NetApp

Upgrade StorageGRID software

StorageGRID

NetApp
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Upgrade StorageGRID software: Overview

Use these instructions to upgrade a StorageGRID system to a new release.

About these instructions

These instructions describe what's new in StorageGRID 11.8 and provide step-by-step instructions for upgrading all nodes in your StorageGRID system to the new release.

Before you begin

Review these topics to learn about the new features and enhancements in StorageGRID 11.8, determine whether any features have been deprecated or removed, and find out about changes to StorageGRID APIs.

- What's new in StorageGRID 11.8
- Removed or deprecated features
- Changes to the Grid Management API
- Changes to the Tenant Management API

What's new in StorageGRID 11.8

This release of StorageGRID introduces the following features and functional changes.

Install, upgrade, hotfix

Temporary installation passwords

When you deploy a StorageGRID node as a virtual machine or use VMware vSphere to automate grid node deployment, you are now prompted to set a temporary installation password. This password is used only if you need to access the VM console or use SSH before the new node joins the grid.

Appliances

Documentation site for appliances

The documentation for StorageGRID appliances was moved to a new appliances documentation site.

FIPS support

Support for FIPS 140-2 validated cryptography.

SGF6112 improvements

StorageGRID 11.8 and StorageGRID Appliance Installer firmware version 3.8.0 support:

- Significantly improved PUT performance for new SGF6112 installations.
- UEFI secure boot on both upgraded and new SGF6112 nodes.
- Local key manager for DAS NVMe SSD drive passwords.

Configure and manage

Consistency grid-wide default

You can change the grid-wide default consistency using the Grid Manager or the grid-config endpoint of the Grid Management private API. The new default will be applied to buckets created after the change.

Default audit destinations

Fresh installations of StorageGRID 11.8 default to local node audit destinations. Previously, audit messages were sent to the audit log (`/var/local/log/audit.log`) on Admin Nodes only.

For information about changing audit log destinations, refer to Select audit information destinations.

ILM policy tags

Allows per-bucket ILM policies controlled with bucket tags. Multiple active and inactive ILM policies can exist at the same time. See ILM policies:Overview.

Kafka endpoints

Support for Kafka endpoints for bucket event notifications.

Load balancer for management interface traffic

Create load balancer endpoints to manage the management interface workload on Admin Nodes. See considerations for load balancing. As part of this change, you can now use Grid Manager and Tenant Manager ports 443, 8443, and 9443 when creating HTTPS load balancer endpoints for S3 or Swift client access.

Manage drives tab

Added Manage drives tab for the SGF6112 appliance.

Metadata-only Storage Nodes

You can now specify that a new software-based Storage Node will be used to store only metadata instead of both objects and metadata.

SSO supports user principal names

When configuring single sign-on (SSO) for Active Directory Federation Service (AD FS) or PingFederate, you can now map the user principal name to `Name ID` in the claims rule or to `sAMAccountName=${username}` in the adapter instance.

TLS policy configuration and KMIP support

- StorageGRID now supports either the TLS 1.2 or TLS 1.3 protocol for KMIP connections. See Considerations and requirements for using a key management server.

- Hashicorp is now fully supported for KMIP.

- Enhancements were made to TLS policy configuration.

Expand grid, maintain grid, recover or replace nodes

Account clone improvement

Existing accounts can be cloned to a remote grid. See What is account clone.

Archive Nodes can be decommissioned

You can now use the Decommission Nodes procedure to remove any unused Archive Nodes that are disconnected from the grid. See Decommission disconnected grid nodes.

> ⓘ Archive Nodes were deprecated in StorageGRID 11.7.

Automatic volume restoration

Added a toggle for volume restoration to occur automatically. See Restore object data using Grid Manager.

Erasure coding, changes to configurations and rebalance procedure

Improvements to erasure coding configurations.

Redistribute erasure-coded fragments among existing and new Storage Nodes. Recalculate the balance during maintenance tasks to provide better distribution when tasks are complete. See Erasure coding rebalance procedure.

Management API stack trace

The **Management API stack trace** security setting lets you control whether a stack trace is returned in Grid Manager and Tenant Manager API error responses. See Change interface security settings.

Rolling reboot procedure

You can now use the rolling reboot procedure to reboot multiple grid nodes without causing a service disruption.

