Hewlett Packard Enterprise

HPE D3600/3700 Disk Enclosure Maintenance and Service Guide

Abstract

This guide is intended for users who maintain the HPE D3600/3700 Disk Enclosures. Some of the actions described are more appropriate to Hewlett Packard Enterprise service specialists and require an Support login.

Contents

1 Introduction

This is the Service and Maintenance Guide for the D3600/3700 disk enclosures.

The HPE 12Gb SAS disk enclosures are available in two models:

- **D3600**: supports up to 12 Large Form Factor (LFF) SAS drives for a maximum capacity of 7.2 TB with 600GB SAS drives or 48 TB with 4 TB SAS MDL or 4TB SATA MDL drives.

- **D3700**: supports up to 25 Small Form Factor (SFF) SAS drives for a maximum capacity of 30 TB with 1.2 TB SAS drives or 25 TB with 1 TB SAS MDL or 1 TB SATA MDL drives.

D3600 LFF Enclosure	D3700 SFF Enclosure
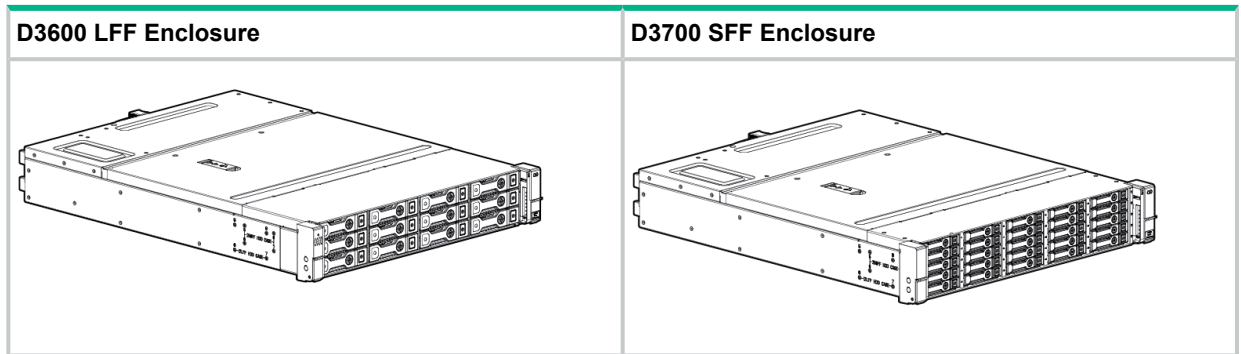
NOTE: Each enclosure is shipped with an optional Digital Rain bezel which customers can install as needed. The graphics in this guide are portrayed without the bezel for clarity.

NOTE: Depending on your disk enclosure model and controller installation environment, one or more disk enclosures can be cascaded from the disk enclosure that is connected to the controller. For more information, see the QuickSpecs for the disk enclosure, available on the D3000 website.

Hardware components

For a parts diagram, see "Component identification" (page 40)

To order a replacement part, contact an Hewlett Packard Enterprise-authorized service provider or see the Hewlett Packard Enterprise Parts Store online: http://www.hpe.com/buy/parts

2 Removal and replacement procedures

Required tools

The following items are required for some procedures:

- T-8 Torx screwdriver
- T-10 Torx screwdriver
- T-15 Torx screwdriver
- Phillips screwdriver

Required items

Items required for installation include the following, some of which ship with the disk enclosure:

- Rack mounting kit
- Disk enclosure
- Disk drives and drive blanks
- SAS controller or controller enclosure
- SAS cables
- MiniSAS HD cables

  NOTE: The included MiniSAS HD cables can be used with the 12Gb JBOD. In order to connect the 12Gb JBOD to either a 6Gb Smart Array or to 6Gb HBAs, customers must purchase the MiniSAS HD to MiniSAS cable.

- Power cables
- Access to a workstation on the server
- Access to the Internet

Safety precautions

Retain and follow all product safety and operating instructions. Always refer to the documentation (printed or electronic) supplied with your product. If there is a conflict between this document and the product documentation, the product documentation takes precedence. Observe all warnings on the product and in the operating instructions to reduce the risk of bodily injury, electric shock, fire, and damage to the equipment.

General precautions

△ **CAUTION:** The installation and maintenance of products must be carried out by qualified personnel.

If the product sustains damage requiring service, disconnect the product from the AC electrical outlet and refer servicing to an Hewlett Packard Enterprise authorized service provider. Examples of damage requiring service include:

- The power cord, extension cord, or plug has been damaged.
- Liquid has been spilled on the product or an object has fallen into the product.
- The product has been exposed to rain or water.

- The product has been dropped or damaged.

- The product does not operate normally when you follow the operating instructions.

To reduce the risk of personal injury or damage to the product:

- Place the product away from radiators, heat registers, stoves, amplifiers, or other products that produce heat.

- Never use the product in a wet location.

- Avoid inserting foreign objects through openings in the product.

- Move products with casters carefully. Avoid quick stops and uneven surfaces.

Preventing electrostatic discharge

To prevent damaging the system, be aware of the precautions you need to follow when setting up the system or handling parts. 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 device.

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.

Symbols on equipment

The following symbols may be placed on equipment to indicate the presence of potentially hazardous conditions:

⚠	This symbol in conjunction with any of the following symbols indicates the presence of a potential hazard. The potential for injury exists if warnings are not observed. Consult your documentation for specific details.

🔥	This symbol indicates the presence of a hot surface or a hot component. If this surface is contacted the potential for injury exists. **WARNING:** To reduce the risk of injury from a hot surface or a hot component, allow the surface or component to cool before touching.

⚡	This symbol indicates the presence of hazardous energy circuits or electric shock hazards. Refer all servicing to qualified personnel. **WARNING:** To reduce the risk of injury from electric shock hazards, do not open this enclosure. Refer all maintenance, upgrades, and servicing to qualified personnel.

⚠ 🔌🔌	These symbols on power supplies or systems indicate that the equipment is supplied by multiple sources of power. **WARNING:** To reduce the risk of injury from electric shock, remove all power cords to completely disconnect power from the power supply or system.

⚠	This symbol indicates the presence of a moving fan blade. If the spinning blades are contacted, the potential for injury exists. **WARNING:** Hazardous moving parts. Keep away from moving fan blades. To reduce the risk of injury allow the fan blades to stop spinning before touching.

	This symbol indicates an area where potential hazards may exist. **WARNING:** To reduce the risk of injury, do not access areas displaying this symbol. Refer all maintenance, upgrades, and servicing to qualified personnel.

Warning and caution messages

⚠ **WARNING!**   To reduce the risk of personal injury or damage to equipment, heed all warnings and cautions throughout the installation instructions.

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

*   The leveling jacks are extended to the floor.

*   The full weight of the rack rests on the leveling jacks.

*   The racks are coupled together in multiple-rack installations.

*   Only one component is extended at a time. A rack may become unstable if more than one component is extended for any reason.

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

*   At least two people are needed to safely unload the rack from the pallet. An empty 42U rack can weigh as much as 115 kg (253 lb), can stand more than 2.1 m (7 ft) tall, and might become unstable when being moved on its casters.

*   Never stand in front of the rack when it is rolling down the ramp from the pallet. Always handle the rack from both sides.

WARNING!   The enclosure is very heavy. To reduce the risk of personal injury or damage to the equipment:

*   Observe local occupational health and safety requirements and guidelines for manual material handling.

*   Remove all hard drives before installing or moving the enclosures.

*   Use caution and get help to lift and stabilize enclosures during installation or removal, especially when the enclosure is not fastened to the rack.

*   Never stack an enclosure on top of another enclosure.

*   Never place equipment on top of an enclosure.

*   Never place an enclosure on a surface that cannot support up to 163.3 kg (360.0 lb).

WARNING!   To reduce the risk of personal injury or damage to the equipment, you must adequately support enclosures during installation and removal.

WARNING!   Always use at least two people to lift an enclosure into the rack. If the enclosure is being loaded into the rack above chest level, a third person must assist with aligning the enclosure with the rails while the other two people support the weight of the enclosure.

WARNING!   Be sure to install enclosures starting from the bottom of the rack and work your way up the rack.

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 electric shock or damage to the equipment:

*   Never reach inside the chassis while the system is connected to a power source.

*   Perform service on system components only as instructed in the user documentation.

WARNING!   A risk of electric shock from high leakage current exists. Before connecting the AC supply to the power enclosures, be sure that the electrical outlets are properly grounded (earthed).

△ **CAUTION:** Always be sure that equipment is properly grounded and that you follow proper grounding procedures before beginning any installation procedure. Improper grounding can result in ESD damage to electronic components. For more information, see "Preventing electrostatic discharge" (page 7)

CAUTION: When performing non-hot-plug operations, you must power down the server blade and/or the system. Use caution when performing other operations, such as hot-plug installations or troubleshooting.

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

Precautions for maintaining and servicing products

To reduce the risk of electric shock or damage to the equipment when installing, maintaining, or servicing products, observe the following precautions:

- Some products contain power supplies that are capable of producing hazardous energy levels. Refer to the documentation included with your product to determine whether it contains these power supplies. The installation of internal options and routine maintenance and service of this product should be performed by individuals who are knowledgeable about the procedures, precautions, and hazards associated with equipment containing hazardous energy levels.

- Allow the product to cool before removing covers and touching internal components.

- Do not use conductive tools that could bridge live parts.

- Remove all watches, rings, or loose jewelry when working in hot-plug areas of an energized server and storage products.

- Do not attempt to defeat safety interlocks (where provided).

- Some products have covers or doors to access hot-plug components and may allow access to hazardous energy circuits or moving fans.

