NetApp

Upgrade drive firmware using SANtricity System Manager

StorageGRID appliances

NetApp
July 16, 2025

Table of Contents

Upgrade drive firmware using SANtricity System Manager

Upgrade SG6000 drive firmware using SANtricity System Manager using the online method

Use the SANtricity System Manager online method to upgrade the firmware on the drives in your appliance to make sure you have all the latest features and bug fixes.

Before you begin

- The storage appliance has an Optimal status.
- All drives have an Optimal status.

> ⚠ Don't upgrade the drive firmware on more than one StorageGRID appliance at a time. Doing so might cause data unavailability, depending on your deployment model and ILM policy.

About this task

The drives are upgraded one at a time while the appliance is performing I/O. This method does not require you to place the appliance in maintenance mode. However, system performance might be impacted and the upgrade might take several hours longer than the offline method.

> ⓘ Drives belonging to volumes that don't have redundancy must be updated using the offline method. The offline method should be used for any drive associated with flash read cache (for example, SSD drives in the SG6060), or any pool or volume group that is currently degraded.
>
> There are two types of drives: SSD and HDD. You must use the offline method to upgrade the firmware on the SSDs (for example, SSD drives in the SG6060). You can use either the online or offline method to upgrade the firmware on HDDs.

Steps

1. Access SANtricity System Manager using one of these methods:

   - Use the StorageGRID Appliance Installer and select **Advanced** > **SANtricity System Manager**
   - Use the Grid Manager and select **NODES** > *Storage Node* > **SANtricity System Manager**
   - Use SANtricity System Manager by browsing to the storage controller IP:

     https://*Storage_Controller_IP*

2. Enter the SANtricity System Manager administrator username and password, if required.

3. Verify the drive firmware version currently installed in the storage appliance:

   a. From SANtricity System Manager, select **SUPPORT** > **Upgrade Center**.

   b. Under Drive Firmware upgrade, select **Begin Upgrade**.

      The Upgrade Drive Firmware page displays the drive firmware files currently installed.

   c. Note the current drive firmware revisions and drive identifiers in the Current Drive Firmware column.

Upgrade Drive Firmware

1 Select Upgrade Files

Review your current drive firmware and select upgrade files below...

What do I need to know before upgrading drive firmware?

Current Drive Firmware

MS02, KPM51VUG800G

Total rows: 1

In this example:

- The drive firmware revision is **MS02**.
- The drive identifier is **KPM51VUG800G**.

    d. Select **View drives** in the Associated Drives column to display where these drives are installed in your storage appliance.

    e. Close the Upgrade Drive Firmware window.

4. Download and prepare the available drive firmware upgrade:

    a. Under Drive Firmware upgrade, select **NetApp Support**.

    b. On the NetApp Support Site, select the **Downloads** tab, and then select **E-Series Disk Drive Firmware**.

       The E-Series Disk Firmware page displays.

    c. Search for each **Drive Identifier** installed in your storage appliance and verify that each drive identifier has the latest firmware revision.

- If the firmware revision is not a link, this drive identifier has the latest firmware revision.
- If one or more drive part numbers are listed for a drive identifier, a firmware upgrade is available for these drives. You can select any link to download the firmware file.

PRODUCTS ∨   SYSTEMS ∨   DOCS & KNOWLEDGEBASE ∨   COMMUNITY ∨   DOWNLOADS ∨   TOOLS ∨   CASES ∨   PARTS ∨

Downloads > Firmware > E-Series Disk Firmware

E-Series Disk Firmware

Download all current E-Series Disk Firmware

Drive Part Number ⇕	Descriptions ⇕	Drive Identifier ⇕	Firmware Rev. (Download)	Notes and Config Info	Release Date ⇕
Drive Part Number	Descriptions	KPM51VUG800G	Firmware Rev. (Download)		
E-X4041C	SSD, 800GB, SAS, PI	KPM51VUG800G	MS03	MS02 Fixes Bug 1194908 MS03 Fixes Bug 1334862	04-Sep-2020

   d. If a later firmware revision is listed, select the link in the Firmware Rev. (Download) column to download a `.zip` archive containing the firmware file.

   e. Extract (unzip) the drive firmware archive files you downloaded from the Support site.

5. Install the drive firmware upgrade:

   a. From SANtricity System Manager, under Drive Firmware upgrade, select **Begin Upgrade**.

   b. Select **Browse**, and select the new drive firmware files that you downloaded from the Support site.

Drive firmware files have a filename similar to
`D_HUC101212CSS600_30602291_MS01_2800_0002.dlp`.

You can select up to four drive firmware files, one at a time. If more than one drive firmware file is compatible with the same drive, you get a file conflict error. Decide which drive firmware file you want to use for the upgrade and remove the other one.

   c. Select **Next**.

Select Drives lists the drives that you can upgrade with the selected firmware files.

Only drives that are compatible appear.

