Configure platform services endpoints

StorageGRID

NetApp
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Table of Contents

Configure platform services endpoints

Before you can configure a platform service for a bucket, you must configure at least one endpoint to be the destination for the platform service.

Access to platform services is enabled on a per-tenant basis by a StorageGRID administrator. To create or use a platform services endpoint, you must be a tenant user with Manage Endpoints or Root Access permission, in a grid whose networking has been configured to allow Storage Nodes to access external endpoint resources. Contact your StorageGRID administrator for more information.

What is a platform services endpoint?

When you create a platform services endpoint, you specify the information that StorageGRID needs to access the external destination.

For example, if you want to replicate objects from a StorageGRID bucket to an AWS S3 bucket, you create a platform services endpoint that includes the information and credentials StorageGRID needs to access the destination bucket on AWS.

Each type of platform service requires its own endpoint, so you must configure at least one endpoint for each platform service you plan to use. After defining a platform services endpoint, you use the endpoint's URN as the destination in the configuration XML used to enable the service.

You can use the same endpoint as the destination for more than one source bucket. For example, you could configure several source buckets to send object metadata to the same search integration endpoint so that you can perform searches across multiple buckets. You can also configure a source bucket to use more than one endpoint as a target, which enables you to do things like send notifications about object creation to one SNS topic and notifications about object deletion to a second SNS topic.

Endpoints for CloudMirror replication

StorageGRID supports replication endpoints that represent S3 buckets. These buckets might be hosted on Amazon Web Services, the same or a remote StorageGRID deployment, or another service.

Endpoints for notifications

StorageGRID supports Simple Notification Service (SNS) endpoints. Simple Queue Service (SQS) or AWS Lambda endpoints are not supported.

Endpoints for the search integration service

StorageGRID supports search integration endpoints that represent Elasticsearch clusters. These Elasticsearch clusters can be in a local datacenter or hosted in an AWS cloud or elsewhere.

The search integration endpoint refers to a specific Elasticsearch index and type. You must create the index in Elasticsearch before creating the endpoint in StorageGRID, or endpoint creation will fail. You do not need to create the type before creating the endpoint. StorageGRID will create the type if required when it sends object metadata to the endpoint.

Related information

Administer StorageGRID

Specify URN for platform services endpoint

When you create a platform services endpoint, you must specify a Unique Resource Name (URN). You will use the URN to reference the endpoint when you create configuration XML for the platform service. The URN for each endpoint must be unique.

StorageGRID validates platform services endpoints as you create them. Before you create a platform services endpoint, confirm that the resource specified in the endpoint exists and that it can be reached.

URN elements

The URN for a platform services endpoint must start with either `arn:aws` or `urn:mysite`, as follows:

- If the service is hosted on Amazon Web Services (AWS), use `arn:aws`.
- If the service is hosted on Google Cloud Platform (GCP), use `arn:aws`.
- If the service is hosted locally, use `urn:mysite`

For example, if you are specifying the URN for a CloudMirror endpoint hosted on StorageGRID, the URN might begin with `urn:sgws`.

The next element of the URN specifies the type of platform service, as follows:

Service	Type
CloudMirror replication	`s3`
Notifications	`sns`
Search integration	`es`

For example, to continue specifying the URN for a CloudMirror endpoint hosted on StorageGRID, you would add `s3` to get `urn:sgws:s3`.

The final element of the URN identifies the specific target resource at the destination URI.

Service	Specific resource
CloudMirror replication	`bucket-name`
Notifications	`sns-topic-name`
Search integration	`domain-name/index-name/type-name` **Note:** If the Elasticsearch cluster is **not** configured to create indexes automatically, you must create the index manually before you create the endpoint.

URNs for services hosted on AWS and GCP

For AWS and GCP entities, the complete URN is a valid AWS ARN. For example:

- CloudMirror replication:

```
arn:aws:s3:::bucket-name
```

- Notifications:

```
arn:aws:sns:region:account-id:topic-name
```

- Search integration:

```
arn:aws:es:region:account-id:domain/domain-name/index-name/type-name
```

> For an AWS search integration endpoint, the `domain-name` must include the literal string `domain/`, as shown here.

URNs for locally-hosted services

When using locally-hosted services instead of cloud services, you can specify the URN in any way that creates a valid and unique URN, as long as the URN includes the required elements in the third and final positions. You can leave the elements indicated by optional blank, or you can specify them in any way that helps you identify the resource and make the URN unique. For example:

- CloudMirror replication:

```
urn:mysite:s3:optional:optional:bucket-name
```

  For a CloudMirror endpoint hosted on StorageGRID, you can specify a valid URN that begins with `urn:sgws`:

```
urn:sgws:s3:optional:optional:bucket-name
```

- Notifications:

```
urn:mysite:sns:optional:optional:sns-topic-name
```

- Search integration:

```
urn:mysite:es:optional:optional:domain-name/index-name/type-name
```

For locally-hosted search integration endpoints, the `domain-name` element can be any string as long as the URN of the endpoint is unique.

Create platform services endpoint

You must create at least one endpoint of the correct type before you can enable a platform service.

What you'll need

- You must be signed in to the Tenant Manager using a supported web browser.
- Platform services must be enabled for your tenant account by a StorageGRID administrator.
- You must belong to a user group that has the Manage Endpoints permission.
- The resource referenced by the platform services endpoint must have been created:
  - CloudMirror replication: S3 bucket
  - Event notification: SNS topic
  - Search notification: Elasticsearch index, if the destination cluster is not configured to automatically create indexes.
- You must have the information about the destination resource:
  - Host and port for the Uniform Resource Identifier (URI)

    If you plan to use a bucket hosted on a StorageGRID system as an endpoint for CloudMirror replication, contact the grid administrator to determine the values you need to enter.

  - Unique Resource Name (URN)

