

# Replacing a Failed Host Interface Card in the E2712 Controller-Drive Tray or the E2724 Controller-Drive Tray

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**NOTE Possible equipment damage** – Only a qualified service technician should perform this procedure, or equipment damage might result.

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To access this product, go to the NetApp® support site at [support.netapp.com](http://support.netapp.com).

The replacement HIC can have either fibre channel, iSCSI, or SAS connections. Both controllers in a duplex controller-drive tray must have the same arrangement of HICs. Each controller must have the same type of HIC in the same relative position as the other controller.

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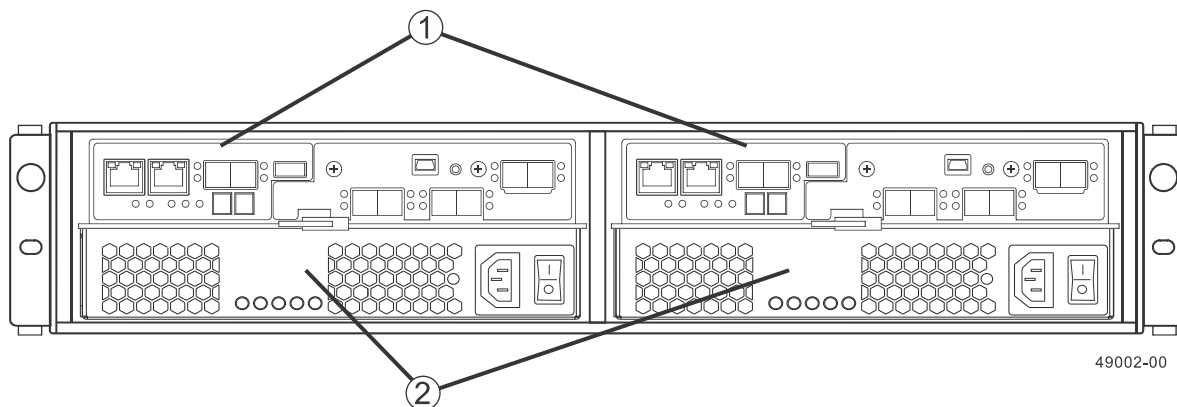
**ATTENTION Potential loss of connectivity** – If both controllers in a duplex controller-drive tray are powered up at the same time with different types of HICs, a mismatch results that causes both controllers to lock down (shut down and stop operating). If one controller is already running, and you replace the alternate controller with a different HIC, only the replacement controller locks down, and the running controller remains operational.

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If you are changing your current HIC configuration, you might need to replace these items in addition to the HIC:

- Host bus adapters or host channel adapters.
- Cables – SAS uses both copper and optical cables, Fibre Channel uses fibre optic cables, and iSCSI uses copper cables.
- The correct HIC subplate for the front of the controller.

**Figure 1. E2712 Controller-Drive Tray or the E2724 Controller-Drive Tray**



1. Controller Canisters
2. Power-Fan Canisters

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**ATTENTION Possible hardware damage** – If you perform this procedure with the power turned on, the equipment might overheat if the controller slot is left open for more than three minutes. To prevent the possibility of overheating, you must insert the controller air blocker into the controller slot when servicing the controller.

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This procedure describes how to perform the following tasks:

[Removing an E2712 or an E2724 Controller Canister](#)

[Removing the Host Interface Card from the E2712 Controller-Drive Tray or the E2724 Controller-Drive Tray](#)

[Installing the Host Interface Card in the E2712 Controller-Drive Tray or the E2724 Controller-Drive Tray](#)

[Bringing the Controller Canister Online](#)

## Removing an E2712 or an E2724 Controller Canister

To replace a failed HIC, you must first remove the controller canister.

