Quantum.

Replacing a Controller Battery

StorNext QD6000/QD7000 Base System

StorNext QD6000/QD7000 Base System, Replacing a Controller Battery, 6-68477-01 Rev A, July 2016, Product of USA.

About this guide

This section provides the following information:

- Intended audience
- Prerequisites
- NetApp to Quantum Naming Decoder

Intended audience

This guide is intended for storage customers and technicians.

Prerequisites

Prerequisites for installing and using this product include knowledge of:

- Servers and computer networks
- Network administration
- Storage system installation and configuration
- Storage area network (SAN) management and direct attach storage (DAS)
- Fibre Channel (FC) and Ethernet protocols

NetApp to Quantum Naming Decoder

Use Table 1 to correlate the NetApp product nomenclature to the equivalent Quantum-storage naming conventions.

Table 1 Product Nomenclature

E-Series NetApp Product	Quantum-Storage	Description
Controller-Drive Tray	Base System	Quantum uses Base System when referring to a drive tray with the RAID controllers.
Drive Tray	Expansion Unit	Quantum uses Expansion Unit when referring to a drive tray with the environmental services modules (ESMs).
E5600 (Code Name: Titan)	RAID controller	Four 16Gb/s FC SFP+ host ports
E5500 (Code Name: Soyuz)	RAID controller	Four 16Gb/s FC SFP+ host ports
E5400 (Code Name: Pikes Peak)	RAID controller	Four 8Gb/s FC SFP+ host ports
DE6600 (Code Name: Wembley)	4U 60-drive enclosure	60 3.5 inch disk drives
E5560 or E5660 (DE6600 4U drive enclosure with E5500 or E5600 RAID controllers)	Quantum StorNext QD7000	
E5460 (DE6600 4U drive enclosure with E5400 RAID controllers)	Quantum StorNext QD6000	
E5424 (DE5600 24-drive 2U drive enclosure (Code Name: Camden) with E5400 RAID controllers)	Quantum StorNext QS2400	
E5412 (DE1600 12-drive 2U drive enclosure (Code Name: Ebbets) with E5400 RAID controllers)	Quantum StorNext QS1200	

Replacing a Failed Controller Battery in the E5660 Controller-Drive Tray

To access this product, go to the NetApp® Support Site at mysupport.netapp.com.

You can determine whether you have a failed controller battery in two ways:

- The Recovery Guru directs you to replace a failed controller battery.
- The amber Battery Service Action Required LED indicates a failed controller battery.

Before you replace the controller battery, gather antistatic protection, a replacement controller battery, and a controller air blocker.

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 empty controller slot when you service the controller.

