Manage S3 buckets

StorageGRID software

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Create an S3 bucket

You can use the Tenant Manager to create S3 buckets for object data.

Before you begin

- You are signed in to the Tenant Manager using a supported web browser.
- You belong to a user group that has the Root access or Manage all buckets permission. These permissions override the permissions settings in group or bucket policies.

> Permissions to set or modify S3 Object Lock properties of buckets or objects can be granted by bucket policy or group policy.

- If you plan to enable S3 Object Lock for a bucket, a grid admin has enabled the global S3 Object Lock setting for the StorageGRID system, and you have reviewed the requirements for S3 Object Lock buckets and objects.
- If each tenant will have 5,000 buckets, each Storage Node in the grid has a minimum of 64 GB of RAM.

> Each grid can have a maximum of 100,000 buckets.

Access the wizard

Steps

1. Select **View buckets** from the dashboard, or select **STORAGE (S3)** > **Buckets**.
2. Select **Create bucket**.

Enter details

Steps

1. Enter details for the bucket.

Field	Description
Bucket name	A name for the bucket that complies with these rules: • Must be unique across each StorageGRID system (not just unique within the tenant account). • Must be DNS compliant. • Must contain at least 3 and no more than 63 characters. • Each label must start and end with a lowercase letter or a number and can only use lowercase letters, numbers, and hyphens. • Must not contain periods in virtual hosted style requests. Periods will cause problems with server wildcard certificate verification. For more information, see the Amazon Web Services (AWS) documentation on bucket naming rules. **Note**: You can't change the bucket name after creating the bucket.
Region	The bucket's region. Your StorageGRID administrator manages the available regions. A bucket's region can affect the data-protection policy applied to objects. By default, all buckets are created in the `us-east-1` region. **Note**: You can't change the region after creating the bucket.

2. Select **Continue**.

Manage settings

Steps

1. Optionally, enable object versioning for the bucket.

   Enable object versioning if you want to store every version of each object in this bucket. You can then retrieve previous versions of an object as needed. You must enable object versioning if the bucket will be used for cross-grid replication.

2. If the global S3 Object Lock setting is enabled, optionally enable S3 Object Lock for the bucket to store objects using a write-once-read-many (WORM) model.

   Enable S3 Object Lock for a bucket only if you need to keep objects for fixed amount of time, for example, to meet certain regulatory requirements. S3 Object Lock is a permanent setting that helps you prevent objects from being deleted or overwritten for a fixed amount of time or indefinitely.

   After the S3 Object Lock setting is enabled for a bucket, it can't be disabled. Anyone with the correct permissions can add objects to this bucket that can't be changed. You might not be able to delete these objects or the bucket itself.

   If you enable S3 Object Lock for a bucket, bucket versioning is enabled automatically.

3. If you selected **Enable S3 Object Lock**, optionally enable **Default retention** for this bucket.

   Your grid administrator must give you permission to use specific features of S3 Object Lock.

   When **Default retention** is enabled, new objects added to the bucket will be automatically protected from being deleted or overwritten. The **Default retention** setting does not apply to objects that have their own retention periods.

   a. If **Default retention** is enabled, specify a **Default retention mode** for the bucket.

Default retention mode	Description
Governance	• Users with the `s3:BypassGovernanceRetention` permission can use the `x-amz-bypass-governance-retention: true` request header to bypass retention settings. • These users can delete an object version before its retain-until-date is reached. • These users can increase, decrease, or remove an object's retain-until-date.
Compliance	• The object can't be deleted until its retain-until-date is reached. • The object's retain-until-date can be increased, but it can't be decreased. • The object's retain-until-date can't be removed until that date is reached. **Note**: Your grid administrator must allow you to use compliance mode.

   b. If **Default retention** is enabled, specify the **Default retention period** for the bucket.

      The **Default retention period** indicates how long new objects added to this bucket should be retained, starting from the time they are ingested. Specify a value that is less than or equal to the maximum retention period for the tenant, as set by the grid administrator.

      A *maximum* retention period, which can be a value from 1 day to 100 years, is set when the grid administrator creates the tenant. When you set a *default* retention period, it can't exceed the value set for the maximum retention period. If needed, ask your grid administrator to increase or decrease the maximum retention period.

4. Optionally, select **Enable capacity limit**.

   Capacity limit is the maximum capacity available for this bucket's objects. This value represents a logical amount (object size), not a physical amount (size on disk).

   If no limit is set, the capacity for this bucket is unlimited. Refer to Capacity limit usage for more information.

5. Select **Create bucket**.

   The bucket is created and added to the table on the Buckets page.

6. Optionally, select **Go to bucket details page** to view bucket details and perform additional configuration.

View bucket details

You can view the buckets in your tenant account.

Before you begin

- You are signed in to the Tenant Manager using a supported web browser.
- You belong to a user group that has the Root access, Manage all buckets, or View all buckets permission. These permissions override the permission settings in group or bucket policies.

Steps

1. Select **View buckets** from the dashboard, or select **STORAGE (S3)** > **Buckets**.

   The Buckets page appears.

2. Review the summary table for each bucket.

   As required, you can sort the information by any column, or you can page forward and back through the list.

   > The Object Count, Space Used, and Usage values displayed are estimates. These estimates are affected by the timing of ingests, network connectivity, and node status. If buckets have versioning enabled, deleted object versions are included in the object count.

   Name
   The bucket's unique name, which can't be changed.

   Enabled features
   The list of features that are enabled for the bucket.

   S3 Object Lock
   Whether S3 Object Lock is enabled for the bucket.

   This column appears only if S3 Object Lock is enabled for the grid. This column also shows information for any legacy Compliant buckets.

