Using the Tenant Manager

StorageGRID 11.5

NetApp
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Using the Tenant Manager

The Tenant Manager allows you to manage all aspects of a StorageGRID tenant account.

You can use the Tenant Manager to monitor a tenant account's storage usage and to manage users with identity federation or by creating local groups and users. For S3 tenant accounts, you can also manage S3 keys, manage S3 buckets, and configure platform services.

Using a StorageGRID tenant account

A tenant account allows you to use either the Simple Storage Service (S3) REST API or the Swift REST API to store and retrieve objects in a StorageGRID system.

Each tenant account has its own federated or local groups, users, S3 buckets or Swift containers, and objects.

Optionally, tenant accounts can be used to segregate stored objects by different entities. For example, multiple tenant accounts can be used for either of these use cases:

- **Enterprise use case:** If the StorageGRID system is being used within an enterprise, the grid's object storage might be segregated by the different departments in the organization. For example, there might be tenant accounts for the Marketing department, the Customer Support department, the Human Resources department, and so on.

  If you use the S3 client protocol, you can also use S3 buckets and bucket policies to segregate objects between the departments in an enterprise. You do not need to create separate tenant accounts. See instructions for implementing S3 client applications.

- **Service provider use case:** If the StorageGRID system is being used by a service provider, the grid's object storage might be segregated by the different entities that lease the storage. For example, there might be tenant accounts for Company A, Company B, Company C, and so on.

Creating tenant accounts

Tenant accounts are created by a StorageGRID grid administrator using the Grid Manager. When creating a tenant account, the grid administrator specifies the following information:

- Display name for the tenant (the tenant's account ID is assigned automatically and cannot be changed).
- Whether the tenant account will use the S3 or Swift.
- For S3 tenant accounts: Whether the tenant account is allowed to use platform services. If the use of platform services is allowed, the grid must be configured to support their use.
- Optionally, a storage quota for the tenant account—the maximum number of gigabytes, terabytes, or petabytes available for the tenant's objects. A tenant's storage quota represents a logical amount (object size), not a physical amount (size on disk).
- If identity federation is enabled for the StorageGRID system, which federated group has Root Access permission to configure the tenant account.
- If single sign-on (SSO) is not in use for the StorageGRID system, whether the tenant account will use its own identity source or share the grid's identity source, and the initial password for the tenant's local root user.

In addition, grid administrators can enable the S3 Object Lock setting for the StorageGRID system if S3 tenant

accounts need to comply with regulatory requirements. When S3 Object Lock is enabled, all S3 tenant accounts can create and manage compliant buckets.

Configuring S3 tenants

After an S3 tenant account is created, you can access the Tenant Manager to perform tasks such as the following:

- Setting up identity federation (unless the identity source is shared with the grid), or creating local groups and users
- Managing S3 access keys
- Creating and managing S3 buckets, including compliant buckets
- Using platform services (if enabled)
- Monitoring storage usage

> While you can create and manage S3 buckets with the Tenant Manager, you must have S3 access keys and use the S3 REST API to ingest and manage objects.

Configuring Swift tenants

After a Swift tenant account is created, users with the Root Access permission can access the Tenant Manager to perform tasks such as the following:

- Setting up identity federation (unless the identity source is shared with the grid), and creating local groups and users
- Monitoring storage usage

> Swift users must have the Root Access permission to access the Tenant Manager. However, the Root Access permission does not allow users to authenticate into the Swift REST API to create containers and ingest objects. Users must have the Swift Administrator permission to authenticate into the Swift REST API.

Related information

Administer StorageGRID

Use S3

Use Swift

Web browser requirements

You must use a supported web browser.

Web browser	Minimum supported version
Google Chrome	87
Microsoft Edge	87

Web browser	Minimum supported version
Mozilla Firefox	84

You should set the browser window to a recommended width.

Browser width	Pixels
Minimum	1024
Optimum	1280

Signing in to the Tenant Manager

You access the Tenant Manager by entering the URL for the tenant into the address bar of a supported web browser.

