing the rail to the horizontal brace
- 4 screws securing the rail to the triangular brace
- 4 screws at the bottom of the rail

Note - To prevent stripping the screw threads, carefully remove these screws from the rack.



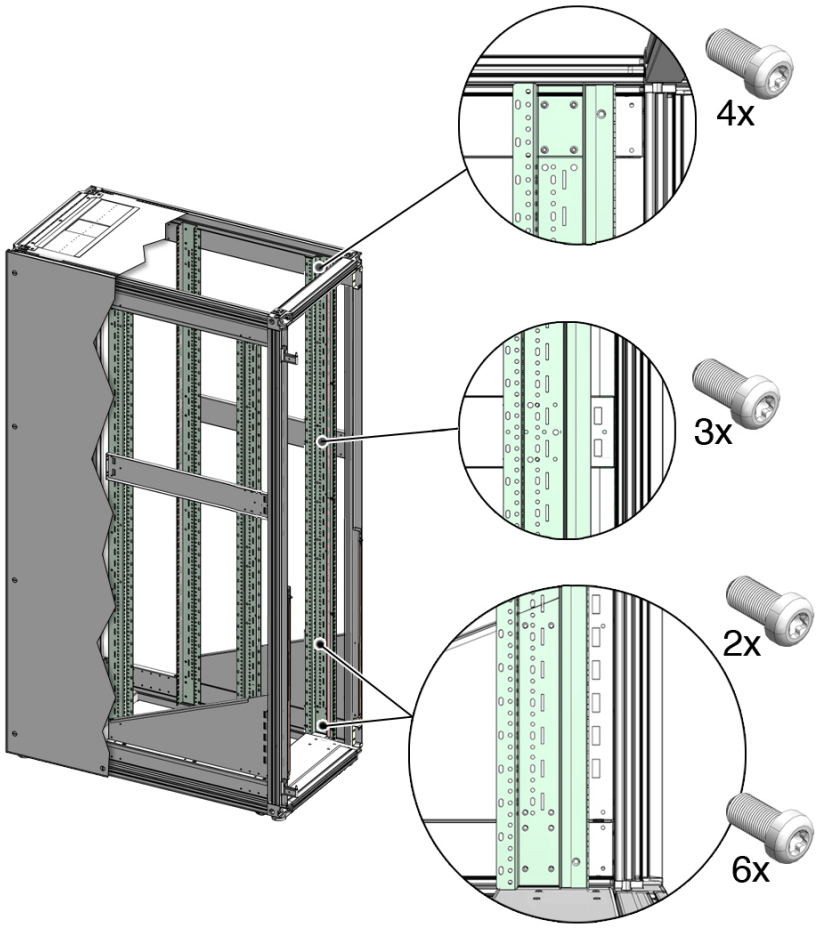
There are four sets of screws securing the rail to the frame and the support braces:

4. **Move the rail back into the rack.**

   An indentation and screw holes are 150 mm or 35 mm inside the rack on the frame.

5. **Using a T-30 Torx wrench key, secure the rail to the rack frame and braces using the 15 M6 self-tapping screws you removed in Step 3.**

   You do not need to reuse the No. 2 Phillips screws you removed in Step 2, so save these screws for future use.



6. **Repeat Step 2 to Step 5 for the left rail.**

▼ Adjust the Rear RETMA Rails

Note - You can move the rear rails in 25 mm (approx. 1 in.) intervals all the way to the rear of the rack.

1. **Open both rack doors.**

   You might prefer to remove the doors from the rack before adjusting the RETMA rails. For instructions, see “Servicing Doors” on page 94.

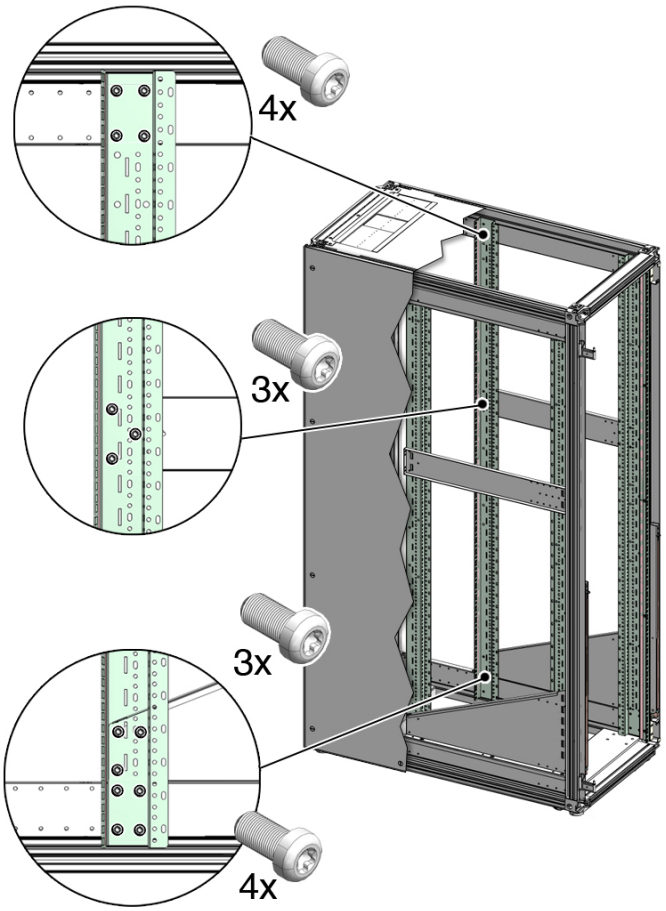
2. **Using a T-30 Torx wrench key, remove and save the 14 M6 screws securing the right rail to the rack frame.**

   Note - Do not discard these M6 self-tapping screws.

   For the original racks, there are four sets of screws securing the rail to the frame and the support braces:

   - 4 screws at the top the rail
   - 3 screws securing the rail to the horizontal brace
   - 3 screws securing the rail to the triangular brace
   - 4 screws at the bottom of the rail

Note - To prevent stripping the screw threads, carefully remove these screws from the rack.

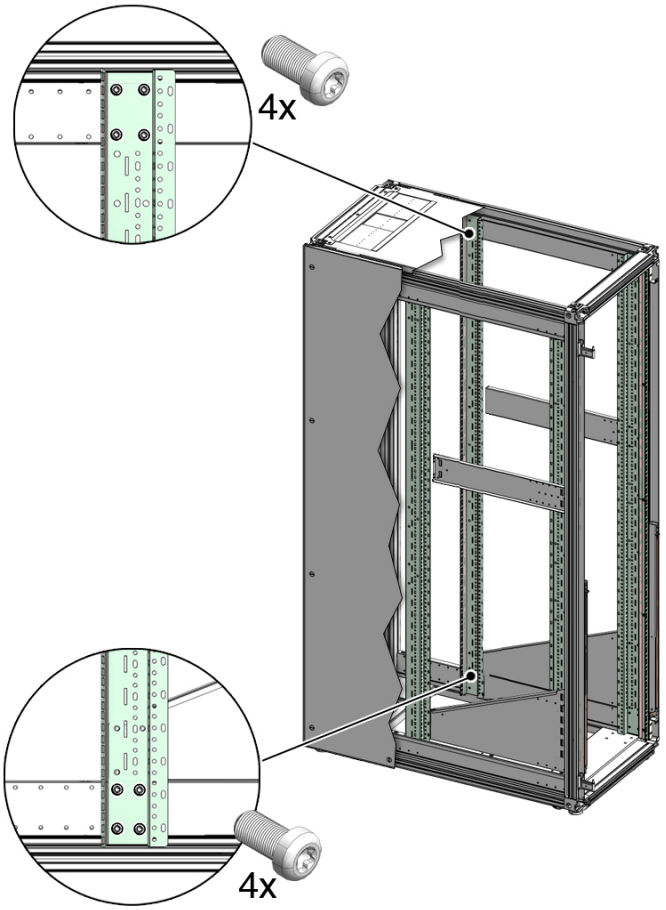


Caution - By separating the rails from the support braces in the older racks, you decrease the overall stability and strength of the rack. You can still use the horizontal brace if you move the front rails the same distance into the rack as you moved the rear rails (35 mm).

Note - The new racks have telescopic horizontal braces that can increase overall stability and strength of the rack, without having to move the front rails the same distance into the rack as you moved the rear rails.

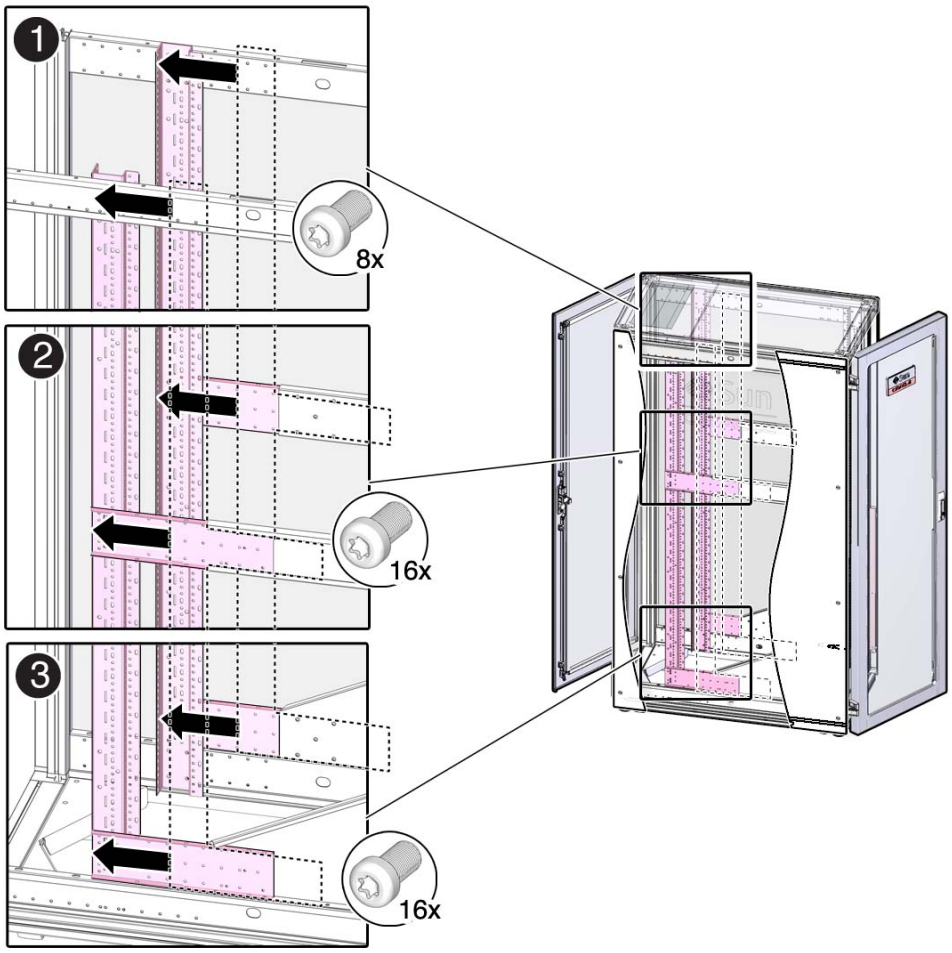
3. **Move the rail to the desired location and use a T-30 Torx wrench key to secure the rail to the rack frame and braces.**

   Secure the rail using four screws at both the top and bottom of the rail. Save the remaining six M6 self-tapping screws for future use.



