Replacing a Failed Host Interface Card in the E2760 Controller-Drive Tray

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

To access this product, go to the NetApp® support site at support.netapp.com.

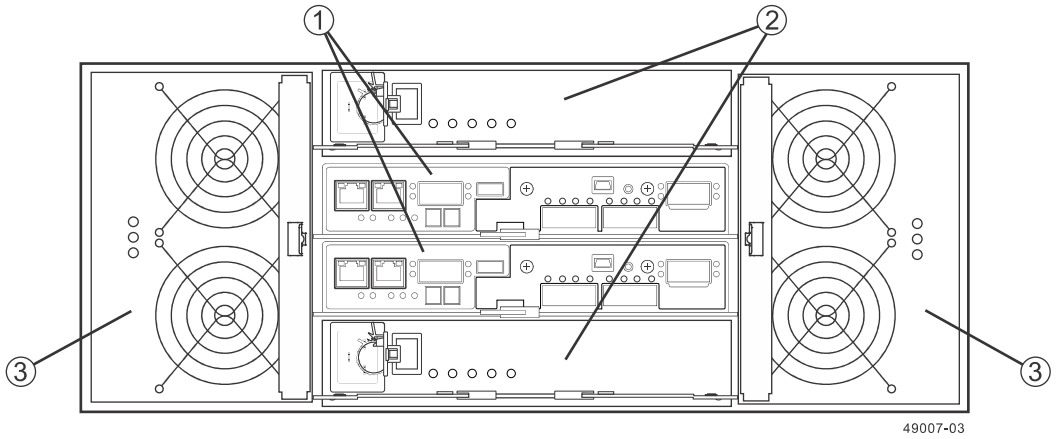
The replacement HIC can have fibre channel, iSCSI, or SAS connections. Both controllers in a duplex controller-drive tray must have the same arrangement of HICs. Each controller must have the same type of HIC in the same relative position as the other controller.

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.

If you are changing your current 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 host interface card subplate for the front of the controller.

Figure 1. E2760 Canisters



1. Controller Canister
2. Power Canister
3. Fan Canister

This procedure describes how to perform the following tasks:

Removing a Controller Canister from the E2760 Controller-Drive Tray

Removing a Controller Canister from the E2760 Controller-Drive Tray

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

1. Gather support data about your storage array by using one of these methods:

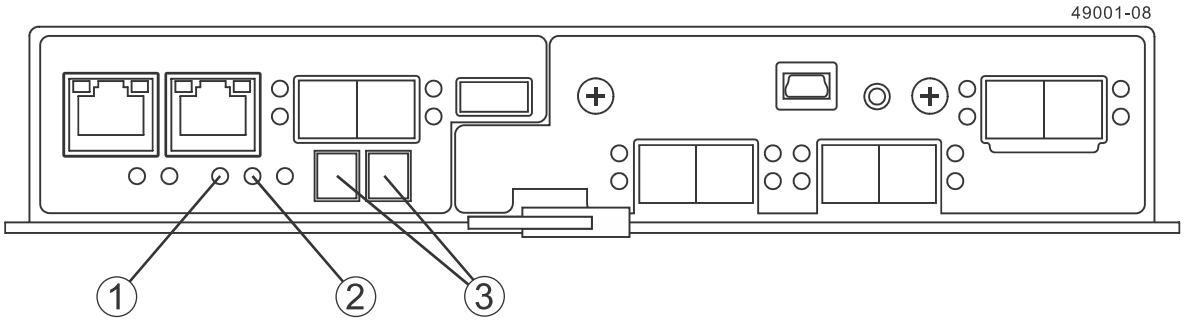
   Before you begin, gather antistatic protection, the new HIC, and the controller air blocker.