Figure 1. E5660 Controller-Drive Tray
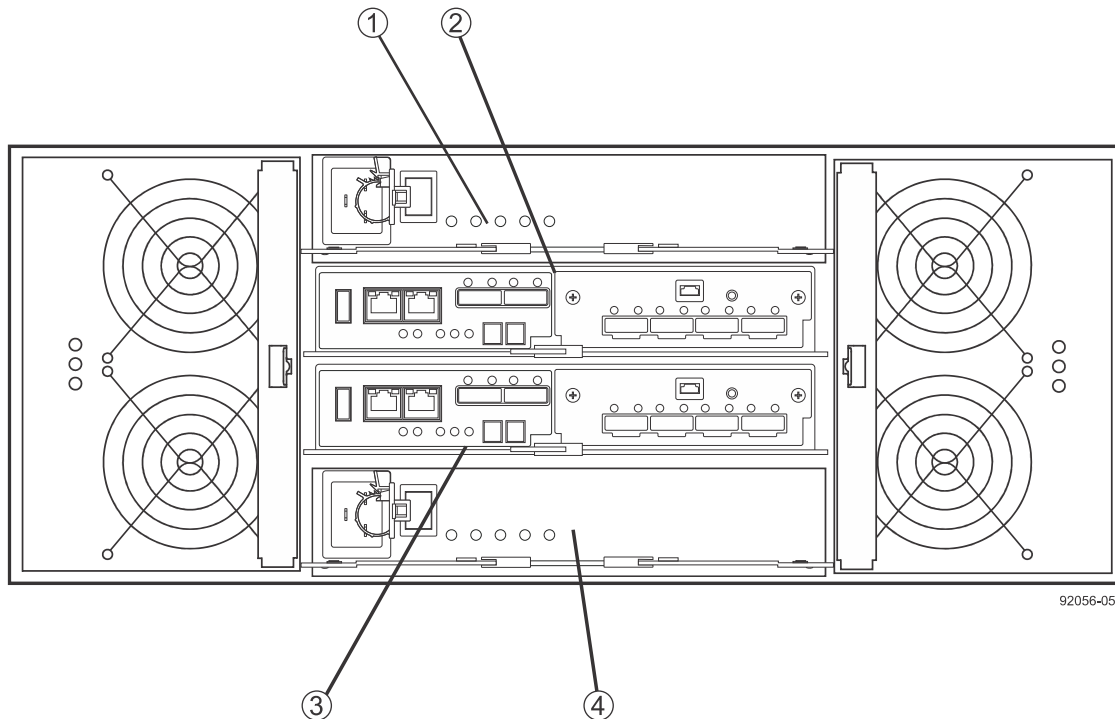
1. Power Canister A
2. Controller Canister A
3. Controller Canister B
4. Power Canister B

Removing a Controller Canister

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:

   - 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 Manually**. 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 Programming Guide*.

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

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2. Did the Recovery Guru direct you to replace a failed controller battery?

   - **Yes** – Go to step [3](#).
   - **No** – Run the Recovery Guru to identify the failed component.

3. Locate the failed controller battery by checking the Battery Service Action Required LED.

   If a fault is detected, the amber Battery Service Action Required LED is on.

   NOTE The figures in this document show a SAS configuration with four connectors. Your controller canister might have a different number and type of host interface connectors.

Figure 2. SAS E5600 Controller Service Action LEDs
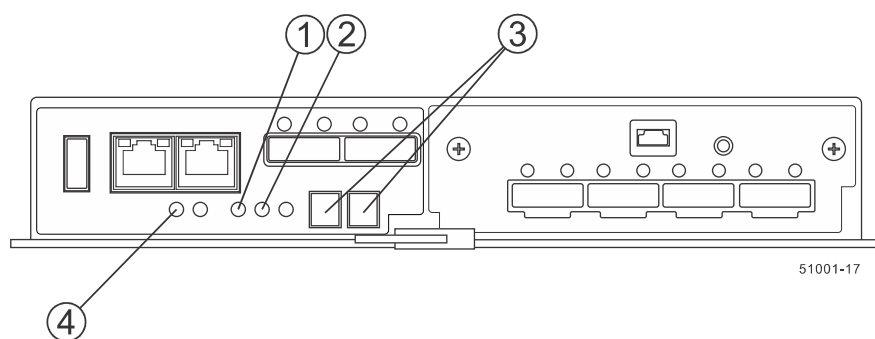
1. Controller Service Action Allowed LEDs (Blue)
2. Controller Service Action Required LEDs (Amber)
3. Seven-Segment Display
4. Battery Service Action Required LED (Amber)

4. Record the information from the seven-segment display on the controller-drive tray.

   The display flashes a sequence of codes. To find information about the displayed diagnostic codes, refer to the *E5600 Controller-Drive Tray and Related Drive Trays Installation Guide*.