4. **For new racks with middle and bottom telescopic support braces, extend and secure the braces to the rails.**

   Secure the telescopic braces using five screws at both the middle and bottom rails.



5. **Repeat Step 2 through Step 4 for the left rail.**

Power Off the Rack

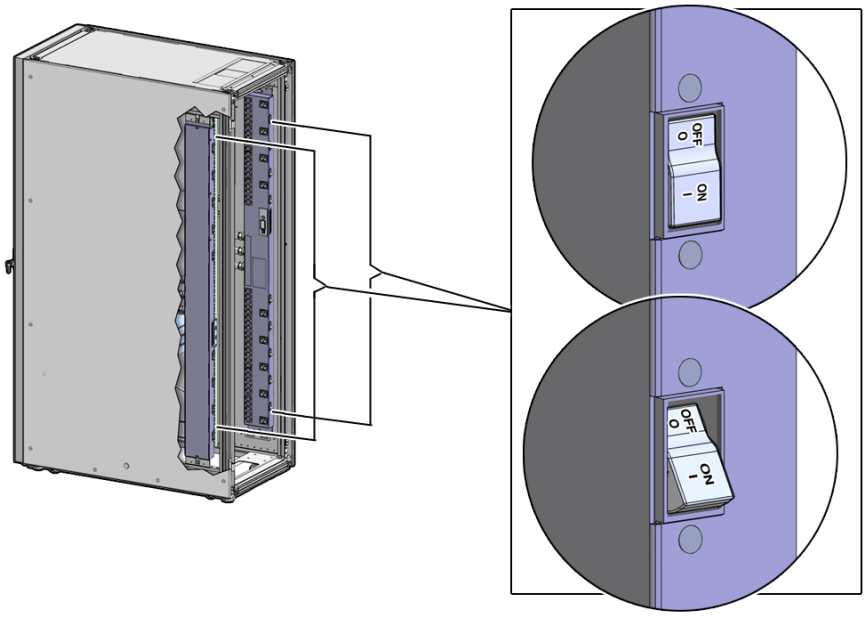
1. **Power off all systems and equipment installed in the rack.**

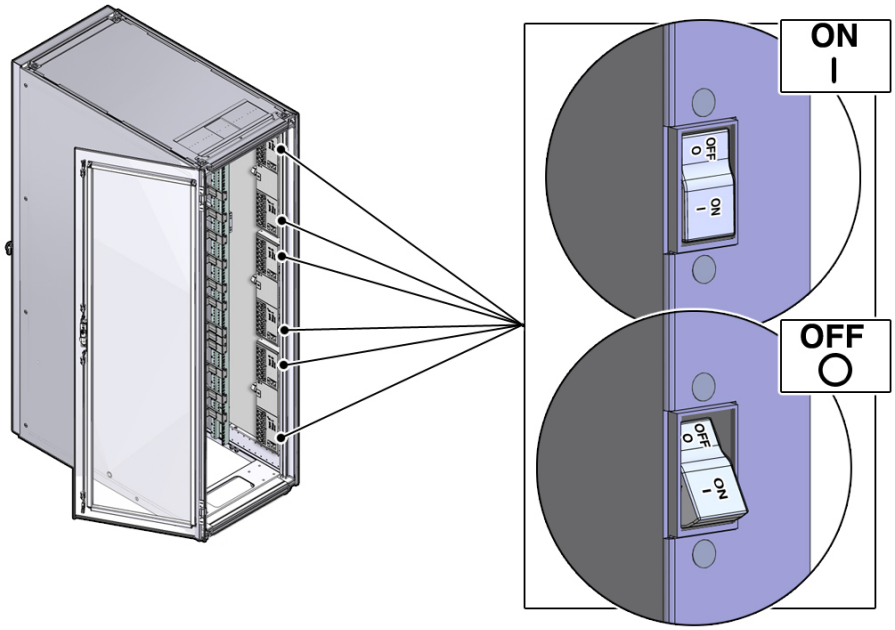
   Refer to the system and equipment documentation for the proper shut down and power off procedures.

2. **Switch off all of the PDU circuit breakers in the rack.**

   When installed correctly, these circuit breakers face the rear of the cabinet. Press down on the OFF (0) toggle switch.

   - The first figure shows standard PDU circuit breaker settings.
   - The second figure shows compact PDU circuit breaker settings.





Related Information

- “Equipment Installation Task Overview” on page 65
- “Service Equipment in the Rack” on page 67
- “Install Third-Party Cable Trays” on page 68
- “Extend the Antitilt Legs” on page 70
- “Attach an Antistatic Wrist Strap” on page 71
- “Adjusting the RETMA Rails” on page 73

Returning the Rack to Operation

This topic describes how to return the rack to operation mode.

- “Returning the Rack to Operation Task Overview” on page 83
- “Retract the Antitilt Legs” on page 84
- “Power the Rack On” on page 85

Related Information

- “Understanding the Rack” on page 11
- “Confirming Specifications” on page 15
- “Preparing for Rack Installation” on page 25
- “Installing the Rack” on page 41
- “Installing PDUs” on page 49
- “Preparing to Install or Service Equipment” on page 65
- “Servicing the Rack” on page 87
- “Repacking a Rack for Shipment” on page 111

Returning the Rack to Operation Task Overview

Follow these general steps when returning the rack to operational mode.

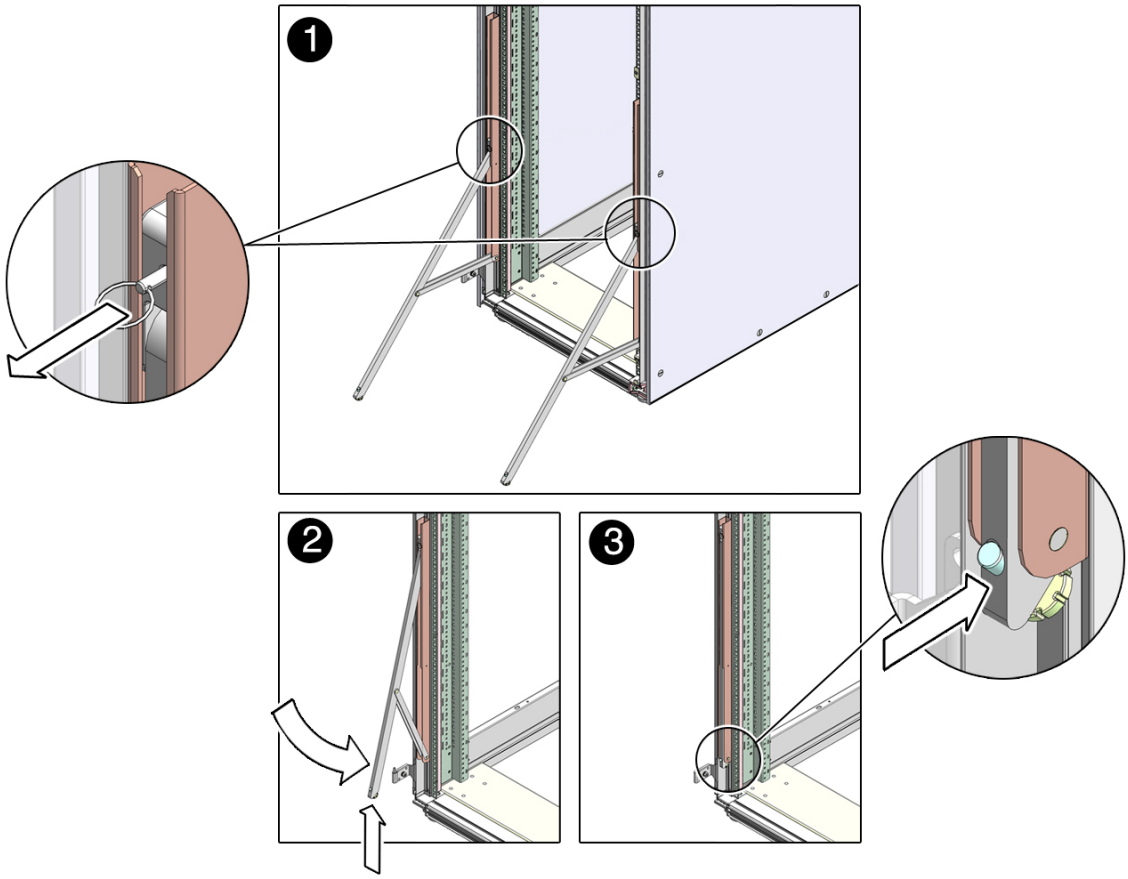
Step	Description	Links
1.	Install the filler panels.	“Install a Filler Panel” on page 104
2.	Retract the antitilt legs.	“Retract the Antitilt Legs” on page 84
3.	Power the rack on.	“Power the Rack On” on page 85

Related Information

- “Retract the Antitilt Legs” on page 84
- “Power the Rack On” on page 85

▼ Retract the Antitilt Legs

1. **Pull on the antitilt leg release pin to unlock the leg and lift it off of the floor.**
   If necessary, retract the leg's leveling foot by turning it counterclockwise.



2. **Push the leg securely into the rack.**

The leg should snap into place.

