



# **Migrating object-based storage from ONTAP S3 to StorageGRID**

## **StorageGRID solutions and resources**

NetApp  
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# **Migrating object-based storage from ONTAP S3 to StorageGRID**

## **Enabling enterprise-grade S3 by seamlessly migrating object-based storage from ONTAP S3 to StorageGRID**

Enabling enterprise-grade S3 by seamlessly migrating object-based storage from ONTAP S3 to StorageGRID

### **Migration Demo**

This is a demonstration on migrating users and buckets from ONTAP S3 to StorageGRID.

## **Enabling enterprise-grade S3 by seamlessly migrating object-based storage from ONTAP S3 to StorageGRID**

Enabling enterprise-grade S3 by seamlessly migrating object-based storage from ONTAP S3 to StorageGRID

### **Preparing ONTAP**

For demonstration purposes we will create an SVM object store server, user, group, group policy and buckets.

#### **Create the Storage Virtual Machine**

In ONTAP System Manager, navigate to Storage VM's and add a new storage VM.

The screenshot shows the ONTAP System Manager interface. The left sidebar is titled 'DASHBOARD' and includes 'INSIGHTS', 'STORAGE' (with sub-options: Overview, Volumes, LUNs, Consistency groups, NVMe namespaces, Shares, Buckets, Qtrees, Quotas), 'Storage VMs' (which is selected and highlighted in blue), and 'Tiers'. The main content area is titled 'cluster1 Version 9.14.1P1'. It displays a 'Health' section with a green checkmark and the text 'Cluster is healthy'. Below this is a 'SIMBOX' icon representing a storage virtual machine, showing a central storage unit with multiple horizontal lines representing data storage.

Select the "Enable S3" and "Enable TLS" check boxes and configure the HTTP(S) ports. Define the IP, subnet mask and define the gateway and broadcast domain if not using the default or required in your environment.

## Add storage VM

STORAGE VM NAME

Access protocol

SMB/CIFS, NFS, S3    iSCSI    FC    NVMe

Enable SMB/CIFS  
 Enable NFS  
 Enable S3

S3 SERVER NAME

Enable TLS

PORT

443

CERTIFICATE

Use system-generated certificate   i  
 Use external-CA signed certificate

Use HTTP (non-secure)

PORT

8080

DEFAULT LANGUAGE   i

NETWORK INTERFACE

Use multiple network interfaces when client traffic is high.

onPrem-01

IP ADDRESS	SUBNET MASK	GATEWAY	BROADCAST DOMAIN AND PORT
192.168.0.200	24	Add optional gateway	Default

