Quantum

StorNext QM1200, QS1200 or QS2400 Base System

Replacing a Controller Battery

6-68009-01 Rev B

StorNext QM1200, QS1200 or QS2400 Base System, Replacing a Controller Battery, 6-68009-01 Rev B, April 2015, Product of USA.

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Replacing a Controller Battery in the StorNext QM1200, QS1200 or QS2400 Base System

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 blue Battery Service Action Required LED indicates a failed controller battery.

Before you start this procedure, gather antistatic protection and a replacement controller battery.

Read through all of the following steps in this procedure before you start to replace the controller battery.

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.

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:
   - Use the storage management software to collect and save a support bundle of your storage array. From the Array Management Window, click **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, see *Command Line Interface and Script*. Running this command can temporarily impact performance on your storage array.
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, and go to Step 3.
3. Put on antistatic protection.
4. Unpack the new controller battery.
   a. Set the new controller battery on a flat, static-free surface near the base system.
   b. Save all the packing materials in case you need to return the controller battery.

Removing and Replacing the Failed Controller Battery

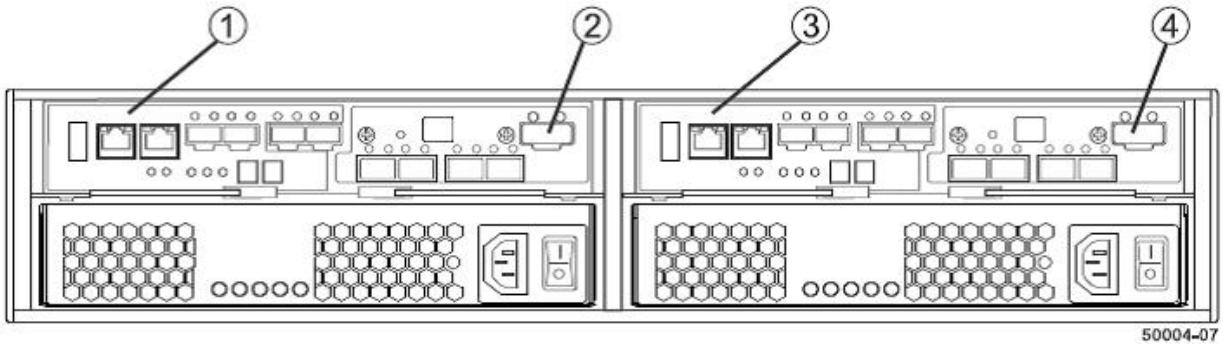
Refer to the following sections to remove and replace the failed controller battery.

Locating Failed Controller Battery

1. Locate the failed battery by checking the Battery Service Action Required LEDs on the array controller.

2. Refer to Figure 1 to locate the controllers within the array (representative array provided).

Figure 1 Controller Location

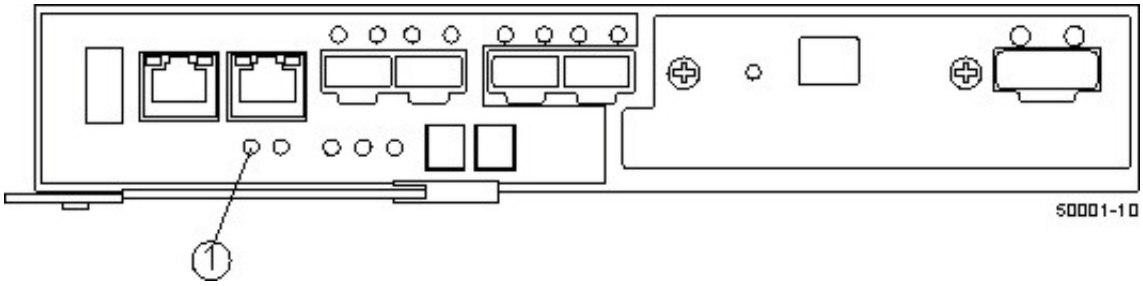


1. Controller Canister A
2. Drive Expansion
3. Controller Canister B
4. Drive Expansion

3. Refer to Figure 2 to locate the controller with a battery fault.

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

Figure 2 Battery Service Action Required LED on the Controller



1. Battery Service Action Required LED (Amber)

Removing the Controller from the Array

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. For example, do not bend fiber-optic cables tighter than a 5-cm (2-in.) radius. Check the specifications for your cables, and do not bend any cable tighter than the minimum specified radius.

1. Label each copper cable or fiber-optic 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.
2. Record the information from the seven-segment display on the base system.

