Upgrade StorageGRID software

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Table of Contents

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

When you perform the upgrade, all nodes in your StorageGRID system are upgraded.

Before you begin

Review these topics to learn about the new features and enhancements in StorageGRID 11.9, determine whether any features have been deprecated or removed, and find out about changes to StorageGRID APIs.

- What's new in StorageGRID 11.9
- Removed or deprecated features
- Changes to the Grid Management API
- Changes to the Tenant Management API

What's new in StorageGRID 11.9

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

Scalability

Data-only Storage Nodes

To allow for more granular scaling, you can now install data-only Storage Nodes. Where metadata processing isn't critical, you can optimize your infrastructure cost-effectively. This flexibility helps accommodate varying workloads and growth patterns.

Cloud Storage Pool enhancements

IAM Roles Anywhere

StorageGRID now supports short term credentials using IAM Roles Anywhere in Amazon S3 for Cloud Storage Pools.

Using long-term credentials to access S3 buckets poses security risks if these credentials are compromised. Short-term credentials have a limited lifespan, which reduces the risk of unauthorized access.

S3 Object Lock buckets

You can now configure a Cloud Storage Pool using an Amazon S3 endpoint. S3 Object Lock helps prevent accidental or malicious deletion of objects. If you tier data from StorageGRID to Amazon S3, having object lock enabled on both systems enhances data protection across the data's lifecycle.

Multi-tenancy

Bucket limits

By setting limits on S3 buckets, you can prevent tenants from monopolizing capacity. Additionally, uncontrolled growth can result in unexpected costs. By having defined limits, you can better estimate tenant storage expenses.

5,000 buckets per tenant

To enhance scalability, StorageGRID now supports up to 5,000 S3 buckets per tenant. Each grid can have a maximum of 100,000 buckets.

To support 5,000 buckets, each Storage Node in the grid must have a minimum of 64 GB of RAM.

S3 Object Lock improvements

Per-tenant configuration capabilities provide the appropriate balance of flexibility and data security. You can now configure per-tenant retention settings to:

- Allow or disallow compliance mode
- Set a maximum retention period

Refer to:

- Manage objects with S3 Object Lock
- How grid administrators control object retention
- Create tenant account

S3 compatibility

x-amz-checksum-sha256 checksum

- The S3 REST API now provides support for `x-amz-checksum-sha256` checksum.
- StorageGRID now provides SHA-256 checksum support for PUT, GET and HEAD operations. These checksums enhance data integrity.

Changes to S3 protocol support

- Added support for Mountpoint for Amazon S3, which allows applications to connect directly to S3 buckets as if they were local file systems. You can now use StorageGRID with more applications and more use cases.
- As part of adding support for Mountpoint, StorageGRID 11.9 contains additional changes to S3 protocol support.

Maintenance and Supportability

AutoSupport

AutoSupport now automatically creates hardware failure cases for legacy appliances.

Expanded node clone operations

Node clone usability has been expanded to support larger storage nodes.

Improved ILM handling of expired delete markers

ILM ingest time rules with a time period of Days now also remove expired object delete markers. Delete markers are only removed when a time period of Days has passed and the current delete maker has become expired (there are no non-current versions).

Refer to How S3 versioned objects are deleted and Example of bucket lifecycle taking priority over ILM policy.

Improved node decommissioning

To provide a smooth and efficient transition to StorageGRID next-generation hardware, node decommissioning has been improved.

Syslog for load balancer endpoints

Load balancer endpoint access logs contain troubleshooting information, such as HTTP status codes. StorageGRID now supports exporting these logs to an external syslog server. This enhancement allows for more efficient log management and integration with existing monitoring and alerting systems.

Additional enhancements for maintenance and supportability

- Metrics UI update
- New operating system qualifications
- Support for new third-party components

Security

SSH access keys rotation

Grid administrators can now update and rotate SSH keys. The ability to rotate SSH keys is a security best practice and a proactive defense mechanism.