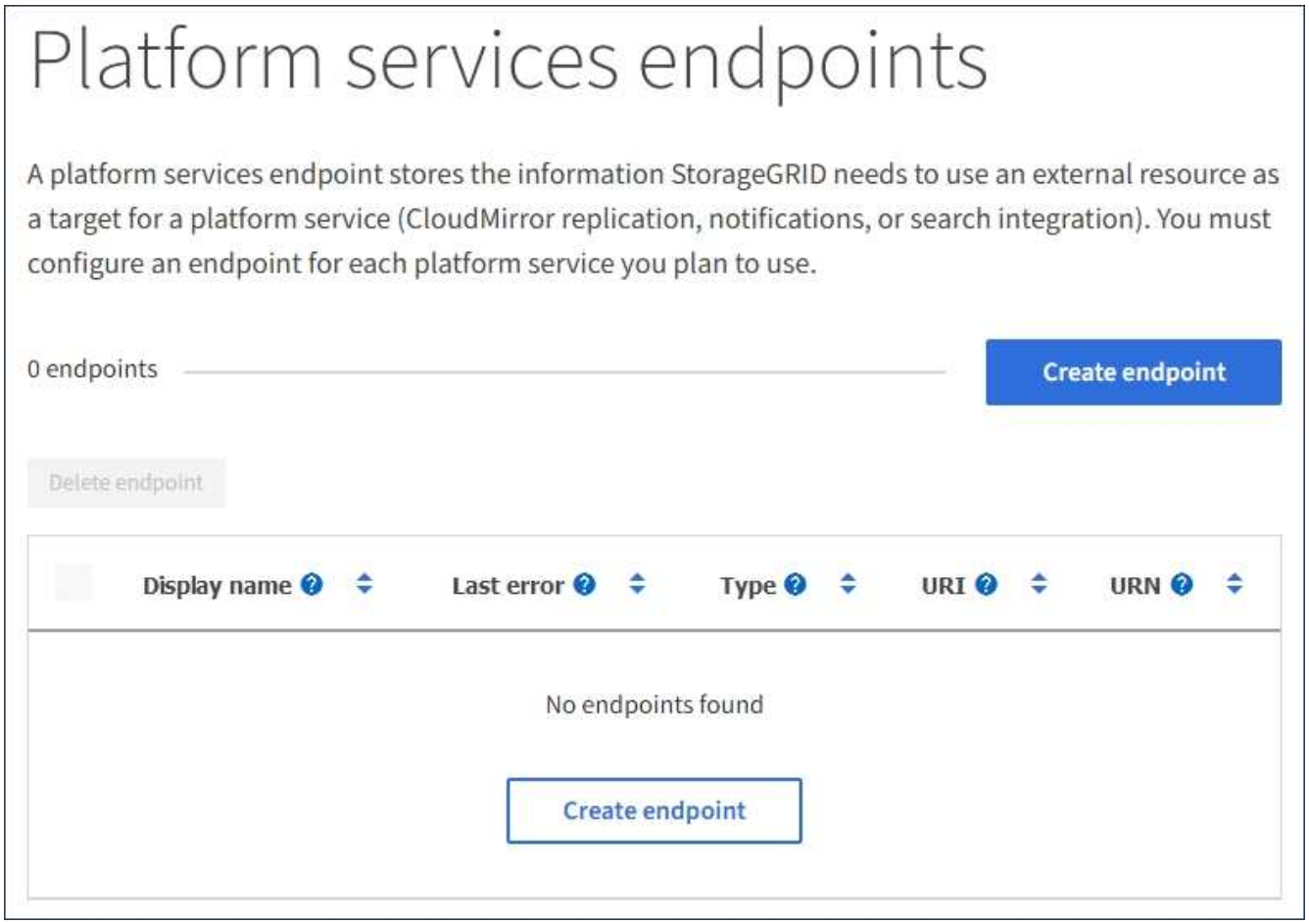
    Specify URN for platform services endpoint

  - Authentication credentials (if required):
    - Access Key: Access key ID and secret access key
    - Basic HTTP: Username and password
    - CAP (C2S Access Portal): Temporary credentials URL, server and client certificates, client keys, and an optional client private key passphrase.
  - Security certificate (if using a custom CA certificate)

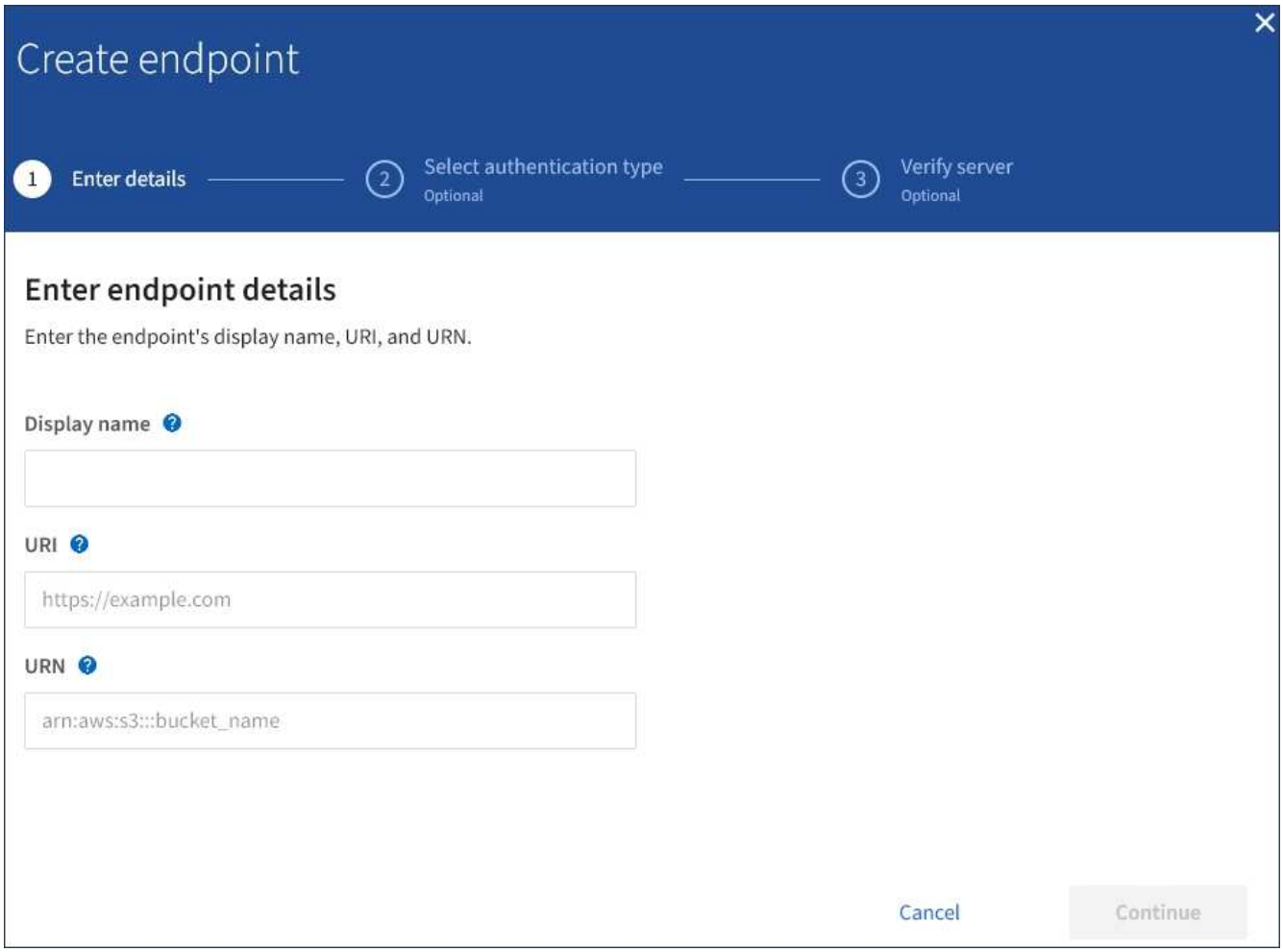
Steps

1. Select **STORAGE (S3)** > **Platform services endpoints**.

   The Platform services endpoints page appears.



