



# **Plan and prepare for upgrade**

## **StorageGRID**

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# Table of Contents

- Plan and prepare for upgrade ..... 1
  - Estimate the time to complete an upgrade. .... 1
  - How your system is affected during the upgrade ..... 3
  - Impact of an upgrade on groups and user accounts ..... 5
  - Verify the installed version of StorageGRID ..... 5
  - Obtain the required materials for a software upgrade ..... 6
  - Check the system's condition. .... 9

# Plan and prepare for upgrade

## Estimate the time to complete an upgrade

When planning an upgrade to StorageGRID 11.6, you must consider when to upgrade, based on how long the upgrade might take. You must also be aware of which operations you can and cannot 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
Start Upgrade Service	Upgrade prechecks are run, the software file is distributed, and the upgrade service is started.	3 minutes per grid node, unless validation errors are reported	As required, you can run the upgrade prechecks manually before the scheduled upgrade maintenance window.
Upgrade Grid Nodes (primary Admin Node)	The primary Admin Node is stopped, upgraded, and restarted.	30 minutes to 1 hour, with SG100 and SG1000 appliance nodes requiring the most time.	You cannot access the primary Admin Node. Connection errors are reported, which you can ignore.
Upgrade Grid Nodes (all other 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 for several minutes each.	15 minutes to 1 hour per node, with appliance nodes requiring the most time  <b>Note:</b> For appliance nodes, the StorageGRID Appliance Installer is automatically updated to the latest release.	<ul style="list-style-type: none"><li>• Do not change the grid configuration.</li><li>• Do not change the audit level configuration.</li><li>• Do not update the ILM configuration.</li><li>• You are prevented from performing other maintenance procedures, such as hotfix, decommission, or expansion.</li></ul> <b>Note:</b> If you need to perform a recovery, contact technical support.

Upgrade task	Description	Approximate time required	During this task
Enable Features	The new features for the new version are enabled.	Less than 5 minutes	<ul style="list-style-type: none"> <li>Do not change the grid configuration.</li> <li>Do not change the audit level configuration.</li> <li>Do not update the ILM configuration.</li> <li>You cannot perform another maintenance procedure.</li> </ul>
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 11.5 to 11.6 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 <b>Final Upgrade Steps</b> task completes, you can perform all maintenance procedures.

## Steps

- Estimate the time required to upgrade all grid nodes.
  - 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.
  - 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.
- 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.
- Calculate the total estimated time for the upgrade by adding the results of steps 1 and 2.

## Example: Estimated time to upgrade to StorageGRID 11.6

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 11.6.0.

## How your system is affected during the upgrade

You must understand how your StorageGRID system will be affected during the upgrade.

### StorageGRID upgrades are non-disruptive

The StorageGRID system can ingest and retrieve data from client applications throughout the upgrade process. Grid nodes are brought down one at a time during the upgrade, so there is not a time when all grid nodes are unavailable.

To allow for continued availability, you must ensure that objects are stored redundantly using the appropriate ILM policies. You must also ensure that all external S3 or Swift clients are configured to send requests to one of the following:

- A StorageGRID endpoint configured as a high availability (HA) group
- A high availability third-party load balancer
- Multiple Gateway Nodes for each client
- Multiple Storage Nodes for each client

### Appliance firmware is upgraded

During the StorageGRID 11.6 upgrade:

- All StorageGRID appliance nodes are automatically upgraded to StorageGRID Appliance Installer firmware version 3.6.
- SG6060 and SGF6024 appliances are automatically upgraded to BIOS firmware version 3B07.EX and BMC firmware version BMC 3.93.07.
- SG100 and SG1000 appliances are automatically upgraded to BIOS firmware version 3B12.EC and BMC firmware version 4.67.07.

### 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 11.6 but other nodes are still running StorageGRID 11.5. 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 11.6. This alert might persist for 1 day after the upgrade completes.

If you use custom values for the storage volume watermarks, the **Low read-only watermark override** alert might be triggered after the upgrade is complete. See [Troubleshoot Low read-only watermark override alerts](#) for details.