Alerts for root logins

When an unknown entity signs in to the Grid Manager as root, an alert is triggered. Monitoring root SSH logins is a proactive step toward safeguarding your infrastructure.

Grid Manager enhancements

Erasure-coding profiles page moved

The Erasure-coding profiles page is now located at **CONFIGURATION** > **System** > **Erasure coding**. It used to be in the ILM menu.

Search enhancements

The search field in the Grid Manager now includes better matching logic, allowing you to find pages by searching for common abbreviations and by the names of certain settings within a page. You can also search for more types of items, like nodes, users, and tenant accounts.

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 supports the feature. In some cases, documentation for the feature might be removed at this stage.

Removed

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

StorageGRID 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	Links to earlier documentation
Legacy Alarms (*not Alerts*)	11.7	11.8	11.9	Alarms reference (StorageGRID 11.8)
Archive Node support	11.7	11.8	11.9	Considerations for decommissioning Archive Nodes (StorageGRID 11.8) **Note**: Before starting your upgrade, you must: 1. Decommission all Archive Nodes. See Grid node decommissioning (StorageGRID 11.8 doc site). 2. Remove all Archive Node references from storage pools and ILM policies. See NetApp Knowledge Base: StorageGRID 11.9 software upgrade resolution guide.

Feature	Deprecated	End of Life	Removed	Links to earlier documentation
Audit export through CIFS/Samba	11.1	11.6	11.7	
CLB service	11.4	11.6	11.7	
Docker container engine	11.8	11.9	TBD	Support for Docker as the container engine for software-only deployments is deprecated. Docker will be replaced with another container engine in a future release. Refer to the list of Docker versions currently supported.
NFS audit export	11.8	11.9	12.0	Configure audit client access for NFS (StorageGRID 11.8)
Swift API support	11.7	11.9	12.0	Use Swift REST API (StorageGRID 11.8)
RHEL 8.8	11.9	11.9	12.0	
RHEL 9.0	11.9	11.9	12.0	
RHEL 9.2	11.9	11.9	12.0	
Ubuntu 18.04	11.9	11.9	12.0	
Ubuntu 20.04	11.9	11.9	12.0	
Debian 11	11.9	11.9	12.0	

Also refer to:

- Changes to the Grid Management API
- Changes to the Tenant Management API

Changes to the Grid Management API

StorageGRID 11.9 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 11.9; however, support for these versions of the API will be removed in a future release of StorageGRID. After upgrading to StorageGRID 11.9, you can deactivate the deprecated APIs by using the `PUT /grid/config/management` API.

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

Review compliance settings after enabling global S3 Object Lock

Review the compliance settings of existing tenants after you enable the global S3 Object Lock setting. When you enable this setting, the S3 Object Lock per-tenant settings depend on the StorageGRID release at the time the tenant was created.

Legacy mgmt-api requests removed

These legacy requests have been removed:

`/grid/server-types`

`/grid/ntp-roles`

Changes to `GET /private/storage-usage` API

- A new property, `usageCacheDuration`, has been added to the response body. This property specifies the duration (in seconds) for which the usage lookup cache remains valid. This value applies when checking the usage against tenant storage quota and bucket capacity limits.
- The `GET /api/v4/private/storage-usage` behavior has been corrected to match nesting from the schema.
- These changes apply only to the private API.

Changes to `GET cross-grid-replication` API

The **/org/containers/:name/cross-grid-replication** GET API no longer requires the Root access (`rootAccess`) permission; however, you must belong to a user group that has the Manage all buckets (`manageAllContainers`) or View all buckets (`viewAllContainers`) permission.

The **/org/containers/:name/cross-grid-replication** PUT API is unchanged and still requires the Root access (`rootAccess`) permission.