   The display flashes a sequence of codes. To find information about the displayed diagnostic codes, refer to *StorNext Q-Series Storage Install Guide*.

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

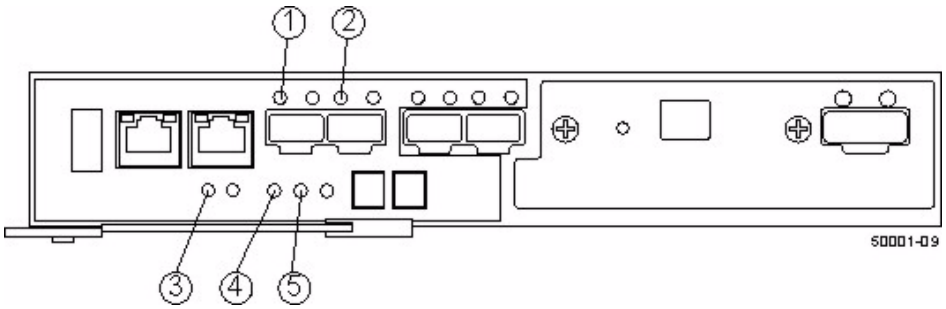
   — From the Hardware pane in the Array Management Window, right-click the picture of the controller that you want to take offline, and select **Advanced >> Place >> Offline**.

— Run the following command:

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

If necessary, wait for the Controller Service Action Allowed LED to come on. This indication might take several minutes for a large configuration. See Figure 3.

Figure 3 Controller LEDs



1. Host Link 1 Service Action Required LED (Green)
2. Host Link 2 Service Action Required LED (Green)
3. Battery Service Action Required LED (Amber)
4. Controller Service Action Allowed LED (Blue)
5. Controller Service Action Required LED (Amber)

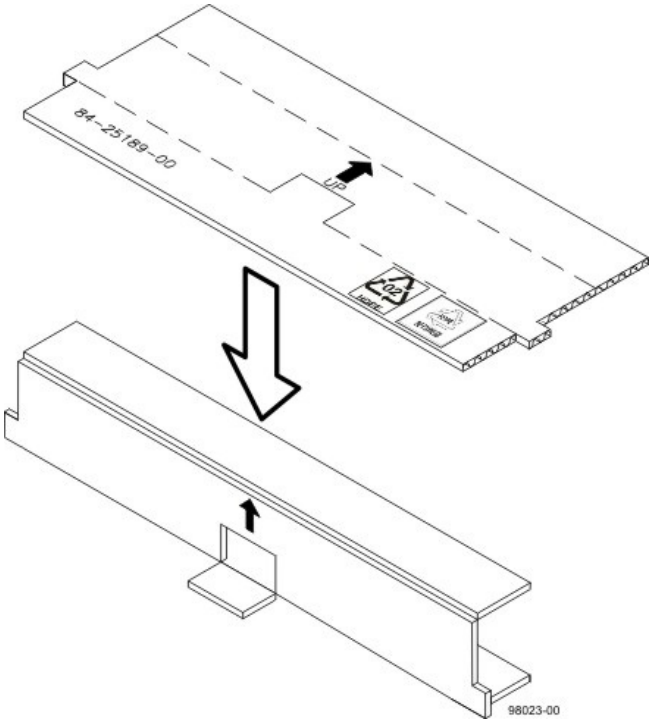
3. Disconnect all interface cables (drive connections, host connections, and Ethernet connections) from the controller canister that has the failed battery.

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

   NOTE If Small Form-factor Pluggable (SFP) transceivers are present, you do not need to remove them from the controller canister when replacing the battery.