5. Use either the GUI (first bullet) or the CLI (second bullet) to take the appropriate controller offline.

   - In 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";
```

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

7. Put on antistatic protection.

8. Label each cable that is attached to the controller canister with the failed battery so that you can reconnect each cable correctly after the controller canister is reinstalled.

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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9. Disconnect all interface cables (drive connections, host connections, and Ethernet connections) from the controller canister that has the failed battery.

   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 the packaging and folding it inward at right angles so it is ready to insert into the open controller slot.

**Figure 3. Controller Air Blocker**
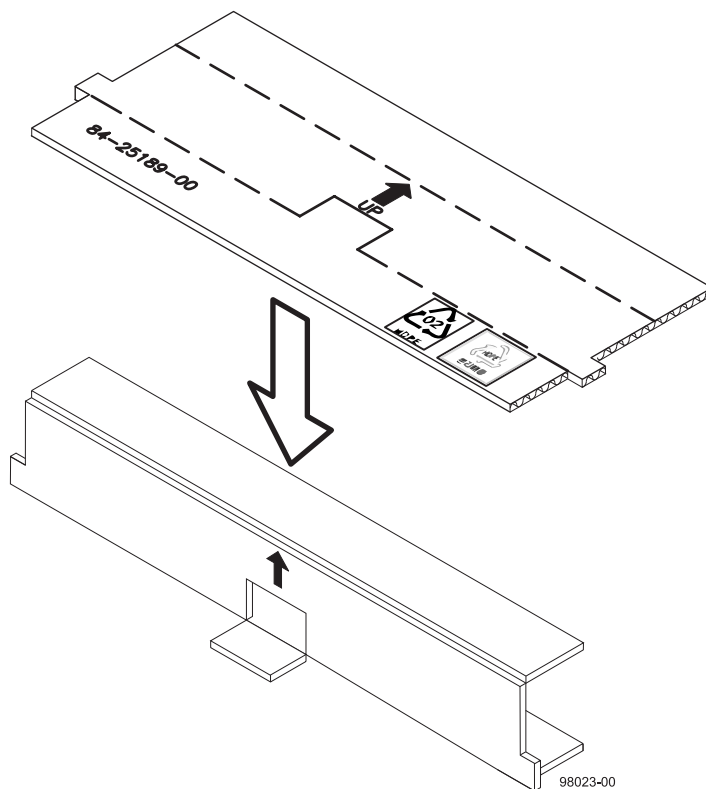
11. Remove the controller canister that has the failed controller battery.

NOTE The following figure shows the controller in the bottom position within the controller-drive tray. However, you might be removing the controller and inserting the controller air blocker in the top position. The required actions are similar.