    ○ The doors should remain locked during normal operation.

OR

- The product should be installed in a controlled access location where only qualified personnel have access to the product.

- Power down the equipment and disconnect all AC power cords before removing any access covers for non-hot-plug areas.

- Do not replace non-hot-plug components while power is applied to the product. First, shut down the product and disconnect all AC power cords.

- Do not exceed the level of repair specified in the procedures in the product documentation. All troubleshooting and repair procedures are detailed to allow only subassembly or module-level repair. Because of the complexity of the individual boards and subassemblies, do not attempt to make repairs at the component level or to make modifications to any printed wiring board. Improper repairs can create a safety hazard.

- Verify that the AC power supply branch circuit that provides power to the rack is not overloaded. This will reduce the risk of personal injury, fire, or damage to the equipment. The total rack load should not exceed 80 percent of the branch circuit rating. Consult the electrical authority having jurisdiction over your facility wiring and installation requirements.

Power cords

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

- Use an approved power cord. If you have questions about the type of power cord to use, contact your Hewlett Packard Enterprise authorized service provider.
- If you have not been provided with a power cord for your product or for any AC-powered option intended for your product, purchase a power cord that is approved for use in your country.
- You must use a power cord rated for your product and for the voltage and current marked on the electrical ratings label of the product. The voltage and current rating of the cord must be greater than the voltage and current rating marked on the product.
- Do not place objects on AC power cords or cables. Arrange them so that no one may accidentally step on or trip over them.
- Do not pull on a cord or cable. When unplugging from the electrical outlet, grasp the cord by the plug.
- Make sure that the total ampere rating of all products plugged into an extension cord or power strip does not exceed 80 percent of the ampere ratings limit for the extension cord or power strip.
- 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.

Power supplies

Hot-plug power supplies are not designed to be removed or installed with AC power connected to the power supply. To reduce the risk of electric shock or damage to the equipment when handling hot-plug power supplies:

- Install the power supply before connecting the power cord to the power supply.
- Unplug the power cord before removing the power supply from the product.
- If the system has multiple sources of power, you must unplug all AC power cords from the power supplies to completely disconnect power from the system.

Verify that the external power source connected to your product matches the type of power source indicated on the electrical ratings label. If you are not sure of the type of power source required, consult your authorized service provider or local power company.

Powering off disk enclosures

ⓘ **IMPORTANT:**   Always power off disk enclosures after controller enclosures and servers.

IMPORTANT: When installing a hot-pluggable component, such as a disk drive, it is not necessary to power down the enclosure.

To power off a disk enclosure:
1. Power off any attached servers. For more information, see the server documentation.
2. Power off the controller enclosure (if included in the configuration.) For more information, see the controller enclosure documentation.
3. Disconnect power cords.

The system is now without power.

Powering on

After disk enclosures are physically installed and cabled, power up all devices and verify that they are operating properly.

Before powering on

Observe the following best practices before powering on the enclosure for the first time:

- Complete the server, controller, or controller enclosure installation. For more information, see the server, controller, or controller enclosure user documents.
- Install the disk enclosures.
- Install disk drives in the disk enclosures so that the connected host controller can identify and configure them at power on.
- Connect the SAS cables and power cords to the enclosure.

Power on procedures

1. Connect the enclosure to a live power source.

   NOTE: There is no power on/standby button. Power flows to the enclosure immediately upon connecting to a live power source.

2. Once power is applied to the power supplies, the enclosure starts running.

   The power on LED turns solid green.

3. Wait a few minutes for the disk enclosures to complete their startup routines.

   △ **CAUTION:** If power is applied to the server before the disk enclosures complete their startup routine, the server might not properly discover the storage.

4. Apply power to the controller enclosure (if included in the configuration).
5. Power on (or restart) the server with access to the disk enclosures, start the operating system, and log on as administrator.

   △ **CAUTION:** When you power on the server, the monitor might display a "New Hardware Found" message. Cancel out of this window to prevent the installation of unsupported software.

6. Verify that each component is operating properly.

Verifying the operating status of the disk enclosures

To verify that the disk enclosures and disk drives are operating properly, view the enclosure and disk drive LEDs and compare them with the patterns described in the following table. If LED patterns are not as expected, check cable connections between the devices, check the availability of your power source, review the installation procedures, and remove and reinsert the module.

Front panel LEDs

Indicator	Startup condition	Operating condition	Fault conditions
1. HDD	N/A		
2. Bi-color System Health LED	Solid green	Solid green	• Flashing amber: non-critical error • Solid amber: critical failure
3. Blue UID LED	The UID is a locator LED activated by pressing the rear or the front UID buttons.		

Fan module
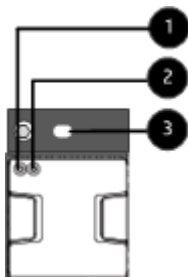
Indicator	Startup condition	Operating condition	Fault conditions
1. Blue Fan UID LED	Blue	Off	Off
2. Bi-color Health/Status LED	Solid green	Solid green	Solid amber
3. Blue System UID	Blue	Off	Off

I/O module LEDs
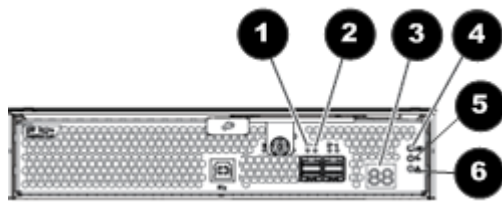
Indicator	Startup condition	Operating condition	Fault conditions
1. Port Link		Blinking or solid green	Off
2. Port Error		Off	Solid amber
3. 7–segment display		A number, representing the box number, or an error/warning code.	Off
4. UID	Blue	Off	Off
5. Health	Blinking green	Solid green	Off
6. Fault		Off	Blinking or solid amber

Power supply module
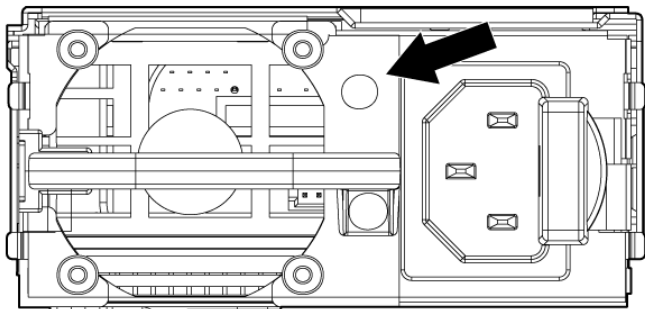
Indicator	Status	Definition
Status LED	Flashing green	Powering up
	Solid green	Normal operation
	Unlit	No power or fault

Verifying the status of the disk drives

Both the HPE G8 LFF and SFF drive carrier system uses I2C communication for drive authentication, failure and configuration info, activity animation and enhanced LEDs.
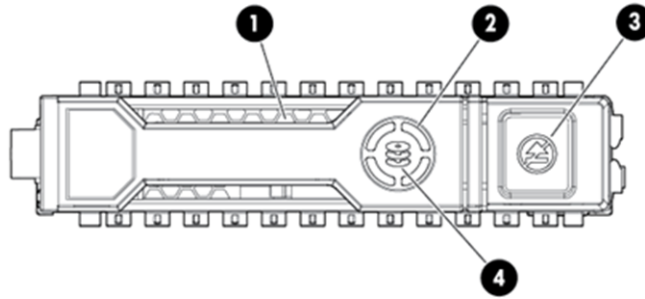
Indicator	Status	Definition
1 Locate	Solid blue	The drive is being identified by a host application.
2. Activity ring	Rotating green	Drive activity.
	Off	No drive activity.
3. Do not remove	Solid white	Do not remove the drive. Removing the drive causes one or more of the logical drives to fail.
	Off	Drive is safe to remove. Will not cause a logical drive to fail.
4. Drive status	Solid green	The drive is a member of one or more logical drives.
	Flashing green	The drive is rebuilding or performing a RAID migration, stripe size migration, capacity expansion, or logical drive extension, or is erasing.
	Flashing amber/green	The drive is a member of one or more logical drives and predicts the drive will fail.
	Flashing amber	The drive is not configured and predicts the drive will fail.
	Solid amber	The drive has failed.
	Off	The drive is not configured by a RAID controller.

Hard drive blanks

To maintain the proper enclosure air flow, a disk drive or a disk drive blank must be installed in each drive bay. The disk drive blank maintains proper airflow within the disk enclosure.

Hard drive

Depending on the types of hard disk drives (HDDs) you are using, the following numbers of drives can be installed in a single enclosure:

- Large form factor (LFF): 12 HDDs

- Small form factor (SFF): 25 HDDs

A variety of disk drive models are supported for use, including dual-ported and single-ported models. For more information about supported disk drives, see the QuickSpecs for the disk enclosure, available on the D3000 website.

△ **CAUTION:** To prevent improper cooling and thermal damage, operate the enclosure only when all bays are populated with either a component or a blank.

Disk drive guidelines

△ **CAUTION:**

- Follow industry-standard practices when handling disk drives. Internal storage media can be damaged when drives are shaken, dropped, or roughly placed on a work surface.

- When installing a disk drive, press firmly to make sure the drive is fully seated in the drive bay and then close the latch handle.

- When removing a disk drive, press the release button and pull the drive only slightly out of the enclosure. Then, to allow time for the internal disk to stop rotating, wait approximately 10 seconds before completely removing the drive from the enclosure.

- Always populate hard drive bays starting with the lowest bay number. If only one hard drive is used, install it in the bay with the lowest device number.

- Disk drives are hot-pluggable.

