Hewlett Packard
Enterprise

HPE Apollo 4200 Gen10 Plus Server User Guide

Part Number: 20-APL4200G10PL-UG-ED4
Published: September 2024
Edition: 4

HPE Apollo 4200 Gen10 Plus Server User Guide

Abstract

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

Part Number: 20-APL4200G10PL-UG-ED4
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Notices

Acknowledgments

Revision history

Part number	Publication date	Edition	Summary of changes
20-APL4200G10PL-UG-ED4	September 2024	17	Updated the “Drive cage backplane identification” topic to clarify the location of each backplane type based on customer feedback.
20-AP4200G10PL-UG-ED3	February 2023	3	• Update to the UEFI System Utilities menu selection in the Set up the server topic. • Added the Cabling section.
P35307-002	January 2022	2	• Revised to remove HPE service required maintenance procedures • Minor edits
P35307-001	July 2021	1	Initial release

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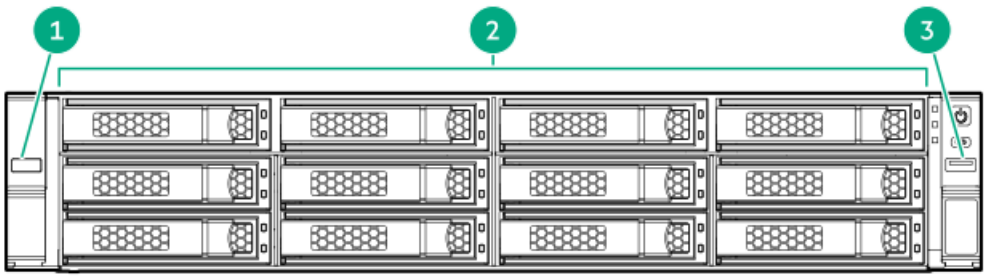
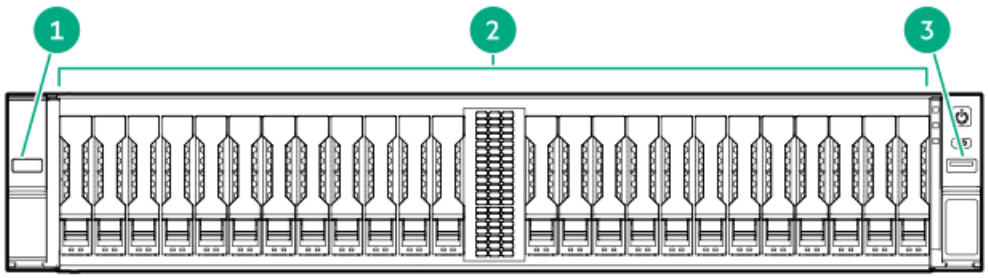
- 12 LFF server



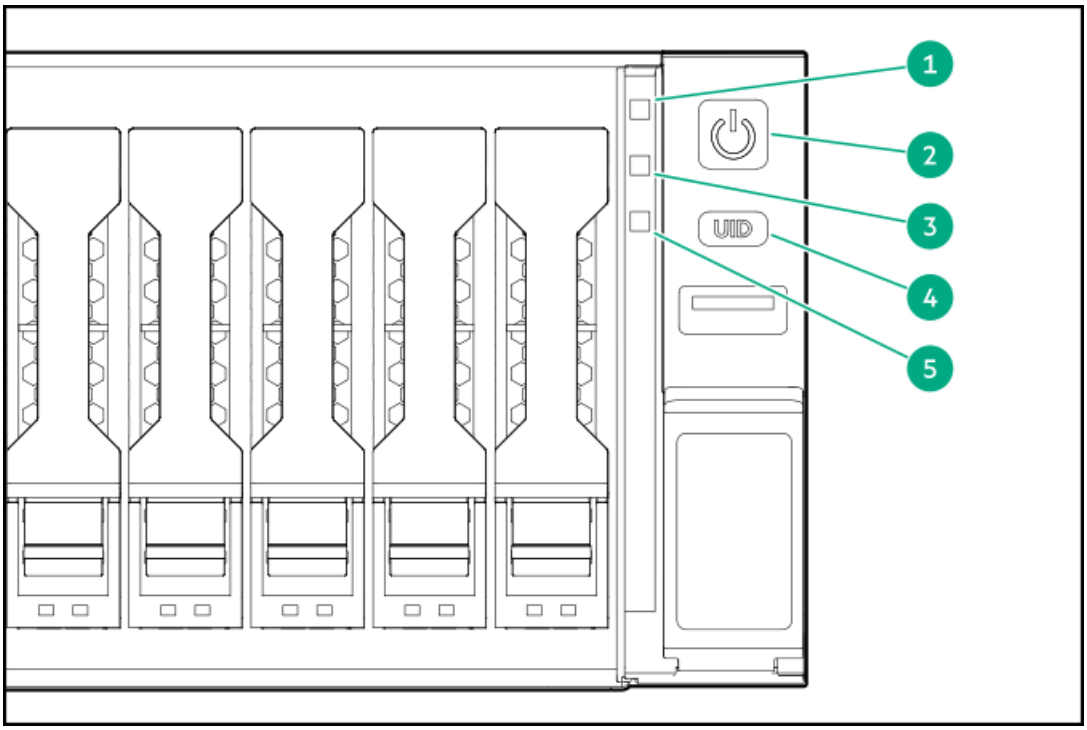
Item	Description
1	iLO Service Port
2	LFF hot-plug drives
3	USB 3.0 port

- 24 SFF server



Item	Description
1	iLO Service Port
2	SFF hot-plug drives
3	USB 3.0 port

Front panel LEDs and buttons



Item	Description	Status
1	Health LED [1]	• Solid green = Normal • Flashing green (1 flash per sec) = iLO is rebooting • Flashing amber = System degraded [1] • Flashing red (1 flash per sec) = System critical
2	Power On/Standby button and system power LED [2]	• Solid green = System on • Flashing green (1 flash per second) = Performing power on sequence • Solid amber = System in standby • Off = No power present [3]
3	NIC status LED [1]	• Solid green = Link to network • Flashing green (1 flash per second) = Network active • Off = No network activity

4	UID button/LED [1]	• Solid blue = Activated
		• Flashing blue:
		  ◦ 1 flash per second = Remote management or firmware upgrade in progress
		  ◦ 4 flashes per second = iLO manual reboot sequence initiated
		  ◦ 8 flashes per second = iLO manual reboot sequence in progress
		  ◦ 1 fast flash and then off for 3 seconds = iLO Service Port status is Complete
		  ◦ 4 medium flashes and then off for 1 second = iLO Service Port status is Busy
		  ◦ 8 fast flashes and then off for 1 second = iLO Service Port status is Error
		• Off = Deactivated

5	Front drive health/thermal LED	• Solid green = Drives supported by the SAS expander are functional. [4] • Solid amber = Failure or predictive failure of one or more drives supported by the SAS expander [4] • Off = No power present [2]

[1] If the health LED indicates a degraded or critical state, review the system IML or use iLO to review the system health status.
[2] When these four LEDs flash simultaneously, a power fault has occurred.
[3] Facility power is not present, power cord is not attached, no power supplies are installed, power supply failure has occurred, or the front I/O cable is disconnected.
[4] This LED behavior applies to all front drives, as well as to the rear drives connected to the drive cage 2 backplane.

Subtopics

UID button functionality
Front panel LED power fault codes

UID button functionality

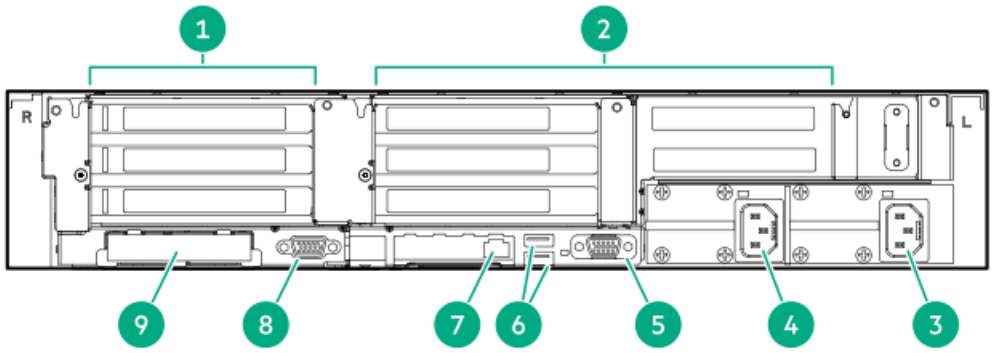
The UID button can be used to display the Server Health Summary when the server will not power on. For more information, see the latest HPE iLO 5 User Guide on the **Hewlett Packard Enterprise website**.

Front panel LED power fault codes

The following table provides a list of power fault codes, and the subsystems that are affected. Not all power faults are used by all servers.

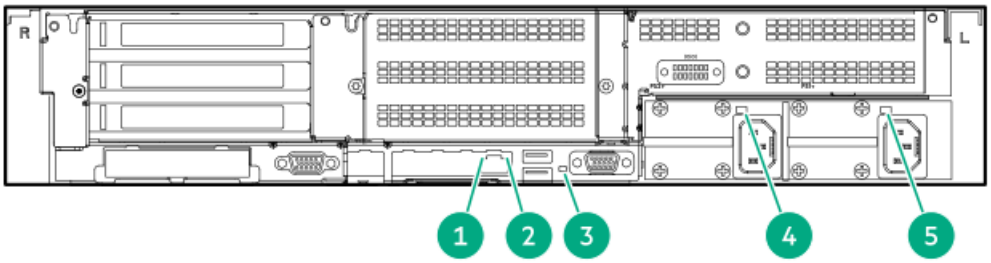
Subsystem	LED behavior
System board	1 flash
Processor	2 flashes
Memory	3 flashes
Riser board PCIe slots	4 flashes
FlexibleLOM	5 flashes
Storage controller	6 flashes
System board PCIe slots	7 flashes
Power backplane	8 flashes
Storage backplane	9 flashes
Power supply	10 flashes
PCIe expansion cards installed in riser board	11 flashes
Chassis	12 flashes
GPU card	13 flashes

Rear panel components



Item	Description
1	Primary riser or drive cage 4 (riser shown)
2	Secondary/tertiary riser or drive cage 5 (riser shown)
3	Hot-plug power supply bay 1 (standard)
4	Hot-plug power supply bay 2 (optional)
5	COM port
6	USB 3.0 connectors
7	iLO Management port
8	Video connector
9	OCP NIC 3.0

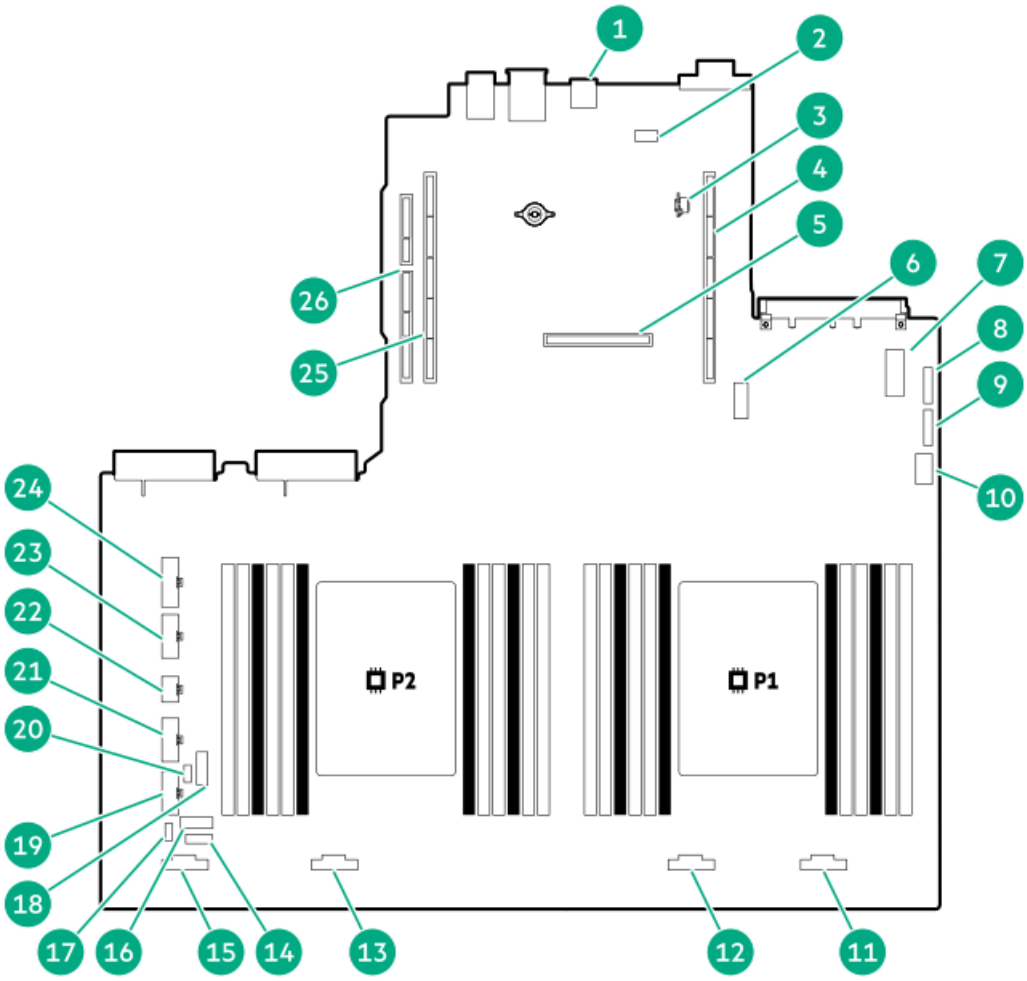
Rear panel LEDs



Item	Description	Status
1	iLO port 1 link LED	Green = Network link Off = No network link
2	iLO port 1 activity LED	Solid green = Link to network Flashing green = Network active Off = No network activity
3	UID LED	Solid blue = Activated Flashing blue: • 1 flash per second = Remote management or firmware upgrade in progress • 4 flashes per second = iLO manual reboot sequence initiated • 8 flashes per second = iLO manual reboot sequence in progress Off = Deactivated
4	Power supply LED (bay 2)	Solid green = Normal Off = One or more of the following conditions exists: • Power is unavailable. • Power supply failed • Power supply is in standby mode. • Power supply error
5	Power supply LED (bay 1)	Solid green = Normal Off = One or more of the following conditions exists: • Power is unavailable. • Power supply failed • Power supply is in standby mode. • Power supply error

System board components

The components shown in this section are associated with the ProLiant XL420 Gen10 Plus server server board.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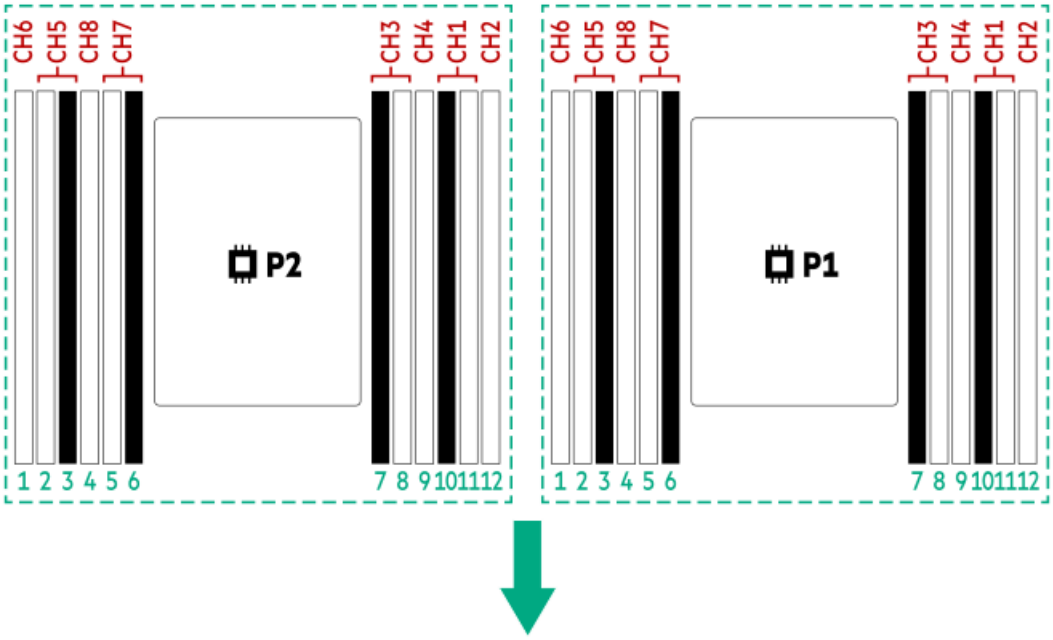
Item	Description
1	Internal USB 3.0 connector [1]
2	Front USB for iLO connector
3	TPM 2.0 connector
4	X8 / X16 slot (primary)
5	Type -a storage controller slot
6	System maintenance switch
7	OCP NIC 3.0 x16 upgrade connector
8	SATA port 1
9	SATA port 2
10	Front panel connector
11	NVMe Slimline 2A
12	NVMe Slimline 1A
13	NVMe Slimline 2B
14	Fan cage signal connector
15	NVMe Slimline 1B
16	Drive cage 3 signal connector
17	Chassis intrusion detection switch connector
18	System battery
19	Fan cage power connector
20	Energy pack connector
21	Drive cage 2 power connector
22	GPU power connector
23	Drive cage 3 power connector
24	Drive cage 1 power connector
25	Secondary PCIe4 riser connector
26	Tertiary PCIe4 riser connector

[1] This description may be different from the label on the server.

Subtopics

DIMM slot locations

DIMM slots are numbered sequentially (1 through 12) for each processor. The supported AMP modes use the letter assignments for population guidelines.

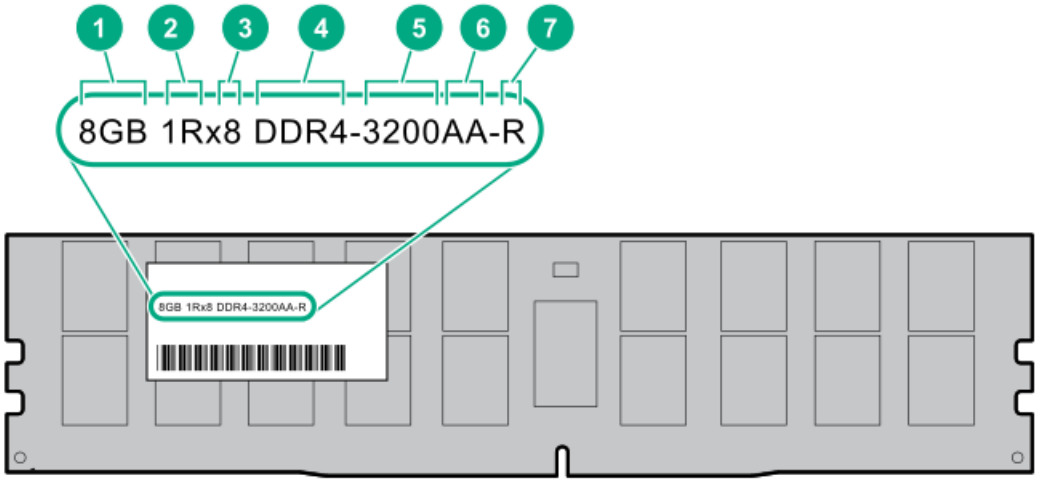


The arrow points to the front of the server.

DIMM label identification

To determine DIMM characteristics, see the label attached to the DIMM. The information in this section helps you to use the label to locate specific information about the DIMM.

For more information about product features, specifications, options, configurations, and compatibility, see the HPE DDR4 SmartMemory QuickSpecs on the Hewlett Packard Enterprise website (**https://www.hpe.com/support/DDR4SmartMemoryQS**).



Item	Description	Example
1	Capacity	8 GB
		16 GB
		32 GB
		64 GB
		128 GB
		256 GB
2	Rank	1R = Single rank
		2R = Dual rank
		4R = Quad rank
		8R = Octal rank
3	Data width on DRAM	x4 = 4-bit
		x8 = 8-bit
4	Memory generation	PC4 = DDR4
5	Maximum memory speed	3200 MT/s
6	CAS latency	AA = CAS 22-22-22
		AA = CAS 26-22-22 (for 3DS LRDIMM)
7	DIMM type	E = Unbuffered ECC (UDIMM)
		R = RDIMM (registered)
		L = LRDIMM (load reduced)

System maintenance switch descriptions

Position	Default	Function
S1 [1]	Off	• Off = iLO 5 security is enabled. • On = iLO 5 security is disabled.
S2	Off	Reserved
S3	Off	Reserved
S4	Off	Reserved
S5 [1]	Off	• Off = Power-on password is enabled. • On = Power-on password is disabled.
S6 [1, 2, 3]	Off	• Off = No function • On = Restore default manufacturing settings
S7	Off	Reserved
S8	—	Reserved
S9	—	Reserved
S10	—	Reserved
S11	—	Reserved
S12	—	Reserved

[1] To access the redundant ROM, set S1, S5, and S6 to On.

[2] When the system maintenance switch position 6 is set to the On position, the system is prepared to restore all configuration settings to their manufacturing defaults.

[3] When the system maintenance switch position 6 is set to the On position and Secure Boot is enabled, some configurations cannot be restored. For more information, see Secure Boot.

Subtopics

Disabling the HPE SR100i Gen10 Plus Software RAID

Disabling the HPE SR100i Gen10 Plus Software RAID

About this task

Before changing the boot mode to Legacy BIOS Mode, you must first disable the HPE SR100i Gen10 Plus Software RAID.

NOTE:

When you use the software to update, maintain, or monitor the HPE Apollo 4200 Gen10 Plus server, you will see **HPE ProLiant XL420 Gen10 Plus Server** as the product name in the interface.

Procedure

1. Reboot the server.

   The server restarts and the POST screen appears.

2. Press **F9**.

   The System Utilities screen appears.

3. Select System Configuration > BIOS/Platform Configuration (RBSU) > System Options > Storage Options > SATA Controller options,

and then press **Enter**.

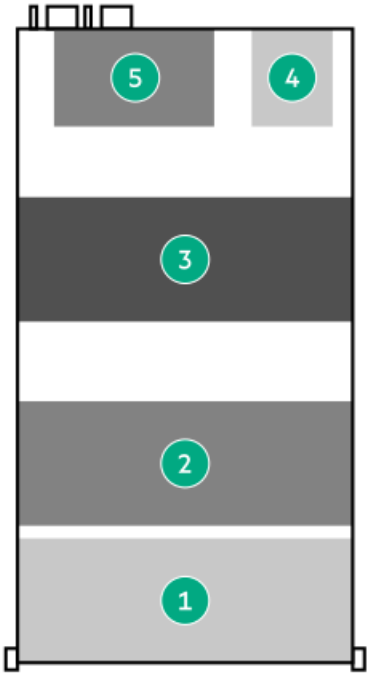
4. Select **HPE Smart Array SW RAID Support** , and then choose **Disable** from the drop-down menu.
5. To save the selection, press **F10**.
6. To save the changes, press **Yes-Save Changes**.
7. To exit, press **F12: Save and Exit**.

   The server continues the normal boot process.

Results

For more information, see the product QuickSpecs on the Hewlett Packard Enterprise website (**https://www.hpe.com/info/qs**).

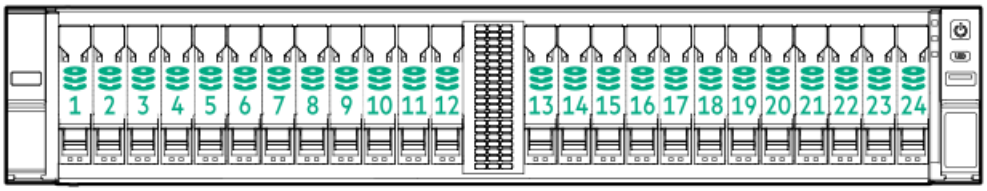
Drive cage numbering

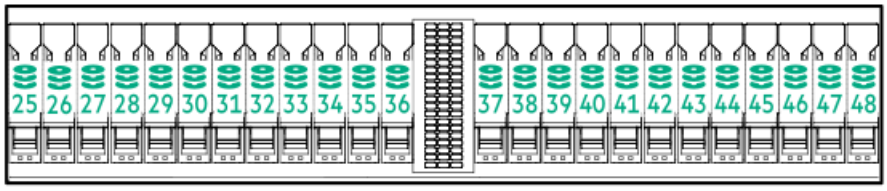


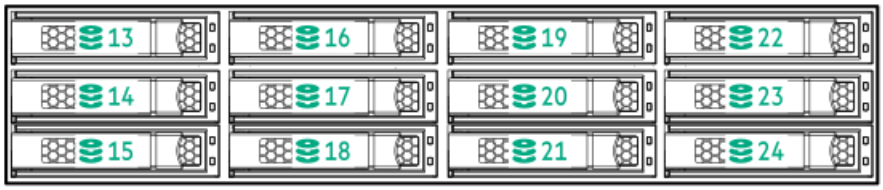
Item	Description
1	Drive cage 1
2	Drive cage 2
3	Drive cage 3
4	Drive cage 4
5	Drive cage 5

Drive numbering

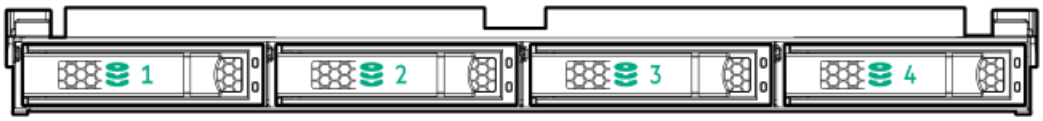
24-bay SFF hot-plug drive cage 1 numbering

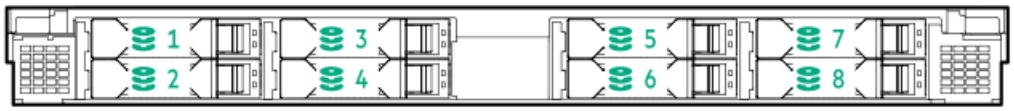


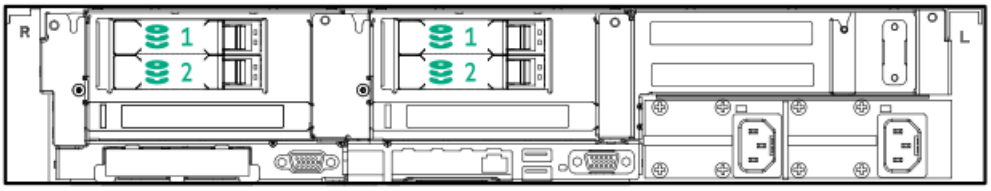




If there are LFF drives used in drive cage 1 and drive cage 2 in addition to drive cage 3, then these are numbered 49-52.







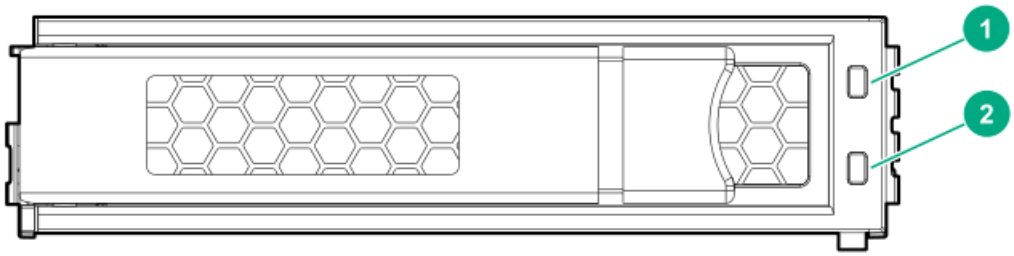
Drive LEDs

Drive LEDs

LFF and SFF drives have different sets of LEDs to reflect the drive status.

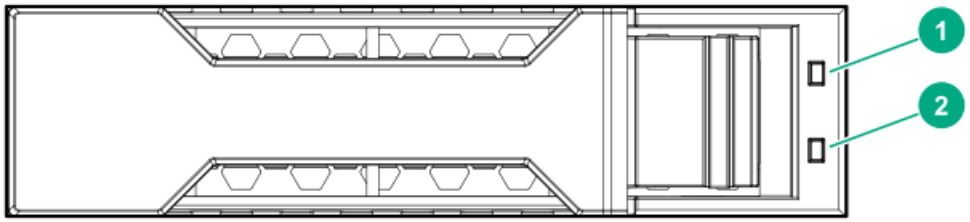
Subtopics

Low-profile LFF drive LED definitions



Item	LED	Status	Definition
1	Fault\Locate	Solid amber	The drive has failed.
		Solid blue	The drive is operating normally and being identified by a management application.
		Flashing amber/blue (1 flash per second)	The drive has failed, or a predictive failure alert has been received for this drive; it also has been identified by a management application.
		Flashing amber (1 flash per second)	A predictive failure alert has been received for this drive. Replace the drive as soon as possible.
2	Online\Activity	Solid green	The drive is online and has no activity.
		Flashing green (4 flashes per second)	The drive is operating normally and has activity.
		Flashing green (1 flash per second)	The drive is doing one of the following: • Rebuilding • Performing a RAID migration • Performing a strip size migration • Performing a capacity expansion • Performing a logical drive extension • Erasing • Spare part activation
		Off	The drive is not configured by a RAID controller or a spare drive.

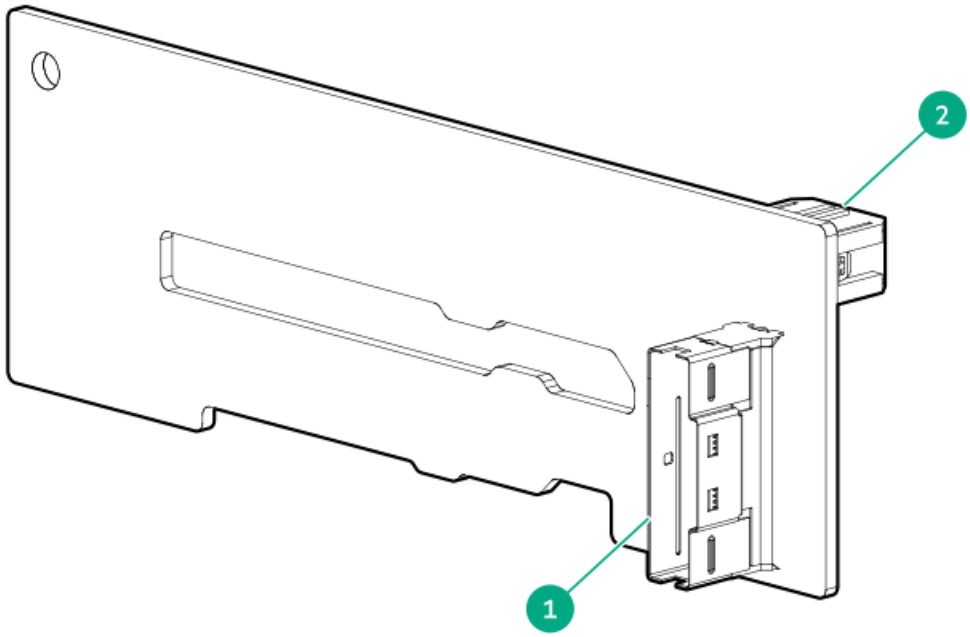
Drive LED definitions



Item	LED	Status	Definition
1	Fault/Locate	Solid amber	The drive has failed, is unsupported, or is invalid.
		Solid blue	The drive is operating normally and is being identified by a management application.
		Flashing amber/blue (1Hz)	The drive has failed, or a predictive failure alert has been received for this drive; it also has been identified by a management application.
		Flashing amber (1Hz)	A predictive failure alert has been received for this drive. Replace the drive as soon as possible.
2	Online/Activity	Solid green	The drive is online and has no activity.
		Flashing green (4Hz)	The drive is operating normally and has activity.
		Flashing green (1Hz)	The drive is rebuilding, RAID migration, stripe size migration, capacity expansion, logical drive extension, erasing, or spare activation.
		Off	The drive is not configured by a RAID controller or a spare drive.

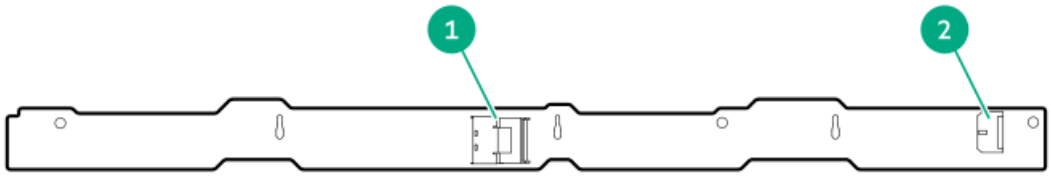
Drive cage backplane identification

2SFF rear drive cage backplane



Item	Description
1	x8 SlimSAS connector
2	Power input connector

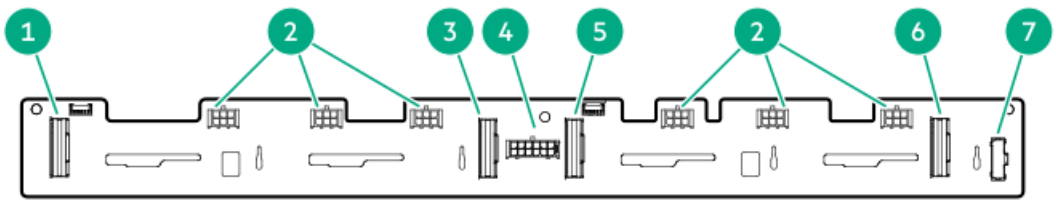
4LFF drive cage backplane (drive cage 2)



Item	Description
1	x4 Mini SAS connector
2	Power input connector

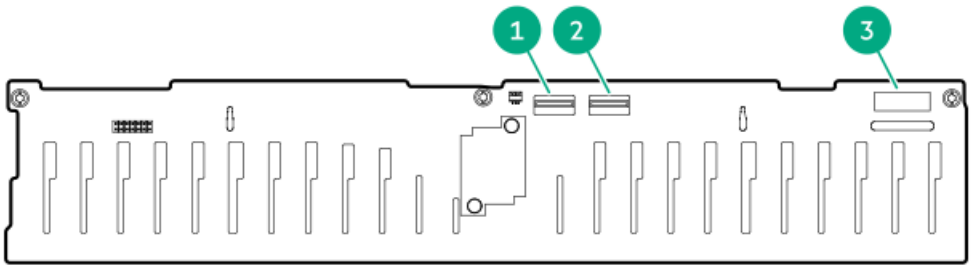
NOTE: There is no fan connector on the 4LFF drive cage backplane.

8 SFF drive cage backplane (drive cage 3)



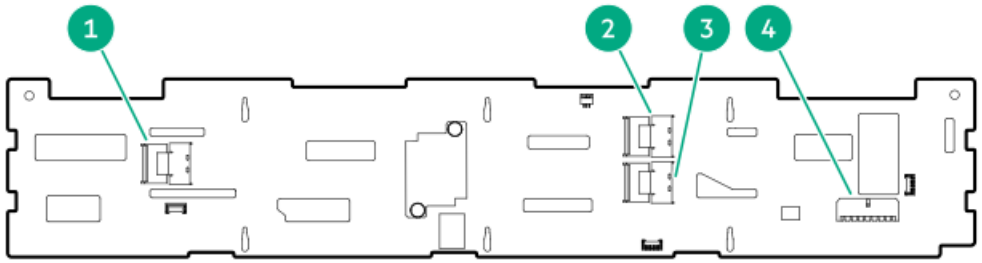
Item	Description
1	x8 SlimSAS connector
2	Fan power connectors
3	x8 SlimSAS connector
4	Power input connector
5	x8 SlimSAS connector
6	x8 SlimSAS connector
7	Drive cage 3 signal connector

24 SFF drive cage backplane (drive cage 1 and 2)



Item	Description
1	x4 Mini SAS connector
2	x4 Mini SAS connector
3	Power input connector

12 LFF drive cage backplane (drive cage 1 and 2)



Item	Description
1	P3 connector
2	P1 connector
3	P2 connector
4	Power input connector

Storage controller components

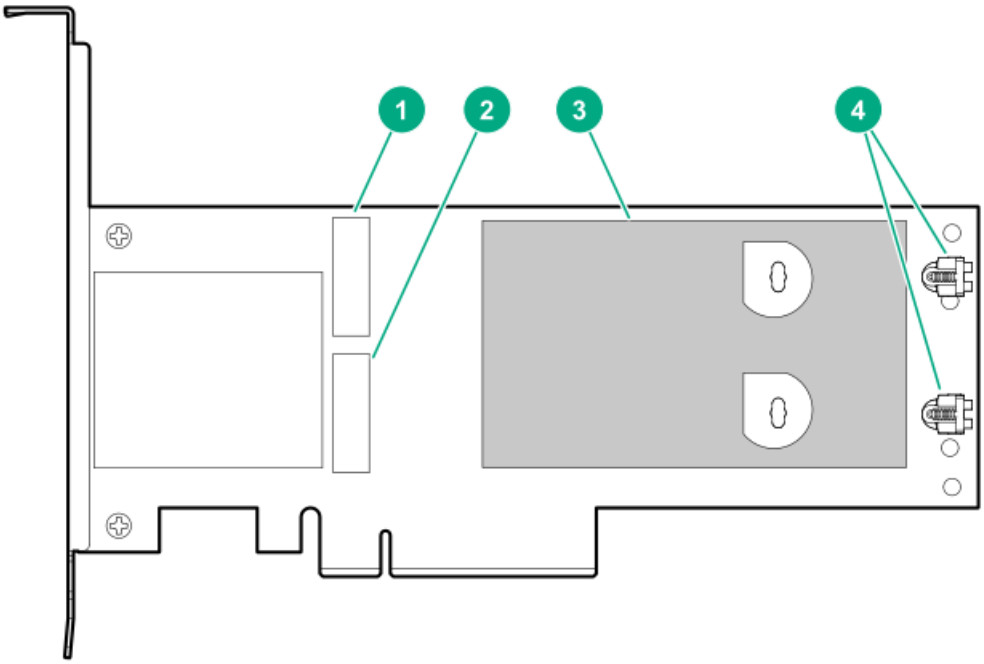
For component and LED identification, see the user guide for your storage controller series on the Hewlett Packard Enterprise website (https://www.hpe.com/info/smartstorage-docs).

For a complete list of supported storage controller models, see the server QuickSpecs on the Hewlett Packard Enterprise website

(https://www.hpe.com/info/qs).

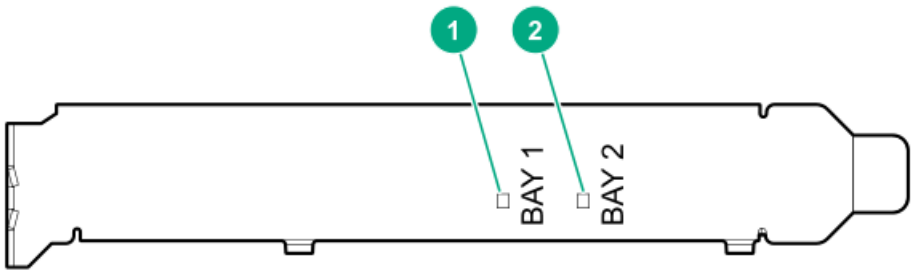
Subtopics

HPE NS204i-p NVMe OS Boot Device components



Item	Description
1	Drive bay 1
2	Drive bay 2
3	Thermal interface pad with removable liner
4	M.2 drive retaining latches

HPE NS204i-p NVMe OS Boot Device LED definitions



Item	Description	Fault LED status
1	Bay 1 LED	Off: Normal
2	Bay 2 LED	Flashing 1Hz: Drive predictive failure Amber: Drive failure

DSC-25 2-port SFP28 card ports and LEDs

Ports

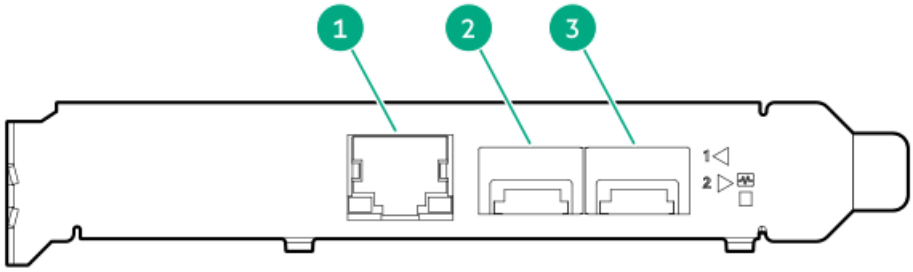


Table 1. Ports

Item	Port	Description
1	Management port	1GbE RJ45
2	Network interface port	10/25G SFP+ based
3	Network interface port	10/25G SFP+ based

LEDs

The HPE for Pensando DSP DSC-25 2p SFP28 card is a dual-port, single-slot, half-height, half-length (HHHL) SFP28 network adapter. It has LEDs for Link (L) and Activity (A) for each port. A half-height bracket is shown in the following illustration with SFP28 ports and LEDs.