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a. Unlock the controller canister release lever, and pull the release lever outward to release the controller canister.

b. Using the release lever, pull the controller canister out of the controller-drive tray.

Figure 4. Removing and Replacing a Controller Canister
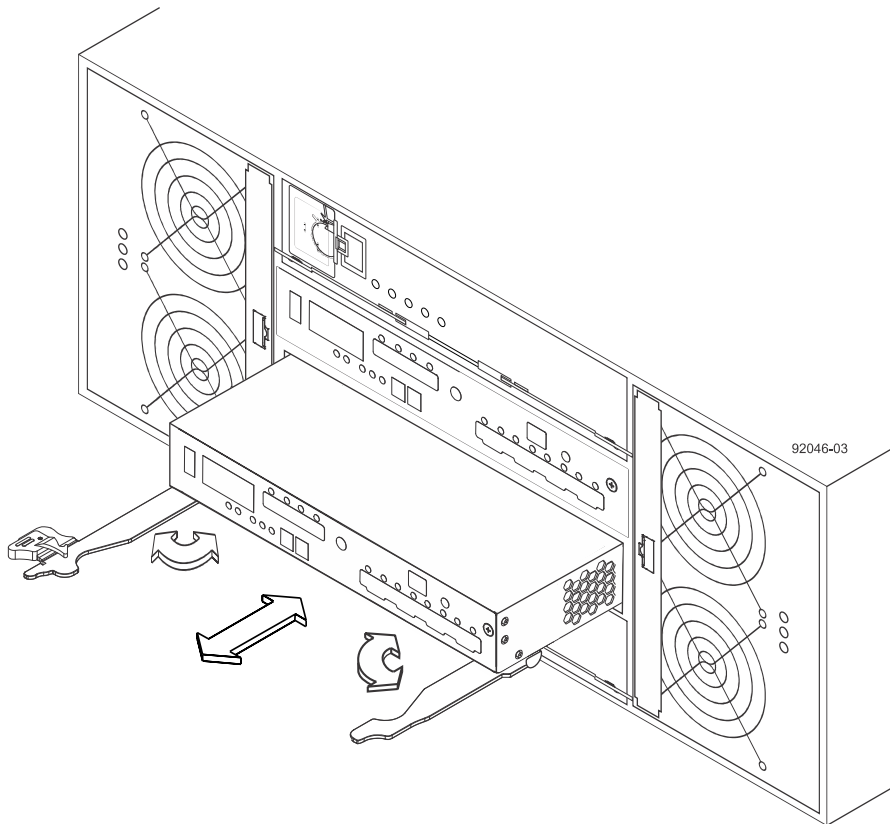

12. Invert the controller canister, and set it on a flat, static-free surface, with the release levers up.

> **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.

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

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

92046-04
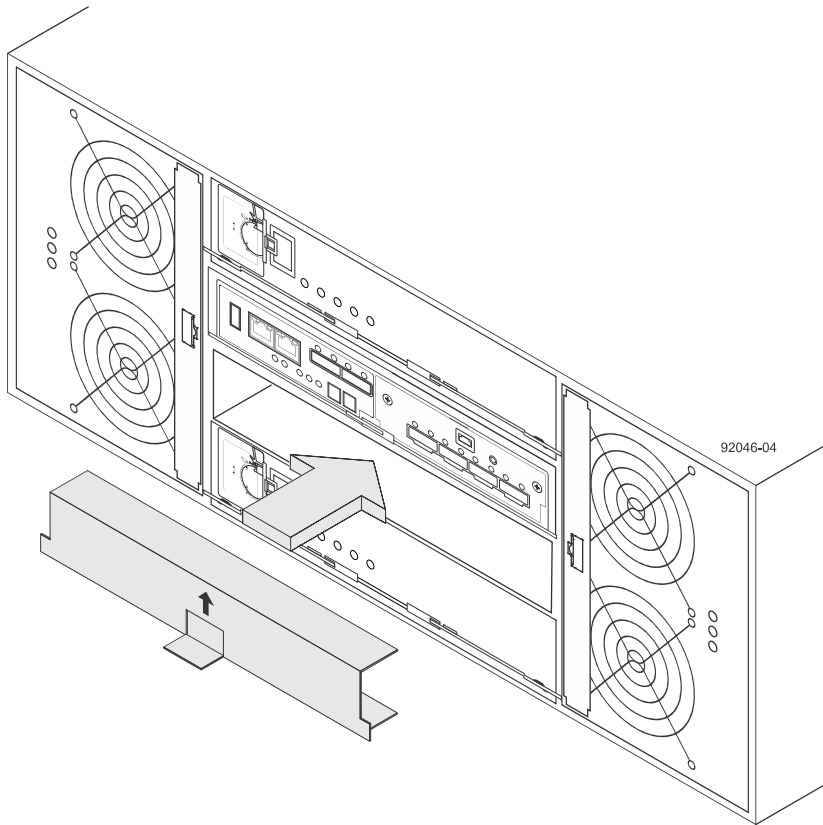
Replacing a Controller Battery

1. Unpack the new controller battery.

   a. Set the new controller battery on a flat, static-free surface near the controller-drive tray.

   b. Save all of the packing materials in case you need to return the controller battery.

2. Remove the top cover from the controller canister.

Press down on both of the top cover latch buttons as you slide the top cover off the controller canister.

Figure 6. Battery and Locking Tab in the Controller
