Hewlett Packard Enterprise

HPE MSA Drive Module Replacement Instructions

Abstract

This document details procedures for replacing failed drive modules in HPE MSA 2040 and HPE MSA 1040 controller and drive enclosures. Read this entire document before replacing a drive. Incorrectly removing an operational, failing, or failed drive from an enclosure might cause data loss.

Before you begin

- Before proceeding, check the following:

  - Confirm that the drive is a member of a fault-tolerant configuration that permits removing one or more drives without risking data loss.

  - If multiple drives have failed and need replacing, determine how many drives can be replaced at the same time. The number of drives that can fail and be replaced without data loss is determined by the fault-tolerance level of the configuration.

- Leave failed modules in the enclosure until you are ready to install the replacement module. Removing a module from an operational enclosure significantly changes air flow within the enclosure. Openings must be populated for the enclosure to cool properly.

- Parts can be damaged by electrostatic discharge. Keep parts in electrostatic containers until needed and ensure you are properly grounded when touching static-sensitive components.

- Use care when handling drives. Drives are sensitive electromechanical devices that can be permanently damaged through improper handling. Keep drives in their original, protective packaging until installation.

- The replacement drive module must be of the same type, and possess capacity equal to or greater than the one being replaced.

- For additional information on replacing drives, see the Hewlett Packard Enterprise website documentation listed under Resources.

Verifying drive status

Before and after replacing a drive, determine its status:

- Check operating system event logs, product-specific logs, and management utilities for drive health and location information.
- Check enclosure status LEDs.
- Check drive LEDs, as described in the following image and table.
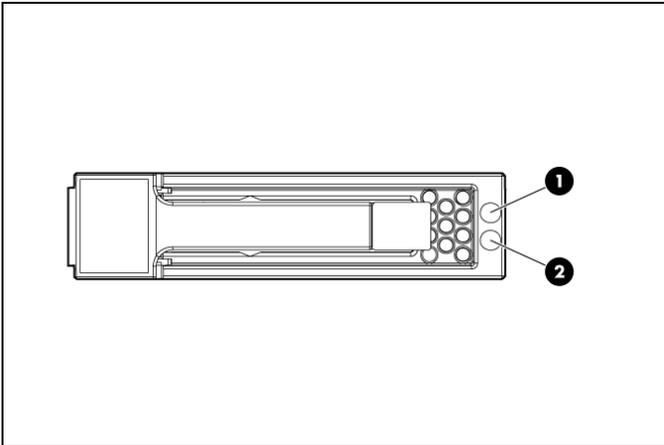
LED	LED color	LED status	Definition
1. UID / Fault	Blue	Solid or blinking	Drive was selected by a management application to locate the drive
	Amber	Solid or blinking	Failed or failing
2. Online / Activity	Green	Solid or blinking	Online and active
		Off	No diagnostic value

Removing the failed drive

△ **CAUTION:** Prolonged use of the array, while one or more drives slots are not covered by either a drive or Airflow Management Sled (AMS), can result in damage to the system from overheating.

1. Press the drive ejector button.

   ⓘ **IMPORTANT:** For drives with rotating media, wait approximately 30 seconds or until the media stops rotating before removing the drive from the enclosure.

2. Pivot the release lever to the full open position.
3. Pull the drive out from the enclosure.
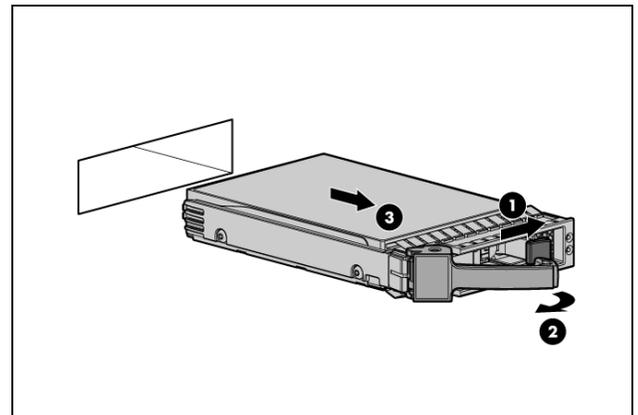
Installing the replacement drive

⚠ **CAUTION:** Wait approximately 30 seconds after removing the failed drive and before installing the replacement drive. This timeframe allows the enclosure to recognize that a drive was removed from the enclosure and can then recognize the replacement drive when it is installed.

