

HP ProLiant DL380 G6 Carrier-Grade Server

Read Before Install

Carrier-Grade Instructions

HP Part Number: AM275-9001A
Published: July 2012
Edition: 3



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Audience assumptions

This document is for the person who installs, administers, and troubleshoots servers and storage systems. HP assumes you are qualified in the servicing of computer equipment and trained in recognizing hazards in products with hazardous energy levels.

1 Converting to carrier-grade

This document provides information for the carrier-grade version of the commercial HP ProLiant DL380 G6 Server.

This chapter provides the steps required to convert the commercial HP ProLiant DL380 G6 Server to its carrier-grade version.

The conversion to carrier-grade consists of the following actions:

- Installing fans
- Changing the system maintenance switch
- Installing the ground lug

Before you start

The conversion kit (581031-B21) is intended for the DL380 G6 (E5540) Carrier-Grade Server only. This kit includes all the parts you need to convert the server to the NEBS-compliant version.

NEBS certified configuration details are available from your HP sales representative.

Conversion kit contents

Table 1 Carrier-grade conversion kit parts list

Description	Part Number	Quantity
ASSY, FAN DL380G6	463172-001	2
BAG, ZIP LOCK	108344-001	1
TERM, RING, VIN 12-10 AWG #10	545155-001	1
LOCK WASHER	T10127-A00	2
HP ProLiant DL380 G6 Carrier-Grade Server RBI-Carrier-Grade Conversion Instructions	AM275-9001A	1
BOX, TT 9.5 X 7.5 X 2.25	111158-002	1
BAG, BUBBLE WRAP 6 X 8.5	100473-001	1
Screw, 6-32 tapitite, struck slot T15 Torx	192308-002	1

Preventing electrostatic discharge

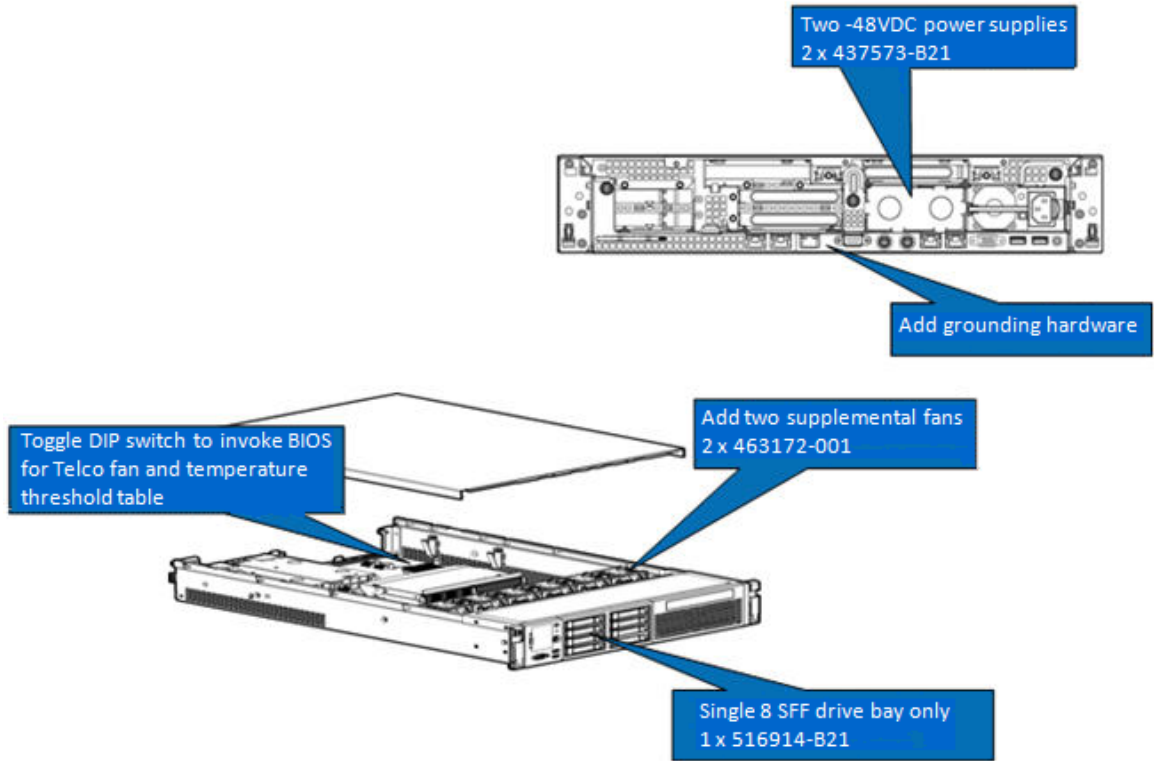
To prevent damage to the system, you must take precautions when setting up the system or handling parts. A discharge of static electricity from a finger or other conductor might damage system boards or other static-sensitive devices. This type of damage can reduce the life expectancy of the device.