Changes to the Tenant Management API

StorageGRID 11.9 uses version 4 of the Tenant 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 Tenant Management API with StorageGRID 11.9; however, support for these versions of the API will be removed in a future release of StorageGRID. After upgrading to StorageGRID 11.9, you can deactivate the deprecated APIs by using the `PUT /grid/config/management` API.

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

New API for bucket capacity limit

You can use the `/org/containers/{bucketName}/quota-object-bytes` API with GET/PUT operations to get and set the storage capacity limit for a bucket.

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 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	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. 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 11.9

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: • 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.

Item	Notes
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. Ensure your operating system meets StorageGRID's minimum kernel version requirements: • Install StorageGRID on Red Hat Enterprise Linux hosts • Install StorageGRID on Ubuntu or Debian hosts
StorageGRID documentation	• 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	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 11.9.

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 (EULA), 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.

Remove installation archives for previous versions

To free up space on Linux hosts, you can remove the installation archives for previous versions of StorageGRID that you no longer need.

Steps

1. Remove the old StorageGRID installation archives.

Red Hat

a. Capture the list of StorageGRID packages installed: `dnf list | grep -i storagegrid`.

Example:

```
[root@rhel-example ~]# dnf list | grep -i storagegrid
StorageGRID-Webscale-Images-11-6-0.x86_64 11.6.0-
20220210.0232.8d56cfe @System
StorageGRID-Webscale-Images-11-7-0.x86_64 11.7.0-
20230424.2238.1a2cf8c @System
StorageGRID-Webscale-Images-11-8-0.x86_64 11.8.0-
20240131.0139.e3e0c87 @System
StorageGRID-Webscale-Images-11-9-0.x86_64 11.9.0-
20240826.1753.4aeeb70 @System
StorageGRID-Webscale-Service-11-6-0.x86_64 11.6.0-
20220210.0232.8d56cfe @System
StorageGRID-Webscale-Service-11-7-0.x86_64 11.7.0-
20230424.2238.1a2cf8c @System
StorageGRID-Webscale-Service-11-8-0.x86_64 11.8.0-
20240131.0139.e3e0c87 @System
StorageGRID-Webscale-Service-11-9-0.x86_64 11.9.0-
20240826.1753.4aeeb70 @System
[root@rhel-example ~]#
```

b. Remove previous StorageGRID packages: `dnf remove images-package service-package`

> Do not remove the installation archives for the version of StorageGRID you are currently running or the versions of StorageGRID you are planning to upgrade to.

You can safely ignore the warnings that appear. They refer to files that have been replaced when you install newer StorageGRID packages.