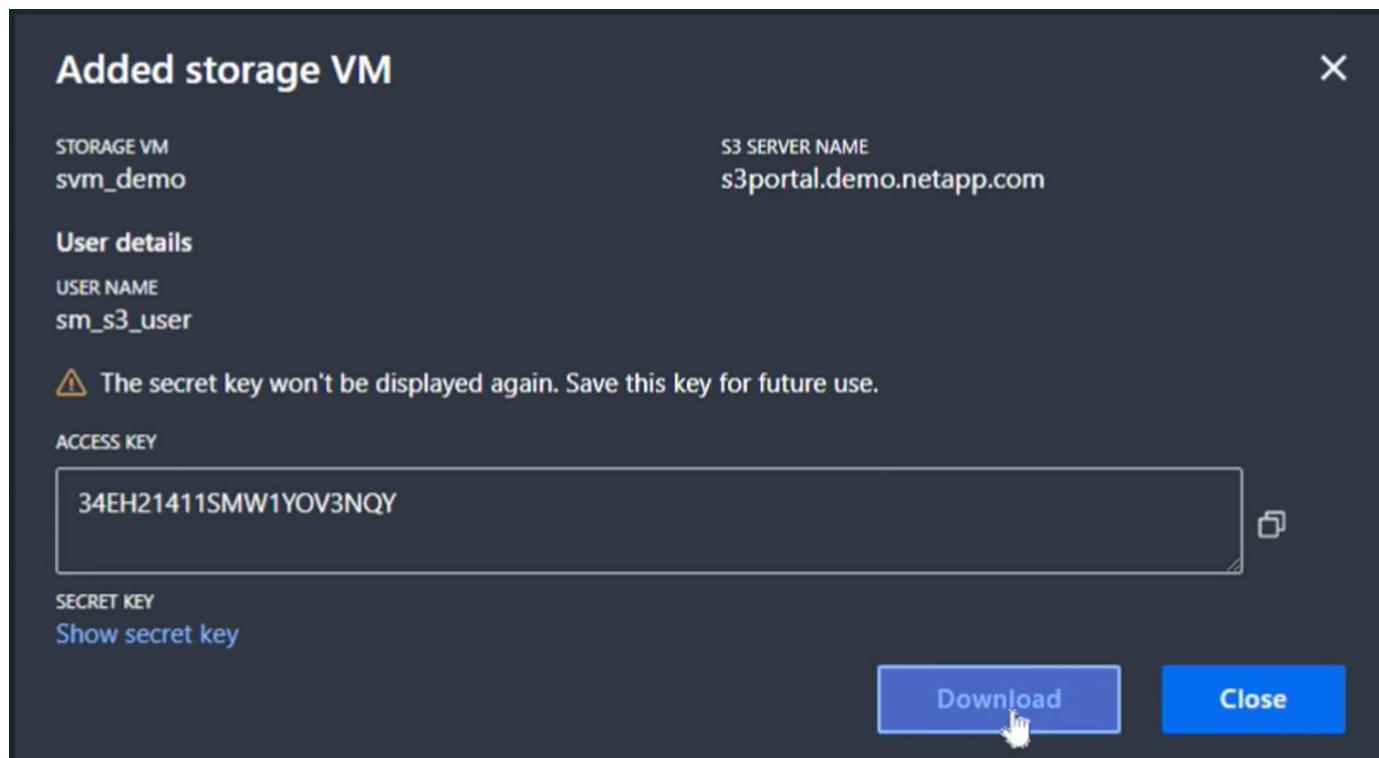
---

Storage VM administration

Enable maximum capacity limit  
The maximum capacity that all volumes in this storage VM can allocate. [Learn More](#)

Manage administrator account

As part of the SVM creation a user will be created. Download the S3 keys for this user and close the window.



Once the SVM has been created, edit the SVM and add the DNS settings.

Services

NIS

Not configured

Name service switch

Services lookup order [i](#)

HOSTS

Files, then DNS

GROUP

Files

NAME MAP

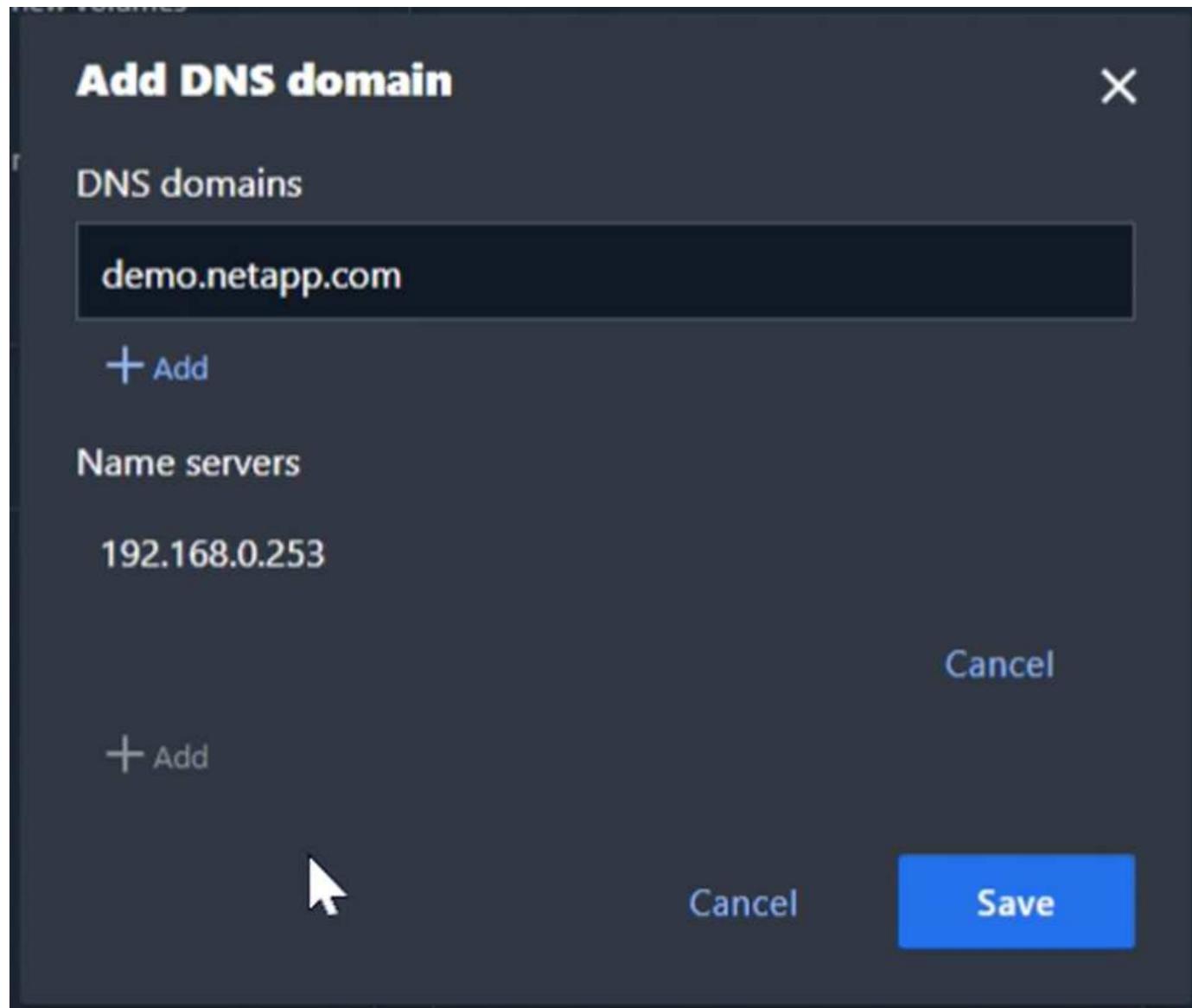
Files

NETGROUP

DNS

Not configured

Define the DNS name and IP.



