HPE ProLiant ML30 Gen11 Server User Guide

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HPE ProLiant ML30 Gen11 Server User Guide

Abstract

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

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Component identification

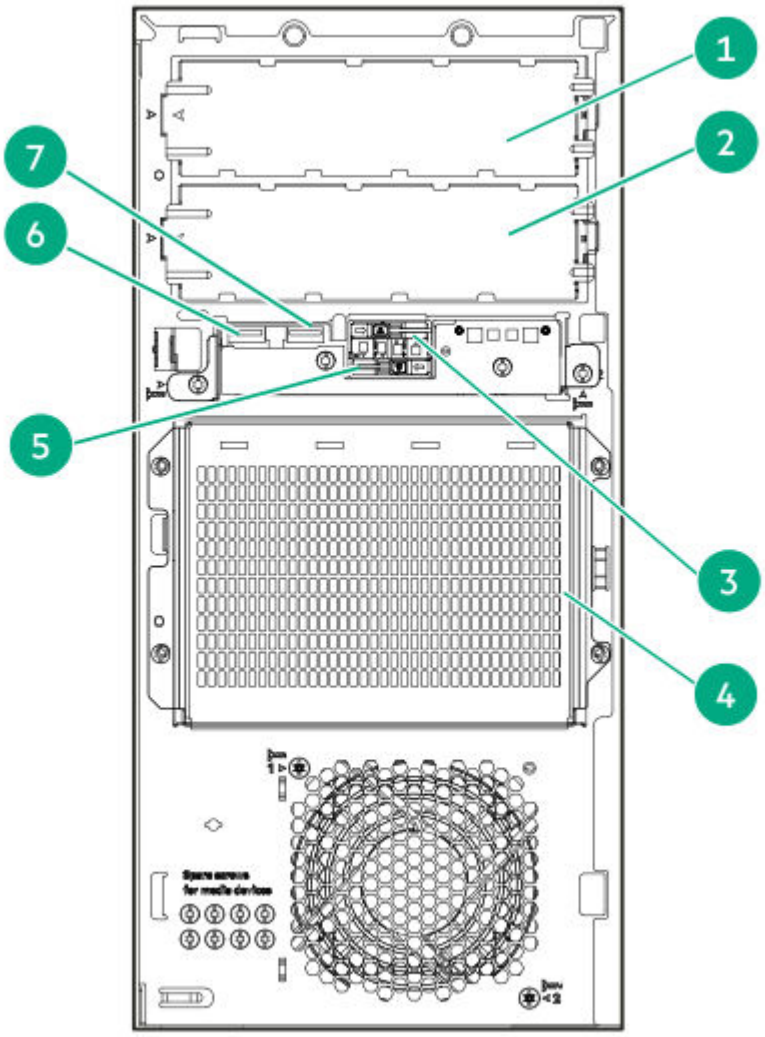
This chapter describes the external and internal server features and components.

Subtopics

Front panel components
Front panel LEDs and buttons
Rear panel components
Rear panel LEDs
Component touchpoints
System board components
Drive backplane naming
HPE Basic Drive LED definitions
PCIe expansion slot definitions
Drive bay numbering
Fan numbering
Fan mode behavior
Media device screws
Trusted Platform Module 2.0
HPE NS204i-u Boot Device components
HPE NS204i-u Boot Device LED definitions

Front panel components

4 LFF drives non-hot-plug drive model

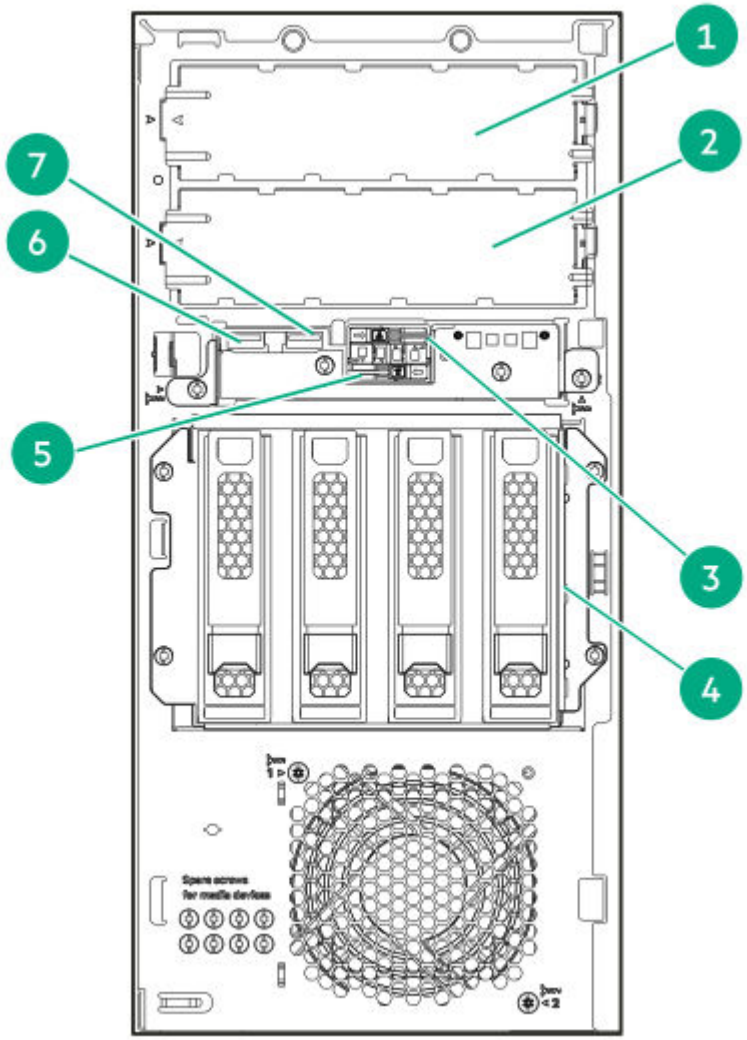


Item	Description
1	Media bay 1 [1]
2	Media bay 2 [1]
3	HPE NS204i-u Boot Device slot 1 (optional)
4	4 LFF non-hot-plug drive cage
5	HPE NS204i-u Boot Device slot 2 (optional)
6	USB 3.2 Gen 1 port

Item	Description
7	iLO service port

[1] The media bays support a SATA optical drive, SAS LTO tape drive, or a USB RDX docking station.

4 LFF drives hot-plug drive model

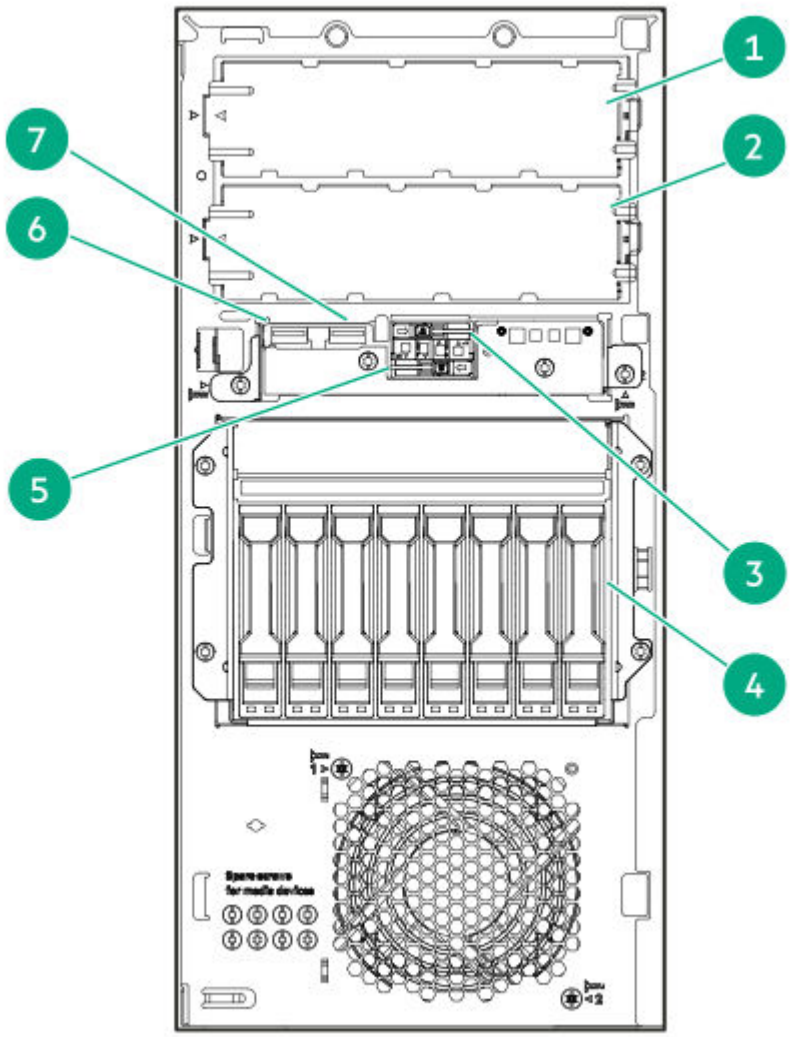


Item	Description
1	Media bay 1 [1]
2	Media bay 2 [1]
3	HPE NS204i-u Boot Device slot 1 (optional)

Item	Description
4	4 LFF hot-plug drives
5	HPE NS204i-u Boot Device slot 2 (optional)
6	USB 3.2 Gen 1 port
7	iLO service port

[1] The media bays support a SATA optical drive or a USB RDX docking station.

8 SFF drives hot-plug drive model



Item	Description
1	Media bay 1 [1]

Item	Description
2	Media bay 2 [1]
3	HPE NS204i-u Boot Device slot 1 (optional)
4	8 SFF hot-plug drives
5	HPE NS204i-u Boot Device slot 2 (optional)
6	USB 3.2 Gen 1 port
7	iLO service port

[1] The media bays support a SATA optical drive or a USB RDX docking station.

Subtopics

iLO Service Port

iLO Service Port

The Service Port is a USB port with the label **iLO** on supported servers and compute modules.

To find out if your server or compute module supports this feature, see the server specifications document at the following website: **https://www.hpe.com/info/quickspecs**.

The Service Port is a USB port with the label **iLO** on the front of the server.

To find out if your server supports this feature, see the server specifications document at the following website: **https://www.hpe.com/info/quickspecs**.

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).

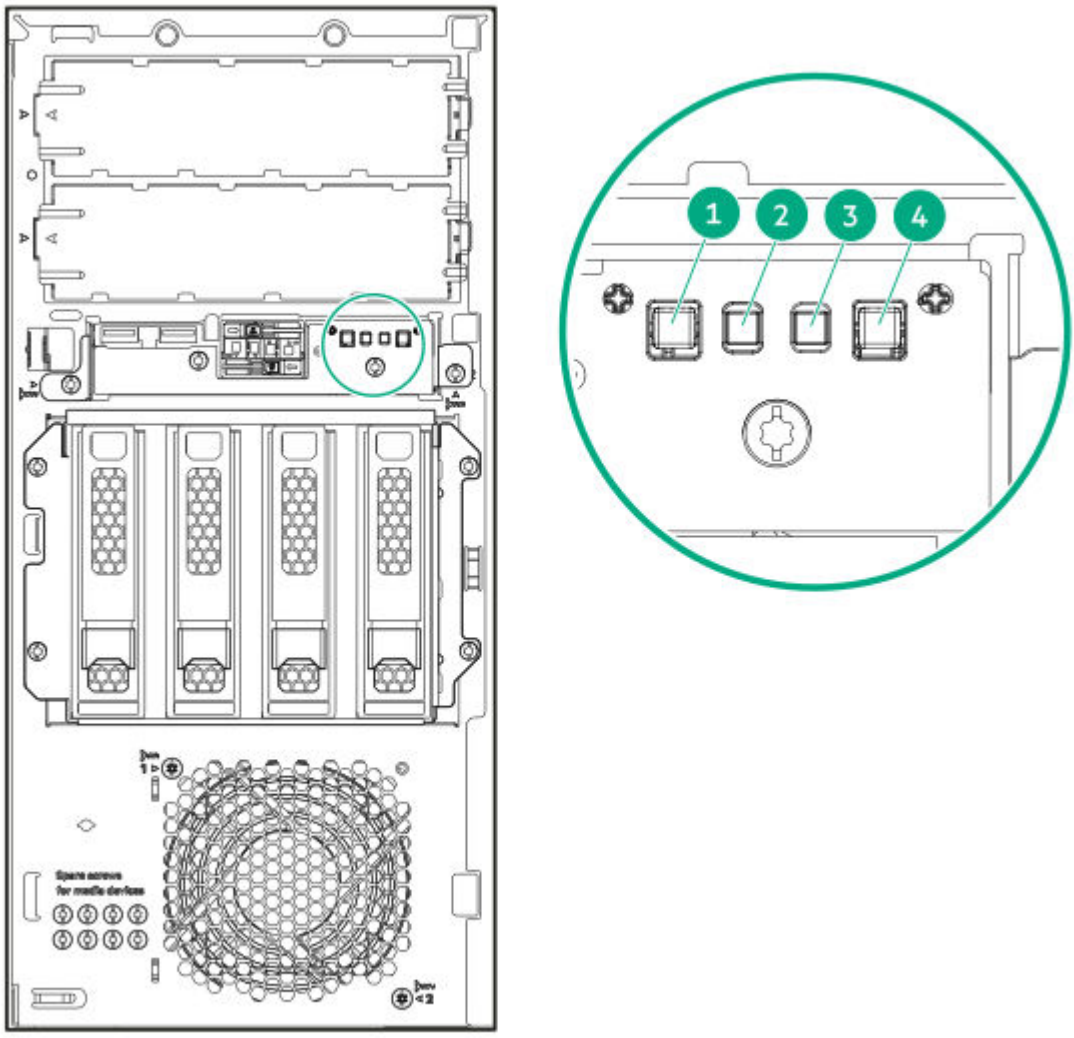
When you use the iLO Service Port:

- 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/ilo6**.

Front panel LEDs and buttons



Item	Description	Status	Definition
1	UID button/LED [1]	Solid blue	Activated
		Flashing blue	• One flash per second—Remote manage ment or firmware upgrade in progress • 4 flashes per second—iLO manual rebo ot sequence initiated • 8 flashes per second—iLO manual rebo ot sequence in progress

Item	Description	Status	Definition
2	NIC status LED [1]	Solid green	Linked to network
		Flashing green	Network active
		Off	No network activity
3	Health LED [1]	Solid green	Normal
		Flashing green	iLO is rebooting
		Flashing amber	System degraded [2]
		Flashing red	System critical [2]
4	Power On/Standby button and system power LED [1]	Solid green	System on
		Flashing green	Performing power-on sequence
		Solid amber	System in standby
		Off	No power present [3]

[1] When all LEDs flash simultaneously, a power fault has occurred. For more information, see Front panel LED power fault codes.
[2] If the health LED indicates a degraded or critical state, review the system Integrated Management Log (IML) or use HPE iLO to review the system health status.
[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.

Subtopics

Server UID LED
Viewing the Server Health Summary
Front panel LED power fault codes

Server UID LED

The UID LED can be used to help an on-site technician quickly identify or locate a particular server when it is deployed in a dense rack with other equipment. It can also be used to identify if a remote management, firmware upgrade, or reboot sequence is in progress.

Viewing the Server Health Summary

Prerequisites

- An external monitor is connected.
- In the iLO web interface, the **Show Server Health on External Monitor** feature is enabled on the **Access Settings** page.

About this task

If the server does not power on, use the UID button to display the iLO **Server Health Summary** screen on an external monitor. This function works when the server is powered on or off.

For more information, see the iLO troubleshooting guide on the **Hewlett Packard Enterprise website**.

Procedure

1. Press and release the UID button.

   CAUTION

   Be sure to press and release the UID button. Pressing the UID button at any time for more than five seconds will initiate a graceful iLO reboot or a hardware iLO reboot. Data loss or NVRAM corruption might occur during a hardware iLO reboot.

   The **Server Health Summary** screen displays on the external monitor.

2. Press the UID button again to close the **Server Health Summary** screen.

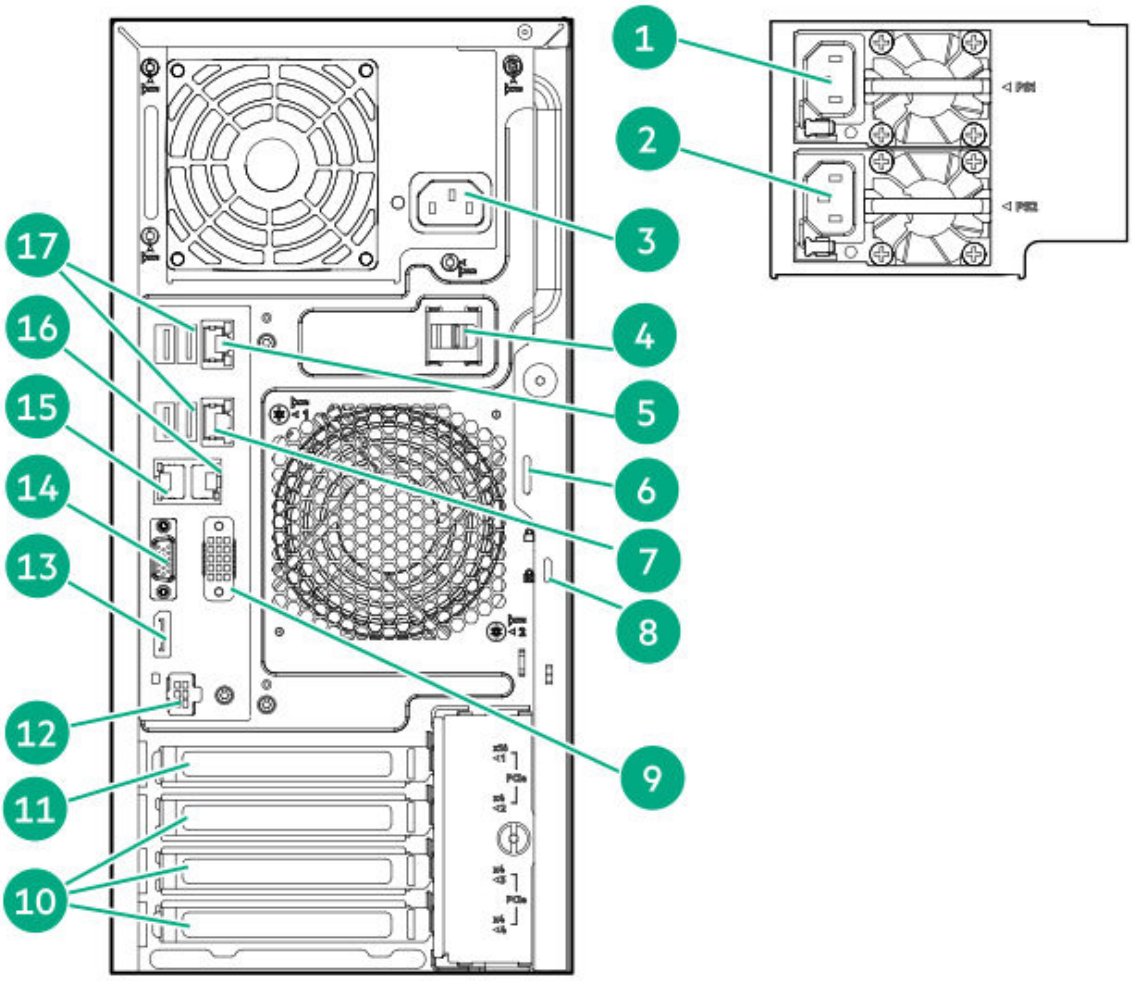
Front panel LED power fault codes

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

Subsystem	LED behavior
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	Flexible Slot power supply 1
2	Flexible Slot power supply 2 (optional)
3	Non-hot-plug power supply
4	Power cord clip (for non-hot-plug power supply)
5	NIC 1 / iLO shared port (1 GbE)
6	Padlock eye
7	NIC port 2 (1 GbE)
8	Kensington security slot

Item	Description
9	Serial port (optional)
10	Slots 2-4 PCIe4 x4
11	Slot 1 PCIe5 x16
12	iLO dedicated network port (optional)
13	DisplayPort 1.1a
14	VGA port
15	NIC port 4 (1 GbE)
16	NIC port 3 (1 GbE)
17	USB 3.2 Gen 1 ports [1]

[1] When the server is in standby mode, these USB ports will have no power. Connected devices will not charge nor be able to wake the server from standby mode.

Subtopics

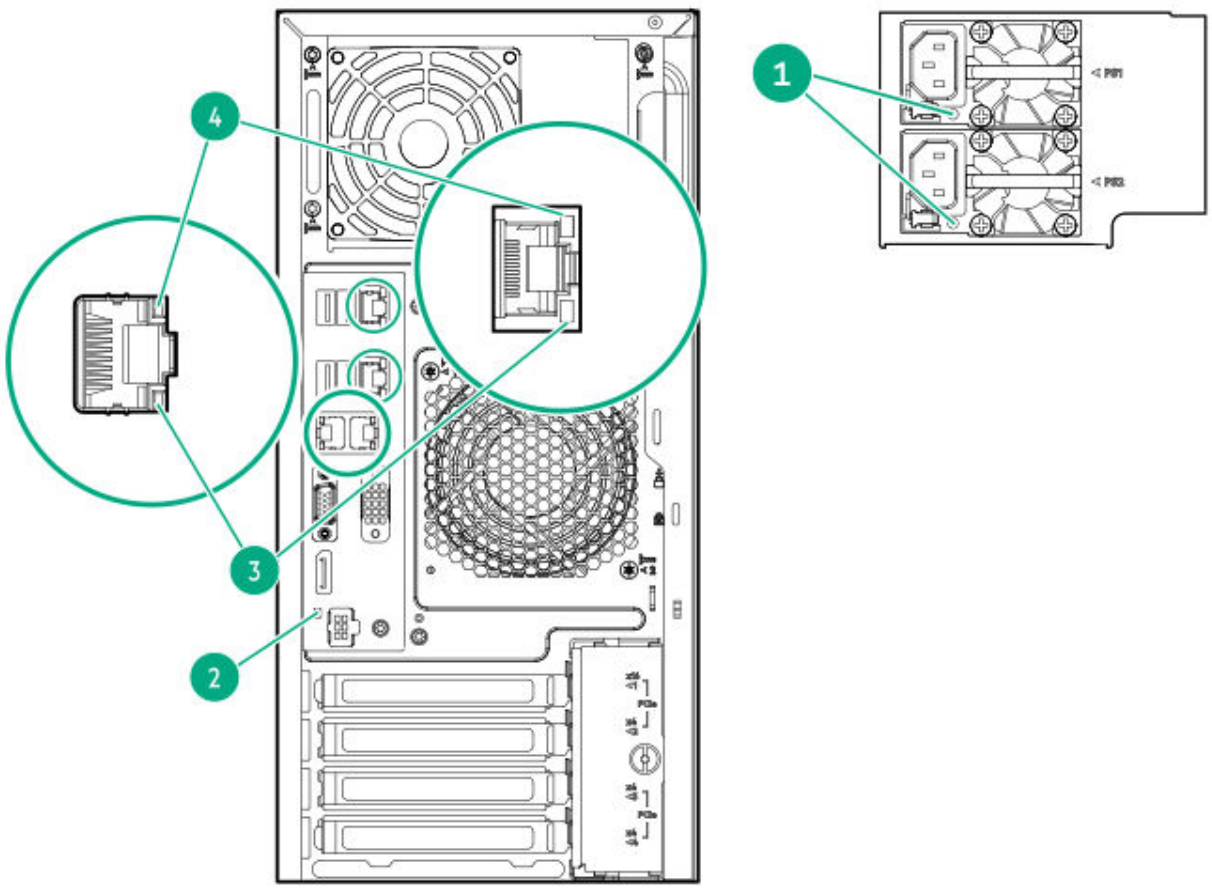
Monitor setup

Monitor setup

Before connecting a monitor, observe the following:

- The server supports both VGA port and DisplayPort 1.1a.
- If you connect two display devices to the server using both the VGA port and DisplayPort, the same image is mirrored on both devices.
- The embedded video controller in the iLO chipset does not support dual display or screen extension mode. To enable dual display, install a compatible graphics card.
- When using HDMI or DVI adapters for the DisplayPort, use an active-type adapter. Passive-type adapters marked with the DP++ symbol are not supported.
- Whenever possible, use the same display connection type. For example, if your monitor only has a VGA port, use the VGA port on the server. Using other adapters or converter cables or dongles might lead to decreased display quality or a lag over the connection.

Rear panel LEDs



Item	Description	Status	Definition
1	Power supply	Solid green	The power supply is operating normally.
		Off	One or more of the following c onditions exists: • Power is unavailable • Power supply failure • Power supply is in standby mode • Power supply error • Front I/O cable is disconne cted
2	UID	Solid blue	Activated

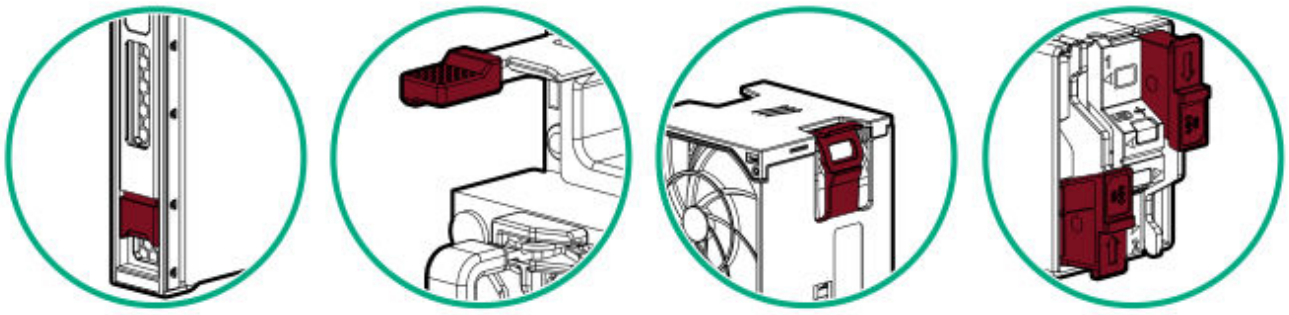
Item	Description	Status	Definition
		Flashing blue	• 1 flash per second—Remote management or firmware upgrade in progress • 4 flashes per second—iLO manual reboot sequence initiated • 8 flashes per second—iLO manual reboot sequence in progress
		Off	Deactivated
3	NIC/iLO activity	Flashing green	Network active
		Off	No network activity
4	NIC/iLO link	Solid green	Network link speed is 1000 Mb/s.
		Solid amber	Network link speed is 10/100 Mb/s.
		Off	No network link

Component touchpoints

Certain components are color-coded. These colors represent the recommended touch areas for a removal process and indicate whether components require a system shutdown before removal.

The following diagrams are examples only.

HPE hot-plug red

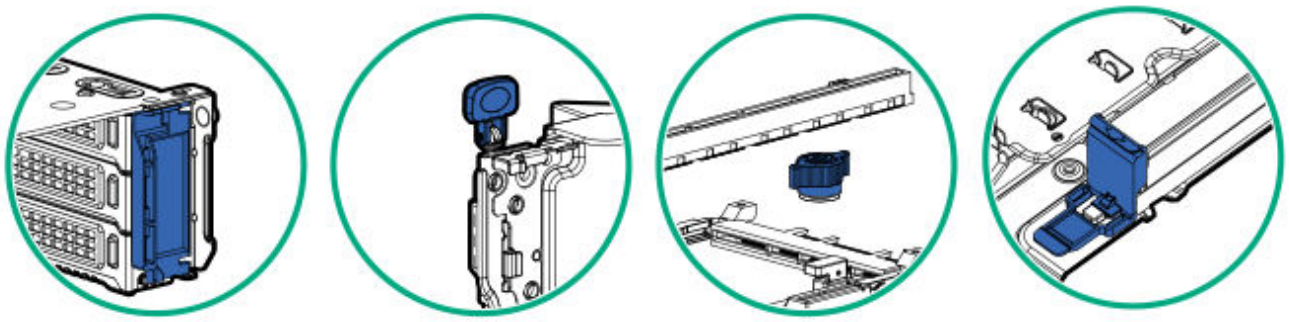


Hot-plug red indicates hot-pluggable components. These components can be removed and installed while the system is running, and doing so will not result in a system shutdown.

Component examples:

- Power supplies in a redundant power configuration
- Hot-plug fans
- Hot-plug drives
- M.2 SSDs in a hot-plug boot device

HPE touchpoint blue

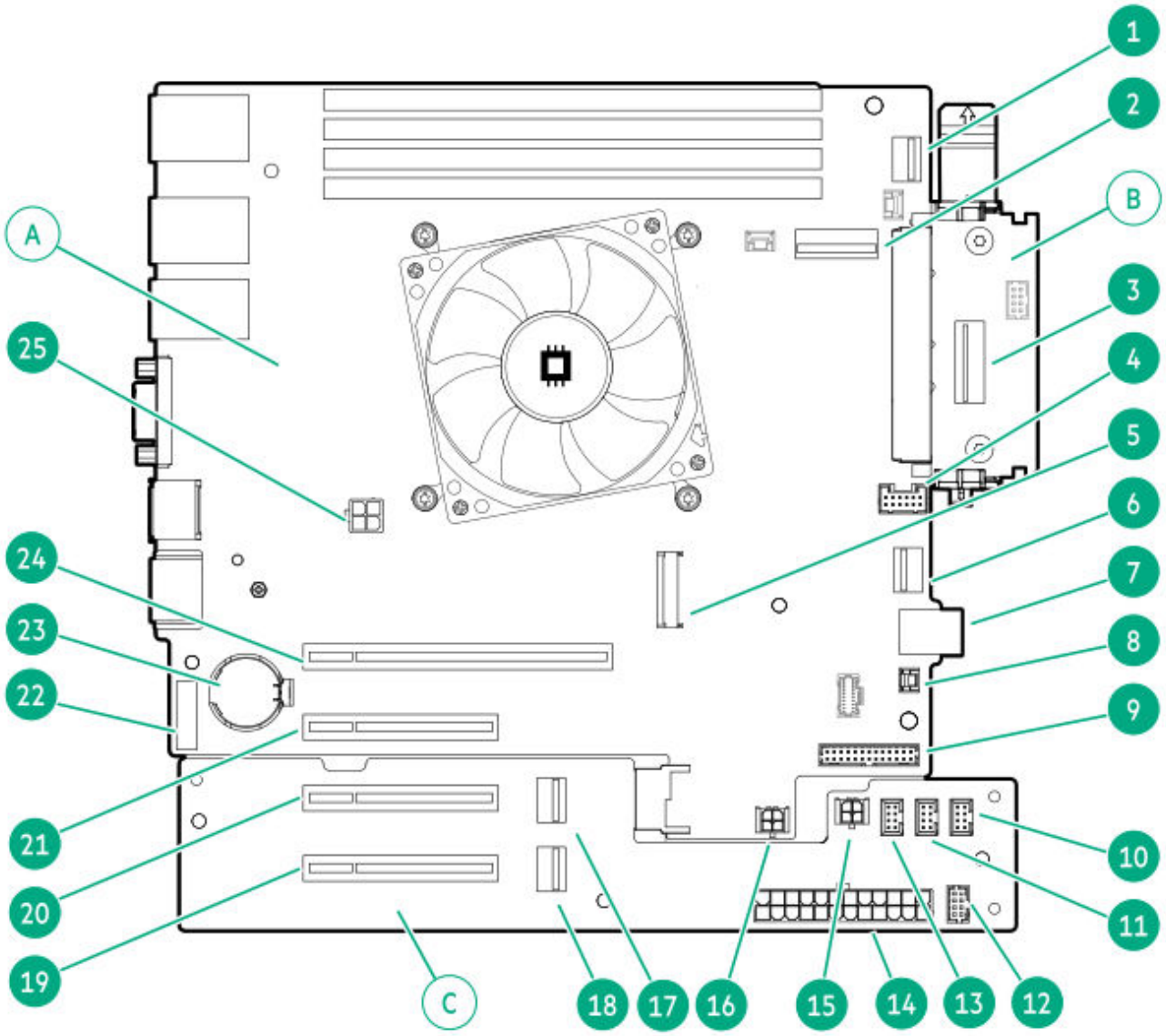


Touchpoint blue indicates cold-pluggable components. These components require a system shutdown. Failure to do so might result in system failure or data loss. Cold-pluggable components might also indicate touchpoints on non-electrical components.

Component examples:

- Storage devices
- Fan cages
- System boards
- Energy packs

System board components



The system board comprises of three individual printed circuit assemblies (PCA):

Item	Board
A	Mainboard
B	Pass-through board (PTB) [1]
C	Power distribution board (PDB)

[1] The PTB is connected to Slot 14 internal OCP PCIe4 x4.

Item	Description
1	Front I/O & USB 3.2 Gen 1 and iLO service port connector
2	SlimSAS x8 port 1
3	SlimSAS x8 port 3 [1]
4	Energy pack connector
5	M.2 slot [2]
6	SlimSAS x4 port 2
7	Stacked dual USB 3.2 Gen 2 ports
8	Storage controller backup power connector
9	Power supply sideband connector
10	Fan connector 3 (PCIe fan)
11	Fan connector 2 (processor heatsink fan)
12	NS204i-u power connector
13	Fan connector 1 (system fan)
14	24-pin power supply connector
15	PDB: System power connector
16	Mainboard: System power connector
17	Slot 3 SimSAS x4 port 1
18	Slot 4 SlimSAS x4 port 2
19	Slot 4 PCIe4 x8 (4, 1)
20	Slot 3 PCIe4 x8 (4, 1)
21	Slot 2 PCIe4 x8 (4, 1)
22	System maintenance switch
23	System battery
24	Slot 1 PCIe5 x16
25	4-pin processor power connector

[1] For SATA devices or the HPE NS204i-u Boot Device.
[2] This M.2 slot will support the iLO-M.2 serial module option.

Subtopics

System maintenance switch
DIMM slot numbering
DIMM label identification

System maintenance switch

The system maintenance switch is a DIP switch on the system board used for service, troubleshooting, or other system configurations. Each switch is OFF by default and each ON position enables a specific function.

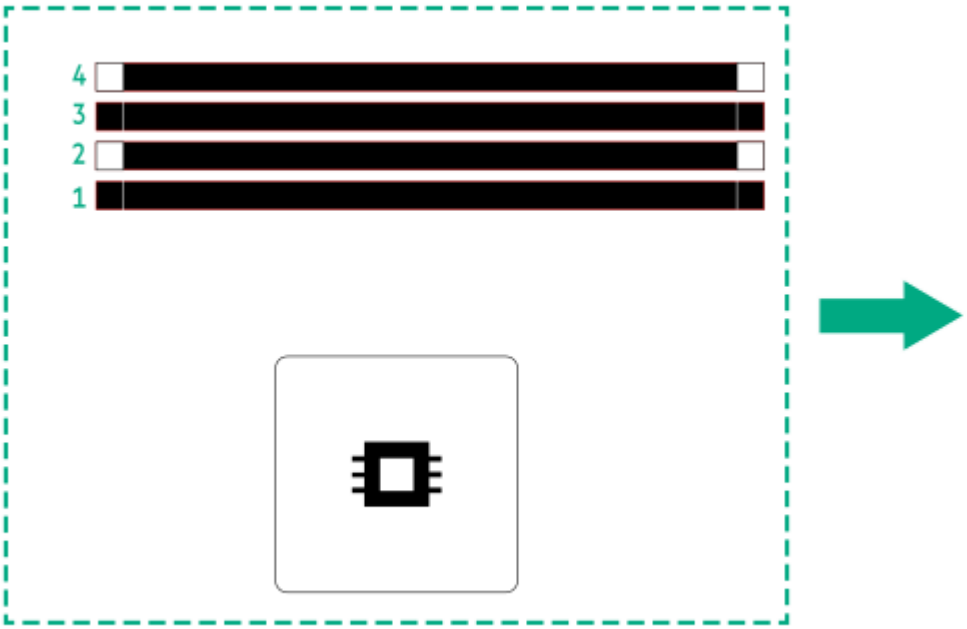
To locate the system maintenance switch on your server, see System board components.

Position	Default	Function
S1 [1]	Off	• Off—iLO 6 security is enabled. • On—iLO 6 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	Off	Reserved
S9	Off	Reserved
S10	Off	Reserved
S11	Off	Reserved
S12	Off	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 Configuring the server.

DIMM slot numbering

The arrow points to the front of the server.



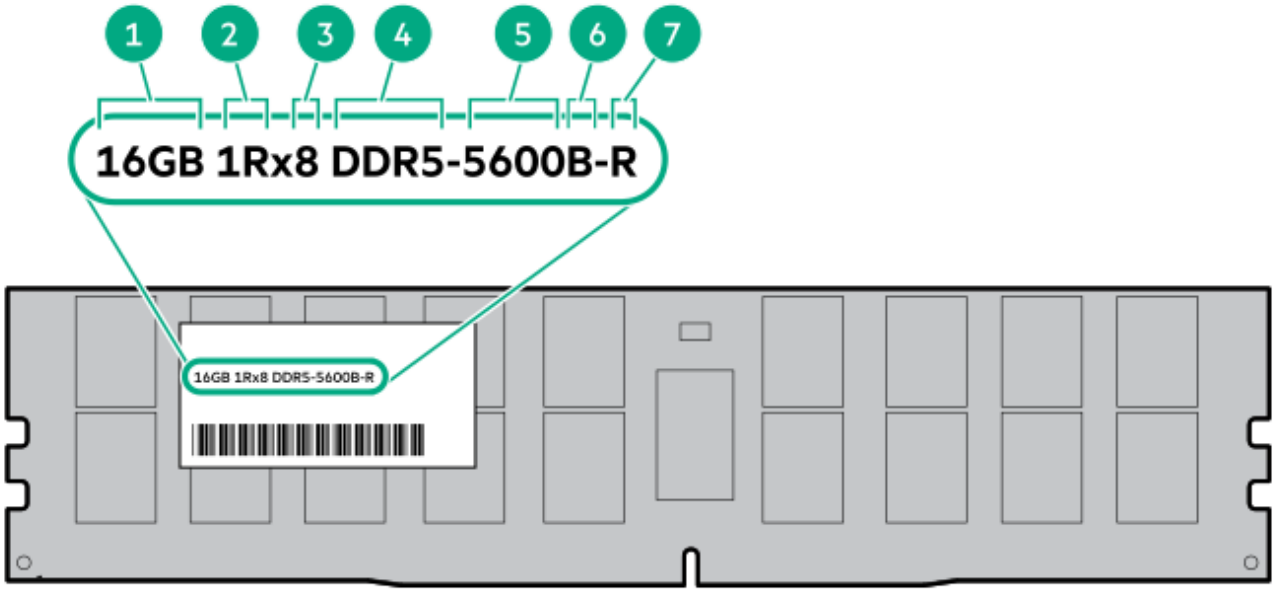
DIMM label identification

The label contains information about the DIMM. For additional information about DIMMs, including:

- Memory speeds and server-specific DIMM population rules
- Product features, specifications, options, configurations, and compatibility

See the website:

https://www.hpe.com/docs/server-memory



Item	Description	Example
1	Capacity [1]	16 GB 32 GB 64 GB 96 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	PC5—DDR5
5	Maximum memory speed [1]	4800 MT/s 5600 MT/s 6400 MT/s

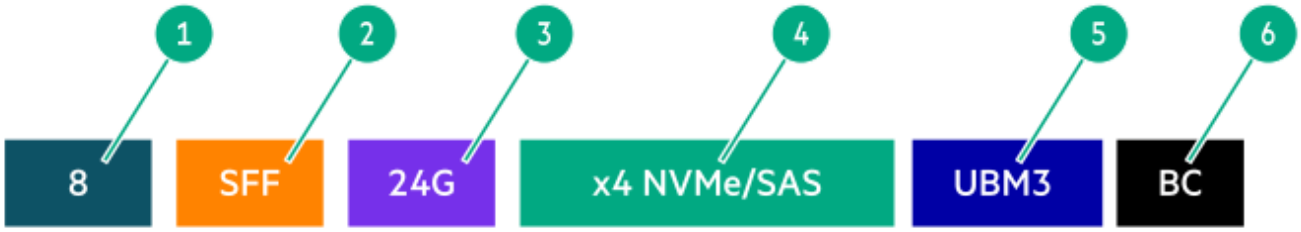
Item	Description	Example
6	CAS latency	B—42-42-42 B—50-42-42 (for 128 GB and 256 GB capacities)[1]
7	DIMM type	E—UDIMM (unbuffered with ECC) R—RDIMM (registered)

[1] The maximum memory speed and capacity is a function of the memory type, memory configuration, and processor model.

Drive backplane naming

This topic explains the features represented in the drive backplane naming. This naming convention was adopted starting in the HPE Gen11 server release. Your server might not support all the features listed in this topic. For server-specific support information, see the server guides:

- Drive backplane support, see Drive bay numbering.
- Drive backplane cabling, see Storage cabling.



Item	Description	Values
1	Drive bay count	Number of drive bays supported by the backplane.
2	Drive form factor	LFF—Large Form Factor
		SFF—Small Form Factor
		E3S—Enterprise and Datacenter Standard Form Factor (EDSFF E3.S)

Item	Description	Values
3	Maximum link rate per lane (GT/s)	12G
		16G
		24G
		32G
4	Port link width and interface	x1 NVMe/SAS—U.3 NVMe, SAS, or SATA [1]
		x4 NVMe/SAS—U.3 NVMe, SAS, or SATA [2]
		x4 NVMe—NVMe [3]
		x4 NVMe—E3.S
5	Universal backplane manager (UBM) model	The UBM model defines the UBM firmware used by the backplane. Examples of UBM models: UBM2, UBM3, an d etc.
6	Drive carrier type	BC—Basic carrier (SFF)
		LP—Low-profile carrier (LFF)
		EC—E3.S carrier

[1] Tri-mode controller support for x1 U.3 NVMe, SAS, and SATA drives. System board connection supports SATA drives only.
[2] CPU direct attach or tri-mode controller support for x4 U.3 NVMe, x2 (via a splitter cable) U.3 NVMe, or x1 SAS and SATA drives.
[3] CPU direct attach or tri-mode controller support for x4 NVMe drives.

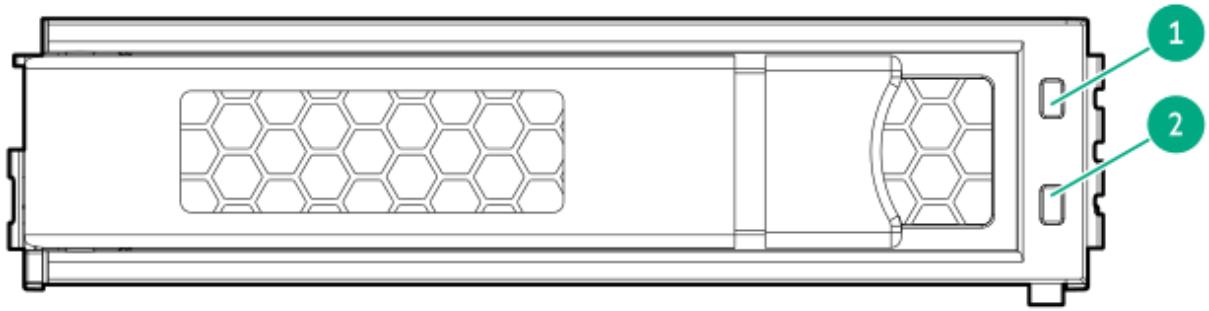
HPE Basic Drive LED definitions

The HPE Basic drive carrier has the following LEDs:

- Amber/blue LED—Managed by the drive backplane in conjunction with the storage controller and is used to indicate drive status.
- Green LED—Managed by the drive itself and indicates the drive activity.

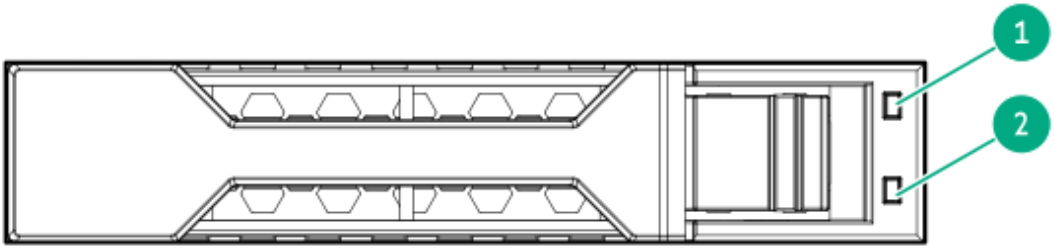
LFF low-profile drive carrier

The LFF low-profile drive carrier supports hot-plug SAS and SATA drives.



SFF basic drive carrier

The SFF basic drive carrier supports hot-plug SAS and SATA drives.



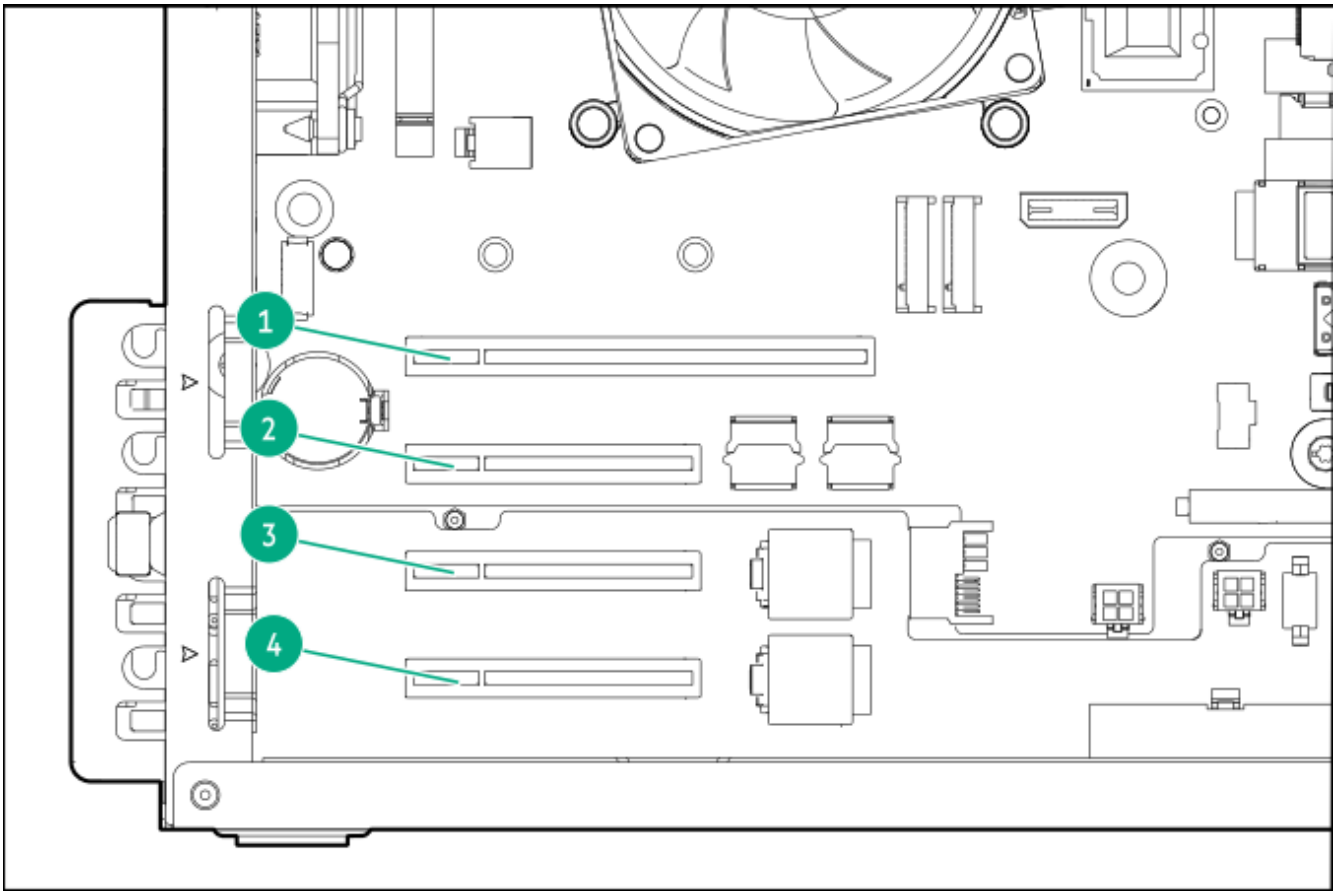
Item	LED	State	Definition
1	Fault/Locate	Solid amber	This drive has failed, is unsupported, or is invalid.
		Solid blue	The drive is operating normally and being identified by a management application.
		Flashing amber/blue (1 flash per second)	The drive has failed, or a predictive failure alert has been received for this drive. The drive has also 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.

Item	LED	State	Definition
		Off	The drive is operating normally and not being identified by a management application.
2	Online/Activity	Solid green	The drive is online and has no activity.
		Flashing green (1 flash per second)	The drive is doing one of the following: • Rebuilding or performing a RAID • Performing a stripe size migration • Performing a capacity expansion • Performing a logical drive extension • Erasing • Spare part activation
		Flashing green (4 flashes per second)	The drive is operating normally and has activity.
		Off	The drive is not configured by a RAID controller or is a spare drive.

PCIe expansion slot definitions

IMPORTANT

If an Intel Pentium processor is installed, the data transfer rate (throughput) of the PCIe5 expansion slot 1 switches down to PCIe4 speed.



Slot number	Slot type	Slot power	Supported form factors
1	PCIe5 x16 (16, 8, 4, 1)	75 W	Full-height, full-length
2	PCIe4 x8 (4, 1)	25 W	Full-height, full-length
3	PCIe4 x8 (4, 1)	25 W	Full-height, half-length
4	PCIe4 x8 (4, 1)	25 W	Full-height, half-length

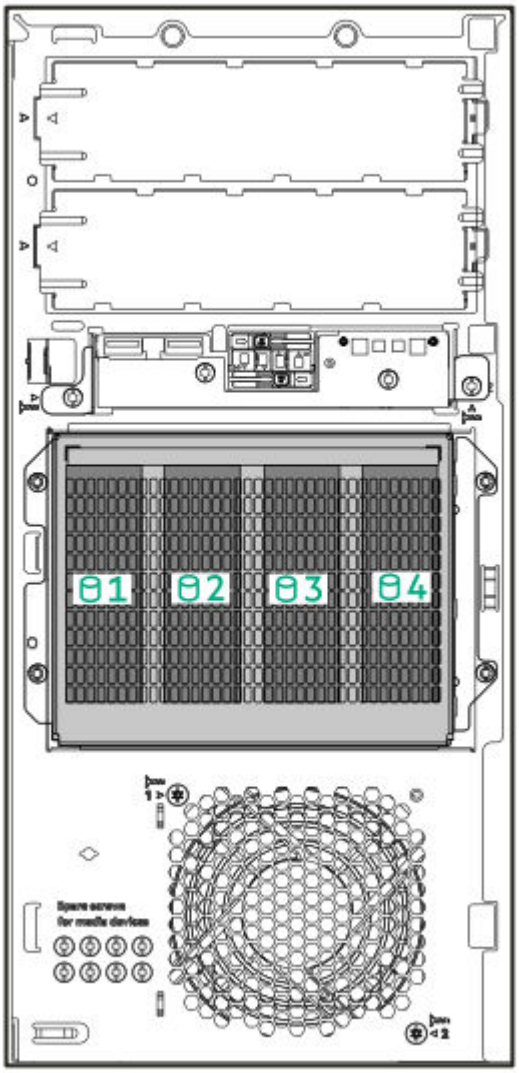
Drive bay numbering

CAUTION

When a server is purchased without any drive installed, some drive bays might be empty while other drive bays might be populated with drive blanks. To maintain proper system cooling, do not operate the server without a drive or a drive blank installed.

4 LFF non-hot-plug drive numbering

- SATA drives are supported.
- Onboard connection for Intel VROC SATA RAID support is through the SlimSAS x4 port 2.

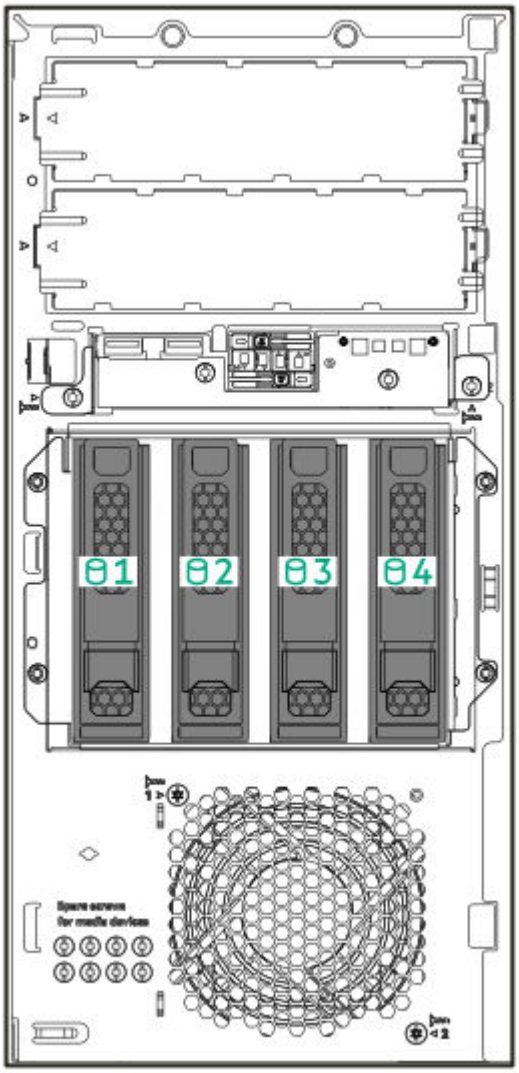


4 LFF hot-plug drive numbering

The 4 LFF hot-plug drive configuration supports the 4 LFF 12G x1 SAS/SATA UBM3 BC BP drive backplane. For more information on the drive backplane description, see Drive backplane naming.

- SAS and SATA drives are supported.

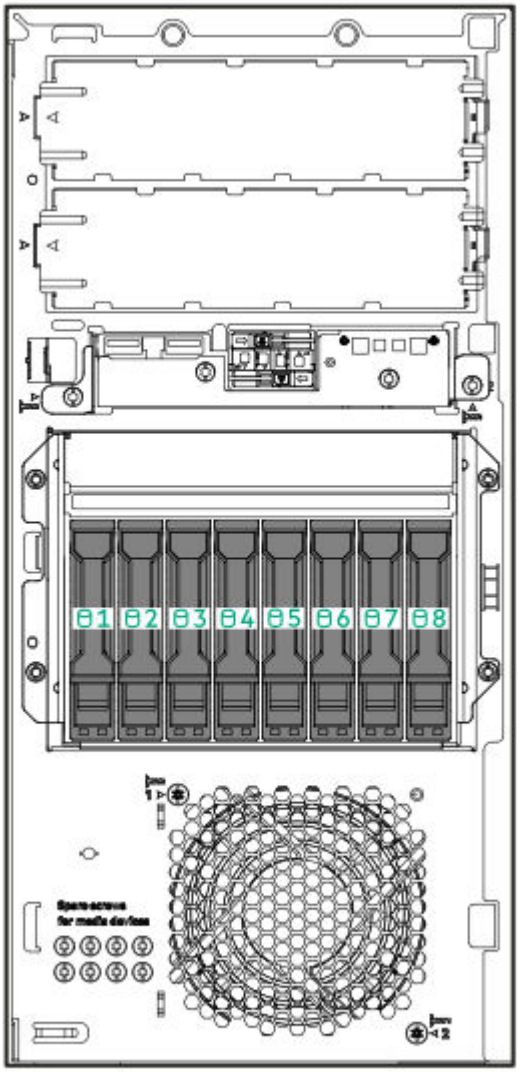
- Onboard connection for Intel VROC SATA RAID support is through the SlimSAS x4 port 2.



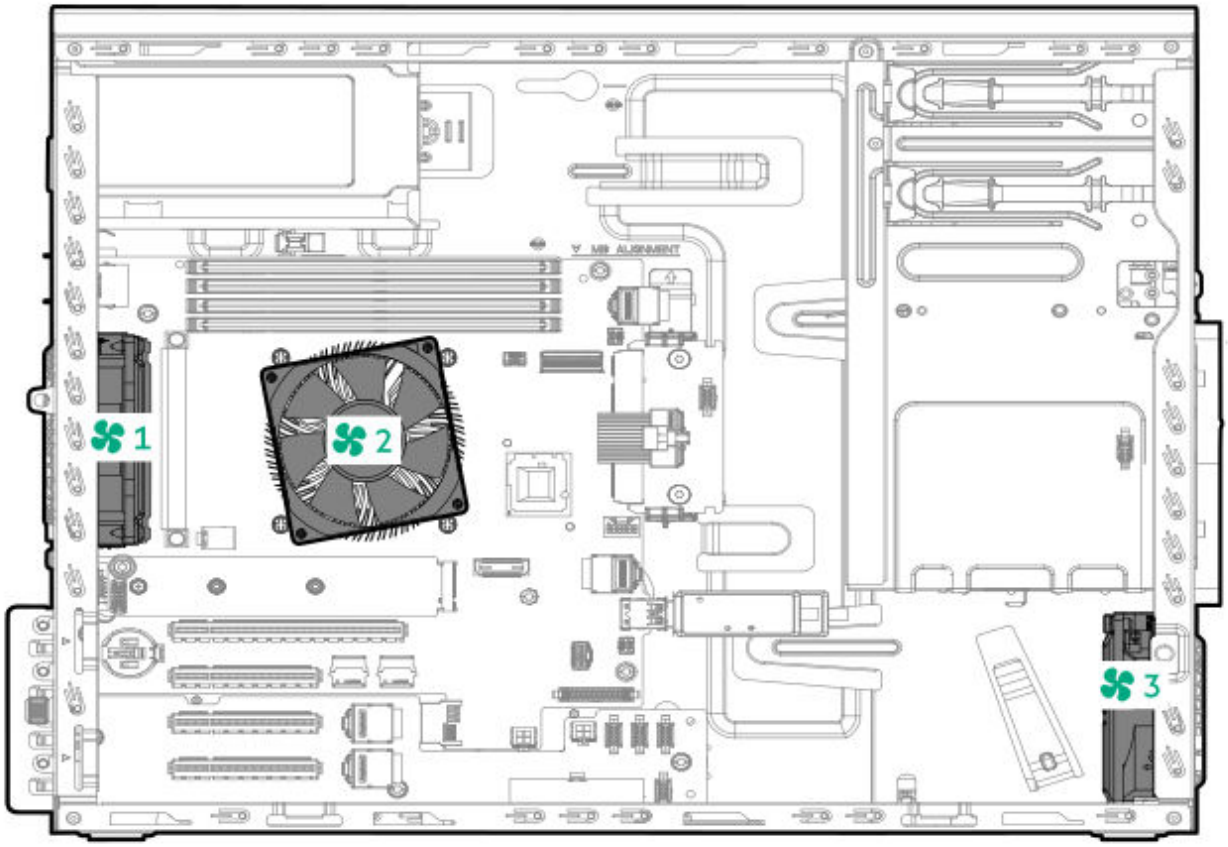
8 SFF hot-plug drive numbering

The 8 SFF hot-plug drive configuration supports the 8 SFF 12G x1 SAS/SATA UBM2 LP BP and the 8 SFF 12G x1 SAS UBM6 BC BP backplane option. For more information on the drive backplane description, see Drive backplane naming.

- SAS and SATA drives are supported.
- Onboard connection for Intel VROC SATA RAID support is through the SlimSAS x8 port 3 and SlimSAS x4 port 2.


B1 B2 B3 B4 B5 B6 B7 B8

Fan numbering



Fan number	Description
1	System fan
2	Heatsink fan
3	PCIe fan (optional)

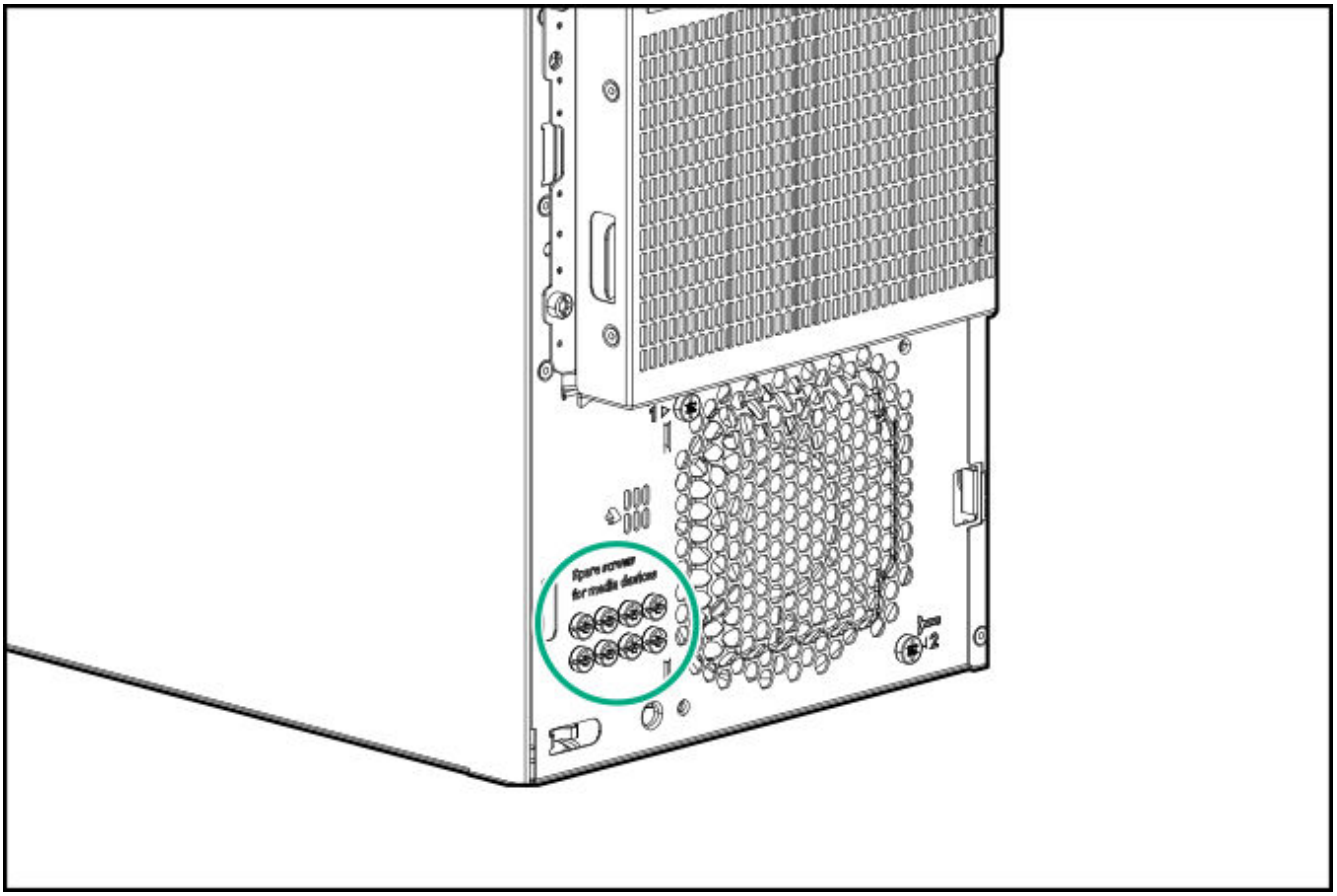
Fan mode behavior

The server supports nonredundant fan mode. If a fan fails or is missing, the following behaviors are exhibited:

- The health LED flashes red.

- The operating system performs a graceful shutdown.

Media device screws



Trusted Platform Module 2.0

The Trusted Platform Module 2.0 (TPM) is a hardware-based system security feature that securely stores artifacts used to authenticate the platform. These artifacts can include passwords, certificates, and encryption keys.

The TPM 2.0 is embedded on the server system board.

The TPM 2.0 is supported with specific operating system support such as Microsoft Windows Server 2012 R2 and later. For more information about operating system support, see the product QuickSpecs on the Hewlett Packard Enterprise website (**https://www.hpe.com/info/quickspecs**). For more information about Microsoft

Windows BitLocker Drive Encryption feature, see the Microsoft website (**https://www.microsoft.com**).

Subtopics

Trusted Platform Module 2.0 guidelines
BitLocker recovery key/password retention guidelines

Trusted Platform Module 2.0 guidelines

CAUTION

- Always observe the TPM guidelines in this section. Failure to follow these guidelines can cause hardware damage or halt data access.
- If you do not follow procedures for modifying the server and suspending or disabling the TPM in the OS, an OS that is using TPM might lock all data access. This includes updating system or option firmware, replacing hardware such as the system board and drives, and modifying TPM OS settings.
- Changing the TPM mode after installing an OS might cause problems, including loss of data.

- Use the UEFI System Utilities to configure the TPM. From the **System Utilities** screen, select **System Configuration > BIOS/Platform Configuration (RBSU) > Server Security > Trusted Platform Module options**. For more information, see the UEFI user guide:

  https://www.hpe.com/support/hpeuefisystemutilities-quicklinks

- When using the Microsoft Windows BitLocker Drive Encryption feature, always retain the recovery key or password. The recovery key or password is required to enter Recovery Mode after BitLocker detects a possible compromise of system integrity.
- HPE is not liable for blocked data access caused by improper TPM use. For operating instructions, see the documentation for the encryption technology feature provided by the operating system.

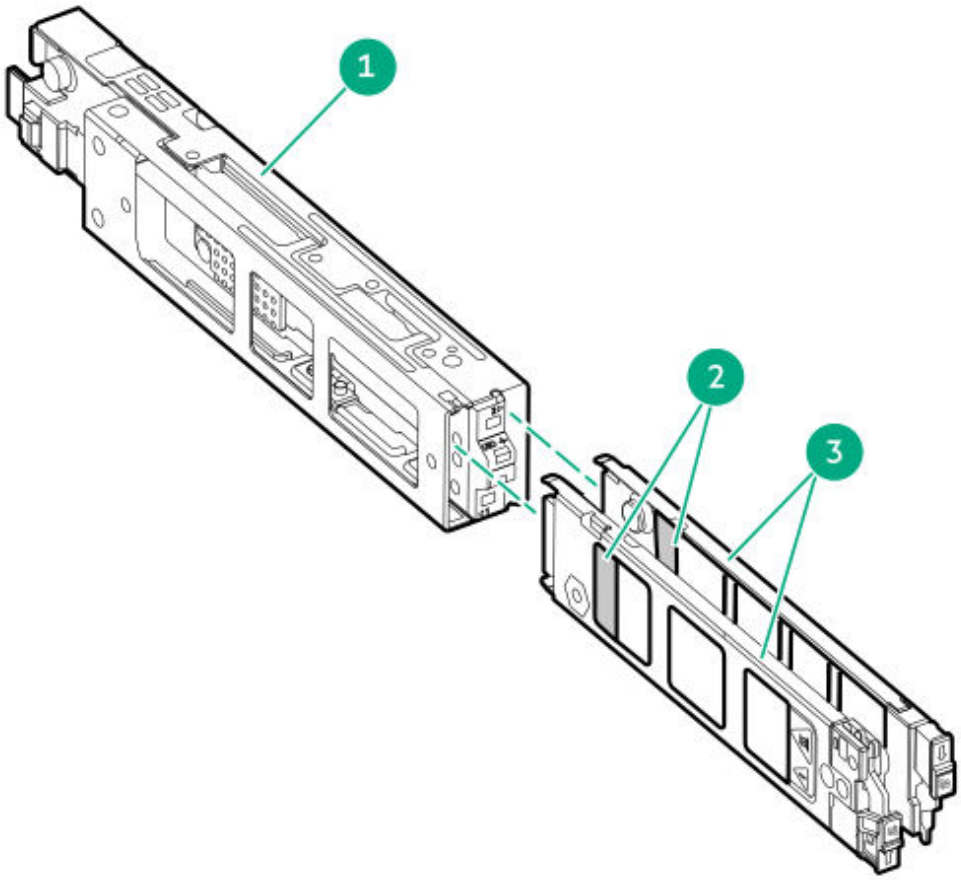
BitLocker recovery key/password retention guidelines

The recovery key/password is generated during BitLocker setup, and can be saved and printed after BitLocker is enabled. When using BitLocker, always retain the recovery key/password. The recovery key/password is required to enter Recovery Mode after BitLocker detects a possible compromise of system integrity.

To help ensure maximum security, observe the following guidelines when retaining the recovery key/password:

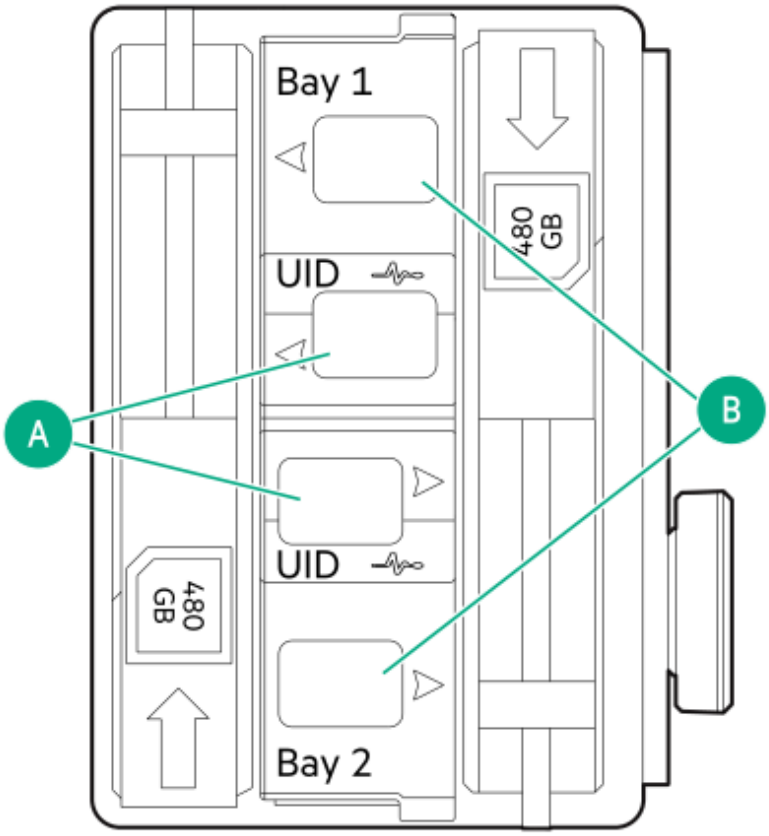
- Always store the recovery key/password in multiple locations.
- Always store copies of the recovery key/password away from the server.
- Do not save the recovery key/password on an encrypted drive.

HPE NS204i-u Boot Device components



Item	Description
1	Boot device cage
2	M.2 slots
3	Boot device carriers

HPE NS204i-u Boot Device LED definitions



NOTE
The bay number can be found on the SSD carrier handle.

Item	LED	Status	Definition
A	Fault or Locate	Solid amber	Drive has failed, unsupported, or invalid.

Item	LED	Status	Definition
		Solid blue	Drive is operating normally.
		Flashing amber or blue (one flash per second)	Drive has failed, or a predictive failure alert is received for the drive.
		Flashing amber (one flash per second)	Drive predictive failure alert is received. Replace the drive as soon as possible.
		Off	Drive is operating normally and is not identified by any application.
B	Online/Activity	Solid green	Drive is online and has no activity.
		Flashing green (one flash per second)	Drive is doing one of the following: • Rebuilding or performing a RAID • Erasing
		Flashing green (4 flashes per second)	Drive is operating normally and has activity.
		Off	Drive is not configured by a RAID controller.

Setup

This chapter describes general operational requirements and safety reminders, as well as the initial setup procedure for the server.

Subtopics

Initial system installation
Operational requirements
Rack warnings and cautions
Server warnings and cautions
Electrostatic discharge

Initial system installation

Depending on your technical expertise and the complexity of the product, for the initial system installation, select one of the following options:

- Ordering the HPE Installation Service
- Setting up the server

Subtopics

HPE Installation Service
Intel VROC support
Setting up the server
Setting up the server in tower mode

HPE Installation Service

HPE Installation Service provides basic installation of Hewlett Packard Enterprise branded equipment, software products, as well as HPE-supported products from other vendors that are sold by HPE or by HPE authorized resellers. The Installation Service is part of a suite of HPE deployment services that are designed to give users the peace of mind that comes from knowing that their HPE and HPE-supported products have been installed by an HPE specialist.

The HPE Installation Service provides the following benefits:

- Installation by an HPE authorized technical specialist.
- Verification prior to installation that all service prerequisites are met.
- Delivery of the service at a mutually scheduled time convenient to your organization.
- Allows your IT resources to stay focused on their core tasks and priorities.
- Full coverage during the warranty period for products that require installation by an HPE authorized technical specialist.

For more information on the features, limitations, provisions, and ordering information of the HPE Installation Service, see this Hewlett Packard Enterprise website:

https://www.hpe.com/support/installation-service

Intel VROC support

Intel Virtual RAID on CPU (Intel VROC) provides enterprise-level hybrid RAID support. Note the following information:

- Intel VROC provides RAID support for direct attached SATA SSDs.

- The Intel VROC driver is required. For the OS-specific driver download, see the following page:

  https://www.hpe.com/support/VROC-installation

- Intel VROC requires the server boot mode to be set to **UEFI Mode**.
- Intel VROC RAID support is disabled by default. In the pre-OS environment, use UEFI System Utilities to enable Intel VROC and create a VROC RAID volume. These tasks are not supported in Intelligent Provisioning.
- The VROC RAID volume must use drives of the same interface and form factor.
- Intel VROC supports RAID management through the following tools:
  - Non-OS specific: UEFI System Utilities
  - Windows: Intel VROC GUI, Intel VROC CLI
  - Linux: `mdadm` CLI

For more information on Intel VROC features and configuration, see Configuring storage controllers.

Setting up the server

Prerequisites

- As a best practice, Hewlett Packard Enterprise recommends installing the latest firmware, drivers, and system software before using the server for the first time. You have these options:
  - HPE Compute Ops Management is an advanced software-as-a-service platform that securely streamlines operations from edge-to-cloud and automates key life cycle tasks through a unified single browser-based interface. For more information on using HPE Compute Ops Management, see **https://www.hpe.com/info/com-quicklinks**.
  - Use the **Firmware Update** option in Intelligent Provisioning—Intelligent Provisioning is a server deployment tool embedded in HPE ProLiant servers. To access Intelligent Provisioning, during the server boot process, press **F10**. For more information, see the Intelligent Provisioning user guide at **https://www.hpe.com/support/hpeintelligentprovisioning-quicklinks**.

- Download the Service Pack for ProLiant (SPP)—SPP is a comprehensive system software and firmware update solution that is delivered as a single ISO image. This solution uses Smart Update Manager (SUM) as the deployment tool.
  - The preferred method for downloading an SPP is by creating an SPP custom download at **https://www.hpe.com/servers/spp/custom**.

    This option reduces the size of the SPP by excluding firmware and drivers for OS and server models that are not needed.
  - The SPP is also available for download from the SPP download page at **https://www.hpe.com/servers/spp/download**.

- Verify that your OS or virtualization software is supported: **https://www.hpe.com/support/Servers-Certification-Matrices**
- This server supports type-p storage controller options. For onboard storage configuration, use either SATA AHCI (default) or Intel Virtual RAID on CPU (Intel VROC). If you plan to use Intel VROC, review these important information before setting up the server.
- Read the Operational requirements for the server.
- Read the safety and compliance information: **https://www.hpe.com/support/safety-compliance-enterpriseproducts**

Procedure

1. Unbox the server and verify the contents:
   - Server
   - Power cord
   - Rack-mounting hardware (optional)
   - Documentation
2. (Optional) Install the hardware options.
3. Select the server orientation:
   - Tower orientation: Connect the peripheral cables and power cord.
   - Rack orientation: Install the tower-to-rack conversion kit.
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 the HPE website:

       https://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 iLO hostname is on the serial number/iLO information label on the top side of the chassis.
     - 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 on the serial number/iLO information label on the top side of the chassis.

  c. Enter the iLO login name and password, and then click **Log In**.

  d. In the navigation tree, click the **Remote Console & Media** link, and then launch a remote console.