3. **Repeat Step 1 and Step 2 to retract the other antitilt leg.**

Related Information

- “Returning the Rack to Operation Task Overview” on page 83
- “Power the Rack On” on page 85

▼ Power the Rack On

1. **Switch on all of the PDU circuit breakers in the rack.**

   When installed correctly, these circuit breakers face the rear of the cabinet. Press down on the ON (|) toggle switch.

2. **Power on all equipment installed in the rack.**

   Refer to the equipment documentation for the correct power on procedures.

Related Information

- “Returning the Rack to Operation Task Overview” on page 83
- “Retract the Antitilt Legs” on page 84

Servicing the Rack

These topics describe how to service equipment installed in the rack as well as how to service the rack components.

- “Servicing Grounding Straps” on page 87
- “Attaching a Grounding Cable” on page 91
- “Servicing Doors” on page 94
- “Servicing Side Panels” on page 99
- “Servicing Filler Panels” on page 101
- “Servicing the Top Panel” on page 105

Related Information

- “Understanding the Rack” on page 11
- “Confirming Specifications” on page 15
- “Preparing for Rack Installation” on page 25
- “Installing the Rack” on page 41
- “Installing PDUs” on page 49
- “Preparing to Install or Service Equipment” on page 65
- “Returning the Rack to Operation” on page 83
- “Repacking a Rack for Shipment” on page 111

Servicing Grounding Straps

For each rack panel and door, a grounding strap connects the panel or door to the rack frame. These topics describe how to detach, attach, and replace these grounding straps.

- “Detach a Grounding Strap” on page 88
- “Attach a Grounding Strap” on page 89
- “Replace a Grounding Strap” on page 89

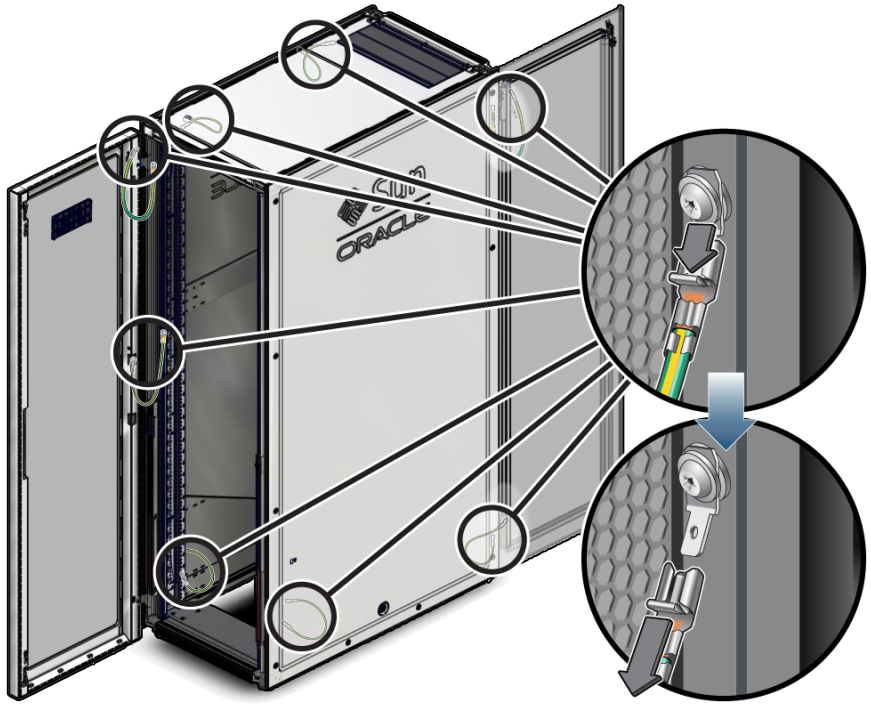
Related Information

- “Servicing Doors” on page 94
- “Servicing Side Panels” on page 99
- “Servicing Filler Panels” on page 101
- “Servicing the Top Panel” on page 105

▼ Detach a Grounding Strap

For each rack panel and door, a grounding strap connects the panel or door to the rack frame. Before removing a door or a cabinet panel, disconnect its grounding strap.

- **Press down on the tab of the grounding strap's quick-release connector and pull the strap away from the frame.**



Attach a Grounding Strap

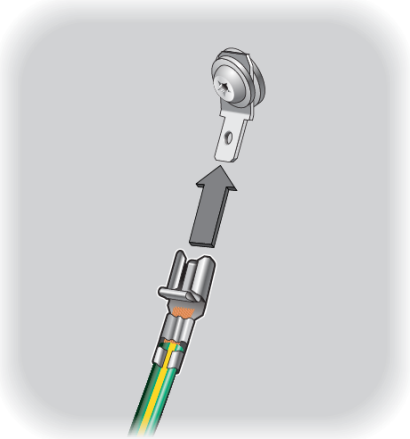
The doors and rack panels have grounding straps connecting them to the rack frame. After installing a door or panel, reattach the grounding strap.

1. **Locate the grounding strap you disconnected before removing a panel or door.**

   The loose strap will be secured to the rack.

2. **Attach the end of the grounding strap to the connector on the door or panel.**

   The connector will click in place when correctly inserted.



Replace a Grounding Strap

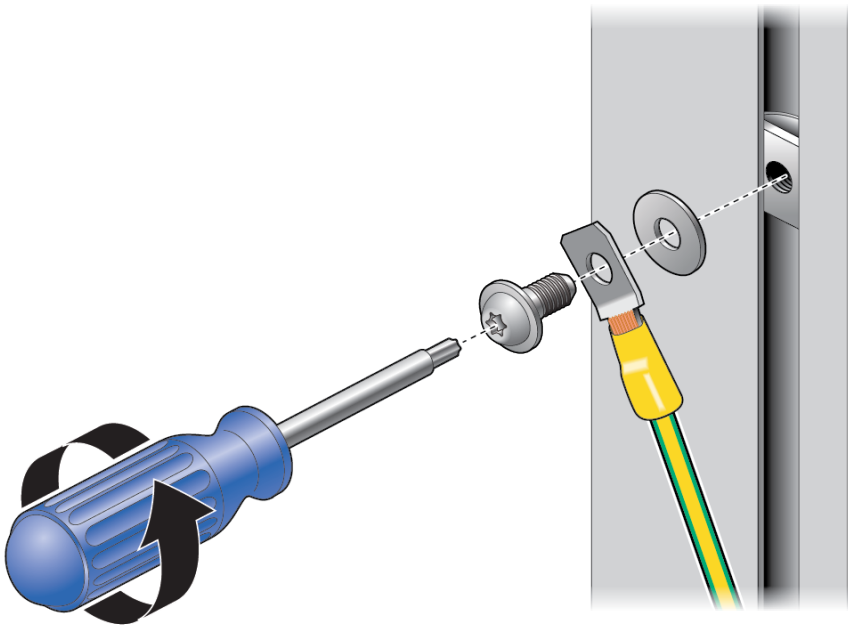
You can damage or strip a grounding strap if you remove a door or panel without first detaching the strap from the door or panel. Remove the damaged grounding strap from the rack prior to installing a replacement strap.

1. **Locate the grounding strap to be replaced, and disconnect the grounding strap from the panel or door if still attached.**

   See “Detach a Grounding Strap” on page 88 for the locations of these grounding straps and how to detach a grounding strap.

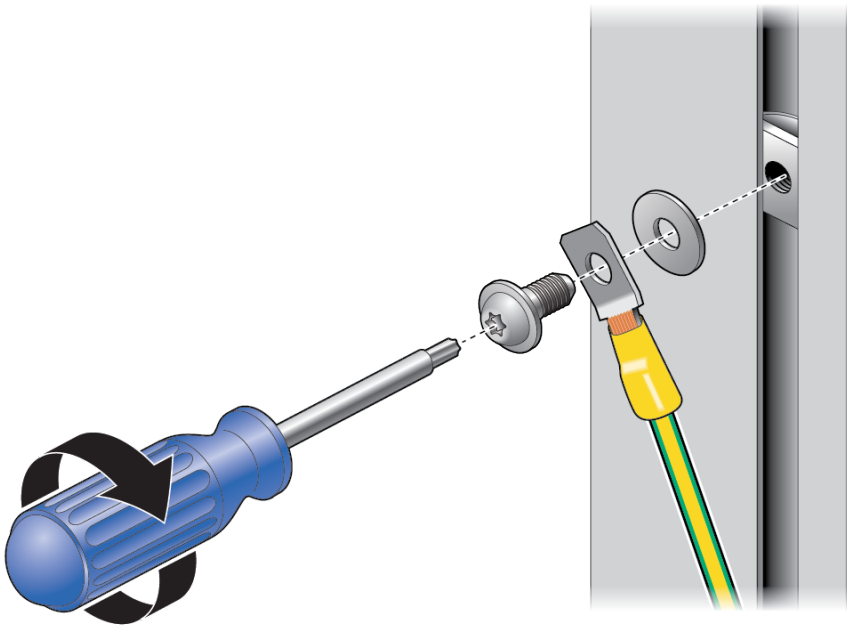
2. **Using a T-25 Torx wrench key, remove the M6 screw and washer securing the grounding strap connector to the rack.**

   Save the screw and washer, and ensure that the spring nut remains at the same location in the rack.



3. **Using a T-25 Torx wrench key, secure the replacement grounding strap connector to the spring nut with an M6 screw and a washer.**

Place the washer between the grounding strap and the rack.



4. **Attach the other end of the grounding strap to the connector on the door or panel.**

   The connector will click in place when correctly inserted. See “Attach a Grounding Strap” on page 89 for instructions on attaching a grounding strap.

Attaching a Grounding Cable

Systems using Oracle PDUs can make connections to either a TN power system or a TT power system. On a TN power system, the earth ground connection is achieved when the PDU power cord ground conductor connects to the facility power distribution earth ground. While you can make a supplementary connection to earth ground through the rack frame, TN power systems do not require this supplementary grounding connection.

Caution - On a TT power system, the facility power distribution does not connect to earth ground. You *must* make an earth ground connection through the rack frame.

- "Attach a Grounding Cable for TN Power Systems" on page 92
- "Attach a Grounding Cable for TT Power Systems" on page 93

▼ Attach a Grounding Cable for TN Power Systems

Rack PDUs achieve earth ground through their power cords. Final chassis ground is achieved when the power cord is connected to a receptacle, where the ground prong contacts the power receptacle.