   Region
   The bucket's region, which can't be changed. This column is hidden by default.

   Object count
   The number of objects in this bucket. If buckets have versioning enabled, non-current object versions are included in this value.

   When objects are added or deleted, this value might not update immediately.

   Space used
   The logical size of all objects in the bucket. The logical size does not include the actual space required for replicated or erasure-coded copies or for object metadata.

   This value can take up to 10 minutes to update.

Usage

The percentage used of the bucket's capacity limit, if one has been set.

The usage value is based on internal estimates and might be exceeded in some cases. For example, StorageGRID checks capacity limit (if set) when a tenant starts uploading objects and rejects new ingests to this bucket if the tenant has exceeded the capacity limit. However, StorageGRID does not take into account the size of the current upload when determining if the capacity limit has been exceeded. If objects are deleted, a tenant might be temporarily prevented from uploading new objects to this bucket until the capacity limit usage is recalculated. The calculations can take 10 minutes or longer.

This value indicates logical size, not physical size needed to store the objects and their metadata.

Capacity

If set, the capacity limit for the bucket.

Date created

The date and time the bucket was created. This column is hidden by default.

3. To view details for a specific bucket, select the bucket name from the table.
   a. View the summary information at the top of the web page to confirm the details for the bucket, such as Region and Object count.
   b. View the Capacity limit usage bar. If the usage is 100% or near 100%, consider increasing the limit or deleting some objects.
   c. As needed, select **Delete objects in bucket** and **Delete bucket**.

      Pay close attention to the cautions that appear when you select each of these options. For more information, refer to:

      - Delete all objects in a bucket
      - Delete a bucket (bucket must be empty)

   d. View or change settings for the bucket in each of the tabs as needed.
      - **S3 Console**: View the objects for the bucket. For more information, refer to Use S3 Console.
      - **Bucket options**: View or change option settings. Some settings, such as S3 Object Lock, can't be changed after the bucket is created.
        - Manage bucket consistency
        - Last access time updates
        - Capacity limit
        - Object versioning
        - S3 Object Lock
        - Default bucket retention
        - Manage cross-grid replication (if allowed for the tenant)
      - **Platform services**: Manage platform services (if allowed for the tenant)
      - **Bucket access**: View or change option settings. You must have specific access permissions.
        - Configure Cross-Origin Resource Sharing (CORS) so the bucket and objects in the bucket will be accessible to web applications in other domains.

- Control user access for an S3 bucket and objects in that bucket.

Apply an ILM policy tag to a bucket

Choose an ILM policy tag to apply to a bucket based on your object storage requirements.

The ILM policy controls where the object data is stored and whether it is deleted after a certain time period. Your grid administrator creates ILM policies and assigns them to ILM policy tags when using multiple active policies.

Avoid frequently reassigning a bucket's policy tag. Otherwise, performance issues might occur.

Before you begin

- You are signed in to the Tenant Manager using a supported web browser.
- You belong to a user group that has the Root access, Manage all buckets, or View all buckets permission. These permissions override the permission settings in group or bucket policies.

Steps

1. Select **View buckets** from the dashboard, or select **STORAGE (S3)** > **Buckets**.

   The Buckets page appears. As required, you can sort the information by any column, or you can page forward and back through the list.

2. Select the name of the bucket you want to assign an ILM policy tag to.

   You can also change the ILM policy tag assignment for a bucket that already has a tag assigned.

   The Object Count and Space Used values displayed are estimates. These estimates are affected by the timing of ingests, network connectivity, and node status. If buckets have versioning enabled, deleted object versions are included in the object count.

3. In the Bucket options tab, expand the ILM policy tag accordion. This accordion only appears if your grid administrator has enabled the use of custom policy tags.
4. Read the description of each policy tag to determine which tag should be applied to the bucket.

   Changing the ILM policy tag for a bucket will trigger ILM reevaluation of all objects in the bucket. If the new policy retains objects for a limited time, older objects will be deleted.

5. Select the radio button for the tag you want to assign to the bucket.
6. Select **Save changes**. A new S3 bucket tag will be set on the bucket with the key `NTAP-SG-ILM-BUCKET-TAG` and the value of the ILM policy tag name.

   Ensure that your S3 applications do not accidentally override or delete the new bucket tag. If this tag is omitted when applying a new TagSet to the bucket, objects in the bucket will revert to being evaluated against the default ILM policy.

Set and modify ILM policy tags using only the Tenant Manager or Tenant Manager API where the ILM policy tag is validated. Do not modify the `NTAP-SG-ILM-BUCKET-TAG` ILM policy tag using the S3 PutBucketTagging API or the S3 DeleteBucketTagging API.

Changing the policy tag assigned to a bucket has a temporary performance impact while objects are being reevaluated using the new ILM policy.

Manage bucket policy

You can control user access for an S3 bucket and the objects in that bucket.

Before you begin

- You are signed in to the Tenant Manager using a supported web browser.
- You belong to a user group that has the Root access permission. The View all buckets and Manage all buckets permissions only allow viewing.
- You've verified that the required number of Storage Nodes and sites are available. If two or more Storage Nodes are not available within any site, or if a site is not available, changes to these settings might not be available.

Steps

1. Select **Buckets**, then select the bucket you want to manage.
2. On the bucket details page, select **Bucket access** > **Bucket policy**.
3. Do one of the following:
   - Enter a bucket policy by selecting the **Enable policy** checkbox. Then enter a valid JSON formatted string.

     Each bucket policy has a size limit of 20,480 bytes.
   - Modify an existing policy by editing the string.
   - Disable a policy by unselecting **Enable policy**.