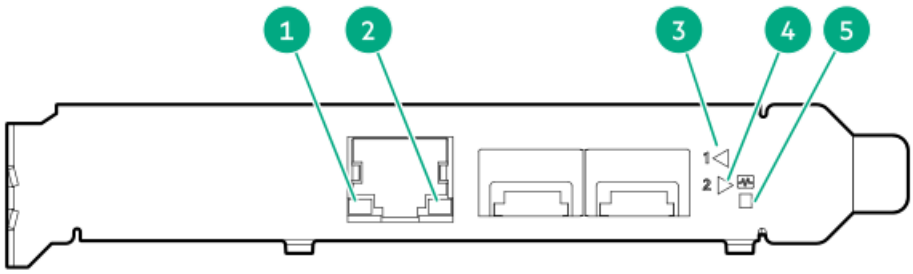
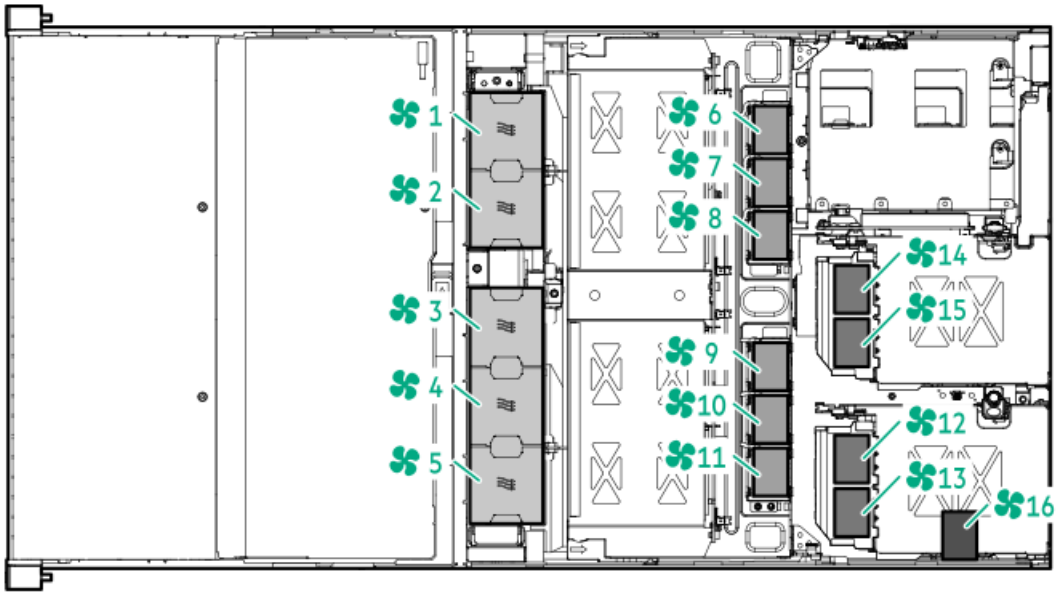


Table 2. LED indicators

Item	LED	Status	Description
1	Management Port Activity LED	Off	No activity
		Flashing	Passing traffic; flashing frequency indicates traffic intensity
2	Management Port Link LED	Off	A link has not been established
		Solid green	Valid Ethernet link
3	SFP Port 1 Link/Activity LED	Off	A link has not been established
		Solid green	Valid Ethernet link
		Flashing green	Passing traffic; flashing frequency indicates traffic intensity
		Solid amber	Link fault
4	SFP Port 2 Link/Activity LED	Off	A link has not been established
		Solid green	Valid Ethernet link
		Flashing green	Passing traffic; flashing frequency indicates traffic intensity
		Solid amber	Link fault
5	System status LED	Off	System is not powered
		Solid amber	Power is up, software has not booted yet
		Solid green	System is up and fully operational

Fan numbering

System fan numbering



Operations

Subtopics

Power down the server

IMPORTANT:
When the server is in standby mode, auxiliary power is still being provided to the system.

Before powering down the system for any upgrade or maintenance procedures, perform a backup of critical server data and programs.

To power down the server, use one of the following methods:

- Press and release the Power On/Standby button.

  This method initiates a controlled shutdown of applications and the OS before the server enters standby mode.

- Press and hold the Power On/Standby button for more than 4 seconds to force the server to enter standby mode.

  This method forces the server to enter standby mode without properly exiting applications and the OS. If an application stops responding, you can use this method to force a shutdown.

- Use a virtual power button selection through iLO 5.

  This method initiates a controlled remote shutdown of applications and the OS before the server enters standby mode.

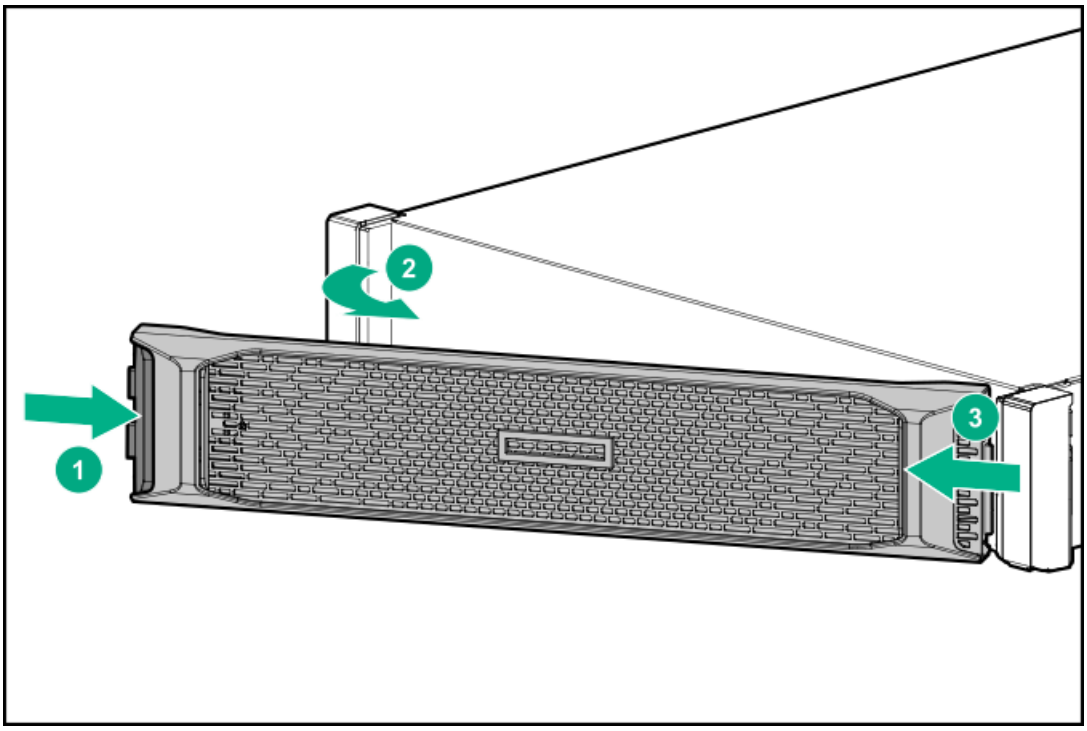
Before proceeding, verify that the server is in standby mode by observing that the system power LED is amber.

Power up the server

To power up the server, press the Power On/Standby button.

Remove the bezel

To access the front panel components, unlock and then remove the bezel.



Extend the server from the rack

Prerequisites

Before you perform this procedure, make sure that you have a T-25 Torx screwdriver available.

About this task

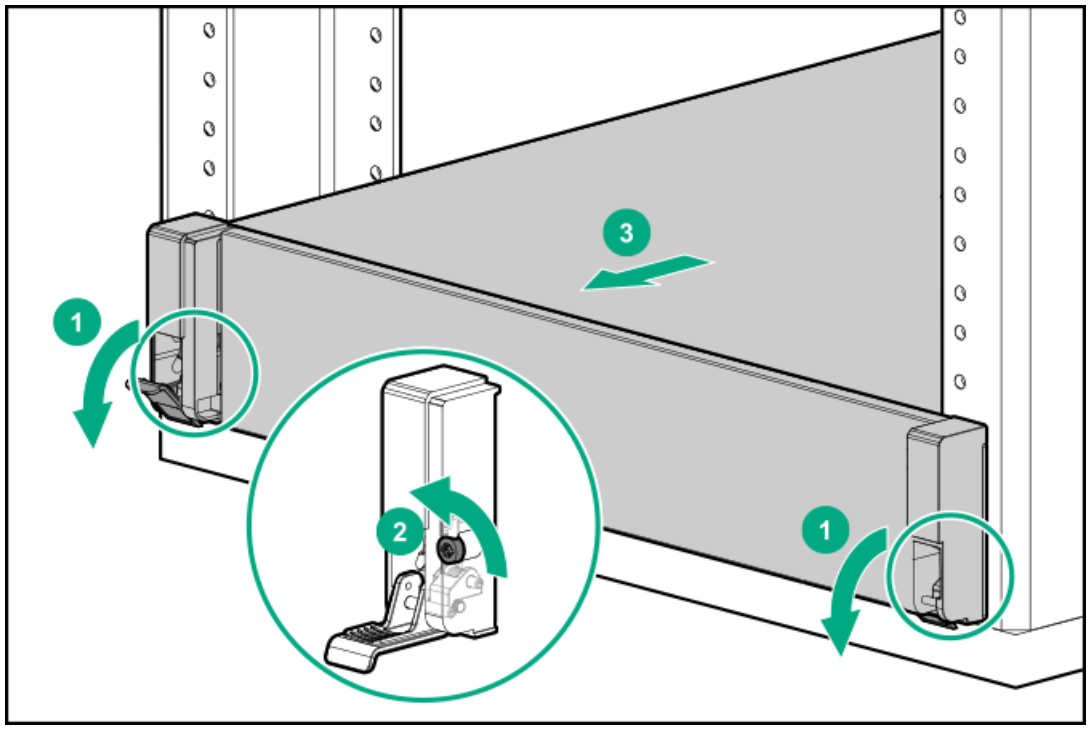
WARNING: To reduce the risk of personal injury from hot surfaces, allow the drives, power supplies, and internal system components to cool before touching them.

WARNING:
To reduce the risk of personal injury or damage to the equipment, be sure that:

- The rack is bolted to the floor using the concrete anchor kit.
- The leveling feet extend to the floor.
- The full weight of the rack rests on the leveling feet.
- The racks are coupled together in multiple rack installations.
- Only one component is extended at a time. If more than one component is extended, a rack might become unstable.

Procedure

1. Pull down the quick release levers on each side of the server.
2. Loosen the screws behind both quick release levers.
3. Extend the server from the rack.



4. After performing the installation or maintenance procedure, slide the server back into the rack, and then press the server firmly into the rack to secure it in place.

Remove the server from the rack

About this task

WARNING: To reduce the risk of personal injury from hot surfaces, allow the drives, power supplies, and internal system components to cool before touching them.

WARNING: This server is heavy. To reduce the risk of personal injury or damage to the equipment:

- Observe local occupational health and safety requirements and guidelines for manual material handling.
- Get help to lift and stabilize the product during installation or removal, especially when the product is not fastened to the rails. Hewlett Packard Enterprise recommends that a minimum of two people are required for all rack server installations. A third person may be required to help align the server if the server is installed higher than chest level.
- Use caution when installing the server in or removing the server from the rack; it is unstable when not fastened to the rails.

WARNING:
To reduce the risk of personal injury or damage to the equipment, be sure that:

- The rack is bolted to the floor using the concrete anchor kit.
- The leveling feet extend to the floor.
- The full weight of the rack rests on the leveling feet.
- The racks are coupled together in multiple rack installations.
- Only one component is extended at a time. If more than one component is extended, a rack might become unstable.

Procedure

1. Back up all server data.
2. Power down the server.
3. Remove all power:
   a. Disconnect each power cord from the power source.
   b. Disconnect each power cord from the server.
4. Disconnect all peripheral cables from the server.
5. Remove the server from the rack.
6. Place the server on a flat, level surface.

Access panel options

Subtopics

Open the access panel to access drive cage 3
Remove the complete access panel

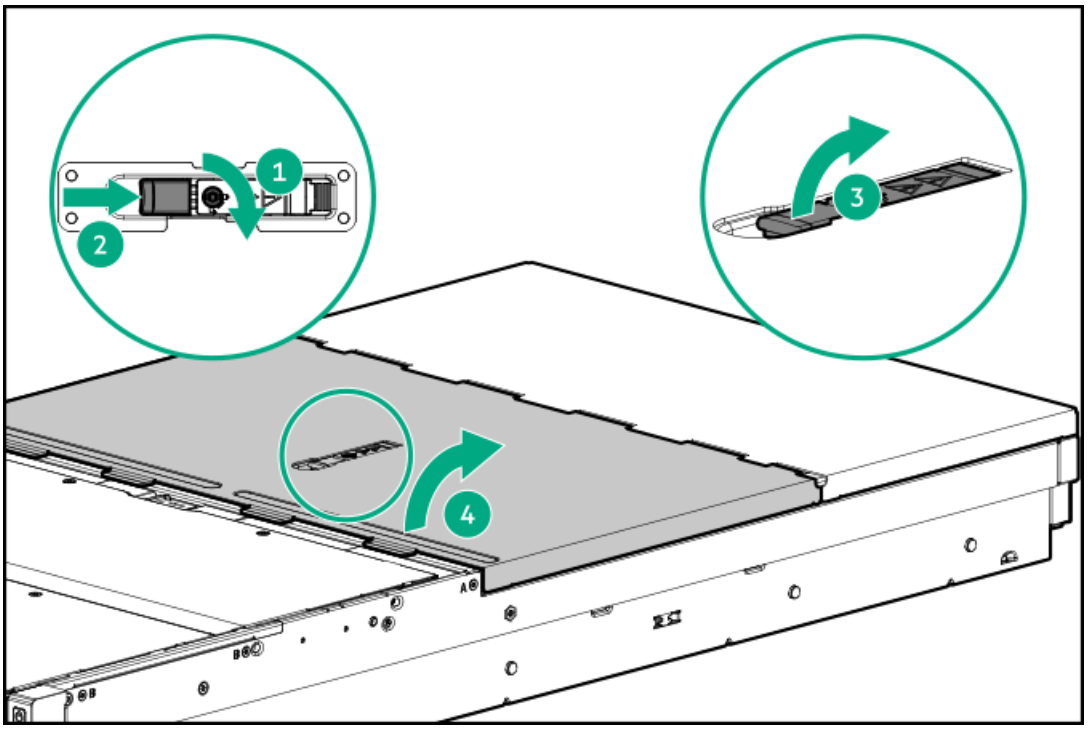
Open the access panel to access drive cage 3

About this task

CAUTION: Do not operate the server for long periods with the access panel open or removed. Operating the server in this manner results in improper airflow and improper cooling that can lead to thermal damage.

Procedure

1. Extend the server from the rack.
2. Remove the access panel:



a. If necessary, unlock the access panel latch.

b. Press the release button.

c. Pull up the latch to disengage the access panel from the chassis.

d. Lift the front half of the access panel to access drive cage 3.

Remove the complete access panel

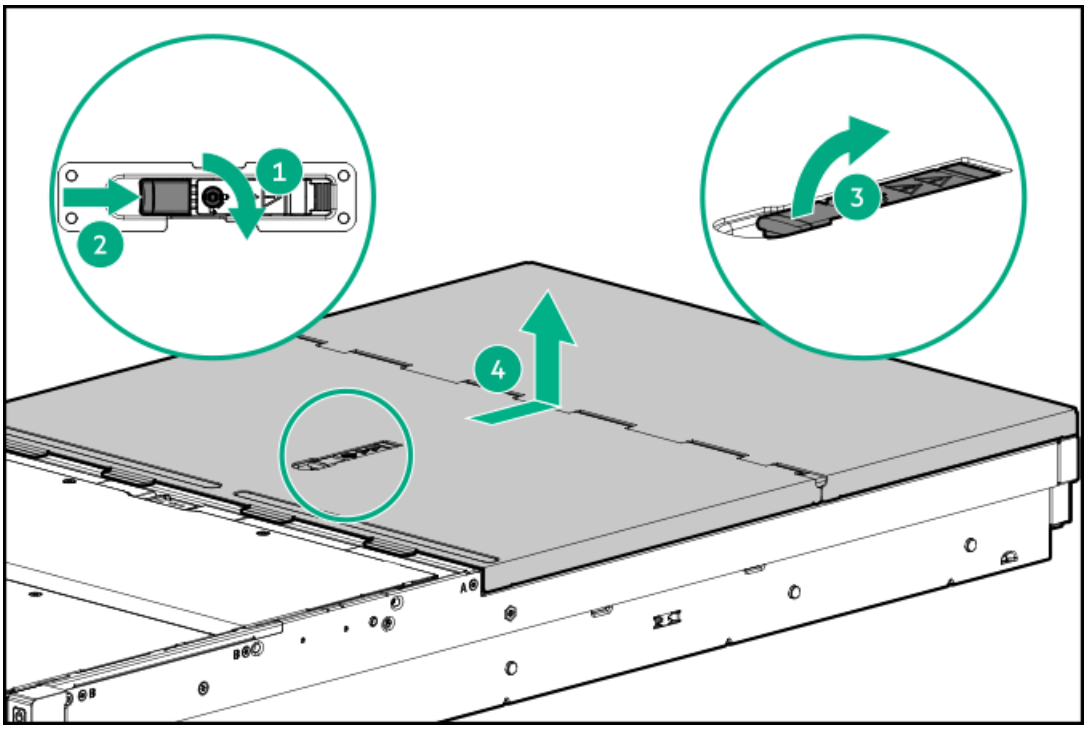
About this task

CAUTION: Do not operate the server for long periods with the access panel open or removed. Operating the server in this manner results in improper airflow and improper cooling that can lead to thermal damage.

CAUTION: To prevent damage to electrical components, take the appropriate anti-static precautions before beginning any installation, removal, or replacement procedure. Improper grounding can cause electrostatic discharge.

Procedure

1. Power down the server.
2. Remove the server from the rack.
3. Place the server on a flat, level surface.
4. Remove the access panel:



a. If necessary, unlock the access panel latch.

b. Press the release button.

c. Pull up the latch to disengage the access panel from the chassis.

d. Slide the access panel toward the rear of the server and lift it from the chassis.

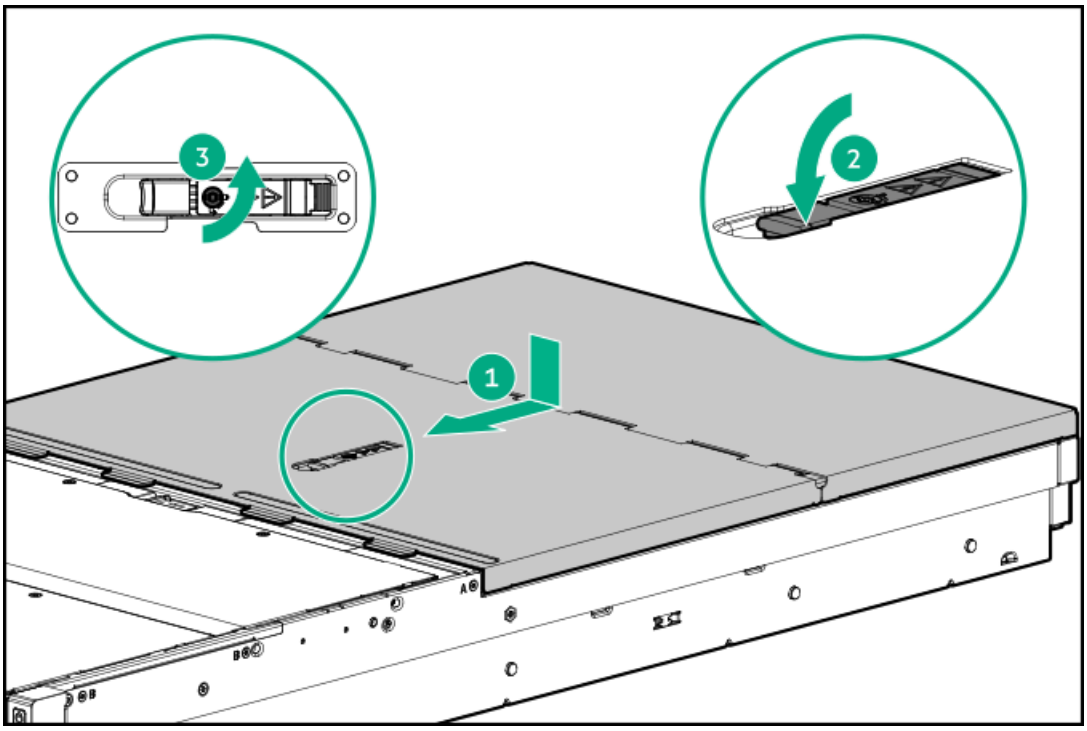
Results

Turn the access panel over to locate the HPE Apollo 4200 Gen10 Plus Server access panel label. This label provides convenient access to component identification, LED status indicators, and system maintenance switch settings information.

Install the access panel

Procedure

Place the access panel on top of the server, and then insert the tabs into the corresponding slots on the server.



Remove the air baffle

About this task

WARNING: To reduce the risk of personal injury from hot surfaces, allow the drives and the internal system components to cool before touching them.

WARNING: This server is heavy. To reduce the risk of personal injury or damage to the equipment:

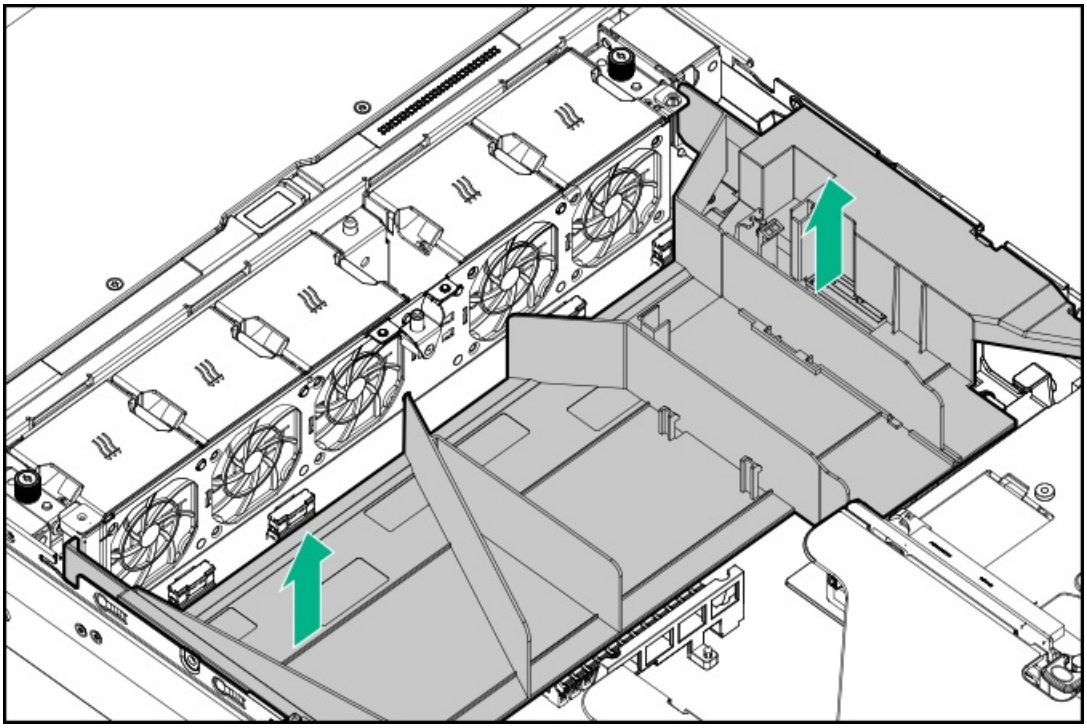
- Observe local occupational health and safety requirements and guidelines for manual material handling.
- Get help to lift and stabilize the product during installation or removal, especially when the product is not fastened to the rails. Hewlett Packard Enterprise recommends that a minimum of two people are required for all rack server installations. A third person may be required to help align the server if the server is installed higher than chest level.
- Use caution when installing the server in or removing the server from the rack; it is unstable when not fastened to the rails.

CAUTION: To prevent damage to electrical components, take the appropriate anti-static precautions before beginning any installation, removal, or replacement procedure. Improper grounding can cause electrostatic discharge.

Procedure

1. Power down the server.
2. Remove the server from the rack.
3. Place the server on a flat, level surface.
4. Remove the access panel.

5. Remove the air baffle.

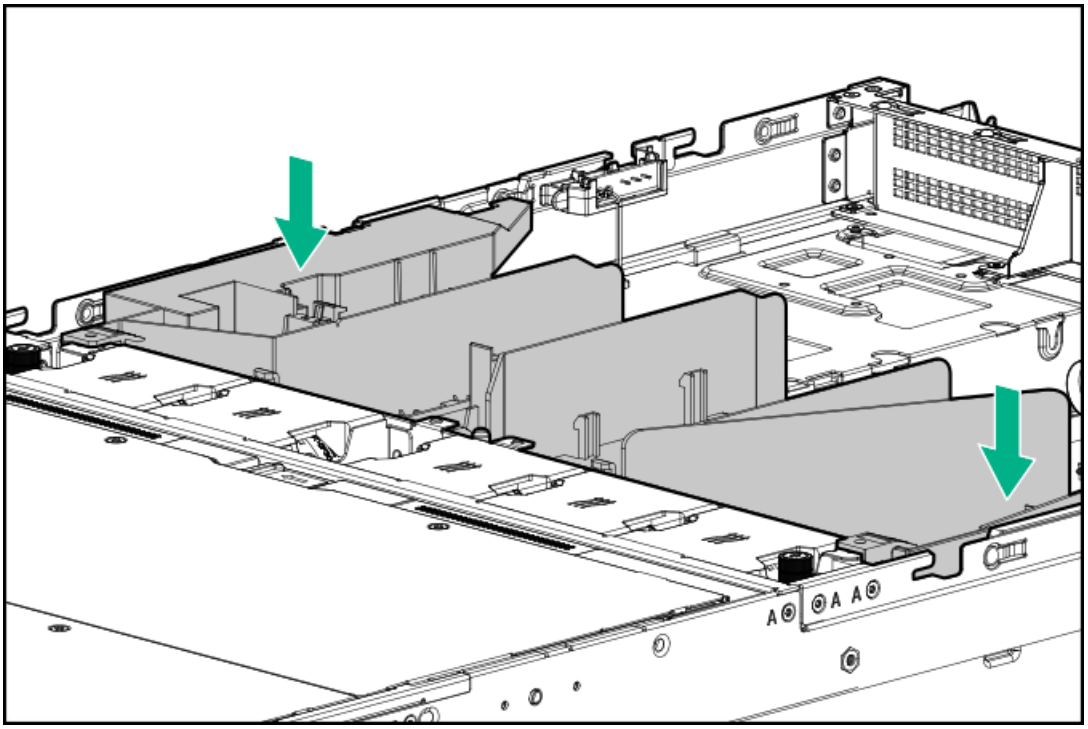


Installing the air baffle

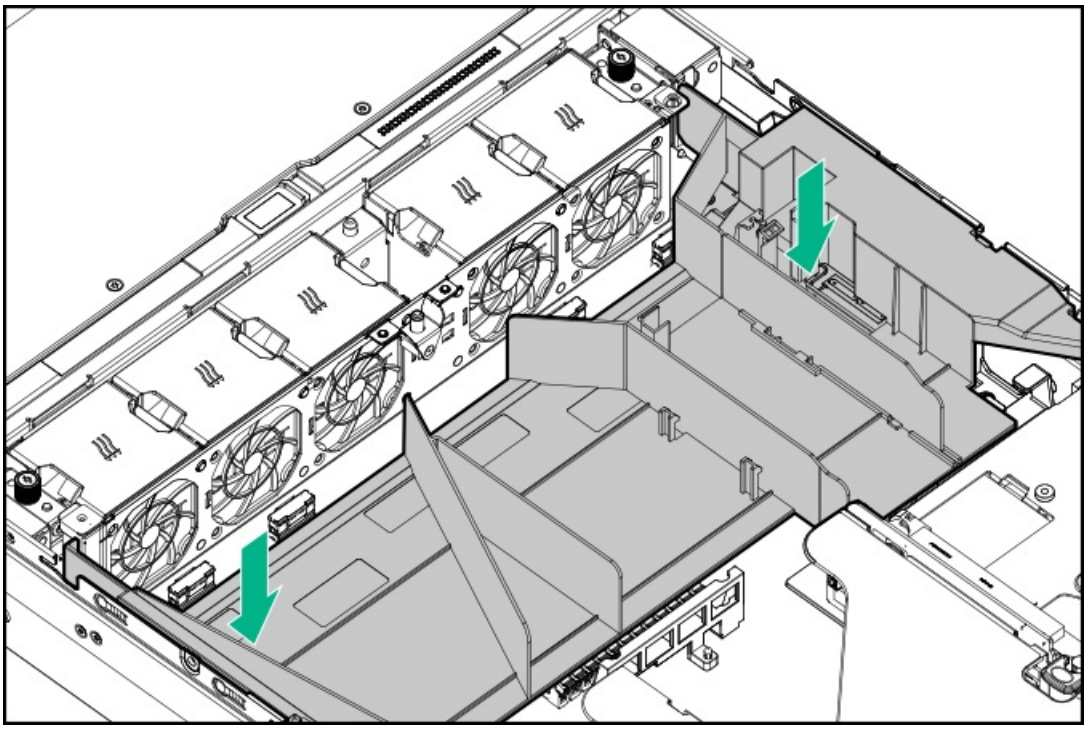
About this task

There are two options for the air baffle for the server.

1. Install the air baffle.



2. Install the performance air baffle.



Remove drive cage 3

About this task

WARNING: To reduce the risk of personal injury from hot surfaces, allow the drives, power supplies, and internal system components to cool before touching them.

WARNING: This server is heavy. To reduce the risk of personal injury or damage to the equipment:

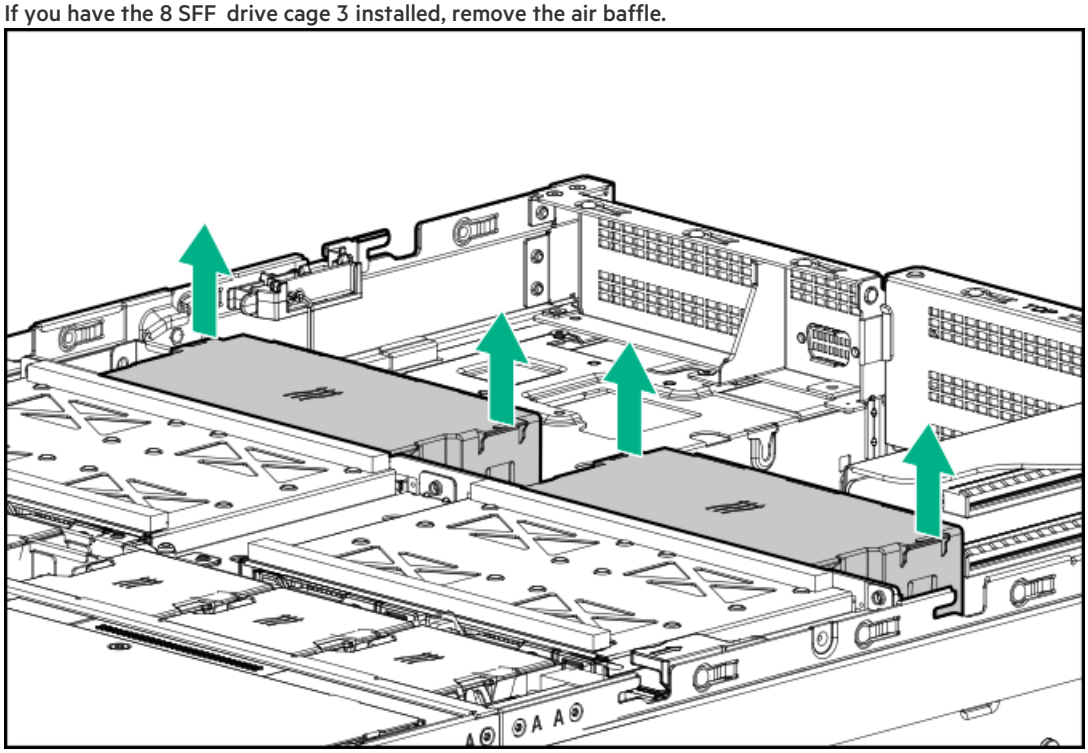
- Observe local occupational health and safety requirements and guidelines for manual material handling.
- Get help to lift and stabilize the product during installation or removal, especially when the product is not fastened to the rails. Hewlett Packard Enterprise recommends that a minimum of two people are required for all rack server installations. A third person may be required to help align the server if the server is installed higher than chest level.
- Use caution when installing the server in or removing the server from the rack; it is unstable when not fastened to the rails.

CAUTION: To prevent damage to electrical components, take the appropriate anti-static precautions before beginning any installation, removal, or replacement procedure. Improper grounding can cause electrostatic discharge.

Procedure

1. Power down the server.
2. Remove all power:
   a. Disconnect each power cord from the power source.
   b. Disconnect each power cord from the server.

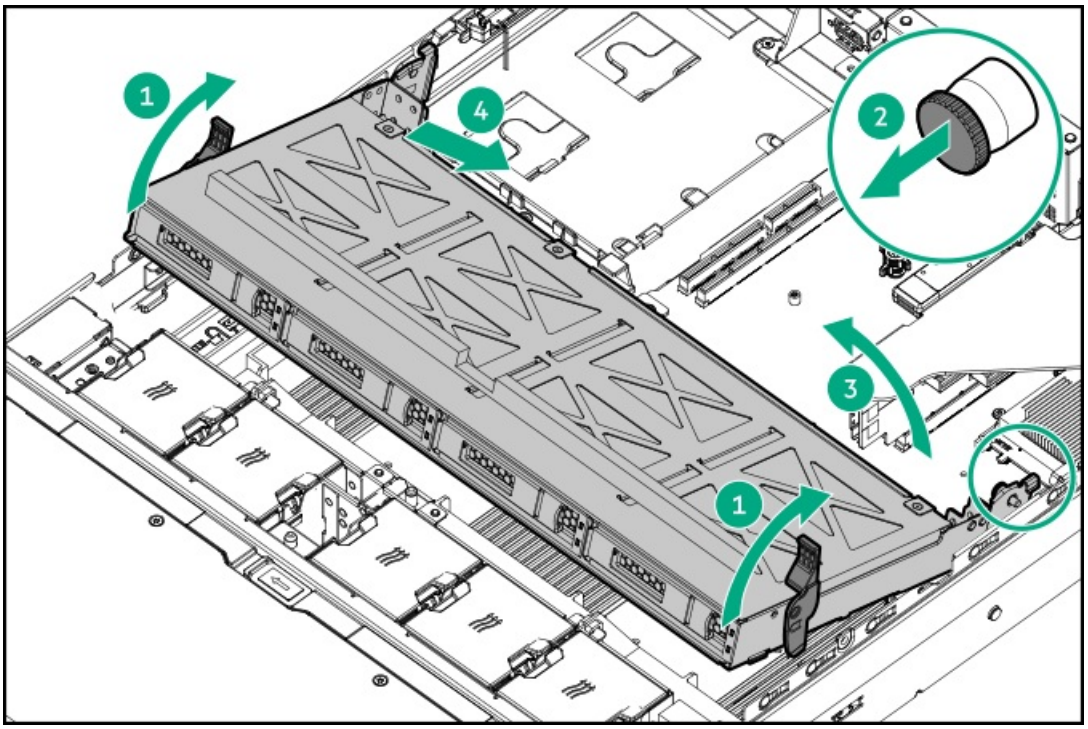
3. Remove the server from the rack.
4. Place the server on a flat, level work surface.
5. Remove the access panel.
6. Do one of the following:
   a. If you have the 8 SFF drive cage 3 installed, remove the air baffle.



   b. If you have the 4 LFF drive cage 3 installed, proceed to step 7.

> **CAUTION:**
> When removing drive cage 3 from the server, be sure to carefully feed the cables through the openings at the rear of the drive cage.

7. Disconnect the cables connected to the backplane.
8. Remove drive cage 3.



Remove the rear drive cage blank

Prerequisites

Before you begin this task, be sure you have a T-10 screwdriver.

About this task

WARNING: To reduce the risk of personal injury from hot surfaces, allow the drives, power supplies, and internal system components to cool before touching them.

WARNING: This server is heavy. To reduce the risk of personal injury or damage to the equipment:

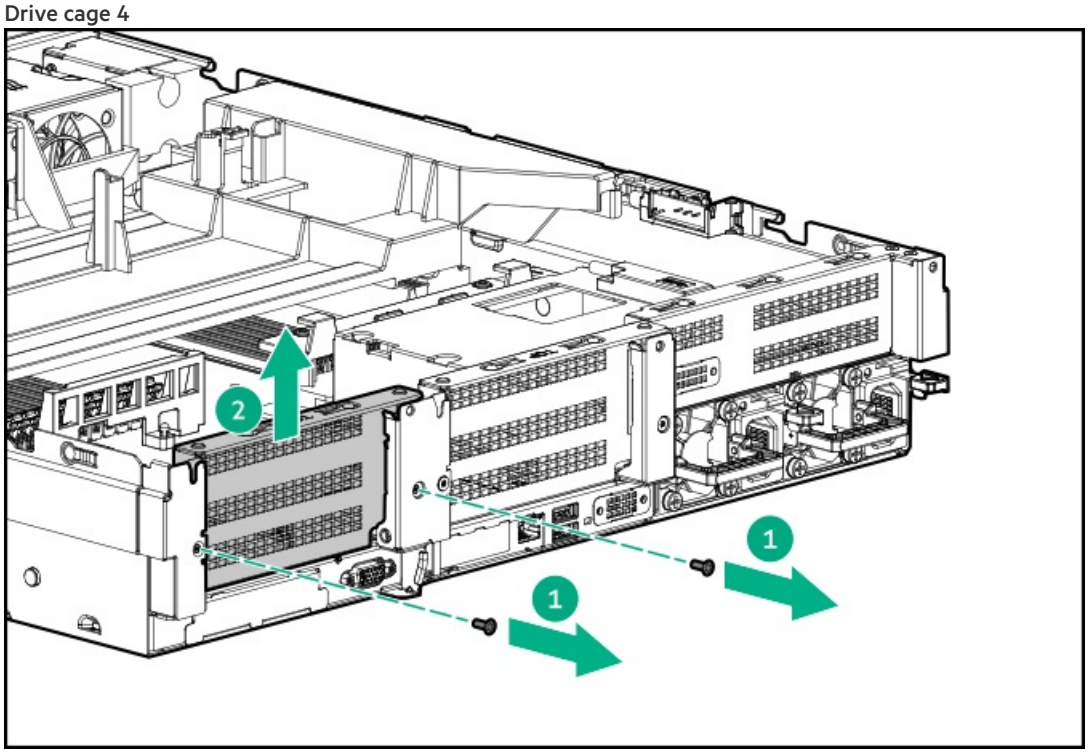
- Observe local occupational health and safety requirements and guidelines for manual material handling.
- Get help to lift and stabilize the product during installation or removal, especially when the product is not fastened to the rails. Hewlett Packard Enterprise recommends that a minimum of two people are required for all rack server installations. A third person may be required to help align the server if the server is installed higher than chest level.
- Use caution when installing the server in or removing the server from the rack; it is unstable when not fastened to the rails.

Procedure

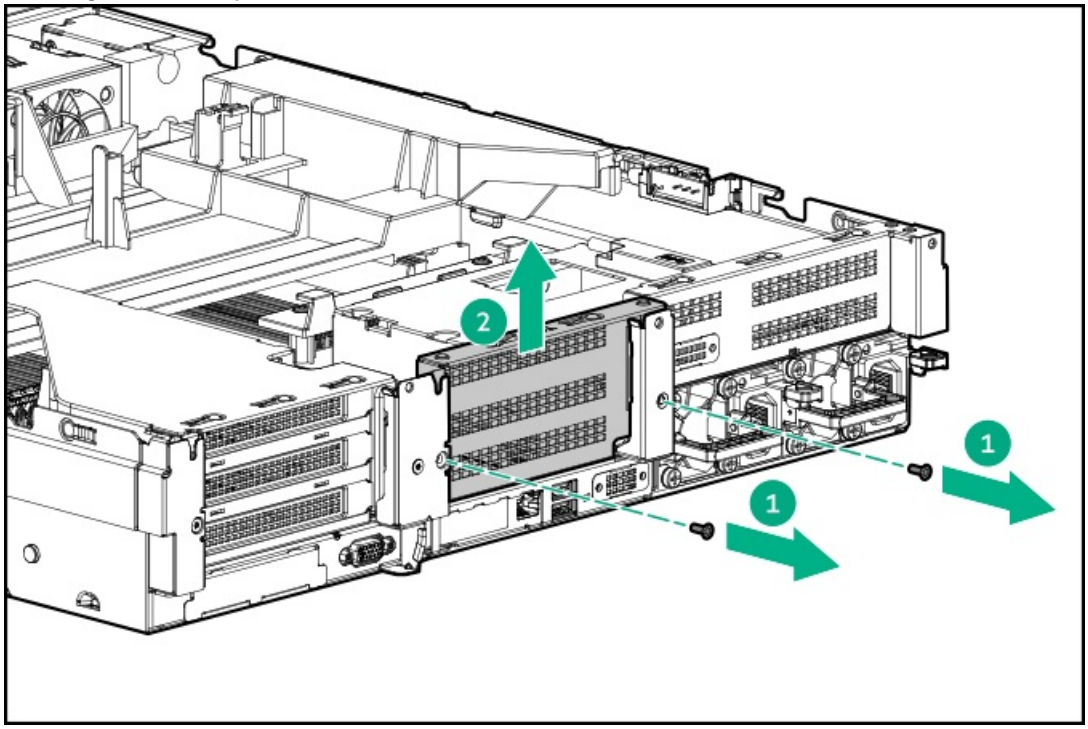
1. Power down the server.
2. Remove all power:
   a. Disconnect each power cord from the power source.
   b. Disconnect each power cord from the server.