2. Select **Create endpoint**.



3. Enter a display name to briefly describe the endpoint and its purpose.

   The type of platform service that the endpoint supports is shown beside the endpoint name when it is listed on the Endpoints page, so you do not need to include that information in the name.

4. In the **URI** field, specify the Unique Resource Identifier (URI) of the endpoint.

   Use one of the following formats:

   ```
   https://host:port
   http://host:port
   ```

   If you do not specify a port, port 443 is used for HTTPS URIs and port 80 is used for HTTP URIs.

   For example, the URI for a bucket hosted on StorageGRID might be:

   ```
   https://s3.example.com:10443
   ```

   In this example, `s3.example.com` represents the DNS entry for the virtual IP (VIP) of the StorageGRID high availability (HA) group, and `10443` represents the port defined in the load balancer endpoint.

Whenever possible, you should connect to a HA group of load-balancing nodes to avoid a single point of failure.

Similarly, the URI for a bucket hosted on AWS might be:

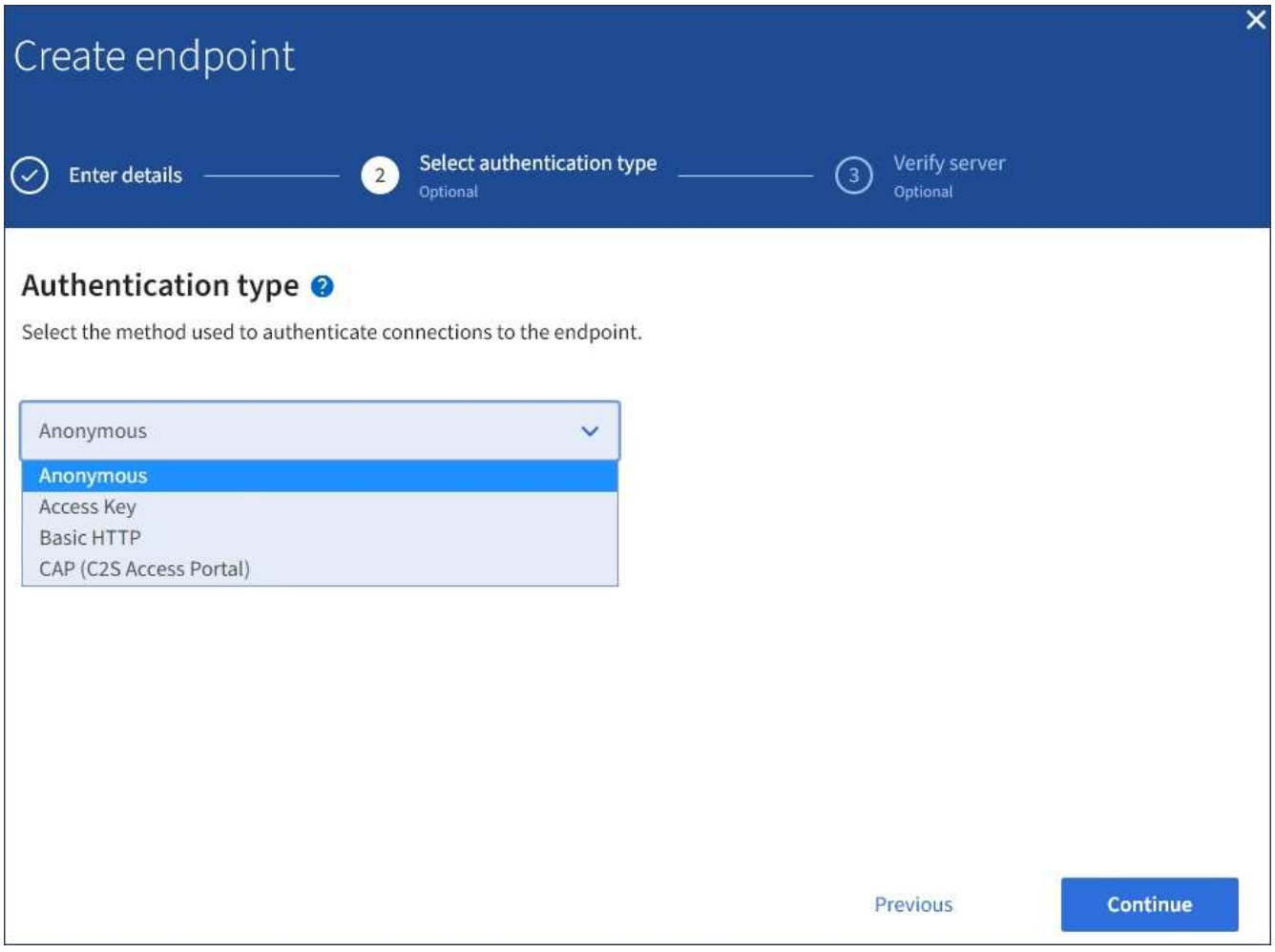
```
https://s3-aws-region.amazonaws.com
```

If the endpoint is used for the CloudMirror replication service, do not include the bucket name in the URI. You include the bucket name in the **URN** field.

5. Enter the Unique Resource Name (URN) for the endpoint.

   You cannot change an endpoint's URN after the endpoint has been created.