To prevent electrostatic damage, take the following precautions:

- Avoid hand contact by transporting and storing parts in static-safe containers.
- Keep electrostatic-sensitive parts in containers until they arrive at static-free workstations.
- Before removing parts from containers, place parts on a grounded surface.
- Avoid touching pins, leads, or circuitry.
- Make sure you are grounded properly when touching a static-sensitive component or assembly.

Overview

The following graphic provides an overview of the carrier-grade conversion process.

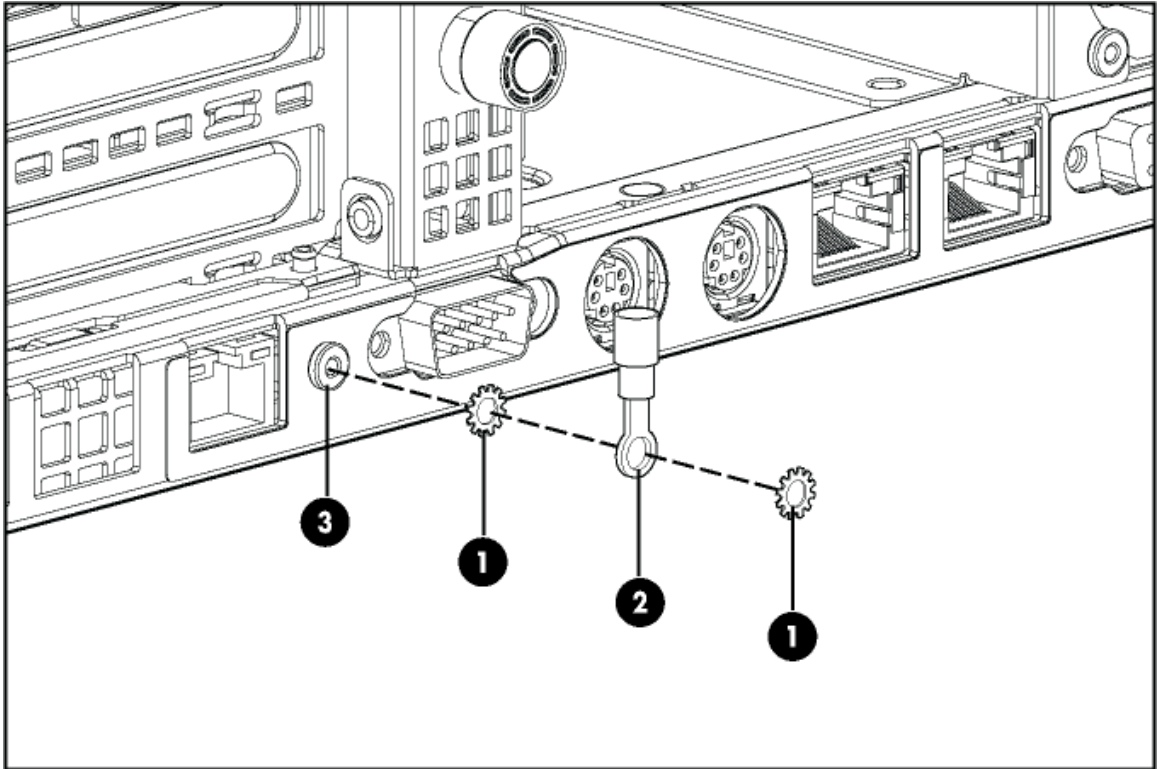


2 Cabling

Installing the ground lug

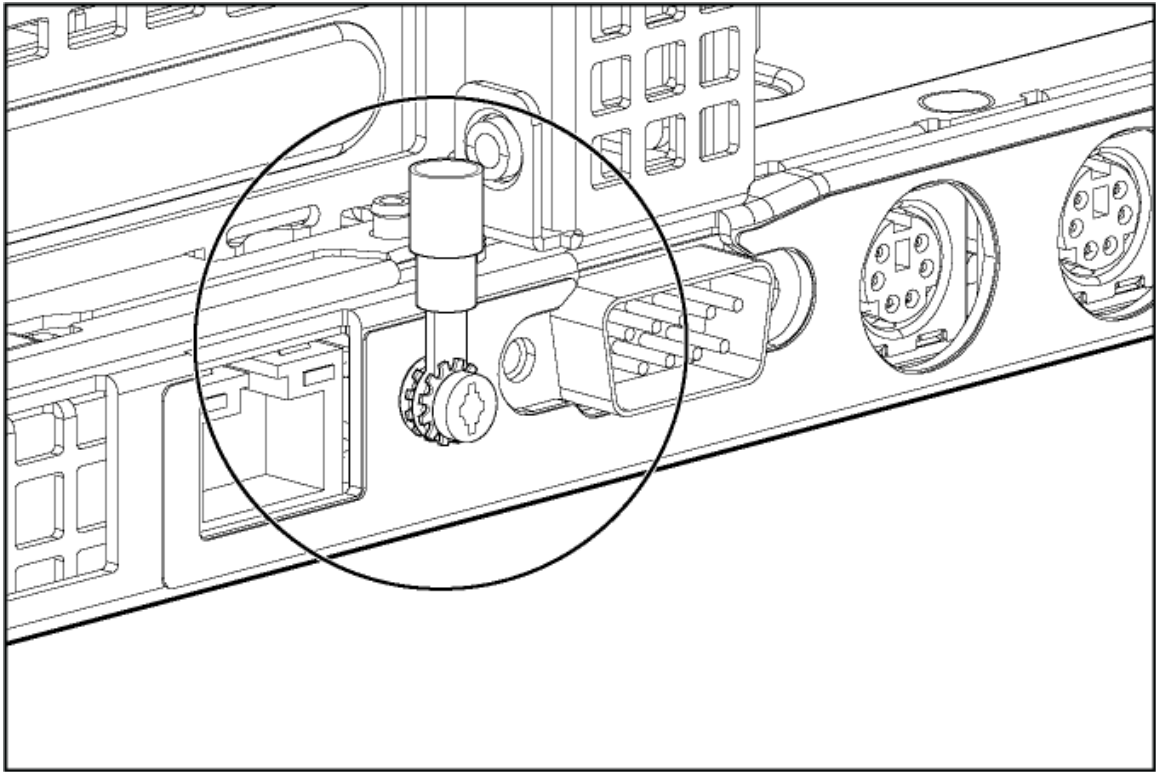
To meet the bonding and grounding criteria for NEBS compliance, a dedicated ground lug is required.

To install the ground lug, see the steps illustrated in the following figure:



- 1** Star washers
- 2** Grounding lug (545155-001)
- 3** T15 Torx screw (192308-002)

The following figure illustrates the finished assembly of the ground lug.



Cable information

This section provides cabling information for installing the HP ProLiant DL380 G6 Carrier-Grade Server.

NEBS chassis ground

This carrier-grade product is intended for use in both common bonding networks and isolated bonding networks. The product is equipped with a NEBS-compliant chassis ground lug located on the rear of the product.

The ground lug included with the product accepts wire gauges between 10 and 12 AWG.

Network cabling

