



Maintaining the SG5700 appliance

StorageGRID 11.5

NetApp
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Maintaining the SG5700 appliance

You might need to upgrade the SANtricity OS Software on the E2800 controller, change the Ethernet link configuration of the E5700SG controller, replace the E2800 controller or the E5700SG controller, or replace specific components. The procedures in this section assume that the appliance has already been deployed as a Storage Node in a StorageGRID system.

Steps

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- [Upgrading SANtricity OS on the storage controller](#)
- [Upgrading drive firmware using SANtricity System Manager](#)
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Placing an appliance into maintenance mode

You must place the appliance into maintenance mode before performing specific maintenance procedures.

What you'll need

- You must be signed in to the Grid Manager using a supported browser.
- You must have the Maintenance or Root Access permission. For details, see the instructions for administering StorageGRID.

About this task

Placing a StorageGRID appliance into maintenance mode might make the appliance unavailable for remote access.



The password and host key for a StorageGRID appliance in maintenance mode remain the same as they were when the appliance was in service.

Steps

1. From the Grid Manager, select **Nodes**.
2. From the tree view of the Nodes page, select the appliance Storage Node.
3. Select **Tasks**.

Reboot

Shuts down and restarts the node.

Reboot

Maintenance Mode

Places the appliance's compute controller into maintenance mode.

Maintenance Mode

4. Select **Maintenance Mode**.

A confirmation dialog box appears.

⚠ Enter Maintenance Mode on SGA-106-15

You must place the appliance's compute controller into maintenance mode to perform certain maintenance procedures on the appliance.

Attention: All StorageGRID services on this node will be shut down. Wait a few minutes for the node to reboot into maintenance mode.

If you are ready to start, enter the provisioning passphrase and click OK.

Provisioning Passphrase

Cancel

OK

5. Enter the provisioning passphrase, and select **OK**.

A progress bar and a series of messages, including "Request Sent," "Stopping StorageGRID," and "Rebooting," indicate that the appliance is completing the steps for entering maintenance mode.

Reboot

Shuts down and restarts the node.

Reboot

Maintenance Mode

Attention: Your request has been sent, but the appliance might take 10-15 minutes to enter maintenance mode. Do not perform maintenance procedures until this tab indicates maintenance mode is ready, or data could become corrupted.



Request Sent

When the appliance is in maintenance mode, a confirmation message lists the URLs you can use to access the StorageGRID Appliance Installer.

Reboot

Shuts down and restarts the node.

Reboot

Maintenance Mode

This node is currently in maintenance mode. Navigate to one of the URLs listed below and perform any necessary maintenance procedures.

- <https://172.16.2.106:8443>
- <https://10.224.2.106:8443>
- <https://47.47.2.106:8443>
- <https://169.254.0.1:8443>

When you are done with any required maintenance procedures, you must exit maintenance mode by clicking Reboot Controller from the StorageGRID Appliance Installer.

6. To access the StorageGRID Appliance Installer, browse to any of the URLs displayed.

If possible, use the URL containing the IP address of the appliance's Admin Network port.

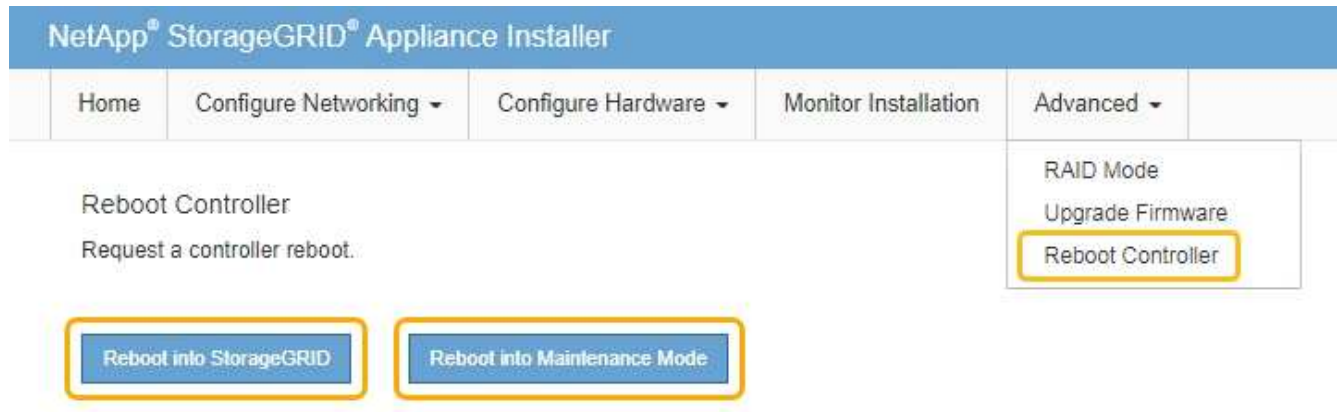


Accessing <https://169.254.0.1:8443> requires a direct connection to the local management port.

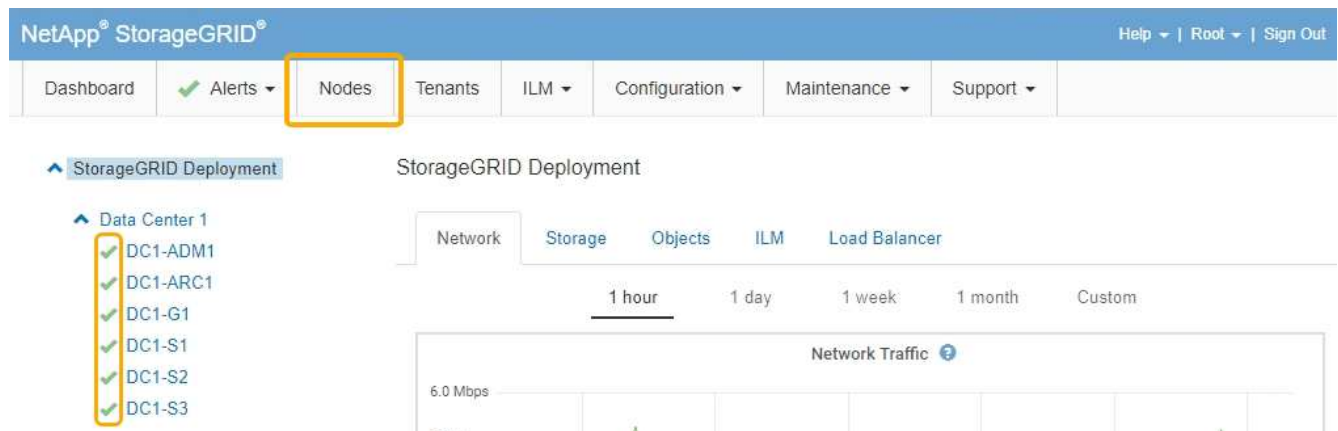
7. From the StorageGRID Appliance Installer, confirm that the appliance is in maintenance mode.

⚠ This node is in maintenance mode. Perform any required maintenance procedures. If you want to exit maintenance mode manually to resume normal operation, go to **Advanced > Reboot Controller** to [reboot](#) the controller.

8. Perform any required maintenance tasks.
9. After completing maintenance tasks, exit maintenance mode and resume normal node operation. From the StorageGRID Appliance Installer, select **Advanced > Reboot Controller**, and then select **Reboot into StorageGRID**.



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** tab should display a normal status ✓ for the appliance node, indicating that no alerts are active and the node is connected to the grid.



Upgrading SANtricity OS on the storage controller

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. If you need assistance, contact technical support.

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

perform the upgrade.

[Upgrading SANtricity OS on the storage controllers using the 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.

[Upgrading SANtricity OS on the E2800 controller using maintenance mode](#)

Related information

[NetApp Interoperability Matrix Tool](#)

[NetApp Downloads: SANtricity OS](#)

[Monitor & troubleshoot](#)

Upgrading SANtricity OS on the storage controllers using the 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.

What you'll need

- 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 must have the Maintenance permission.
- You must be signed in to the Grid Manager using a supported browser.
- You must have the provisioning passphrase.
- You must have access to the NetApp downloads page for SANtricity OS.

About this task

You cannot 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. It might take more than 30 minutes to load the SANtricity OS on each node and up to 90 minutes to reboot each StorageGRID storage appliance.



The following steps are only applicable when you are using the Grid Manager to perform the upgrade. The storage controllers in the SG5700 series appliance cannot 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 do not need to apply a separate NVSRAM upgrade file.

Steps

1. From a service laptop, download the new SANtricity OS Software file from the NetApp support site.

Be sure to choose the SANtricity OS version for the E2800 storage controllers.

NetApp Downloads: SANtricity OS

2. Sign in to the Grid Manager using a supported browser.
3. Select **Maintenance**. Then, in the System section of the menu, select **Software Update**.

The Software Update page appears.

Software Update

You can upgrade StorageGRID software, apply a hotfix, or upgrade the SANtricity OS software on StorageGRID storage appliances.

- To perform a major version upgrade of StorageGRID, see the [instructions for upgrading StorageGRID](#), and then select **StorageGRID Upgrade**.
- To apply a hotfix to all nodes in your system, see "Hotfix procedure" in the [recovery and maintenance instructions](#), and then select **StorageGRID Hotfix**.
- To upgrade SANtricity OS software on a storage controller, see "Upgrading SANtricity OS Software on the storage controllers" in the installation and maintenance instructions for your storage appliance, and then select **SANtricity OS**:

[SG6000 appliance installation and maintenance](#)

[SG5700 appliance installation and maintenance](#)

[SG5600 appliance installation and maintenance](#)



4. Click **SANtricity OS**.

The SANtricity OS page appears.