#### Create SVM S3 User

Now we can configure the S3 users and group. Edit the S3 settings.

## Protocols

<b>NFS</b> Not configured	 	<b>SMB/CIFS</b> Not configured	 	iS
<b>NVMe</b> Not configured	 	<b>S3</b> <b>STATUS</b>  Enabled <b>TLS</b> Disabled <b>HTTP</b> Enabled	 	

Add a new user.

## Storage VMs

+ Add : More

Name
svm_demo

**S3** All settings

Enabled

**Server** [Edit](#)

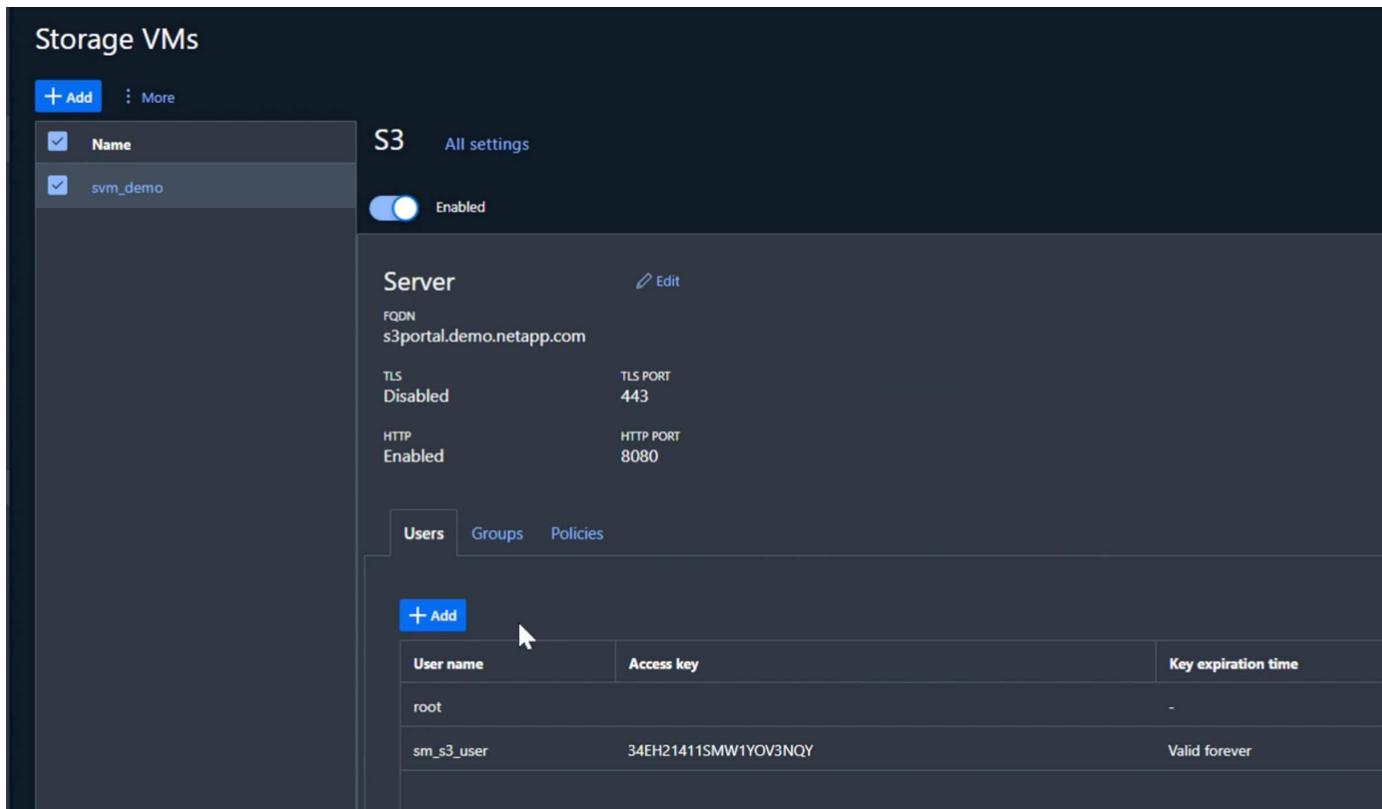
FQDN: s3portal.demo.netapp.com

TLS: Disabled TLS PORT: 443

HTTP: Enabled HTTP PORT: 8080

**Users** [Groups](#) [Policies](#)

User name	Access key	Key expiration time
root		-
sm_s3_user	34EH21411SMW1YOV3NQY	Valid forever



Input the user name and key expiration.