For detailed information about bucket policies, including language syntax and examples, see Example bucket policies.

Manage bucket consistency

Consistency values can be used to specify the availability of bucket setting changes as well as to provide a balance between the availability of the objects within a bucket and the consistency of those objects across different Storage Nodes and sites. You can change the consistency values to be different from the default values so that client applications can meet their operational needs.

Before you begin

- You are signed in to the Tenant Manager using a supported web browser.
- You belong to a user group that has the Manage all buckets or Root access permission. These permissions override the permissions settings in group or bucket policies.

Bucket consistency guidelines

The bucket consistency is used to determine the consistency for client applications affecting objects within that S3 bucket. In general, you should use the **Read-after-new-write** consistency for your buckets.

Change bucket consistency

If the **Read-after-new-write** consistency does not meet the client application's requirements, you can change the consistency by setting the bucket consistency or by using the `Consistency-Control` header. The `Consistency-Control` header overrides the bucket consistency.

> When you change a bucket's consistency, only those objects that are ingested after the change are guaranteed to meet the revised setting.

Steps

1. Select **View buckets** from the dashboard, or select **STORAGE (S3)** > **Buckets**.
2. Select the bucket name from the table.

   The bucket details page appears.

3. From the **Bucket options** tab, select the ** accordion.
4. Select a consistency for operations performed on the objects in this bucket.
   - **All**: Provides the highest level of consistency. All nodes receive the data immediately, or the request will fail.
   - **Strong-global**: Guarantees read-after-write consistency for all client requests across all sites.
   - **Strong-site**: Guarantees read-after-write consistency for all client requests within a site.
   - **Read-after-new-write** (default): Provides read-after-write consistency for new objects and eventual consistency for object updates. Offers high availability and data protection guarantees. Recommended for most cases.
   - **Available**: Provides eventual consistency for both new objects and object updates. For S3 buckets, use only as required (for example, for a bucket that contains log values that are rarely read, or for HEAD or GET operations on keys that don't exist). Not supported for S3 FabricPool buckets.
5. Select **Save changes**.

What happens when you change bucket settings

Buckets have multiple settings that affect the behavior of the buckets and the objects within those buckets.

The following bucket settings use **strong** consistency by default. If two or more Storage Nodes are not available within any site, or if a site is not available, any changes to these settings might not be available.

- Background empty bucket deletion
- Last Access Time
- Bucket lifecycle
- Bucket policy
- Bucket tagging
- Bucket versioning

- S3 Object Lock
- Bucket encryption

> The consistency value for bucket versioning, S3 Object Lock, and bucket encryption cannot be set to a value that is not strongly consistent.

The following bucket settings do not use strong consistency and have higher availability for changes. Changes to these settings might take some time before having an effect.

- Platform services configuration: Notification, Replication, or Search integration
- CORS configuration
- Change bucket consistency

> If the default consistency used when changing bucket settings does not meet the client application's requirements, you can change the consistency by using the `Consistency-Control` header for the S3 REST API or by using the `reducedConsistency` or `force` options in the Tenant Management API.

Enable or disable last access time updates

When grid administrators create the information lifecycle management (ILM) rules for a StorageGRID system, they can optionally specify that an object's last access time be used to determine whether to move that object to a different storage location. If you are using an S3 tenant, you can take advantage of such rules by enabling last access time updates for the objects in an S3 bucket.

These instructions only apply to StorageGRID systems that include at least one ILM rule that uses the **Last access time** option as an advanced filter or as a reference time. You can ignore these instructions if your StorageGRID system does not include such a rule. See Use Last access time in ILM rules for details.

Before you begin

- You are signed in to the Tenant Manager using a supported web browser.
- You belong to a user group that has the Manage all buckets or Root access permission. These permissions override the permissions settings in group or bucket policies.

About this task

Last access time is one of the options available for the **Reference time** placement instruction for an ILM rule. Setting the Reference time for a rule to Last access time lets grid administrators specify that objects be placed in certain storage locations based on when those objects were last retrieved (read or viewed).

For example, to ensure that recently viewed objects remain on faster storage, a grid administrator can create an ILM rule specifying the following:

- Objects that have been retrieved in the past month should remain on local Storage Nodes.
- Objects that have not been retrieved in the past month should be moved to an off-site location.

By default, updates to last access time are disabled. If your StorageGRID system includes an ILM rule that uses the **Last access time** option and you want this option to apply to objects in this bucket, you must enable updates to last access time for the S3 buckets specified in that rule.

Updating the last access time when an object is retrieved can reduce StorageGRID performance, especially for small objects.

A performance impact occurs with last access time updates because StorageGRID must perform these additional steps every time objects are retrieved:

- Update the objects with new timestamps
- Add the objects to the ILM queue, so they can be reevaluated against current ILM rules and policy

The table summarizes the behavior applied to all objects in the bucket when last access time is disabled or enabled.

Type of request	Behavior if last access time is disabled (default)		Behavior if last access time is enabled	
	Last access time updated?	Object added to ILM evaluation queue?	Last access time updated?	Object added to ILM evaluation queue?
Request to retrieve an object, its access control list, or its metadata	No	No	Yes	Yes
Request to update an object's metadata	Yes	Yes	Yes	Yes
Request to list objects or object versions	No	No	No	No
Request to copy an object from one bucket to another	• No, for the source copy • Yes, for the destination copy	• No, for the source copy • Yes, for the destination copy	• Yes, for the source copy • Yes, for the destination copy	• Yes, for the source copy • Yes, for the destination copy
Request to complete a multipart upload	Yes, for the assembled object	Yes, for the assembled object	Yes, for the assembled object	Yes, for the assembled object

Steps

1. Select **View buckets** from the dashboard, or select **STORAGE (S3)** > **Buckets**.
2. Select the bucket name from the table.