5. Press the Power On/Standby button.

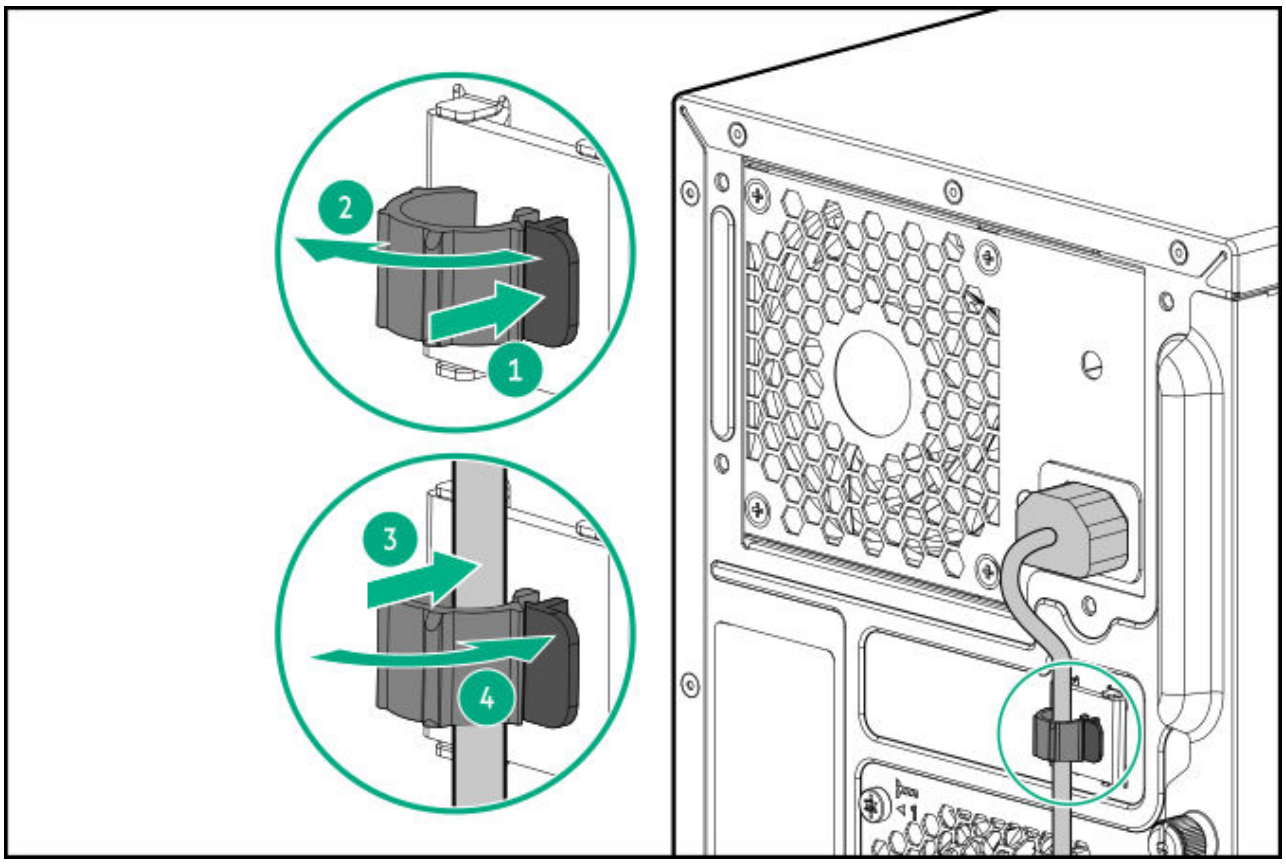
   For remote management, use the iLO virtual power button.

6. Configure the initial server setup.
7. Set up the storage.
8. Deploy an OS or virtualization software.
9. After the OS is installed, update the drivers.
0. Register the server.

Setting up the server in tower mode

Procedure

1. Return the server to an upright position.
2. Connect all peripheral cables to the server.
3. Connect each power cord to the server.
4. Connect each power cord to the power source.
5. If the server is using a non-hot-plug power supply, secure the power cord in the power cord clip on the rear panel.
   a. Press and hold the clip retainer, and then open the clip.
   b. Position the power cord inside the clip, and then close the clip.



6. Power up the server.

Operational requirements

When preparing and planning the installation, observe the following operational requirements:

- Space and airflow requirements
- Temperature requirements
- Power requirements
- Electrical grounding requirements

For environmental requirements, see Environmental specifications.

Subtopics

Space and airflow requirements
Temperature requirements
Power requirements
Electrical grounding requirements

Space and airflow requirements

To allow for servicing and adequate airflow, observe the following space and airflow requirements when installing the server in an indoor commercial rack:

- 63.50 cm (25.00 in) in front of the rack
- 76.20 cm (30.00 in) behind the rack
- 121.90 cm (48.00 in) from the back of the rack to the back of another rack or row of racks

Observe the following:

- Servers draw in cool air through the front of the rack and expel warm air through the rear. The front and rear rack doors must be adequately ventilated to allow ambient air

to enter the cabinet. 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.

> **CAUTION**
>
> When the vertical space in the rack is not filled by a server or rack component, the gaps between the components can cause changes in airflow through the rack and around the servers. Cover all gaps with blanking panels to maintain proper airflow. Using a rack without blanking panels results in improper cooling which can lead to thermal damage.

- If a third-party rack is used, observe the following additional requirements to ensure adequate airflow and 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 7.00 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 uninterruptible power supply. This device protects the hardware from damage caused by power surges and voltage spikes and keeps the system in operation during a power failure.

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, 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 countries, 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 building's branch circuit or includes a nondetachable cord that is wired to an industrial-style plug. NEMA locking-style plugs or those complying with IEC 60309 are considered suitable for this purpose. Using common power outlet strips for the server is not recommended.

Rack warnings and cautions

WARNING

When all components are removed, the server weighs 10.20 kg (22.5 lb). When all components are installed, the server can weigh up to 18.70 kg (41.20 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 10.20 kg (22.5 lb), so at least two people must lift the server into the rack 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 rack.
- Adequately stabilized the rack before extending a component outside the rack. Extend only one component at a time. A rack 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.

Server warnings and cautions

WARNING

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

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

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

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

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.

Operations

This chapter describes the hardware operations carried out prior to and after installing or removing a hardware component, or performing a server maintenance or troubleshooting procedure. Before performing these hardware operations, review the:

- Rack warnings and cautions
- Server warnings and cautions

Subtopics

Power down the server
Extend the server from the rack
Remove the server from the rack
Remove the front bezel
Remove the access panel
Open the cable management arm
Remove the air baffle
Remove the PCIe blank retainer
Remove a media device
Install the PCIe blank retainer
Install the air baffle
Install the access panel
Install the front bezel
Install the server into the rack
Power up the server

Power down the server

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

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

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

- Press and release the Power On/Standby button.
  This method activates a controlled shutdown of applications and the OS before the server enters standby mode. It can also activate a shutdown behavior governed by an OS configuration or policy.

- 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 6.
  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.

Extend the server from the rack

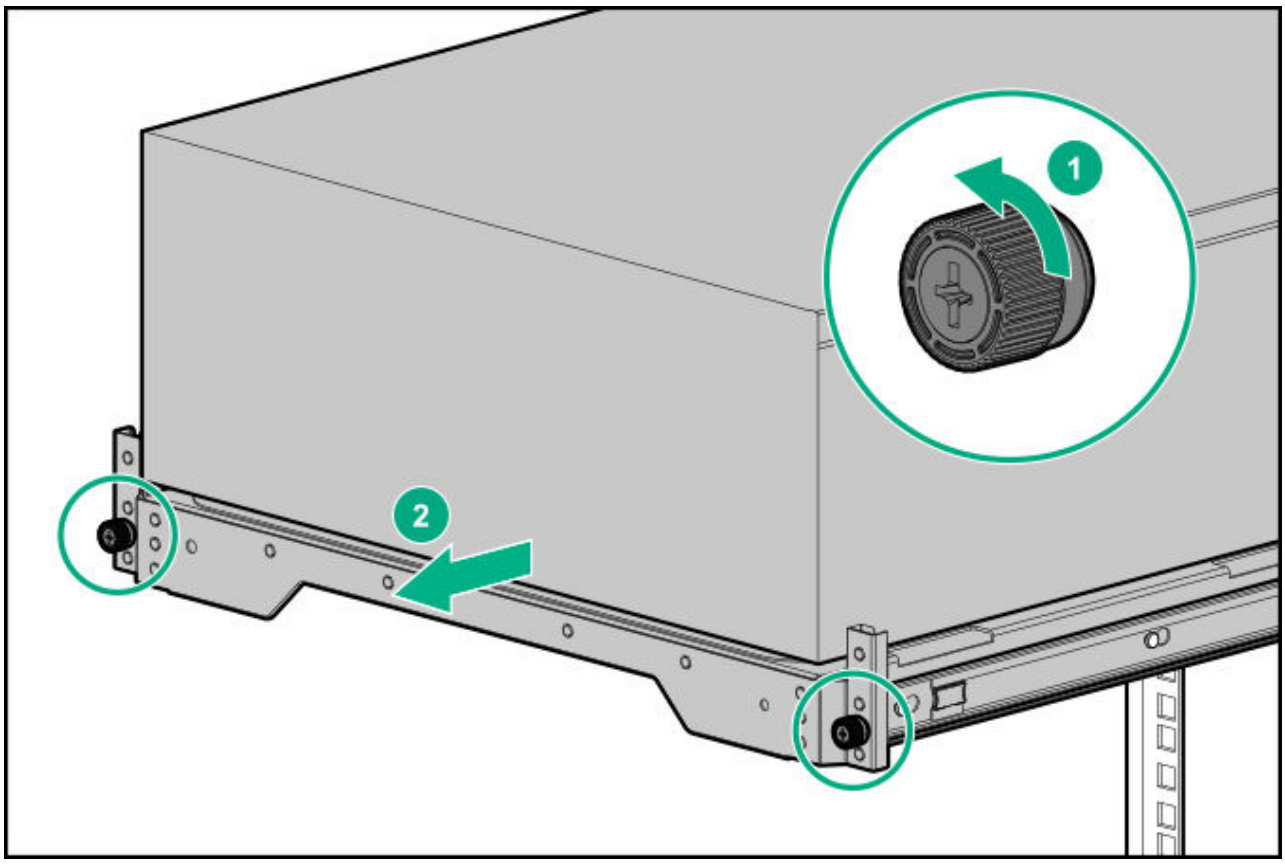
Prerequisites

Before you perform this procedure, review the Rack warnings and cautions.

Procedure

Slide the server tray out of the rack:

1. Loosen the server tray thumbscrews.
2. Grasp the tray notch and slide the server out of the rack.



Remove the server from the rack

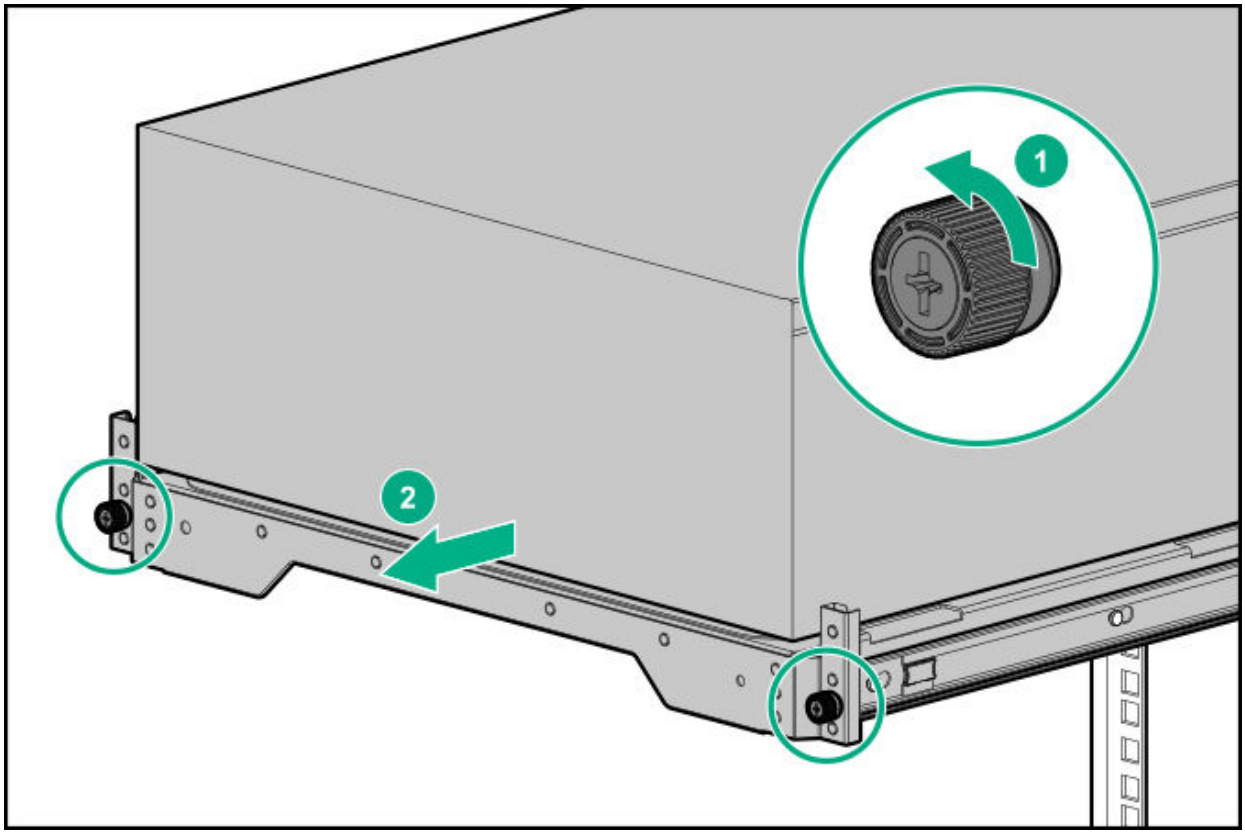
Prerequisites

- Get help to lift and stabilize the server when removing the server from the rack. If the server is removed higher than chest level, an additional person might be required to help support the server weight when removing the server from the tray.
- Before you perform this procedure, review the:
  - Rack warnings and cautions
  - Server warnings and cautions
- A fully populated chassis is heavy. Hewlett Packard Enterprise recommends removing the external chassis components before removing the server from the rack.
- Before you perform this procedure, make sure that you have a T-15 Torx screwdriver available.

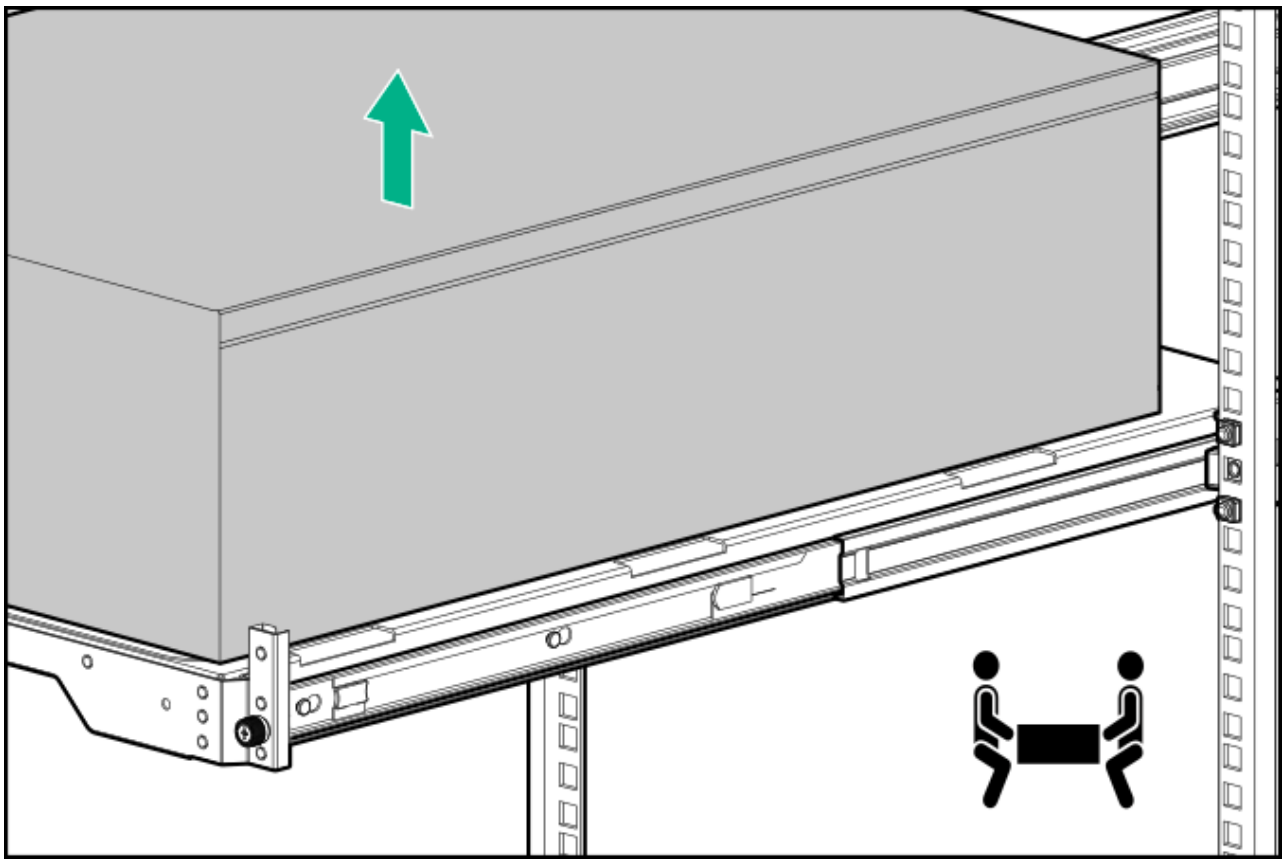
Procedure

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. Disconnect all peripheral cables from the server.
4. If installed, unlock and remove the security padlock and/or the Kensington security lock.

   For more information, see the lock documentation.
5. Slide the server tray out of the rack:
   a. Loosen the server tray thumbscrews.
   b. Grasp the tray notch and slide the server out of the rack.



6. Remove the server from the tray.

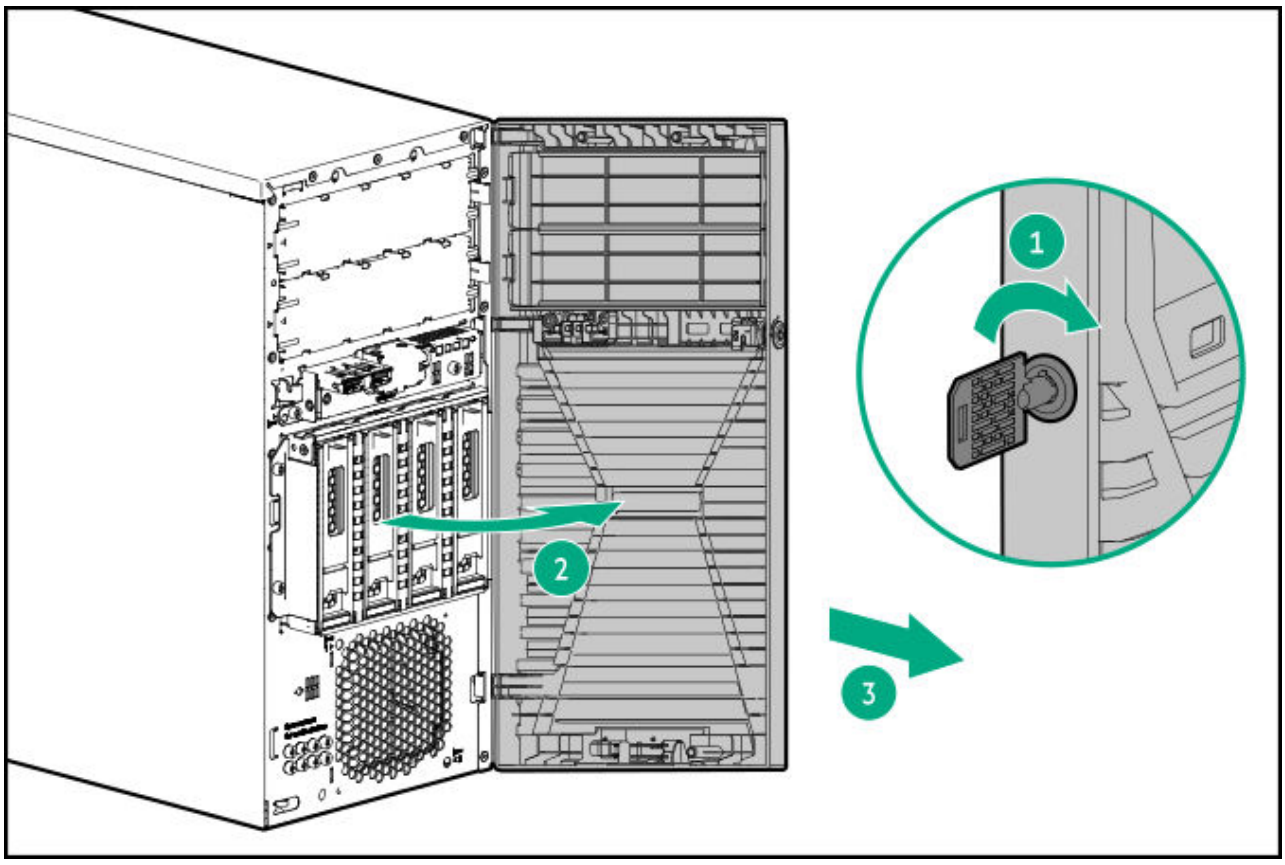


7. Place the server on a flat, level surface with the access panel facing up.

Remove the front bezel

Procedure

1. Unlock the front bezel.
2. Open the front bezel.
3. Pull the front bezel away from the chassis.



Remove the access panel

Prerequisites

If the access panel thumbscrew is too tight, use a T-15 Torx screwdriver to loosen it.

About this task

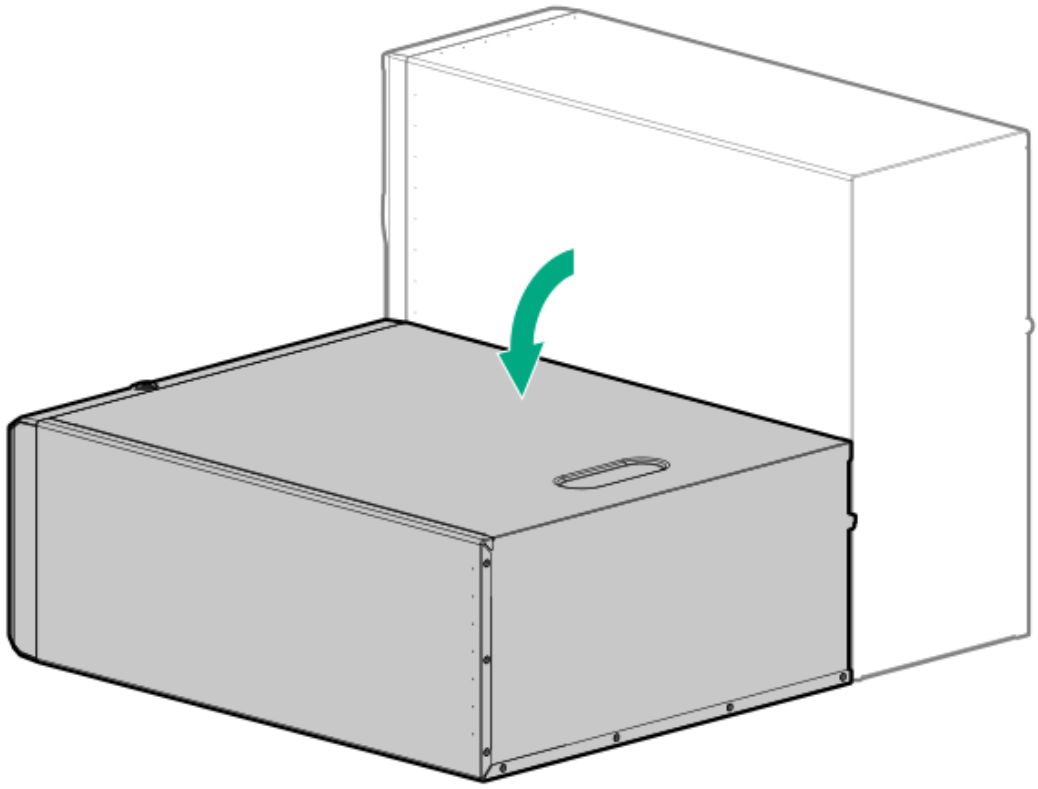
WARNING
To reduce the risk of personal injury from hot surfaces, allow the drives and the internal system components to cool before touching them.

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

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.

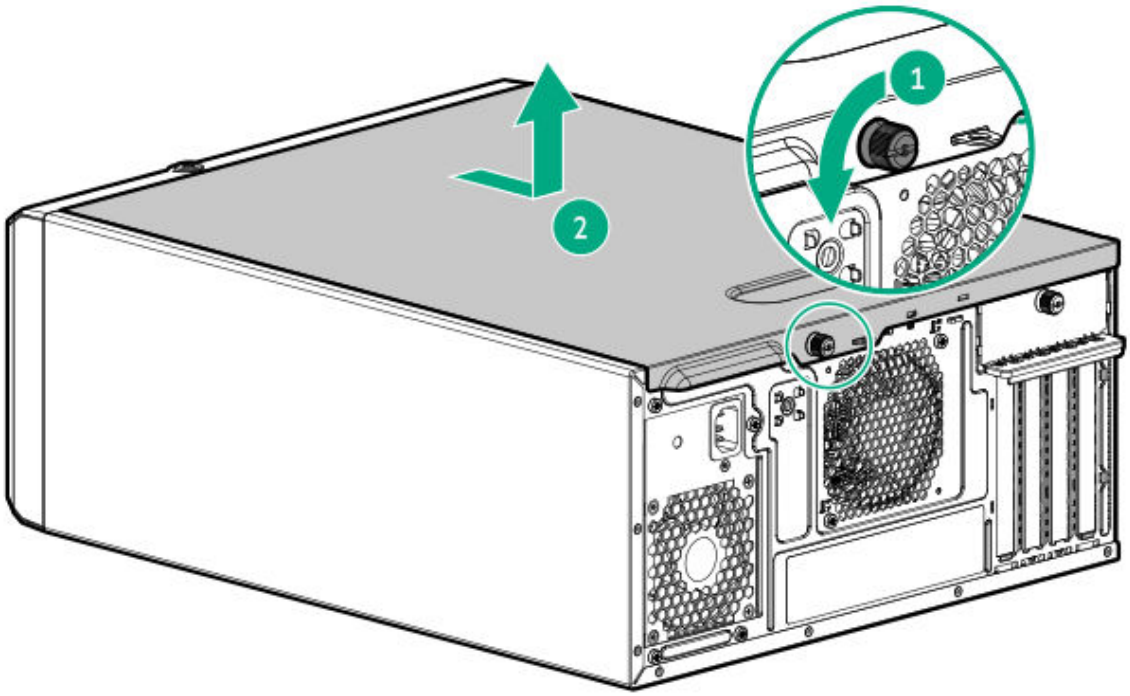
Procedure

1. 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. Disconnect all peripheral cables from the server.
4. Do one of the following:
   - If the server is in tower mode, place the server on a flat, level surface with the access panel facing up.



- If the server is in rack mode, remove the server from the rack.

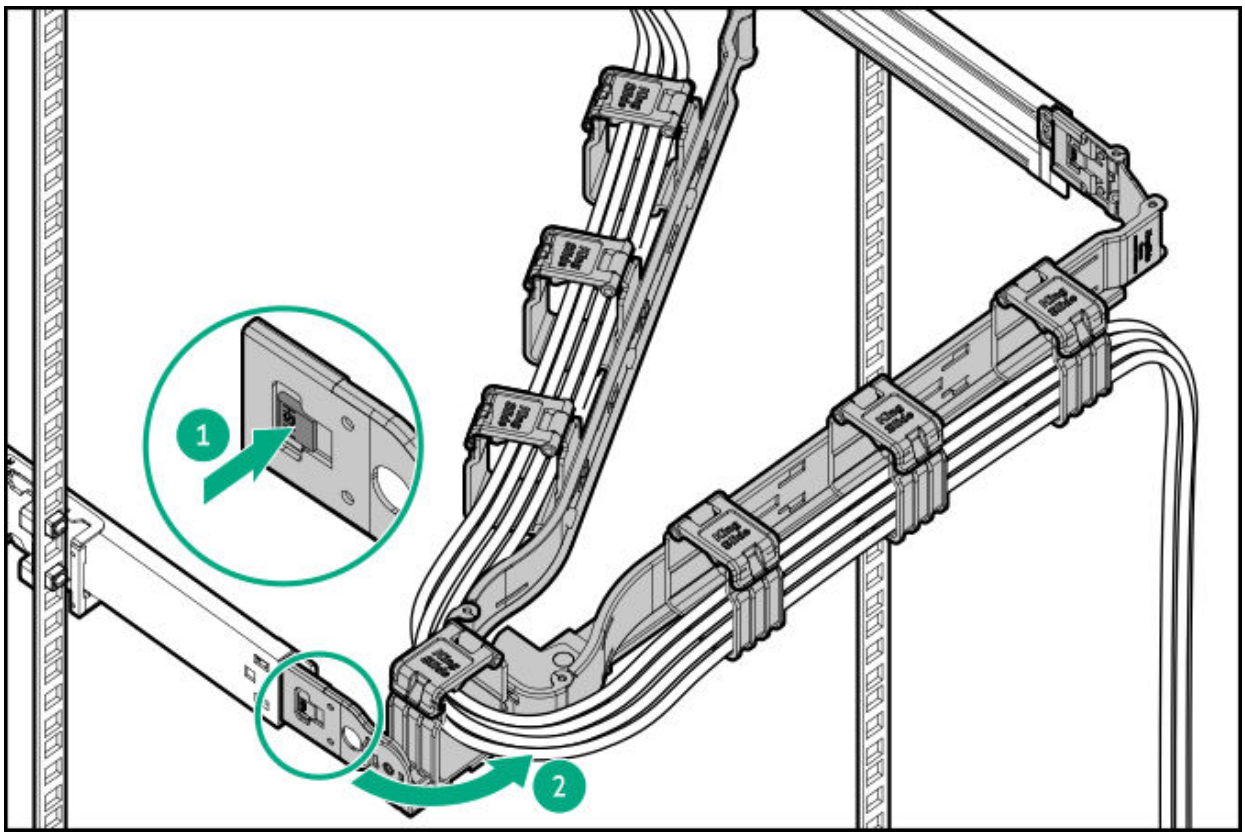
5. Unlock the front bezel.
6. Remove the access panel:
   a. Loosen the access panel thumbscrew.
   b. Slide the access panel toward the rear panel, and then lift it away from the chassis.



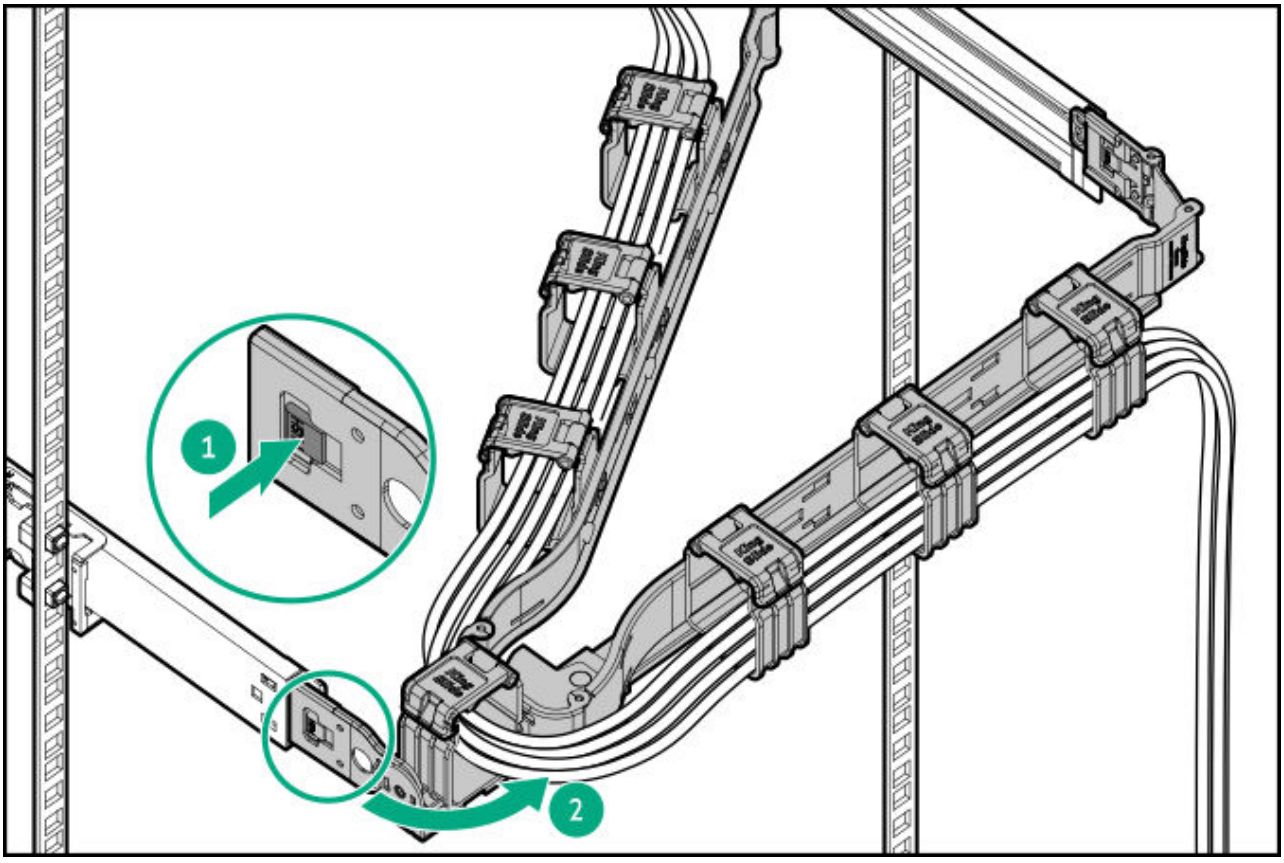
Open the cable management arm

Procedure

1. Open the cable management cable:
   a. Press and hold the blue **PUSH** button on the retention bracket.
   b. Swing the arm away from the rear panel.



2. Press and hold the blue **PUSH** button on the retention bracket.
3. Swing the arm away from the rear panel.



Remove the air baffle

About this task

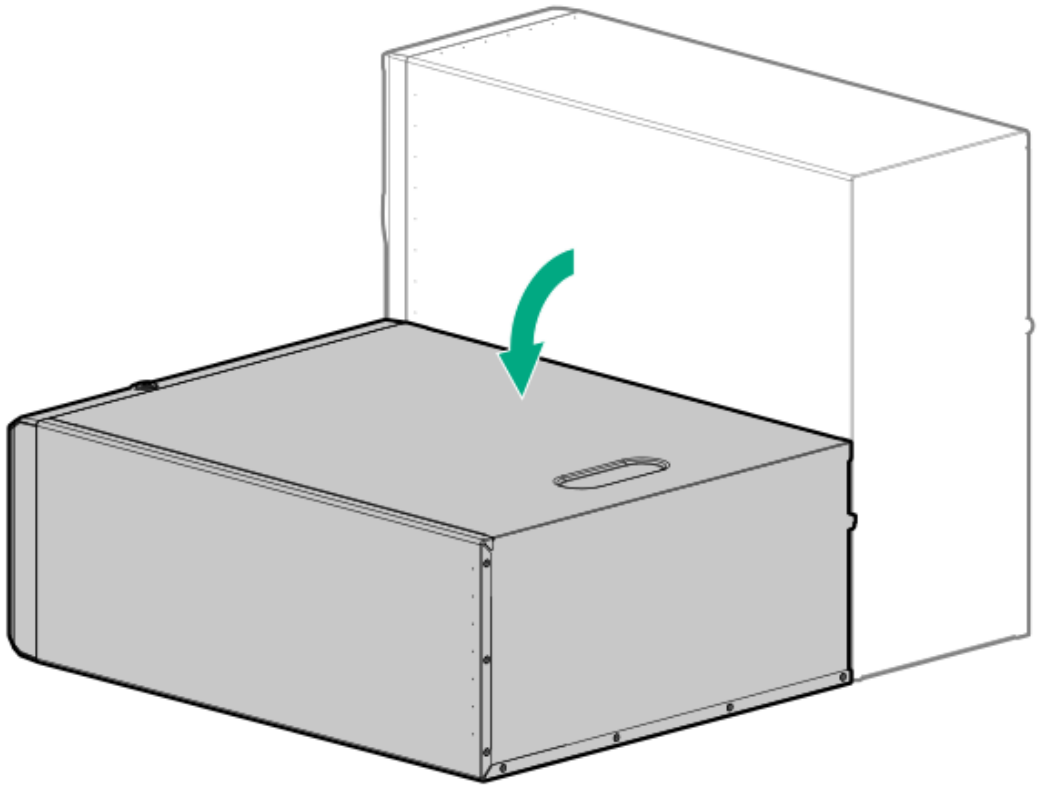
> **CAUTION**
> For proper cooling, do not operate the server without the access panel, baffles, expansion slot covers, or blanks installed.

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. Disconnect all peripheral cables from the server.

4. Do one of the following:

   - If the server is in tower mode, place the server on a flat, level surface with the access panel facing up.

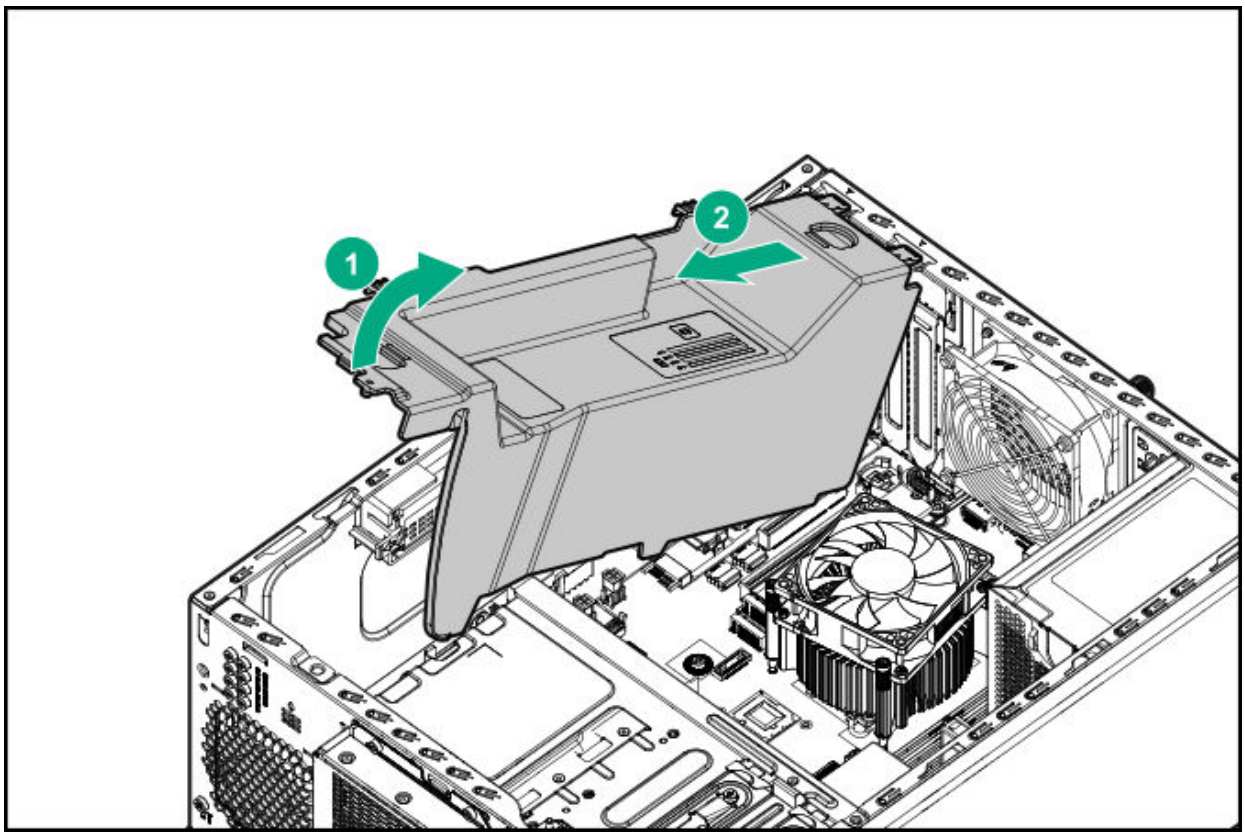


   - If the server is in rack mode, remove the server from the rack.

5. Remove the access panel.
6. Remove the air baffle:

   a. Lift the front end of the baffle from the chassis.

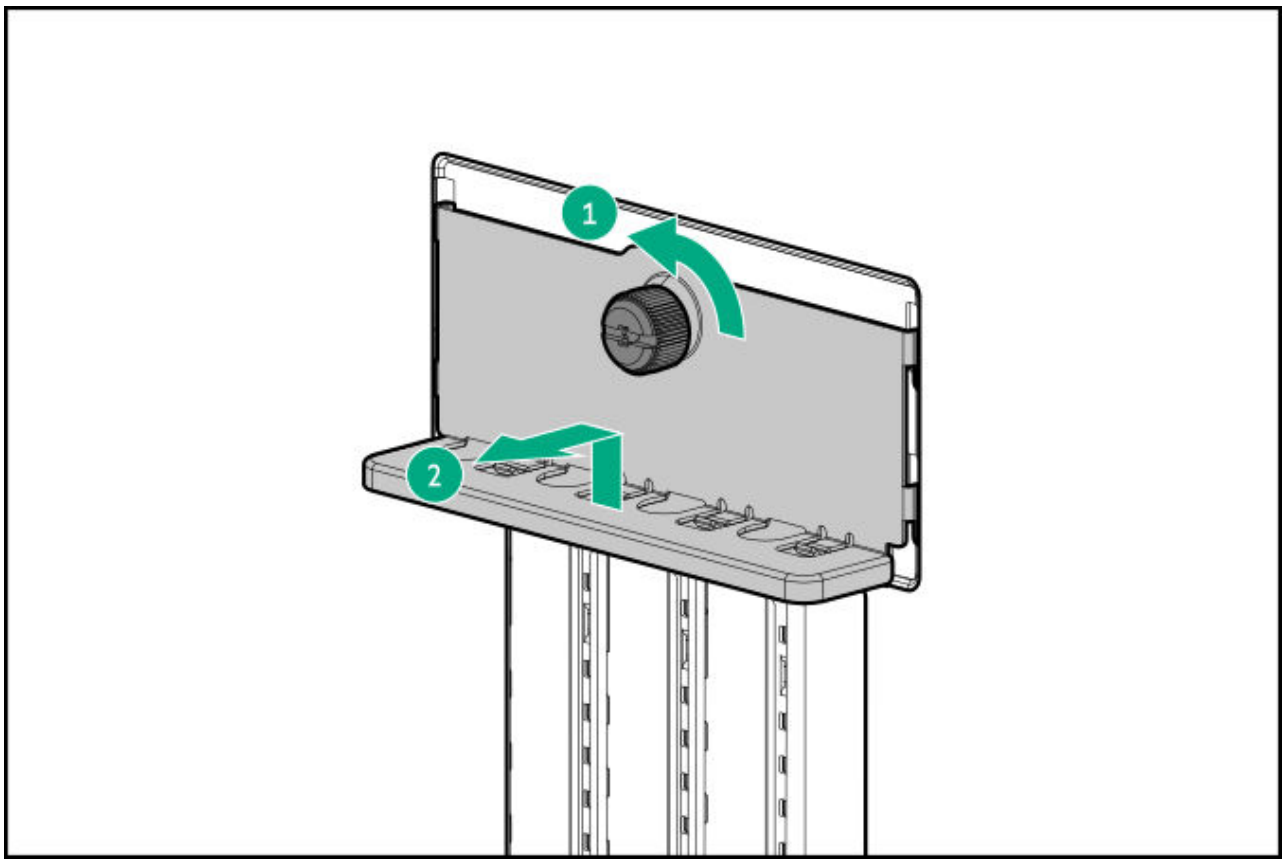
   b. Remove the baffle tabs from its rear chassis slots.



Remove the PCIe blank retainer

Procedure

1. Loosen the retainer thumbscrew.
2. Slide the retainer up, and then remove it from the chassis.



Remove a media device

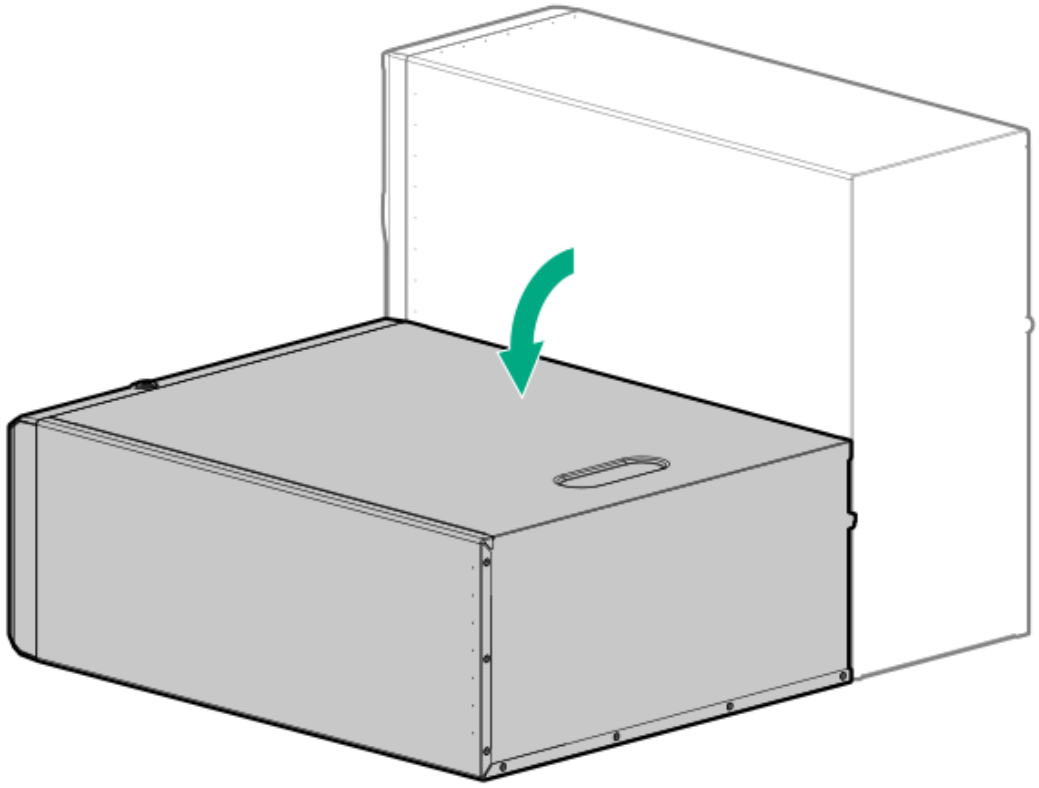
About this task

For better access to internal components, some procedures require the removal of the media device.

Procedure

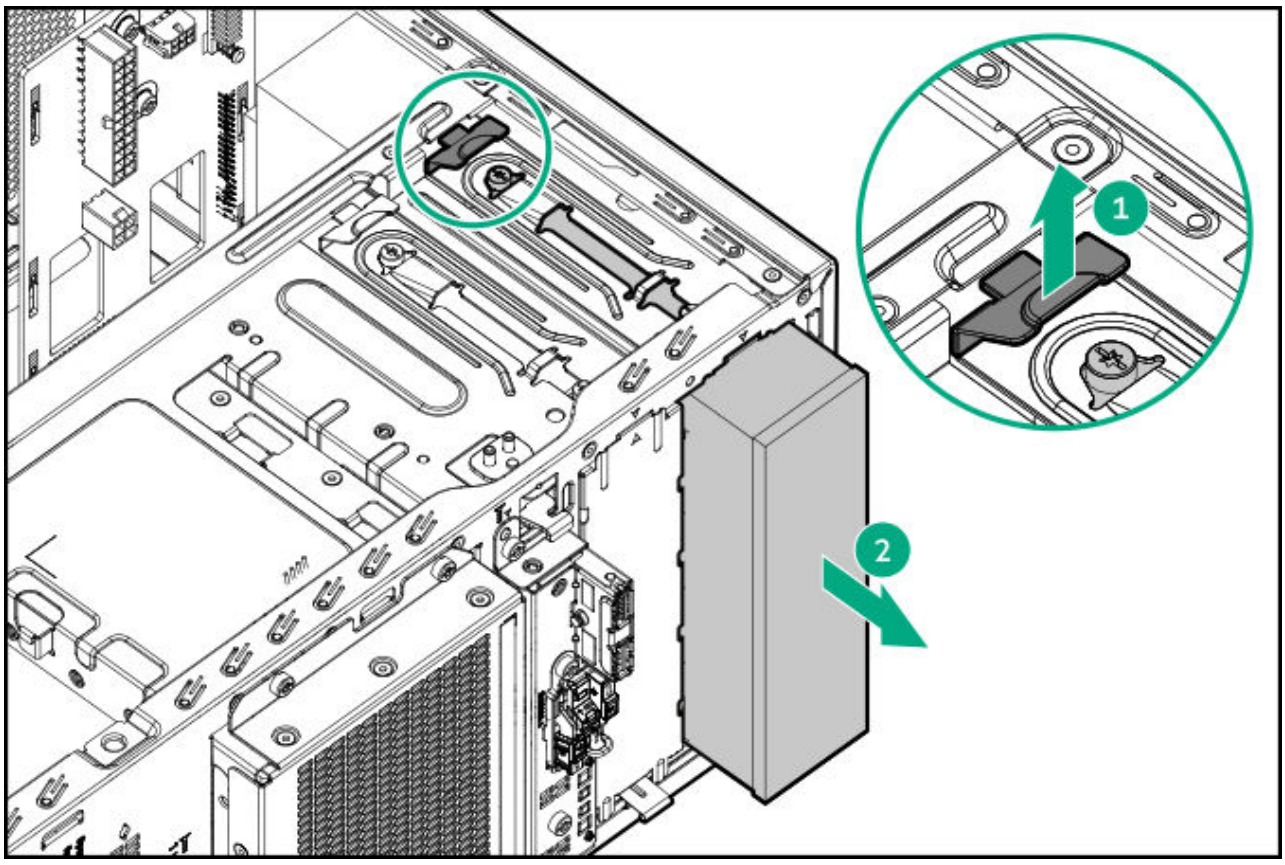
1. Power down the server.
2. Remove all power:
   a. Disconnect each power cord from the power source.
   b. Disconnect each power cord from the server.
3. Disconnect all peripheral cables from the server.
4. Do one of the following:

- If the server is in tower mode, place the server on a flat, level surface with the access panel facing up.



- If the server is in rack mode, remove the server from the rack.

5. Remove the front bezel.
6. Remove the access panel.
7. Disconnect all cables from the media device:
   - Optical drive cabling
   - SAS LTO tape drive cabling
   - RDX backup system cabling
8. Pull and hold the device release latch, and then slide the media device out of the bay.



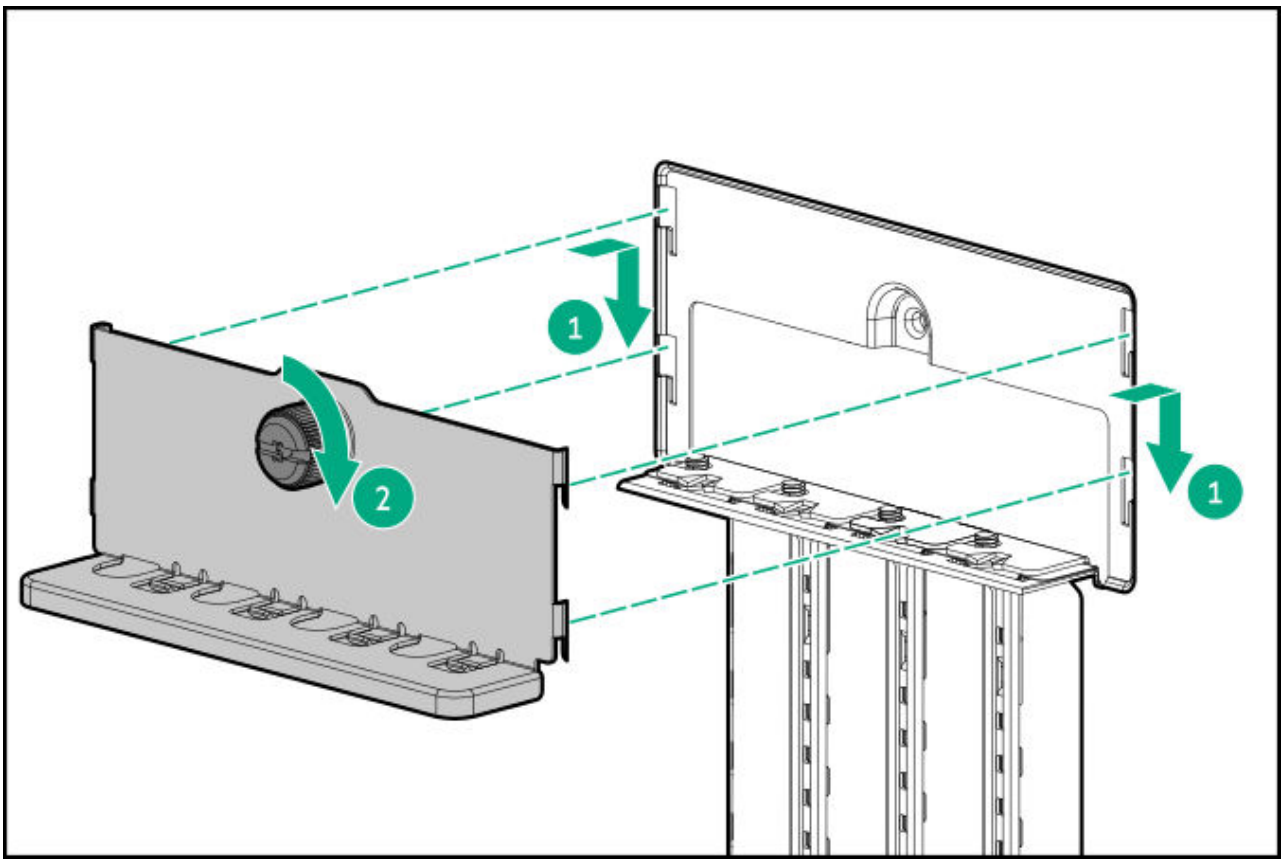
Install the PCIe blank retainer

Procedure

1. Insert the retainer tabs into the rear chassis slots.

   Make sure the horizontal part of the retainer is flushed against the top side of the slot blanks.

2. Tighten the retainer thumbscrew.



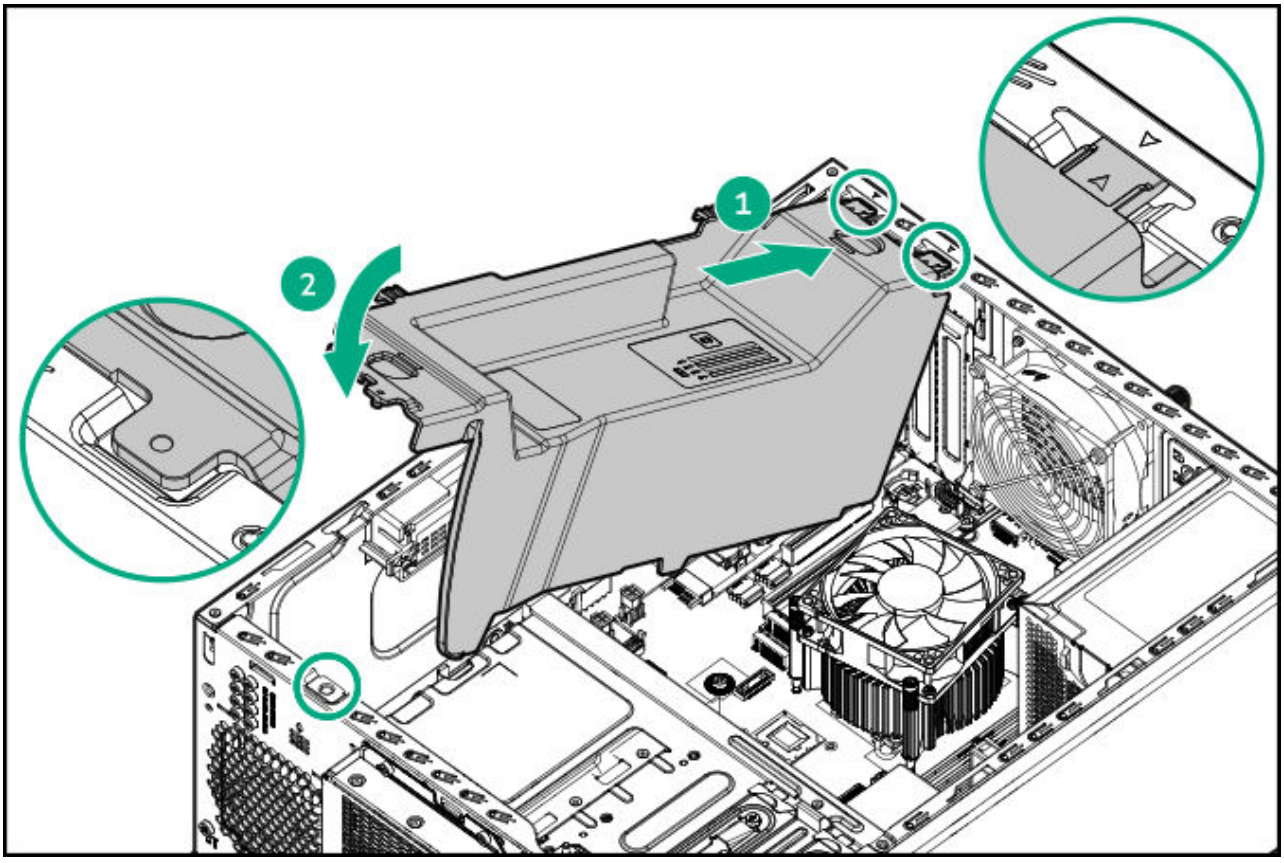
Install the air baffle

About this task

The air baffle is part of the PCIe fan and air baffle option kit (P65106-B21).

Procedure

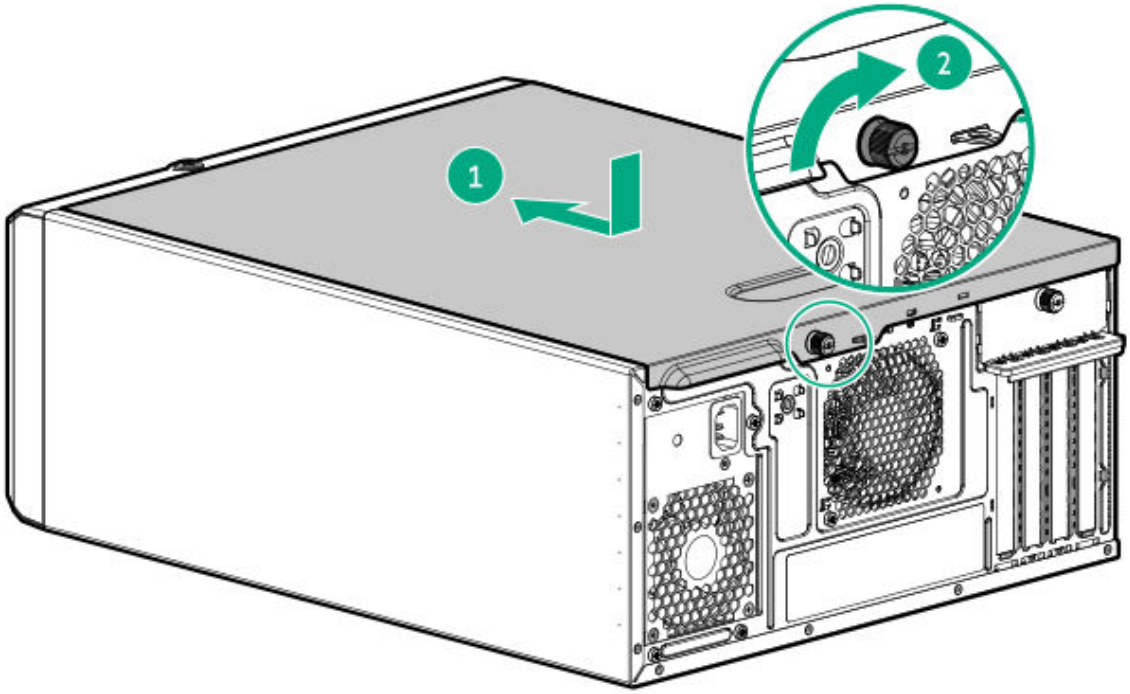
1. Insert the baffle tabs into the slots on the rear chassis.
2. Press the front end of the baffle into the chassis.



Install the access panel

Procedure

1. Position the access panel on the chassis, and then slide it toward the front panel.
2. Tighten the access panel thumbscrew.

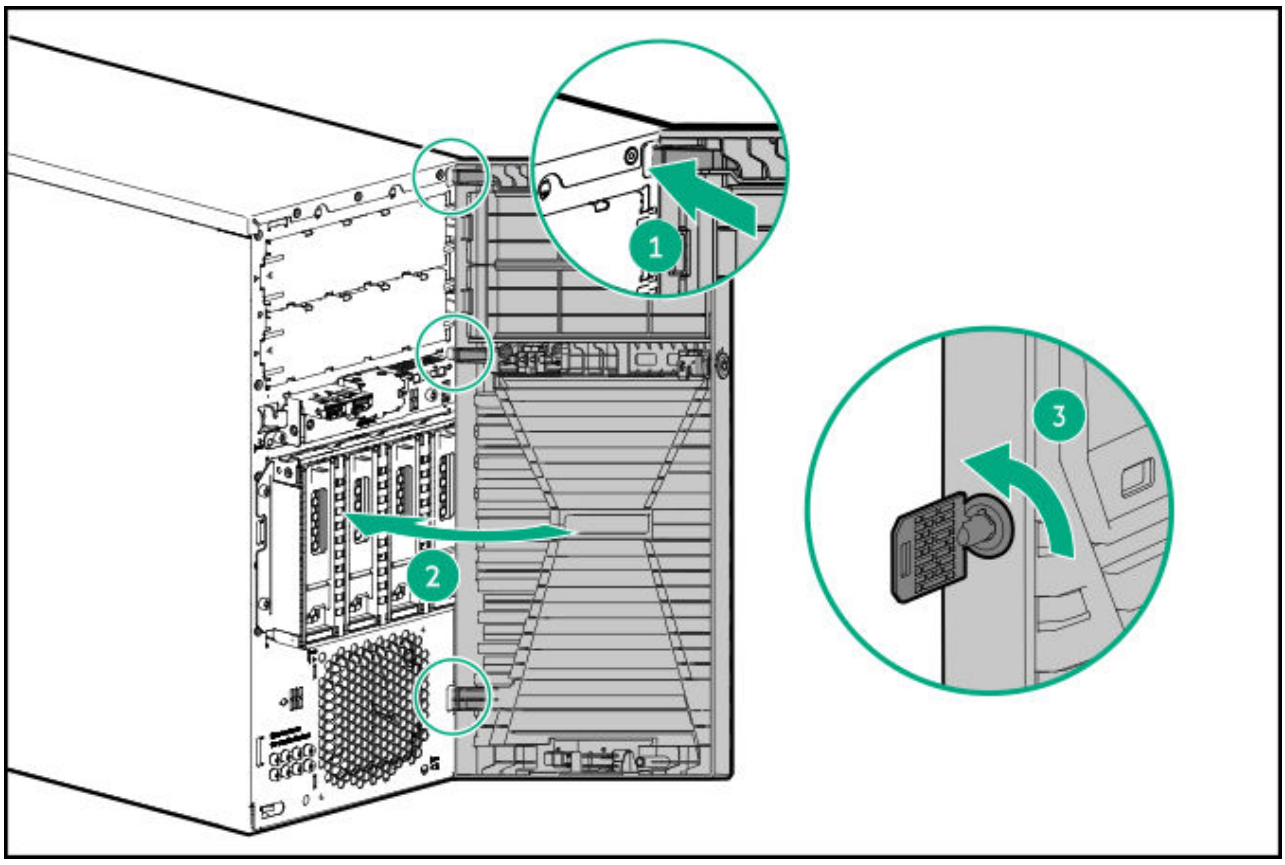


3. Perform the post-installation or maintenance steps required by the procedure that required the removal of the access panel.

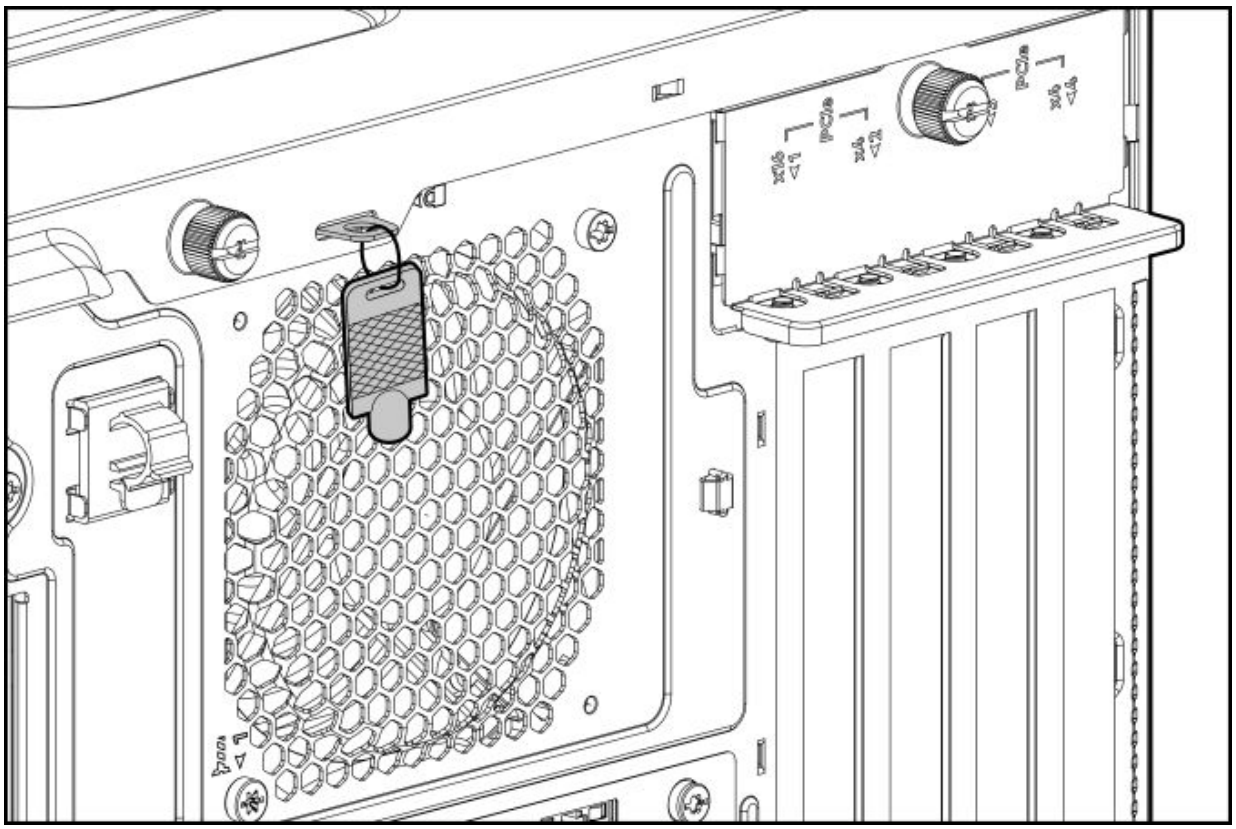
Install the front bezel

Procedure

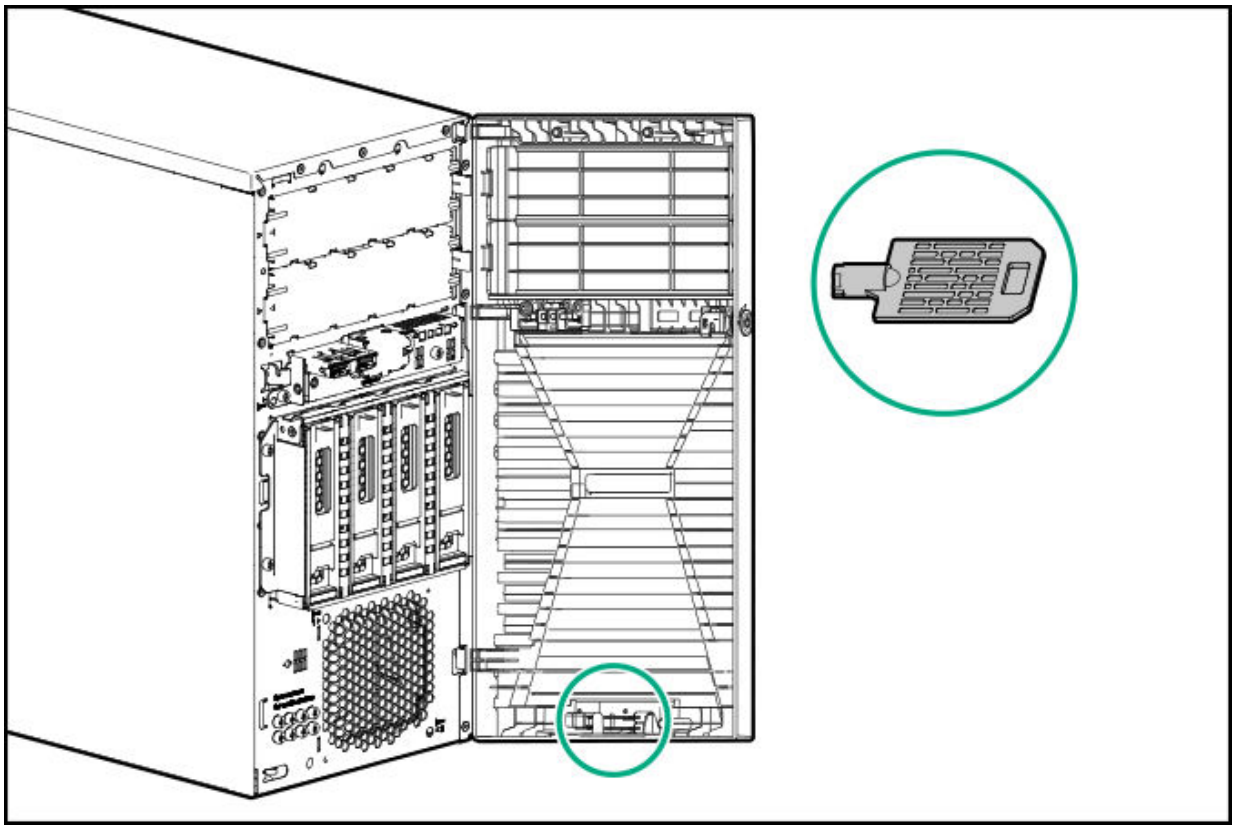
1. Insert the front bezel hooks to the chassis.
2. Close the front bezel.
3. Lock the front bezel.



4. (Optional) To store the bezel keys:
   - Hang the bezel key on the padlock eye on the rear panel.



- Keep the extra bezel key on the key storage space on the front bezel.



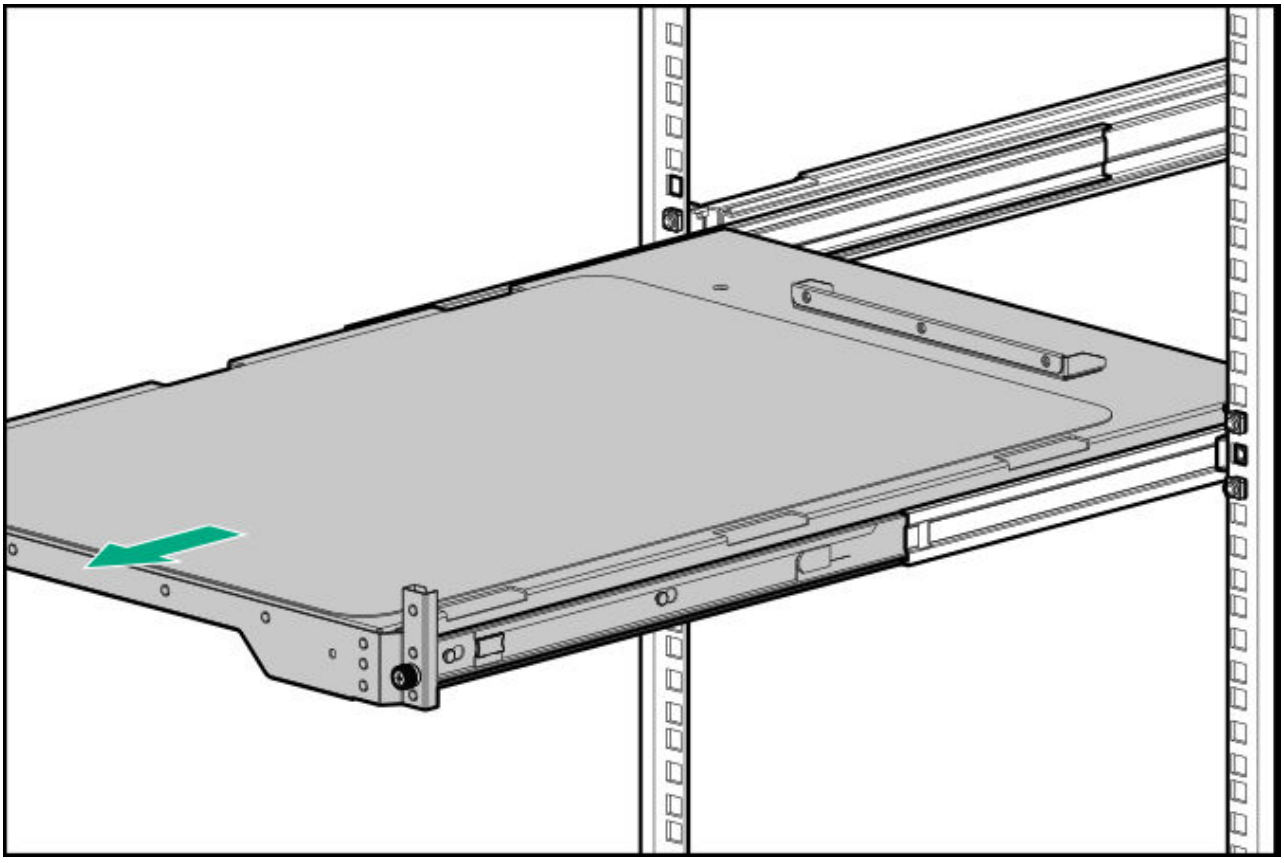
Install the server into the rack

Prerequisites

- Get help to lift and stabilize the server during rack installation. If the server is installed higher than chest level, an additional person might be required to help support the server weight when installing the server to the tray.
- Before you perform this procedure, review the:
  - Rack warnings and cautions
  - Server warnings and cautions
- A fully populated server is heavy. Hewlett Packard Enterprise recommends removing the external chassis components before installing the server into a rack.
- Before you perform this procedure, make sure that you have a T-15 Torx screwdriver available.