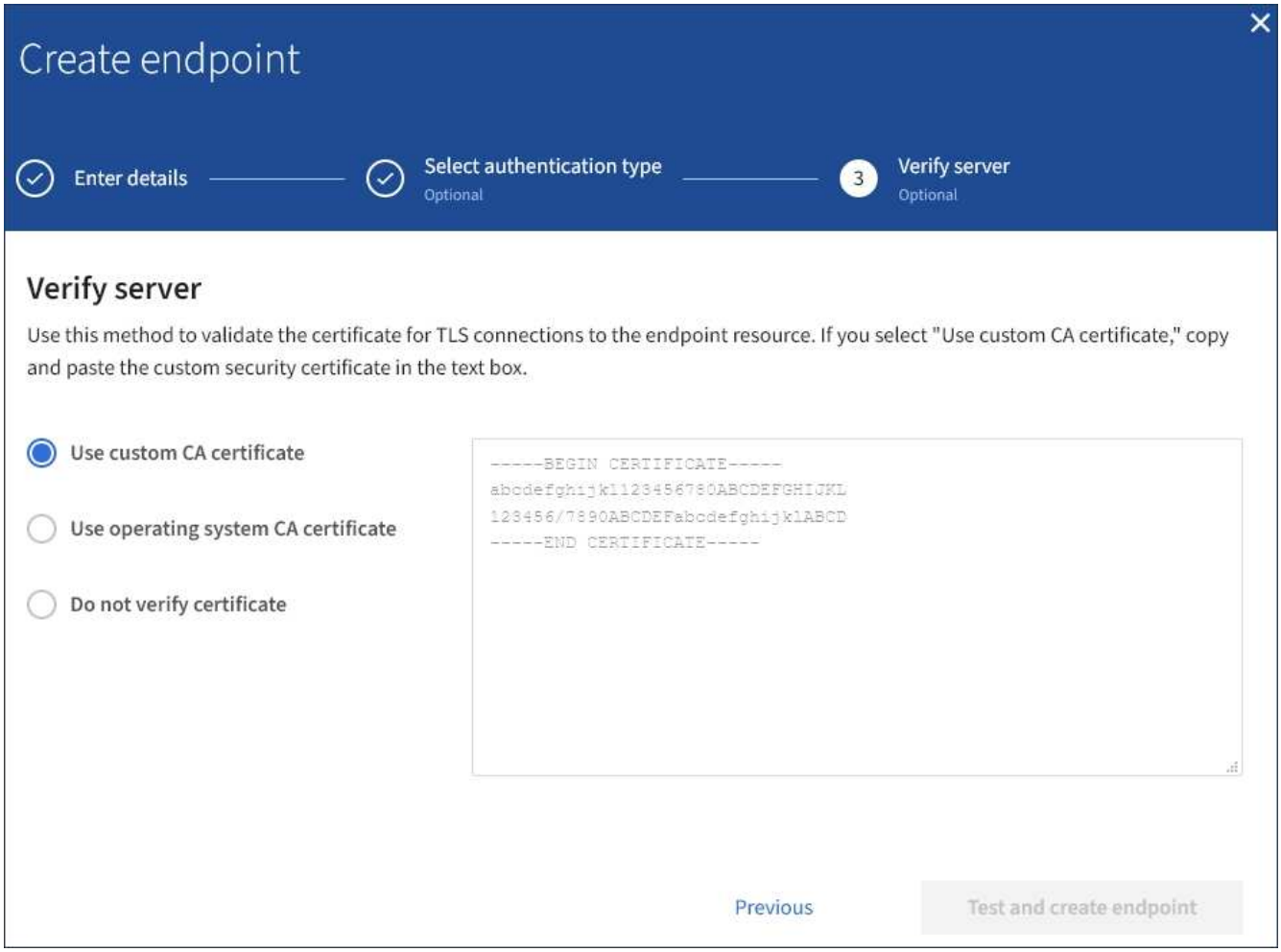
6. Select **Continue**.
7. Select a value for **Authentication type**, and then enter or upload the required credentials.



The credentials that you supply must have write permissions for the destination resource.

Authentication type	Description	Credentials
Anonymous	Provides anonymous access to the destination. Only works for endpoints that have security disabled.	No authentication.
Access Key	Uses AWS-style credentials to authenticate connections with the destination.	• Access key ID • Secret access key
Basic HTTP	Uses a username and password to authenticate connections to the destination.	• Username • Password
CAP (C2S Access Portal)	Uses certificates and keys to authenticate connections to the destination.	• Temporary credentials URL • Server CA certificate (PEM file upload) • Client certificate (PEM file upload) • Client private key (PEM file upload, OpenSSL encrypted format or unencrypted private key format) • Client private key passphrase (optional)

8. Select **Continue**.
9. Select a radio button for **Verify server** to choose how TLS connection to the endpoint is verified.



Type of certificate verification	Description
Use custom CA certificate	Use a custom security certificate. If you select this setting, copy and paste the custom security certificate in the **CA Certificate** text box.
Use operating system CA certificate	Use the default Grid CA certificate installed on the operating system to secure connections.
Do not verify certificate	The certificate used for the TLS connection is not verified. This option is not secure.

10. Select **Test and create endpoint**.
    - A success message appears if the endpoint can be reached using the specified credentials. The connection to the endpoint is validated from one node at each site.
    - An error message appears if endpoint validation fails. If you need to modify the endpoint to correct the error, select **Return to endpoint details** and update the information. Then, select **Test and create endpoint**.

> Endpoint creation fails if platform services are not enabled for your tenant account. Contact your StorageGRID administrator.

After you have configured an endpoint, you can use its URN to configure a platform service.

Related information

Specify URN for platform services endpoint

Configure CloudMirror replication

Configure event notifications

Configure search integration service

Test connection for platform services endpoint

If the connection to a platform service has changed, you can test the connection for the endpoint to validate that the destination resource exists and that it can be reached using the credentials you specified.

What you'll need

- You must be signed in to the Tenant Manager using a supported web browser.
- You must belong to a user group that has the Manage Endpoints permission.

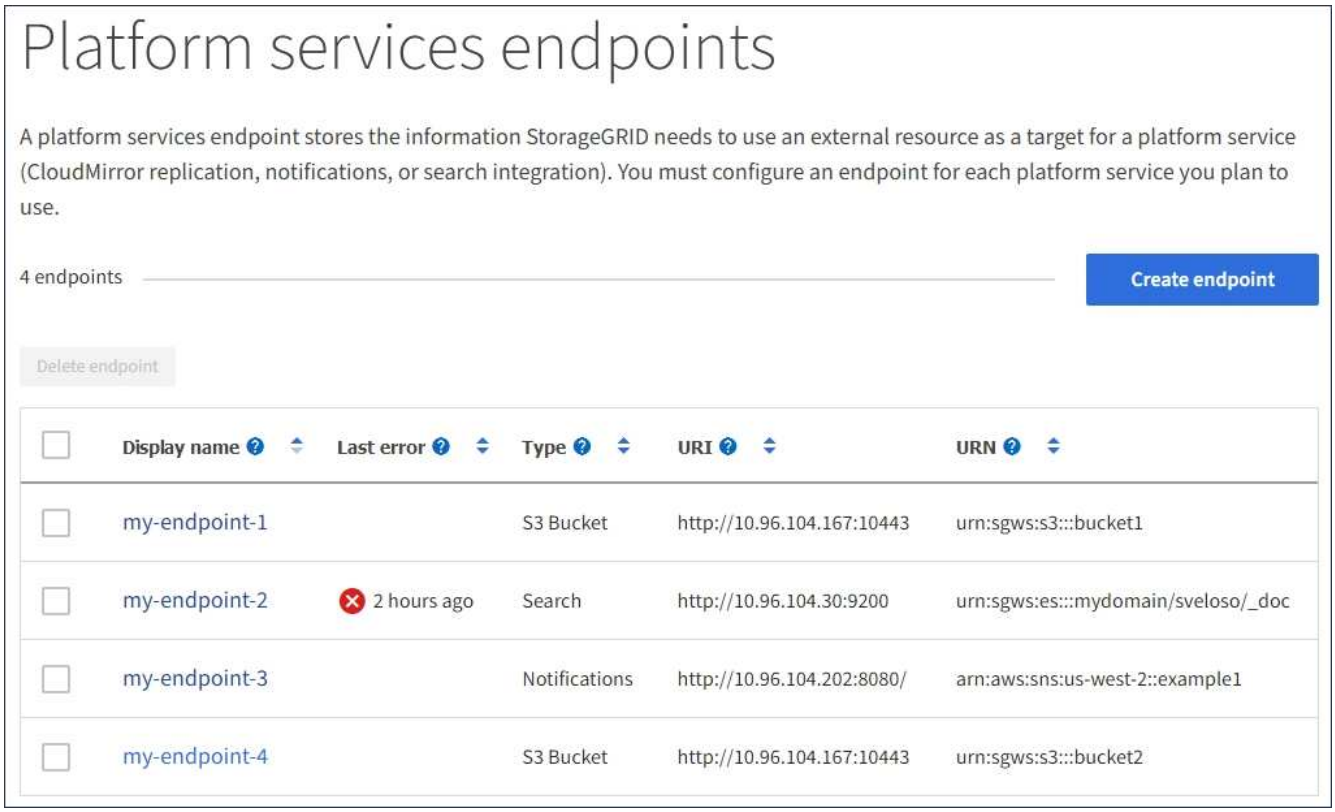
About this task

StorageGRID does not validate that the credentials have the correct permissions.

