Oracle® Rack Cabinet 1242 User's Guide

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Contents

Using This Documentation 9

About the Rack 11
- Rack Task Installation Overview 11
- Rack Features 12
- Safety Guidelines and Cautions 13

Specifications 15
- Packaging Dimensions 16
- Oracle Rack Cabinet 1242 Dimensions 16
- Oracle Rack Cabinet 1242 Weights 17
- Access Route Guidelines 18
- Power Requirements 19
- Grounding Requirements 20
- Airflow Precautions 20
- ESD Precautions 21

Preparing for Rack Installation 23
- Site Preparation Task Overview 23
- Identifying Rack Installations and Dimensions 24
  - Floor Cutout Dimensions 25
  - Feet and Caster Dimensions 26
  - Rear Cabling Space 27
- Top Cable Window 28
- ▼ Cut Cable Routing Holes 29

Installing the Rack 31
- Installation Task Overview 31

Rack Packaging 32
Tools Required 33
▼ Move the Rack to the Installation Site 34
▼ Stabilize the Rack (Leveling Feet) 36

Preparing PDUs 39
▼ Prepare Factory-Installed PDUs 39

Preparing to Install or Service Equipment 43
Equipment Installation Task Overview 43
▼ Insert Cage Nuts Into Rail Holes 45
▼ Install a Cable Management Hook 46
▼ Service Equipment in the Rack 47
▼ Extend the Anti-tilt Bar 49
▼ Attach an Antistatic Wrist Strap 50
▼ Power Off the Rack 51

Returning the Rack to Operation 53
Returning the Rack to Operation Task Overview 53
▼ Retract the Anti-tilt Bar 54
▼ Power On the Rack 55

Servicing the Rack 57
Servicing Grounding Straps 57
▼ Disconnect Grounding Straps 58
▼ Connect a Grounding Strap 59
▼ Replace a Grounding Strap 59
Attaching a Grounding Cable 61
▼ Attach a Grounding Cable for TN Power Systems 62
▼ Attach a Grounding Cable for TT Power Systems 63
Servicing Doors 64
▼ Remove the Doors 65
▼ Install the Doors 67
Servicing Filler Panels 69
▼ Remove a Filler Panel 70
▼ Install a Filler Panel 71

Servicing Side Panels 72
▼ Remove the Side Panels 72
▼ Install the Side Panels 76
Servicing the Top Panel and Top Cable Window 79
▼ Remove the Top Panel 79
▼ Install the Top Panel 80
▼ Remove and Replace the Top Cable Window 81

Index 83

Using This Documentation

- **Overview** – Provides specifications and describes how to install, administer, and service the Oracle Rack Cabinet 1242
- **Audience** – Technicians, system administrators, and authorized service providers
- **Required knowledge** – Intended for trained technicians and authorized service personnel who have been instructed on the hazards within the equipment, and are 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/oraclerack1242/docs.

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About the Rack

The following topics explain how to install equipment in the rack, and describe the features of the 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
- "Rack Features" on page 12
- "Safety Guidelines and Cautions" on page 13

Related Information

- "Specifications" on page 15
- "Preparing for Rack Installation" on page 23
- "Installing the Rack" on page 31
- "Preparing PDUs" on page 39
- "Preparing to Install or Service Equipment" on page 43
- "Returning the Rack to Operation" on page 53
- "Servicing the Rack" on page 57

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.	Review the features of the Oracle Rack Cabinet 1242.	“Rack Features” on page 12
3.	Review the rack dimensions and requirements.	“Specifications” on page 15
4.	Prepare the installation site.	“Preparing for Rack Installation” on page 23
5.	Unpack and install the rack.	“Installing the Rack” on page 31
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 39. Otherwise, refer to the *Oracle Rack Cabinet 1242 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 43
8.	Install the optional components.	

Related Information

- “Rack Features” on page 12
- “Safety Guidelines and Cautions” on page 13

Rack Features

The features of the Oracle Rack Cabinet 1242 rack are listed in the following table.

New Feature	Link
Larger bottom opening to allow enough clearance to pass six AC cables	“Rear Cabling Space” on page 27
Single key used for all locks in the rack	“Servicing Doors” on page 64
Improved pin design for door hinge	“Servicing Doors” on page 64
Two-piece side panels for easier cable access and handling	“Servicing Doors” on page 64
Addition of one more grounding lug to both front and rear doors	“Servicing Grounding Straps” on page 57
Two-piece top panel with air brushes	“Top Cable Window” on page 28

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 *Oracle Rack Cabinet 1242 Getting Started Guide* document included with the rack.

Observe all safety notices printed on the packaging and listed in the *Oracle Rack Cabinet 1242 Safety and Compliance Guide* and the *Oracle Rack Cabinet 1242 Power Distribution Units User's Guide*. See “Product Documentation Library” on page 9 for the web site where you can access these guides.

Related Information

- “Rack Task Installation Overview” on page 11
- “Rack Features” on page 12

Specifications

These topics provide the specifications for the Oracle Rack Cabinet 1242.

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
- "Oracle Rack Cabinet 1242 Dimensions" on page 16
- "Oracle Rack Cabinet 1242 Weights" on page 17
- "Access Route Guidelines" on page 18
- "Power Requirements" on page 19
- "Grounding Requirements" on page 20
- "Airflow Precautions" on page 20
- "ESD Precautions" on page 21

Related Information

- "About the Rack" on page 11
- "Preparing for Rack Installation" on page 23
- "Installing the Rack" on page 31
- "Preparing PDUs" on page 39
- "Preparing to Install or Service Equipment" on page 43
- "Returning the Rack to Operation" on page 53
- "Servicing the Rack" on page 57

Packaging Dimensions

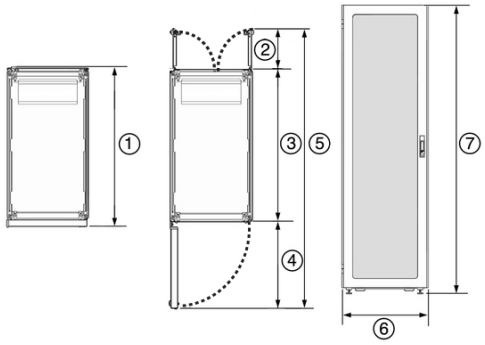
See the following table for the Oracle Rack Cabinet 1242 packaging dimensions. Also, see “Rack Packaging” on page 32 for more information.

Description	Metric	U.S.
Shipping height	218.44 cm	86 in.
Shipping width	112 cm	44 in.
Shipping depth	154.3 cm	60.75 in.
Shipping weight	Varies by configuration.	Varies by configuration.
Shipping weight of packaging	Approximately 118 kg	261 lb

Related Information

- “Oracle Rack Cabinet 1242 Dimensions” on page 16
- “Oracle Rack Cabinet 1242 Weights” on page 17
- “Access Route Guidelines” on page 18
- “Power Requirements” on page 19
- “Grounding Requirements” on page 20
- “Airflow Precautions” on page 20
- “ESD Precautions” on page 21

Oracle Rack Cabinet 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	1197 mm	47.12 in.
2.	Distance from rear of rack to opened rear door	298 mm	11.73 in.
3.	Depth including door handles	1237 mm	48.7 in.
4.	Distance from front of rack to opened front door	600 mm	23.62 in.
5.	Depth with doors opened	2021 mm	79.6 in.
6.	Width	600 mm	23.62 in.
7.	Height	2000 mm	78.74 in.
N/A	Rack units (RU)	42 RU (2000 mm)	42 RU (78.74 in.)
N/A	Depth between front and rear RETMA rails	686 mm	27 in.
N/A	Maintenance access requirement for rear	914 mm	36 in.
N/A	Maintenance access requirement from top	915 mm	36 in.

Related Information

- “Packaging Dimensions” on page 16
- “Oracle Rack Cabinet 1242 Weights” on page 17
- “Access Route Guidelines” on page 18
- “Power Requirements” on page 19
- “Grounding Requirements” on page 20
- “Airflow Precautions” on page 20
- “ESD Precautions” on page 21

Oracle Rack Cabinet 1242 Weights

Description	Metric	U.S.
Weight (empty)	185 kg	407 lb
Maximum allowable weight of installed rack equipment	1145 kg	2520 lb
	(average of 27.2 kg per RU)	(average of 60 lb per RU)

Description	Metric	U.S.
Maximum allowable weight of installed PDUs	52.16 kg	115 lb
Maximum dynamic load (maximum allowable weight of installed equipment plus PDUs)	1145 kg	2520 lb
Front door	14.5 kg	32 lb
Left rear door	3.8 kg	8.4 lb
Right rear door	5.35 kg	11.8 lb
Each side panel	9.5 kg	21 lb

Related Information

- "Packaging Dimensions" on page 16
- "Oracle Rack Cabinet 1242 Dimensions" on page 16
- "Access Route Guidelines" on page 18
- "Power Requirements" on page 19
- "Grounding Requirements" on page 20
- "Airflow Precautions" on page 20
- "ESD Precautions" on page 21

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 uneven floor surfaces that can cause vibration, and the route must meet the requirements listed in the tables below.

Description	Metric With Shipping Pallet	U.S With Shipping Pallet	Metric Without Shipping Pallet	U.S Without Shipping Pallet
Minimum door height	2184.4 mm	86 in.	2000 mm	78.74 in.
Minimum door width	1118 mm	44 in.	600 mm	23.62 in.
Minimum passage width	1220 mm	48 in.	600 mm	26.6 in.

Description	Metric With Shipping Pallet	U.S With Shipping Pallet	Metric Without Shipping Pallet	U.S Without Shipping Pallet
Minimum elevator depth	1543 mm	60.75 in.	1058.2 mm	41.66 in.
Maximum incline	6˚		6˚	

Description	Values
Maximum elevator, pallet jack, and floor loading capacity (maximum weight per rack)	1145 kg / 2520 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
- “Oracle Rack Cabinet 1242 Dimensions” on page 16
- “Oracle Rack Cabinet 1242 Weights” on page 17
- “Power Requirements” on page 19
- “Grounding Requirements” on page 20
- “Airflow Precautions” on page 20
- “ESD Precautions” on page 21

Power Requirements

Refer to the *Oracle Rack Cabinet 1242 Power Distribution Units User's Guide* for information about the power requirements for the PDUs.

Related Information

- “Packaging Dimensions” on page 16
- “Oracle Rack Cabinet 1242 Dimensions” on page 16
- “Oracle Rack Cabinet 1242 Weights” on page 17
- “Access Route Guidelines” on page 18
- “Grounding Requirements” on page 20
- “Airflow Precautions” on page 20
- “ESD Precautions” on page 21

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 61 for instructions.

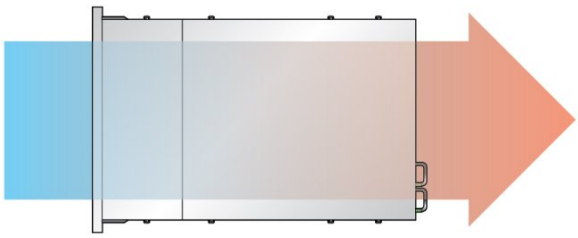
Related Information

- “Packaging Dimensions” on page 16
- “Oracle Rack Cabinet 1242 Dimensions” on page 16
- “Oracle Rack Cabinet 1242 Weights” on page 17
- “Access Route Guidelines” on page 18
- “Power Requirements” on page 19
- “Airflow Precautions” on page 20
- “ESD Precautions” on page 21

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.
- 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.

If the rack is not completely filled with components, the remaining gaps between the components can adversely affect the airflow and cooling within the rack. Cover these gaps with filler panels. See “Install a Filler Panel” on page 71 for installation instructions.

Related Information

- “Packaging Dimensions” on page 16
- “Oracle Rack Cabinet 1242 Dimensions” on page 16
- “Oracle Rack Cabinet 1242 Weights” on page 17
- “Access Route Guidelines” on page 18
- “Power Requirements” on page 19
- “Grounding Requirements” on page 20
- “ESD Precautions” on page 21

ESD Precautions

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 50).
- Attach a chassis ground cable to the rack (for instructions, see “Servicing Grounding Straps” on page 57).

Related Information

- “Packaging Dimensions” on page 16
- “Oracle Rack Cabinet 1242 Dimensions” on page 16
- “Oracle Rack Cabinet 1242 Weights” on page 17
- “Access Route Guidelines” on page 18
- “Power Requirements” on page 19
- “Grounding Requirements” on page 20
- “Airflow Precautions” on page 20

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 23
- "Identifying Rack Installations and Dimensions" on page 24
- "Top Cable Window" on page 28
- "Cut Cable Routing Holes" on page 29

Related Information

- "About the Rack" on page 11
- "Specifications" on page 15
- "Installing the Rack" on page 31
- "Preparing PDUs" on page 39
- "Preparing to Install or Service Equipment" on page 43
- "Returning the Rack to Operation" on page 53
- "Servicing the Rack" on page 57

Site Preparation Task Overview

Follow these steps to prepare the site for rack installation.