- SAS and SATA disk drives may be installed in the same enclosure, but cannot be included in the same RAID logical volume.

Removing a drive

△ **CAUTION:** To prevent improper cooling and thermal damage, operate the enclosure only when all bays are populated with either a component or a blank.

1. Press the release button to open the latch handle.
2. Swing out the latch handle on the drive (1). Then, pull the drive from the bay (2).
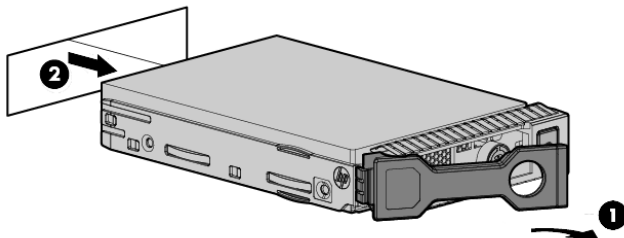

Replacing a drive

△ **CAUTION:** To prevent improper cooling and thermal damage, operate the enclosure only when all bays are populated with either a component or a blank.

1. Do one of the following:

- If you are installing the disk drive into an empty bay, remove the drive blank.
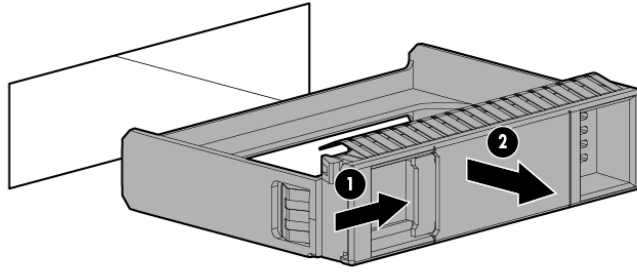
- If you are replacing a disk drive, refer to "Removing a drive" (page 16)

2. Unlatch and swing out the latch handle on the drive. Then, slide the drive into the bay (1), pressing firmly on the drive to seat it. Close the latch handle (2), pressing firmly until it locks in place.
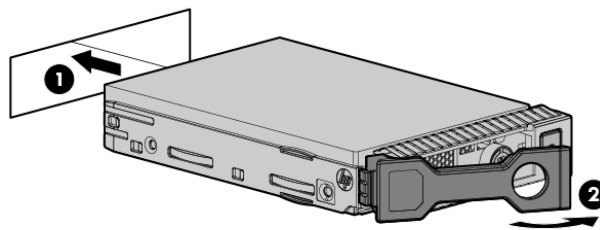
ⓘ **IMPORTANT:** When a drive is inserted in an operational enclosure, the drive LEDs flash to indicate that the drive is seated properly and receiving power.

3. If you are replacing a drive, confirm that the replacement drive matches the drive that is being replaced.
4. Determine the status of the hard drive.

ⓘ **IMPORTANT:** For proper airflow and cooling, a drive blank must remain installed in all unused drive bays.

Removing and replacing I/O Cables

NOTE: If the cable is malfunctioning, check the LED displays on the I/O module back panel. See "I/O module LEDs" (page 14)

1. Confirm the correct port(s) for the cable to be replaced.
2. Disconnect the I/O cable(s) to be replaced.
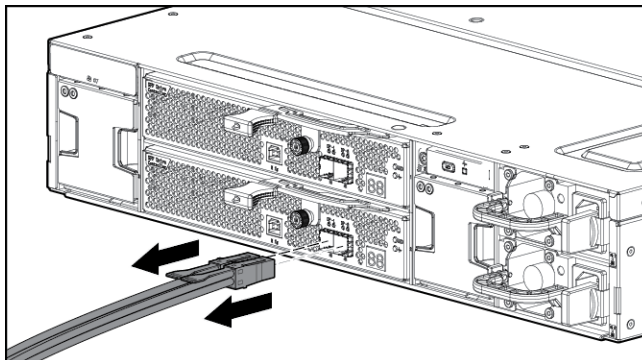
3. Replace the cable(s).
4. Confirm basic communication using LEDs See "Verifying the operating status of the disk enclosures" (page 13).

Removing and replacing the I/O module

1. Unplug the two cables from the back panel of the I/O module. See "Removing and replacing I/O Cables" (page 17)
2. Loosen the captive retaining thumbscrew (1), and swing out the hood latch (2).
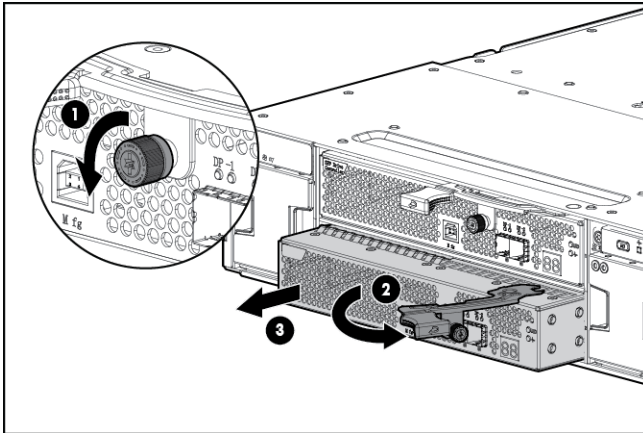
3. Slide out the I/O module (3) and set aside.
4. Then, slide the replacement I/O module into the correct bay and swing in the hood latch until it closes.
5. Re-tighten the captive retainer thumbscrew.
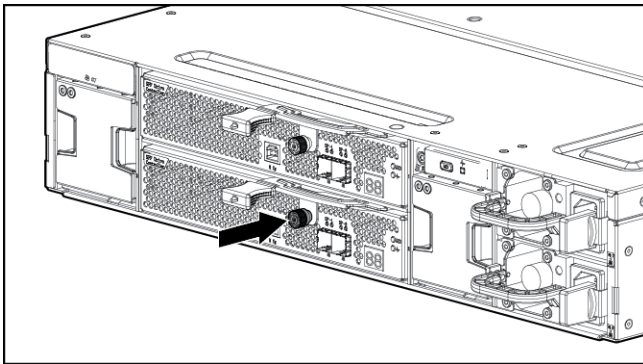
6. Replace the two I/O cables.
7. Read the LEDs to confirm the unit is operating. See "I/O module LEDs" (page 14)

Removing and replacing a power supply

1. Remove the power cable from the power supply to be replaced.
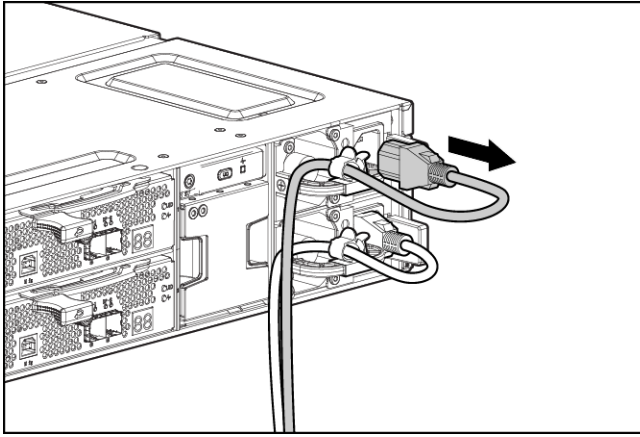
2. Press the latch (1) and slide module out (2).
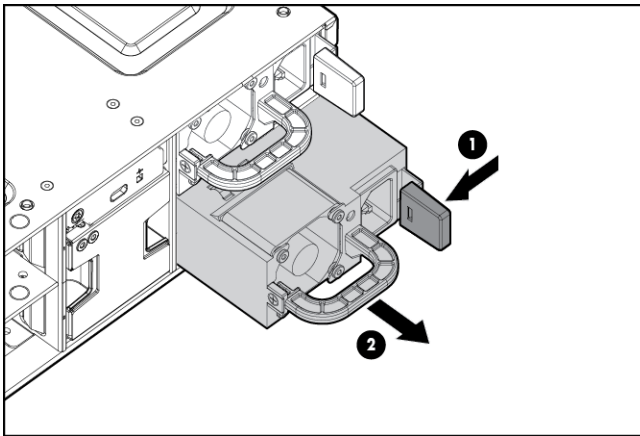
3. Slide new power supply into the enclosure bay until it clicks into place.
4. Replace the power cable.
5. Confirm that the system is in normal state. See "Verifying the operating status of the disk enclosures" (page 13).

Removing and replacing the fan module

1. Pinch the release buttons and slide the module out.
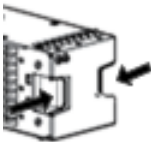
2. Slide in new fan module until it clicks into place
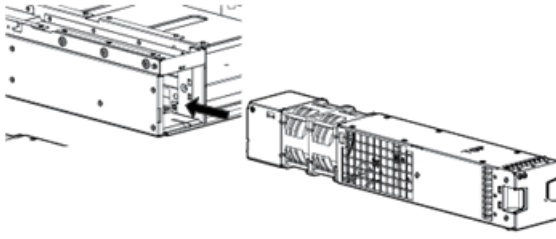
3. Confirm that the system is in normal state. See "Verifying the operating status of the disk enclosures" (page 13).

Removing and replacing the fan control card

This operation is performed after Hewlett Packard Enterprise Support determines that the enclosure is the source of the issue and requests the fan control card to be replaced

⚠ **WARNING!**   Check to make sure data on the drives is backed up Back up data if required.