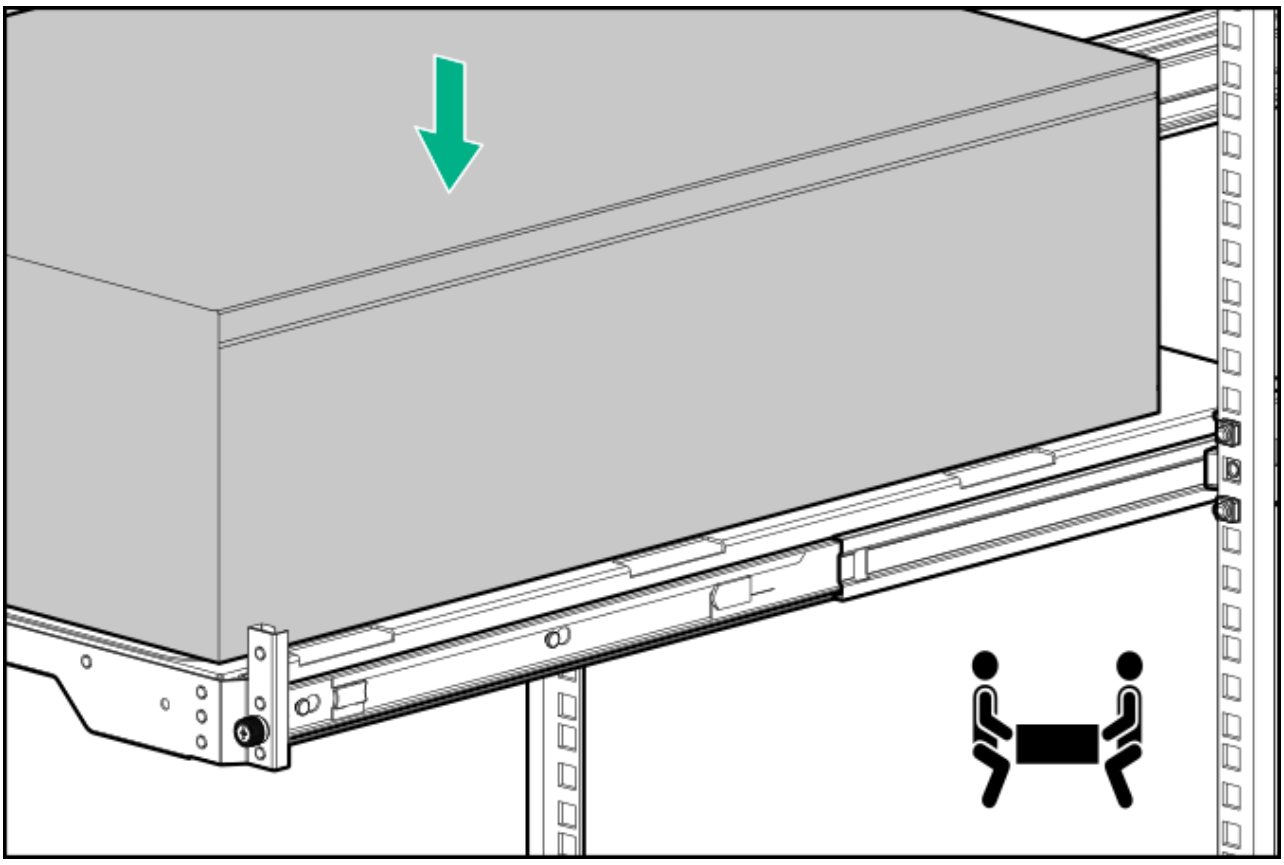
Procedure

1. Grasp the tray notch to slide the tray out of the rack.

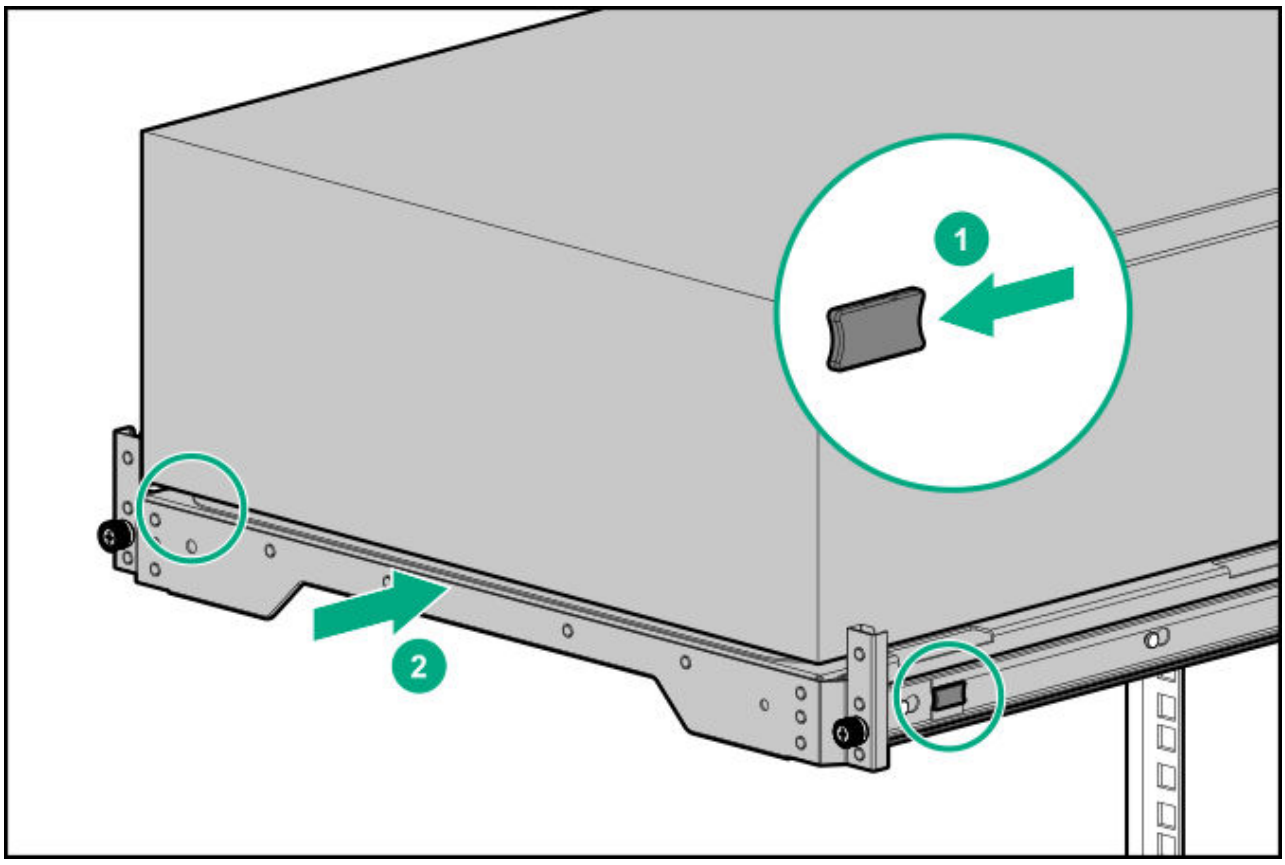


2. Place the server on the tray.

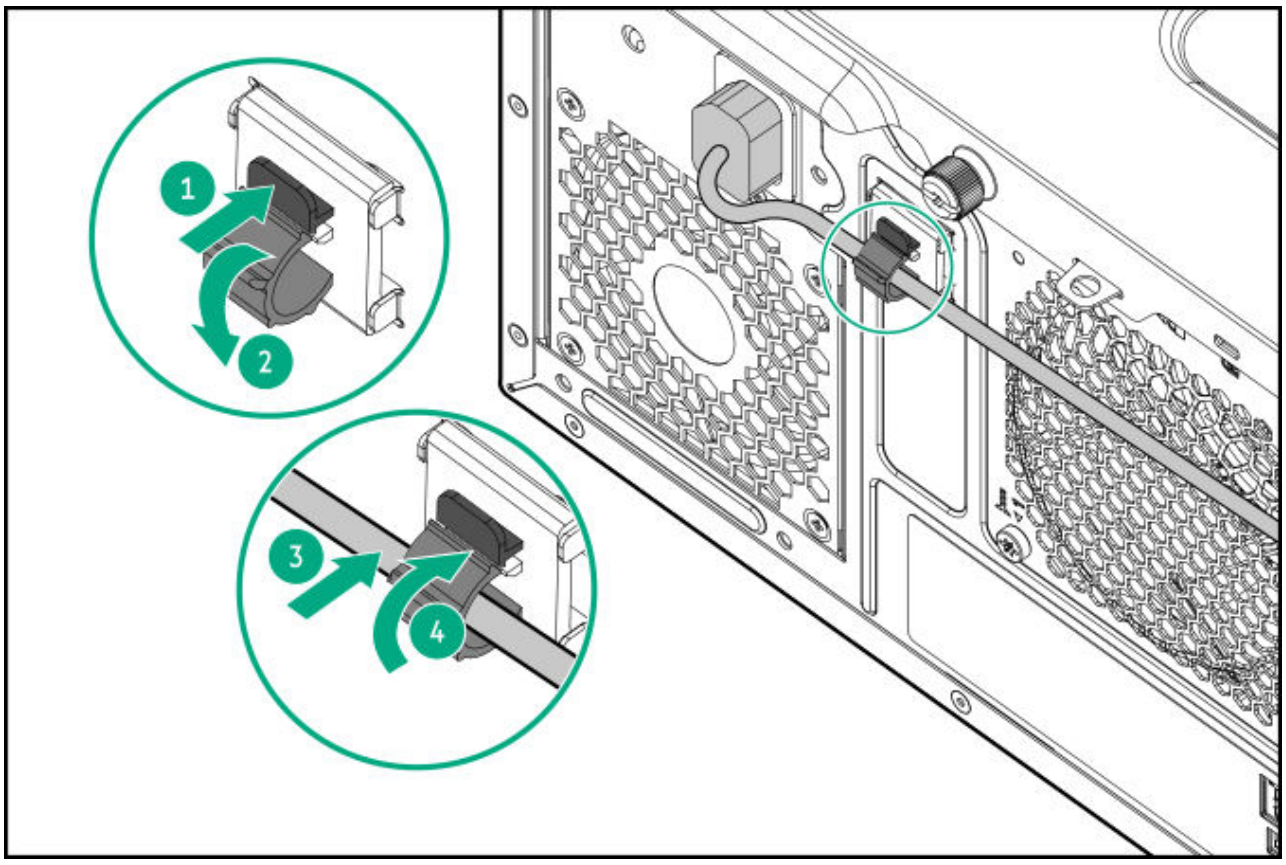
   Verify that the front panel of the server is aligned with the front of the tray.



3. Press and hold the blue rail-release tabs, and then slide the tray back into the rack.



4. Connect all peripheral cables to the server.
5. Connect each power cord to the server.
6. If the server is using a non-hot-plug power supply, secure the power cord in the power cord clip on the rear panel.
   a. Press and hold the clip retainer, and then open the clip.
   b. Position the power cord inside the clip, and then close the clip.

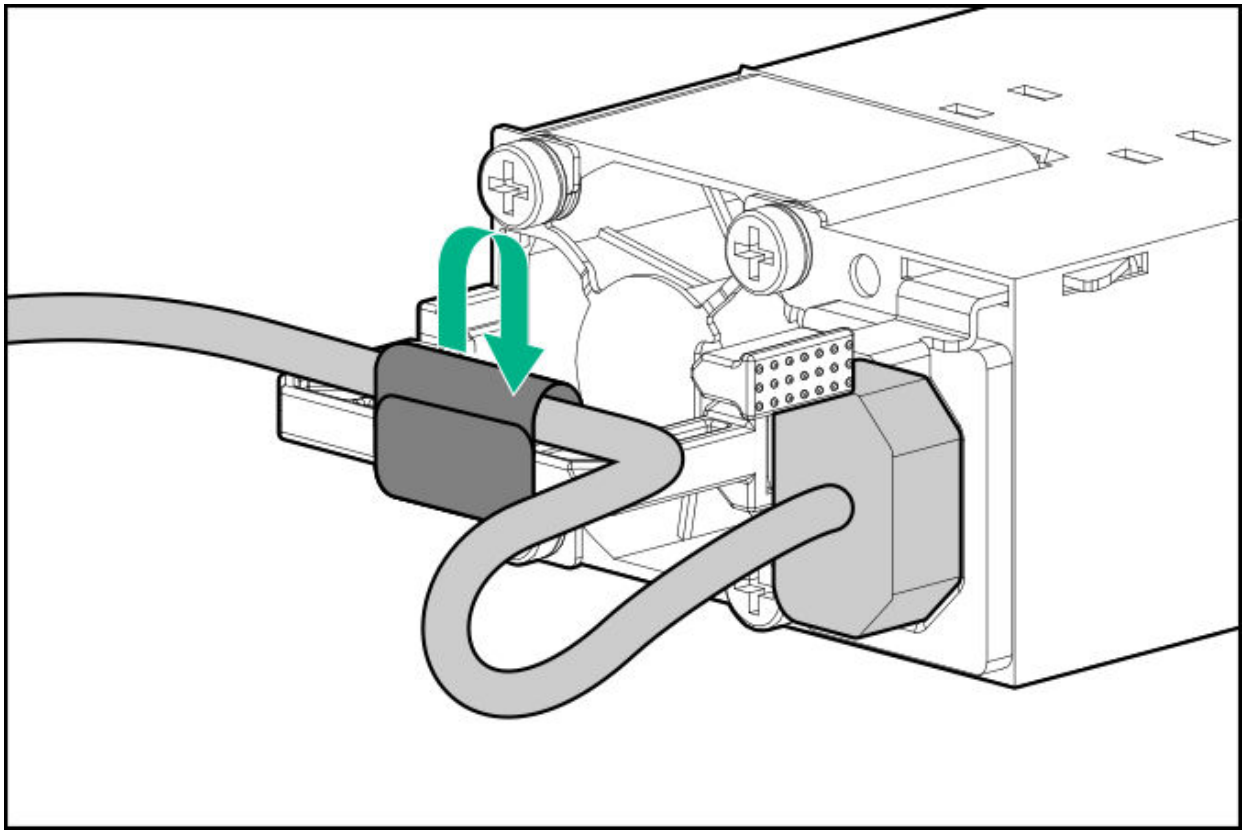


7. If the server is using a hot-plug power supply, secure the power cord in the strain relief strap attached to the power supply handle:

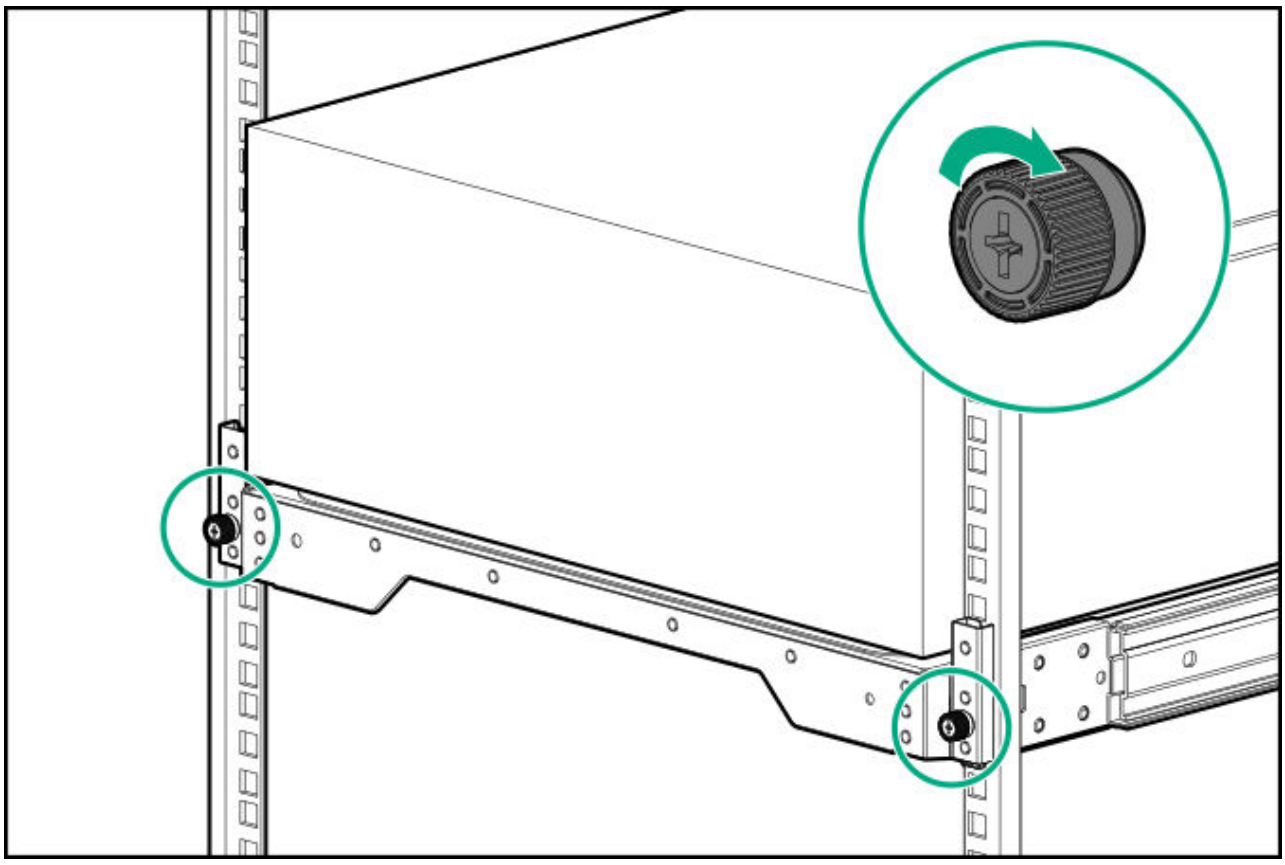
   a. Unwrap the strain relief strap from the power supply handle.

> **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.



8. Connect each power cord to the power source.
9. Tighten the server tray thumbscrews.



0. Power up the server.

Power up the server

Procedure

- Press the Power On/Standby button.
- Use the virtual power button through iLO 6.

Hardware options installation

This chapter provides instructions for installing supported hardware options. To ensure proper server deployment and operation, Hewlett Packard Enterprise recommends installing only HPE-validated hardware options. To see the list of validated options for this server, see the product QuickSpecs on the HPE website:

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

To view the warranty for your server and supported options, see Warranty information.

Subtopics

Server data backup
Hardware option installation guidelines
Tower-to-rack conversion kit
Drive options
Power supply options
Media device options
PCIe fan and air baffle options
Storage controller options
Energy pack options
HPE NS204i-u Boot Device option
GPU options
Expansion card options
Memory option
iLO-M.2-serial module option
M.2 SSD option
Internal USB device option

Server data backup

To avoid data loss, make sure to back up all server data before installing or removing a hardware option, performing a server maintenance, or a troubleshooting procedure.

Server data in this context refers to information that may be required to return the system to a normal operating environment after completing a hardware maintenance or troubleshooting procedure. This information may include:

- User data files
- User account names and passwords
- Application settings and passwords
- Component drivers and firmware
- TPM recovery key/password
- BIOS configuration settings—Use the backup and restore function in UEFI System Utilities. For more information, see the UEFI user guide (**https://www.hpe.com/support/hpeuefisystemutilities-quicklinks**).
    - Custom default system settings

- Security passwords including those required for power-on and BIOS admin access, persistent memory, and Server Configuration Lock (for HPE Trusted Supply Chain servers)
- Server serial number and the product ID

- iLO-related data—Use the iLO backup and restore function. For more information, see the iLO user guide (**https://www.hpe.com/support/hpeilodocs-quicklinks**).
  - iLO license
  - Customer iLO user name, password, and DNS name
  - iLO configuration settings

Hardware option installation guidelines

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 avoid data loss, Hewlett Packard Enterprise recommends that you back up all server data before installing or removing a hardware option, or performing a server maintenance or troubleshooting procedure.

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

- Install any hardware options before initializing the server.
- If multiple options are being installed, read the installation instructions for all the hardware options to identify similar steps and streamline the installation process.
- If the hardware option installation involves internal cabling, review the Cabling guidelines.

Tower-to-rack conversion kit

Use the tower-to-rack conversion kit to switch the tower server to rack mode operation. A rack-mounted server occupies 5U space in the rack and supports in-rack serviceability for all server components.

Kit contents

- Left and right rack rail assemblies
- Server tray
- Cable management arm
- Chassis rear bracket screws (3)[1]

Rack rail specifications

This server supports the HPE tower-to-rack conversion kit (874578-B21). which has the following specifications. This tower-to-rack conversion kit supports the following specifications:

- Type: Ball-bearing (stab-in)
- Minimum rail length: 727.50 mm (28.64 in)
- Rail adjustability range: 570.00–812.00 mm (22.50–32.00 in)

Subtopics

Installing the tower-to-rack conversion kit

[1] These screws are not for use in this server.

Installing the tower-to-rack conversion kit

About this task

In this procedure, left and right terminology is from the perspective of a user facing the front of the rack.

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. Disconnect all peripheral cables from the server.
4. If installed, unlock and remove the security padlock and/or the Kensington security lock.

   For more information, see the lock documentation.
5. Install the rack rails and server tray.
6. Install the server into the rack.
7. Install the cable management arm

Results

The installation procedure is complete.

Subtopics

Install the rack rails and server tray
Install the server into the rack
Install the cable management arm

Install the rack rails and server tray

About this task

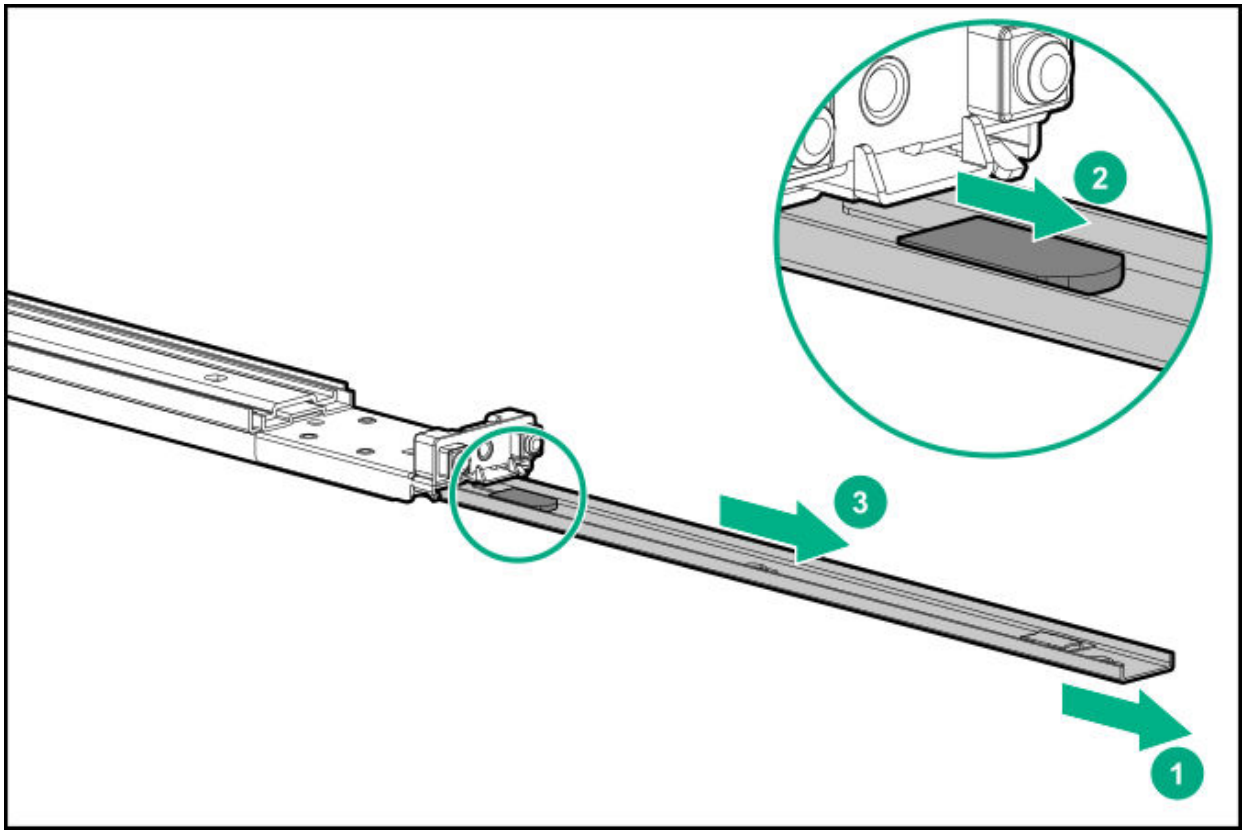
The rack rails can be installed in a round-hole or a square-hole racks. The rack rails occupy 1U space in the rack.

Procedure

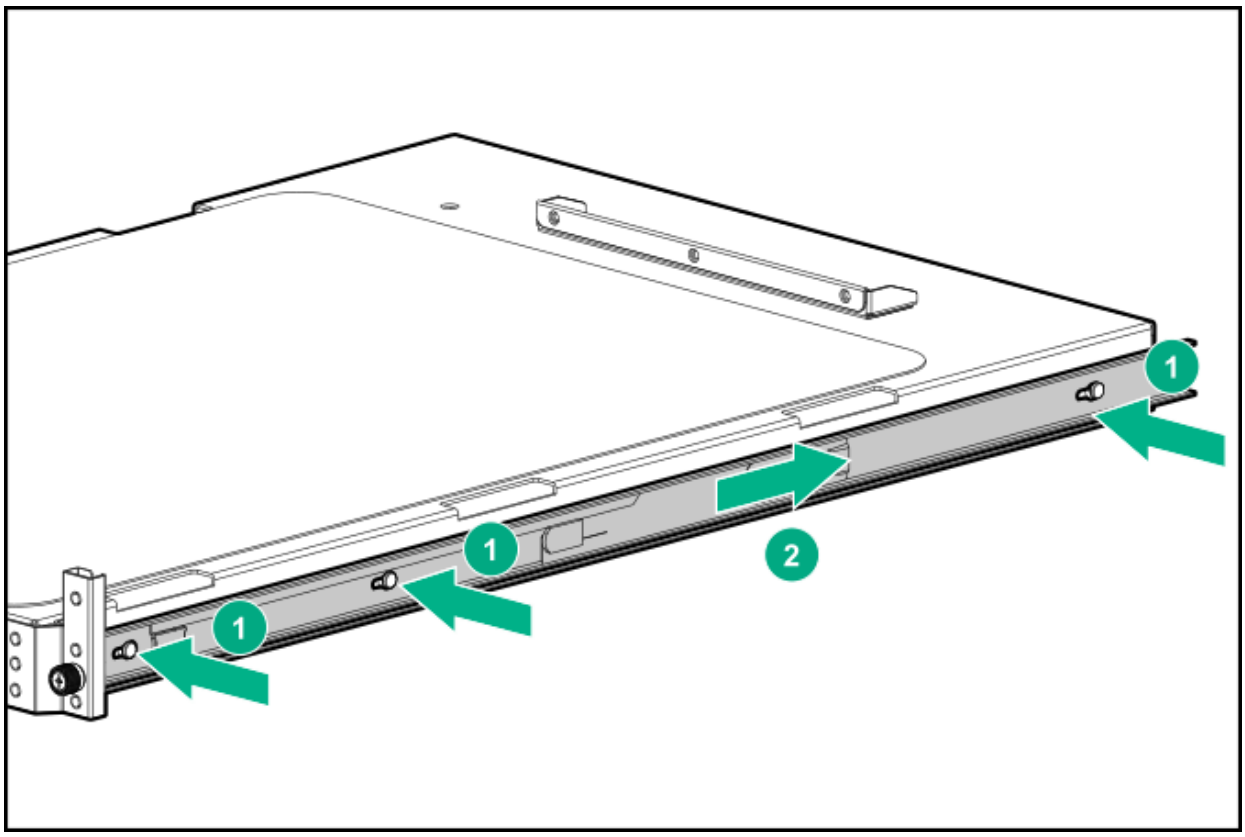
1. Disassemble the rack rail assemblies:

   a. Pull out the inner sliding rail until it is fully extended.

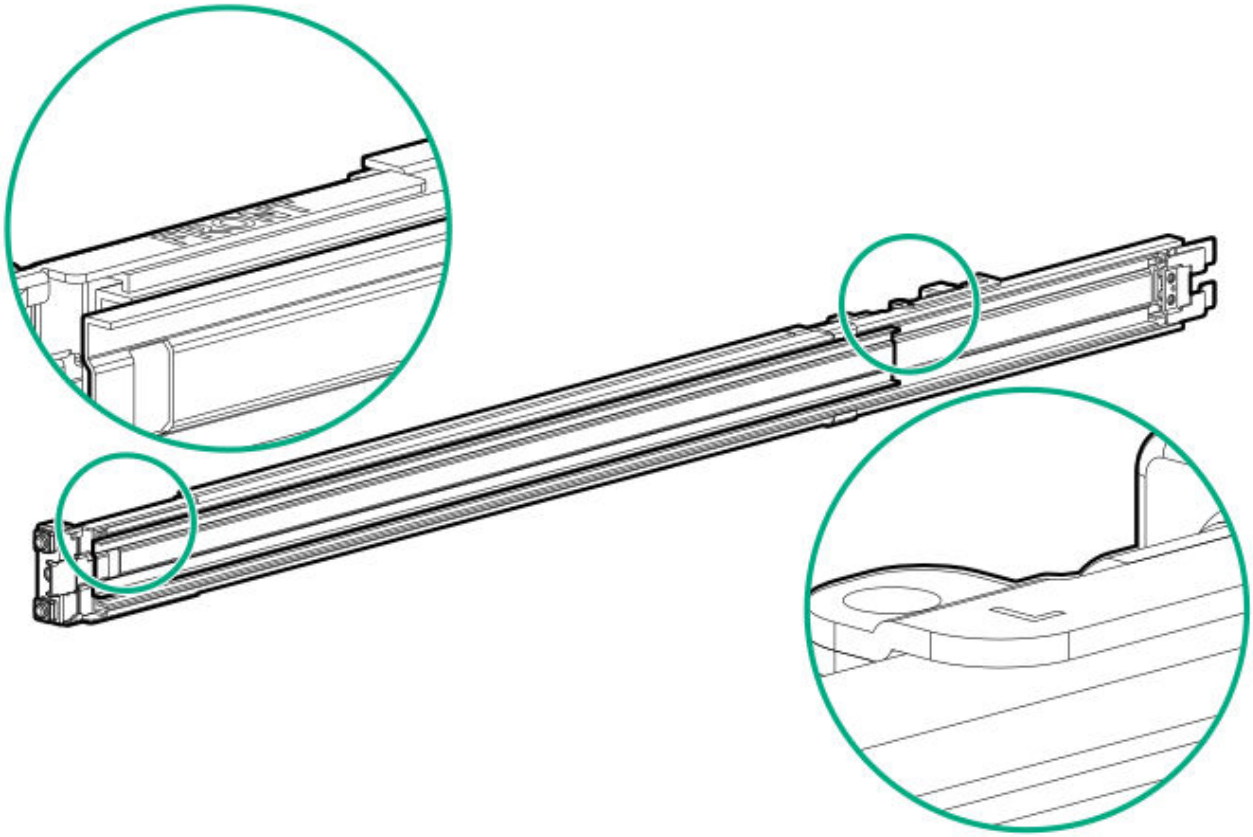
   b. Slide and hold the white release tab in the direction shown, and then remove the sliding rail from the mounting rail.



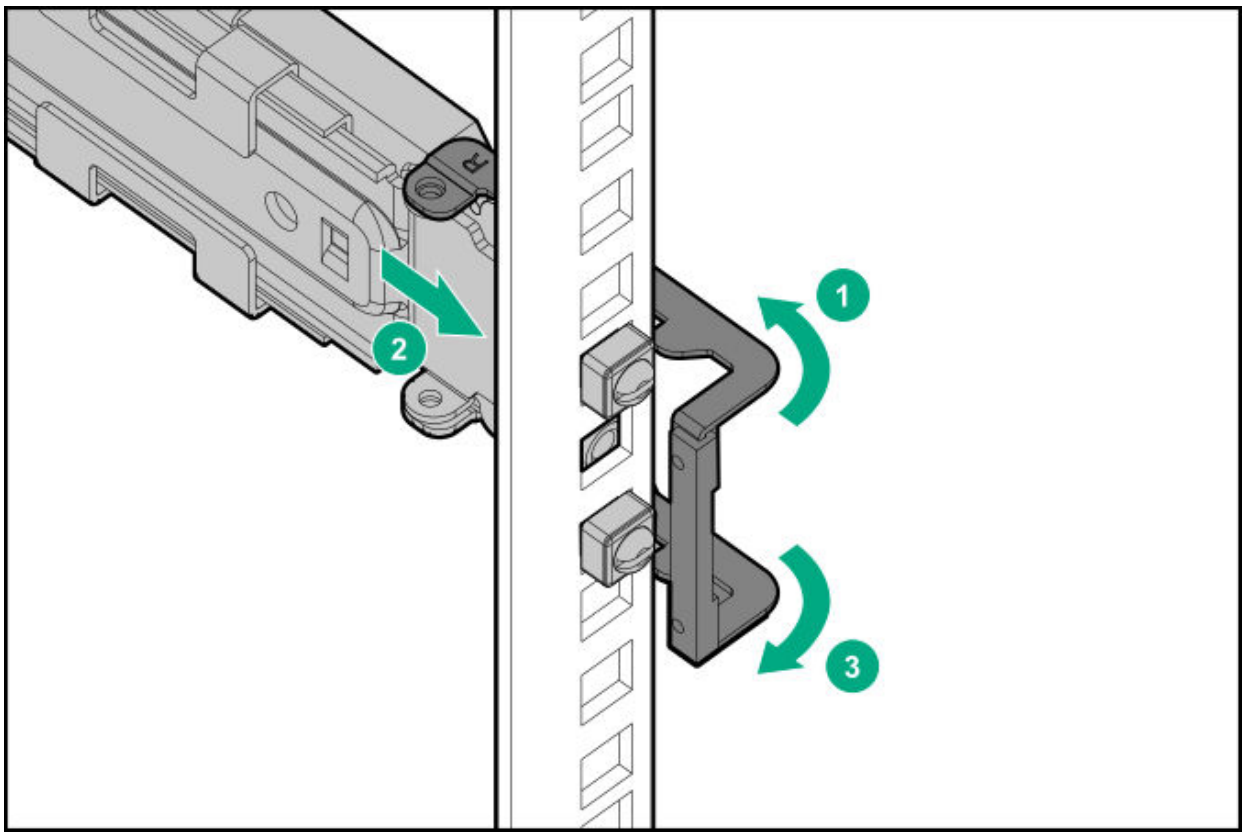
2. Install the sliding rails on the server tray:
   a. Insert the spools on the sides of the server tray through the notches on the rails.
   b. Slide the rail towards the rear of the tray to lock it into place.



3. Locate the orientation markers on the mounting rails:
   - The front end of the rails is marked **FRONT**.
   - The rear end of the rail is marked with **L** for left and **R** for right.



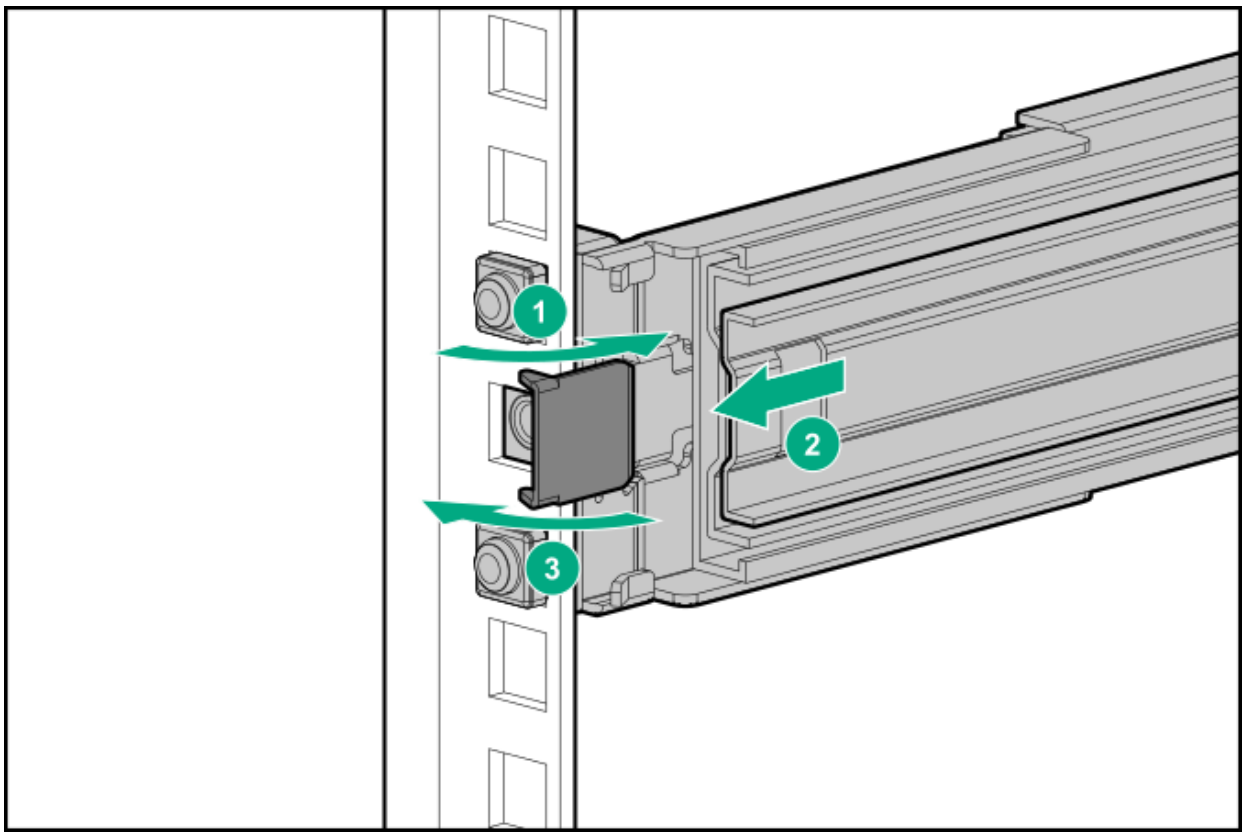
4. Fasten the mounting rails to the rack columns:
   a. Retract and hold the rear retention bracket.
   b. Insert the pins on the mounting flange into the rack column holes.
   c. Release the rear retention bracket.



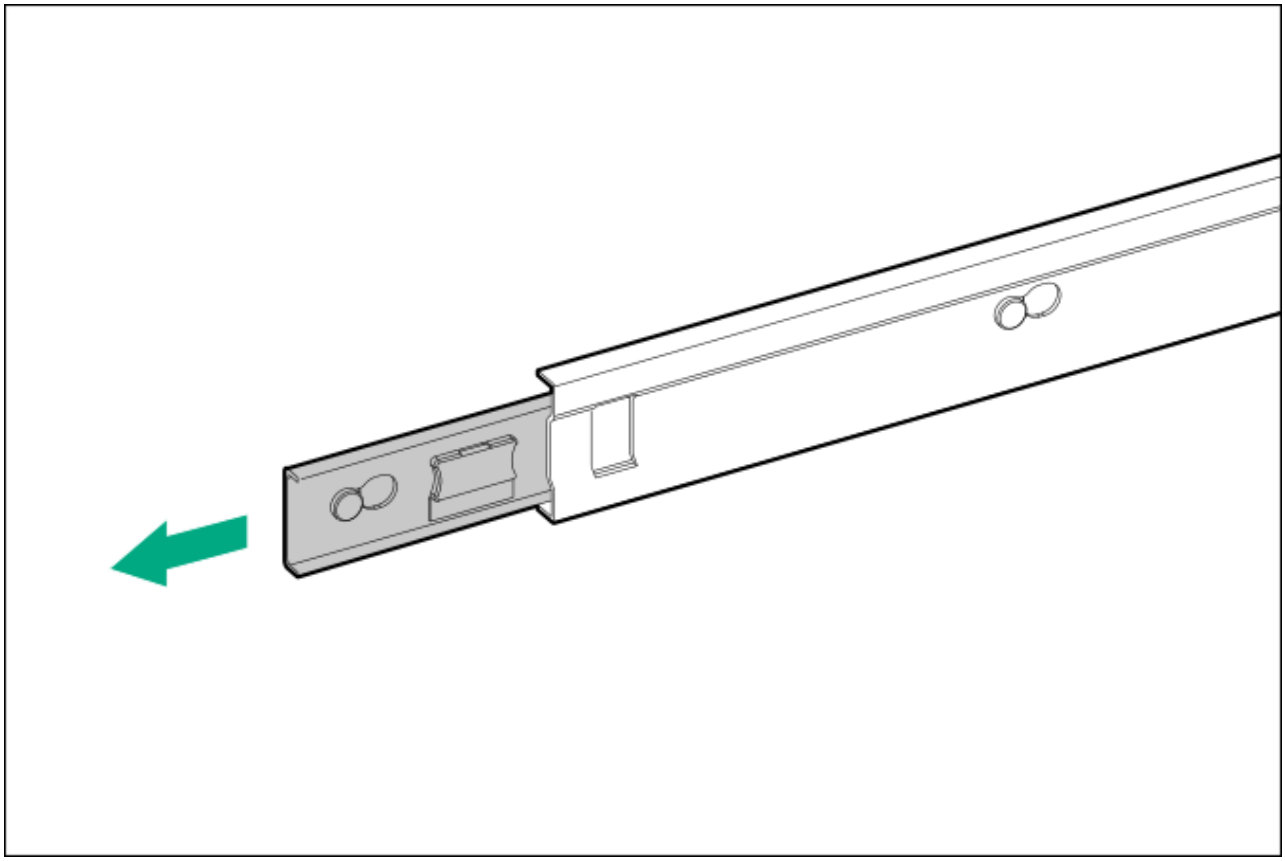
d. Retract and hold the front retention bracket.

e. Insert the pins on the mounting flange into the rack column holes.

f. Release the front retention bracket.

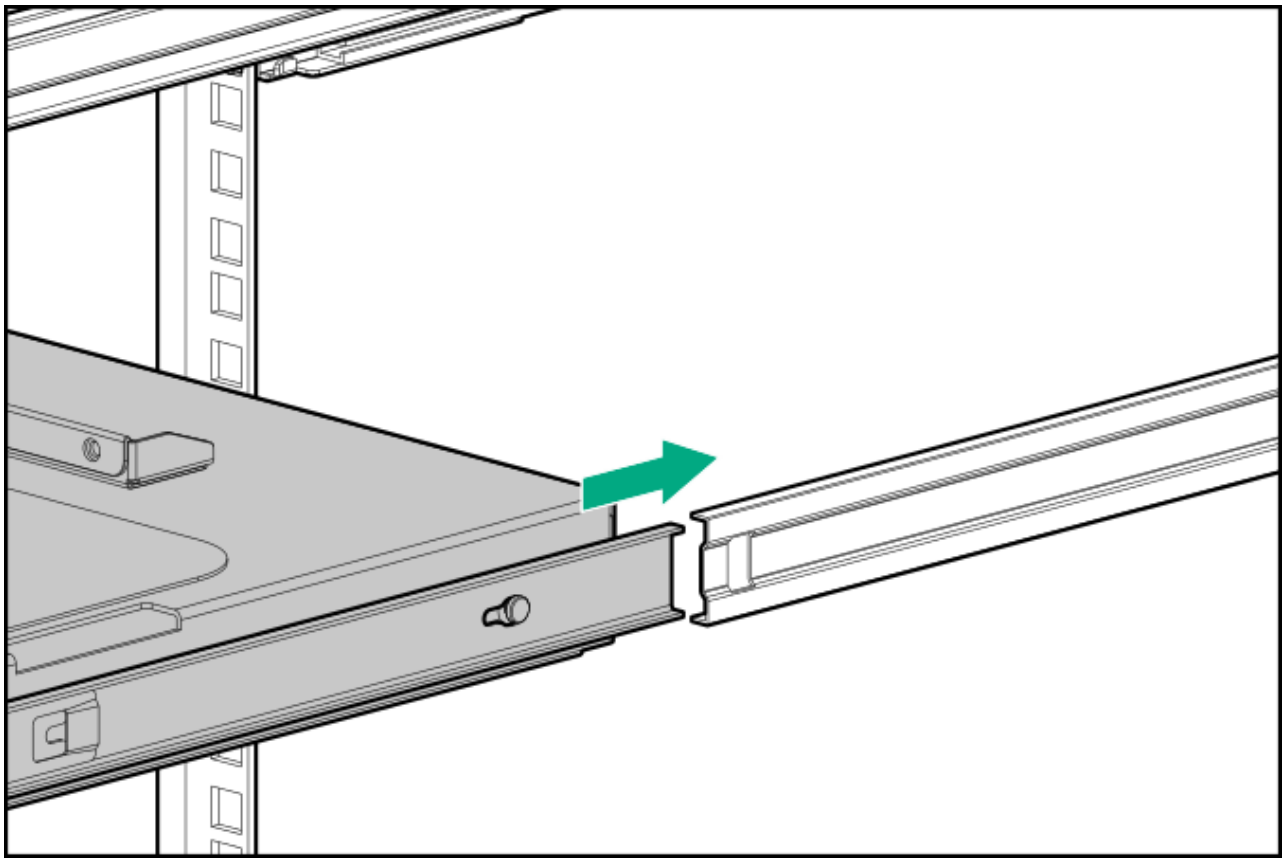


5. Extend the inner rail.



6. Slide the server tray into the rack.

   The rack rails will click and lock into place when the tray is properly engaged.



7. Install the server into the rack.

Install the server into the rack

Prerequisites

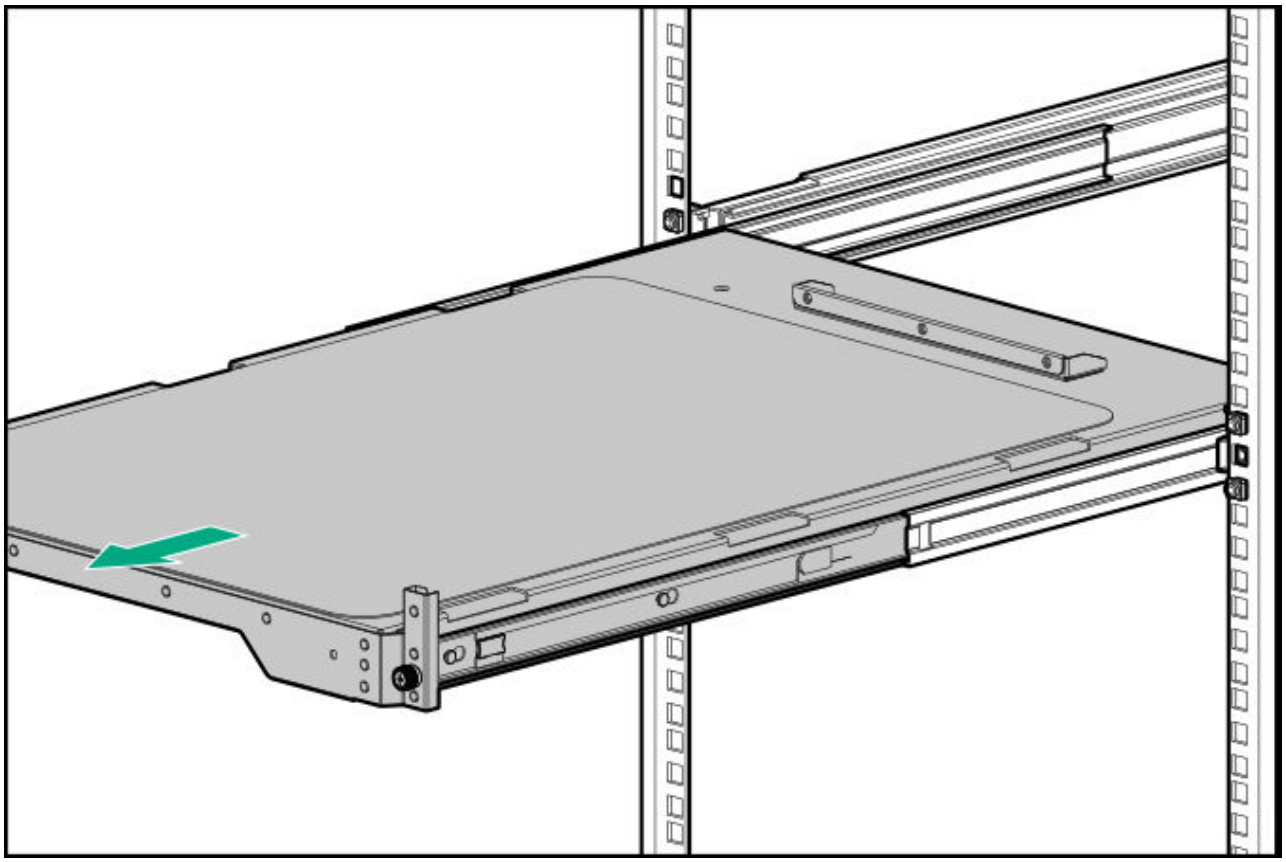
- Get help to lift and stabilize the server during rack installation. If the server is to be installed higher than chest level, an additional person might be required to help support the server weight when placing the server on the tray.
- Before you perform this procedure, review the:
  - Space and airflow requirements

- Rack warnings and cautions
- Server warnings and cautions

- A fully populated server is heavy. Hewlett Packard Enterprise recommends removing the external chassis components before installing the server into a rack.
- Before you perform this procedure, make sure that you have a T-15 Torx screwdriver available.

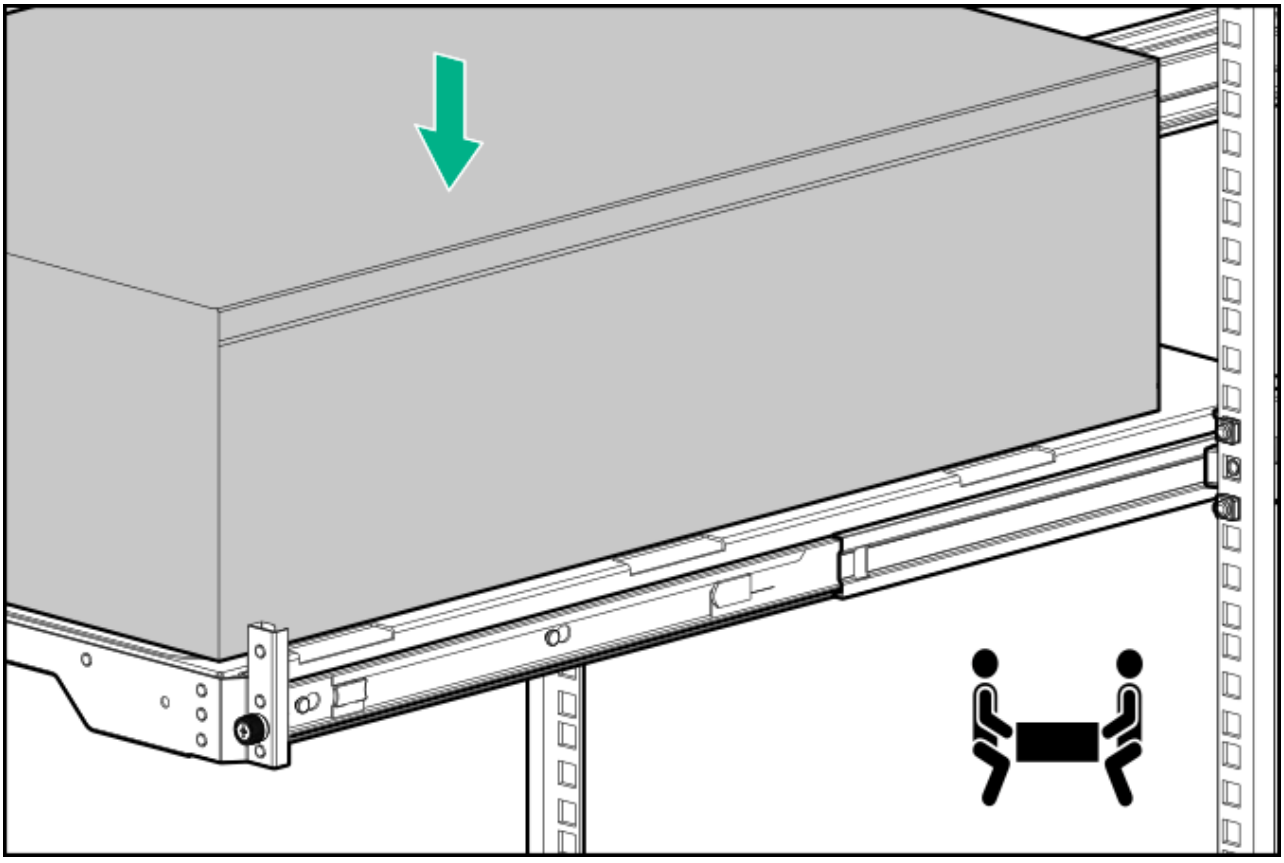
Procedure

1. Grasp the tray notch to slide the tray out of the rack.

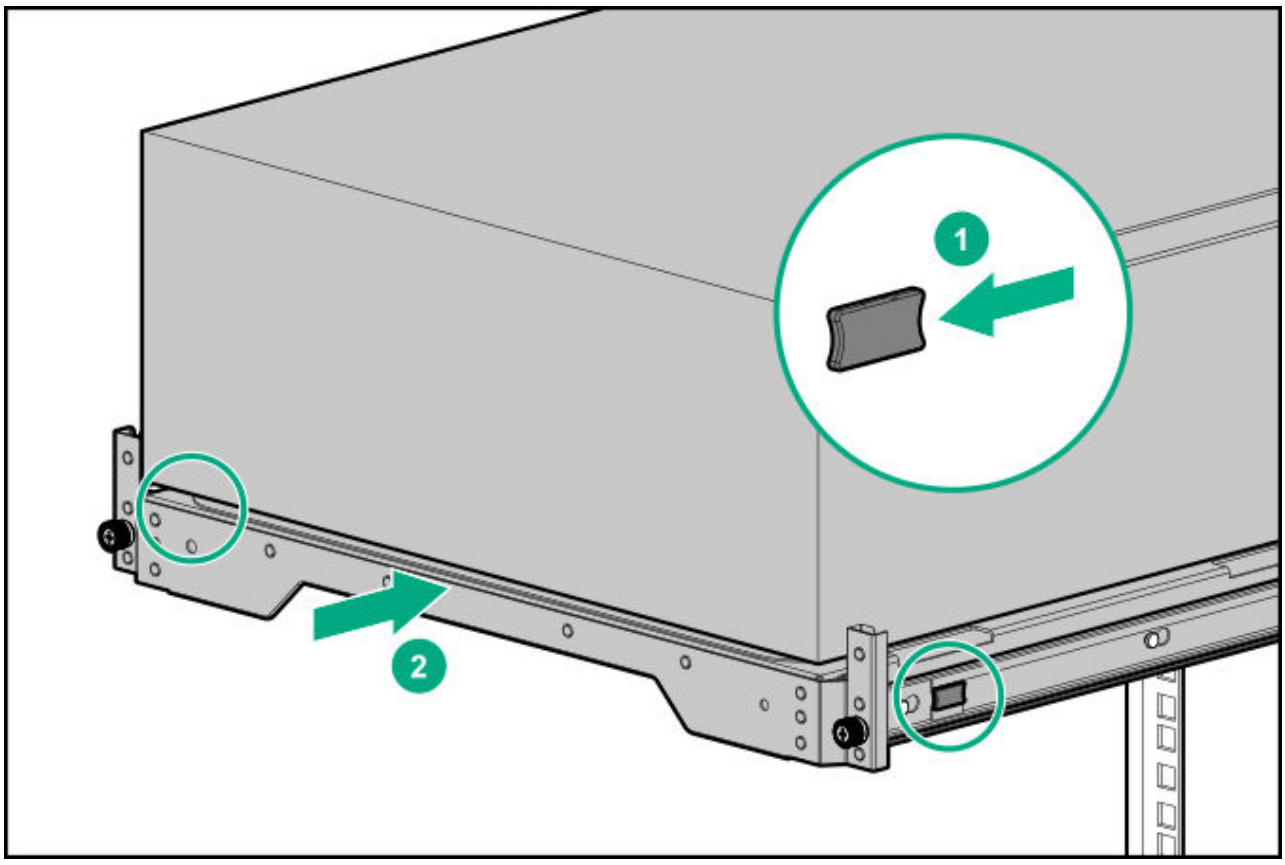


2. Place the server on the tray.

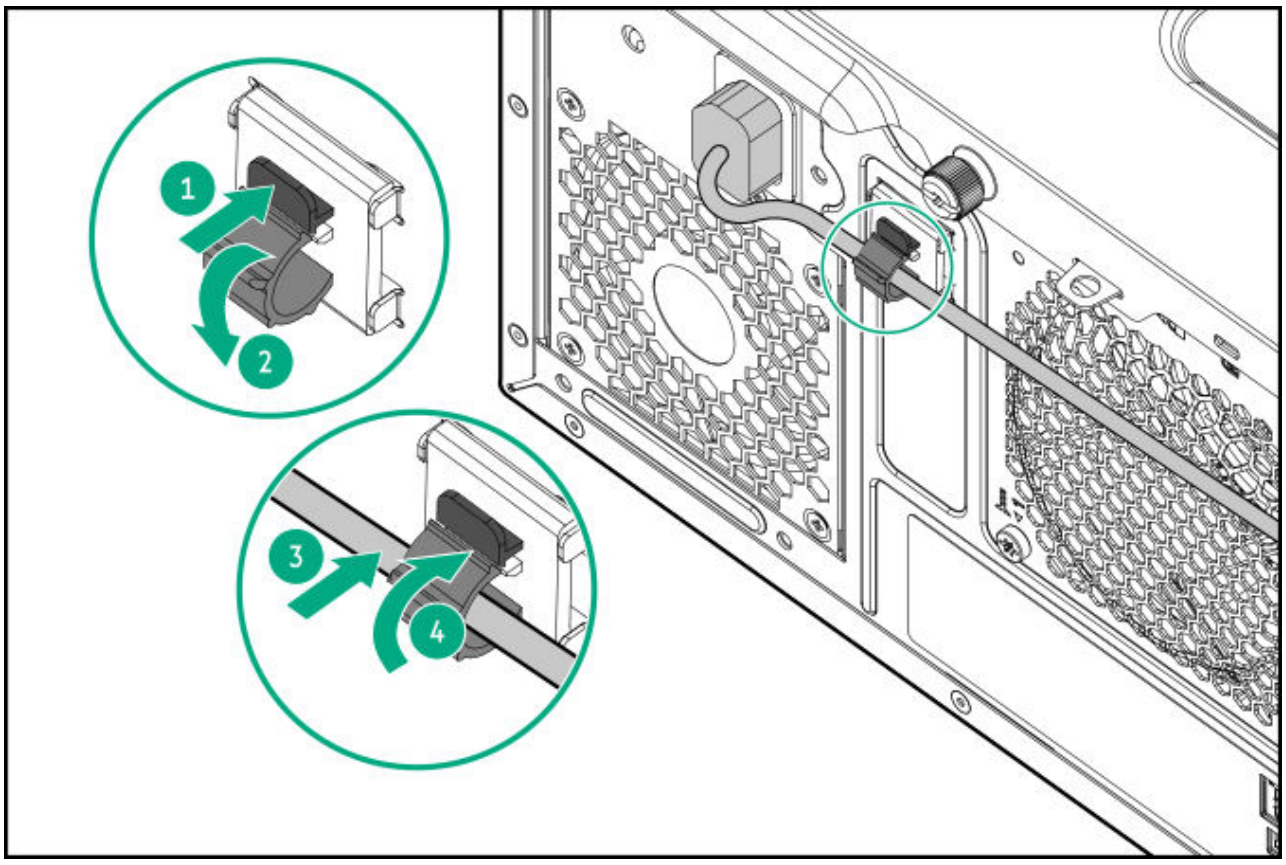
   Verify that the front panel of the server is aligned with the front of the tray.



3. Press and hold the blue rail-release tabs, and then slide the tray back into the rack.



4. Connect all peripheral cables to the server.
5. Connect each power cord to the server.
6. If the server is using a non-hot-plug power supply, secure the power cord in the power cord clip on the rear panel.
   a. Press and hold the clip retainer, and then open the clip.
   b. Position the power cord inside the clip, and then close the clip.

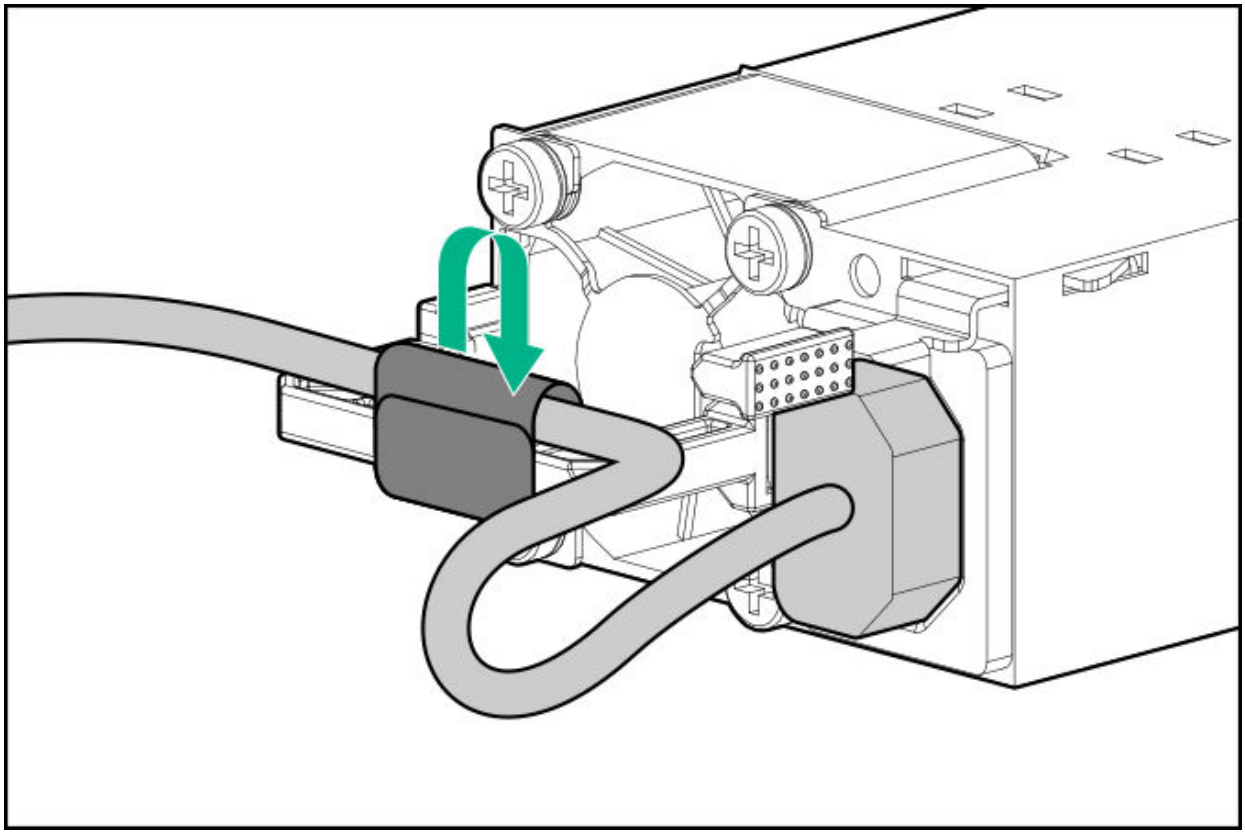


7. If the server is using a hot-plug power supply, secure the power cord in the strain relief strap attached to the power supply handle:

   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.



8. Verify that the peripheral cables and power cords are secured properly.

   Two people is needed for this procedure: one to slide the server in and out of the rack, and the other to observe the peripheral cables and power cords.

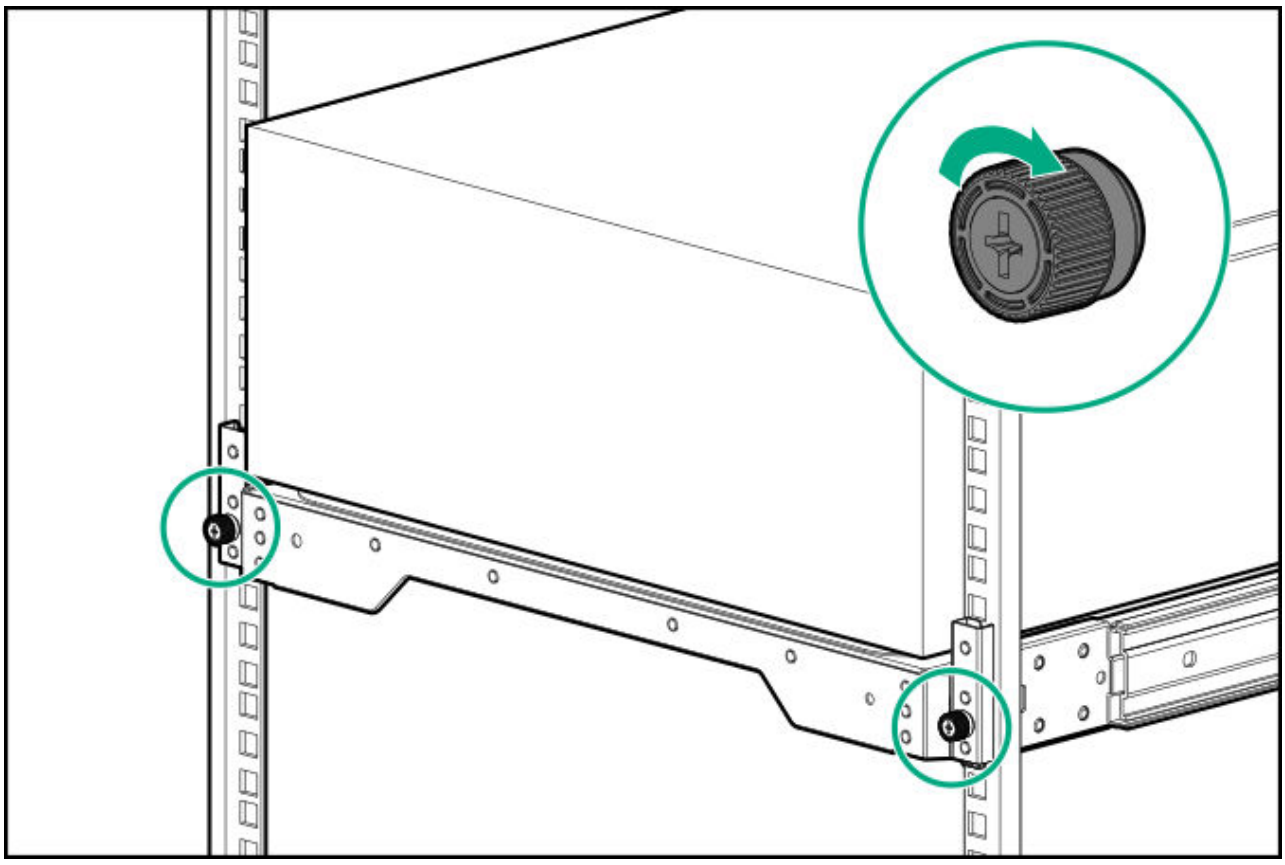
   a. Fully extend the server tray out of the rack.

   b. Make sure that there is enough slack in the cables and cords for a full extension of the rack rails.

      Make sure that there is no cable binding or crimping.

   c. Slide the server tray in and out of the rack to verify that there is no risk of accidental disconnection of the peripheral cables and power cords.

9. Tighten the server tray thumbscrews.



0. Connect each power cord to the power source.
1. Power up the server.

Install the cable management arm

About this task

The cable management arm (CMA) allows the server to be fully extended from the rack without the need to power off the system or disconnect any rear panel cables. This CMA is designed for ambidextrous implementation.

For the purpose of this procedure, left and right terminology is from the perspective of a user facing the front of the rack.

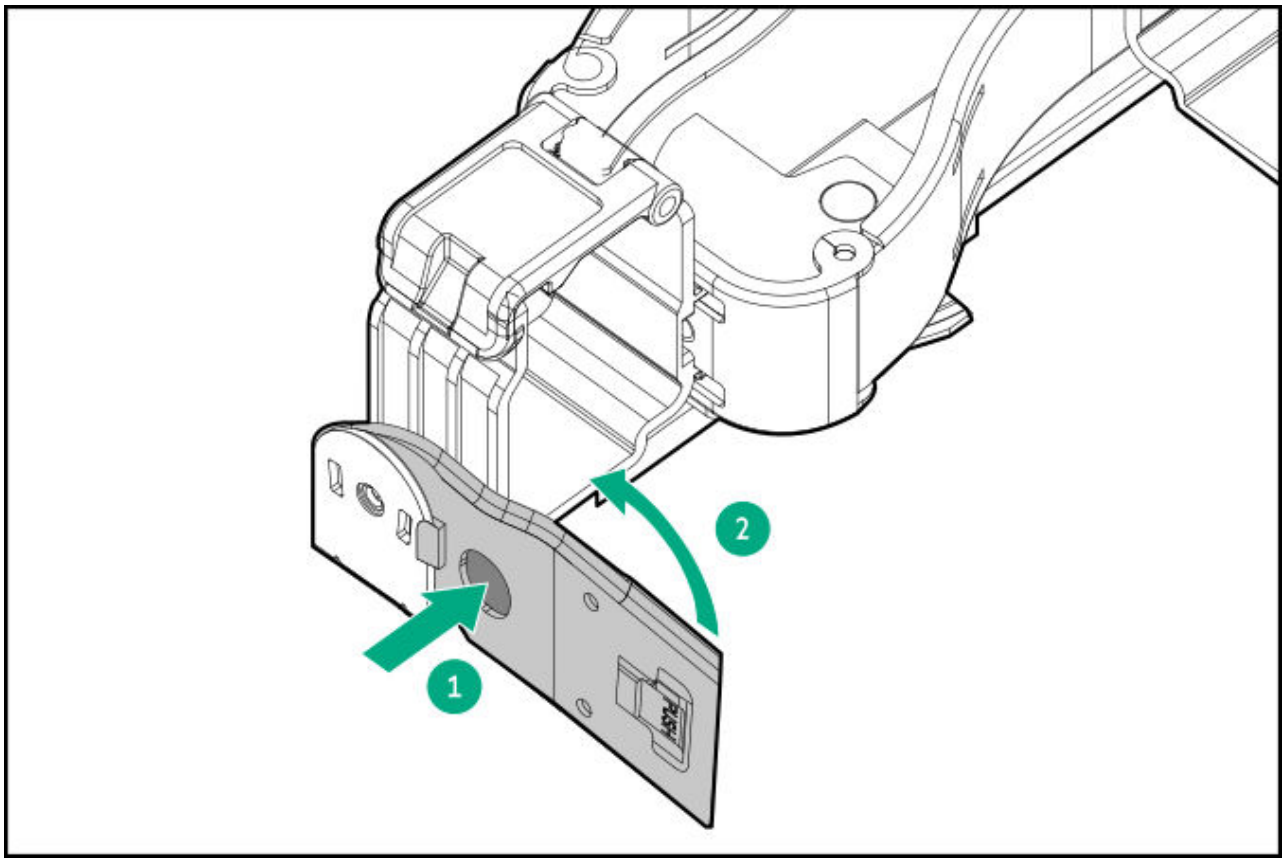
CAUTION

Support the CMA during the removal and replacement procedures. Do not allow the CMA to hang by its own weight during the procedure.

Procedure

1. (Optional) The CMA retention bracket can be rotated to fit a left- or right-hand CMA operation. Press and hold the rotate mechanism, and then rotate the bracket 180°.

   There will be an audible click to indicate that the bracket is locked in its adjusted position.



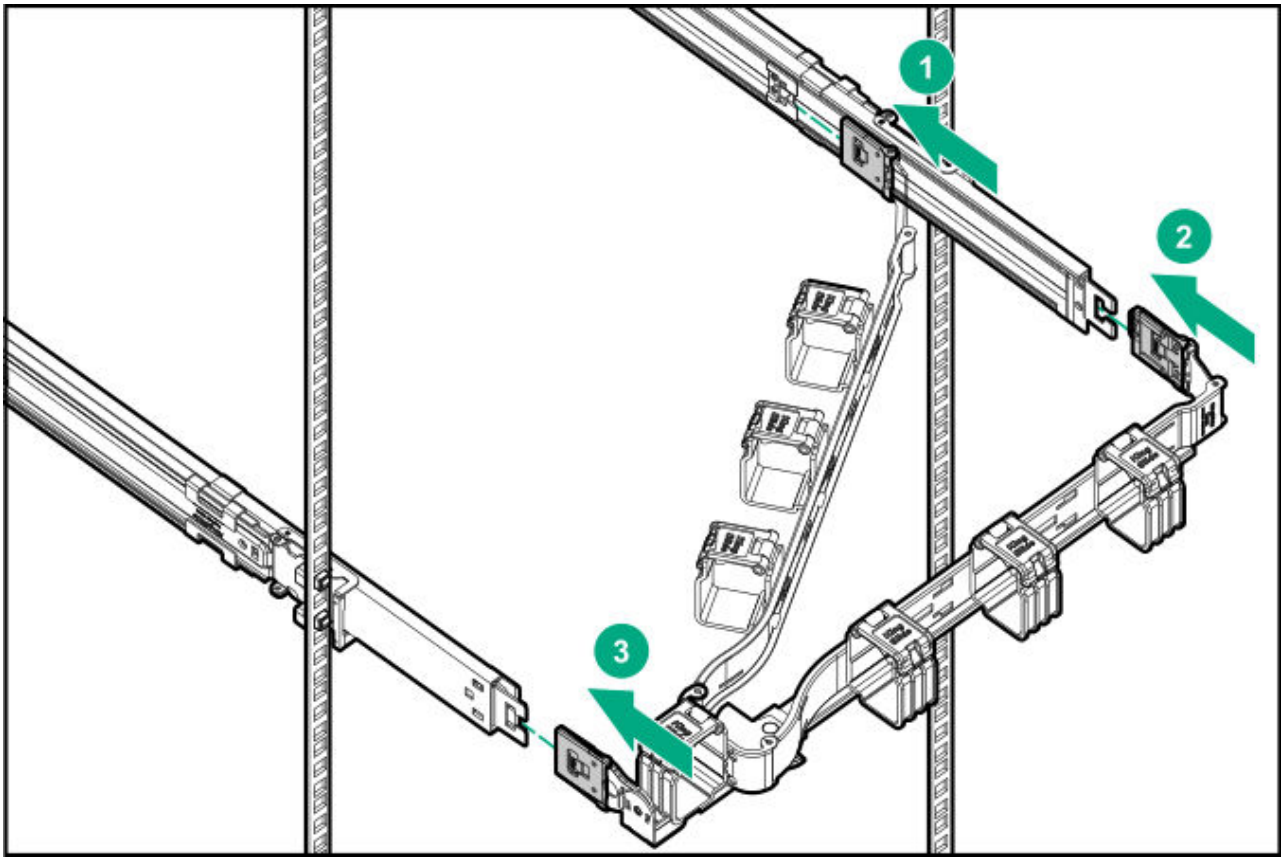
2. Connect the CMA hinged tabs and retention bracket to the rack rails:

   a. Insert the inner tab into the slide rail.