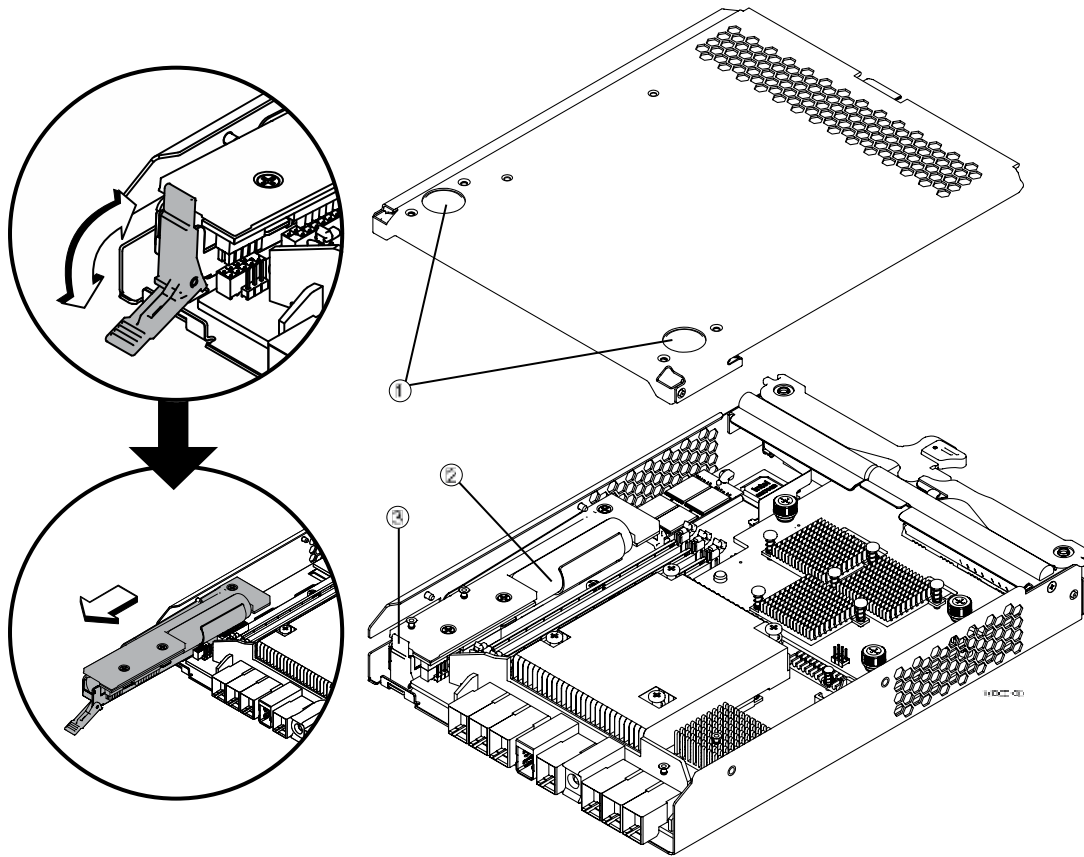
1. Top Cover Latch Buttons
2. Battery Circuit Board
3. Battery Locking Tab

3. Remove the failed battery.

    a. Move the battery locking tab down to pull the failed controller battery out of the controller canister.

    b. Remove the failed controller battery by sliding it towards the rear of the controller canister.

4. Install the new battery.

    a. Insert the new battery at a slight downward angle into the controller canister.

    b. Slide the battery towards the front of the controller canister making sure that the battery slides under the side guide pins as you continue to slide the battery to correctly seat it against the back surface.

    If the battery is not correctly seated, you will not be able to reinstall the top cover on the controller canister as directed later. If you suspect that the new battery is not correctly seated, you might need to slide the new battery out and insert it again.

5. Move the locking tab up to secure the new battery circuit board to the controller canister.

6. Reinstall the top cover on the controller canister by sliding it forward until the top cover latch buttons click.

Reinstalling the Controller Canister

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.