3. Remove the server from the rack.
4. Place the server on a flat, level work surface.
5. Remove the access panel.
6. Remove the rear drive cage blank.

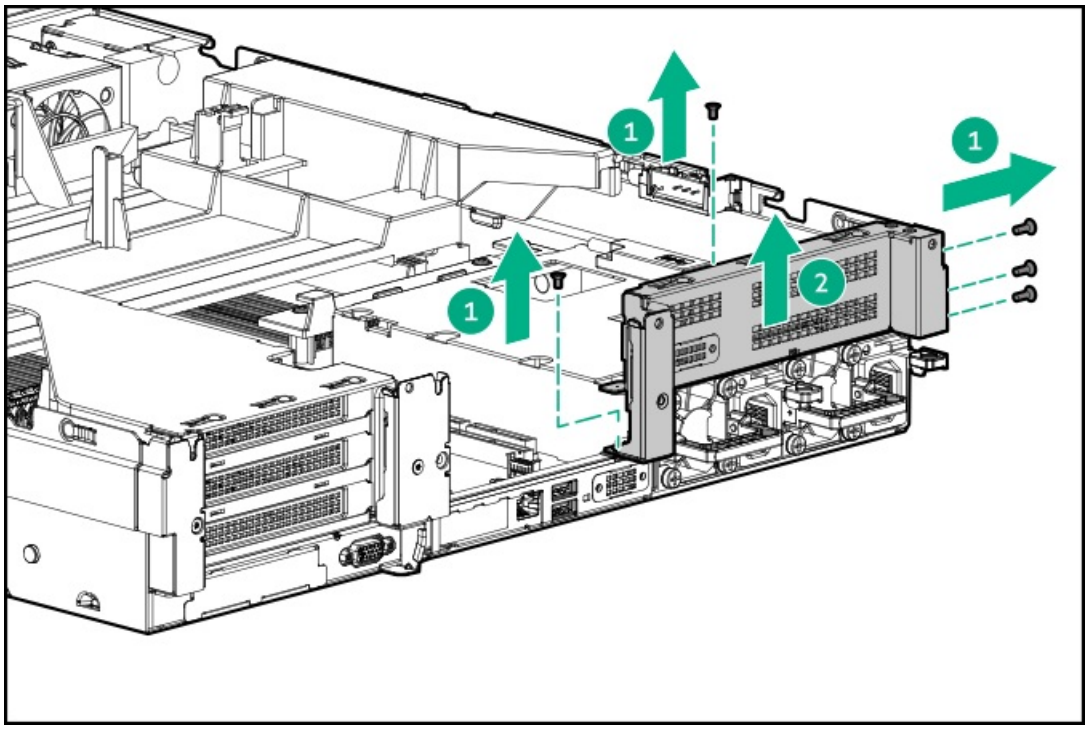
- Drive cage 4



- Drive cage 5, secondary



- Drive cage 5, tertiary



Remove the PCI riser cage

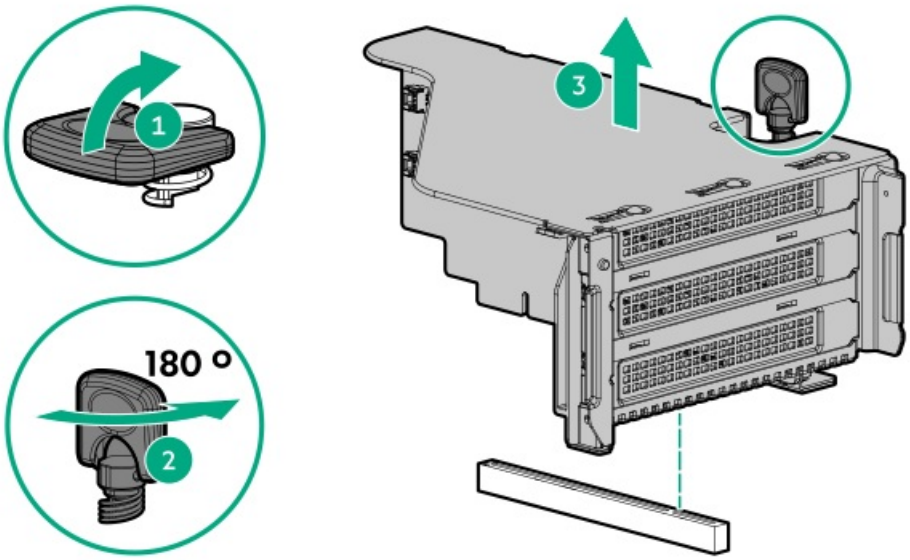
About this task

WARNING: To reduce the risk of personal injury from hot surfaces, allow the internal system components to cool before touching them.

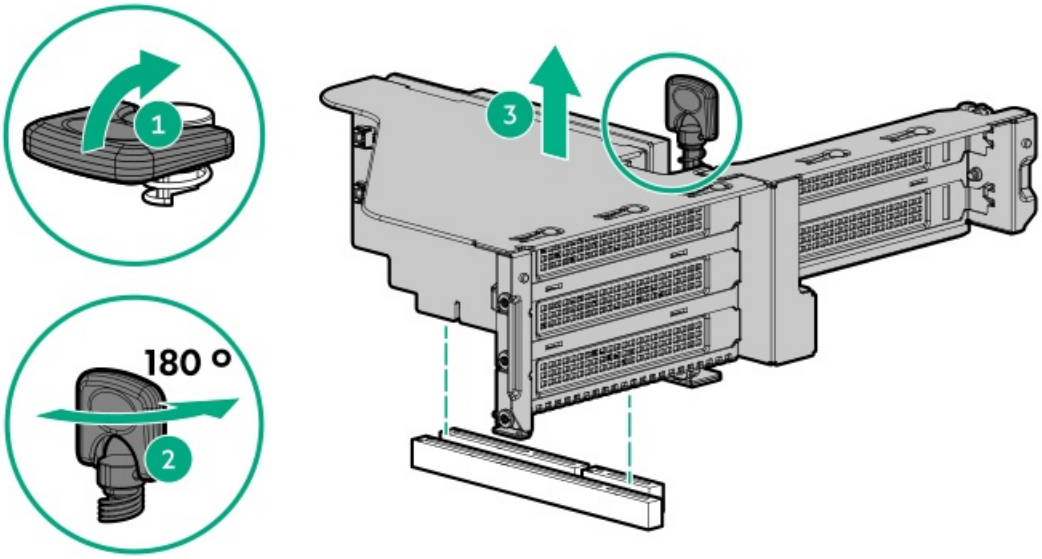
CAUTION: To prevent damage to electrical components, take the appropriate anti-static precautions before beginning any installation, removal, or replacement procedure. Improper grounding can cause electrostatic discharge.

Procedure

1. Power down the server.
2. Remove all power:
   a. Disconnect each power cord from the power source.
   b. Disconnect each power cord from the server.
3. Remove the system from the rack .
4. Remove the access panel.
5. If expansion boards with internal cabling are installed on the PCI riser cage, disconnect all internal cables from the expansion boards to remove the cage from the server.
6. Remove the PCI riser cage.
   - Primary



- Secondary/tertiary



Setup

Subtopics

HPE support services

Delivered by experienced, certified engineers, HPE support services help you keep your servers up and running with support packages tailored specifically for HPE ProLiant systems. HPE support services let you integrate both hardware and software support into a single package. A number of service level options are available to meet your business and IT needs.

HPE support services offer upgraded service levels to expand the standard product warranty with easy-to-buy, easy-to-use support packages that will help you make the most of your server investments. Some of the HPE support services for hardware, software or both are:

- Foundation Care – Keep systems running.
  - 6-Hour Call-to-Repair
  - 4-Hour 24x7
  - Next Business Day
- Proactive Care – Help prevent service incidents and get you to technical experts when there is one.
  - 6-Hour Call-to-Repair
  - 4-Hour 24x7
  - Next Business Day
- Startup and implementation services for both hardware and software
- HPE Education Services – Help train your IT staff.

For more information on HPE support services, see the **Hewlett Packard Enterprise website**.

Set up the server

Prerequisites

Before setting up the server:

- Download the latest SPP:
  http://www.hpe.com/servers/spp/download

  Support validation required
- Verify that your OS or virtualization software is supported:
  http://www.hpe.com/info/ossupport
- Read the operational requirements for the server:
  Operational requirements
- Read the safety and compliance information on the HPE website:
  http://www.hpe.com/support/safety-compliance-enterpriseproducts
- Obtain the storage driver if needed:
  - Download it from the HPE support center website.
  - Extract it from the SPP.

About this task

Procedure

Unbox the server

1. Unbox the server and verify the contents:
   - A server
   - A power cord
   - Rack-mounting hardware
   - Documentation
2. (Optional) Install hardware options.

   For installation instructions, see "Hardware options installation."

Rack the server

3. Install the server in a rack.

   WARNING: This server is heavy. To reduce the risk of personal injury or damage to the equipment:
   - Observe local occupational health and safety requirements and guidelines for manual material handling.
   - Get help to lift and stabilize the product during installation or removal, especially when the product is not fastened to the rails. Hewlett Packard Enterprise recommends that a minimum of two people are required for all rack server installations. A third person may be required to help align the system if the system is installed higher than chest level.
   - Use caution when installing the system in or removing the server from the rack; it is unstable when not fastened to the rails.

   The racking procedures are included with the rack rails.

   a. Connect devices, cables, and cords to the server.

   b. Secure cables using the cable management arm.

4. Decide how to manage the server:
   - Locally: use a KVM switch or a connect a keyboard, monitor, and mouse.
   - Remotely: connect to the iLO web interface and run a remote console:

     a. Verify the following:
        - iLO is licensed to use the remote console feature.
          If iLO is not licensed, visit **http://www.hpe.com/info/ilo**
        - The iLO management port is connected to a secure network.

     b. Using a browser, navigate to the iLO web interface, and then log in.

        ```
        https://<iLO hostname or IP address>
        ```

        Note the following:
        - The hostname is located on the serial pull tab.
        - If a DHCP server assigns the IP address, the IP address appears on the boot screen.
        - If a static IP address is assigned, use that IP address.
        - The default login credentials are located on the serial label pull tab.

     c. In the side navigation, click the Remote Console & Media link, and then launch a remote console.

Power on the server

5. Press the Power On/Standby button.

   For remote management, use the iLO virtual power button.

Update the firmware

6. Using the SPP, update the following:

   - System ROM
   - Storage controller
   - Network adapters

Set up storage

7. To set up storage, do one of the following:

   - To configure the server to boot from a SAN, see the HPE Boot from SAN Configuration Guide guide at **https://www.hpe.com/info/boot-from-san-config-guide**.
   - If a storage controller is installed:
     - For SR controllers, use HPE Smart Storage Administrator to create arrays:
       a. From the boot screen, press F10 to run Intelligent Provisioning.
       b. From Intelligent Provisioning, run HPE Smart Storage Administrator.

          For more information, see the HPE Smart Array SR Gen10 Configuration Guide at **https://www.hpe.com/support/SSC-config**.
     - For MR controllers, use the UEFI System Utilities to create arrays.
       For more information, see the HPE Smart Array P824i-p MR Gen10 User Guide guide at **http://www.hpe.com/info/P824i-p-docs**.

       IMPORTANT: MR controllers are not supported by Intelligent Provisioning or Smart Storage Administrator.

       IMPORTANT: Before you install an OS on drives connected to this controller, configure the drives using UEFI System Utilities (F9). If the drives are not configured, the OS will not detect the drives during installation. For more information, see the controller's user guide at the **Hewlett Packard Enterprise website**.
   - If no controller is installed, do one of the following:
     - AHCI is enabled by default. Proceed with deploying an OS or virtualization software.
     - Disable AHCI, enable software RAID, and then create an array:

       IMPORTANT: HPE Smart Array S100i SR Gen10 SW RAID is only supported on Windows. For more information on Linux and VMware support, see the product QuickSpecs on the Hewlett Packard Enterprise website (**https://www.hpe.com/support/S100i-qs**).

       a. From the boot screen, press F9 to run UEFI System Utilities.
       b. Select System Utilities > System Configurations > BIOS/Platform Configuration > Storage Options > NVM Express Options > NVM Express SmartRAID SW RAID Configuration Options > SW RAID.
       c. Enable SW RAID.
       d. Save the configuration and reboot the server.
       e. Create an array using either the UEFI System Utilities or HPE Smart Storage Administrator. To use the UEFI System Utilities:
          i. From the boot screen, press F9 to run UEFI System Utilities.
          ii. Select System Configuration > Embedded Storage: HPE Smart Storage S100i SR Gen10 > Array Configuration > Create Array.

For more information on creating arrays using the HPE Smart Storage Administrator, see the HPE Smart Array SR Gen10 Configuration Guide at **https://www.hpe.com/support/SSC-config**.

Deploy an OS or virtualization software

IMPORTANT: Before you install an OS on drives connected to this controller, configure the drives using UEFI System Utilities (F9)**. If the drives are not configured, the OS will not detect the drives during installation. For more information, see the controller's user guide at the Hewlett Packard Enterprise website.**

8. Do one of the following:
   - Run Intelligent Provisioning to deploy an OS.

     Press F10 at the boot screen to run Intelligent Provisioning.

     IMPORTANT: HPE ProLiant XL servers do not support operating system installation with Intelligent Provisioning, but they do support the maintenance features. For more information, see "Performing Maintenance" in the *HPE Intelligent Provisioning User Guide* and online help.
   - Manually deploy an OS.
     a. Insert the installation media.
        For remote management, click Virtual Drives in the iLO remote console to mount images, drivers, or files to a virtual folder. If a storage driver is required to install the OS, use the virtual folder to store the driver.
     b. Press F11 at the boot screen to select the boot device.
     c. After the OS is installed, update the drivers.
9. Register the server (**http://www.hpe.com/info/register**).

Operational requirements

When installing the server in a rack, select a location that meets the environmental standards described in this section.

Subtopics

Space and airflow requirements

To allow for servicing and adequate airflow, observe the following space and airflow requirements when deciding where to install a rack:

- Leave a minimum clearance of 63.5 cm (25 in) in front of the rack.
- Leave a minimum clearance of 76.2 cm (30 in) behind the rack.
- Leave a minimum clearance of 121.9 cm (48 in) from the back of the rack to the back of another rack or row of racks.

Hewlett Packard Enterprise servers draw in cool air through the front door and expel warm air through the rear door. Therefore, the front and rear rack doors must be adequately ventilated to allow ambient room air to enter the cabinet, and the rear door must be adequately ventilated to allow the warm air to escape from the cabinet.

CAUTION: To prevent improper cooling and damage to the equipment, do not block the ventilation openings.

When vertical space in the rack is not filled by a server or rack component, the gaps between the components cause changes in airflow through the rack and across the servers. Cover all gaps with blanking panels to maintain proper airflow.

CAUTION: Always use blanking panels to fill empty vertical spaces in the rack. This arrangement ensures proper airflow. Using a rack without blanking panels results in improper cooling that can lead to thermal damage.

The 9000 and 10000 Series Racks provide proper server cooling from flow-through perforations in the front and rear doors that provide 64 percent open area for ventilation.

CAUTION: When using a Compaq branded 7000 series rack, install the high airflow rack door insert (PN 327281-B21 for 42U rack, PN 157847-B21 for 22U rack) to provide proper front-to-back airflow and cooling.

CAUTION:

If a third-party rack is used, observe the following additional requirements to ensure adequate airflow and to prevent damage to the equipment:

- Front and rear doors—If the 42U rack includes closing front and rear doors, you must allow 5,350 sq cm (830 sq in) of holes evenly distributed from top to bottom to permit adequate airflow (equivalent to the required 64 percent open area for ventilation).
- Side—The clearance between the installed rack component and the side panels of the rack must be a minimum of 7 cm (2.75 in).

Temperature requirements

To ensure continued safe and reliable equipment operation, install or position the system in a well-ventilated, climate-controlled environment.

The maximum recommended ambient operating temperature (TMRA) for most server products is 35°C (95°F). The temperature in the room where the rack is located must not exceed 35°C (95°F).

CAUTION:

To reduce the risk of damage to the equipment when installing third-party options:

- Do not permit optional equipment to impede airflow around the server or to increase the internal rack temperature beyond the maximum allowable limits.
- Do not exceed the manufacturer's TMRA.

Power requirements

Installation of this equipment must comply with local and regional electrical regulations governing the installation of information technology equipment by licensed electricians. This equipment is designed to operate in installations covered by NFPA 70, 1999 Edition (National Electric Code) and NFPA-75, 1992 (code for Protection of Electronic Computer/Data Processing Equipment). For electrical power ratings on options, refer to the product rating label or the user documentation supplied with that option.

WARNING:

To reduce the risk of personal injury, fire, or damage to the equipment, do not overload the AC supply branch circuit that provides power to the rack. Consult the electrical authority having jurisdiction over wiring and installation requirements of your facility.

CAUTION:

Protect the server from power fluctuations and temporary interruptions with a regulating UPS. This device protects the hardware from damage caused by power surges and voltage spikes and keeps the server in operation during a power failure.

When installing more than one server, you might need to use additional power distribution devices to safely provide power to all devices. Observe the following guidelines:

- Balance the power load between available AC supply branch circuits.
- Do not allow the overall system AC current load to exceed 80% of the branch circuit AC current rating.
- Do not use common power outlet strips for this equipment.
- Provide a separate electrical circuit for the server.

For more information on the hot-plug power supply and calculators to determine power consumption in various system configurations, see the Hewlett Packard Enterprise website (**http://www.hpe.com/info/poweradvisor/online**).

Electrical grounding requirements

The server must be grounded properly for proper operation and safety. In the United States, you must install the equipment in accordance with NFPA 70, 1999 Edition (National Electric Code), Article 250, as well as any local and regional building codes. In Canada, you must install the equipment in accordance with Canadian Standards Association, CSA C22.1, Canadian Electrical Code. In all other regions, you must install the equipment in accordance with any regional or national electrical wiring codes, such as the International Electrotechnical Commission (IEC) Code 364, parts 1 through 7. Furthermore, you must be sure that all power distribution devices used in the installation, such as branch wiring and receptacles, are listed or certified grounding-type devices.

Because of the high ground-leakage currents associated with multiple servers connected to the same power source, Hewlett Packard Enterprise recommends the use of a PDU that is either permanently wired to the branch circuit of the building or includes a nondetachable cord that is wired to an industrial-style plug. NEMA locking-style plugs or plugs complying with IEC 60309 are considered suitable for this purpose. Using common power outlet strips for the server is not recommended.

System warnings and cautions

WARNING: This server is heavy. To reduce the risk of personal injury or damage to the equipment:

- Observe local occupational health and safety requirements and guidelines for manual material handling.
- Get help to lift and stabilize the product during installation or removal, especially when the product is not fastened to the rails. Hewlett Packard Enterprise recommends that a minimum of two people are required for all rack server installations. A third person may be required to help align the server if the server is installed higher than chest level.
- Use caution when installing the server in or removing the server from the rack; it is unstable when not fastened to the rails.

WARNING: To reduce the risk of personal injury from hot surfaces, allow the drives, power supplies, and internal system components to cool before touching them.

WARNING: To reduce the risk of personal injury, electric shock, or damage to the equipment, remove power from the server by removing the power cord. The front panel Power On/Standby button does not shut off system power. Portions of the power supply and some internal circuitry remain active until AC power is removed.

WARNING:
To reduce the risk of fire or burns after removing the energy pack:

- Do not disassemble, crush, or puncture the energy pack.
- Do not short external contacts.
- Do not dispose of the energy pack in fire or water.
- Do not expose the energy pack to low air pressure as it might lead to explosion or leakage of flammable liquid or gas.
- Do not expose the energy pack to temperatures higher than 60°C (140°F).

After power is disconnected, battery voltage might still be present for 1s to 160s.

CAUTION:
Protect the server from power fluctuations and temporary interruptions with a regulating UPS. This device protects the hardware from damage caused by power surges and voltage spikes and keeps the server in operation during a power failure.

CAUTION: Do not operate the server for long periods with the access panel open or removed. Operating the server in this manner results in improper airflow and improper cooling that can lead to thermal damage.

Rack warnings and cautions

WARNING:
When all components are removed, the server weighs 22.34 kg (49.25 lb). When all components are installed, the server can weigh up to 40.60 kg (89.51 lb).

Before configuring your rack solution, be sure to check the rack manufacturer weight limits and specifications. Failure to do so can result in physical injury or damage to the equipment and the facility.

WARNING:
The server is heavy. To reduce the risk of personal injury or damage to the equipment, do the following:

- Observe local occupational health and safety requirements and guidelines for manual material handling.
- Get help to lift and stabilize the product during installation or removal, especially when the product is not fastened to the rails. The server weighs more than 22.34 kg (49.25 lb), so at least two people must lift the server into the chassis together. An additional person may be required to help align the server if the server is installed higher than chest level.
- Use caution when installing the server in or removing the server from the chassis.
- Adequately stabilized the chassis before extending a component outside the chassis. Extend only one component at a time. A chassis may become unstable if more than one component is extended.
- Do not stack anything on top of rail-mounted component or use it as a work surface when extended from the rack.

WARNING:
To reduce the risk of personal injury or damage to the equipment, observe the following precautions:

- The leveling jacks are extended to the floor.
- The full weight of the rack rests on the leveling jacks.
- The stabilizing feet are attached to the rack if it is a single-rack installation.
- The racks are coupled together in multiple-rack installations.

WARNING:
To reduce the risk of personal injury or equipment damage when unloading a rack:

- At least two people are needed to safely unload the rack from the pallet. An empty 42U rack can weigh as much as 115 kg (253 lb), can stand more than 2.1 m (7 ft) tall, and might become unstable when being moved on its casters.
- Never stand in front of the rack when it is rolling down the ramp from the pallet. Always handle the rack from both sides.

CAUTION:
Always plan the rack installation so that the heaviest item is on the bottom of the rack. Install the heaviest item first, and continue to populate the rack from the bottom to the top.

CAUTION:
Before installing the server in a chassis, be sure to properly scope the limitations of the chassis. Before proceeding with the installation, consider the following:

- You must fully understand the static and dynamic load carrying capacity of the chassis and be sure that it can accommodate the weight of the server.
- Be sure sufficient clearance exists for cabling, installation and removal of the server, and movement of the rack doors.

IMPORTANT:
The HPE Apollo 4200 Gen10 Plus Server cable management arm is not supported on Compaq-branded 7000 series racks.

Installing hardware options

Install any hardware options before initializing the server. For options installation information, refer to the option documentation. For product-specific information, see Hardware options installation.

Installing the server into the rack

About this task

To install the server into a rack with square, round, or threaded holes, refer to the rack installation instructions that ship with the rack hardware kit.

If you are installing the server into a telco rack, order the appropriate option kit at the Rack Solutions website (https://www.hpe.com/us/en/integrated-systems/rack-power-cooling.html). Follow the server-specific instructions on the website to install the rack brackets.

Use the following information when connecting peripheral cables and power cords to the server.

WARNING: This server is heavy. To reduce the risk of personal injury or damage to the equipment:

- Observe local occupational health and safety requirements and guidelines for manual material handling.
- Get help to lift and stabilize the product during installation or removal, especially when the product is not fastened to the rails. Hewlett Packard Enterprise recommends that a minimum of two people are required for all rack server installations. A third person may be required to help align the server if the server is installed higher than chest level.
- Use caution when installing the server in or removing the server from the rack; it is unstable when not fastened to the rails.

CAUTION:
Always plan the rack installation so that the heaviest item is on the bottom of the rack. Install the heaviest item first, and continue to populate the rack from the bottom to the top.

NOTE:
Steps 1 and 2 in this section only apply to the first-time installation of the server into the rack.

Procedure

1. Install the server rack rails in the rack.

   See the documentation that ships with the rack rail kit.

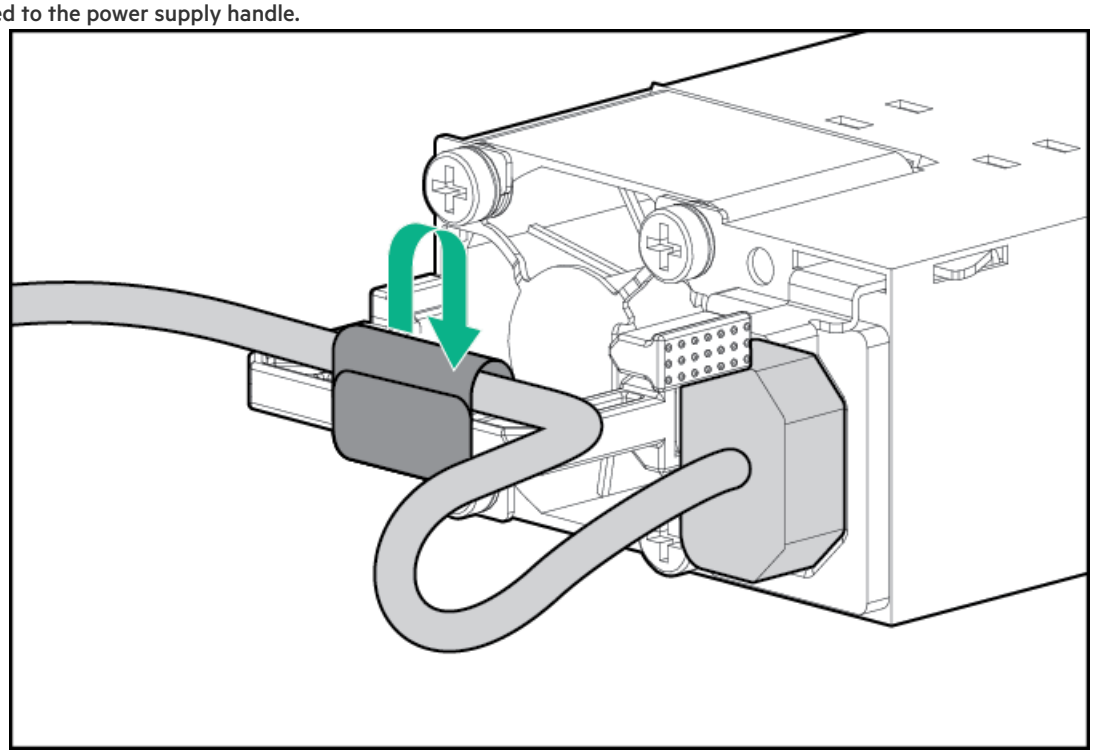
2. Install the server into the rack.
3. Install drives in drive cage 1, drive cage 2, and drive cage 3.

4. Optional: Install the security bezel.
5. Optional: Install drives in the rear drive cage drive cage 4 and drive cage 5.

> **WARNING:**
>
> To reduce the risk of electric shock, fire, or damage to the equipment, do not plug telephone or telecommunications connectors into RJ-45 connectors.

6. Connect peripheral devices to the server.

   For information on identifying connectors, see Rear panel components.
7. Install the power supply.
8. To prevent accidental power cord disconnection when sliding the server in and out of the rack, secure the power cord in the strain relief strap attached to the power supply handle.



> **WARNING:**
>
> To reduce the risk of electric shock or damage to the equipment:
>
> - Do not disable the power cord grounding plug. The grounding plug is an important safety feature.
> - Plug the power cord into grounded (earthed) electrical outlet that is easily accessible at all times.
> - To disconnect power to the equipment, unplug the power cord from the power supply.
> - Do not route the power cord where it can be walked on or pinched by items placed against it. Pay particular attention to the plug, electrical outlet, and the point where the cord extends from the server.

9. Connect the power cord to the power source.

Installing the operating system

About this task

To operate properly, the server must have a supported operating system. For the latest information on operating system support, see the Hewlett Packard Enterprise website (**https://www.hpe.com/us/en/servers/server-operating-systems.html**).

> **IMPORTANT:**
> HPE ProLiant XL servers do not support operating system installation with Intelligent Provisioning, but they do support the maintenance features. For more information, see "Performing Maintenance" in the *HPE Intelligent Provisioning User Guide* and online help.

For additional system software and firmware updates, download the Service Pack for ProLiant from the Hewlett Packard Enterprise website (**http://www.hpe.com/servers/spp/download**). Software and firmware must be updated before using the server for the first time, unless any installed software or components require an older version.

For more information on using these installation methods, see the Hewlett Packard Enterprise website (**https://www.hpe.com/us/en/servers/integrated-lights-out-ilo.html**).

Selecting boot options in UEFI Boot Mode

About this task

On servers operating in UEFI Boot Mode, the boot controller and boot order are set automatically.

Procedure

1. Press the Power On/Standby button.
2. During the initial boot:
   - To modify the server configuration ROM default settings, press the **F9** key in the ProLiant POST screen to enter the UEFI System Utilities screen. By default, the System Utilities menus are in the English language.
   - If you do not need to modify the server configuration and are ready to install the system software, press the **F10** key to access Intelligent Provisioning.

Results

For more information on automatic configuration, see the UEFI documentation on the **Hewlett Packard Enterprise website**.

Registering the server

To experience quicker service and more efficient support, register the product at the **Hewlett Packard Enterprise Product Registration website**.

Hardware options installation

Subtopics

Product QuickSpecs

For more information about product features, specifications, options, configurations, and compatibility, see the product QuickSpecs on the Hewlett Packard Enterprise website (https://www.hpe.com/info/qs).

Introduction

Install any hardware options before initializing the server. For options installation information, see the option documentation. For server-specific information, use the procedures in this section.

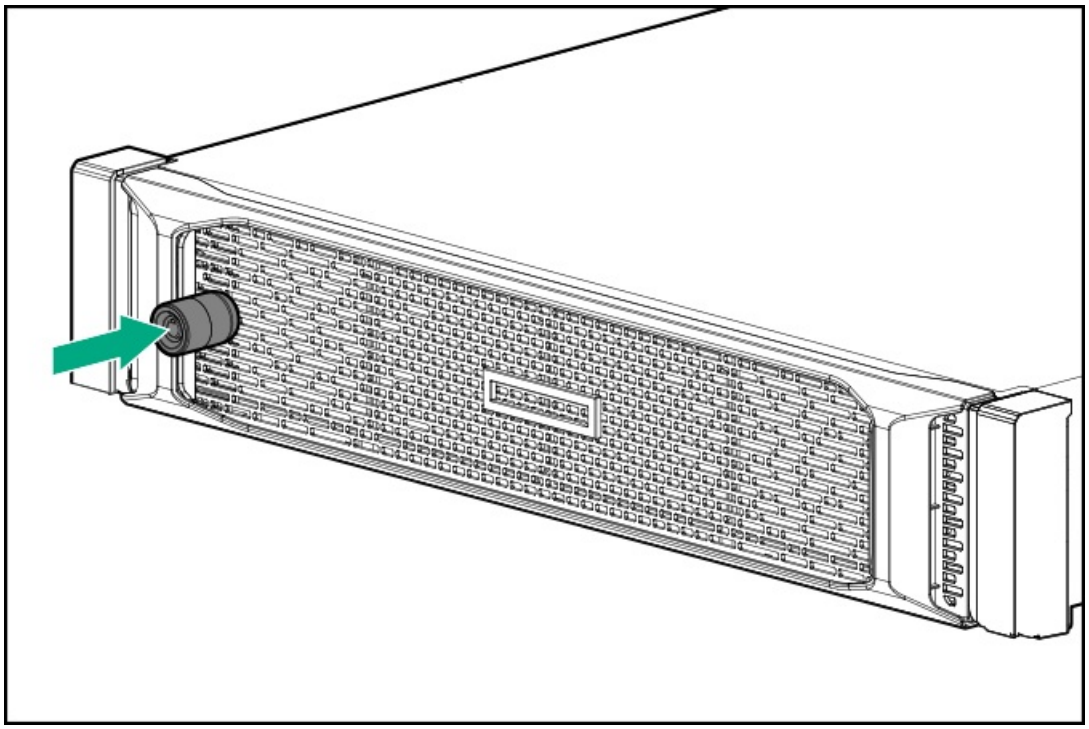
If multiple options are being installed, read the installation instructions for all the hardware options to identify similar steps and streamline the installation process.

WARNING: To reduce the risk of personal injury from hot surfaces, allow the drives and the internal system components to cool before touching them.

CAUTION: To prevent damage to electrical components, properly ground the server before beginning any installation procedure. Improper grounding can cause electrostatic discharge.

Installing the security bezel

The security bezel helps prevent unauthorized physical access to the front panel components. Install the security bezel and then lock it with the key provided with the kit.



Drive options

Depending on the configuration, this server supports SAS, SATA, and NVMe. When adding drives to the server, observe the following general guidelines.

- The server automatically sets all device numbers.
- If only one drive is used, install the drive in the drive bay with the lowest device number (Drive numbering).
- Drives must be the same capacity to provide the greatest storage space efficiency when drives are grouped into the same drive array.

Subtopics

Installing a drive into drive cage 1

About this task

CAUTION: For proper cooling do not operate the server without the access panel, baffles, expansion slot covers, or blanks installed. If the server supports hot-plug components, minimize the amount of time the access panel is open.

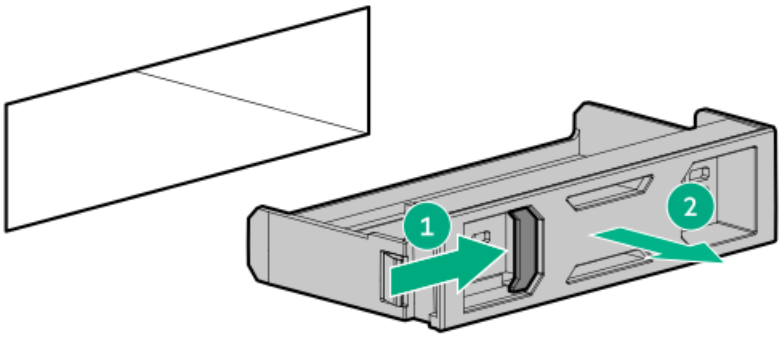
IMPORTANT:

Populate drive bays based on the drive numbering sequence. Start from the drive bay with the lowest device number.

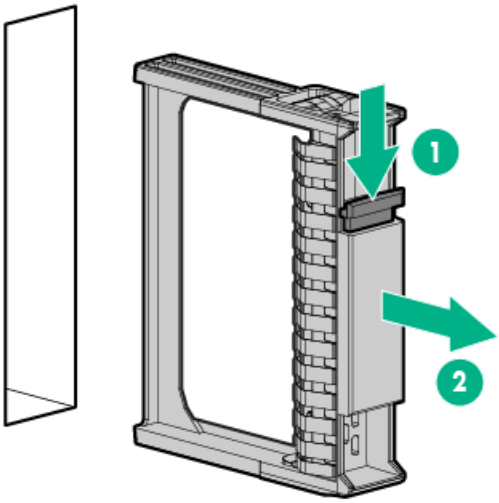
This drive cage option supports 12 LFF SAS or SATA drives or 24 SFF SAS or SATA drives. The drives are assigned the drive numbers 1-12 (12 LFF) or 1-24 (24 SFF).

Procedure

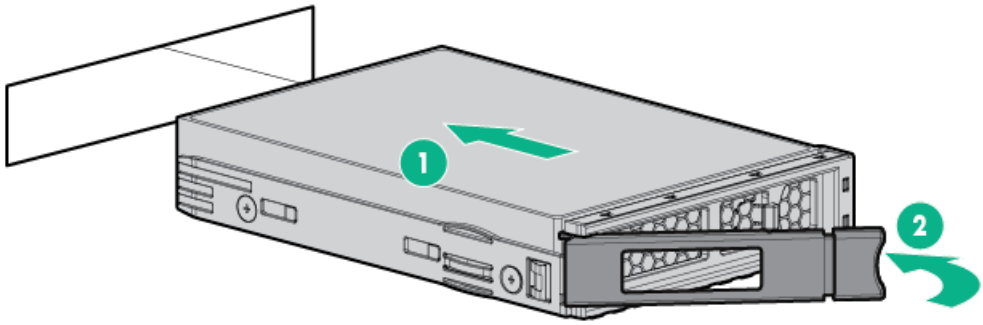
1. If installed, remove the security bezel.
2. Remove the drive blank:



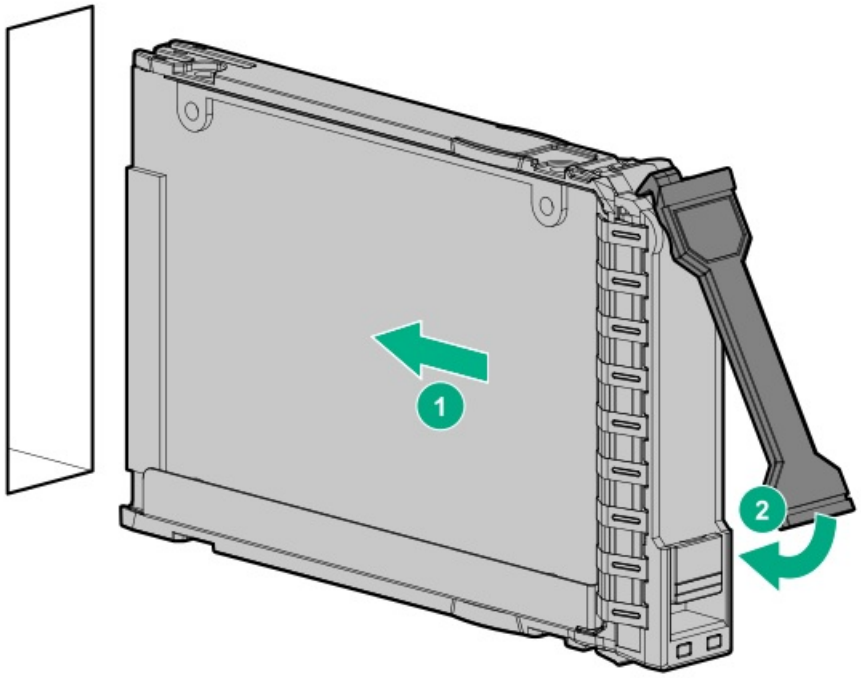
- LFF drive blank
- SFF drive blank



3. Install the drive:
   - LFF drive



   - SFF drive



4. Determine the status of the drive from the drive LED definitions (Drive LED definitions).
5. If removed, install the security bezel.

Installing a drive into drive cage 2

About this task

CAUTION: For proper cooling do not operate the server without the access panel, baffles, expansion slot covers, or blanks installed. If the server supports hot-plug components, minimize the amount of time the access panel is open.