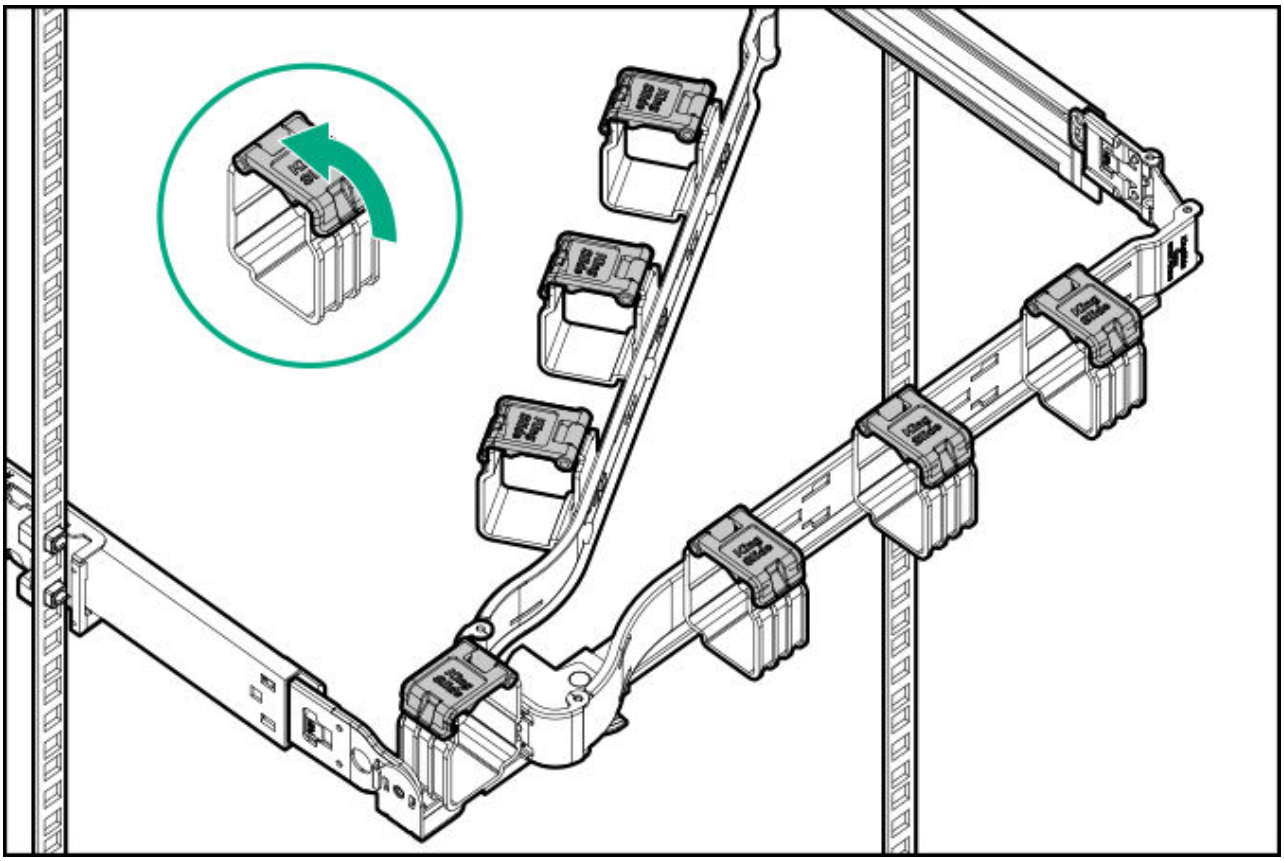
   b. Insert the outer tab into the mounting rail.

   c. Insert the retention bracket into the opposite mounting rail.

      There will be an audible click to indicate that the tabs and bracket are locked into place.



3. Open the cable clamps.

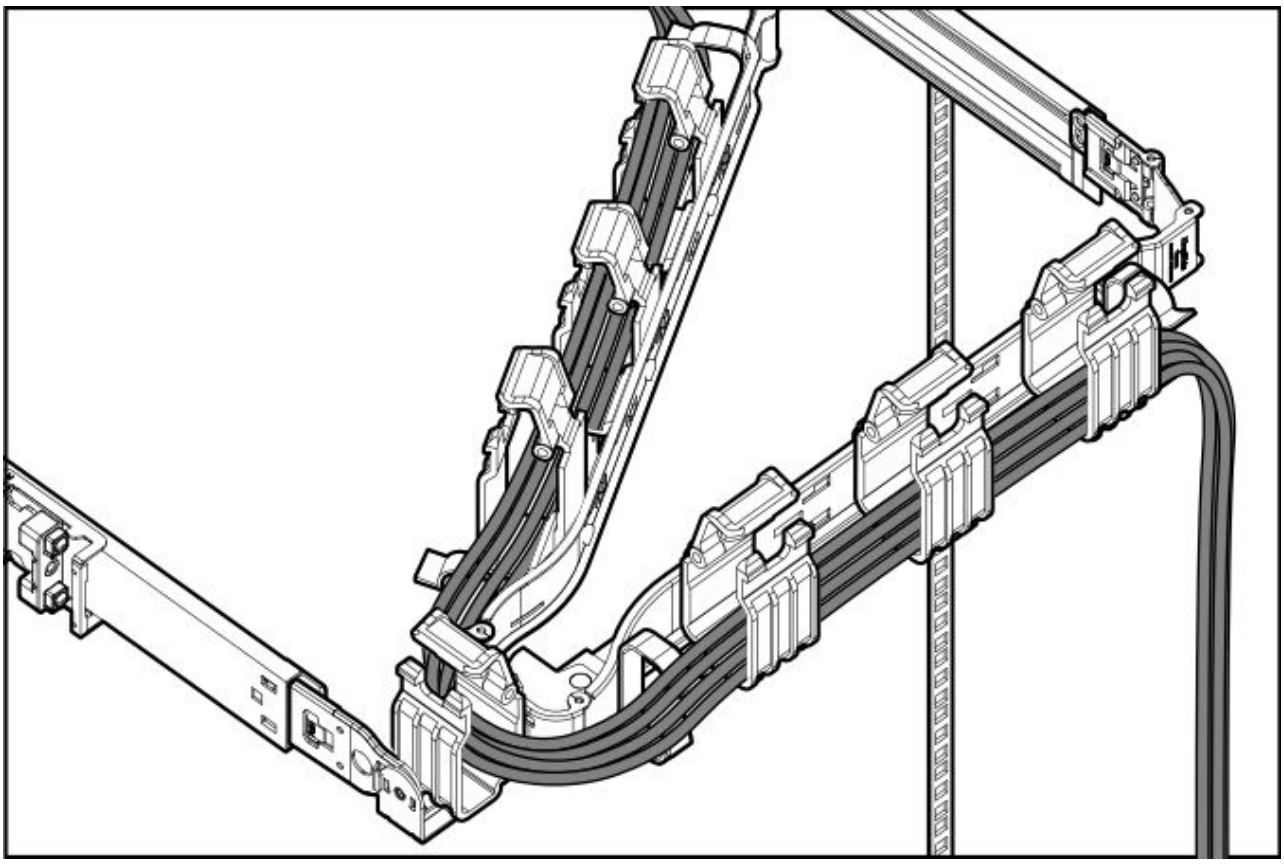


4. **CAUTION**

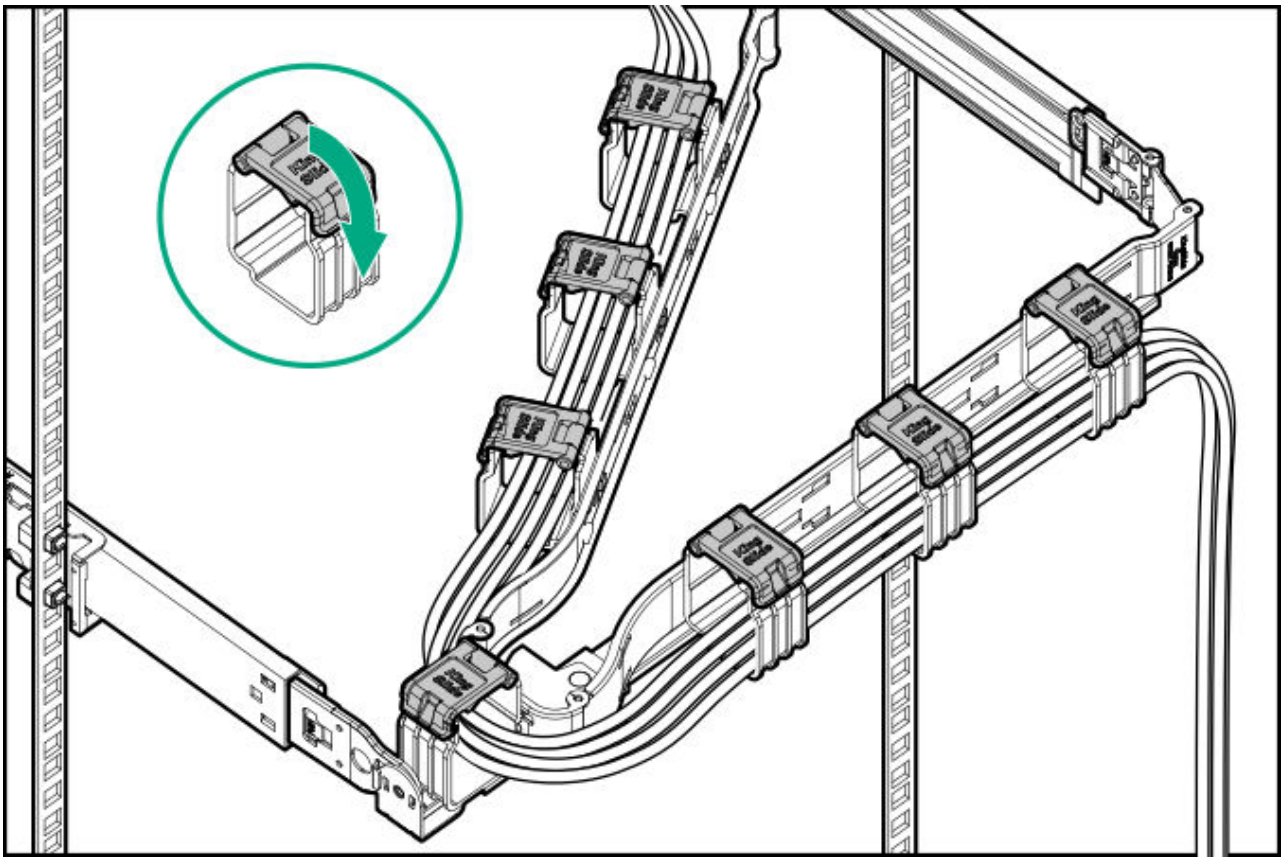
Employ industry best practices in managing peripheral cables and power cords secured in the CMA. These are some of the more important points:

- Leave enough cable slack between the rear panel and the CMA to allow the full extension of the CMA when the server is extended out of the rack.
- However, there should be no excess cable slack inside the CMA; this might cause cable binding and could lead to cable damage.
- Make sure that the cables and power cords do not extend above the top or below the bottom of the server to which they are attached. Otherwise, the cables might snag on other equipment installed in the rack when the server is extended from or returned to the rack.

Route the peripheral cables and power cords through the cable clamps.



5. Close the cable clamps.



6. Verify that the peripheral cables and power cords are secured properly.

   Two people is needed for this procedure: one to slide the server in and out of the rack, and the other to observe the peripheral cables and power cords.

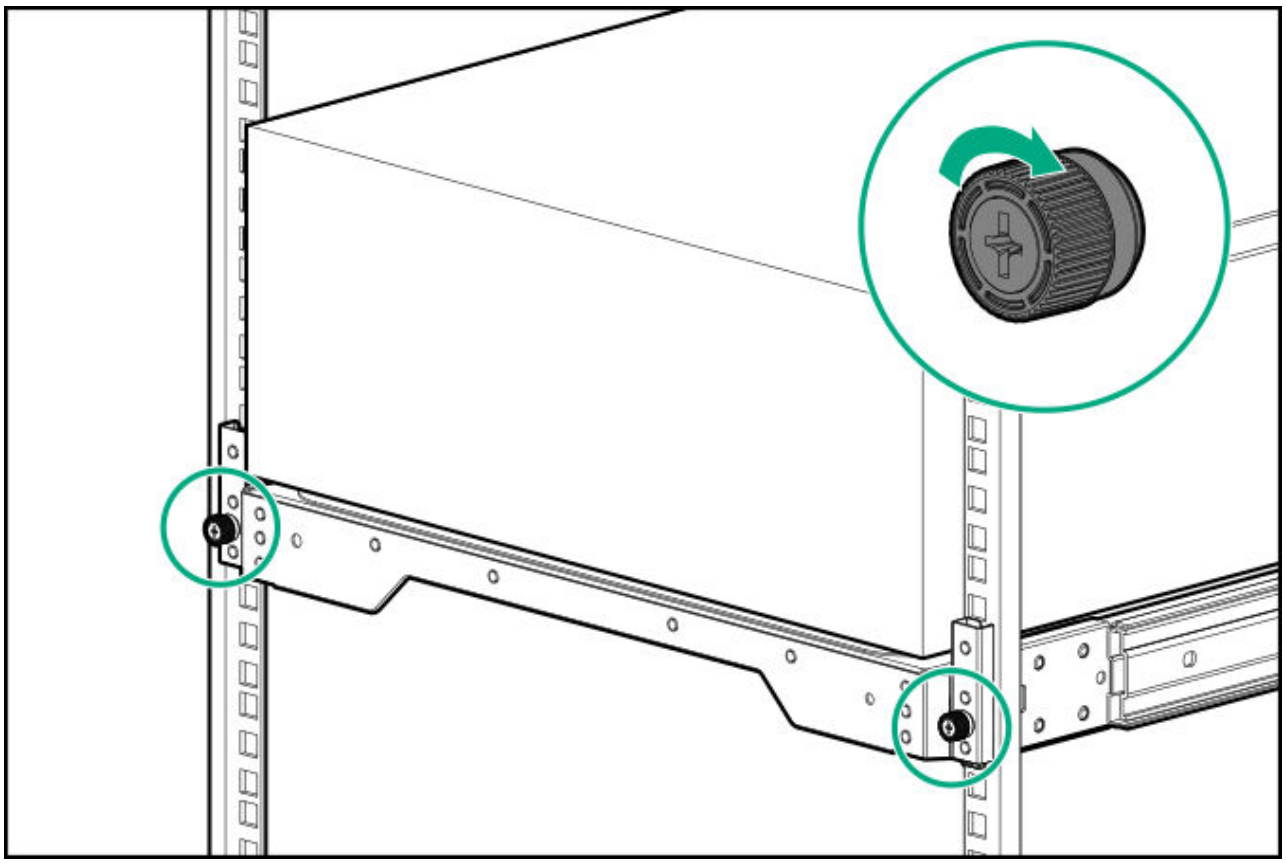
   a. Fully extend the server tray out of the rack.

   b. Make sure that there is enough slack in the cables and cords for a full extension of the rack rails.

      Make sure that there is no cable binding or crimping.

   c. Slide the server tray in and out of the rack to verify that there is no risk of accidental disconnection of the peripheral cables and power cords.

7. Tighten the server tray thumbscrews.



8. Connect each power cord to the power source.

9. Power up the server.

Results

The installation procedure is complete.

Drive options

Depending on the drive backplane installed, the server supports the following drive types:

- Non-hot-plug LFF SATA drives
- Hot-plug LFF SATA and SAS drives
- Hot-plug SFF SATA and SAS drives

The embedded Intel Virtual RAID on CPU (Intel VROC) supports software RAID for direct attached SATA drives.

Install an HPE type-p PCIe plug-in storage controller option to support SAS drives and hardware RAID.

Subtopics

Drive installation guidelines
Installing a non-hot-plug LFF drive
Installing a hot-plug LFF/SFF drive

Drive installation guidelines

Observe the following general guidelines:

- The system automatically sets all drive numbers.

  CAUTION

  When a server is purchased without any drive installed, some drive bays might be empty while other drive bays might be populated with drive blanks. To maintain proper system cooling, do not operate the server without a drive or a drive blank installed.

- If only one drive is used, install it in the bay with the lowest drive number. For drive numbering, see Drive bay numbering.

- This server does not support mixed drive types in the same drive box.
- All drives grouped into the same drive array must meet the following criteria:
  - All drives must be either all hard drives or all solid-state drives.
  - All drives must be of the same capacity to provide the greatest storage space efficiency when drives are grouped into the same drive array.

Installing a non-hot-plug LFF drive

Prerequisites

Before you perform this procedure, make sure that you have a T-15 Torx screwdriver available.

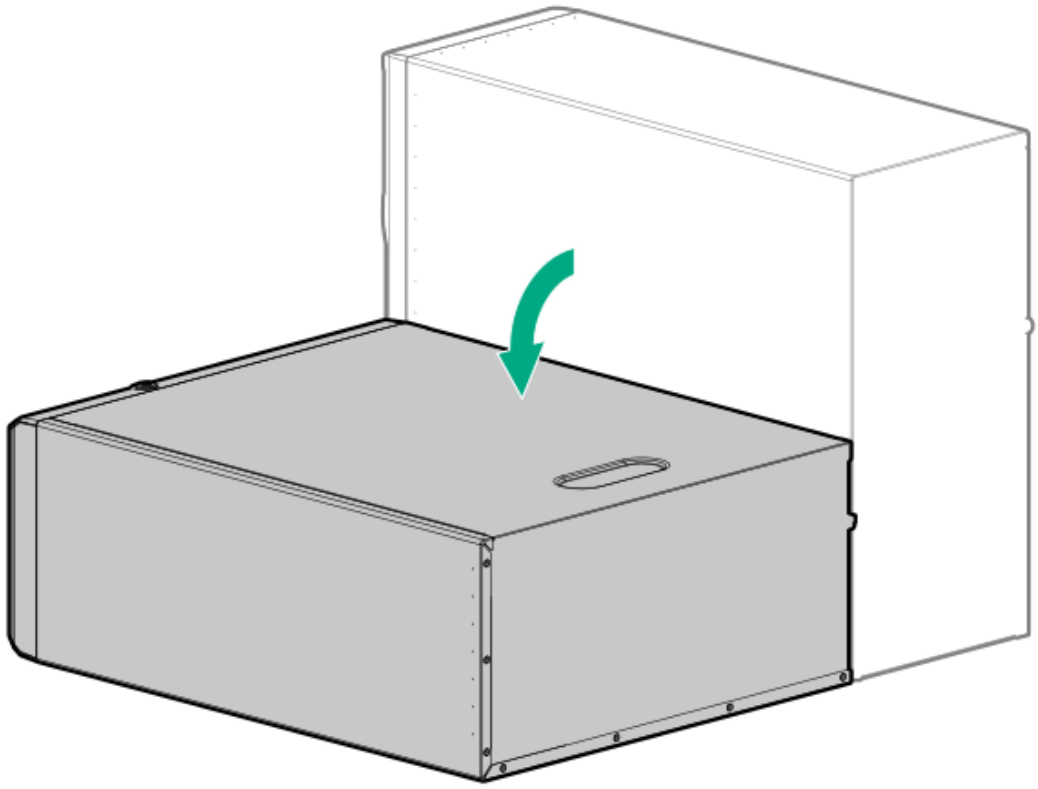
About this task

The non-hot-plug LFF drives supported in this server do not require a drive caddy or a drive carrier to install. You have to use the drive screws preinstalled on the left side of the drive cage.

> **CAUTION**
> A discharge of static electricity from a finger or other conductor might damage system boards or other static-sensitive devices. To prevent damage, observe antistatic precautions.

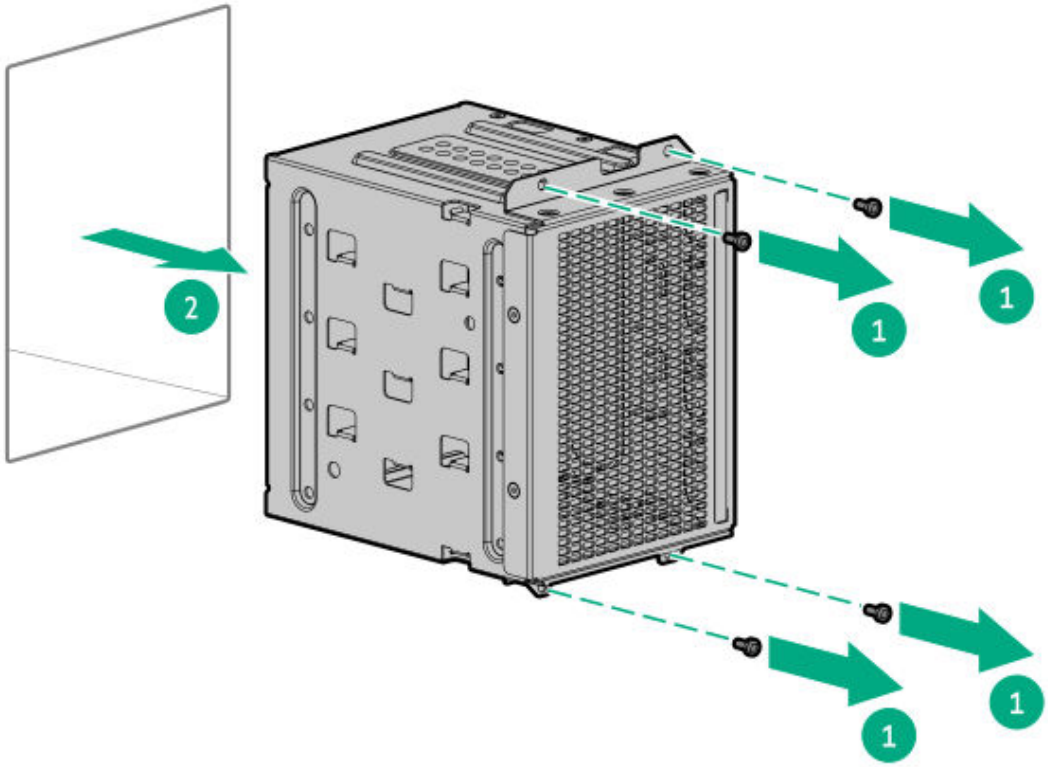
Procedure

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. Do one of the following:
   - If the server is in tower mode, place the server on a flat, level surface with the access panel facing up.



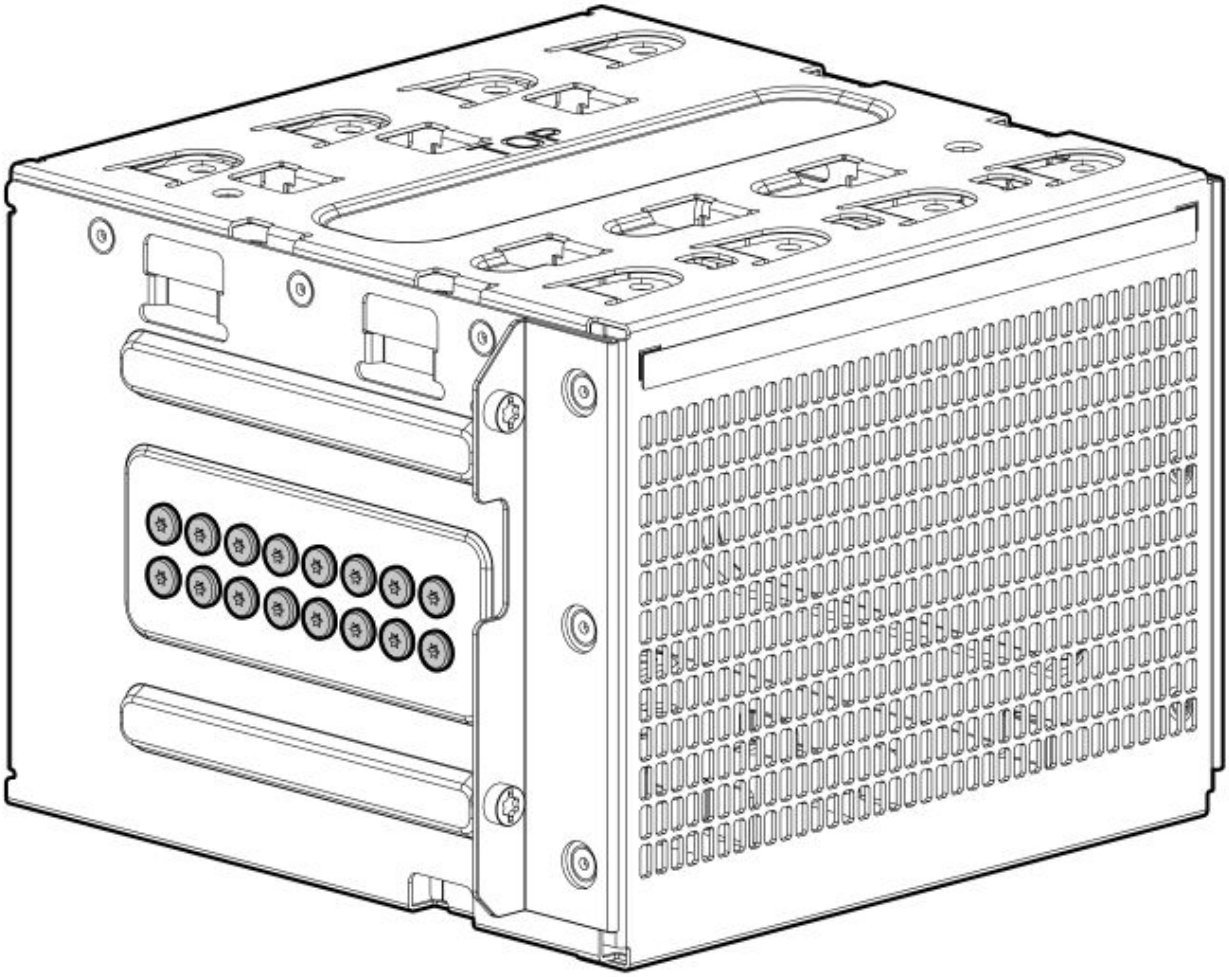
- If the server is in rack mode, remove the server from the rack.

6. Remove the front bezel.
7. Remove the access panel.
8. If a non-hot-plug drive is already installed, disconnect the drive power and SATA cables.
9. Remove the non-hot-plug drive cage.

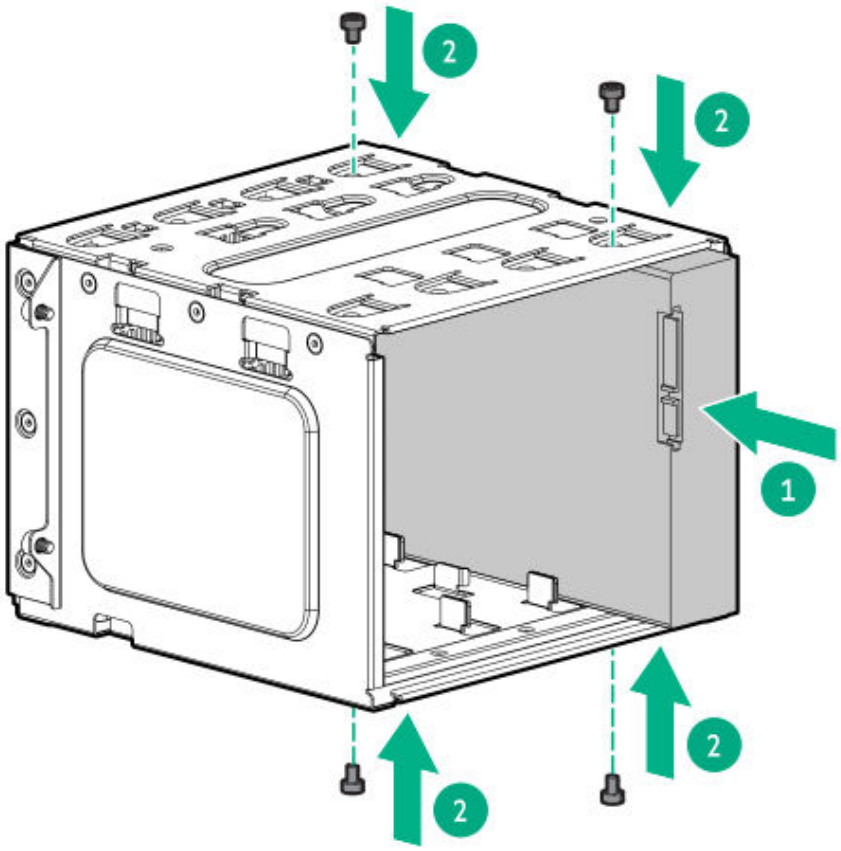


0. Remove the correct number of screws from the drive cage.

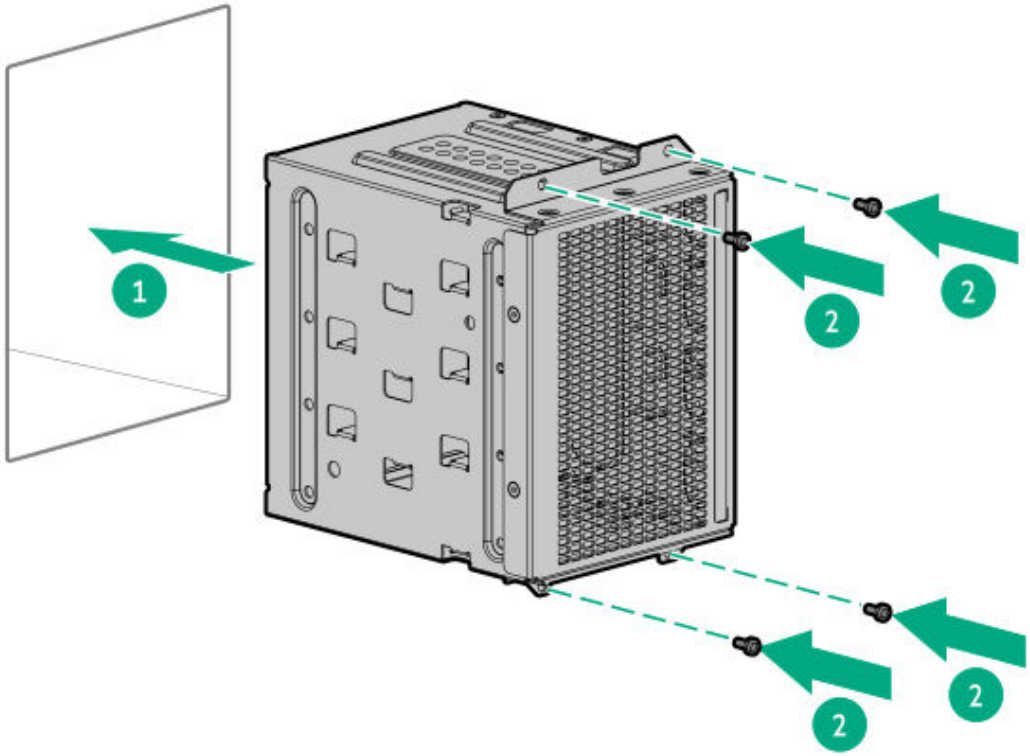
   Each drive requires four screws.



1. Install the non-hot-plug drive.

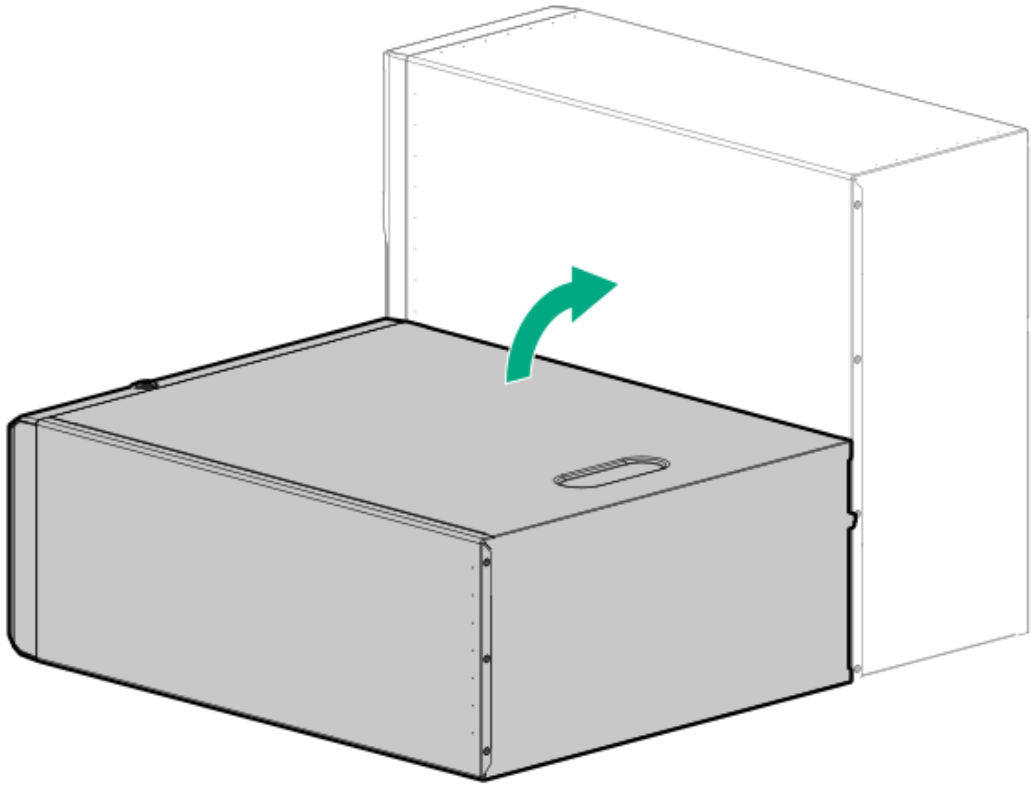


2. Install the non-hot-plug drive cage.



3. Connect the drive power and SATA cables.

4. Install the access panel.
5. Install the front bezel.
6. Do one of the following:
    - Orient the server back to tower mode.



    - Install the server into the rack.
7. Connect all peripheral cables to the server.
8. Connect each power cord to the server.
9. Connect each power cord to the power source.
0. Power up the server.
1. To configure drive arrays, see the relevant storage controller guide.

Results

The installation procedure is complete.

Installing a hot-plug LFF/SFF drive

Prerequisites

- Determine the status of the drive from the drive LED definition.
- To configure drive arrays, see the relevant storage controller guide.

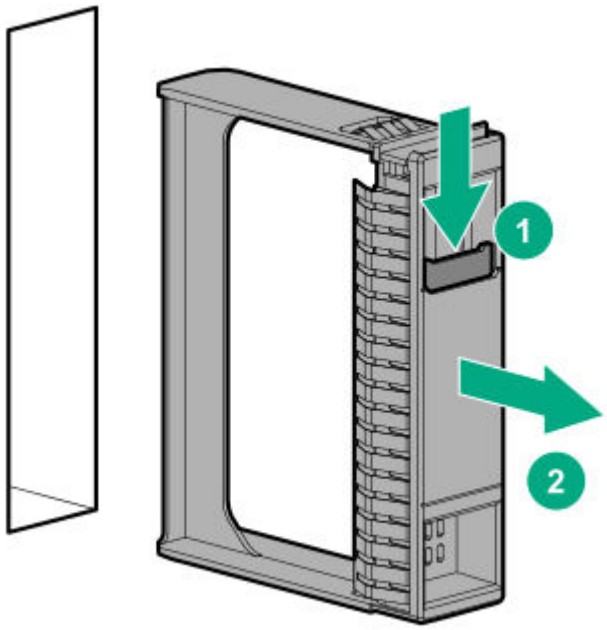
About this task

CAUTION
A discharge of static electricity from a finger or other conductor might damage system boards or other static-sensitive devices. To prevent damage, observe antistatic precautions.

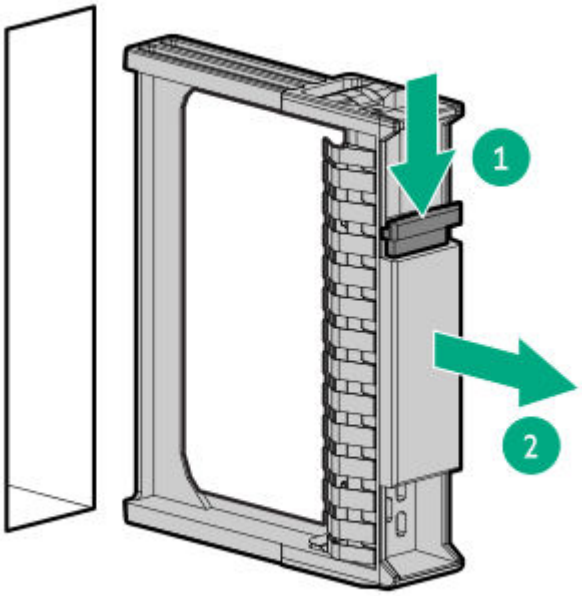
CAUTION
To prevent improper cooling and thermal damage, do not operate the server unless all bays are populated with either a component or a blank.

Procedure

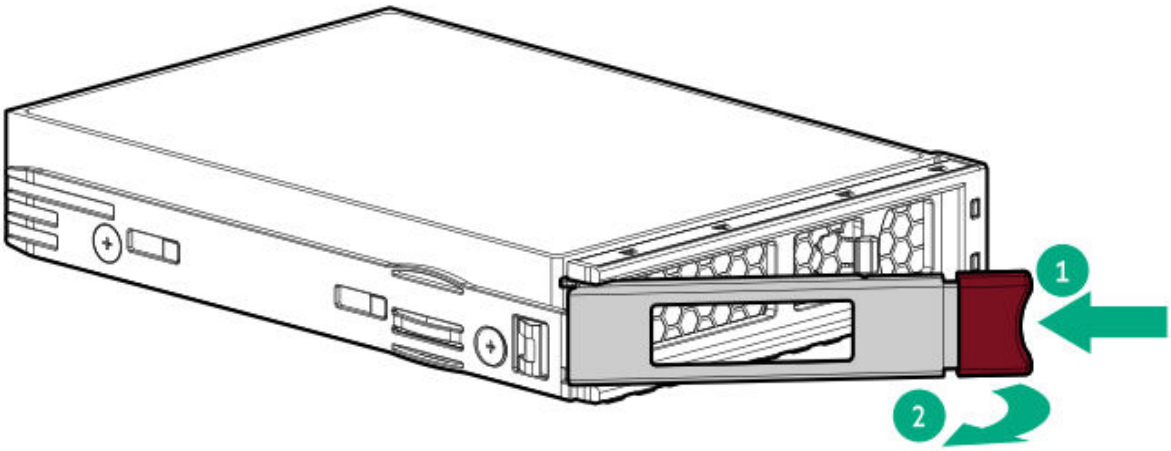
1. Back up all server data.
2. Remove the front bezel.
3. Remove the drive blank.
    - LFF drive blank



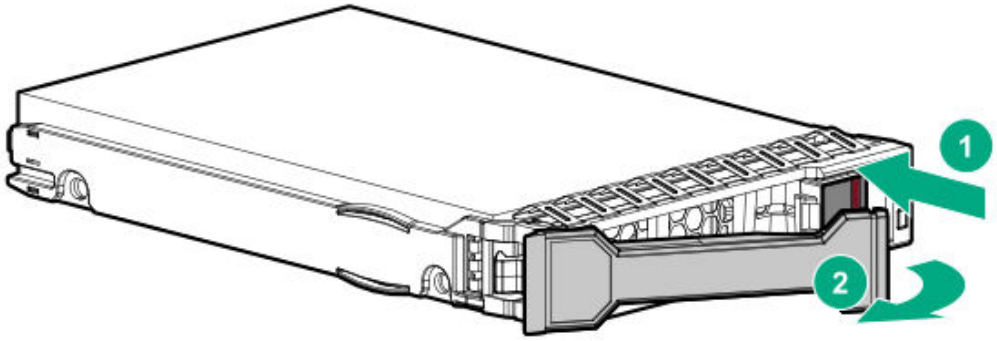
- SFF drive blank



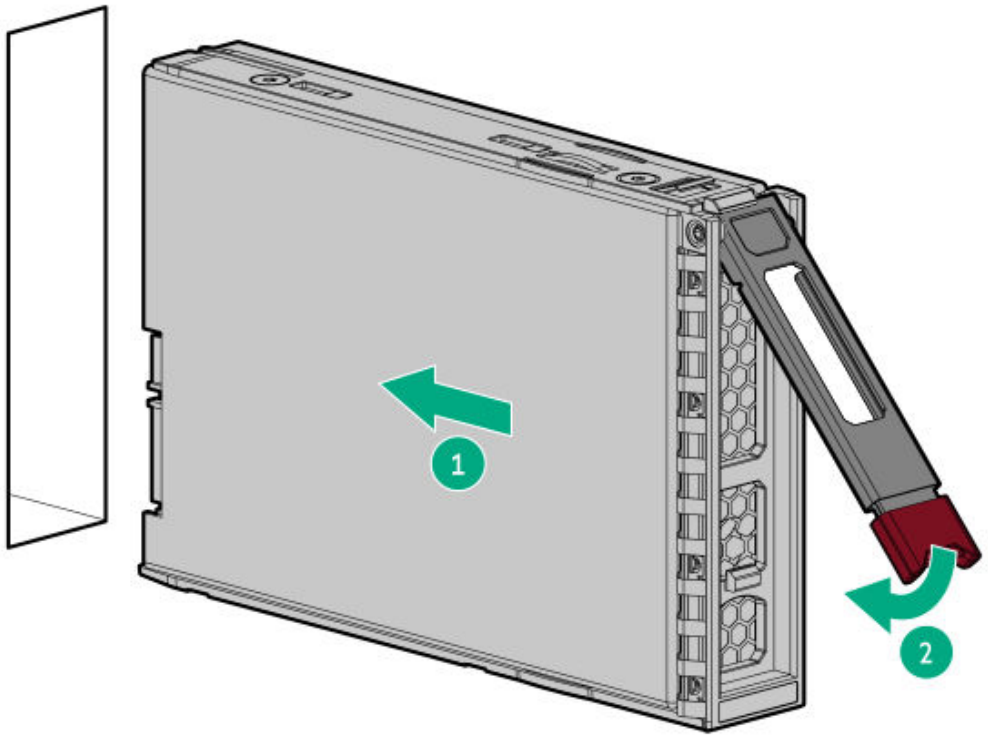
4. Prepare the drive.
    - LFF drive



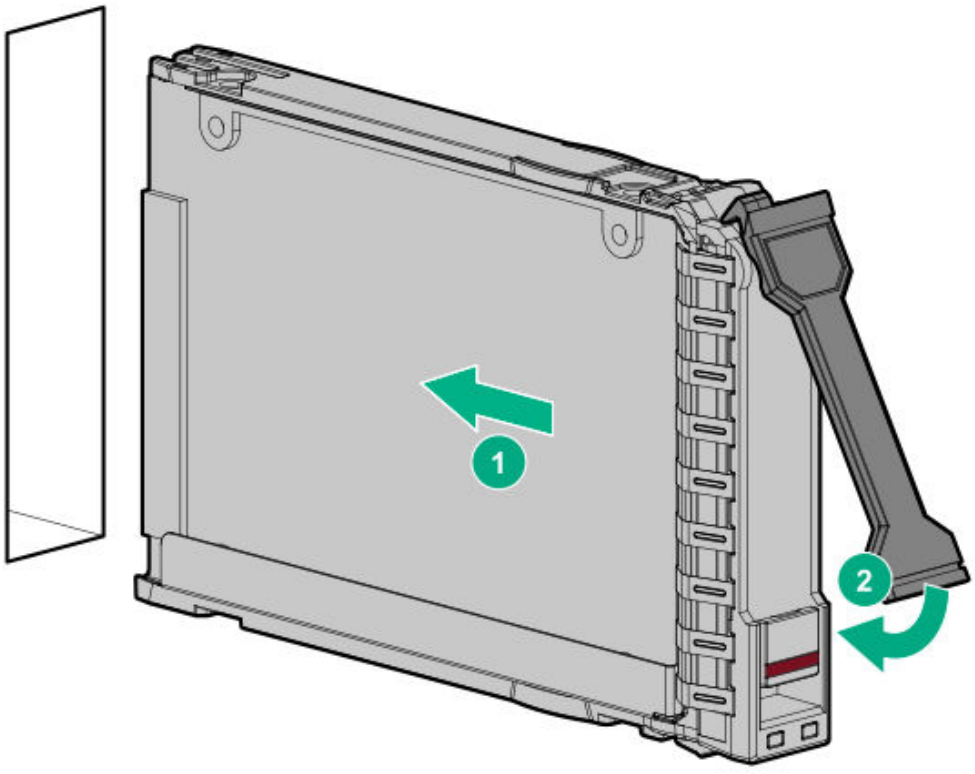
- SFF drive



5. Install the drive.
    - LFF drive



- SFF drive



6. Determine the status of the drive from the drive LED definitions.
7. Install the front bezel.

8. To configure drive arrays, see the relevant storage controller guide.

Results

The installation procedure is complete.

Power supply options

Depending on the installed options and the regional location where the server was purchased, the server can be configured with one of the supported power supplies.

Subtopics

Hot-plug power supply calculations
Power supply warnings and cautions
Redundant power supply enablement option

Hot-plug power supply calculations

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

Power supply warnings and cautions

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.

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.

Redundant power supply enablement option

The redundant power supply (RPS) enablement option supports the installation of two Flexible Slot (Flex Slot) power supplies. Adding a second power supply provides redundant power support to the server if one power supply fails. You do not have to power down the server before removing or installing a redundant hot-plug power supply.

Subtopics

Installing the RPS enablement option
Installing a Flexible Slot power supply

Installing the RPS enablement option

Prerequisites

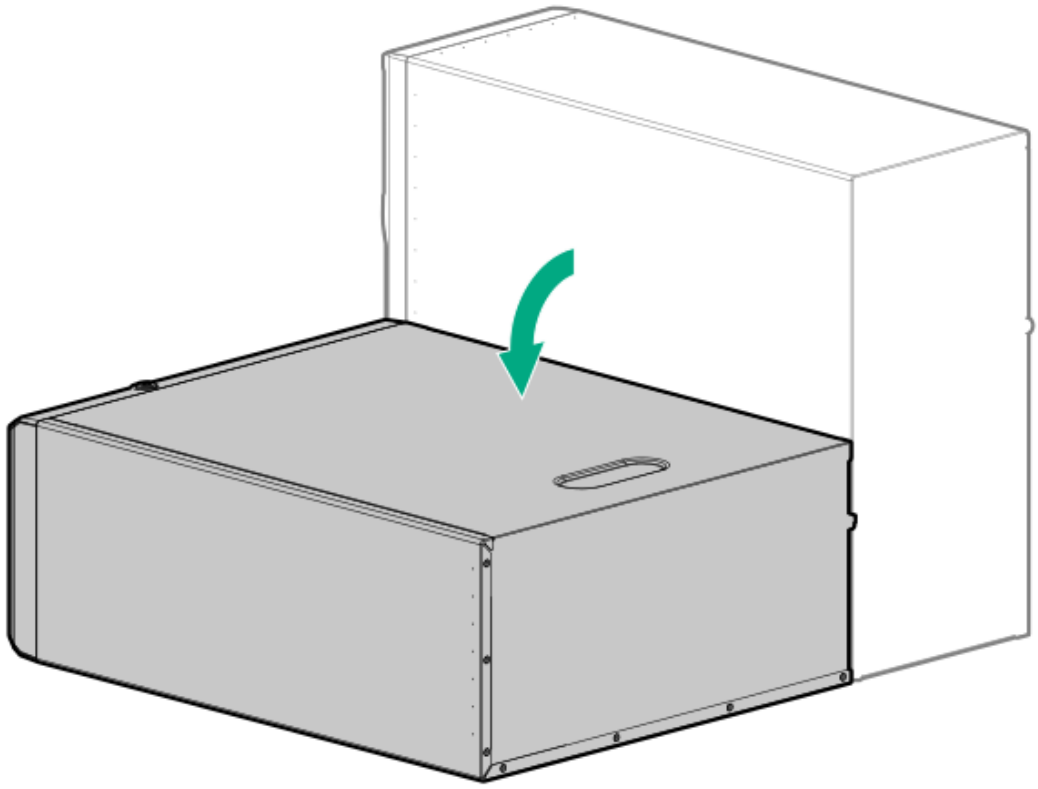
Before you perform this procedure, make sure that you have a T-15 Torx screwdriver available.

About this task

CAUTION
A discharge of static electricity from a finger or other conductor might damage system boards or other static-sensitive devices. To prevent damage, observe antistatic precautions.

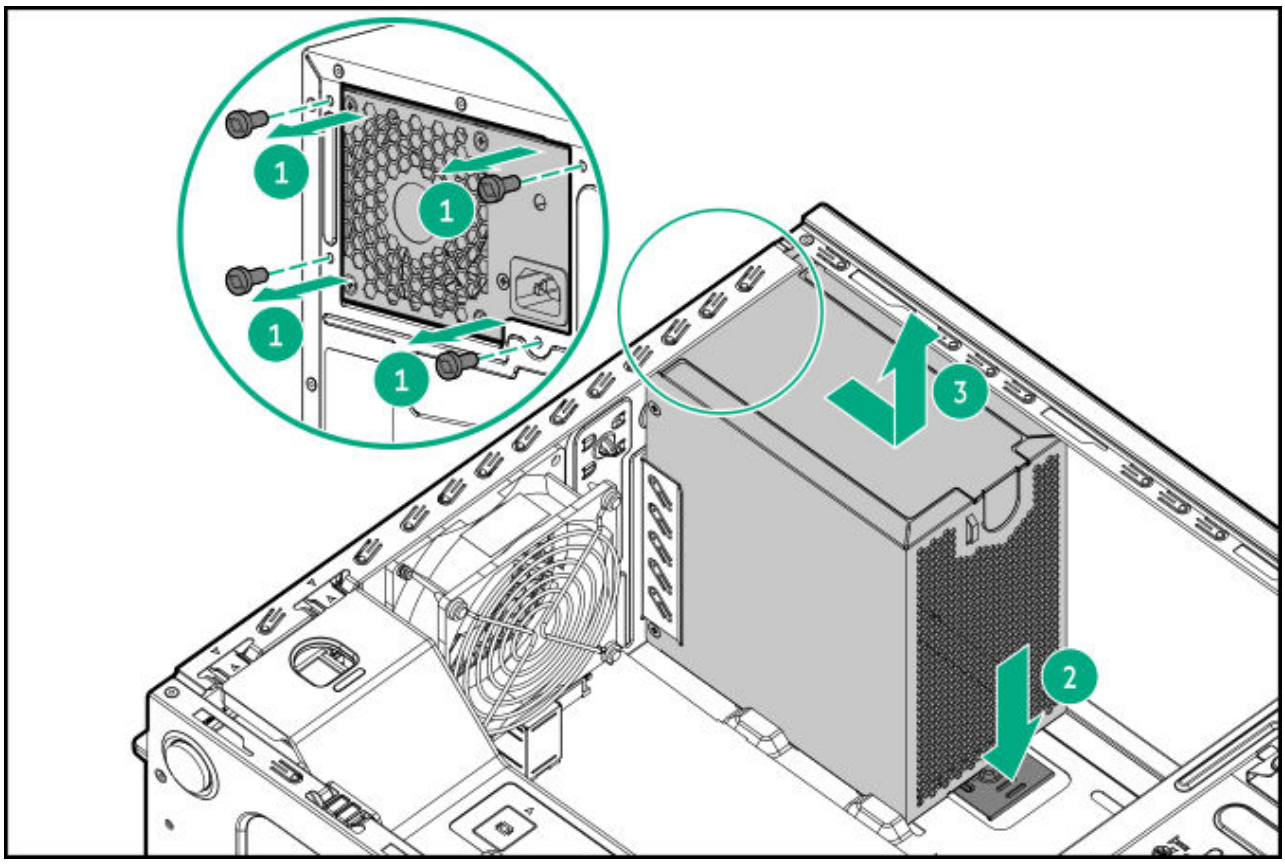
Procedure

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. Disconnect all peripheral cables from the server.
4. Do one of the following:
   - If the server is in tower mode, place the server on a flat, level surface with the access panel facing up.

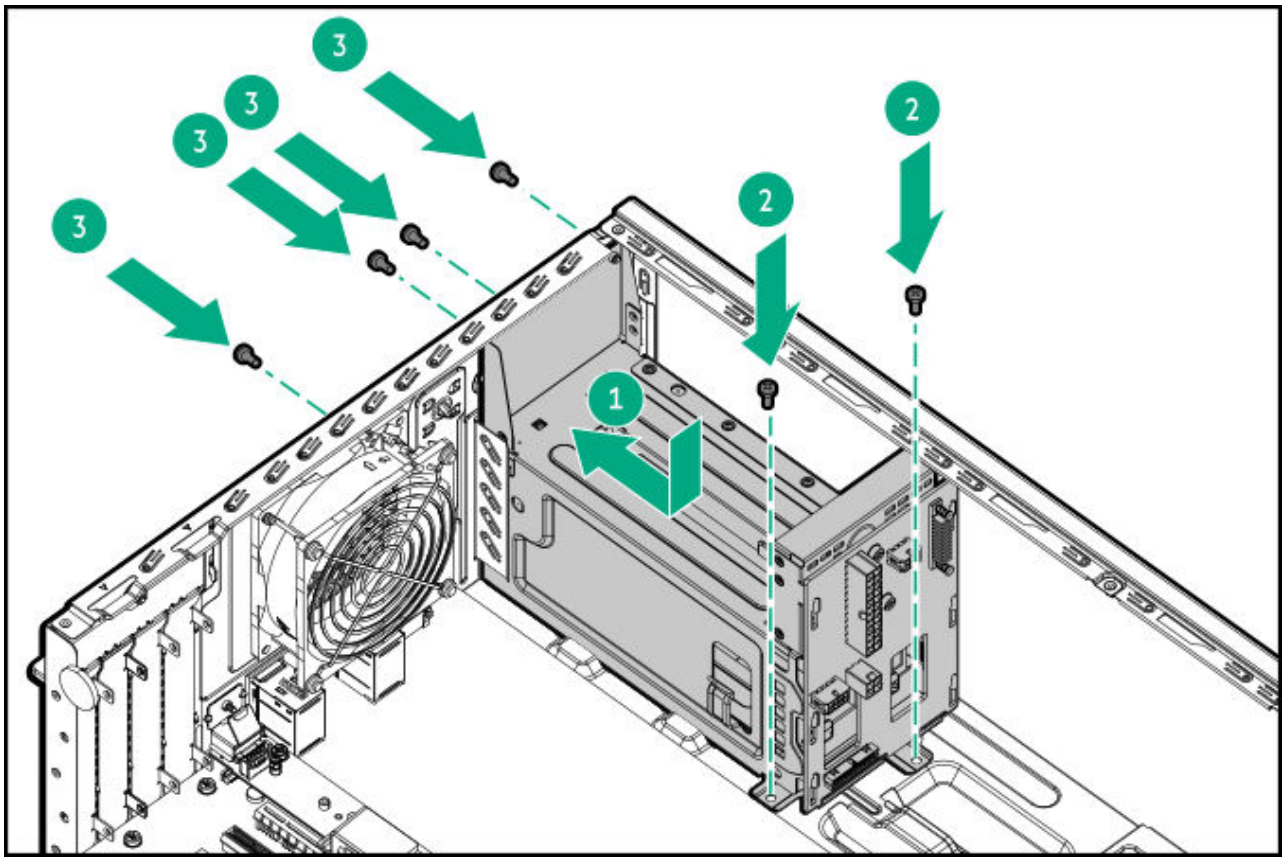


- If the server is in rack mode, remove the server from the rack.

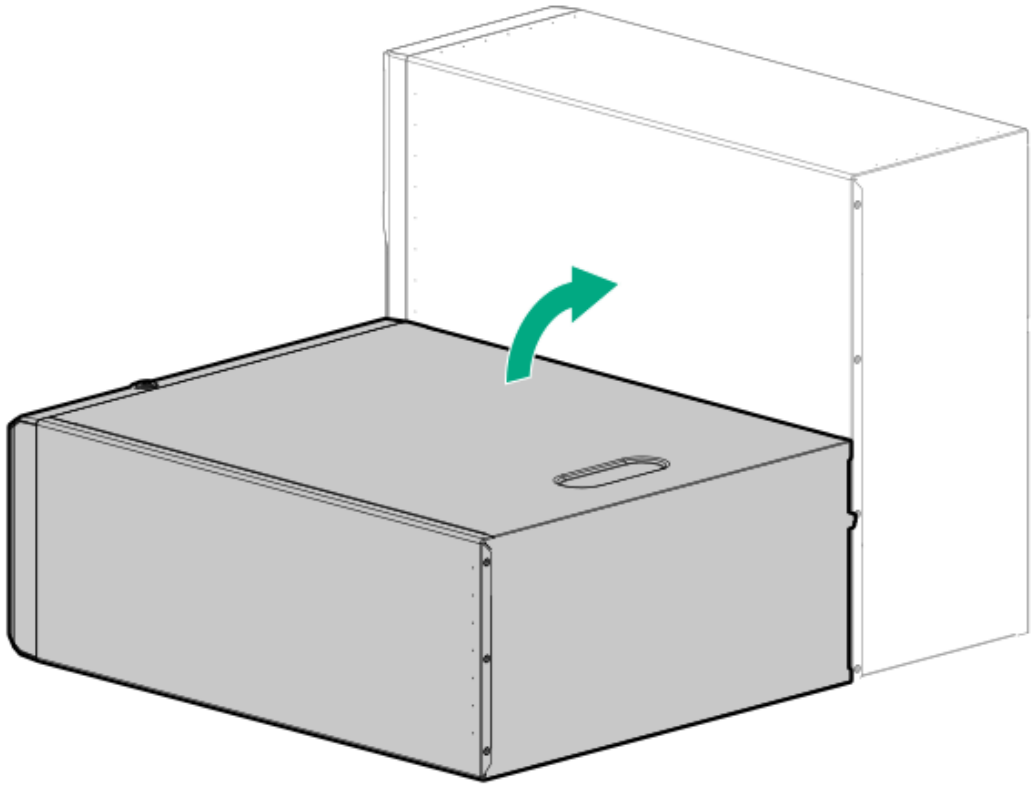
5. Remove the access panel.
6. If installed, remove all media devices.
7. Disconnect all non-hot-plug power supply cables.
8. Remove the non-hot-plug power supply:
   a. Remove the power supply screws.
   b. Press and hold the release latch, and then remove the power supply.



9. Install the RPS cage.



0. If only one power supply is going to be installed in the RPS cage, make sure that the blank in the power supply bay 2 is firmly secured.
1. Connect the RPS cables.
2. Install the access panel.
3. Do one of the following:
   - Orient the server back to tower mode.



   - Install the server into the rack.
4. Install the Flexible Slot power supplies.
5. Connect all peripheral cables to the server.
6. Connect each power cord to the server.
7. Connect each power cord to the power source.
8. Power up the server.

Results

The installation procedure is complete.

Installing a Flexible Slot power supply

Prerequisites

Before installing a power supply option, review the Power supply warnings and cautions.

About this task

WARNING

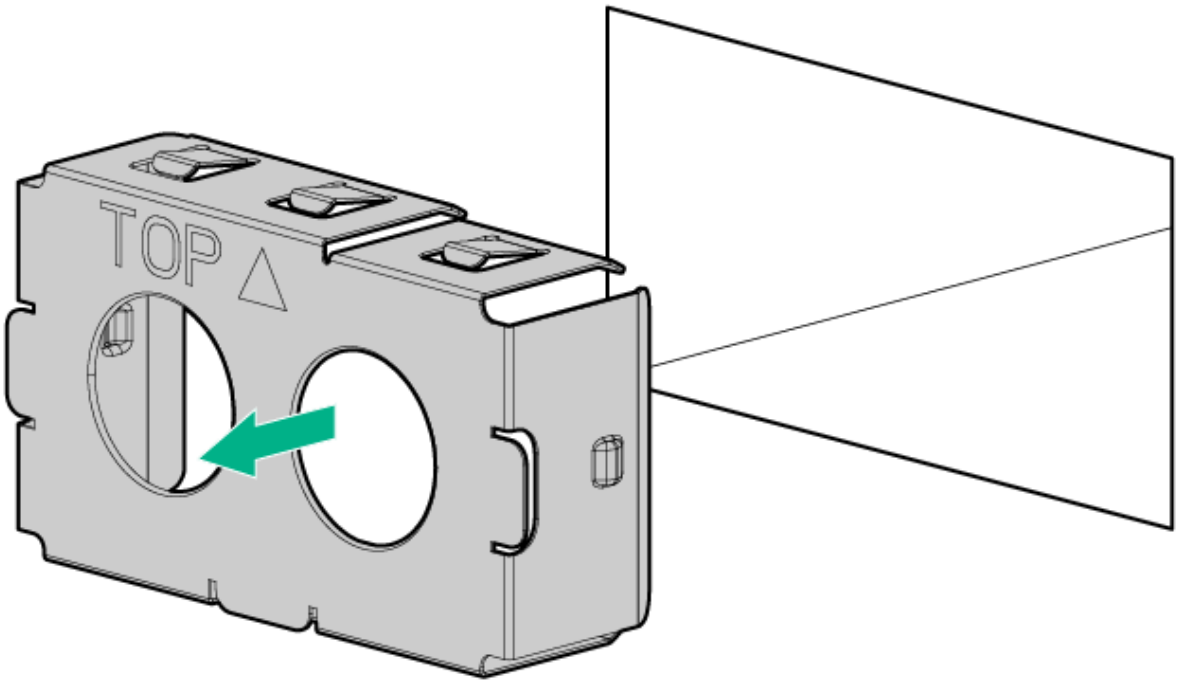
To reduce the risk of personal injury from hot surfaces, allow the power supply, power supply blank, or dual slot power supply adapter to cool before touching it.

CAUTION

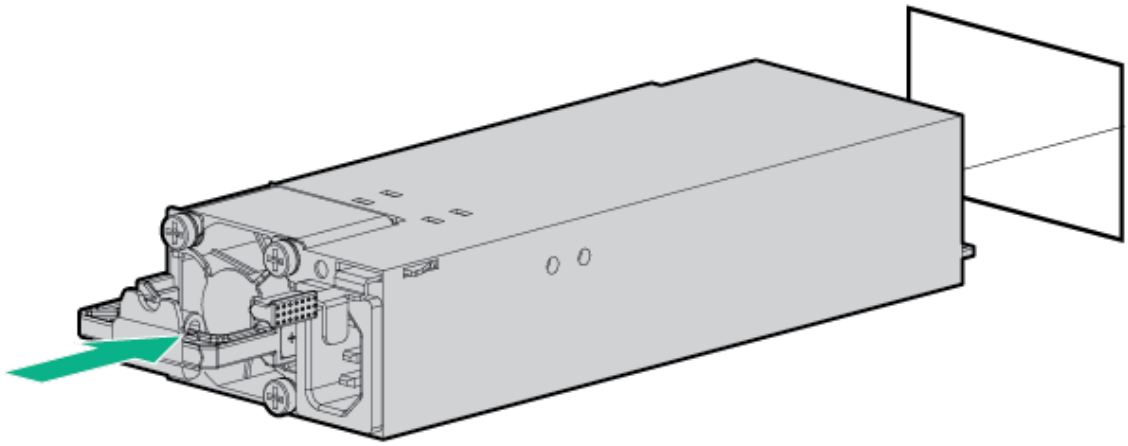
To prevent improper cooling and thermal damage, do not operate the server unless all bays are populated with either a component or a blank.

Procedure

1. If you are installing a power supply in the power supply bay 2, remove the power supply blank.



2. Immediately slide the power supply into the bay until it clicks into place.

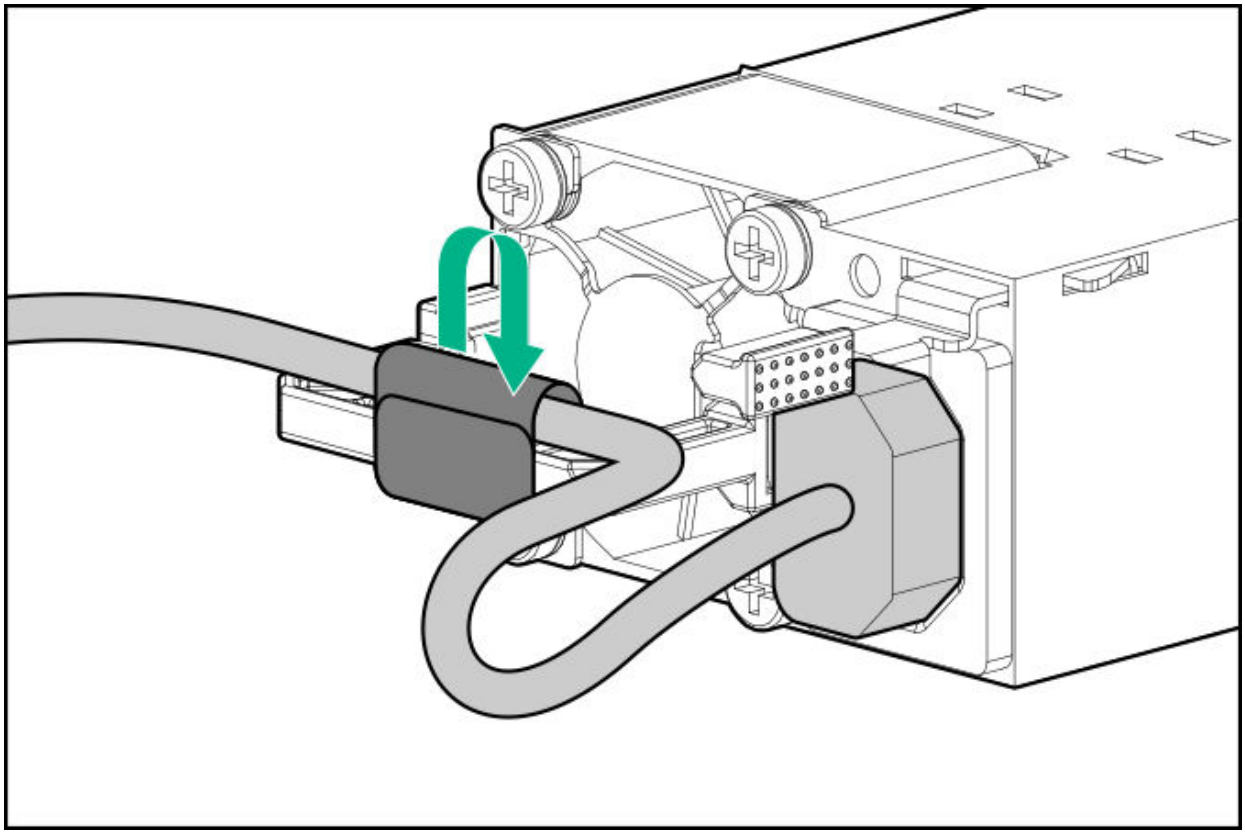


3. Connect the power cord to the power supply.
4. Secure the power cord in the strain relief strap attached to the power supply handle:

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 each power cord to the power source.
6. Make sure that the power supply LED is green.

Results

The installation is complete.

Media device options

The server has two media bays that support the following media devices. Only one of each media device type can be installed at one time.

- Media bay 1—SAS LTO tape drive or USB RDX docking station
- Media bay 2—SATA optical drive or USB RDX docking station

Subtopics

Optical drive option
SAS LTO tape drive option
USB RDX backup system option
Enable the increased cooling mode

Optical drive option

Install a slim-type SATA optical drive to read/write data on optical discs.

Subtopics

Installing an optical drive

Installing an optical drive

Prerequisites

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

- T-15 Torx screwdriver
- Phillips No. 1 screwdriver

About this task

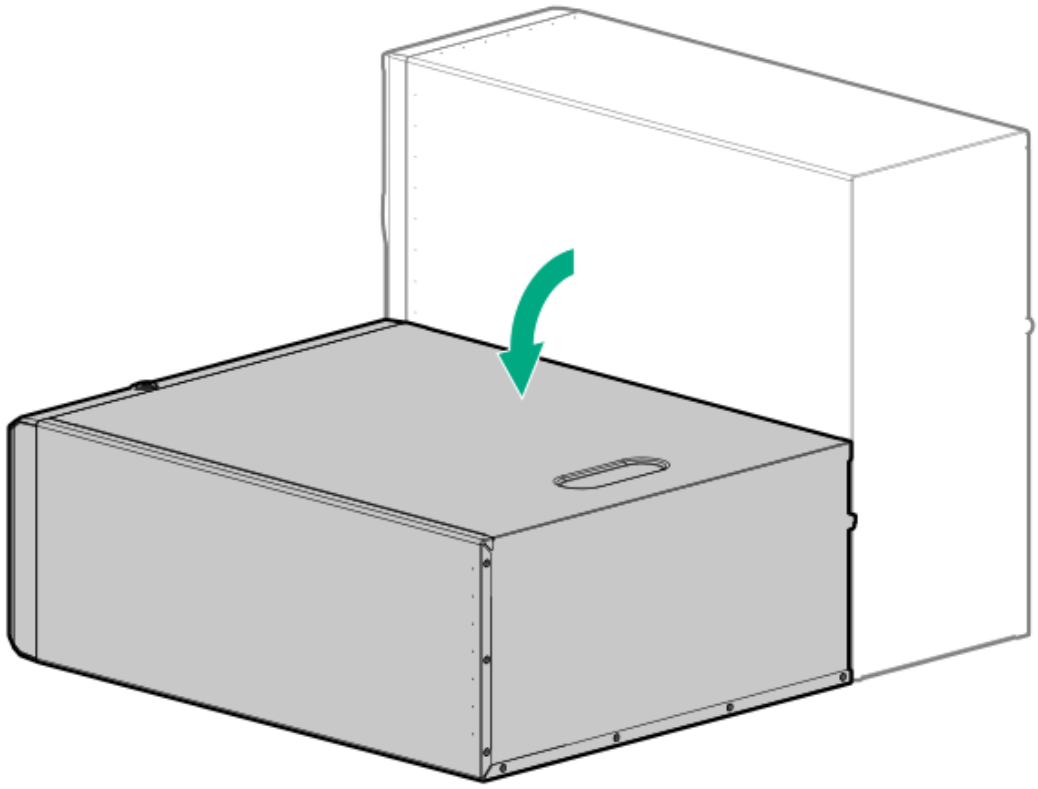
Install an optical drive in media bay 2.

> **CAUTION**
> A discharge of static electricity from a finger or other conductor might damage system boards or other static-sensitive devices. To prevent damage, observe antistatic precautions.

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

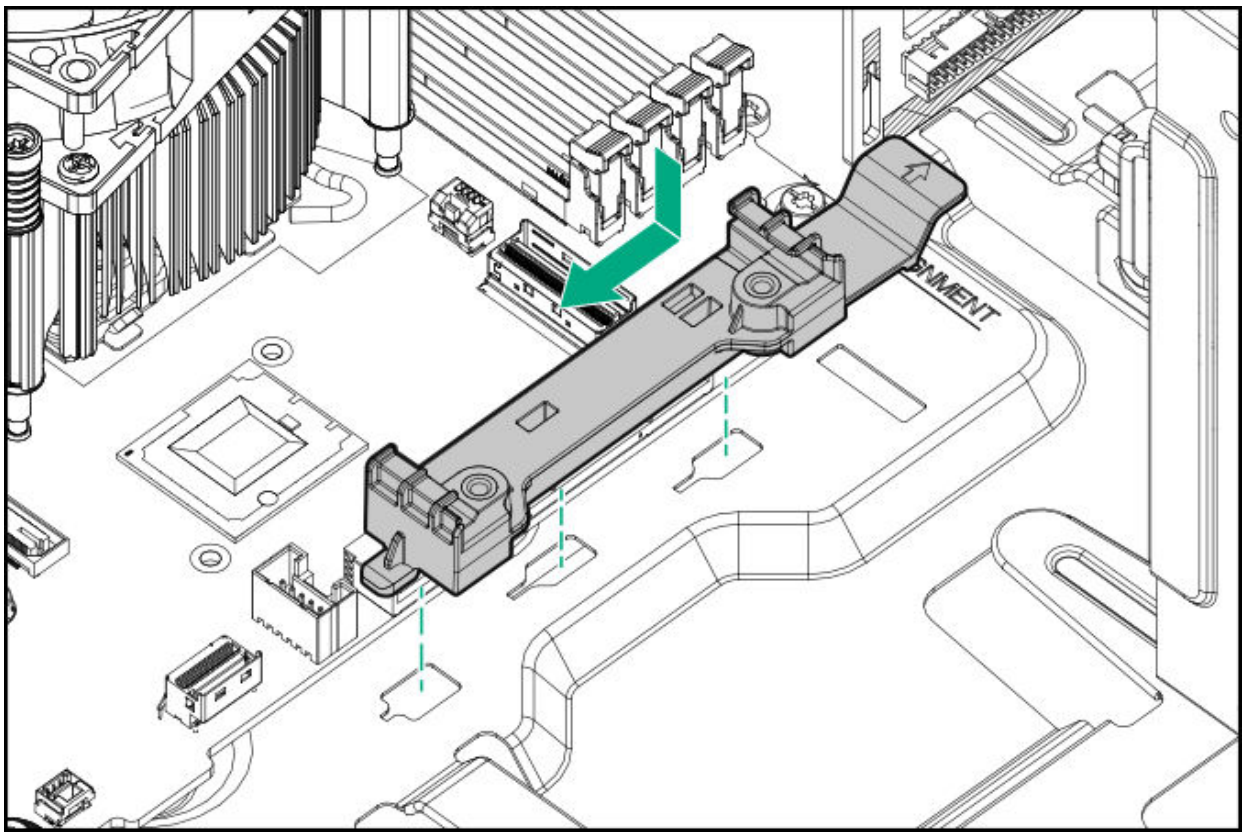
Procedure

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. Disconnect all peripheral cables from the server.
4. Do one of the following:
   - If the server is in tower mode, place the server on a flat, level surface with the access panel facing up.

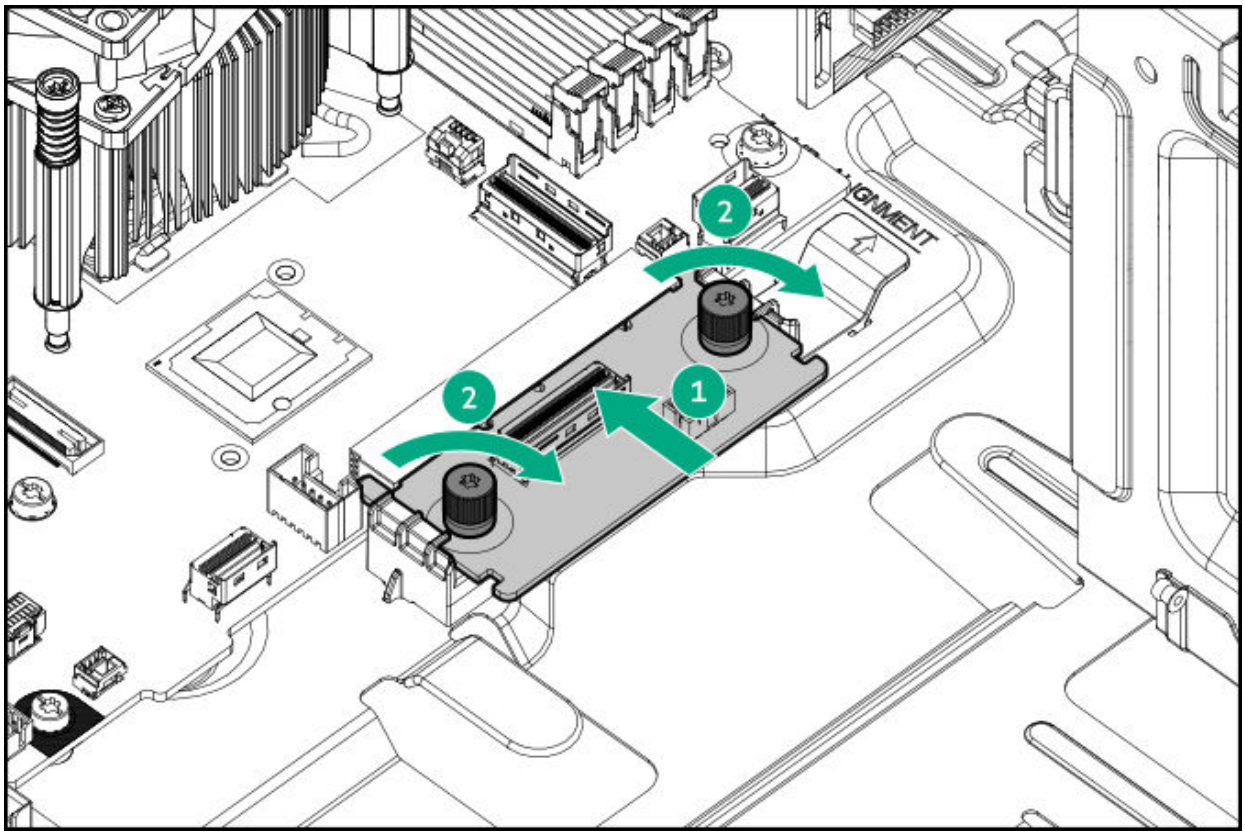


- If the server is in rack mode, remove the server from the rack.

5. Remove the front bezel.
6. Remove the access panel.
7. If installed, remove the air baffle.
8. If not installed, install the pass-through board:
   a. Install the pass-through board rail.