SANtricity OS

You can use this page to upgrade the SANtricity OS software on storage controllers in a storage appliance. Before installing the new software, confirm the storage controllers are Nominal (**Nodes > appliance node > Hardware**) and ready for an upgrade. A health check is automatically performed as part of the upgrade process and valid NVSRAM is automatically installed based on the appliance type and new software version. The software upgrade can take up to 30 minutes per appliance. When the upgrade is complete, the node will be automatically rebooted to activate the SANtricity OS on the storage controllers. If you have multiple types of appliances, repeat this procedure to install the appropriate OS software for each type.

SANtricity OS Upgrade File

SANtricity OS Upgrade File



Browse

Passphrase

Provisioning Passphrase



Start

5. Select the SANtricity OS upgrade file you downloaded from the NetApp support site.

- a. Click **Browse**.
- b. Locate and select the file.
- c. Click **Open**.

The file is uploaded and validated. When the validation process is done, the file name is shown in the Details field.



Do not change the file name since it is part of the verification process.

SANtricity OS

You can use this page to upgrade the SANtricity OS software on storage controllers in a storage appliance. Before installing the new software, confirm the storage controllers are Nominal (**Nodes > appliance node > Hardware**) and ready for an upgrade. A health check is automatically performed as part of the upgrade process and valid NVSRAM is automatically installed based on the appliance type and new software version. The software upgrade can take up to 30 minutes per appliance. When the upgrade is complete, the node will be automatically rebooted to activate the SANtricity OS on the storage controllers. If you have multiple types of appliances, repeat this procedure to install the appropriate OS software for each type.

SANtricity OS Upgrade File

SANtricity OS Upgrade File



Browse

✓ RC_2048001_102_102_040_2701 .dlp

Details



RC_2048001_102_102_040_2701 .dlp

Passphrase

Provisioning Passphrase



Start

6. Enter the provisioning passphrase.

The **Start** button is enabled.

SANtricity OS

You can use this page to upgrade the SANtricity OS software on storage controllers in a storage appliance. Before installing the new software, confirm the storage controllers are Nominal (**Nodes > appliance node > Hardware**) and ready for an upgrade. A health check is automatically performed as part of the upgrade process and valid NVSRAM is automatically installed based on the appliance type and new software version. The software upgrade can take up to 30 minutes per appliance. When the upgrade is complete, the node will be automatically rebooted to activate the SANtricity OS on the storage controllers. If you have multiple types of appliances, repeat this procedure to install the appropriate OS software for each type.

SANtricity OS Upgrade File

SANtricity OS Upgrade File



Browse

✓ RC_2048001_102_102_040_2701 .dlp

Details



RC_2048001_102_102_040_2701 .dlp

Passphrase


Provisioning Passphrase



Start

7. Click **Start**.

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

 **Warning**

Nodes can disconnect and services might be affected

The node will be automatically rebooted at the end of upgrade and services will be affected. Are you sure you want to start the SANtricity OS upgrade?

Cancel OK

8. Click **OK** 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 click **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 Storage Nodes, including software-based Storage Nodes. You must approve the upgrade for all Storage Nodes, even though a SANtricity OS upgrade has no effect on software-based Storage Nodes. The upgrade message returned for software-based Storage Nodes is "SANtricity OS upgrade is not applicable to this node."

SANtricity OS Upgrade Progress

Approve All Remove All

 **Storage Nodes - 0 out of 4 completed**

Approve All Remove All

Site	Name	Progress	Stage	Details	Action
RTP Lab 1	DT-10-224-1-181-S1		Waiting for you to approve		Approve
RTP Lab 1	DT-10-224-1-182-S2		Waiting for you to approve		Approve
RTP Lab 1	DT-10-224-1-183-S3		Waiting for you to approve		Approve
RTP Lab 1	NetApp-SGA-Lab2-002-024		Waiting for you to approve		Approve

◀ ▶

9. Optionally, sort the list of nodes in ascending or descending order by **Site**, **Name**, **Progress**, **Stage**, or **Details**. Or, enter a term in the **Search** box to search for specific nodes.

You can scroll through the list of nodes by using the left and right arrows at the bottom right corner of the section.

10. Approve the grid nodes you are ready to add to the upgrade queue. Approved nodes of the same type are upgraded one at a time.



Do not 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. Later, when the node is upgraded, the appliance node is rebooted. These operations might cause service interruptions for clients that are communicating with the node.

- Click either of the **Approve All** buttons 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(s).

- Click one or more **Approve** buttons to add one or more nodes to the SANtricity OS upgrade queue.



You can delay applying a SANtricity OS upgrade to a node, but the SANtricity OS upgrade process will not be complete until you approve the SANtricity OS upgrade on all the listed Storage Nodes.

After you click **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. For nodes intentionally not upgraded, the process will show stage of Complete with one of the following messages in the Details column:

- Storage Node was already upgraded.
- SANtricity OS upgrade is not applicable to this node.
- SANtricity OS file is not compatible with this node.

The message “SANtricity OS upgrade is not applicable to this node” indicates that the node does not have a storage controller that can be managed by the StorageGRID system. This message will appear for non-appliance Storage Nodes. You can complete the SANtricity OS upgrade process without upgrading the node displaying this message.

The message “SANtricity OS file is not compatible with this node” indicates that the node requires a SANtricity OS file different than the one the process is attempting to install. After you complete the current SANtricity OS upgrade, download the SANtricity OS appropriate for the node and repeat the upgrade process.

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

As shown in the example, 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.

Storage Nodes - 1 out of 9 completed
Approve All
Remove All

Site	Name	Progress	Stage	Details	Action
Raleigh	RAL-S1-101-196		Queued		Remove
Raleigh	RAL-S2-101-197		Complete		
Raleigh	RAL-S3-101-198		Queued		Remove
Sunnyvale	SVL-S1-101-199		Queued		Remove
Sunnyvale	SVL-S2-101-93		Waiting for you to approve		Approve
Sunnyvale	SVL-S3-101-94		Waiting for you to approve		Approve
Vancouver	VTC-S1-101-193		Waiting for you to approve		Approve
Vancouver	VTC-S2-101-194		Waiting for you to approve		Approve
Vancouver	VTC-S3-101-195		Waiting for you to approve		Approve

12. 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 being applied, the upgrade has failed for that node. The appliance might need to be placed in maintenance mode to recover from the failure. Contact technical support before continuing.

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: "You must use maintenance mode to upgrade SANtricity OS on this node. See the installation and maintenance instructions for your appliance. After the upgrade, you can use this utility for future upgrades." To resolve the error, do the following:

- Use maintenance mode to upgrade SANtricity OS on the node that shows a stage of Error.
- Use the Grid Manager to re-start 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 date and time the SANtricity OS upgrade was completed.

SANtricity OS upgrade completed at 2020-04-07 13:26:02 EDT

SANtricity OS Upgrade File

SANtricity OS Upgrade File

Passphrase

Provisioning Passphrase

13. 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

[Upgrading SANtricity OS on the E2800 controller using maintenance mode](#)

Upgrading SANtricity OS on the E2800 controller 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.

What you'll need

- 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 must place the E5700SG controller into maintenance mode, which interrupts the connection to the E2800 controller. Putting a StorageGRID appliance into maintenance mode might make the appliance unavailable for remote access.

[Placing an appliance into maintenance mode](#)

About this task

Do not 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. From a service laptop, access SANtricity System Manager and sign in.
2. Download the new SANtricity OS Software file and NVSRAM file to the management client.



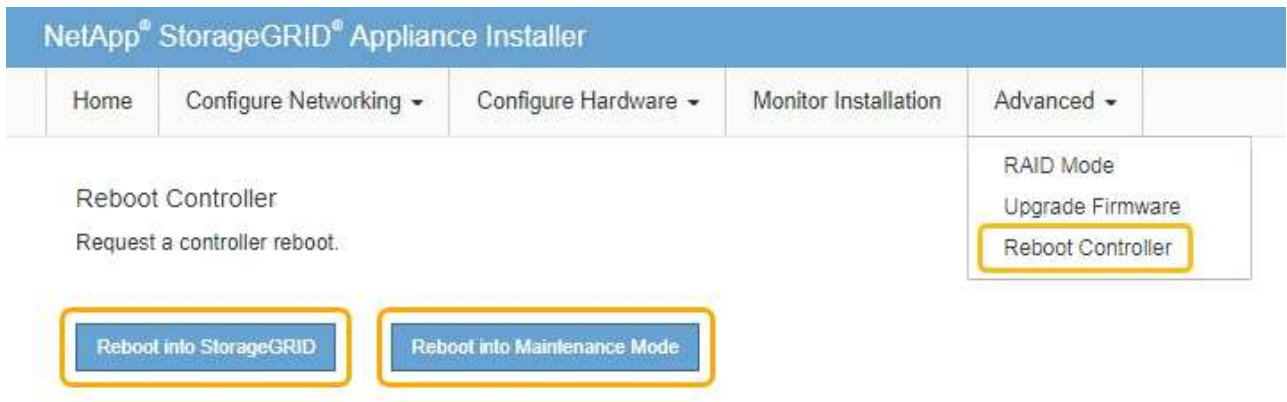
The NVSRAM is specific to the StorageGRID appliance. Do not use the standard NVSRAM download.