Intra-building connections of the HP ProLiant DL-Series Carrier-Grade Servers require the use of shielded cables grounded at both ends.

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- △ CAUTION:** The intra-building ports of the equipment are suitable for connection to intra-building or unexposed wiring or cabling only. The intra-building ports of the equipment must not be metallicly connected to interfaces that connect to the Outside Plant (OSP) or its wiring. These interfaces are designed for use as intra-building interfaces only (Type 2 or Type 4 ports, as described in GR-1089-CORE, Issue 4) and require isolation from the exposed OSP cabling. The addition of primary protectors is not sufficient protection to connect these interfaces metallicly to OSP wiring.
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3 Power supplies specifications and cable information

HP 1200W PSU 48VDC Input Part Number	437573-B21		
Input Voltage Range (DCV)	36-72		
Frequency Range (Nominal) (Hz)	DC		
Nominal Input Voltage (VDC)	36	48	72
Maximum Rated Output Wattage	1200	1200	1200
Nominal Input Current (ACD)	38	28	19
Maximum Rated Input Wattage Rating (Watts)	1380	1350	1365
Maximum Rated VA (Volt-Amp)	1380	1350	1365
Efficiency (%) of Maximum Rated Output Wattage	87	89	88
Power Factor	N/A	N/A	N/A
Leakage Current (mA)	N/A	N/A	N/A
Maximum Inrush Current (A peak)	20	25	35
Maximum Inrush Current duration (mS)	1	1	3
Maximum British Thermal Unit Rating (Btu-Hr)	4713	4610	4662

NOTE: Battery return terminals are isolated DC returns (DC-I).