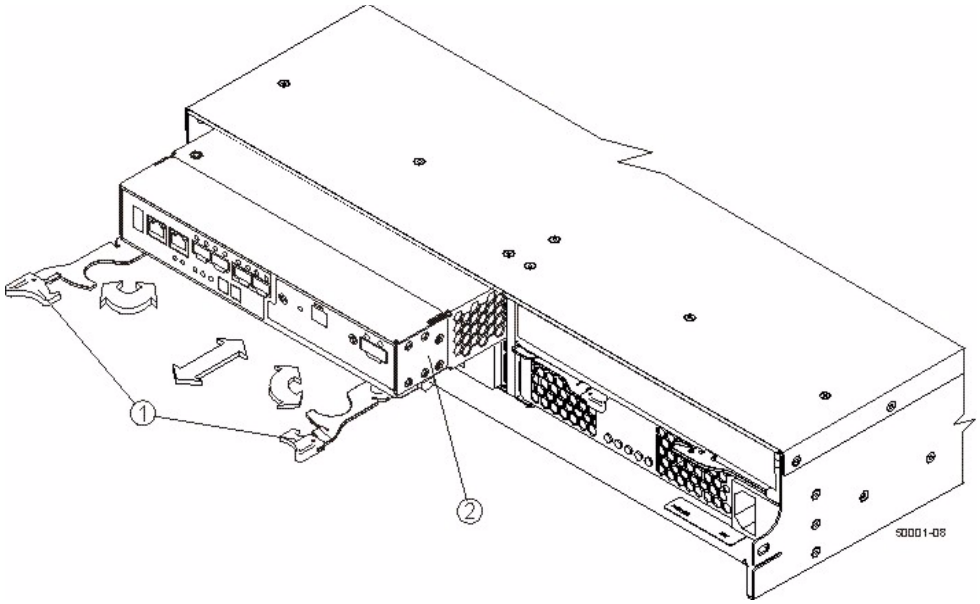
4. Prepare the controller air blocker (Figure 4) by removing it from the packaging and folding it inward at right angles so it is ready to insert into the open controller slot.

Figure 4 Controller Air Blocker



5. Remove the controller canister (Figure 5) that has the failed controller battery.
   a. Unlock the release levers, and pull the release lever outward to release the controller canister.
   b. Using the release levers and your hands, pull the controller canister out of the base system.

Figure 5 Removing and Replacing a Controller Canister



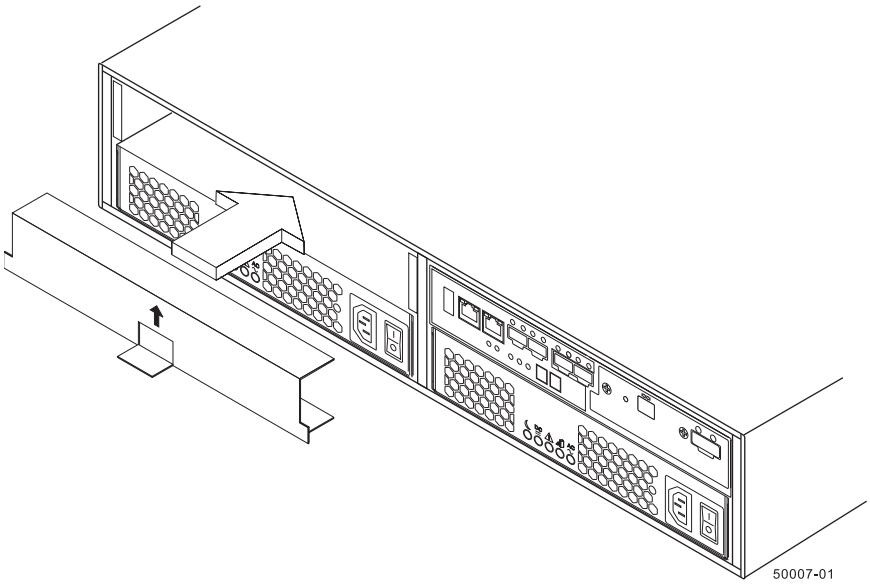
1. Release Lever
2. Controller Canister

6. Set the controller canister on a flat, static-free surface, with the release lever 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 will not overheat.

7. Insert the controller air blocker (Figure 6) into the open controller slot to make sure that correct airflow is maintained.