For additional grounding, you can attach a chassis earth grounding cable to the rack. The additional ground point allows current leakage to dissipate more efficiently.

Caution - The PDU power input lead cords and the grounding strap must reference a common earth ground. Otherwise, a difference in ground potential can be introduced.

Caution - If you are unsure of the facility PDU receptacle grounding, *do not install* a ground cable until a proper PDU receptacle grounding has been confirmed. If a difference in ground potential is apparent, *you must take corrective action*.

Note - A grounding cable is not shipped with the rack.

1. **Ensure that the installation site has properly grounded facility PDUs in the data center.**

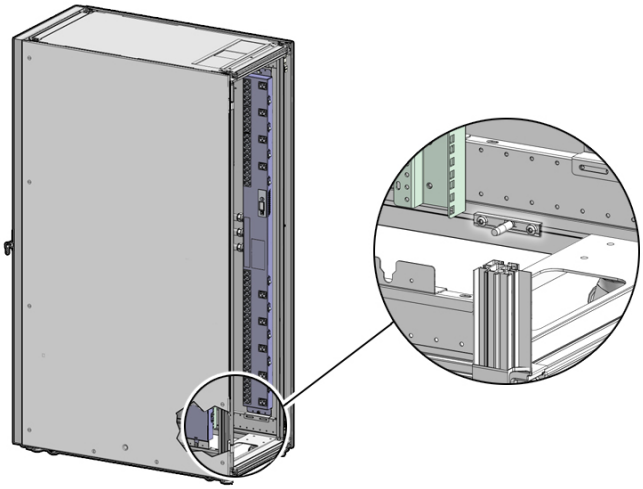
   The facility PDU must be earth ground.

2. **Ensure that all grounding points (raised floors and power receptacles) reference the facility PDU ground.**

Caution - During manufacturing, the ground cable attachment area might be a painted surface. Ensure that metal-to-metal solid contact is made for this installation.

3. **Attach the ground cable to one of the attachment points located at the bottom rear of the rack frame.**

The attachment point is an adjustable bolt that you can find just inside the rear of the rack on the right side.



▼ Attach a Grounding Cable for TT Power Systems

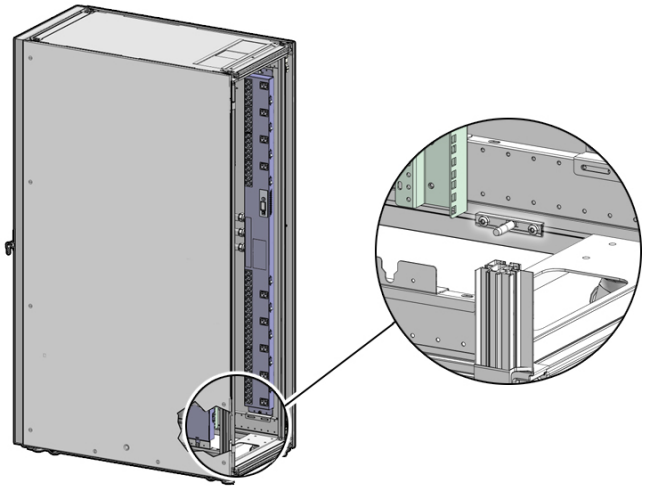
Caution - When installing the rack in Japan, or other locations that use a TT power systems, you must attach a separate grounding cable to the rack.

1. **Obtain a grounding cable that is at least 6 AWG in size.**

   A grounding cable is not shipped with the rack. The minimum supported AWG size is 6.

2. **Attach the grounding cable to the rack grounding terminal using a crimped-on lug suitable to secure the grounding cable to the grounding terminal.**

The rack has a metric M8 stud for its grounding terminal. Securely tighten the crimped-on lug down on the grounding terminal using a lockwasher and nut. The grounding connection must be securely made with clean metal to metal contact.



3. **Attach the other end of the grounding cable to a reliable earthing point in the building using established electrical guidelines and in accordance with electrical codes for the country of installation.**

Caution - If the installed equipment makes additional connections to earth ground, ensure that all grounding points reference the same earth ground to prevent dangerous ground loops.

Servicing Doors

You might need to remove the door in order to install or cable certain equipment in the rack.

- “Remove the Doors” on page 95
- “Install the Doors” on page 97

Related Information

- “Servicing Grounding Straps” on page 87

- “Servicing Doors” on page 94
- “Servicing Side Panels” on page 99
- “Servicing Filler Panels” on page 101
- “Servicing the Top Panel” on page 105

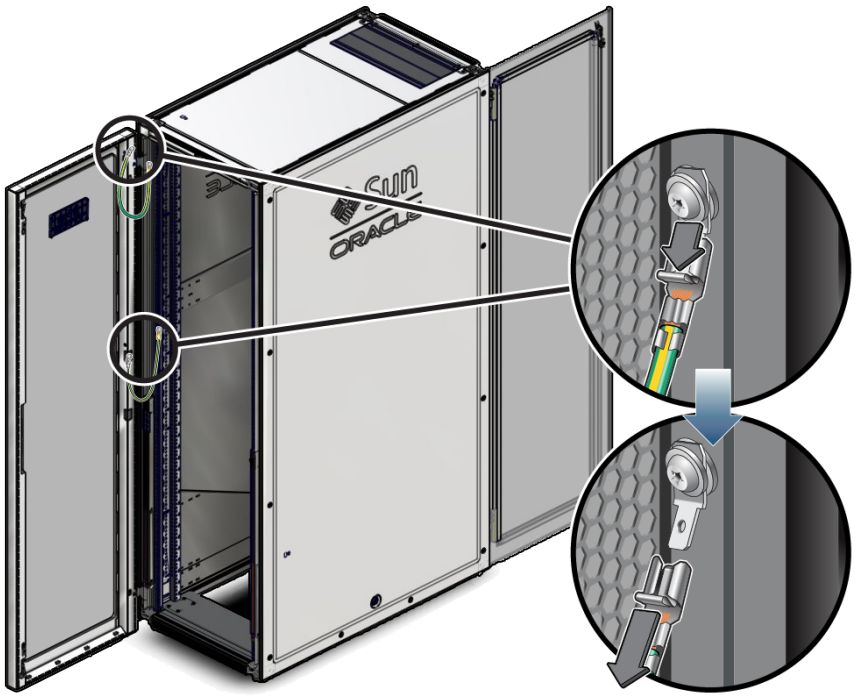
▼ Remove the Doors

1. **If necessary, unlock the front and rear doors.**

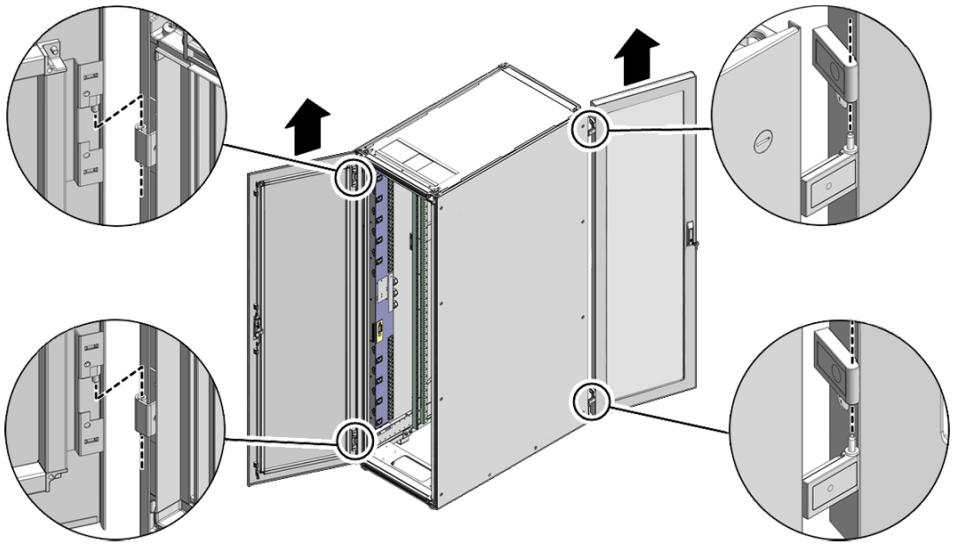
   You can find the door keys in the shipping kit.

2. **Open the doors and detach the grounding straps connected to the doors by pressing down on the tabs of the grounding strap's quick-release connectors and pulling the straps away from the frame.**

Depending on the type of installed equipment in the rack, each door might have one or two grounding straps.



3. **Lift both doors up and off of their hinges.**



▼ Install the Doors

1. **Retrieve the doors and carefully place them on the door hinges one end at a time.**

Note - Ensure that you insert the longer pin into the bottom gudgeon. Then insert the top hinge into the top gudgeon. See “Remove the Doors” on page 95 for the location of these door hinge gudgeons.

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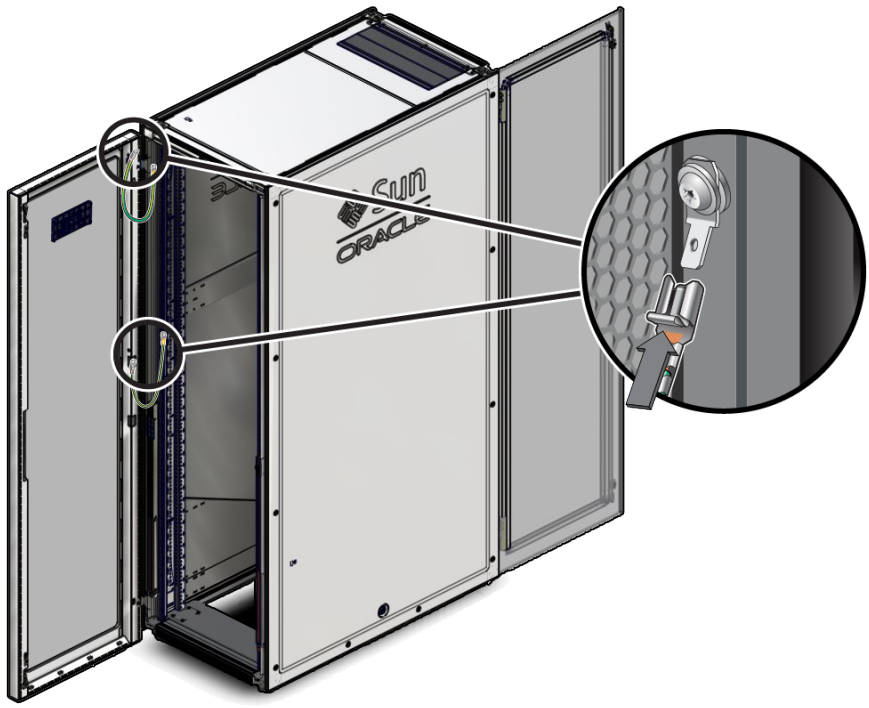
2. **Connect the front and rear door grounding straps to the doors.**

Depending on the type of installed equipment in the rack, each door might have one or two grounding straps.