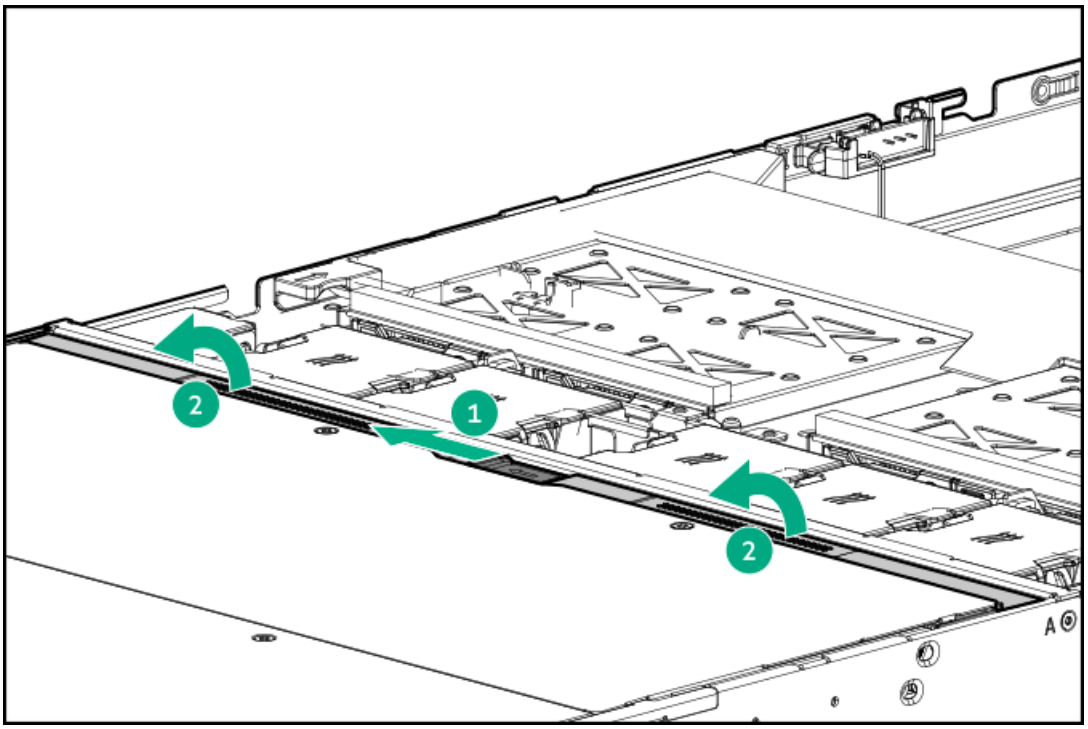
IMPORTANT:

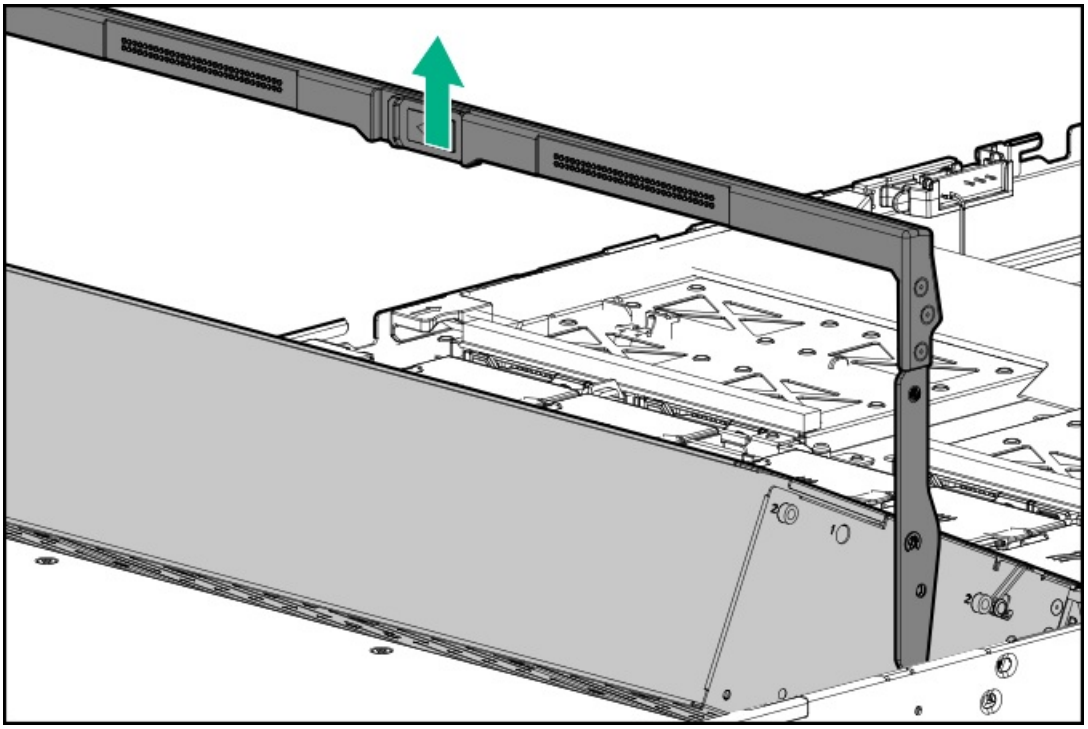
Populate drive bays based on the drive numbering sequence. Start from the drive bay with the lowest device number.

This drive cage option supports 12 LFF SAS or SATA drives or 24 SFF SAS or SATA drives. The drives are assigned the drive numbers 13-24 (12 LFF) or 25-48 (24 SFF).

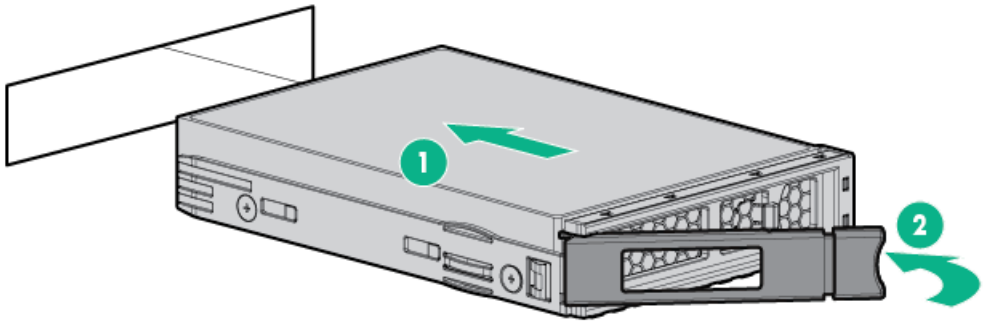
Procedure

1. Extend the system from the rack .
2. Open drive cage 2.

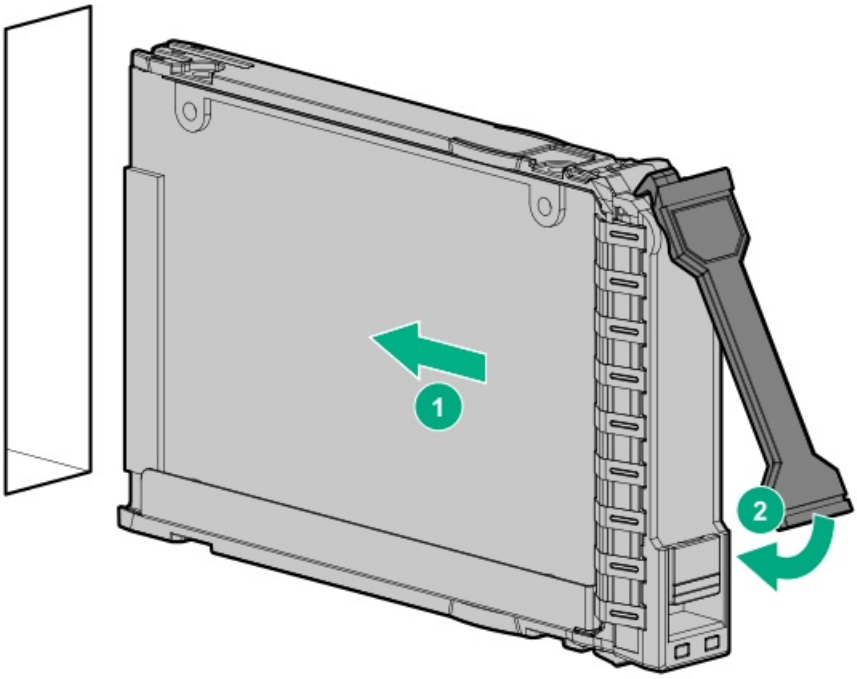




3. Install the drive:
   - LFF drive



- SFF drive



4. Determine the status of the drive from the drive LED definitions (Drive LED definitions).
5. If extended, slide the server back into the rack.

Installing a drive into drive cage 3

About this task

CAUTION: For proper cooling do not operate the server without the access panel, baffles, expansion slot covers, or blanks installed. If the server supports hot-plug components, minimize the amount of time the access panel is open.

IMPORTANT:

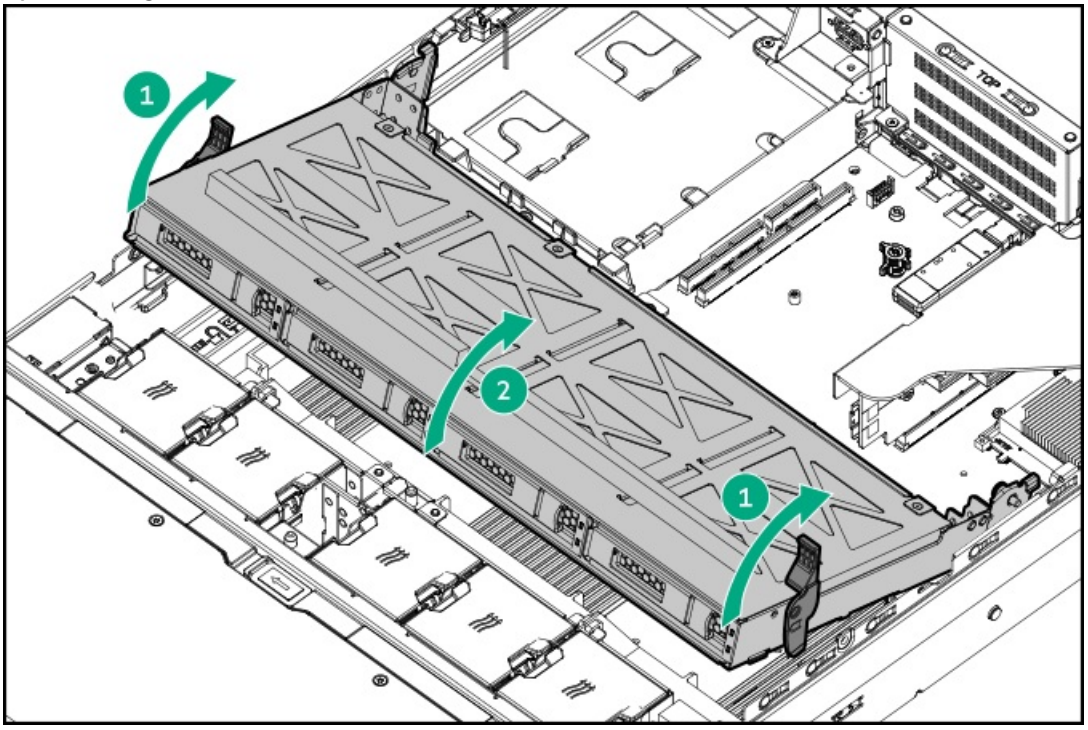
Populate drive bays based on the drive numbering sequence. Start from the drive bay with the lowest device number.

This drive cage option supports 8 SFF SAS, SATA, or NVMe drives or 4 LFF SAS or SATA drives. The drives are assigned these drive numbers:

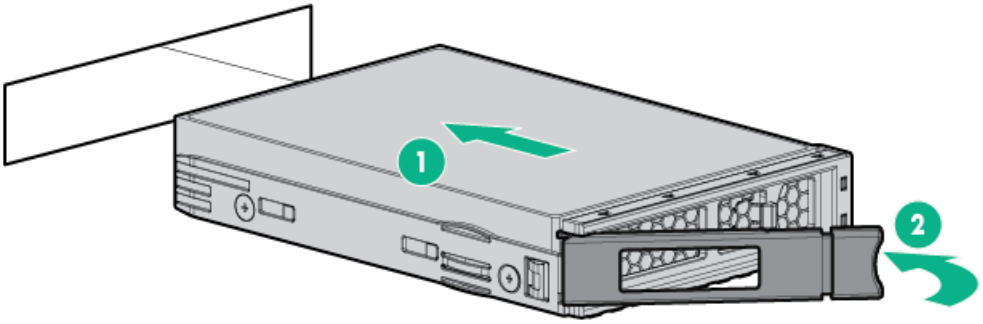
LFF or SFF	Drive numbering
SFF	1-8
LFF in drive cage 3 only	1-4
LFF in drive cage 1, drive cage 2, and drive cage 3	25-28

Procedure

1. Extend the system from the rack .
2. Open the access panel to access drive cage 3 .
3. Open drive cage 3.



4. Install the drive.



5. Determine the status of the drive from the drive LED definitions (Drive LED definitions).
6. Slide the server back into the rack.

7. If removed, install the security bezel.

Installing a drive into the rear drive cages

About this task

CAUTION: For proper cooling do not operate the server without the access panel, baffles, expansion slot covers, or blanks installed. If the server supports hot-plug components, minimize the amount of time the access panel is open.

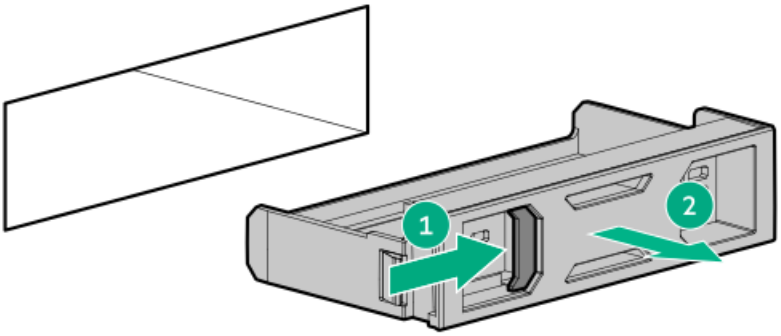
IMPORTANT:

Populate drive bays based on the drive numbering sequence. Start from the drive bay with the lowest device number.

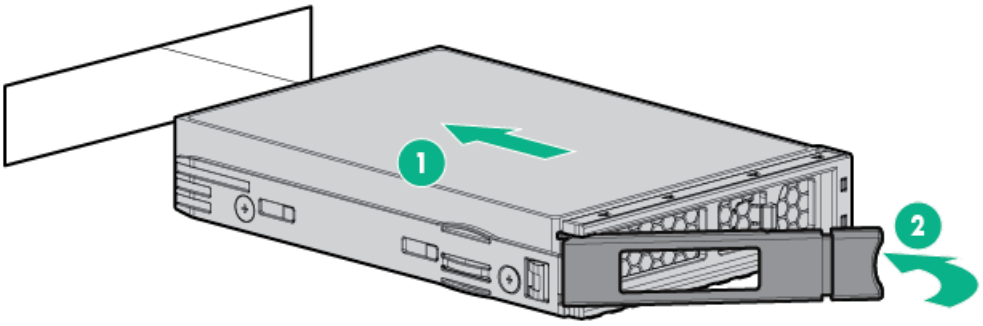
These drive cage options support 2 SFF SAS, SATA, or NVMe drives (drive cage 4) or 4 SAS, SATA, or NVMe drives (drive cage 4 and drive cage 5). The drives are assigned the drive numbers 1-2 (2 SFF) for drive cage 4 and 1-2 (4 SFF) for drive cage 5.

Procedure

1. Access the rear panel (Rear panel components).



2. Remove the drive blank.
3. Install the drive.



4. Determine the status of the drive from the drive LED definitions (Drive LED definitions).

Drive cage options

Subtopics

Installing the two-bay SFF hot-plug rear drive cage in the primary slot

Prerequisites

Before you perform this procedure, make sure that you have the following items available:

- The components included with the hardware kit

About this task

WARNING: To reduce the risk of personal injury from hot surfaces, allow the drives, power supplies, and internal system components to cool before touching them.

CAUTION: To prevent damage to electrical components, properly ground the server before beginning any installation procedure. Improper grounding can cause electrostatic discharge.

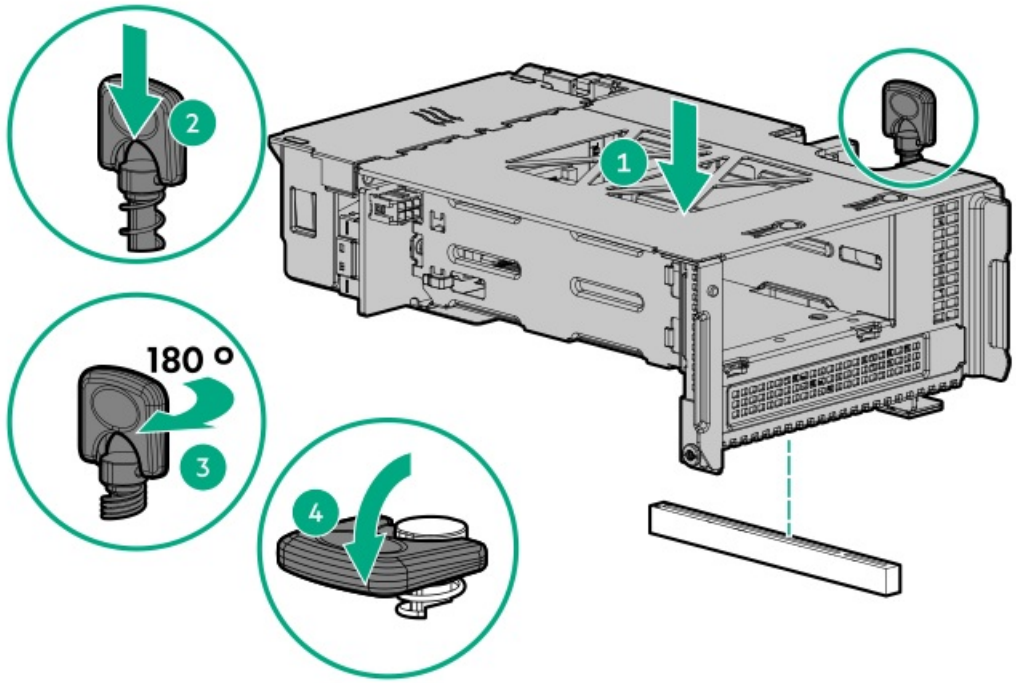
CAUTION: For proper cooling do not operate the server without the access panel, baffles, expansion slot covers, or blanks installed. If the server supports hot-plug components, minimize the amount of time the access panel is open.

IMPORTANT:

Populate drive bays based on the drive numbering sequence. Start from the drive bay with the lowest device number.

Procedure

1. Power down the server.
2. Remove all power:
   a. Disconnect each power cord from the power source.
   b. Disconnect each power cord from the server.
3. Remove the server from the rack.
4. Place the server on a flat, level work surface.
5. Remove the access panel.
6. Remove the air baffle.
7. Remove the rear drive cage blank.
8. Install the two-bay SFF rear drive cage:



9. Connect the cables depending on your server configuration (Rear drive cage cabling).
10. Install the air baffle.
11. Install the access panel.
12. Install the server into the rack.
13. Power up the server.

Installing two-bay SFF hot-plug rear drive cage in the secondary/tertiary slot

Prerequisites

Before you perform this procedure, make sure that you have the following items available:

- The components included with the hardware kit
- Torx T-10 screwdriver

About this task

WARNING: To reduce the risk of personal injury from hot surfaces, allow the drives, power supplies, and internal system components to cool before touching them.

CAUTION: To prevent damage to electrical components, properly ground the server before beginning any installation procedure. Improper grounding can cause electrostatic discharge.

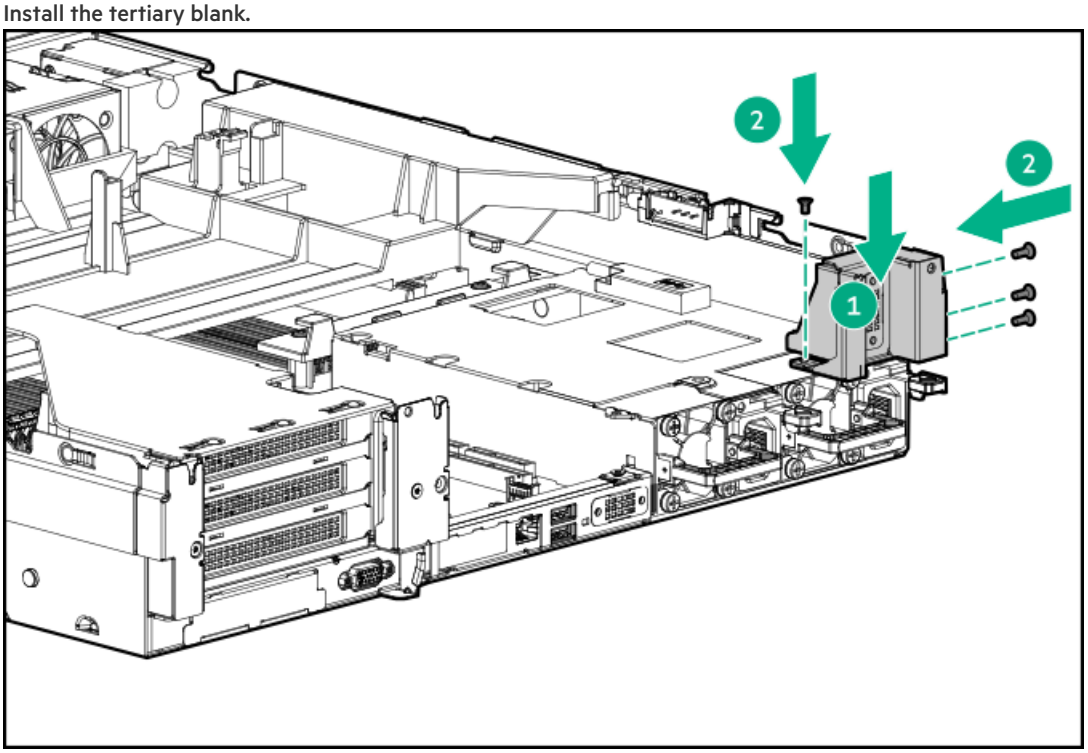
CAUTION: For proper cooling do not operate the server without the access panel, baffles, expansion slot covers, or blanks installed. If the server supports hot-plug components, minimize the amount of time the access panel is open.

IMPORTANT:

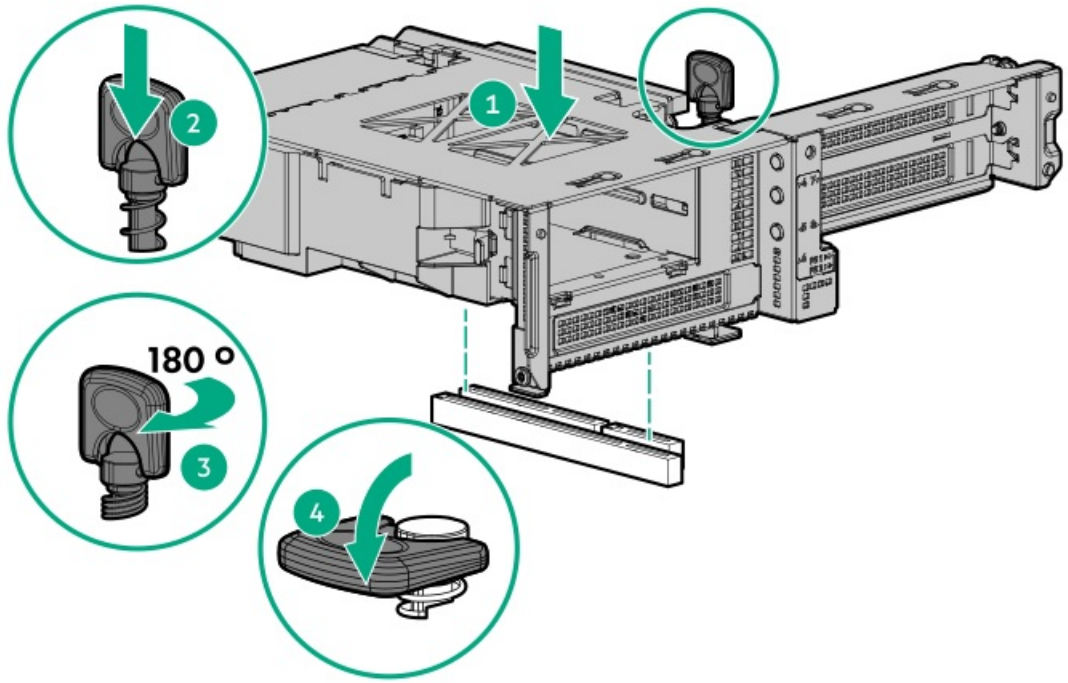
Populate drive bays based on the drive numbering sequence. Start from the drive bay with the lowest device number.

Procedure

1. Power down the server.
2. Remove all power:
   a. Disconnect each power cord from the power source.
   b. Disconnect each power cord from the server.
3. Remove the server from the rack.
4. Place the server on a flat, level work surface.
5. Remove the access panel.
6. Remove the air baffle.
7. Remove the rear drive cage blank.
8. Install the tertiary blank.



9. Install the two-bay SFF rear drive cage:



10. Connect the cables depending on your server configuration (Rear drive cage cabling).
11. Install the air baffle.
12. Install the access panel.
13. Install the server into the rack.
14. Power up the server.

Riser and riser cage options

Subtopics

Installing the PCIe riser cage in the primary slot

Prerequisites

Before you perform this procedure, make sure that you have the following items available:

- The components included with the hardware kit

About this task

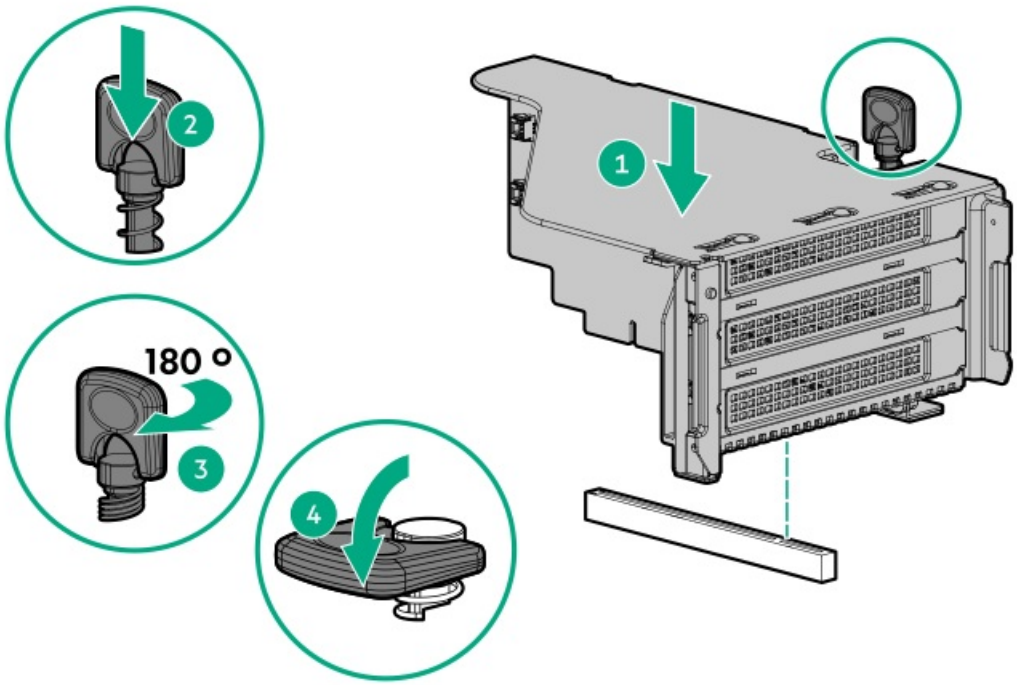
WARNING: To reduce the risk of personal injury from hot surfaces, allow the drives, power supplies, and internal system components to cool before touching them.

CAUTION: To prevent damage to electrical components, properly ground the server before beginning any installation procedure. Improper grounding can cause electrostatic discharge.

CAUTION: For proper cooling do not operate the server without the access panel, baffles, expansion slot covers, or blanks installed. If the server supports hot-plug components, minimize the amount of time the access panel is open.

Procedure

1. Power down the server.
2. Remove all power:
   a. Disconnect each power cord from the power source.
   b. Disconnect each power cord from the server.
3. Remove the server from the rack.
4. Place the server on a flat, level work surface.
5. Remove the access panel.
6. If there is a controller or expansion board to be installed in the riser cage, connect the cabling (Cabling).
7. Install the storage controller
8. Install the PCIe riser cage.



9. Install the access panel.
10. Install the server into the rack.
11. Power up the server.

Installing the PCIe riser cage in the secondary/tertiary slot

Prerequisites

Before you perform this procedure, make sure that you have the following items available:

- The components included with the hardware kit
- Torx T-10 screwdriver

About this task

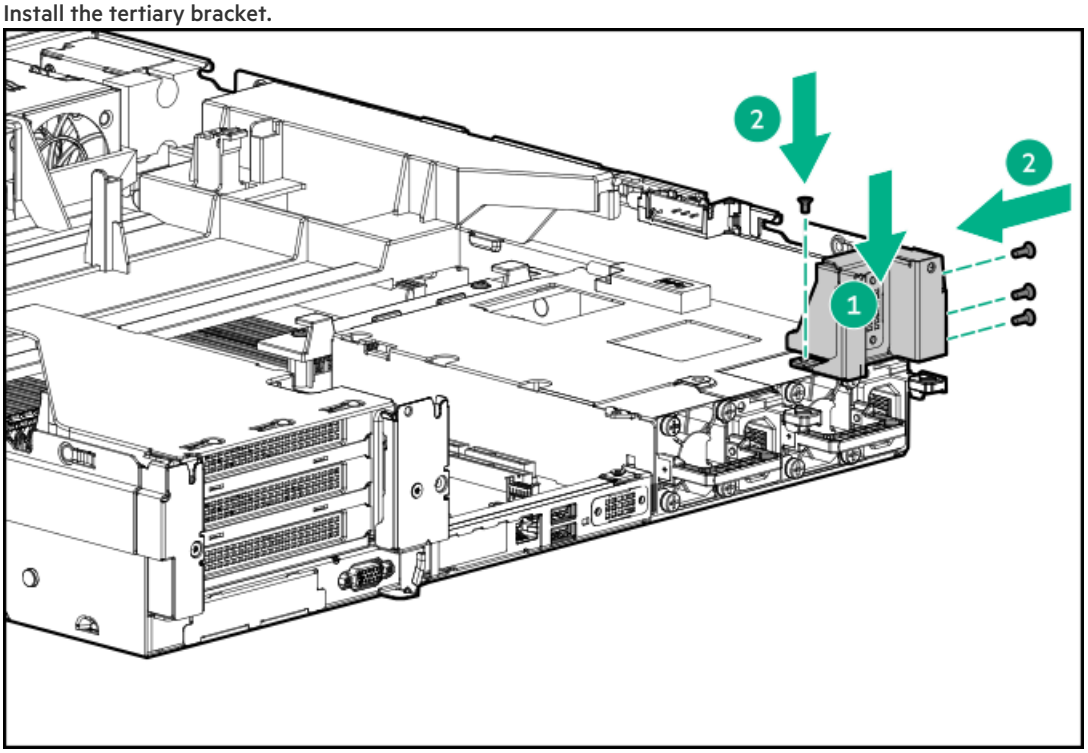
WARNING: To reduce the risk of personal injury from hot surfaces, allow the drives, power supplies, and internal system components to cool before touching them.

CAUTION: To prevent damage to electrical components, properly ground the server before beginning any installation procedure. Improper grounding can cause electrostatic discharge.

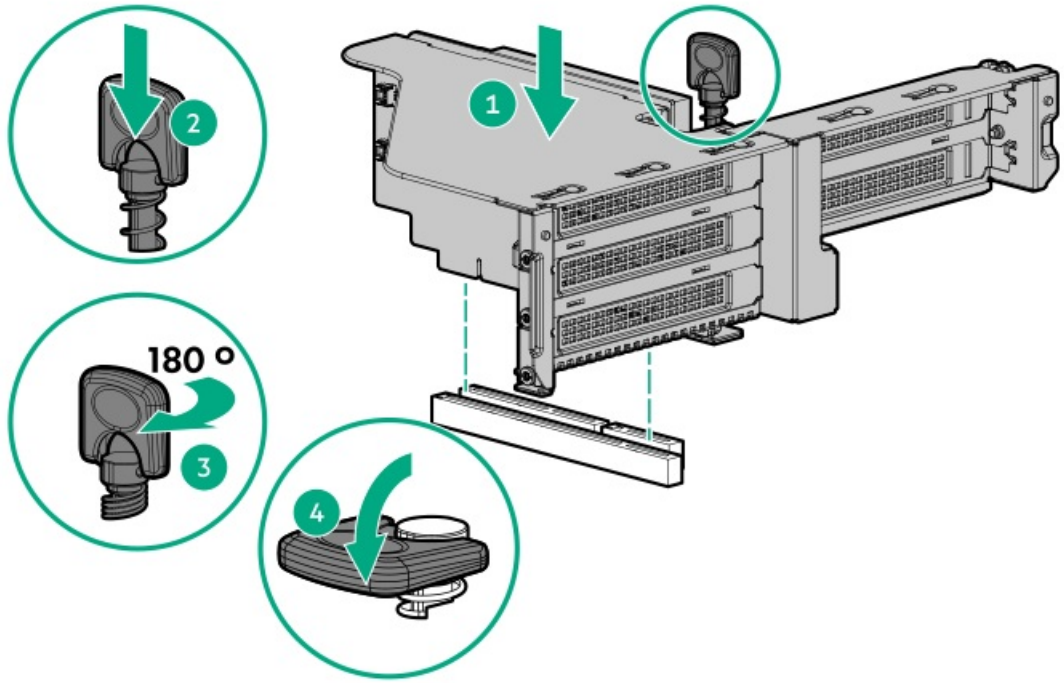
CAUTION: For proper cooling do not operate the server without the access panel, baffles, expansion slot covers, or blanks installed. If the server supports hot-plug components, minimize the amount of time the access panel is open.

Procedure

1. Power down the server.
2. Remove all power:
   a. Disconnect each power cord from the power source.
   b. Disconnect each power cord from the server.
3. Remove the server from the rack.
4. Place the server on a flat, level work surface.
5. Remove the access panel.
6. If there is a controller or expansion board to be installed in the riser cage, connect the cabling (Cabling).
7. Install the controller into the PCIe riser cage .
8. Install the tertiary bracket.



9. Install the PCIe riser cage.



10. Install the access panel.
11. Install the server into the rack.
12. Power up the server.

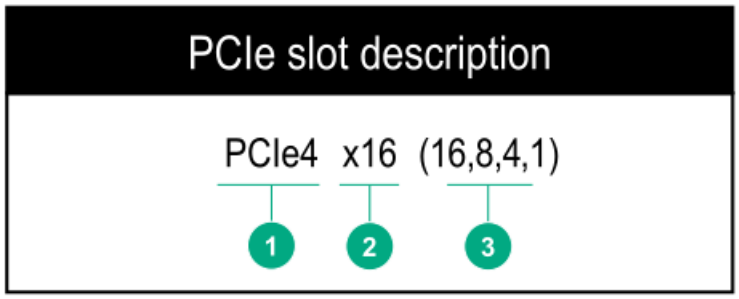
Expansion slots

Subtopics

Supported PCIe form factors
Installing an expansion board or type -p controller
Installing an OCP fan board

Supported PCIe form factors

Slot description example



Processor 1, riser card 1

PCIe slot and card length	Description
Slot 1 - Full height/Half length	PCIe4 x16 (16, 8, 4, 2, 1)
Slot 2 - Full height/Half length	PCIe4 x8 (8, 4, 2, 1)
Slot 3	N/A

PCIe slot and card length	Description
Slot 3 - Full height/Half length	PCIe4 x16 (16, 8, 4, 2, 1)

PCIe slot and card length	Description
Slot 4 - Full height/Half length	PCIe4 x16 (16, 8, 4, 2, 1)
Slot 5 - Full height/Half length	PCIe4 x8 (8, 4, 2, 1)

PCIe slot and card length	Description
Slot 6 - Full height/Half length	PCIe4 x16 (16, 8, 4, 2, 1)
Slot 7 - Full height/Half length	PCIe4 x8 (8, 4, 2, 1)
Slot 7	N/A when GPU is installed (Full height/Full length)

Installing an expansion board or type -p controller

About this task

WARNING: To reduce the risk of personal injury from hot surfaces, allow the drives, power supplies, and internal system components to cool before touching them.

WARNING: This server is heavy. To reduce the risk of personal injury or damage to the equipment:

- Observe local occupational health and safety requirements and guidelines for manual material handling.
- Get help to lift and stabilize the product during installation or removal, especially when the product is not fastened to the rails. Hewlett Packard Enterprise recommends that a minimum of two people are required for all rack server installations. A third person may be required to help align the server if the server is installed higher than chest level.
- Use caution when installing the server in or removing the server from the rack; it is unstable when not fastened to the rails.

CAUTION: To prevent damage to electrical components, take the appropriate anti-static precautions before beginning any installation, removal, or replacement procedure. Improper grounding can cause electrostatic discharge.

CAUTION:

For proper cooling, do not operate the server without the access panel, baffles, expansion slot covers, or blanks installed.

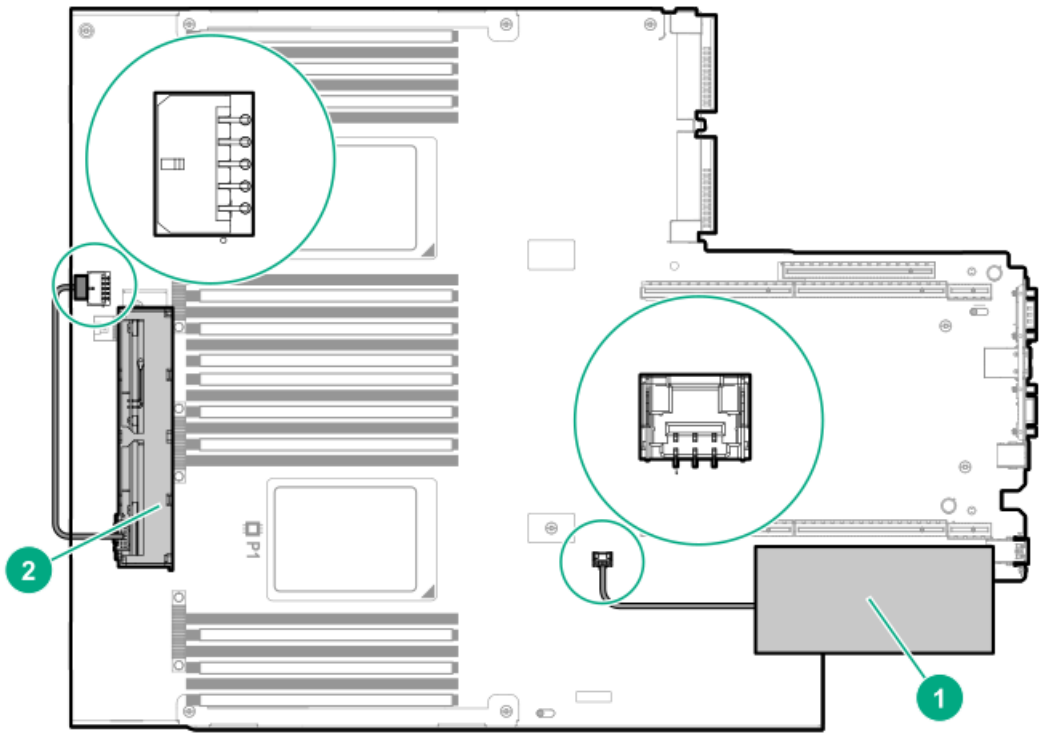
The steps shown apply to both installing an expansion board and installing a type -p controller.

Procedure

1. Power down the server.
2. Remove all power:
   a. Disconnect each power cord from the power source.
   b. Disconnect each power cord from the server.
3. Remove the server from the rack.
4. Place the server on a flat, level work surface.
5. Remove the access panel.
6. Remove the air baffle.
7. To install a low-profile, standup expansion board or type -p controller on the system board, do the following:
   a. If the option ships with a full-height bracket, remove that bracket and attach a low profile one. For more information, see the documentation that ships with the option.
   b. If installing an expansion board, verify that any switches or jumpers on the expansion board are set properly. For more information, see the documentation that ships with the option.
   c. Connect the cables to the expansion board or type -p controller (Cabling).
   d. If installing a type -p controller, connect the controller backup power cable to the system board (Cabling).

IMPORTANT:
To enable SmartCache or CacheCade in a P-class type-p Smart Array controller, you must:

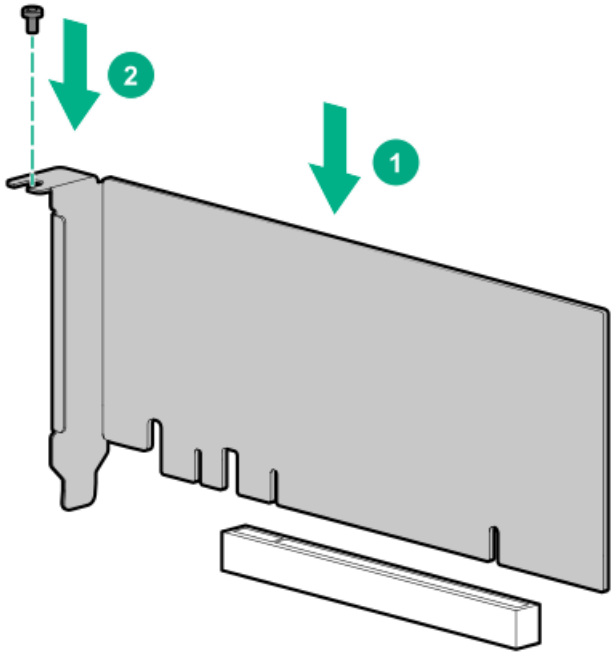
- Connect the controller backup power cable to the controller backup power connector on the system or riser board.
- Connect the energy pack cable to the energy pack connector on the system board.



Item	Description [1]
1	Type-p Smart Array controller connected to the controller backup power connector
2	Energy pack connected to the energy pack connector

[1] Your server might appear different.

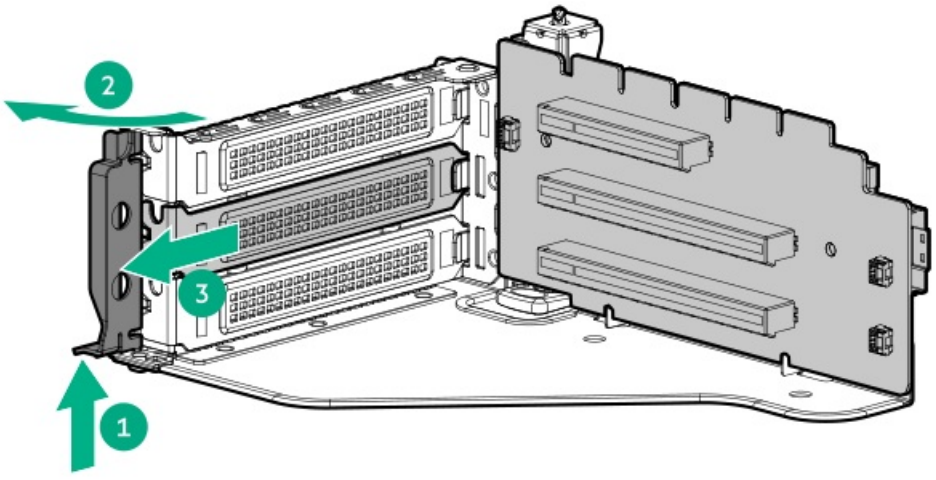
e. Install the expansion board or controller. Verify that it is firmly seated in the slot.



