Reboot, shutdown, and power procedures

StorageGRID software

NetApp
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Reboot, shutdown, and power procedures

Perform a rolling reboot

You can perform a rolling reboot to reboot multiple grid nodes without causing a service disruption.

Before you begin

- You are signed in to the Grid Manager on the primary Admin Node, and you are using a supported web browser.

    (i) You must be signed in to the primary Admin Node to perform this procedure.

- You have the Maintenance or Root access permission.

About this task

Use this procedure if you need to reboot multiple nodes at the same time. For example, you can use this procedure after changing the FIPS mode for the grid's TLS and SSH security policy. When the FIPS mode changes, you must reboot all nodes to put the change into effect.

    (💡) If you only need to reboot one node, you can reboot the node from the Tasks tab.

When StorageGRID reboots grid nodes, it issues the `reboot` command on each node, which causes the node to shut down and restart. All services are restarted automatically.

- Rebooting a VMware node reboots the virtual machine.
- Rebooting a Linux node reboots the container.
- Rebooting a StorageGRID Appliance node reboots the compute controller.

The rolling reboot procedure can reboot multiple nodes at the same time, with these exceptions:

- Two nodes of the same type will not be rebooted at the same time.
- Gateway Nodes and Admin Nodes will not be rebooted at the same time.

Instead, these nodes are rebooted sequentially to ensure that HA groups, object data, and critical node services always remain available.

When you reboot the primary Admin Node, your browser temporarily loses access to the Grid Manager, so you can no longer monitor the procedure. For this reason, the primary Admin Node is rebooted last.

Perform a rolling reboot

You select the nodes you want to reboot, review your selections, start the reboot procedure, and monitor the progress.

Select nodes

As your first step, access the Rolling reboot page and select the nodes you want to reboot.

Steps

1. Select **MAINTENANCE** > **Tasks** > **Rolling reboot**.

2. Review the connection state and alert icons in the **Node name** column.

    > 💡 You can't reboot a node if it is disconnected from the grid. The checkboxes are disabled for nodes with these icons: 🌑 or ⊘.

3. If any nodes have active alerts, review the list of alerts in the **Alert summary** column.

    > 💡 To see all current alerts for a node, you can also select the Nodes > Overview tab.

4. Optionally, perform the recommended actions to resolve any current alerts.

5. Optionally, if all nodes are connected and you want to reboot all of them, select the checkbox in the table header and select **Select all**. Otherwise, select each node you want to reboot.

    You can use the table's filter options to view subsets of nodes. For example, you can view and select only Storage Nodes or all nodes at a certain site.

6. Select **Review selection**.

Review selection

In this step, you can determine how long the total reboot procedure might take and confirm that you selected the correct nodes.

1. On the Review selection page, review the Summary, which indicates how many nodes will be rebooted and the estimated total time for all nodes to reboot.

2. Optionally, to remove a specific node from the reboot list, select **Remove**.

3. Optionally, to add more nodes, select **Previous step**, select the additional nodes, and select **Review selection**.

4. When you are ready to start the rolling reboot procedure for all selected nodes, select **Reboot nodes**.

5. If you selected to reboot the primary Admin Node, read the information message, and select **Yes**.

    > ℹ️ The primary Admin Node will be the last node to reboot. While this node is rebooting, your browser's connection will be lost. When the primary Admin Node is available again, you must reload the Rolling reboot page.

Monitor a rolling reboot

While the rolling reboot procedure is running, you can monitor it from the primary Admin Node.

Steps

1. Review the overall progress of the operation, which includes the following information:

    *   Number of nodes rebooted

    *   Number of nodes in process of being rebooted

    *   Number of nodes that remain to be rebooted

2. Review the table for each type of node.

The tables provide a progress bar of the operation on each node and show the reboot stage for that node, which can be one of these:

- Waiting to Reboot
- Stopping services
- Rebooting system
- Starting services
- Reboot completed

Stop the rolling reboot procedure

You can stop the rolling reboot procedure from the primary Admin Node. When you stop the procedure, any nodes that have the status "Stopping services," "Rebooting system," or "Starting services" will complete the reboot operation. However, these nodes will no longer be tracked as part of the procedure.

Steps

1. Select **MAINTENANCE** > **Tasks** > **Rolling reboot**.
2. From the **Monitor reboot** step, select **Stop reboot procedure**.

Reboot grid node from Tasks tab

You can reboot an individual grid node from the Tasks tab on the Nodes page.