## Storage VMs

+ Add : More

Name
svm_demo

**S3** All settings

Enabled

**Server** [Edit](#)

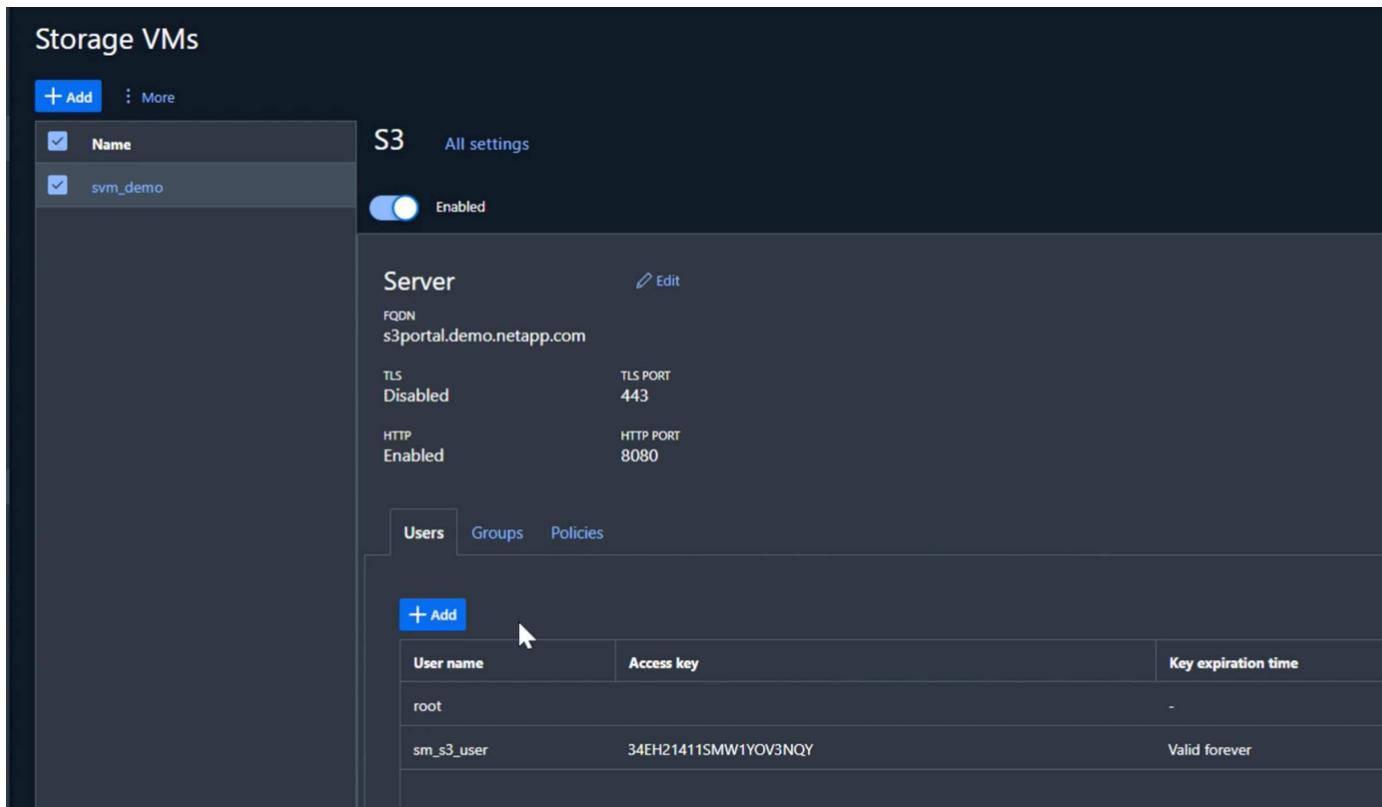
FQDN: s3portal.demo.netapp.com

TLS: Disabled TLS PORT: 443

HTTP: Enabled HTTP PORT: 8080

**Users** [Groups](#) [Policies](#)

User name	Access key	Key expiration time
root		-
sm_s3_user	34EH21411SMW1YOV3NQY	Valid forever



Download the S3 keys for the new user.

## Added user

**USER NAME**

demo\_s3\_user

**ACCESS KEY**

3TVPI142JGE3Y7FV2KC0

**SECRET KEY**

75a1QqKBU4quA132twl4g4lC4Gg5PP30ncy0sPE8

[Hide secret key](#)**KEY EXPIRATION TIME**

Valid forever

 The secret key won't be displayed again. Save this key for future use.

[Download](#)[Close](#)

## Create SVM S3 group

On the Groups tab of the SVM S3 settings, add a new group with the user created above and FullAccess permissions.

## Add group

X

### NAME

demo\_s3\_group

### USERS

demo\_s3\_user X

### POLICIES

FullAccess X

Cancel

Save



### Create SVM S3 buckets

Navigate to the Buckets section and click the "+Add" button.



DASHBOARD

INSIGHTS

STORAGE ^

Overview

Volumes

LUNs

Consistency groups

NVMe namespaces

Shares

Buckets

Qtrees

Quotas

Storage VMs

Tiers

## Buckets



Name

Storage

Enter a name, capacity, and deselect the "Enable ListBucket access..." check box. and click on the "More options" button.

## Add bucket

X

NAME

bucket

CAPACITY

100



GiB



Enable ListBucket access for all users on the storage VM "svm\_demo".  
Enabling this will allow users to access the bucket.

More options

Cancel

Save

In the "More options" section select the enable versioning check box. and click the "Save" button.

## Add bucket

X

NAME

FOLDER (OPTIONAL)

[Browse](#)

Specify the folder to map to this bucket. [Know more](#)

CAPACITY

Use for tiering

If you select this option, the system will try to select low-cost media with optimal performance for the tiered data.