8. To install a full-height, half-length PCIe x16 expansion board, the two-slot PCIe riser cage option is required. To install an expansion board or type -p controller in this riser cage, do the following:

a. Remove the PCI riser cage.

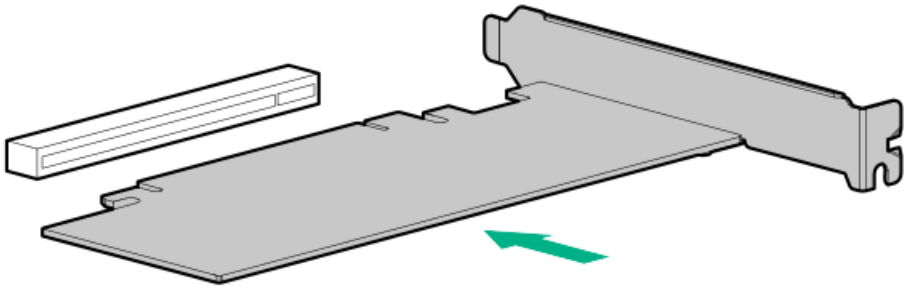
b. Remove the riser slot cover.



c. If installing an expansion board, verify that any switches or jumpers on the expansion board are set properly. For more information, see the documentation that ships with the option.

d. Connect the cables to the expansion board or type -p controller (Cabling).

e. Install the expansion board or controller. Verify that it is firmly seated in the slot.



f. Install the PCIe riser cage (Drive cage options).

9. Install any other options that connect to the expansion board or to the type -p controller.
10. Install the air baffle.
11. Install the access panel.
12. Install the server into the rack.
13. Power up the server.
14. To configure a controller, see HPE Smart Storage Administrator.

Subtopics

Moving the air baffle partition for full-length expansion boards

Moving the air baffle partition for full-length expansion boards

About this task

WARNING: To reduce the risk of personal injury from hot surfaces, allow the drives, power supplies, and internal system components to cool before touching them.

CAUTION: To prevent damage to electrical components, take the appropriate anti-static precautions before beginning any installation, removal, or replacement procedure. Improper grounding can cause electrostatic discharge.

CAUTION:

For proper cooling, do not operate the server without the access panel, baffles, expansion slot covers, or blanks installed.

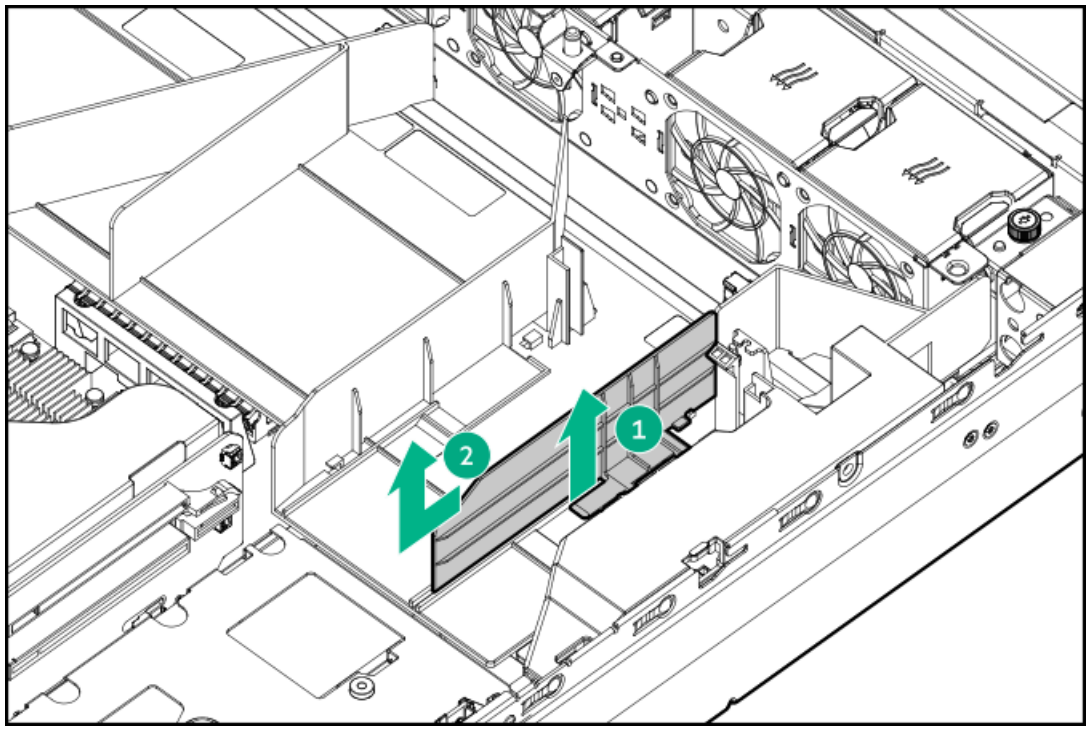
If you are installing a full-length PCIe expansion board, you must move the partition on the air baffle.

NOTE: If your system uses a high performance processor, your system contains a high performance air baffle and this procedure is not required.

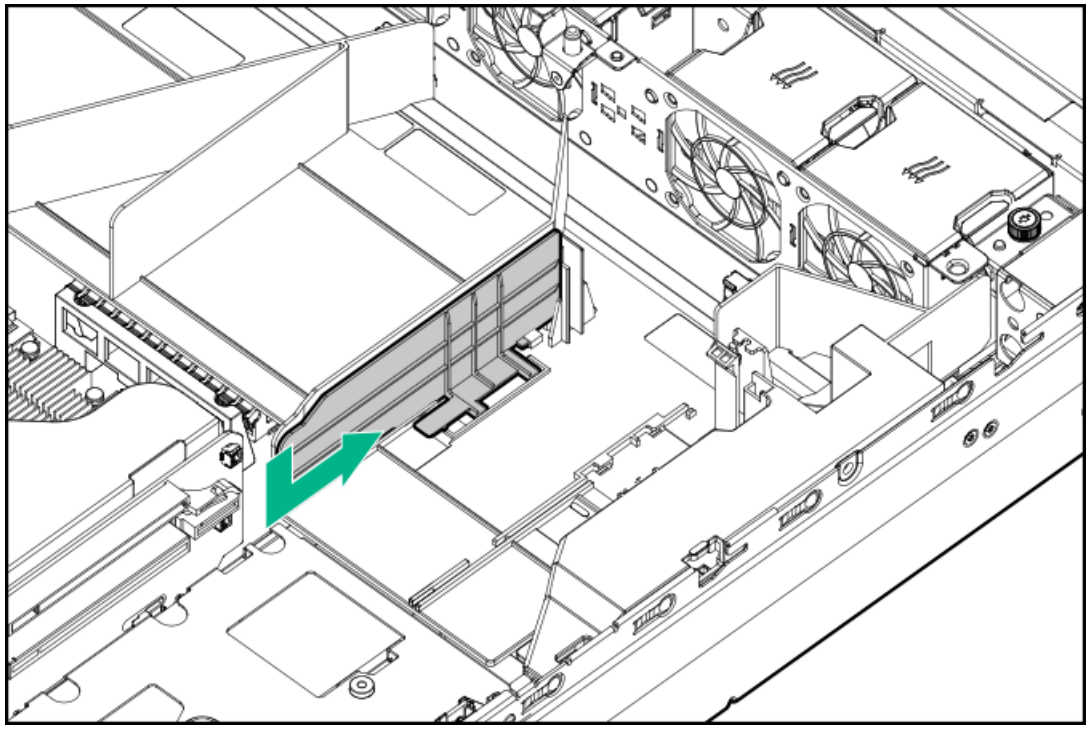
Procedure

1. Power down the server.
2. Remove all power:
   a. Disconnect each power cord from the power source.
   b. Disconnect each power cord from the server.

3. Remove the server from the rack.
4. Place the server on a flat, level work surface.
5. Remove the access panel.
6. Remove the air baffle partition.



7. Reinsert the air baffle partition.



Installing an OCP fan board

About this task

WARNING: To reduce the risk of personal injury from hot surfaces, allow the drives, power supplies, and internal system components to cool before touching them.

WARNING: This server is heavy. To reduce the risk of personal injury or damage to the equipment:

- Observe local occupational health and safety requirements and guidelines for manual material handling.
- Get help to lift and stabilize the product during installation or removal, especially when the product is not fastened to the rails. Hewlett Packard Enterprise recommends that a minimum of two people are required for all rack server installations. A third person may be required to help align the server if the server is installed higher than chest level.
- Use caution when installing the server in or removing the server from the rack; it is unstable when not fastened to the rails.

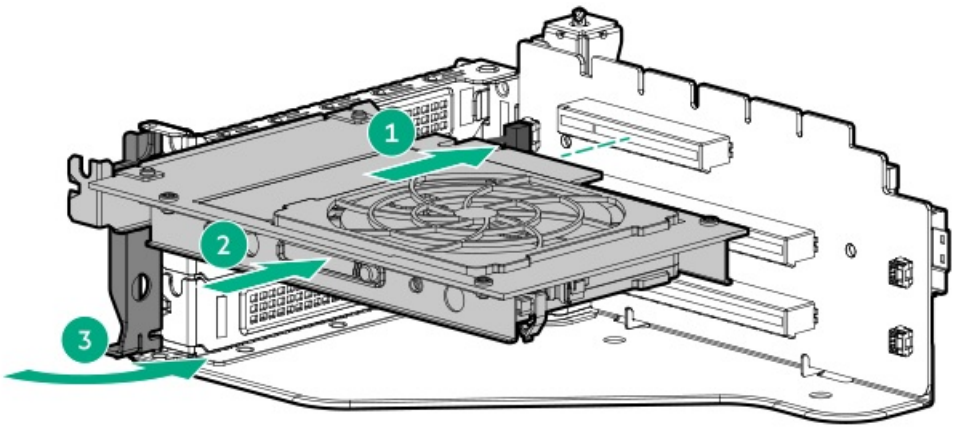
CAUTION: To prevent damage to electrical components, take the appropriate anti-static precautions before beginning any installation, removal, or replacement procedure. Improper grounding can cause electrostatic discharge.

CAUTION:

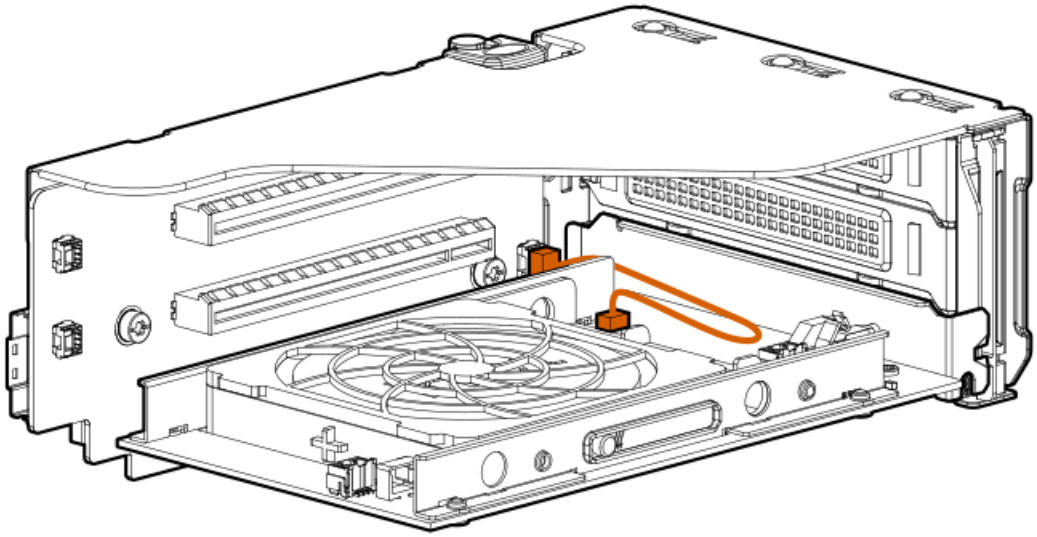
For proper cooling, do not operate the server without the access panel, baffles, expansion slot covers, or blanks installed.

Procedure

1. Power down the server.
2. Remove all power:
   a. Disconnect each power cord from the power source.
   b. Disconnect each power cord from the server.
3. Remove the server from the rack.
4. Place the server on a flat, level work surface.
5. Remove the access panel.
6. Remove the primary PCIe riser cage.
7. Remove the riser slot cover.
8. Install the OCP fan board. Verify that it is firmly seated in the slot.



9. Connect the power cable to the OCP fan board.



10. Install the PCIe riser cage (Drive cage options).
11. Install the air baffle.
12. Install the access panel.
13. Install the server into the rack.
14. Power up the server.

Storage controller options

This server supports the following controllers:

- Embedded controllers

  The embedded controller is enabled through UEFI System Utilities and configured using either System Utilities or the HPE Smart Storage Administrator (Intelligent Provisioning).

  For more information, see Set up the server.

- Type-a storage controllers

  Type-a storage controllers install in the type-a storage controller slot.

- Type-p storage controllers

  Type-p storage controllers install in a PCIe expansion slot.

For a complete list of supported storage controller models, see the server QuickSpecs on the Hewlett Packard Enterprise website (https://www.hpe.com/info/qs).

Subtopics

Installing a storage controller

Prerequisites

WARNING: To reduce the risk of personal injury from hot surfaces, allow the drives, power supplies, and internal system components to cool before touching them.

WARNING: To reduce the risk of personal injury, electric shock, or damage to the equipment, remove power from the server by removing the power cord. The front panel Power On/Standby button does not shut off system power. Portions of the power supply and some internal circuitry remain active until AC power is removed.

WARNING: This server is heavy. To reduce the risk of personal injury or damage to the equipment:

- Observe local occupational health and safety requirements and guidelines for manual material handling.
- Get help to lift and stabilize the product during installation or removal, especially when the product is not fastened to the rails. Hewlett Packard Enterprise recommends that a minimum of two people are required for all rack server installations. A third person may be required to help align the server if the server is installed higher than chest level.
- Use caution when installing the server in or removing the server from the rack; it is unstable when not fastened to the rails.

CAUTION: To prevent improper cooling or thermal damage, the server PCI slots must have an expansion slot blank or an expansion board installed.

CAUTION:
Hewlett Packard Enterprise recommends performing a backup of all server data before installing or removing a controller or adapter.

CAUTION: To prevent damage to electrical components, take the appropriate anti-static precautions before beginning any installation, removal, or replacement procedure. Improper grounding can cause electrostatic discharge.

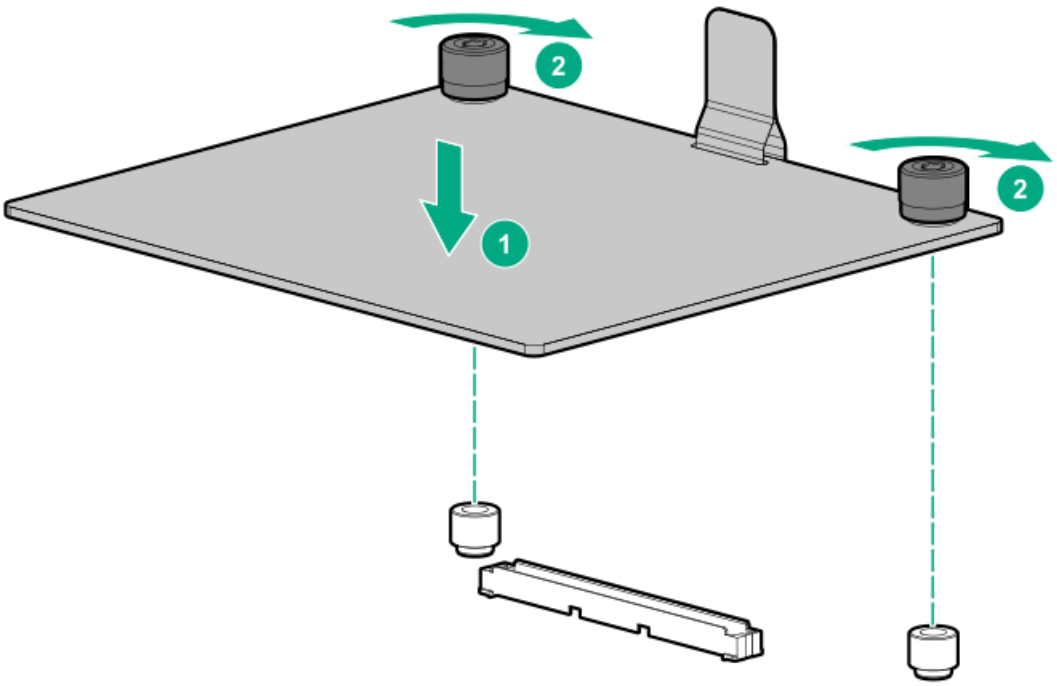
Before installing this option, be sure that you have the components included with the hardware option kit.

About this task

This section only covers the installation of a storage controller board option for the internal drive cage. The front drive cage is always connected to port 1 and port 2 of the onboard controller.

Procedure

1. Power down the server.
2. Remove all power:
   a. Disconnect each power cord from the power source.
   b. Disconnect each power cord from the server.
3. Remove the server from the rack.
4. Place the server on a flat, level work surface.
5. Remove the access panel.
6. Remove the air baffle.
7. Do one of the following:
   - For type-a storage controllers, install the controller into the storage controller connector on the system board.



   - For type-p storage controllers, install the controller into an expansion slot (Installing an expansion board or type -p controller).
8. Connect all necessary cables to the controller depending on your server configuration (Cabling).
9. Connect the controller backup power cable to the connector on the system or riser board.
10. Install the air baffle.
11. Install the access panel.
12. Install the server into the rack.
13. Power up the server.
14. Configure the new storage controller.

    For more information, see the user guide for your controller series on the Hewlett Packard Enterprise website

(http://www.hpe.com/info/smartstorage-docs).

Installing the HPE NS204i-p NVMe OS Boot Device option

Prerequisites

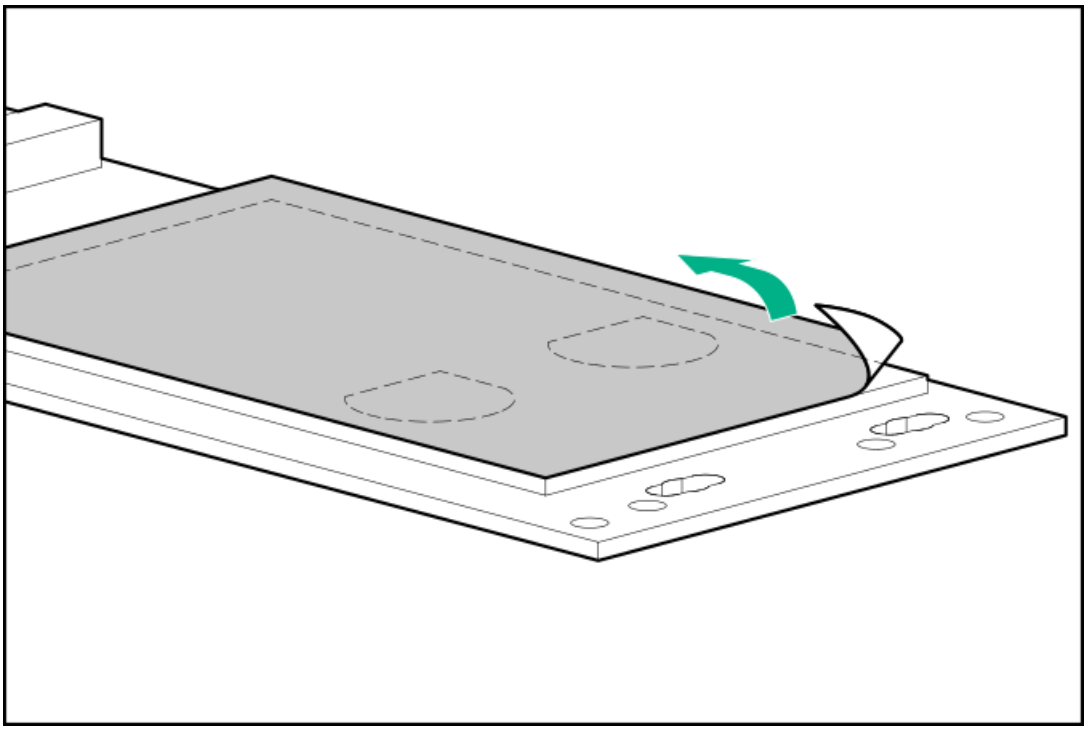
Before beginning installation, ensure that the server is updated with the latest operating system firmware and drivers.

About this task

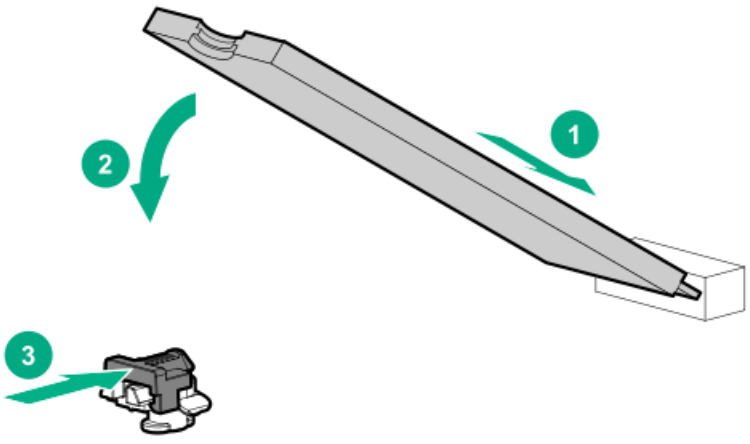
Procedure

Installing drives onto the boot device

1. Remove the liner from the thermal interface pad.



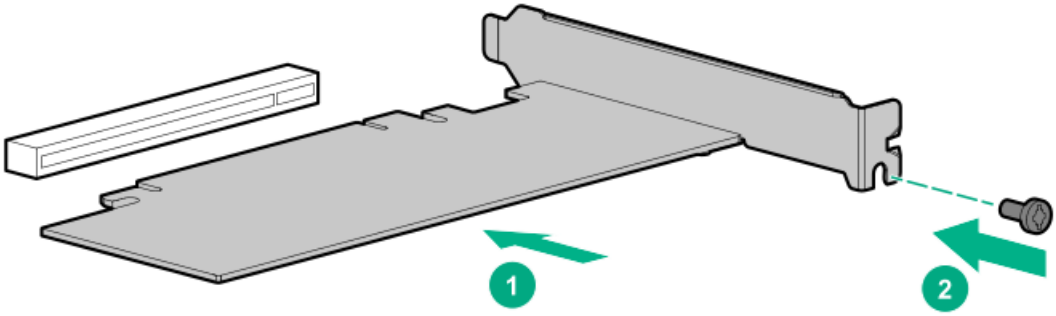
2. Install the drives.



Installing the boot device

3. Power down the server.
4. Remove all power:
   a. Disconnect each power cord from the power source.
   b. Disconnect each power cord from the server.
5. Remove the server from the rack.
6. Place the server on a flat, level work surface.
7. Remove the access panel.
8. Select an available PCIe expansion slot that is x8 physical size and x4 electrical.
9. Remove the expansion slot cover.

   Save the retaining screw, if one is present.
10. Install the boot device.



11. Install any components that were removed to access the expansion slot.
12. Install the access panel.
13. Do one of the following:
    - Slide the server into the rack.
    - Install the server into the rack.
14. Power up the server.

Deploying an operating system

15. Deploy a supported operating system to the boot device drive.

    For more information, see the product QuickSpecs (**https://www.hpe.com/info/qs**).

    After the OS installation completes, the system automatically copies the operating system to the second, mirrored drive on the boot device.
16. Proceed with normal system setup and operation.

Memory options

IMPORTANT: This server does not support mixing LRDIMMs and RDIMMs. Attempting to mix any combination of these DIMMs can cause the server to halt during BIOS initialization. All memory installed in the server must be of the same type.

Subtopics

DIMM population information

For specific DIMM population information, see the DIMM population guidelines on the Hewlett Packard Enterprise website (https://www.hpe.com/docs/intel-population-rules-Gen10plus).

DIMM-processor compatibility

The installed processor determines the type of DIMM that is supported in the server:

- First-generation Intel Xeon Scalable processors support DDR4-2666 DIMMs.
- Second-generation Intel Xeon Scalable processors support DDR4-2933 DIMMs.

Mixing DIMM types is not supported. Install only the supported DDR4-2666 or DDR4-2933 DIMMs in the server.

HPE SmartMemory speed information

For more information about memory speed information, see the Hewlett Packard Enterprise website (https://www.hpe.com/docs/memory-speed-table).

Installing a DIMM

About this task

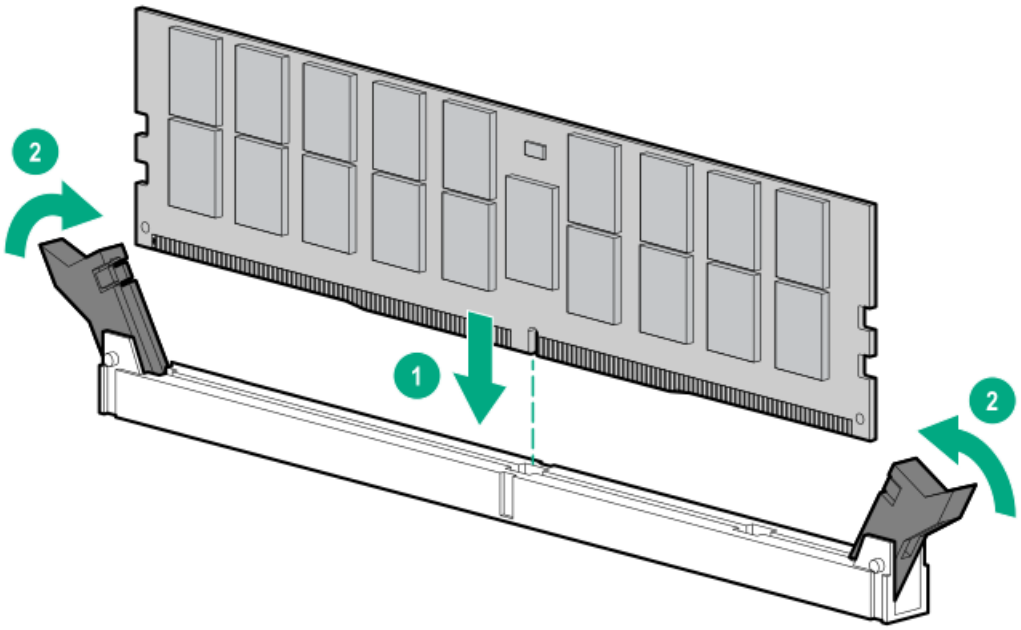
WARNING: To reduce the risk of personal injury from hot surfaces, allow the drives, power supplies, and internal system components to cool before touching them.

CAUTION: To prevent damage to electrical components, take the appropriate anti-static precautions before beginning any installation, removal, or replacement procedure. Improper grounding can cause electrostatic discharge.

Procedure

1. Power down the server.
2. Remove all power:
   a. Disconnect each power cord from the power source.
   b. Disconnect each power cord from the server.
3. Remove the server from the rack.

4. Place the server on a flat, level work surface.
5. Remove the access panel.
6. Do one of the following:
   a. Remove the air baffle.
   b. Remove drive cage 3 .
7. Open the DIMM slot latches.
8. Install the DIMM.



9. Do one of the following:
   a. Install the air baffle.
   b. Install drive cage 3.
10. Install the access panel.
11. Install the server into the rack.
12. Power up the server.

Results

After installing the DIMMs, use BIOS/Platform Configuration (RBSU) in the UEFI System Utilities to configure the memory protection mode.

Installing an OCP NIC 3.0 adapter

Prerequisites

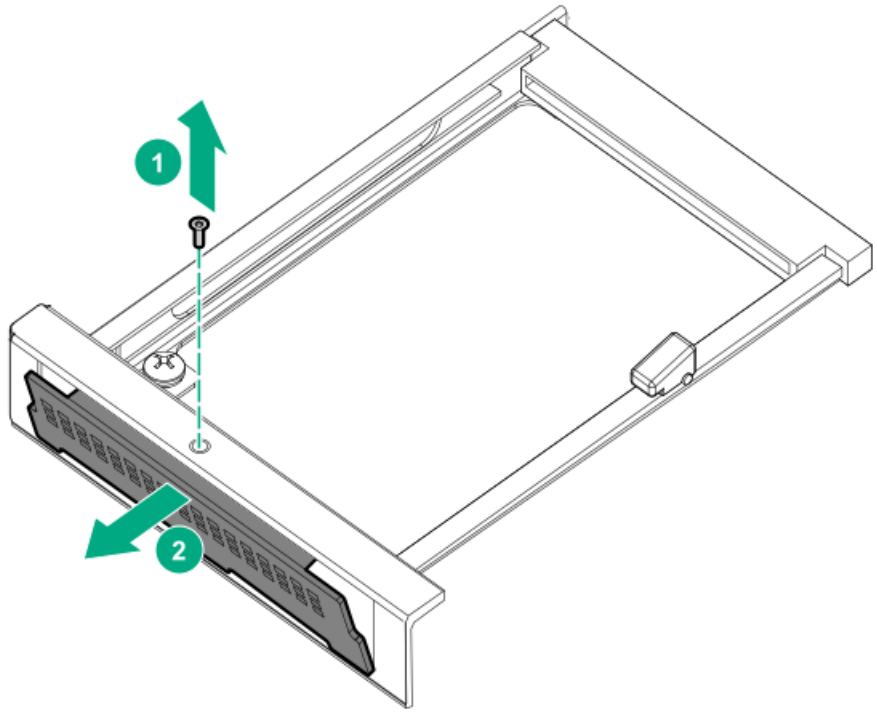
Before you begin this procedure, make sure that the following items are available:

- Components included with the hardware option kit
- T-10 screwdriver

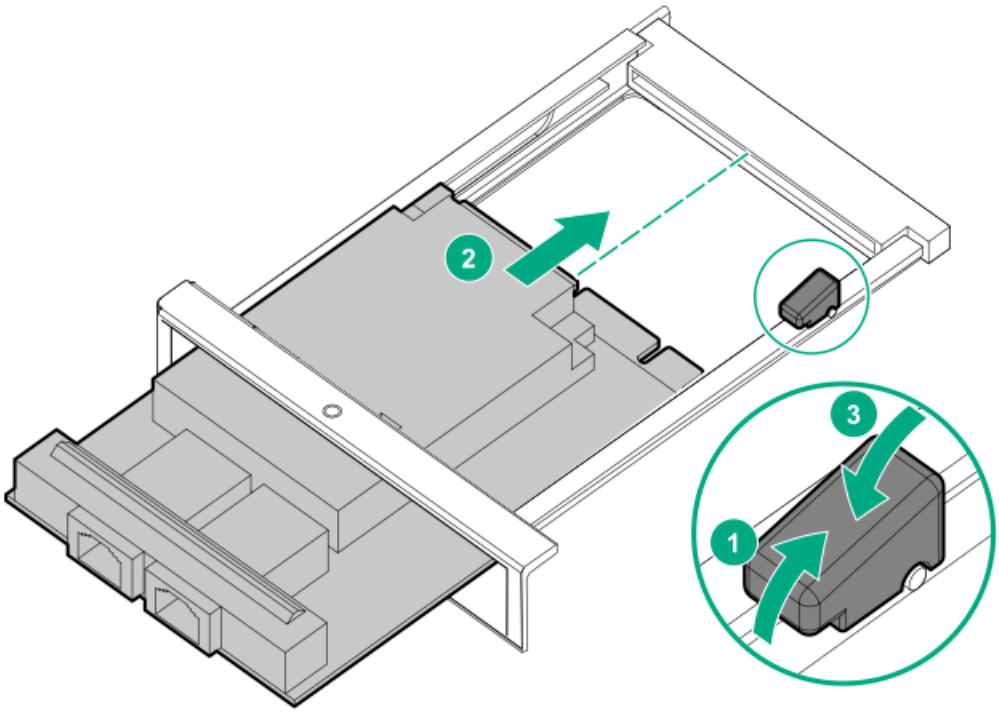
WARNING: To reduce the risk of personal injury from hot surfaces, allow the drives, power supplies, and internal system components to cool before touching them.

Procedure

1. Power down the server.
2. Remove all power:
   a. Disconnect each power cord from the power source.
   b. Disconnect each power cord from the server.
3. Remove the server from the rack.
4. Remove the access panel.
5. Remove the rear wall blank or riser.
6. Remove the OCP NIC 3.0 adapter blank.



7. Some servers provide a locking latch. Lift the locking latch, and then slide the OCP NIC 3.0 adapter through the rear of the chassis. Align and install the OCP NIC 3.0 adapter into the slot. Press firmly to fully seat the adapter into the connector. Rotate the latch to lock the adapter in place.



8. Connect the power and data cable.
9. Install the access panel.
10. Slide the server into the rack.
11. Connect each power cord to the server.
12. Connect each power cord to the power source.
13. Power up the server.

Internal USB device option

The server has one internal USB 3.0 port. You can use this port to install USB devices that are intended to be rarely removed, such as a USB dongle for Bluetooth or Wi-Fi support.

This server also supports the installation of the Dual 8Gb microSD Enterprise Midline USB device on the server internal USB connector. This USB storage device contains a dual-microSD card module that supports up to two SD, SDHC, or SDXC storage cards providing data redundancy through a mirrored RAID-1 configuration. This USB storage device connects to an internal USB connector and is configured upon boot.

To locate the internal and USB connector, see System board components. For more information, see the Dual 8Gb microSD EM USB storage device documentation on the Hewlett Packard Enterprise website (**http://www.hpe.com/info/enterprise-docs**).

Power supply option

WARNING:
To reduce the risk of electric shock or damage to the equipment:

- Do not disable the power cord grounding plug. The grounding plug is an important safety feature.
- Plug the power cord into a grounded (earthed) electrical outlet that is easily accessible at all times.
- Unplug the power cord from the power supply to disconnect power to the equipment.
- Do not route the power cord where it can be walked on or pinched by items placed against it. Pay particular attention to the plug, electrical outlet, and the point where the cord extends from the server.

WARNING:
To reduce the risk of injury from electric shock hazards, do not open power supplies. Refer all maintenance, upgrades, and servicing to qualified personnel.

WARNING: To reduce the risk of personal injury from hot surfaces, allow the drives and the internal system components to cool before touching them.

CAUTION: To prevent damage to electrical components, take the appropriate anti-static precautions before beginning any installation, removal, or replacement procedure. Improper grounding can cause electrostatic discharge.

CAUTION:
To maintain proper airflow and cooling in the power enclosure, always install a power supply blank into each bay. Improper airflow can lead to thermal damage.

IMPORTANT:
Mixing different types of power supplies in the same server might limit or disable some power supply features including support for power redundancy. To ensure access to all available features, all power supplies in the same server must have the same output and efficiency ratings.

Subtopics

Installing a hot-plug AC power supply

About this task

WARNING:
To reduce the risk of personal injury, fire, or damage to the equipment, do not overload the AC supply branch circuit that provides power to the rack. Consult the electrical authority having jurisdiction over wiring and installation requirements of your facility.

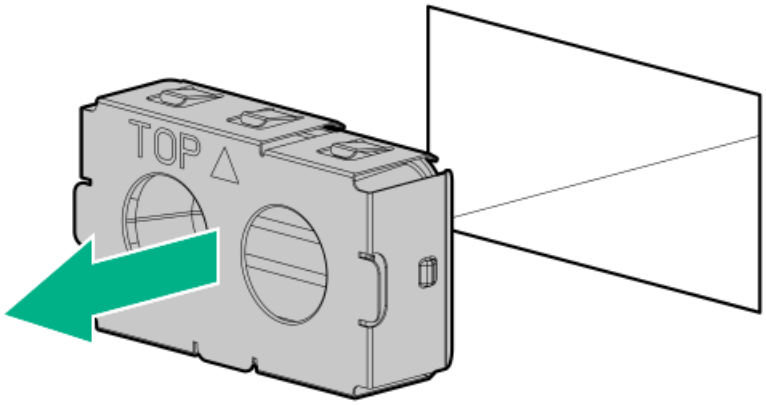
WARNING: To reduce the risk of personal injury from hot surfaces, allow the drives, power supplies, and internal system components to cool before touching them.

CAUTION:

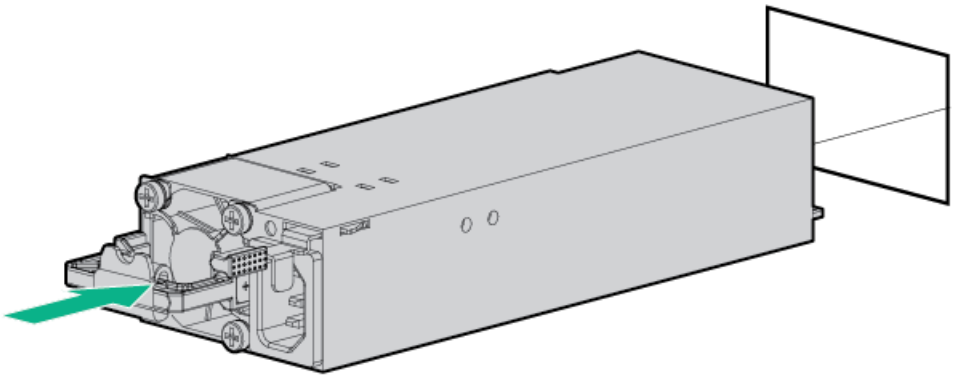
To prevent improper cooling and thermal damage, do not operate the chassis unless all device bays are populated with either a component or a blank.

Procedure

1. Remove the power supply blank.



2. Slide the power supply into the bay until it clicks into place.

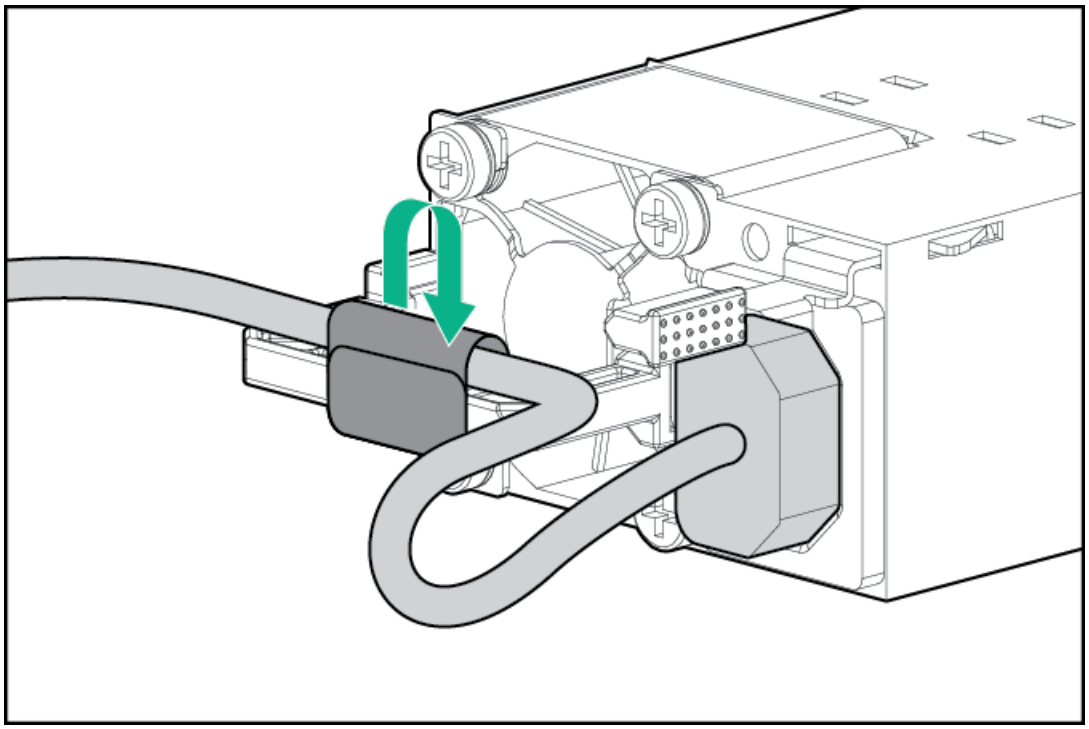


3. Connect the power cord to the power supply.
4. Secure the power cord in the strain relief strap attached to the power supply handle:
   a. Unwrap the strain relief strap from the power supply handle.