1. Unplug the power cables.
2. Remove I/O cables. See "Removing and replacing I/O Cables" (page 17)
3. Remove the fan modules. See "Removing and replacing the fan module" (page 19)
4. Remove the rear CTO hold down bracket.
5. Remove the enclosure from the rack. See "Removing and replacing the enclosure" (page 22)
6. Pull hood latch up and back (1 and 2), and lift enclosure cover up and remove (3).
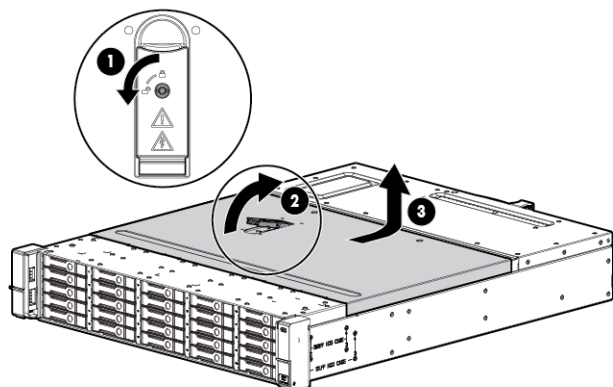
7. Remove fan control card cable (1).
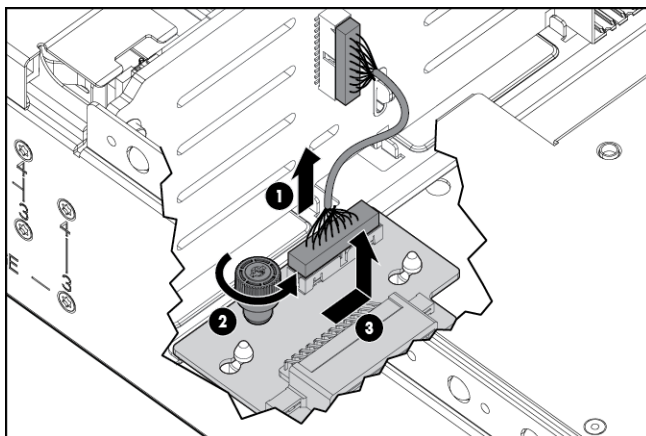
8. Loosen the T-15 captive thumbscrew (2).
9. Slide the fan control card sideways to free it from the retaining pins and lift out (3).
10. Insert the new fan control card and slide sideways to engage it with the retaining pins.
11. Re-tighten the captive T-15 thumbscrew.
12. Attach the fan control card cable.
13. Replace the enclosure cover and press the hood latch down to latch.
14. Replace the enclosure in rack. See "Removing and replacing the enclosure" (page 22)
15. Tighten the front retaining screws.

△ **CAUTION:**   The front CTO retaining screws must be attached at all times when the enclosure is racked.

16. Replace the fan modules. See "Removing and replacing the fan module" (page 19)
17. Replace the I/O module cables. See "Removing and replacing the I/O module" (page 18)
18. Replace the power cables.
19. Apply power to the enclosure and confirm the system is powered on. See "Verifying the operating status of the disk enclosures" (page 13)
20. Confirm that the system is operating normally. See "Verifying the operating status of the disk enclosures" (page 13)

Removing and replacing the enclosure

The operation is performed after Support determines that the enclosure is the source of the issue and requests the enclosure be replaced

⚠ **WARNING!** Check to make sure data on the drives is backed up. Back up the data if required.

1. Unplug the power cables.
2. Remove I/O cables. See "Removing and replacing I/O Cables" (page 17)
3. Label drives for removal.
4. Remove the drives. See "Removing a drive" (page 16)
5. Remove power supplies See "Removing and replacing a power supply" (page 18)
6. Remove the I/O modules. See "Removing and replacing the I/O module" (page 18)
7. Remove both fan modules. See "Removing and replacing the fan module" (page 19)
8. Loosen the captive CTO screws behind the latch on the front left and right bezel ears of the chassis (1)
9. Loosen the rear CTO hold-down bracket.
10. Slide the enclosure out of the rails (2) and set it on a secure surface.

⚠ **WARNING!** Always use at least two people to lift an enclosure into the rack. If the enclosure is being loaded into the rack above chest level, a third person must assist with aligning the enclosure with the rails while the other two people support the weight of the enclosure.
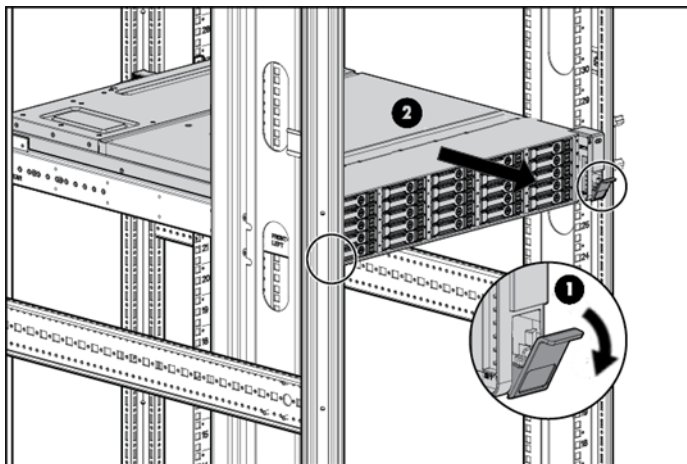
11. Slide in the new enclosure and tighten the retaining screws.
12. Re-attach the rear CTO hold-down bracket.
13. Replace the I/O modules. See "Removing and replacing the I/O module" (page 18)
14. Replace the power supplies. See "Removing and replacing a power supply" (page 18)
15. Replace the fan modules. See "Removing and replacing the fan module" (page 19)
16. Replace the hard drives and/or SSDs. See "Replacing a drive" (page 16)
17. Replace I/O module cables. See "Removing and replacing the I/O module" (page 18)

18. Replace power cables and connect the cables to a live power source.
19. Confirm system is powered on and that it is operating normally. See "Verifying the operating status of the disk enclosures" (page 13)

Removing and replacing the Power Distribution Board

This operation is performed after Support determines that the enclosure is the source of the issue and recommends that the Power Distribution Board be replaced.

⚠ **WARNING!** Check to make sure data on the drives is backed up. Back up data if required.

1. Unplug the power cables.
2. Remove the I/O cables. See "Removing and replacing I/O Cables" (page 17)
3. Remove power supplies See "Removing and replacing a power supply" (page 18)
4. Remove the enclosure. See "Removing and replacing the enclosure" (page 22)
5. Pull up hood latch and remove enclosure cover.
6. Remove the power supply cables.
7. Loosen the captive T-15 thumbscrew (1) on the air guide.
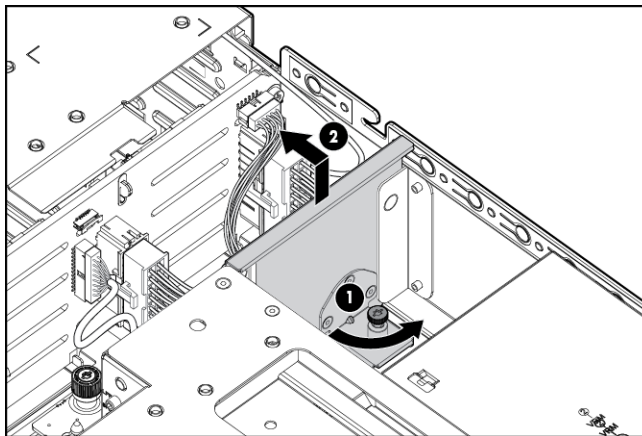
8. Lift up the air guide and then pull toward front of enclosure to remove (2).
9. Loosen the T-15 captive thumbscrew on the Power Distribution Board.
10. Slide the Power Distribution Board toward the front of the enclosure and lift out of the enclosure.
11. Replace Power Distribution Board in the enclosure and slide toward the back of the enclosure.
12. Tighten the captive T-15 screw to secure the Power Distribution Board.
13. Attach power cables to the backplane.
14. Replace air guide making sure cables are routed through the air guide opening.
15. Tighten the captive T-15 screw to secure the air guide in the enclosure.
16. Replace enclosure cover and press lever down to latch.
17. Replace enclosure in rack. See "Removing and replacing the enclosure" (page 22)
18. Replace the power supplies. See "Removing and replacing a power supply" (page 18).
19. Replace the I/O module cables. See "Removing and replacing the I/O module" (page 18).
20. Replace power cables and connect the cables to a live power source.
21. Confirm system is powered on and that it is operating normally. See "Verifying the operating status of the disk enclosures" (page 13)

Removing and replacing the UID-health module

This operation is performed after Support determines that the UID-health module is the source of the issue and requests the module be replaced

⚠ **WARNING!** Check to make sure data on the drives is backed up. Back up data if required

1. Unplug the power cables.
2. Remove the I/O cables. See "Removing and replacing I/O Cables" (page 17)
3. Remove the fan module(s) with the failed control card. See "Removing and replacing the fan module" (page 19)
4. Remove enclosure from rack. See "Removing and replacing the enclosure" (page 22)
5. Pull up hood latch and remove enclosure cover.
6. Disconnect the rear UID-Health module cable from the backplane.
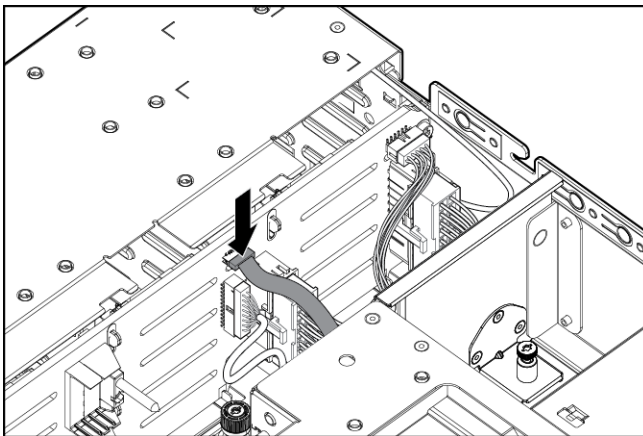
7. Remove the UID-Health module retaining screw (1).
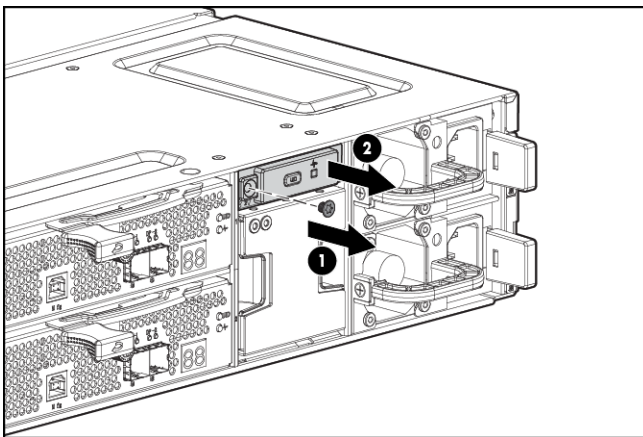
8. Slide out the UID-Health module (2) while guiding the cable through the enclosure.