Before you begin

- You are signed in to the Grid Manager using a supported web browser.
- You have the Maintenance or Root access permission.
- You have the provisioning passphrase.
- If you are rebooting the primary Admin Node or any Storage Node, you have reviewed the following considerations:
  - When you reboot the primary Admin Node, your browser temporarily loses access to the Grid Manager.
  - If you reboot two or more Storage Nodes at a given site, you might not be able to access certain objects for the duration of the reboot. This issue can occur if any ILM rule uses the **Dual commit** ingest option (or a rule specifies **Balanced** and it is not possible to immediately create all required copies). In this case, StorageGRID will commit newly ingested objects to two Storage Nodes on the same site and evaluate ILM later.
  - To ensure you can access all objects while a Storage Node is rebooting, stop ingesting objects at a site for approximately one hour before rebooting the node.

About this task

When StorageGRID reboots a grid node, it issues the `reboot` command on the node, which causes the node to shut down and restart. All services are restarted automatically.

- Rebooting a VMware node reboots the virtual machine.
- Rebooting a Linux node reboots the container.
- Rebooting a StorageGRID Appliance node reboots the compute controller.

> If you need to reboot more than one node, you can use the rolling reboot procedure.

Steps

1. Select **NODES**.

2. Select the grid node you want to reboot.

3. Select the **Tasks** tab.

4. Select **Reboot**.

   A confirmation dialog box appears. If you are rebooting the primary Admin Node, the confirmation dialog box reminds you that your browser's connection to the Grid Manager will be lost temporarily when services are stopped.

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

6. Wait for the node to reboot.

   It might take some time for services to shut down.

   When the node is rebooting, the gray (Administratively Down) icon appears for the node on the Nodes page. When all services have started again and the node is successfully connected to the grid, the Nodes page should display normal status (no icons to the left of the node name), indicating that no alerts are active and the node is connected to the grid.

Reboot grid node from command shell

If you need to monitor the reboot operation more closely or if you are unable to access the Grid Manager, you can log in to the grid node and run the Server Manager reboot command from the command shell.

Before you begin

You have the `Passwords.txt` file.

Steps

1. Log in to the grid node:

   a. Enter the following command: `ssh admin@grid_node_IP`

   b. Enter the password listed in the `Passwords.txt` file.

   c. Enter the following command to switch to root: `su -`

   d. Enter the password listed in the `Passwords.txt` file.

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

2. Optionally, stop services: `service servermanager stop`

   Stopping services is an optional, but recommended step. Services can take up to 15 minutes to shut down, and you might want to log in to the system remotely to monitor the shutdown process before you reboot the node in the next step.

3. Reboot the grid node: `reboot`

4. Log out of the command shell: `exit`

Shut down grid node

You can shut down a grid node from the node's command shell.

Before you begin

- You have the `Passwords.txt` file.

About this task

Before performing this procedure, review these considerations:

- In general, you should not shut down more than one node at a time to avoid disruptions.
- Don't shut down a node during a maintenance procedure unless explicitly instructed to do so by the documentation or by technical support.
- The shutdown process is based on where the node is installed, as follows:
  - Shutting down a VMware node shuts down the virtual machine.
  - Shutting down a Linux node shuts down the container.
  - Shutting down a StorageGRID appliance node shuts down the compute controller.
- If you plan to shut down more than one Storage Node at a site, stop ingesting objects at that site for approximately one hour before shutting down the nodes.

  If any ILM rule uses the **Dual commit** ingest option (or if a rule uses the **Balanced** option and all required copies can't be created immediately), StorageGRID immediately commits any newly ingested objects to two Storage Nodes on the same site and evaluates ILM later. If more than one Storage Node at a site is shut down, you might not be able to access newly ingested objects for the duration of the shutdown. Write operations might also fail if too few Storage Nodes remain available at the site. See Manage objects with ILM.

Steps

1. Log in to the grid node:

   a. Enter the following command: `ssh admin@grid_node_IP`

   b. Enter the password listed in the `Passwords.txt` file.

   c. Enter the following command to switch to root: `su -`

   d. Enter the password listed in the `Passwords.txt` file.

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

2. Stop all services: `service servermanager stop`

   Services can take up to 15 minutes to shut down, and you might want to log in to the system remotely to monitor the shutdown process.

3. If the node is running on a VMware virtual machine or it is an appliance node, issue the shutdown command: `shutdown -h now`

   Perform this step regardless of the outcome of the `service servermanager stop` command.

> ⓘ After you issue the `shutdown -h now` command on an appliance node, you must power cycle the appliance to restart the node.

For the appliance, this command shuts down the controller, but the appliance is still powered on. You must complete the next step.

4. If you are powering down an appliance node, follow the steps for your appliance.

SG6160

a. Turn off the power to the SG6100-CN storage controller.

b. Wait for the blue power LED on the SG6100-CN storage controller to turn off.

