



Plan and prepare for upgrade

StorageGRID software

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Plan and prepare for upgrade

Estimate the time to complete an upgrade

Consider when to upgrade, based on how long the upgrade might take. Be aware of which operations you can and can't perform during each stage of the upgrade.

About this task

The time required to complete a StorageGRID upgrade depends on a variety of factors such as client load and hardware performance.

The table summarizes the main upgrade tasks and lists the approximate time required for each task. The steps after the table provide instructions you can use to estimate the upgrade time for your system.

Upgrade task	Description	Approximate time required	During this task
Run prechecks and upgrade primary Admin Node	The upgrade prechecks are run, and the primary Admin Node is stopped, upgraded, and restarted.	30 minutes to 1 hour, with services appliance nodes requiring the most time. Unresolved precheck errors will increase this time.	You can't access the primary Admin Node. Connection errors might be reported, which you can ignore. Running the upgrade prechecks before starting the upgrade lets you resolve any errors before the scheduled upgrade maintenance window.
Start upgrade service	The software file is distributed, and the upgrade service is started.	3 minutes per grid node	
Upgrade other grid nodes	The software on all other grid nodes is upgraded, in the order in which you approve the nodes. Every node in your system will be brought down one at a time.	15 minutes to 1 hour per node, with appliance nodes requiring the most time Note: For appliance nodes, the StorageGRID Appliance Installer is automatically updated to the latest release.	<ul style="list-style-type: none">Don't change the grid configuration.Don't change the audit level configuration.Don't update the ILM configuration.You are prevented from performing other maintenance procedures, such as hotfix, decommission, or expansion. Note: If you need to perform a recovery, contact technical support.
Enable features	The new features for the new version are enabled.	Less than 5 minutes	<ul style="list-style-type: none">Don't change the grid configuration.Don't change the audit level configuration.Don't update the ILM configuration.You can't perform another maintenance procedure.

Upgrade task	Description	Approximate time required	During this task
Upgrade database	The upgrade process checks each node to verify that the Cassandra database does not need to be updated.	10 seconds per node or a few minutes for the entire grid	<p>The upgrade from StorageGRID 11.8 to 11.9 does not require a Cassandra database upgrade; however, the Cassandra service will be stopped and restarted on each Storage Node.</p> <p>For future StorageGRID feature releases, the Cassandra database update step might take several days to complete.</p>
Final upgrade steps	Temporary files are removed and the upgrade to the new release completes.	5 minutes	When the Final upgrade steps task completes, you can perform all maintenance procedures.

Steps

1. Estimate the time required to upgrade all grid nodes.
 - a. Multiply the number of nodes in your StorageGRID system by 1 hour/node.

As a general rule, appliance nodes take longer to upgrade than software-based nodes.
 - b. Add 1 hour to this time to account for the time required to download the .upgrade file, run precheck validations, and complete the final upgrade steps.
2. If you have Linux nodes, add 15 minutes for each node to account for the time required to download and install the RPM or DEB package.
3. Calculate the total estimated time for the upgrade by adding the results of steps 1 and 2.

Example: Estimated time to upgrade to StorageGRID 11.9

Suppose your system has 14 grid nodes, of which 8 are Linux nodes.

1. Multiply 14 by 1 hour/node.
2. Add 1 hour to account for the download, precheck, and final steps.

The estimated time to upgrade all nodes is 15 hours.

3. Multiply 8 by 15 minutes/node to account for the time to install the RPM or DEB package on the Linux nodes.

The estimated time for this step is 2 hours.

4. Add the values together.

You should allow up to 17 hours to complete the upgrade of your system to StorageGRID 11.9.0.



As required, you can split the maintenance window into smaller windows by approving subsets of grid nodes to upgrade in multiple sessions. For example, you might prefer to upgrade the nodes at site A in one session and then upgrade the nodes at site B in a later session. If you choose to perform the upgrade in more than one session, be aware that you can't start using the new features until all nodes have been upgraded.

How your system is affected during the upgrade

Learn how your StorageGRID system will be affected during upgrade.

StorageGRID upgrades are non-disruptive

The StorageGRID system can ingest and retrieve data from client applications throughout the upgrade process. If you approve all nodes of the same type to upgrade (for example, Storage Nodes), the nodes are brought down one at a time, so there is no time when all grid nodes or all grid nodes of a certain type are unavailable.

To allow for continued availability, ensure that your ILM policy contains rules that specify storing multiple copies of each object. You must also ensure that all external S3 clients are configured to send requests to one of the following:

- A high availability (HA) group virtual IP address
- A high availability third-party load balancer
- Multiple Gateway Nodes for each client
- Multiple Storage Nodes for each client

Client applications might experience short-term disruptions

The StorageGRID system can ingest and retrieve data from client applications throughout the upgrade process; however, client connections to individual Gateway Nodes or Storage Nodes might be disrupted temporarily if the upgrade needs to restart services on those nodes. Connectivity will be restored after the upgrade process completes and services resume on the individual nodes.