Example:

```
[root@rhel-example ~]# dnf remove StorageGRID-Webscale-Images-11-6-
0.x86_64 StorageGRID-Webscale-Service-11-6-0.x86_64
Updating Subscription Management repositories.
Unable to read consumer identity

This system is not registered with an entitlement server. You can
use subscription-manager to register.

Dependencies resolved.
================================================================
========
```

```
Package            Architecture      Version           Repository
Size
================================================================================
========
Removing:
StorageGRID-Webscale-Images-11-6-0 x86_64 11.6.0-
20220210.0232.8d56cfe @System 2.7 G
StorageGRID-Webscale-Service-11-6-0 x86_64 11.6.0-
20220210.0232.8d56cfe @System 7.5 M

Transaction Summary
================================================================================
========
Remove 2 Packages

Freed space: 2.8 G
Is this ok [y/N]: y
Running transaction check
Transaction check succeeded.
Running transaction test
Transaction test succeeded.
Running transaction
  Preparing: 1/1
  Running scriptlet: StorageGRID-Webscale-Service-11-6-0-11.6.0-
20220210.0232.8d56cfe.x86_64  1/2
  Erasing: StorageGRID-Webscale-Service-11-6-0-11.6.0-
20220210.0232.8d56cfe.x86_64  1/2
warning: file /usr/lib64/python2.7/site-
packages/netapp/storagegrid/vendor/latest/netaddr/strategy/ipv6.pyc:
remove failed: No such file or directory
warning: file /usr/lib64/python2.7/site-
packages/netapp/storagegrid/vendor/latest/netaddr/strategy/ipv4.pyc:
remove failed: No such file or directory
warning: file /usr/lib64/python2.7/site-
packages/netapp/storagegrid/vendor/latest/netaddr/strategy/eui64.pyc
: remove failed: No such file or directory
warning: file /usr/lib64/python2.7/site-
packages/netapp/storagegrid/vendor/latest/netaddr/strategy/eui48.pyc
: remove failed: No such file or directory
warning: file /usr/lib64/python2.7/site-
packages/netapp/storagegrid/vendor/latest/netaddr/strategy/__init__.
pyc: remove failed: No such file or directory
warning: file /usr/lib64/python2.7/site-
packages/netapp/storagegrid/vendor/latest/netaddr/ip/sets.pyc:
remove failed: No such file or directory
warning: file /usr/lib64/python2.7/site-
```

```
packages/netapp/storagegrid/vendor/latest/netaddr/ip/rfc1924.pyc:
remove failed: No such file or directory
warning: file /usr/lib64/python2.7/site-
packages/netapp/storagegrid/vendor/latest/netaddr/ip/nmap.pyc:
remove failed: No such file or directory
warning: file /usr/lib64/python2.7/site-
packages/netapp/storagegrid/vendor/latest/netaddr/ip/iana.pyc:
remove failed: No such file or directory
warning: file /usr/lib64/python2.7/site-
packages/netapp/storagegrid/vendor/latest/netaddr/ip/glob.pyc:
remove failed: No such file or directory
warning: file /usr/lib64/python2.7/site-
packages/netapp/storagegrid/vendor/latest/netaddr/ip/__init__.pyc:
remove failed: No such file or directory
warning: file /usr/lib64/python2.7/site-
packages/netapp/storagegrid/vendor/latest/netaddr/fbsocket.pyc:
remove failed: No such file or directory
warning: file /usr/lib64/python2.7/site-
packages/netapp/storagegrid/vendor/latest/netaddr/eui/ieee.pyc:
remove failed: No such file or directory
warning: file /usr/lib64/python2.7/site-
packages/netapp/storagegrid/vendor/latest/netaddr/eui/__init__.pyc:
remove failed: No such file or directory
warning: file /usr/lib64/python2.7/site-
packages/netapp/storagegrid/vendor/latest/netaddr/core.pyc: remove
failed: No such file or directory
warning: file /usr/lib64/python2.7/site-
packages/netapp/storagegrid/vendor/latest/netaddr/contrib/subnet_spl
itter.pyc: remove failed: No such file or directory
warning: file /usr/lib64/python2.7/site-
packages/netapp/storagegrid/vendor/latest/netaddr/contrib/__init__.p
yc: remove failed: No such file or directory
warning: file /usr/lib64/python2.7/site-
packages/netapp/storagegrid/vendor/latest/netaddr/compat.pyc: remove
failed: No such file or directory
warning: file /usr/lib64/python2.7/site-
packages/netapp/storagegrid/vendor/latest/netaddr/__init__.pyc:
remove failed: No such file or directory

  Erasing: StorageGRID-Webscale-Images-11-6-0-11.6.0-
20220210.0232.8d56cfe.x86_64   2/2
  Verifying: StorageGRID-Webscale-Images-11-6-0-11.6.0-
20220210.0232.8d56cfe.x86_64  1/2
  Verifying: StorageGRID-Webscale-Service-11-6-0-11.6.0-
20220210.0232.8d56cfe.x86_64  2/2
Installed products updated.
```

```
Removed:
  StorageGRID-Webscale-Images-11-6-0-11.6.0-
20220210.0232.8d56cfe.x86_64
  StorageGRID-Webscale-Service-11-6-0-11.6.0-
20220210.0232.8d56cfe.x86_64

Complete!
[root@rhel-example ~]#
```