The selected firmware for the drive appears in the **Proposed Firmware** column. If you must change this firmware, select **Back**.

   d. Select **Upgrade all drives online** — Upgrades the drives that can support a firmware download while the storage array is processing I/O. You don't have to stop I/O to the associated volumes using these drives when you select this upgrade method.

> ⓘ An online upgrade can take several hours longer than an offline upgrade.
>
> You must use the offline method to upgrade the firmware on SSDs.

   e. In the first column of the table, select the drive or drives you want to upgrade.

The best practice is to upgrade all drives of the same model to the same firmware revision.

   f. Select **Start** and confirm that you want to perform the upgrade.

If you need to stop the upgrade, select **Stop**. Any firmware downloads currently in progress complete. Any firmware downloads that have not started are canceled.

| ⚠ | Stopping the drive firmware upgrade might result in data loss or unavailable drives. |

g. (Optional) To see a list of what was upgraded, select **Save Log**.

The log file is saved in the downloads folder for your browser with the name `latest-upgrade-log-timestamp.txt`.

If required, troubleshoot driver firmware upgrade errors.

Upgrade SG6000 drive firmware using SANtricity System Manager using the offline method

Use the SANtricity System Manager offline method to upgrade the firmware on the drives in your appliance to make sure you have all the latest features and bug fixes.

Before you begin

- The storage appliance has an Optimal status.
- All drives have an Optimal status.
- You have placed the StorageGRID appliance into maintenance mode.

| ⓘ | While the appliance is in maintenance mode, I/O (input/output) activity to the storage controller is stopped to make disruptive storage operations safe. |

| ⚠ | Don't upgrade the drive firmware on more than one StorageGRID appliance at a time. Doing so might cause data unavailability, depending on your deployment model and ILM policy. |

About this task

The drives are upgraded in parallel while the appliance is in maintenance mode. If the pool or volume group does not support redundancy or is degraded, you must use the offline method to upgrade the drive firmware. You should also use the offline method for any drive associated with flash read cache, or any pool or volume group that is currently degraded. The offline method upgrades firmware only while all I/O activity is stopped on the drives to be upgraded. To stop I/O activity, place the node into maintenance mode.

The offline method is faster than the online method and will be significantly faster when many drives in a single appliance need upgrades. However, it requires that nodes be taken out of service, which might require scheduling a maintenance window and monitoring progress. Choose the method that is the best fit for your operational procedures and the number of drives that need to be upgraded.

| ⚠ | There are two types of drives: SSD and HDD. You must use the offline method to upgrade the firmware on the SSDs (for example, SSD drives in the SG6060). You can use either the online or offline method to upgrade the firmware on HDDs. |

Steps

1. Confirm that the appliance is in maintenance mode.

> (i) If you are upgrading the firmware in SSD drives that are part of a cache group, you must ensure that no I/O is sent to any cached volumes while the upgrade is in progress. When the appliance is in maintenance mode, no I/O is sent to any volumes while the upgrade is in progress.

2. Access SANtricity System Manager using one of these methods:
   - Use the StorageGRID Appliance Installer and select **Advanced** > **SANtricity System Manager**
   - Use the Grid Manager and select **NODES** > *Storage Node* > **SANtricity System Manager**
   - Use SANtricity System Manager by browsing to the storage controller IP:

   `https://Storage_Controller_IP`

3. Enter the SANtricity System Manager administrator username and password, if required.

4. Verify the drive firmware version currently installed in the storage appliance:
   a. From SANtricity System Manager, select **SUPPORT** > **Upgrade Center**.
   b. Under Drive Firmware upgrade, select **Begin Upgrade**.

      The Upgrade Drive Firmware page displays the drive firmware files currently installed.

   c. Note the current drive firmware revisions and drive identifiers in the Current Drive Firmware column.

   In this example:

   - The drive firmware revision is **MS02**.
   - The drive identifier is **KPM51VUG800G**.

   d. Select **View drives** in the Associated Drives column to display where these drives are installed in your storage appliance.
   e. Close the Upgrade Drive Firmware window.

5. Download and prepare the available drive firmware upgrade:

a. Under Drive Firmware upgrade, select **NetApp Support**.

b. On the NetApp Support Site, select the **Downloads** tab, and then select **E-Series Disk Drive Firmware**.

   The E-Series Disk Firmware page displays.

c. Search for each **Drive Identifier** installed in your storage appliance and verify that each drive identifier has the latest firmware revision.

   ▪ If the firmware revision is not a link, this drive identifier has the latest firmware revision.

   ▪ If one or more drive part numbers are listed for a drive identifier, a firmware upgrade is available for these drives. You can select any link to download the firmware file.

d. If a later firmware revision is listed, select the link in the Firmware Rev. (Download) column to download a `.zip` archive containing the firmware file.

e. Extract (unzip) the drive firmware archive files you downloaded from the Support site.

6. Install the drive firmware upgrade:

   a. From SANtricity System Manager, under Drive Firmware upgrade, select **Begin Upgrade**.

   b. Select **Browse**, and select the new drive firmware files that you downloaded from the Support site.