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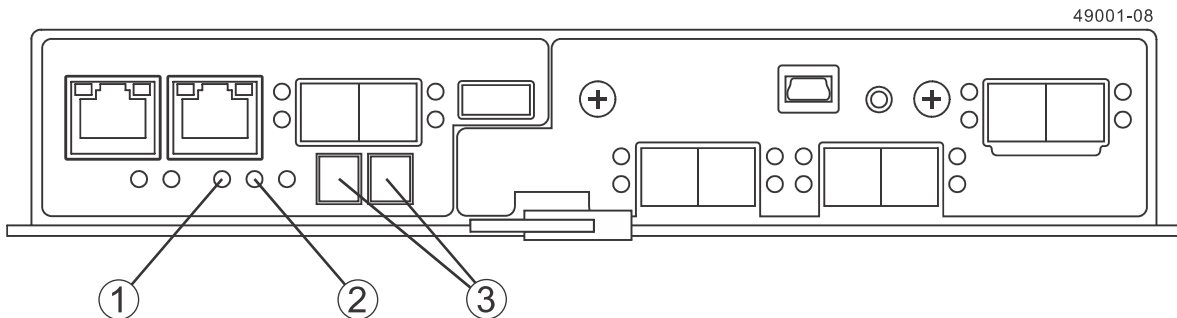
**ATTENTION** Possible hardware damage – To prevent electrostatic discharge damage to the tray, use proper antistatic protection when handling tray components.

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1. Gather support data about your storage array by using one of these methods:  
Before you begin, gather antistatic protection, the new HIC, and the controller air blocker.
  - Use the storage management software to collect and save a support bundle of your storage array. From the Array Management Window, select **Monitor > Health > Collect Support Data**. Then name and specify a location on your system where you want to store the support bundle.
  - Use the command line interface (CLI) to run the `save storageArray supportData` command to gather comprehensive support data about the storage array. For more information about this command, refer to the *Command Line Interface and Script Commands version 11.10*.Gathering support data can temporarily impact performance on your storage array.
2. Did the Recovery Guru direct you to replace a failed HIC?
  - **Yes** – Go to step [3](#).
  - **No** – Run the Recovery Guru to identify the failed component. Go to step [3](#).
3. Put on antistatic protection.
4. Stop all host I/O operations
5. Locate the controller canister in which you want to replace the failed cache memory DIMM by checking the Controller Service Action Required LEDs (Figure [1](#)). Use the Locate Controller Tray function in the storage management software to locate the appropriate controller-drive tray.

If a fault is detected, the amber Controller Service Action Required LED is on. If you can safely remove the controller canister, the blue Controller Service Action Allowed LED is on.

**Figure 2. Controller-Drive Tray Service Action LEDs**



1. Controller Service Action Allowed LED (Blue)
2. Controller Service Action Required LED (Amber)
3. Seven-Segment Display

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**ATTENTION Potential degraded performance** – To prevent degraded performance, do not twist, fold, pinch, or step on the cables. Many cables have a minimum bending radius. Check the specifications for your cables, and do not bend any cable tighter than the minimum specified radius.

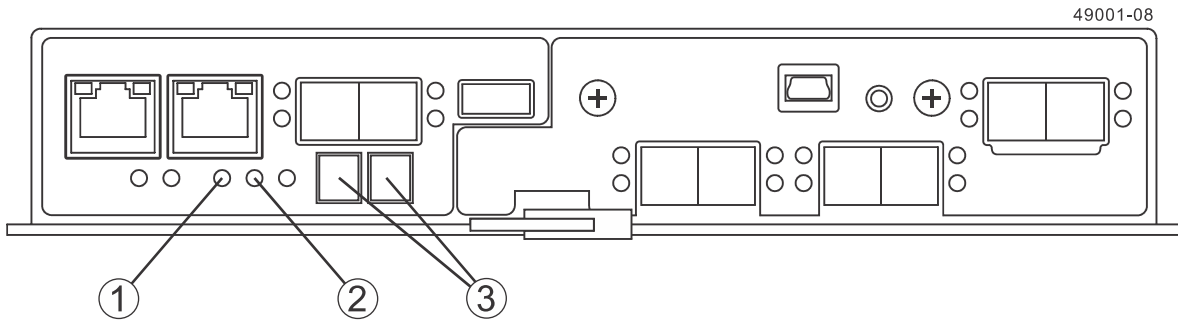
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6. Label each cable that is attached to the controller canister so that you can reconnect each cable correctly after the controller canister is reinstalled.
7. Record the information from the seven-segment display on the rear of the controller-drive tray.
8. Use either the GUI (first bullet) or the CLI (second bullet) to take the appropriate controller offline.
  - From the Hardware pane in the Array Management Window, right-click the picture of the controller you want to take offline, and select **Advanced > Place > Offline**.
  - Run the following command.

```
smCLI <DNS-network-name-or-IP-address> -c "set controller [(a | b)]  
availability=offline";
```