Step	Description	Links
1.	Thoroughly clean and vacuum the area before installing the rack.	

Step	Description	Links
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 *Oracle Rack Cabinet 1242 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” on page 25
8.	Study the leveling feet and caster dimensions for your rack.	“Feet and Caster Dimensions” on page 26
9.	Study the rear cabling space for your rack.	“Rear Cabling Space” on page 27
10.	Study the top cable window dimensions.	“Top Cable Window” on page 28

Related Information

- “Identifying Rack Installations and Dimensions” on page 24
- “Top Cable Window” on page 28

Identifying Rack Installations and Dimensions

These topics describe rack dimensions for the Oracle Rack Cabinet 1242.

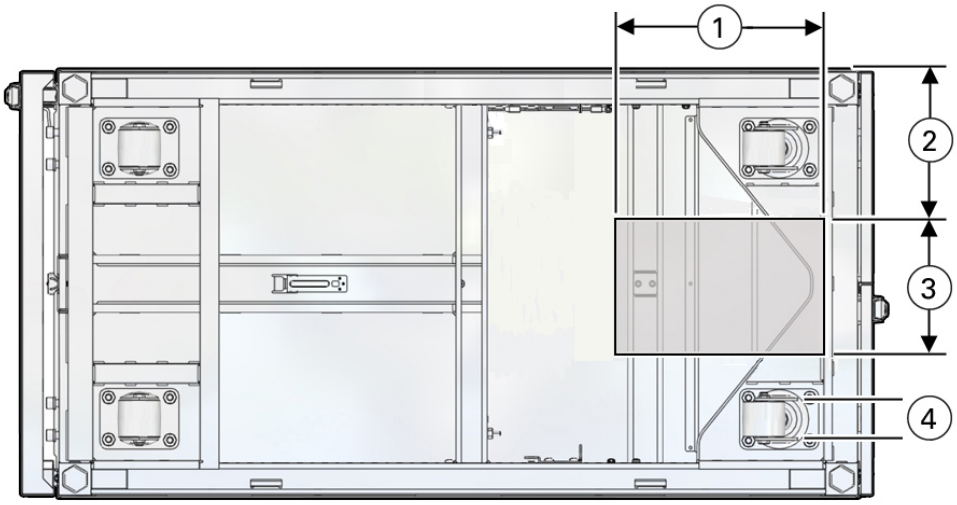
- “Floor Cutout Dimensions” on page 25
- “Feet and Caster Dimensions” on page 26
- “Rear Cabling Space” on page 27

Related Information

- “Site Preparation Task Overview” on page 23
- “Identifying Rack Installations and Dimensions” on page 24
- “Top Cable Window” on page 28

Floor Cutout Dimensions

The following illustration shows the bottom of the rack and where the floor cutout should be aligned with the rear of the rack.



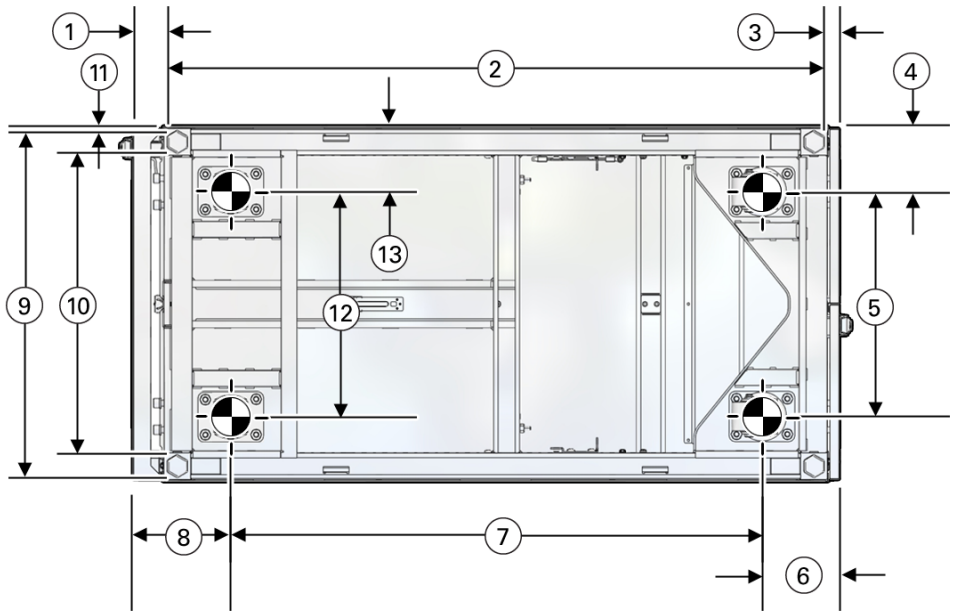
No.	Description	Metric	U.S.
1.	Depth of cable-routing floor cutout	254 mm	10 in.
2.	Distance between the floor cutout and the edge of the rack	207.64 mm	8.17 in.
3.	Width of the cable-routing floor cutout	184.15 mm	7.25 in.
4.	Width of a cabinet rear caster wheel	60 mm	2.36 in.

Related Information

- “Feet and Caster Dimensions” on page 26
- “Rear Cabling Space” on page 27

Feet and Caster Dimensions

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



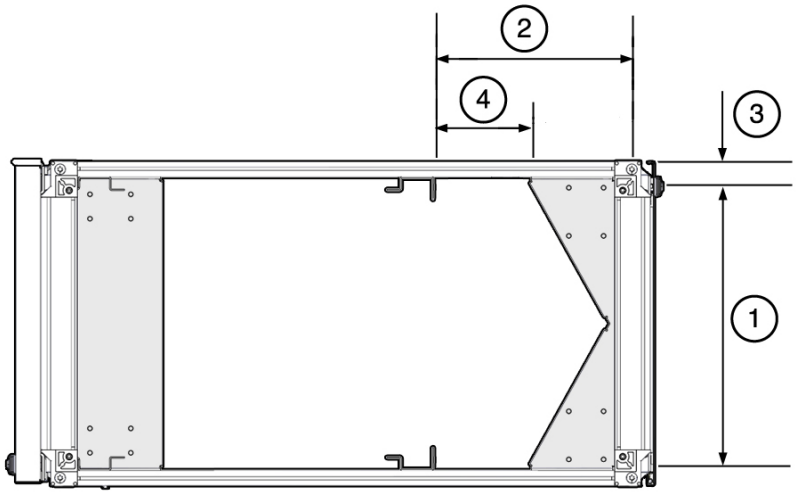
No.	Description	Metric	U.S.
1.	Distance from the edge of the feet to the outside front door surface	58 mm	2.3 in.
2.	Depth of the outside edges of the leveling feet	1113 mm	43.8 in.
3.	Distance from the edge of the leveling feet to the rear door surface	26 mm	1 in.
4.	Distance from the center of rear casters to the side of the rack	96.5 mm	3.8 in.
5.	Width between the center of the rear casters	407 mm	16 in.
6.	Distance from the center of the rear casters to the rear door surface	142 mm	5.6 in.
7.	Depth between the front and rear casters	889 mm	35
8.	Distance between the center of the front casters and the front door surface	166 mm	6.5 in.
9.	Width from the outside edges of the leveling feet	583 mm	23 in.
10.	Width from the inside edges of the leveling feet	513 mm	20.2 in.
11.	Distance from the edge of the mounting feet to the side of the rack	8.5 mm	.3 in.
12.	Width between the center of the front casters	410 mm	16.1 in.

No.	Description	Metric	U.S.
13.	Distance from the center of front casters to the side of the rack	95 mm	3.7 in.

Related Information

- “Floor Cutout Dimensions” on page 25
- “Rear Cabling Space” on page 27

Rear Cabling Space



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	395 mm	15.4 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.

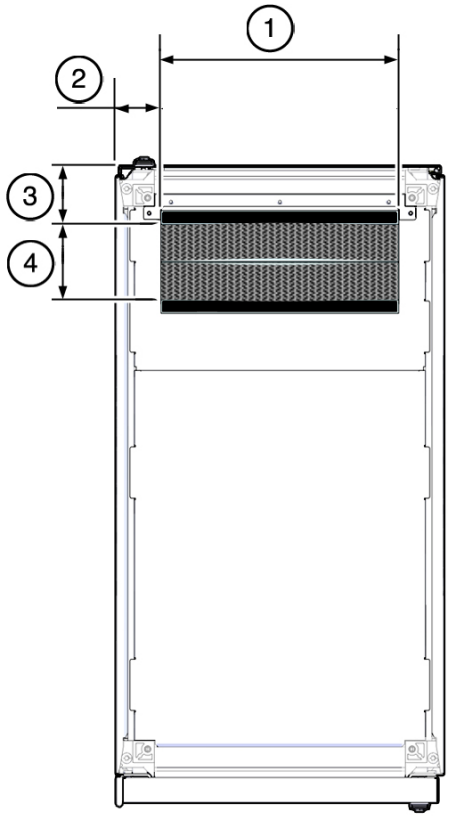
Related Information

- “Floor Cutout Dimensions” on page 25

- “Feet and Caster Dimensions” on page 26

Top Cable Window

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.



No.	Description	Metric	U.S.
1.	Width of the top cable window (side to side)	503 mm	19.8 in.
2.	Distance from the edge of the top cable window to the outside edge of the cabinet	49 mm	1.92 in.

No.	Description	Metric	U.S.
3.	Distance from top cable window to the front edge of the cabinet	70 mm	2.75 in.
4.	Width of the top cable window (front to back)	150 mm	5.9 in.

Related Information

- “Site Preparation Task Overview” on page 23
- “Identifying Rack Installations and Dimensions” on page 24

▼ Cut Cable Routing Holes

- **If you want to route data cables or PDU power cords down through the bottom of the rack, cut out a rectangular hole in the floor 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 Installations and Dimensions” on page 24 for the location of these parts.

Related Information

- “Site Preparation Task Overview” on page 23
- “Identifying Rack Installations and Dimensions” on page 24

Installing the Rack

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

- “Installation Task Overview” on page 31
- “Rack Packaging” on page 32
- “Tools Required” on page 33
- “Move the Rack to the Installation Site” on page 34
- “Stabilize the Rack (Leveling Feet)” on page 36

Related Information

- “About the Rack” on page 11
- “Specifications” on page 15
- “Preparing for Rack Installation” on page 23
- “Preparing PDUs” on page 39
- “Preparing to Install or Service Equipment” on page 43
- “Returning the Rack to Operation” on page 53
- “Servicing the Rack” on page 57

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 32
2.	Move the rack to the installation site.	“Move the Rack to the Installation Site” on page 34
3.	Stabilize the rack.	“Stabilize the Rack (Leveling Feet)” on page 36
4.	Locate the top cable window.	“Top Cable Window” on page 28

Steps	Description	Links
5.	(Optional) Attach a grounding strap.	“Servicing Grounding Straps” on page 57

Related Information

- “Rack Packaging” on page 32
- “Tools Required” on page 33
- “Move the Rack to the Installation Site” on page 34
- “Stabilize the Rack (Leveling Feet)” on page 36

Rack Packaging

Before unpacking the rack from the shipping carton, refer to the labels on the carton and to the instructions that they provide. 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 personal injury or death. Always use professional movers when unpacking and installing the rack.

Note - 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 packaging is suitable for shipping racks with factory-installed or customer-loaded equipment.

Related Information

- “Installation Task Overview” on page 31
- “Tools Required” on page 33
- “Move the Rack to the Installation Site” on page 34
- “Stabilize the Rack (Leveling Feet)” on page 36

Tools Required

Use the following tools and equipment to install and service the rack:

- Unpacking Tools (provided in rack ship kit)
  - 17 mm and 13 mm open-ended, double-sided wrench
  - Allen L-Key hex 6mm wrench, 5-3/4 inches in length
  - Allen L-Key hex 8mm wrench, 6-3/8 inches in length
- Rack Setup Tools and Accessories (provided in rack ship kit)
  - 32 M6 cage nuts and washers
  - 32 M6 pan head screws
  - 8 M5 screws
  - 8 self-tapping Torx screws
  - 4 PDU brackets
  - 4 M5 cage nuts
  - 4 grounded power cables
  - 18 mm and 16 mm open-ended, double-sided wrench
  - T-40 Torx screwdriver
  - T-25 Torx screwdriver
  - T-15 Torx screwdriver
  - 8 mm and 6 mm Allan wrench
  - Cage nut tool
  - Keys to the front door, rear door, and side panel locks
  - 17 mm and 13 mm mopen-ended, double-sided wrench
- Customer-Supplied Tools (not provided in rack ship kit)
  - No. 2 Phillips screwdriver
  - Diagonal cutter
  - Antistatic wrist strap

Related Information

- “Installation Task Overview” on page 31
- “Rack Packaging” on page 32
- “Move the Rack to the Installation Site” on page 34
- “Stabilize the Rack (Leveling Feet)” on page 36

Move the Rack to the Installation Site

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

Note - If present, to avoid damaging the rack, do not push on the perforated panels.