What you'll need

- You must have your login credentials.
- You must have a URL for accessing the Tenant Manager, as supplied by your grid administrator. The URL will look like one of these examples:

```
https://FQDN_or_Admin_Node_IP/
```

```
https://FQDN_or_Admin_Node_IP:port/
```

```
https://FQDN_or_Admin_Node_IP/?accountId=20-digit-account-id
```

```
https://FQDN_or_Admin_Node_IP:port/?accountId=20-digit-account-id
```

  The URL always contains either the fully qualified domain name (FQDN) or the IP address used to access an Admin Node, and could optionally also include a port number, the 20-digit tenant account ID, or both.

- If the URL does not include the tenant's 20-digit account ID, you must have this account ID.
- You must be using a supported web browser.
- Cookies must be enabled in your web browser.
- You must have specific access permissions.

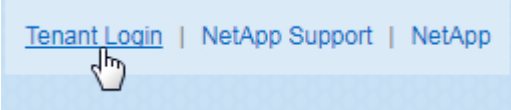
Steps

1. Launch a supported web browser.
2. In the browser's address bar, enter the URL for accessing Tenant Manager.

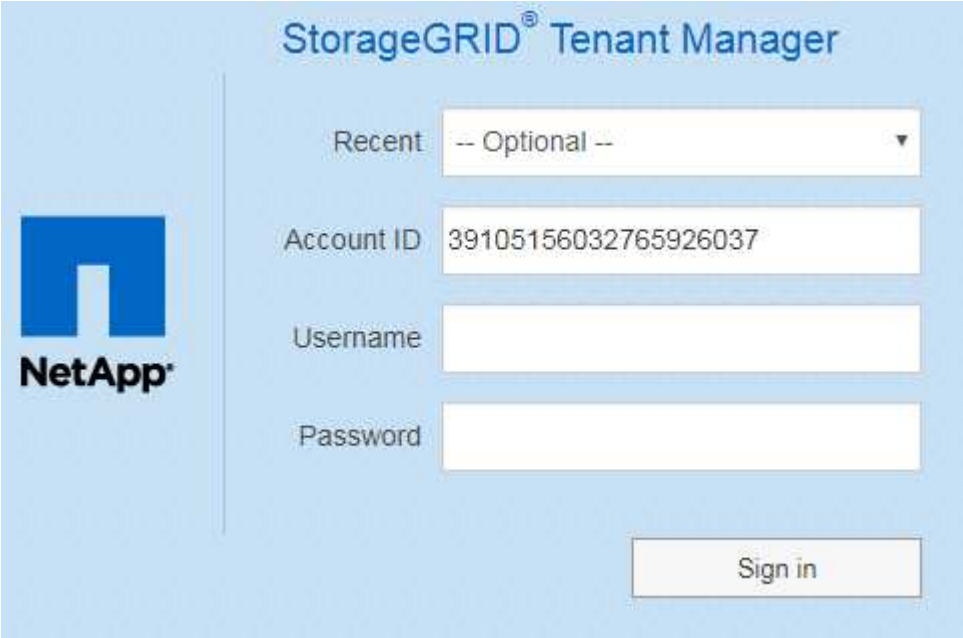
3. If you are prompted with a security alert, install the certificate using the browser's installation wizard.
4. Sign in to the Tenant Manager.

   The sign-in screen that you see depends on the URL you entered and whether your organization is using single sign-on (SSO). You will see one of the following screens:

   - The Grid Manager sign-in page. Click the **Tenant Login** link in the upper right.

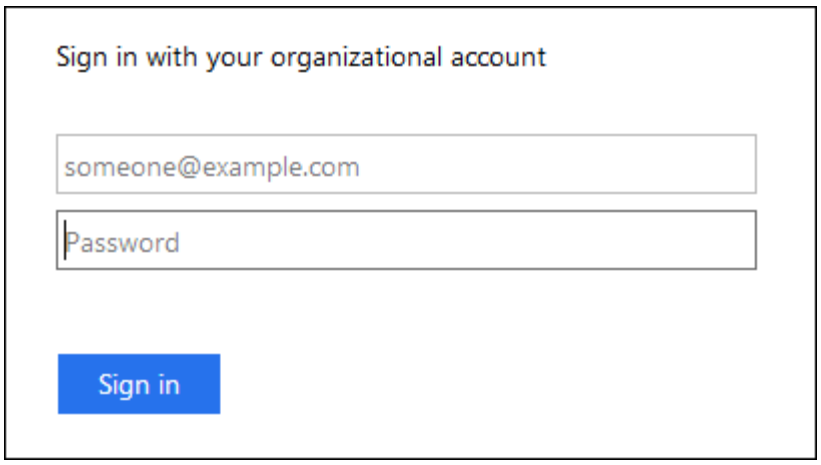
   - The Tenant Manager sign-in page. The **Account ID** field might already be completed, as shown below.

     i. If the tenant's 20-digit account ID is not shown, select the name of the tenant account if it appears in the list of recent accounts, or enter the account ID.
     ii. Enter your username and password.
     iii. Click **Sign in**.