      Drive firmware files have a filename similar to `D_HUC101212CSS600_30602291_MS01_2800_0002.dlp`.

      You can select up to four drive firmware files, one at a time. If more than one drive firmware file is compatible with the same drive, you get a file conflict error. Decide which drive firmware file you want to use for the upgrade and remove the other one.

   c. Select **Next**.

      Select Drives lists the drives that you can upgrade with the selected firmware files.

      Only drives that are compatible appear.

      The selected firmware for the drive appears in the **Proposed Firmware** column. If you must change this firmware, select **Back**.

   d. Select **Upgrade all drives offline (parallel)** — Upgrades the drives that can support a firmware download only while all I/O activity is stopped on any volumes that use the drives.

> ⚠ You must place the appliance into maintenance mode before using this method. You should use the **Offline** method to upgrade the drive firmware.

> ⚠ If you want to use the Offline (parallel) upgrade, don't proceed unless you are certain that the appliance is in maintenance mode. Failure to place the appliance into maintenance mode before initiating an offline drive firmware update might cause data loss.

e. In the first column of the table, select the drive or drives you want to upgrade.

The best practice is to upgrade all drives of the same model to the same firmware revision.

f. Select **Start** and confirm that you want to perform the upgrade.

If you need to stop the upgrade, select **Stop**. Any firmware downloads currently in progress complete. Any firmware downloads that have not started are canceled.

> ⚠ Stopping the drive firmware upgrade might result in data loss or unavailable drives.

g. (Optional) To see a list of what was upgraded, select **Save Log**.

The log file is saved in the downloads folder for your browser with the name `latest-upgrade-log-timestamp.txt`.

If required, troubleshoot driver firmware upgrade errors.

7. After the procedure completes successfully, perform any additional maintenance procedures while the node is in maintenance mode. When you are done, or if you experienced any failures and want to start over, go to the StorageGRID Appliance Installer and select **Advanced** > **Reboot Controller**. Then select one of these options:

   ○ **Reboot into StorageGRID**.

   ○ **Reboot into Maintenance Mode**. Reboot the controller and keep the node in maintenance mode. Select this option if there were any failures during the procedure and you want to start over. After the node finishes rebooting into maintenance mode, restart from the appropriate step in the procedure that failed.

   It can take up to 20 minutes for the appliance to reboot and rejoin the grid. To confirm that the reboot is complete and that the node has rejoined the grid, go back to the Grid Manager. The Nodes page should display a normal status (green check mark icon ✅ to the left of the node name) for the appliance node, indicating that no alerts are active and the node is connected to the grid.

Troubleshoot drive firmware upgrade errors

Troubleshoot errors that can occur when using SANtricity System Manager to upgrade the firmware on the drives in your appliance.

- **Failed assigned drives**

  - One reason for the failure might be that the drive does not have the appropriate signature. Make sure that the affected drive is an authorized drive. Contact technical support for more information.

  - When replacing a drive, make sure that the replacement drive has a capacity equal to or greater than the failed drive you are replacing.

  - You can replace the failed drive while the storage array is receiving I/O.

- **Check storage array**

  - Make sure that an IP address has been assigned to each controller.

  - Make sure that all cables connected to the controller aren't damaged.

  - Make sure that all cables are tightly connected.

- **Integrated hot spare drives**

  This error condition must be corrected before you can upgrade the firmware.

- **Incomplete volume groups**

  If one or more volume groups or disk pools are incomplete, you must correct this error condition before you can upgrade the firmware.

- **Exclusive operations (other than background media/parity scan) currently running on any volume groups**

  If one or more exclusive operations are in progress, the operations must complete before the firmware can be upgraded. Use System Manager to monitor the progress of the operations.

- **Missing volumes**

  You must correct the missing volume condition before the firmware can be upgraded.

- **Either controller in a state other than Optimal**

  One of the storage array controllers needs attention. This condition must be corrected before the firmware can be upgraded.

- **Mismatched Storage Partition information between Controller Object Graphs**

  An error occurred while validating the data on the controllers. Contact technical support to resolve this issue.

- **SPM Verify Database Controller check fails**

  A storage partitions mapping database error occurred on a controller. Contact technical support to resolve this issue.

- **Configuration Database Validation (If supported by the storage array's controller version)**

  A configuration database error occurred on a controller. Contact technical support to resolve this issue.

- **MEL Related Checks**

  Contact technical support to resolve this issue.

- **More than 10 DDE Informational or Critical MEL events were reported in the last 7 days**

  Contact technical support to resolve this issue.

- **More than 2 Page 2C Critical MEL Events were reported in the last 7 days**

  Contact technical support to resolve this issue.

- **More than 2 Degraded Drive Channel Critical MEL events were reported in the last 7 days**

  Contact technical support to resolve this issue.

- **More than 4 critical MEL entries in the last 7 days**

  Contact technical support to resolve this issue.