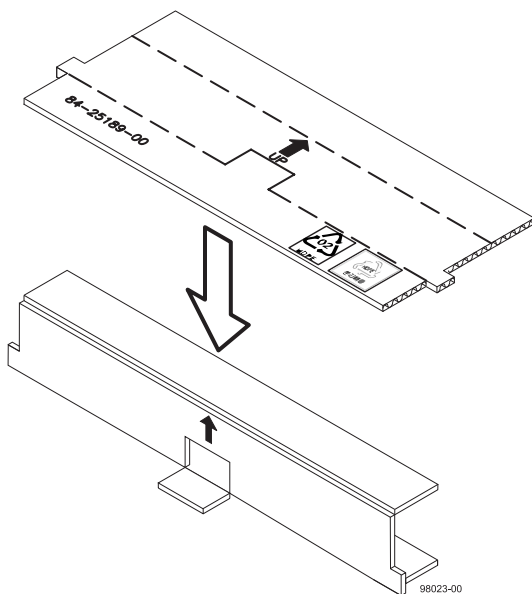
If necessary, wait for the blue Controller Service Action Allowed LED to come on. For a large configuration, this indication might take several minutes.

**Figure 3. Controller LEDs**



1. Controller Service Action Allowed LED (Blue)
  2. Controller Service Action Required LED (Amber)
  3. Seven-Segment Display
9. Disconnect all interface cables (drive connections, host connections, and Ethernet connections) from the controller canister that contains the failed memory DIMM.
- If the storage array is running while you perform the controller battery replacement, do not disturb the second controller canister.
10. Prepare the controller air blocker by removing it from its packaging and folding it inward at right angles so it is ready to insert into the open controller slot.