Grid Manager

Untrusted Client Networks, information about additional ports

The Grid Manager list of ports open to the untrusted Client Network is now located in a column named, "Open to untrusted Client network" at **CONFIGURATION** > **Network** > **Load balancer endpoints** > **Management interface** (previously located on the Firewall control page). See Configure load balancer endpoints.

Tenant Manager

S3 Console no longer experimental

Additional functionality described in Use S3 Console.

Tenant permission

The tenant management permission, View all buckets, has been added.

S3 REST API

- Changes to S3 REST API support.
- S3 delete markers with UUIDs. See How objects are deleted and SDEL: S3 DELETE.
- S3 Select ScanRange is used when provided in requests for CSV and Parquet files.

Removed or deprecated features and capabilities

Some features and capabilities were removed or deprecated in this release. Review these items to understand whether you need to update client applications or modify your configuration before you upgrade.

Definitions

Deprecated

The feature **should not** be used in new production environments. Existing production environments can continue using the feature.

End of Life

Last shipped version that contains the feature. No future versions will support the feature.

Removed

First version that **does not** contain the feature.

StorageGRID 11.8 end of feature support

Deprecated features will be removed in N+2 major versions. For example, if a feature is deprecated in version N (for example, 6.3), the last version where the feature will exist is N+1 (for example, 6.4). Version N+2 (for example, 6.5) is the first release when the feature doesn't exist in the product.

See the Software Version Support page for additional information.

ⓘ In certain situations, NetApp might end support for particular features sooner than indicated.

Feature	Deprecated	End of Life	Removed
Archive Node support	11.7	11.8	11.9
Audit export through CIFS/Samba	11.1	11.6	11.7
CLB service	11.4	11.6	11.7
Docker container runtime	11.8	11.9	12.0
NFS audit export	11.8	11.9	12.0
Swift API support	11.7	11.9	12.0

Changes to the Grid Management API

StorageGRID 11.8 uses version 4 of the Grid Management API. Version 4 deprecates version 3; however, versions 1, 2, and 3 are still supported.

ⓘ You can continue to use deprecated versions of the management API with StorageGRID 11.8; however, support for these versions of the API will be removed in a future release of StorageGRID. After upgrading to StorageGRID 11.8, the deprecated APIs can be deactivated using the `PUT /grid/config/management` API.

To learn more, go to Use the Grid Management API.

Changes for `ilm-policies` **API v4**

Effective starting with StorageGRID 11.8, version 4 of the `ilm-policies` API contains the following differences from the version 3:

- Historical policies are no longer returned. A new, separate API for getting historical policy and tag data has been added at `/grid/ilm-history`.

- Properties removed: `proposed`, `historical`, `historicalRules`, `activationTime`.

- Properties added: `active` (boolean), `activatedBy` (array of tag UUIDs that the policy is assigned to).

- The optional type query parameter for `GET ilm-policies` now takes the values `inactive` and `active`. The previous values were `proposed`, `active`, and `historical`.

New endpoints for drive management

You can use the **/grid/drive-details/{nodeId}** API endpoints to perform operations on the drives in specific models of appliance Storage Nodes.

Changes to the Tenant Management API

StorageGRID 11.8 uses version 4 of the Tenant Management API. Version 4 deprecates version 3; however, versions 1, 2, and 3 are still supported.

> (i) You can continue to use deprecated versions of the Tenant Management API with StorageGRID 11.8; however, support for these versions of the API will be removed in a future release of StorageGRID. After upgrading to StorageGRID 11.8, the deprecated APIs can be deactivated using the `PUT /grid/config/management` API.

To learn more, go to Understand the Tenant Management API.

New endpoints for ILM policy tags

You can use the **/org/ilm-policy-tags** and **/org/containers/{bucketName}/ilm-policy-tags** API endpoints to perform operations related to ILM policy tags.

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.	• 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	• 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 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	The upgrade from StorageGRID 11.7 to 11.8 does not require a Cassandra database upgrade; however, the Cassandra service will be stopped and restarted on each Storage Node. For future StorageGRID feature releases, the Cassandra database update step might take several days to complete.
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 11.8

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 11.8.0.

> (i) 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 or Swift 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 11.8 upgrade:

- All StorageGRID appliance nodes are automatically upgraded to StorageGRID Appliance Installer firmware version 3.8.

- SG6060 and SGF6024 appliances are automatically upgraded to BIOS firmware version 3B07.EX and BMC firmware version 3.99.07.

- SG100 and SG1000 appliances are automatically upgraded to BIOS firmware version 3B12.EC and BMC firmware version 4.73.07.