Steps

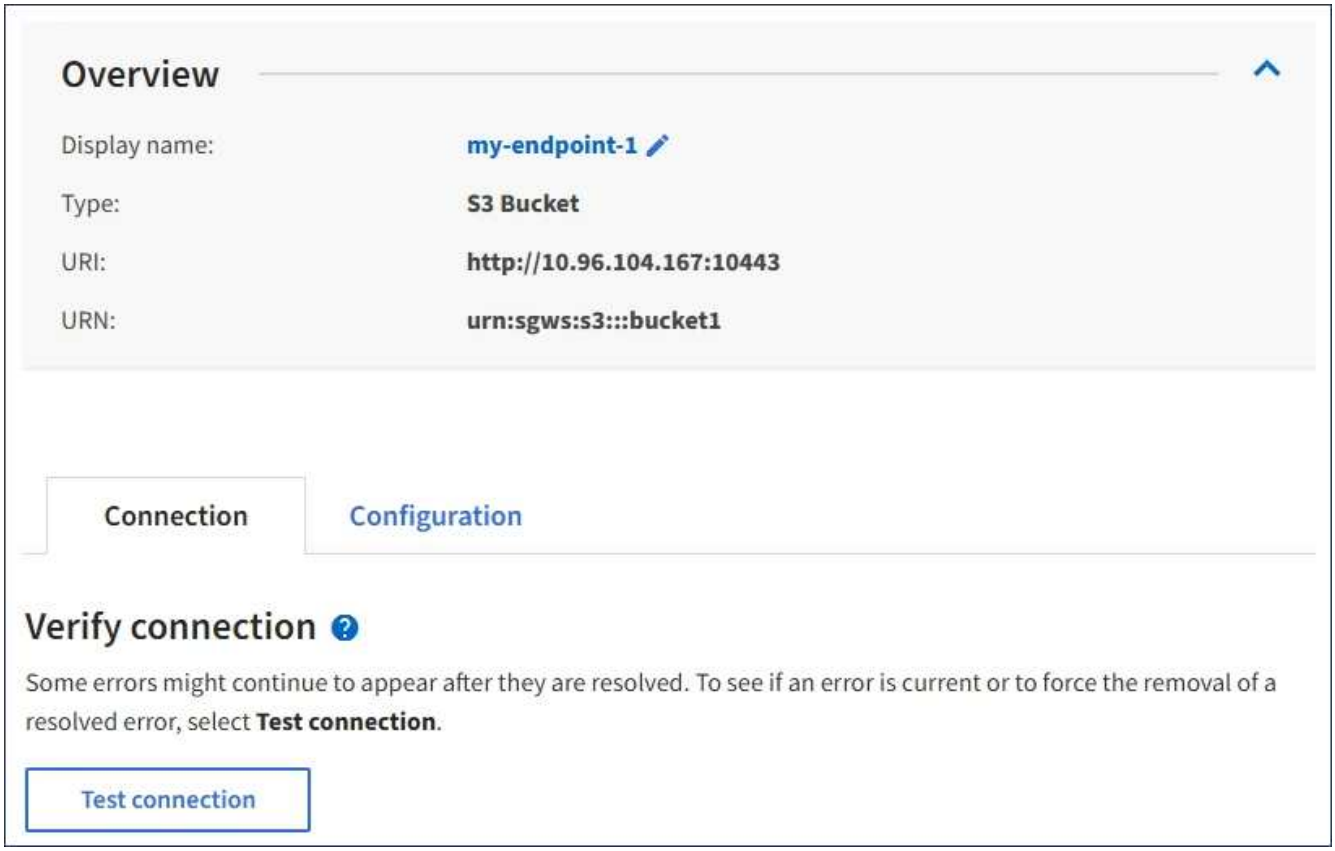
1. Select **STORAGE (S3)** > **Platform services endpoints**.

   The Platform services endpoints page appears and shows the list of platform services endpoints that have already been configured.



2. Select the endpoint whose connection you want to test.

   The endpoint details page appears.



3. Select **Test connection**.

- A success message appears if the endpoint can be reached using the specified credentials. The connection to the endpoint is validated from one node at each site.
- An error message appears if endpoint validation fails. If you need to modify the endpoint to correct the error, select **Configuration** and update the information. Then, select **Test and save changes**.

Edit platform services endpoint

You can edit the configuration for a platform services endpoint to change its name, URI, or other details. For example, you might need to update expired credentials or change the URI to point to a backup Elasticsearch index for failover. You cannot change the URN for a platform services endpoint.