3. Follow the instructions in the *E2800 and E5700 SANtricity Software and Firmware Upgrade Guide* or the SANtricity System Manager online help to upgrade the E2800 controller's firmware and NVSRAM.

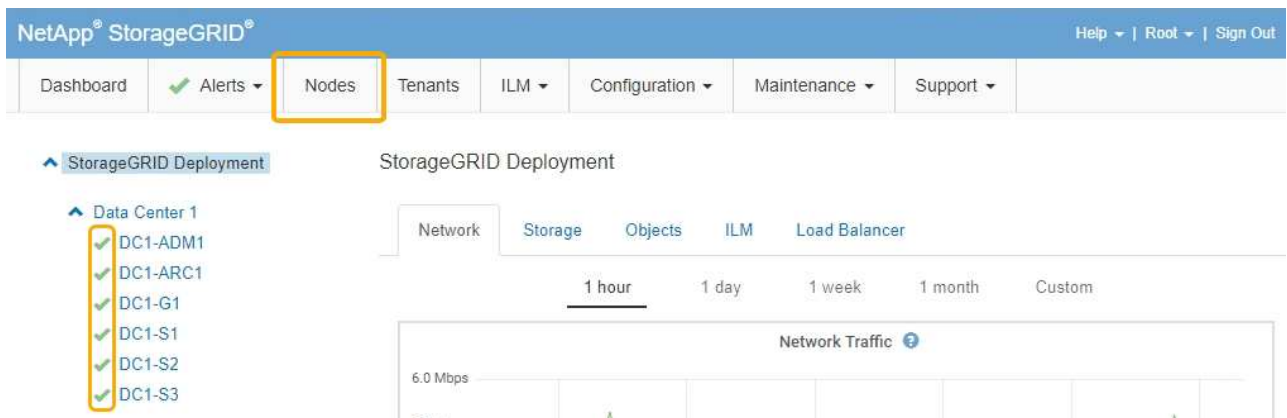


Activate the upgrade files immediately. Do not defer activation.

4. Once the upgrade operation has completed, reboot the node. From the StorageGRID Appliance Installer, select **Advanced > Reboot Controller**, and then select one of these options:
 - Select **Reboot into StorageGRID** to reboot the controller with the node rejoining the grid. Select this option if you are done working in maintenance mode and are ready to return the node to normal operation.
 - Select **Reboot into Maintenance Mode** to reboot the controller with the node remaining in maintenance mode. Select this option if there are additional maintenance operations you need to perform on the node before rejoining the grid.



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** tab should display a normal status ✓ for the appliance node, indicating that no alerts are active and the node is connected to the grid.



Related information

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

Upgrading drive firmware using SANtricity System Manager

You upgrade your drive firmware to make sure you have all the latest features and bug fixes.

What you'll need

- The storage appliance has an Optimal status.
- All drives have an Optimal status.
- You have the latest version of SANtricity System Manager installed that is compatible with your StorageGRID version.
- You have placed the StorageGRID appliance in maintenance mode.

[Placing an appliance into maintenance mode](#)



Maintenance mode interrupts the connection to the storage controller, stopping all I/O activity and placing all drives offline.



Do not 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 policies.

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** > **appliance Storage Node** > **SANtricity System Manager**



If these options are not available or the SANtricity System Manager login page does not appear, access 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 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

2 Select Drives

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

[What do I need to know before upgrading drive firmware?](#)

Current Drive Firmware	Associated Drives
MS02, KPM51VUG800G	View drives

Total rows: 1 |

Select up to four drive firmware files: [Browse...](#)

In this example:

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

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

d. Close the Upgrade Drive Firmware window.

4. Download and prepare the available drive firmware upgrade:

- Under Drive Firmware upgrade, select **NetApp Support**.
- On the NetApp Support web 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:

- From SANtricity System Manager, under Drive Firmware upgrade, select **Begin Upgrade**.
- 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 **Proposed Firmware**. If you must change this firmware, select **Back**.

- d. Select **Offline (parallel)** upgrade.

You can use the offline upgrade method because the appliance is in maintenance mode, where I/O activity is stopped for all drives and all volumes.

- 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 any of the following errors occur during the upgrade procedure, take the appropriate recommended action.

▪ **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 are not 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**

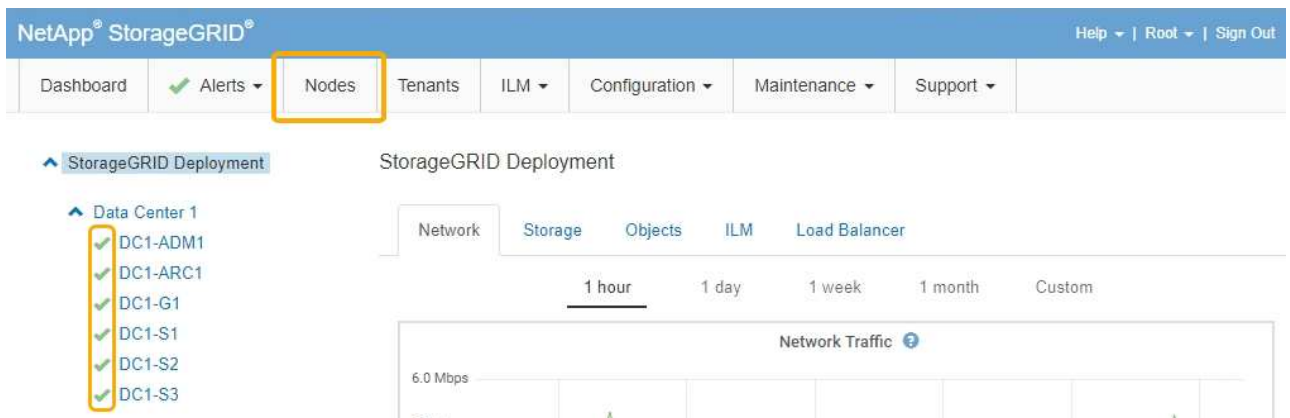
Contact technical support to resolve this issue.

6. Once the upgrade operation has completed, reboot the appliance. From the StorageGRID Appliance Installer, select **Advanced > Reboot Controller**, and then select one of these options:

- Select **Reboot into StorageGRID** to reboot the controller with the node rejoining the grid. Select this option if you are done working in maintenance mode and are ready to return the node to normal operation.
- Select **Reboot into Maintenance Mode** to reboot the controller with the node remaining in maintenance mode. Select this option if there are additional maintenance operations you need to perform on the node before rejoining the grid.



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** tab should display a normal status ✓ for the appliance node, indicating that no alerts are active and the node is connected to the grid.



Related information

[Upgrading SANtricity OS on the storage controller](#)

Replacing the E2800 controller

You might need to replace the E2800 controller if it is not functioning optimally or if it has failed.

About this task

- You have a replacement controller with the same part number as the controller you are replacing.
- You have downloaded the instructions for replacing the simplex configuration of a failed E2800 controller canister.



Refer to the E-Series instructions only when directed or if you need more details to perform a specific step. Do not rely on the E-Series instructions to replace a controller in the StorageGRID appliance, because the procedures are not the same.

- You have labels to identify each cable that is connected to the controller.

- If all drives are secured, you have reviewed the steps in the simplex E2800 controller replacement procedure, which include downloading and installing E-Series SANtricity Storage Manager from the NetApp Support Site and then using the Enterprise Management Window (EMW) to unlock the secured drives after you have replaced the controller.



You will not be able to use the appliance until you unlock the drives with the saved key.

- You must have specific access permissions.
- You must be signed in to the Grid Manager using a supported browser.

About this task

You can determine if you have a failed controller canister in two ways:

- The Recovery Guru in SANtricity System Manager directs you to replace the controller.
- The amber Attention LED on the controller is on, indicating that the controller has a fault.

The appliance Storage Node will not be accessible when you replace the controller. If the E2800 controller is functioning sufficiently, you can place the E5700SG controller into maintenance mode.

Placing an appliance into maintenance mode

When you replace a controller, you must remove the battery from the original controller and install it in the replacement controller.



The E2800 controller in the appliance does not include a host interface card (HIC).

Steps

1. Follow the instructions in the E2800 controller replacement procedure to prepare to remove the controller.

You use SANtricity System Manager to perform these steps.

- a. Make a note of which version of SANtricity OS software is currently installed on the controller.
- b. Make a note of which version of NVSRAM is currently installed.
- c. If the Drive Security feature is enabled, be sure a saved key exists and that you know the pass phrase required to install it.



Possible loss of data access -- If all drives in the appliance are security enabled, the new controller will not be able to access the appliance until you unlock the secured drives using the Enterprise Management Window in SANtricity Storage Manager.

- d. Back up the configuration database.

If a problem occurs when you remove a controller, you can use the saved file to restore your configuration.

- e. Collect support data for the appliance.



Collecting support data before and after replacing a component ensures you can send a full set of logs to technical support in case the replacement does not resolve the problem.

2. If the StorageGRID appliance is running in a StorageGRID system, place the E5700SG controller into maintenance mode.

Placing an appliance into maintenance mode

3. If the E2800 controller is functioning sufficiently to allow for a controlled shutdown, confirm that all operations have completed.
 - a. From the home page of SANtricity System Manager, select **View Operations in Progress**.
 - b. Confirm that all operations have completed.
4. Remove the controller from the appliance:
 - a. Put on an ESD wristband or take other antistatic precautions.
 - b. Label the cables and then disconnect the cables and SFPs.