   The bucket details page appears.

3. From the **Bucket options** tab, select the **Last access time updates** accordion.
4. Enable or disable last access time updates.
5. Select **Save changes**.

Change object versioning for a bucket

If you are using an S3 tenant, you can change the versioning state for S3 buckets.

Before you begin

- You are signed in to the Tenant Manager using a supported web browser.
- You belong to a user group that has the Manage all buckets or Root access permission. These permissions override the permissions settings in group or bucket policies.
- You've verified that the required number of Storage Nodes and sites are available. If two or more Storage Nodes are not available within any site, or if a site is not available, changes to these settings might not be available.

About this task

You can enable or suspend object versioning for a bucket. After you enable versioning for a bucket, it can't return to an unversioned state. However, you can suspend versioning for the bucket.

- Disabled: Versioning has never been enabled
- Enabled: Versioning is enabled
- Suspended: Versioning was previously enabled and is suspended

For more information, see the following:

- Object versioning
- ILM rules and policies for S3 versioned objects (Example 4)
- How objects are deleted

Steps

1. Select **View buckets** from the dashboard, or select **STORAGE (S3)** > **Buckets**.
2. Select the bucket name from the table.

   The bucket details page appears.

3. From the **Bucket options** tab, select the **Object versioning** accordion.
4. Select a versioning state for the objects in this bucket.

   Object versioning must remain enabled for a bucket used for cross-grid replication. If S3 Object Lock or legacy compliance is enabled, the **Object versioning** options are disabled.

Option	Description
Enable versioning	Enable object versioning if you want to store every version of each object in this bucket. You can then retrieve previous versions of an object as needed. Objects that were already in the bucket will be versioned when they are modified by a user.
Suspend versioning	Suspend object versioning if you no longer want new object versions to be created. You can still retrieve any existing object versions.

5. Select **Save changes**.

Use S3 Object Lock to retain objects

You can use S3 Object Lock if buckets and objects must comply with regulatory requirements for retention.

Your grid administrator must give you permission to use specific features of S3 Object Lock.

What is S3 Object Lock?

The StorageGRID S3 Object Lock feature is an object-protection solution that is equivalent to S3 Object Lock in Amazon Simple Storage Service (Amazon S3).

When the global S3 Object Lock setting is enabled for a StorageGRID system, an S3 tenant account can create buckets with or without S3 Object Lock enabled. If a bucket has S3 Object Lock enabled, bucket versioning is required and is enabled automatically.

A bucket without S3 Object Lock can only have objects without retention settings specified. No ingested objects will have retention settings.

A bucket with S3 Object Lock can have objects with and without retention settings specified by S3 client applications. Some objects ingested will have retention settings.

A bucket with S3 Object Lock and default retention configured can have uploaded objects with retention settings specified and new objects without retention settings. The new objects use the default setting, because the retention setting hasn't been configured at the object-level.

Effectively, all newly ingested objects have retention settings when default retention is configured. Existing objects without object retention settings remain unaffected.

Retention modes

The StorageGRID S3 Object Lock feature supports two retention modes to apply different levels of protection to objects. These modes are equivalent to the Amazon S3 retention modes.

- In compliance mode:
  - The object can't be deleted until its retain-until-date is reached.
  - The object's retain-until-date can be increased, but it can't be decreased.
  - The object's retain-until-date can't be removed until that date is reached.
- In governance mode:
  - Users with special permission can use a bypass header in requests to modify certain retention settings.
  - These users can delete an object version before its retain-until-date is reached.
  - These users can increase, decrease, or remove an object's retain-until-date.

Retention settings for object versions

If a bucket is created with S3 Object Lock enabled, users can use the S3 client application to optionally specify the following retention settings for each object that is added to the bucket:

- **Retention mode**: Either compliance or governance.
- **Retain-until-date**: If an object version's retain-until-date is in the future, the object can be retrieved, but it can't be deleted.
- **Legal hold**: Applying a legal hold to an object version immediately locks that object. For example, you might need to put a legal hold on an object that is related to an investigation or legal dispute. A legal hold has no expiration date, but remains in place until it is explicitly removed. Legal holds are independent of the retain-until-date.

  > If an object is under a legal hold, no one can delete the object, regardless of its retention mode.

  For details on the object settings, see Use S3 REST API to configure S3 Object Lock.

Default retention setting for buckets

If a bucket is created with S3 Object Lock enabled, users can optionally specify the following default settings for the bucket:

- **Default retention mode**: Either compliance or governance.
- **Default retention period**: How long new object versions added to this bucket should be retained, starting from the day they are added.

The default bucket settings apply only to new objects that don't have their own retention settings. Existing bucket objects aren't affected when you add or change these default settings.

See Create an S3 bucket and Update S3 Object Lock default retention.

S3 Object Lock tasks

The following lists for grid administrators and tenant users contain the high-level tasks for using the S3 Object Lock feature.

Grid administrator

- Enable global S3 Object Lock setting for entire StorageGRID system.
- Ensure that information lifecycle management (ILM) policies are *compliant*; that is, they meet the requirements of buckets with S3 Object Lock enabled.
- As needed, allow a tenant to use Compliance as the retention mode. Otherwise, only Governance mode is allowed.
- As needed, set a maximum retention period for a tenant.

Tenant user

- Review considerations for buckets and objects with S3 Object Lock.
- As needed, contact grid administrator to enable global S3 Object Lock setting and set permissions.
- Create buckets with S3 Object Lock enabled.
- Optionally, configure default retention settings for a bucket:
  - Default retention mode: Governance or Compliance, if allowed by the grid administrator.
  - Default retention period: Must be less than or equal to maximum retention period set by grid administrator.