Ubuntu and Debian

a. Capture the list of StorageGRID packages installed: `dpkg -l | grep storagegrid`

Example:

```
root@debian-example:~# dpkg -l | grep storagegrid
ii  storagegrid-webscale-images-11-6-0  11.6.0-20220210.0232.8d56cfe
amd64 StorageGRID Webscale docker images for 11.6.0
ii  storagegrid-webscale-images-11-7-0  11.7.0-
20230424.2238.1a2cf8c.dev-signed amd64 StorageGRID Webscale docker
images for 11.7.0
ii  storagegrid-webscale-images-11-8-0  11.8.0-20240131.0139.e3e0c87
amd64 StorageGRID Webscale docker images for 11.8.0
ii  storagegrid-webscale-images-11-9-0  11.9.0-20240826.1753.4aeeb70
amd64 StorageGRID Webscale docker images for 11.9.0
ii  storagegrid-webscale-service-11-6-0 11.6.0-20220210.0232.8d56cfe
amd64 StorageGRID Webscale host services for 11.6.0
ii  storagegrid-webscale-service-11-7-0 11.7.0-20230424.2238.1a2cf8c
amd64 StorageGRID Webscale host services for 11.7.0
ii  storagegrid-webscale-service-11-8-0 11.8.0-20240131.0139.e3e0c87
amd64 StorageGRID Webscale host services for 11.8.0
ii  storagegrid-webscale-service-11-9-0 11.9.0-20240826.1753.4aeeb70
amd64 StorageGRID Webscale host services for 11.9.0
root@debian-example:~#
```

b. Remove previous StorageGRID packages: `dpkg -r images-package service-package`

> Do not remove the installation archives for the version of StorageGRID you are currently running or the versions of StorageGRID you are planning to upgrade to.

Example:

```
root@debian-example:~# dpkg -r storagegrid-webscale-service-11-6-0
storagegrid-webscale-images-11-6-0
(Reading database ... 38190 files and directories currently
installed.)
Removing storagegrid-webscale-service-11-6-0 (11.6.0-
20220210.0232.8d56cfe) ...
locale: Cannot set LC_CTYPE to default locale: No such file or
directory
locale: Cannot set LC_MESSAGES to default locale: No such file or
directory
locale: Cannot set LC_ALL to default locale: No such file or
directory
dpkg: warning: while removing storagegrid-webscale-service-11-6-0,
directory '/usr/lib/python2.7/dist-
packages/netapp/storagegrid/vendor/latest' not empty so not removed
Removing storagegrid-webscale-images-11-6-0 (11.6.0-
20220210.0232.8d56cfe) ...
root@debian-example:~#
```

2. Remove StorageGRID container images.

Docker

a. Capture the list of container images installed: `docker images`

Example:

```
[root@docker-example ~]# docker images
REPOSITORY           TAG             IMAGE ID       CREATED
SIZE
storagegrid-11.9.0   Admin_Node      610f2595bcb4   2 days ago
2.77GB
storagegrid-11.9.0   Storage_Node    7f73d33eb880   2 days ago
2.65GB
storagegrid-11.9.0   API_Gateway     2f0bb79526e9   2 days ago
1.82GB
storagegrid-11.8.0   Storage_Node    7125480de71b   7 months ago
2.54GB
storagegrid-11.8.0   Admin_Node      404e9f1bd173   7 months ago
2.63GB
storagegrid-11.8.0   Archive_Node    c3294a29697c   7 months ago
2.39GB
storagegrid-11.8.0   API_Gateway     1f88f24b9098   7 months ago
1.74GB
storagegrid-11.7.0   Storage_Node    1655350eff6f   16 months ago
2.51GB
storagegrid-11.7.0   Admin_Node      872258dd0dc8   16 months ago
2.48GB
storagegrid-11.7.0   Archive_Node    121e7c8b6d3b   16 months ago
2.41GB
storagegrid-11.7.0   API_Gateway     5b7a26e382de   16 months ago
1.77GB
storagegrid-11.6.0   Admin_Node      ee39f71a73e1   2 years ago
2.38GB
storagegrid-11.6.0   Storage_Node    f5ef895dcad0   2 years ago
2.08GB
storagegrid-11.6.0   Archive_Node    5782de552db0   2 years ago
1.95GB
storagegrid-11.6.0   API_Gateway     cb480ed37eea   2 years ago
1.35GB
[root@docker-example ~]#
```