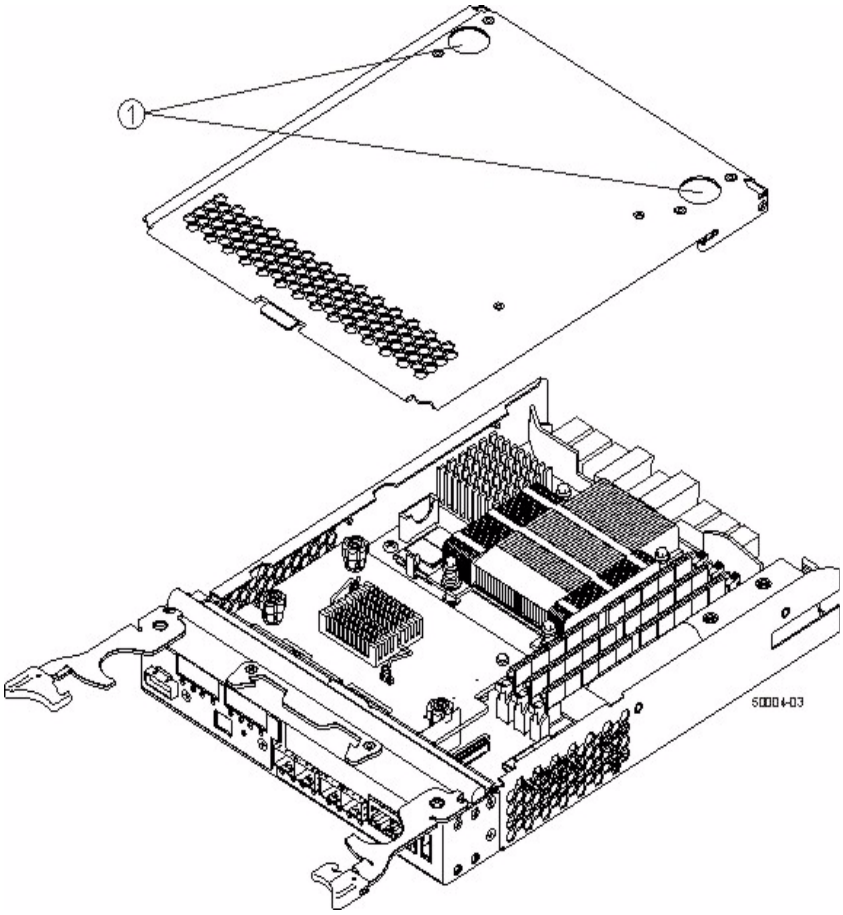
Figure 6 Inserting the Controller Air Blocker into the Open Controller Slot



Replacing the Battery in the Controller

1. Press down on both of the top cover latch buttons (Figure 7), and slide the top cover to the rear of the controller canister.

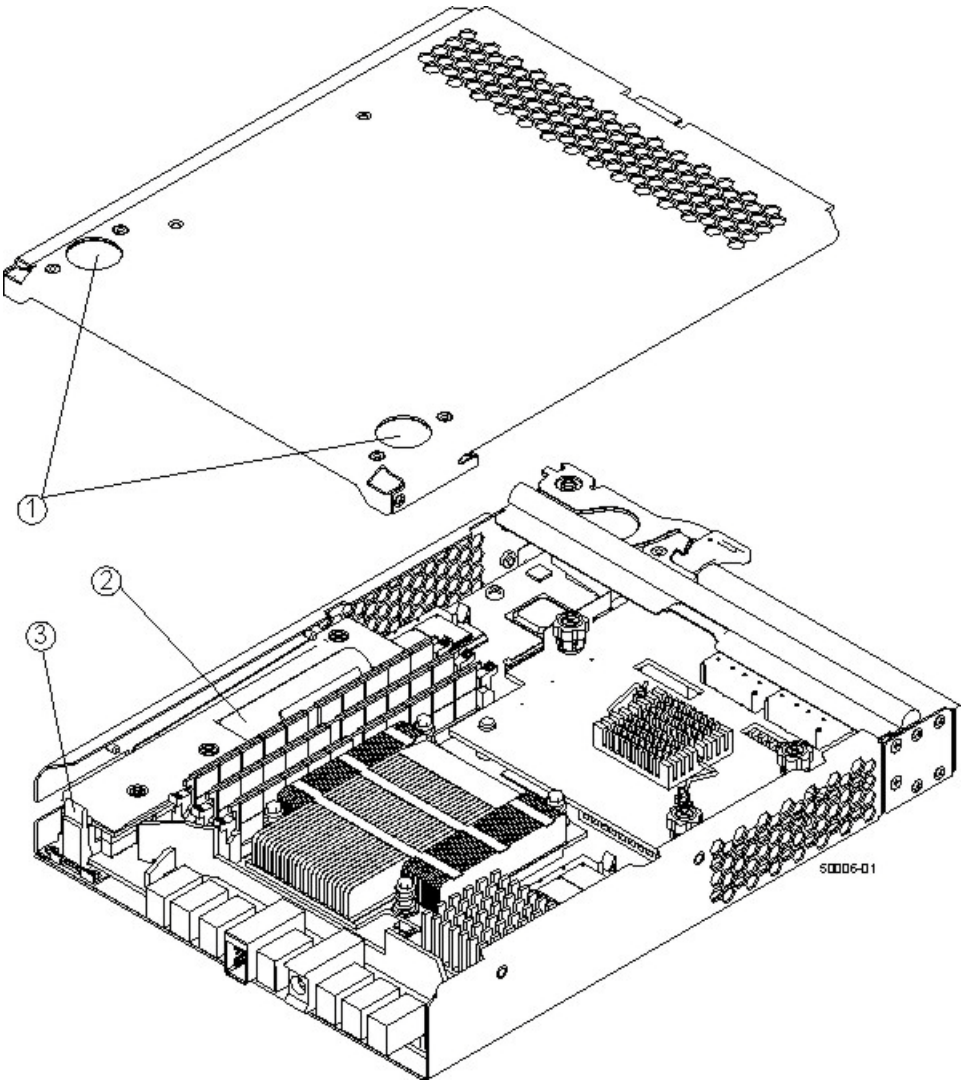
Figure 7 Controller Canister Top Cover Latch Buttons