   - 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, and go to step 3.
3. Put on antistatic protection.
4. Label each cable that is attached to the controller canister so that you can reconnect each cable correctly after you reinstall the controller canister.
5. Stop all host I/O operations.
6. Locate the controller canister in which you want to replace the HIC by checking the Controller Service Action Required LEDs (Figure 2). 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. E2760 Controller Service Action LEDs



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

7. Record the information from the seven-segment display on the rear of each controller in the controller-drive tray.
8. Take the appropriate controller offline by performing one of these actions:
   - **Array Management Window**: In the Hardware pane, right click the picture of the controller you want to take offline, and select **Advanced** > **Place** > **Offline**.
   - **CLI**: Run the following command:

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

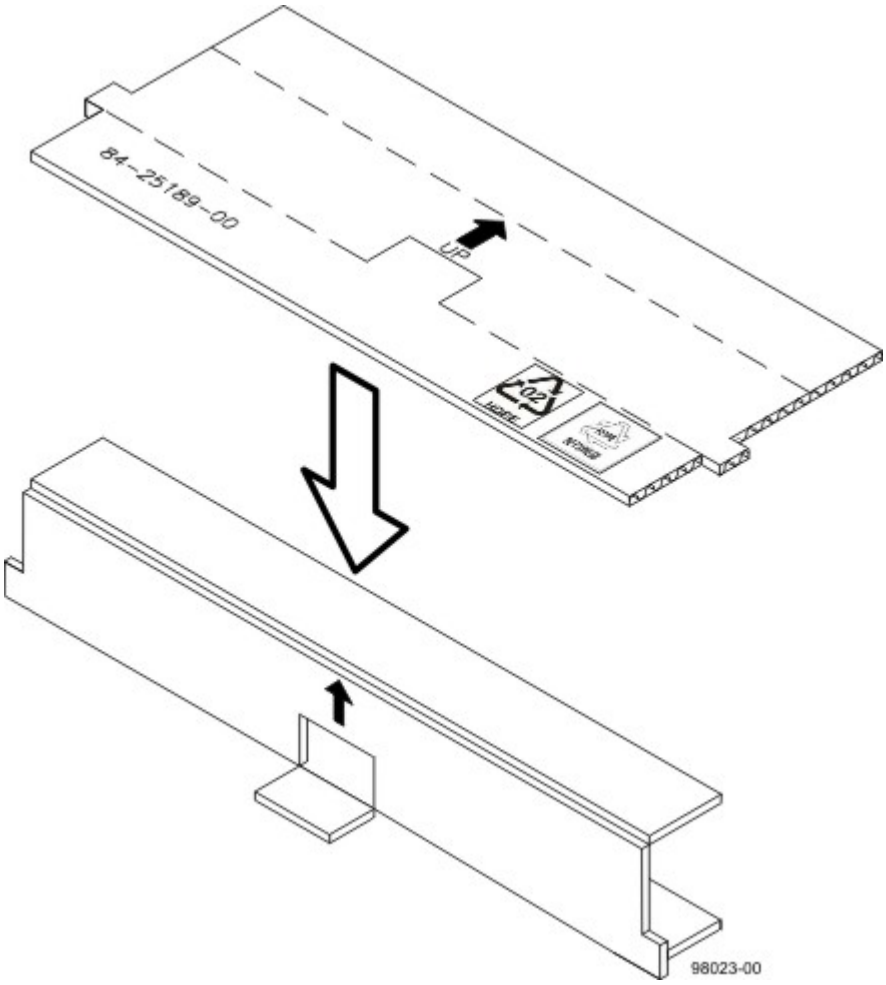
9. Disconnect all cables from the controller canister that contains the HIC.

   If the storage array is running while you perform this replacement, do not disturb the second controller canister.

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 more tightly than the minimum specified radius.

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.