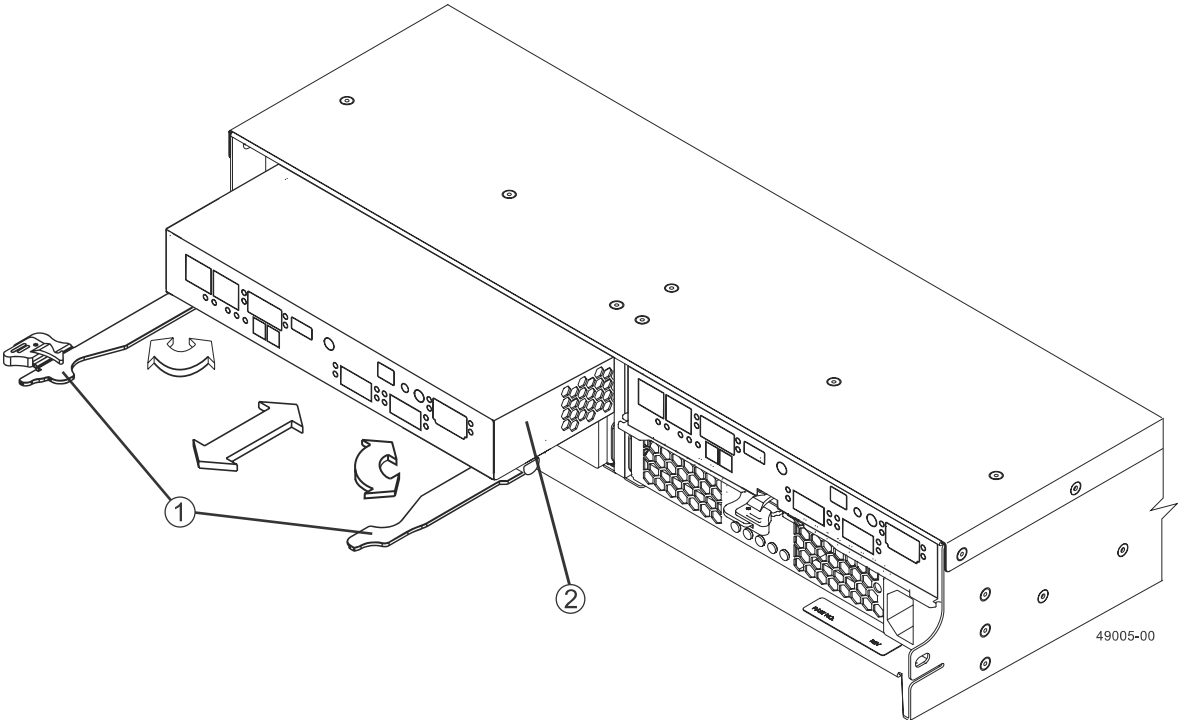
**Figure 4. Controller Air Blocker**



11. Remove the controller canister.
- a. Unlock and pull out the release levers to release the controller canister.
  - b. Using the release levers and your hands, pull the controller canister out of the controller-drive tray.

- c. Set the controller canister on a flat, static-free surface near the controller-drive tray. Position the controller canister so that you can access the top cover.

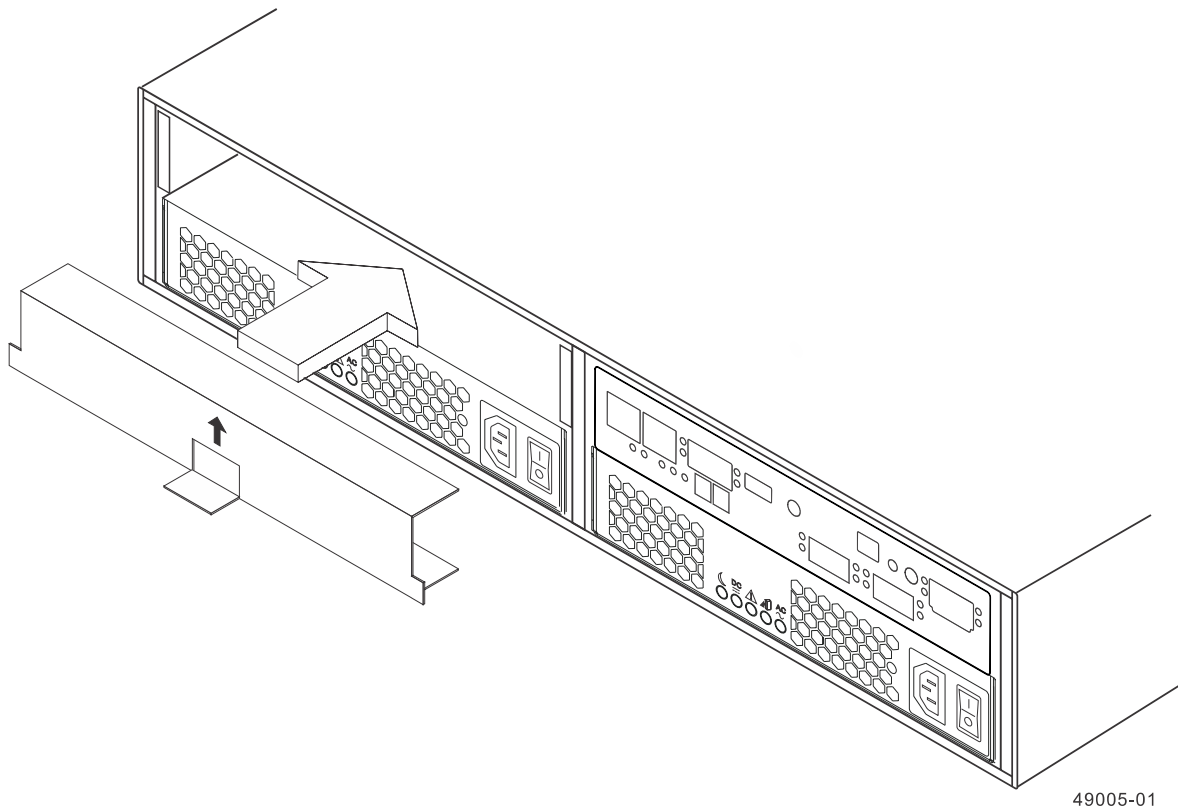
**Figure 5. Removing and Reinstalling the Controller Canister**