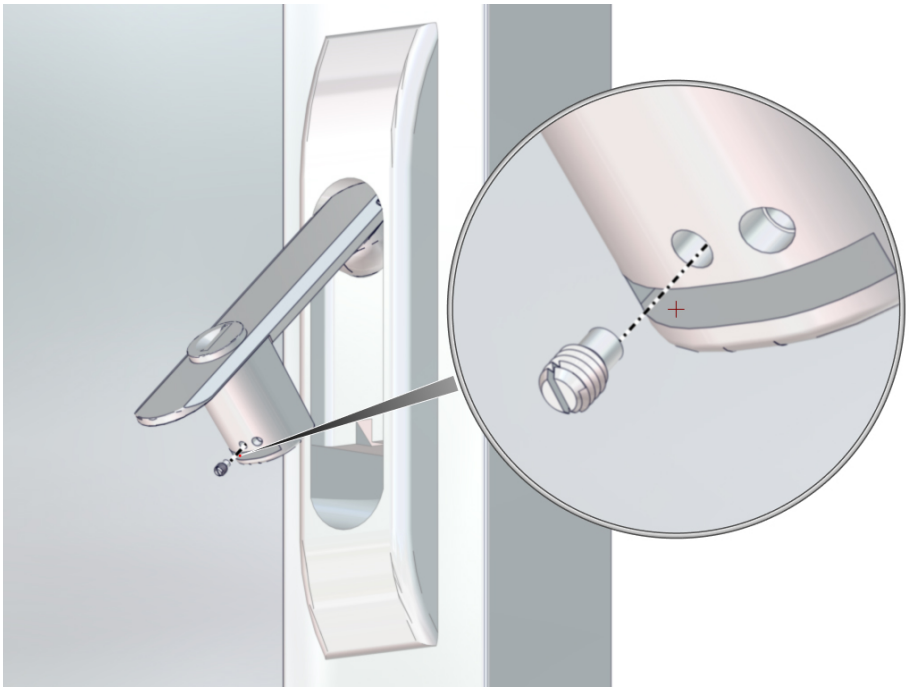
3. **Close both doors.**

4. **(Optional) Lock both doors.**

   The door keys are in the shipping kit.

Note - For the new racks, a single key is used for both door lock and side panel locks.

Note - For the new racks, the lock cylinder is interchangeable, and you can customize it.



Servicing Side Panels

When installing certain equipment, you might need to remove the side panels to secure or to cable components in the rack. Follow these instructions to remove and install the side panels.

- “Remove the Side Panels” on page 100
- “Install the Side Panels” on page 101

Related Information

- “Servicing Grounding Straps” on page 87
- “Servicing Doors” on page 94

- “Servicing Filler Panels” on page 101
- “Servicing the Top Panel” on page 105

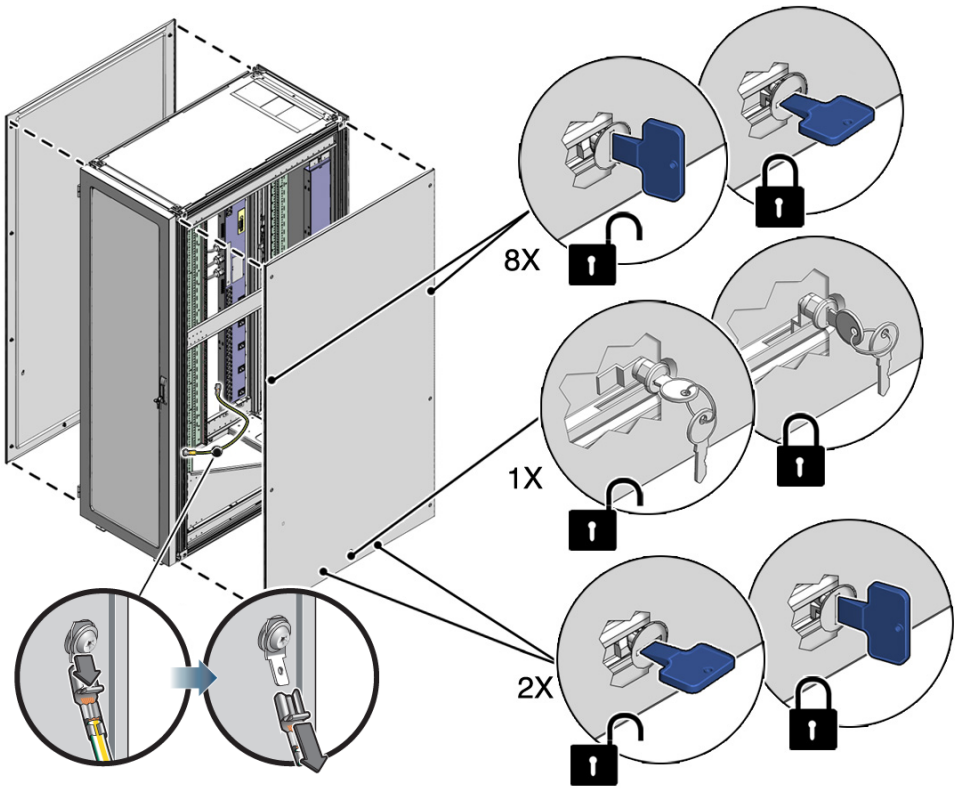
▼ Remove the Side Panels

1. **Power off the rack.**

   See “Power Off the Rack” on page 81.

2. **Open the rear door and detach the grounding straps from the side panels.**

   Press down on the strap connector's tab and pull to detach the strap from the side panel.



3. **If necessary, unlock both side panels using the key found in the shipping kit.**

The locks are located on the bottom, center of the side panels.

Note - For the new racks, a single key is used for both door lock and side panel locks.

---

4. **Using the side panel removal tool, turn each side panel fastener one quarter turn counterclockwise.**
   Turn the two fasteners next to the panel lock clockwise. You can find the side panel removal tool in the shipping kit. There are 10 fasteners per side panel.

5. **Lift each side panel up and off of the rack.**
   The left and right side panels are different, so note which side is the left and right panel.

▼ Install the Side Panels

1. **Lift each side panel up and onto the side of the rack.**
   The top of the rack should support the weight of the side panel and ensure that the panel's fasteners line up with the grooves in the rack frame.

2. **Using the side panel removal tool, turn each side panel fastener one quarter turn clockwise to secure the side panel to the rack.**
   Turn the two fasteners next to the panel lock counterclockwise. You can find the side panel removal tool in the shipping kit. There are 10 fasteners per side panel.

3. **(Optional) Lock each side panel using the key found in the shipping kit.**
   You can find the locks on the bottom center of the side panels.

4. **Connect the grounding straps to the side panels.**

5. **Power on the rack.**
   See “Power the Rack On” on page 85.

Servicing Filler Panels

Follow these instructions to remove and replace the filler panels.

Note - These instructions are for the original Sun Rack II filler panels. If you are replacing other filler panels, refer to the instructions that came with the filler panels.

- “Remove a Filler Panel” on page 102
- “Install a Filler Panel” on page 104

Related Information

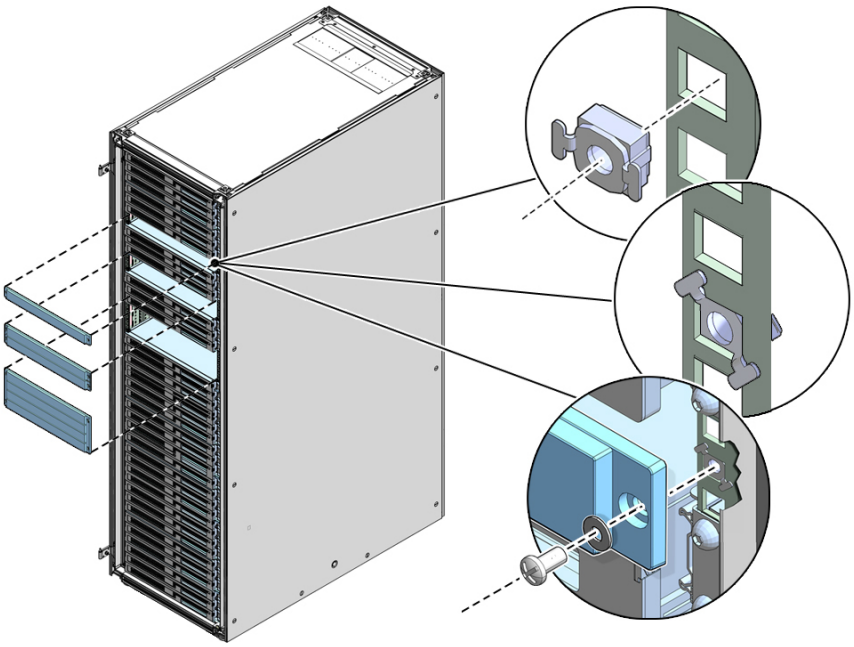
- “Servicing Grounding Straps” on page 87
- “Servicing Doors” on page 94
- “Servicing Side Panels” on page 99
- “Servicing the Top Panel” on page 105

▼ Remove a Filler Panel

1. **Open the front door.**

2. **Using a No. 2 screwdriver, remove the M6 screws securing the filler panel to the rack.**

Depending on the size of the filler panel, there are different number of screws securing the filler panel to the rack. Save these screws for future use.