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

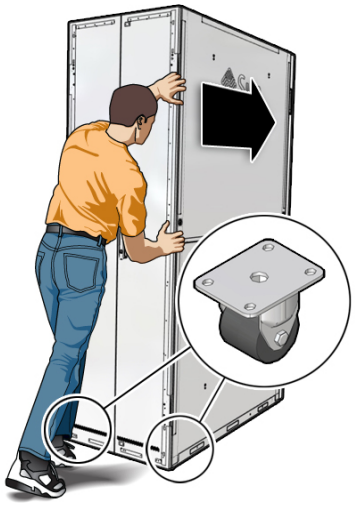
- **Push the rack from behind to the installation site.**

Note - For a fully loaded rack, three people are required to move the rack, at minimum.

Caution - Do not stand in the path of the rack while moving the rack.

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 - Do not tip or rock the rack, especially if you have installed equipment into it, as the rack can fall over.



Related Information

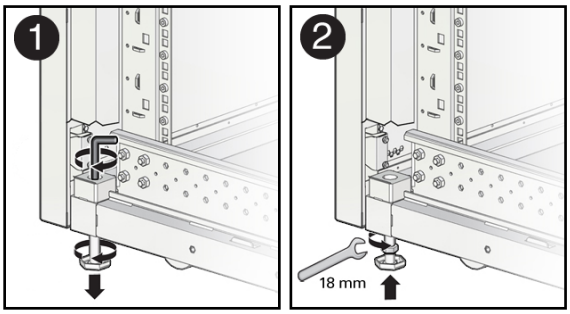
- "Installation Task Overview" on page 31
- "Rack Packaging" on page 32
- "Tools Required" on page 33
- "Stabilize the Rack (Leveling Feet)" on page 36

▼ 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. **Stabilize the rack by lowering the four leveling feet to the floor, using a 6-mm hex wrench or your fingers.**



2. **Lock the leveling feet using an 18-mm open wrench.**

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

Related Information

- “Installation Task Overview” on page 31
- “Rack Packaging” on page 32
- “Tools Required” on page 33

Preparing PDUs

For detailed instructions on how to install and cable PDUs in the rack, refer to the *Oracle Rack Cabinet 1242 Power Distribution Units User's Guide*. Besides installation instructions, this user's guide provides service procedures and specifications for the PDUs designed for the Oracle Rack Cabinet 1242.

If you plan to install PDUs or power strips not designed specifically for the Oracle Rack Cabinet 1242, refer to the documentation that came with that power equipment.

If your rack has factory-installed PDUs, see “Prepare Factory-Installed PDUs” on page 39.

Related Information

- “About the Rack” on page 11
- “Specifications” on page 15
- “Prepare Factory-Installed PDUs” on page 39
- “Installing the Rack” on page 31
- “Preparing to Install or Service Equipment” on page 43
- “Returning the Rack to Operation” on page 53
- “Servicing the Rack” on page 57

▼ Prepare Factory-Installed PDUs

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

Note - Refer to the *Oracle Rack Cabinet 1242 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.**

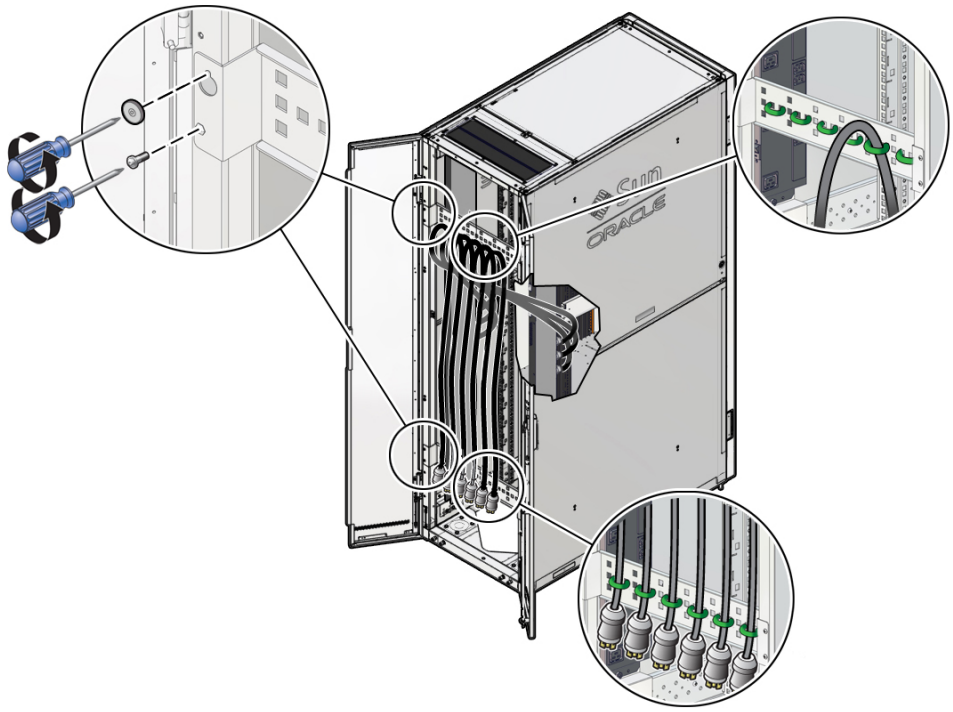
   See “Attach an Antistatic Wrist Strap” on page 50 for instructions.

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

   The PDU cables are secured to the rack using the shipping brackets.

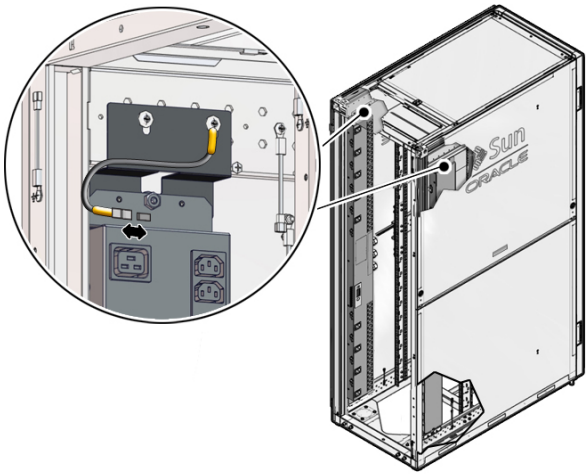
3. **Loosen the two screws that attach each shipping bracket to the rack**

   Do this for both shipping brackets.



4. **After the screws are loosened, lift each bracket up and off the studs on the rack frame.**

5. **Connect the grounding straps from the rack frame to the PDU.**



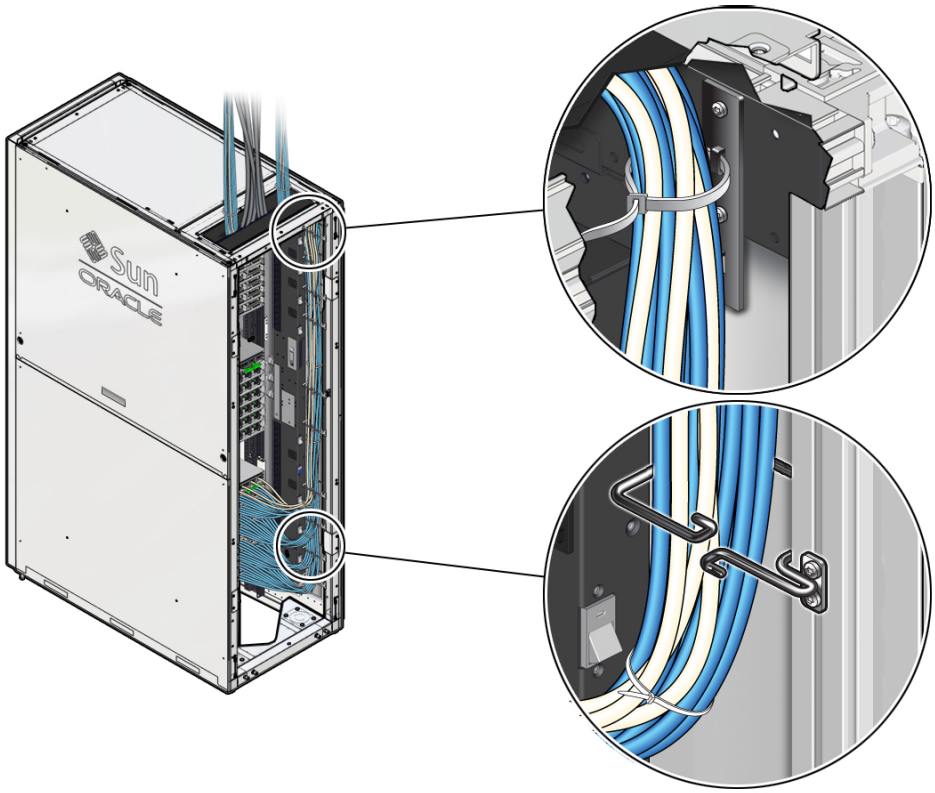
6. **Route the power input lead cords between the rear RETMA rail and side panel.**

   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 following figures shows routing the power leads through the bottom and top of the server..



7. **Use a T-30 Torx screwdriver 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.

8. **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 45
- “Install a Cable Management Hook” on page 46

Preparing to Install or Service Equipment

These topics describe how to prepare to install or service equipment in the rack.

- “Equipment Installation Task Overview” on page 43
- “Insert Cage Nuts Into Rail Holes” on page 45
- “Install a Cable Management Hook” on page 46
- “Service Equipment in the Rack” on page 47
- “Extend the Anti-tilt Bar” on page 49
- “Attach an Antistatic Wrist Strap” on page 50
- “Power Off the Rack” on page 51

Related Information

- “About the Rack” on page 11
- “Specifications” on page 15
- “Preparing for Rack Installation” on page 23
- “Installing the Rack” on page 31
- “Preparing PDUs” on page 39
- “Returning the Rack to Operation” on page 53
- “Servicing the Rack” on page 57

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 43

Step	Description	Links
2.	Extend the anti-tilt bar.	"Extend the Anti-tilt Bar" on page 49
3.	Attach an antistatic wrist strap.	"Attach an Antistatic Wrist Strap" on page 50
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 39 ■ Refer to the *Oracle Rack Cabinet 1242 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 45 "Install a Cable Management Hook" on page 46
7.	Prepare to service equipment in the rack.	"Service Equipment in the Rack" on page 47
8.	(Optional) To improve airflow through the rack, install filler panels over any open slots.	"Install a Filler Panel" on page 71

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.

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.

Caution - Ensure that installed equipment or cables do not impede the airflow through the rack.

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

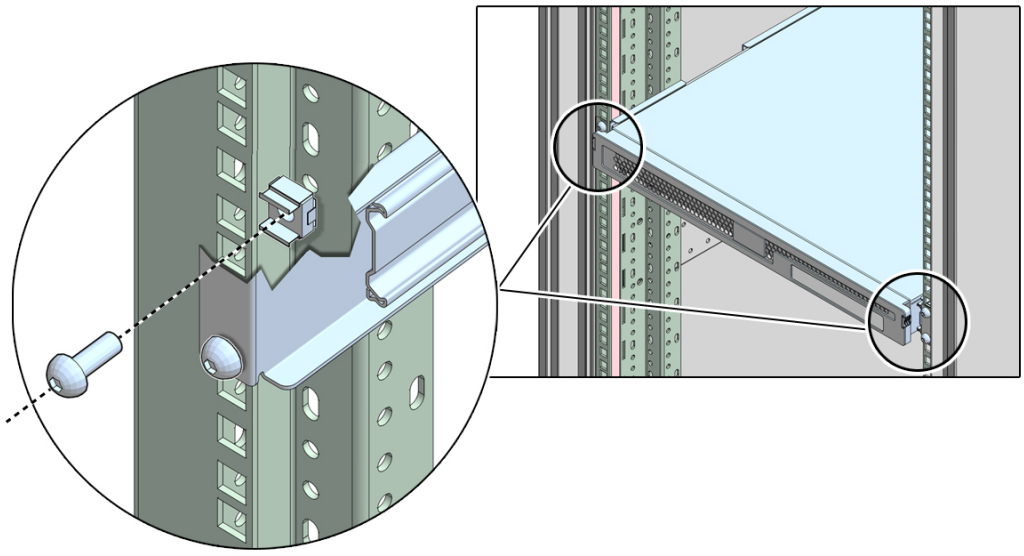
Related Information

- "Equipment Installation Task Overview" on page 43
- "Service Equipment in the Rack" on page 47
- "Extend the Anti-tilt Bar" on page 49
- "Attach an Antistatic Wrist Strap" on page 50
- "Power Off the Rack" on page 51

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 ship kit contains extra M6 cage nuts and M6 screws. If possible, use the cage nuts that shipped with the equipment's rackmounting hardware.