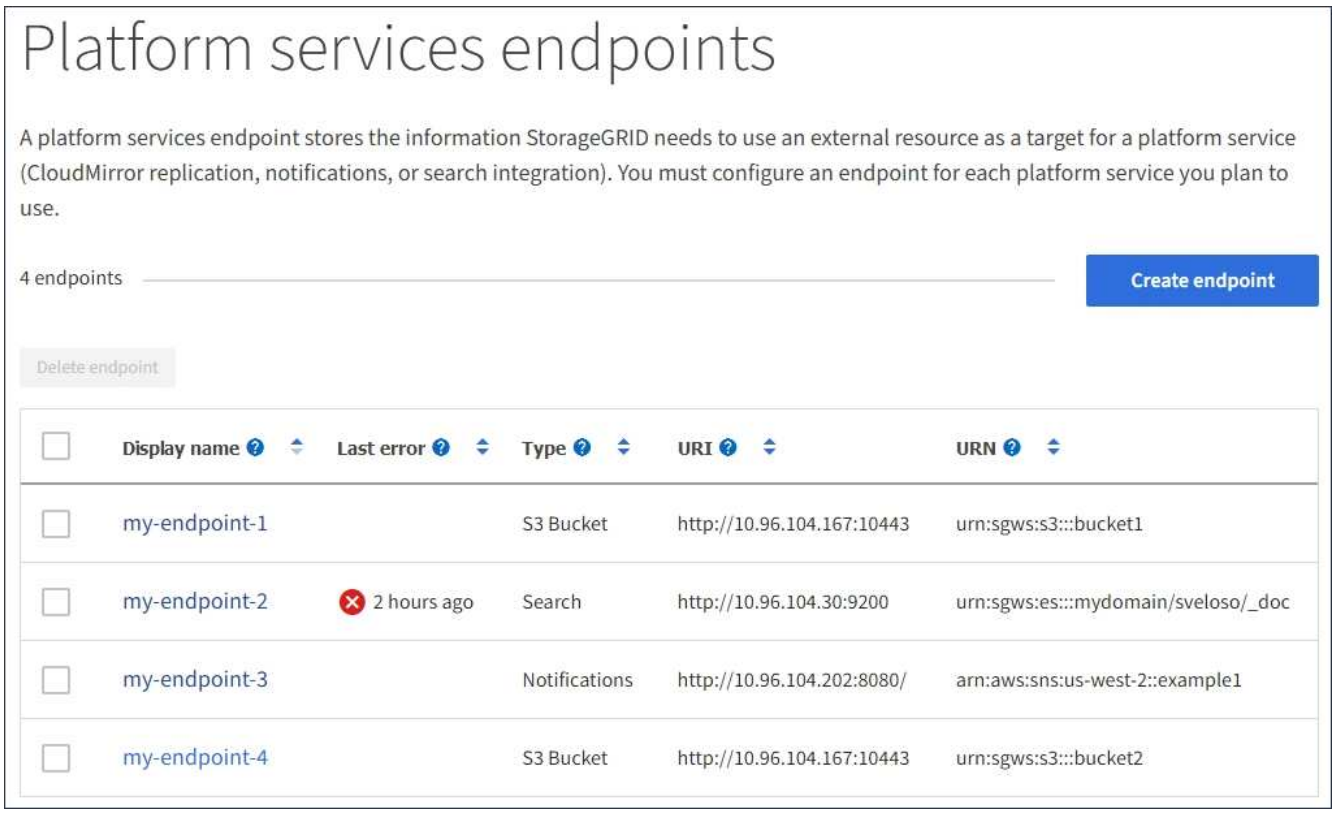
What you'll need

- You must be signed in to the Tenant Manager using a supported web browser.
- You must belong to a user group that has the Manage Endpoints permission. See Tenant management permissions.

Steps

1. Select **STORAGE (S3)** > **Platform services endpoints**.

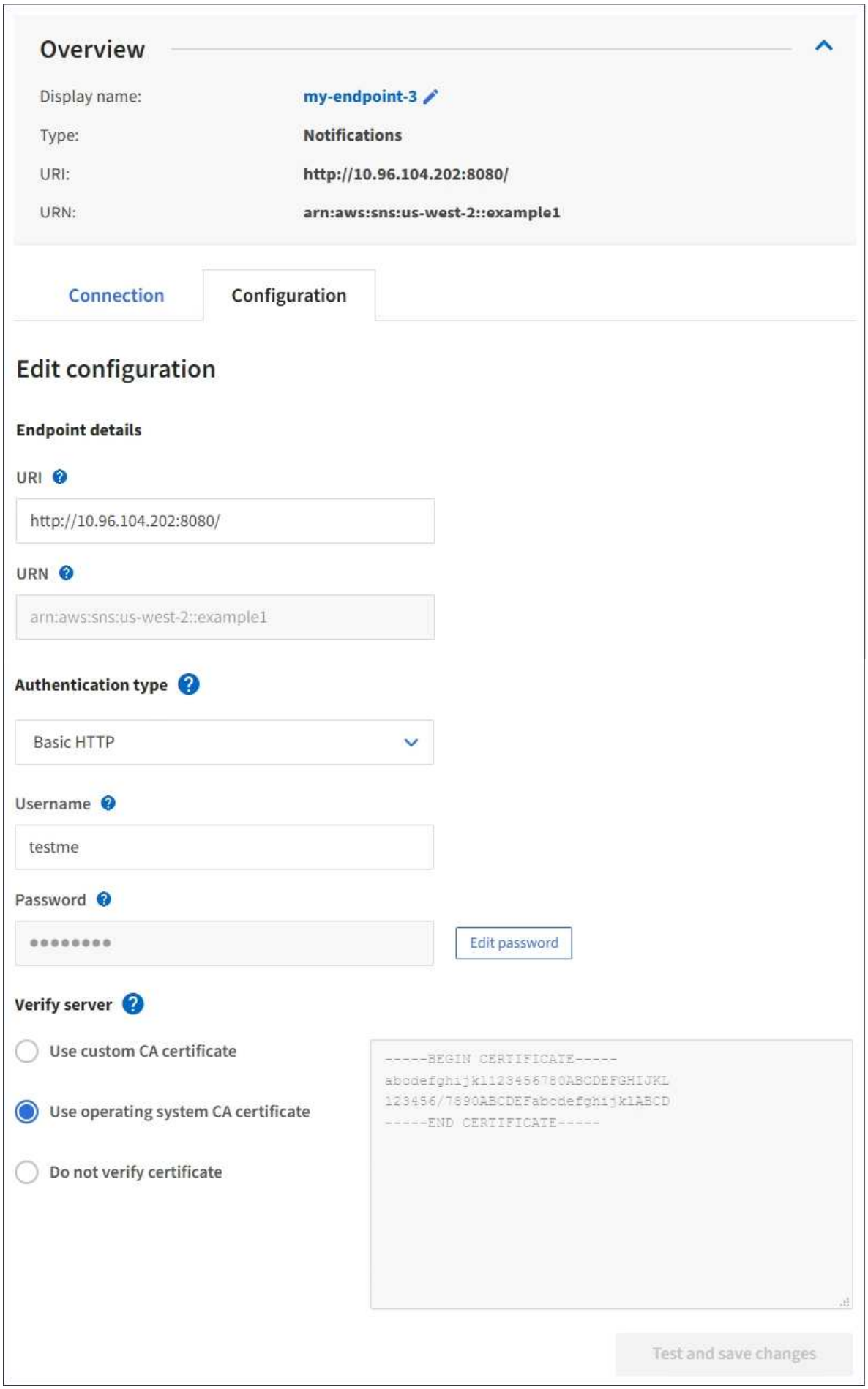
   The Platform services endpoints page appears and shows the list of platform services endpoints that have already been configured.



2. Select the endpoint you want to edit.

   The endpoint details page appears.

3. Select **Configuration**.


Overview
Display name:
my-endpoint-3
Type:
Notifications
URI:
http://10.96.104.202:8080/
URN:
arn:aws:sns:us-west-2::example1
Connection
Configuration
Edit configuration
Endpoint details
URI
http://10.96.104.202:8080/
URN
arn:aws:sns:us-west-2::example1
Authentication type
Basic HTTP
Username
testme
Password
Edit password
Verify server
Use custom CA certificate
Use operating system CA certificate
Do not verify certificate
-----BEGIN CERTIFICATE-----
abcdefghijkl123456780ABCDEFGHIJKL
123456/7890ABCDEFabcdefghijklABCD
-----END CERTIFICATE-----
Test and save changes

4. As needed, change the configuration of the endpoint.

   > You cannot change an endpoint's URN after the endpoint has been created.

   a. To change the display name for the endpoint, select the edit icon .
   b. As needed, change the URI.
   c. As needed, change the authentication type.
      - For Access Key authentication, change the key as necessary by selecting **Edit S3 key** and pasting a new access key ID and secret access key. If you need to cancel your changes, select **Revert S3 key edit**.
      - For Basic HTTP authentication, change the username as needed. Change the password as needed by selecting **Edit password** and entering the new password. If you need to cancel your changes, select **Revert password edit**.
      - For CAP (C2S Access Portal) authentication, change the temporary credentials URL or optional client private key passphrase and upload new certificate and key files as needed.