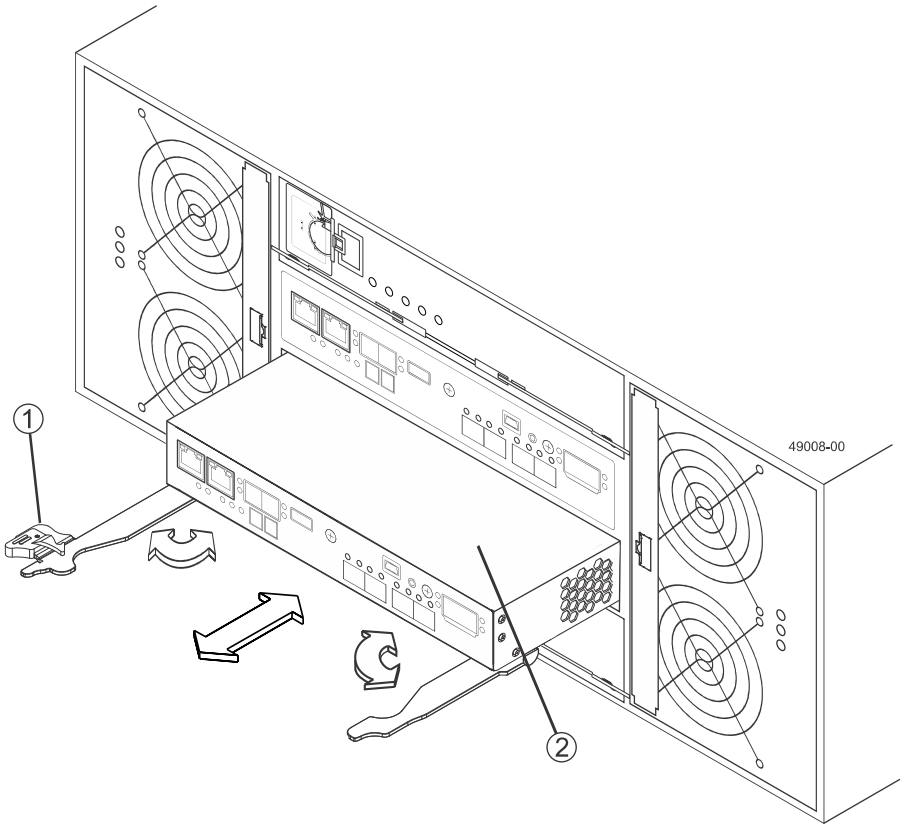
Figure 3. Controller Air Blocker



11. Remove the controller canister in which you will be installing the new HIC.
    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.

Figure 4. Removing and Replacing a Controller Canister



1. Release Levers
2. Controller Canister

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

ATTENTION Possible equipment damage – The controller slot cannot remain open for more than three minutes because of the possibility of overheating the equipment. The controller air blocker fills the controller slot so that the equipment does not overheat.