To prevent degraded performance, do not twist, fold, pinch, or step on the cables.

- c. Release the controller from the appliance by squeezing the latch on the cam handle until it releases, and then open the cam handle to the right.
 - d. Using two hands and the cam handle, slide the controller out of the appliance.





Always use two hands to support the weight of the controller.

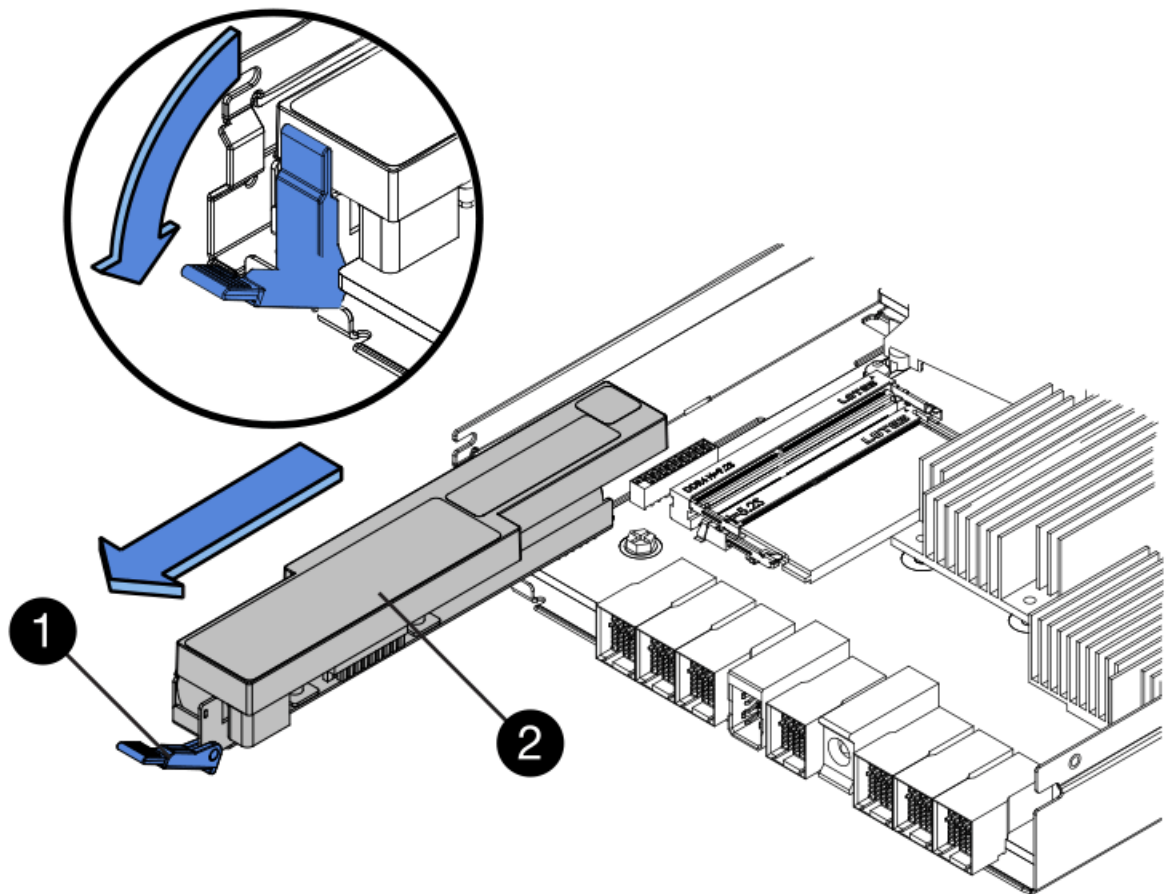
- e. Place the controller on a flat, static-free surface with the removable cover facing up.
 - f. Remove the cover by pressing down on the button and sliding the cover off.
5. Remove the battery from the failed controller, and install it into the replacement controller:
 - a. Confirm that the green LED inside the controller (between the battery and the DIMMs) is off.



If this green LED is on, the controller is still using battery power. You must wait for this LED to go off before removing any components.



Item	Description
	Internal Cache Active LED
	Battery

- b. Locate the blue release latch for the battery.
- c. Unlatch the battery by pushing the release latch down and away from the controller.



Item	Description
	Battery release latch
	Battery

- d. Lift up on the battery, and slide it out of the controller.
- e. Remove the cover from the replacement controller.
- f. Orient the replacement controller so that the slot for the battery faces toward you.
- g. Insert the battery into the controller at a slight downward angle.

You must insert the metal flange at the front of the battery into the slot on the bottom of the controller, and slide the top of the battery beneath the small alignment pin on the left side of the controller.

- h. Move the battery latch up to secure the battery.

When the latch clicks into place, the bottom of the latch hooks into a metal slot on the chassis.

- i. Turn the controller over to confirm that the battery is installed correctly.



Possible hardware damage — The metal flange at the front of the battery must be completely inserted into the slot on the controller (as shown in the first figure). If the battery is not installed correctly (as shown in the second figure), the metal flange might contact the controller board, causing damage.

- **Correct** — The battery's metal flange is completely inserted into the slot on the controller:



- **Incorrect** — The battery's metal flange is not inserted into the slot on the controller:



j. Replace the controller cover.

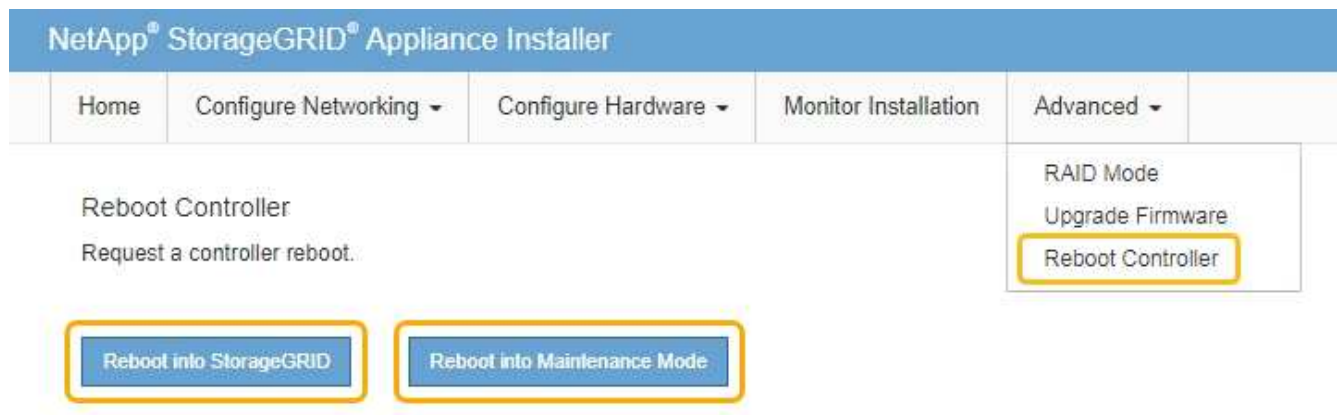
6. Install the replacement controller into the appliance.

- Turn the controller over, so that the removable cover faces down.
- With the cam handle in the open position, slide the controller all the way into the appliance.
- Move the cam handle to the left to lock the controller in place.
- Replace the cables and SFPs.
- Wait for the E2800 controller to reboot. Verify that the seven-segment display shows a state of 99.
- Determine how you will assign an IP address to the replacement controller.

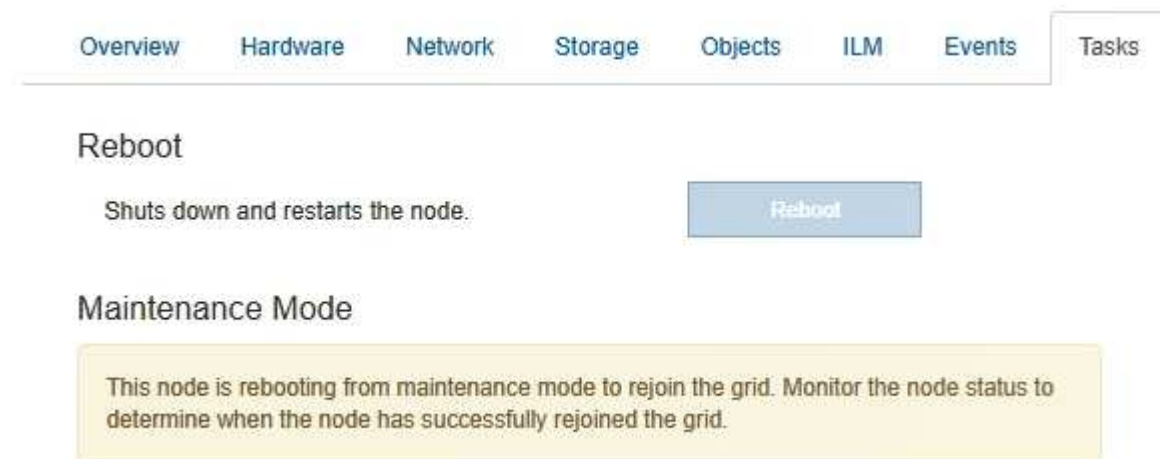


The steps for assigning an IP address to the replacement controller depend on whether you connected management port 1 to a network with a DHCP server and on whether all drives are secured.