        > The Client private key must be in OpenSSL encrypted format or unencrypted private key format.

   d. As needed, change the method for verifying the server.
5. Select **Test and save changes**.
   - A success message appears if the endpoint can be reached using the specified credentials. The connection to the endpoint is verified from one node at each site.
   - An error message appears if endpoint validation fails. Modify the endpoint to correct the error, and then select **Test and save changes**.

Delete platform services endpoint

You can delete an endpoint if you no longer want to use the associated platform service.

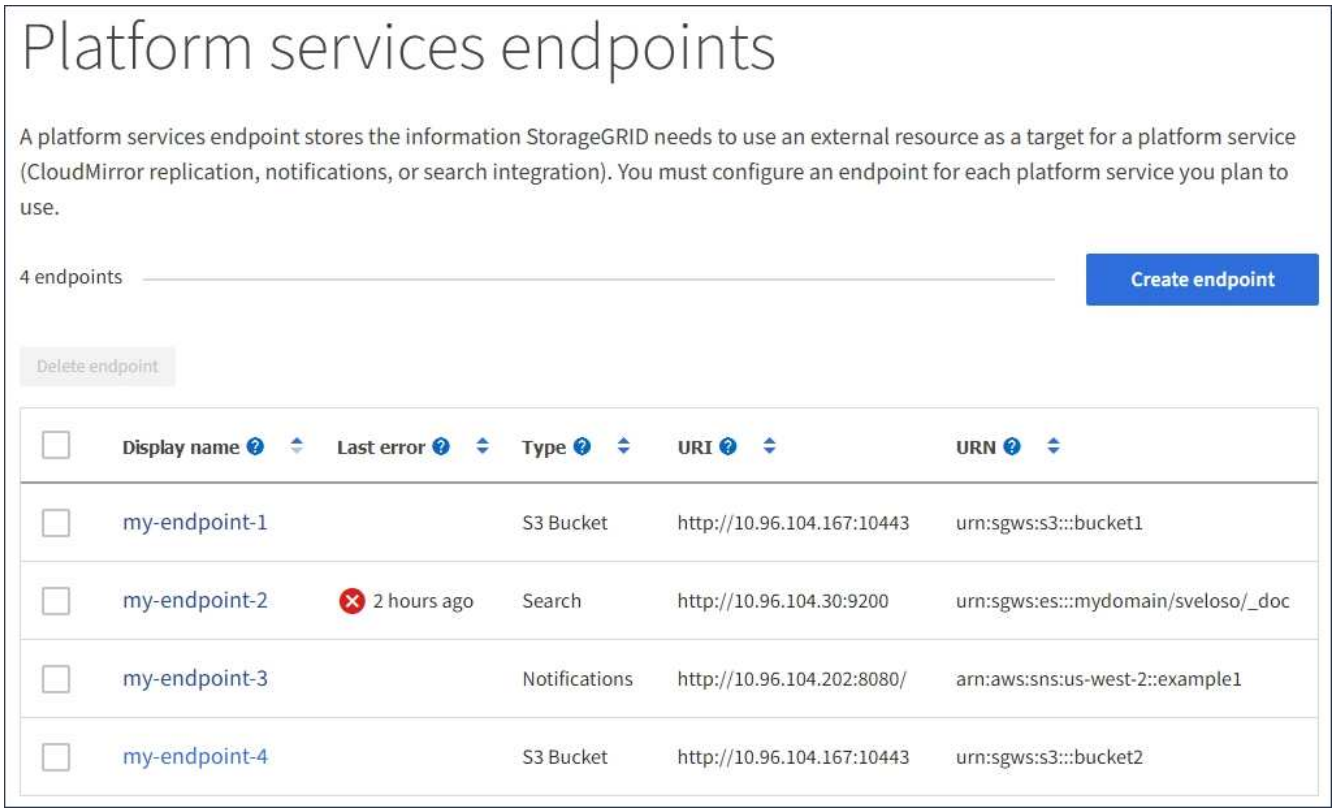
What you'll need

- You must be signed in to the Tenant Manager using a supported web browser.
- You must belong to a user group that has the **Manage Endpoints** permission. See Tenant management permissions.

Steps

1. Select **STORAGE (S3)** > **Platform services endpoints**.

   The Platform services endpoints page appears and shows the list of platform services endpoints that have already been configured.

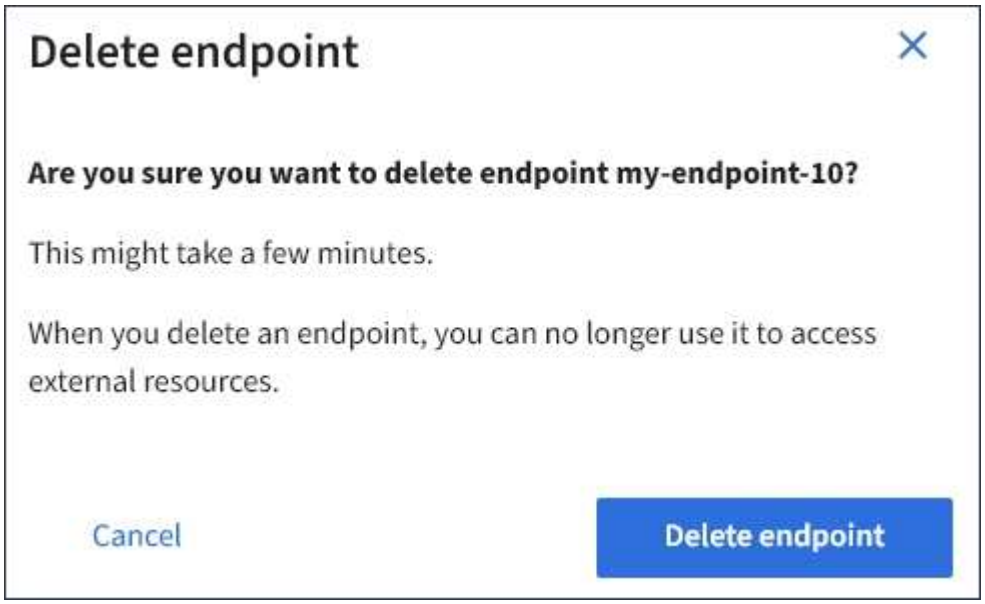


2. Select the check box for each endpoint you want to delete.

> If you delete a platform services endpoint that is in use, the associated platform service will be disabled for any buckets that use the endpoint. Any requests that have not yet been completed will be dropped. Any new requests will continue to be generated until you change your bucket configuration to no longer reference the deleted URN. StorageGRID will report these requests as unrecoverable errors.

3. Select **Actions** > **Delete endpoint**.

   A confirmation message appears.