     The Tenant Manager Dashboard appears.

   - Your organization's SSO page, if SSO is enabled on the grid. For example:



Enter your standard SSO credentials, and click **Sign in**.

- The Tenant Manager SSO sign-in page.

i. If the tenant's 20-digit account ID is not shown, select the name of the tenant account if it appears in the list of recent accounts, or enter the account ID.

ii. Click **Sign in**.

iii. Sign in with your standard SSO credentials on your organization's SSO sign-in page.

The Tenant Manager Dashboard appears.

5. If you received an initial password from someone else, change your password to secure your account. Select ***username*** > **Change Password**.

> If SSO is enabled for the StorageGRID system, you cannot change your password from the Tenant Manager.

Related information

Administer StorageGRID

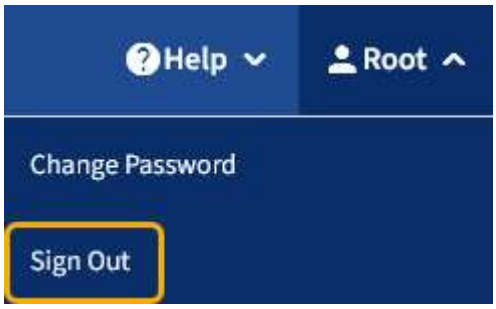
Web browser requirements

Signing out of the Tenant Manager

When you are done working with the Tenant Manager, you must sign out to ensure that unauthorized users cannot access the StorageGRID system. Closing your browser might not sign you out of the system, based on browser cookie settings.