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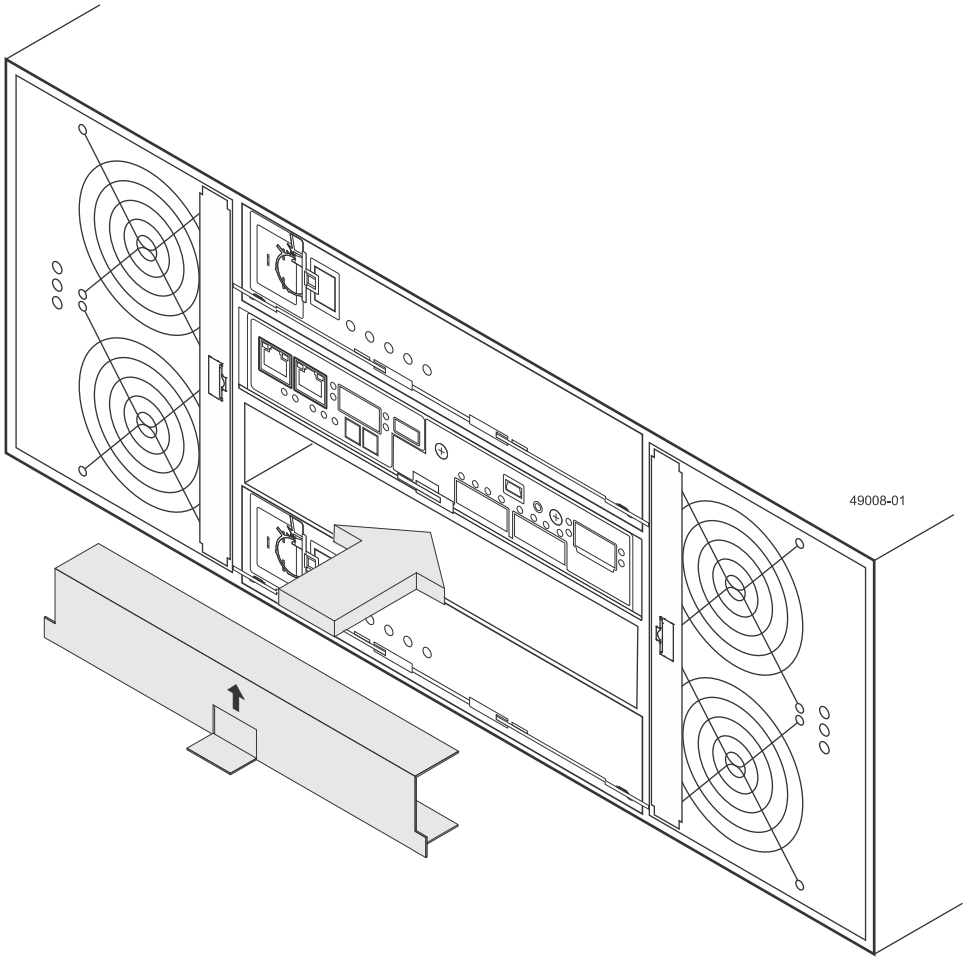
13. Insert the controller air blocker into the open controller slot to make sure that the correct airflow is maintained.

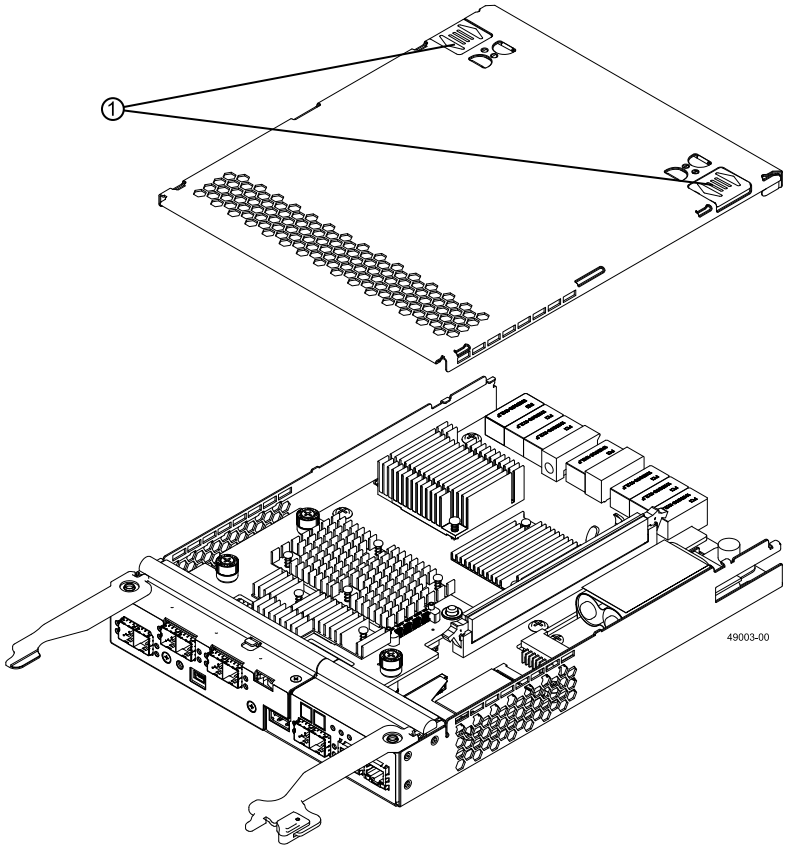
Figure 5. Inserting the Controller Air Blocker into the Open Controller Slot



Removing a Host Interface Card from the E2760 Controller-Drive Tray

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

Figure 6. Controller Cover and Internal Parts



1. Top Cover Latch Buttons

2. 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.
3. 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.
4. Loosen the HIC thumbscrews that secure the HIC to the controller card.

