



Upgrade SANtricity OS on storage controllers

StorageGRID Appliances

NetApp
May 10, 2024

This PDF was generated from <https://docs.netapp.com/us-en/storagegrid-appliances/sg6000/upgrading-santricity-os-on-storage-controllers-using-grid-manager-sg6000.html> on May 10, 2024. Always check docs.netapp.com for the latest.

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Upgrade SANtricity OS on SG6000 storage controllers

To ensure optimal functioning of the storage controller, you must upgrade to the latest maintenance release of the SANtricity OS that is qualified for your StorageGRID appliance.

Consult the [NetApp Interoperability Matrix Tool \(IMT\)](#) to determine which version you should be using.

Download the new SANtricity OS Software file from [NetApp Downloads: StorageGRID Appliance](#).

Use one of the following procedures based on the version of SANtricity OS currently installed:

- If the storage controller is using SANtricity OS 08.42.20.00 (11.42) or newer, use the Grid Manager to perform the upgrade.

[Upgrade SANtricity OS on storage controllers using Grid Manager](#)

- If the storage controller is using a SANtricity OS version older than 08.42.20.00 (11.42), use maintenance mode to perform the upgrade.

[Upgrade SANtricity OS on storage controllers using maintenance mode](#)



When upgrading the SANtricity OS for your storage appliance, you must follow the instructions in the StorageGRID documentation. If you use any other instructions, your appliance could become inoperable.

Upgrade SANtricity OS on SG6000 storage controllers using Grid Manager

For storage controllers currently using SANtricity OS 08.42.20.00 (11.42) or newer, you must use the Grid Manager to apply an upgrade.

Before you begin

- You have consulted the [NetApp Interoperability Matrix Tool \(IMT\)](#) to confirm that the SANtricity OS version you are using for the upgrade is compatible with your appliance.
- You have the [Maintenance or Root access permission](#).
- You are signed in to the Grid Manager using a [supported web browser](#).
- You have the provisioning passphrase.
- You have access to [NetApp Downloads: StorageGRID Appliance](#).

About this task

You can't perform other software updates (StorageGRID software upgrade or a hotfix) until you have completed the SANtricity OS upgrade process. If you attempt to start a hotfix or a StorageGRID software upgrade before the SANtricity OS upgrade process has finished, you are redirected to the SANtricity OS upgrade page.

The procedure will not be complete until the SANtricity OS upgrade has been successfully applied to all

applicable nodes that have been selected for the upgrade. It might take more than 30 minutes to load the SANtricity OS on each node (sequentially) and up to 90 minutes to reboot each StorageGRID storage appliance. Any nodes in your grid that don't use SANtricity OS will not be affected by this procedure.



The following steps are only applicable when you are using the Grid Manager to perform the upgrade. The storage controllers in the appliance can't be upgraded using the Grid Manager when the controllers are using SANtricity OS older than 08.42.20.00 (11.42).



This procedure will automatically upgrade the NVSRAM to the most recent version associated with the SANtricity OS upgrade. You don't need to apply a separate NVSRAM upgrade file.



Be sure to apply the latest StorageGRID hotfix before you begin this procedure. See [StorageGRID hotfix procedure](#) for details.

Steps

1. Download the new SANtricity OS Software file from [NetApp Downloads: StorageGRID Appliance](#).

Be sure to choose the SANtricity OS version for your storage controllers.

2. Select **MAINTENANCE > System > Software update**.

Software update

You can upgrade StorageGRID software, apply a hotfix, or upgrade the SANtricity OS software on StorageGRID storage appliances. NetApp recommends you apply the latest hotfix before and after each software upgrade. Some hotfixes are required to prevent data loss.

StorageGRID upgrade Upgrade to the next StorageGRID version and apply the latest hotfix for that version. Upgrade →	StorageGRID hotfix Apply a hotfix to your current StorageGRID software version. Apply hotfix →	SANtricity OS update Update the SANtricity OS software on your StorageGRID storage appliances. Update →
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3. In the SANtricity OS update section, select **Update**.

The SANtricity OS upgrade page appears and lists the details for each appliance node including:

- Node name
- Site
- Appliance model
- SANtricity OS version
- Status
- Last upgrade status

4. Review the information in the table for all of your upgradable appliances. Confirm that all storage controllers have **Nominal** status. If the status for any controller is **Unknown**, go to **Nodes > appliance node > Hardware** to investigate and resolve the issue.
5. Select the SANtricity OS upgrade file you downloaded from the NetApp Support Site.
 - a. Select **Browse**.
 - b. Locate and select the file.
 - c. Select **Open**.