b. Remove the container images for previous StorageGRID versions: `docker rmi` *`image id`*

> Do not remove the container images for the version of StorageGRID you are currently running or the versions of StorageGRID you are planning to upgrade to.

Example:

```
[root@docker-example ~]# docker rmi cb480ed37eea
Untagged: storagegrid-11.6.0:API_Gateway
Deleted:
sha256:cb480ed37eea0ae9cf3522de1dadfbff0075010d89c1c0a2337a3178051dd
f02
Deleted:
sha256:5f269aabf15c32c1fe6f36329c304b6c6ecb563d973794b9b59e8e5ab8ccc
afa
Deleted:
sha256:47c2b2c295a77b312b8db69db58a02d8e09e929e121352bec713fa12dae66
bde
[root@docker-example ~]#
```

Podman

a. Capture the list of container images installed: `podman images`

Example:

```
[root@podman-example ~]# podman images
REPOSITORY                    TAG           IMAGE ID      CREATED
SIZE
localhost/storagegrid-11.8.0  Storage_Node  7125480de71b  7 months
ago   2.57 GB
localhost/storagegrid-11.8.0  Admin_Node    404e9f1bd173  7 months
ago   2.67 GB
localhost/storagegrid-11.8.0  Archive_Node  c3294a29697c  7 months
ago   2.42 GB
localhost/storagegrid-11.8.0  API_Gateway   1f88f24b9098  7 months
ago   1.77 GB
localhost/storagegrid-11.7.0  Storage_Node  1655350eff6f  16 months
ago  2.54 GB
localhost/storagegrid-11.7.0  Admin_Node    872258dd0dc8  16 months
ago  2.51 GB
localhost/storagegrid-11.7.0  Archive_Node  121e7c8b6d3b  16 months
ago  2.44 GB
localhost/storagegrid-11.7.0  API_Gateway   5b7a26e382de  16 months
ago  1.8 GB
localhost/storagegrid-11.6.0  Admin_Node    ee39f71a73e1  2 years
ago    2.42 GB
localhost/storagegrid-11.6.0  Storage_Node  f5ef895dcad0  2 years
ago    2.11 GB
localhost/storagegrid-11.6.0  Archive_Node  5782de552db0  2 years
ago    1.98 GB
localhost/storagegrid-11.6.0  API_Gateway   cb480ed37eea  2 years
ago    1.38 GB
[root@podman-example ~]#
```

b. Remove the container images for previous StorageGRID versions: `podman rmi image id`

> ⚠ Do not remove the container images for the version of StorageGRID you are currently running or the versions of StorageGRID you are planning to upgrade to.

Example:

```
[root@podman-example ~]# podman rmi f5ef895dcad0
Untagged: localhost/storagegrid-11.6.0:Storage_Node
Deleted:
f5ef895dcad0d78d0fd21a07dd132d7c7f65f45d80ee7205a4d615494e44cbb7
[root@podman-example ~]#
```

Perform the upgrade

You can upgrade to StorageGRID 11.9 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, 11.9.0) and hotfixes (for example, 11.9.0.1) 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** > **Settings**) 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_11.9.0_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 11.9 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, and Storage 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

Task	Instruction
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

     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

     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.

> 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. 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.

  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.

Message	Cause	Solution
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.

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