⚠ **WARNING!** The UID cable is adhered to the chassis. Care should be taken to remove it. The cable could become unusable.

9. Replace the UID-Health module by sliding the cable through the slot in the enclosure.
10. Reconnect the UID-Health module cable to the backplane.
11. Fasten the UID-Health module using the retaining screw.
12. Replace enclosure cover and press hood latch down to latch.
13. Replace the enclosure in the rack. See "Removing and replacing the enclosure" (page 22)

14. Tighten the retaining screws. See "Removing and replacing the enclosure" (page 22)
15. Replace the fan modules. See "Removing and replacing the fan module" (page 19).
16. Replace the I/O module cables. See "Removing and replacing the I/O module" (page 18)
17. Replace power cables and connect the cables to a live power source.
18. Confirm system is powered on and that it is operating normally. See "Verifying the operating status of the disk enclosures" (page 13)

Removing and replacing the enclosure backplane

This operation is performed after Support determines that the backplane is the source of the issue and requests the backplane be replaced

⚠ **WARNING!** Check to make sure data on the drives is backed up. Back up data if required.

1. Unplug the power cables.
2. Remove I/O cables. See "Removing and replacing I/O Cables" (page 17)
3. Label drives for removal.
4. Remove the drives. See "Removing a drive" (page 16)
5. Remove power supplies See "Removing and replacing a power supply" (page 18)
6. Remove I/O modules. See "Removing and replacing the I/O module" (page 18)
7. Remove fan modules. See "Removing and replacing the fan module" (page 19)
8. Remove enclosure. See "Removing and replacing the enclosure" (page 22)
9. Pull up hood latch and remove enclosure cover.
10. Disconnect the following cables from the backplane:
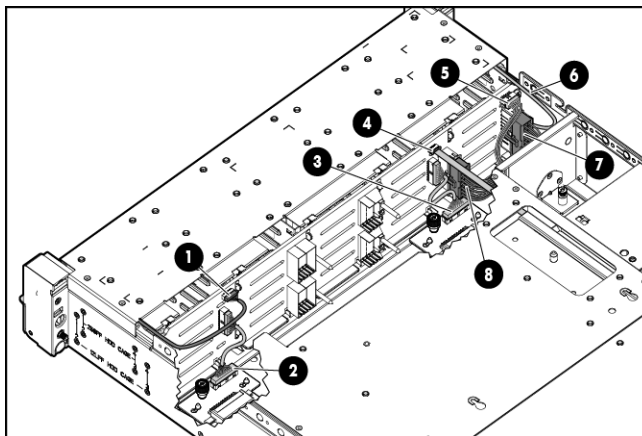
Number	Cable
1	Front UID health module
2	Fan control card
3	Fan control card
4	Rear UID health module
5	Power distribution unit
6	Rear UID health module
7	Power supply
8	Power supply

11. Remove the eight T-10 drive cage retaining screws. There are four to a side.

NOTE: Depending on whether the drive cage is for LFF or SFF drives, the screws are in slightly different locations.
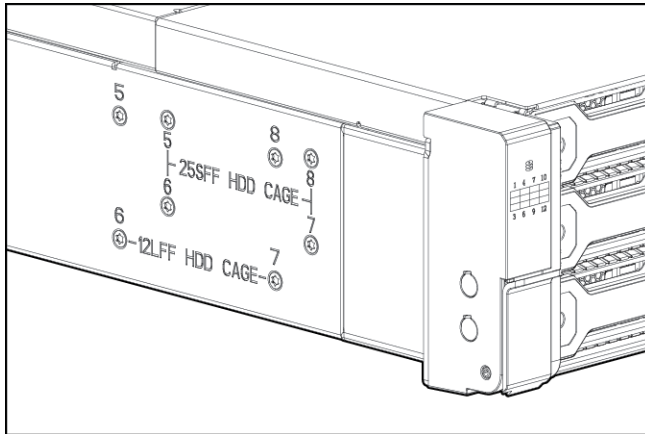
12. Slide the drive cage toward the front of the enclosure and lift free of the enclosure.
13. Remove the two T-15 screws attaching the back plane to the drive cage.
14. Slide the back plane toward the top of the drive cage and lift the back plane off the drive cage.
15. Place the new back plane on the drive cage and slide toward the bottom of the drive cage on to the retaining hooks.
16. Replace the two T-15 back plane screws.
17. Place the drive cage in the enclosure and slide toward the back of the enclosure making sure the locating pins in the bottom of the enclosure are all correctly located in the drive cage.

NOTE: Depending on the specific unit, there are 6 or 8 locating pins.

18. Replace the eight T-10 drive cage retaining screws.
19. Connect the two UID/Health module cables.
20. Connect the power cables.
21. Connect the fan control card cables.
22. Replace the cover and press lever down to secure.
23. Replace the enclosure in the rack. See "Removing and replacing the enclosure" (page 22)
24. Replace the I/O modules. See "Removing and replacing the I/O module" (page 18)
25. Replace the power supplies. See "Removing and replacing a power supply" (page 18)
26. Replace the fan modules. See "Removing and replacing the fan module" (page 19)
27. Replace the hard drives and/or SSDs. See "Replacing a drive" (page 16)
28. Replace I/O module cables. See "Removing and replacing the I/O module" (page 18)
29. Replace power cables and connect the cables to a live power source.
30. Confirm system is powered on and that it is operating normally. See "Verifying the operating status of the disk enclosures" (page 13)

Installing the rail kit

The disk enclosure can be installed into most standard server racks. To verify that your rack is supported for use with the disk enclosure, see the QuickSpecs for the disk enclosure at the website: http://www.hpe.com/products/quickspecs.

△ **CAUTION:** Install disk drives in the enclosures only after mounting the enclosures in the rack.

- A disk enclosure populated with disk drives is too heavy to lift safely by a single person.
- Movement of a disk enclosure during installation might damage the internal storage media of installed disk drives.

Rack installation best practices

In addition to industry-standard recommendations, consider the following:

- Locate the heaviest items, such as uninterruptible power supplies (UPS) and additional disk enclosures near the bottom of the rack.
- To make cabling easy, install the disk enclosures below the server.
- Install similar components next to each other in the rack. Because disk enclosures, switches, and servers are of differing depths, if you have more than one of a device, mount those devices adjacent to one another to accommodate working behind the rack.

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

- At least two people lift the storage system during removal or installation if the weight exceeds 22.7 kg (50 lb). If the system is being loaded into the rack above chest level, a third person MUST assist with aligning the system with the rails while the other two people support the weight of the system.
- The leveling jacks on the rack are extended to the floor.
- The full weight of the rack rests on the leveling jacks.
- The stabilizing feet are attached to the rack if it is a single-rack installation.
- The racks are coupled together in multiple-rack installations.
- Only one component in a rack is extended at a time. A rack might become unstable if more than one component is extended.
- To prevent damage and to ease insertion of the device into the rack, support the weight of the device and keep it level when sliding it into the rack.

Procedures

1. Position left and right rack rails at the desired 'U' position in the rack, adjusting the rails to fit the rack, as needed.

    Front and Rear bottom edge of rails must align with the bottom of EIA boundary in the lowermost 'U'

    NOTE: Rails are marked *L* and *R* with an arrow indicating the direction in which the rail should be installed.

2. Use guide pins to align the shelf mount kit to the RETMA column holes.

3. To engage the rear, push the rail toward the back of the rack until the spring hook (1) snaps into place.
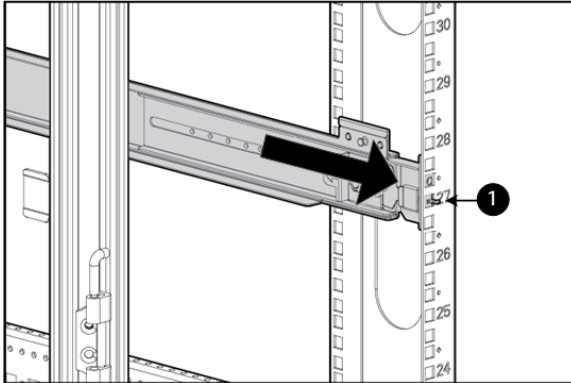
4. To engage the front, pull the rail towards the front of the rack to engage the spring hook with the RETMA column in the same manner as the rear spring hook.