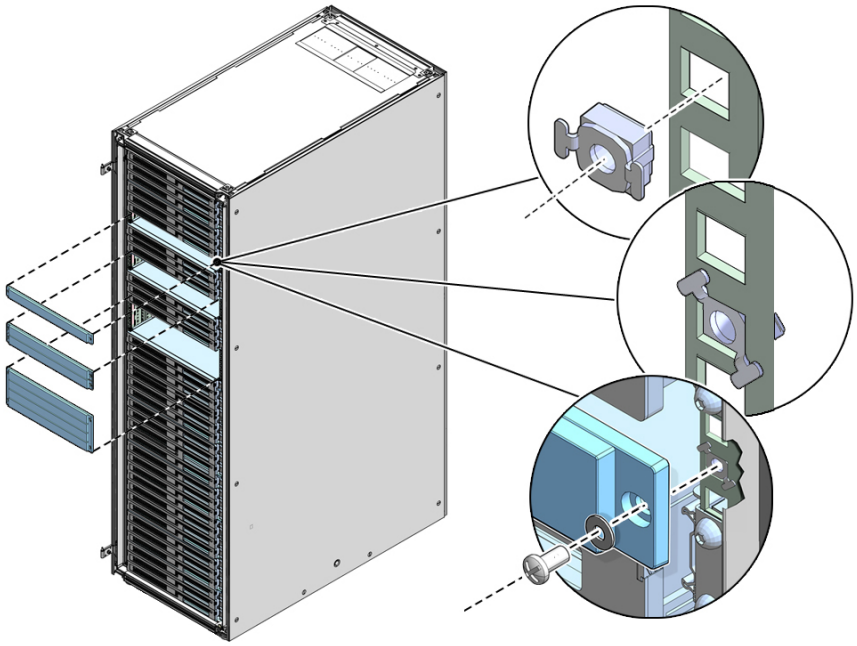


Note - If you are replacing these filler panels, do not remove the Duosert cage-nuts from the RETMA rail holes.

3. **Detach the Duosert cage nuts from the RETMA rail mounting holes.**

   Turn it 45 degrees to loosen it from the hole.

Caution - These Duosert cage nuts are for filler panels only. Do not use these cage nuts when installing any other equipment into the rack.



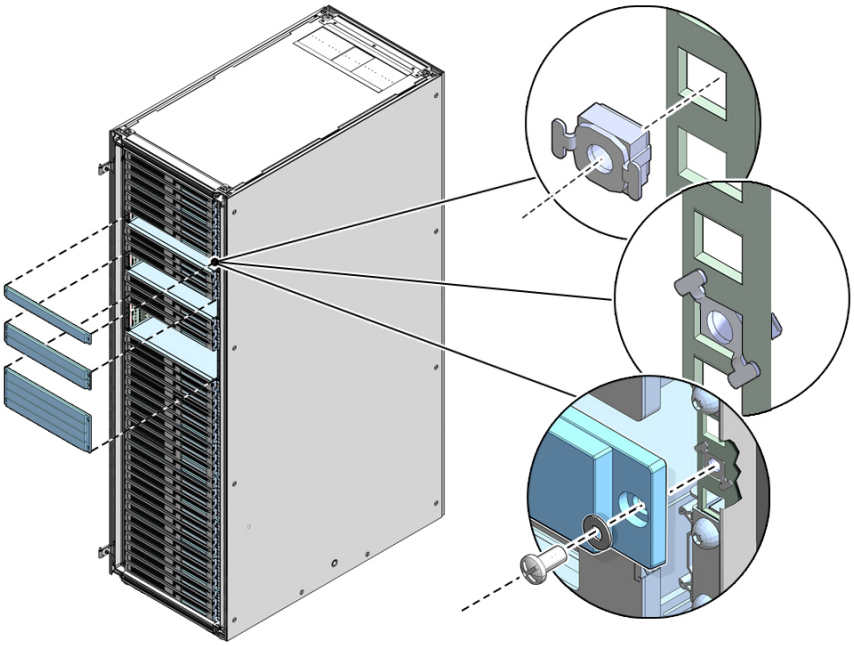
4. **Prepare to install optional components.**

Install a Filler Panel

The filler panel option kit contains the filler panels as well as the Duosert M6 cage nuts, washers, and M6 screws required to install them in the rack.

1. **Open the front door.**
2. **Retrieve the Duosert cage nuts from the filler panel kit.**
3. **Install Duosert cage nuts into the desired RETMA rail mounting holes.**
   After inserting a cage nut into a mounting hole, turn it 45 degrees to secure it into the hole.

Caution - Use these Duosert cage nuts for filler panels only. Do not use these cage nuts when installing any other equipment into the rack.



4. **Using a No. 2 Phillips screwdriver, secure the filler panel to the rack using M6 screws.**

5. **Close the front door.**

Servicing the Top Panel

The rack has an opening in the top panel, toward the rear of the rack, to allow power and data cables to be routed through. However, for additional equipment, ventilation, or cabling needs, you can remove the top panel.

Two types of top panels are available for the rack. Determine which type of panel you have for appropriate instructions. See “Understanding Top Cable Window Dimensions” on page 37.

- “Remove the Top Panel” on page 106
- “Install the Top Panel” on page 108

Related Information

- “Servicing Grounding Straps” on page 87
- “Servicing Doors” on page 94
- “Servicing Side Panels” on page 99
- “Servicing Filler Panels” on page 101

▼ Remove the Top Panel

1. **If necessary, power off the rack.**

   See “Power Off the Rack” on page 81.

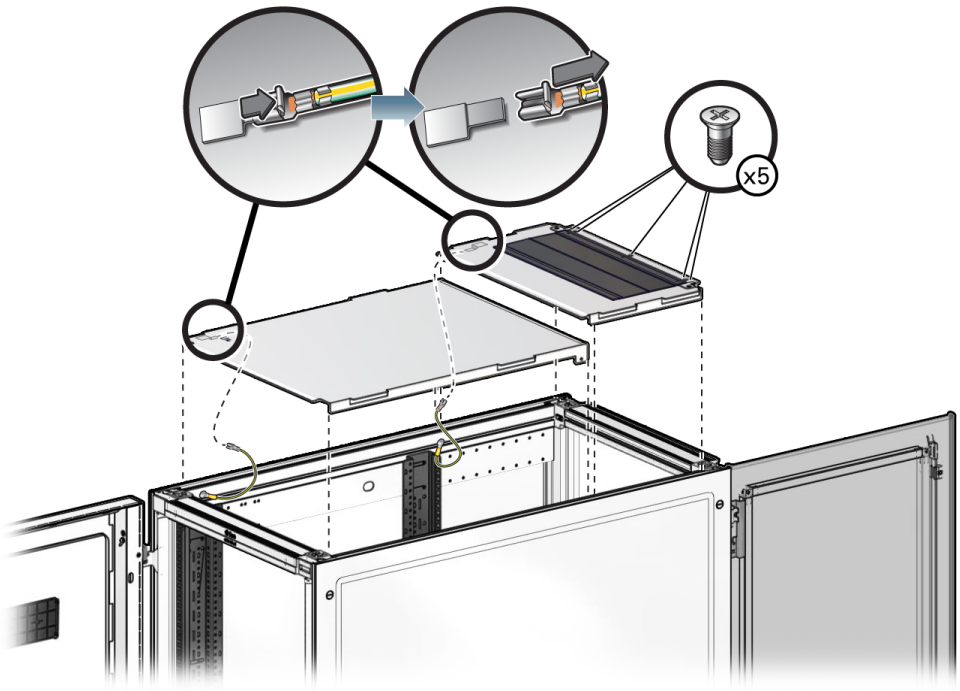
2. **Open the front door and disconnect the grounding strap connected to the top panel.**

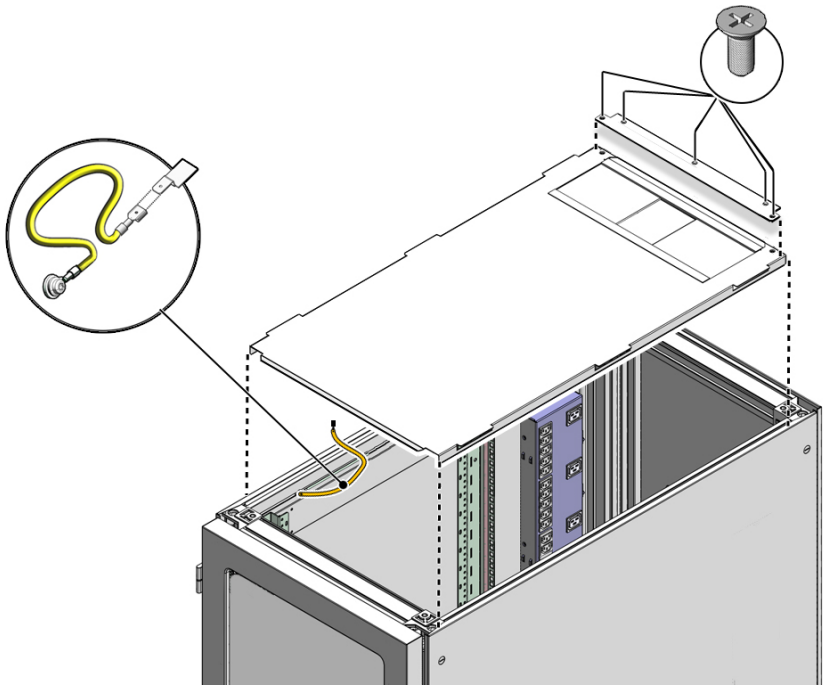
   The grounding strap can be found near the top front of the rack. Disconnect the strap by pressing down on the tab of the strap's quick-release connector and pulling the strap away from the connector.

3. **Using a No. 2 screwdriver, remove the five No. 2 Phillips screws securing the support brace to the rack.**

   - The first figure shows how to remove the two-piece top panel.

- The second figure shows how to remove the single-piece top panel.





