

# HP MSA2000/P2000 Drive Module Replacement Instructions

## Abstract

This document details procedures for replacing failed drive modules in HP MSA2000- and P2000-family controller and drive enclosures. Read this entire document before replacing a drive. Incorrectly removing a operational, failing, or failed drive from an enclosure might cause data loss.



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## 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.

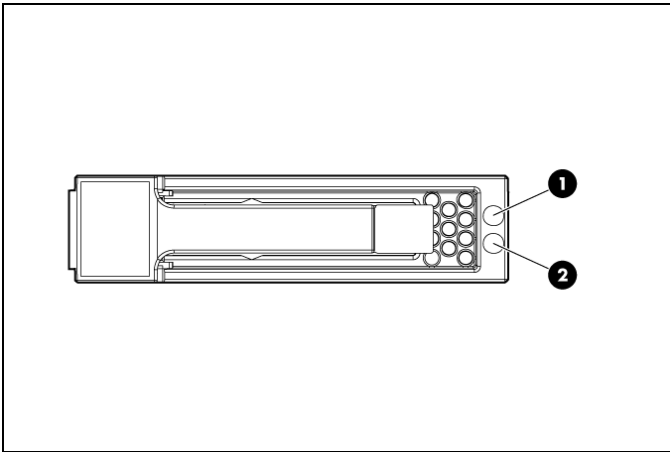
For additional information on replacing drives, go to the following HP websites:

- MSA2000 G2 Guided Troubleshooting:  
<http://h20584.www2.hp.com/hpgt/guides/select?lang=en&cc=us&prodTypeId=12169&prodSeriesId=3971509>
- P2000 G3 MSA Guided Troubleshooting:  
<http://www.hp.com/go/p2000/troubleshooting>
- User manual for your MSA product model:  
<http://www.hp.com/go/hpsc>
- 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.

## 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.

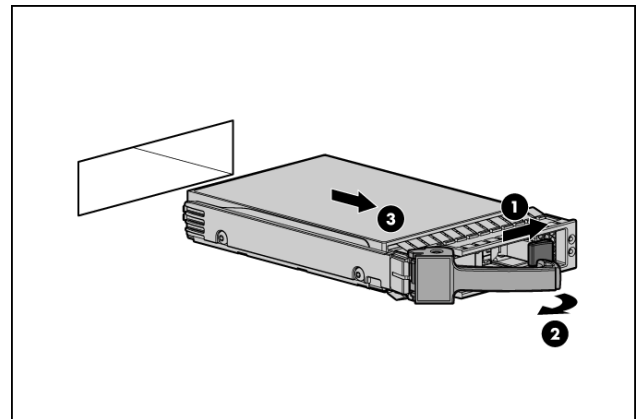


LED	LED color	LED status	Definition
1. UID / Fault	Blue	Solid or blinking	Drive was selected by a management application to locate the drive
	Amber	Solid or blinking	Failed or failing
2. Online / Activity	Green	Solid or blinking	Online and active
		Off	No diagnostic value

## Removing the failed drive

**⚠ CAUTION:** When replacing multiple drives, remove only one drive at a time from the enclosure. Removing more than one drive from the enclosure impacts the cooling airflow through the enclosure, which can result in system overheating and data loss.

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.

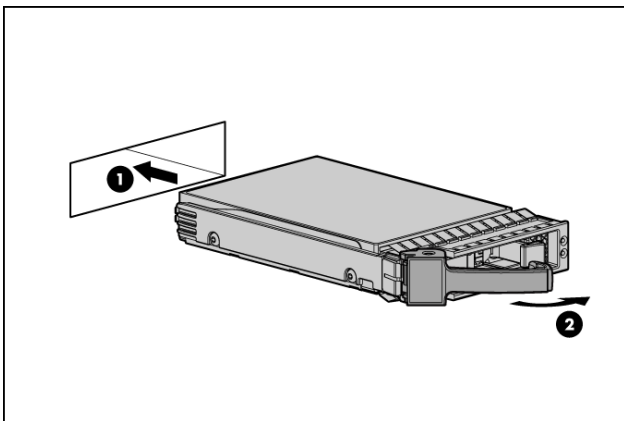


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## Installing the replacement drive

**⚠ 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.

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## Verifying proper operation

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

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## Working with failed drives, spares, and replacement drives

In MSA2000 and P2000 enclosures, 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 as a spare an appropriately sized drive with the correct protocol so that the rebuild can start.

When a failed drive is rebuilt on to a spare, the spare becomes the new drive in the virtual disk and the original drive slot position that failed is unused and is no longer part of the virtual disk.

### 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 Guide or the Guided Troubleshooting for your MSA model and determine what action to take.
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 following resources for your MSA product model:

- Guided Troubleshooting
- User Manual
- SMU Reference Guide
- CLI Reference Guide

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## Updating firmware

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

Go to the HP Support Center website and navigate to the page for your MSA enclosure model. If newer firmware is available, download the firmware from the Web to your local system and install that latest version on the drive. For more information on firmware updates, see the SMU, CLI, or product user guide for your MSA model.

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## Returning the failed module

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

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## Additional resources

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

HP Support Center: <http://www.hp.com/go/hpsc>

HP Product Bulletin:

<http://www.hp.com/go/productbulletin>

HP SPOCK: <http://www.hp.com/storage/spock>

HP Servers: <http://www.hp.com/go/servers>

HP Storage: <http://www.hp.com/go/storage>

HP MSA: <http://www.hp.com/go/msa>

MSA2000 G2 Guided Troubleshooting:

<http://h20584.www2.hp.com/hpgt/guides/select?lang=en&cc=us&prodTypeId=12169&prodSeriesId=3971509>

P2000 MSA Guided Troubleshooting:

<http://www.hp.com/go/p2000/Troubleshooting>

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