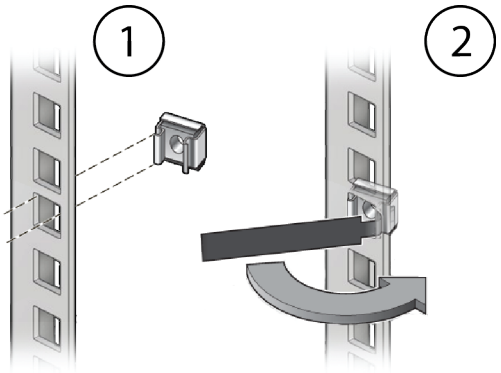
1. **Using your equipment's rack alignment template, or other equipment documentation, locate the rail holes you are using to install the equipment.**



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

2. **Align the cage nut with the square rail hole [1].**

3. **Hook the side lip of the nut in the square rail hole [2].**



4. **Insert the tip of the cage nut insertion tool through the rail hole, hook the other side lip of the cage nut, and lever the cage nut into place [2].**

Related Information

- “Prepare Factory-Installed PDUs” on page 39
- “Install a Cable Management Hook” on page 46

▼ Install a Cable Management Hook

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

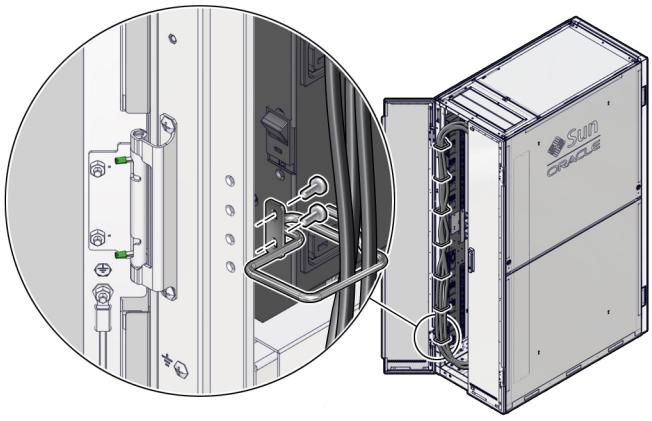
1. **Retrieve a cable management hook and screws.**

2. **Select one or more locations for the cable management hooks.**

   There are seven mounting points on each rail. Each mounting point provides four threaded holes on the frame.

   The cable management hook has two holes on its mounting plate. The holes on the cable management hook must straddle two of the holes *on the inside of the rail*.

3. **Place the cable management hook so that its mounting plate aligns with any two adjacent threaded holes on the inside of the rail.**



4. **Use the screws to secure the cable management hook to the rail.**

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

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

Related Information

- “Prepare Factory-Installed PDUs” on page 39
- “Insert Cage Nuts Into Rail Holes” on page 45

▼ 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.

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.

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.

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 service 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 51 for instructions.

3. **Extend the rack's anti-tilt bar.**
   See "Extend the Anti-tilt Bar" on page 49 for instructions.

4. **Attach an antistatic wrist strap.**
   See "Attach an Antistatic Wrist Strap" on page 50 for instructions.

5. **Service the installed equipment.**
   Refer to the equipment service manual, or other documentation, for the specific service procedures.

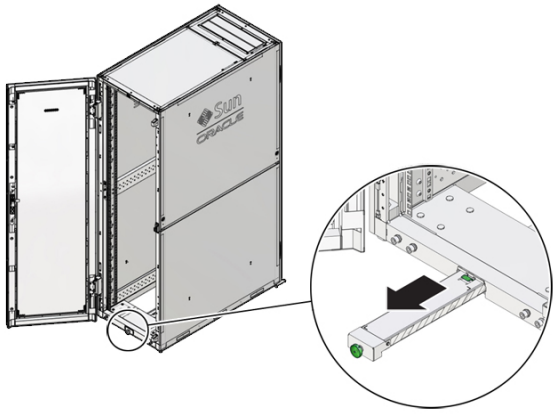
Related Information

- "Equipment Installation Task Overview" on page 43

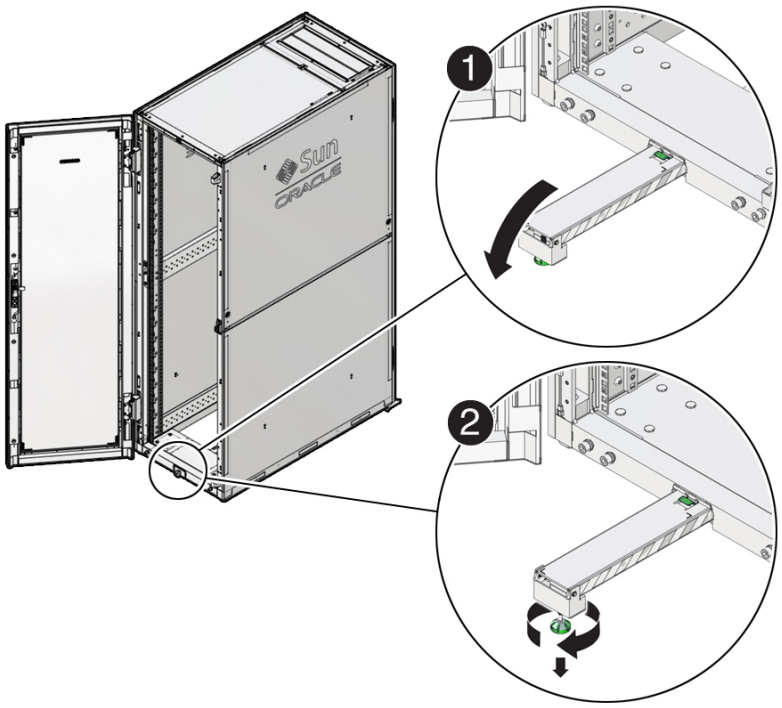
- “Extend the Anti-tilt Bar” on page 49
- “Attach an Antistatic Wrist Strap” on page 50
- “Power Off the Rack” on page 51

▼ Extend the Anti-tilt Bar

1. **Unscrew the knob counter-clockwise at the end of the anti-tilt bar.**
2. **Pull the anti-tilt bar to the fully extended position.**



3. **Rotate the end of the bar 90 degrees and so that it is perpendicular [1] to the floor and adjust the height of the foot so that it rests on the floor [2].**

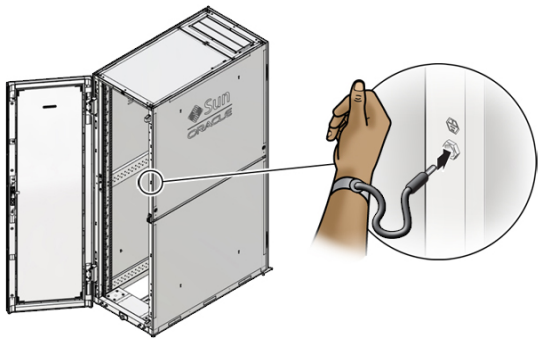


▼ Attach an Antistatic Wrist Strap

Caution - To protect rack equipment from damaging static shock, always wear an antistatic wrist strap connected to an ESD grounding 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.**

The strap attaches to the cabinet using a banana jack.



Related Information

- “Equipment Installation Task Overview” on page 43
- “Service Equipment in the Rack” on page 47
- “Extend the Anti-tilt Bar” on page 49
- “Power Off the Rack” on page 51

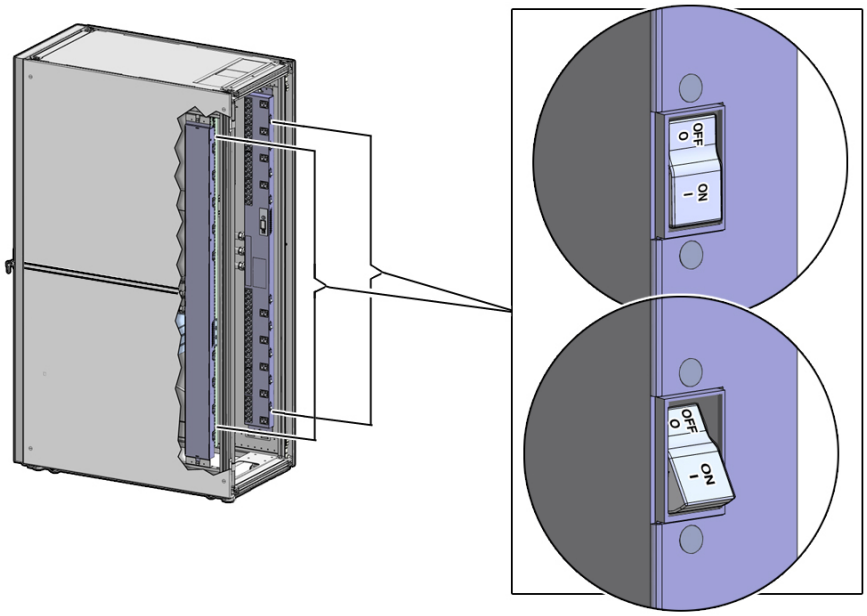
▼ Power Off the Rack

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.



Related Information

- “Equipment Installation Task Overview” on page 43
- “Service Equipment in the Rack” on page 47
- “Extend the Anti-tilt Bar” on page 49
- “Attach an Antistatic Wrist Strap” on page 50

Returning the Rack to Operation

These topics describe how to return the rack to operation mode.

- “Returning the Rack to Operation Task Overview” on page 53
- “Retract the Anti-tilt Bar” on page 54
- “Power On the Rack” on page 55

Related Information

- “About the Rack” on page 11
- “Specifications” on page 15
- “Preparing for Rack Installation” on page 23
- “Installing the Rack” on page 31
- “Preparing PDUs” on page 39
- “Preparing to Install or Service Equipment” on page 43
- “Servicing the Rack” on page 57

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 71
2.	Retract the anti-tilt bar.	“Retract the Anti-tilt Bar” on page 54
3.	Power the rack on.	“Power On the Rack” on page 55

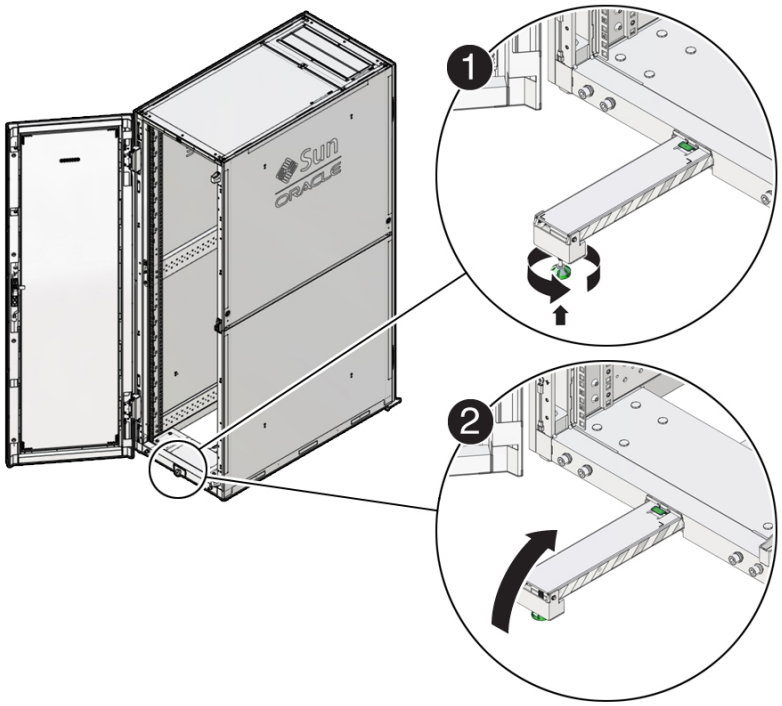
Related Information

- “Retract the Anti-tilt Bar” on page 54

- “Power On the Rack” on page 55

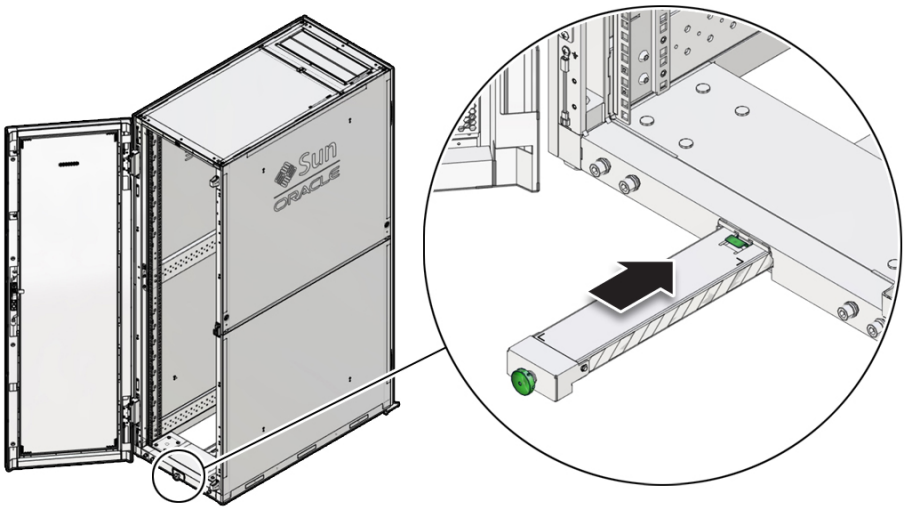
▼ Retract the Anti-tilt Bar

1. **Loosen the foot by turning the foot counterclockwise [1].**
2. **Rotate the end of the foot 90 degrees upwards so that it is parallel to the bar [2].**



3. **Push the green release tab on top of the bar to unlock it from the fully extended position**

4. **Push the bar back into the slot so that it is completely retracted.**



5. **Turn the knob clockwise to secure the bar.**

Related Information

- “Returning the Rack to Operation Task Overview” on page 53
- “Power On the Rack” on page 55

▼ Power On the Rack

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 53

- “Retract the Anti-tilt Bar” on page 54

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 57
- “Attaching a Grounding Cable” on page 61
- “Servicing Doors” on page 64
- “Servicing Filler Panels” on page 69
- “Servicing Side Panels” on page 72
- “Servicing the Top Panel and Top Cable Window” on page 79

Related Information

- “About the Rack” on page 11
- “Specifications” on page 15
- “Preparing for Rack Installation” on page 23
- “Installing the Rack” on page 31
- “Preparing PDUs” on page 39
- “Preparing to Install or Service Equipment” on page 43
- “Returning the Rack to Operation” on page 53

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.