- If management port 1 is connected to a network with a DHCP server, the new controller will obtain its IP address from the DHCP server. This value might be different than the original controller's IP address.
 - If all drives are secured, you must use the Enterprise Management Window (EMW) in SANtricity Storage Manager to unlock the secured drives. You cannot access the new controller until you unlock the drives with the saved key. See the E-Series instructions for replacing a simplex E2800 controller.
7. If the appliance uses secured drives, follow the instructions in the E2800 controller replacement procedure to import the drive security key.
 8. Return the appliance to normal operating mode. From the StorageGRID Appliance Installer, select **Advanced > Reboot Controller**, and then select **Reboot into StorageGRID**.



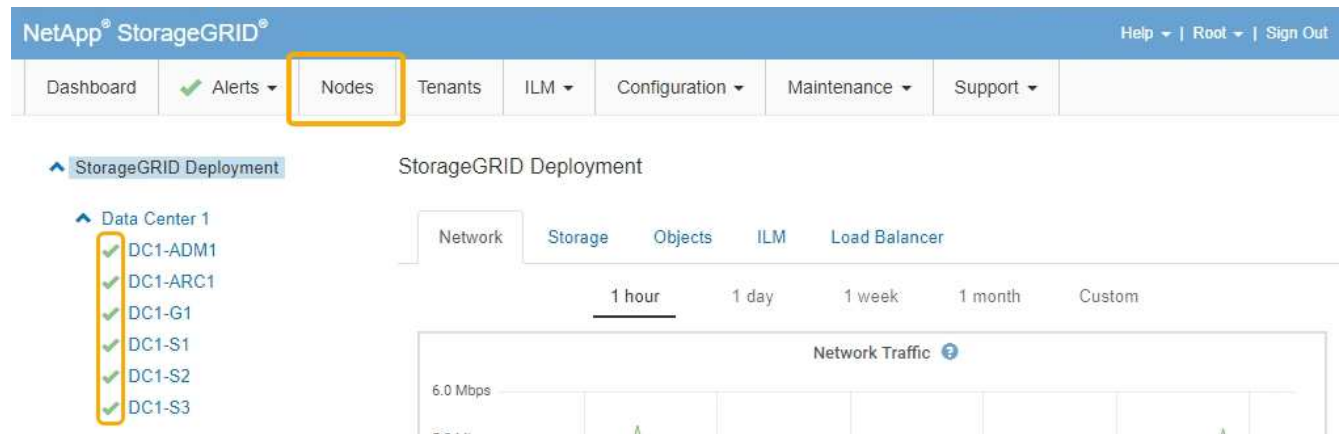
During the reboot, the following screen appears:



The appliance reboots and rejoins the grid. This process can take up to 20 minutes.

9. Confirm that the reboot is complete and that the node has rejoined the grid. In the Grid Manager, verify that

the **Nodes** tab displays a normal status ✓ for the appliance node, indicating that no alerts are active and the node is connected to the grid.



10. From SANtricity System Manager, confirm that the new controller is Optimal, and collect support data.

Related information

[NetApp E-Series Systems Documentation Site](#)

Replacing the E5700SG controller

You might need to replace the E5700SG controller if it is not functioning optimally or if it has failed.

What you'll need

- You have a replacement controller with the same part number as the controller you are replacing.
- You have downloaded the E-Series instructions for replacing a failed E5700 controller.



Use the E-Series instructions for reference only if you need more details to perform a specific step. Do not rely on the E-Series instructions to replace a controller in the StorageGRID appliance, because the procedures are not the same. For example, the E-Series instructions for the E5700 controller describe how to remove the battery and the host interface card (HIC) from a failed controller and install them in a replacement controller. These steps do not apply to the E5700SG controller.

- You have labels to identify each cable that is connected to the controller.
- The appliance has been placed maintenance mode.

[Placing an appliance into maintenance mode](#)

About this task

The appliance Storage Node will not be accessible when you replace the controller. If the E5700SG controller is functioning sufficiently, you can perform a controlled shutdown at the start of this procedure.



If you are replacing the controller before installing StorageGRID software, you might not be able to access the StorageGRID Appliance Installer immediately after completing this procedure. While you can access the StorageGRID Appliance Installer from other hosts on the same subnet as the appliance, you cannot access it from hosts on other subnets. This condition should resolve itself within 15 minutes (when any ARP cache entries for the original controller time out), or you can clear the condition immediately by purging any old ARP cache entries manually from the local router or gateway.

Steps

1. When the appliance has been placed in maintenance mode, shut down the E5700SG controller.

- a. Log in to the grid node:

- i. Enter the following command: `ssh admin@grid_node_IP`
- ii. Enter the password listed in the `Passwords.txt` file.
- iii. Enter the following command to switch to root: `su -`
- iv. Enter the password listed in the `Passwords.txt` file.

When you are logged in as root, the prompt changes from `$` to `#`.

- b. Shut down the E5700SG controller:

`shutdown -h now`

- c. Wait for any data in cache memory to be written to the drives.

The green Cache Active LED on the back of the E2800 controller is on when cached data needs to be written to the drives. You must wait for this LED to turn off.

2. Turn off the power.

- a. From the home page of SANtricity System Manager, select **View Operations in Progress**.
- b. Confirm that all operations have completed.
- c. Turn off both power switches on the appliance.
- d. Wait for all LEDs to turn off.

3. If the StorageGRID networks attached to the controller use DHCP servers:

- a. Note the MAC addresses for the ports on the replacement controller (located on labels on the controller).
- b. Ask your network administrator to update the IP address settings for the original controller to reflect the MAC addresses for the replacement controller.



You must ensure that the IP addresses for the original controller have been updated before you apply power to the replacement controller. Otherwise, the controller will obtain new DHCP IP addresses when it boots up and might not be able to reconnect to StorageGRID. This step applies to all StorageGRID networks that are attached to the controller.

4. Remove the controller from the appliance:

- a. Put on an ESD wristband or take other antistatic precautions.
- b. Label the cables and then disconnect the cables and SFPs.



To prevent degraded performance, do not twist, fold, pinch, or step on the cables.

- c. Release the controller from the appliance by squeezing the latch on the cam handle until it releases, and then open the cam handle to the right.
- d. Using two hands and the cam handle, slide the controller out of the appliance.



Always use two hands to support the weight of the controller.

5. Install the replacement controller into the appliance.
 - a. Turn the controller over, so that the removable cover faces down.
 - b. With the cam handle in the open position, slide the controller all the way into the appliance.
 - c. Move the cam handle to the left to lock the controller in place.
 - d. Replace the cables and SFPs.
6. Power on the appliance, and monitor the controller LEDs and seven-segment displays.

After the controllers have successfully booted up, the seven-segment displays should show the following:

- E2800 controller:

The final state is 99.

- E5700SG controller:

The final state is HA.

7. Confirm that the appliance Storage Node appears in the Grid Manager and that no alarms appear.

Related information

[NetApp E-Series Systems Documentation Site](#)

Replacing other hardware components

You might need to replace a controller battery, drive, fan, or power supply, in the StorageGRID appliance.

What you'll need

- You have the E-Series hardware replacement procedure.
- The appliance has been placed maintenance mode if the component replacement procedure requires that you shut down the appliance.

[Placing an appliance into maintenance mode](#)

About this task

To replace the battery in the E2800 controller, see the instructions in these instructions for replacing the E2800 controller. Those instructions describe how to remove the controller from the appliance, remove the battery from the controller, install the battery, and replace the controller.

To replace a drive, power-fan canister, fan canister, power canister, or drive drawer in the appliance, access

the E-Series procedures for maintaining E2800 hardware.

SG5712 component replacement instructions

FRU	See E-Series instructions for
Drive	Replacing a drive in E2800 12-drive or 24-drive shelves
Power-fan canister	Replacing a power-fan canister in E2800 shelves

SG5760 component replacement instructions

FRU	See E-Series instructions for
Drive	Replacing a drive in E2860 shelves
Power canister	Replacing a power canister in E2860 shelves
Fan canister	Replacing a fan canister in E2860 shelves
Drive drawer	Replacing a drive drawer in E2860 shelves

Related information

[Replacing the E2800 controller](#)

[NetApp E-Series Systems Documentation Site](#)

Changing the link configuration of the E5700SG controller

You can change the Ethernet link configuration of the E5700SG controller. You can change the port bond mode, the network bond mode, and the link speed.

What you'll need

You must place the E5700SG controller into maintenance mode. Putting a StorageGRID appliance into maintenance mode might make the appliance unavailable for remote access.