Power cable color codes

Each DC power cable is shipped with a label that describes each lead. The label is located near the pigtail leads. The three leads are described in the following table:

Cable color	Description
Black	Positive return
Blue	Negative input voltage
Green/Yellow	Safety ground

HP 1200W Power Supply Part Number - AC	500172-B21						
Operational Input Voltage Range (Vrms)	100 to 240						
Frequency Range (Nominal) (Hz)	50/60						
Nominal Input Voltage (VDC)	100	120	208	200	220	230	240
Maximum Rated Output Wattage	800	900	1200	1200	1200	1200	1200

Nominal Input Current (A rms)	9.7	9.0	7.0	6.8	6.4	9.1	5.9
Maximum Rated Input Wattage Rating (Watts)	930	1034	1348	1348	1348	1348	1348
Maximum Rated VA (Volt-Amp)	970	1079	1406	1406	1406	1406	1406
Efficiency (%) of Maximum Rated Output Wattage	86	87	89	89	89	89	89
Power Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Leakage Current (mA)	0.42	0.50	0.83	0.87	0.92	0.96	1.00
Maximum Inrush Current (A peak)	30	30	30	30	30	30	30
Maximum Inrush Current duration (mS)	20	20	20	20	20	20	20
Maximum British Thermal Unit Rating (BTU-Hr)	3174	3530	4600	4600	4600	4600	4600

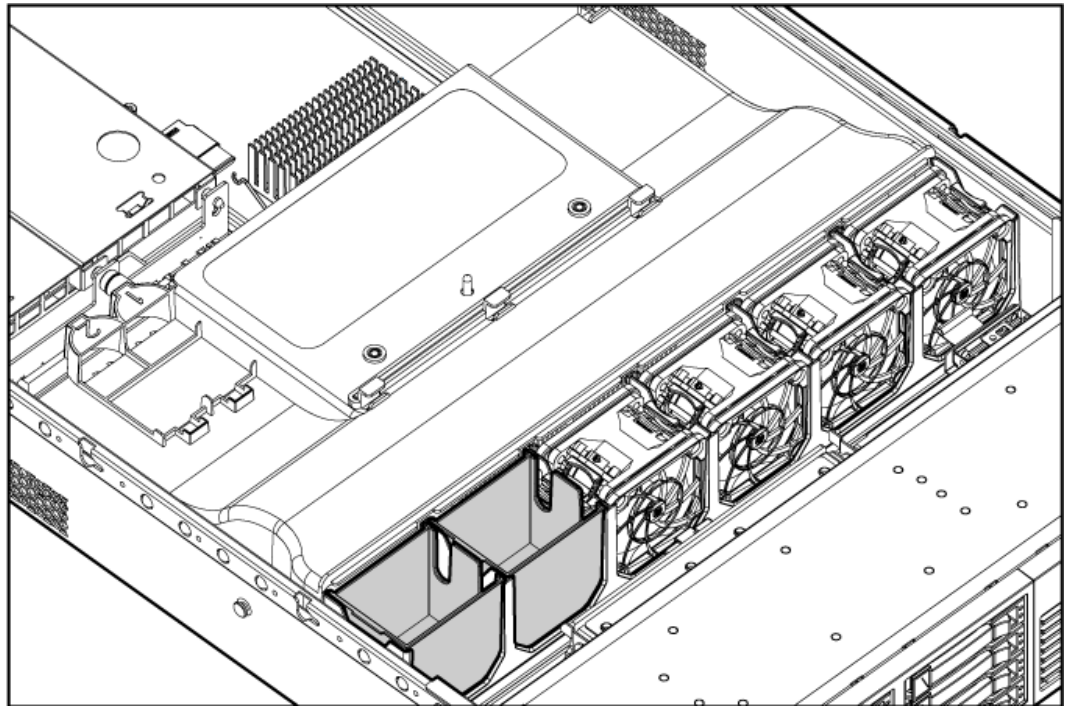
Replacing the fans and power supplies

If a cooling fan or power supply fails, you must replace it. Replacement usually takes no longer than 5 minutes. For instructions on replacing these components, see the *HP ProLiant DL380 G6 Server Maintenance and Service Guide* on the HP website at <http://www.hp.com/support/manuals>. Under Servers, click **ProLiant ml/dl and tc series servers**, and select your product.

4 Installing the fans

⚠ WARNING! To prevent personal injury from hazardous energy, remove watches, rings, or other metal objects.