Enable versioning

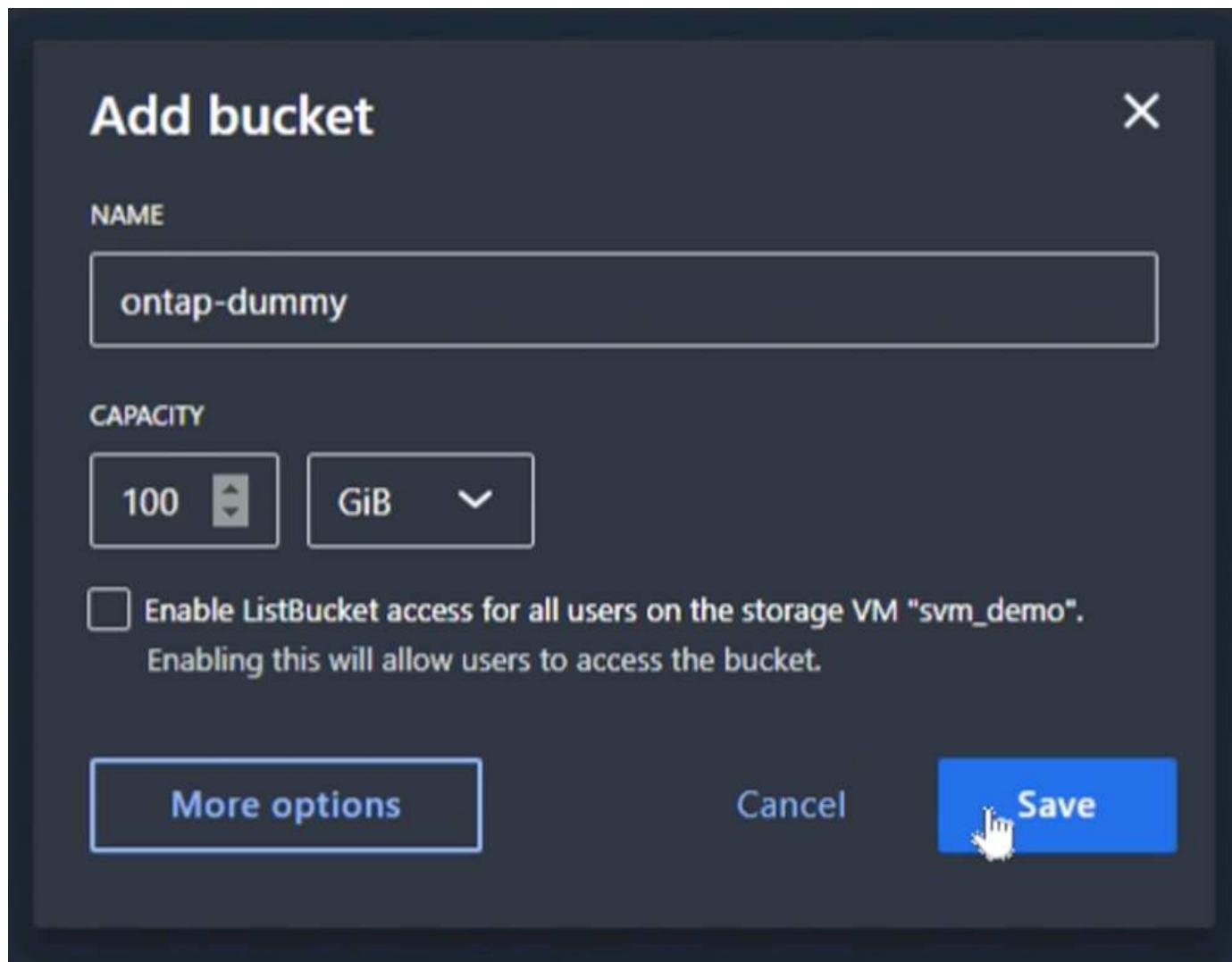
Versioning-enabled buckets allow you to recover objects that were accidentally deleted or overwritten. After versioning is enabled, it can't be disabled. However, you can suspend versioning.

PERFORMANCE SERVICE LEVEL

▼

Not sure? [Get help selecting type](#)

Repeat the process and create a second bucket without versioning enabled. Enter a name, the same capacity as bucket one, and deselect the "Enable ListBucket access..." check box. and click on the "Save" button.



By Rafael Guedes, and Aron Klein

## Enabling enterprise-grade S3 by seamlessly migrating object-based storage from ONTAP S3 to StorageGRID

Enabling enterprise-grade S3 by seamlessly migrating object-based storage from ONTAP S3 to StorageGRID

### Preparing StorageGRID

Continuing the configuration for this demo we will create a Tenant, user, security group, group policy, and bucket.

#### Create the tenant

Navigate to the "Tenants" tab and click on the "create" button

Fill in the details for the tenant providing a tenant name, select S3 for the client type, and no quota is required. No need to select platform services or allow S3 select. You can choose to use own Identity source if you choose. Set the root password and click on the finish button.