- 1. Release Levers
- 2. Controller Canister

12. Insert the controller air blocker into the open controller slot to make sure the correct airflow is maintained.

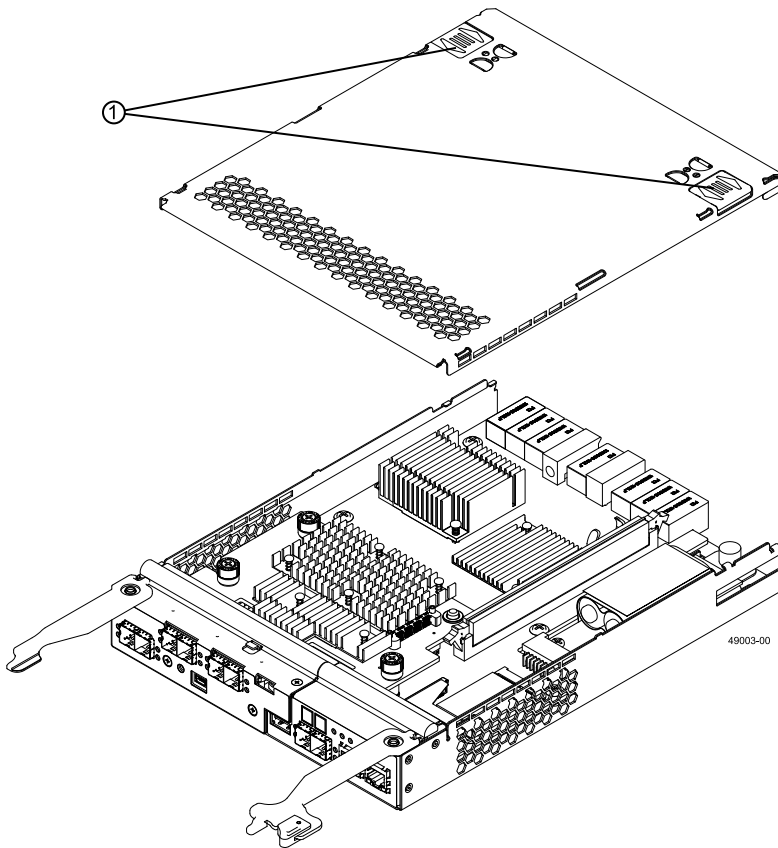
**Figure 6. Inserting the Controller Air Blocker into the Open Controller Slot**