1. Power off the server.
2. Remove power to the server.
3. Remove the top cover.
4. Locate the fan blanks.

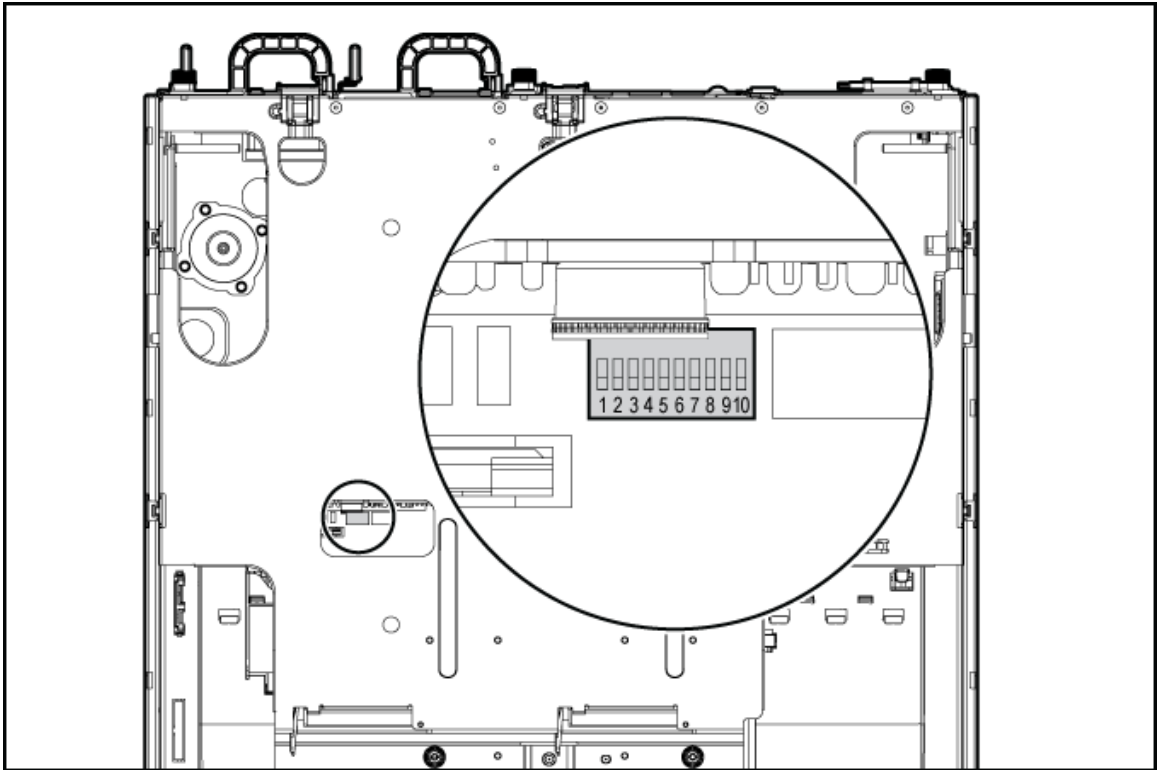


5. Remove and discard the fan blanks.
6. Install the fans into the board.
Make sure the power connector on the fan lines up with the power connector on the board.
7. Replace the top cover.

Changing the system maintenance switch settings

⚠ WARNING! To prevent personal injury from hazardous energy, remove watches, rings, or other metal objects.

1. Power off the server.
2. Remove power to the server.
3. Remove the top cover.
4. Locate the system maintenance switches which are visible through the opening in the PCI riser cage.



5. Change the #10 system maintenance switch setting to the On position.
You can use a plastic ball-point pen to flip the system maintenance switch.
6. Replace the top cover.

Verifying the system maintenance switch setting

After you switch the setting, verify that the #10 system maintenance switch is in the On position.

NOTE: The following instructions use iLO 2. For complete information and instructions on using iLO 2, see the *HP Integrated Lights-Out 2 User Guide* on the HP website at <http://www.hp.com/bizsupport/TechSupport>.

1. Log in to iLO 2. For instruction, see the *HP Integrated Lights-Out 2 User Guide*.
2. Select **System Information** on the left navigation bar.

3. Select the **Temperatures** tab.

If the temperature thresholds appear as shown below, the switch is set correctly.

Temperature Health

Summary | Summary | Fans | Temperatures | Power | Processors | Memory | NIC

System Information

Data is not updated while server is off.
System health information current as of last power off.

	<u>Location</u>	<u>Status</u>	<u>Reading</u>	<u>Thresholds</u>
Temp 1:	Ambient Zone	Ok	25C	Caution: 59C; Critical:65C
Temp 2:	CPU 1	Ok	40C	Caution: 82C; Critical:83C
Temp 3:	CPU 2	Ok	40C	Caution: 82C; Critical:83C
Temp 4:	Memory Zone	Ok	37C	Caution: 87C; Critical:92C
Temp 5:	Memory Zone	Ok	34C	Caution: 87C; Critical:92C
Temp 6:	Memory Zone	Ok	40C	Caution: 87C; Critical:92C
Temp 7:	Memory Zone	Ok	36C	Caution: 87C; Critical:92C

Incorrect thresholds

If the thresholds don't show up correctly, you might have switched the wrong switch. Ensure the switch is reset to the factory defaults as described in the *HP ProLiant DL380 G6 Maintenance and Service Guide* on the HP website at <http://h20000.www2.hp.com/bizsupport/TechSupport>.