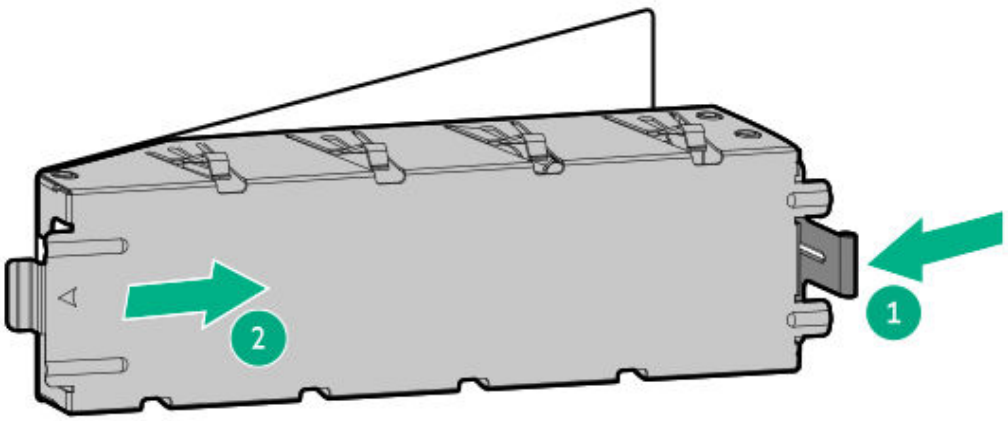


b. Install the pass-through board.

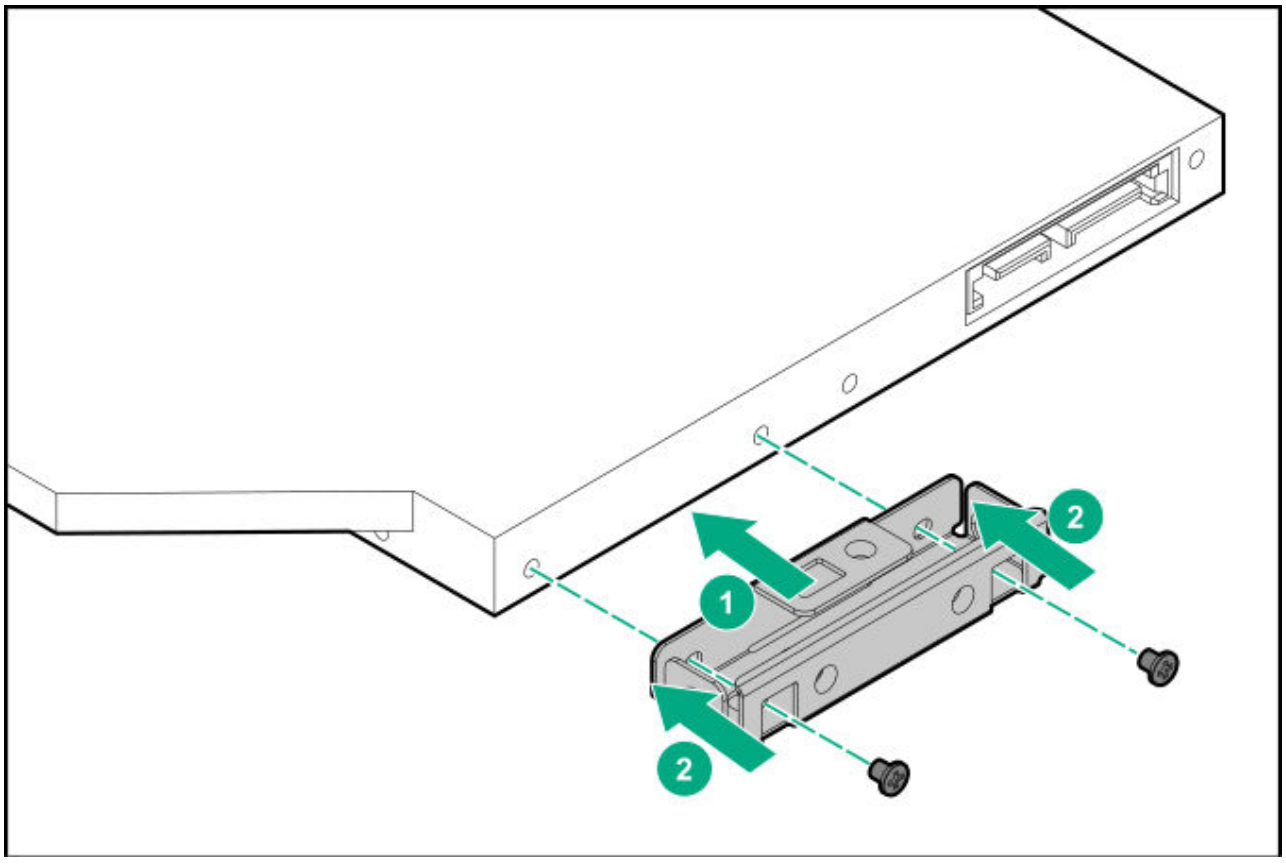


9. Press and hold the latch, and then pull out the blank from the bay.

   Retain the blank for future use.

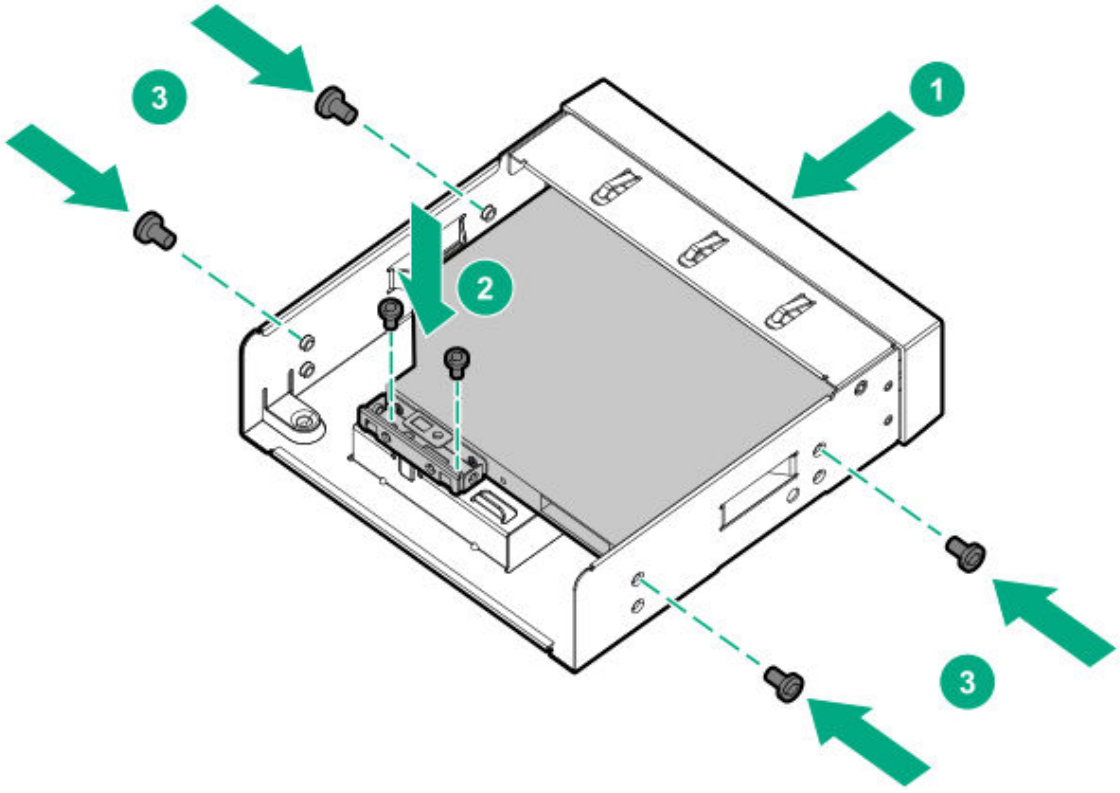


0. Install the optical drive bracket.

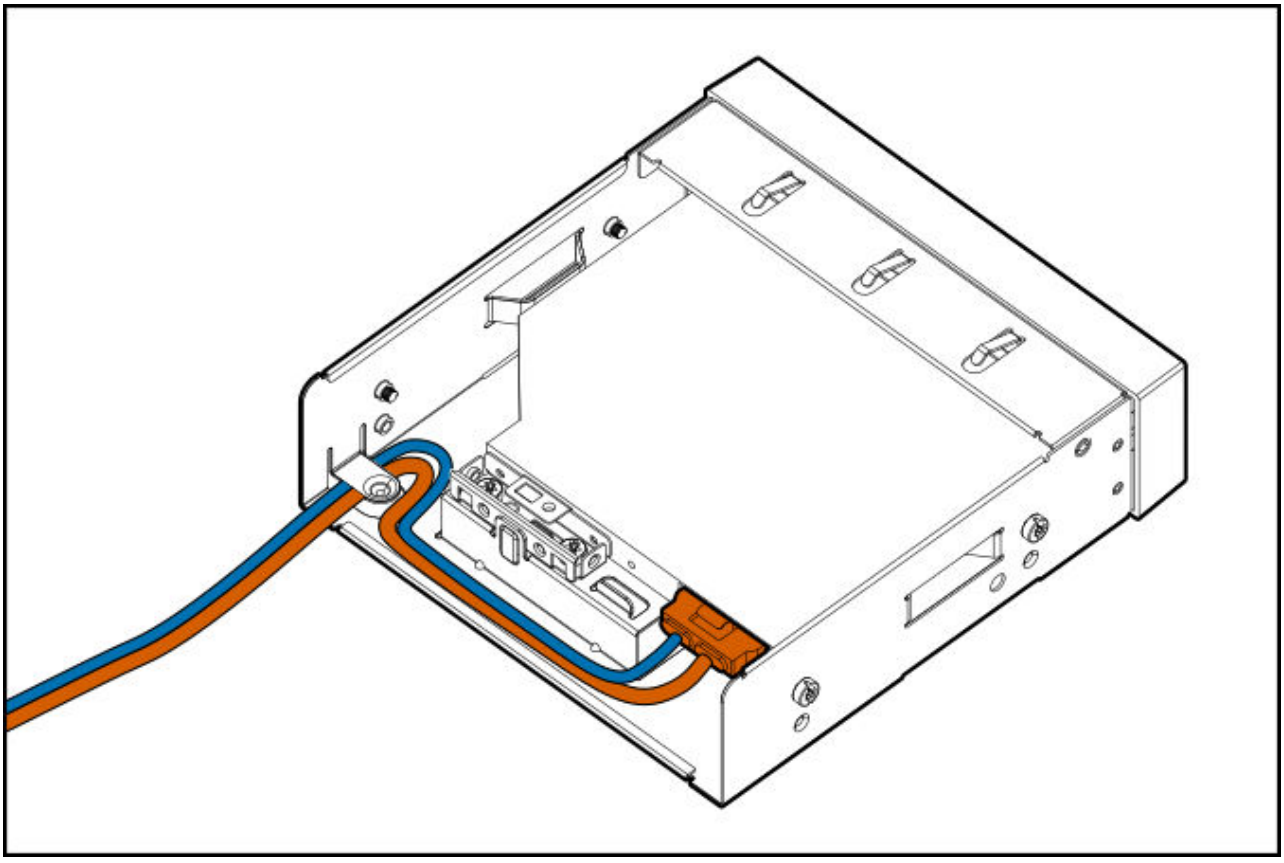


1. Remove four media device screws from the front panel.

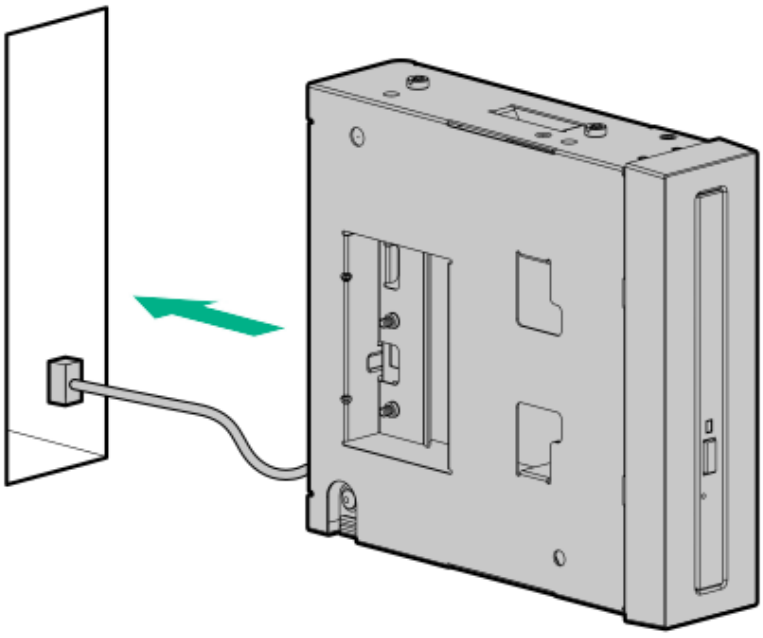
2. Install the optical drive in the drive cage:
   a. Slide the optical drive into the optical drive cage (callout 1).
   b. Install the drive bracket screws (callout 2).
   c. Install the drive cage screws (callout 3).



3. Connect the SATA-power Y-cable to the drive, and then route the cable through the clip on the optical drive cage.

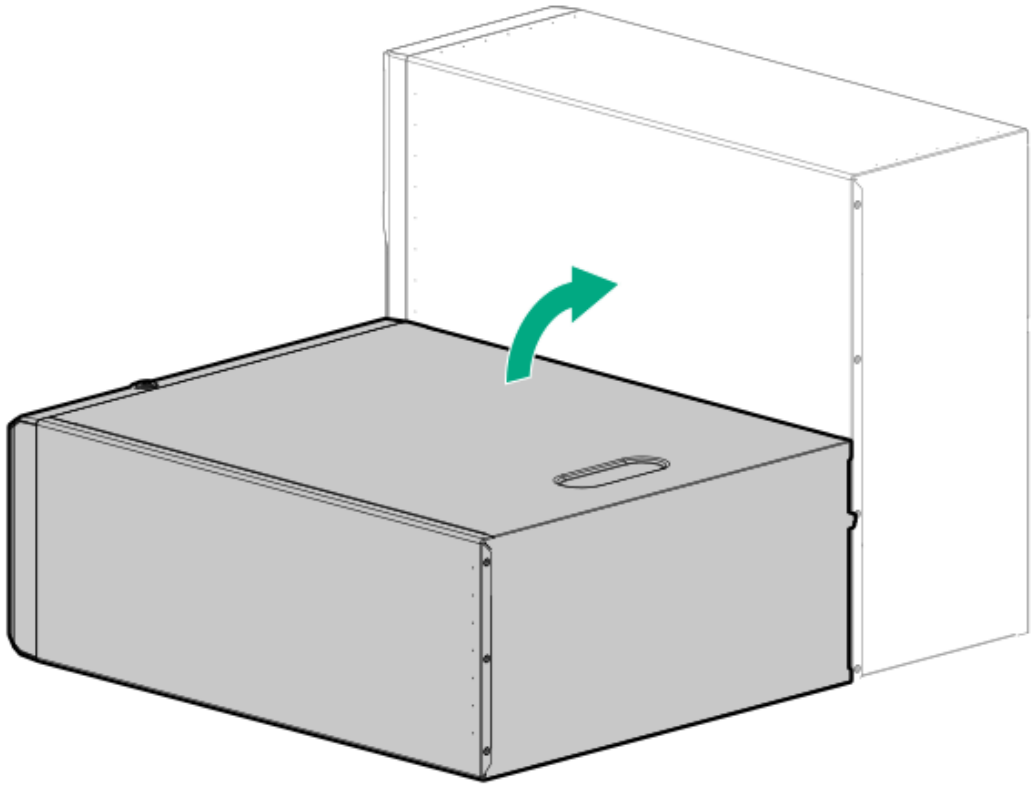


4. Slide the optical drive into the media bay until it clicks into place.



5. Connect the SATA-power Y-cable.

6. Install the air baffle.
7. Install the access panel.
8. Install the front bezel.
9. Do one of the following:
    - Orient the server back to tower mode.



    - Install the server into the rack.
0. Connect all peripheral cables to the server.
1. Connect each power cord to the server.
2. Connect each power cord to the power source.
3. Power up the server.

Results

The installation procedure is complete.

SAS LTO tape drive option

Install an LTO tape drive system as an economical and scalable option for long-term storage of infrequently accessed, yet essential data. The backup system consists of two components:

- Tape drive
- Tape cartridge

Subtopics

Installing a SAS LTO tape drive

Installing a SAS LTO tape drive

Prerequisites

- Make sure that an HPE type-p SAS controller is installed.

  For more information on supported controllers, see the server Quickspecs (**https://www.hpe.com/info/quickspecs**).

- The LTO/RDX power extension cable (851615-B21) is required when installing an LTO tape drive.
- Before you perform this procedure, make sure that you have a T-15 Torx screwdriver available.

About this task

Install the LTO tape drive in the media bay 1.

CAUTION

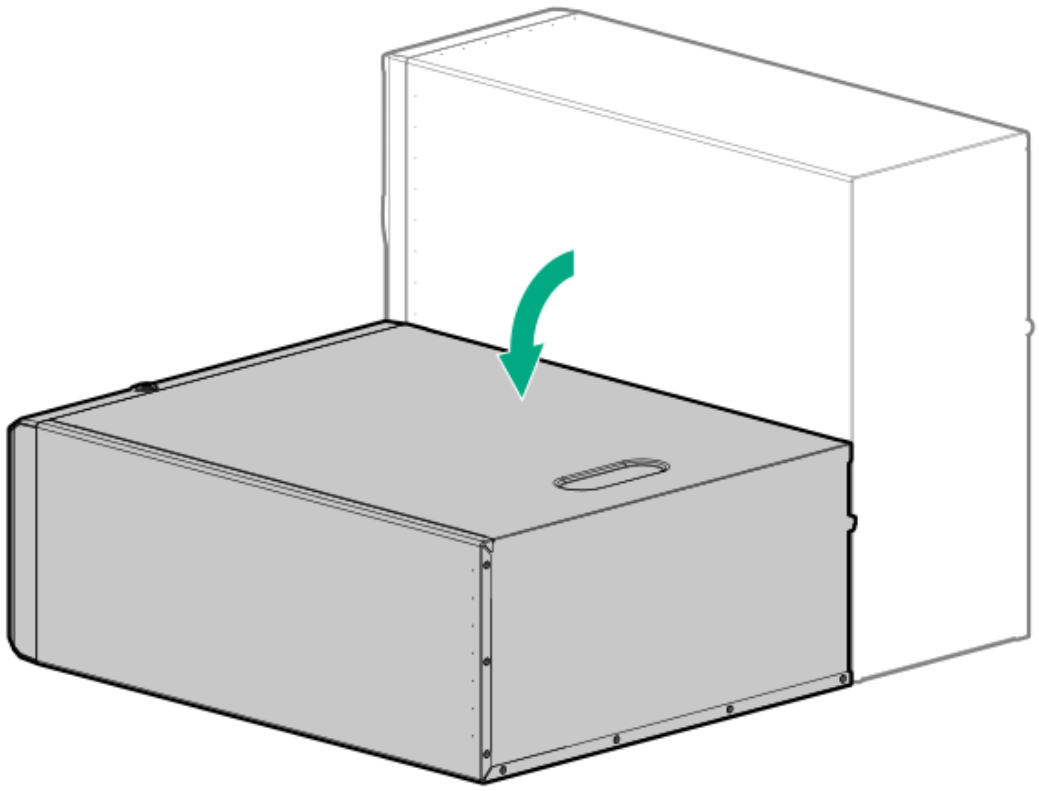
A discharge of static electricity from a finger or other conductor might damage system boards or other static-sensitive devices. To prevent damage, observe antistatic precautions.

CAUTION

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

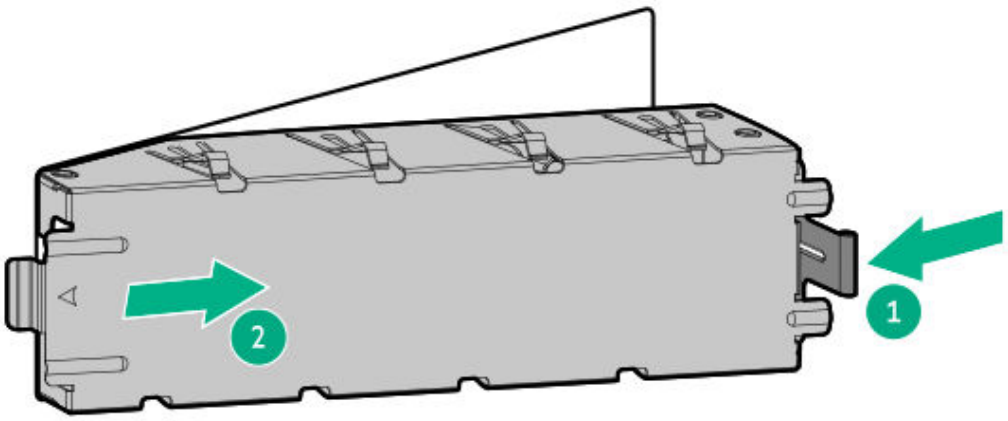
Procedure

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. Disconnect all peripheral cables from the server.
4. Do one of the following:
   - If the server is in tower mode, place the server on a flat, level surface with the access panel facing up.



   - If the server is in rack mode, remove the server from the rack.
5. Remove the front bezel.
6. Remove the access panel.
7. Remove the air baffle.
8. Press and hold the latch, and then pull out the blank from the bay.

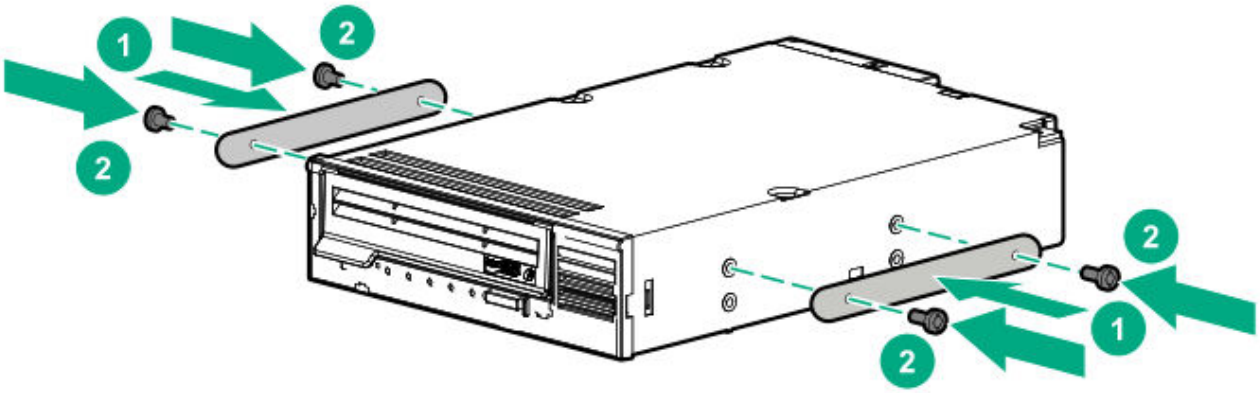
Retain the blank for future use.



9. Secure the metal shims on the LTO tape drive.

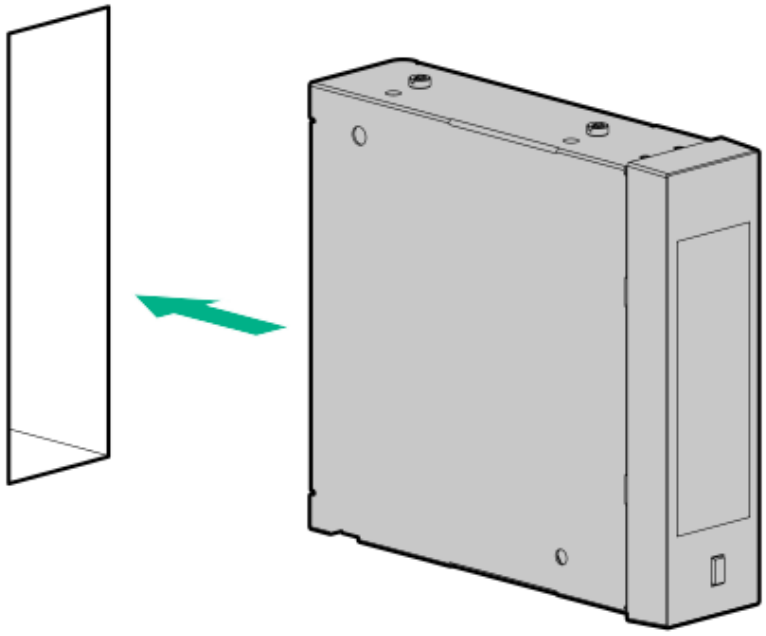
   If the option kit does not include screws, use the media device screws on the front panel.

   The shims and the screws are included in the LTO tape drive option kit.

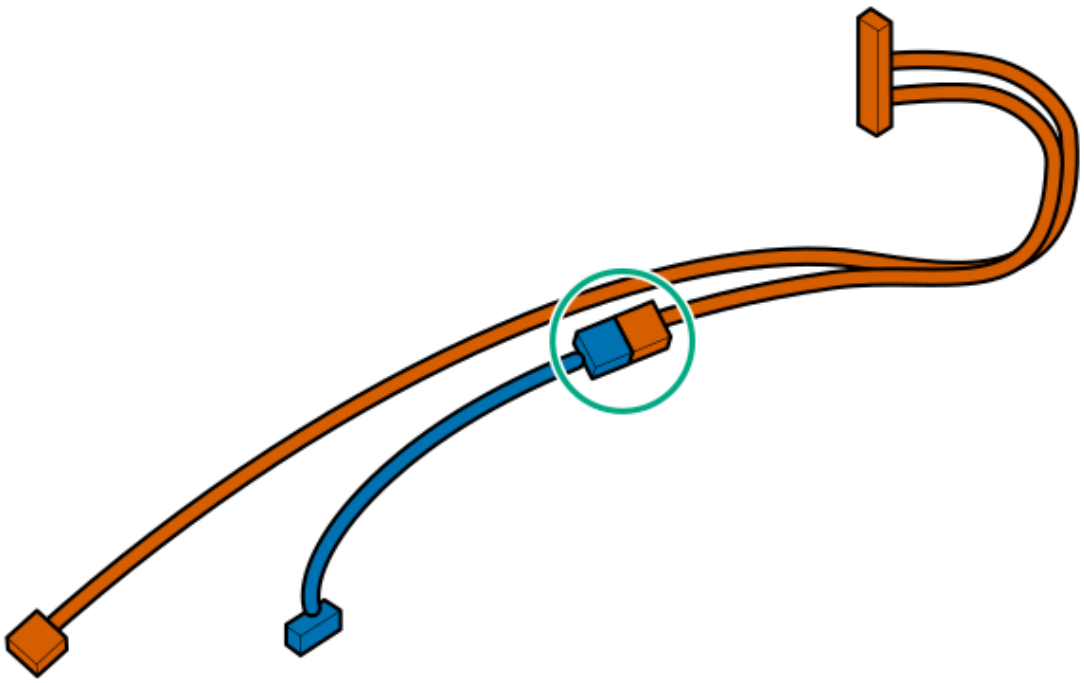


0. Slide the LTO tape drive into the media bay.

   Leave enough space on the rear to connect the drive cables.

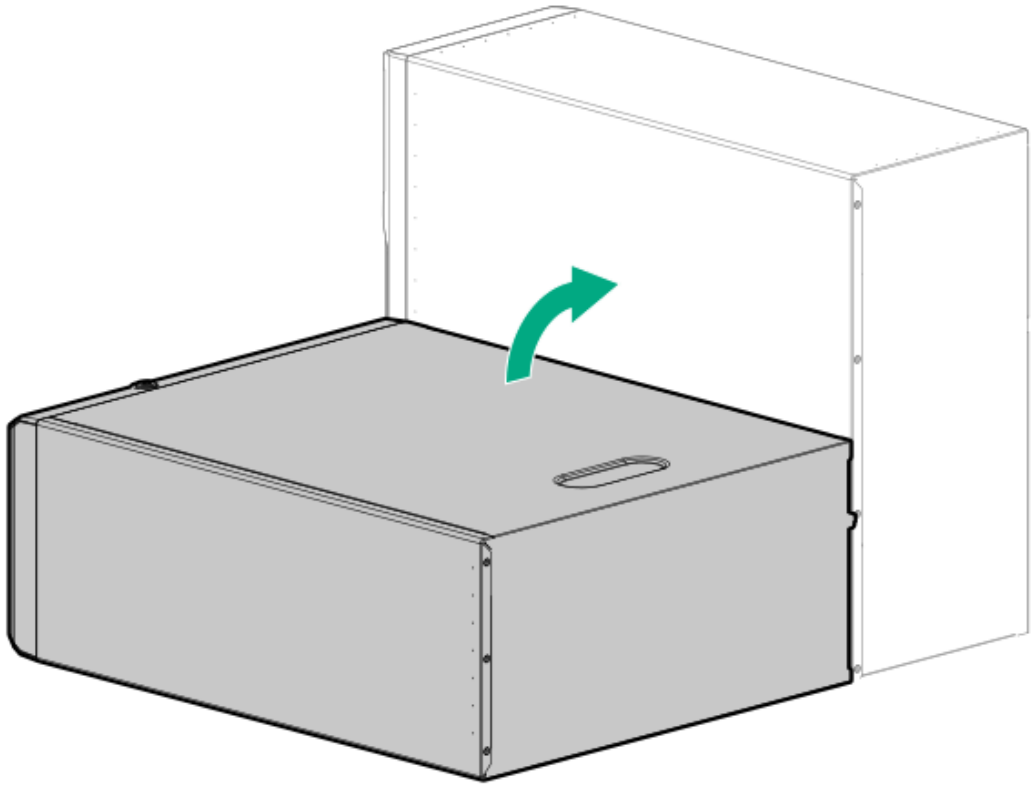


1. If the LTO tape drive is installed under the specified conditions, connect the LTO/RDX power extension cable (blue) to the LTO tape drive SAS-power Y-cable (orange).



2. Connect the drive power and SAS cables.
3. Slide the LTO tape drive into the media bay until it clicks into place.
4. Install the air baffle.

5. Install the access panel.
6. Install the front bezel.
7. Do one of the following:
   - Orient the server back to tower mode.



   - Install the server into the rack.
8. Connect all peripheral cables to the server.
9. Connect each power cord to the server.
0. Connect each power cord to the power source.
1. Power up the server.
2. Enable the increased cooling mode.
3. Perform the configuration procedure required by the tape drive option.

   For more information, see the drive documentation.

Results

The installation procedure is complete.

USB RDX backup system option

Install an RDX backup system as an inexpensive and portable way of storing data backups. The ruggedized design of this backup system works especially well in harsh work environments. The backup system consists of two components:

- RDX docking station
- RDX cartridge

For more information on installing and configuring the RDX disk backup system, see the RDX product documentation:

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

Subtopics

Installing a USB RDX docking station

Installing a USB RDX docking station

Prerequisites

- Make sure that the internal, lower USB port is available.
- The LTO/RDX power extension cable (851615-B21) is required when installing a USB RDX docking station under the following conditions:
  - The server is using a non-hot-plug power supply.
  - The server is using a Flexible Slot power supply and the USB RDX docking station is installed in the media bay 2.
- Before you perform this procedure, make sure that you have a T-15 Torx screwdriver available.

About this task

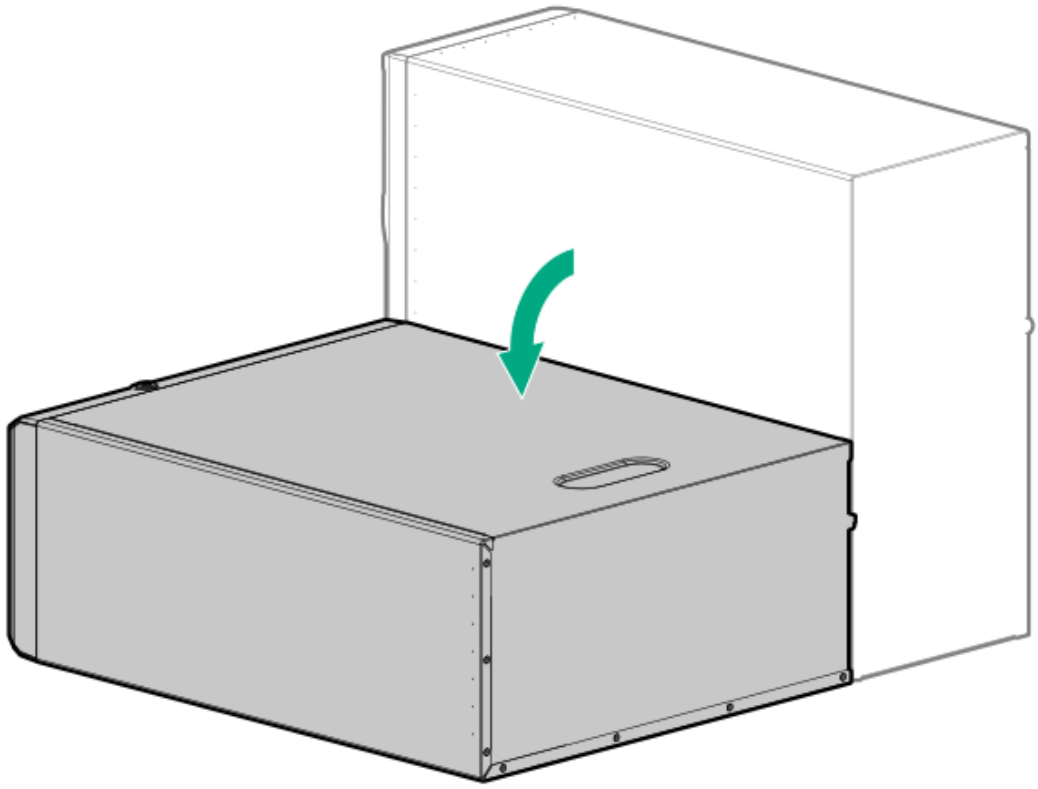
Install an RDX docking station in either media bay 1 or 2.

> **CAUTION**
> A discharge of static electricity from a finger or other conductor might damage system boards or other static-sensitive devices. To prevent damage, observe antistatic precautions.

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

Procedure

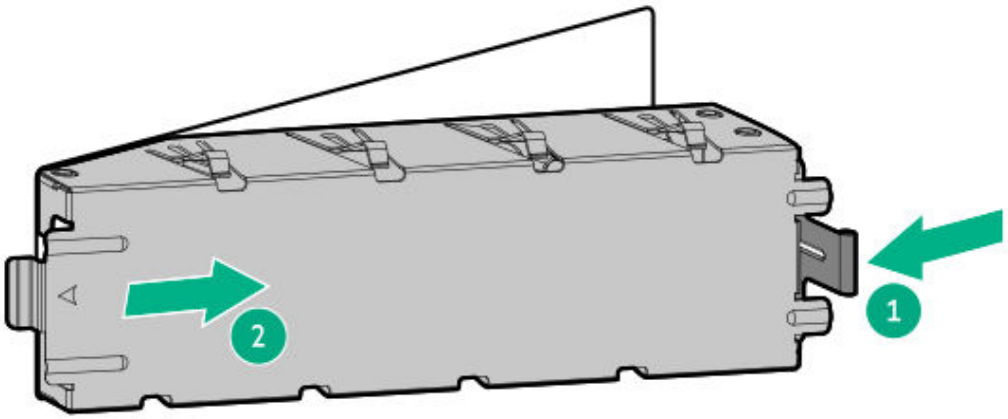
1. Power down the server.
2. Remove all power:
   a. Disconnect each power cord from the power source.
   b. Disconnect each power cord from the server.
3. Disconnect all peripheral cables from the server.
4. Do one of the following:
   - If the server is in tower mode, place the server on a flat, level surface with the access panel facing up.



- If the server is in rack mode, remove the server from the rack.

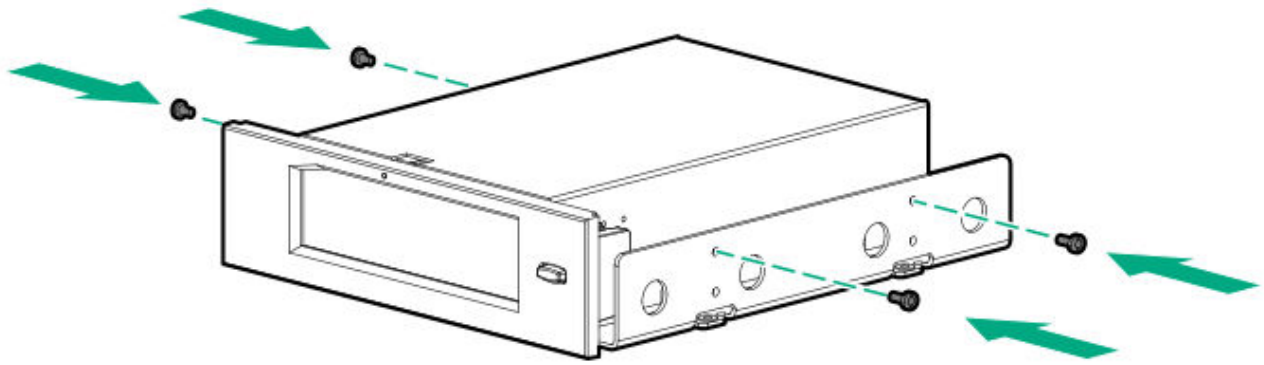
5. Remove the front bezel.
6. Remove the access panel.
7. If installed, remove the air baffle.
8. Press and hold the latch, and then pull out the blank from the bay.

   Retain the blank for future use.



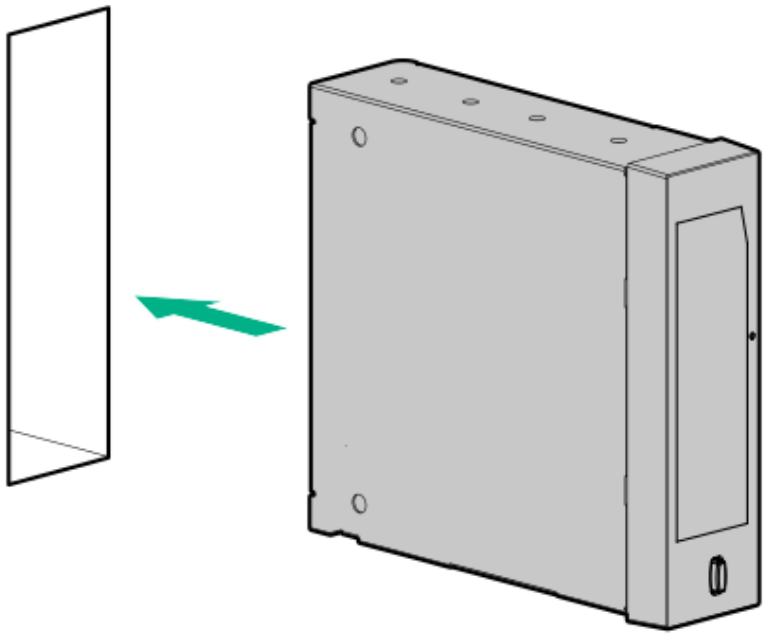
9. Install the RDX docking station screws.

   These screws are included in the RDX docking station option kit. If the option kit does not include screws, use the media device screws on the front panel.



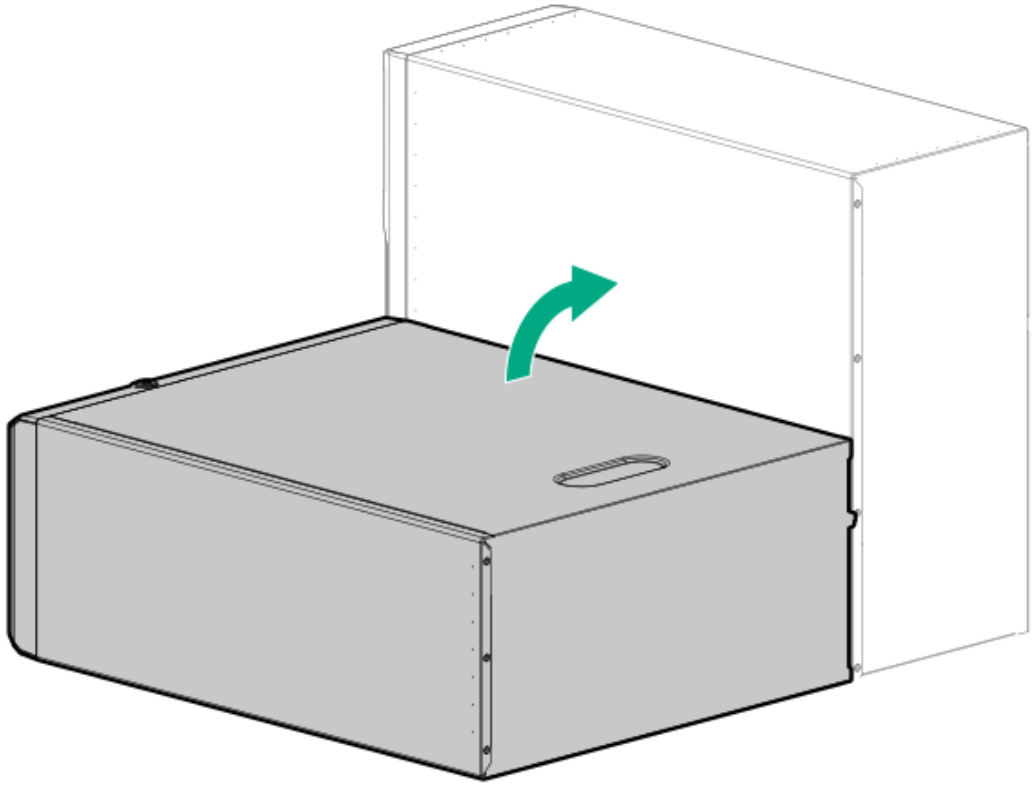
0. Slide the RDX docking station into the media bay.

   Leave enough space on the rear to connect the USB and power cables.



1. Connect the power and USB cables.
2. Install the air baffle.
3. Install the access panel.

4. Install the front bezel.
5. Do one of the following:
   - Orient the server back to tower mode.



   - Install the server into the rack.
6. Connect all peripheral cables to the server.
7. Connect each power cord to the server.
8. Connect each power cord to the power source.
9. Power up the server.
0. Enable the increased cooling mode.
1. Perform the configuration procedure required by the RDX system.

   For more information, see the RDX system documentation.

Results

The installation procedure is complete.

Enable the increased cooling mode

About this task

Some components might generate more heat than others. To maintain proper cooling, increase the fan speed.

Procedure

1. To enable the increased cooling mode in the UEFI System Utilities:
   a. From the **System Utilities** screen, select **System Configuration > BIOS/Platform Configuration (RBSU) > Advanced Options > Fan and Thermal Options > Thermal Configuration**.
   b. Select **Increased Cooling**.
   c. Save your setting.
   d. Reboot the server. A reboot is required after the setting is saved.
2. To enable the increased cooling mode in the iLO web interface:
   a. From the iLO web interface, select **Power & Thermal > Fans**.
   b. Click  next to the **Summary** category.

      The **Fan Settings** page opens.
   c. Select **Increased Cooling**.
   d. Click **OK**.

PCIe fan and air baffle options

To meet the system cooling requirements, install the PCIe fan and air baffle when a PCIe expansion card is installed.

Subtopics

Installing the PCIe fan and air baffle

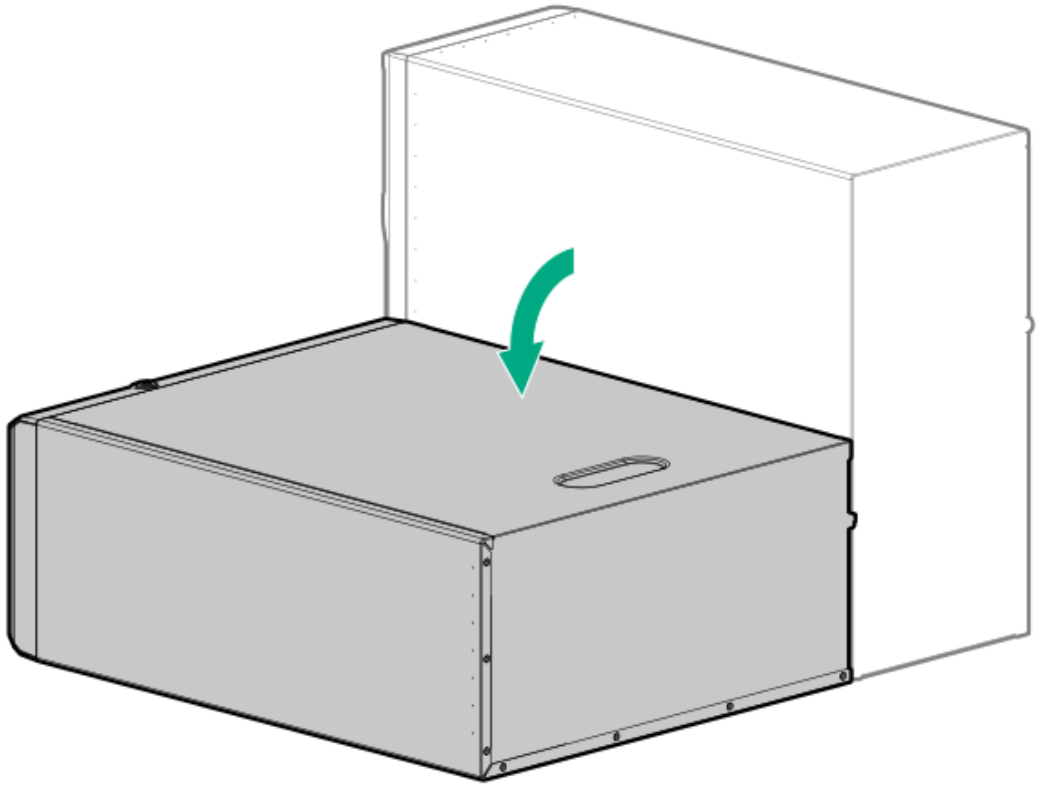
Installing the PCIe fan and air baffle

Prerequisites

Before you perform this procedure, make sure that you have a T-15 Torx screwdriver available.

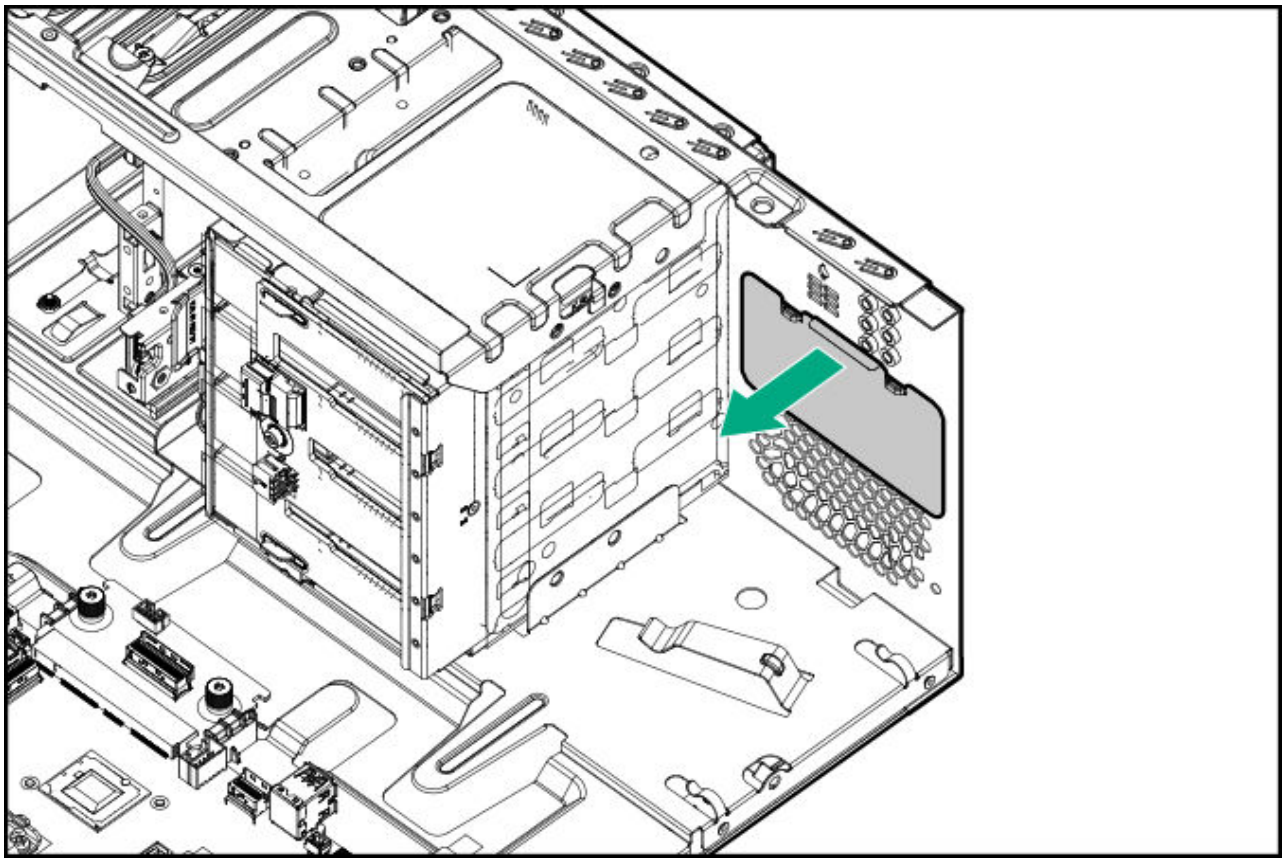
Procedure

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. Disconnect all peripheral cables from the server.
4. Do one of the following:
   - If the server is in tower mode, place the server on a flat, level surface with the access panel facing up.

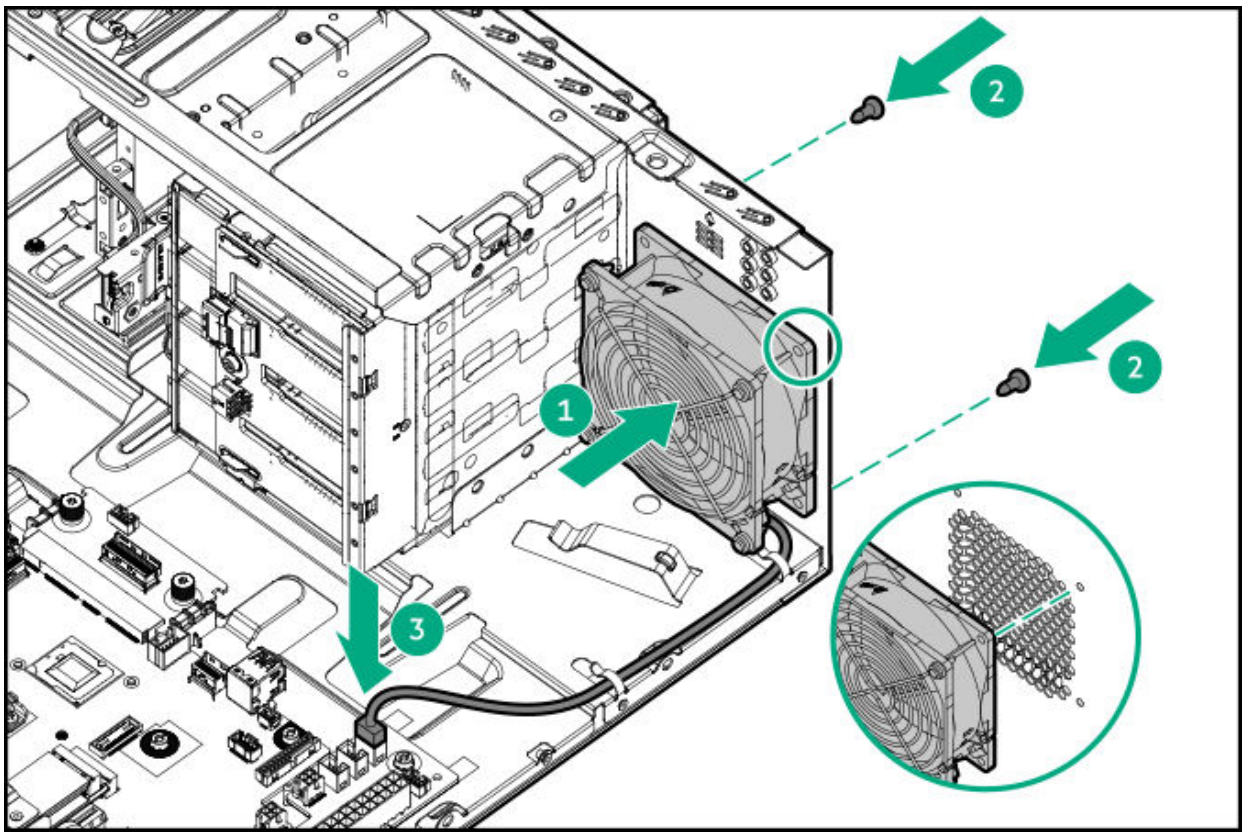


   - If the server is in rack mode, remove the server from the rack.

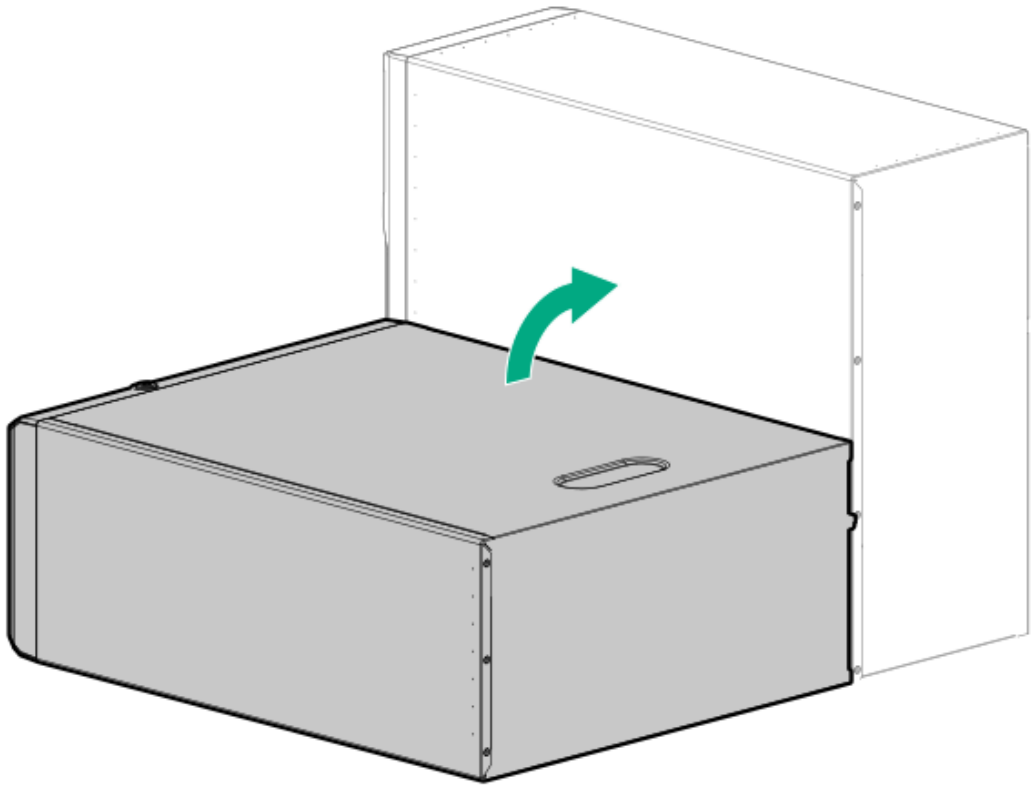
5. Remove the front bezel.
6. Remove the access panel.
7. If needed, disconnect any system cables that might be blocking access to the bottom side of the drive cage.
8. Remove the tape from the chassis.



9. Install the PCIe fan:
   a. Align the spool on the chassis wall with the notches on the fan.
   b. Install the fan screws.
   c. Connect the PCIe fan cable.



0. Reconnect any system cables that were disconnected in step 7.
1. Install the air baffle.
2. Install the access panel.
3. Install the front bezel.
4. Do one of the following:
   - Orient the server back to tower mode.



- Install the server into the rack.

5. Connect all peripheral cables to the server.
6. Connect each power cord to the server.
7. Connect each power cord to the power source.
8. Power up the server.

Results

The installation procedure is complete.

Storage controller options

The server supports the following storage controllers:

- Intel VROC for HPE Gen11 (Intel VROC)—Provides enterprise-level hybrid RAID support for direct attached SATA SSDs.
- HPE Smart Array E208e-p SR Gen10 Controller

- HPE MR216i-p Gen11 Controller

For more information on drive array and storage controller configuration, see Configuring storage controllers.

Subtopics

Preparing the server for storage controller installation
Installing a type-p PCIe plug-in controller option

Preparing the server for storage controller installation

Prerequisites

Before beginning this procedure, download the Service Pack for ProLiant (SPP) from the Hewlett Packard Enterprise website (**https://www.hpe.com/servers/spp/download**).

Procedure

1. If the server was previously configured:
   a. Back up data on the system.
   b. Close all applications.
   c. Ensure that users are logged off and that all tasks are completed on the server.

   CAUTION
   In systems that use external data storage, be sure that the server is the first unit to be powered down and the last to be powered back up. Taking this precaution ensures that the system does not erroneously mark the drives as failed when the server is powered up.

2. If the server firmware is not the latest revision, update the firmware.
3. If the new controller is the new boot device, install the controller drivers.

Installing a type-p PCIe plug-in controller option

Prerequisites

- Install the PCIe fan and air baffle.
- The flash-backed write cache (FBWC) feature of some storage controllers requires the energy pack option.

  For more information, see the controller QuickSpecs on the Hewlett Packard Enterprise website (**https://www.hpe.com/info/qs**).
- Before you perform this procedure, make sure that you have the following items available:
  - Compatible controller cable option
  - T-15 Torx screwdriver

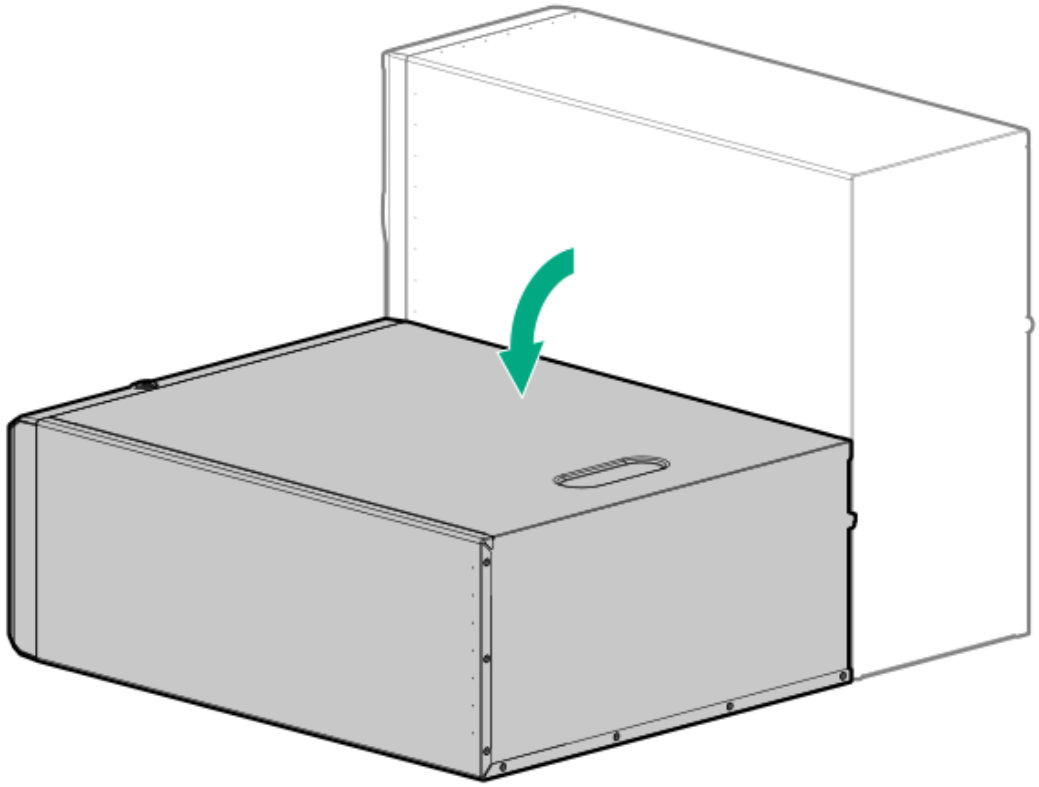
About this task

CAUTION
A discharge of static electricity from a finger or other conductor might damage system boards or other static-sensitive devices. To prevent damage, observe antistatic precautions.

CAUTION
To prevent improper cooling and thermal damage, do not operate the server unless all PCIe slots have either an expansion slot cover or an expansion card installed.

Procedure

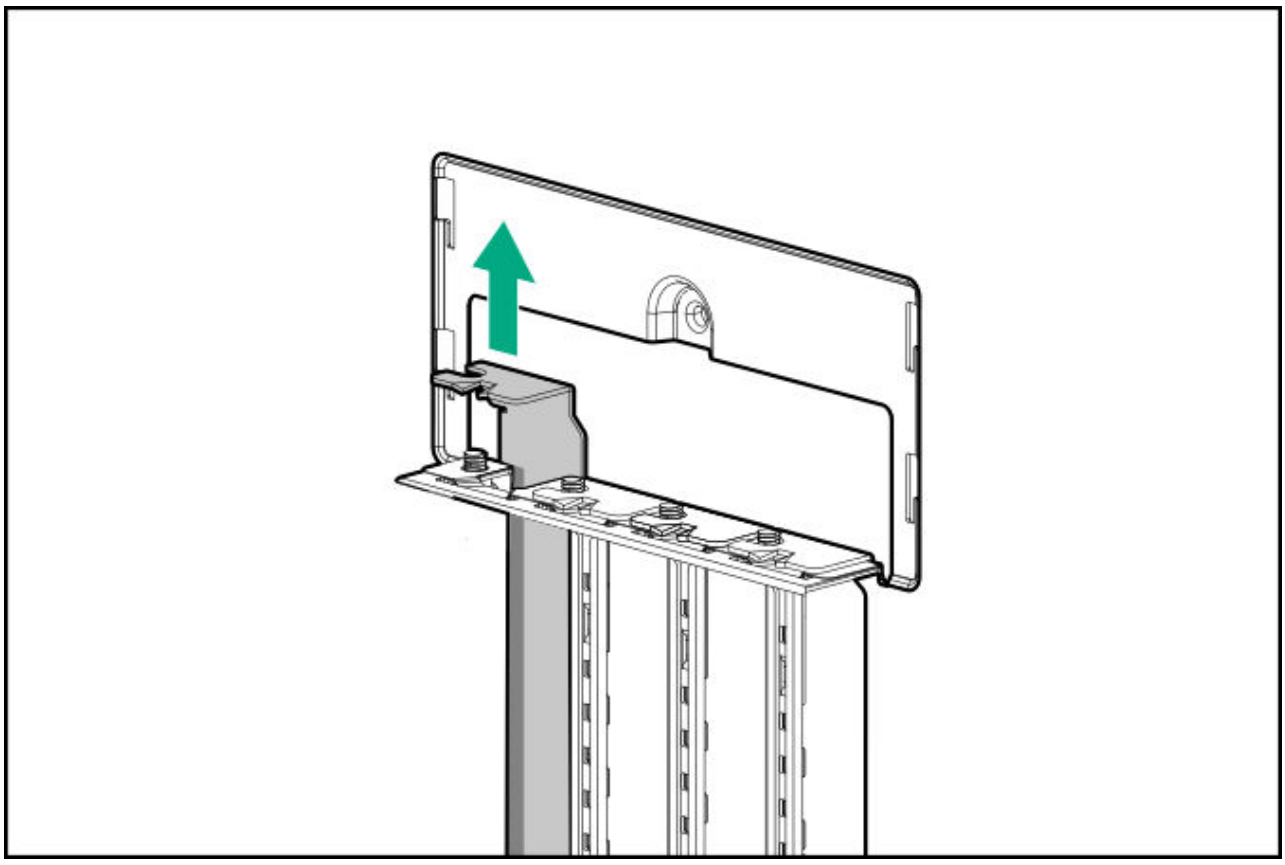
1. Power down the server.
2. Remove all power:
   a. Disconnect each power cord from the power source.
   b. Disconnect each power cord from the server.
3. Disconnect all peripheral cables from the server.
4. Do one of the following:
   - If the server is in tower mode, place the server on a flat, level surface with the access panel facing up.



- If the server is in rack mode, remove the server from the rack.

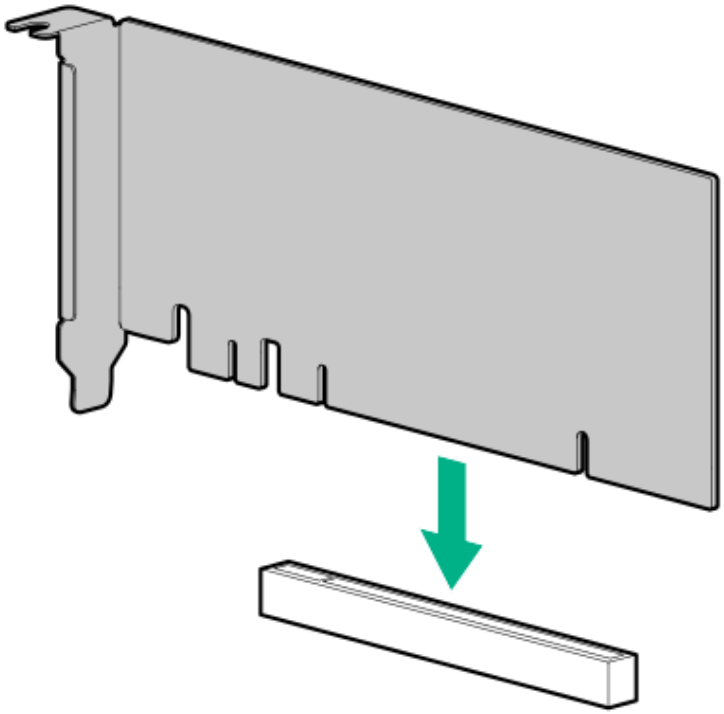
5. Remove the access panel.
6. Remove the air baffle.
7. Identify the expansion slot compatible with the storage controller.
8. Remove the PCI blank retainer.
9. Remove the blank opposite the selected expansion slot.

   Retain the blank for future use.



0. Install the storage controller.

   Make sure that the controller is seated firmly in the slot.

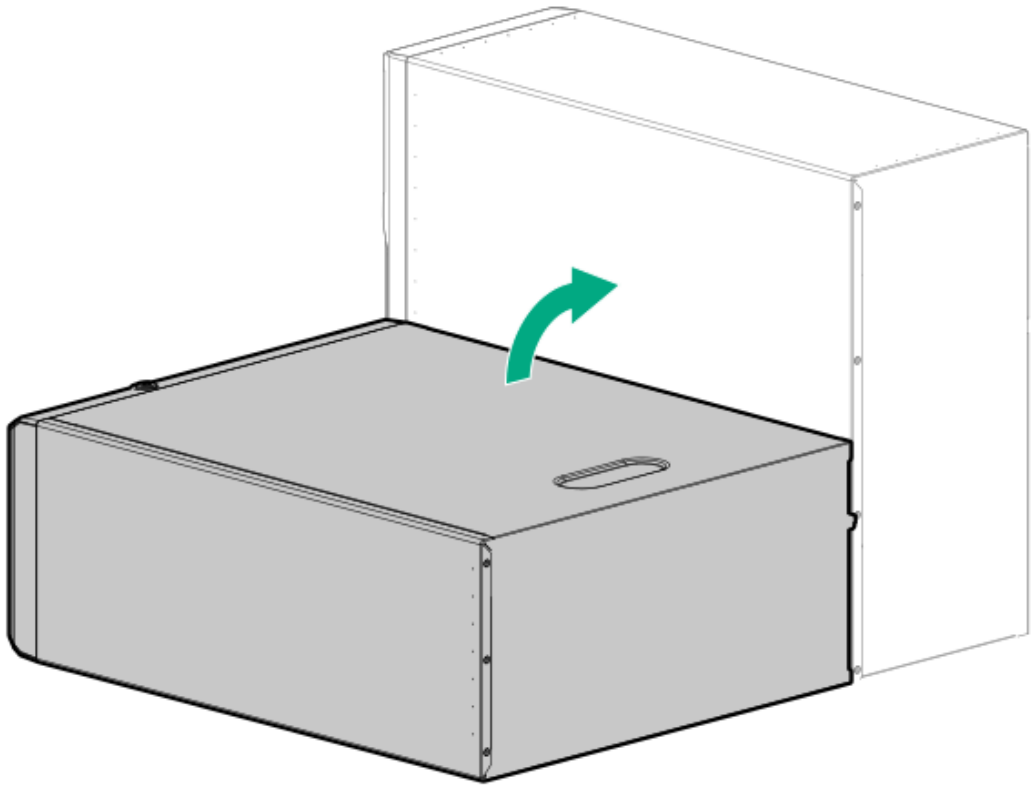


1. To enable the HPE SR SmartCache feature, install an energy pack.

   SmartCache and CacheCade enable solid-state drives to be used as caching devices for hard drive media. These features accelerate access to frequently used data by caching hot data from the hard drives onto the solid-state drives.

2. Install the PCI blank retainer.
3. Cable the controller.
4. Install the air baffle.
5. Install the access panel.
6. Do one of the following:

   - Orient the server back to tower mode.



   - Install the server into the rack.

7. Connect all peripheral cables to the server.
8. Connect each power cord to the server.
9. Connect each power cord to the power source.

0. Power up the server.
1. Update the server firmware if they are not the latest revision.
2. Configure the controller.

Results

The installation procedure is complete.

Energy pack options

If there is an unplanned server power outage, the flash-backed write cache (FBWC) feature of HPE storage controllers requires a centralized backup power source to back up the write cache data in a flash device. This server supports the following power options—collectively known as energy pack:

- HPE Smart Storage Battery
- HPE Smart Storage Hybrid Capacitor

One energy pack supports multiple devices. After it is installed, the status of the energy pack appears in HPE iLO. For more information, see the iLO user guide:

https://www.hpe.com/support/hpeilodocs-quicklinks

Subtopics

HPE Smart Storage Battery
HPE Smart Storage Hybrid Capacitor
Installing an energy pack

HPE Smart Storage Battery

A single 96 W battery can support up to 24 devices.

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.

This server supports the 96 W HPE Smart Storage Battery with the 260 mm cable.

For more information, see HPE Smart Storage Batteries and Hybrid Capacitors QuickSpecs:

https://www.hpe.com/psnow/doc/a00028553enw.pdf?jumpid=in_pdp-psnow-qs

HPE Smart Storage Hybrid Capacitor

The capacitor pack can support up to three devices.

This server supports the 12 W or 16 W HPE Smart Storage Hybrid Capacitor with the 260 mm cable.

Before installing the HPE Smart Storage Hybrid Capacitor, verify that the system BIOS meets the minimum firmware requirements to support the capacitor pack.

> **IMPORTANT**
> If the system BIOS or controller firmware is older than the minimum recommended firmware versions, the capacitor pack will only support one device.

The capacitor pack is fully charged after the system boots.

For more information, see HPE Smart Storage Batteries and Hybrid Capacitors QuickSpecs:

https://www.hpe.com/psnow/doc/a00028553enw.pdf?jumpid=in_pdp-psnow-qs

Subtopics

Minimum firmware versions

Minimum firmware versions

Product	Minimum firmware version
Server system ROM	1.20
HPE MR type-o and type-p Gen11 controllers	52.24.3-4948

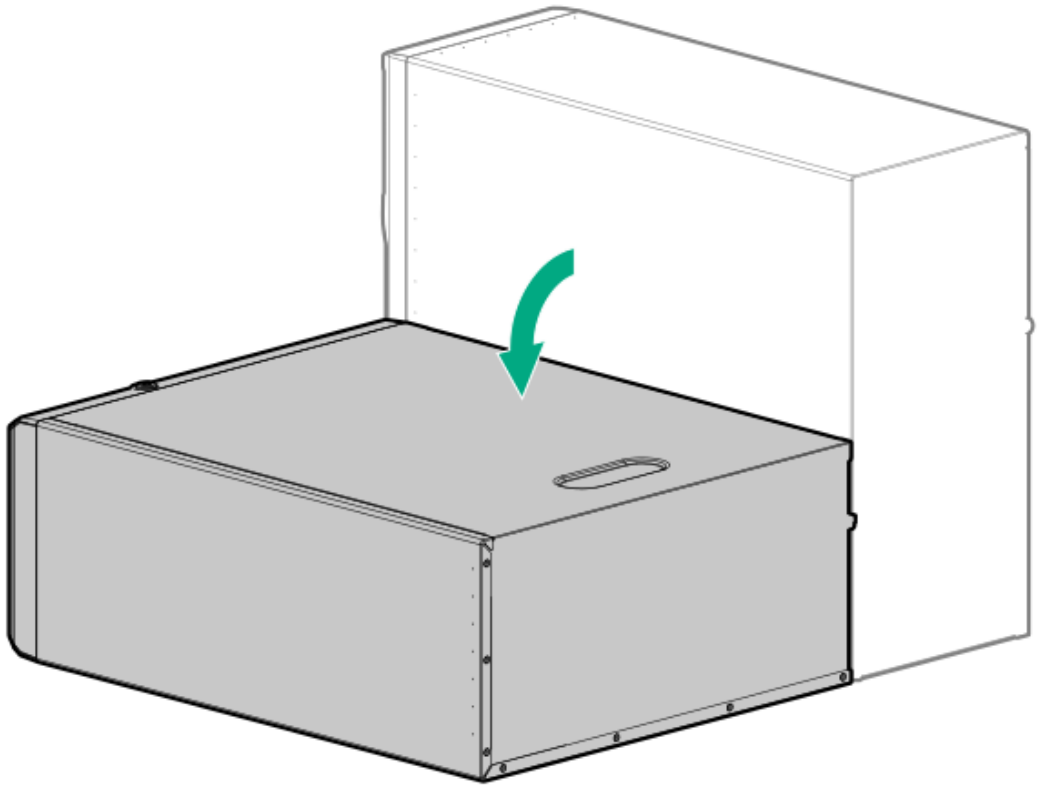
Installing an energy pack

About this task

CAUTION
A discharge of static electricity from a finger or other conductor might damage system boards or other static-sensitive devices. To prevent damage, observe antistatic precautions.