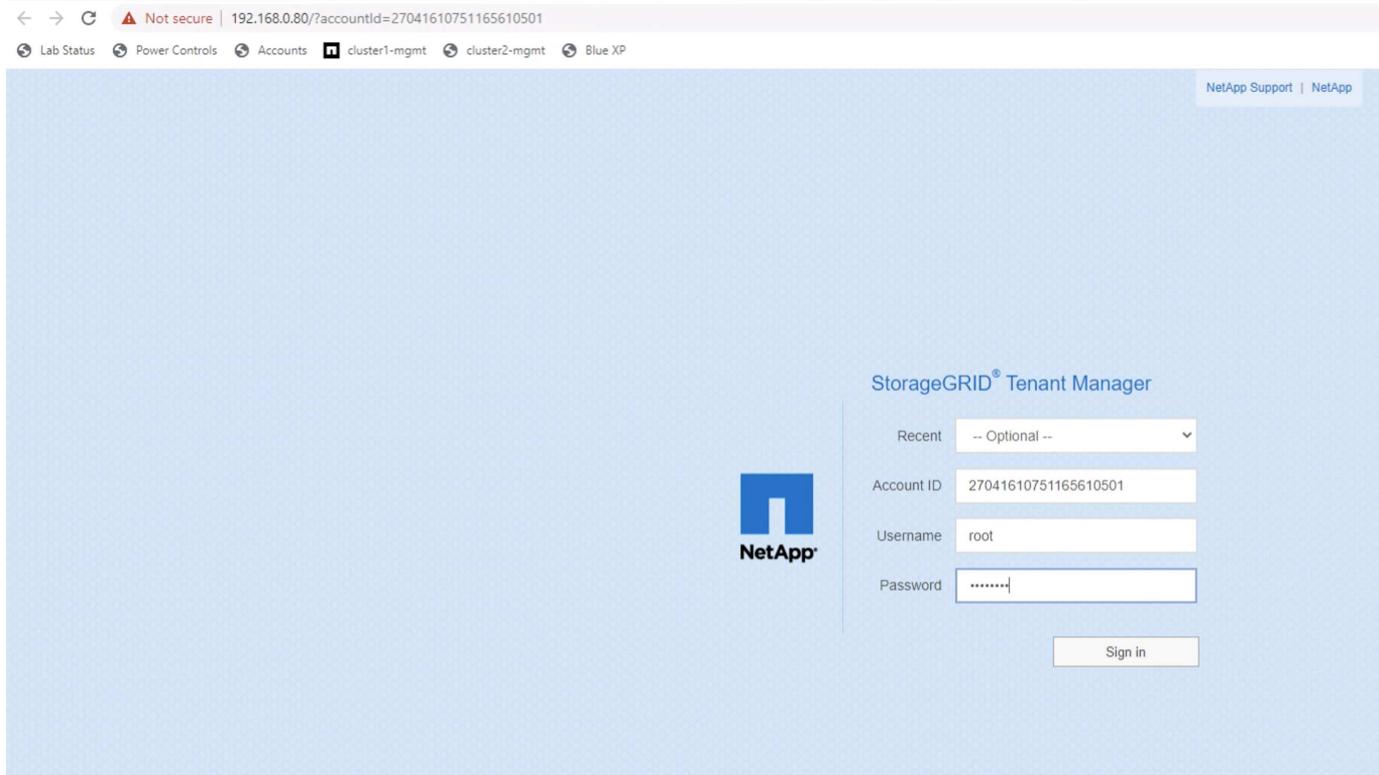
Click on the tenant name to view the tenant details. **You will need the tenant ID later so copy it off.** Click on the Sign in button. This will bring you to the tenant portal login. Save the URL for future use.

## Tenants

View information for each tenant account. Depending on the timing of ingests, network connectivity, and node status, the usage data shown might be out of date. To view more recent values, select the tenant name.

Name	Logical space used	Quota utilization	Quota	Object count	Sign in/Copy URL
tenant_demo	0 bytes	—	—	0	→ <input type="button" value="Copy"/>

This will bring you to the tenant portal login. Save the URL for future use, and enter the root user credentials.



## Create the user

Navigate to the Users tab and create a new user.

Users

View local and federated users. Edit properties and group membership of local users.

1 user

Create user

Actions	Username	Full Name	Denied	Type
<input type="checkbox"/>	root	Root		Local

← Previous 1 Next →

Optional

## Enter user credentials

Create a new local user and configure user access.

Full name ?

Must contain at least 1 and no more than 128 characters

Username ?

Password

?