- “Disconnect Grounding Straps” on page 58
- “Connect a Grounding Strap” on page 59
- “Replace a Grounding Strap” on page 59

Related Information

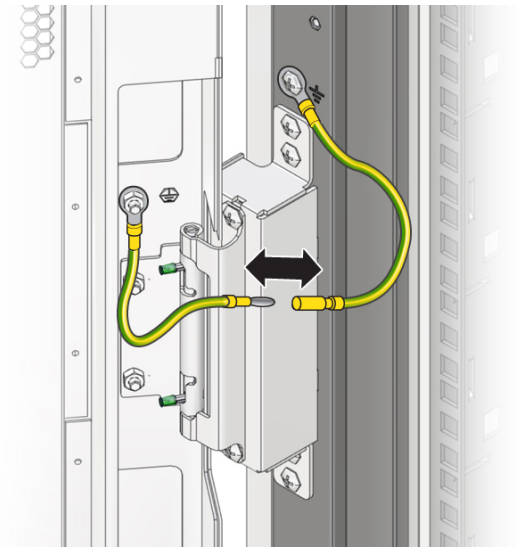
- “Servicing Doors” on page 64
- “Servicing Filler Panels” on page 69
- “Servicing Side Panels” on page 72
- “Servicing the Top Panel and Top Cable Window” on page 79

▼ Disconnect Grounding Straps

For each rack panel and door, two grounding straps (upper and lower) connect the panel or door to the rack frame. Before removing a door or a cabinet panel, disconnect the two grounding straps.

- **Separate the banana jack located in the center of the grounding strap.**

  One half remains on the panel or door, and the other half remains on the rack frame.



Connect a Grounding Strap

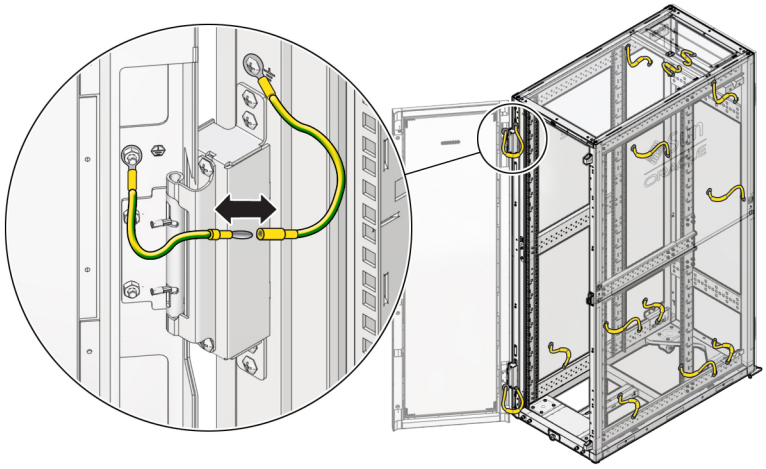
The doors and rack panels have grounding straps connecting them to the rack frame. After installing a door or panel, reattach the grounding straps.

1. **Locate both halves of the grounding strap.**

   One half is attached to the door or panel, and the other half is attached to the rack frame.

2. **Mate the two ends of the banana jack to complete the connection.**

   The following figure shows the locations of grounding straps on the cabinet.

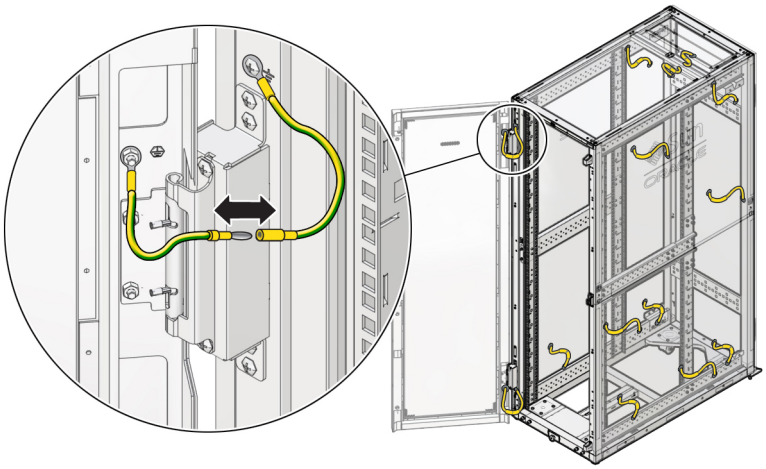


Replace a Grounding Strap

Use this task to replace a damaged grounding strap, or to fasten a grounding strap to equipment that you are replacing, if it does not already have one attached.

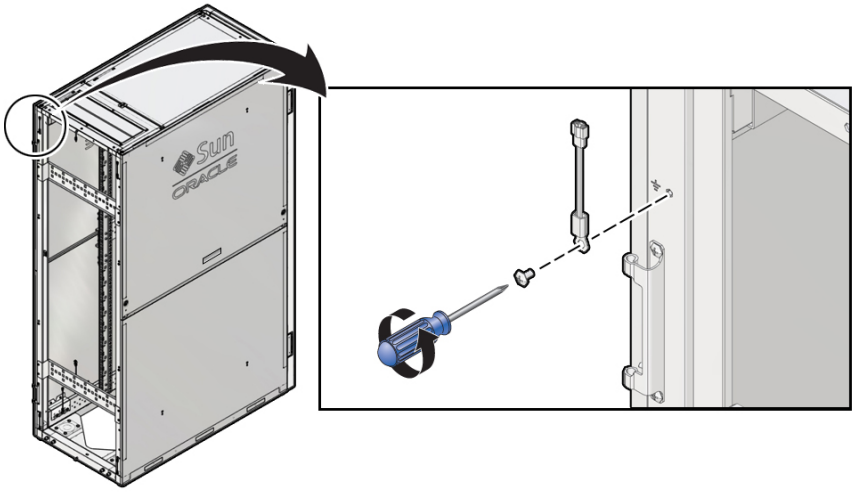
1. **Locate the grounding strap to be replaced, and disconnect the grounding strap from the panel or door if still attached.**

The following figure shows the locations of grounding straps on the cabinet.

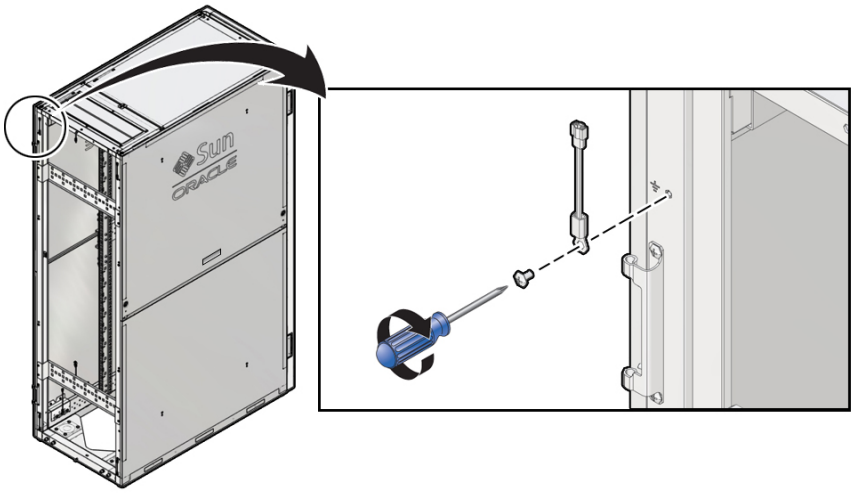


2. **Using a T-25 Torx screwdriver, remove the M6 screw securing the grounding strap connector to the rack.**

   Save the screw.



3. **Using a T-25 Torx screwdriver, secure the replacement grounding strap connector with an M6 screw.**



4. **Repeat steps 2 and 3 for the second segment of the grounding strap.**

   Ensure that the second segment is the opposite male or female connector that mates with the first segment of the grounding strap.

5. **If the two segments of the strap are not connected, connect the banana jack to complete the connection.**

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 62
- “Attach a Grounding Cable for TT Power Systems” on page 63

▼ 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.**

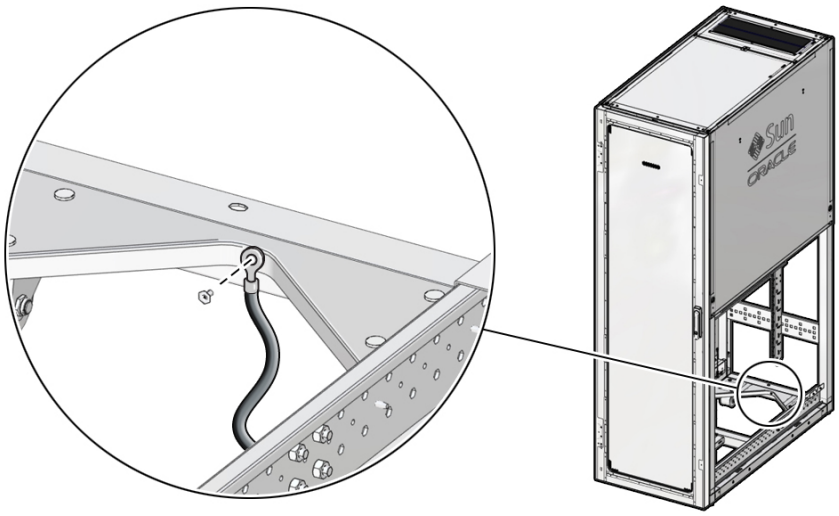
   The facility PDU must be earth ground.

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. **Use a T-30 Torx screwdriver to attach the grounding cable to the rack grounding terminal.**

The grounding terminal is located under the cabinet between the two rear casters on the inside of the caster plate.

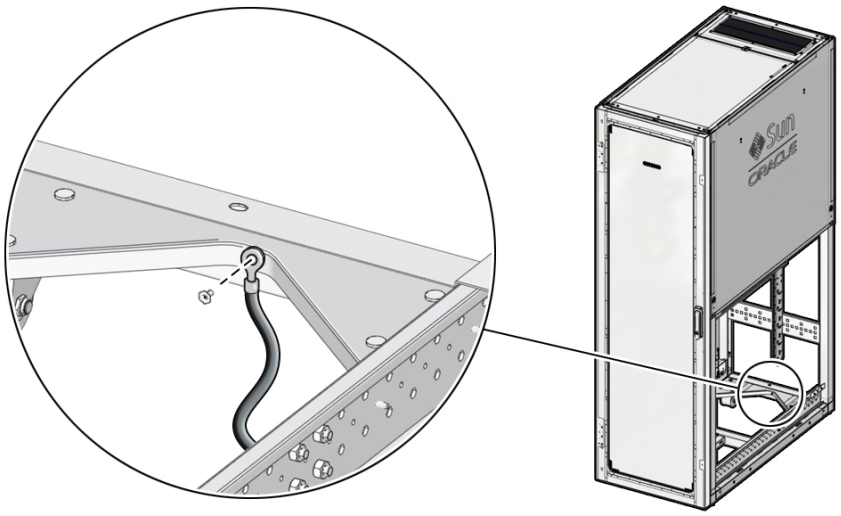


▼ Attach a Grounding Cable for TT Power Systems

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.**
2. **Use a T-30 Torx screwdriver to attach the grounding cable to the rack grounding terminal.**

The grounding terminal is located under the cabinet between the two rear casters on the inside of the caster plate.



3. **Attach the other end of the grounding cable to a reliable earth ground 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

This section provides instructions for removing and replacing the doors on the rack. You might need to remove the doors in order to install or cable certain equipment in the rack.