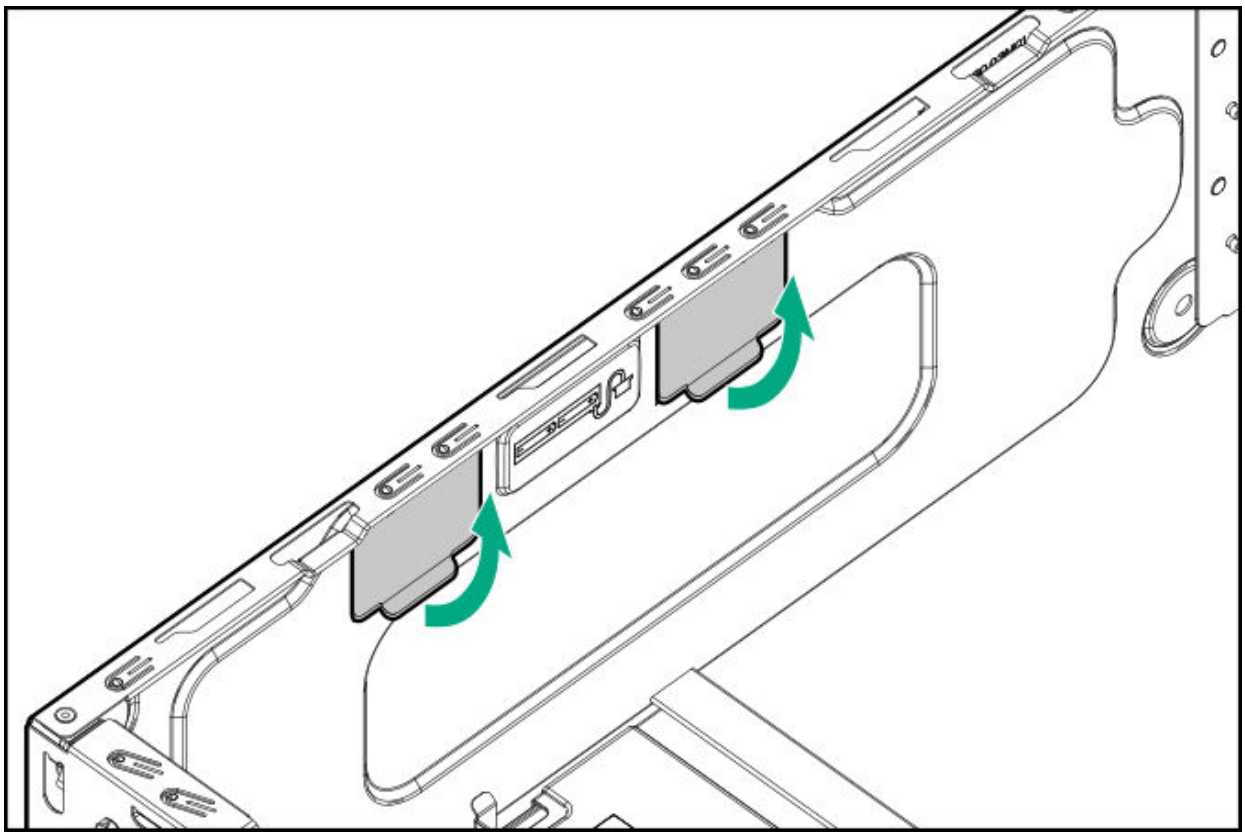
Procedure

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. Disconnect all peripheral cables from the server.
4. Do one of the following:
   - If the server is in tower mode, place the server on a flat, level surface with the access panel facing up.

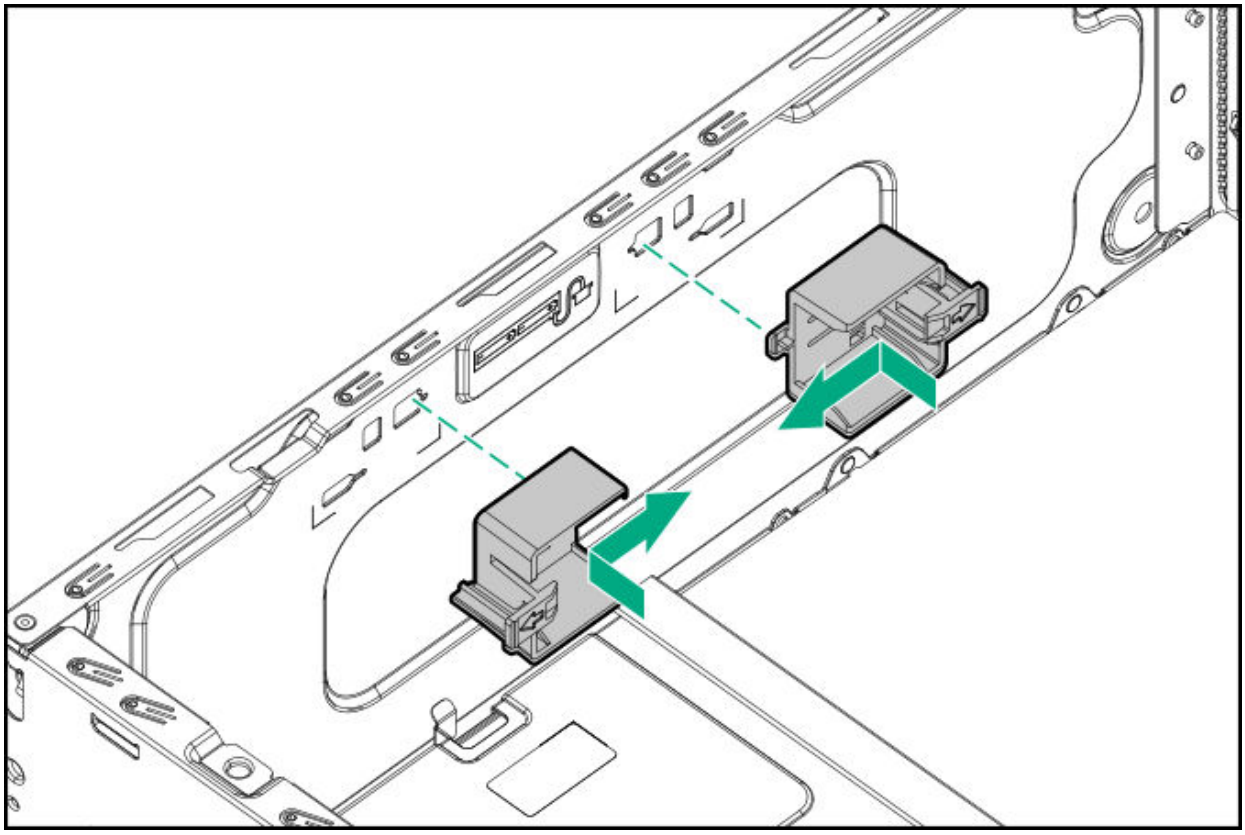


- If the server is in rack mode, remove the server from the rack.

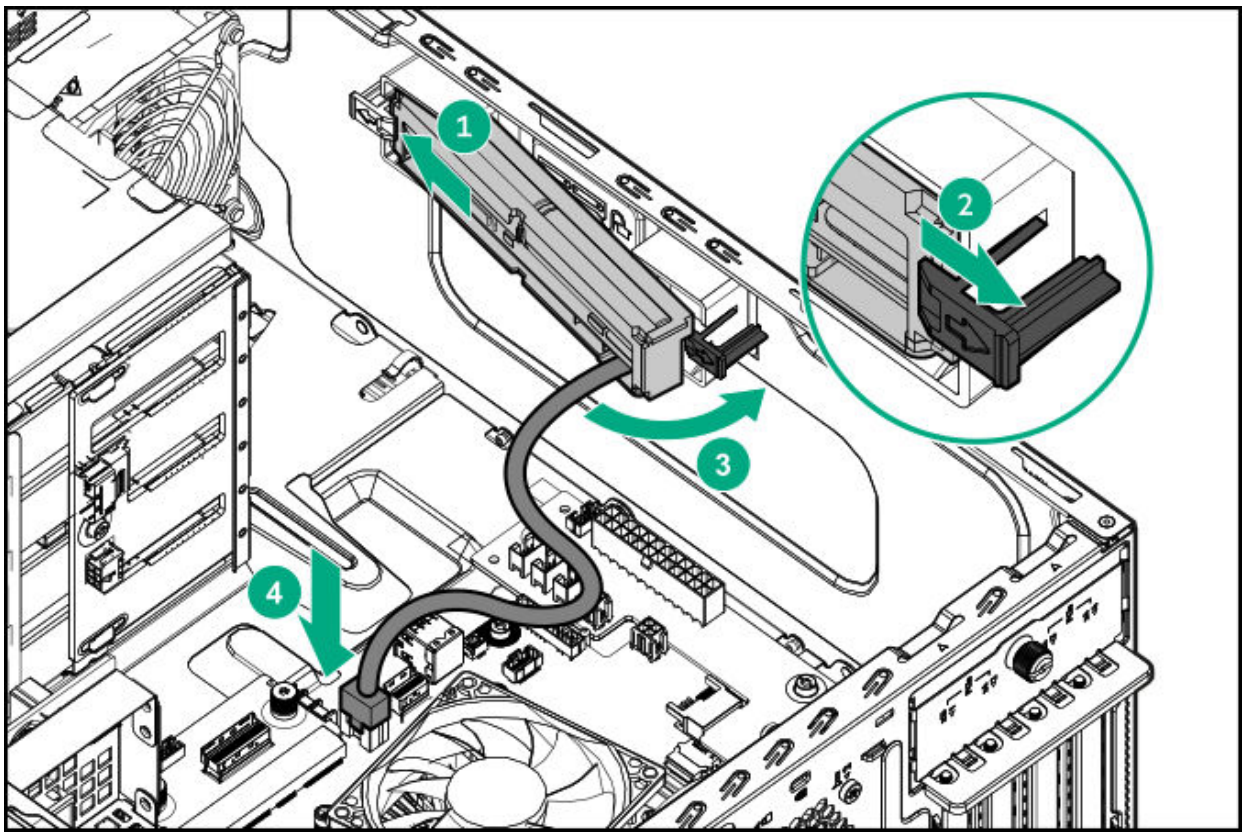
5. Remove the access panel.
6. Remove the air baffle.
7. Install the energy pack holders:
   a. Remove the tapes that cover the installation location for the energy pack holders.



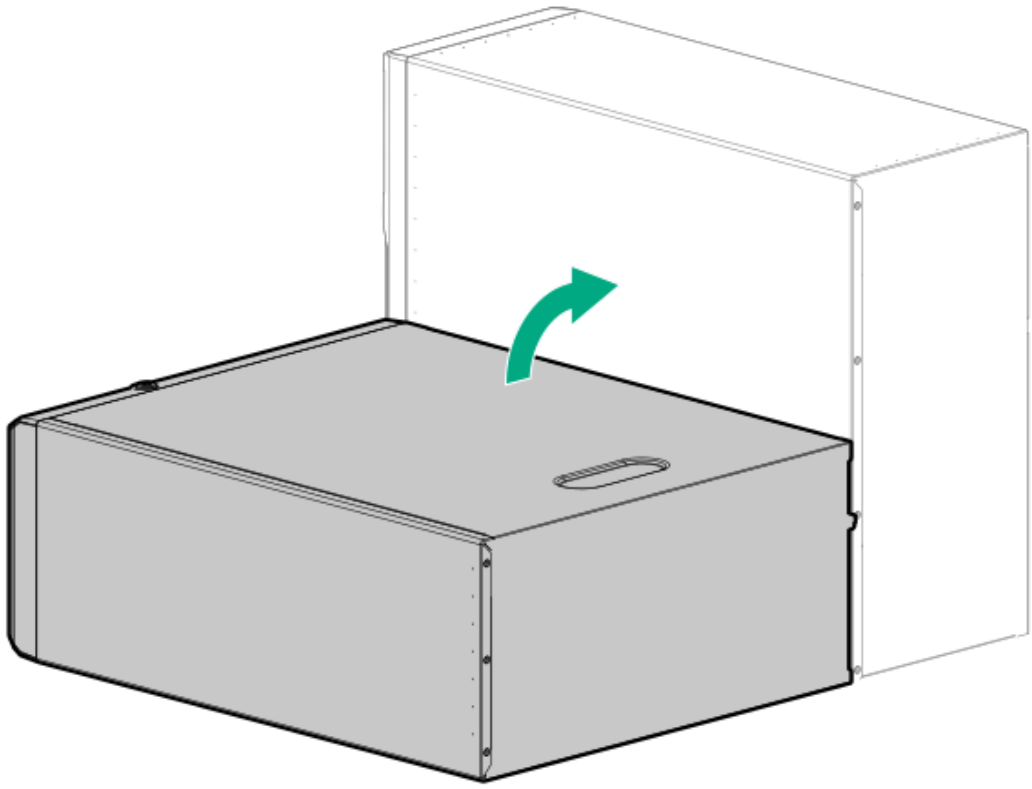
   b. Insert the holder tabs into their chassis slots.



8. Install the energy pack.
   a. Insert the front end of the energy pack in the holder.
   b. Press and hold the rear latch, and then insert the rear end of the energy pack in the holder.
   c. Connect the energy pack cable.



9. Connect the storage controller backup power cable.
0. Install the air baffle.
1. Install the access panel.
2. Do one of the following:
    - Orient the server back to tower mode.



- Install the server into the rack.

3. Connect all peripheral cables to the server.
4. Connect each power cord to the server.
5. Connect each power cord to the power source.
6. Power up the server.

Results

The installation procedure is complete.

HPE NS204i-u Boot Device option

Note the following information about the HPE NS204i-u Boot Device option:

- The HPE NS204i-u NVMe Hot Plug Boot Optimized Storage Device is a PCIe4 x8 custom form factor module that includes two hot-pluggable 2280 M.2 NVMe SSDs.

- This boot device enables the deployed OS to be mirrored through a dedicated hardware RAID 1.
- The boot device auto-creates a RAID 1 volume during boot. This means the boot device does not require further RAID configuration.
- This boot device is compatible with the following native OS:
  - Windows
  - Linux
  - VMware
- This boot device uses native inbox OS NVMe drivers.

Subtopics

Installing the HPE NS204i-u Boot Device option

Installing the HPE NS204i-u Boot Device option

Prerequisites

- Verify that your OS or virtualization software is supported:

  https://www.hpe.com/support/Servers-Certification-Matrices
- Verify that you are running the latest iLO firmware and server BIOS version.
- Identify the HPE NS204i Boot Device components.
- Before you perform this procedure, make sure that you have the following items available:
  - T-10 Torx screwdriver
  - T-15 screwdriver—This tool is needed to install the PTB rail and board in the 4 LFF drive configuration.

About this task

CAUTION

A discharge of static electricity from a finger or other conductor might damage system boards or other static-sensitive devices. To prevent damage, observe antistatic precautions.

CAUTION

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

IMPORTANT

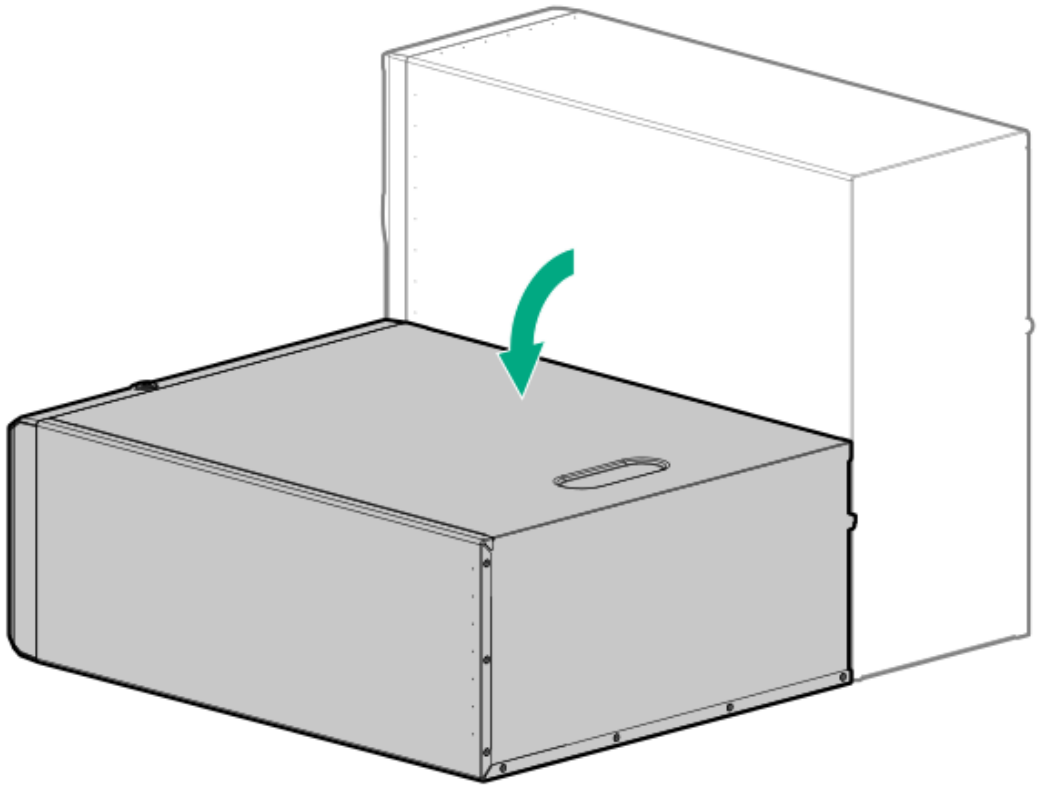
For successful RAID 1 configuration, verify that the boot device SSDs have the same model number and firmware version:

- In the iLO web interface, see the **Storage** page.
- In UEFI System Utilities, see **System Configuration > HPE NS204i Boot Controller > Physical Device Information**.

Configurations with SSDs from different manufacturers are not supported.

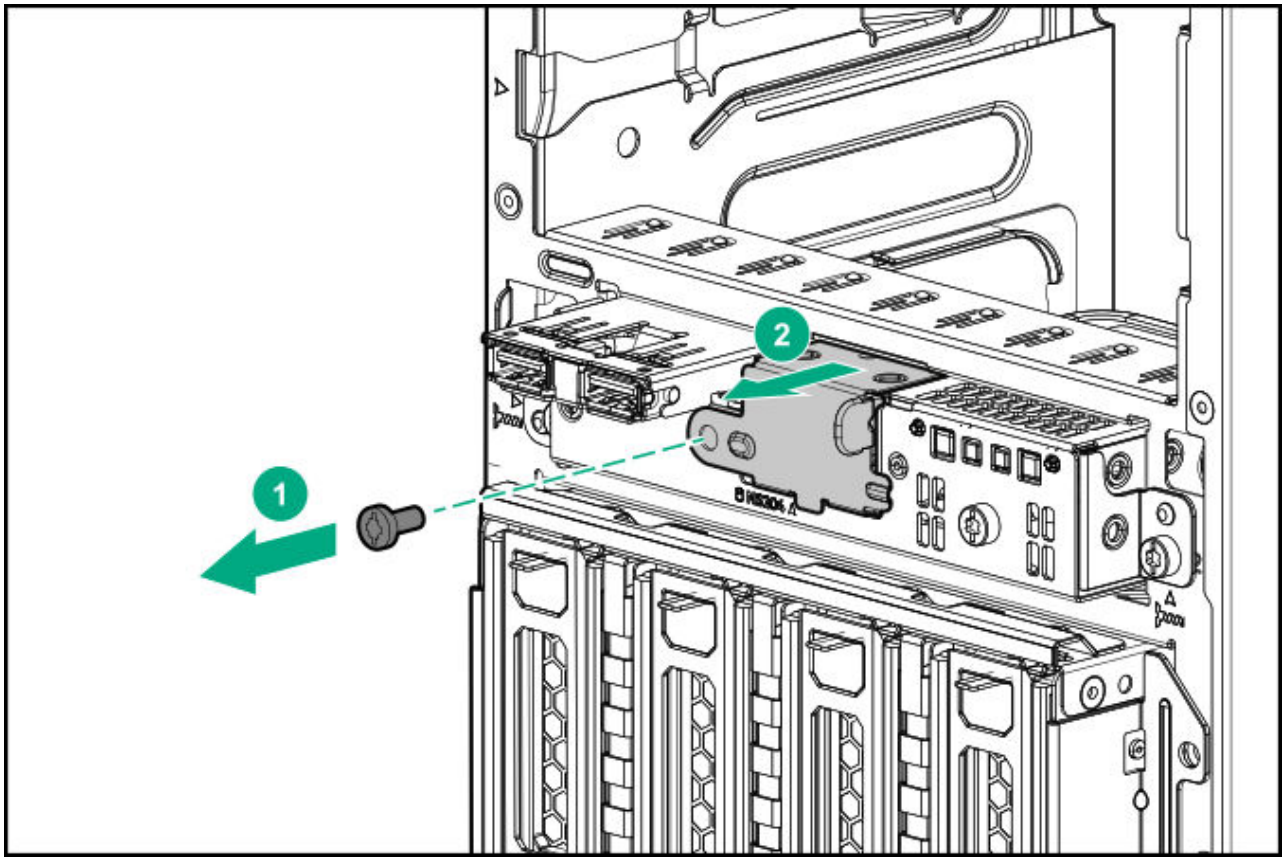
Procedure

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. Disconnect all peripheral cables from the server.
4. Do one of the following:
   - If the server is in tower mode, place the server on a flat, level surface with the access panel facing up.

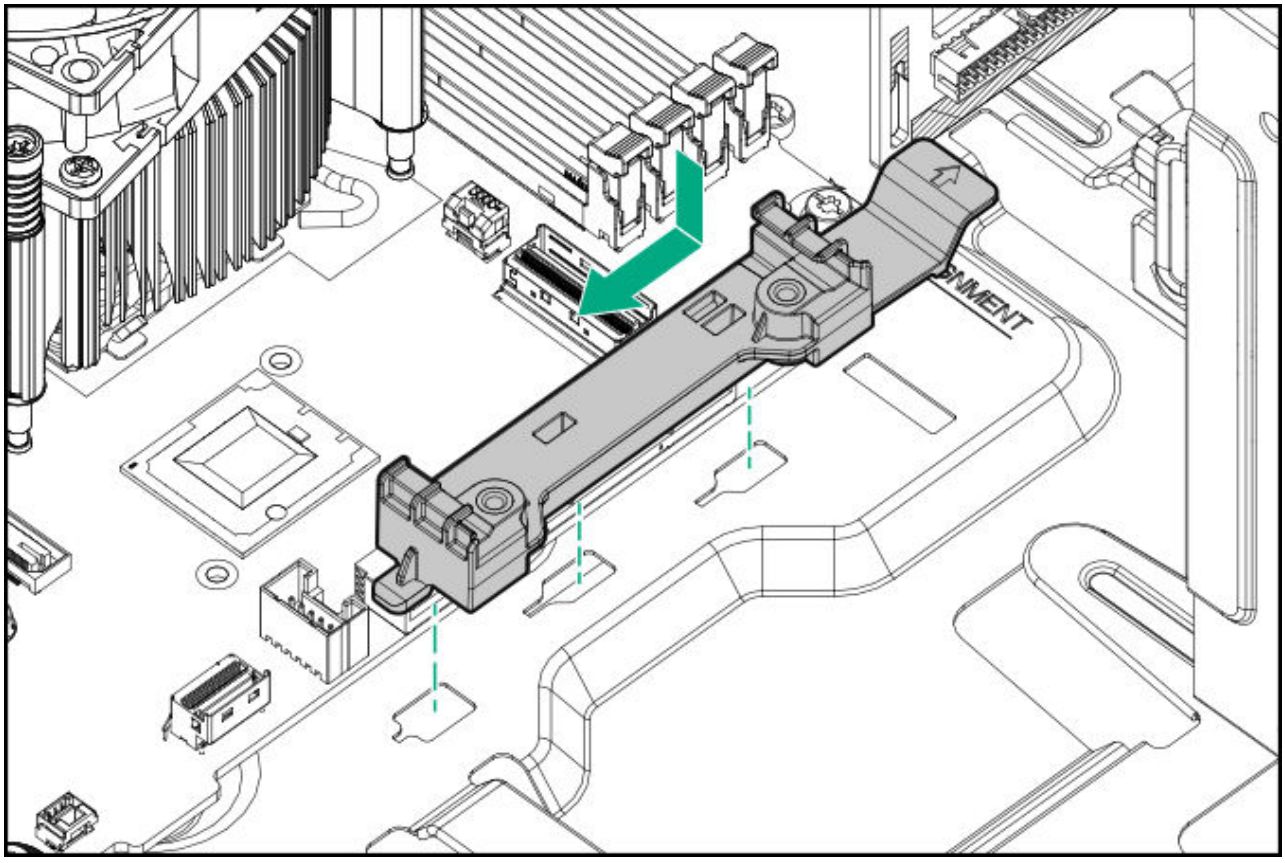


- If the server is in rack mode, remove the server from the rack.

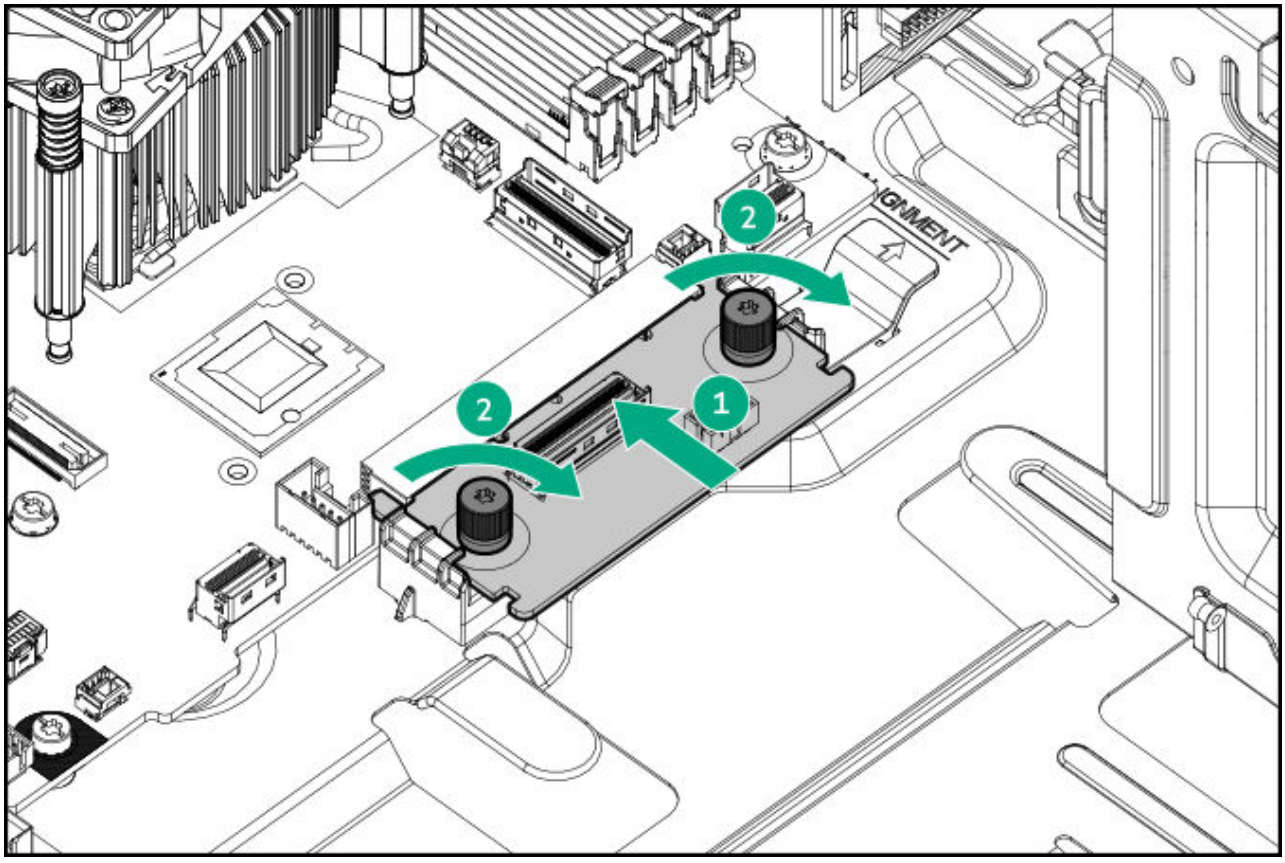
5. Remove the front bezel.
6. Remove the access panel.
7. Remove the boot device blank.



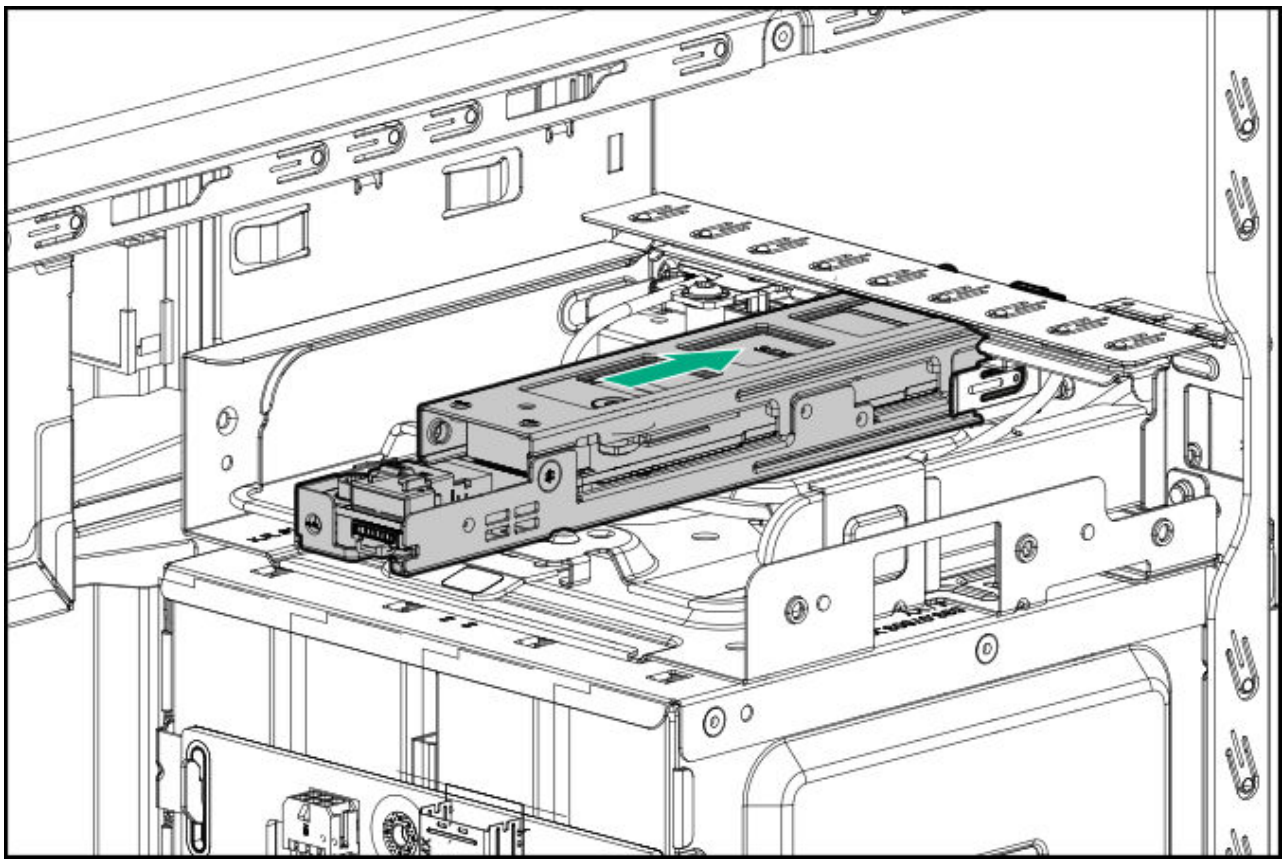
8. Install the pass-through board rail.



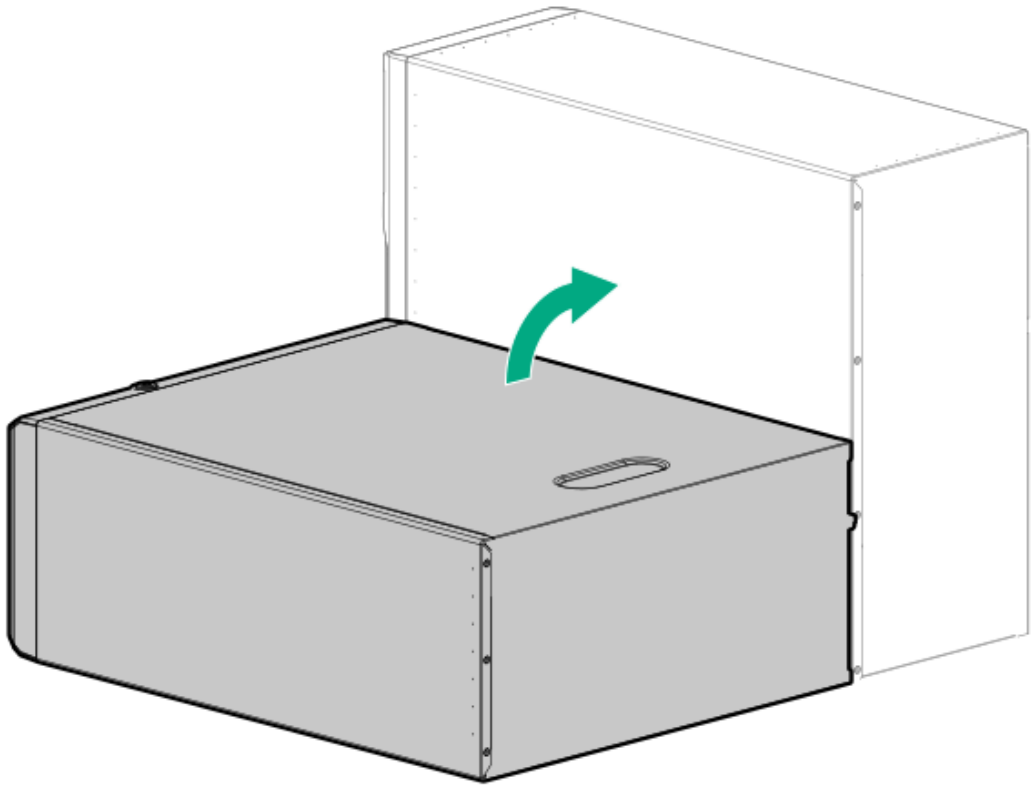
9. Install the pass-through board.



0. Slide the boot device into the bay.



1. Cable the boot device to the system board.
2. Install the access panel.
3. Install the front bezel.
4. Do one of the following:
   - Orient the server back to tower mode.



- Install the server into the rack.

5. Connect all peripheral cables to the server.
6. Connect each power cord to the server.
7. Connect each power cord to the power source.
8. Power up the server.
9. Verify that the Online/Activity LEDs on the boot device are solid green.
0. Deploy a supported operating system to the boot device.
1. After the OS installation completes, the system automatically copies the operating system to the second, mirrored drive on the boot device.

   Proceed with normal system setup and operation.

Results

The installation procedure is complete.

GPU options

This server supports various GPU options to meet your computational and graphics workload requirements. For a list of supported GPU models, see the server QuickSpecs on the Hewlett Packard Enterprise website (**https://www.hpe.com/info/quickspecs**).

- PCIe workload GPUs—These options are PCIe card–based, direct–attach solutions that use solid–state storage technology directly on the PCI bus to boost I/O performance and reduce latency to scale in line with your processing requirements.
- Computational and graphics GPUs—These options deliver accelerated compute performance for a range of deep learning, high–performance computing (HPC), and graphics–intensive applications.

Subtopics

GPU installation guidelines
Installing a GPU

GPU installation guidelines

- This server does not support the installation of different GPU models in the same system.
- To support high power GPU (> TDP 75 W), the GPU auxiliary power cable (P74449-B21) is required.
- The limited operating inlet ambient temperatures required for GPUs vary based on the model and the server drive configuration. For more information, see the server QuickSpecs on the Hewlett Packard Enterprise website (**https://www.hpe.com/info/quickspecs**).

IMPORTANT

Workloads for high performance GPUs with passive cooling can cause the fans to operate at high speeds to maintain optimum system cooling. Hewlett Packard Enterprise does not recommend installing GPUs with passive cooling in or near a site where there is a reasonable expectation for a quiet environment.

Installing a GPU

Prerequisites

- Before installing a GPU, review the GPU installation guidelines.
- When installing a high power GPU with TDP > 75 W, make sure you have the GPU auxiliary power cable option (P74449-B21).
- Install the PCIe fan and air baffle.
- Before you perform this procedure, make sure that you have a T-15 Torx screwdriver available.

About this task

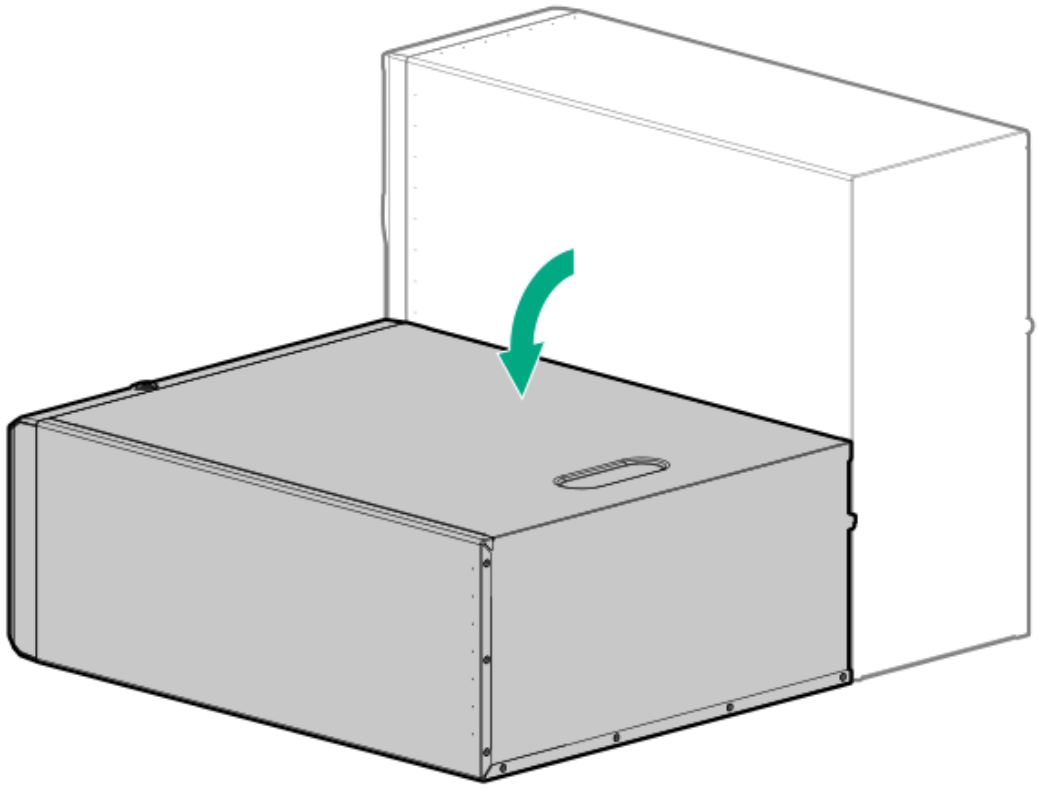
GPU installation is supported in slot 1.

> **CAUTION**
> A discharge of static electricity from a finger or other conductor might damage system boards or other static-sensitive devices. To prevent damage, observe antistatic precautions.

> **CAUTION**
> To prevent improper cooling and thermal damage, do not operate the server unless all PCIe slots have either an expansion slot cover or an expansion card installed.

Procedure

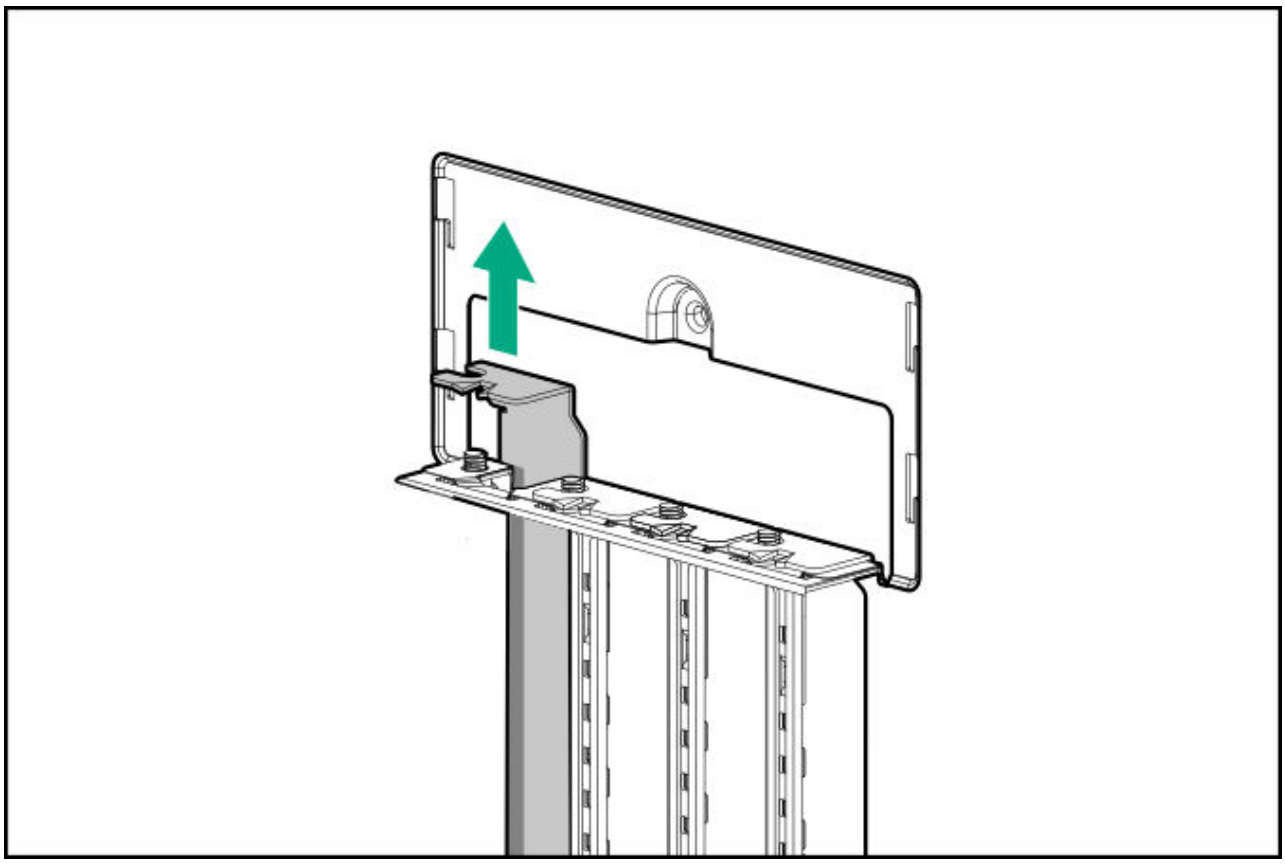
1. Power down the server.
2. Remove all power:
   a. Disconnect each power cord from the power source.
   b. Disconnect each power cord from the server.
3. Disconnect all peripheral cables from the server.
4. Do one of the following:
   - If the server is in tower mode, place the server on a flat, level surface with the access panel facing up.



- If the server is in rack mode, remove the server from the rack.

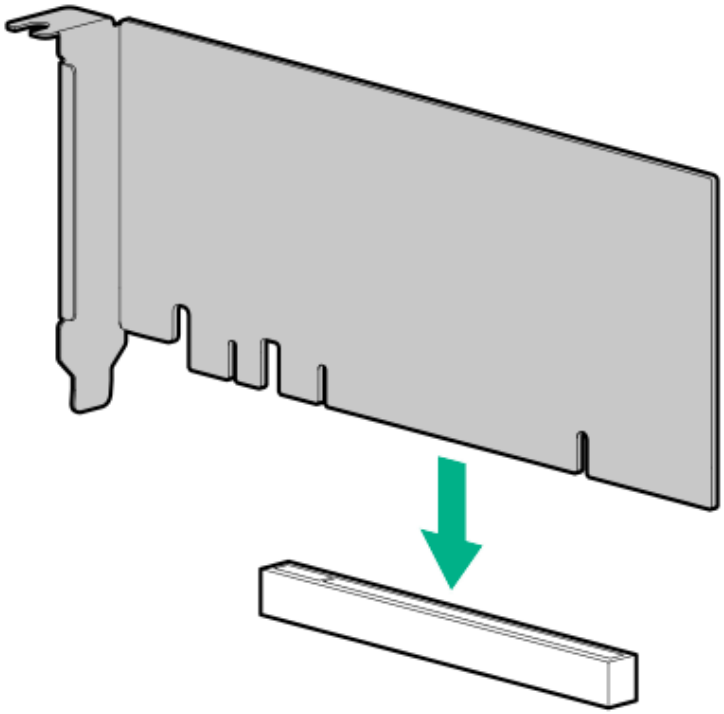
5. Remove the access panel.
6. If installed, remove the air baffle.
7. Remove the PCI blank retainer.
8. Remove the blank from slot 1.

   Retain the blank for future use.

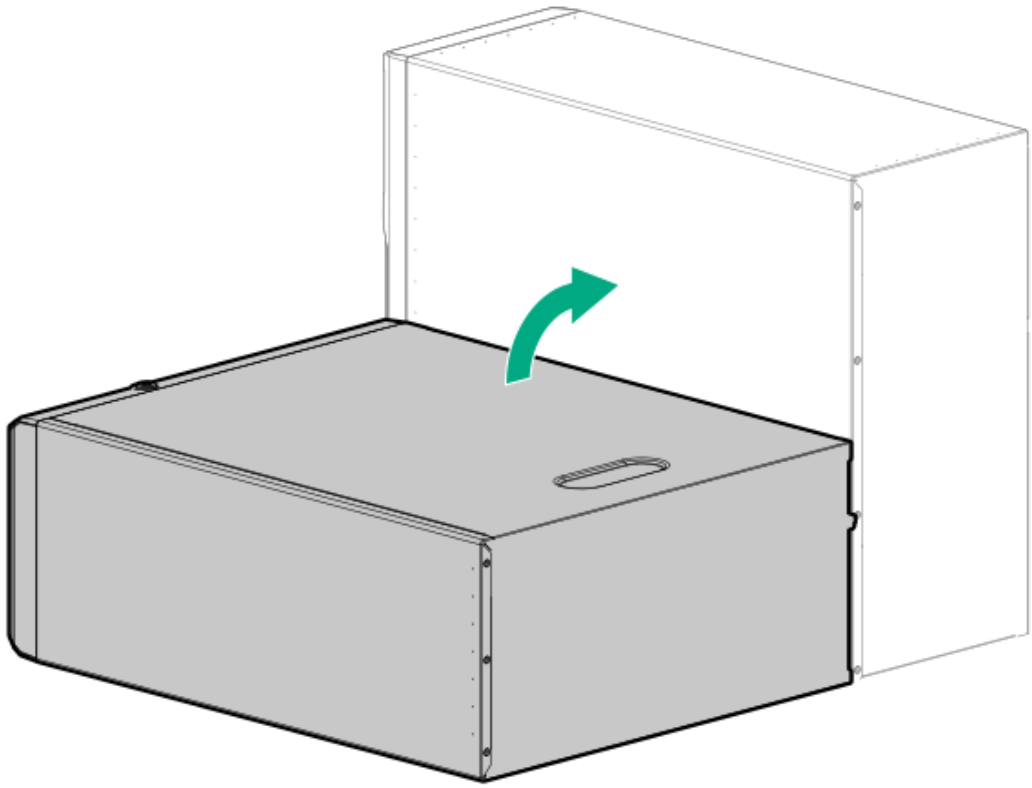


9. Install the GPU.

   Make sure that the GPU is seated firmly in the slot.



0. If you have installed a high power GPU, connect the GPU auxiliary power cable to the system board.
1. Install the PCI blank retainer.
2. Install the air baffle.
3. Install the access panel.
4. Do one of the following:
   - Orient the server back to tower mode.



   - Install the server into the rack.
5. Connect all peripheral cables to the server.
6. Connect each power cord to the server.
7. Connect each power cord to the power source.
8. Power up the server.

Results

The installation procedure is complete.

Expansion card options

The server supports the installation of full-height, full-length, and full-height, half-length PCIe expansion / add-in (AIC) cards such as:

- HPE type-p storage controller
- Ethernet adapter
- Fibre channel host bus adapter (FC HBA)
- Accelerator (workload, computational, or graphics accelerator)

For more information on the expansion options validated for this server, see the server QuickSpecs on the Hewlett Packard Enterprise website:

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

Subtopics

Installing an expansion card

Installing an expansion card

Prerequisites

Install the PCIe fan and air baffle.

Before you perform this procedure, make sure that you have a T-15 Torx screwdriver available.

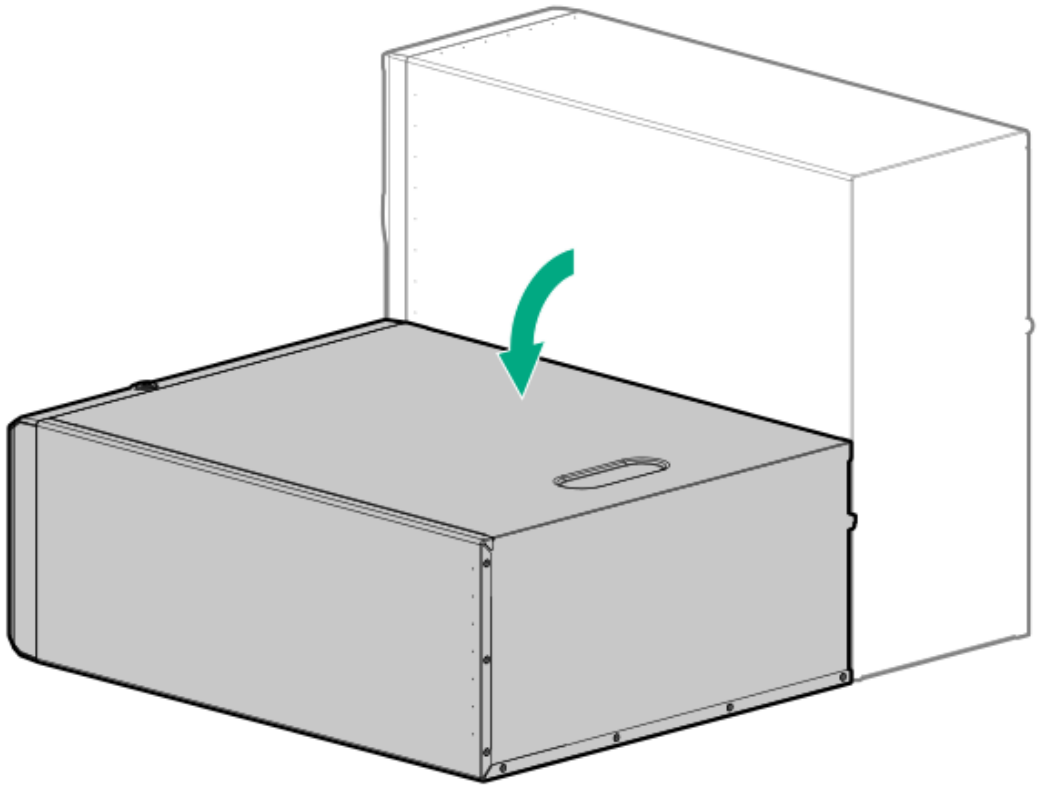
About this task

> **CAUTION**
> A discharge of static electricity from a finger or other conductor might damage system boards or other static-sensitive devices. To prevent damage, observe antistatic precautions.

> **CAUTION**
> To prevent improper cooling and thermal damage, do not operate the server unless all PCIe slots have either an expansion slot cover or an expansion card 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. Disconnect all peripheral cables from the server.
4. Do one of the following:
   - If the server is in tower mode, place the server on a flat, level surface with the access panel facing up.

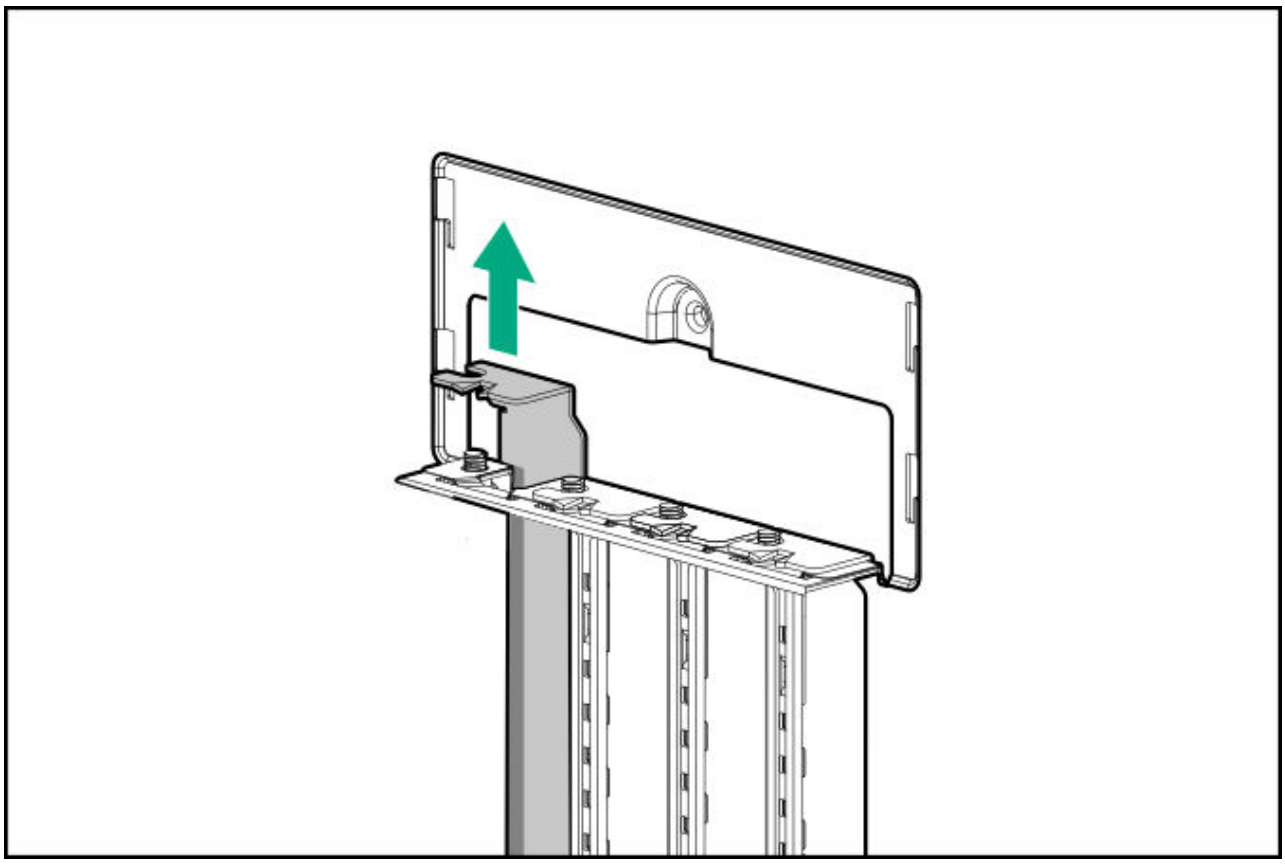


- If the server is in rack mode, remove the server from the rack.

5. Remove the access panel.
6. If installed, remove the air baffle.
7. Identify the expansion slot compatible with the expansion card option.
8. Make sure that any switches or jumpers on the expansion card are set properly.

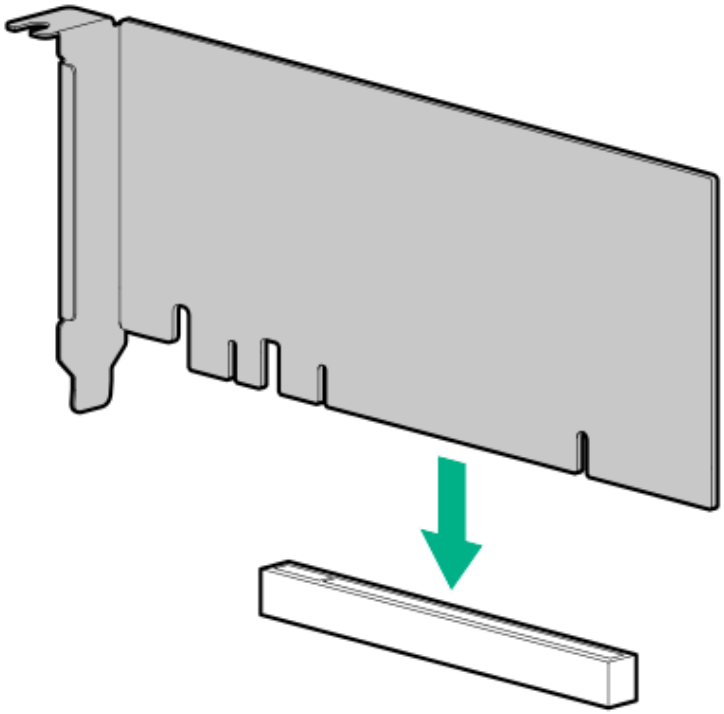
   For more information, see the documentation that ships with the option.
9. Remove the PCI blank retainer.
0. Remove the blank opposite the selected expansion slot.

   Retain the blank for future use.



1. Install the expansion card.

   Make sure that the card is seated firmly in the slot.

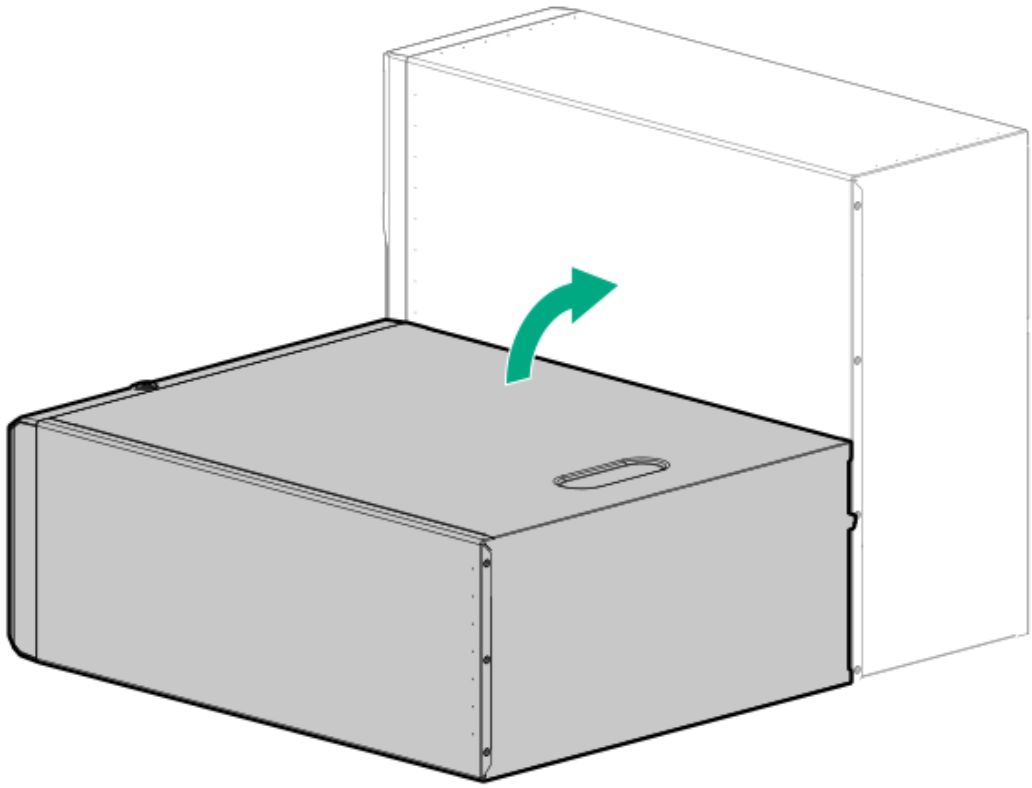


2. Connect all necessary internal cabling to the expansion card.

   For more information on these cabling requirements, see the documentation that ships with the option.

3. Install the PCI blank retainer.
4. Install the air baffle.
5. Install the access panel.
6. Do one of the following:

   - Orient the server back to tower mode.



   - Install the server into the rack.

7. Connect all peripheral cables to the server.
8. Connect each power cord to the server.
9. Connect each power cord to the power source.
0. Power up the server.

Results

The installation procedure is complete.

Memory option

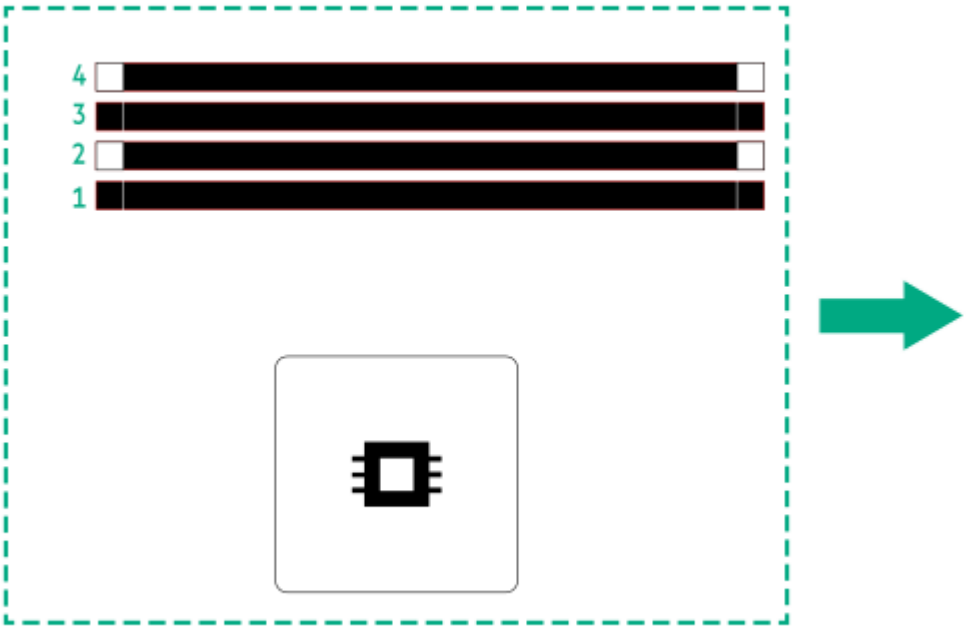
The server has four DIMM slots supporting HPE DDR5 UDIMM with ECC.

Subtopics

DIMM population information
DIMM installation guidelines
Installing a DIMM

DIMM population information

The arrow points to the front of the server.



Number of DIMM(s) to populate	Slot 1	Slot 2	Slot 3	Slot 4
1		✔		
2		✔		✔
4	✔	✔	✔	✔

For detailed DIMM population and memory speed information, see the relevant memory technical paper in:

https://www.hpe.com/docs/server-memory

DIMM installation guidelines

When handling a DIMM, observe the following:

- Observe antistatic precautions.
- Handle the DIMM only along the edges.
- Do not touch the components on the sides of the DIMM.
- Do not touch the connectors on the bottom of the DIMM.
- Never wrap your fingers around a DIMM.
- Never bend or flex the DIMM.

When installing a DIMM, observe the following:

- To align and seat the DIMM, use two fingers to hold the DIMM along the side edges.
- To seat the DIMM, use two fingers to apply gentle pressure along the top of the DIMM.

For more information, see the Hewlett Packard Enterprise website (**https://www.hpe.com/support/DIMM-20070214-CN**).

Installing a DIMM

Prerequisites

Before you perform this procedure, review the:

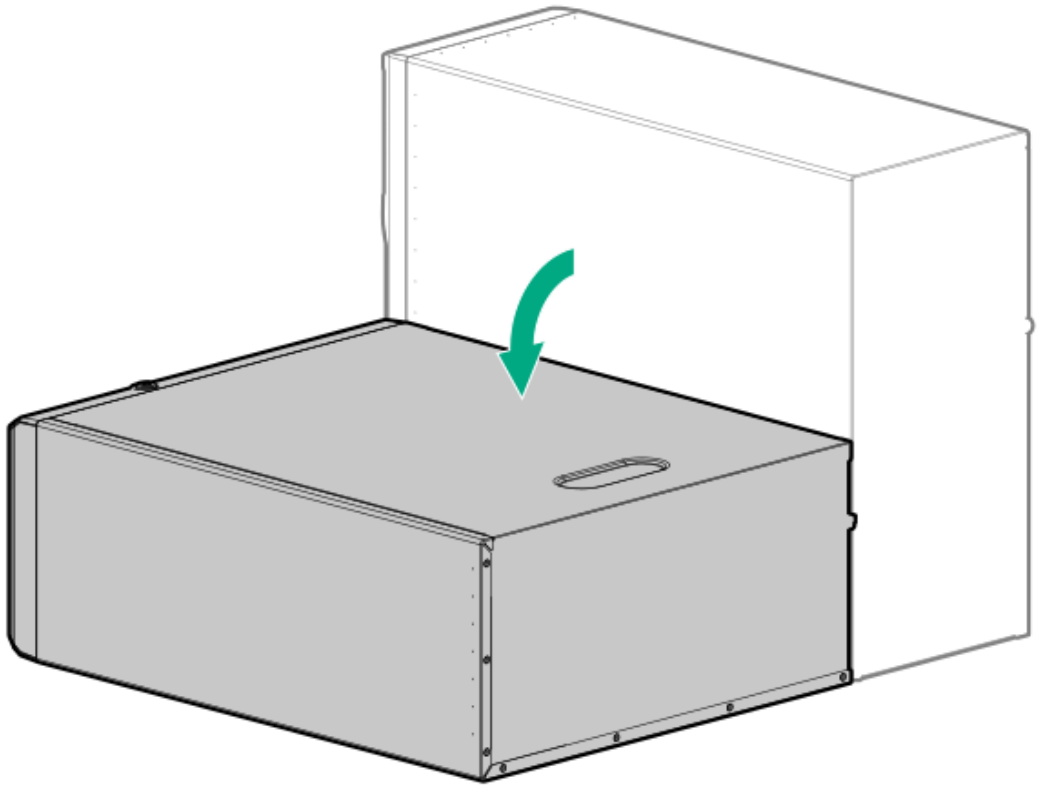
- DIMM population information
- DIMM installation guidelines

About this task

> **CAUTION**
> A discharge of static electricity from a finger or other conductor might damage system boards or other static-sensitive devices. To prevent damage, observe antistatic precautions.

Procedure

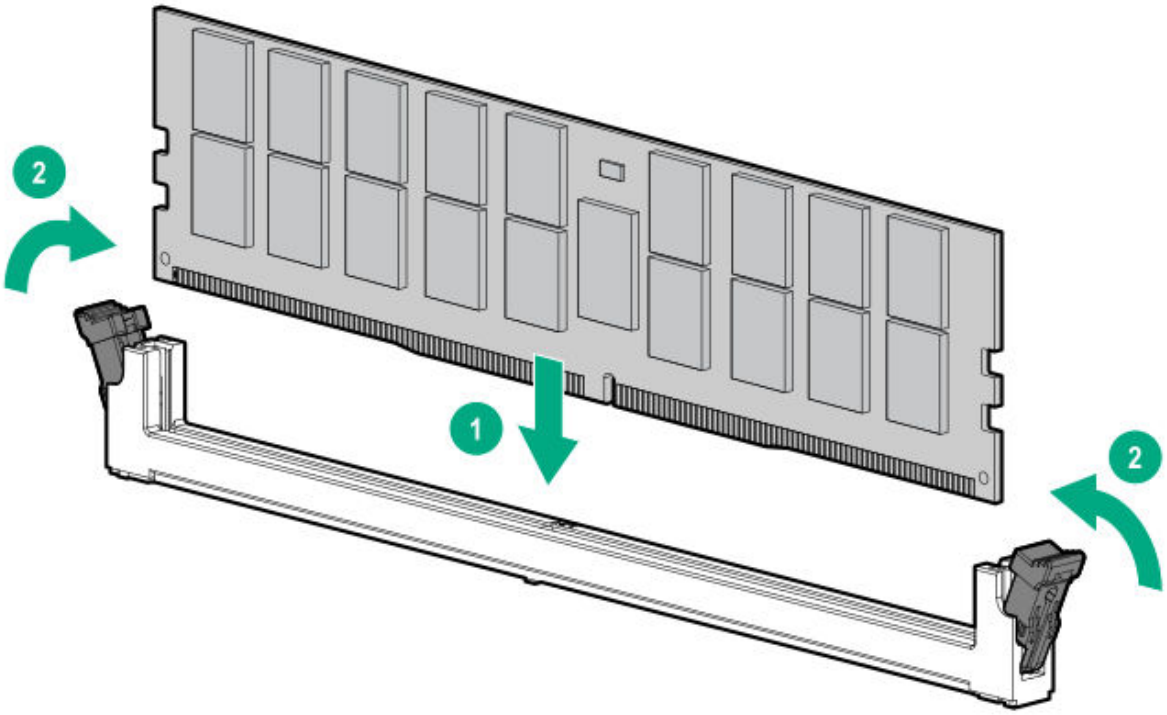
1. Power down the server.
2. Remove all power:
   a. Disconnect each power cord from the power source.
   b. Disconnect each power cord from the server.
3. Disconnect all peripheral cables from the server.
4. Do one of the following:
   - If the server is in tower mode, place the server on a flat, level surface with the access panel facing up.



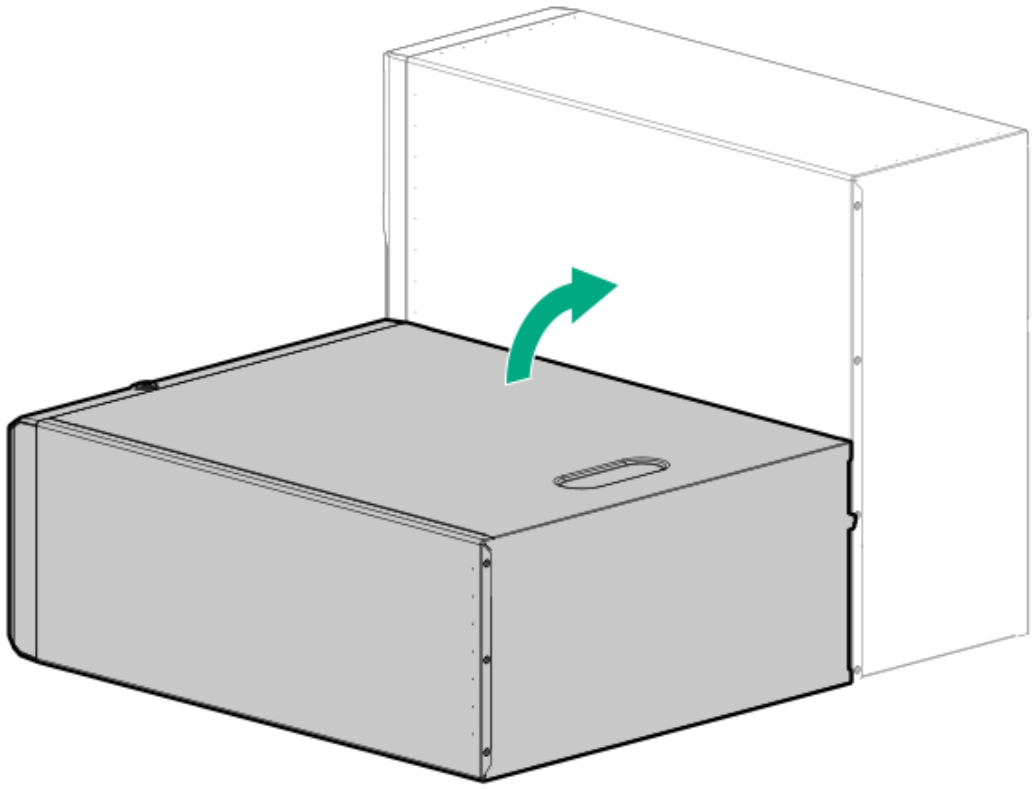
- If the server is in rack mode, remove the server from the rack.

5. Remove the access panel.
6. Install the DIMM:
   a. Open the DIMM slot latches.
   b. Align the notch on the bottom edge of the DIMM with the keyed surface of the DIMM slot, and then fully press the DIMM into the slot until the latches snap back into place.

      The DIMM slots are structured to ensure proper installation. If you try to insert a DIMM but it does not fit easily into the slot, you might have positioned it incorrectly. Reverse the orientation of the DIMM and insert it again.



7. Install the access panel.
8. Do one of the following:
    - Orient the server back to tower mode.



- Install the server into the rack.

9. Connect all peripheral cables to the server.
0. Connect each power cord to the server.
1. Connect each power cord to the power source.
2. Power up the server.
3. To configure the memory settings:
   a. From the boot screen, press **F9** to access the UEFI System Utilities.
   b. From the **System Utilities** screen, select **System Configuration > BIOS/Platform Configuration (RBSU) > Memory Options**.

Results

The installation procedure is complete.

iLO-M.2-serial module option

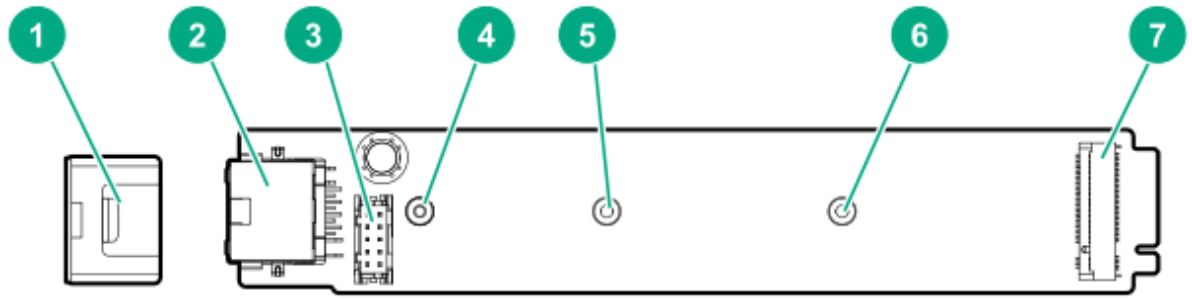
Install the multifunction iLO-M.2-serial module to support the following:

- NVMe SSD in 2280 or 22110 form factors
- Serial port
- iLO dedicated network port

Subtopics

iLO-M.2-serial module components
Installing the iLO-M.2-serial module

iLO-M.2-serial module components



Item	Description
1	Module stabilizer
2	iLO dedicated network port
3	Serial port cable connector
4	Standoff for the M.2 22110 SSD
5	Standoff for the M.2 2280 SSD
6	Standoff for the M.2 2242 SSD [1]
7	M.2 slot

[1] Not for use in this server

Installing the iLO-M.2-serial module

Prerequisites

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

- Spudger or any small prying tool
- Phillips No. 1 screwdriver
- T-15 Torx screwdriver
- 4.775 mm hex screwdriver—This tool is required for installing the serial port cable.
- 4.5 mm hex nut screwdriver—This tool is required when installing an M.2 SSD.

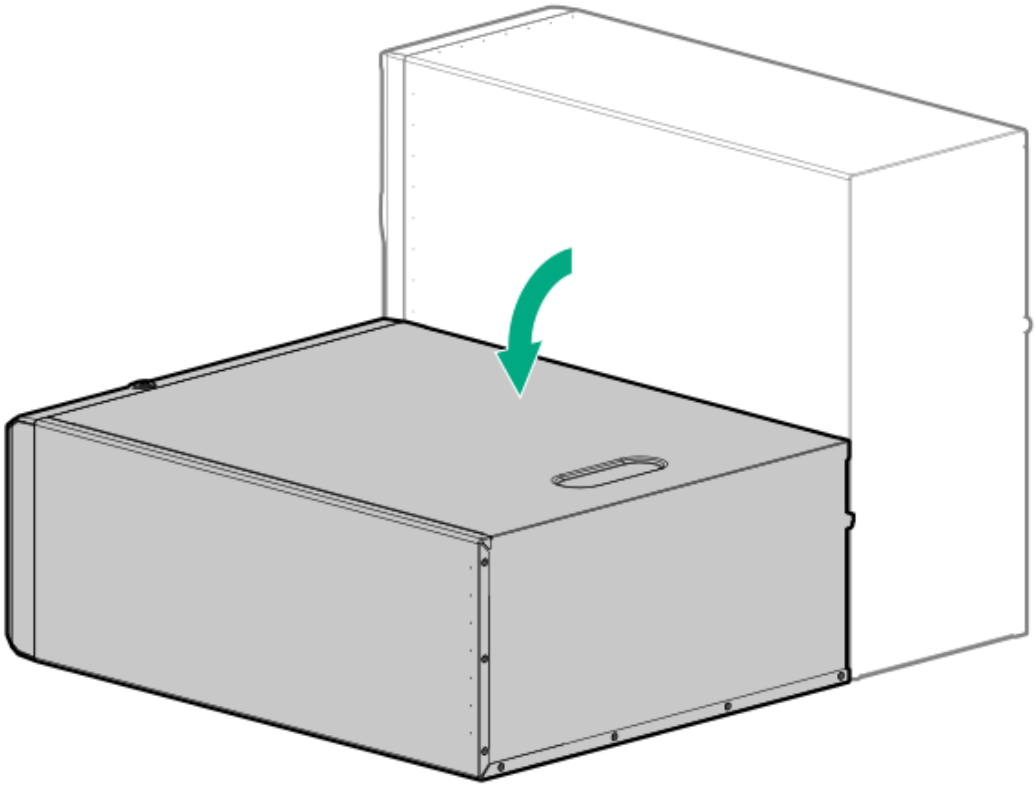
About this task

CAUTION
A discharge of static electricity from a finger or other conductor might damage system boards or other static-sensitive devices. To prevent damage, observe antistatic precautions.