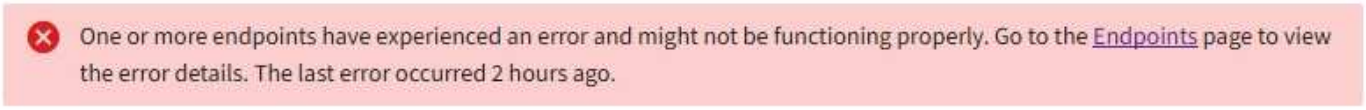
4. Select **Delete endpoint**.

Troubleshoot platform services endpoint errors

If an error occurs when StorageGRID attempts to communicate with a platform services endpoint, a message is displayed on the Dashboard. On the Platform services endpoints page, the Last error column indicates how long ago the error occurred. No error is displayed if the permissions associated with an endpoint's credentials are incorrect.

Determine if error has occurred

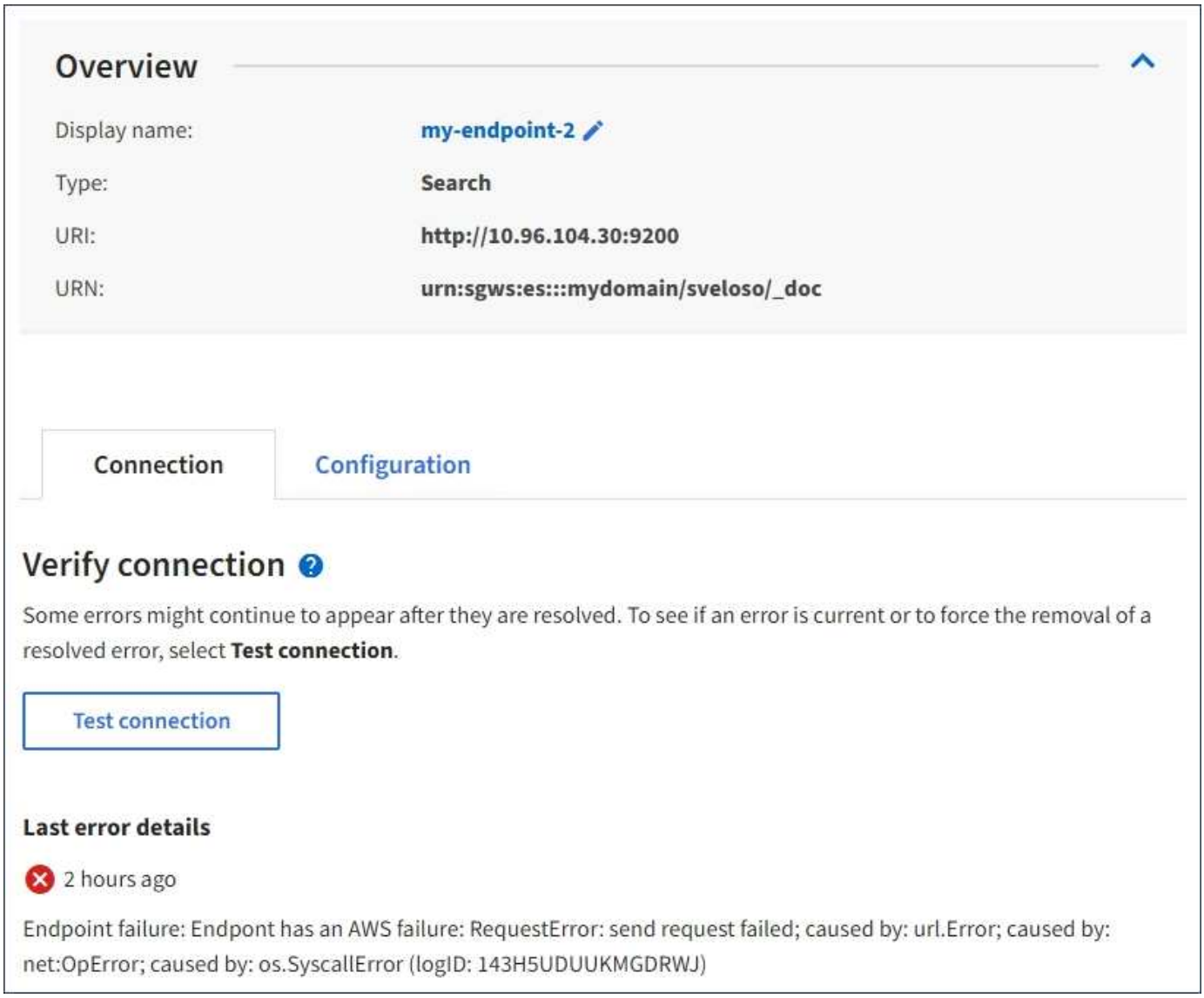
If any platform services endpoint errors have occurred within the past 7 days, the Tenant Manager Dashboard displays an alert message. You can go the Platform services endpoints page to see more details about the error.



The same error that appears on the Dashboard also appears at the top of the Platform services endpoints page. To view a more detailed error message:

Steps

1. From the list of endpoints, select the endpoint that has the error.
2. On the endpoint details page, select **Connection**. This tab displays only the most recent error for an endpoint and indicates how long ago the error occurred. Errors that include the red X icon occurred within the past 7 days.



Check if error is still current

Some errors might continue to be shown in the **Last error** column even after they are resolved. To see if an error is current or to force the removal of a resolved error from the table:

Steps

1. Select the endpoint.

   The endpoint details page appears.

2. Select **Connection** > **Test connection**.

Selecting **Test connection** causes StorageGRID to validate that the platform services endpoint exists and that it can be reached with the current credentials. The connection to the endpoint is validated from one node at each site.

Resolve endpoint errors

You can use the **Last error** message on the endpoint details page to help determine what is causing the error. Some errors might require you to edit the endpoint to resolve the issue. For example, a CloudMirroring error

can occur if StorageGRID is unable to access the destination S3 bucket because it does not have the correct access permissions or the access key has expired. The message is “Either the endpoint credentials or the destination access needs to be updated,” and the details are “AccessDenied” or “InvalidAccessKeyId.”

If you need to edit the endpoint to resolve an error, selecting **Test and save changes** causes StorageGRID to validate the updated endpoint and confirm that it can be reached with the current credentials. The connection to the endpoint is validated from one node at each site.

Steps

1. Select the endpoint.
2. On the endpoint details page, select **Configuration**.
3. Edit the endpoint configuration as needed.
4. Select **Connection** > **Test connection**.

Endpoint credentials with insufficient permissions

When StorageGRID validates a platform services endpoint, it confirms that the endpoint’s credentials can be used to contact the destination resource and it does a basic permissions check. However, StorageGRID does not validate all of the permissions required for certain platform services operations. For this reason, if you receive an error when attempting to use a platform service (such as “403 Forbidden”), check the permissions associated with the endpoint’s credentials.

Additional platform services troubleshooting

For additional information about troubleshooting platform services, see the instructions for administering StorageGRID.

Administer StorageGRID

Related information

Create platform services endpoint

Test connection for platform services endpoint

Edit platform services endpoint