After you reset the switch settings to the factory defaults, repeat the above process for verifying the system maintenance switch setting.

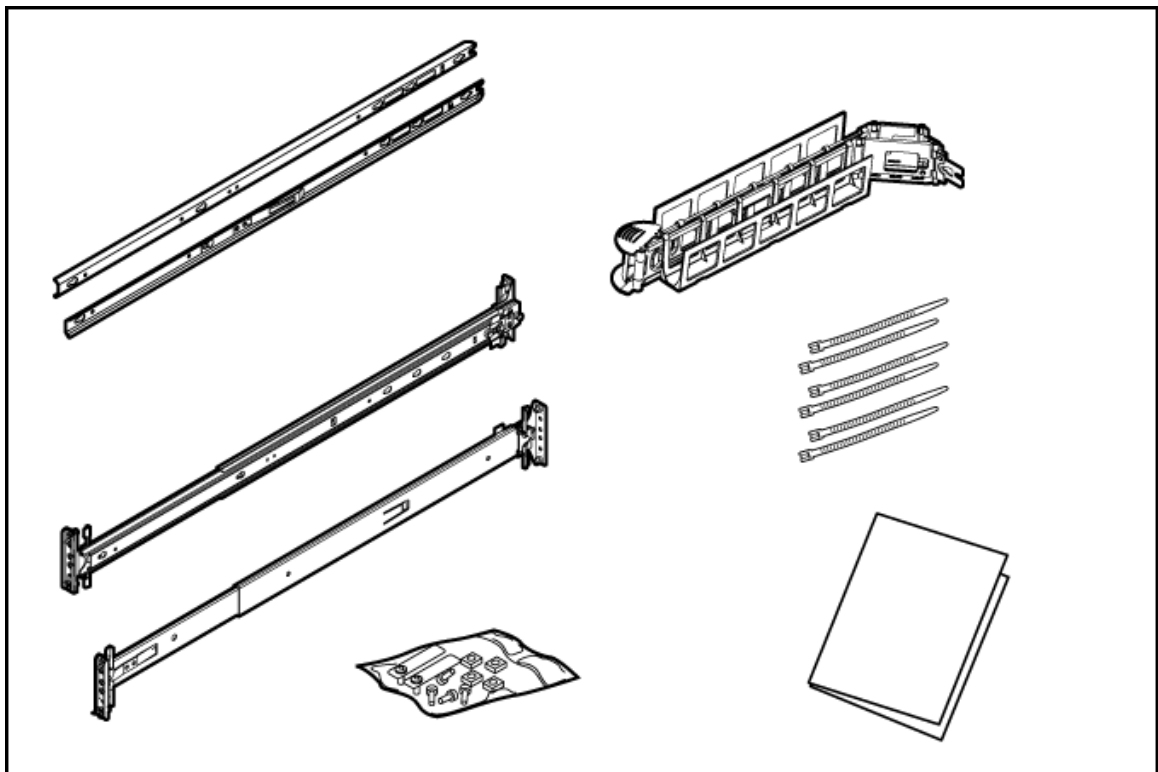
5 Installing the DL380 server into a seismic rack

For information on the installation of the DL380 using the commercial rack mount kit, see the HP website at <http://www.hp.com/support/manuals>. Under **Servers**, click **ProLiant ml/dl and tc series servers**, and select your product.

While not specifically designed for use in seismic rack solutions, the commercial kit was successfully evaluated in the AH343A HP Seismic Rack to the NEBS Zone 4 criteria as part of the DL380 Server NEBS certification.

- ① **IMPORTANT:** Perform all the steps in the kit with the exception of the steps specified here in this procedure which pertains only to installing a DL380 into a seismic rack.

Hardware kit contents



In addition to the supplied items, you might need:

