



**Hewlett Packard  
Enterprise**

# HPE MSA Controller Module Replacement Instructions

## Abstract

This document details procedures for replacing a failed controller module in an HPE Modular Smart Array system.

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## About this document

- The SMU (Storage Management Utility) and the CLI can be used to manage the enclosure. Tasks in this document demonstrate using the SMU. Refer to the SMU reference guide, or the CLI reference Guide for instructions using those interfaces.
- For the latest product documentation, see the HPE Support Center website <http://www.hpe.com/support/hpesc>.

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## Before you begin

Observe the following:

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### ⚠ CAUTION:

- Removing a module from an operational enclosure significantly changes air flow within the enclosure. Openings must be populated for the enclosure to cool properly. Leave modules in the enclosure until a replacement is available.
- Parts can be damaged by electrostatic discharge; use proper anti-static protection. Keep parts in electrostatic containers until needed and ensure you are properly grounded when touching static-sensitive components.

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### ⓘ IMPORTANT:

When replacing both controllers in an operational enclosure, do as follows:

1. Replace one controller as detailed in these instructions.
2. Wait 30 minutes. This pause ensures that the controller and its ownership of the vdisks or disk-groups have enough time to fully stabilize.
3. To ensure that the system is stable, check the system status and event logs.
4. Replace the other controller as detailed in these instructions.

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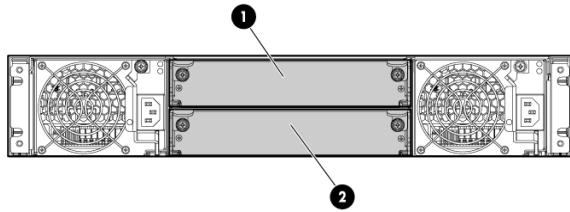
### ⓘ IMPORTANT:

When two controllers are installed in an enclosure, they must be the same model and the same firmware version. Mixing controller types or firmware versions in the same enclosure is not supported.

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To reduce the impact on system performance, perform all maintenance tasks during periods of low system activity or during a system maintenance window.

The following illustration shows controller module locations.



1. Controller module A      2. Controller module B

**NOTE:**

Illustrations in this document show generic representations of modules and enclosures; procedures are the same for all modules shipped with this document.

Note key settings using the SMU: Consult the SMU guide for your model to determine how to obtain these settings.

NTP settings:
System information (name, contact, location, and description):
User information:
Email notification settings:
SNMP notification settings:
syslog notification settings:
Scheduled tasks:
Hosts (IDs and names):
Specific host (IDs, names, and mappings):

**Verifying module failure**

Before replacing the module, look at the event log, system management utilities, and device LEDs, to confirm that the module has failed.

**Table 1: LED descriptions**

Module LED	Description
FRU OK	<ul style="list-style-type: none"> <li>• Solid Green = Module is operating normally</li> <li>• Blink = System is starting up</li> <li>• Off = Module is not operating normally</li> </ul>
Fault/Service Required	<ul style="list-style-type: none"> <li>• Solid Amber = Fault condition</li> <li>• Blinking Amber = Hardware-controlled power-up or cache flush/restore error</li> <li>• Off = No fault conditions</li> </ul>

For more information regarding these settings, see the applicable MSA SMU documentation at: <http://www.hpe.com/info/storage/docs>.

**Partner Firmware Update (dual-controller configurations only)**

In a dual-controller configuration, the **Partner Firmware Update** option ensures that both controllers have the most recent version. For controller replacement on an MSA P2000 array, Hewlett Packard Enterprise recommends disabling this feature to avoid unintentionally changing the firmware on the controller not being replaced. For all other MSA arrays Hewlett Packard Enterprise recommends leaving this setting enabled during controller replacement.

After both controllers are running the desired firmware version, Hewlett Packard Enterprise recommends enabling this feature for future firmware upgrades. For the MSA2040/1040 and MSA2050/1050 arrays, it is highly recommended to have this setting enabled at all times.

To view or change the current **Partner Firmware Update** setting.

- In the MSA 1050/2050 SMU: In the system topic, select **Action > Update Firmware**. The Update

**Recording configuration settings**

As a best practice, record system settings before replacing a controller module.

Firmware panel opens, select (enable) the **PFU** check box and confirm the action.

- In the P2000 SMU and MSA 1040/2040 SMU v2: **Configuration > Advanced Settings > Firmware**. If needed, check the box and click **Apply**.
- In CLI: # set advanced-settings partner-firmware-upgrade enabled.