The file is uploaded and validated. When the validation process is done, the file name is shown with a green check mark next to the **Browse** button. Don't change the file name because it is part of the verification process.

6. Enter the provisioning passphrase and select **Continue**.

A warning box appears stating that your browser's connection might be lost temporarily as services on nodes that are upgraded are restarted.

7. Select **Yes** to stage the SANtricity OS upgrade file to the primary Admin Node.

When the SANtricity OS upgrade starts:

- a. The health check is run. This process checks that no nodes have the status of Needs Attention.



If any errors are reported, resolve them and select **Start** again.

- b. The SANtricity OS Upgrade Progress table appears. This table shows all Storage Nodes in your grid and the current stage of the upgrade for each node.



The table shows all appliance Storage Nodes. Software-based Storage Nodes aren't displayed. Select **Approve** for all nodes that require the upgrade.

SANtricity OS

☒ Upload files — **2** Upgrade

Approved nodes are added to a queue and upgraded sequentially. Each node can take up to 30 minutes, which includes updating NVSRAM. When the upgrade is complete, the node is rebooted.

Select **Approve all** or approve nodes one at a time. To remove nodes from the queue, select **Remove all** or remove nodes one at a time. If the uploaded file doesn't apply to an approved node, the upgrade process skips that node and moves to the next node in the queue.

Optionally, select **Skip nodes and finish** to end the upgrade and skip any unapproved nodes.

SANtricity OS upgrade file: RCB_11.70.3_280x_6283a64d.dlp

0 out of 3 completed

Node name	Current version	Progress	Stage	Details	Status	Actions
10-224-2-24-S1	08.40.60.01	<div></div>	Waiting for you to approve		Nominal	Approve
lab-37-sgws-quanta-10	08.73.00.00	<div></div>	Waiting for you to approve		Nominal	Approve
storage-7	98.72.09.00	<div></div>	Waiting for you to approve		Nominal	Approve

8. Optionally, sort the list of nodes in ascending or descending order by:

- Node name
- Current version
- Progress
- Stage
- Status

You can also enter a term in the Search box to search for specific nodes.

9. Approve the grid nodes you are ready to add to the upgrade queue. Approved nodes are upgraded one at a time.



Don't approve the SANtricity OS upgrade for an appliance Storage Node unless you are sure the node is ready to be stopped and rebooted. When the SANtricity OS upgrade is approved on a node, the services on that node are stopped and the upgrade process begins. Later, when the node is finished upgrading, the appliance node is rebooted. These operations might cause service interruptions for clients that are communicating with the node.

- Select the **Approve All** button to add all Storage Nodes to the SANtricity OS upgrade queue.



If the order in which nodes are upgraded is important, approve nodes or groups of nodes one at a time and wait until the upgrade is complete on each node before approving the next node.

- Select one or more **Approve** buttons to add one or more nodes to the SANtricity OS upgrade queue. The **Approve** button is disabled if the Status is not Nominal.

After you select **Approve**, the upgrade process determines if the node can be upgraded. If a node can be upgraded, it is added to the upgrade queue.

For some nodes, the selected upgrade file is intentionally not applied and you can complete the upgrade process without upgrading these specific nodes. Nodes intentionally not upgraded show a stage of Complete (upgrade attempted) and list the reason the node was not upgraded in the Details column.

10. If you need to remove a node or all nodes from the SANtricity OS upgrade queue, select **Remove** or **Remove All**.

When the stage progresses beyond Queued, the **Remove** button is hidden and you can no longer remove the node from the SANtricity OS upgrade process.

11. Wait while the SANtricity OS upgrade is applied to each approved grid node.

- If any node shows a stage of Error while the SANtricity OS upgrade is applied, the upgrade has failed for the node. With the assistance of technical support, you might need to place the appliance in maintenance mode to recover it.
- If the firmware on the node is too old to be upgraded with the Grid Manager, the node shows a stage of Error with the details that you must use maintenance mode to upgrade SANtricity OS on the node. To resolve the error, do the following:
 - a. Use maintenance mode to upgrade SANtricity OS on the node that shows a stage of Error.
 - b. Use the Grid Manager to restart and complete the SANtricity OS upgrade.