- Use the S3 client application to add objects and optionally set object-specific retention:
  - Retention mode. Governance or Compliance, if allowed by the grid administrator.
  - Retain Until Date: Must be less than or equal to what is allowed by the maximum retention period set by grid administrator.

Requirements for buckets with S3 Object Lock enabled

- If the global S3 Object Lock setting is enabled for the StorageGRID system, you can use the Tenant Manager, the Tenant Management API, or the S3 REST API to create buckets with S3 Object Lock enabled.
- If you plan to use S3 Object Lock, you must enable S3 Object Lock when you create the bucket. You can't enable S3 Object Lock for an existing bucket.
- When S3 Object Lock is enabled for a bucket, StorageGRID automatically enables versioning for that bucket. You can't disable S3 Object Lock or suspend versioning for the bucket.
- Optionally, you can specify a default retention mode and retention period for each bucket using the Tenant Manager, the Tenant Management API, or the S3 REST API. The bucket's default retention settings apply only to new objects added to the bucket that don't have their own retention settings. You can override these default settings by specifying a retention mode and retain-until-date for each object version when it is uploaded.
- Bucket lifecycle configuration is supported for buckets with S3 Object Lock enabled.
- CloudMirror replication is not supported for buckets with S3 Object Lock enabled.

Requirements for objects in buckets with S3 Object Lock enabled

- To protect an object version, you can specify default retention settings for the bucket, or you can specify retention settings for each object version. Object-level retention settings can be specified using the S3 client application or the S3 REST API.
- Retention settings apply to individual object versions. An object version can have both a retain-until-date and a legal hold setting, one but not the other, or neither. Specifying a retain-until-date or a legal hold setting for an object protects only the version specified in the request. You can create new versions of the object, while the previous version of the object remains locked.

Lifecycle of objects in buckets with S3 Object Lock enabled

Each object that is saved in a bucket with S3 Object Lock enabled goes through these stages:

1. **Object ingest**

   When an object version is added to bucket that has S3 Object Lock enabled, retention settings are applied as follows:

   - If retention settings are specified for the object, the object-level settings are applied. Any default bucket settings are ignored.
   - If no retention settings are specified for the object, the default bucket settings are applied, if they exist.
   - If no retention settings are specified for the object or the bucket, the object is not protected by S3 Object Lock.

   If retention settings are applied, both the object and any S3 user-defined metadata are protected.

2. **Object retention and deletion**

Multiple copies of each protected object are stored by StorageGRID for the specified retention period. The exact number and type of object copies and the storage locations are determined by the compliant rules in the active ILM policies. Whether a protected object can be deleted before its retain-until-date is reached depends on its retention mode.

  - If an object is under a legal hold, no one can delete the object, regardless of its retention mode.

Can I still manage legacy Compliant buckets?

The S3 Object Lock feature replaces the Compliance feature that was available in previous StorageGRID versions. If you created compliant buckets using a previous version of StorageGRID, you can continue to manage the settings of these buckets; however, you can no longer create new compliant buckets. For instructions, see NetApp Knowledge Base: How to manage legacy Compliant buckets in StorageGRID 11.5.

Update S3 Object Lock default retention

If you enabled S3 Object Lock when you created the bucket, you can edit the bucket to change the default retention settings. You can enable (or disable) default retention and set a default retention mode and retention period.

Before you begin

- You are signed in to the Tenant Manager using a supported web browser.
- You belong to a user group that has the Manage all buckets or Root access permission. These permissions override the permissions settings in group or bucket policies.
- S3 Object Lock is enabled globally for your StorageGRID system, and you enabled S3 Object Lock when you created the bucket. See Use S3 Object Lock to retain objects.

Steps

1. Select **View buckets** from the dashboard, or select **STORAGE (S3)** > **Buckets**.
2. Select the bucket name from the table.

   The bucket details page appears.

3. From the **Bucket options** tab, select the **S3 Object Lock** accordion.
4. Optionally, enable or disable **Default retention** for this bucket.

   Changes to this setting don't apply to objects already in the bucket or to any objects that might have their own retention periods.

5. If **Default retention** is enabled, specify a **Default retention mode** for the bucket.

Default retention mode	Description
Governance	• Users with the `s3:BypassGovernanceRetention` permission can use the `x-amz-bypass-governance-retention: true` request header to bypass retention settings. • These users can delete an object version before its retain-until-date is reached. • These users can increase, decrease, or remove an object's retain-until-date.
Compliance	• The object can't be deleted until its retain-until-date is reached. • The object's retain-until-date can be increased, but it can't be decreased. • The object's retain-until-date can't be removed until that date is reached. **Note**: Your grid administrator must allow you to use compliance mode.

6. If **Default retention** is enabled, specify the **Default retention period** for the bucket.

   The **Default retention period** indicates how long new objects added to this bucket should be retained, starting from the time they are ingested. Specify a value that is less than or equal to the maximum retention period for the tenant, as set by the grid administrator.

   A *maximum* retention period, which can be a value from 1 day to 100 years, is set when the grid administrator creates the tenant. When you set a *default* retention period, it can't exceed the value set for the maximum retention period. If needed, ask your grid administrator to increase or decrease the maximum retention period.

7. Select **Save changes**.

Configure cross-origin resource sharing (CORS)

You can configure cross-origin resource sharing (CORS) for an S3 bucket if you want that bucket and objects in that bucket to be accessible to web applications in other domains.