SGF6112

a. Turn off the power to the appliance.

b. Wait for the blue power LED to turn off.

SG6000

a. Wait for the green Cache Active LED on the back of the storage controllers to turn off.

This LED is on when cached data needs to be written to the drives. You must wait for this LED to turn off before you turn off power.

b. Turn off the power to the appliance, and wait for the blue power LED to turn off.

SG5800

a. Wait for the green Cache Active LED on the back of the storage controller to turn off.

This LED is on when cached data needs to be written to the drives. You must wait for this LED to turn off before you turn off power.

b. From the home page of SANtricity System Manager, select **View Operations in Progress**.

c. Confirm that all operations have completed before continuing with the next step.

d. Turn off both power switches on the controller shelf, and wait for all LEDs on the controller shelf to turn off.

SG5700

a. Wait for the green Cache Active LED on the back of the storage controller to turn off.

This LED is on when cached data needs to be written to the drives. You must wait for this LED to turn off before you turn off power.

b. Turn off the power to the appliance, and wait for all LED and seven-segment display activity to stop.

SG100 or SG1000

a. Turn off the power to the appliance.

b. Wait for the blue power LED to turn off.

Power down host

Before you power down a host, you must stop services on all grid nodes on that host.

Steps

1. Log in to the grid node:

   a. Enter the following command: `ssh admin@`*`grid_node_IP`*

   b. Enter the password listed in the `Passwords.txt` file.

   c. Enter the following command to switch to root: `su -`

   d. Enter the password listed in the `Passwords.txt` file.

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

2. Stop all services running on the node: `service servermanager stop`

   Services can take up to 15 minutes to shut down, and you might want to log in to the system remotely to monitor the shutdown process.

3. Repeat steps 1 and 2 for each node on the host.

4. If you have a Linux host:

   a. Log in to the host operating system.

   b. Stop the node: `storagegrid node stop`

   c. Shut down the host operating system.

5. If the node is running on a VMware virtual machine or it is an appliance node, issue the shutdown command: `shutdown -h now`

   Perform this step regardless of the outcome of the `service servermanager stop` command.

   > (i) After you issue the `shutdown -h now` command on an appliance node, you must power cycle the appliance to restart the node.

   For the appliance, this command shuts down the controller, but the appliance is still powered on. You must complete the next step.

6. If you are powering down an appliance node, follow the steps for your appliance.

SG6160

   a. Turn off the power to the SG6100-CN storage controller.

   b. Wait for the blue power LED on the SG6100-CN storage controller to turn off.

SGF6112

   a. Turn off the power to the appliance.

   b. Wait for the blue power LED to turn off.

SG6000

   a. Wait for the green Cache Active LED on the back of the storage controllers to turn off.

     This LED is on when cached data needs to be written to the drives. You must wait for this LED to turn off before you turn off power.

   b. Turn off the power to the appliance, and wait for the blue power LED to turn off.

SG5800

   a. Wait for the green Cache Active LED on the back of the storage controller to turn off.

     This LED is on when cached data needs to be written to the drives. You must wait for this LED to turn off before you turn off power.

   b. From the home page of SANtricity System Manager, select **View Operations in Progress**.

   c. Confirm that all operations have completed before continuing with the next step.

   d. Turn off both power switches on the controller shelf, and wait for all LEDs on the controller shelf to turn off.

SG5700

   a. Wait for the green Cache Active LED on the back of the storage controller to turn off.

     This LED is on when cached data needs to be written to the drives. You must wait for this LED to turn off before you turn off power.

   b. Turn off the power to the appliance, and wait for all LED and seven-segment display activity to stop.

SG110 or SG1100

   a. Turn off the power to the appliance.

   b. Wait for the blue power LED to turn off.

SG100 or SG1000

   a. Turn off the power to the appliance.

   b. Wait for the blue power LED to turn off.

7. Log out of the command shell: `exit`

Related information

- [SGF6112 and SG6160 storage appliances](#)

- SG6000 storage appliances
- SG5700 storage appliances
- SG5800 storage appliances
- SG110 and SG1100 services appliances
- SG100 and SG1000 services appliances

Power off and on all nodes in grid

You might need to shut down your entire StorageGRID system, for example, if you are moving a data center. These steps provide a high-level overview of the recommended sequence for performing a controlled shutdown and startup.

When you power off all nodes in a site or grid, you will not be able to access ingested objects while the Storage Nodes are offline.

Stop services and shut down grid nodes

Before you can power off a StorageGRID system, you must stop all services running on each grid node, and then shut down all VMware virtual machines, container engines, and StorageGRID appliances.