    NOTE: Make sure that the respective guide pins for the square or round hole rack align properly into RETMA column hole spacing.

5. Secure rear of rack rail to the RETMA column with either the round- or square-hole shoulder screws provided in the package.

6. Secure front of rail to the front RETMA column using the provided flat securing screw/guide pin in the bottom screw position of the rail.

7. Slide the enclosure into position on the rails (1). Secure the chassis into the rack by tightening the captive CTO screw behind the latch on the front left and right bezel ears of the chassis (2).

△   **CAUTION:** The front CTO screw must be attached at all times when racked.
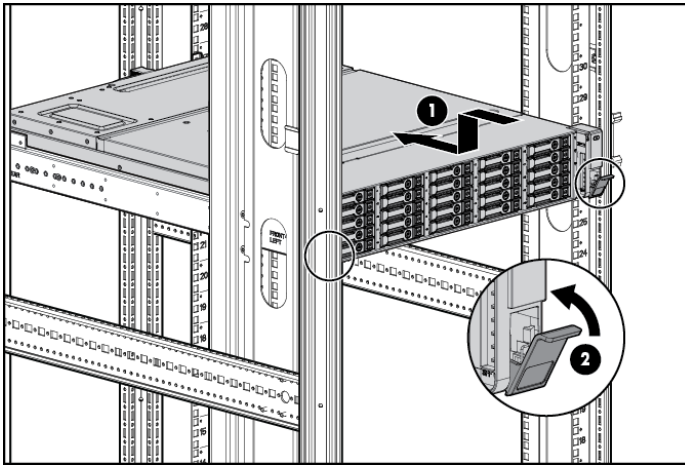
8. Attach rear hold down brackets by sliding the tab with the arrow pointed forward (1) into the corresponding slot on the left and right side of the rear of the chassis. Use the black headed thumb screw to secure tightly to the rail (2).
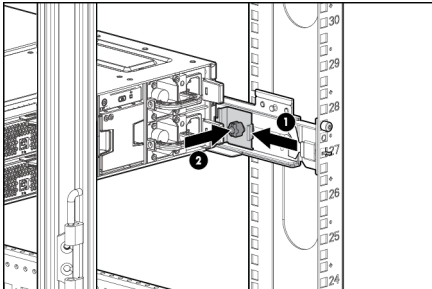
3 Troubleshooting

If the enclosure does not initialize

ⓘ **IMPORTANT:** After a power failure, the system automatically returns to the On state when A/C power is restored, except in the following cases:

- If both power supplies are damaged.

- If there is a single power supply in the system, and it is damaged.

1. Ensure that power has been applied to the enclosure.
2. Verify that the power LED is green.
3. Verify that the power source is working:
   a. Verify that the power supplies are working by viewing the power supply LEDs. If necessary, remove and reinstall the power supplies to verify that they are seated properly.
   b. Remove and inspect AC power cords from both power supplies and reconnect them.

Diagnostic steps

Is the enclosure front fault LED amber?

Answer	Possible Reasons	Actions
No	System functioning properly.	No action required.
Yes	• Front Status and UID module might not be inserted properly, might have a damaged connector, or might have failed. • Possible error condition exists.	• Be sure that the Front Status and UID module is undamaged and is fully seated. • Check rear fault LEDs to isolate failed component. • Contact an authorized service provider for assistance.

Is the enclosure rear fault LED amber?

Answers	Possible Reasons	Actions
No	Functioning properly.	No action required
Yes	Rear power and UID module might not be inserted properly, might have a damaged connector, or might have failed.	• Be sure that the rear power and UID module is undamaged and is fully seated. • Contact an authorized service provider for assistance.

Is the System Health LED amber?

Answer	Possible Reasons	Possible Solutions
No	System functioning properly.	No action required.
Yes	• The system might have experienced a short. Controller firmware might be corrupted. • The system midplane might need replacement.	• Be sure that all components are fully seated. • Update controller firmware. • Contact an authorized service provider for assistance.

Is the power supply LED green?

Answers	Possible Reasons	Actions
No	• Power cords not connected or AC power is unavailable. • Power supply not functioning properly.	• Remove and inspect the AC power cords from both power supplies and reconnect them. • Replace with a known-good power supply.
Yes	The component is functioning normally.	No action required.

Is the I/O module fault LED amber?

Answer	Possible Reasons	Possible Solutions
No	Functioning properly.	No action required.
Yes	• The I/O module is locked. • The I/O module has failed. • Other fault condition exists.	• Make sure that the I/O module is seated properly by pressing the I/O module firmly into its bay after the handle has clicked in place. **CAUTION:** Never remove an I/O module from the chassis while the status LED is green. Removing an active I/O module can result in data loss. • Contact an authorized service provider for assistance.

Is the fan LED amber?

Answers	Possible Reasons	Actions
No	Functioning properly.	No action required
Yes	Fan might not be inserted properly, might have a damaged connector, or might have failed.	- Be sure that the fan is undamaged and is fully seated. - Contact an authorized service provider for assistance.

Recognizing disk drive failure

In an Hewlett Packard Enterprise enclosure, a steadily glowing fault LED indicates that a disk drive has failed. Other indications of failed disk drives are as follows:

- ACU represents failed drives with a distinctive icon.
- HPE SIM can detect failed drives remotely across a network. (For more information about SIM, see the documentation on the Management CD.)
- ADU lists all failed drives.
- Operating System log files

For additional information about diagnosing disk drive problems, see the HPE ProLiant servers troubleshooting guide.

Effects of a disk drive failure

When a disk drive fails, all logical drives that are in the same array are affected. Each logical drive in an array might be using a different fault-tolerance method, so each logical drive can be affected differently.

- RAID0 configurations cannot tolerate drive failure. If any physical drive in the array fails, all non-fault-tolerant (RAID0) logical drives in the same array also fail.
- RAID1+0 configurations can tolerate multiple drive failures as long as no failed drives are mirrored to one another (with no spares assigned).
- RAID5 configurations can tolerate one drive failure (with no spares assigned).
- RAID6 with ADG configurations can tolerate simultaneous failure of two drives (with no spares assigned).

Compromised fault tolerance

If more disk drives fail than the fault-tolerance method allows, fault tolerance is compromised, and the logical drive fails.

Factors to consider before replacing disk drives

Before replacing a degraded drive:

- Open SIM and inspect the Error Counter window for each physical drive in the same array to confirm that no other drives have any errors. For details, see the SIM documentation on the management cd.
- Be sure that the array has a current, valid backup.
- Use replacement drives that have a capacity at least as great as that of the smallest drive in the array. The controller immediately fails drives that have insufficient capacity.

To minimize the likelihood of fatal system errors, take these precautions when removing failed drives:

- Do not remove a degraded drive if any other drive in the array is offline (the online LED is off). In this situation, no other drive in the array can be removed without data loss.

- **Exceptions:**

  - When RAID1+0 is used, drives are mirrored in pairs. Several drives can be in a failed condition simultaneously (and they can all be replaced simultaneously) without data loss, as long as no two failed drives belong to the same mirrored pair.

  - When RAID6 with ADG is used, two drives can fail simultaneously (and be replaced simultaneously) without data loss.

  - If the offline drive is a spare, the degraded drive can be replaced.

- Do not remove a second drive from an array until the first failed or missing drive has been replaced and the rebuild process is complete. The rebuild is complete when the Online LED on the front of the drive stops blinking.

  Exceptions:

  - In RAID6 with ADG configurations, any two drives in the array can be replaced simultaneously.

  - In RAID1+0 configurations, any drives that are not mirrored to other removed or failed drives can be simultaneously replaced offline without data loss.

Automatic data recovery (rebuild)

When you replace a disk drive in an array, the controller uses the fault-tolerance information on the remaining drives in the array to reconstruct the missing data (the data that was originally on the replaced drive) and write it to the replacement drive. This process is called automatic data recovery, or rebuild. If fault tolerance is compromised, this data cannot be reconstructed and is likely to be permanently lost.

Time required for a rebuild

The time required for a rebuild varies considerably, depending on several factors:

- The priority that the rebuild is given over normal I/O operations (you can change the priority setting by using ACU).

- The amount of I/O activity during the rebuild operation.

- The rotational speed of the disk drives.

- The availability of drive cache.

- The model and age of the drives.

- The amount of unused capacity on the drives.

- The number of drives in the array (for RAID5 and RAID6 with ADG).

Allow approximately five minutes per gigabyte without any I/O activity during the rebuild process. This figure is conservative, and newer drive models usually require less time to rebuild.

System performance is affected during the rebuild, and the system is unprotected against further drive failure until the rebuild has finished. Therefore, replace drives during periods of low activity when possible.

△ **CAUTION:** If the Online LED of the replacement drive stops blinking and the amber fault LED glows, or if other drive LEDs in the array go out, the replacement drive has failed and is producing unrecoverable disk errors. Remove and replace the failed replacement drive.

When automatic data recovery has finished, the online LED of the replacement drive stops blinking and begins to glow steadily.

Failure of another drive during rebuild

If a non-correctable read error occurs on another physical drive in the array during the rebuild process, the Online LED of the replacement drive stops blinking and the rebuild abnormally terminates. If this situation occurs, restart the server. The system might temporarily become operational long enough to allow recovery of unsaved data. In any case, locate the faulty drive, replace it, and restore data from backup.