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, unselect the **Enable SNMP Agent Notifications** check box (**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



The list of restricted configuration changes can change from release to release. When upgrading to another StorageGRID release, refer to the list in the appropriate upgrade instructions.

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

- Do not make any grid configuration changes.
- Do not change the audit level configuration or configure an external syslog server.
- Do not enable or disable any new features.
- Do not update the ILM configuration. Otherwise, you might experience inconsistent and unexpected ILM behavior.
- Do not apply a hotfix or recover a grid node.
- You cannot manage HA groups, VLAN interfaces, or load balancer endpoints while you are upgrading to StorageGRID 11.6.

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

- Do not perform an expansion procedure.
- Do not perform a decommission procedure.

## You cannot view bucket details or manage buckets from the Tenant Manager

During the upgrade to StorageGRID 11.6 (that is, while the system is operating as a mixed-version environment), you cannot view bucket details or manage buckets using the Tenant Manager. One of the following errors appears on the Buckets page in Tenant Manager:

- “You cannot use this API while you are upgrading to 11.6.”

- “You cannot view bucket versioning details in the Tenant Manager while you are upgrading to 11.6.”

This error will resolve after the upgrade to 11.6 is complete.

### Workaround

While the 11.6 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 level, enabling or disabling last access time updates, or configuring search integration), use the Tenant Management API.

See [Understand Tenant Management API](#) and [Use S3](#) for instructions.

## Impact of an upgrade on groups and user accounts

You must understand the impact of the StorageGRID upgrade, so that you can update groups and user accounts appropriately after the upgrade is complete.

### Changes to group permissions and options

After upgrading to StorageGRID 11.6, optionally select the following updated or new permissions and options (**CONFIGURATION > Access control > Admin groups**).

Permission or option	Description
Tenant accounts	In addition to allowing users to create, edit, and remove tenant accounts, this permission now allows admin users to view existing traffic classification policies ( <b>CONFIGURATION &gt; Network &gt; Traffic classification</b> ).

See [Manage admin groups](#).

## Verify the installed version of StorageGRID

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

### About this task

Before you upgrade to StorageGRID 11.6, your grid must have StorageGRID 11.5 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 11.5.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.

Note that you can run a script to update from 11.3.0.13+ to 11.4.0.y in one step and from 11.4.0.7+ to 11.5.0.y in one step. See [NetApp Knowledge Base: How to run combined major upgrade and hotfix script for StorageGRID](#).

### 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 11.5.x.y.

In the StorageGRID 11.5.x.y version number:

- The **major release** has an x value of 0 (11.5.0).
  - A **hotfix**, if one has been applied, has a y value (for example, 11.5.0.1).
4. If **Version** is not 11.5.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 11.5 from version 11.3.0.8

The following example shows the steps to upgrade from StorageGRID version 11.3.0.8 to version 11.5 in preparation for a StorageGRID 11.6 upgrade.



Optionally, you can run a script to combine steps 2 and 3 (update from 11.3.0.13+ to 11.4.0.y) and to combine steps 4 and 5 (update from 11.4.0.7+ to 11.5.0.y). See [NetApp Knowledge Base: How to run combined major upgrade and hotfix script for StorageGRID](#).

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

1. Apply the latest StorageGRID 11.3.0.y hotfix.
2. Upgrade to the StorageGRID 11.4.0 major release.
3. Apply the latest StorageGRID 11.4.0.y hotfix.
4. Upgrade to the StorageGRID 11.5.0 major release.
5. Apply the latest StorageGRID 11.5.0.y hotfix.

## Obtain the required materials for a software upgrade

Before you begin the software upgrade, you must obtain all required materials so you can complete the upgrade successfully.