13. Invert the controller canister, and set it on a flat, static-free surface with the release levers up.

14. On the controller canister, press down on both of the top cover latch buttons, and slide the top cover to the rear.

### Figure 7. Host Interface Card Replacement



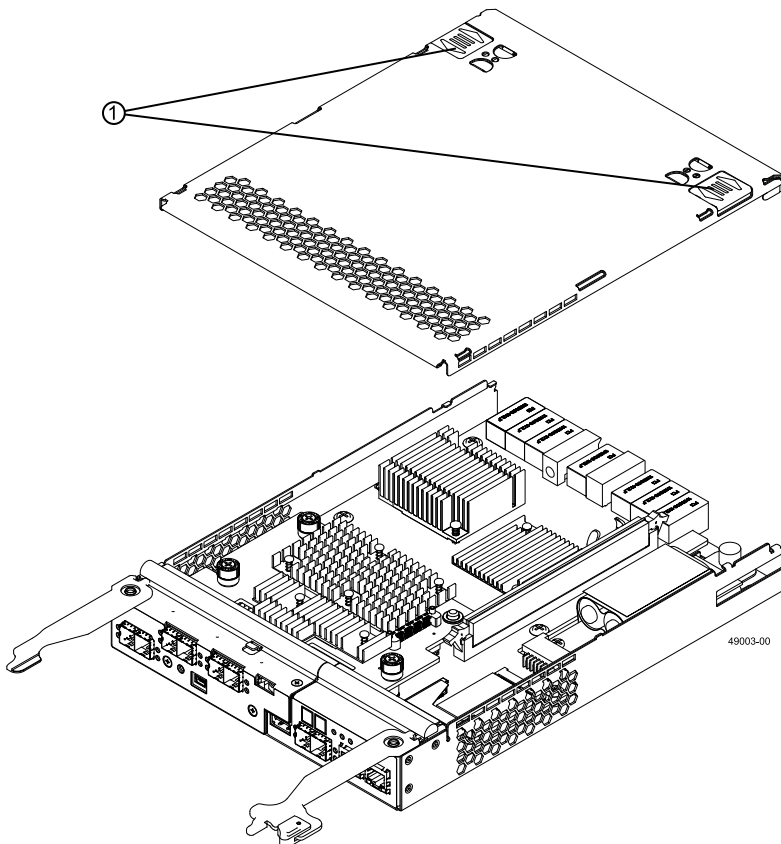
1. Top Cover Latch Buttons

15. Remove the top cover from the controller canister.

# Removing the Host Interface Card from the E2712 Controller-Drive Tray or the E2724 Controller-Drive Tray

1. Remove the screws holding the front bezel to the controller canister located on the top, front and side of the canister with a Phillips screwdriver.

**Figure 8. Host Interface Card Replacement**



1. Top Cover Latch Buttons
2. Remove the subplate from the controller canister, carefully working it from side-to-side until you can slide it off and gain access to the HIC.
3. Loosen the HIC thumbscrews that secure the HIC to the controller card.

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**NOTE** If the thumbscrews were overtightened, you can use a Phillips screwdriver to help you loosen them.

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4. Disengage the HIC from the controller card, and remove the HIC by lifting it up and gently sliding it back, making sure to clear the other components in the canister.

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**NOTE** The connector is located on the right edge of the HIC next to the thumbscrews.

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5. Place the HIC that you removed on a static-free surface.



# Installing the Host Interface Card in the E2712 Controller-Drive Tray or the E2724 Controller-Drive Tray

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**NOTE** Make sure that you have the correct host interface card (HIC).

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1. Install the new HIC by gently connecting the HIC to the HIC interface connector, and tightening the thumbscrews. Do not scratch or bump any of the components on the bottom of the HIC or the top of the controller card.

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2. Tighten the HIC thumbscrews that secure the HIC to the controller card.

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**NOTE** Tighten the thumbscrews by hand only. A screwdriver can overtighten the screws.

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3. Replace the subplate, and replace the four phillips-head screws.
4. Reinstall the top cover on the controller canister.
5. Slide the controller canister all the way into the controller-drive tray. Rotate the release levers towards the center of the controller canister to lock it into place.
6. Reconnect all of the cables that were disconnected when you removed the controller canister.