You might need to schedule downtime to apply an upgrade if loss of connectivity for a short period is not acceptable. You can use selective approval to schedule when certain nodes are updated.



You can use multiple gateways and high availability (HA) groups to provide automatic failover during the upgrade process. See the instructions for [configuring high availability groups](#).

Appliance firmware is upgraded

During the StorageGRID 11.9 upgrade:

- All StorageGRID appliance nodes are automatically upgraded to StorageGRID Appliance Installer firmware version 3.9.
- SG6060 and SGF6024 appliances are automatically upgraded to BIOS firmware version 3B08.EX and BMC firmware version 4.00.07.
- SG100 and SG1000 appliances are automatically upgraded to BIOS firmware version 3B13.EC and BMC firmware version 4.74.07.

- SGF6112, SG6160, SG110 and SG1100 appliances are automatically upgraded to BMC firmware version 3.16.07.

ILM policies are handled differently according to their status

- The active policy will remain the same after upgrade.
- Only the latest 10 historical policies are preserved on upgrade.
- If there is a proposed policy, it will be deleted during upgrade.

Alerts might be triggered

Alerts might be triggered when services start and stop and when the StorageGRID system is operating as a mixed-version environment (some grid nodes running an earlier version, while others have been upgraded to a later version). Other alerts might be triggered after the upgrade completes.

For example, you might see the **Unable to communicate with node** alert when services are stopped, or you might see the **Cassandra communication error** alert when some nodes have been upgraded to StorageGRID 11.9 but other nodes are still running StorageGRID 11.8. In general, these alerts will clear when the upgrade completes.

The **ILM placement unachievable** alert might be triggered when Storage Nodes are stopped during the upgrade to StorageGRID 11.9. This alert might persist for 1 day after the upgrade completes.

After the upgrade completes, you can review any upgrade-related alerts by selecting **Recently resolved alerts** or **Current alerts** from the Grid Manager dashboard.

Many SNMP notifications are generated

Be aware that a large number of SNMP notifications might be generated when grid nodes are stopped and restarted during the upgrade. To avoid excessive notifications, clear the **Enable SNMP Agent Notifications** checkbox (**CONFIGURATION > Monitoring > SNMP agent**) to disable SNMP notifications before you start the upgrade. Then, re-enable notifications after the upgrade is complete.

Configuration changes are restricted

 This list applies specifically to upgrades from StorageGRID 11.8 to StorageGRID 11.9. If you're upgrading to another StorageGRID release, refer to the list of restricted changes in the upgrade instructions for that release.

Until the **Enable New Feature** task completes:

- Don't make any grid configuration changes.
- Don't enable or disable any new features.
- Don't update the ILM configuration. Otherwise, you might experience inconsistent and unexpected ILM behavior.
- Don't apply a hotfix or recover a grid node.



Contact technical support if you need to recover a node during upgrade.

- You should not manage HA groups, VLAN interfaces, or load balancer endpoints while you're upgrading to

StorageGRID 11.9.

- Don't delete any HA groups until the upgrade to StorageGRID 11.9 is complete. Virtual IP addresses in other HA groups might become inaccessible.

Until the **Final Upgrade Steps** task completes:

- Don't perform an expansion procedure.
- Don't perform a decommission procedure.

You can't view bucket details or manage buckets from the Tenant Manager

During the upgrade to StorageGRID 11.9 (that is, while the system is operating as a mixed-version environment), you can't view bucket details or manage buckets using the Tenant Manager. One of the following errors appears on the Buckets page in Tenant Manager:

- You can't use this API while you're upgrading to 11.9.
- You can't view bucket versioning details in the Tenant Manager while you're upgrading to 11.9.

This error will resolve after the upgrade to 11.9 is complete.

Workaround

While the 11.9 upgrade is in progress, use the following tools to view bucket details or manage buckets, instead of using the Tenant Manager:

- To perform standard S3 operations on a bucket, use either the [S3 REST API](#) or the [Tenant Management API](#).
- To perform StorageGRID custom operations on a bucket (for example, viewing and modifying the bucket consistency, enabling or disabling last access time updates, or configuring search integration), use the Tenant Management API.

Verify the installed version of StorageGRID

Before starting the upgrade, verify that the previous version of StorageGRID is currently installed with the latest available hotfix applied.