When the SANtricity OS upgrade is complete on all approved nodes, the SANtricity OS Upgrade Progress table closes and a green banner shows the number of nodes upgraded, and the date and time the upgrade completed.

12. If a node can't be upgraded, note the reason shown in the Details column and take the appropriate action.



The SANtricity OS upgrade process will not be complete until you approve the SANtricity OS upgrade on all the listed Storage Nodes.

Reason	Recommended action
Storage Node was already upgraded.	No further action required.
SANtricity OS upgrade is not applicable to this node.	The node does not have a storage controller that can be managed by the StorageGRID system. Complete the upgrade process without upgrading the node displaying this message.

Reason	Recommended action
SANtricity OS file is not compatible with this node.	The node requires a SANtricity OS file different than the one you selected. After completing the current upgrade, download the correct SANtricity OS file for the node and repeat the upgrade process.

13. If you want to end approving nodes and return to the SANtricity OS page to allow for an upload of a new SANtricity OS file, do the following:

a. Select **Skip Nodes and Finish**.

A warning appears asking if you are sure you want to finish the upgrade process without upgrading all applicable nodes.

b. Select **OK** to return to the **SANtricity OS** page.

c. When you are ready to continue approving nodes, [download the SANtricity OS](#) to restart the upgrade process.



Nodes already approved and upgraded without errors remain upgraded.

14. Repeat this upgrade procedure for any nodes with a stage of Complete that require a different SANtricity OS upgrade file.



For any nodes with a status of Needs Attention, use maintenance mode to perform the upgrade.

Related information

[NetApp Interoperability Matrix Tool](#)

[Upgrade SANtricity OS on storage controllers using maintenance mode](#)

Upgrade SANtricity OS on SG6000 storage controllers using maintenance mode

For storage controllers currently using SANtricity OS older than 08.42.20.00 (11.42), you must use the maintenance mode procedure to apply an upgrade.

Before you begin

- You have consulted the [NetApp Interoperability Matrix Tool \(IMT\)](#) to confirm that the SANtricity OS version you are using for the upgrade is compatible with your appliance.
- If the StorageGRID appliance is running in a StorageGRID system, you have placed the SG6000-CN controller into [maintenance mode](#).



Maintenance mode interrupts the connection to the storage controller.

About this task

Don't upgrade the SANtricity OS or NVSRAM in the E-Series controller on more than one StorageGRID appliance at a time.



Upgrading more than one StorageGRID appliance at a time might cause data unavailability, depending on your deployment model and ILM policies.

Steps

1. Confirm that the appliance is in [maintenance mode](#).
2. From a service laptop, access SANtricity System Manager and sign in.
3. Download the new SANtricity OS Software file and NVSRAM file to the management client.



The NVSRAM is specific to the StorageGRID appliance. Don't use the standard NVSRAM download.


4. Follow the instructions in the *Upgrading SANtricity OS* guide or the SANtricity System Manager online help to upgrade the firmware and NVSRAM.



Activate the upgrade files immediately. Don't defer activation.

5. If this procedure completed successfully and you have additional procedures to perform while the node is in maintenance mode, perform them now. When you are done, or if you experienced any failures and want to start over, select **Advanced > Reboot Controller**, and then select one of these options:
 - Select **Reboot into StorageGRID**
 - Select **Reboot into Maintenance Mode** to reboot the controller with the node remaining in maintenance mode. Select this option if you experienced any failures during the procedure and 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.

DASHBOARD

ALERTS ✓

Current

Resolved

Silences

Rules

Email setup

NODES

TENANTS

ILM ▼

CONFIGURATION

MAINTENANCE

SUPPORT

Nodes

View the list and status of sites and grid nodes.

Search... 🔍

Total node count: 14

Name ? ⬆	Type ⬆	Object data used ? ⬆	Object metadata used ? ⬆	CPU usage ? ⬆
StorageGRID Deployment	Grid	0%	0%	—
^ Data Center 1	Site	0%	0%	—
✓ DC1-ADM1	Primary Admin Node	—	—	21%
✓ DC1-ARC1	Archive Node	—	—	8%
✓ DC1-G1	Gateway Node	—	—	10%
✓ DC1-S1	Storage Node	0%	0%	29%

- Related information**
- [NetApp Interoperability Matrix Tool](#)
 - [Upgrade SANtricity OS on storage controllers using Grid Manager](#)

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