Before you begin

- You are signed in to the Tenant Manager using a supported web browser.
- For GET CORS configuration requests, you belong to a user group that has the Manage all buckets or View all buckets permission. These permissions override the permissions settings in group or bucket policies.
- For PUT CORS configuration requests, you belong to a user group that has the Manage all buckets permission. This permission overrides the permissions settings in group or bucket policies.
- The Root access permission provides access to all CORS configuration requests.

About this task

Cross-origin resource sharing (CORS) is a security mechanism that allows client web applications in one

domain to access resources in a different domain. For example, suppose you use an S3 bucket named `Images` to store graphics. By configuring CORS for the `Images` bucket, you can allow the images in that bucket to be displayed on the website `http://www.example.com`.

Enable CORS for a bucket

Steps

1. Use a text editor to create the required XML. This example shows the XML used to enable CORS for an S3 bucket. Specifically:
   - Allows any domain to send GET requests to the bucket
   - Only allows the `http://www.example.com` domain to send GET, POST, and DELETE requests
   - All request headers are allowed

   ```
   <CORSConfiguration
       xmlns="http://s3.amazonaws.com/doc/2020-10-22/">
       <CORSRule>
           <AllowedOrigin>*</AllowedOrigin>
           <AllowedMethod>GET</AllowedMethod>
           <AllowedHeader>*</AllowedHeader>
       </CORSRule>
       <CORSRule>
           <AllowedOrigin>http://www.example.com</AllowedOrigin>
           <AllowedMethod>GET</AllowedMethod>
           <AllowedMethod>POST</AllowedMethod>
           <AllowedMethod>DELETE</AllowedMethod>
           <AllowedHeader>*</AllowedHeader>
       </CORSRule>
   </CORSConfiguration>
   ```

   For more information about the CORS configuration XML, see Amazon Web Services (AWS) Documentation: Amazon Simple Storage Service User Guide.

2. Select **View buckets** from the dashboard, or select **STORAGE (S3)** > **Buckets**.
3. Select the bucket name from the table.

   The bucket details page appears.

4. From the **Bucket access** tab, select the **Cross-Origin Resource Sharing (CORS)** accordion.
5. Select the **Enable CORS** checkbox.
6. Paste the CORS configuration XML into the text box.
7. Select **Save changes**.

Modify CORS setting

Steps

1. Update the CORS configuration XML in the text box, or select **Clear** to start over.

2. Select **Save changes**.

Disable CORS setting

Steps

1. Clear the **Enable CORS** checkbox.
2. Select **Save changes**.

Delete objects in bucket

You can use the Tenant Manager to delete the objects in one or more buckets.

Considerations and requirements

Before performing these steps, note the following:

- When you delete the objects in a bucket, StorageGRID permanently removes all objects and all object versions in each selected bucket from all nodes and sites in your StorageGRID system. StorageGRID also removes any related object metadata. You will not be able to recover this information.
- Deleting all of the objects in a bucket might take minutes, days, or even weeks, based on the number of objects, object copies, and concurrent operations.
- If a bucket has S3 Object Lock enabled, it might remain in the **Deleting objects: read-only** state for *years*.

> A bucket that uses S3 Object Lock will remain in the **Deleting objects: read-only** state until the retention date is reached for all objects and any legal holds are removed.

- While objects are being deleted, the bucket's state is **Deleting objects: read-only**. In this state, you can't add new objects to the bucket.
- When all objects have been deleted, the bucket remains in the read-only state. You can do one of the following:
  - Return the bucket to write mode and reuse it for new objects
  - Delete the bucket
  - Keep the bucket in read-only mode to reserve its name for future use
- If a bucket has object versioning enabled, delete markers that were created in StorageGRID 11.8 or later can be removed using the Delete objects in bucket operations.
- If a bucket has object versioning enabled, the delete objects operation will not remove delete markers that were created in StorageGRID 11.7 or earlier. See information about deleting objects in a bucket in How S3 versioned objects are deleted.
- If you use cross-grid replication, note the following:
  - Using this option does not delete any objects from the bucket on the other grid.
  - If you select this option for the source bucket, the **Cross-grid replication failure** alert will be triggered if you add objects to the destination bucket on the other grid. If you can't guarantee no one will add objects to the bucket on the other grid, disable cross-grid replication for that bucket before deleting all bucket objects.

Before you begin

- You are signed in to the Tenant Manager using a supported web browser.

- You belong to a user group that has the Root access permission. This permission overrides the permissions settings in group or bucket policies.

Steps

1. Select **View buckets** from the dashboard, or select **STORAGE (S3)** > **Buckets**.

   The Buckets page appears and shows all existing S3 buckets.

2. Use the **Actions** menu or the details page for a specific bucket.

   Actions menu

   a. Select the checkbox for each bucket you want to delete objects from.

   b. Select **Actions** > **Delete objects in bucket**.