About this task

Stop services on Admin Nodes and Gateway Nodes first, and then stop services on Storage Nodes.

This approach allows you to use the primary Admin Node to monitor the status of the other grid nodes for as long as possible.

> ⓘ   If a single host includes more than one grid node, don't shut down the host until you have stopped all of the nodes on that host. If the host includes the primary Admin Node, shut down that host last.

> ⓘ   If required, you can migrate nodes from one Linux host to another to perform host maintenance without impacting the functionality or availability of your grid.

Steps

1. Stop all client applications from accessing the grid.

2. Log in to each Gateway Node:

   a. Enter the following command: `ssh admin@grid_node_IP`

   b. Enter the password listed in the `Passwords.txt` file.

   c. Enter the following command to switch to root: `su -`

   d. Enter the password listed in the `Passwords.txt` file.

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

3. Stop all services running on the node: `service servermanager stop`

   Services can take up to 15 minutes to shut down, and you might want to log in to the system remotely to monitor the shutdown process.

4. Repeat the previous two steps to stop the services on all Storage Nodes and non-primary Admin Nodes.

   You can stop the services on these nodes in any order.

   > (i) If you issue the `service servermanager stop` command to stop the services on an appliance Storage Node, you must power cycle the appliance to restart the node.

5. For the primary Admin Node, repeat the steps for logging into the node and stopping all services on the node.

6. For nodes that are running on Linux hosts:

   a. Log in to the host operating system.

   b. Stop the node: `storagegrid node stop`

   c. Shut down the host operating system.

7. For nodes that are running on VMware virtual machines and for appliance Storage Nodes, issue the shutdown command: `shutdown -h now`

   Perform this step regardless of the outcome of the `service servermanager stop` command.

   For the appliance, this command shuts down the compute controller, but the appliance is still powered on. You must complete the next step.

8. If you have appliance nodes, follow the steps for your appliance.

SG110 or SG1100

   a. Turn off the power to the appliance.

   b. Wait for the blue power LED to turn off.

SG100 or SG1000

   a. Turn off the power to the appliance.

   b. Wait for the blue power LED to turn off.

SG6160

   a. Turn off the power to the SG6100-CN storage controller.

   b. Wait for the blue power LED on the SG6100-CN storage controller to turn off.

SGF6112

   a. Turn off the power to the appliance.

   b. Wait for the blue power LED to turn off.

SG6000

   a. Wait for the green Cache Active LED on the back of the storage controllers to turn off.

      This LED is on when cached data needs to be written to the drives. You must wait for this LED to turn off before you turn off power.

   b. Turn off the power to the appliance, and wait for the blue power LED to turn off.

SG5800

   a. Wait for the green Cache Active LED on the back of the storage controller to turn off.

      This LED is on when cached data needs to be written to the drives. You must wait for this LED to turn off before you turn off power.

   b. From the home page of SANtricity System Manager, select **View Operations in Progress**.

   c. Confirm that all operations have completed before continuing with the next step.

   d. Turn off both power switches on the controller shelf, and wait for all LEDs on the controller shelf to turn off.

SG5700

   a. Wait for the green Cache Active LED on the back of the storage controller to turn off.

      This LED is on when cached data needs to be written to the drives. You must wait for this LED to turn off before you turn off power.

   b. Turn off the power to the appliance, and wait for all LED and seven-segment display activity to stop.

9. If required, log out of the command shell: `exit`

The StorageGRID grid has now been shut down.

Start up grid nodes

> ⚠️ If the entire grid has been shut down for more than 15 days, you must contact technical support before starting up any grid nodes. Don't attempt the recovery procedures that rebuild Cassandra data. Doing so might result in data loss.

If possible, power on the grid nodes in this order:

- Apply power to Admin Nodes first.
- Apply power to Gateway Nodes last.

> ℹ️ If a host includes multiple grid nodes, the nodes will come back online automatically when you power on the host.

Steps

1. Power on the hosts for the primary Admin Node and any non-primary Admin Nodes.

   > ℹ️ You will not be able to log in to the Admin Nodes until the Storage Nodes have been restarted.

2. Power on the hosts for all Storage Nodes.

   You can power on these nodes in any order.

3. Power on the hosts for all Gateway Nodes.
4. Sign in to the Grid Manager.
5. Select **NODES** and monitor the status of the grid nodes. Verify that there are no alert icons next to the node names.

Related information

- SGF6112 and SG6160 storage appliances
- SG110 and SG1100 services appliances
- SG100 and SG1000 services appliances
- SG6000 storage appliances
- SG5800 storage appliances
- SG5700 storage appliances