CAUTION:

Avoid tight bend radii to prevent damaging the internal wires of a power cord or a server cable. Never bend power cords and server cables tight enough to cause a crease in the sheathing.

   b. Secure the power cord with the strain relief strap. Roll the extra length of the strap around the power supply handle.



5. Connect the power cord to the power source.
6. Be sure that the power supply LED is green.

Installing the HPE 800 W Flex Slot -48 VDC hot-plug power supply

Prerequisites

Before you install this option, make sure that you have the following items available:

- No. 1 Phillips screwdriver
- Optional Q0H80A HPE 800W DC Power Cable Kit can be purchased from an HPE authorized reseller.
- If you are not using an input power cord option, the power supply cabling must be made in consultation with a licensed electrician and be compliant with local code.
- If you are replacing the factory installed ground lug, use the KST RNB5-5 crimp terminal ring or equivalent. Use an M5-0.80 x 8 screw to attach the ground lug to the power supply.

About this task

The DC power supply option kits do not ship with a Power Supply DC cable Kit and may not include a Power Supply Cable Lug kit. The optional DC Cable kit or the optional DC Cable Lug Kit may be purchased directly from Hewlett Packard Enterprise or an authorized HPE reseller. For additional information, refer to the power supply QuickSpecs at **https://www.hpe.com/info/fsps-qs**.

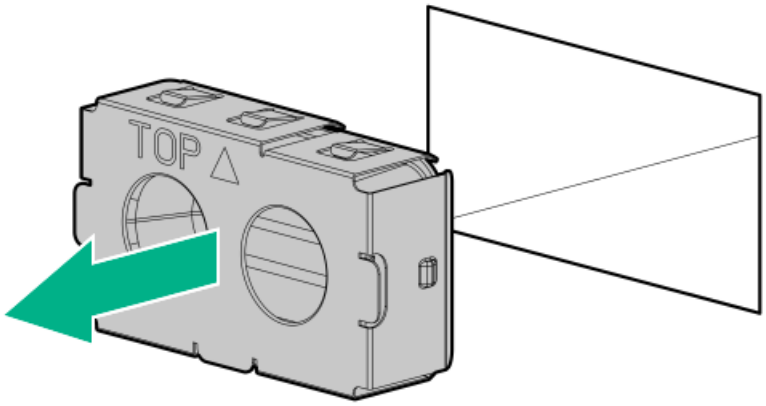
WARNING:

To reduce the risk of electric shock, fire, and damage to the equipment, you must install this product in accordance with the following guidelines:

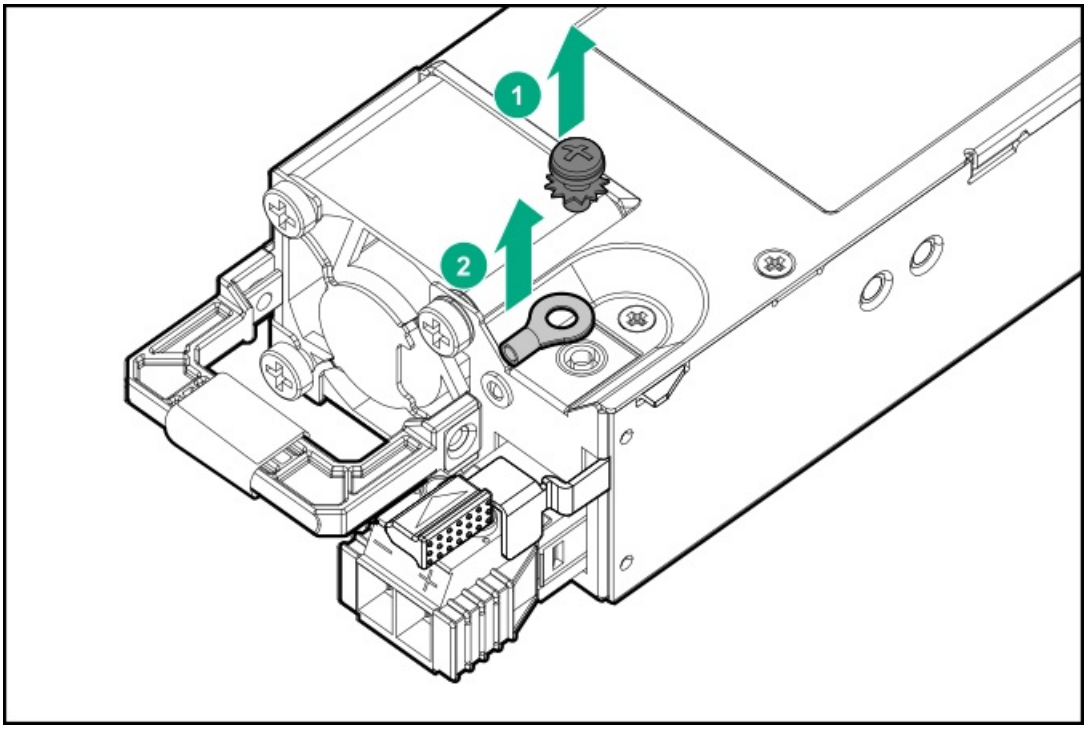
- The HPE 800 W Flex Slot -48 VDC hot-plug power supply is intended only for installation in Hewlett Packard Enterprise servers located in a restricted access location.
- The HPE 800 W Flex Slot -48 VDC hot-plug power supply is not intended for direct connection to the DC supply branch circuit. Only connect this power supply to a power distribution unit (PDU) that provides an independent overcurrent-protected output for each DC power supply. Each output overcurrent-protected device in the PDU must be suitable for interrupting fault current available from the DC power source and must be rated no more than 30 A.
- The PDU output must have a shut-off switch or a circuit breaker to disconnect power for each power supply. To completely remove power from the power supply, disconnect power at the PDU. Disconnect the power for each power supply, if there are multiple power supplies.
- In accordance with applicable national requirements for Information Technology Equipment and Telecommunications Equipment, this power supply only connects to DC power sources that are classified as SELV or TNV. Generally, these requirements are based on the International Standard for Information Technology Equipment, IEC 60950-1/IEC 62368-1. In accordance with local and regional electric codes and regulations, the DC source must have one pole (Neutral/Return) reliably connected to earth ground.
- You must connect the power supply ground screw located on the front of the power supply to a suitable ground (earth) terminal. In accordance with local and regional electric codes and regulations, this terminal must be connected to a suitable building ground (earth) terminal. Do not rely on the rack or cabinet chassis to provide adequate ground (earth) continuity.

Procedure

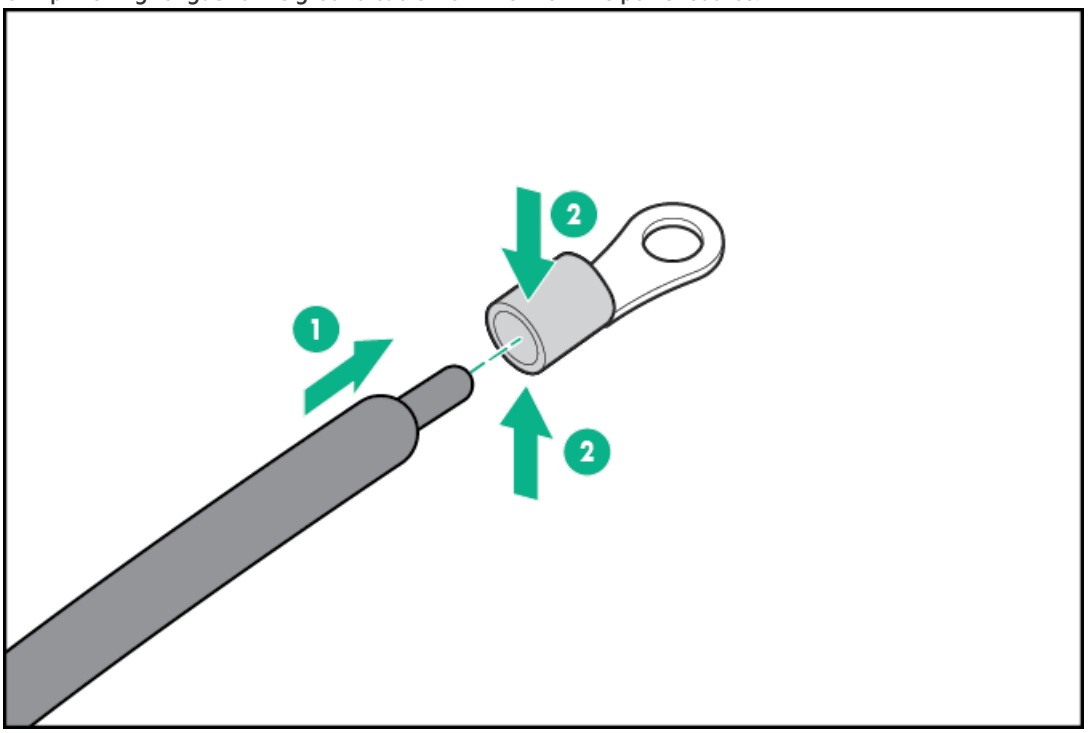
1. Remove the power supply blank.



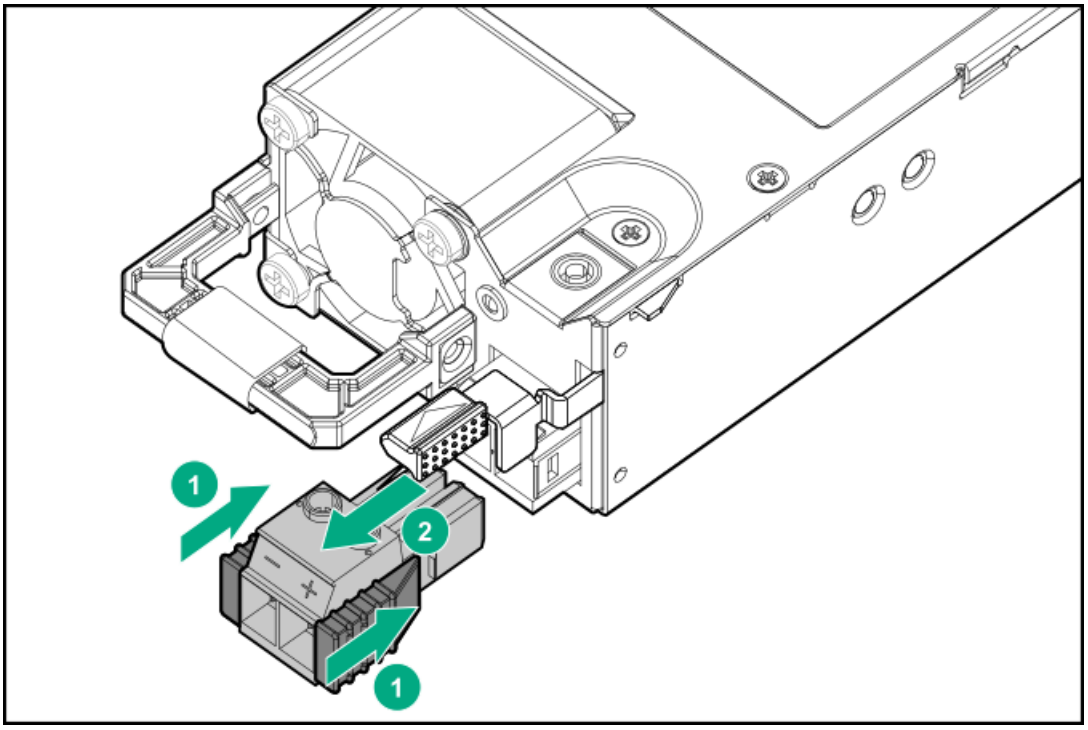
2. Remove the ring tongue.



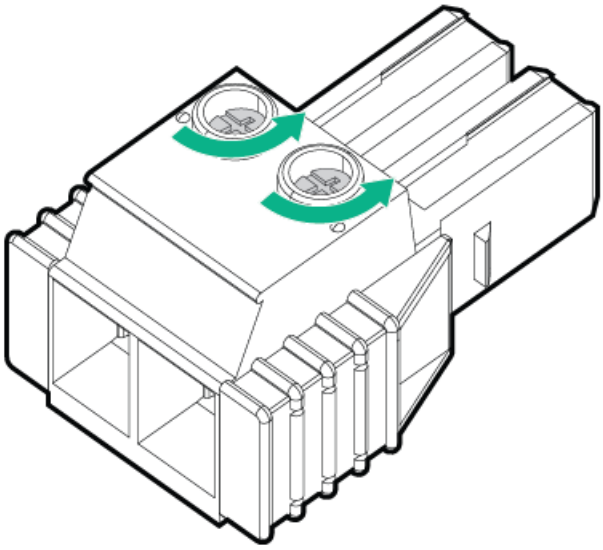
3. Crimp the ring tongue to the ground cable from the -48 V DC power source.



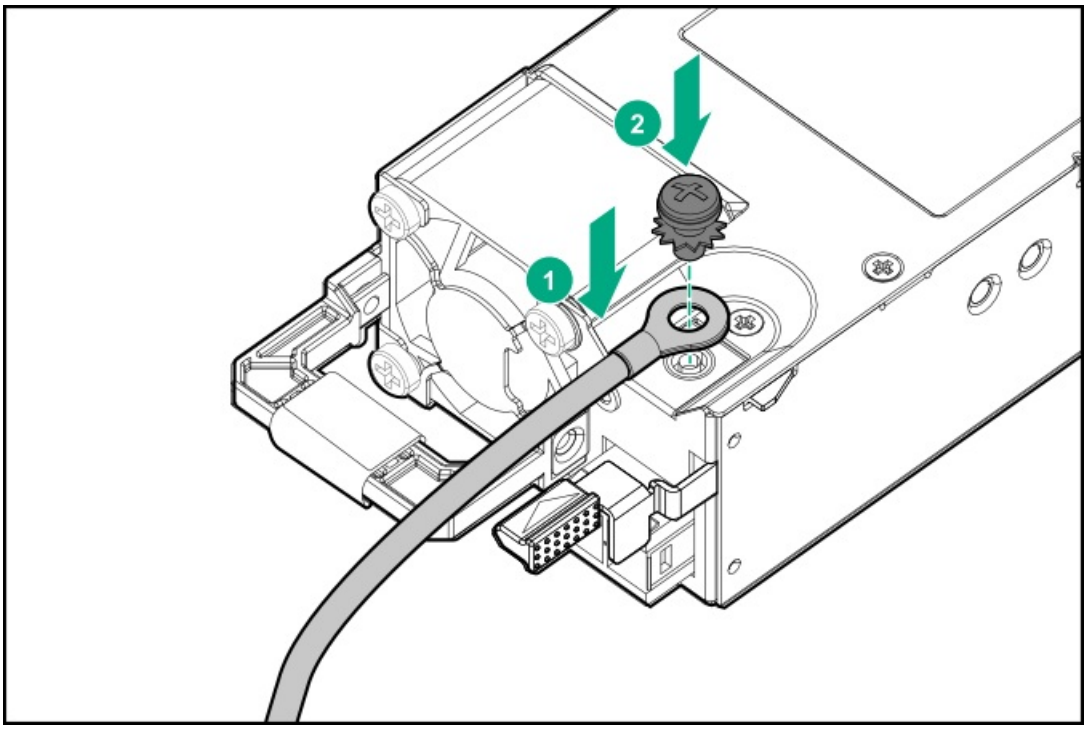
4. Remove the terminal block connector.



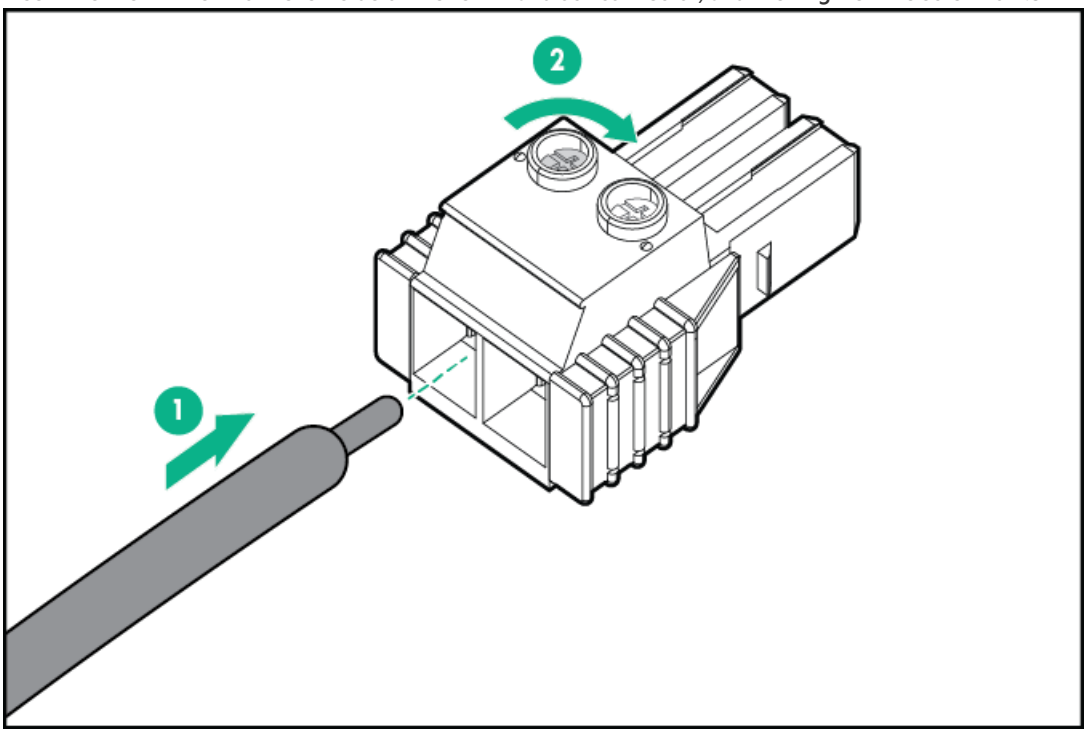
5. Loosen the screws on the terminal block connector.



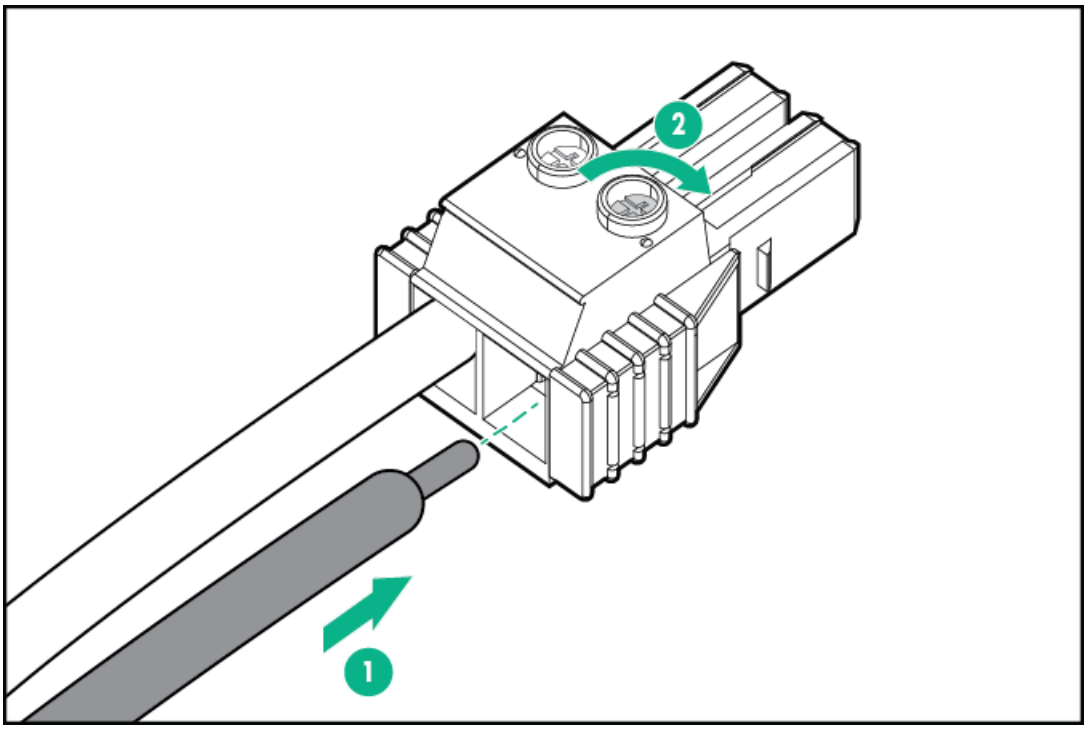
6. Attach the ground (earthed) wire to the ground screw and washer and tighten to 1.47 N m (13 lb-in) of torque. The ground wire must be connected before the -48 V wire and the return wire.



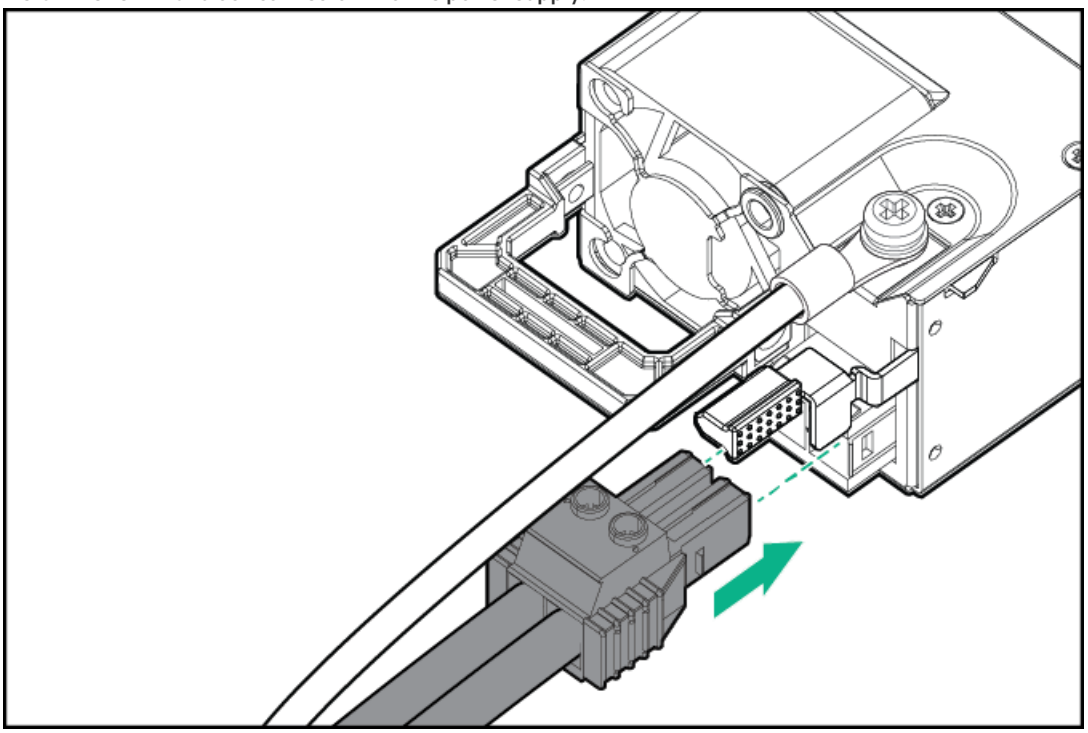
7. Insert the -48 V wire into the left side of the terminal block connector, and then tighten the screw to 1.3 N m (10 lb-in) of torque.



8. Insert the return wire into the right side of the connector, and then tighten the screw to 1.3 N m (10 lb-in) of torque.



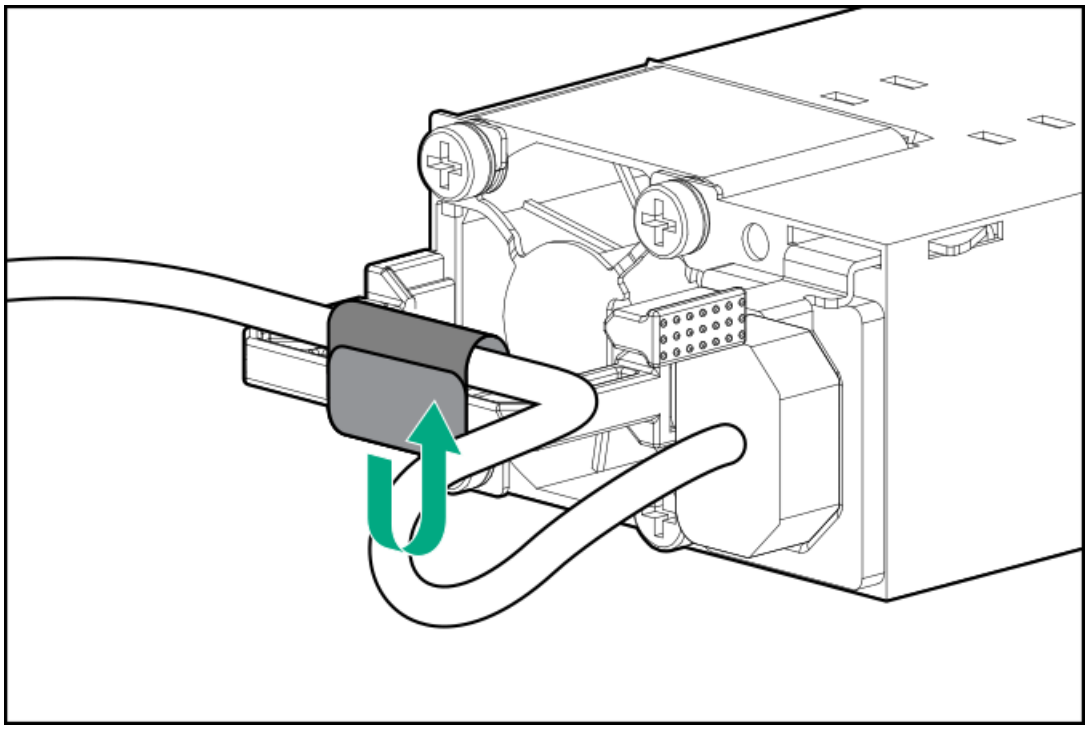
9. Install the terminal block connector into the power supply.



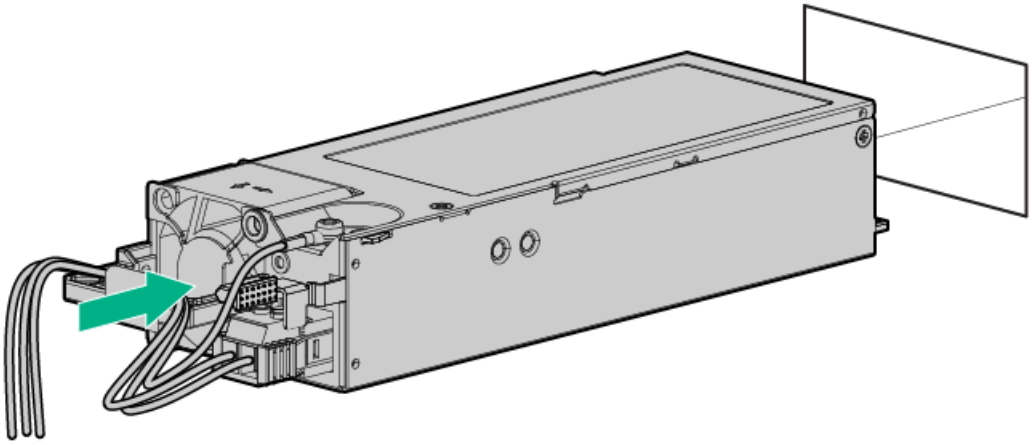
10. Secure the power cord, wires, and/or cables in the strain relief strap attached to the power supply handle:
    a. Unwrap the strain relief strap from the power supply handle.

> **CAUTION:** Avoid tight bend radii to prevent damaging the internal wires of a power cord or a server cable. Never bend power cords and server cables tight enough to cause a crease in the sheathing.

    b. Secure the power cord, wires, and cables with the strain relief strap. Roll the extra length of the strap around the power supply handle.



11. Slide the power supply into the bay until it clicks into place.



12. Make sure the -48 V DC power source is off or the PDU breaker is in the off position, and then connect the power cord to the -48 V DC power source or PDU.
13. To supply -48 V to the power supply, turn on the -48 V power source or switch the PDU breaker to the on position.
14. Be sure that the power supply LED is green.

Installing the HPE 1600 W Flex Slot -48 VDC hot-plug power supply

Prerequisites

Before you install this option, make sure that you have the following items available:

- No. 1 Phillips screwdriver
- If you are not using an input power cord option, the power supply cabling must be made in consultation with a licensed electrician and be compliant with local code.
- Optional P36877-B21 HPE lug kit can be purchased from an HPE authorized reseller for use with customer-supplied power cables. (The

power cable and lug kit listed below can only be used with the 1600 W -48 VDC power supply.)

- If you are using an input power cord option, the P22173-B21 HPE 1600 W DC PSU power cable kit can be purchased from an authorized HPE reseller. (The power cable and lug kit listed below can only be used with the 1600 W -48 VDC power supply.)

1600 W -48VDC power cable color codes

Cable color	Description
Black	Positive return
Red	Negative input voltage
Green/yellow	Safety ground

About this task

The DC power supply option kits do not ship with a Power Supply DC cable Kit and may not include a Power Supply Cable Lug kit. The optional DC Cable kit or the optional DC Cable Lug Kit may be purchased directly from Hewlett Packard Enterprise or an authorized HPE reseller. For additional information, refer to the power supply QuickSpecs at **https://www.hpe.com/info/fsps-qs**.

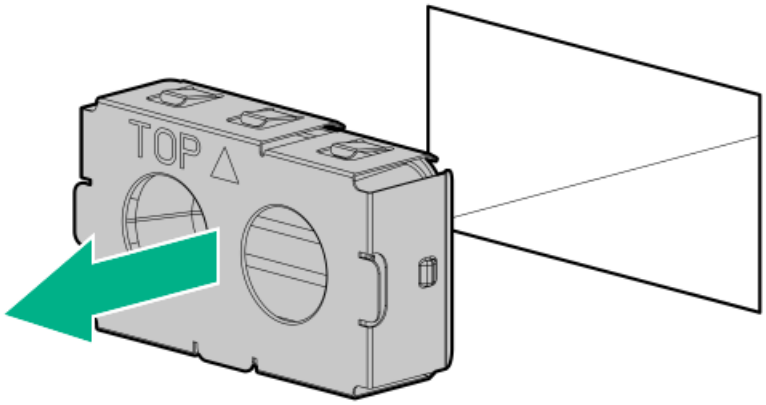
WARNING:

To reduce the risk of electric shock, fire, and damage to the equipment, you must install this product in accordance with the following guidelines:

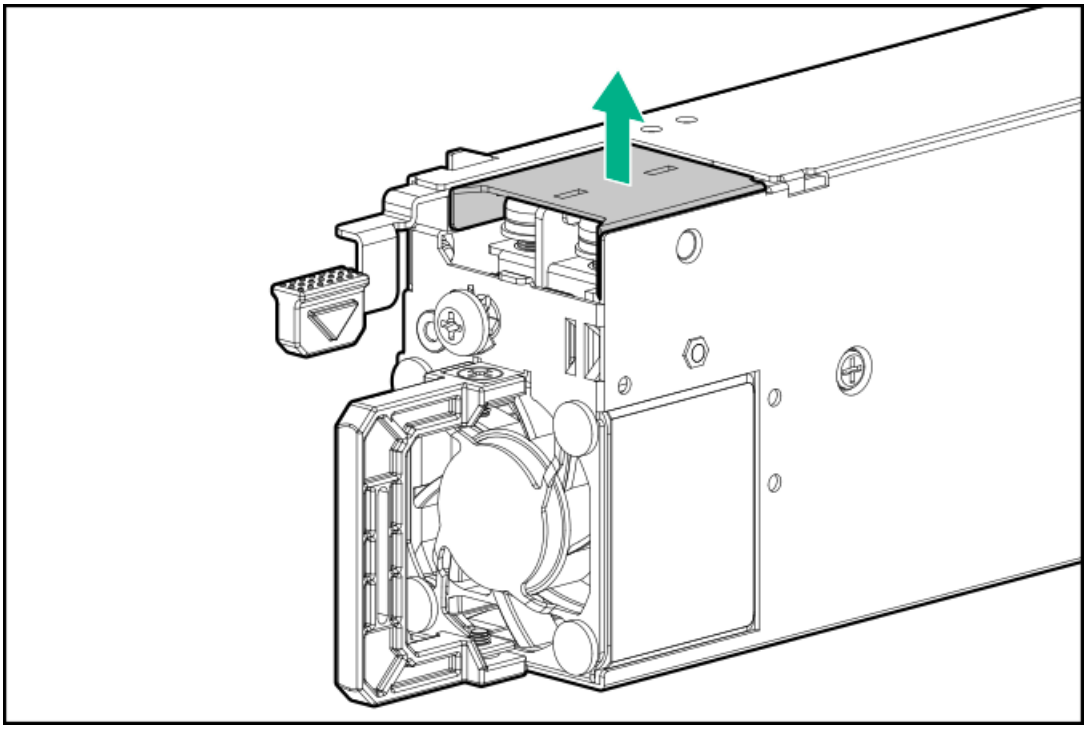
- **The HPE 1600 W Flex Slot -48 VDC hot-plug power supply is intended only for installation in Hewlett Packard Enterprise servers located in a restricted access location.**
- **The HPE 1600 W Flex Slot -48 VDC hot-plug power supply is not intended for direct connection to the DC supply branch circuit. Only connect this power supply to a power distribution unit (PDU) that provides an independent overcurrent-protected output for each DC power supply. Each output overcurrent-protected device in the PDU must be suitable for interrupting fault current available from the DC power source and must be rated no more than 45 A.**
- **The PDU output must have a shut-off switch or a circuit breaker to disconnect power for each power supply. To completely remove power from the power supply, disconnect power at the PDU. The end product may have multiple power supplies. To remove all power from the product, disconnect the power for each power supply.**
- **In accordance with applicable national requirements for Information Technology Equipment and Telecommunications Equipment, this power supply only connects to DC power sources that are classified as SELV or TNV. Generally, these requirements are based on the International Standard for Information Technology Equipment, IEC 60950-1/IEC 62368-1. In accordance with local and regional electric codes and regulations, the DC source must have one pole (Neutral/Return) reliably connected to earth ground.**
- **You must connect the power supply ground screw located on the front of the power supply to a suitable ground (earth) terminal. In accordance with local and regional electric codes and regulations, this terminal must be connected to a suitable building ground (earth) terminal. Do not rely on the rack or cabinet chassis to provide adequate ground (earth) continuity.**

Procedure

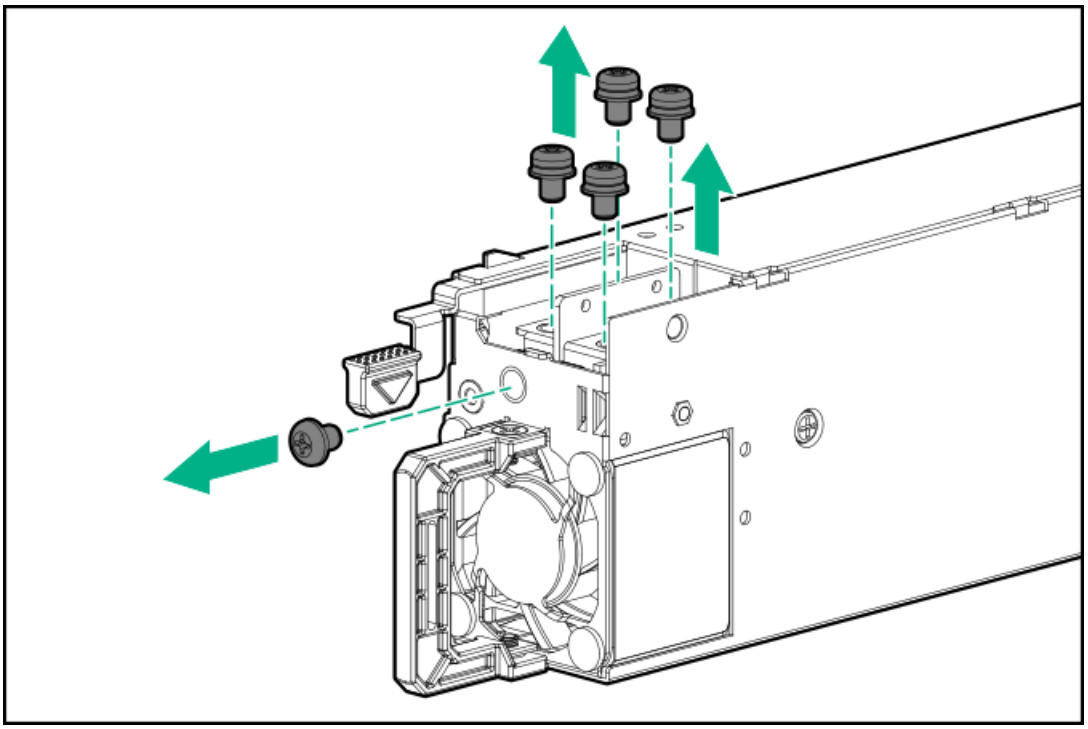
1. If necessary, remove the power supply blank.



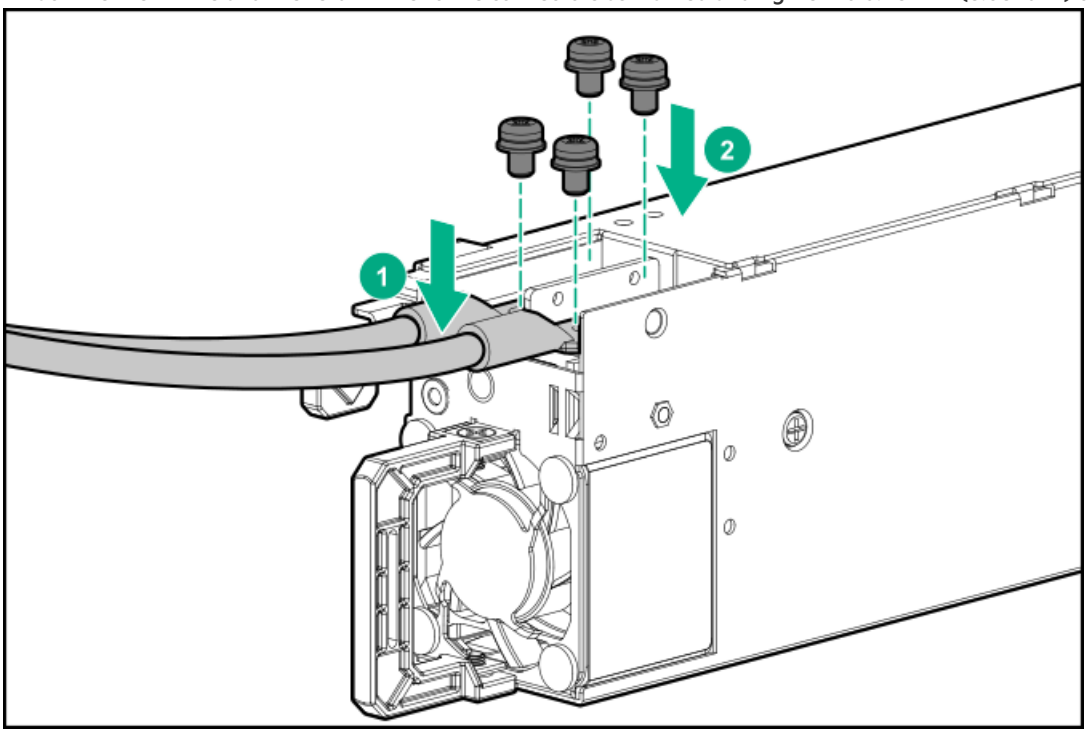
2. Remove the clear plastic cover on the side of the power supply.



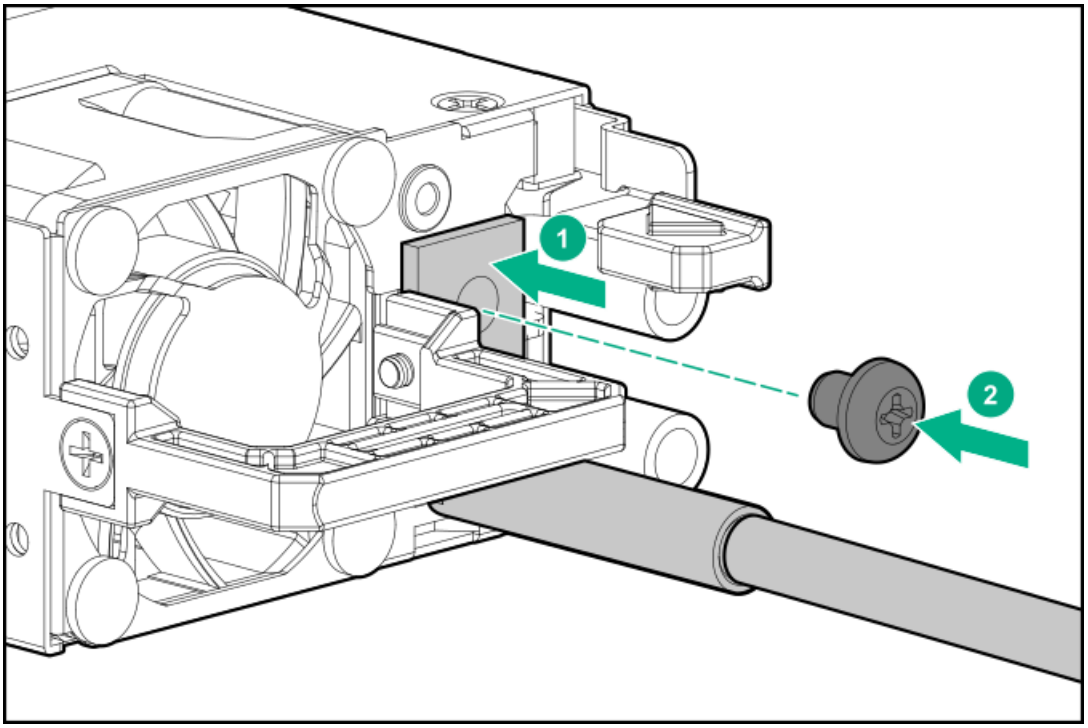
3. Do the following:
   a. Remove the grounding screw from the front of the power supply.
   b. Remove the four screws from the -48 V wire and return wire connectors.