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**NOTE** Because a HIC was added where none existed previously or if a different type of HIC was installed, additional system cabling and configuration might be necessary.

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## Bringing the Controller Canister Online

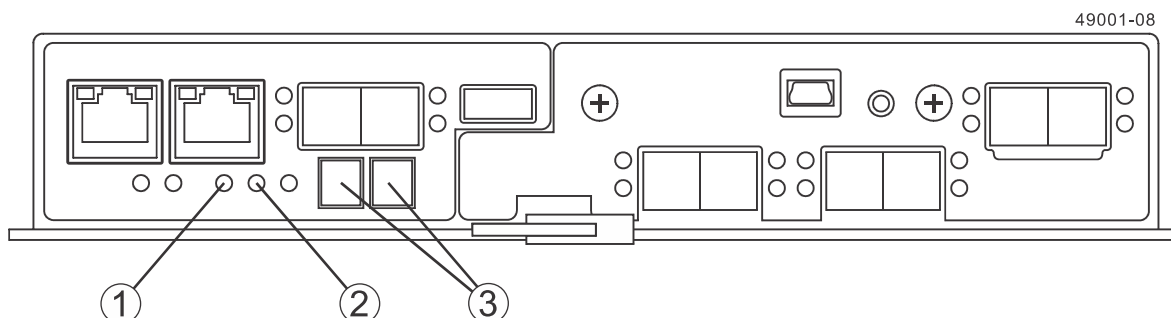
1. Use either the GUI (first bullet) or the CLI (second bullet) to bring the controller online.
  - From the Hardware pane in the Array Management Window, right-click the picture of the controller, and select **Advanced > Place > Online**.
  - Run the following command:

```
smCLI <DNS-network-name-or-IP-address> - "set controller [(a | b)]  
availability=online";
```

2. Look at the LEDs on the controller canister to make sure that the controller is rebooting correctly.

Depending on your type of HIC, you might receive an error message about a failed host I/O card. If this problem occurs, follow the instructions in the Recovery Guru.

**Figure 9. Controller LEDs**



1. Controller Service Action Allowed LED (Blue)
2. Controller Service Action Required LED (Amber)
3. Seven-Segment Display

The seven-segment display shows the sequence `OS+ Sd+ blank-` to indicate that the controller is performing Start-of-day (SOD) processing. After the controller successfully completes rebooting, the seven-segment display shows the tray ID matching the seven-segment display on the second controller. After this time, you can discover the controller canister with the new battery by using the storage management software.

3. Based on the LED status, perform one of these actions:
  - **All o f the amber Service Action Required LEDs are off and the Array Management Window indicated an optimal status** – Go to step [5](#).
  - **Any of the controller-drive tray’s Service Action Required LEDs are on, or the Controller Service Action Required LED is on** – Check that the controller canister has been installed correctly. Reinstall the controller canister, if necessary. Go to step [4](#)
4. Did this action correct the problem?
  - **Yes** – Go to step [5](#).
  - **No** – If this problem is not resolved, contact your Technical Support Representative.
5. Using the LEDs and the storage management software, check the status of all of the trays in the storage array.
6. Does any component have a Needs Attention status?
  - **Yes** – Click the **Recovery Guru** toolbar button in the Array Management Window, and complete the recovery procedure. If the problem is not resolved, contact your Technical Support Representative.
  - **No** – Go to step [7](#).
7. Remove the antistatic protection.
8. Gather support data about your updated storage array by using one of these methods:
  - Use the storage management software to collect and save a support bundle of your storage array. From the Array Management Window toolbar, select **Monitor** > **Health** > **Collect Support Data**. Then name and specify a location on your system where you want to store the support bundle.
  - Use the CLI to run the `save storageArray supportData` command to gather comprehensive support data about the storage array. For more information about this command, refer to *Command Line Interface and Script Commands for version 11.10*.

Gathering support data can temporarily impact performance on your storage array.

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