CAUTION
The port blank provides EMI shielding and helps maintain proper thermal status inside the server. Do not operate the server when a port blank is removed without the corresponding I/O port option 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. Disconnect all peripheral cables from the server.
4. Do one of the following:
   - If the server is in tower mode, place the server on a flat, level surface with the access panel facing up.

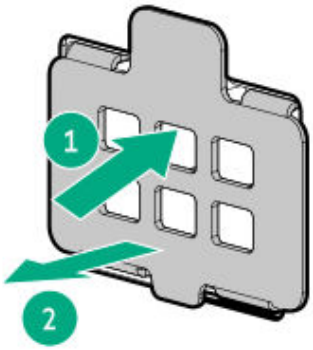


- If the server is in rack mode, remove the server from the rack.

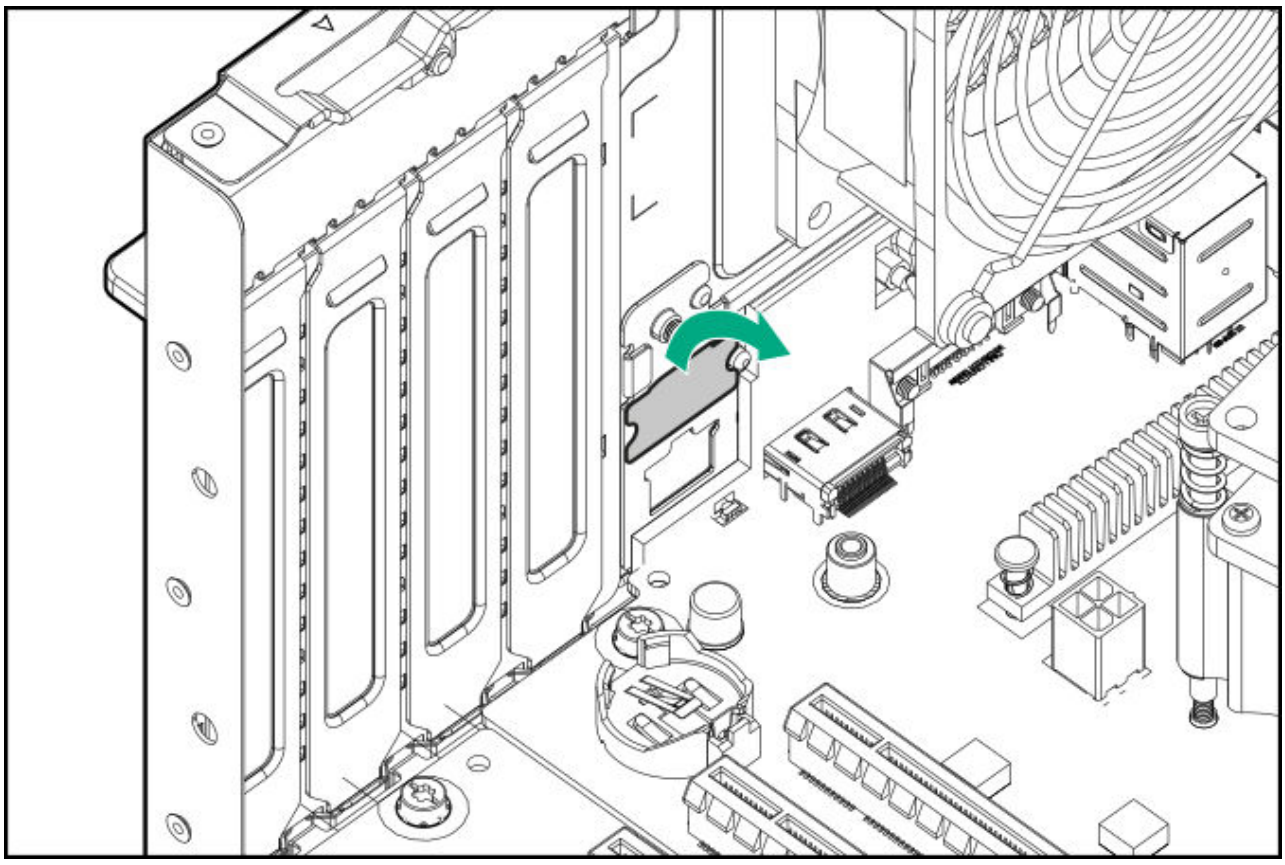
5. Remove the access panel.
6. If installed, remove the air baffle.

Installing the iLO-M.2-serial module

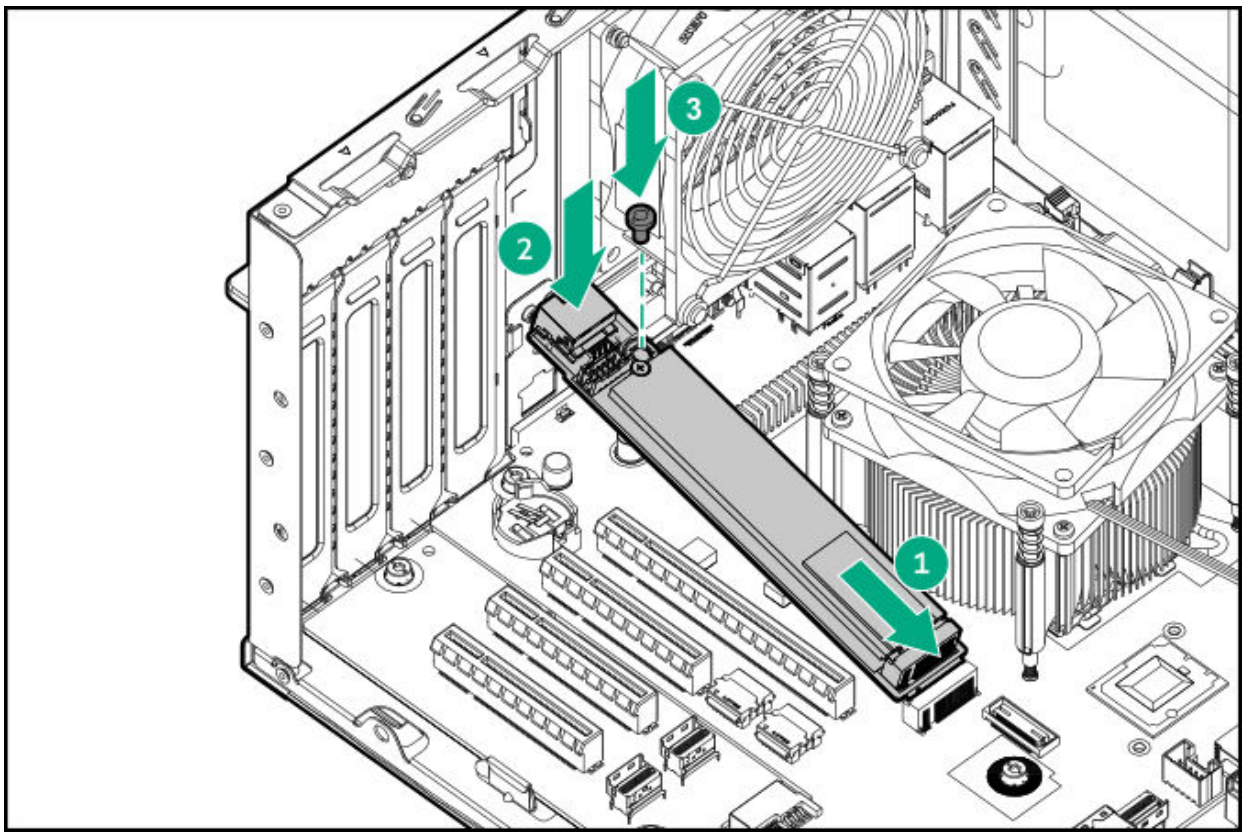
7. Remove the iLO dedicated network port blank:
   a. Use a spudger to pry the blank from the chassis.
   b. Remove the blank.



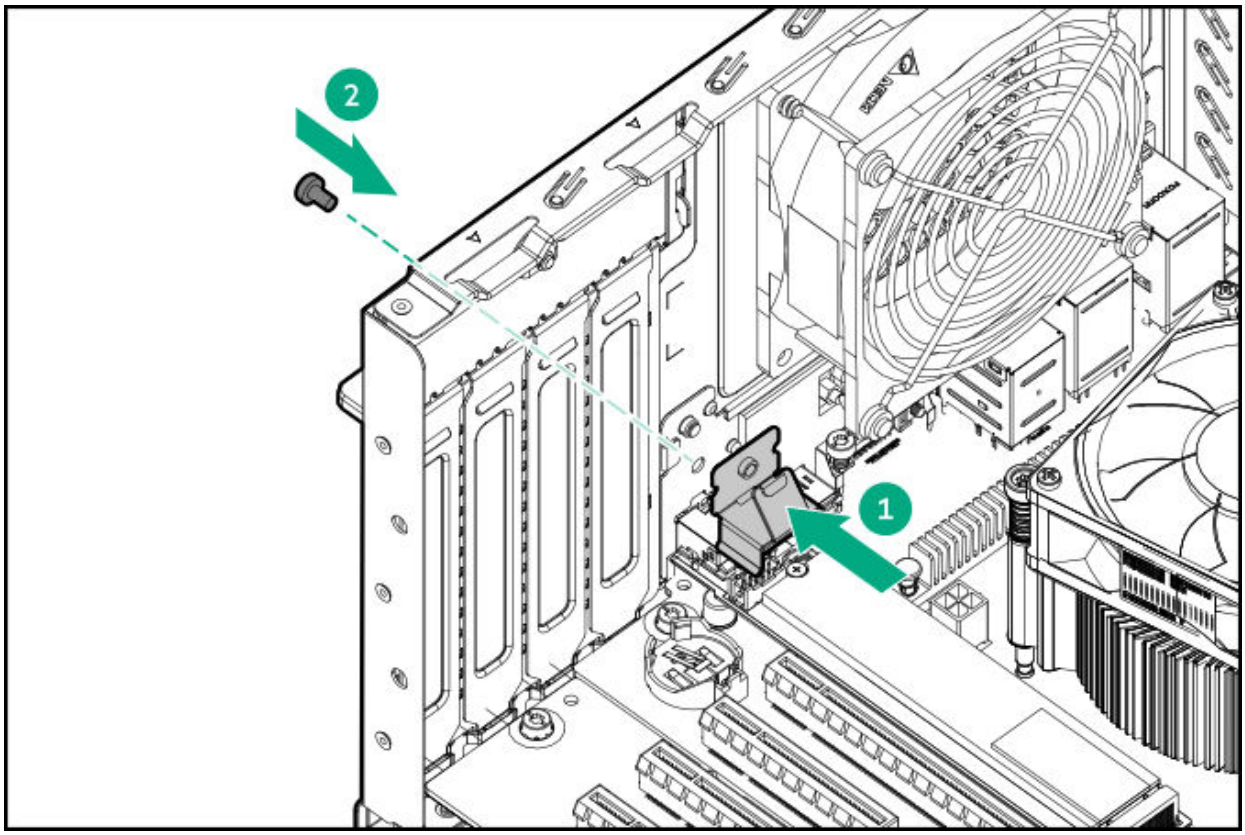
8. Remove the tape above the iLO dedicated network port opening.



9. (Optional) Install an M.2 SSD on the module.
0. Install the iLO-M.2-serial module:
   a. Insert the module into the M.2 slot at a 45° angle.
   b. Carefully press the module down in a horizontal position.
   c. Install the module screw.

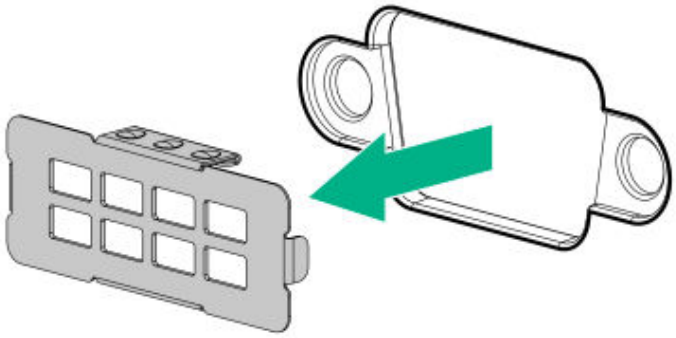


d. Install the module stabilizer.

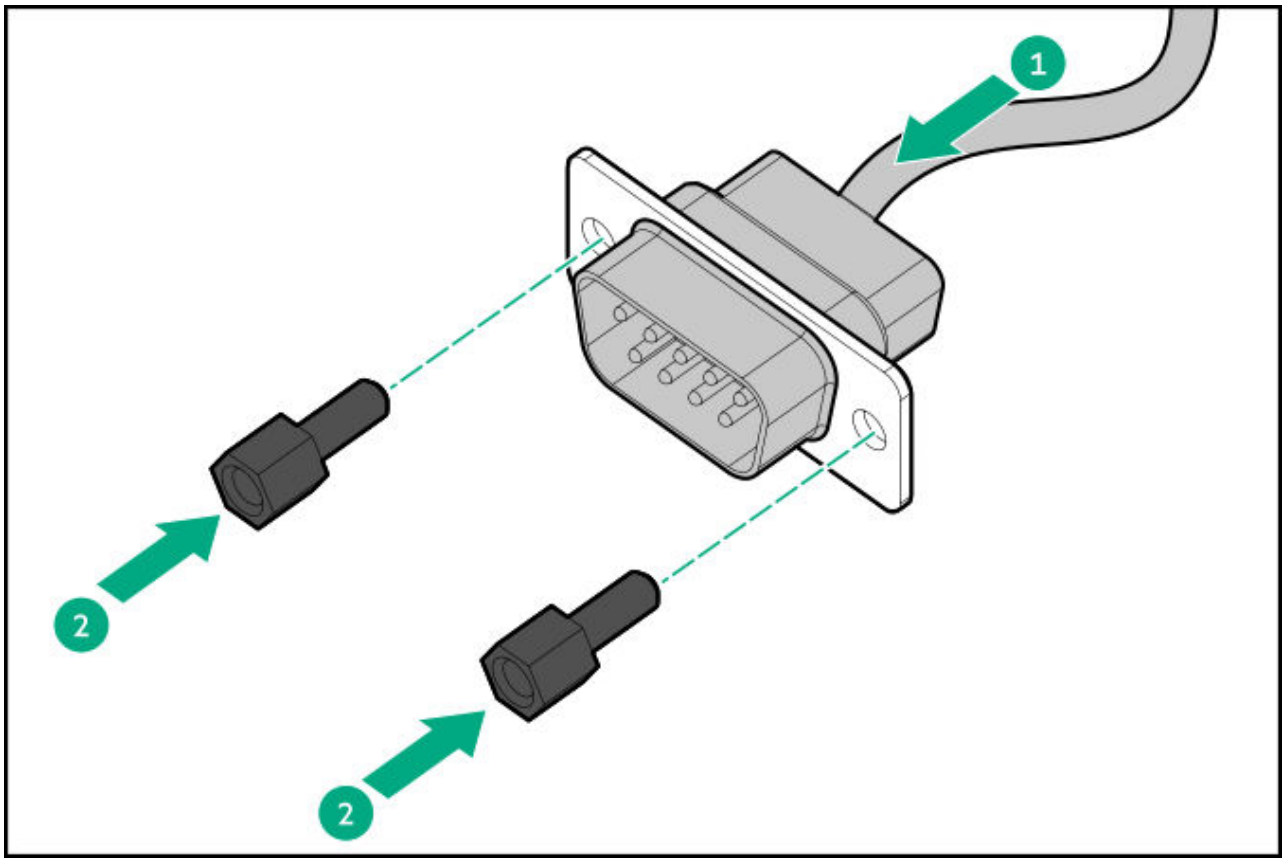


Installing the serial port

1. Remove the serial port blank.



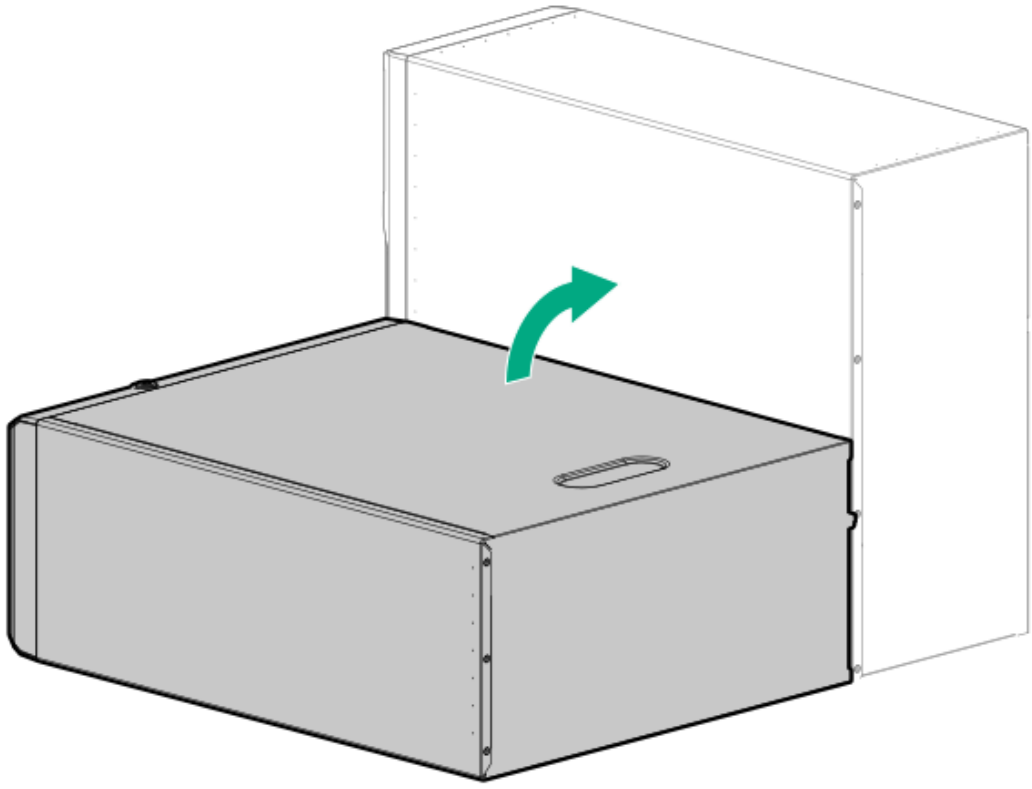
2. Install the serial port cable:
   a. Insert the serial port into the rear panel opening.
   b. Install the hex screws.



3. Connect the serial port cable to the iLO-M.2-serial module.

Completing the installation

4. Install the air baffle.
5. Install the access panel.
6. Do one of the following:
   - Orient the server back to tower mode.



   - Install the server into the rack.
7. Connect all peripheral cables to the server.
8. Connect each power cord to the server.
9. Connect each power cord to the power source.
0. Power up the server.

Enabling the iLO dedicated network port

> **IMPORTANT**
>
> If the iLO configuration settings are reset to the default values, remote access to the machine will be lost. Access the physical machine and repeat the procedure described in this section to re-enable the iLO dedicated network port.

The onboard NIC 1 / iLO shared port is the default system iLO port.

a. From the boot screen, press **F9** to access the UEFI System Utilities.

b. From the **System Utilities** screen, select **System Configuration > iLO 6 Configuration Utility > Network Options**.

c. Set the **Network Interface Adapter** field to **ON**, and then press **Enter**.

d. Press **F10** to save your changes.

e. Press **Enter** to reboot the iLO settings.

f. Press **Esc** until the main menu is displayed.

g. Select **Reboot the System** to exit the utility and resume the boot process.

The IP address of the iLO dedicated network port appears on the POST screen on the subsequent boot-up. Access the **Network Options** screen again to view this IP address for later reference.

Configuring the serial port

2. To configure the serial port setting:

a. From the boot screen, press **F9** to access the UEFI System Utilities.

b. From the **System Utilities** screen, select **System Configuration > BIOS/Platform Configuration (RBSU) > System Options > Serial Port Options > Embedded Serial Port**.

c. Select a setting.

d. Press **F12** key to save your selection.

e. Click **Yes-Save Changes**.

f. Click **Reboot**.

Results

The installation procedure is complete.

M.2 SSD option

The M.2 slot on the system board does not support direct SSD installation. This slot instead supports the iLO-M.2 serial module. Use this module to install an NVMe SSD in 2280 or 22110 form factors.

Install an M.2 SSD for:

- Booting up from flash solution
- Data backup/redundancy

Subtopics

Installing an M.2 SSD on the iLO-M.2-serial module

Installing an M.2 SSD on the iLO-M.2-serial module

Prerequisites

- The iLO-M.2 serial module is installed in the server.
- Before you perform this procedure, make sure that you have the following items available:
  - Phillips No. 1 screwdriver
  - 4.5 mm hex nut screwdriver—This tool is required if you need to move the hex nut on the iLO-M.2 serial module to a different M.2 standoff position.

About this task

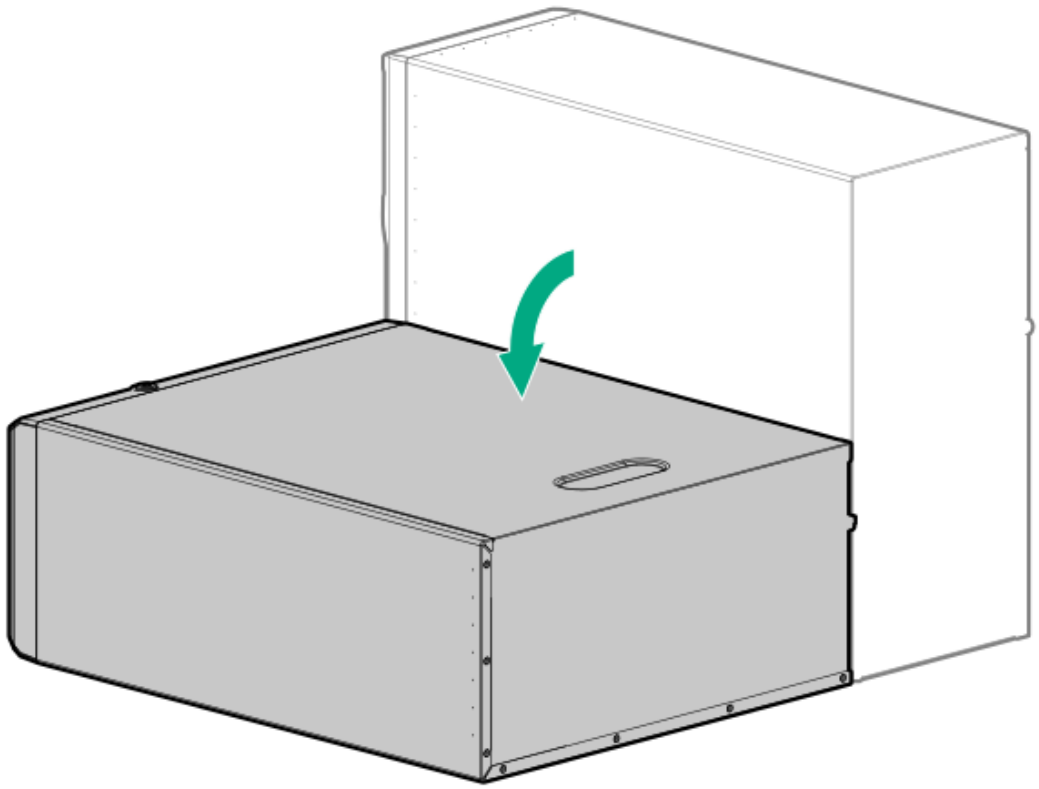
CAUTION
A discharge of static electricity from a finger or other conductor might damage system boards or other static-sensitive devices. To prevent damage, observe antistatic precautions.

Procedure

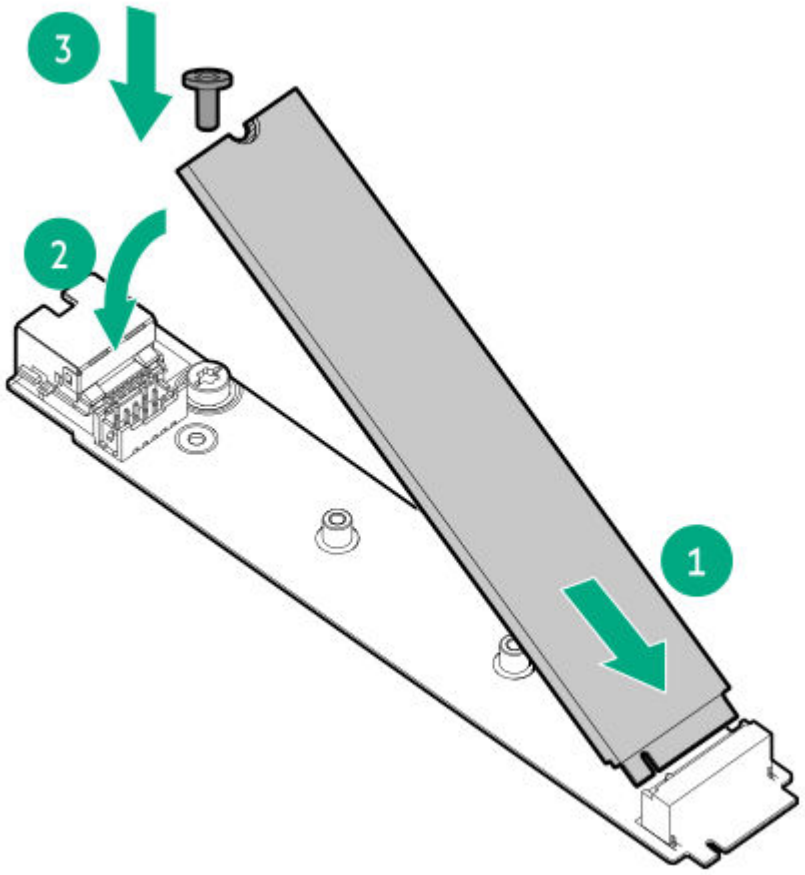
1. Power down the server.
2. Remove all power:
   a. Disconnect each power cord from the power source.

b. Disconnect each power cord from the server.

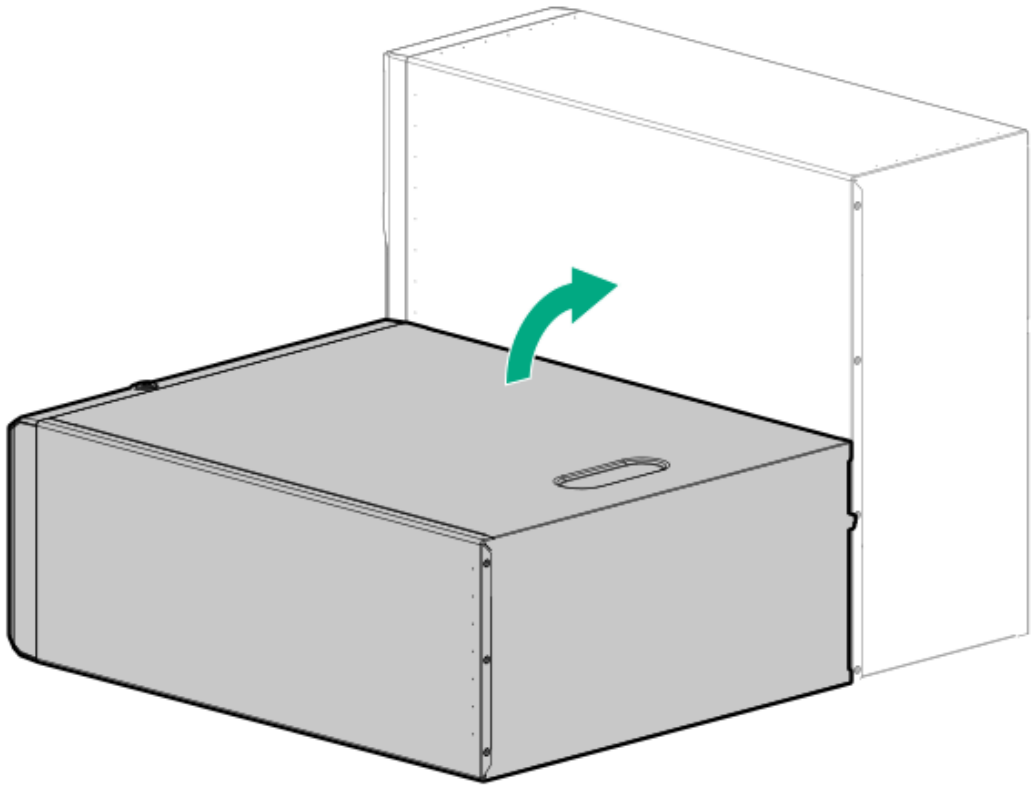
3. Disconnect all peripheral cables from the server.
4. Do one of the following:
   - If the server is in tower mode, place the server on a flat, level surface with the access panel facing up.



   - If the server is in rack mode, remove the server from the rack.
5. Remove the access panel.
6. If installed, remove the air baffle.
7. Based on the SSD form factor (length), verify that the hex nut from the iLO-M.2 serial module option kit is on the correct M.2 standoff position. Move the hex nut if needed.
8. Install the SSD:
   a. Insert the SSD on the iLO-M.2 serial module at a 45° angle.
   b. Carefully press the SSD down to the horizontal position.
   c. Install the SSD mounting screw.



9. Install the air baffle.
0. Install the access panel.
1. Do one of the following:
    - Orient the server back to tower mode.



- Install the server into the rack.

2. Connect all peripheral cables to the server.
3. Connect each power cord to the server.
4. Connect each power cord to the power source.
5. Power up the server.
6. To configure the M.2 SSD, use the native OS NVMe driver. See the related OS documentation.

Results

The installation procedure is complete.

Internal USB device option

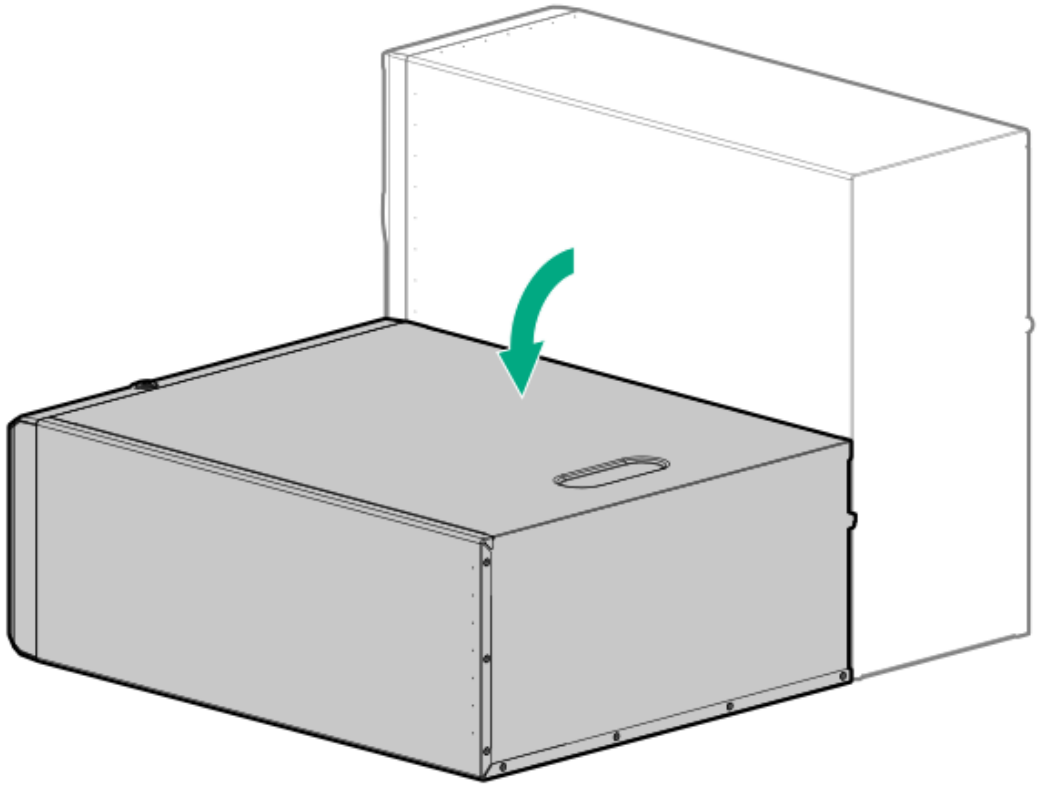
The server has an internal USB 3.2 Gen1 port to install a USB device that can be used as a flash boot media or for data backup/redundancy.

Subtopics

Installing an internal USB device

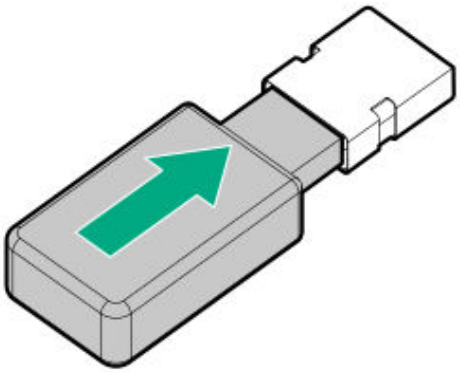
Procedure

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. Disconnect all peripheral cables from the server.
4. Do one of the following:
   - If the server is in tower mode, place the server on a flat, level surface with the access panel facing up.

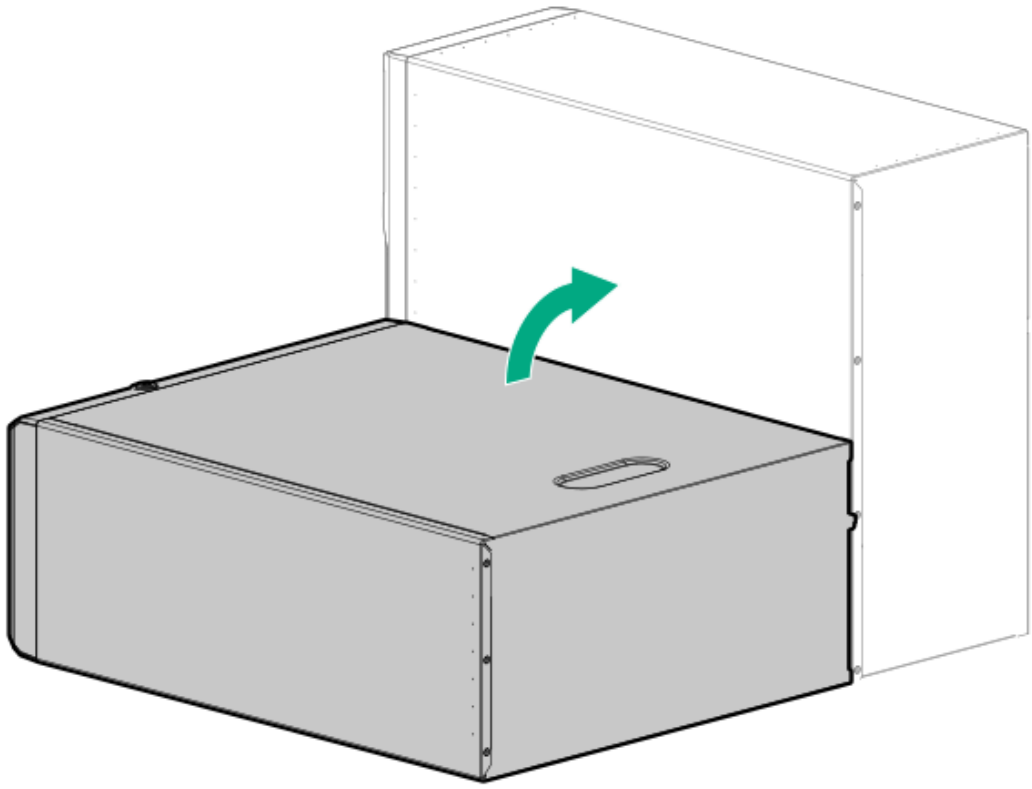


   - If the server is in rack mode, remove the server from the rack.

5. Remove the front bezel.
6. Remove the access panel.
7. If installed, remove the air baffle.
8. Locate the internal USB port.
9. Plug in the USB device into the USB port.



0. Install the air baffle.
1. Install the access panel.
2. Install the front bezel.
3. Do one of the following:
   - Orient the server back to tower mode.



- Install the server into the rack.

4. Connect all peripheral cables to the server.
5. Connect each power cord to the server.
6. Connect each power cord to the power source.
7. Power up the server.

Results

The installation procedure is complete.

Cabling

This chapter includes cabling guidelines and diagrams for internal component cabling.

Subtopics

Cabling guidelines
Cabling diagrams
Internal cabling management

Storage cabling
Media device cabling
Fan cabling
HPE NS204i-u Boot Device cabling
Serial port cabling
PCIe x4 signal cabling for expansion slots 3 and 4
Front I/O cabling
GPU auxiliary power cabling
Power supply cabling

Cabling guidelines

Observe the following:

NOTE
The colors in the cabling diagrams are for illustration purposes only.

CAUTION
To avoid damaging connectors, avoid repeated installation and removal of cables. Excessive handling can shorten the lifespan of the cable.

- For cable option kits, see the product QuickSpecs.
- For cable spare part numbers, see the Illustrated parts catalog in the maintenance and service guide.
- Some diagrams show alphabetical callouts such as A, B, C, etc. These callouts correspond to labels near the connectors on the cable.
- Some cables have more than one connector, such as a Y-cable, but not all connectors are used.
- Observe all guidelines when working with server cables.

Before connecting cables

- Note the port labels on the PCA components. Not all these components are used by all servers:
  - System board ports

    - Drive and power supply backplane ports
    - Expansion board ports (controllers, retimers, adapters, expanders, risers, and similar boards)
- Note the label near each cable connector. This label indicates the destination port for the cable connector.
- Some data cables are prebent. Do not unbend or manipulate the cables.
- To prevent mechanical damage or depositing oil that is present on your hands, and other contamination, do not touch the ends of the connectors.

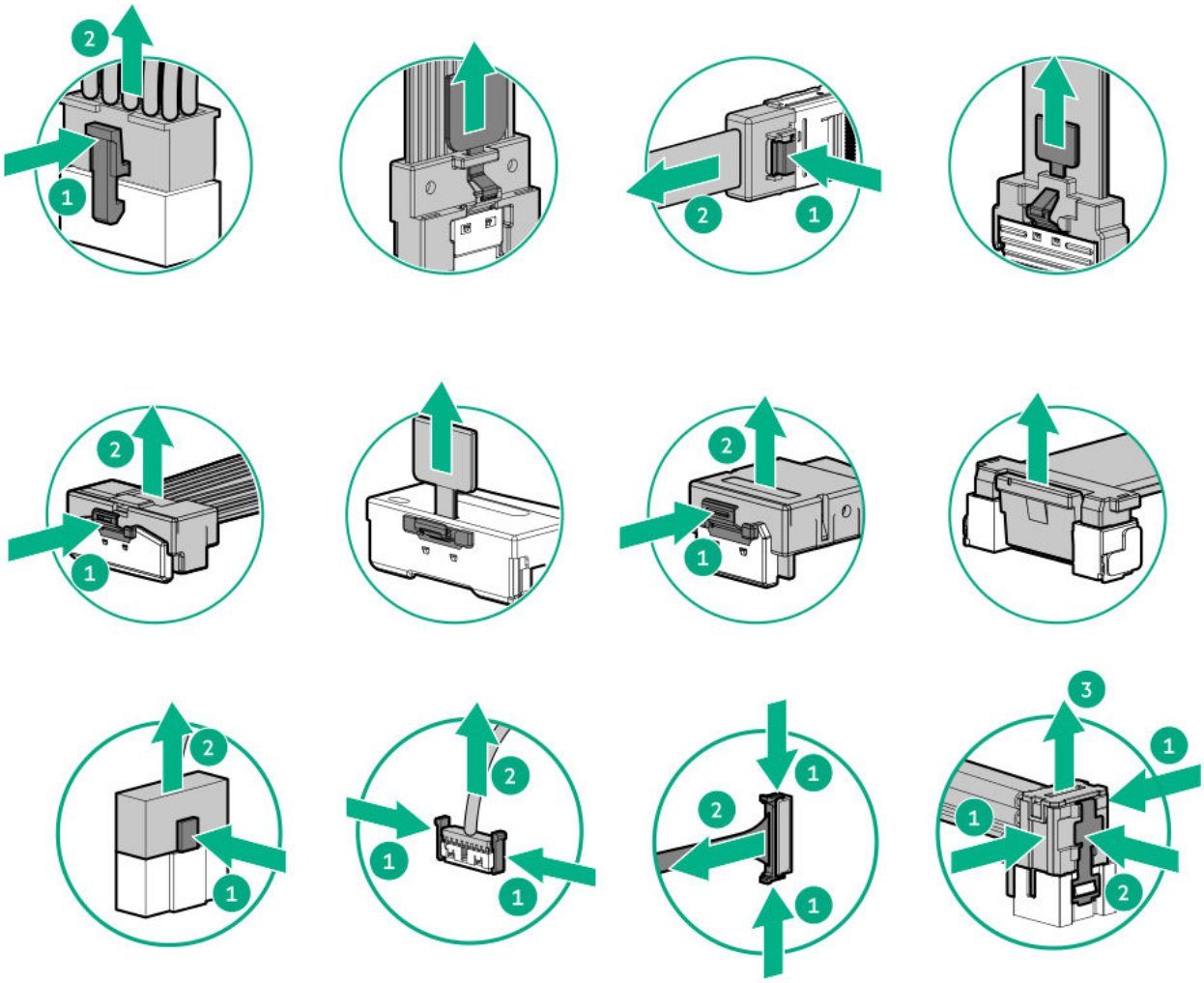
When connecting cables

- Before connecting a cable to a port, lay the cable in place to verify the length of the cable.
- Use the internal cable management features to properly route and secure the cables.
- Route cables so that they do not contact or rest on cooling components, including heatsinks. Ensure that cable routing does not obstruct airflow to or from heatsinks or ventilation openings
- When routing cables, be sure that the cables are not in a position where they can be pinched or crimped.
- 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.
- Make sure that the excess length of cables is properly secured to avoid excess bends, interference issues, and airflow restriction.
- Before installing a new component or closing up the server, make sure that all cables are in their appropriate routing position. This cable check prevents component damage and potential signal interference.

When disconnecting cables

- Grip the body of the cable connector. Do not pull on the cable itself because this action can damage the internal wires of the cable or the pins on the port.

- If a cable does not disconnect easily, check for any release latch that must be pressed to disconnect the cable.



- Remove cables that are no longer being used. Retaining them inside the server can restrict airflow. If you intend to use the removed cables later, label and store them for future use.

Cabling diagrams

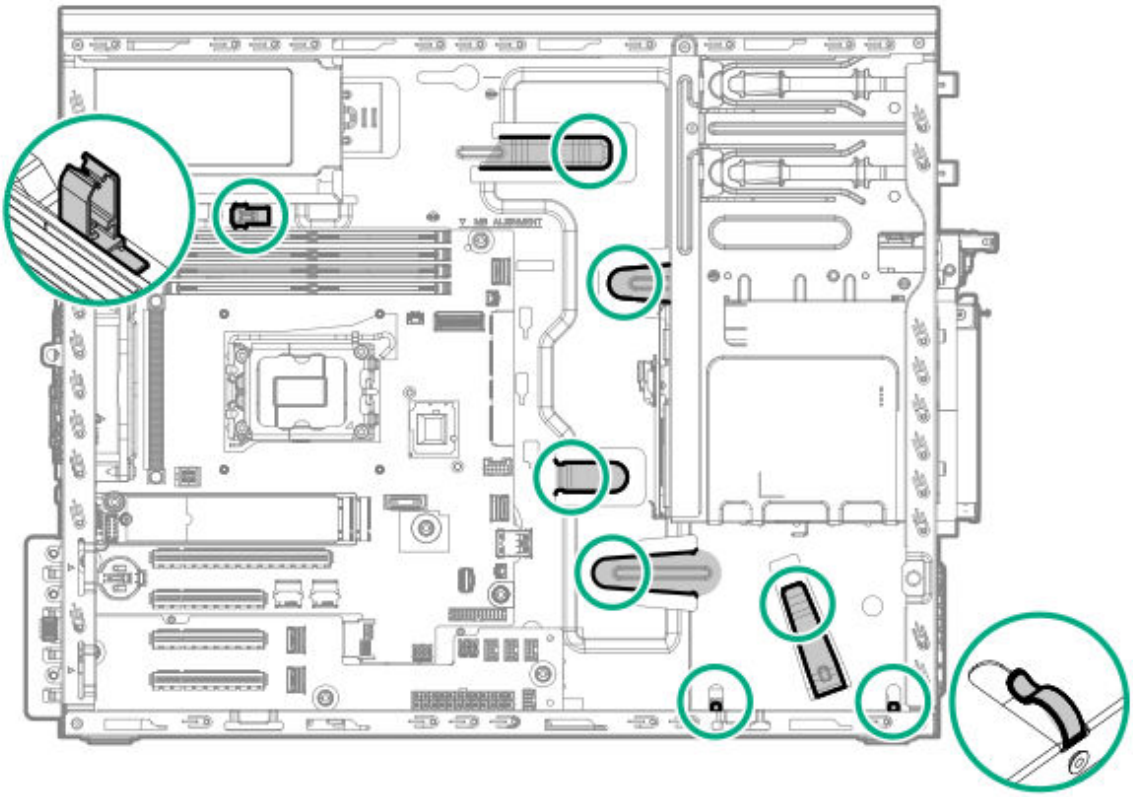
Observe the following:

- Before cabling components, see the Cabling guidelines.
- Use the cable part number or search feature to find your diagram.

Component cabling	Cable part number
Drive storage controller cabling	—
4 LFF non-hot-plug drive: Onboard SATA cabling	P62714-001
4 LFF hot-plug drive: Onboard SATA cabling	P63074-001
4 LFF hot-plug drive: Type-p controller cabling	P55530-001
8 SFF hot-plug drive: Onboard SATA cabling	• P62716-001 • P63074-001
8 SFF hot-plug drive: Type-p controller cabling	P45301-001
Drive power cabling	—
4 LFF non-hot-plug drive power cabling from the Flexible Slot power supply	• P45215-001 • P06327-001
4 LFF / 8 SFF hot-plug drive power cabling from the non-hot-plug power supply	P45230-001
4 LFF hot-plug drive power cabling from the Flexible Slot power supply	P45215-001
8 SFF hot-plug drive power cabling from the Flexible Slot power supply	P45215-001
Storage controller backup cabling	877850-001
Media device cabling	—
RDX backup system cabling with non-hot-plug power supply	• 848126-001 • 880289-001
RDX backup system cabling with Flexible Slot power supply	• P45215-001 • 848126-001 • 880289-001
Optical drive cabling with non-hot-plug power supply	P62715-001
Optical drive cabling with Flexible Slot power supply	• P45215-001 • P62715-001

Component cabling	Cable part number
SAS LTO tape drive cabling with non-hot-plug power supply	• 848126-001 • P49006-001
SAS LTO tape drive cabling with Flexible Slot power supply	• P45215-001 • P49006-001
HPE NS204i-u Boot Device cabling	• P54087-001 • P54089-001
Power supply cabling	—
Non-hot-plug power supply cabling	• P62710-001 • P63697-001
Flexible Slot power supply cabling	• P62711-001 • P63691-001 • P62713-001 • P63697-001
GPU auxiliary power cabling	P45218-001
Miscellaneous cabling	—
PCIe x4 signal cabling for expansion slots 3 and 4	P62709-001
Serial port cabling	P63693-001
Front I/O cabling	P63681-001

Internal cabling management



Storage cabling

Subtopics

Storage controller cabling
Drive power cabling
Energy pack cabling
Storage controller backup power cabling

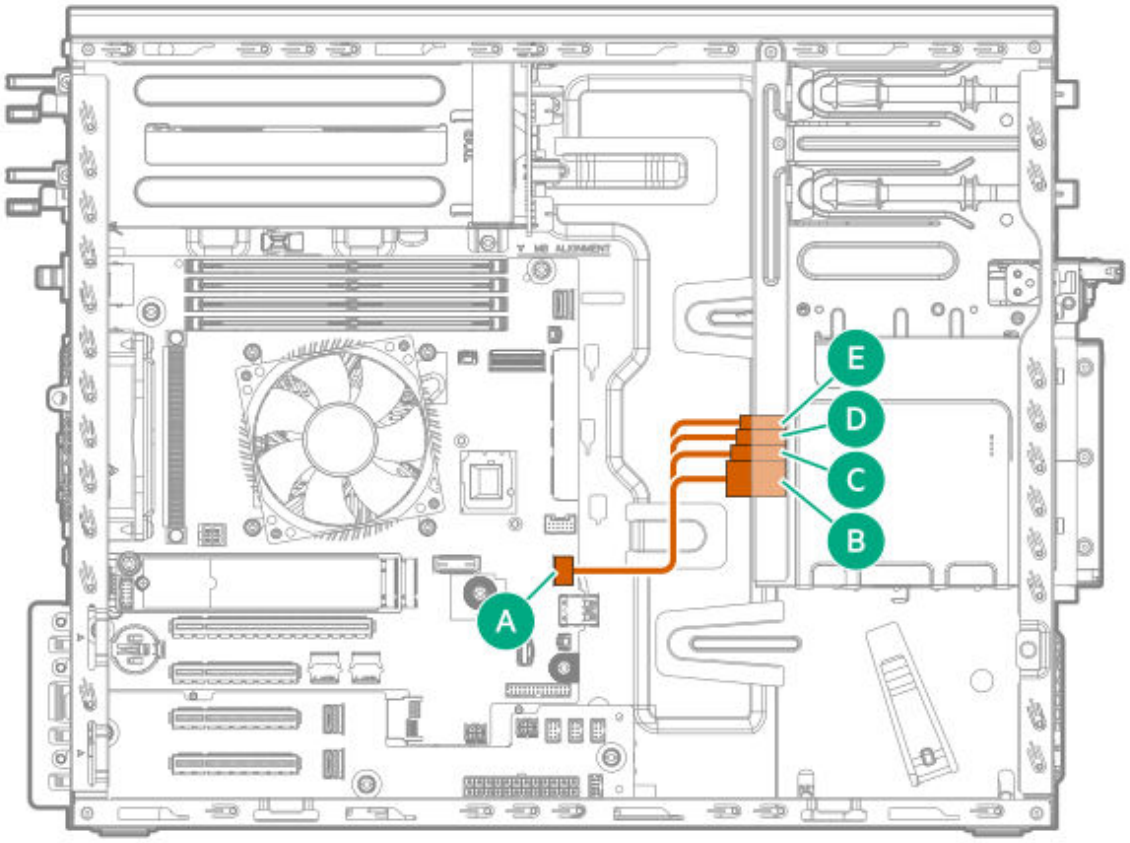
Storage controller cabling

Subtopics

4 LFF drive controller cabling

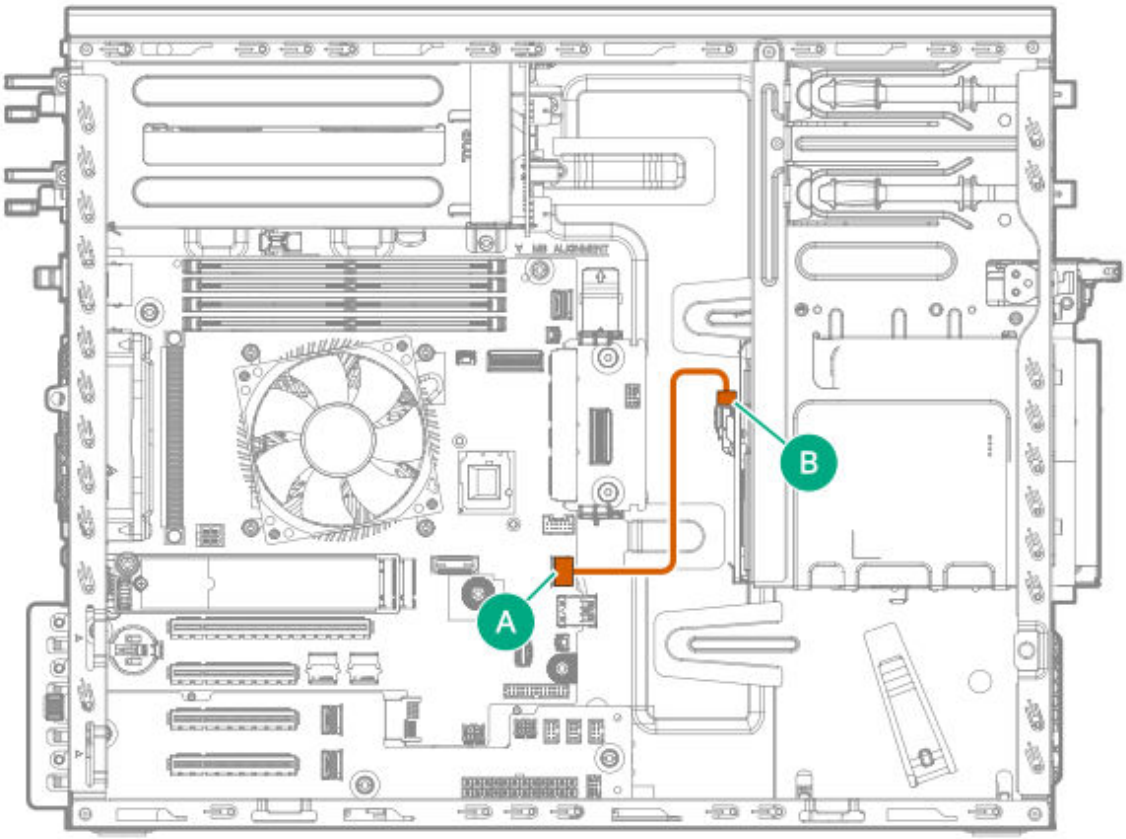
4 LFF drive controller cabling

4 LFF non-hot-plug drive: Onboard SATA cabling



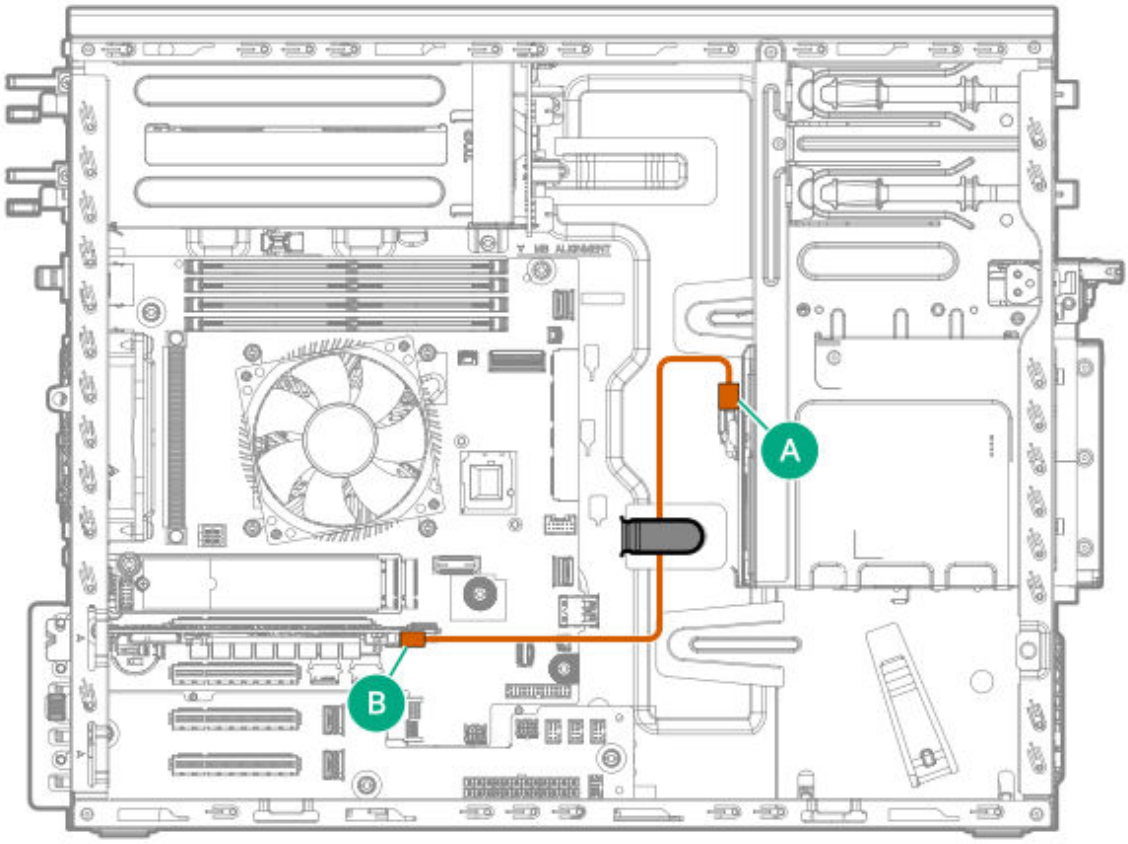
Cable part number	Color	From	To
P62714-001	Orange	SlimSAS x4 port 2	4 LFF non-hot-plug drives

4 LFF hot-plug drive: Onboard SATA cabling



Cable part number	Color	From	To
P63074-001	Orange	SlimSAS x4 port 2	4 LFF drive backplane

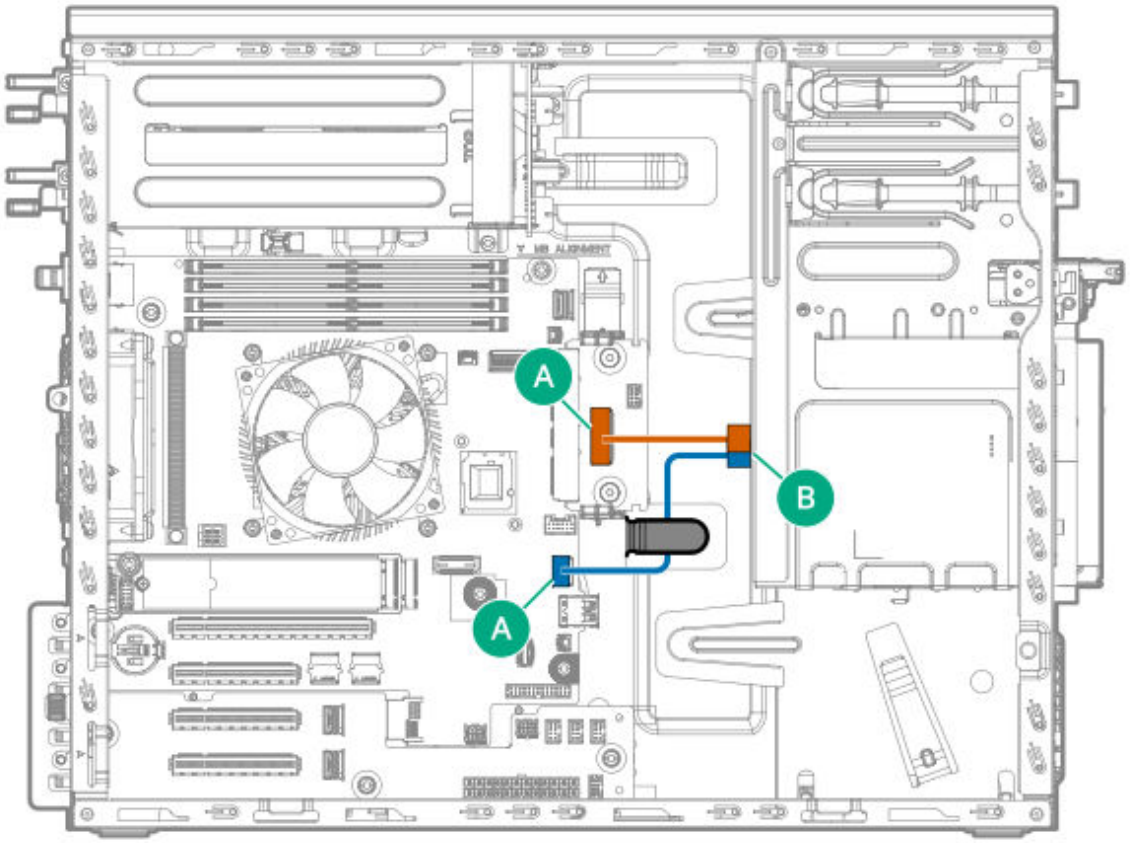
4 LFF hot-plug drive: Type-p controller cabling



Cable part number	Color	From	To
P55530-001	Orange	4 LFF drive backplane	Type-p controller port 1

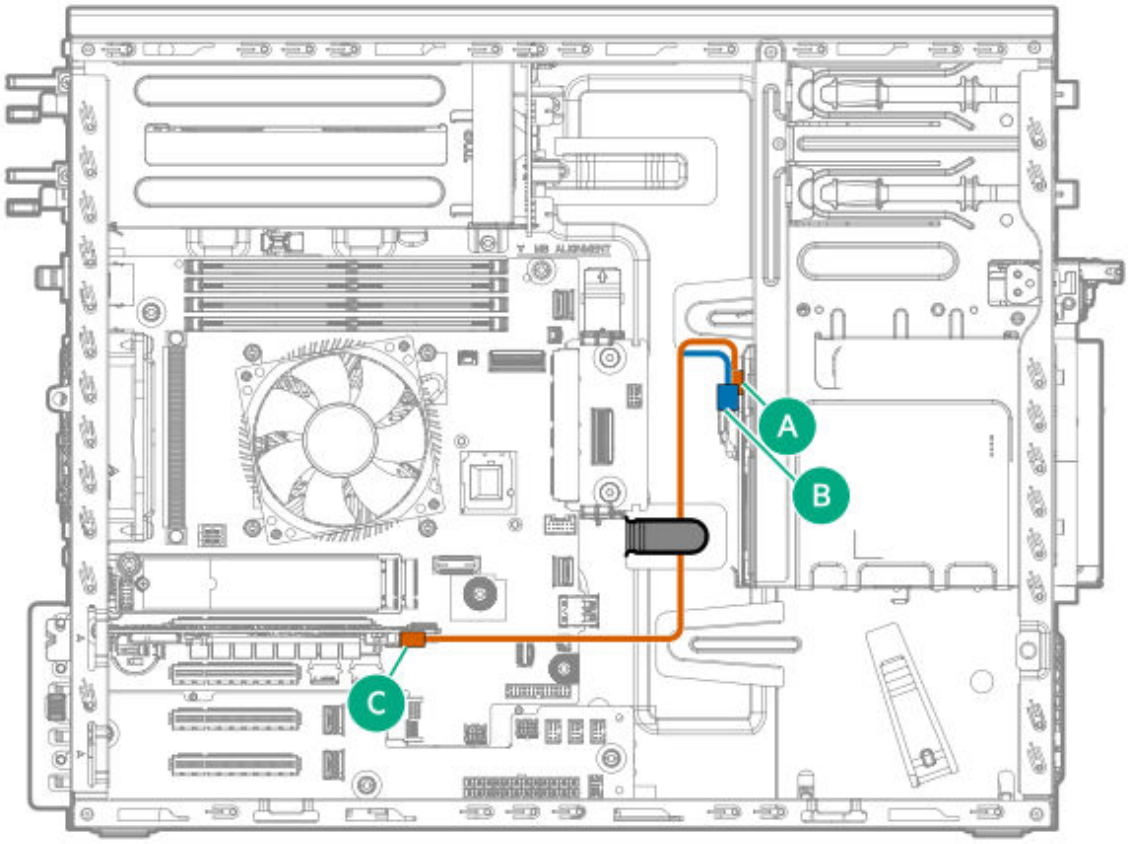
8 SFF hot-plug drive controller cabling

8 SFF hot-plug drive: Onboard SATA cabling



Cable part number	Color	From	To
P62716-001	Orange	SlimSAS x8 port 3	8 SFF drive backplane port 1
P63074-001	Blue	SlimSAS x4 port 2	8 SFF drive backplane port 2

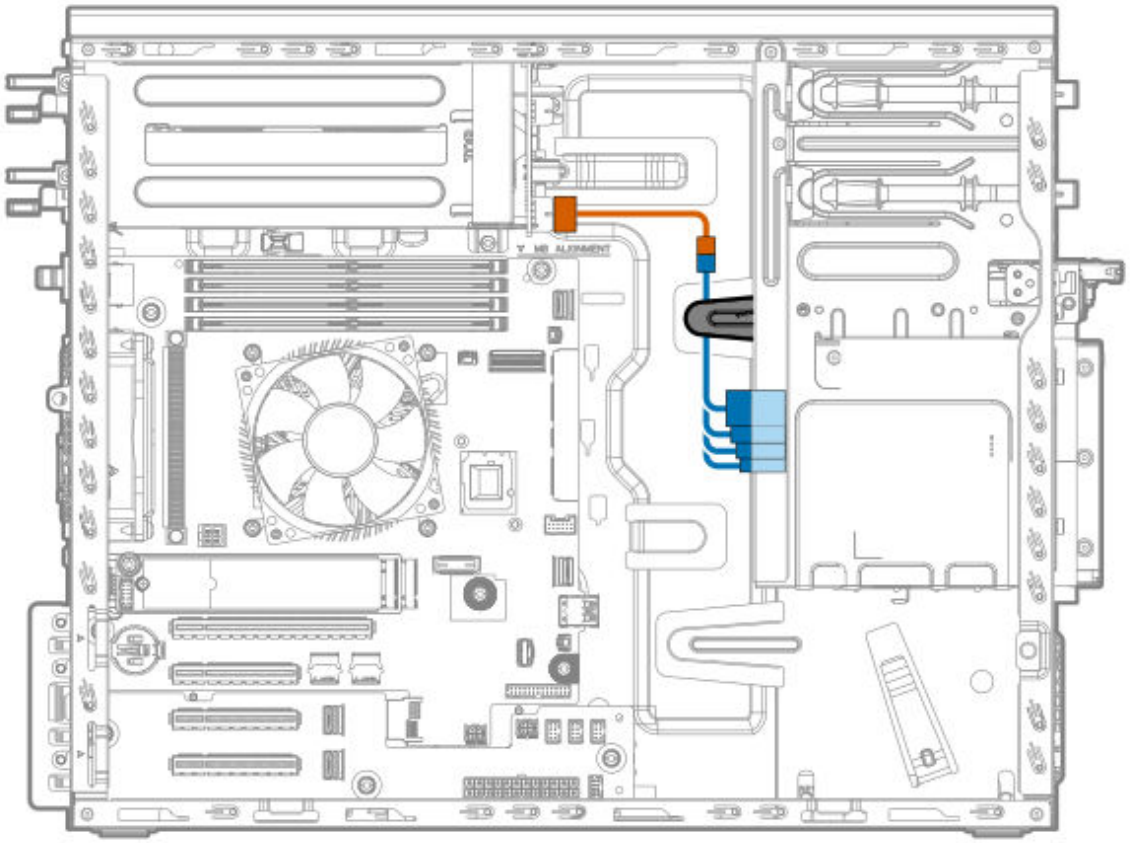
8 SFF hot-plug drive: Type-p controller cabling



Cable part number	Color	From	To
P45301-001	Orange	Type-p controller port 1	8 SFF drive backplane port 2
	Blue		8 SFF drive backplane port 1

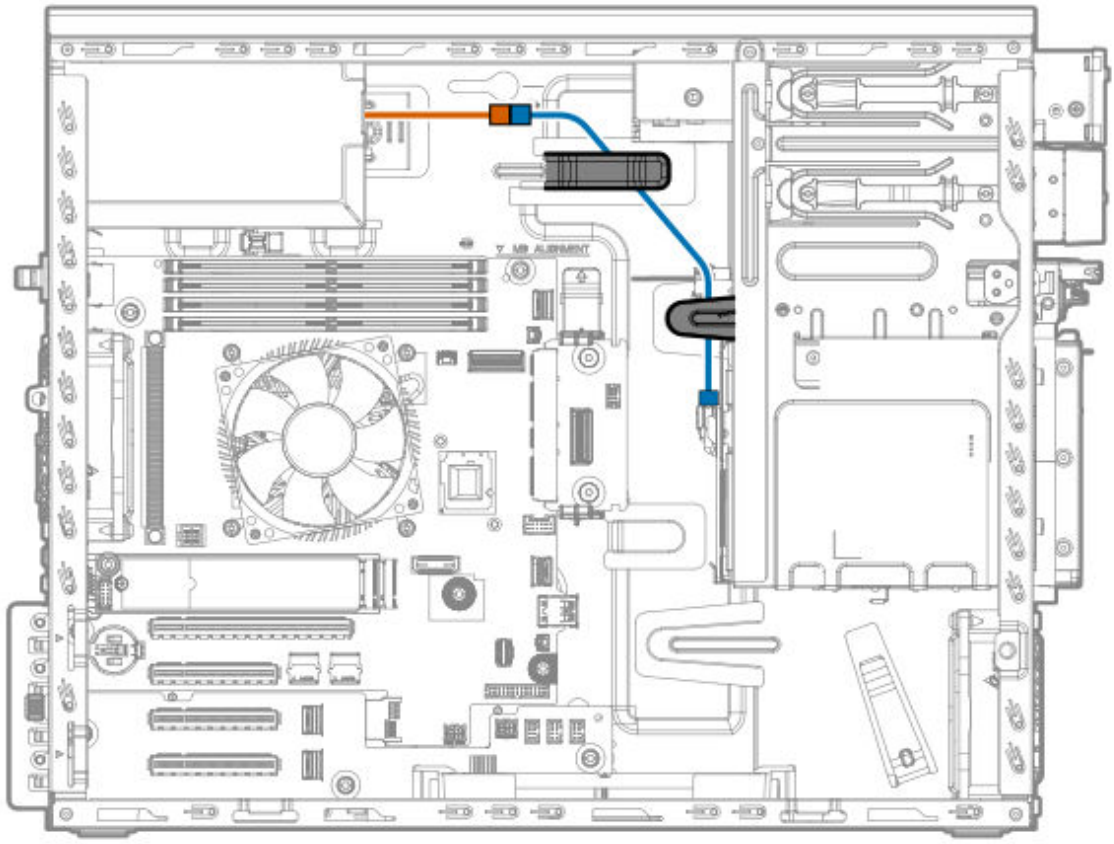
Drive power cabling

4 LFF non-hot-plug drive power cabling from the Flexible Slot power supply



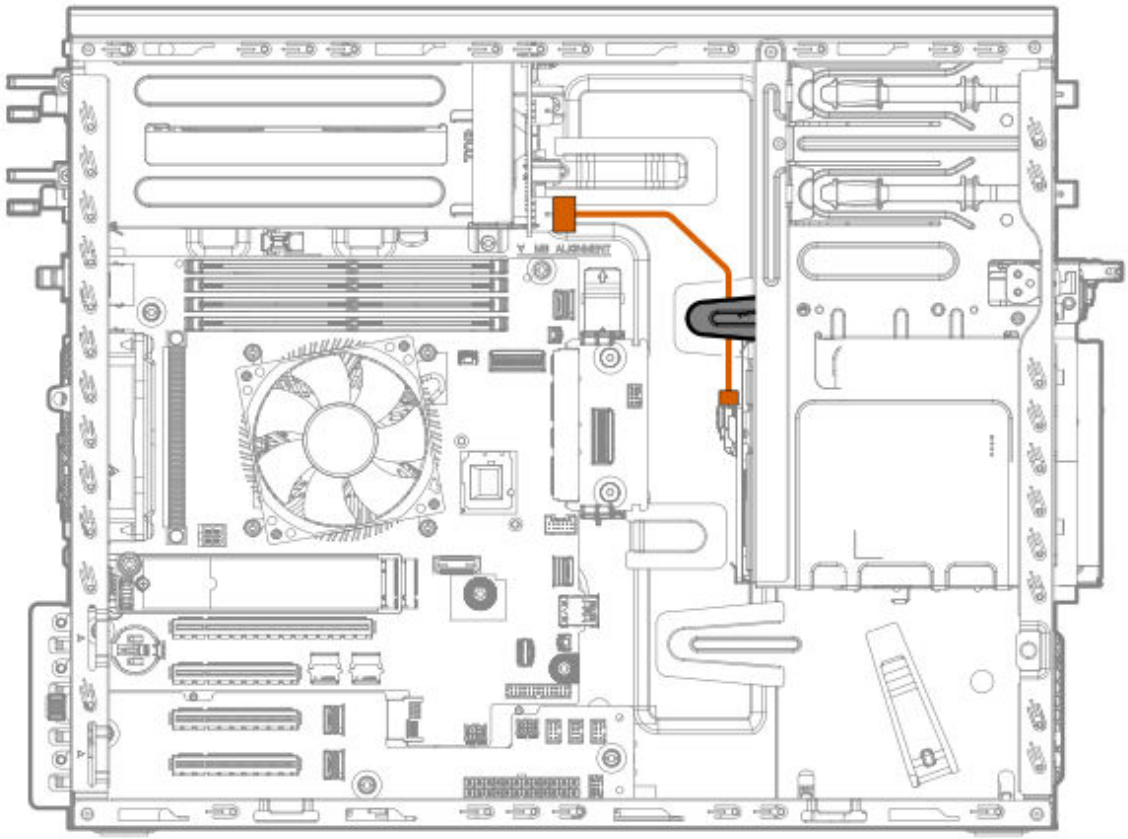
Cable part number	Color	From	To
P45215-001	Orange	Flex Slot PDB: HDD PWR connector	SATA drive power cable
P06327-001	Blue	Flex Slot PDB: P45215-001 cable	4 LFF non-hot-plug drives

4 LFF / 8 SFF hot-plug drive power cabling from the non-hot-plug power supply



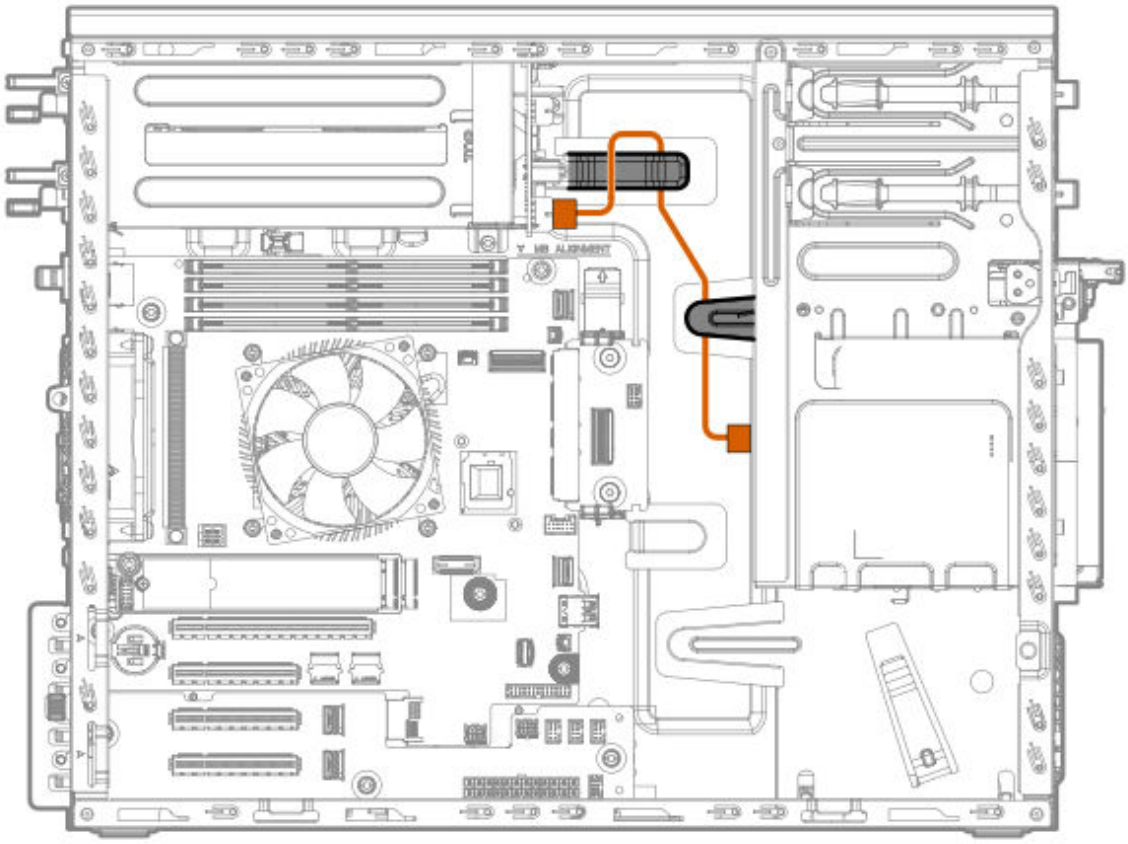
Cable part number	Color	From	To
—	Orange	Non-hot-plug power supply	4 LFF and 8 SFF drive backplane power cable
P45230-001	Blue	Non-hot-plug power supply cable	Drive backplane

4 LFF hot-plug drive power cabling from the Flexible Slot power supply



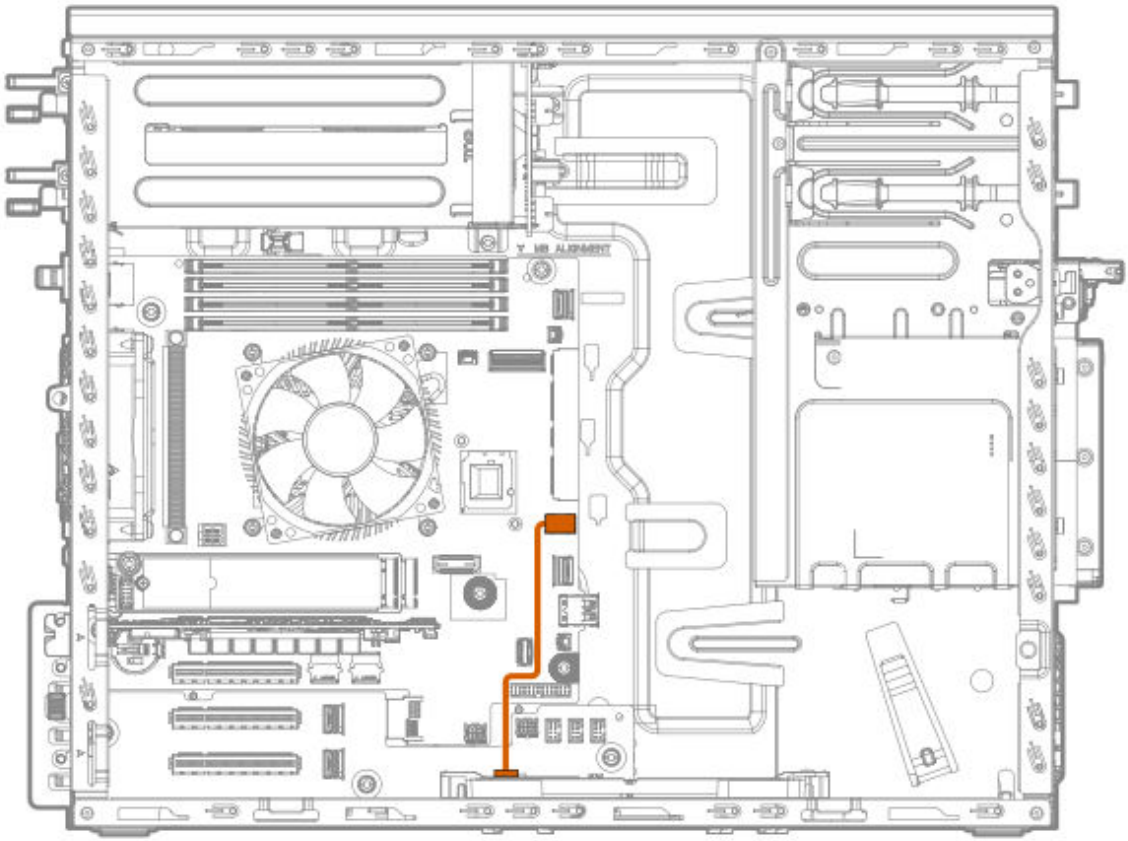
Cable part number	Color	From	To
P45215-001	Orange	Flex Slot PDB: HDD PWR connector	Drive backplane

8 SFF hot-plug drive power cabling from the Flexible Slot power supply



Cable part number	Color	From	To
P45215-001	Orange	Flex Slot PDB: HDD PWR connector	Drive backplane

Energy pack cabling

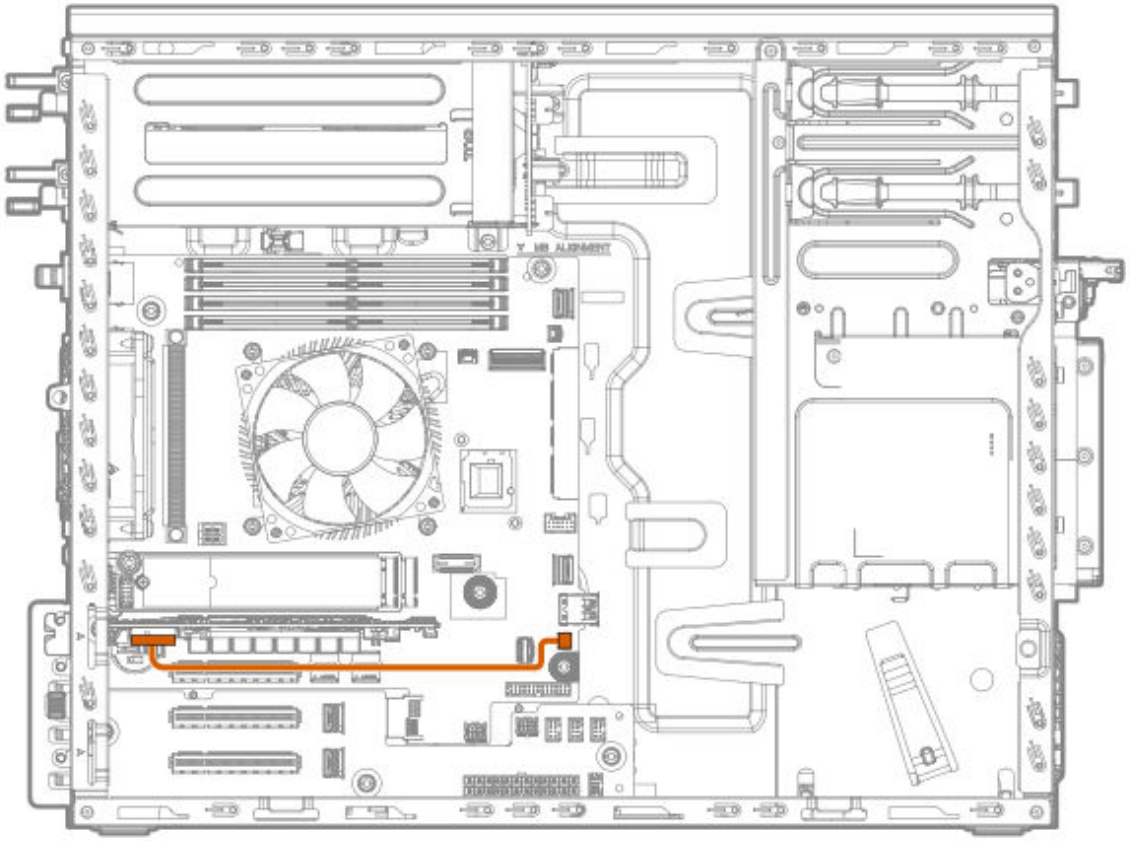


Storage controller backup power cabling

The exact route of the storage controller backup power cabling will depend on:

- The expansion slot where the controller is installed
- The location of the storage controller backup power connector on the controller

Use the following diagram for reference only.