- "Remove the Doors" on page 65
- "Install the Doors" on page 67

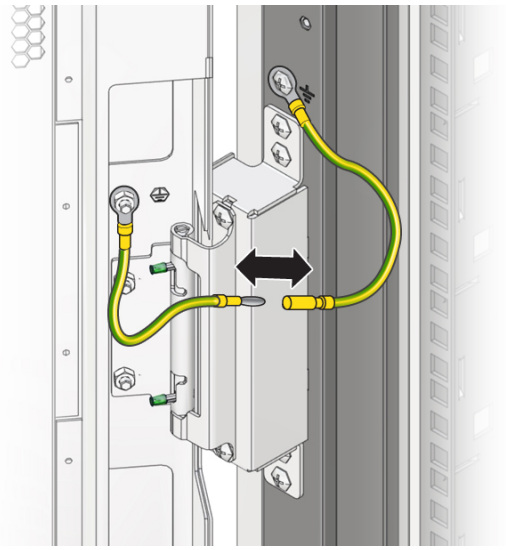
Related Information

- “Servicing Grounding Straps” on page 57

▼ Remove the Doors

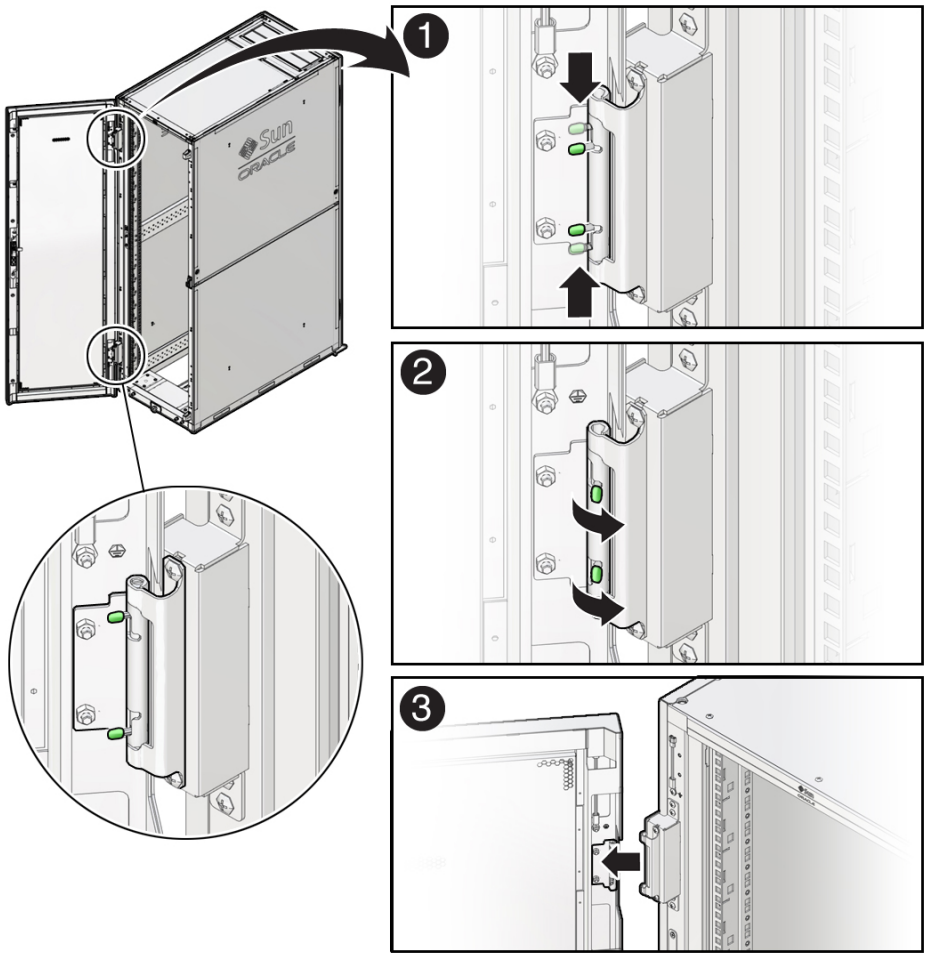
Before You Begin The front door is heavy. Removing it requires two persons.

1. **If necessary, unlock and then open the doors.**
   You can find the door keys in the ship kit.
2. **Detach the top and bottom grounding straps by separating the banana jack.**



3. **Unlatch the bottom hinge.**
   a. **Pinch the two studs on the hinge toward the center of the hinge [1].**

b. Rotate the studs away from the door so that they stay in place and the hinge remains unlatched [2].



4. Unlatch the top hinge.

Caution - The doors are heavy. Have one person support the door while the other releases the top hinge.

a. **Pinch the two studs on the hinge toward the center of the hinge [1].**

b. **Rotate the studs away from the door so that they stay in place [2].**

5. **Lift the door away from the cabinet [3].**
   Try to keep the door parallel to the cabinet.

6. **If you are removing the two rear doors, repeat these steps for both rear doors.**

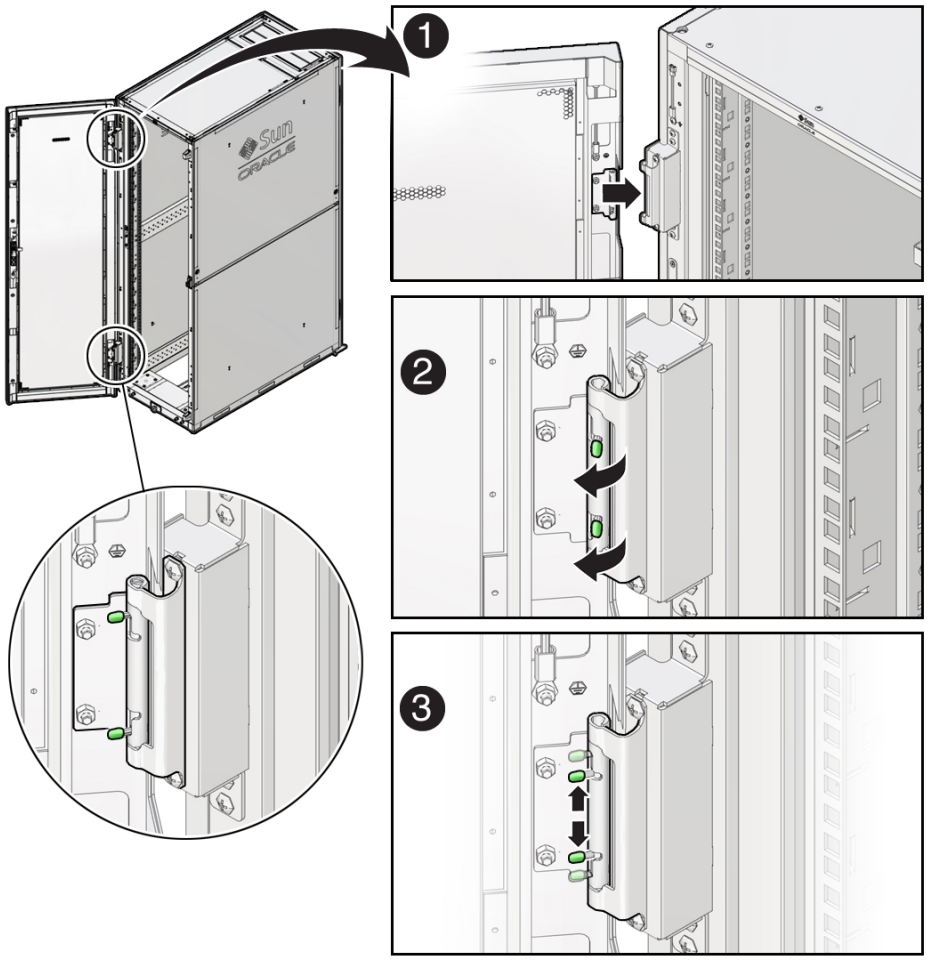
Note - Rear doors are much lighter than the front door, and can be managed by a single person.

▼ Install the Doors

Before You Begin The front door is heavy. Replacing it requires two persons.

1. **Lift the door into place, and align the pins on the door with the sleeve on the cabinet [1].**

Caution - The front door is heavy. Have one person hold the door in place while the other person operates the hinge latching mechanism.



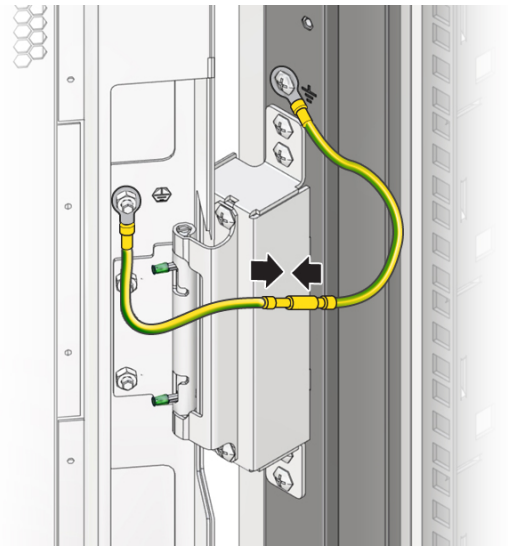
2. **On the top hinge rotate the two studs on the hinge away from the center of the hinge [2].**

   The pins snap into place [3].

3. **Repeat these steps for the bottom hinge.**

4. **Verify that both hinges are secured correctly. The upper and lower pins on the door must be secure in the sleeves.**

5. **Connect the top and bottom grounding straps.**



6. **Close the door.**

7. **If you are installing the two rear doors, repeat these steps for the other door.**

8. **(Optional) Lock the door(s).**
   The door keys are in the ship kit.

Servicing Filler Panels

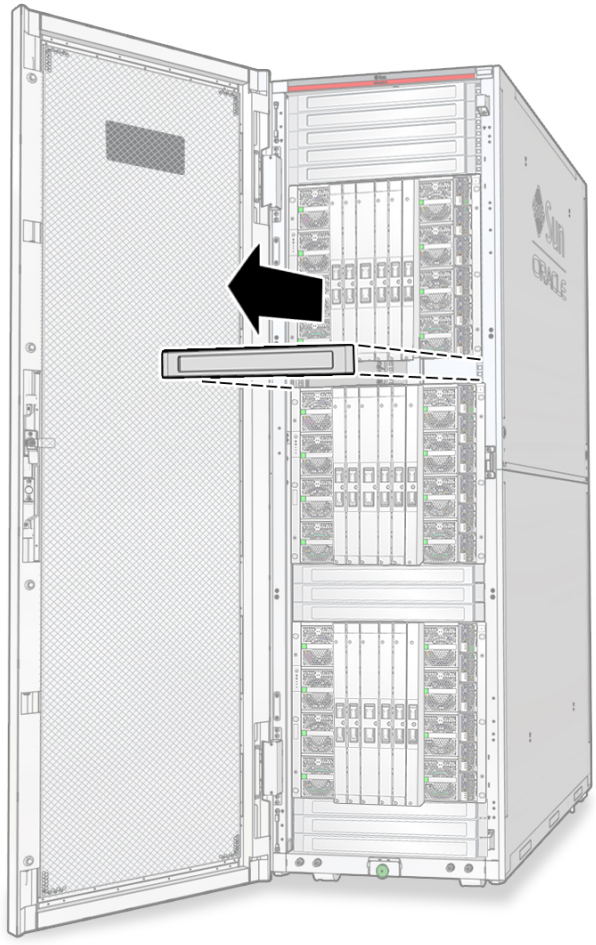
Follow these instructions to remove and replace the filler panels.

- “Remove a Filler Panel” on page 70
- “Install a Filler Panel” on page 71

Remove a Filler Panel

1. **Open the front door.**

2. **Pull the filler panel away from the rack.**
   Studs on the back of the filler panel pull out of the holes in the rails.



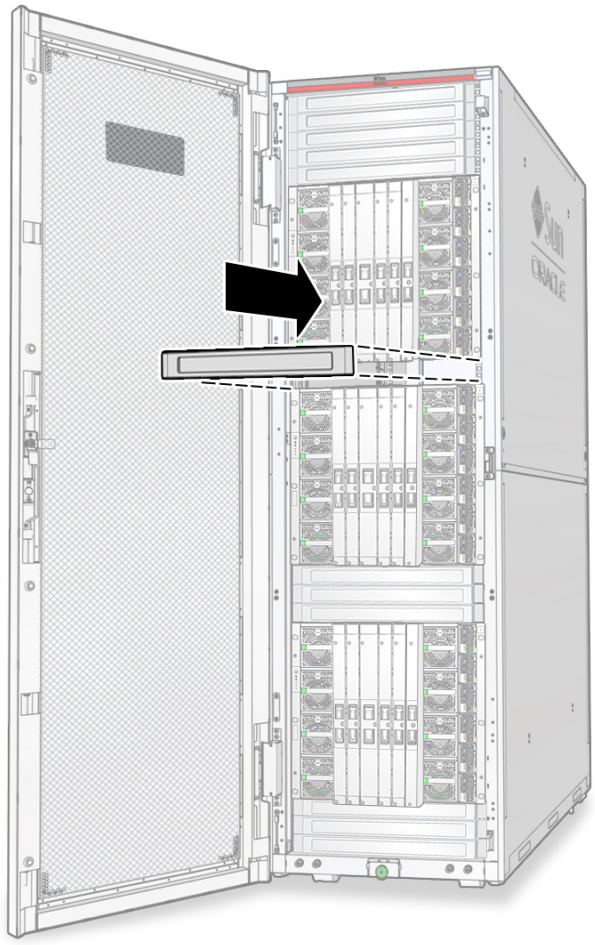
3. **Insert the equipment or replacement filler panel, and then close the door.**
   Do not leave slots empty in the rack.