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## Transporting CompactFlash (single-controller configurations only)

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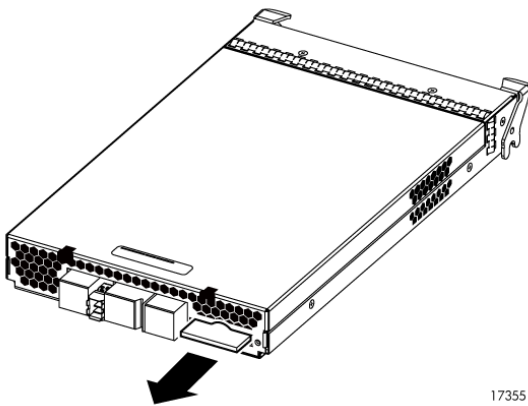
### ⚠ CAUTION:

In single-controller configurations, to prevent data loss, the CompactFlash must be moved from the failed controller to the new controller. In dual-controller configurations, do not transport the CompactFlash, as data corruption might occur.

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### Procedure

1. Make sure that transporting the cache is the appropriate action to take as specified in the user guide for your MSA model.
2. Carefully remove the CompactFlash from the controller, label it *Data*, and set it aside.



3. Carefully remove the CompactFlash from the new controller and set it aside.
4. Insert into the new controller the CompactFlash that you removed from the failed controller and labeled *Data*.

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## Removing the failed controller module

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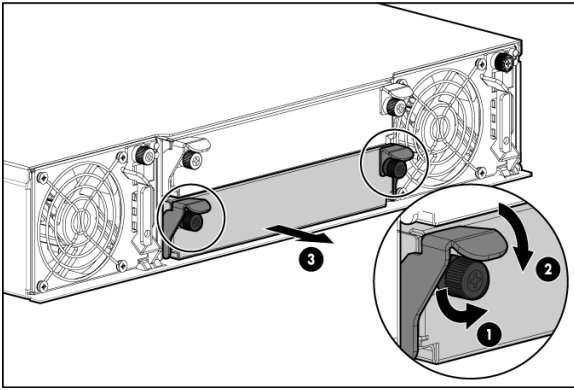
### ⚠ IMPORTANT:

- In a single-controller configuration, if transporting the CompactFlash to a new controller, remove the controller only after the cache is copied to CompactFlash. When the copy is complete, the **Cache Status** LED is off, or it is flashing one-tenth of a second ON and nine-tenths of a second OFF.
  - In a single-controller environment, I/O must be stopped and the enclosure must be powered off prior to the replacement.
  - In a dual-controller environment, if the failed controller is first shut down, the controller may be hot-replaced in an operational enclosure.
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### Procedure

1. If you are replacing a controller in a single-controller environment, stop all I/O and remove power from the enclosure. Go to step 3.
2. In a dual-controller configuration:
  - a. To shut down the failed controller:
    - For the P2000 SMU and the MSA 1040/2040 SMU v2 — Select the system in the Configuration View panel and then **Tools > Shut Down or Restart Controller**.
    - For the MSA 1050/2050 SMU and the MSA 1040/2040 SMU v3 — Select **Restart System** from the System topic.
  - b. Set the following options and then click **OK**:
    - Operation—**Shut down**
    - Controller Type—**Storage**
    - Controller—**A or B**

The blue **OK to Remove** LED on the controller illuminates, indicating that the controller can be safely removed.
  - c. Locate the enclosure in which the controller module **OK to Remove** LED is blue.
3. Disconnect cables connected to the module. Label each cable to facilitate reconnection.
4. Turn the thumbscrews until the screws disengage from the module (1) and rotate both latches downward to disengage the module from the internal connector (2).
5. Pull the module straight out of the enclosure (3).



**NOTE:**

The illustration is for reference only. In a single-controller system, remove the controller module from module A, top location.

After installing a controller in an operational, dual-controller system, the new controller automatically begins initializing. If the firmware versions differ between the two controllers, the Partner Firmware Update feature, if enabled, will update controller firmware so that both controllers are running the same firmware version.

4. In operational systems, if additional hardware components, such as a second controller, need replacing or installing, wait 30 minutes before proceeding with those procedures. This time frame ensures that one or more controllers and their ownership of vdisks or disk-groups are fully stabilized.

**Verifying proper operation**

Examine the module status as indicated in **LED descriptions**.