[Placing an appliance into maintenance mode](#)

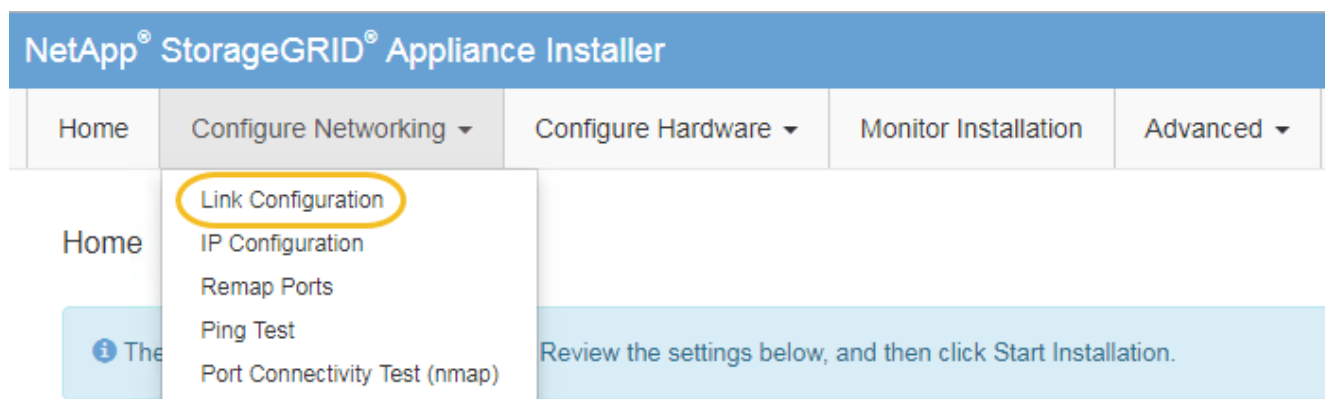
About this task

Options for changing the Ethernet link configuration of the E5700SG controller include:

- Changing **Port bond mode** from Fixed to Aggregate, or from Aggregate to Fixed
- Changing **Network bond mode** from Active-Backup to LACP, or from LACP to Active-Backup
- Enabling or disabling VLAN tagging, or changing the value of a VLAN tag
- Changing the link speed from 10-GbE to 25-GbE, or from 25-GbE to 10-GbE

Steps

1. Select **Configure Networking** > **Link Configuration** from the menu.



2. Make the desired changes to the link configuration.

For more information on the options, see “Configuring network links.”

3. When you are satisfied with your selections, click **Save**.



You might lose your connection if you made changes to the network or link you are connected through. If you are not reconnected within 1 minute, re-enter the URL for the StorageGRID Appliance Installer using one of the other IP addresses assigned to the appliance:

`https://E5700SG_Controller_IP:8443`

If you made changes to the VLAN settings, the subnet for the appliance might have changed. If you need to change the IP addresses for the appliance, follow the instructions for configuring IP addresses.

Setting the IP configuration

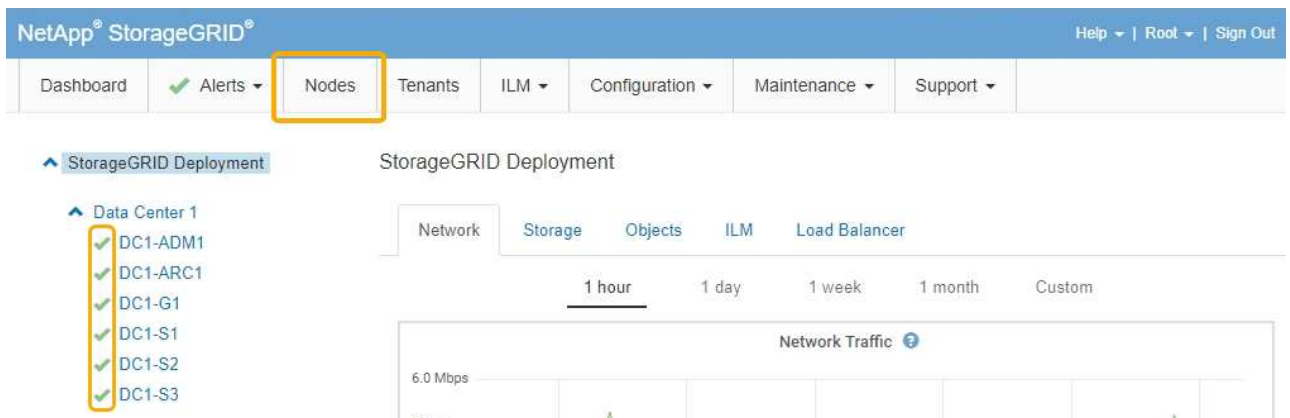
4. From the StorageGRID Appliance Installer, select **Configure Networking** > **Ping Test**.
5. Use the Ping Test tool to check connectivity to IP addresses on any networks that might have been affected by the link configuration changes you made in the [Change link configuration](#) step.

In addition to any other tests you choose to perform, confirm that you can ping the grid IP address of the primary Admin Node, and the grid IP address of at least one other Storage Node. If necessary, correct any link configuration issues.

6. Once you are satisfied that your link configuration changes are working, reboot the node. From the StorageGRID Appliance Installer, select **Advanced** > **Reboot Controller**, and then select one of these options:
 - Select **Reboot into StorageGRID** to reboot the controller with the node rejoining the grid. Select this option if you are done working in maintenance mode and are ready to return the node to normal operation.
 - Select **Reboot into Maintenance Mode** to reboot the controller with the node remaining in maintenance mode. Select this option if there are additional maintenance operations you need to perform on the node before rejoining the grid.



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** tab should display a normal status ✓ for the appliance node, indicating that no alerts are active and the node is connected to the grid.



Related information

[Configuring network links \(SG5700\)](#)

Changing the MTU setting

You can change the MTU setting that you assigned when you configured IP addresses for the appliance node.

What you'll need

The appliance has been placed in maintenance mode.

[Placing an appliance into maintenance mode](#)

Steps

1. From the StorageGRID Appliance Installer, select **Configure Networking > IP Configuration**.
2. Make the desired changes to the MTU settings for the Grid Network, Admin Network, and Client Network.


Grid Network

The Grid Network is used for all internal StorageGRID traffic. The Grid Network provides connectivity between all nodes in the grid, across all sites and subnets. All hosts on the Grid Network must be able to talk to all other hosts. The Grid Network can consist of multiple subnets. Networks containing critical grid services, such as NTP, can also be added as Grid subnets.





IP Assignment ☒ Static ☐ DHCP

IPv4 Address (CIDR)

Gateway

 All required Grid Network subnets must also be defined in the Grid Network Subnet List on the Primary Admin Node before starting installation.

Subnets (CIDR)

<input type="text" value="172.18.0.0/21"/>	
<input type="text" value="172.18.0.0/21"/>	
<input type="text" value="192.168.0.0/21"/>	 

MTU



The MTU value of the network must match the value configured on the switch port the node is connected to. Otherwise, network performance issues or packet loss might occur.

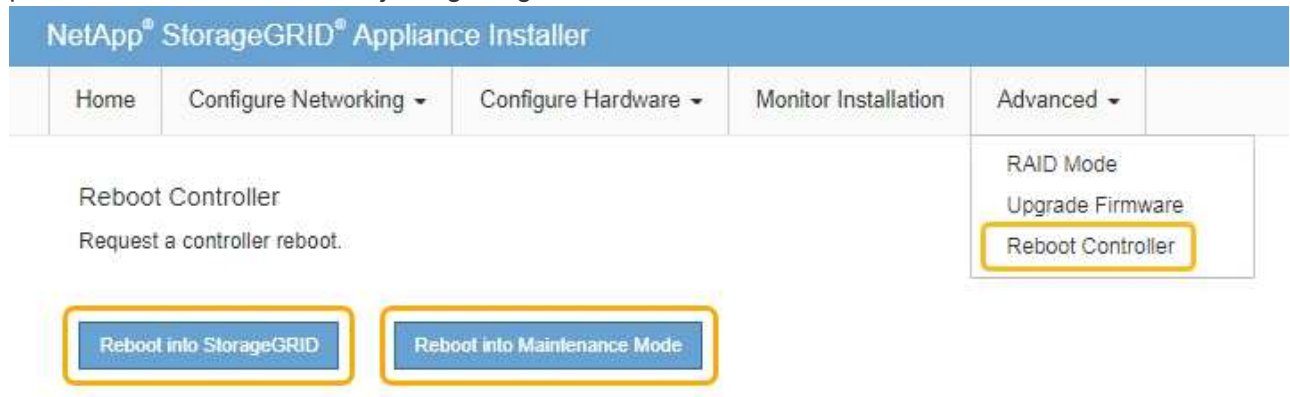


For the best network performance, all nodes should be configured with similar MTU values on their Grid Network interfaces. The **Grid Network MTU mismatch** alert is triggered if there is a significant difference in MTU settings for the Grid Network on individual nodes. The MTU values do not have to be the same for all network types.

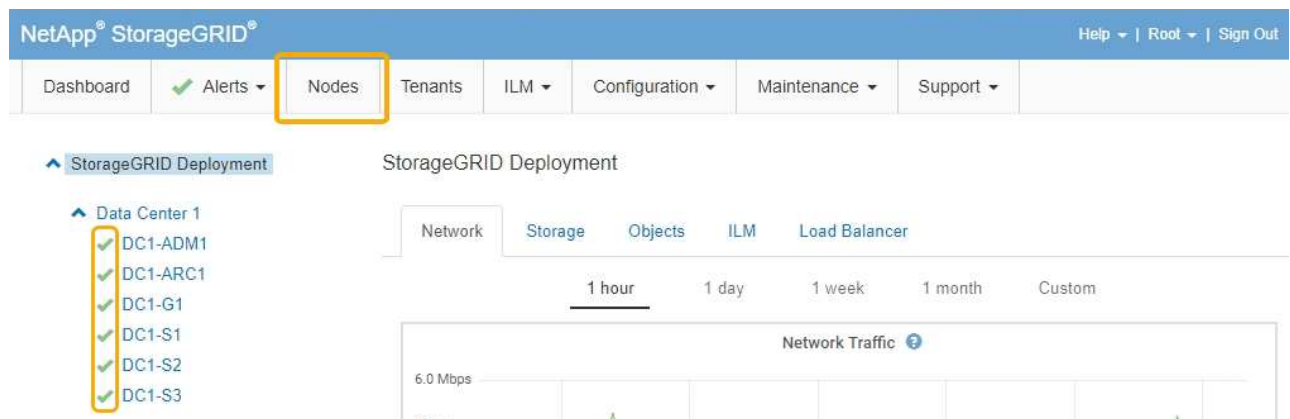
- When you are satisfied with the settings, select **Save**.
- Reboot the node. From the StorageGRID Appliance Installer, select **Advanced > Reboot Controller**, and then select one of these options:
 - Select **Reboot into StorageGRID** to reboot the controller with the node rejoining the grid. Select this

option if you are done working in maintenance mode and are ready to return the node to normal operation.