4. Attach the -48 V wire and the return wire to the connectors as marked and tighten to 0.98 N m (8.68 lb-in) of torque.



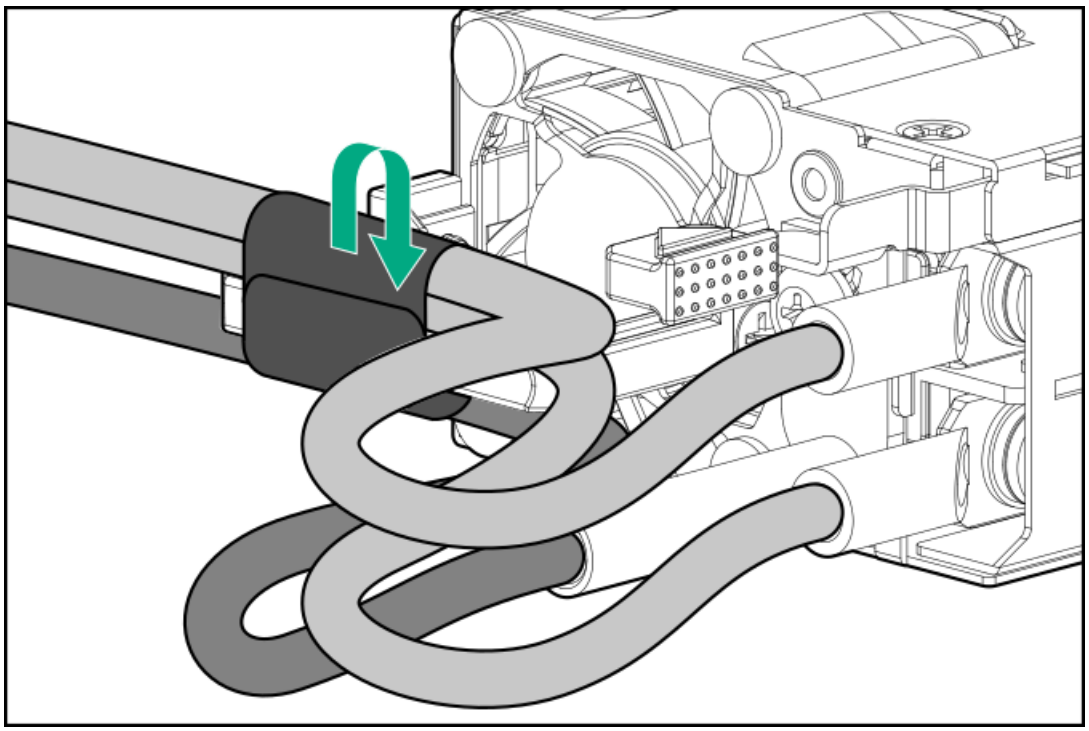
5. Attach the ground (earthed) wire to the ground screw and tighten to 1.47 N m (13 lb-in) of torque.



6. Replace the clear plastic cover on the -48 V and return connectors.
7. Secure the power cord, wires, and/or cables in the strain relief strap attached to the power supply handle:
   a. Unwrap the strain relief strap from the power supply handle.

> **CAUTION:** Avoid tight bend radii to prevent damaging the internal wires of a power cord or a server cable. Never bend power cords and server cables tight enough to cause a crease in the sheathing.

   b. Secure the wires and cables with the strain relief strap. Roll the extra length of the strap around the power supply handle.



8. Slide the power supply into the bay until it clicks into place.

9. Make sure the -48 VDC power source is off or the PDU breaker is in the off position.
10. Connect the power cord to the -48 VDC power source or PDU.
11. Turn on the -48 V power source or switch the PDU breaker to the on position to supply -48 V to the power supply.
12. Make sure that the power supply LED is green.

Subtopics

Connecting a DC power cable to a DC power source

Connecting a DC power cable to a DC power source

About this task

WARNING:

To reduce the risk of electric shock or energy hazards:

- This equipment must be installed by trained service personnel, as defined by the NEC and IEC 60950-1/IEC 62368-1, the standard for Safety of Information Technology Equipment.
- Connect the equipment to a reliably grounded secondary circuit source. A secondary circuit has no direct connection to a primary circuit and derives its power from a transformer, converter, or equivalent isolation device.
- The overcurrent protection for the DC source must not exceed 45 A.

WARNING:

When installing a DC power supply, the ground wire must be connected before the positive or negative leads.

WARNING:

Remove power from the power supply before performing any installation steps or maintenance on the power supply.

CAUTION:

The server equipment connects the earthed conductor of the DC supply circuit to the earthing conductor at the equipment. For more information, see the documentation that ships with the power supply.

CAUTION:

If a DC connection exists between the earthed conductor of the DC supply circuit and the earthing conductor at the server equipment, the following conditions must be met:

- This equipment must be connected directly to the DC supply system earthing electrode conductor or to a bonding jumper from an earthing terminal bar or bus to which the DC supply system earthing electrode conductor is connected.
- Locate the equipment in the same immediate area (such as adjacent cabinets) as any other equipment that has a connection between the earthed conductor of the same DC supply circuit and the earthing conductor, and also the point of earthing of the DC system. The DC system must be earthed elsewhere.
- The DC supply source is to be located within the same premises as the equipment.
- Switching or disconnecting devices should not be in the earthed circuit conductor between the DC source and the point of connection of the earthing electrode conductor.

Procedure

1. Cut the DC power cord ends no shorter than 150 cm (59.06 in).

   IMPORTANT:

   The ring terminals must be UL approved and accommodate 12 gauge wires.

   IMPORTANT:

   The minimum nominal thread diameter of a pillar or stud type terminal must be 3.5 mm (0.138 in). The diameter of a screw type terminal must be 5.0 mm (0.197 in).

2. If the power source requires ring tongues, use a crimping tool to install the ring tongues on the power cord wires.
3. Stack each same-colored pair of wires and then attach them to the same power source. The power cord consists of three wires (black, red, and green).

   For more information, see the documentation that ships with the power supply.

HPE Smart Storage Battery

The HPE Smart Storage Battery supports the following devices:

- HPE Smart Array SR controllers

After the battery is installed, it might take up to two hours to charge. Controller features requiring backup power are not re-enabled until the battery is capable of supporting the backup power.

Cabling

This section provides cabling diagrams. When you are cabling the server, refer to the appropriate section based on your server configuration. For information on connector location, see Component identification.

CAUTION:
When routing cables, always be sure that the cables are not in a position where they can be pinched or crimped.

CAUTION:
Avoid routing the cables over any components in the server that may become hot such as the heatsink.

CAUTION: Avoid tight bend radii to prevent damaging the internal wires of a power cord or a server cable. Never bend power cords and server cables tight enough to cause a crease in the sheathing.

When installing cables, observe the following:

- All ports are labeled:
  - System board ports
  - Controller ports
  - Drive backplane board ports
- Most data cables have labels near each connector with destination port information.
- Some data cables are pre-bent. Do not unbend or manipulate the cables.
- Before connecting a cable to a port, lay the cable in place to verify the length of the cable.
- When routing cables from the front to the rear of the server, use the cable arms on either side of the chassis.
- When routing cables in front of the power supplies, use the cable management holder to secure the cables.
- When routing cables from the front left chassis ear, drive cage 1, or drive cage 2 to a location at the rear of the server, use the cable management holder to secure the cables.
- When routing cables from the 8SFF drive cage 1 to the system board, use the cable tie to secure the cables in the space between the DIMM and the chassis.
- When routing cables to the 8SFF drive cage 1, you must first remove the air baffle. Then disconnect or reconnect the cable end connector vertically.

Subtopics

Cabling diagrams

Use the following tables to find cabling information and diagrams.

Table 1. SAS/SATA options

Option kit	From	To
SATA 12G	M.2 card in primary riser	System board, SATA 1 and SATA 2 connectors
Slim SAS 24G 8 SFF	Drive cage 3, ports 3 and 4	System board, ports 1A and 2A
Slim SAS 24G 8 SFF	Drive cage 3, ports 1 and 2	System board, ports 1B and 2B
Slim SAS 24G 8 SFF	Drive cage 3, port 1	Controller, primary riser, port 4
Slim SAS 24G 8 SFF	Drive cage 3, port 2	Controller, primary riser, port 3
Slim SAS 24G 8 SFF	Drive cage 3, port 3	Controller, primary riser, port 2
Slim SAS 24G 8 SFF	Drive cage 3, port 4	Controller, tertiary riser, port 1
Slim SAS 24G 8 SFF	Drive cage 3, port 4	Controller, primary riser, port 1
Slim SAS 24G 8 SFF	Drive cage 3, port 1	Controller, tertiary riser, port 4
Slim SAS 24G 8 SFF	Drive cage 3, port 2	Controller, tertiary riser, port 3
Slim SAS 24G 8 SFF	Drive cage 3 2 SFF HDD backplane	Controller, primary / tertiary riser
Slim SAS 24G 8 SFF	Drive cage 3, port 3	Controller, tertiary riser, port 2
Slim SAS to Mini SAS 12G 8 SFF	Drive cage 3, port 1	Controller, primary riser, port 1
Slim SAS to Mini SAS 12G 8 SFF	Drive cage 3, port 2	Controller, primary riser, port 2
Slim SAS to Mini SAS 12G 8 SFF	Drive cage 3, port 3	Controller, primary riser, port 1
Slim SAS to Mini SAS 12G 8 SFF	Drive cage 3, port 4	Controller, primary riser, port 2
Slim SAS to Mini SAS 12G 8 SFF	Drive cage 3, port 1	Controller, tertiary riser, port 1
Slim SAS to Mini SAS 12G 8 SFF	Drive cage 3, port 2	Controller, tertiary riser, port 2
Slim SAS to Mini SAS 12G 8 SFF	Drive cage 3, port 3	Controller, tertiary riser, port 1
Slim SAS to Mini SAS 12G 8 SFF	Drive cage 3, port 4	Controller, tertiary riser, port 2
Slim SAS 24G primary, 2 SFF	Drive cage 4 2 SFF HDD backplane	Controller, tertiary riser, ports 3 or 4
Slim SAS 24G secondary, 2 SFF	Drive cage 5 2 SFF HDD backplane	Controller, primary riser, tertiary riser
Slim SAS 24G secondary, 2 SFF	Drive cage 5 2 SFF HDD backplane	Controller, tertiary riser, ports 3 and 4
Slim SAS 16G	Riser 2, OCP port in primary riser location	Slim SAS x8 on connector on system board

Table 2. LFF/SFF SAS Cable options

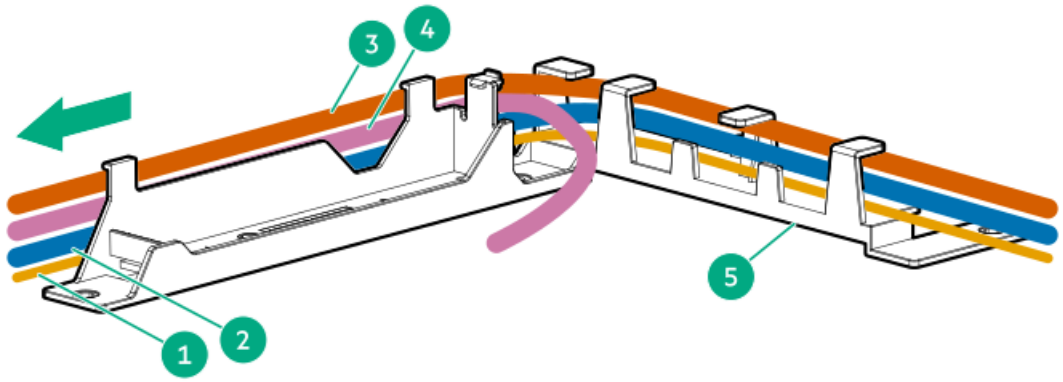
Option kit	From	To
Mini SAS 12G 12 LFF / 24 SFF HDD BP to type-a controller	12 LFF / 24 SFF drive cage 1 backplane, ports 1 and 2	Type -a controller, ports 1 and 2
Mini SAS 12G 12 LFF / 24 SFF HDD BP to controller	12 LFF drive cage 1 backplane, ports 1 and 2	Controller, primary riser, ports 1 and 2
Mini SAS 12G 12 LFF HDD BP to type-a controller	12 LFF drive cage 2, ports 1 and 2	Type -a controller, ports 3 and 4
Mini SAS 12G 12 LFF HDD BP to controller	12 LFF drive cage 2, ports 1 and 2	PCIe controller, secondary / tertiary riser, drive cage 5, ports 1 and 2
Mini SAS 12G 24 SFF HDD BP to type-a controller	24 SFF drive cage 2, ports 1 and 2	Type -a controller, ports 3 and 4
Mini SAS 12G 24 SFF HDD BP to controller	24 SFF drive cage 2, ports 1 and 2	PCIe controller, secondary / tertiary riser, drive cage 5, ports 1 and 2
Slim SAS to Mini SAS 12G 2 SFF	2 SFF drive cage 5, HDD backplane	Controller, primary or tertiary riser
Slim SAS to Mini SAS 12G 2 SFF	2 SFF drive cage 5, HDD backplane	Type -a controller, ports 1 and 2 or 3 and 4
Slim SAS to Mini SAS 12G 2 SFF	2 SFF drive cage 4, HDD backplane	Controller, tertiary riser
Slim SAS to Mini SAS 12G 2 SFF	2 SFF drive cage 4, HDD backplane	Controller, primary riser
Slim SAS 24G 2 SFF	2 SFF drive cage 4, 2 SFF drive cage 5, HDD backplane	Primary riser, ports 3A and 3B
Slim SAS 24G 2 SFF	2 SFF drive cage 4	PCIe controller, primary riser
Slim SAS to Mini SAS 12G 4 LFF	12 LFF drive cage 2, HDD backplane port	4 LFF drive cage 3, HDD backplane port
Signal cable	8 SFF drive cage 3	System board
Mini SAS 12G 4 LFF	4 LFF drive cage 3, HDD backplane port	Controller in primary, secondary, or tertiary riser

Table 3. Power signal and USB port cable options

Option kit	From	To
Power cable with signal	Drive cage 1 24 SFF or 12 LFF	Drive cage 1 power connector on system board
Power cable with signal	Drive cage 2 24 SFF or 12 LFF	Drive cage 2 power connector on system board
Power cable	Drive cage 3 8 SFF	Drive cage 3 power connector on system board
Power cable	Drive cage 3 4 LFF	Drive cage 3 power connector on system board
Power riser to rear 2 SFF	Riser 2	Rear 2 SFF
Fan signal	System board	Fan board
Fan signal	System board	Fan board
Right ear front panel	Right ear	Front USB connector on system board
Ambient sensor cable	Drive cage 1	Front panel
iLO USB cable	Left ear	Front USB for iLO connector on system board
iLO COM port	Rear DB9 serial port	iLO COM port on system board
Mini SAS 12G type -a controller	Drive cage 4, M.2 port 1 and 2	Type -a controller
Power riser	Power riser	Fan, 2 SFF riser

Cable routing

LFF cable routing



1	Left front panel USB cable
2	Drive cage 2 SAS cables
3	Drive cage 2 to LFF drive cage 3 connector cable
4	Drive cage 1 power cable
5	Smart battery holder with cable routing hooks

SFF cable routing

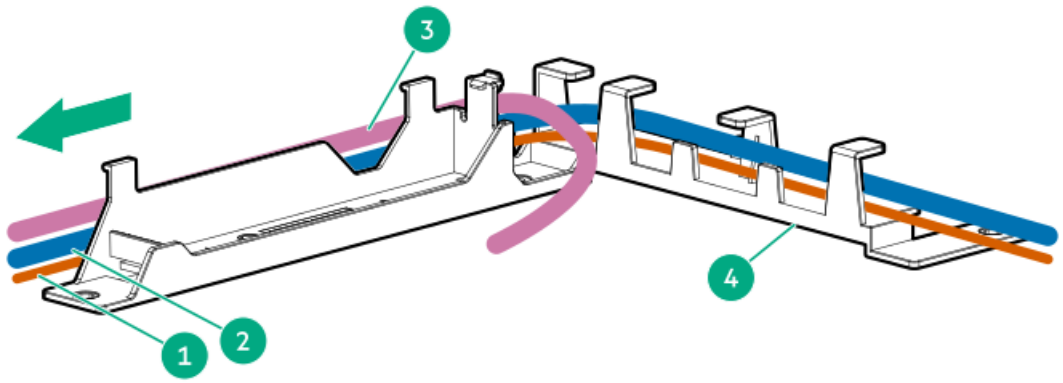
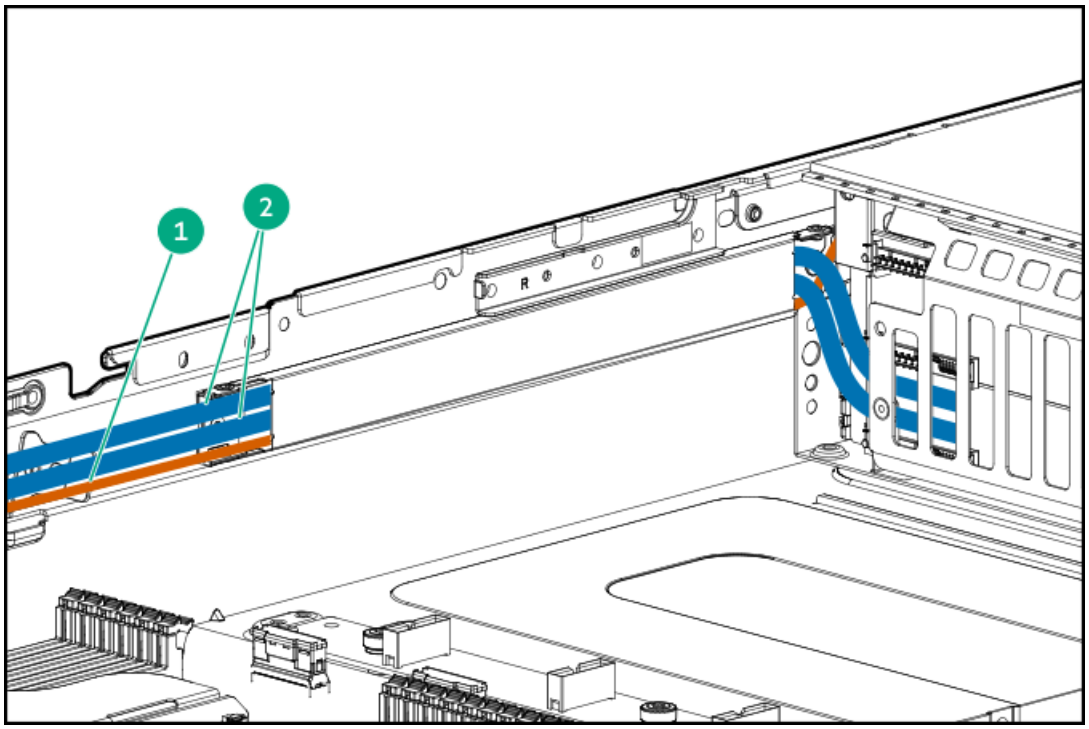


Table 1.

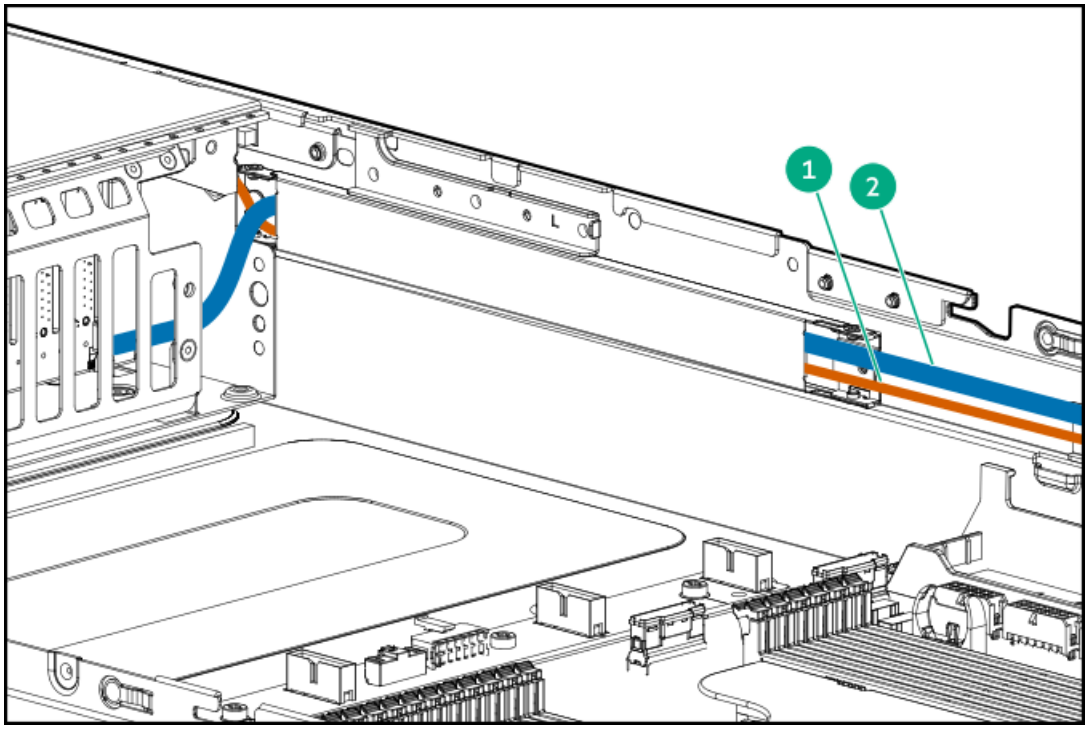
1	Left front panel USB cable
2	Drive cage 2 SAS cables
3	Drive cage 1 power cable
4	Smart battery holder with cable routing hooks

Side cable arm routing



Right cable arm

1	Right front panel USB cable
2	Drive cage 1 SAS cables

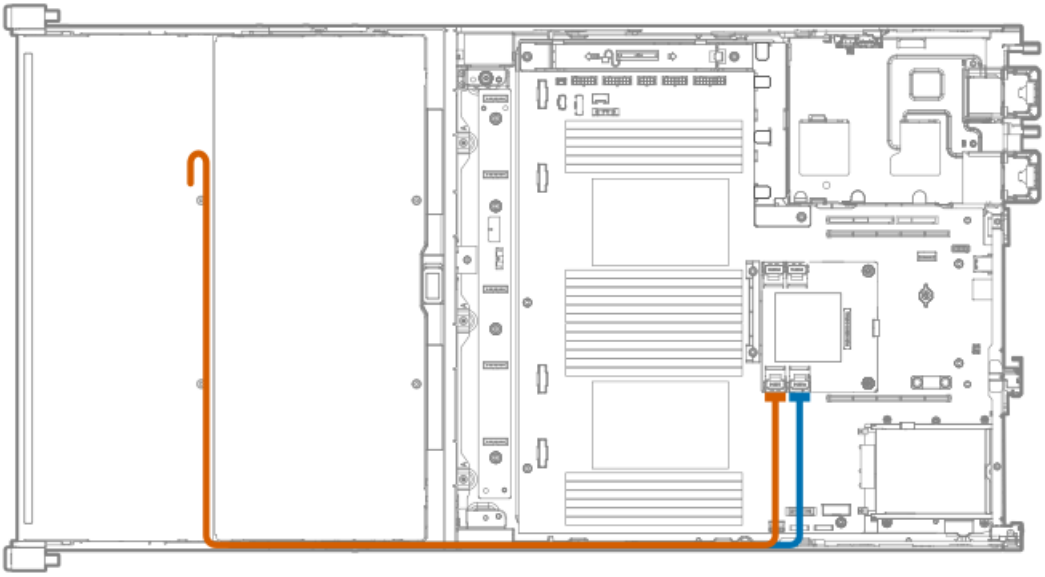


Left cable arm

1	Left front panel USB cable
2	Drive cage 1 power cable

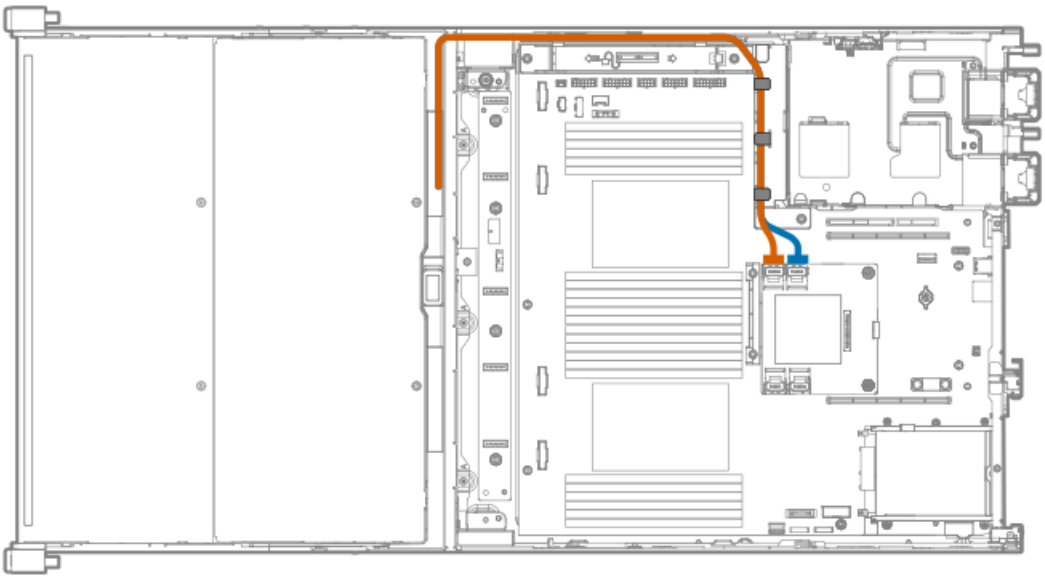
Drive cage 1 cabling

Drive cage 1 data cabling connected to P1 and P2 on the type -a storage controller on the system board.



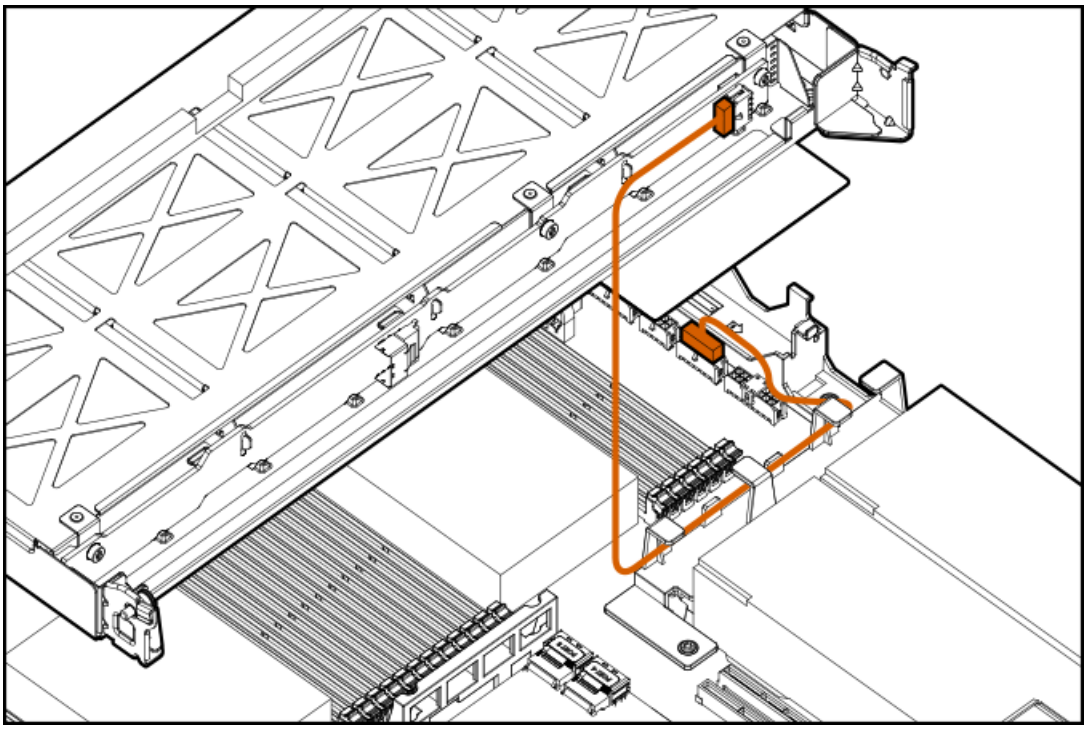
Drive cage 2 cabling

Drive cage 2 data cabling connected to P3 and P4 on the type -a storage controller on the system board.

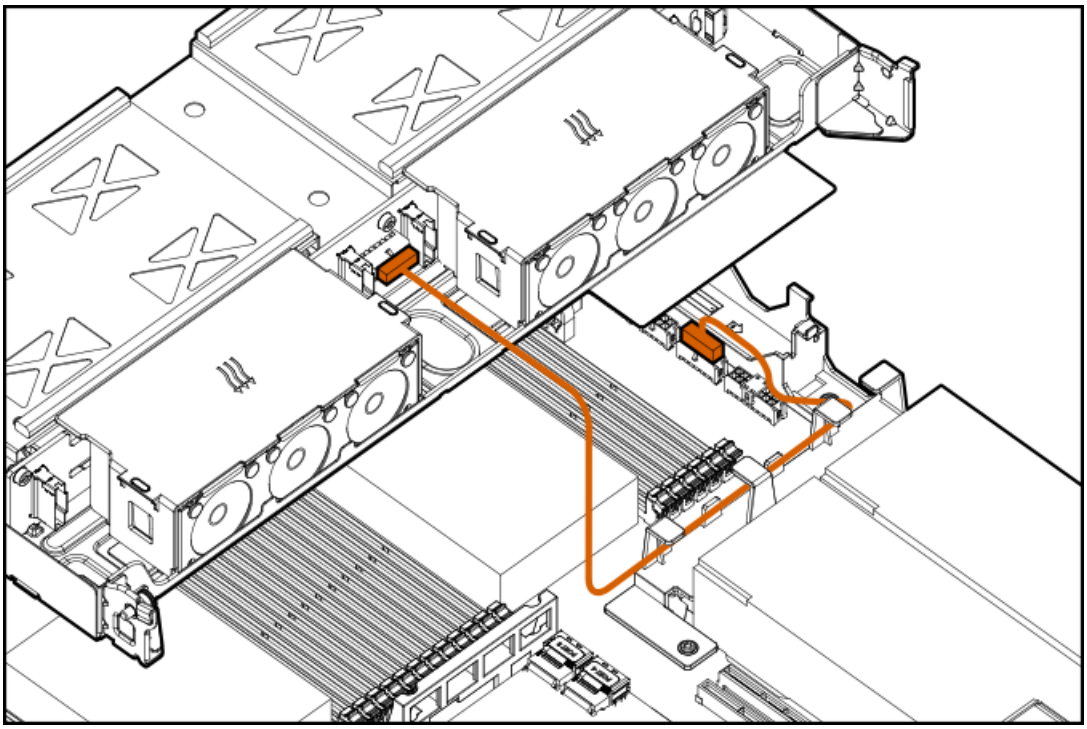


Drive cage 3 cabling

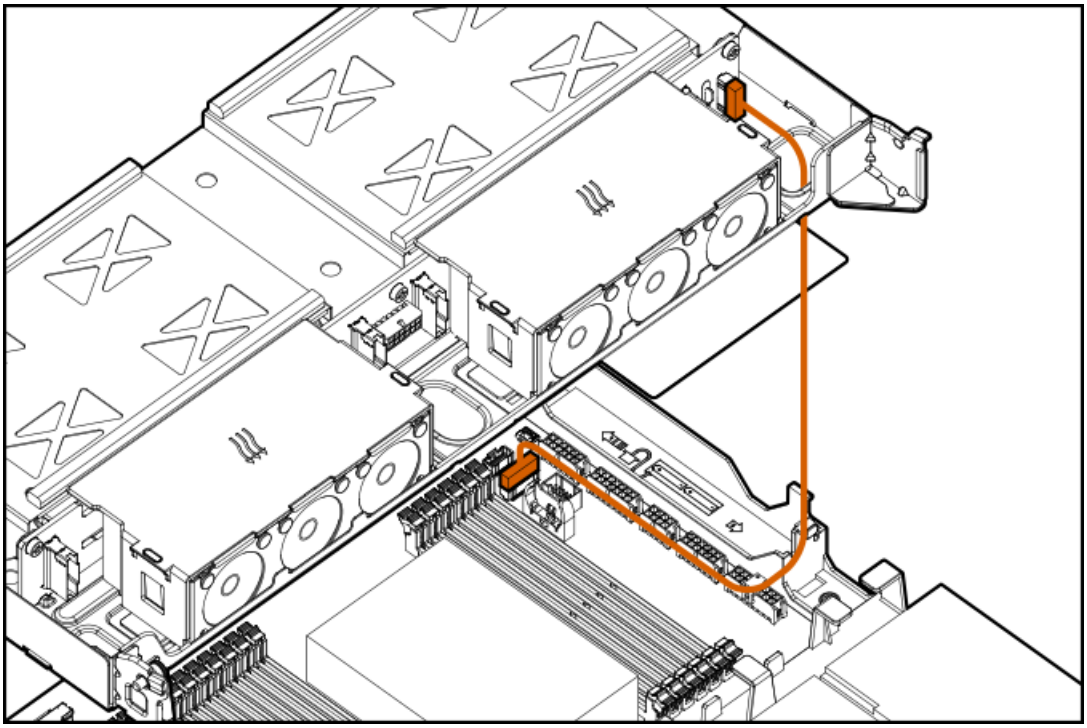
LFF drive cage 3 power cabling



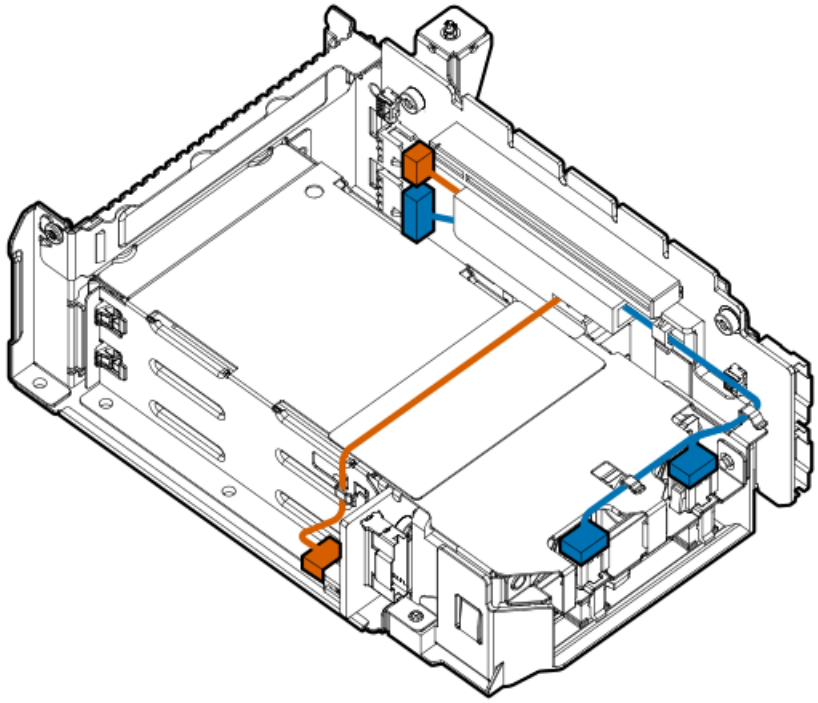
SFF drive cage 3 power cabling



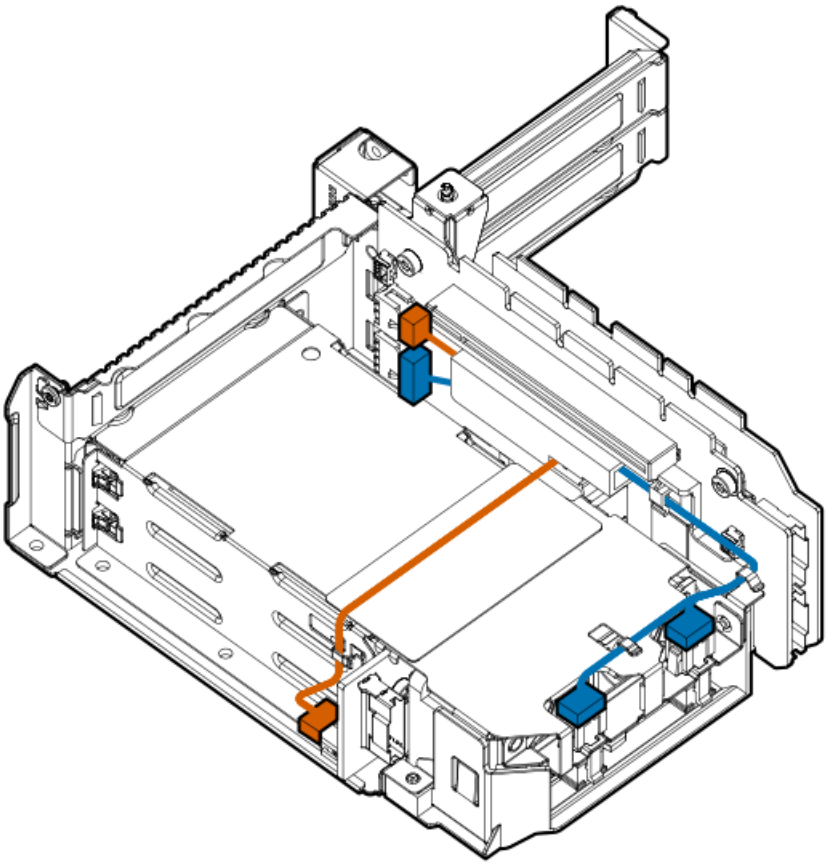
SFF drive cage 3 data cabling connected to the signal connector on the system board.



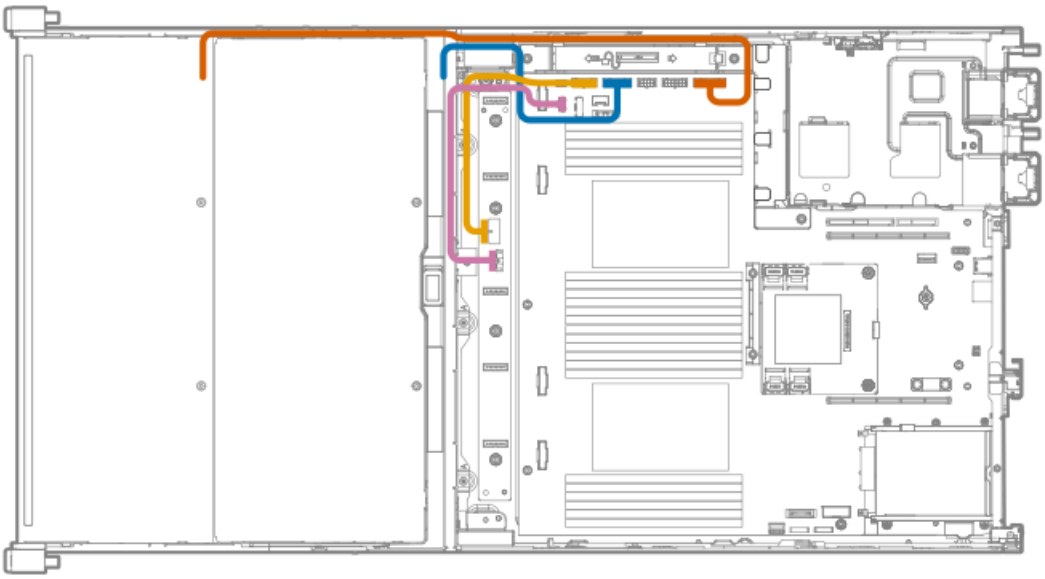
Rear drive cage cabling



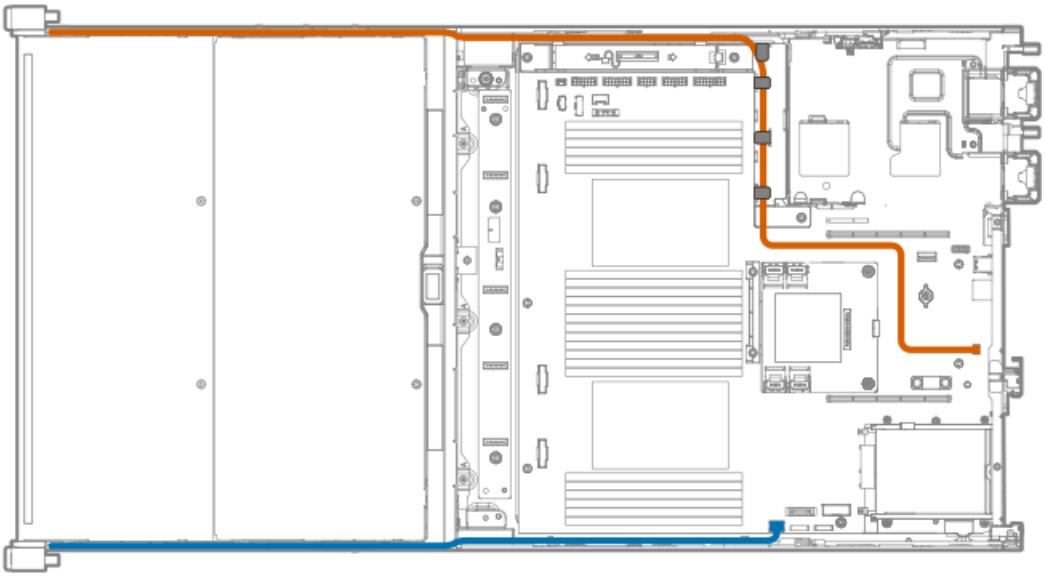
- Drive cage 4 internal cabling
- Drive cage 5 internal cabling



Drive cage power cabling



Front panel cabling



Software and configuration utilities

Subtopics

Server mode

The software and configuration utilities presented in this section operate in online mode, offline mode, or in both modes.