Steps

1. Locate the username drop-down in the top-right corner of the user interface.



2. Select the username and then select **Sign Out**.

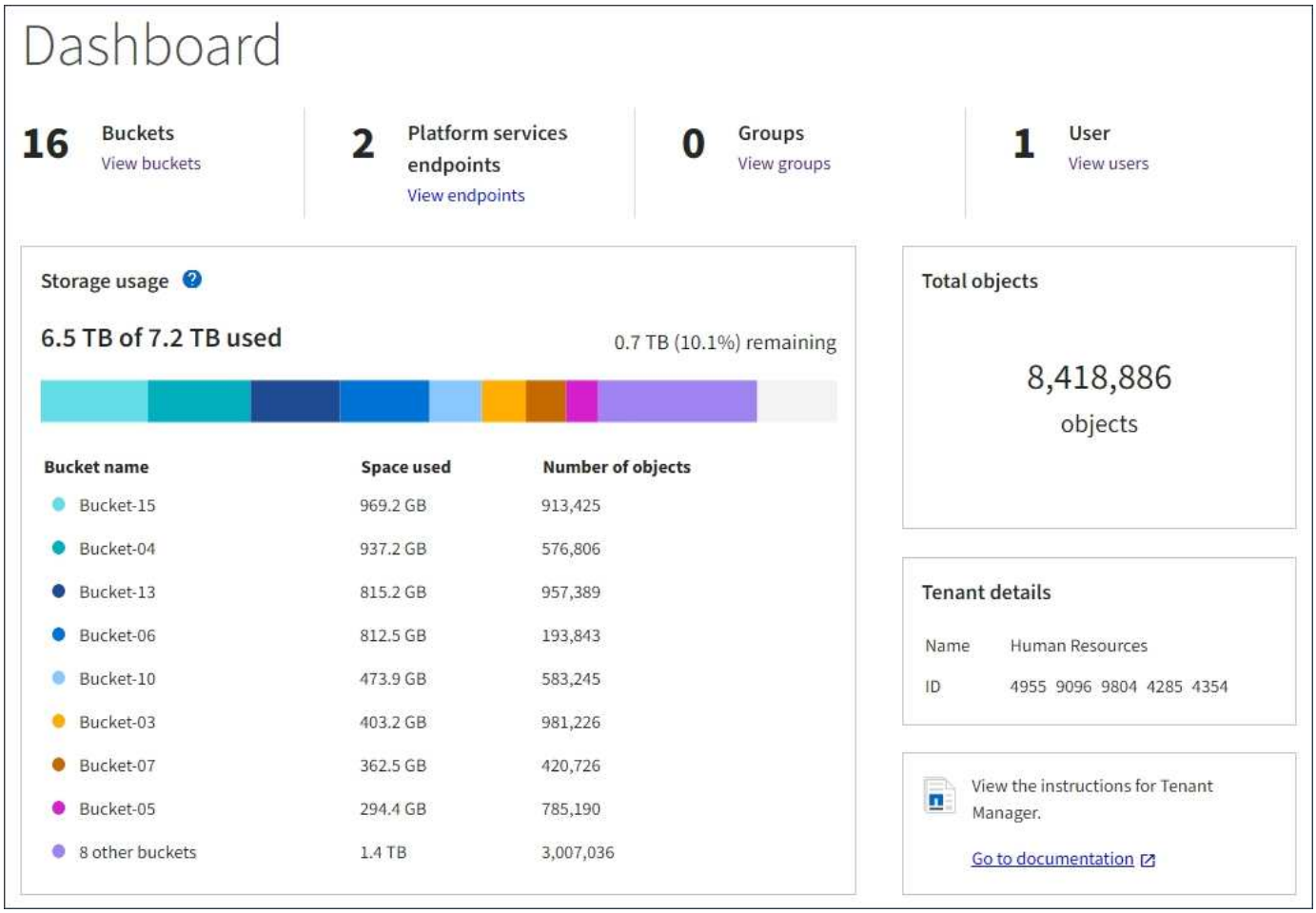
Option	Description
SSO not in use	You are signed out of the Admin Node. The Tenant Manager sign in page is displayed. **Note:** If you signed into more than one Admin Node, you must sign out of each node.
SSO enabled	You are signed out of all Admin Nodes you were accessing. The StorageGRID Sign in page is displayed. The name of the tenant account you just accessed is listed as the default in the **Recent Accounts** drop-down, and the tenant's **Account ID** is shown. **Note:** If SSO is enabled and you are also signed in to the Grid Manager, you must also sign out of the Grid Manager to sign out of SSO.

Understanding the Tenant Manager Dashboard

The Tenant Manager Dashboard provides an overview of a tenant account's configuration and the amount of space used by objects in the tenant's buckets (S3) or containers (Swift). If the tenant has a quota, the Dashboard shows how much of the quota is used and how much is remaining. If there are any errors related to the tenant account, the errors are shown on the Dashboard.

The Space used values are estimates. These estimates are affected by the timing of ingests, network connectivity, and node status.

When objects have been uploaded, the Dashboard looks like the following example:



Tenant account summary

The top of the Dashboard contains the following information:

- The number of configured buckets or containers, groups, and users
- The number of platform services endpoints, if any have been configured

You can select the links to view the details.

The right side of the Dashboard contains the following information:

- The total number of objects for the tenant.

  For an S3 account, if no objects have been ingested and you have the Root Access permission, getting started guidelines appear instead of the total number of objects.

- The tenant account name and ID.
- A link to the StorageGRID documentation.

Storage and quota usage

The Storage usage panel contains the following information:

- The amount of object data for the tenant.

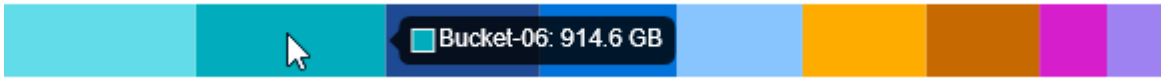
This value indicates the total amount of object data uploaded and does not represent the space used to store copies of those objects and their metadata.

- If a quota is set, the total amount of space available for object data and the amount and percentage of space remaining. The quota limits the amount of object data that can be ingested.

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

- A bar chart that represents the relative sizes of the largest buckets or containers.

  You can place your cursor over any of the chart segments to view the total space consumed by that bucket or container.



- To correspond with the bar chart, a list of the largest buckets or containers, including the total amount of object data and the number of objects for each bucket or container.