Must contain at least 8 and no more than 32 characters

Confirm password

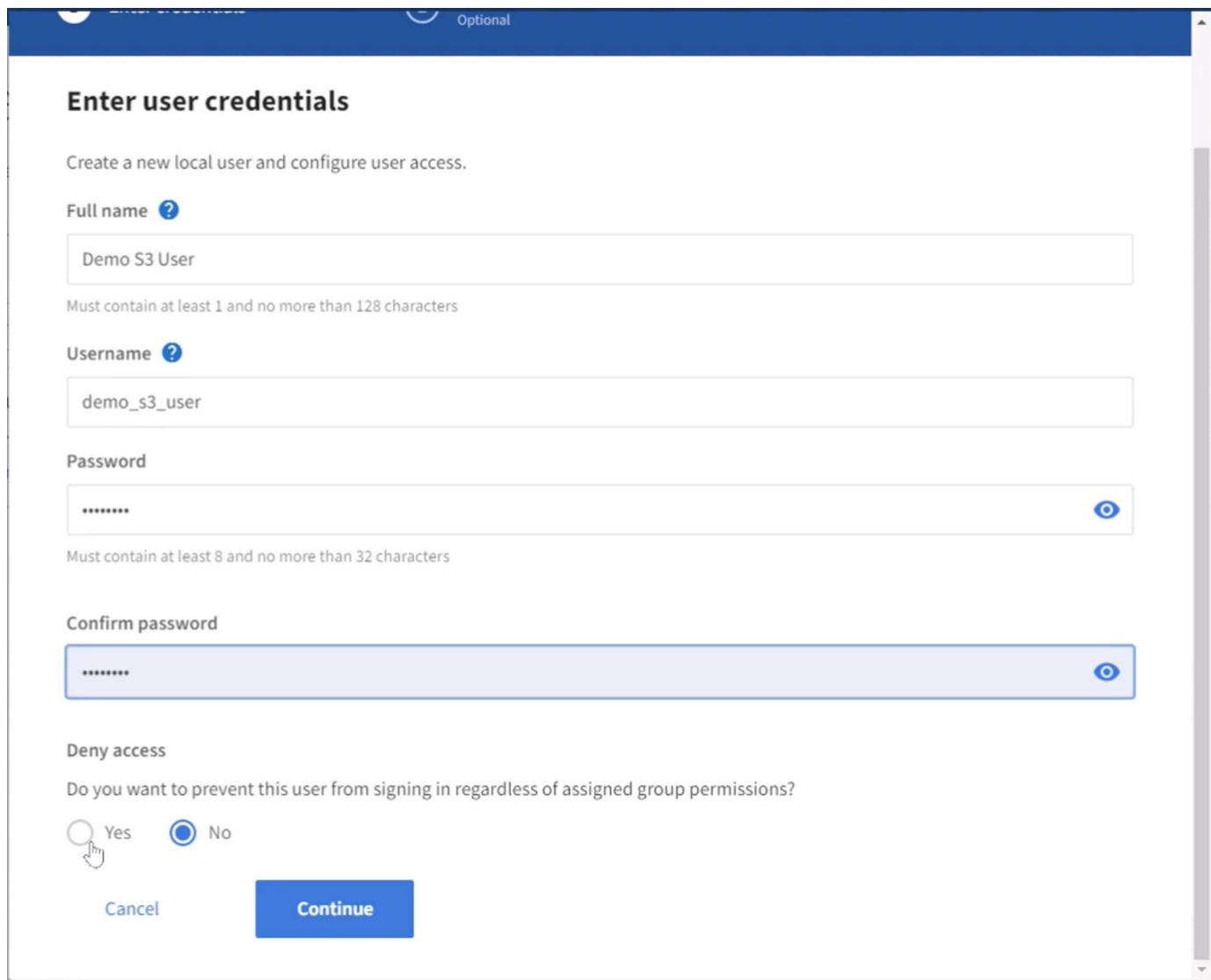
?

Deny access

Do you want to prevent this user from signing in regardless of assigned group permissions?

Yes  No

[Cancel](#) [Continue](#)



Now that the new user has been created, click on the users name to open the details of the user.

Copy the user ID from the URL to be used later.

⚠ Not secure | <https://192.168.0.80/ui/#/users/ebc132e2-cfc3-42c0-a445-3b4465cb523c>

Power Controls Accounts cluster1-mgmt cluster2-mgmt Blue XP

## NetApp | StorageGRID Tenant Manager

Users > Demo S3 User

### Overview

Full name:	Demo S3 User <a href="#">edit</a>
Username:	demo_s3_user
User type:	Local
Denied access:	Yes
Access mode:	No Groups
Group membership:	None

>Password [Access](#) [Access keys](#) [Groups](#)

### Change password

Change this user's password.

\*\*\*\*\* [Change Password](#)

To create the S3 keys click on the user name.

NetApp | StorageGRID Tenant Manager

DASHBOARD STORAGE (S3) My access keys Buckets Platform services endpoints ACCESS MANAGEMENT Groups Users Identity federation