1. Top Cover Latch Buttons

2. Move the locking handle down to pull the failed controller battery out of the controller canister (Figure 8).

Figure 8 Battery and Locking Handle in the Controller



1. Top Cover Latch Buttons
2. Battery Circuit Board
3. Locking Handle

3. Remove the failed controller battery by sliding it towards the rear of the controller canister.
4. Insert the new battery into the controller canister by sliding the new controller battery towards the front of the controller canister.

NOTE Ensure that the battery slides under the side guide pins as you continue to slide the battery to correctly seat it against the back surface.

> **ATTENTION** 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 handle up to secure the new battery circuit board to the controller canister.

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

Reinstalling the Controller into the Array

1. Remove the controller air blocker from the controller slot.
2. Slide the controller canister all the way into the base system. Push the release lever towards the center of the controller canister to lock it into place.
3. Reconnect all cables that were disconnected when you removed the controller canister.

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

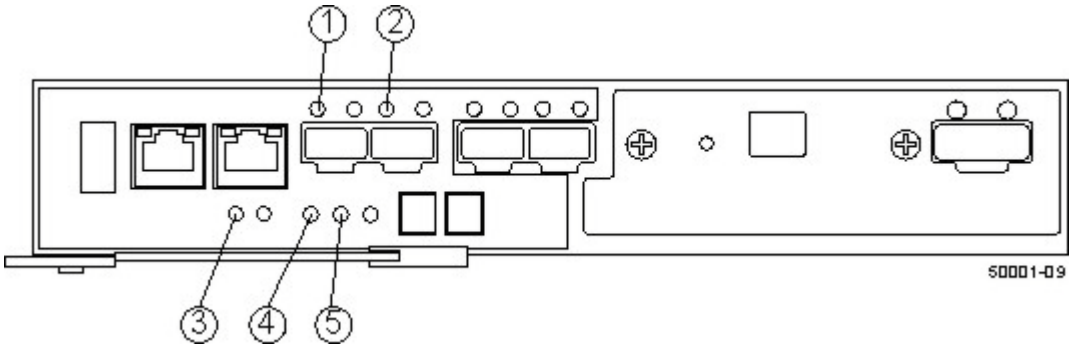
   — From the Hardware pane in the Array Management Window, right-click the picture of the controller that you want to take offline, and select **Advanced >> Place >> Online**.

   — Run the following command.

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

4. Look at the LEDs on the controller canister (Figure 9) to make sure that the controller is rebooting correctly.

Figure 9 Controller LEDs



1. Host Link 1 Service Action Required LED (Green)
2. Host Link 2 Service Action Required LED (Green
3. Battery Service Action Required LED (Amber)
4. Controller Service Action Allowed LED (Blue)
5. Controller Service Action Required LED (Amber

During the rebooting process, observe the following:

- 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.

5. On both controller canisters, look at the Host Link Service Action Required LEDs and the Controller Service Action Required LEDs. Based on the LED status, perform one of these actions:

   — **For each controller, the Host Link Service Action Required LEDs are on *and* the Controller Service Action Required LED is off** – Go to step 7.

   — **On one controller, the Host Link Service Action Required LEDs are off, *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 6.

6. Did this action correct the problem?
   - **Yes** – Go to step 7.
   - **No** – If the problem is not resolved, contact your Customer and Technical Support representative.
7. Using the LEDs and the storage management software, check the status of all of the trays in the storage array.
8. 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 Customer and Technical Support representative.
   - **No** – Go to step 9.
9. Remove the antistatic protection.
10. 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, click **Monitor >>Health >> CollectSupport 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, see *Command Line Interface and Script Commands*.

NOTE Running this command can temporarily impact performance on your storage array.