Bucket name	Space used	Number of objects
Bucket-02	944.7 GB	7,575
Bucket-09	899.6 GB	589,677
Bucket-15	889.6 GB	623,542
Bucket-06	846.4 GB	648,619
Bucket-07	730.8 GB	808,655
Bucket-04	700.8 GB	420,493
Bucket-11	663.5 GB	993,729
Bucket-03	656.9 GB	379,329
9 other buckets	2.3 TB	5,171,588

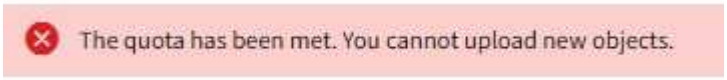
  If the tenant has more than nine buckets or containers, all other buckets or containers are combined into a single entry at the bottom of the list.

Quota usage alerts

If quota usage alerts have been enabled in the Grid Manager, they will appear in the Tenant Manager when the quota is low or exceeded, as follows:

If 90% or more of a tenant's quota has been used, the **Tenant quota usage high** alert is triggered. For more information, see the alerts reference in the instructions for monitoring and troubleshooting StorageGRID.

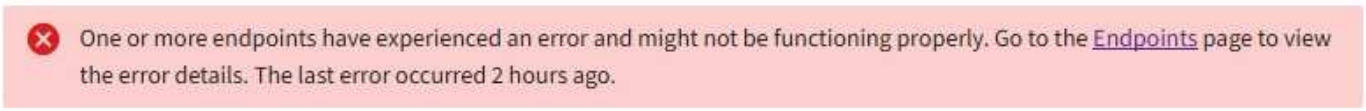
If you exceed your quota, you cannot upload new objects.



To view additional details and manage rules and notifications for alerts, see the instructions for monitoring and troubleshooting StorageGRID.

Endpoint errors

If you have used the Grid Manager to configure one or more endpoints for use with platform services, the Tenant Manager Dashboard displays an alert if any endpoint errors have occurred within the past seven days.



To see details about an endpoint error, select Endpoints to display the Endpoints page.

Related information

Troubleshooting platform services endpoint errors

Monitor & troubleshoot

Understanding the Tenant Management API

You can perform system management tasks using the Tenant Management REST API instead of the Tenant Manager user interface. For example, you might want to use the API to automate operations or to create multiple entities, such as users, more quickly.

The Tenant Management API uses the Swagger open source API platform. Swagger provides an intuitive user interface that allows developers and non-developers to interact with the API. The Swagger user interface provides complete details and documentation for each API operation.

To access the Swagger documentation for the Tenant Management API:

Steps

1. Sign in to the Tenant Manager.
2. Select **Help** > **API Documentation** from the Tenant Manager header.

API operations

The Tenant Management API organizes the available API operations into the following sections:

- **account** — Operations on the current tenant account, including getting storage usage information.
- **auth** — Operations to perform user session authentication.

  The Tenant Management API supports the Bearer Token Authentication Scheme. For a tenant login, you provide a username, password, and accountId in the JSON body of the authentication request (that is, `POST /api/v3/authorize`). If the user is successfully authenticated, a security token is returned. This token must be provided in the header of subsequent API requests ("Authorization: Bearer token").

  See “Protecting against Cross-Site Request Forgery” for information on improving authentication security.

  > If single sign-on (SSO) is enabled for the StorageGRID system, you must perform different steps to authenticate. See “Authenticating in to the API if single sign-on is enabled” in the instructions for administering StorageGRID.

- **config** — Operations related to the product release and versions of the Tenant Management API. You can list the product release version and the major versions of the API supported by that release.
- **containers** — Operations on S3 buckets or Swift containers, as follows:

Protocol	Permission allows
S3	• Creating compliant and non-compliant buckets • Modifying legacy compliance settings • Setting the consistency control for operations performed on objects • Creating, updating, and deleting a bucket’s CORS configuration • Enabling and disabling last access time updates for objects • Managing the configuration settings for platform services, including CloudMirror replication, notifications, and search integration (metadata-notification) • Deleting empty buckets
Swift	Setting the consistency level used for containers