Item	Notes
StorageGRID upgrade files	<a href="#">Download the StorageGRID upgrade files</a> to your service laptop.
Service laptop	The service laptop must have: <ul style="list-style-type: none"> <li>• Network port</li> <li>• SSH client (for example, PuTTY)</li> </ul>
<a href="#">Supported web browser</a>	Browser support typically changes for each StorageGRID release. Make sure your browser is compatible with the new StorageGRID version.
Recovery Package (.zip) file	<a href="#">Download the Recovery Package</a> before upgrading, and save the file in a safe location. The Recovery Package file allows you to restore the system if a failure occurs.
Passwords.txt file	This file is included in the SAID package, which is part of the Recovery Package .zip file. You must obtain the latest version of the Recovery Package.
Provisioning passphrase	The passphrase is created and documented when the StorageGRID system is first installed. The provisioning passphrase is not listed in the Passwords.txt file.
Related documentation	<ul style="list-style-type: none"> <li>• <a href="#">Release notes</a> for StorageGRID 11.6. Be sure to read these carefully before starting the upgrade.</li> <li>• Instructions for <a href="#">administering StorageGRID</a>.</li> <li>• If you are upgrading a Linux deployment, the StorageGRID installation instructions for your Linux platform: <ul style="list-style-type: none"> <li>◦ <a href="#">Install Red Hat Enterprise Linux or CentOS</a></li> <li>◦ <a href="#">Install Ubuntu or Debian</a></li> </ul> </li> <li>• Other StorageGRID documentation, as required.</li> </ul>

## Download the StorageGRID upgrade files

You must download one or more files, depending on where your nodes are installed.

- **All platforms:** .upgrade file

If any nodes are deployed on Linux hosts, you must also download an RPM or DEB archive, which you will install before you start the upgrade:

- **Red Hat Enterprise Linux or CentOS:** An additional RPM file (.zip or .tgz)
- **Ubuntu or Debian:** An additional DEB file (.zip or .tgz)

### Steps

1. Go to [NetApp Downloads: StorageGRID](#).

2. Select the button for downloading the latest release, or select another version from the drop-down menu and select **Go**.

StorageGRID software versions have this format: 11.x.y. StorageGRID hotfixes have this format: 11.x.y.z.

3. Sign in with the username and password for your NetApp account.
4. If a Caution/MustRead statement appears, read it and select the check box.

This statement appears if there is a required hotfix for the release.

5. Read the End User License Agreement, select the check box, and then select **Accept & Continue**.

The downloads page for the version you selected appears. The page contains three columns:

- Install StorageGRID
- Upgrade StorageGRID
- Support files for StorageGRID Appliances

6. In the **Upgrade StorageGRID** column, select and download the `.upgrade` archive.

Every platform requires the `.upgrade` archive.

7. If any nodes are deployed on Linux hosts, also download the RPM or DEB archive in either `.tgz` or `.zip` format. Select the `.zip` file if you are running Windows on the service laptop.

- Red Hat Enterprise Linux or CentOS  
`StorageGRID-Webscale-version-RPM-uniqueID.zip`  
`StorageGRID-Webscale-version-RPM-uniqueID.tgz`
- Ubuntu or Debian  
`StorageGRID-Webscale-version-DEB-uniqueID.zip`  
`StorageGRID-Webscale-version-DEB-uniqueID.tgz`



No additional files are required for the SG100 or SG1000.

## Download the Recovery Package

The Recovery Package file allows you to restore the StorageGRID system if a failure occurs. Download the current Recovery Package file before making grid topology changes to the StorageGRID system or before upgrading software. Then, download a new copy of the Recovery Package after making grid topology changes or after upgrading software.

### What you'll need

- You must be signed in to the Grid Manager using a [supported web browser](#).
- You must have the provisioning passphrase.
- You must have specific access permissions.

### Steps

1. Select **Maintenance > System > Recovery Package**.
2. Enter the provisioning passphrase, and select **Start Download**.

The download starts immediately.

3. When the download completes:
  - a. Open the `.zip` file.
  - b. Confirm it includes a `gpt-backup` directory and an inner `.zip` file.
  - c. Extract the inner `.zip` file.
  - d. Confirm you can open the `Passwords.txt` file.
4. Copy the downloaded Recovery Package file (`.zip`) to two safe, secure, and separate locations.



The Recovery Package file must be secured because it contains encryption keys and passwords that can be used to obtain data from the StorageGRID system.

## Check the system's condition

Before upgrading a StorageGRID system, you must verify the system is ready to accommodate the upgrade. You must 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.

For information about specific alerts, see the [Alerts reference](#).

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 11.6 are opened before you upgrade.



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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