   Details page

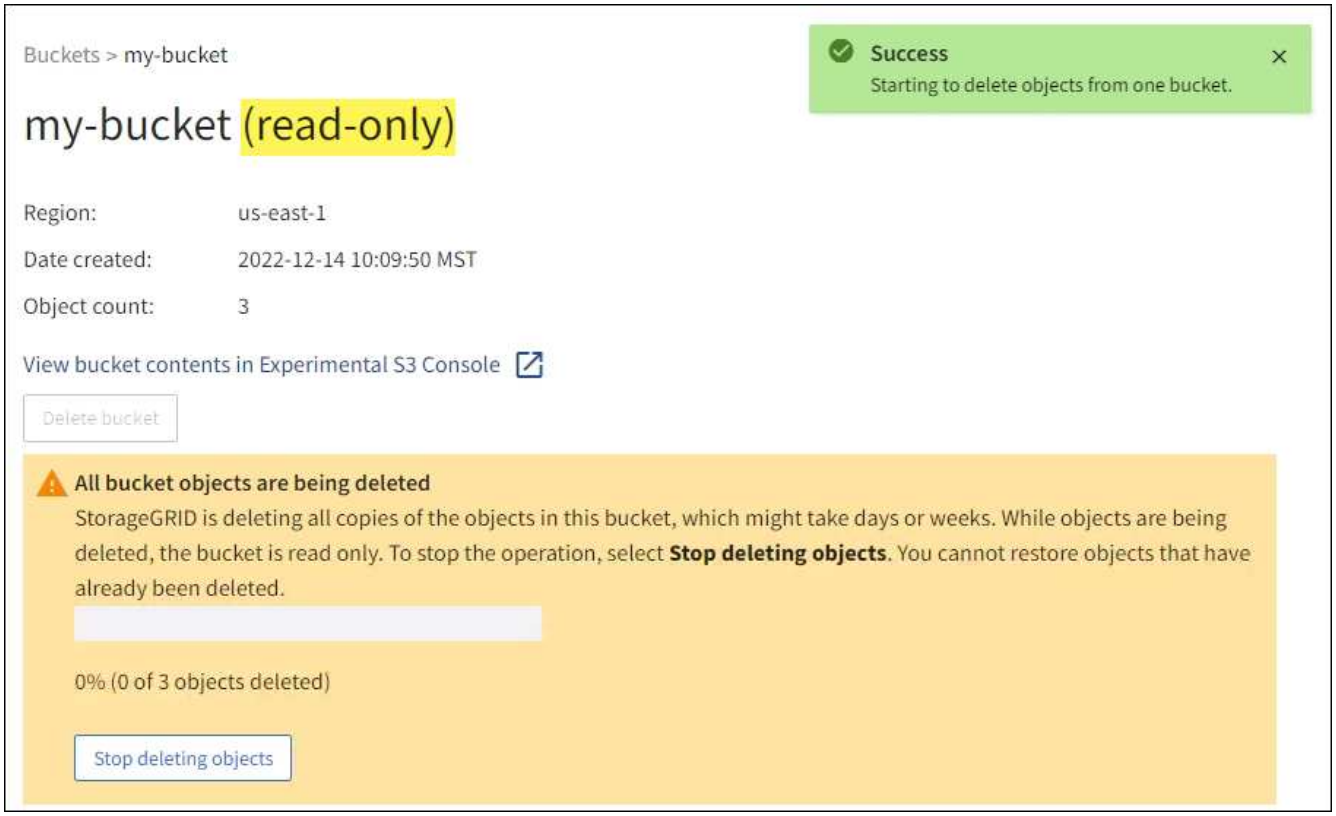
   a. Select a bucket name to display its details.

   b. Select **Delete objects in bucket**.

3. When the confirmation dialog box appears, review the details, enter **Yes**, and select **OK**.
4. Wait for the delete operation to begin.

   After a few minutes:

   - A yellow status banner appears on the bucket details page. The progress bar represents what percentage of objects have been deleted.
   - **(read-only)** appears after the bucket's name on the bucket details page.
   - **(Deleting objects: read-only)** appears next to the bucket's name on the Buckets page.