About this task

Before you upgrade to StorageGRID 11.9, your grid must have StorageGRID 11.8 installed. If you are currently using a previous version of StorageGRID, you must install all previous upgrade files along with their latest hotfixes (strongly recommended) until your grid's current version is StorageGRID 11.8.x.y.

One possible upgrade path is shown in the [example](#).

 NetApp strongly recommends that you apply the latest hotfix for each StorageGRID version before upgrading to the next version and that you also apply the latest hotfix for each new version you install. In some cases, you must apply a hotfix to avoid the risk of data loss. See [NetApp Downloads: StorageGRID](#) and the release notes for each hotfix to learn more.

Steps

1. Sign in to the Grid Manager using a [supported web browser](#).
2. From the top of the Grid Manager, select **Help > About**.

3. Verify that **Version** is 11.8.x.y.

In the StorageGRID 11.8.x.y version number:

- The **major release** has an x value of 0 (11.8.0).
- A **hotfix**, if one has been applied, has a y value (for example, 11.8.0.1).

4. If **Version** is not 11.8.x.y, go to [NetApp Downloads: StorageGRID](#) to download the files for each previous release, including the latest hotfix for each release.
5. Obtain the the upgrade instructions for each release you downloaded. Then, perform the software upgrade procedure for that release, and apply the latest hotfix for that release (strongly recommended).

See the [StorageGRID hotfix procedure](#).

Example: Upgrade to StorageGRID 11.9 from version 11.6

The following example shows the steps to upgrade from StorageGRID version 11.6 to version 11.8 in preparation for a StorageGRID 11.9 upgrade.

Download and install software in the following sequence to prepare your system for upgrade:

1. Upgrade to the StorageGRID 11.6.0 major release.
2. Apply the latest StorageGRID 11.6.0.y hotfix.
3. Upgrade to the StorageGRID 11.7.0 major release.
4. Apply the latest StorageGRID 11.7.0.y hotfix.
5. Upgrade to the StorageGRID 11.8.0 major release.
6. Apply the latest StorageGRID 11.8.0.y hotfix.

Obtain the required materials for a software upgrade

Before you begin the software upgrade, obtain all required materials.

Item	Notes
Service laptop	The service laptop must have: <ul style="list-style-type: none">• Network port• SSH client (for example, PuTTY)
Supported web browser	Browser support typically changes for each StorageGRID release. Make sure your browser is compatible with the new StorageGRID version.
Provisioning passphrase	The passphrase is created and documented when the StorageGRID system is first installed. The provisioning passphrase is not listed in the <code>Passwords.txt</code> file.

Item	Notes
Linux RPM or DEB archive	<p>If any nodes are deployed on Linux hosts, you must download and install the RPM or DEB package on all hosts before you start the upgrade.</p> <p>Ensure your operating system meets StorageGRID's minimum kernel version requirements:</p> <ul style="list-style-type: none"> • Install StorageGRID on Red Hat Enterprise Linux hosts • Install StorageGRID on Ubuntu or Debian hosts
StorageGRID documentation	<ul style="list-style-type: none"> • Release notes for StorageGRID 11.9 (sign in required). Be sure to read these carefully before starting the upgrade. • StorageGRID software upgrade resolution guide for the major version you are upgrading to (sign in required) • Other StorageGRID documentation, as required.

Check the system's condition

Before upgrading a StorageGRID system, verify the system is ready to accommodate the upgrade. Ensure that the system is running normally and that all grid nodes are operational.

Steps

1. Sign in to the Grid Manager using a [supported web browser](#).
2. Check for and resolve any active alerts.
3. Confirm that no conflicting grid tasks are active or pending.
 - a. Select **SUPPORT > Tools > Grid topology**.
 - b. Select **site > primary Admin Node > CMN > Grid Tasks > Configuration**.

Information lifecycle management evaluation (ILME) tasks are the only grid tasks that can run concurrently with the software upgrade.

- c. If any other grid tasks are active or pending, wait for them to finish or release their lock.



Contact technical support if a task does not finish or release its lock.

4. Refer to [Internal grid node communications](#) and [External communications](#) to ensure that all required ports for StorageGRID 11.9 are opened before you upgrade.



No additional ports are required when upgrading to StorageGRID 11.9.

The following required port was added in StorageGRID 11.7. Make sure it's available before you upgrade to StorageGRID 11.9.

Port	Description
18086	<p>TCP port used for S3 requests from the StorageGRID load balancer to LDR and the new LDR service.</p> <p>Before upgrading, confirm that this port is open from all grid nodes to all Storage Nodes.</p> <p>Blocking this port will cause S3 service interruptions after upgrade to StorageGRID 11.9.</p>



If you have opened any custom firewall ports, you are notified during the upgrade precheck. You must contact technical support before proceeding with the upgrade.

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