1. On the replacement drive, prepare the drive by pressing the drive ejector button and pivoting the release lever to the full open position.
2. Insert the replacement drive into the drive enclosure, sliding the drive into the drive enclosure as far as it will go. As the drive meets the backplane, the release lever automatically begins to rotate closed.
3. Press firmly on the release lever to ensure that the drive is fully seated.
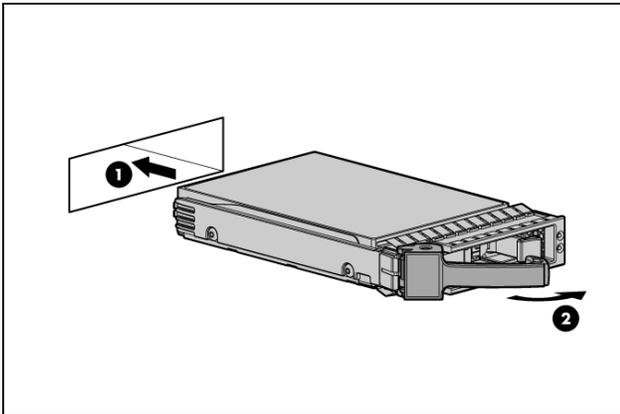
4. Wait approximately 30 seconds for the system to discover the drive.
5. Go to the SMU or CLI and confirm that the drive is available for use.

> **NOTE:** In an FDE-secured system, any drive that does not already have vdisk information is automatically secured using the system lock keys. See user guides for including or repurposing Self-Encrypting Drives (SEDs) that have existing vdisk metadata.

Verifying proper operation

Confirm that the drive is operating normally. See "Verifying drive status" (page 2).

Working with failed drives, spares, and replacement drives

When dynamic sparing is enabled and a drive fails in a fault-tolerant vdisk, if compatible drives are available, the storage system automatically uses the drives to reconstruct the vdisk. Vdisk reconstruction does not require I/O to be stopped, so the vdisk can continue to be used while the reconstruct utility runs. If dynamic sparing is not enabled, you must manually set a compatible drive as a spare for the rebuild to start.

When a failed drive is rebuilt onto a spare, the spare becomes the new drive in the vdisk and the original drive that failed is unused and is no longer part of the vdisk.

To make the replacement drive available for use as a spare:

1. In the SMU, make sure that the status of the drive slot in which the replacement drive is installed is **Available**. All new drives should be Available. If the status is a different value, see the user guides or guided troubleshooting listed underResources for the MSA 2040 or the MSA 1040, and determine the appropriate action.
2. When the replacement drive is online and **Available**, configure the drive to be a dedicated spare or a global spare.

For information about vdisk reconstruction and using the SMU, see the Hewlett Packard Enterprise website documentation listed under Resources.

Updating firmware

After installing any new component, verify that it is running the latest firmware.

Go to the Hewlett Packard Enterprise Support Center website and navigate to the MSA 2040 or MSA 1040 enclosure model. If newer firmware is available, download the firmware from the Web to your local system and install the latest version on the drive. For more information on firmware updates, see the applicable SMU reference guide,

CLI reference guide, or product user guide listed under Resources.

Returning the failed module

In materials shipped with the replacement, Hewlett Packard Enterprise specifies whether the failed component must be returned. Follow the provided instructions.

Resources

For the latest information and instructions regarding Hewlett Packard Enterprise drives, MSA systems, and other products in your deployment, see the following websites:

MSA 2040 product page: http://www.hpe.com/support/msa2040

MSA 2040 guided troubleshooting: http://www.hpe.com/support/msa2040/Troubleshooting

MSA 2040 best practices: http://www.hpe.com/support/msa2040/Bestpractices

MSA 2040 manuals page: http://www.hpe.com/support/msa2040/Manuals

- HPE MSA 2040 user manual

- HPE MSA 2040 SMU reference guide

- HPE MSA 2040 CLI reference guide

- HPE MSA Event Descriptions reference guide

MSA 1040 product page: http://www.hpe.com/support/msa1040

MSA 1040 guided troubleshooting: http://www.hpe.com/support/msa1040/Troubleshooting

MSA 1040 best practices: http://www.hpe.com/support/msa1040/Bestpractices

MSA 1040 manuals page: http://www.hpe.com/support/msa1040/Manuals

- HPE MSA 1040 user manual

- HPE MSA 1040 SMU reference guide

- HPE MSA 1040 CLI reference guide

- HPE MSA Event Descriptions reference guide

Hewlett Packard Enterprise Support Center: http://www.hpe.com/info/hpsc

Hewlett Packard Enterprise Product Bulletin: http://www.hpe.com/info/productbulletin

Hewlett Packard Enterprise SPOCK: http://www.hpe.com/storage/spock

Hewlett Packard Enterprise Servers: http://www.hpe.com/info/servers

Hewlett Packard Enterprise Storage: http://www.hpe.com/info/storage

Warranty statement

To obtain a copy of the warranty for this product, see the warranty information website at http://www.hpe.com/info/storagewarranty.

Documentation feedback

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