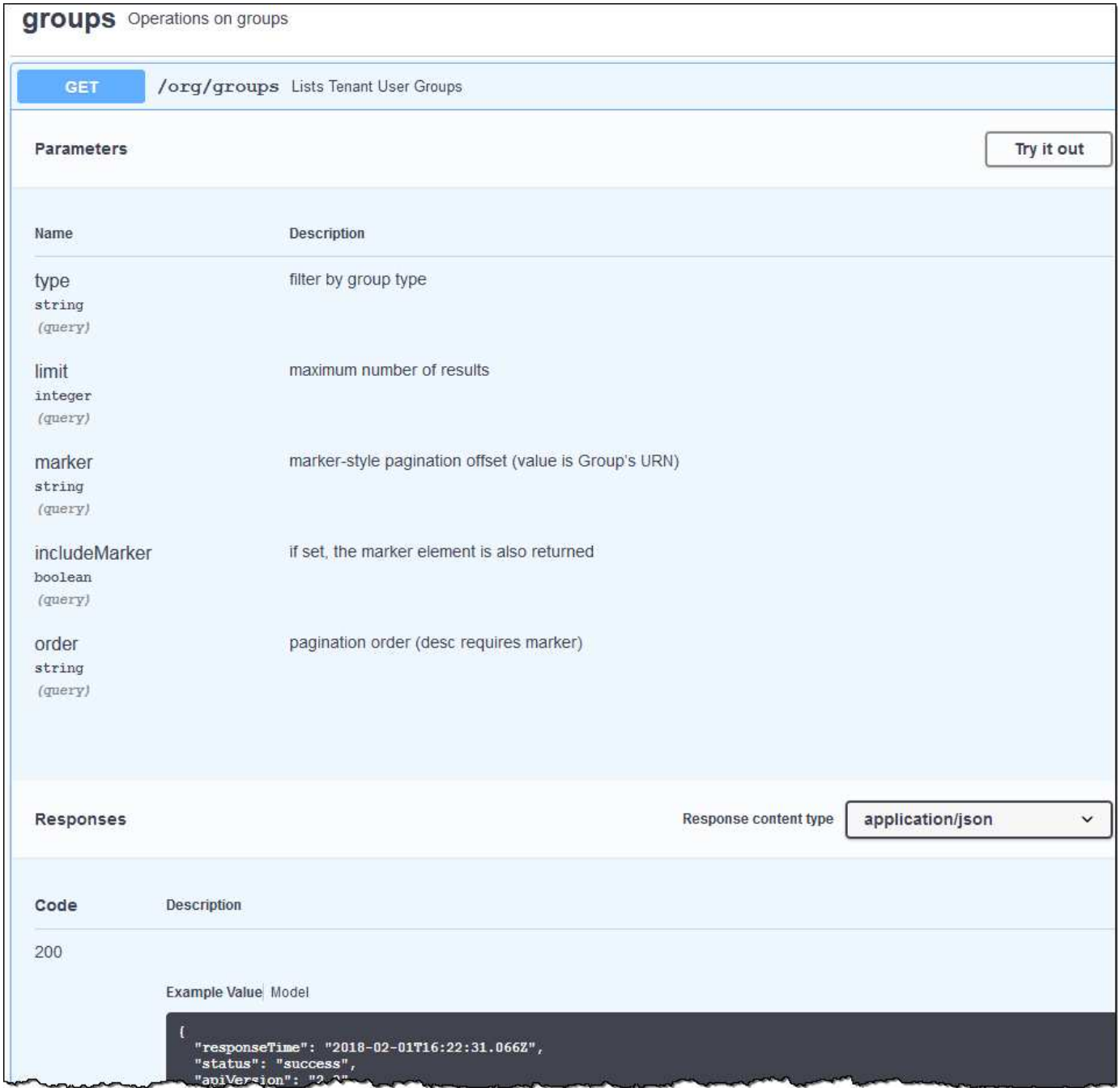
- **deactivated-features** — Operations to view features that might have been deactivated.
- **endpoints** — Operations to manage an endpoint. Endpoints allow an S3 bucket to use an external service for StorageGRID CloudMirror replication, notifications, or search integration.
- **groups** — Operations to manage local tenant groups and to retrieve federated tenant groups from an external identity source.
- **identity-source** — Operations to configure an external identity source and to manually synchronize federated group and user information.
- **regions** — Operations to determine which regions have been configured for the StorageGRID system.
- **s3** — Operations to manage S3 access keys for tenant users.
- **s3-object-lock** — Operations to determine how global S3 Object Lock (compliance) is configured for the

StorageGRID system.