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

5. 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.

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

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

Installing a Host Interface Card in the E2760 Controller-Drive Tray

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.

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

1. Install the new HIC by gently connecting the HIC to the HIC interface connector. Do not scratch or bump any of the components on the bottom of the HIC or the top of the controllercard.
2. Tighten the thumbscrews that secure the HIC to the controller card.

   NOTE Tighten the thumbscrews by hand only. A screwdriver can overtighten the screws.
3. Replace the subplate, and replace the four phillips-head screws.
4. Reinstall the top cover on the controller canister.

Installing a Controller Canister in the E2760 Controller-Drive Tray

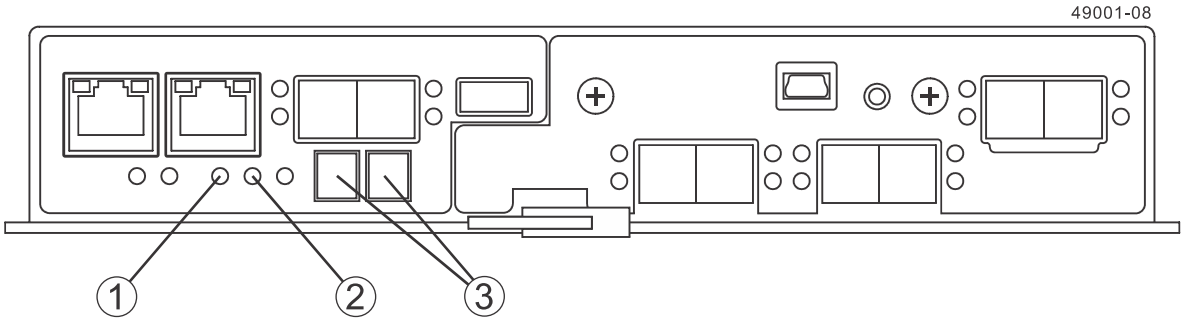
1. Remove the controller air blocker.
2. Slide the controller canister all the way into the controller-drive tray. Rotate the release levers towards the center of the controller canister to lock it into place.
3. Reconnect all of the cables that were disconnected when you removed the controller canister.

   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.
4. Place the controller online by performing one of these actions:
   - **Array Management Window**: In the Hardware pane, right click the picture of the controller you want to bring online, and select **Advanced** > **Place** > **Online**.
   - **CLI**: Run the following command:
5. Look at the LEDs on the controller canister to make sure that the controller is booting correctly.

   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 by using the storage management software.

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 7. Controller LEDs



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

6. Look at the Controller Service Action Required LEDs, and look at all of the controller-drive tray's Service Action Required LEDs. Based on the LED status, perform one of these actions:
   - All of the Service Action Required LEDs are off, and the Array Management Window indicates an Optimal status – Go to step 8.
   - **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 and that all of the cables are correctly seated. Reinstall the controller canister, if necessary. Go to step 7.
7. Did this action correct the problem?
   - **Yes** – Go to step 8.
   - **No** – If the problem is not resolved, contact your Technical Support Representative.
8. Using the LEDs and the storage management software, check the status of all of the trays in the storage array.
9. 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 10.
10. Remove the antistatic protection.
11. 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 Manually**. 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 file="<FileName>"`** 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 for Version 11.10*.

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

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- NetApp, Inc., 495 East Java Drive, Sunnyvale, CA 94089 U.S.
- Telephone: +1 (408) 822-6000
- Fax: +1 (408) 822-4501
- Support telephone: +1 (888) 463-8277