- Screws that fit the rack
- The appropriate screwdriver for the screws

Installing the rack mount kit

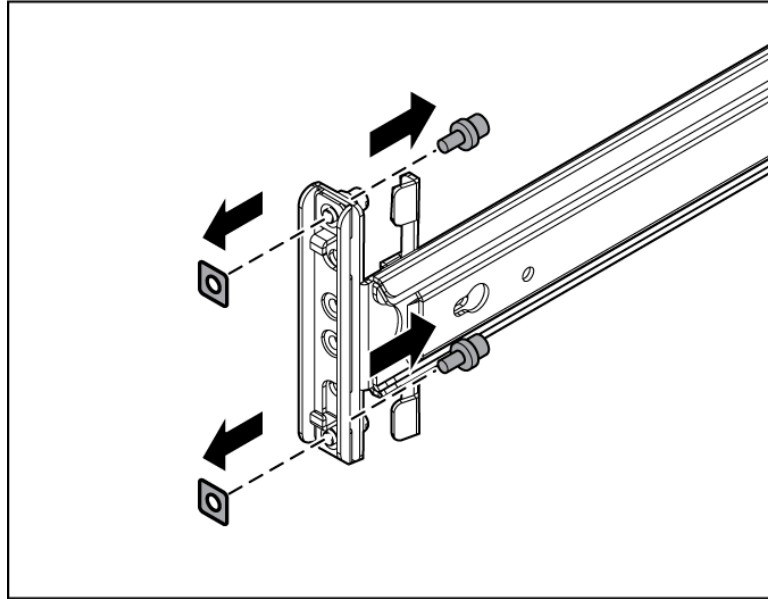
- △ **CAUTION:** Plan the rack installation so that the heaviest item is on the bottom of the rack. Install the heaviest item first, and then continue to populate the rack from the bottom to the top.

NOTE: The following procedure was performed by HP personnel to install the rack mount kit. This information is provided as an example and a reference to assist in the installation of a DL380 Server into a seismic rack.

1. Unscrew the eight snap-in screws from the mounting rails, and discard the screws.
2. Obtain eight round-hole M5 cage nuts that are intended for use with the seismic rack.

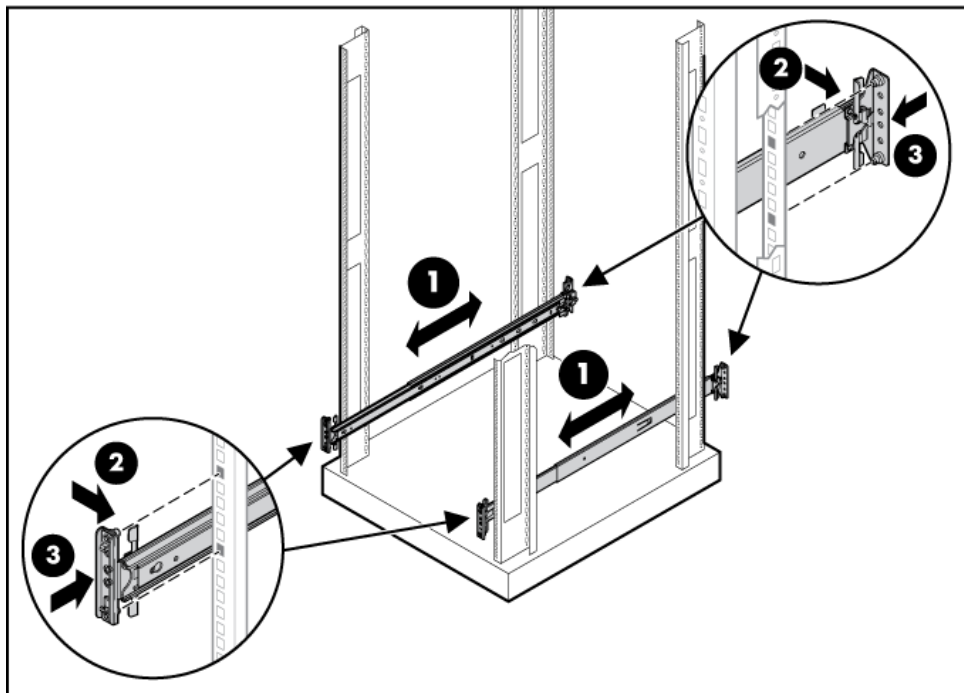
NOTE: The square-hole cage nuts that are provided in the rack kit do not fit in the round holes in the seismic rack.

3. Install the round-hole M5 cage nuts in the appropriate rack hole positions where you want to install the DL380 Server.
 - Two cage nuts on the front of each rail.
 - Two cage nuts on the back of each rail.