- SGF6112 appliance is automatically upgraded to BIOS firmware version 3A10.QD and BMC firmware version 3.15.07.

- SGF6112 is converted from legacy boot mode to UEFI boot mode with secure boot enabled.

- SG110 and SG1100 appliances were delivered with StorageGRID 11.8 compatible BIOS firmware.

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 11.8 but other nodes are still running StorageGRID 11.7. 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 11.8. 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 11.7 to StorageGRID 11.8. 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 11.8.
- Don't delete any HA groups until the upgrade to StorageGRID 11.8 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 11.8 (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 11.8.
- You can't view bucket versioning details in the Tenant Manager while you're upgrading to 11.8.

This error will resolve after the upgrade to 11.8 is complete.

Workaround

While the 11.8 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.

Impact of an upgrade on groups and user accounts

You might have to update groups and user accounts appropriately after the upgrade is complete.

Changes to group permissions and options

After upgrading to StorageGRID 11.8, optionally assign the following new permissions to tenant user groups.

Permission	Description	Details
View all buckets	Allows users to view all buckets and bucket configurations.	The Manage all buckets permission supersedes the View all buckets permission.

See Tenant management permissions.

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 11.8, your grid must have StorageGRID 11.7 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 11.7.*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 11.7.*x.y*.

   In the StorageGRID 11.7.*x.y* version number:

- The **major release** has an *x* value of 0 (11.7.0).

  - A **hotfix**, if one has been applied, has a *y* value (for example, 11.7.0.1).

4. If **Version** is not 11.7.*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 11.7 from version 11.5

The following example shows the steps to upgrade from StorageGRID version 11.5 to version 11.7 in preparation for a StorageGRID 11.8 upgrade.

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

1. Apply the latest StorageGRID 11.5.0.*y* hotfix.
2. Upgrade to the StorageGRID 11.6.0 major release.
3. Apply the latest StorageGRID 11.6.0.*y* hotfix.
4. Upgrade to the StorageGRID 11.7.0 major release.
5. Apply the latest StorageGRID 11.7.0.*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: • 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 `Passwords.txt` file.
Linux RPM or DEB archive	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. **Important**: Ensure that your operating system is upgraded to Linux kernel 4.15 or higher.

Item	Notes
StorageGRID documentation	• Release notes for StorageGRID 11.8 (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 11.8 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 11.8 are opened before you upgrade.

   > ⓘ   No additional ports are required when upgrading to StorageGRID 11.8.

   The following required port was added in StorageGRID 11.7. Make sure it's available before you upgrade to StorageGRID 11.8.

Port	Description
18086	TCP port used for S3 requests from the StorageGRID load balancer to LDR and the new LDR service. Before upgrading, confirm that this port is open from all grid nodes to all Storage Nodes. Blocking this port will cause S3 service interruptions after upgrade to StorageGRID 11.8.

> ⚠️ 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.

Upgrade software

Upgrade quick start

Before starting the upgrade, review the general workflow. The StorageGRID Upgrade page guides you through each upgrade step.

① Prepare Linux hosts

If any StorageGRID nodes are deployed on Linux hosts, install the RPM or DEB package on each host before you start the upgrade.

② Upload upgrade and hotfix files

From the primary Admin Node, access the StorageGRID Upgrade page and upload the upgrade file and the hotfix file, if required.

③ Download Recovery Package

Download the current Recovery Package before you start the upgrade.

④ Run upgrade prechecks

Upgrade prechecks help you detect issues, so you can resolve them before you start the actual upgrade.

⑤ Start upgrade

When you start the upgrade, the prechecks are run again and the primary Admin Node is upgraded automatically. You can't access the Grid Manager while the primary Admin Node is being upgraded. Audit logs will also be unavailable. This upgrade can take up to 30 minutes.

⑥ Download Recovery Package

After the primary Admin Node has been upgraded, download a new Recovery Package.

⑦ Approve nodes

You can approve individual grid nodes, groups of grid nodes, or all grid nodes.

> ⚠️ Don't approve the upgrade for a grid node unless you are sure that node is ready to be stopped and rebooted.

8 Resume operations

When all grid nodes have been upgraded, new features are enabled and you can resume operations. You must wait to perform a decommission or expansion procedure until the background **Upgrade database** task and the **Final upgrade steps** task have completed.