Install a Filler Panel

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

1. **Open the front door.**

2. **Align the studs on the filler panel with the holes on the rail and push the filler panel into place.**



3. **Close the front door.**

Servicing Side Panels

Use these instructions to remove and install the side panels.

- “Remove the Side Panels” on page 72
- “Install the Side Panels” on page 76

Related Information

- “Servicing Doors” on page 64
- “Servicing Filler Panels” on page 69
- “Servicing the Top Panel and Top Cable Window” on page 79

▼ Remove the Side Panels

There are two panels on each side of the rack. The upper panel is secured by two keys.

Both panels have tabs on the panel that slide into grooves on the rack frame to hold the panel in place.

Both panels have grounding straps that connect them to the rack frame.

You must remove the upper panel before you can remove the lower panel.

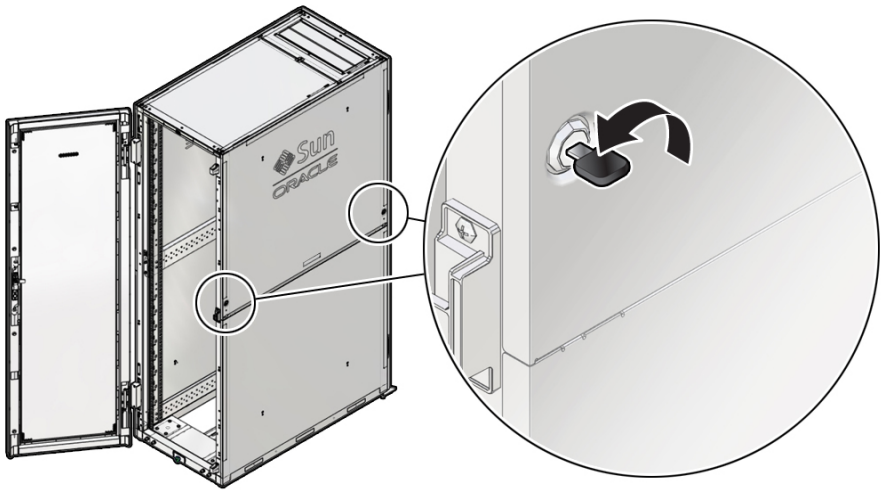
1. **Power off the rack.**

Caution - Do not operate the rack without the side panels in place.

See “Power Off the Rack” on page 51.

2. **Use the keys to unlock both sides of the upper panel.**

The locks are unlocked when the key slots are in the horizontal position.



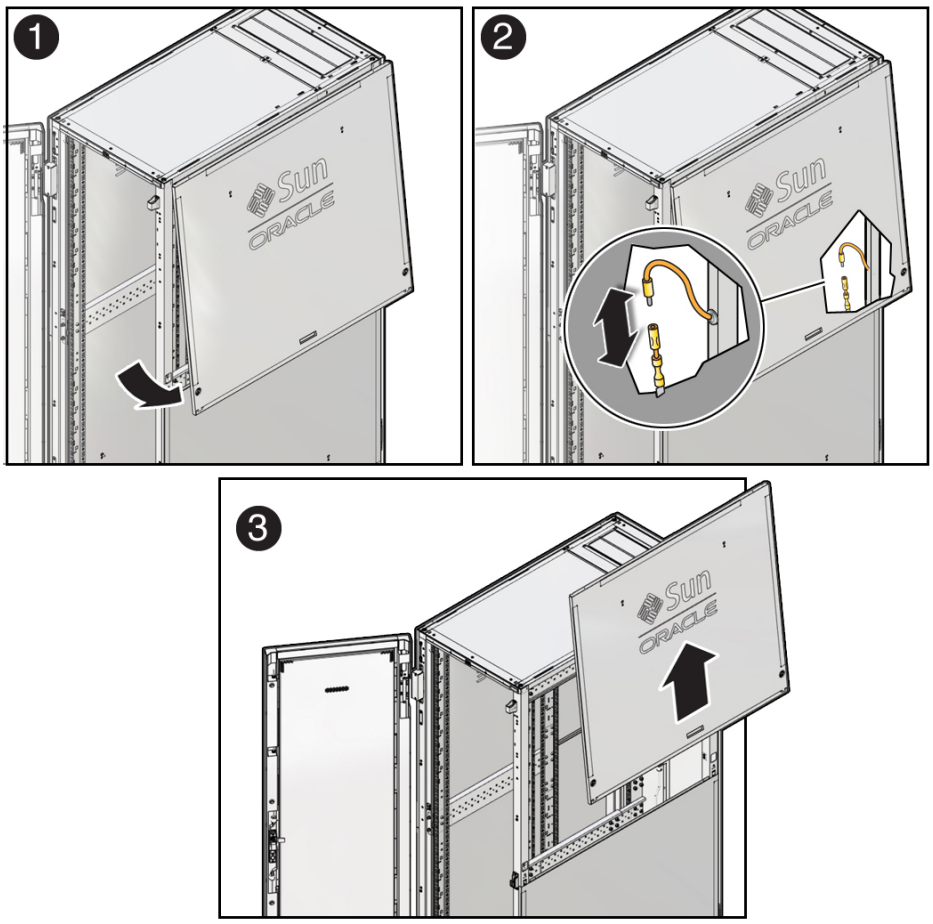
3. **Using the handle in the center, raise the upper panel slightly to disengage its bottom tabs.**

   Do not lift it all the way yet. The top of the panel should still be securely attached to the rack.

4. **Swing the bottom of the upper panel out about 6 inches (15.25 cm) [1] and disconnect the grounding strap [2].**

   Disconnect the two ends of the banana jack.

Note - If there is room inside the rack, you can also disconnect the grounding strap by reaching inside the rack. Normally in a fully loaded rack, this is not an option.

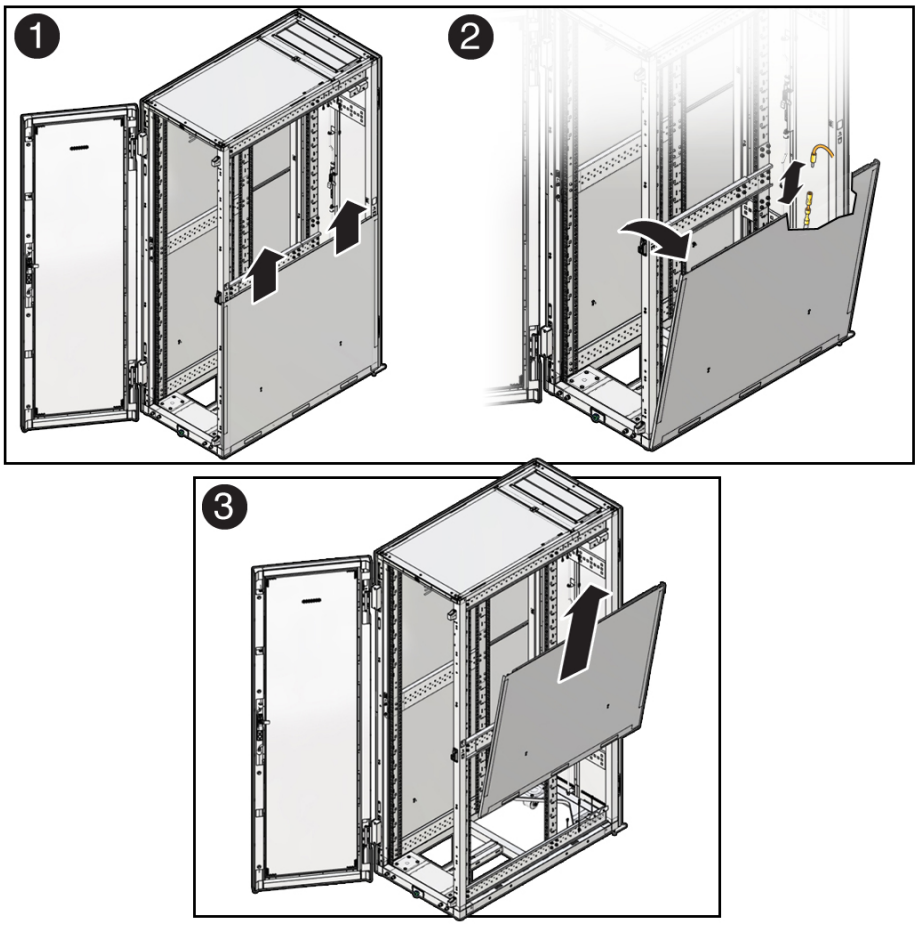


5. **Lift the upper panel up and away from the rack [3].**

   - If you are only removing the upper panel, you are done.
   - To remove the lower panel, continue to the next step.

6. **Lift the lower panel slightly to disconnect its upper tabs from their grooves [1].**

Do not lift it all the way out yet.



7. **Swing the top of the lower panel outward about 6 inches (15.25 cm) and disconnect the grounding strap [2].**

   Disconnect the two ends of the banana jack.

8. **Lift the lower panel up and away from the rack [3].**

Install the Side Panels

There are two panels on each side of the rack. The top panel is secured by two keys.

Both panels have tabs on the panel that slide into grooves on the rack frame to hold the panel in place.

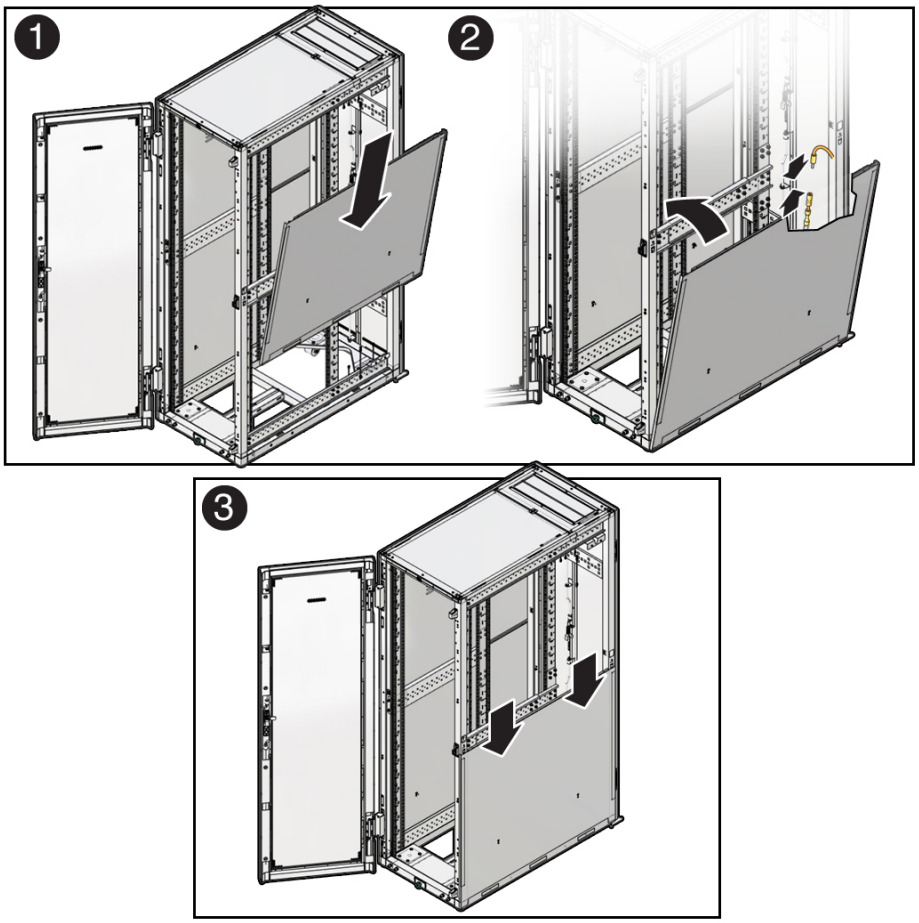
Both panels have grounding straps that connect them to the rack frame.

You must install the lower panel before you can install the top panel.

1. **Lift the lower panel and lower it to insert the tabs on the bottom of the panel into the grooves on the rack frame [1].**

   If the lower panel is already in place, skip to Step 4.

Make sure both tabs are inserted into the grooves.



2. **Allow the panel to swing outward from the top about 6 inches (15.25 cm) and connect the grounding strap [2].**

   Mate the two ends of the banana jack to complete the connection.

Note - If the rack is full, you might not be able to access the grounding straps once the panel is in place.