If the replacement controller does not boot up as expected or if the **Fault/Service Required** LED is amber, the module is not online. Check the event log for errors, and then restart the controller to put the module online. To restart a controller, do the following:

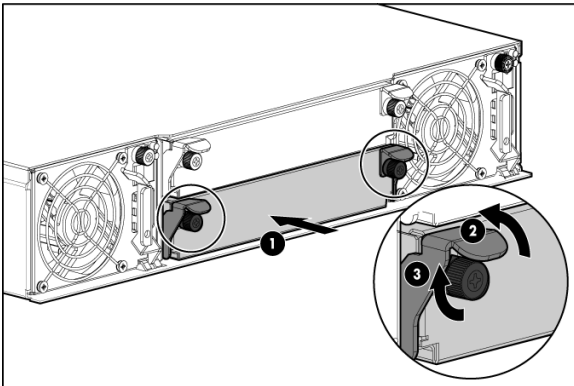
**Procedure**

1. Select the system in the Configuration View panel:
  - For the P2000 SMU and the MSA 1040/2040 SMU v2 — select **Tools > Shut Down or Restart Controller**.
  - For the MSA 1050/2050 SMU and the MSA 1040/2040 SMU v3 — select **Restart System** from the System topic.
2. Set the following options and then click **OK**:
  - Operation—**Restart**
  - Controller Type—**Storage**
  - Controller—**A or B**

**Installing the new controller module**

**Procedure**

1. With the latches in the open position, slide the module into the enclosure as far as it will go (1). To facilitate insertion, press firmly on the top-center of the module, ensuring that the module is seated and flush with the chassis.
2. Rotate the latches upward to engage the module with the internal connector (2) and turn the thumbscrews finger-tight (3).



**NOTE:**

The illustration is for reference only. In a single-controller system, insert the controller module into module A, top location.

**Verifying configuration settings**

After replacing a controller, verify that your system configuration settings are set properly. Repeat the commands shown in **Recording configuration settings** and compare the current values with those recorded before the installation. If necessary, change the settings to their previous values. For more information, see the *HPE MSA SMU Reference Guide*.

3. Reconnect the cables.

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## Updating firmware

After installing a new controller, verify that the latest firmware is installed on all controllers in the enclosure. Go to the Hewlett Packard Enterprise Support Center website and navigate to the page for your enclosure. If newer firmware is available, download the firmware to your local system and install that latest version on the controllers. For more information on firmware updates, see the *HPE MSA SMU Reference Guide*.

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## Returning failed items

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

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## Websites

### General websites

#### Hewlett Packard Enterprise Information Library

[www.hpe.com/info/EIL](http://www.hpe.com/info/EIL)

#### Single Point of Connectivity Knowledge (SPOCK)

##### Storage compatibility matrix

[www.hpe.com/storage/spock](http://www.hpe.com/storage/spock)

##### Storage white papers and analyst reports

[www.hpe.com/storage/whitepapers](http://www.hpe.com/storage/whitepapers)

### MSA websites

#### MSA 2050 manuals page:

<http://www.hpe.com/support/msa2050>

#### MSA 2050 product page:

<http://www.hpe.com/support/msa2050>

#### MSA 2040 manuals page:

<http://www.hpe.com/support/msa2040>

#### MSA 2040 product page:

<http://www.hpe.com/support/msa2040>

#### MSA 1050 manuals page

<http://www.hpe.com/support/msa1050>

#### MSA 1050 product page

<http://www.hpe.com/support/msa1050>

#### MSA 1040 manuals page:

<http://www.hpe.com/support/msa1040>

#### MSA 1040 product page:

<http://www.hpe.com/support/msa1040>

#### P2000 G3 MSA manuals page

<http://www.hpe.com/support/p2000G3msa>

#### P2000 G3 MSA product page

<http://www.hpe.com/support/p2000G3msa>

#### HPE Passport for MSA arrays

[http://h20564.www2.hpe.com/hpsc/doc/public/display?docLocale=en\\_US&docId=emr\\_na-c05349541](http://h20564.www2.hpe.com/hpsc/doc/public/display?docLocale=en_US&docId=emr_na-c05349541)

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## Warranty information

To view the warranty for your product or to view the *Safety and Compliance Information for Server, Storage, Power, Networking, and Rack Products* reference document, go to the Enterprise Safety and Compliance website:

[www.hpe.com/support/Safety-Compliance-EnterpriseProducts](http://www.hpe.com/support/Safety-Compliance-EnterpriseProducts)

### Additional warranty information

#### HPE ProLiant and x86 Servers and Options

[www.hpe.com/support/ProLiantServers-Warranties](http://www.hpe.com/support/ProLiantServers-Warranties)

#### HPE Enterprise Servers

[www.hpe.com/support/EnterpriseServers-Warranties](http://www.hpe.com/support/EnterpriseServers-Warranties)

#### HPE Storage Products

[www.hpe.com/support/Storage-Warranties](http://www.hpe.com/support/Storage-Warranties)

#### HPE Networking Products

[www.hpe.com/support/Networking-Warranties](http://www.hpe.com/support/Networking-Warranties)