Related information

Estimate the time to complete an upgrade

Linux: Download and install the RPM or DEB package on all hosts

If any StorageGRID nodes are deployed on Linux hosts, download and install an additional RPM or DEB package on each of these hosts before you start the upgrade.

Download upgrade, Linux, and hotfix files

When you perform a StorageGRID upgrade from the Grid Manager, you are prompted to download the upgrade archive and any required hotfix as the first step. However, if you need to download files to upgrade Linux hosts, you can save time by downloading all required files in advance.

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 notice appears, make note of the hotfix number, and select the checkbox.

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

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

6. From the second column (**Upgrade StorageGRID**), download two files:

   ◦ The upgrade archive for the latest release (this is the file in the section labeled **VMware, SG1000, or SG100 Primary Admin Node**). While this file is not needed until you perform the upgrade, downloading it now will save time.

   ◦ An 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
       ```
       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
       ```

7. If you needed to agree to a Caution/MustRead notice because of a required hotfix, download the hotfix:

   a. Go back to NetApp Downloads: StorageGRID.

b. Select the hotfix number from the drop-down.

c. Agree to the Caution notice and EULA again.

d. Download and save the hotfix and its README.

> You will be prompted to upload the hotfix file on the StorageGRID Upgrade page when you start the upgrade.

Install archive on all Linux hosts

Perform these steps before upgrading StorageGRID software.

Steps

1. Extract the RPM or DEB packages from the installation file.

2. Install the RPM or DEB packages on all Linux hosts.

   See the steps for installing StorageGRID host services in the installation instructions:

   - Red Hat Enterprise Linux: Install StorageGRID host services
   - Ubuntu or Debian: Install StorageGRID host services

   The new packages are installed as additional packages. Don't remove the existing packages.

Perform the upgrade

You can upgrade to StorageGRID 11.8 and apply the latest hotfix for that release at the same time. The StorageGRID upgrade page provides the recommended upgrade path and links directly to the correct download pages.

Before you begin

You have reviewed all of the considerations and completed all of the planning and preparation steps.

Access StorageGRID Upgrade page

As a first step, access the StorageGRID Upgrade page in the Grid Manager.

Steps

1. Sign in to the Grid Manager using a supported web browser.

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

3. From the StorageGRID upgrade tile, select **Upgrade**.

Select files

The update path on the StorageGRID Upgrade page indicates which major versions (for example, 11.8.0) and hotfixes (for example, 11.8.0.1) you must install to get to the latest StorageGRID release. You should install the recommended versions and hotfixes in the order shown.

> 💡 If no update path is shown, your browser might not be able to access the NetApp Support Site, or the **Check for software updates** checkbox on the AutoSupport page (**SUPPORT** > **Tools** > **AutoSupport**) might be disabled.

Steps

1. For the **Select files** step, review the update path.

2. From the Download files section, select each **Download** link to download the required files from the NetApp Support Site.

   If no update path is shown, go to the NetApp Downloads: StorageGRID to determine if a new version or hotfix is available and to download the files you need.

   > ⓘ   If you needed to download and install an RPM or DEB package on all Linux hosts, you might already have the StorageGRID upgrade and hotfix files listed in the update path.

3. Select **Browse** to upload the version upgrade file to StorageGRID:
   `NetApp_StorageGRID_11.8.0_Software_uniqueID.upgrade`

   When the upload and validation process is done, a green check mark appears next to the file name.

4. If you downloaded a hotfix file, select **Browse** to upload that file. The hotfix will be automatically applied as part of the version upgrade.

5. Select **Continue**.

Run prechecks

Running prechecks allows you to detect and resolve any upgrade issues before you start upgrading your grid.

Steps

1. For the **Run prechecks** step, start by entering the provisioning passphrase for your grid.

2. Select **Download recovery package**.

   You should download the current copy of the Recovery Package file before you upgrade the primary Admin Node. The Recovery Package file allows you to restore the system if a failure occurs.

3. When the file is downloaded, confirm that you can access the contents, including the `Passwords.txt` file.

4. Copy the downloaded 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.

5. Select **Run prechecks**, and wait for the prechecks to complete.

6. Review the details for each reported precheck and resolve any reported errors. See the StorageGRID software upgrade resolution guide for the StorageGRID 11.8 release.

   You must resolve all precheck *errors* before you can upgrade your system. However, you don't need to address precheck *warnings* before upgrading.

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

7. If you made any configuration changes to resolve the reported issues, select **Run prechecks** again to get updated results.