---

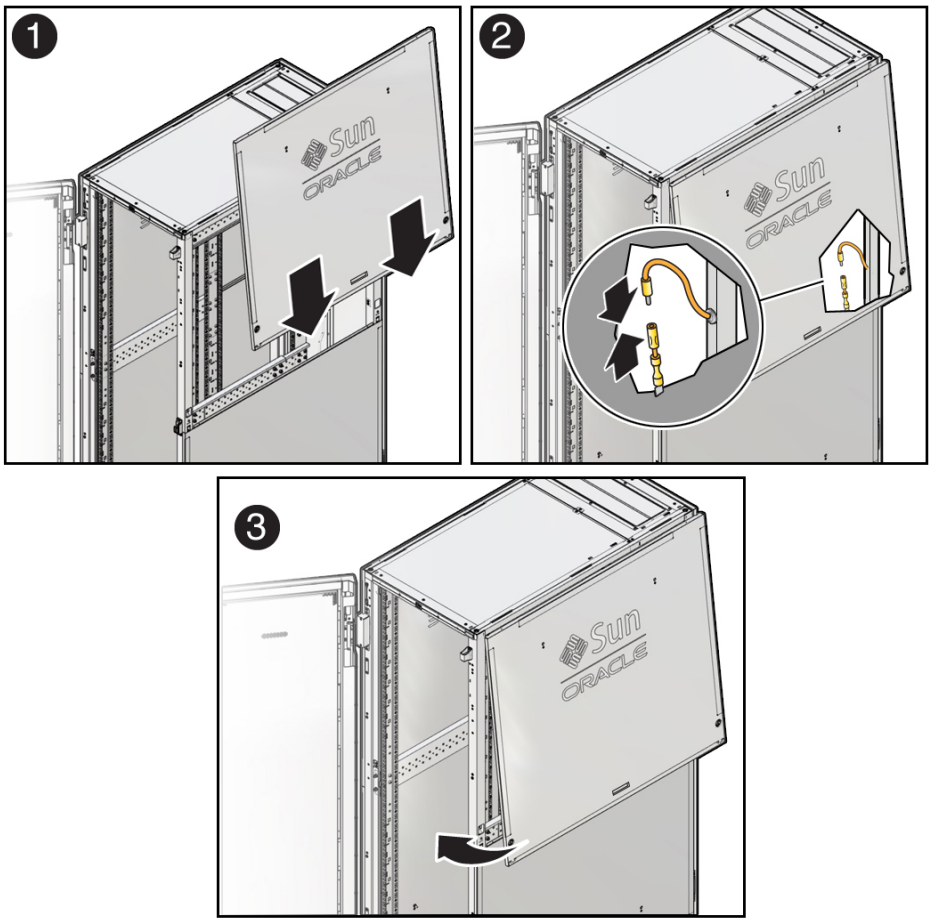
3. **Swing the lower panel back in, lift it slightly, and lower its upper tabs onto the grooves [3].**

   Make sure both tabs are inserted into the grooves.

4. **Lift the upper panel and lower it to insert its upper tabs into the grooves [1].**

   Do not insert the lower tabs yet.

Caution - Drop Risk. Make sure that the upper panel is aligned correctly and that both tabs are secure in their respective grooves.



5. **Swing the lower edge of the upper panel outward about 6 inches and reconnect the grounding straps [2].**

   Mate the two ends of the banana jack to complete the connection.

   Note - If the rack is full, you might not be able to access the grounding straps once the panel is in place.

6. **Swing the lower edge of the upper panel inward, lift the panel slightly using the handle, and lower the tabs into the grooves [3].**

   The two lower tabs are located in the center of the upper panel, near the handle.

7. **Use the keys to lock the upper panel.**

   The panel is locked when the key slot is in the vertical position.

8. **Power on the rack.**

   See “Power On the Rack” on page 55.

Servicing the Top Panel and Top Cable Window

The rack has a top panel that covers most of the top of the rack, and a top cable window that you can use to route data and power cables.

- “Remove the Top Panel” on page 79
- “Install the Top Panel” on page 80
- “Remove and Replace the Top Cable Window” on page 81

Related Information

- “Servicing Doors” on page 64
- “Servicing Filler Panels” on page 69
- “Servicing Side Panels” on page 72

▼ Remove the Top Panel

Before You Begin This procedure requires a step stool or ladder and a T-25 Torx screwdriver.

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

   See “Power Off the Rack” on page 51.

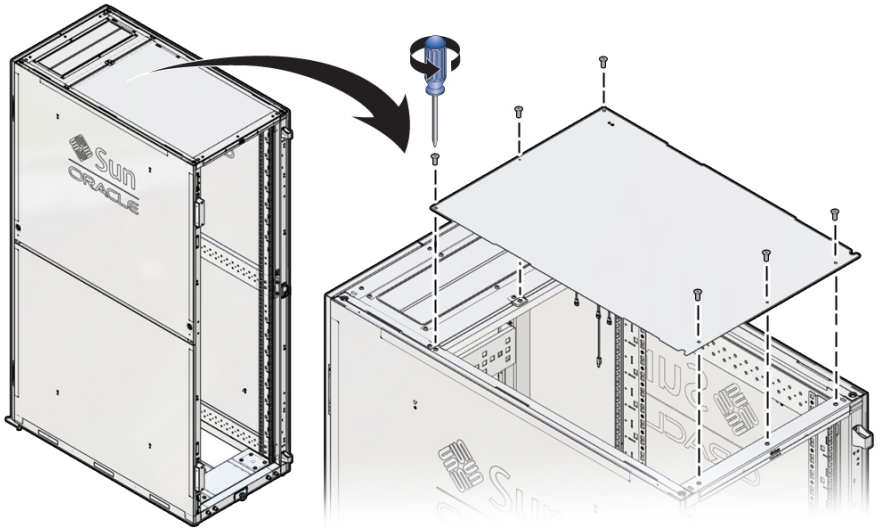
2. **Open the front door and disconnect the grounding strap connected to the top panel.**

   The grounding strap can be found near the top front of the rack.

   Disconnect the two ends of the banana jack.

3. **Using a T-25 Torx screwdriver, remove the screws that secure the panel to the top of the rack.**

   Use a step stool or a ladder to reach the top of the rack.



4. **Lift the panel up and off the rack.**

▼ Install the Top Panel

Before You Begin This procedure requires a step stool or ladder and a T-25 Torx screwdriver.

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

Use a step stool or a ladder to reach the top of the rack.

2. **Using a T-25 Torx screwdriver driver, loosely screw in the screws that secure the panel to the top of the rack.**

   It might be necessary to move the panel slightly to align holes in the panel with the screw holes in the rack frame. If they are misaligned, the screws might not thread correctly. Do not finish tightening the screws until all six screws can be threaded straight into the holes without interference from the panel.

3. **Finish tightening all of the screws.**

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

   Mate the two ends of the banana jack to complete the connection.

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

   See “Power On the Rack” on page 55.

▼ Remove and Replace the Top Cable Window

The top cable window consists of a metal panel with a window through which you can pass cables. The window is equipped with metal brushes that can be pushed aside to accommodate cables, but fill in any empty spaces to prevent Electromagnetic Interference (EMI) leakage.

Before You Begin This procedure requires a step stool or ladder and a T-25 Torx screwdriver.

1. **Power off the rack.**

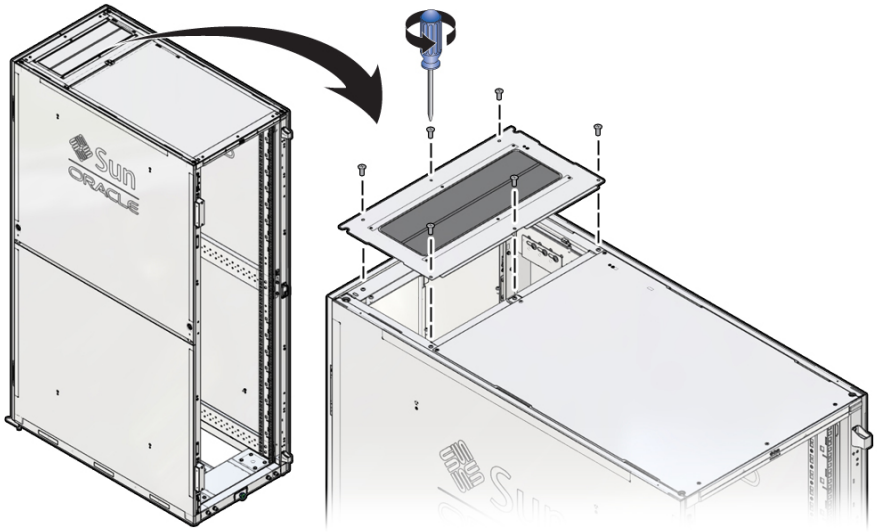
Caution - Do not operate the rack without the top cable window in place.

See “Power Off the Rack” on page 51.

2. **Remove all cables that pass through the top cable window.**

3. **Use the T-25 Torx screwdriver to remove the screws that secure the top cable window to the rack.**

Use a step stool or a ladder to reach the top of the rack.



4. **Remove the top cable window from the rack.**
5. **Set the replacement cable window in position on top of the rack.**
6. **Use the T-25 Torx screwdriver to replace the screws.**
7. **Replace any cables that passed through the top cable window.**
8. **Power on the rack.**

   See “Power On the Rack” on page 55.

Index

A

access route guidelines, 18
airflow guidelines, 20
airflow requirements, 17
anti-tilt bar
  extending, 49
  retracting, 54
antistatic wrist strap
  attaching, 50
  requirements, 21

C

cable
  management hooks
    spring nuts, installing, 46
  routing
    brackets, power distribution unit (PDU), 42
cable management hooks, 46
cabling
  floor cutout
    dimensions, 25
    preparing, 29
  grounding cable, 61
  management hooks, 46
  power distribution unit (PDU) input lead cords, 41
cage nut
  insertion tool, 46
  installing, 45
caster dimensions, 24
circuit breakers, 51
compliance guidelines, 11, 13, 23

D

dimensions
  castor locations, 24
  dynamic load, maximum, 17
  floor
    cutout, 25
  leveling feet locations, 24, 26
  RETMA rails, 17
  weight, 17
    maximum allowable, 17
doors
  installing, 67
  locks, 65
  removing, 65
  replacing, 67
dynamic load, maximum, 17

E

earth ground cable attach point, 62, 63
electrostatic discharge, 21
Electrostatic Discharge (ESD)
  antistatic wrist strap
    attaching, 50
    requirements, 21
  grounding jacks, 50
  prevention, 21
  requirements, 21
equipment
  cable
    management hooks, 46
  cage nuts, installing, 45
  installation tasks, 43
  service

procedure, 47

F

filler panels
airflow requirements, 21
installing, 70, 71
floor loading capacity, maximum, 19

G

grounding
ground cable, attaching, 61
TN power systems, 62
TT power systems, 63
requirements, 18
grounding strap
disconnecting, 58
doors, 65
locating, 58, 72
power distribution unit (PDU), 41
quick-release connector, 58
side panels, 72
top panel, 79
guidelines
access route, 18
safety, 13
servicing equipment, 43, 43

I

incline, maximum, 19
installation
cage nuts, 45
equipment, 43
moving to site, 34
power distribution unit (PDU), 39
preparing
floor cutout, 29
site, 23
safety guidelines, 13
task overview, 11, 15, 23
unpacking rack, 32

K

keys
doors, 65
side panels, 72

L

leveling feet
locations, 24
stabilizing rack, 36
loading dock requirements, 18
locks
doors, 65
side panels, 76

M

maintenance access requirements, 17
moving rack, 34

P

packaging, 32
dimensions, 16
unpacking, 32
panel
doors, 65
filler, 70, 71
side panels, 72
power
off, 51
on, 55
requirements, 18
power distribution unit (PDU), 12, 23, 53
cable routing bracket, installing, 42
circuit breakers, 51
factory installed
grounding strap, attaching, 41

preparing, 39
grounding strap, 41
installation, 39
power input lead cords, routing, 41
shipping brackets
removing, 40

R

requirements
airflow, 17
Electrostatic Discharge (ESD), 21
grounding, 18
loading dock height and ramp, 18
maintenance access, 17
power, 18
RETMA rails
depth, 17
route
cables through management hooks, 46
PDU power cords, 41

S

safety guidelines, 11, 13, 23
servicing
grounding straps, 57
side panels, 72
top panel, 79
ship kit contents, 33
shipping brackets
removing, 40
side panels
installing, 76
locks, 76
removal tool, 72
removing, 72
replacing, 76
site preparation
floor cutout, 29
dimensions, 25
requirements, 23
spring nuts, installing, 46
stabilizing
leveling feet, 36

T

tools
cage nut insertion tool, 46
side panel removal tool, 72
top cable window
installing, 81
replacing, 81
top panel, 79
installing, 79, 80
removing, 79
replacing, 80

U

unpacking rack, 32

W

weight
empty, 17
maximum allowable, 17