Cable part number	Color	From	To
877850-001	Orange	Type-p controller	Storage controller b ackup power connec tor

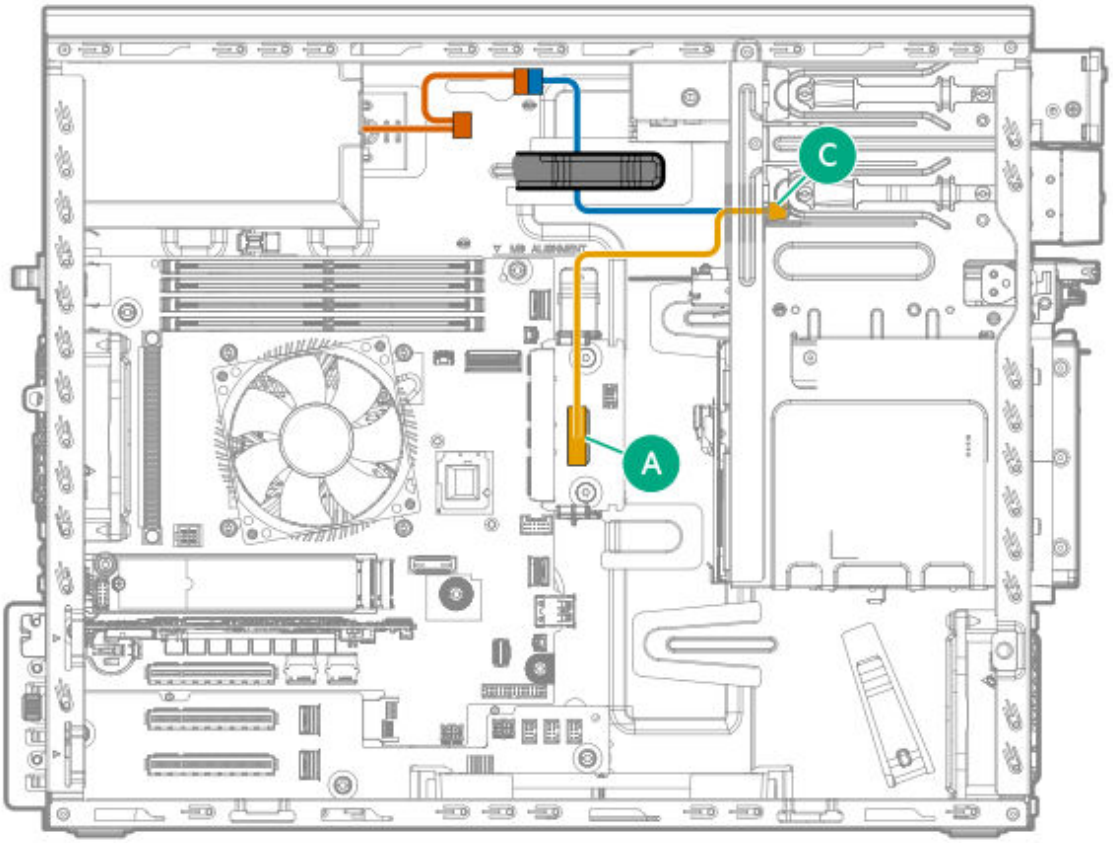
Media device cabling

Subtopics

Optical drive cabling
SAS LTO tape drive cabling
RDX backup system cabling

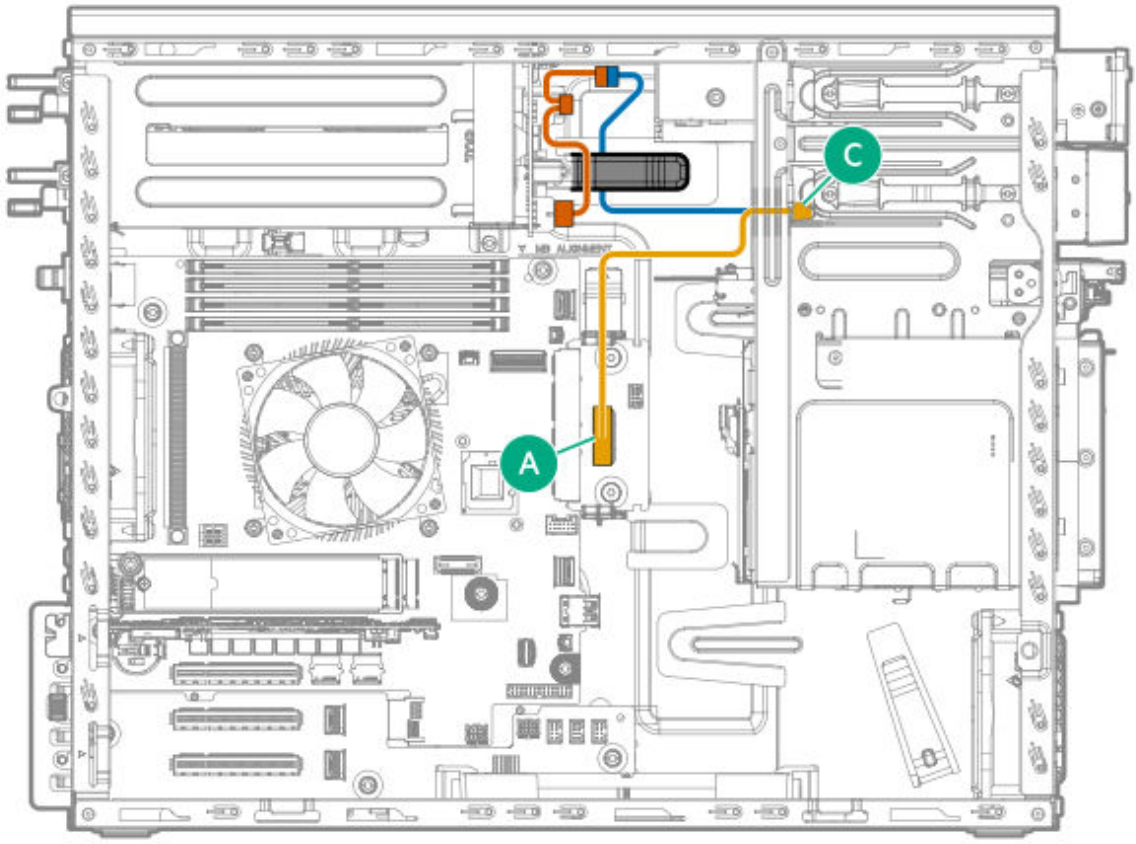
Optical drive cabling

Optical drive cabling with non-hot-plug power supply



Cable part number	Color	From	To
—	Orange	Non-hot-plug power supply: P4 connector	Optical drive SATA-power Y-cable: 4-pin power connector
P62715-001	Blue	Non-hot-plug power supply: P4 connector	Optical drive SATA connector
	Gold	SlimSAS x8 port 3	Optical drive SATA connector

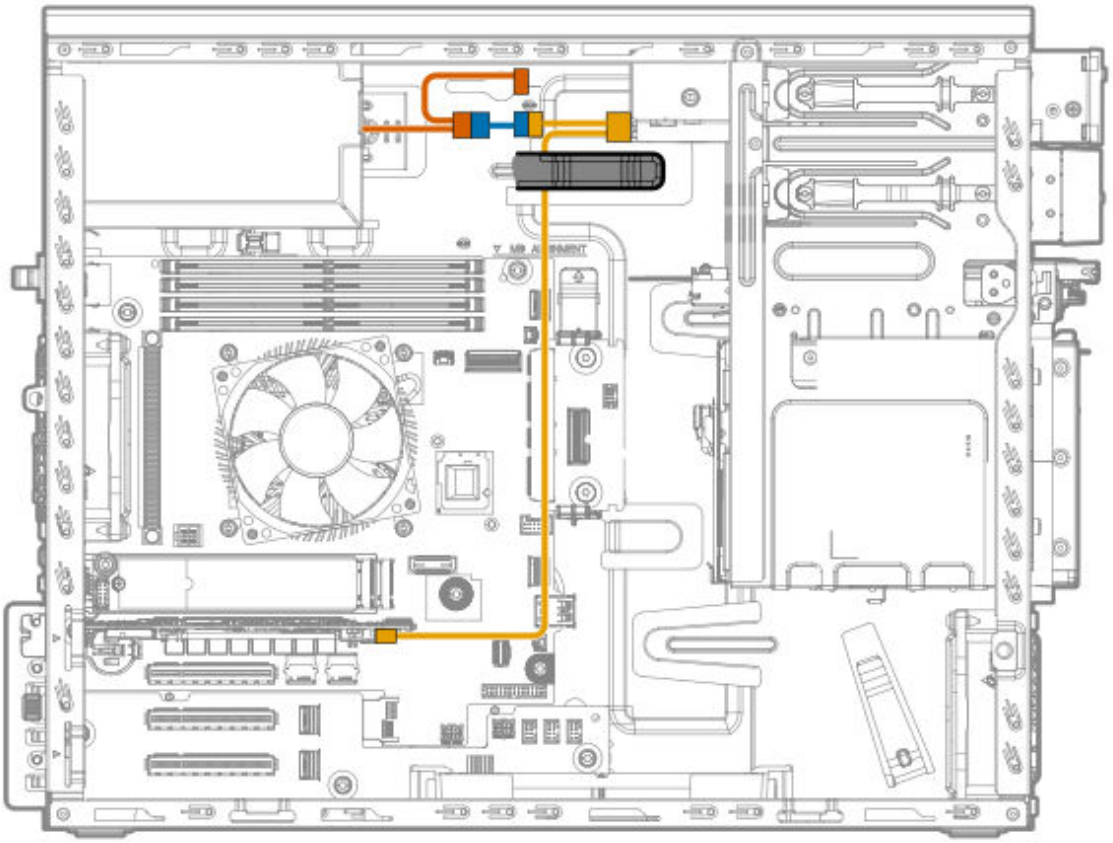
Optical drive cabling with Flexible Slot power supply



Cable part number	Color	From	To
P45215-001	Orange	Flex Slot PDB: HDD PWR connector	Optical drive SATA-power Y-cable: 4-pin power connector
P62715-001	Blue	Flex Slot power fan-out cable: ODD PWR connector	Optical drive SATA connector
	Gold	SlimSAS x8 port 3	Optical drive SATA connector

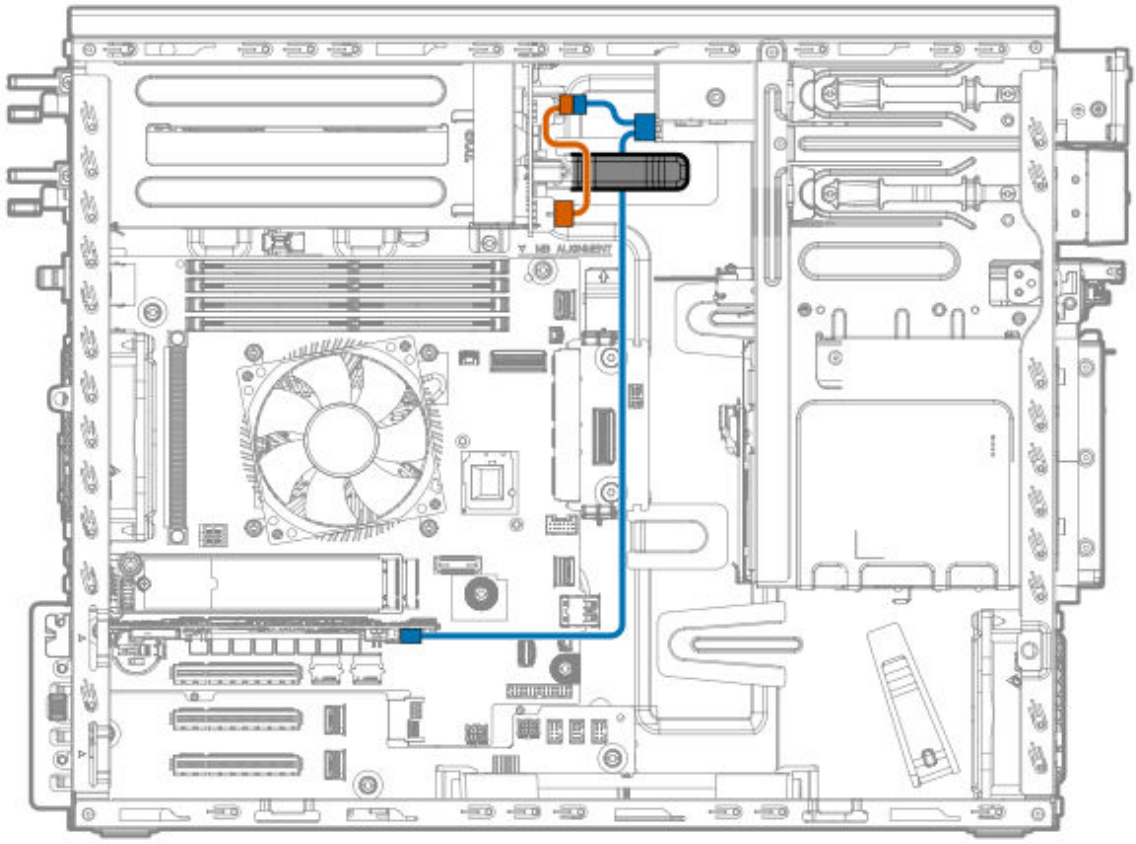
SAS LTO tape drive cabling

SAS LTO tape drive cabling with non-hot-plug power supply



Cable part number	Color	From	To
—	Orange	Non-hot-plug power supply: P4 connector	LTO/RDX power extension cable
848126-001	Blue	Non-hot-plug power supply: P9 or P10 connector	LTO tape drive SAS-power Y-cable: 4-pin power connector
P49006-001	Gold	Type-p controller port 1	LTO tape drive SAS connector

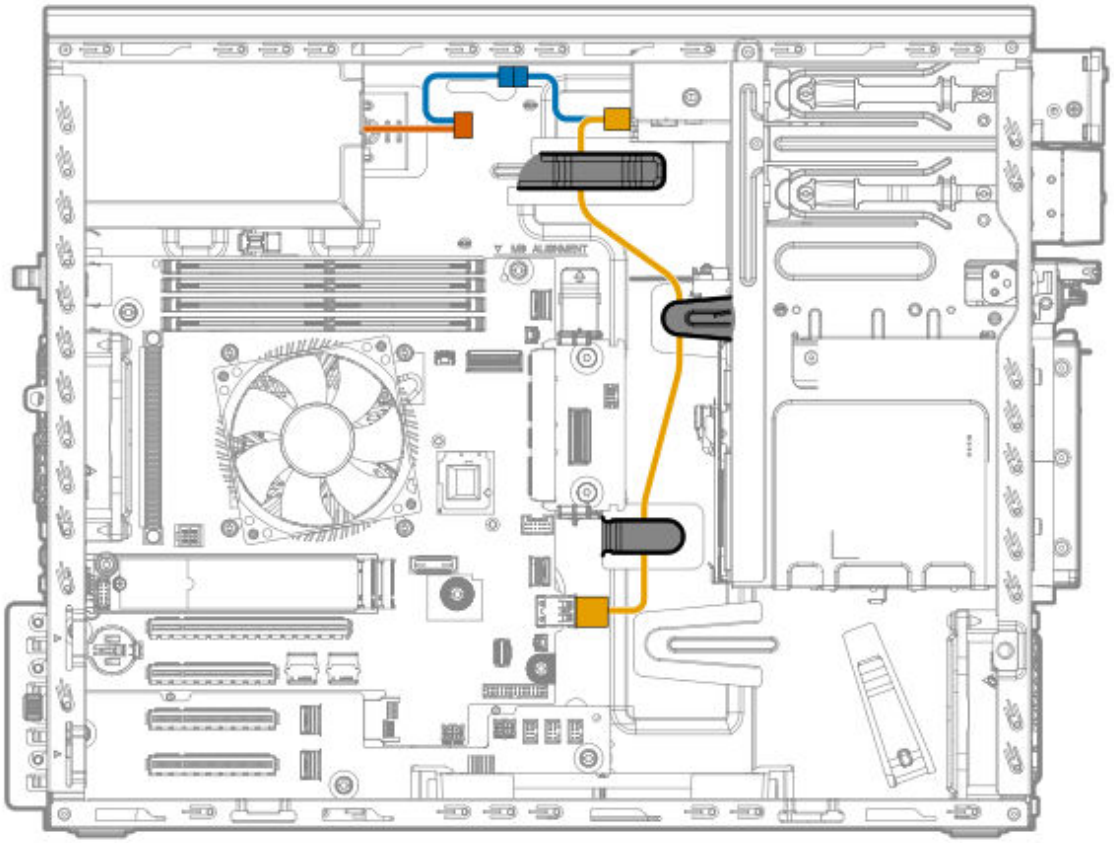
SAS LTO tape drive cabling with Flexible Slot power supply



Cable part number	Color	From	To
P45215-001	Orange	Flex Slot PDB: HDD PWR connector	LTO tape drive SAS-power Y-cable: 4-pin power connector
P49006-001	Blue	Type-p controller port 1	LTO tape drive SAS connector

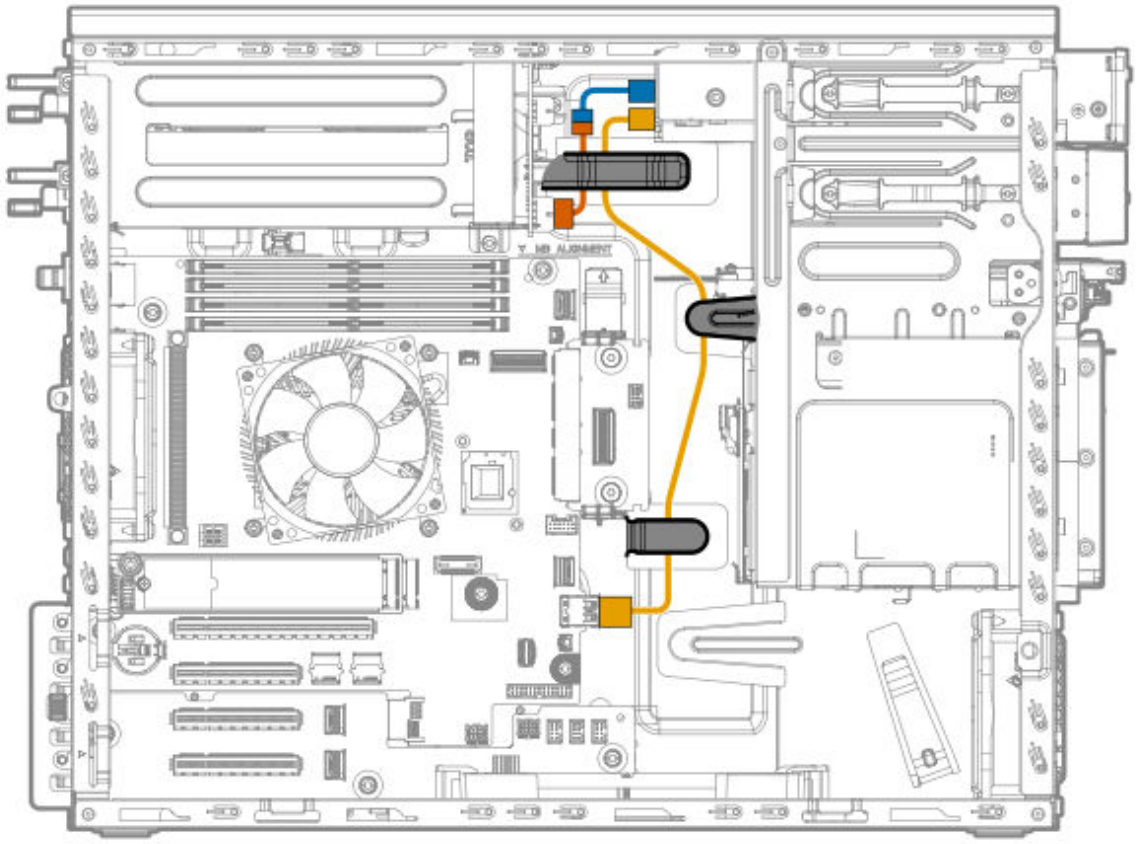
RDX backup system cabling

RDX backup system cabling with non-hot-plug power supply



Cable part number	Color	From	To
—	Orange	Non-hot-plug power supply : P10 connector	LTO/RDX power extension cable to RDX drive power connector
848126-001	Blue	LTO/RDX power extension cable to RDX drive power connector	RDX
880289-001	Gold	Internal, lower USB port	RDX drive USB port

RDX backup system cabling with Flexible Slot power supply



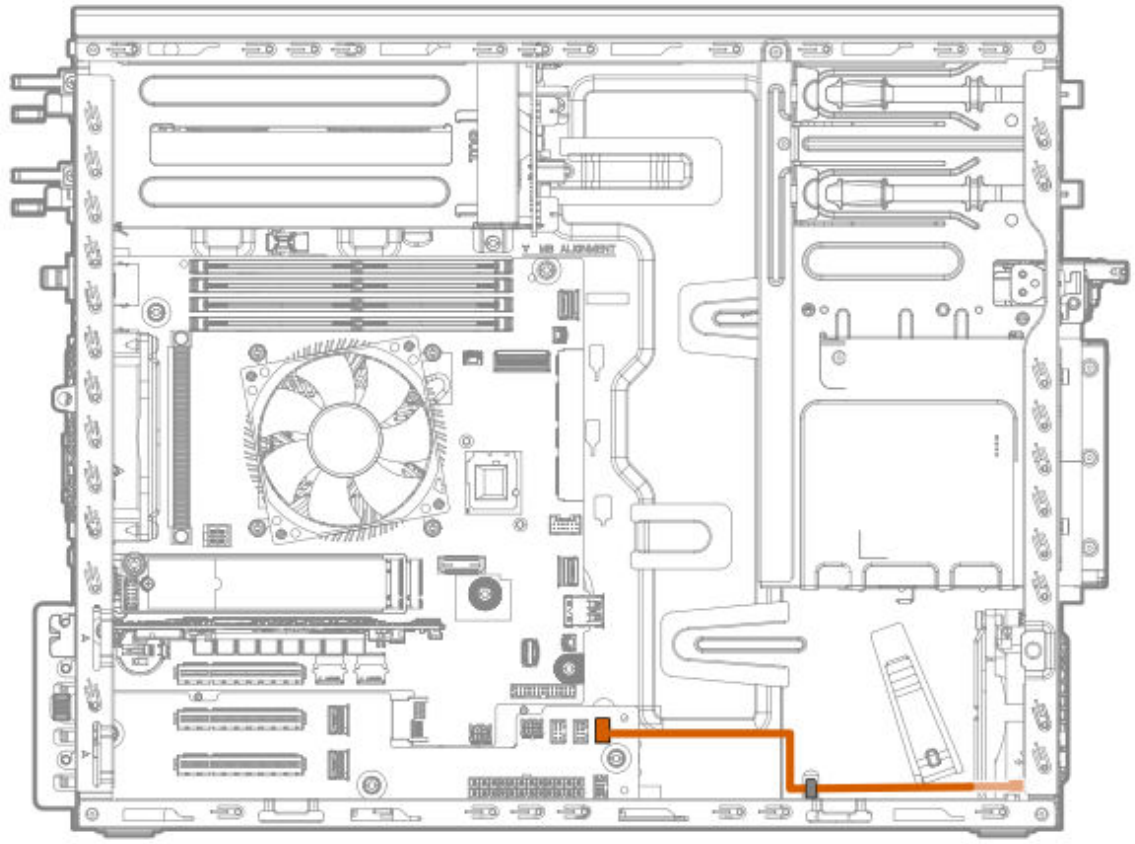
Cable part number	Color	From	To
P45215-001	Orange	Flex Slot PDB : HDD PWR connector	LTO/RDX power extension cable
848126-001	Blue	Flex Slot power supply fan-out cable: P2 or P4 connector	RDX drive power connector
880289-001	Gold	Internal, lower USB port	RDX drive USB port

Fan cabling

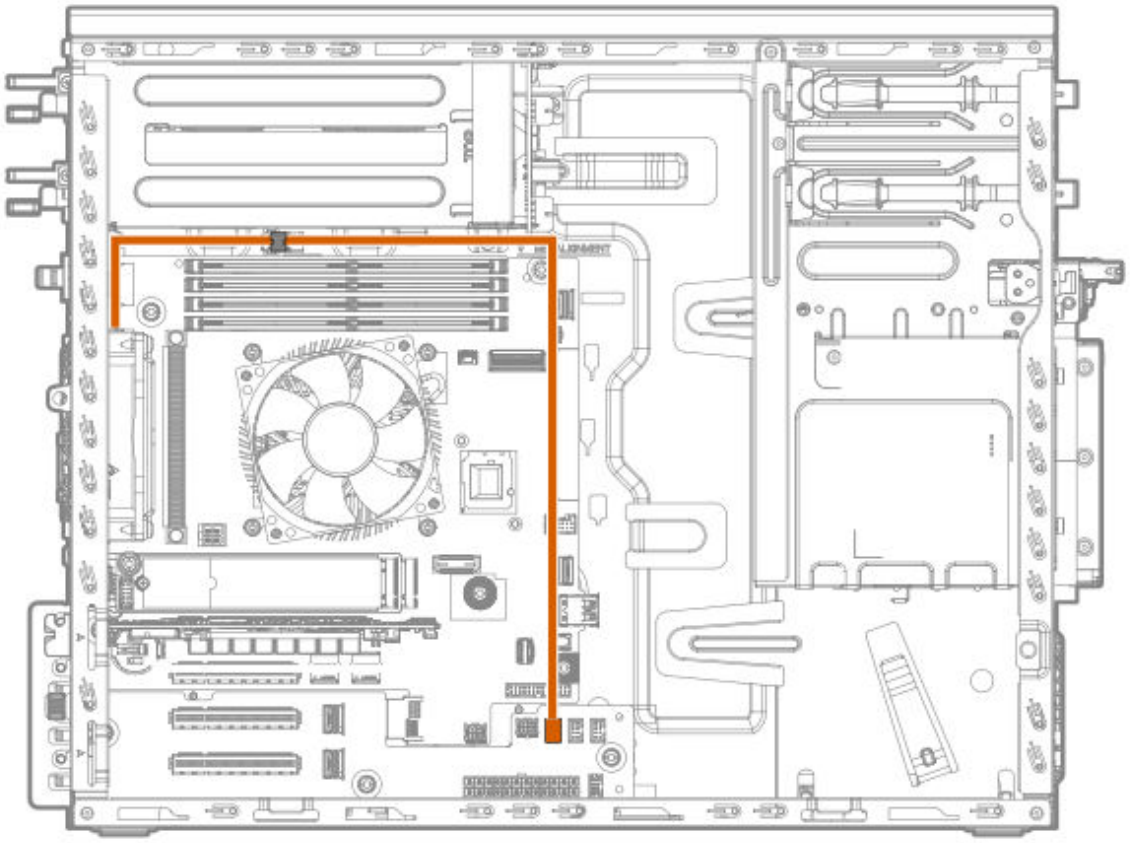
Subtopics

PCIe fan cabling
System fan cabling

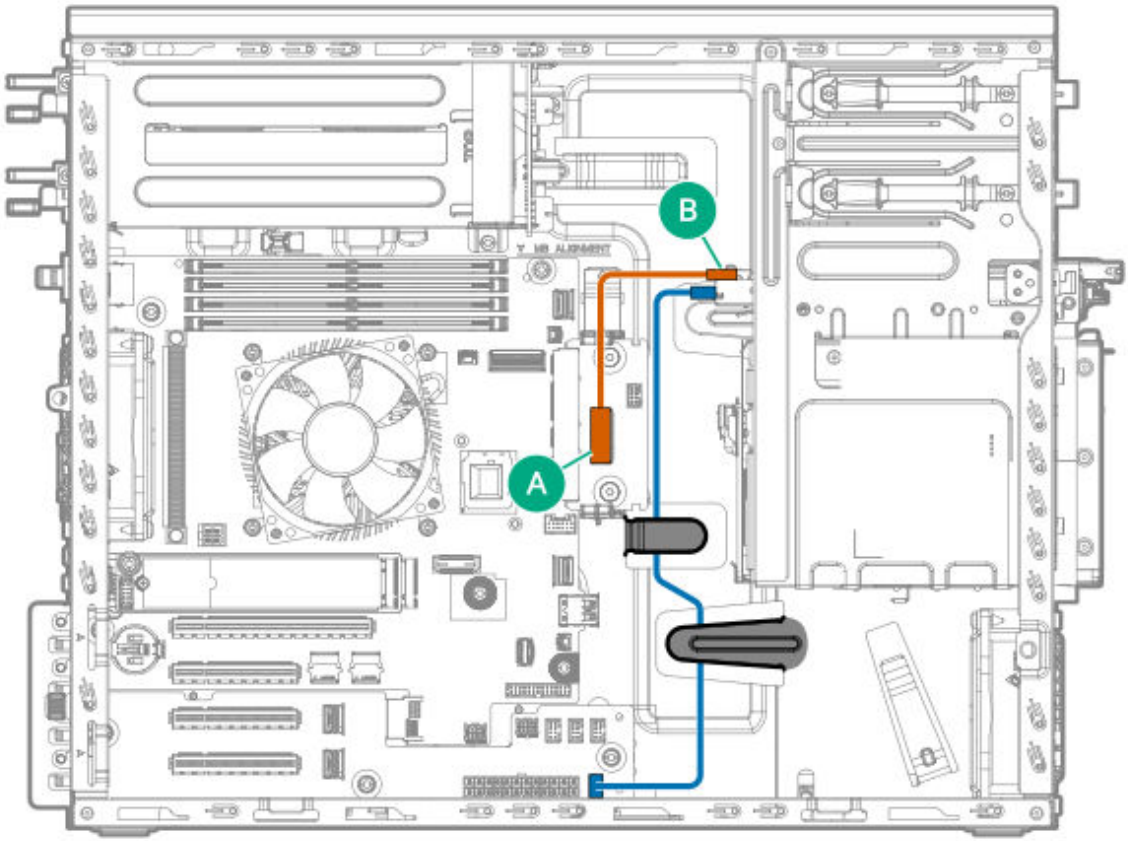
PCIe fan cabling



System fan cabling



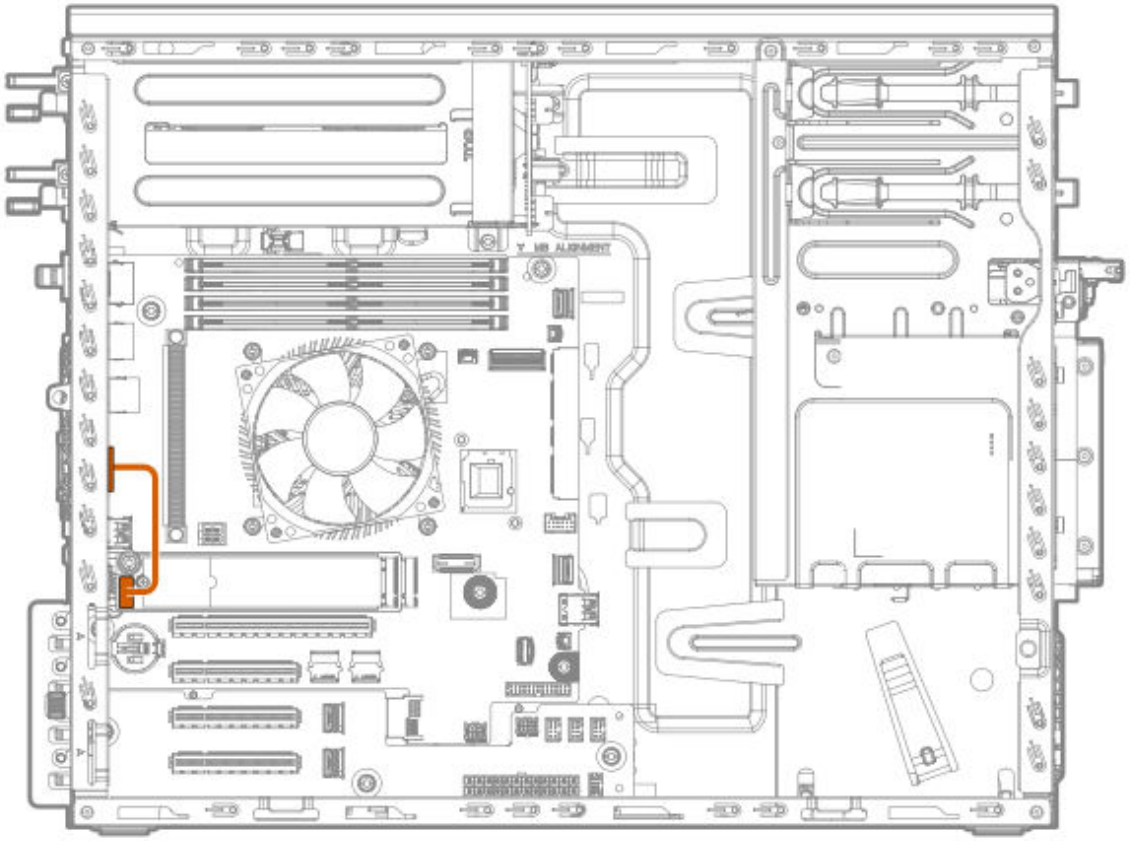
HPE NS204i-u Boot Device cabling



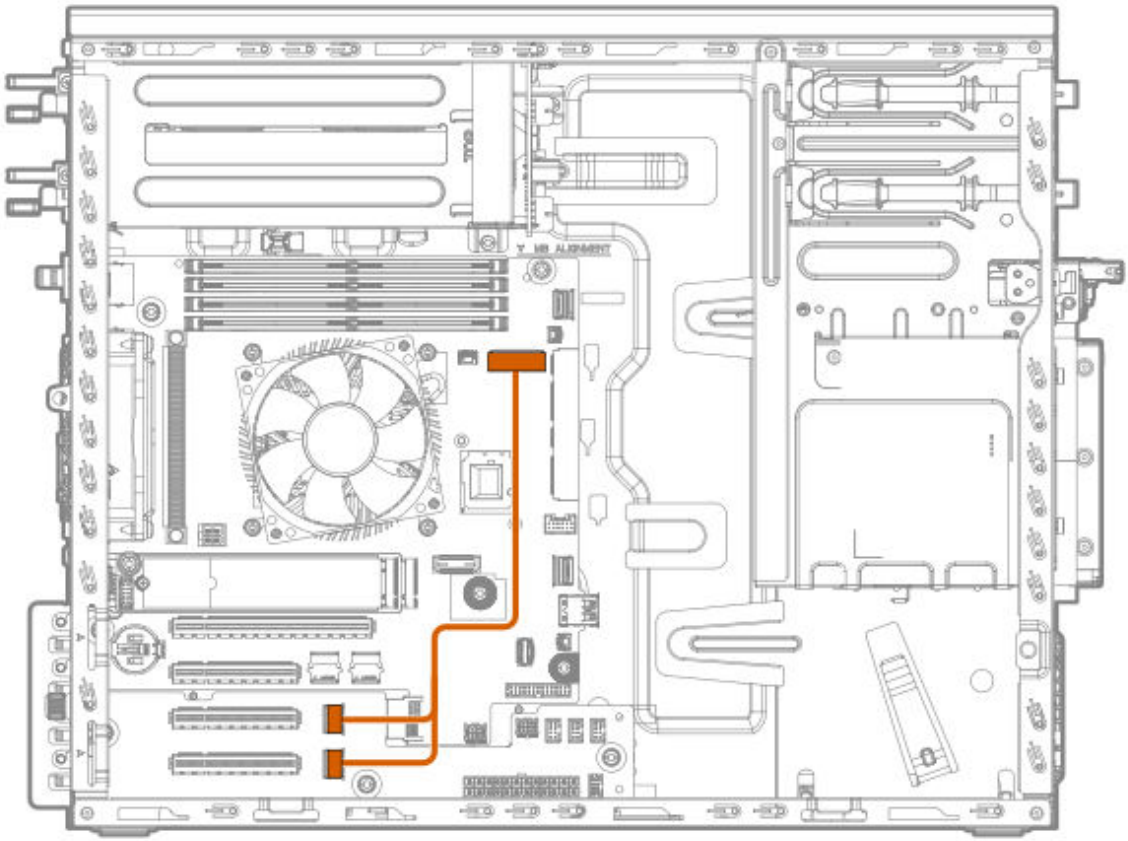
Cable part number	Color	From	To
P54087-001	Orange	SlimSAS x8 port 3	NS204i-u signal con nector
P54089-001	Blue	NS204i-u power con nector	NS204i-u power con nector

Serial port cabling

The P63693-001 serial port cable is connected to the D89 connector on the iLO-M.2-serial module.

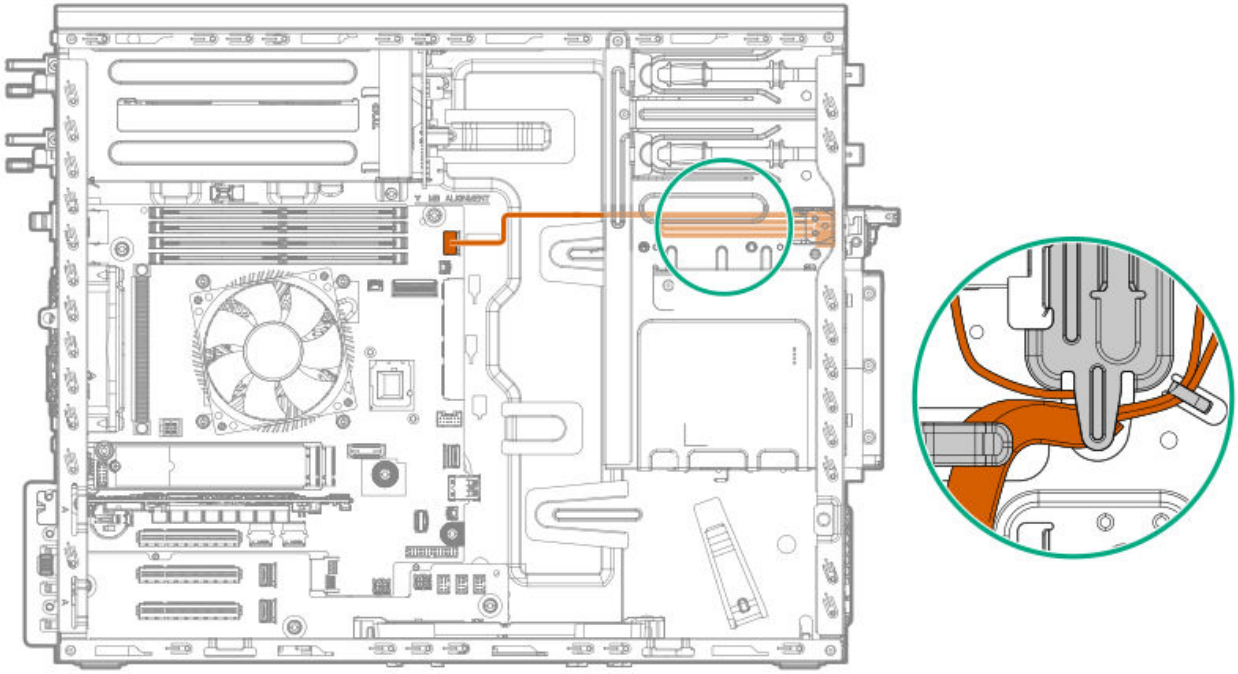


PCIe x4 signal cabling for expansion slots 3 and 4



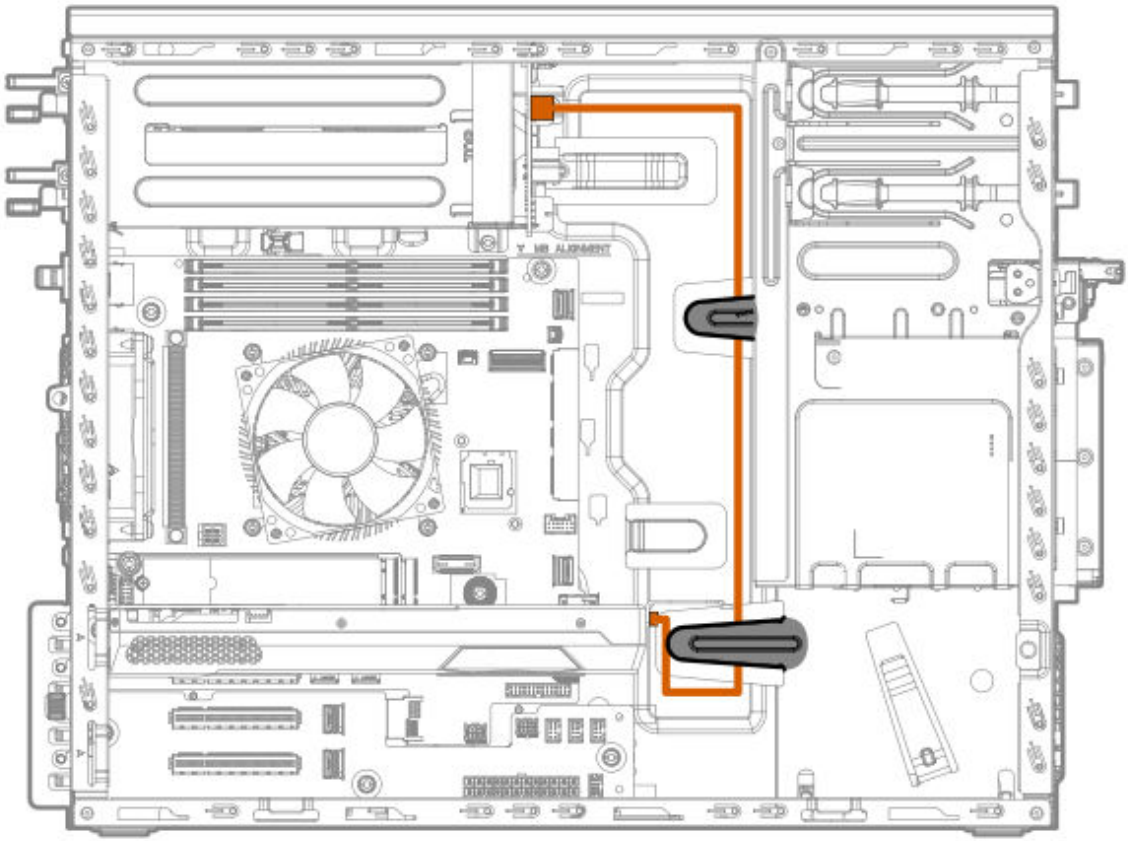
Cable part number	Color	From	To
P62709-001	Orange	SlimSAS x8 port 1	Slot 3 SimSAS x4 port 1 Slot 4 SlimSAS x4 port 2

Front I/O cabling



Cable part number	Color	From	To
P63681-001	Orange	Front I/O & USB 3.2 Gen 1 and iLO service port connector	Front I/O board

GPU auxiliary power cabling



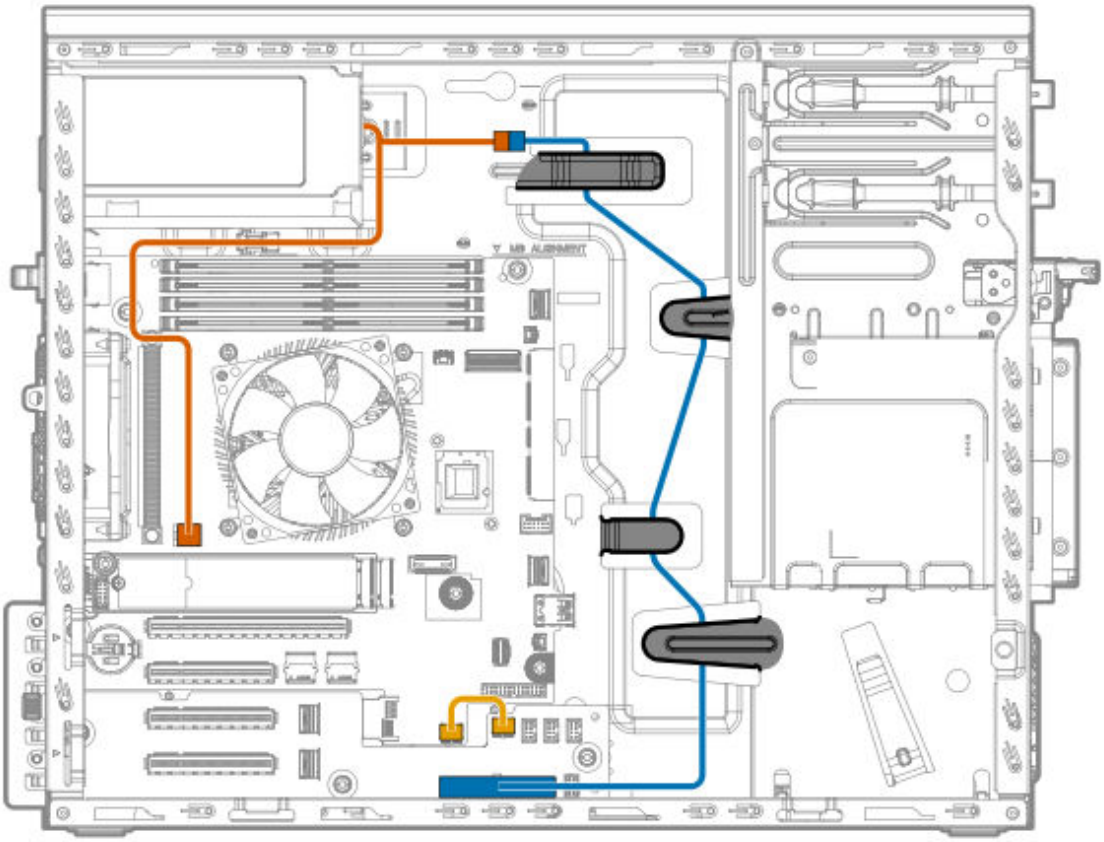
Cable part number	Color	From	To
P74034-001	Orange	Flex Slot PDB: GPU PWR connector	Graphics card power connector

Power supply cabling

Subtopics

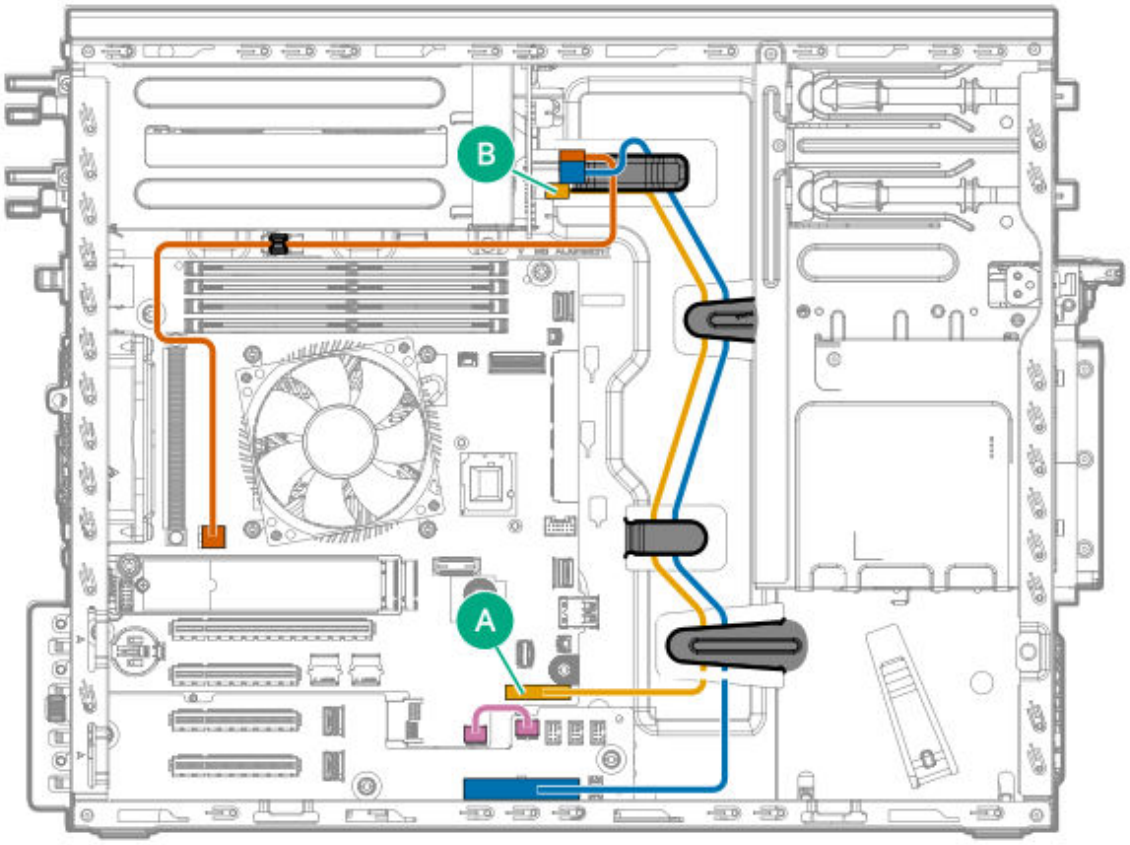
Non-hot-plug power supply cabling
Flexible Slot power supply cabling

Non-hot-plug power supply cabling



Cable part number	Color	From	To
—	Orange	Non-hot-plug power supply	4-pin processor power connector
P62710-001	Blue	4-pin processor power cable	24-pin power supply connector
P63697-001	Gold	Mainboard: System power connector	PDB: System power connector

Flexible Slot power supply cabling



Cable part number	Color	From	To
P63691-001	Orange	CPU power connector	4-pin processor power connector
P62711-001	Blue	24P power connector	24-pin power supply connector
P62713-001	Gold	Sideband connector	Power supply sideband connector
P63697-001	Pink	Mainboard: System power connector	PDB: System power connector

Configuration resources

Use the following resources to find documentation for configuring and managing your server.

- Some utilities might not apply to your server. For information about server compatibility with the products listed in this chapter, see the product QuickSpecs (**https://www.hpe.com/info/quickspecs**).
- Products ordered from HPE Factory Express might have already been configured with some or all the configurations in this chapter. To determine if any additional setup is required, see your HPE Factory Express order.
- For one-stop access to version-specific software and firmware documentation, including the latest product release notes, see this quick links page: **https://www.hpe.com/support/hpeproductdocs-quicklinks**

Subtopics

Updating firmware or system ROM
Configuring the server
Configuring storage controllers
Deploying an OS
Configuring security
Server management
Managing Linux-based high performance compute clusters

Updating firmware or system ROM

To	Use
Download service packs	• Service Pack for ProLiant (SPP) **https://www.hpe.com/servers/spp/download** • Get an overview of SPP and its ecosystem **https://www.hpe.com/support/SPP-overview-videos-en**

To	Use
Deploy service packs to a single server	Smart Update Manager (SUM) **https://www.hpe.com/support/hpesmartupdatemanager-quicklinks**
Deploy service packs to multiple servers	HPE OneView **https://www.hpe.com/support/hpeoneview-quicklinks**
Updating iLO or system firmware in a single server or multiple servers	HPE iLO **https://www.hpe.com/support/hpeilodocs-quicklinks**
• Enable policy-based management of server or server group firmware for distributed server infrastructure • Monitor server compliance with a configured firmware baseline • Receive automatic iLO firmware updates • Receive baseline update alerts	HPE Compute Ops Management **https://www.hpe.com/info/com-quicklinks**

Configuring the server

To configure	Use
Single server (GUI)	• Intelligent Provisioning **https://www.hpe.com/support/hpeintelligentprovisioning-quicklinks** • iLO remote console or web interface **https://www.hpe.com/support/hpeilodocs-quicklinks**

To configure	Use
	• UEFI System Utilities **https://www.hpe.com/support/hpeuefisystemutilities-quicklinks** • HPE Compute Ops Management **https://www.hpe.com/info/com-quicklinks**
Single server (scripting)	• RESTful Interface Tool **https://www.hpe.com/support/restfulinterface/docs** • Python iLO Redfish Library (python-ilo rest-library) **https://github.com/HewlettPackard/python-ilorest-library** • Scripting Tools for Windows Powershell **https://www.hpe.com/info/powershell/docs** • iLO RESTful API **https://servermanagementportal.ext.hpe.com/** • HPE Compute Ops Management API **https://developer.greenlake.hpe.com/**
Multiple servers (either UI or scripting)	• HPE OneView [1] **https://www.hpe.com/support/hpeoneview-quicklinks** • HPE Compute Ops Management **https://www.hpe.com/info/com-quicklinks** ◦ **Server settings:** Define server-specific parameters such as firmware bas

To configure	Use
	elines, and then apply them to serve r groups. ◦ **Server groups:** Organize servers int o custom-defined sets with associat ed server settings, and then apply g roup-specific policies to create a co nsistent configuration across the se rvers in the group.

[1] For servers running HPE OneView, do not use another tool, such as iLO, to delete or change certain settings. For more information about using HPE OneView and iLO to manage the same server, see the iLO user guide at **https://www.hpe.com/support/hpeilodocs-quicklinks**.

Configuring storage controllers

Controller type	Documentation
HPE SR Gen10 controllers	• HPE Smart Array SR Controller Gen10 User Guide **https://www.hpe.com/support/SR-Gen10-UG** • SR Gen10 controller RAID creation: **https://www.hpe.com/support/SR-RAID-creation**
HPE MR controller user guides	• HPE MR Gen11 Controller User Guide **https://hpe.com/support/MR-Gen11-UG** ◦ MR Gen11 controller configuration: **https://www.hpe.com/support/MR-Gen11-configuration**

Controller type	Documentation
	◦ MR Gen11 controller RAID creation: **https://www.hpe.com/support/MR-Gen11-RAID-creation**
HPE MR controller configuration guides	• HPE MR Storage Administrator User Guide **https://www.hpe.com/support/MRSA** • HPE StorCLI User Guide **https://www.hpe.com/support/StorCLI** • HPE StorCLI2 User Guide **https://www.hpe.com/support/StorCLI2**
Intel VROC for HPE Gen11	• Intel Virtual RAID on CPU for HPE User Guide **https://hpe.com/support/VROC-Gen11-UG** • Intel VROC SATA RAID quick installation: **https://www.hpe.com/support/VROC-SATA-RAID-installation** OS-specific configuration guides: • Intel Virtual RAID on CPU (Intel VROC) for Windows User Guide **https://docs.graidtech.com/vroc/User_Guides/000094004_Intel_Virtual_RAID_on_CPU_Intel_VROC_User_Guide_for_Windows/** • Intel Virtual RAID on CPU (Intel VROC) for Linux User Guide **https://docs.graidtech.com/vroc/User_Guides/000094694_Intel_Virtual_R**

Controller type	Documentation
	AID_on_CPU_Intel_VROC_User_Guide_for_Linux/ • Intel Volume Management Device Driver for VMware ESXi User Guide **https://docs.graidtech.com/vroc/User_Guides/000094787_Intel_Virtual_RAID_on_CPU_Intel_VROC_User_Guide_for_VMware_ESXi/**
Storage controller documents library	**https://www.hpe.com/support/hpestoragecontrollerdocs-quicklinks**

Deploying an OS

For a list of supported operating systems, see the HPE Servers Support & Certification Matrices:

https://www.hpe.com/support/Servers-Certification-Matrices

To	See
Deploy an OS using HPE Compute Ops Management	HPE Compute Ops Management User Guide **https://www.hpe.com/info/com-quicklinks**
Deploy an OS using Intelligent Provisioning	Intelligent Provisioning user guide **https://www.hpe.com/support/hpeintelligentprovisioning-quicklinks**
Deploy an OS using iLO virtual media	iLO user guide **https://www.hpe.com/support/hpeilodocs-quicklinks**
Configure the server to boot from a PXE server	UEFI System Utilities User Guide for HPE ProLiant Gen11 Servers and HPE Synergy

To	See
	https://www.hpe.com/support/UEFIGen11-UG-en
Configure the server to boot from a SAN	HPE Boot from SAN Configuration Guide **https://www.hpe.com/info/boot-from-san-config-guide**

Configuring security

To	See
Implement server security best practices.	• HPE Compute Security Reference Guide **https://www.hpe.com/info/server-security-reference-en** • HPE iLO 6 Security Technology Brief **https://www.hpe.com/support/ilo6-security-en**
Configure and use the Server Configuration Lock feature on HPE Trusted Supply Chain servers and other servers that have the Server Configuration Lock feature enabled.	Server Configuration Lock User Guide for HPE ProLiant servers and HPE Synergy **https://www.hpe.com/info/server-config-lock-UG-en**

Server management

To monitor	See
Single server	HPE iLO

To monitor	See
	https://www.hpe.com/support/hpeilodocs-quicklinks
Multiple servers	HPE OneView **https://www.hpe.com/support/hpeoneview-quicklinks**
Single or multiple servers	HPE Compute Ops Management **https://www.hpe.com/info/com-quicklinks**

Managing Linux-based high performance compute clusters

To	Use
Provision, manage, and monitor clusters.	HPE Performance Cluster Manager **https://www.hpe.com/support/hpcm_manuals**
Optimize your applications.	HPE Performance Analysis Tools **https://www.hpe.com/info/perftools**
Optimize software library for low latency and high bandwidth, both on-node and off-node, for point-to-point and collective communications.	HPE Cray Programming Environment User Guide **https://www.hpe.com/info/cray-pe-user-guides**

Troubleshooting

Subtopics

NMI functionality
Troubleshooting resources

NMI functionality

An NMI crash dump enables administrators to create crash dump files when a system is not responding to traditional debugging methods.

An analysis of the crash dump log is an essential part of diagnosing reliability problems, such as hanging operating systems, device drivers, and applications. Many crashes freeze a system, and the only available action for administrators is to cycle the system power. Resetting the system erases any information that could support problem analysis, but the NMI feature preserves that information by performing a memory dump before a hard reset.

To force the OS to initiate the NMI handler and generate a crash dump log, the administrator can use the iLO Generate NMI feature.

Troubleshooting resources

Troubleshooting resources are available for HPE Gen11 server products in the following documents:

- Troubleshooting Guide for HPE ProLiant Gen11 servers provides procedures for resolving common problems and comprehensive courses of action for fault isolation and identification, issue resolution, and software maintenance.

  https://www.hpe.com/info/gen11-troubleshooting

- Integrated Management Log Messages for HPE ProLiant Gen10, Gen10 Plus, and Gen11 servers and HPE Synergy provides IML messages and associated troubleshooting information to resolve critical and cautionary IML events.

  https://www.hpe.com/info/Troubleshooting-IML-en

System battery information

The server contains an internal lithium manganese dioxide, a vanadium pentoxide, or an alkaline battery that provides power to the real-time clock.

WARNING

If this battery is not properly handled, a risk of fire or burning exists. 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 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 the battery in fire or water.

Safety, warranty, and regulatory information

Subtopics

Regulatory information
Warranty information

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

Subtopics

Notices for Eurasian Economic Union
Turkey RoHS material content declaration
Ukraine RoHS material content declaration

Notices for Eurasian Economic Union

EAC

Manufacturer and Local Representative Information

Manufacturer information:

Hewlett Packard Enterprise Company, 1701 E Mossy Oaks Road, Spring, TX 77389 U.S.

Local representative information Russian:

- **Russia**
  ООО "Хьюлетт Паккард Энтерпрайз", Российская Федерация, 125171, г. Москва, Ленинградское шоссе, 16А, стр.3, Телефон: +7 499 403 4248 Факс: +7 499 403 4677
- **Kazakhstan**
  ТОО «Хьюлетт-Паккард (К)», Республика Казахстан, 050040, г. Алматы, Бостандыкский район, проспект Аль-Фараби, 77/7, Телефон/факс: + 7 727 355 35 50

Local representative information Kazakh:

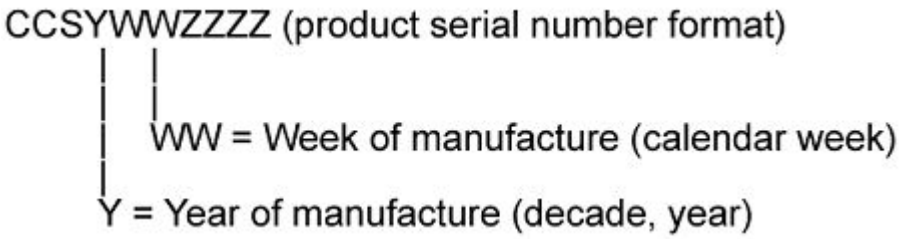
- **Russia**

ЖШС "Хьюлетт Паккард Энтерпрайз", Ресей Федерациясы, 125171, Мәскеу, Ленинград тас жолы, 16А блок 3, Телефон: +7 499 403 4248 Факс: +7 499 403 4677

- **Kazakhstan**
  ЖШС «Хьюлетт-Паккард (К)», Қазақстан Республикасы, 050040, Алматы к., Бостандық ауданы, Әл-Фараби даңғ ылы, 77/7, Телефон/факс: +7 727 355 35 50

Manufacturing date:

The manufacturing date is defined by the serial number.



If you need help identifying the manufacturing date, contact **tre@hpe.com**.

Turkey RoHS material content declaration

Türkiye Cumhuriyeti: AEEE Yönetmeliğine Uygundur

Ukraine RoHS material content declaration

Обладнання відповідає вимогам Технічного регламенту щодо обмеження використання деяких небезпечних речовин в електричному та електронному обладнанні, затвердженого постановою Кабінету Міністрів України від 3 грудня 2008 № 1057

Warranty information

To view the warranty information for your product, see the **warranty check tool**.

Specifications

Subtopics

Environmental specifications
Mechanical specifications
Power supply specifications

Environmental specifications

Specifications	Value
Temperature range	—
Operating	10°C to 35°C (50°F to 95°F)
Nonoperating	-30°C to 60°C (-22°F to 140°F)
Relative humidity (noncon densing)	—
Operating	8% to 90% 28°C (82.4°F) maximum wet bulb temperature, nonconde nsing
Nonoperating	5% to 95% 38.7°C (101.7°F) maximum wet bulb temperature, noncond ensing
Altitude	—
Operating	3050 m (10,000 ft) This value may be limited by the type and number of opt ions installed. Maximum allowable altitude change rate is 457 m/min (1,500 ft/min).
Nonoperating	9144 m (30,000 ft) Maximum allowable altitude change rate is 457 m/min (1,500 ft/min).

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 1,000 ft) above sea level to a maximum of 3,050 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 might be reduced if operating above 30°C (86°F).

Extended ambient operating support

For approved hardware configurations, the supported system inlet range is extended to be:

- 5° to 10°C (41° to 50°F) and 35° to 40°C (95° 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 3050 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 (2953 ft) to a maximum of 3,050 m (10,000 ft).

The approved hardware configurations for this system are listed in the Extended Ambient Temperature Guidelines for HPE ProLiant Gen11, Alletra, Edge, Cray XD, Synergy Products:
https://www.hpe.com/support/ASHRAEGen11

Mechanical specifications

Specification	Value
Dimensions	—
Height	36.83 cm (14.50 in)
Depth	47.50 cm (18.70 in)
Width	17.53 cm (6.90 in)
Weight, approximate values	—
Minimum	10.20 kg (22.50 lb)
Maximum	18.70 kg (41.20 lb)

Power supply specifications

Depending on the installed options and the regional location where the server was purchased, the server can be configured with one of the following power supplies. For detailed power supply specifications, see the QuickSpecs on the **Hewlett Packard Enterprise website**.

Subtopics

HPE 350 W Gold Non-hot-plug Power Supply (92% efficiency)
HPE 350 W Platinum Non-hot-plug Power Supply (94% efficiency)
HPE 500 W Flex Slot Platinum Hot-plug Low Halogen Power Supply
HPE 800 W Flex Slot Titanium Hot-plug Low Halogen Power Supply
HPE 1000 W Flex Slot Titanium Hot-plug Power Supply

HPE 350 W Gold Non-hot-plug Power Supply (92% efficiency)

Specification	Value
Input requirements	—
Rated input voltage	100 VAC to 240 VAC
Rated input frequency	47 Hz to 63 Hz
Rated input current	6 A
Rated input power	400 W at 115 VAC 400 W at 230 VAC
Efficiency	At 115 VAC: No less than 87% at 100% load No less than 90% at 50% load No less than 87% at 20% load At 230 VAC: No less than 88% at 100% load No less than 92% at 50% load No less than 88% at 20% load
Power supply output	—

Specification	Value
Rated steady-state power	350 W at 115 VAC 350 W at 230 VAC
Maximum peak power	385 W at 115 VAC 385 W at 230 VAC
Rated output power	350 W

HPE 350 W Platinum Non-hot-plug Power Supply (94% efficiency)

Specification	Value
Input requirements	—
Rated input voltage	100 VAC to 240 VAC
Rated input frequency	47 Hz to 63 Hz
Rated input current	6 A
Rated input power	< 400 W at 115 VAC / 100% load < 400 W at 230 VAC / 100% load
Efficiency	At 115 VAC: No less than 89% at 100% load No less than 91.7% at 50% load No less than 90% at 20% load At 230 VAC: No less than 91% at 100% load No less than 94% at 50% load No less than 90% at 20% load
Power supply output	—
Rated steady-state power	350 W at 115 VAC 350 W at 230 VAC
Maximum peak power	385 W at 115 VAC 385 W at 230 VAC

Specification	Value
Rated output power	350 W

HPE 500 W Flex Slot Platinum Hot-plug Low Halogen Power Supply

Specification	Value
Input requirements	—
Rated input voltage	100 VAC to 240 VAC 240 VDC for China
Rated input frequency	50 Hz to 60 Hz Not applicable to 240 VDC
Rated input current	5.8 A at 100 VAC 2.8 A at 200 VAC 2.4 A at 240 VDC for China
Maximum rated input power	580 W at 100 VAC 560 W at 200 VAC 558 W at 240 VDC for China
BTUs per hour	1999 at 100 VAC 1912 at 200 VAC 1904 at 240 VDC for China
Power supply output	—
Rated steady-state power	500 W at 100 VAC to 127 VAC input 500 W at 100 VAC to 240 VAC input 500 W at 240 VDC input for China
Maximum peak power	500 W at 100 VAC to 127 VAC input 500 W at 100 VAC to 240 VAC input 500 W at 240 VDC input for China

HPE 800 W Flex Slot Titanium Hot-plug Low Halogen Power Supply

Specification	Value
Input requirements	—
Rated input voltage	200 VAC to 240 VAC 240 VDC for China
Rated input frequency	50 Hz to 60 Hz Not applicable to 240 VDC
Rated input current	4.35 A at 200 VAC 3.62 A at 240 VAC 3.62 A at 240 VDC for China
Maximum rated input power	867 W at 200 VAC 848 W at 240 VAC 848 W at 240 VDC for China
BTUs per hour	2905 at 200 VAC 2893 at 240 VAC 2893 at 240 VDC for China
Power supply output	—
Rated steady-state power	800 W at 200 VAC to 240 VAC input 800 W at 240 VDC input for China
Maximum peak power	800 W at 200 VAC to 240 VAC input 800 W at 240 VDC input for China

HPE 1000 W Flex Slot Titanium Hot-plug Power Supply

Specification	Value
Input requirements	—
Rated input voltage	100 VAC to 127 VAC 200 VAC to 240 VAC 240 VDC for China
Rated input frequency	50 Hz to 60 Hz
Rated input current	11.3 A at 100 VAC 6.1 A at 200 VAC
Maximum rated input power	1130 W at 100 VAC 1090 W at 200 VAC
BTUs per hour	3764 at 100 VAC 3629 at 200 VAC
Power supply output	—
Rated steady-state power	1000 W at 100 VAC to 127 VAC 1000 W at 200 VAC to 240 VAC input
Maximum peak power	1000 W at 100 VAC to 127 VAC 1000 W at 200 VAC to 240 VAC

Websites

General websites

Single Point of Connectivity Knowledge (SPOCK) Storage compatibility matrix

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

Product white papers and analyst reports

https://www.hpe.com/us/en/resource-library

For additional websites, see Support and other resources.

Product websites

HPE ProLiant ML30 Gen11 Server user documents

https://www.hpe.com/info/ml30gen11-docs

Support and other resources

Subtopics

Accessing Hewlett Packard Enterprise Support
HPE product registration
Accessing updates
Customer self repair
Remote support
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

HPE product registration

To gain the full benefits of the Hewlett Packard Enterprise Support Center and your purchased support services, add your contracts and products to your account on the HPESC.

- When you add your contracts and products, you receive enhanced personalization, workspace alerts, insights through the dashboards, and easier management of your environment.
- You will also receive recommendations and tailored product knowledge to self-solve any issues, as well as streamlined case creation for faster time to resolution when you must create a case.

To learn how to add your contracts and products, see **https://www.hpe.com/info/add-products-contracts**.

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

  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 Account set up with relevant entitlements.

Customer self repair

Hewlett Packard Enterprise customer self repair (CSR) programs allow you to repair your product. If a CSR part needs to be replaced, it will be shipped directly to you so that you can install it at your convenience. Some parts do not qualify for CSR.

For more information about CSR, contact your local service provider.

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 Tech Care Service

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

HPE Complete Care Service

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

Documentation feedback

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