Figure 7. Removing and Replacing a Controller Canister

92046-05
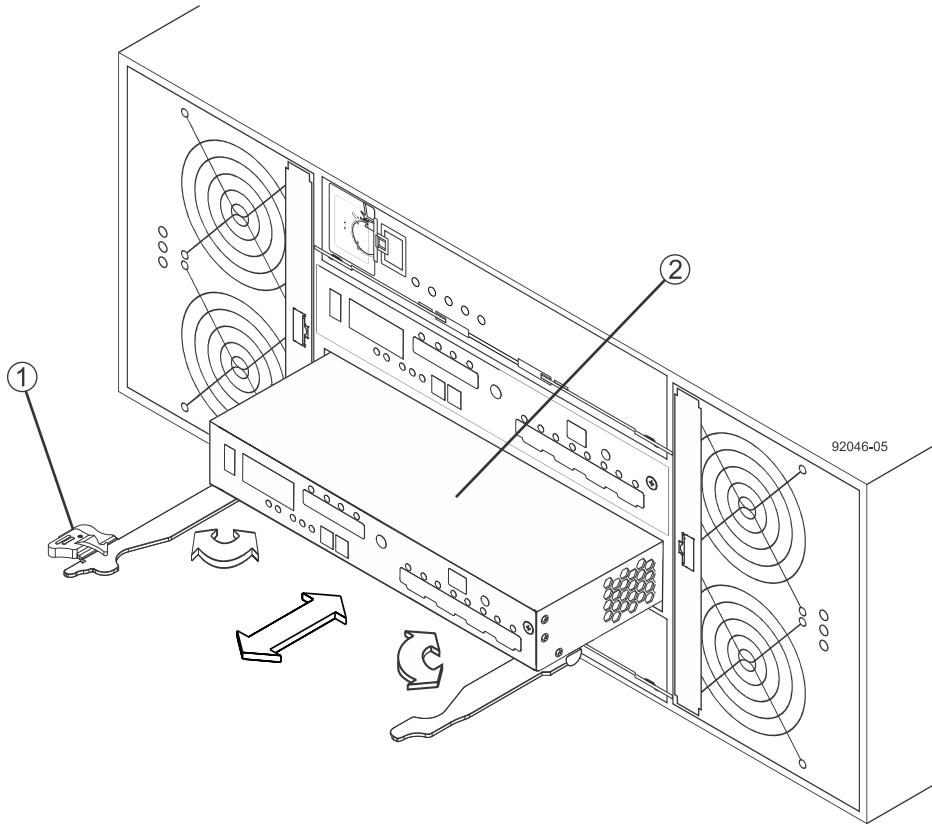
1. Release Levers
2. Controller Canister

3. Reconnect all of the cables that were disconnected when you removed the controller canister.

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> -c "set controller
     [(a | b)] availability=online";
     ```

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

   The Host Link Service Action Required LEDs will turn green during the reboot. 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.

Figure 8. LED Status aand Seven-Segment Display

51001-16
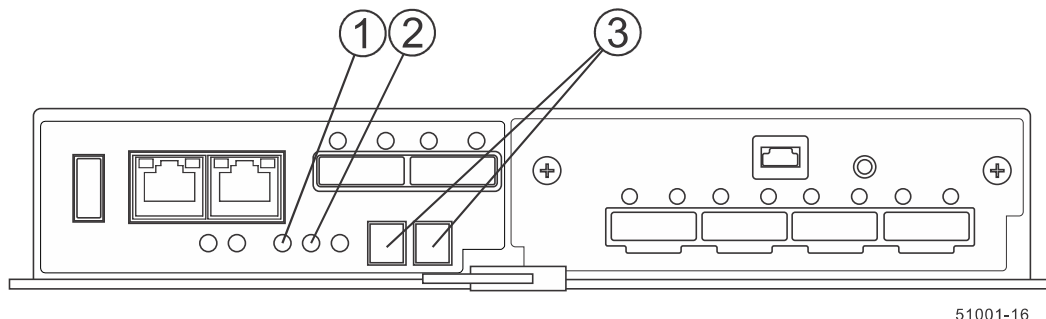
1. Controller Service Action Allowed LED (Blue)
2. Controller Service Action Required LED (Amber)
3. Seven-Segment Display

3. 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 amber Service Action Required LEDs are off and the Array Management Window indicates 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 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` 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 Programming Guide*.

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

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