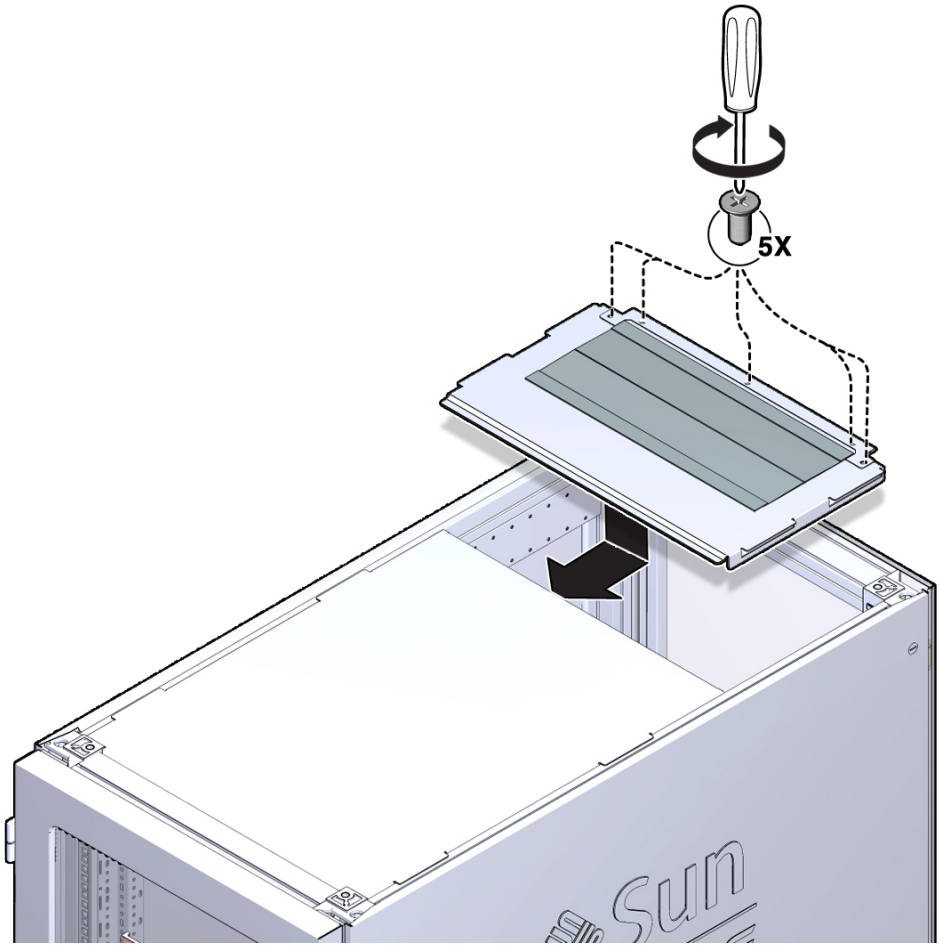
4. **Lift the support brace up and off the rack.**

5. **Carefully lift the top panel up and off the rack.**

▼ Install the Top Panel

1. **Carefully replace the top panel on the rack.**

For the two-piece top panel, place the larger section on top of the rack before inserting the edge of the smaller section under the lip of the larger section.



2. **Place the top panel support brace on the rear of the top panel.**

   Line up the support brace screw holes with the holes in the rack frame.

3. **Using a No. 2 Phillips screwdriver, tighten five No. 2 screws to secure the support brace and the top panel to the rack frame.**

4. **Open the doors and connect the grounding strap to the top panel.**

For the two-piece top panel, connect grounding straps to each panel.

5. **If necessary, power on the rack.**

   See “Power Off the Rack” on page 81.

Repacking a Rack for Shipment

These procedures describe how to repack Oracle's Sun Rack II in the enterprise packaging for shipment.

- “Secure the PDUs in the Rack” on page 111
- “Repack the Rack in the Enterprise Packaging” on page 115

Related Information

- “Understanding the Rack” on page 11
- “Confirming Specifications” on page 15
- “Preparing for Rack Installation” on page 25
- “Installing the Rack” on page 41
- “Installing PDUs” on page 49
- “Preparing to Install or Service Equipment” on page 65
- “Returning the Rack to Operation” on page 83
- “Servicing the Rack” on page 87

▼ Secure the PDUs in the Rack

Prior to shipping a rack, you must first secure the PDUs, the power lead cords, and any installed equipment inside the rack.

1. **Gather the required tools.**
   For this procedure, you need:
   - T-25 Torx wrench key
   - PDU shipping brackets
   - Spring nuts and M5 screws for the PDU shipping brackets
   - Tie-wraps
   - (Standard PDUs only) Four M5 standard PDU mounting bracket shipping screws and four washers

2. **Power off the rack and disconnect the PDU power lead cords from the building's AC power source.**

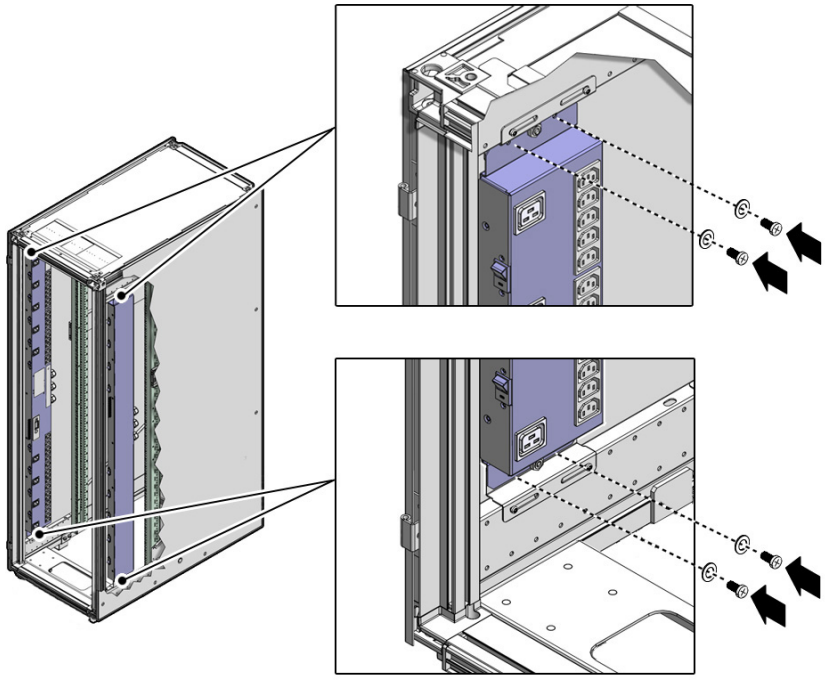
   See “Power Off the Rack” on page 81 for power-off instructions.

3. **Open the rear door and, if necessary, secure any installed equipment and equipment cables inside the rack.**

   Refer to the equipment documentation for instructions.

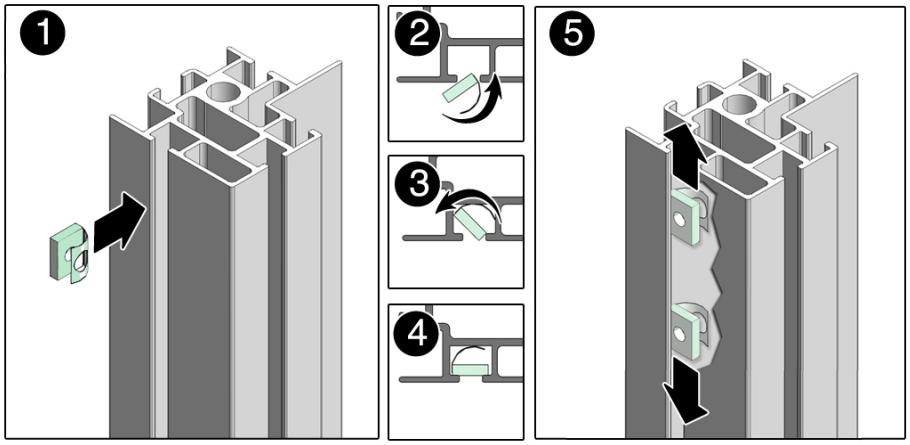
4. **If your rack contains standard PDUs, use a T-25 wrench key to secure the PDUs to the mounting brackets using two M5 shipping screws and two washers per mounting bracket.**

   If your rack contains standard PDUs that were installed at the factory, the PDUs might already be secured to the mounting brackets with shipping screws and washers.



5. **Insert two spring nuts into each rear rack frame groove.**

Insert the spring nuts into the frame groove at 45-degree angles. Secure the PDU shipping brackets to these spring nuts (two spring nuts per bracket).



6. **Move the spring nuts up or down the rack frame groove to the desired location.**

   Install one PDU shipping bracket near the top of the rack and the other near the bottom of the rack.

7. **Using a T-25 Torx wrench key, secure the two PDU shipping brackets to the rack by tightening the screws into the spring nuts.**

   Secure each PDU shipping bracket to the rack frame using two screws, one per side.

   - The first figure shows how to secure the standard PDU power input lead cords.

- The second figure shows how to secure the compact PDU power input lead cords.

8. **Using tie-wraps, secure the PDU power lead cords to the shipping brackets (see the figures in step 2).**

   Use the top shipping bracket to support the weight of the power lead cords, and place the power connectors behind the bottom bracket. Tighten all tie-wraps firmly to ensure that the power lead cords do not become loose when the rack is shipped.

9. **After securing the power lead cords, close the rack doors.**

▼ Repack the Rack in the Enterprise Packaging

If you plan to ship a rack containing installed equipment, you must pack the rack in the enterprise packaging. You cannot reuse the standard packaging.

See "Rack Packaging" on page 42 for more information about the packaging options.

Caution - The standard packaging was designed solely for shipping an empty rack. Never install equipment in the rack while it is on this pallet, and never repack a rack in the standard packaging. If you must populate the rack prior to moving it to a new building or site, repack the rack in the enterprise packaging. Contact your sales representative for information about ordering empty enterprise packaging.

Caution - When moving the rack to a new location, including repacking, verify that the leveling feet are up before moving the rack.