- **users** — Operations to view and manage tenant users.

Operation details

When you expand each API operation, you can see its HTTP action, endpoint URL, a list of any required or optional parameters, an example of the request body (when required), and the possible responses.



Issuing API requests

Any API operations you perform using the API Docs webpage are live operations. Be careful not to create, update, or delete configuration data or other data by mistake.

Steps

1. Click the HTTP action to see the request details.
2. Determine if the request requires additional parameters, such as a group or user ID. Then, obtain these values. You might need to issue a different API request first to get the information you need.
3. Determine if you need to modify the example request body. If so, you can click **Model** to learn the requirements for each field.
4. Click **Try it out**.
5. Provide any required parameters, or modify the request body as required.
6. Click **Execute**.
7. Review the response code to determine if the request was successful.

Related information

Protecting against Cross-Site Request Forgery (CSRF)

Administer StorageGRID

Tenant Management API versioning

The Tenant Management API uses versioning to support non-disruptive upgrades.

For example, this Request URL specifies version 3 of the API.

```
https://hostname_or_ip_address/api/v3/authorize
```

The major version of the Tenant Management API is bumped when changes are made that are ***not compatible*** with older versions. The minor version of the Tenant Management API is bumped when changes are made that ***are compatible*** with older versions. Compatible changes include the addition of new endpoints or new properties. The following example illustrates how the API version is bumped based on the type of changes made.

Type of change to API	Old version	New version
Compatible with older versions	2.1	2.2
Not compatible with older versions	2.1	3.0

When StorageGRID software is installed for the first time, only the most recent version of the Tenant Management API is enabled. However, when StorageGRID is upgraded to a new feature release, you continue to have access to the older API version for at least one StorageGRID feature release.

Outdated requests are marked as deprecated in the following ways:

- The response header is "Deprecated: true"
- The JSON response body includes "deprecated": true

Determining which API versions are supported in the current release

Use the following API request to return a list of the supported API major versions:

```
GET https://{{IP-Address}}/api/versions
{
  "responseTime": "2019-01-10T20:41:00.845Z",
  "status": "success",
  "apiVersion": "3.0",
  "data": [
    2,
    3
  ]
}
```

Specifying an API version for a request

You can specify the API version using a path parameter (`/api/v3`) or a header (`Api-Version: 3`). If you provide both values, the header value overrides the path value.

```
curl https://[IP-Address]/api/v3/grid/accounts

curl -H "Api-Version: 3" https://[IP-Address]/api/grid/accounts
```

Protecting against Cross-Site Request Forgery (CSRF)

You can help protect against Cross-Site Request Forgery (CSRF) attacks against StorageGRID by using CSRF tokens to enhance authentication that uses cookies. The Grid Manager and Tenant Manager automatically enable this security feature; other API clients can choose whether to enable it when they sign in.

An attacker that can trigger a request to a different site (such as with an HTTP form POST) can cause certain requests to be made using the signed-in user's cookies.

StorageGRID helps protect against CSRF attacks by using CSRF tokens. When enabled, the contents of a specific cookie must match the contents of either a specific header or a specific POST body parameter.

To enable the feature, set the `csrfToken` parameter to `true` during authentication. The default is `false`.

```
curl -X POST --header "Content-Type: application/json" --header "Accept:
application/json" -d "{
  \"username\": \"MyUserName\",
  \"password\": \"MyPassword\",
  \"cookie\": true,
  \"csrfToken\": true
}" "https://example.com/api/v3/authorize"
```

When true, a `GridCsrfToken` cookie is set with a random value for sign-ins to the Grid Manager, and the `AccountCsrfToken` cookie is set with a random value for sign-ins to the Tenant Manager.

If the cookie is present, all requests that can modify the state of the system (POST, PUT, PATCH, DELETE) must include one of the following:

- The `X-Csrf-Token` header, with the value of the header set to the value of the CSRF token cookie.
- For endpoints that accept a form-encoded body: A `csrfToken` form-encoded request body parameter.

See the online API documentation for additional examples and details.

> Requests that have a CSRF token cookie set will also enforce the `"Content-Type: application/json"` header for any request that expects a JSON request body as an additional protection against CSRF attacks.

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