- Select **Reboot into Maintenance Mode** to reboot the controller with the node remaining in maintenance mode. Select this option if there are additional maintenance operations you need to perform on the node before rejoining the grid.



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** tab should display a normal status ✓ for the appliance node, indicating that no alerts are active and the node is connected to the grid.



Related information

[Administer StorageGRID](#)

Checking the DNS server configuration

You can check and temporarily change the domain name system (DNS) servers that are currently in use by this appliance node.

What you'll need

The appliance has been placed in maintenance mode.

[Placing an appliance into maintenance mode](#)

About this task

You might need to change the DNS server settings if an encrypted appliance cannot connect to the key management server (KMS) or KMS cluster because the hostname for the KMS was specified as a domain name instead of an IP address. Any changes that you make to the DNS settings for the appliance are temporary and are lost when you exit maintenance mode. To make these changes permanent, specify the DNS servers in Grid Manager (**Maintenance > Network > DNS Servers**).

- Temporary changes to the DNS configuration are necessary only for node-encrypted appliances where the KMS server is defined using a fully qualified domain name, instead of an IP address, for the hostname.
- When a node-encrypted appliance connects to a KMS using a domain name, it must connect to one of the DNS servers defined for the grid. One of these DNS servers then translates the domain name into an IP address.
- If the node cannot reach a DNS server for the grid, or if you changed the grid-wide DNS settings when a node-encrypted appliance node was offline, the node is unable to connect to the KMS. Encrypted data on the appliance cannot be decrypted until the DNS issue is resolved.


To resolve a DNS issue preventing KMS connection, specify the IP address of one or more DNS servers in the StorageGRID Appliance Installer. These temporary DNS settings allow the appliance to connect to the KMS and decrypt data on the node.

For example, if the DNS server for the grid changes while an encrypted node was offline, the node will not be able to reach the KMS when it comes back online, since it is still using the previous DNS values. Entering the new DNS server IP address in the StorageGRID Appliance Installer allows a temporary KMS connection to decrypt the node data.




Steps

1. From the StorageGRID Appliance Installer, select **Configure Networking > DNS Configuration**.
2. Verify that the DNS servers specified are correct.

DNS Servers

 Configuration changes made on this page will not be passed to the StorageGRID software after appliance installation.

Servers

Server 1	<input type="text" value="10.224.223.135"/>	
Server 2	<input type="text" value="10.224.223.136"/>	 

3. If required, change the DNS servers.



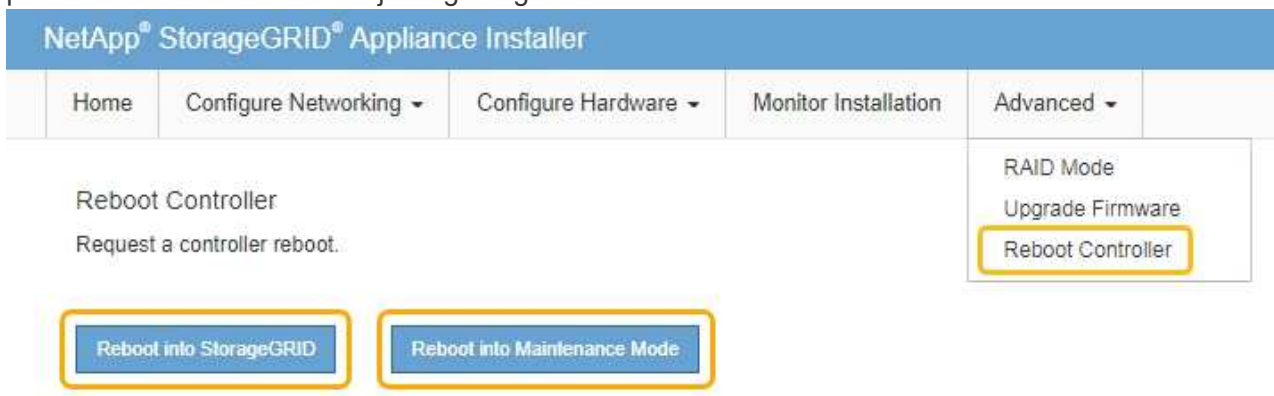
Changes made to the DNS settings are temporary and are lost when you exit maintenance mode.

4. When you are satisfied with the temporary DNS settings, select **Save**.


The node uses the DNS server settings specified on this page to reconnect to the KMS, allowing data on the node to be decrypted.

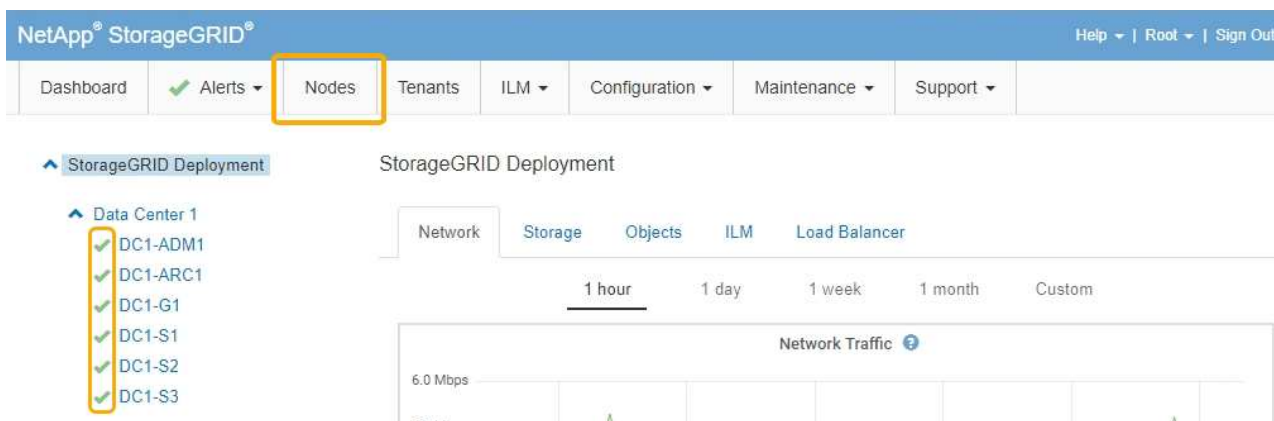
5. After node data is decrypted, reboot the node. From the StorageGRID Appliance Installer, select **Advanced > Reboot Controller**, and then select one of these options:

- Select **Reboot into StorageGRID** to reboot the controller with the node rejoining the grid. Select this option if you are done working in maintenance mode and are ready to return the node to normal operation.
- Select **Reboot into Maintenance Mode** to reboot the controller with the node remaining in maintenance mode. Select this option if there are additional maintenance operations you need to perform on the node before rejoining the grid.



When the node reboots and rejoins the grid, it uses the system-wide DNS servers listed in the Grid Manager. After rejoining the grid, the appliance will no longer use the temporary DNS servers specified in the StorageGRID Appliance Installer while the appliance was in maintenance mode.

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** tab should display a normal status  for the appliance node, indicating that no alerts are active and the node is connected to the grid.



Monitoring node encryption in maintenance mode

If you enabled node encryption for the appliance during installation, you can monitor the node-encryption status of each appliance node, including the node-encryption state and key management server (KMS) details.

What you'll need

- Node encryption must have been enabled for the appliance during installation. You cannot enable node encryption after the appliance is installed.
- The appliance has been placed into maintenance mode.

Placing an appliance into maintenance mode


Steps

1. From the StorageGRID Appliance Installer, select **Configure Hardware > Node Encryption**.

Node Encryption

Node encryption allows you to use an external key management server (KMS) to encrypt all StorageGRID data on this appliance. If node encryption is enabled for the appliance and a KMS is configured for the site, you cannot access any data on the appliance unless the appliance can communicate with the KMS.

Encryption Status

 You can only enable node encryption for an appliance during installation. You cannot enable or disable the node encryption setting after the appliance is installed.

Enable node encryption ☒

Save

Key Management Server Details

View the status and configuration details for the KMS that manages the encryption key for this appliance. You must use the Grid Manager to make configuration changes.

KMS display name	thales
External key UID	41b0306abcce451facfce01b1b4870ae1c1ec6bd5e3849d790223766baf35c57
Hostnames	10.96.99.164 10.96.99.165
Port	5696


Server certificate



Client certificate



Clear KMS Key

 Do not clear the KMS key if you need to access or preserve any data on this appliance.

If you want to reinstall this appliance node (for example, in another grid), you must clear the KMS key. When the KMS key is cleared, all data on this appliance is deleted.

Clear KMS Key and Delete Data

The Node Encryption page includes these three sections:

- Encryption Status shows whether node encryption is enabled or disabled for the appliance.
- Key Management Server Details shows information about the KMS being used to encrypt the appliance. You can expand the server and client certificate sections to view certificate details and status.