1. **Prior to repacking the rack, secure the PDUs, PDU power lead cords, and any equipment installed in the rack (see "Secure the PDUs in the Rack" on page 111).**

2. **Gather the required tools.**

   For this procedure, you need the following tools, which you can find in the enterprise packaging shipping kit:

   - SW 17-mm wrench
   - 6-mm hexagon Allen wrench key

   You also need:

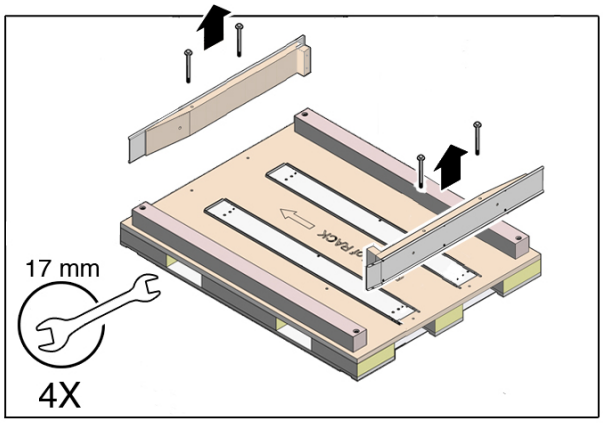
   - Torque wrench
   - 3 people to push the rack onto the pallet
   - Stretch plastic wrap

3. **Unpack the empty enterprise packaging and place the pallet on a level floor with plenty of space to work.**

   You need at least 4451 mm (15 ft) of floor space from the front edge of the pallet in order to safely roll the rack onto the pallet.

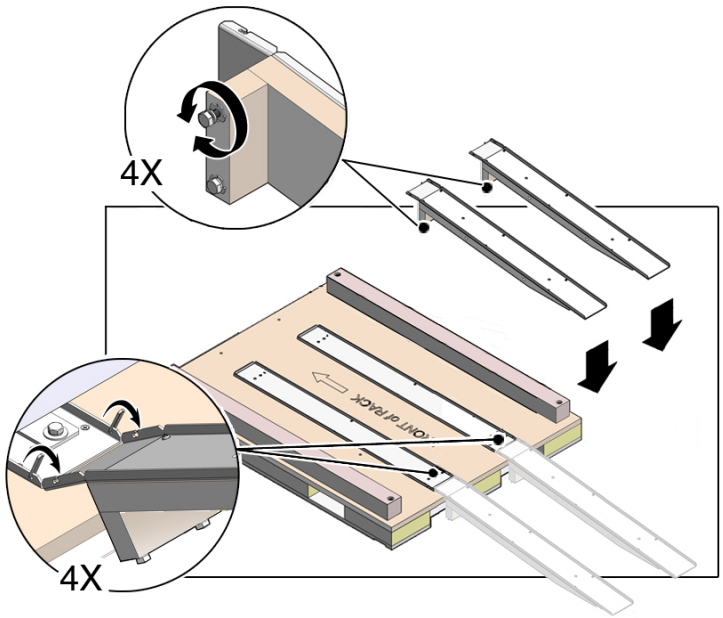
4. **Using a 17-mm wrench, remove the bolts securing the ramps to the pallet, and remove the ramps from the pallet.**

   Do not discard these bolts, because you use them to secure the ramps back to the pallet.



5. **Use a 17-mm wrench to adjust the height of the bottom ramp bolts.**

When you install these ramps, the bolts should touch the floor and support the weight of the rack.



6. **With the ramps at an angle, bring the edges of the ramps flush against the edges of the pallet tracks, then flip the ramp locks into the slots on the ramps.**

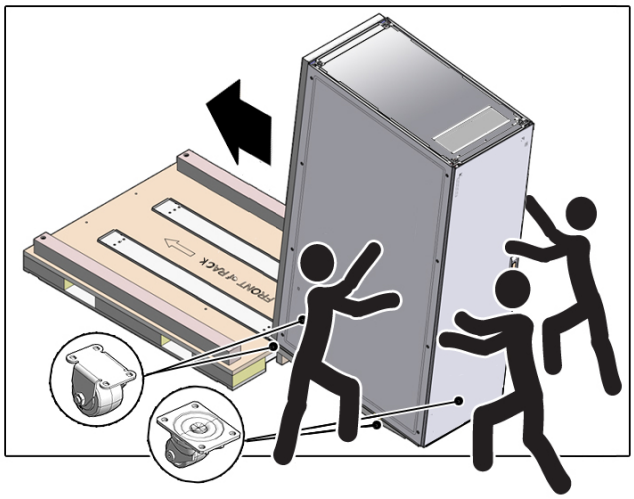
   Lower the ramps to the floor to secure the ramps to the pallet.

   There are two locks per ramp. If necessary, adjust the bottom ramp bolts until they reach the floor.

Caution - When moving the rack to a new location, including repacking, verify that the leveling feet are up before moving the rack.

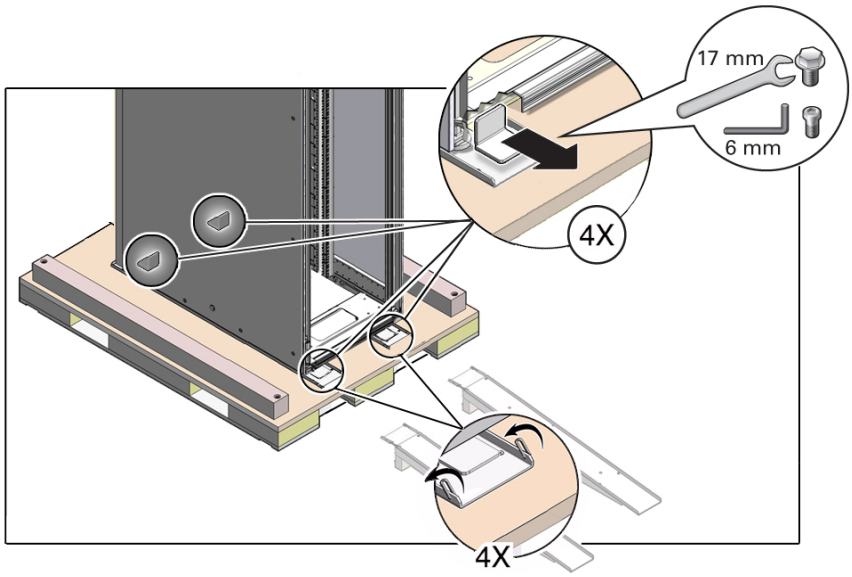
7. **Using three people, carefully push the rack up the ramps up onto the pallet tracks.**

Ensure that you push the rack from the rear and orient the rack on the tracks as marked, with the front of rack on the side pallet opposite of the ramps (note the “FRONT of RACK” markings on the pallet).



8. **Lift the ramps up at an angle, remove the ramp locks from the slots on the ramps, and then remove the ramps from the pallet.**

Flip the ramp locks onto the track in the unlocked position so they are out of the way. Save these ramps in a safe location.



9. **Loosely secure the front and rear shipping brackets to the rack using a 6-mm Allen wrench and the appropriate number of bolts per bracket.**
   The number of bolts and the type of shipping bracket can vary. Use the shipping bracket hardware included with the enterprise packaging.

Caution - Shipping brackets are not for use for bracing or anchoring the rack during seismic events.

10. **Loosely secure all four shipping brackets to the pallet using a 17-mm wrench and the appropriate number of bolts and washers per bracket.**

11. **After confirming that each bracket is square to the rack and the pallet, use a 6-mm Allen wrench to tighten the four shipping brackets firmly to the rack.**
    Secure the brackets to the rack at 12.654 Nm (112 in.-lbf) of torque.

12. **Use a 17-mm wrench to tighten each bolt securing the four shipping brackets firmly to the pallet.**
    Secure each bolt to the pallet at 7.457 Nm (66 in.-lbf) of torque.

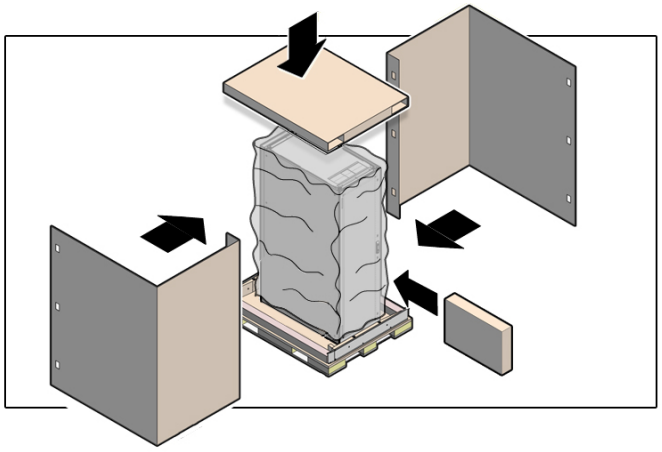
13. **Close the rack doors and use a 17-mm wrench to secure the ramps to the pallet using two bolts per ramp.**

    Secure each bolt to the pallet at 7.457 Nm (66 in.-lbf) of torque.

14. **Place a plastic bag over the rack.**

    Ensure that the bag covers the rack completely.

    Note - To provide additional protection from paint scratches, optionally cover the top and bottom portions of the rack with polypropylene microfoam sheets or stretch wrap before placing the bag over the rack.



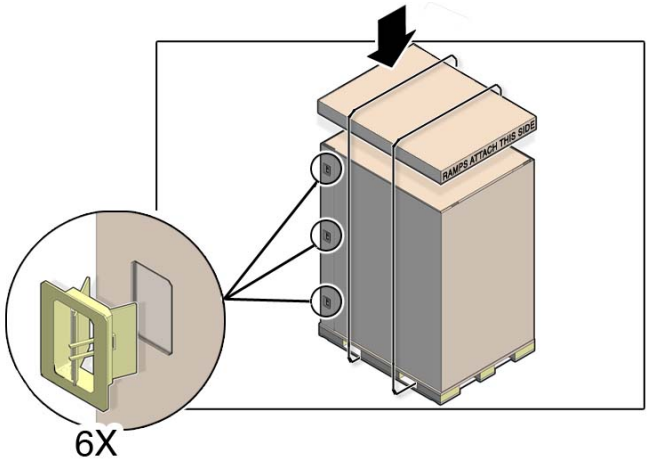
15. **Place the accessory box next to the rack and secure it to the rack using stretch wrap.**

16. **Place the inside top cap on the rack, ensuring that you correctly orient the cap on the rack.**

    When oriented correctly, the sides of the top cap should align with the sides of the pallet.

17. **Place the two large cardboard carton sleeves around the rack and secure the sleeves together using six plastic locking clips.**

The small flaps of the sleeves fold inside the outer carton.



18. **Place the outside top cap on top of the cardboard carton and over the carton sleeves making sure that the words “RAMPS ATTACH THIS SIDE” face the rear of the carton.**

19. **Secure the carton with strapping bands and fiberboard edge protectors.**

    Ensure that the bands are tight and properly fitted to the carton.

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