Software or configuration utility	Server mode
Active Health System	Online and Offline
HPE iLO 5	Online and Offline
HPE Smart Storage Administrator	Online and Offline
iLO RESTful API	Online and Offline
Intelligent Provisioning	Online and Offline
Scripting Toolkit for Windows and Linux	Online
Service Pack for ProLiant	Online and Offline
Introduction to Smart Update Manager	Online and Offline
UEFI System Utilities	Offline

Product QuickSpecs

For more information about product features, specifications, options, configurations, and compatibility, see the product QuickSpecs on the Hewlett Packard Enterprise website (**https://www.hpe.com/info/qs**).

Active Health System Viewer

Active Health System Viewer (AHSV) is an online tool used to read, diagnose, and resolve server issues quickly using AHS uploaded data. AHSV provides Hewlett Packard Enterprise recommended repair actions based on experience and best practices. AHSV provides the ability to:

- Read server configuration information
- View Driver/Firmware inventory
- Review Event Logs
- Respond to Fault Detection Analytics alerts
- Open new and update existing support cases

Subtopics

Active Health System

Active Health System

The Active Health System monitors and records changes in the server hardware and system configuration.

The Active Health System provides:

- Continuous health monitoring of over 1600 system parameters
- Logging of all configuration changes

- Consolidated health and service alerts with precise time stamps
- Agentless monitoring that does not affect application performance

For more information about the Active Health System, see the iLO user guide at the following website: **https://www.hpe.com/support/ilo-docs**.

Subtopics

Active Health System data collection

The Active Health System does not collect information about your operations, finances, customers, employees, or partners.

Examples of information that is collected:

- Server model and serial number
- Processor model and speed
- Storage capacity and speed
- Memory capacity and speed
- Firmware/BIOS and driver versions and settings

The Active Health System does not parse or change OS data from third-party error event log activities (for example, content created or passed through the OS).

Active Health System Log

The data collected by the Active Health System is stored in the Active Health System Log. The data is logged securely, isolated from the operating system, and separate from customer data. Host resources are not consumed in the collection and logging of Active Health System data.

When the Active Health System Log is full, new data overwrites the oldest data in the log.

It takes less than 5 minutes to download the Active Health System Log and send it to a support professional to help you resolve an issue.

When you download and send Active Health System data to Hewlett Packard Enterprise, you agree to have the data used for analysis, technical resolution, and quality improvements. The data that is collected is managed according to the privacy statement, available at **https://www.hpe.com/info/privacy**.

HPE iLO 5

iLO 5 is a remote server management processor embedded on the system boards of supported HPE servers and compute modules. iLO enables the monitoring and controlling of servers from remote locations. iLO management is a powerful tool that provides multiple ways to configure, update, monitor, and repair servers remotely.

For more information about iLO, see the iLO user guide at the following website: **https://www.hpe.com/support/ilo-docs**.

Subtopics

iLO RESTful API
RESTful Interface Tool
iLO Amplifier Pack

iLO Federation

iLO Federation enables you to manage multiple servers from one system using the iLO web interface.

When configured for iLO Federation, iLO uses multicast discovery and peer-to-peer communication to enable communication between the systems in iLO Federation groups.

When you navigate to one of the iLO Federation pages, a data request is sent from the iLO system running the web interface to its peers, and from those peers to other peers until all data for the selected iLO Federation group is retrieved.

iLO supports the following features:

- Group health status—View server health and model information.
- Group virtual media—Connect URL-based media for access by a group of servers.
- Group power control—Manage the power status of a group of servers.
- Group firmware update—Update the firmware of a group of servers.
- Group license installation—Enter a license key to activate iLO licensed features on a group of servers.
- Group configuration—Add iLO Federation group memberships for multiple iLO systems.

Any user can view information on iLO Federation pages, but a license is required for using the following features: Group virtual media, Group power control, Group power capping, Group configuration, and Group firmware update.

For more information about iLO Federation, see the iLO user guide at the following website: **https://www.hpe.com/support/ilo-docs**.

iLO Service Port

When you have physical access to a server, you can use the Service Port to do the following:

- Download the Active Health System Log to a supported USB flash drive.

  When you use this feature, the connected USB flash drive is not accessible by the host operating system.

- Connect a client (such as a laptop) with a supported USB to Ethernet adapter to access the following:
  - iLO web interface
  - Remote console
  - iLO RESTful API
  - CLI

  Hewlett Packard Enterprise recommends the HPE USB to Ethernet Adapter (part number Q7Y55A).

  Hewlett Packard Enterprise recommends the HPE Micro USB to USB Adapter (part number 789904-B21).

When you use the iLO Service Port:

- Actions are logged in the iLO event log.
- The server UID flashes to indicate the Service Port status.

  You can also retrieve the Service Port status by using a REST client and the iLO RESTful API.

- You cannot use the Service Port to boot any device within the server, or the server itself.

- You cannot access the server by connecting to the Service Port.
- You cannot access the connected device from the server.

For more information about the iLO Service Port, see the iLO user guide at the following website: **https://www.hpe.com/support/ilo-docs**.

iLO RESTful API

iLO includes the iLO RESTful API, which is Redfish API conformant. The iLO RESTful API is a management interface that server management tools can use to perform configuration, inventory, and monitoring tasks by sending basic HTTPS operations (GET, PUT, POST, DELETE, and PATCH) to the iLO web server.

To learn more about the iLO RESTful API, see the Hewlett Packard Enterprise website (**https://www.hpe.com/support/restfulinterface/docs**).

For specific information about automating tasks using the iLO RESTful API, see libraries and sample code at **https://www.hpe.com/info/redfish**.

RESTful Interface Tool

The RESTful Interface Tool (iLOREST) is a scripting tool that allows you to automate HPE server management tasks. It provides a set of simplified commands that take advantage of the iLO RESTful API. You can install the tool on your computer for remote use or install it locally on a server with a Windows or Linux Operating System. The RESTful Interface Tool offers an interactive mode, a scriptable mode, and a file-based mode similar to CONREP to help decrease automation times.

For more information, see the following website: **https://www.hpe.com/info/resttool**.

iLO Amplifier Pack

iLO Amplifier Pack is an advanced server inventory, firmware and driver update solution that enables rapid discovery, detailed inventory reporting, firmware, and driver updates by leveraging iLO advanced functionality. iLO Amplifier Pack performs rapid server discovery and inventory for thousands of supported servers for the purpose of updating firmware and drivers at scale.

For more information about iLO Amplifier Pack, see the iLO Amplifier Pack User Guide at the following website: **https://www.hpe.com/support/ilo-ap-ug-en**.

Integrated Management Log

The IML records hundreds of events and stores them in an easy-to-view form. The IML timestamps each event with one-minute granularity.

You can view recorded events in the IML in several ways, including the following:

- From within HPE SIM
- From within the UEFI System Utilities
- From within the Embedded UEFI shell
- From within the iLO web interface

Intelligent Provisioning

Intelligent Provisioning is a single-server deployment tool embedded in ProLiant servers and HPE Synergy compute modules. Intelligent Provisioning simplifies server setup, providing a reliable and consistent way to deploy servers.

Intelligent Provisioning prepares the system for installing original, licensed vendor media and Hewlett Packard Enterprise-branded versions of OS software. Intelligent Provisioning also prepares the system to integrate optimized server support software from the Service Pack for ProLiant (SPP). SPP is a comprehensive systems software and firmware solution for ProLiant servers, server blades, their enclosures, and HPE Synergy compute modules. These components are preloaded with a basic set of firmware and OS components that are installed along with Intelligent Provisioning.

IMPORTANT:

HPE ProLiant XL servers do not support operating system installation with Intelligent Provisioning, but they do support the maintenance features. For more information, see "Performing Maintenance" in the Intelligent Provisioning user guide and online help.

After the server is running, you can update the firmware to install additional components. You can also update any components that have been outdated since the server was manufactured.

To access Intelligent Provisioning:

- Press F10 from the POST screen and enter Intelligent Provisioning .
- From the iLO web interface using Lifecycle Management. Lifecycle Management allows you to access Intelligent Provisioning without rebooting your server.

Subtopics

Intelligent Provisioning operation

Intelligent Provisioning operation

NOTE:

Intelligent Provisioning 3.62 and later requires iLO firmware version 2.44 or later.

Intelligent Provisioning includes the following components:

- Critical boot drivers
- Active Health System (AHS)
- Erase Utility
- Deployment Settings

IMPORTANT:

- Although your server is preloaded with firmware and drivers, Hewlett Packard Enterprise recommends updating the firmware upon initial setup. Also, downloading and updating the latest version of Intelligent Provisioning ensures the latest supported features are available.
- For ProLiant servers, firmware is updated using the Intelligent Provisioning Firmware Update utility.
- Do not update firmware if the version you are currently running is required for compatibility.

NOTE:
Intelligent Provisioning does not function within multihomed configurations. A multihomed host is one that is connected to two or more networks or has two or more IP addresses.

Intelligent Provisioning provides installation help for the following operating systems:

- Microsoft Windows Server
- Red Hat Enterprise Linux
- SUSE Linux Enterprise Server
- VMware ESXi/vSphere Custom Image
- ClearOS

Not all versions of an OS are supported. For information about specific versions of a supported operating system, see the OS Support Matrix on the Hewlett Packard Enterprise website (**https://www.hpe.com/info/ossupport**).

Management security

Hewlett Packard Enterprise Gen10 and Gen10 Plus servers and compute modules are built with some of the industry's most advanced security capabilities, out of the box, with a foundation of secure embedded management applications and firmware. The management security provided by HPE embedded management products enables secure support of modern workloads, protecting your components from unauthorized access and unapproved use. The range of embedded management and optional software and firmware available with the iLO Advanced license provides security features that help ensure protection, detection, and recovery from advanced cyber attacks.

For more information, see the HPE Gen10 and Gen10 Plus Security Reference Guide at **https://www.hpe.com/info/server-security-reference-en**.

Scripting Toolkit for Windows and Linux

The STK for Windows and Linux is a server deployment product that delivers an unattended automated installation for high-volume server deployments. The STK is designed to support ProLiant servers. The toolkit includes a modular set of utilities and important documentation that describes how to apply these tools to build an automated server deployment process.

The STK provides a flexible way to create standard server configuration scripts. These scripts are used to automate many of the manual steps in the server configuration process. This automated server configuration process cuts time from each deployment, making it possible to scale rapid, high-volume server deployments.

For more information or to download the STK, see the **Hewlett Packard Enterprise website**.

UEFI System Utilities

The UEFI System Utilities is embedded in the system ROM. Its features enable you to perform a wide range of configuration activities, including:

- Configuring system devices and installed options.
- Enabling and disabling system features.
- Displaying system information.

- Selecting the primary boot controller or partition.
- Configuring memory options.
- Launching other preboot environments.

HPE servers with UEFI can provide:

- Support for boot partitions larger than 2.2 TB. Such configurations could previously only be used for boot drives when using RAID solutions.
- Secure Boot that enables the system firmware, option card firmware, operating systems, and software collaborate to enhance platform security.
- UEFI Graphical User Interface (GUI)
- An Embedded UEFI Shell that provides a preboot environment for running scripts and tools.
- Boot support for option cards that only support a UEFI option ROM.

Subtopics

Selecting the boot mode

About this task

This server provides two Boot Mode configurations: UEFI Mode and Legacy BIOS Mode. Certain boot options require that you select a specific boot mode. By default, the boot mode is set to UEFI Mode. The system must boot in UEFI Mode to use certain options, including:

- Secure Boot, UEFI Optimized Boot, Generic USB Boot, IPv6 PXE Boot, iSCSI Boot, NVMe Boot and Boot from URL
- Fibre Channel/FCoE Scan Policy

NOTE:
The boot mode you use must match the operating system installation. If not, changing the boot mode can impact the ability of the server to boot to the installed operating system.

Prerequisite

When booting to UEFI Mode, leave UEFI Optimized Boot enabled.

Procedure

1. From the System Utilities screen, select System Configuration > BIOS/Platform Configuration (RBSU) > Boot Options > Boot Mode.
2. Select a setting.
   - UEFI Mode (default)—Configures the system to boot to a UEFI compatible operating system.
   - Legacy BIOS Mode—Configures the system to boot to a traditional operating system in Legacy BIOS compatibility mode.
3. Save your setting.
4. Reboot the server.

Secure Boot

Secure Boot is a server security feature that is implemented in the BIOS and does not require special hardware. Secure Boot ensures that each component launched during the boot process is digitally signed and that the signature is validated against a set of trusted certificates embedded in the UEFI BIOS. Secure Boot validates the software identity of the following components in the boot process:

- UEFI drivers loaded from PCIe cards
- UEFI drivers loaded from mass storage devices
- Preboot UEFI Shell applications
- OS UEFI boot loaders

When Secure Boot is enabled:

- Firmware components and operating systems with boot loaders must have an appropriate digital signature to execute during the boot process.
- Operating systems must support Secure Boot and have an EFI boot loader signed with one of the authorized keys to boot. For more information about supported operating systems, see **https://www.hpe.com/servers/ossupport**.

You can customize the certificates embedded in the UEFI BIOS by adding or removing your own certificates, either from a management console directly attached to the server, or by remotely connecting to the server using the iLO Remote Console.

You can configure Secure Boot:

- Using the System Utilities options described in the following sections.
- Using the iLO RESTful API to clear and restore certificates. For more information, see the Hewlett Packard Enterprise website (**https://www.hpe.com/info/redfish**).
- Using the `secboot` command in the Embedded UEFI Shell to display Secure Boot databases, keys, and security reports.

Launching the Embedded UEFI Shell

Prerequisites

- Embedded UEFI Shell is set to Enabled.

About this task

Use the Embedded UEFI Shell option to launch the Embedded UEFI Shell. The Embedded UEFI Shell is a preboot command-line environment for scripting and running UEFI applications, including UEFI boot loaders. The Shell also provides CLI-based commands you can use to obtain system information, and to configure and update the system BIOS.

Procedure

1. From the System Utilities screen, select Embedded Applications > Embedded UEFI Shell.

   The Embedded UEFI Shell screen appears.

2. Press any key to acknowledge that you are physically present.

   This step ensures that certain features, such as disabling Secure Boot or managing the Secure Boot certificates using third-party UEFI tools, are not restricted.

3. If an administrator password is set, enter it at the prompt and press Enter.

   The `Shell>` prompt appears.

4. Enter the commands required to complete your task.
5. Enter the `exit` command to exit the Shell.

HPE Smart Storage Administrator

HPE SSA is the main tool for configuring arrays on HPE Smart Array SR controllers. It exists in three interface formats: the HPE SSA GUI, the HPE SSA CLI, and HPE SSA Scripting. All formats provide support for configuration tasks. Some of the advanced tasks are available in only one format.

The diagnostic features in HPE SSA are also available in the standalone software HPE Smart Storage Administrator Diagnostics Utility CLI.

During the initial provisioning of the server or compute module, an array is required to be configured before the operating system can be installed. You can configure the array using SSA.

HPE SSA is accessible both offline (either through HPE Intelligent Provisioning or as a standalone bootable ISO image) and online:

- Accessing HPE SSA in the offline environment

  IMPORTANT: If you are updating an existing server in an offline environment, obtain the latest version of HPE SSA through Service Pack for ProLiant before performing configuration procedures.

  Using one of multiple methods, you can run HPE SSA before launching the host operating system. In offline mode, users can configure or maintain detected and supported devices, such as optional Smart Array controllers and integrated Smart Array controllers. Some HPE SSA features are only available in the offline environment, such as setting the boot controller and boot volume.

- Accessing HPE SSA in the online environment
  This method requires an administrator to download the HPE SSA executables and install them. You can run HPE SSA online after launching the host operating system.

For more information, see HPE SSA online help.

HPE InfoSight for servers

The HPE InfoSight portal is a secure web interface hosted by HPE that allows you to monitor supported devices through a graphical interface.

HPE InfoSight for servers:

- Combines the machine learning and predictive analytics of HPE InfoSight with the health and performance monitoring of Active Health System (AHS) and HPE iLO to optimize performance and predict and prevent problems
- Provides automatic collection and analysis of the sensor and telemetry data from AHS to derive insights from the behaviors of the install base to provide recommendations to resolve problems and improve performance

For more information on getting started and using HPE InfoSight for servers, go to: **https://www.hpe.com/info/infosight-servers-docs**.

USB support

Hewlett Packard Enterprise Gen10 and Gen10 Plus servers support all USB operating speeds depending on the device that is connected to the server.

Subtopics

External USB functionality

Hewlett Packard Enterprise provides external USB support to enable local connection of USB devices for server administration, configuration, and diagnostic procedures.

For additional security, external USB functionality can be disabled through USB options in UEFI System Utilities.

Redundant ROM support

The server enables you to upgrade or configure the ROM safely with redundant ROM support. The server has a single ROM that acts as two separate ROM images. In the standard implementation, one side of the ROM contains the current ROM program version, while the other side of the ROM contains a backup version.

NOTE: The server ships with the same version programmed on each side of the ROM.

Subtopics

Safety and security benefits

When you flash the system ROM, the flashing mechanism writes over the backup ROM and saves the current ROM as a backup, enabling you to switch easily to the alternate ROM version if the new ROM becomes corrupted for any reason. This feature protects the existing ROM version, even if you experience a power failure while flashing the ROM.

Keeping the system current

Subtopics

Updating firmware or system ROM

About this task

To update firmware or system ROM, use one of the following methods:

- The Firmware Update option in the System Utilities.
- The `fwupdate` command in the Embedded UEFI Shell.
- Service Pack for ProLiant (SPP)
- HPE online flash components
- Moonshot Component Pack

Subtopics

Service Pack for ProLiant

SPP is a systems software and firmware solution delivered as a single ISO file download. This solution uses SUM as the deployment tool and is tested and supports HPE ProLiant, HPE BladeSystem, HPE Synergy, and HPE Apollo servers and infrastructure.

SPP, along with SUM and iSUT, provides Smart Update system maintenance tools that systematically update HPE ProLiant, HPE BladeSystem, HPE Synergy, and HPE Apollo servers and infrastructure.

SPP can be used in an online mode on a server running Windows, Linux, or VMware vSphere ESXi, or in an offline mode where the server is booted to an operating system included in the ISO file.

The preferred method for downloading an SPP is using the SPP Custom Download at **https://www.hpe.com/servers/spp/custom**.

Subtopics

Introduction to Smart Update Manager

SUM is an innovative tool for maintaining and updating the firmware, drivers, and system software of HPE ProLiant, HPE BladeSystem, HPE Synergy, HPE Superdome Flex servers, and HPE Apollo servers, infrastructure, and associated options.

SUM identifies associated nodes you can update at the same time to avoid interdependency issues.

Key features of SUM include:

- Discovery engine that finds installed versions of hardware, firmware, and software on nodes.
- SUM deploys updates in the correct order and ensures that all dependencies are met before deploying an update.
- Interdependency checking.
- Automatic and step-by-step Localhost Guided Update process.
- Web browser-based user interface.
- Ability to create custom baselines and ISOs.
- Support for iLO Repository (Gen10 or later iLO 5 nodes only).
- Simultaneous firmware and software deployment for multiple remote nodes.
- Local offline firmware deployments with SPP deliverables.
- Extensive logging in all modes.

NOTE:
Support for HPE Integrity servers has been discontinued from SUM 8.x.

Integrated Smart Update Tools

Integrated Smart Update Tools

Integrated Smart Update Tools (iSUT) is the smart update solution for performing online firmware and driver updates. iSUT is used with iLO 4, iLO 5, and with update solutions (management appliances such as iLO Amplifier Pack or HPE OneView and Smart Update Manager to stage, install, and activate firmware and driver updates.

The solution must be installed on the operating system, where it updates results through Rich Infrastructure Services (RIS) communication.

- **iSUT**: Polls iLO to check for requests from SUM, iLO Amplifier Pack, or HPE OneView for updates through local iLO using the iLO channel interface driver installed on the OS and orchestrates staging, deploying, and activating updates. You can adjust the polling interval by issuing the appropriate command-line option provided by iSUT. Performs inventory on target servers, stages deployment, deploys updates, and then reboots the servers.
- **iLO 5 with integrated Smart Update** (Gen10 or later servers only): Performs iLO Repository-based updates by downloading the components from iLO Repository when iLO Installation Queue has the components which can be updated by iSUT.
- **iLO Amplifier Pack and HPE OneView**: Displays available updates for servers. Communicates with iSUT (or iSUT 1.x) to initiate updates using the iLO Redfish interface. iSUT reports the status of updates to iLO Amplifier Pack through iLO Restful Interface.
- **SUM**: A tool for firmware and driver maintenance for HPE ProLiant servers and associated options.

> **NOTE:**
> SUM and iLO Amplifier Pack should not manage the same nodes.

Updating firmware from the System Utilities

About this task

Use the Firmware Updates option to update firmware components in the system, including the system BIOS, NICs, and storage cards.

Procedure

1. Access the System ROM Flash Binary component for your server from the Hewlett Packard Enterprise Support Center.
2. Copy the binary file to a USB media or iLO virtual media.
3. Attach the media to the server.
4. Launch the System Utilities, and select Embedded Applications > Firmware Update.
5. Select a device.

   The Firmware Updates screen lists details about your selected device, including the current firmware version in use.
6. Select Select Firmware File.
7. Select the flash file in the File Explorer list.

   The firmware file is loaded and the Firmware Updates screen lists details of the file in the Selected firmware file field.
8. Select Image Description, and then select a firmware image.

   A device can have multiple firmware images.
9. Select Start firmware update.

Updating the firmware from the UEFI Embedded Shell

Procedure

1. Access the System ROM Flash Binary component for your server from the Hewlett Packard Enterprise Support Center (**https://www.hpe.com/support/hpesc**).
2. Copy the binary file to a USB media or iLO virtual media.
3. Attach the media to the server.
4. Boot to the UEFI Embedded Shell.
5. To obtain the assigned file system volume for the USB key, enter `map -r`.
6. Change to the file system that contains the System ROM Flash Binary component for your server. Enter one of the `fsx` file systems available, such as `fs0:` or `fs1:`, and press **Enter**.
7. Use the `cd` command to change from the current directory to the directory that contains the binary file.
8. Flash the system ROM by entering `fwupdate -d BIOS -f filename`.
9. Reboot the server. A reboot is required after the firmware update in order for the updates to take effect and for hardware stability to be maintained.

Online Flash components

This component provides updated system firmware that can be installed directly on supported operating systems. Additionally, when used in conjunction with SUM, this Smart Component allows the user to update firmware on remote servers from a central location. This remote deployment capability eliminates the need for the user to be physically present at the server to perform a firmware update.

Drivers

IMPORTANT: Always perform a backup before installing or updating device drivers.

Update drivers using any of the following **Smart Update Solutions**:

- Download the latest Service Pack for ProLiant (includes Smart Update Manager)
- Create a custom SPP download
- Download Smart Update Manager for Linux
- Download specific drivers
  To locate the drivers for a server, go to the **Hewlett Packard Enterprise Support Center website**, and then search for the product name/number.

Software and firmware

Update software and firmware before using the server for the first time, unless any installed software or components require an older version.

For system software and firmware updates, use one of the following sources:

- Download the SPP from the Hewlett Packard Enterprise website (**https://www.hpe.com/servers/spp/download**).

- Download individual drivers, firmware, or other system software components from the server product page in the Hewlett Packard Enterprise Support Center website (**https://www.hpe.com/support/hpesc**).

Operating system version support

For information about specific versions of a supported operating system, refer to the **operating system support matrix**.

HPE Pointnext Portfolio

HPE Pointnext delivers confidence, reduces risk, and helps customers realize agility and stability. Hewlett Packard Enterprise helps customers succeed through Hybrid IT by simplifying and enriching the on-premise experience, informed by public cloud qualities and attributes.

Operational Support Services enable you to choose the right service level, length of coverage, and response time to fit your business needs. For more information, see the Hewlett Packard Enterprise website:

https://www.hpe.com/us/en/services/operational.html

Utilize the Advisory and Transformation Services in the following areas:

- Private or hybrid cloud computing
- Big data and mobility requirements
- Improving data center infrastructure
- Better use of server, storage, and networking technology

For more information, see the Hewlett Packard Enterprise website:

https://www.hpe.com/services/consulting

Proactive notifications

30 to 60 days in advance, Hewlett Packard Enterprise sends notifications to subscribed customers on upcoming:

- Hardware, firmware, and software changes
- Bulletins
- Patches
- Security alerts

You can subscribe to proactive notifications on the **Hewlett Packard Enterprise website**.

Troubleshooting

Subtopics

Troubleshooting resources

Troubleshooting resources

Troubleshooting resources are available for HPE Gen10 and Gen10 Plus server products in the following documents:

- Troubleshooting Guide for HPE ProLiant Gen10 and Gen10 Plus servers provides procedures for resolving common problems and comprehensive courses of action for fault isolation and identification, issue resolution, and software maintenance.
- Integrated Management Log Messages and Troubleshooting Guide for HPE ProLiant Gen10 and Gen10 Plus servers and HPE Synergy provides IML messages and associated troubleshooting information to resolve critical and cautionary IML events.

To access troubleshooting resources for your product, see the **Hewlett Packard Enterprise website**.

System battery replacement

Subtopics

Replace the system battery

Replace the system battery

About this task

WARNING: The computer contains an internal lithium manganese dioxide, a vanadium pentoxide, or an alkaline battery pack. A risk of fire and burns exists if the battery pack is not properly handled. To reduce the risk of personal injury:

- Do not attempt to recharge the battery.
- Do not expose the battery to temperatures higher than 60°C (140°F).
- Do not expose the battery to extremely low air pressure as it might lead to explosion or leakage of flammable liquid or gas.
- Do not disassemble, crush, puncture, short external contacts, or dispose of in fire or water.
- Replace only with the spare designated for this product.

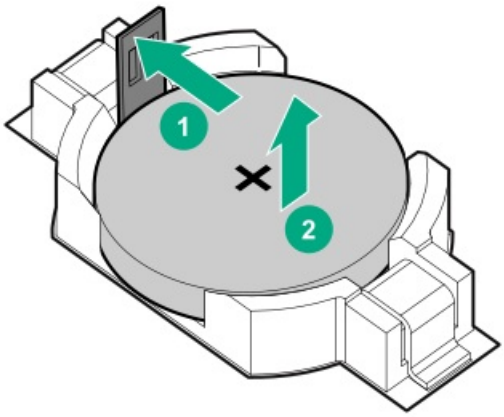
WARNING: This server is heavy. To reduce the risk of personal injury or damage to the equipment:

- Observe local occupational health and safety requirements and guidelines for manual material handling.
- Get help to lift and stabilize the product during installation or removal, especially when the product is not fastened to the rails. Hewlett Packard Enterprise recommends that a minimum of two people are required for all rack server installations. A third person may be required to help align the server if the server is installed higher than chest level.
- Use caution when installing the server in or removing the server from the rack; it is unstable when not fastened to the rails.

CAUTION: To prevent damage to electrical components, take the appropriate anti-static precautions before beginning any installation, removal, or replacement procedure. Improper grounding can cause electrostatic discharge.

Procedure

1. If installed, remove the bezel.
2. Power down the server.
3. Remove all power:
   a. Disconnect each power cord from the power source.
   b. Disconnect each power cord from the server.
4. Remove the server from the rack.
5. Place the server on a flat, level work surface.
6. Remove the access panel.
7. Do one of the following:
   a. Remove the air baffle (Remove the air baffle).
   b. Remove drive cage 3.
8. Locate the battery (System board components).
9. To remove the system battery from its socket, slightly push the metal tab, and then pry it gently from the socket.



Properly dispose of the old battery.

For more information about battery replacement or proper disposal, contact an authorized reseller or an authorized service provider.

Electrostatic discharge

Be aware of the precautions you must follow when setting up the system or handling components. A discharge of static electricity from a finger or other conductor may damage system boards or other static-sensitive devices. This type of damage may reduce the life expectancy of the system or component.

To prevent electrostatic damage:

- Avoid hand contact by transporting and storing products in static-safe containers.
- Keep electrostatic-sensitive parts in their containers until they arrive at static-free workstations.

- Place parts on a grounded surface before removing them from their containers.
- Avoid touching pins, leads, or circuitry.
- Always be properly grounded when touching a static-sensitive component or assembly. Use one or more of the following methods when handling or installing electrostatic-sensitive parts:
  - Use a wrist strap connected by a ground cord to a grounded workstation or computer chassis. Wrist straps are flexible straps with a minimum of 1 megohm ±10 percent resistance in the ground cords. To provide proper ground, wear the strap snug against the skin.
  - Use heel straps, toe straps, or boot straps at standing workstations. Wear the straps on both feet when standing on conductive floors or dissipating floor mats.
  - Use conductive field service tools.
  - Use a portable field service kit with a folding static-dissipating work mat.

  If you do not have any of the suggested equipment for proper grounding, have an authorized reseller install the part.

For more information on static electricity or assistance with product installation, contact an authorized reseller.

Specifications

For more information on cable, power, environmental, compliance, and general specifications, see the **HPE Compute Transceiver and Cable Hardware Matrix**.

Subtopics

Environmental specifications

Specification	Value
Temperature range [1]	—
Operating	10°C to 35°C (50°F to 95°F)
Nonoperating	-30°C to 60°C (-22°F to 140°F)
Relative humidity (noncondensing)	—
Operating	8% to 90%. 28°C (82.4°F), maximum wet bulb temperature
Nonoperating	5% to 95% 38.7°C (101.7°F), maximum wet bulb temperature
Altitude	—
Operating	3050 m (10,000 ft). This value may be limited by the type and number of options installed. Maximum allowable altitude change rate is 457 m/min (1500 ft/min).
Non-operating	9144 m (30,000 ft). Maximum allowable altitude change is 457 m/min (1500 ft/min).

[1] All temperature ratings shown are for sea level. An altitude derating of 1.0°C per 305 m (1.8°F per 1,000 ft) to 3,050 m (10,000 ft) is applicable. No direct sunlight allowed. Maximum rate of change is 20°C per hour (36°F per hour). The upper limit and rate of change might be limited by the type and number of options installed.

Standard operating support

10° to 35°C (50° to 95°F) at sea level with an altitude derating of 1.0°C per every 305 m (1.8°F per every 1000 ft) above sea level up to a maximum of 3050 m (10,000 ft), no direct sustained sunlight. Maximum rate of change is 20°C/hr (36°F/hr). The upper limit and rate of change may be limited by the type and number of options installed.

System performance during standard operating support may be reduced if operating with a fan fault or above 30°C (86°F).

For certain approved hardware configurations, the supported system inlet temperature range is extended:

- 5°C to 10°C (41°F to 50°F) and 35°C to 40°C (95°F to 104°F) at sea level with an altitude derating of 1.0°C per every 175 m (1.8°F per every 574 ft) above 900 m (2,953 ft) to a maximum of 3,050 m (10,000 ft).
- 40°C to 45°C (104°F to 113°F) at sea level with an altitude derating of 1.0°C per every 125 m (1.8°F per every 410 ft) above 900 m (2,953 ft) to a maximum of 3,050 m (10,000 ft).

The approved hardware configurations for this system are listed on the Hewlett Packard Enterprise website (**http://www.hpe.com/servers/ASHRAE**).

Mechanical specifications

Specification	Value
Height	87.50 mm (3.44 in)
Depth	837.90 mm (33.00 in)
Width	448.0 mm (17.63 in)
Weight (approximate values)	—
24-bay LFF drive models (12 LFF in drive cage 1 and 12 LFF in drive cage 2)	—
Without the 4 LFF or 8 SFF drive cage 3 option, minimum	18.80 kg (41.45 lb)
Without the 4 LFF or 8 SFF drive cage 3 option, maximum	41.56 kg (91.64 lb)
With the 4 LFF or 8 SFF drive cage 3 option, minimum	20.21 kg (44.56 lb)
With the 4 LFF or 8 SFF drive cage 3 option, maximum	45.35 kg (100.00 lb)
Without the two-bay SFF drive cage 4 option, minimum	20.21 kg (44.56 lb)
Without the two-bay SFF drive cage 4 option, maximum	45.35 kg (100.00 lb)
With the two-bay SFF drive cage 4 option, minimum	20.86 kg (46.00 lb)
With the two-bay SFF drive cage 4 option, maximum	46.75 kg (103.08 lb)
Without the two-bay SFF drive cage 4 and two-bay SFF drive cage 5 options, minimum	20.21 kg (44.56 lb)
Without the two-bay SFF drive cage 4 and two-bay SFF drive cage 5 options, maximum	45.35 kg (100.00 lb)
With the two-bay SFF drive cage 4 and two-bay SFF drive cage 5 options, minimum	21.59 kg (47.61 lb)
With the two-bay SFF drive cage 4 and two-bay SFF drive cage 5 options, maximum	48.35 kg (106.61 lb)

Specification	Value
48-bay SFF drive models (24 SFF in drive cage 1 and 24 SFF in drive cage 2)	—
Without the 4 LFF or 8 SFF drive cage 3 option, minimum	17.21 kg (37.95 lb)
Without the 4 LFF or 8 SFF drive cage 3 option, maximum	35.21 (77.64 lb)
With the 4 LFF or 8 SFF drive cage 3 option, minimum	18.62 kg (41.06 lb)
With the 4 LFF or 8 SFF drive cage 3 option, maximum	39.00 kg (86.00 lb)
Without the two-bay SFF drive cage 4 option, minimum	18.62 kg (41.06 lb)
Without the two-bay SFF drive cage 4 option, maximum	39.00 kg (86.00 lb)
With the two-bay SFF drive cage 4 option, minimum	19.27 kg (42.49 lb)
With the two-bay SFF drive cage 4 option, maximum	40.40 kg (89.08 lb)
Without the two-bay SFF drive cage 4 and two-bay SFF drive cage 5 options, minimum	18.62 kg (41.06 lb)
Without the two-bay SFF drive cage 4 and two-bay SFF drive cage 5 options, maximum	39.00 kg (86.00 lb)
With the two-bay SFF drive cage 4 and two-bay SFF drive cage 5 options, minimum	20.00 kg (44.1 lb)
With the two-bay SFF drive cage 4 and two-bay SFF drive cage 5 options, maximum	42.00 kg (92.61 lb)

Power supply specifications

Depending on the installed options and/or the regional location where the server was purchased, the server is configured with one of the following power supplies:

- HPE 800 W Flex Slot Titanium Hot-plug Power Supply
- HPE 800 W Flex Slot -48 V DC Hot-plug Power Supply
- HPE 800 W Flex Slot Universal Hot-plug Power Supply
- HPE 800 W Flex Slot Platinum Hot-plug Power Supply
- HPE 1600 W Flex Slot Platinum Plus Hot-plug Power Supply
- HPE 1600 W Flex Slot -48 VDC Hot-Plug Power Supply

These power supplies are Flexible Slot Power Supply products for ProLiant servers. For more information about the power supply features, specifications, and compatibility, see the Hewlett Packard Enterprise website (**http://www.hpe.com/servers/powersupplies**).

CAUTION: Mixing different types of power supplies in the same server might:

- Limit or disable some power supply features including support for power redundancy.
- Cause the system to become unstable and might shut down.

To ensure access to all available features, all power supplies in the same server should have the same output and efficiency ratings. Verify that all power supplies have the same part number and label color.

Hot-plug power supply calculations

For hot-plug power supply specifications and calculators to determine electrical and heat loading for the server, see the Hewlett Packard Enterprise Power Advisor website (**http://www.hpe.com/info/poweradvisor/online**).

Websites

General websites

Single Point of Connectivity Knowledge (SPOCK) Storage compatibility matrix

https://www.hpe.com/storage/spock

Storage white papers and analyst reports

https://www.hpe.com/storage/whitepapers

For additional websites, see Support and other resources.

Support and other resources

Subtopics

Accessing Hewlett Packard Enterprise Support
Accessing updates
Remote support
Warranty information
Regulatory information
Documentation feedback

Accessing Hewlett Packard Enterprise Support

- For live assistance, go to the Contact Hewlett Packard Enterprise Worldwide website:

  https://www.hpe.com/info/assistance

- To access documentation and support services, go to the Hewlett Packard Enterprise Support Center website:

  https://www.hpe.com/support/hpesc

Information to collect

- Technical support registration number (if applicable)
- Product name, model or version, and serial number
- Operating system name and version
- Firmware version
- Error messages

- Product-specific reports and logs
- Add-on products or components
- Third-party products or components

Accessing updates

- Some software products provide a mechanism for accessing software updates through the product interface. Review your product documentation to identify the recommended software update method.
- To download product updates:

  Hewlett Packard Enterprise Support Center

  https://www.hpe.com/support/hpesc

  Hewlett Packard Enterprise Support Center: Software downloads

  https://www.hpe.com/support/downloads

  My HPE Software Center

  https://www.hpe.com/software/hpesoftwarecenter
- To subscribe to eNewsletters and alerts:

  https://www.hpe.com/support/e-updates
- To view and update your entitlements, and to link your contracts and warranties with your profile, go to the Hewlett Packard Enterprise Support Center More Information on Access to Support Materials page:

  https://www.hpe.com/support/AccessToSupportMaterials

> **IMPORTANT:**
> Access to some updates might require product entitlement when accessed through the Hewlett Packard Enterprise Support Center. You must have an HPE Passport set up with relevant entitlements.

Remote support

Remote support is available with supported devices as part of your warranty or contractual support agreement. It provides intelligent event diagnosis, and automatic, secure submission of hardware event notifications to Hewlett Packard Enterprise, which initiates a fast and accurate resolution based on the service level of your product. Hewlett Packard Enterprise strongly recommends that you register your device for remote support.

If your product includes additional remote support details, use search to locate that information.

HPE Get Connected

https://www.hpe.com/services/getconnected

HPE Pointnext Tech Care

https://www.hpe.com/services/techcare

HPE Complete Care

https://www.hpe.com/services/completecare

Warranty information

To view the warranty information for your product, see the links provided below:

HPE ProLiant and IA-32 Servers and Options

https://www.hpe.com/support/ProLiantServers-Warranties

HPE Enterprise and Cloudline Servers

https://www.hpe.com/support/EnterpriseServers-Warranties

HPE Storage Products

https://www.hpe.com/support/Storage-Warranties

HPE Networking Products

https://www.hpe.com/support/Networking-Warranties

Regulatory information

To view the regulatory information for your product, view the Safety and Compliance Information for Server, Storage, Power, Networking, and Rack Products, available at the Hewlett Packard Enterprise Support Center:

https://www.hpe.com/support/Safety-Compliance-EnterpriseProducts

Additional regulatory information

Hewlett Packard Enterprise is committed to providing our customers with information about the chemical substances in our products as needed to comply with legal requirements such as REACH (Regulation EC No 1907/2006 of the European Parliament and the Council). A chemical information report for this product can be found at:

https://www.hpe.com/info/reach

For Hewlett Packard Enterprise product environmental and safety information and compliance data, including RoHS and REACH, see:

https://www.hpe.com/info/ecodata

For Hewlett Packard Enterprise environmental information, including company programs, product recycling, and energy efficiency, see:

https://www.hpe.com/info/environment

Documentation feedback

Hewlett Packard Enterprise is committed to providing documentation that meets your needs. To help us improve the documentation, use the Feedback button and icons (at the bottom of an opened document) on the Hewlett Packard Enterprise Support Center portal (**https://www.hpe.com/support/hpesc**) to send any errors, suggestions, or comments. This process captures all document information.