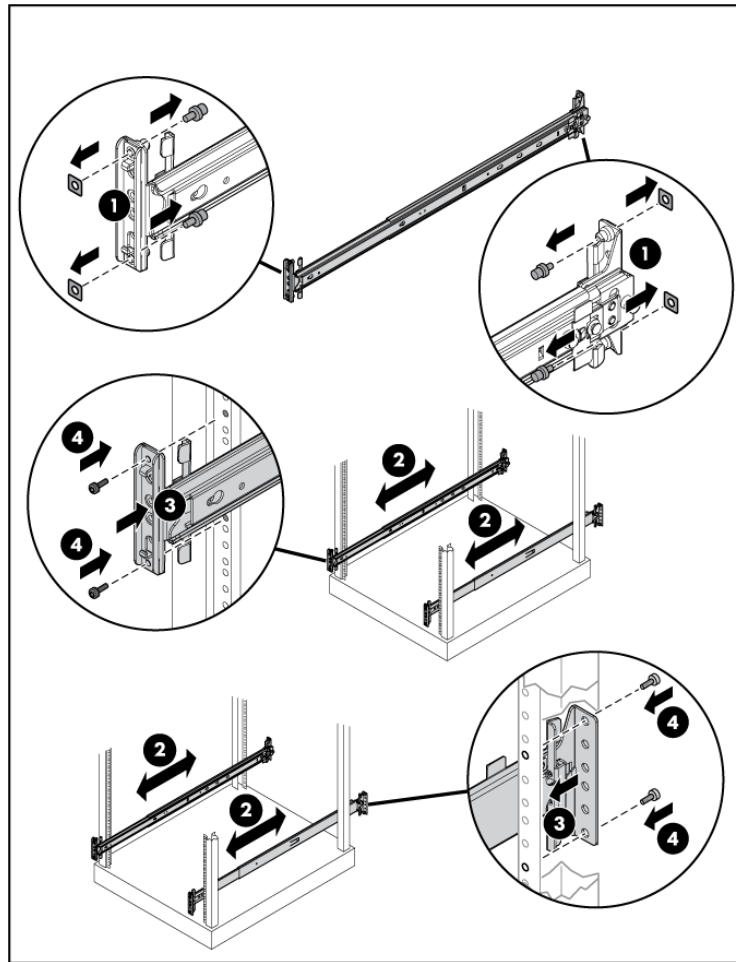
4. Line up the mounting rail with the cage nuts, and fasten the mounting rail to the rack with M5 screws.

ⓘ **IMPORTANT:** You must provide the screws to secure the slide mounting bracket assemblies.



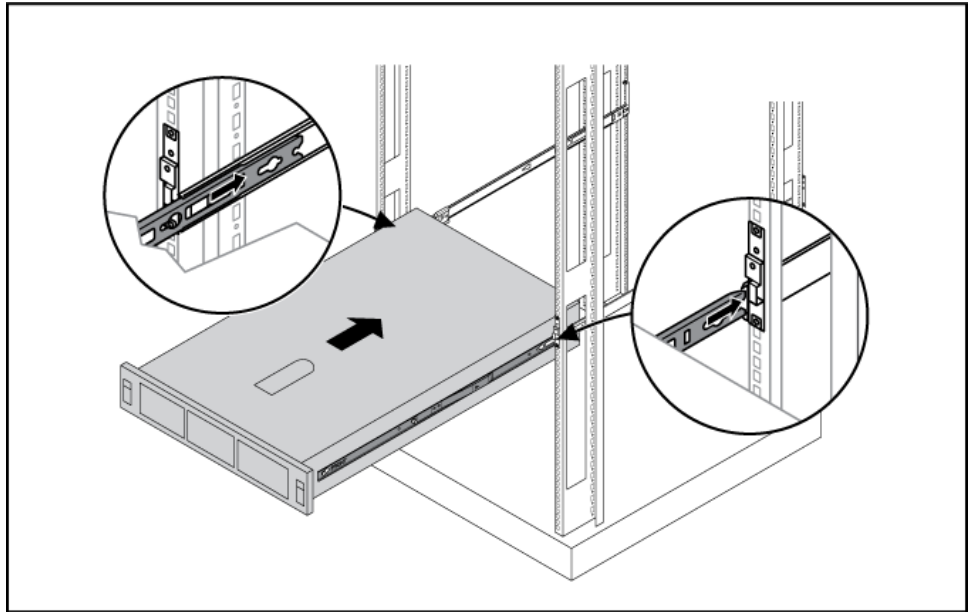
NOTE: Apply some pressure when fastening the screws to the mounting rail.

5. Repeat steps 1 through 3 for the other mounting rail.



⚠ WARNING! To reduce the risk of personal injury or equipment damage, be sure that the rack is adequately stabilized before sliding the inner slides into the slide mounting bracket assemblies.

6. To install the side rails on each side of the server, align each side rail to the server, and snap it into place.
7. Slide the server onto the mounting rails and into the rack.



8. Snap the server into place.
9. Fasten the server to the rack, using the screws included in the rack kit as described in the rack kit instructions for preparing a server for shipment.
 - a. Pull down the plastic retention lever on each side of the server.
 - b. Insert the screws into each side.
10. Install the cable arm using the instructions in the rack kit.



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