Handling disk drive failures

If the controller was configured with hardware fault tolerance, complete the following steps after a disk drive failure:

1. Determine which physical drive failed. On hot-plug drives, an amber drive failure LED illuminates.
2. If the unit containing the failed drive does not support hot-plug drives, perform a normal shutdown.
3. Remove the failed drive and replace it with a drive that is of the same capacity. For hot-plug drives, after you secure the drive in the bay, the LEDs on the drive each flash once in an alternating pattern to indicate a successful connection. The online LED flashes, indicating that the controller recognized the drive replacement and began the recovery process.
4. Power on the server, if applicable.
5. The controller reconstructs the information on the new drive, based on information from the remaining physical drives in the logical drive. While reconstructing the data on hot-plug drives, the online LED flashes. When the drive rebuild is complete, the online LED is illuminated.

I/O module error codes

This table describes the possible error codes appearing in the 7–segment display on the back panel of the I/O module. For information on the location of the 7–segment display, see "I/O module LEDs" (page 14)
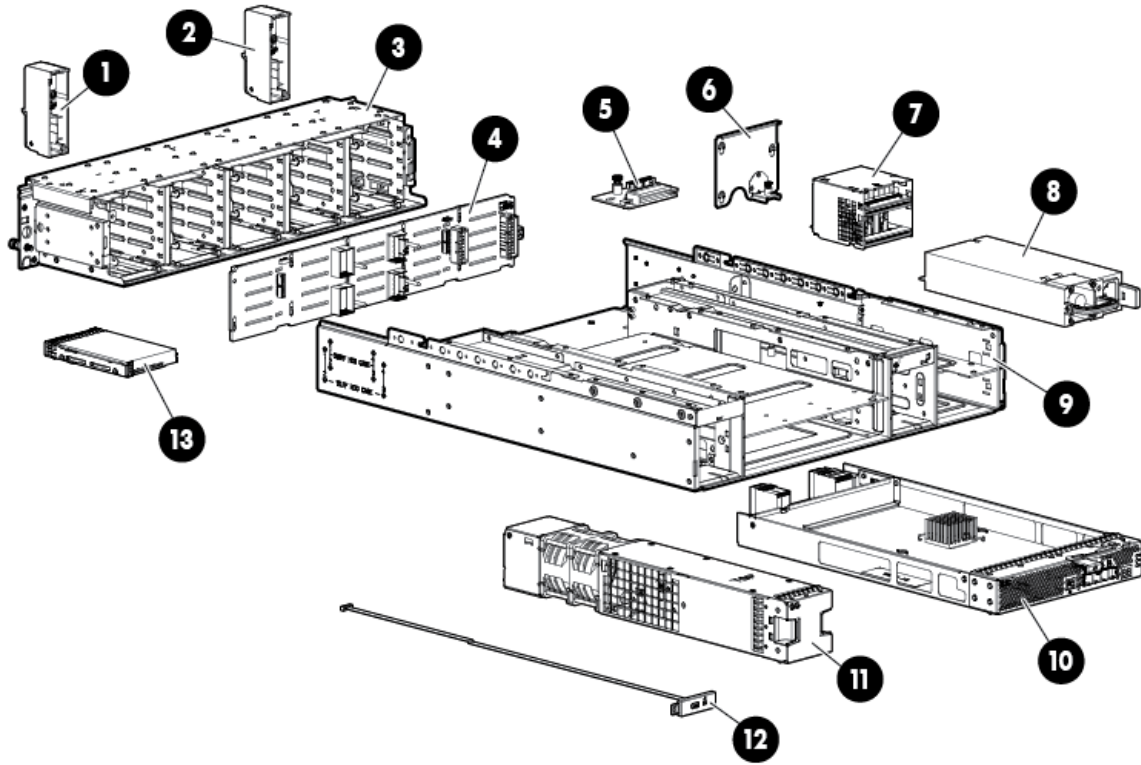
Error Type	Error Code	Error Detail	Recommended Action
I/O Module Error	A0	ESP generic error	1. Remove the module, wait 10 seconds, reinsert the module.
	A1	ESP watchdog is fired	2. If the error persists, then check for new firmware releases and upgrade the enclosure firmware. New firmware versions, containing new features and defect fixes, are released periodically.
	A2	ESP Conflict in SAS domain (domain A/B)	
	A3	Error in Expander communication	3. If the error persists, contact an Hewlett Packard Enterprise representative. An I/O module replacement may be necessary.
	A4	Missing information in IO Module manufacturing NVRAM	
	A5	I2C arbitration error	
	A6	Error in inter ESP communication	
	A8	Error in GPIO Expander I2C bus	
	A9	Permanent error in ESP NVRAM I2C bus	
	AD	Error in ESP event log	
	AE	Permanent error in Backplane I2C bus	
	AF	Error in Backplane NVRAM access	
	B0	Expander generic error	
	B1	Expander watchdog is fired	
	B2	Expander conflict in SAS domain (side A/B)	
	B3	Expander using default SAS address	
	B4	I2C arbitration error	
	B5	Error in inter Expander communication	
	B7	System event log error	
	BD	Error in ESP communication	
	BF	System identification value is not available	
I/O Module Firmware Error	A7	ESP firmware version mismatch with ESP firmware version in partner I/O module	1. Update the firmware of the I/O module that displays the error and wait until it restarts. 2. Then update the firmware of the other I/O module and wait until it restarts.

Error Type	Error Code	Error Detail	Recommended Action
	B6	Expander firmware version mismatch with Expander firmware version in partner I/O module	
	B8	Expander firmware image error	
	BE	Expander firmware version mismatch with ESP firmware version in own I/O module	
SAS Cable Error	B9	SAS cable hardware error	1. Verify the SAS cable status indicators. For the cables with an amber LED (error), check if the cables are properly connected in both sides. 2. If the cables are properly connected and the error persists, replace the cables. 3. If replacing the cables does not resolve the issue, then check for new firmware releases. A firmware upgrade might fix the issue 4. If there is no new firmware available, or upgrading the firmware is not possible, contact an Hewlett Packard Enterprise representative. An I/O module replacement may be necessary.
	BA	Hewlett Packard Enterprise unsupported SAS cable	
Disk Drive Error	BB	Error in disk drive	Check your storage administration software for more information about the problem detected and how to properly fix it.
	BC	Not authentic drive in the enclosure	There is at least one non-authentic HPE disk drive on the system. Non-authentic disks may not work properly on this system. Check your storage administration software for more information about the problem detected and how to properly fix it.
Thermal Control Error	C0	Generic temperature error	1. Remove the module, wait 10 seconds, reinsert the module. 2. If the error persists, then check for new firmware releases and upgrade the enclosure firmware. New firmware versions, containing new features and defect fixes, are released periodically. 3. If the error persists, contact an Hewlett Packard Enterprise representative. An I/O module replacement may be necessary.
	C1	Permanent error in temperature sensor I2C bus	
	C2	Error reading data from temperature sensor	
Thermal Shutdown Alarms	C3	Warning temperature reached in temperature sensor	Check for thermal issues, such as extremely hot drives, air blockages, missing or failed fans, or high ambient temperature.
	C4	Critical temperature reached in temperature sensor	
	C5	Minimum temperature reached in temperature sensor	
	C6	Fans commanded to maximum speed	

Error Type	Error Code	Error Detail	Recommended Action
	C7	System shutdown because of over temperature	
Power Supply Module Error	D0	Generic error in Power Supply module 1	If a power supply module does not have a green LED illuminated, verify that it is correctly cabled to a power source.
	D1	Generic error in Power Supply module 2	**NOTE:** This warning can also be caused by a failed power supply.
			1. If cabling was not the root cause, troubleshoot by reinserting each power supply in turn.
			2. If the error persists, then check for new firmware releases and upgrade the enclosure firmware. New firmware versions, containing new features and defect fixes, are released periodically.
			3. If the error persists, contact an Hewlett Packard Enterprise representative. A power supply replacement may be necessary.
	D2	Absence of the Power Supply module 1	• Verify that the power supply is tightly inserted in the slot.
	D3	Absence of the Power Supply module 2	• If a power supply is missing, then insert a module in the empty slot and connect it to a power source.
	D9	Error in system voltage	If a power supply module does not have a green LED illuminated, verify that it is correctly cabled to a power source.
	DA	Input power loss in Power Supply module 1	**NOTE:** This warning can also be caused by a failed power supply.
	DB	Input power loss in Power Supply module 2	1. If cabling was not the root cause, troubleshoot by reinserting each power supply in turn.
			2. If the error persists, then check for new firmware releases and upgrade the enclosure firmware. New firmware versions, containing new features and defect fixes, are released periodically.
			3. If the error persists, contact an Hewlett Packard Enterprise representative. A power supply replacement may be necessary.
Power Supply Module Communication Error	D4	Permanent error in Power Supply modules I2C bus	1. Remove and reinsert each power supply in turn.
			2. If the error persists, then check for new firmware releases and upgrade the enclosure firmware. New firmware versions, containing new features and defect fixes, are released periodically.
	D5	Communication error with Power Supply module 1	
	D6	Communication error with Power Supply module 2	3. If the error persists, contact an Hewlett Packard Enterprise representative. A power supply replacement may be necessary.
Fan Module Error	E0	Generic error in Fan module 1	1. If a fan module has an amber LED indication, try removing and reinserting it. If none of the fans have an amber LED, replace one fan module and wait 30 seconds.
	E1	Generic error in Fan module 2	2. If the error persists, then check for new firmware releases and upgrade the enclosure firmware. New firmware versions, containing new features and defect fixes, are released periodically.
			3. If the error persists, contact an Hewlett Packard Enterprise representative, a fan module replacement may be necessary.