If all errors have been resolved, you are prompted to start the upgrade.

Start upgrade and upgrade primary Admin Node

When you start the upgrade, the upgrade prechecks are run again, and the primary Admin Node is automatically upgraded. This part of the upgrade can take up to 30 minutes.

> ⓘ You will not be able to access any other Grid Manager pages while the primary Admin Node is being upgraded. Audit logs will also be unavailable.

Steps

1. Select **Start upgrade**.

   A warning appears to remind you will temporarily lose access to the Grid Manager.

2. Select **OK** to acknowledge the warning and start the upgrade.

3. Wait for the upgrade prechecks to be performed and for the primary Admin Node to be upgraded.

   > ⓘ If any precheck errors are reported, resolve them and select **Start upgrade** again.

   If the grid has another Admin Node that is online and ready, you can use it to monitor the status of the primary Admin Node. As soon as the primary Admin Node is upgraded, you can approve the other grid nodes.

4. As required, select **Continue** to access the **Upgrade other nodes** step.

Upgrade other nodes

You must upgrade all grid nodes, but you can perform multiple upgrade sessions and customize the upgrade sequence. 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.

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 or group of nodes.

> ⓘ When the upgrade starts on a grid node, the services on that node are stopped. Later, the grid node is rebooted. To avoid service interruptions for client applications that are communicating with the node, don't approve the upgrade for a node unless you are sure that node is ready to be stopped and rebooted. As required, schedule a maintenance window or notify customers.

Steps

1. For the **Upgrade other nodes** step, review the Summary, which provides the start time for the upgrade as a whole and the status for each major upgrade task.

   ◦ **Start upgrade service** is the first upgrade task. During this task, the software file is distributed to the grid nodes, and the upgrade service is started on each node.

   ◦ When the **Start upgrade service** task is complete, the **Upgrade other grid nodes** task starts, and you are prompted to download a new copy of the Recovery Package.

2. When prompted, enter your provisioning passphrase and download a new copy of the Recovery Package.

> ⚠ You should download a new copy of the Recovery Package file after the primary Admin Node is upgraded. The Recovery Package file allows you to restore the system if a failure occurs.

3. Review the status tables for each type of node. There are tables for non-primary Admin Nodes, Gateway Nodes, Storage Nodes, and Archive Nodes.

   A grid node can be in one of these stages when the tables first appear:

   - Unpacking the upgrade
   - Downloading
   - Waiting to be approved

4. When you are ready to select grid nodes for upgrade (or if you need to unapprove selected nodes), use these instructions:

Task	Instruction
Search for specific nodes to approve, such as all nodes at a particular site	Enter the search string in the **Search** field
Select all nodes for upgrade	Select **Approve all nodes**
Select all nodes of the same type for upgrade (for example, all Storage Nodes)	Select the **Approve all** button for the node type If you approve more than one node of the same type, the nodes will be upgraded one at a time.
Select an individual node for upgrade	Select the **Approve** button for the node
Postpone the upgrade on all selected nodes	Select **Unapprove all nodes**
Postpone the upgrade on all selected nodes of the same type	Select the **Unapprove all** button for the node type
Postpone the upgrade on an individual node	Select the **Unapprove** button for the node

5. Wait for the approved nodes to proceed through these upgrade stages:

   - Approved and waiting to be upgraded
   - Stopping services

     > ⓘ You can't remove a node when its Stage reaches **Stopping services**. The **Unapprove** button is disabled.

   - Stopping container
   - Cleaning up Docker images
   - Upgrading base OS packages

> **(i)** When an appliance node reaches this stage, the StorageGRID Appliance Installer software on the appliance is updated. This automated process ensures that the StorageGRID Appliance Installer version remains in sync with the StorageGRID software version.

- ◦ Rebooting

  > **(i)** Some appliance models might reboot multiple times to upgrade the firmware and BIOS.

- ◦ Performing steps after reboot
- ◦ Starting services
- ◦ Done

6. Repeat the approval step as many times as needed until all grid nodes have been upgraded.

Complete upgrade

When all grid nodes have completed the upgrade stages, the **Upgrade other grid nodes** task is shown as Completed. The remaining upgrade tasks are performed automatically in the background.

Steps

1. As soon as the **Enable features** task is complete (which occurs quickly), you can start using the new features in the upgraded StorageGRID version.

2. During the **Upgrade database** task, the upgrade process checks each node to verify that the Cassandra database does not need to be updated.