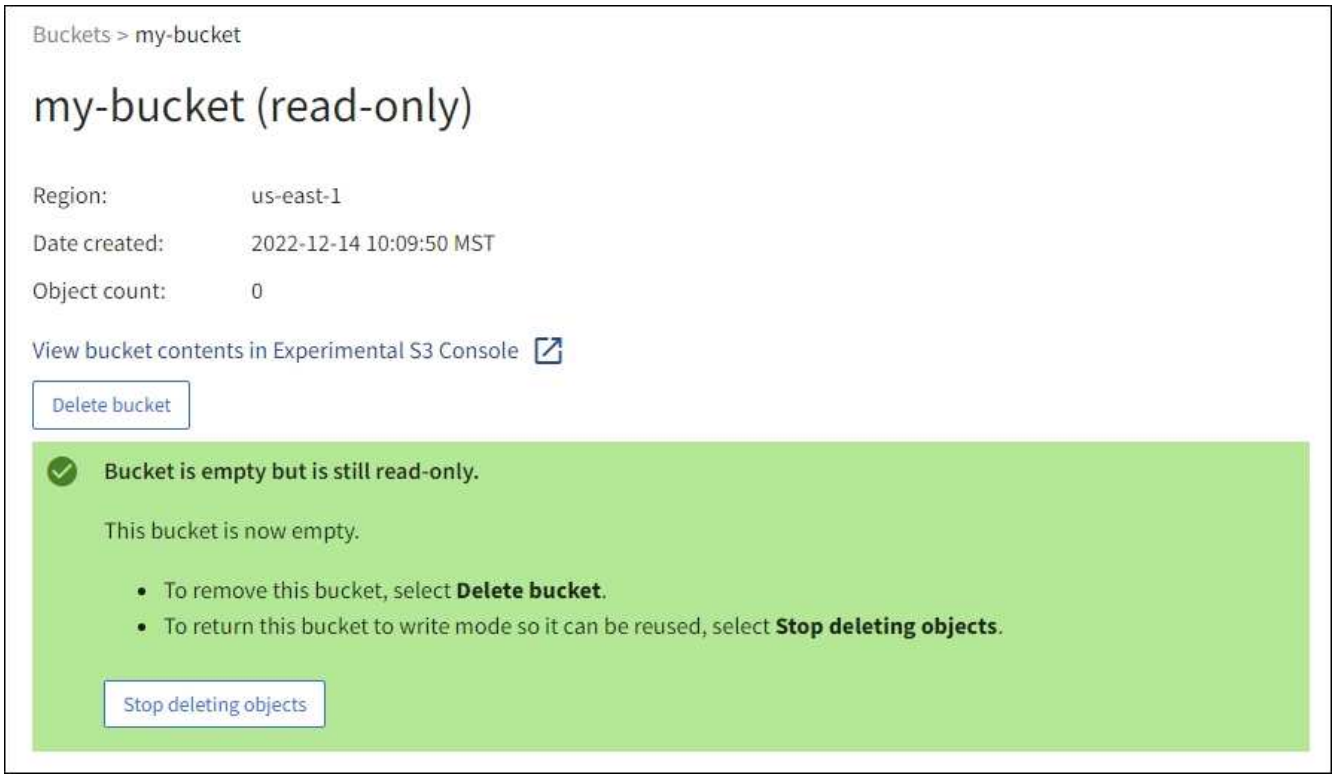


5. As required while the operation is running, select **Stop deleting objects** to halt the process. Then, optionally, select **Delete objects in bucket** to resume the process.

   When you select **Stop deleting objects**, the bucket is returned to write mode; however, you can't access or restore any objects that have been deleted.

6. Wait for the operation to complete.

   When the bucket is empty, the status banner is updated, but the bucket remains read only.



7. Do one of the following:
   - Exit the page to keep the bucket in read-only mode. For example, you might keep an empty bucket in read-only mode to reserve the bucket name for future use.
   - Delete the bucket. You can select **Delete bucket** to delete a single bucket or return the Buckets page and select **Actions** > **Delete** buckets to remove more than one bucket.

     If you are unable to delete a versioned bucket after all objects were deleted, delete markers might remain. To delete the bucket, you must remove all remaining delete markers.

   - Return the bucket to write mode and optionally reuse it for new objects. You can select **Stop deleting objects** for a single bucket or return to the Buckets page and select **Action** > **Stop deleting objects** for more than one bucket.

Delete S3 bucket

You can use the Tenant Manager to delete one or more S3 buckets that are empty.

Before you begin

- You are signed in to the Tenant Manager using a supported web browser.
- You belong to a user group that has the Manage all buckets or Root access permission. These permissions override the permissions settings in group or bucket policies.
- The buckets you want to delete are empty. If buckets you want to delete are *not* empty, delete objects from the bucket.

About this task

These instructions describe how to delete an S3 bucket using the Tenant Manager. You can also delete S3 buckets using the Tenant Management API or the S3 REST API.

You can't delete an S3 bucket if it contains objects, noncurrent object versions, or delete markers. For information about how S3 versioned objects are deleted, see How objects are deleted.

Steps

1. Select **View buckets** from the dashboard, or select **STORAGE (S3)** > **Buckets**.

   The Buckets page appears and shows all existing S3 buckets.

2. Use the **Actions** menu or the details page for a specific bucket.

   Actions menu

   a. Select the checkbox for each bucket you want to delete.

   b. Select **Actions** > **Delete buckets**.

   Details page

   a. Select a bucket name to display its details.

   b. Select **Delete bucket**.

3. When the confirmation dialog box appears, select **Yes**.

   StorageGRID confirms that each bucket is empty and then deletes each bucket. This operation might take a few minutes.

   If a bucket is not empty, an error message appears. You must delete all objects and any delete markers in the bucket before you can delete the bucket.

Use S3 Console

You can use S3 Console to view and manage the objects in an S3 bucket.

S3 Console allows you to:

- Upload, download, rename, copy, move, and delete objects
- View, revert, download, and delete object versions
- Search for objects by prefix
- Manage object tags
- View object metadata
- View, create, rename, copy, move, and delete folders

> S3 Console provides an improved user experience for the most common cases. It is not designed to replace CLI or API operations in all situations.
>
> If using S3 Console results in operations taking too long (for example, minutes or hours), consider:
>
> - Reducing the number of selected objects
> - Using non-graphical (API or CLI) methods to access your data

Before you begin

- You are signed in to the Tenant Manager using a supported web browser.
- If you want to manage objects, you belong to a user group that has the Root access permission. Alternatively, you belong to a user group that has the Use S3 Console tab permission and either the View all buckets permission or Manage all buckets permission. See Tenant management permissions.
- An S3 Group or Bucket policy has been configured for the user. See Use bucket and group access policies.
- You know the user's access key ID and secret access key. Optionally, you have a `.csv` file containing this information. See the instructions for creating access keys.

Steps

1. Select **STORAGE** > **Buckets** > ***bucket name***.
2. Select the S3 Console tab.
3. Paste the access key ID and secret access key into the fields. Otherwise, select **Upload access keys** and select your `.csv` file.
4. Select **Sign in**.
5. The table of bucket objects appears. You can manage objects as needed.

Additional information

- **Search by prefix**: The prefix search feature only searches for objects that begin with a specific word relative to the current folder. The search does not include objects that contain the word elsewhere. This rule also applies to objects within folders. For example, a search for `folder1/folder2/somefile-` would return objects that are within the `folder1/folder2/` folder and begin with the word `somefile-`.
- **Drag and drop**: You can drag and drop files from your computer's file manager to S3 Console. However, you cannot upload folders.
- **Operations on folders**: When you move, copy, or rename a folder, all objects in the folder are updated one at a time, which might take time.
- **Permanent deletion when bucket versioning is disabled**: When you overwrite or delete an object in a bucket with versioning disabled, the operation is permanent. See Change object versioning for a bucket.

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