Error Type	Error Code	Error Detail	Recommended Action
	E2	Absence of the Fan module 1	• Verify that the fan module is tightly inserted in the slot.
	E3	Absence of the Fan module 2	• If a fan module is missing, then insert a module in the empty slot.
	E9	Failure in one or more rotors of Fan module 1	1. If a fan module has an amber LED indication, try reinserting it.
	EA	Failure in one or more rotors of Fan module 2	2. If none of the fans have an amber LED, replace one fan module and wait 30 seconds. 3. If the error persists, then check for new firmware releases and upgrade the enclosure firmware. New firmware versions, containing new features and defect fixes, are released periodically. 4. If the error persists, contact an representative, a fan module replacement may be necessary.
Fan Module Communication Error	E4	Permanent error in Fan modules I2C bus	1. Remove and reinsert each fan module in turn. 2. If this does not resolve the issue, then remove and reinsert the I/O module that shows the status code.
	E5	Communication error with Fan module 1	3. If the error persists, then check for new firmware releases and upgrade the enclosure firmware. New firmware versions, containing new features and defect fixes, are released periodically.
	E6	Communication error with Fan module 2	4. If the error persists, contact an representative, a fan module replacement may be necessary.

4 Component identification

Description	CSR status
1. Chassis Bezel Ear	Not a CSR part (part of drive cage)
2. Chassis Bezel Ear	Not a CSR part (part of drive cage)
3. Drive Cage	Not a CSR part
4. Backplane	Mandatory
5. Fan module interconnect board	Mandatory
6. Air guard	Mandatory
7. Voltage Regulator Module (VRM) or power module	Mandatory
8. Power supply	Mandatory
9. Enclosure	Not a CSR part
10. I/O module	Mandatory
11. Fan module	Mandatory
12. Rear Unit ID	Mandatory
13. Disk drive	Mandatory

5 Technical specifications

Physical specifications

Height/Width/Depth	HPE D3600 LFF: 3.44 x 17.64 x 23.54 in (8.7 x 44.8 x 59.8 cm)
	HPE D3700 SFF: 3.44 x 17.64 x 21.48 in (8.7 x 44.8 x 54.6 cm)
Weight	No disk drives: 38 lb (17.2 kg)
	D3700 SFF fully populated with SFF disk drives: 54.90 lb (24.9 kg)
	D3600 fully populated with LFF disk drives: 60 lb (27.2 kg)

Power and environmental specifications

Temperature range (Temperature ratings shown are for sea level. An altitude rating of 1°C per 300 m (1.8°F per 1,000 ft) to 3048 m (10,000 ft) is applicable. The upper limit might be limited by the type and number of options installed.)	Operating	50° to 104° F (10° to 40° C)
	Shipping	-22° to 149° F (-30° to 65° C) **NOTE:** Rated 1°C per 1000 feet of elevation to 10,000 ft.
Relative humidity (Non-operating maximum humidity of 95% is based on a temperature of 45°C (113°F). Altitude maximum for storage corresponds to a pressure minimum of 70 KPa.)	Operating	10% to 90% relative humidity (Rh)
	Non-operating	0% to 95% relative humidity (Rh)
Maximum wet bulb temperature	Long-term storage (operating)	82.4° F (28° C)
	Short-term storage (non-operating)	101.6° F (38.7° C)
Altitude (Maximum allowable altitude change rate is 457 m/min (1500 ft/min))	Operating	3048 m (10,000 ft) This value might be limited by the type and number of options installed.
	Non-operating	9144 m (30,000 ft)
Input power (Input Power and Heat Dissipation specifications are maximum values and apply to worst-case conditions at full rated power supply load. The power/heat dissipation for your installation will vary depending on the equipment configuration.)	Input voltage	100 to 240 VAC (Common- slot Power Supply)
	Input frequency	50 to 60 Hz (Common-slot Power Supply)
	Rated input current	120V power source: 6A
		240V power source: 3A
	Input power (max)	526W

Acoustic noise levels

Listed are the declared A-Weighted sound power levels (LWAd) and declared average bystander position A-Weighted sound pressure levels (LpAm) when the product is operating in a 23°C ambient environment. Noise emissions were measured in accordance with ISO 7779 (ECMA 74) and declared in accordance with ISO 9296 (ECMA 109). The listed sound levels apply to standard shipping configurations. Additional options may result in increased sound levels.

Idle Acoustic Noise (sound power)	LWAd= 7.0 B
Idle Acoustic Noise (sound pressure)	LpAm - 53 dBA

Operating Acoustic Noise (sound power)	LWAd= 7.0 B
Operating Acoustic Noise (sound pressure)	LpAm - 53 dBA

6 Support and other resources

Accessing Hewlett Packard Enterprise Support

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

  www.hpe.com/assistance

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

  www.hpe.com/support/hpesc

Information to collect

- Technical support registration number (if applicable)

- Product name, model or version, and serial number

- Operating system name and version

- Firmware version

- Error messages

- Product-specific reports and logs

- Add-on products or components

- Third-party products or components

Accessing updates

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

- To download product updates, go to either of the following:

  - Hewlett Packard Enterprise Support Center **Get connected with updates** page:

    www.hpe.com/support/e-updates

  - Software Depot website:

    www.hpe.com/support/softwaredepot

- 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:

  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 HP Passport set up with relevant entitlements.

Websites

Website	Link
Hewlett Packard Enterprise Information Library	www.hpe.com/info/enterprise/docs
Hewlett Packard Enterprise Support Center	www.hpe.com/support/hpesc

Website	Link
Contact Hewlett Packard Enterprise Worldwide	www.hpe.com/assistance
Subscription Service/Support Alerts	www.hpe.com/support/e-updates
Software Depot	www.hpe.com/support/softwaredepot
Customer Self Repair	www.hpe.com/support/selfrepair
Insight Remote Support	www.hpe.com/info/insightremotesupport/docs
Serviceguard Solutions for HP-UX	www.hpe.com/info/hpux-serviceguard-docs
Single Point of Connectivity Knowledge (SPOCK) Storage compatibility matrix	www.hpe.com/storage/spock
Storage white papers and analyst reports	www.hpe.com/storage/whitepapers

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. Your Hewlett Packard Enterprise authorized service provider will determine whether a repair can be accomplished by CSR.

For more information about CSR, contact your local service provider or go to the CSR website:

www.hpe.com/support/selfrepair

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 will initiate a fast and accurate resolution based on your product's service level. Hewlett Packard Enterprise strongly recommends that you register your device for remote support.

For more information and device support details, go to the following website:

www.hpe.com/info/insightremotesupport/docs

Documentation feedback

Hewlett Packard Enterprise is committed to providing documentation that meets your needs. To help us improve the documentation, send any errors, suggestions, or comments to Documentation Feedback (**docsfeedback@hpe.com**). When submitting your feedback, include the document title, part number, edition, and publication date located on the front cover of the document. For online help content, include the product name, product version, help edition, and publication date located on the legal notices page.

A Warranty and regulatory information

For important safety, environmental, and regulatory information, see *Safety and Compliance Information for Server, Storage, Power, Networking, and Rack Products*, available at www.hpe.com/support/Safety-Compliance-EnterpriseProducts.

Warranty information

HPE ProLiant and x86 Servers and Options

www.hpe.com/support/ProLiantServers-Warranties

HPE Enterprise Servers

www.hpe.com/support/EnterpriseServers-Warranties

HPE Storage Products

www.hpe.com/support/Storage-Warranties

HPE Networking Products

www.hpe.com/support/Networking-Warranties

Regulatory information

Belarus Kazakhstan Russia marking

EAC

Manufacturer and Local Representative Information

Manufacturer information:

• Hewlett Packard Enterprise Company, 3000 Hanover Street, Palo Alto, CA 94304 U.S.

Local representative information Russian:

• **Russia**:

ООО «Хьюлетт Паккард Энтерпрайз», Российская Федерация, 125171, г. Москва, Ленинградское шоссе, 16А, стр.3, Телефон/факс: +7 495 797 35 00

• **Belarus**:

ИООО «Хьюлетт-Паккард Бел», Республика Беларусь, 220030, г. Минск, ул. Интернациональная, 36-1, Телефон/факс: +375 17 392 28 20

• **Kazakhstan**:

ТОО «Хьюлетт-Паккард (К)», Республика Казахстан, 050040, г. Алматы, Бостандыкский район, проспект Аль-Фараби, 77/7, Телефон/факс: + 7 727 355 35 52

Local representative information Kazakh:

- **Russia**:

  ЖШС "Хьюлетт Паккард Энтерпрайз", Ресей Федерациясы, 125171, Мәскеу, Ленинград тас жолы, 16А блок 3, Телефон/факс: +7 495 797 35 00

- **Belarus**:

  «HEWLETT-PACKARD Bel» ЖШС, Беларусь Республикасы, 220030, Минск қ., Интернациональная көшесі, 36/1, Телефон/факс: +375 17 392 28 20

- **Kazakhstan**:

  ЖШС «Хьюлетт-Паккард (К)», Қазақстан Республикасы, 050040, Алматы к., Бостандык ауданы, Әл-Фараби даңғ ылы, 77/7, Телефон/факс: +7 727 355 35 52

Manufacturing date:

The manufacturing date is defined by the serial number.

CCSYWWZZZZ (serial number format for this product)

Valid date formats include:

- YWW, where Y indicates the year counting from within each new decade, with 2000 as the starting point; for example, 238: 2 for 2002 and 38 for the week of September 9. In addition, 2010 is indicated by 0, 2011 by 1, 2012 by 2, 2013 by 3, and so forth.
- YYWW, where YY indicates the year, using a base year of 2000; for example, 0238: 02 for 2002 and 38 for the week of September 9.

Turkey RoHS material content declaration

Türkiye Cumhuriyeti: EEE 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