   > **(i)** The upgrade from StorageGRID 11.7 to 11.8 does not require a Cassandra database upgrade; however, the Cassandra service will be stopped and restarted on each Storage Node. For future StorageGRID feature releases, the Cassandra database update step might take several days to complete.

3. When the **Upgrade database** task has completed, wait a few minutes for the **Final upgrade steps** to complete.

4. When the **Final upgrade steps** have completed, the upgrade is done. The first step, **Select files**, is redisplayed with a green success banner.

5. Verify that grid operations have returned to normal:

   a. Check that the services are operating normally and that there are no unexpected alerts.

   b. Confirm that client connections to the StorageGRID system are operating as expected.

Troubleshoot upgrade issues

If something goes wrong when you perform an upgrade, you might able to resolve the issue yourself. If you can't resolve an issue, gather as much information as you can and then contact technical support.

Upgrade does not complete

The following sections describe how to recover from situations where the upgrade has partially failed.

Upgrade precheck errors

To detect and resolve issues, you can manually run the upgrade prechecks before starting the actual upgrade. Most precheck errors provide information about how to resolve the issue.

Provisioning failures

If the automatic provisioning process fails, contact technical support.

Grid node crashes or fails to start

If a grid node crashes during the upgrade process or fails to start successfully after the upgrade finishes, contact technical support to investigate and to correct any underlying issues.

Ingest or data retrieval is interrupted

If data ingest or retrieval is unexpectedly interrupted when you aren't upgrading a grid node, contact technical support.

Database upgrade errors

If the database upgrade fails with an error, retry the upgrade. If it fails again, contact technical support.

Related information

Checking the system's condition before upgrading software

User interface issues

You might experience issues with the Grid Manager or the Tenant Manager during or after the upgrade.

Grid Manager displays multiple error messages during upgrade

If you refresh your browser or navigate to another Grid Manager page while the primary Admin Node is being upgraded, you might see multiple "503: Service Unavailable" and "Problem connecting to the server" messages. You can safely ignore these messages—they will stop appearing soon as the node is upgraded.

If these messages appear for more than an hour after you started the upgrade, something might have occurred that prevented the primary Admin Node from being upgraded. If you are unable to resolve the issue on your own, contact technical support.

Web interface does not respond as expected

The Grid Manager or the Tenant Manager might not respond as expected after StorageGRID software is upgraded.

If you experience issues with the web interface:

- Make sure you are using a supported web browser.

  > ℹ️ | Browser support typically changes for each StorageGRID release.

- Clear your web browser cache.

  Clearing the cache removes outdated resources used by the previous version of StorageGRID software,

and permits the user interface to operate correctly again. For instructions, see the documentation for your web browser.

"Docker image availability check" error messages

When attempting to start the upgrade process, you might receive an error message that states "The following issues were identified by the Docker image availability check validation suite." All issues must be resolved before you can complete the upgrade.

Contact technical support if you are unsure of the changes required to resolve the identified issues.

Message	Cause	Solution
Unable to determine upgrade version. Upgrade version info file `{file_path}` did not match the expected format.	The upgrade package is corrupt.	Re-upload the upgrade package, and try again. If the problem persists, contact technical support.
Upgrade version info file `{file_path}` was not found. Unable to determine upgrade version.	The upgrade package is corrupt.	Re-upload the upgrade package, and try again. If the problem persists, contact technical support.
Unable to determine currently installed release version on `{node_name}`.	A critical file on the node is corrupt.	Contact technical support.
Connection error while attempting to list versions on `{node_name}`	The node is offline or the connection was interrupted.	Check to make sure that all nodes are online and reachable from the primary Admin Node, and try again.
The host for node `{node_name}` does not have StorageGRID `{upgrade_version}` image loaded. Images and services must be installed on the host before the upgrade can proceed.	The RPM or DEB packages for the upgrade have not been installed on the host where the node is running, or the images are still in the process of being imported. **Note:** This error only applies to nodes that are running as containers on Linux.	Check to make sure that the RPM or DEB packages have been installed on all Linux hosts where nodes are running. Make sure the version is correct for both the service and the images file. Wait a few minutes, and try again. See Linux: Install RPM or DEB package on all hosts.
Error while checking node `{node_name}`	An unexpected error occurred.	Wait a few minutes, and try again.
Uncaught error while running prechecks. `{error_string}`	An unexpected error occurred.	Wait a few minutes, and try again.