- To address issues with the certificates themselves, such as renewing expired certificates, see the information about KMS in the instructions for administering StorageGRID.
- If there are unexpected problems connecting to KMS hosts, verify that the domain name system (DNS) servers are correct and that appliance networking is correctly configured.

Checking the DNS server configuration

- If you are unable to resolve your certificate issues, contact technical support.
- Clear KMS Key disables node encryption for the appliance, removes the association between the appliance and the key management server that was configured for the StorageGRID site, and deletes all data from the appliance. You must clear the KMS key before you can install the appliance into another StorageGRID system.

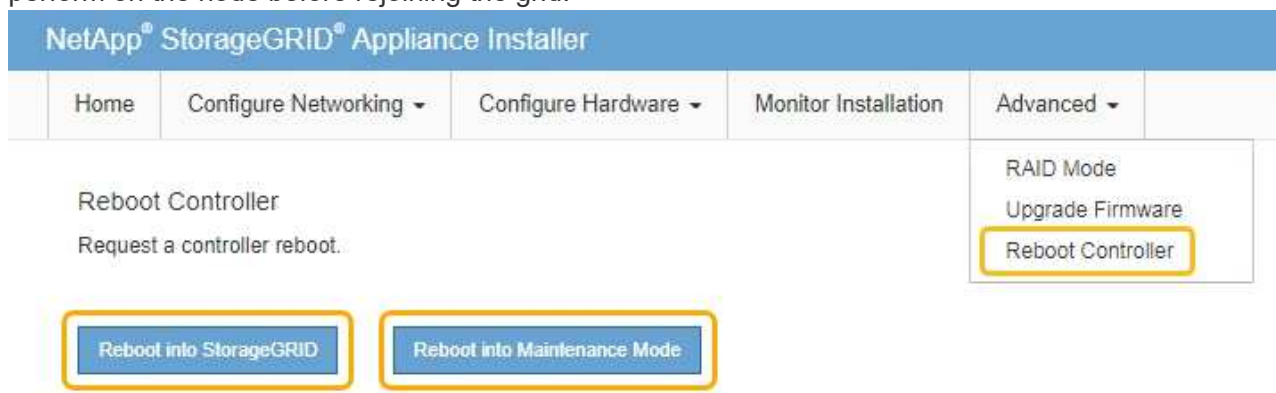
Clearing the key management server configuration



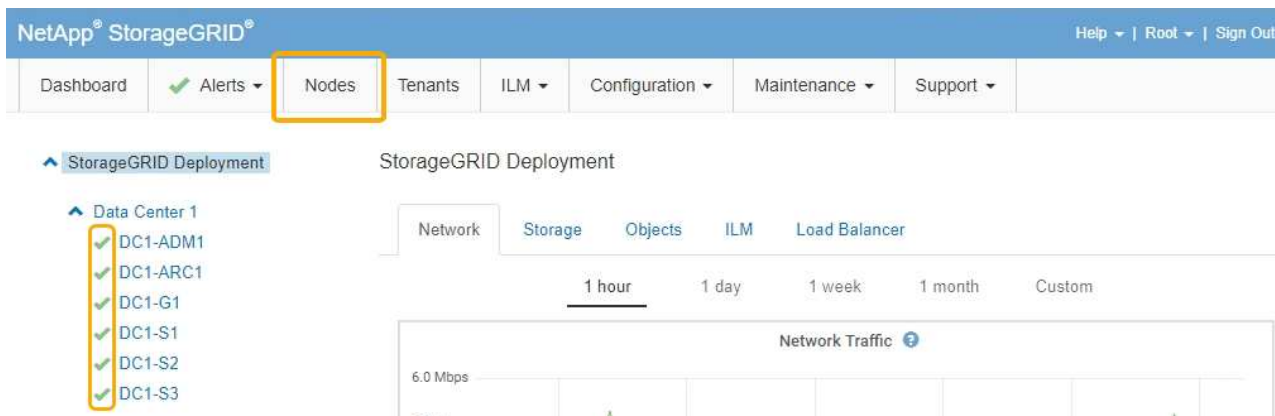
Clearing the KMS configuration deletes data from the appliance, rendering it permanently inaccessible. This data is not recoverable.

2. When you are done checking node-encryption status, reboot the node. From the StorageGRID Appliance Installer, select **Advanced > Reboot Controller**, and then select one of these options:

- Select **Reboot into StorageGRID** to reboot the controller with the node rejoining the grid. Select this option if you are done working in maintenance mode and are ready to return the node to normal operation.
- Select **Reboot into Maintenance Mode** to reboot the controller with the node remaining in maintenance mode. Select this option if there are additional maintenance operations you need to perform on the node before rejoining the grid.



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** tab should display a normal status for the appliance node, indicating that no alerts are active and the node is connected to the grid.



Related information

[Administer StorageGRID](#)

Clearing the key management server configuration

Clearing the key management server (KMS) configuration disables node encryption on your appliance. After clearing the KMS configuration, the data on your appliance is permanently deleted and is no longer accessible. This data is not recoverable.

What you'll need

If you need to preserve data on the appliance, you must perform a node decommissioning procedure before you clear the KMS configuration.



When KMS is cleared, data on the appliance will be permanently deleted and no longer accessible. This data is not recoverable.

Decommission the node to move any data it contains to other nodes in StorageGRID. See the recovery and maintenance instructions for grid node decommissioning.

About this task

Clearing the appliance KMS configuration disables node encryption, removing the association between the appliance node and the KMS configuration for the StorageGRID site. Data on the appliance is then deleted and the appliance is left in a pre-install state. This process cannot be reversed.

You must clear the KMS configuration:

- Before you can install the appliance into another StorageGRID system, that does not use a KMS or that uses a different KMS.



Do not clear the KMS configuration if you plan to reinstall an appliance node in a StorageGRID system that uses the same KMS key.

- Before you can recover and reinstall a node where the KMS configuration was lost and the KMS key is not recoverable.
- Before returning any appliance that was previously in use at your site.
- After decommissioning an appliance that had node encryption enabled.



Decommission the appliance before clearing KMS to move its data to other nodes in your StorageGRID system. Clearing KMS before decommissioning the appliance will result in data loss and might render the appliance inoperable.

Steps

1. Open a browser, and enter one of the IP addresses for the appliance's compute controller.

`https://Controller_IP:8443`

Controller_IP is the IP address of the compute controller (not the storage controller) on any of the three StorageGRID networks.

The StorageGRID Appliance Installer Home page appears.

2. Select **Configure Hardware > Node Encryption**.

Node Encryption

Node encryption allows you to use an external key management server (KMS) to encrypt all StorageGRID data on this appliance. If node encryption is enabled for the appliance and a KMS is configured for the site, you cannot access any data on the appliance unless the appliance can communicate with the KMS.

Encryption Status

You can only enable node encryption for an appliance during installation. You cannot enable or disable the node encryption setting after the appliance is installed.

Enable node encryption ☒

Save

Key Management Server Details

View the status and configuration details for the KMS that manages the encryption key for this appliance. You must use the Grid Manager to make configuration changes.

KMS display name	thales
External key UID	41b0306abcce451facfce01b1b4870ae1c1ec6bd5e3849d790223766baf35c57
Hostnames	10.96.99.164 10.96.99.165
Port	5696

Server certificate



Client certificate



Clear KMS Key

Do not clear the KMS key if you need to access or preserve any data on this appliance.

If you want to reinstall this appliance node (for example, in another grid), you must clear the KMS key. When the KMS key is cleared, all data on this appliance is deleted.

Clear KMS Key and Delete Data



If the KMS configuration is cleared, data on the appliance will be permanently deleted. This data is not recoverable.

3. At the bottom of the window, select **Clear KMS Key and Delete Data**.
4. If you are sure that you want to clear the KMS configuration, type **clear** and select **Clear KMS Key and Delete Data**.

A warning dialog box with a yellow header bar containing a warning icon and the word "Warning". The main text reads: "Confirm Clear KMS Key and Delete All Node Data". Below this, it says "Clearing the KMS key:" followed by a bulleted list: "Deletes KMS encryption key from the node", "Deletes all data on the node", and "Reboots the appliance". Further text states: "If you are sure you want to clear the KMS key and delete all node data, type 'clear' in the text box. Then, select Clear KMS Key and Delete Data." Below this text is a text input field containing the word "clear". At the bottom right are two buttons: "Cancel" and "Clear KMS Key and Delete Data".

The KMS encryption key and all data are deleted from the node, and the appliance reboots. This can take up to 20 minutes.

5. Open a browser, and enter one of the IP addresses for the appliance's compute controller.
`https://Controller_IP:8443`

Controller_IP is the IP address of the compute controller (not the storage controller) on any of the three StorageGRID networks.

The StorageGRID Appliance Installer Home page appears.

6. Select **Configure Hardware > Node Encryption**.
7. Verify that node encryption is disabled and that the key and certificate information in **Key Management Server Details** and the **Clear KMS Key and Delete Data** control are removed from the window.

Node encryption cannot be reenabled on the appliance until it is reinstalled in a grid.

After you finish

After the appliance reboots and you have verified that KMS has been cleared and that the appliance is in a pre-install state, you can physically remove the appliance from your StorageGRID system. See the recovery and maintenance instructions for information about preparing an appliance for reinstallation.

Related information

[Administer StorageGRID](#)

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