## Users

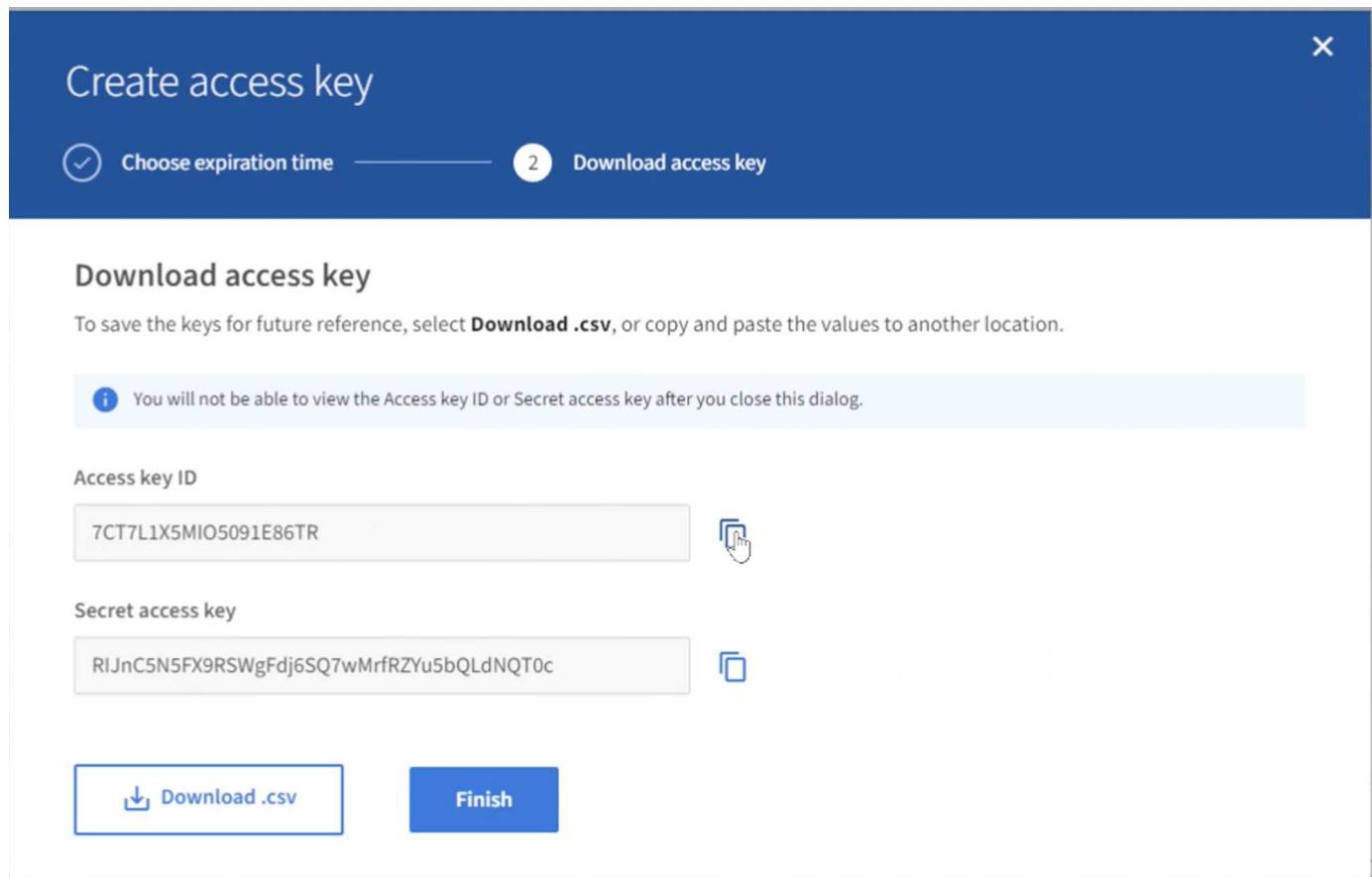
View local and federated users. Edit properties and group membership of local users.

2 users [Create user](#)

<a href="#">Actions</a>	Username	Full Name	Denied	Type
<input type="checkbox"/>	root	Root		Local
<input type="checkbox"/>	demo_s3_user	Demo S3 User	✓	Local

← Previous 1 Next →

Select the "Access keys" tab and click on the "Create Key" button. There is no need to set an expiration time. Download the S3 keys as they cannot be retrieved again once the window is closed.



### Create the security group

Now go to the Groups page and create a new group.

# Create group

X

- 1 Choose a group type
- 2 Manage permissions
- 3 Set S3 group policy
- 4 Add users  
Optional

## Choose a group type ?

Create a new local group or import a group from the external identity source.

Local group

Federated group

Create local groups to assign permissions to any local users you defined in StorageGRID.

Display name

Demo S3 Group

Must contain at least 1 and no more than 32 characters

Unique name ?

demo\_s3\_group

Cancel

Continue



Set the group permissions to Read-Only. This is the Tenant UI permissions, not the S3 permissions.



Choose a group type



Manage permissions



Set S3 group policy

Add users  
Optional

## Manage group permissions

Select an access mode for this group and select one or more permissions.

Access mode [?](#)

Select whether users can change settings and perform operations or whether they can only view settings and features.



Read-write



Read-only

Group permissions [?](#)

Select the permissions you want to assign to this group.

[Root access](#)

Allows users to access all administration features. Root access permission supersedes all other permissions.

[Manage all buckets](#)

Allows users to change settings of all S3 buckets (or Swift containers) in this account.

[Manage endpoints](#)

Allows users to configure endpoints for platform services.

[Manage your own S3 credentials](#)

Allows users to create and delete their own S3 access keys.

[Previous](#)[Continue](#)

S3 permissions are controlled with the group policy (IAM Policy). Set the Group policy to custom and paste the json policy in the box. This policy will allow users of this group to list the buckets of the tenant and perform any S3 operations in the bucket named "bucket" or sub-folders in the bucket named "bucket".

```
{
  "Statement": [
    {
      "Effect": "Allow",
      "Action": "s3>ListAllMyBuckets",
      "Resource": "arn:aws:s3:::*"
    },
    {
      "Effect": "Allow",
      "Action": "s3:*",
      "Resource": ["arn:aws:s3:::bucket", "arn:aws:s3:::bucket/*"]
    }
  ]
}
```

**Create group**

1 Choose a group type — 2 Manage permissions — 3 Set S3 group policy — 4 Add users Optional

### Set S3 group policy ?

An S3 group policy controls user access permissions to specific specific S3 resources, including buckets. Non-root users have no access by default.

No S3 Access

Read Only Access

Full Access

Custom

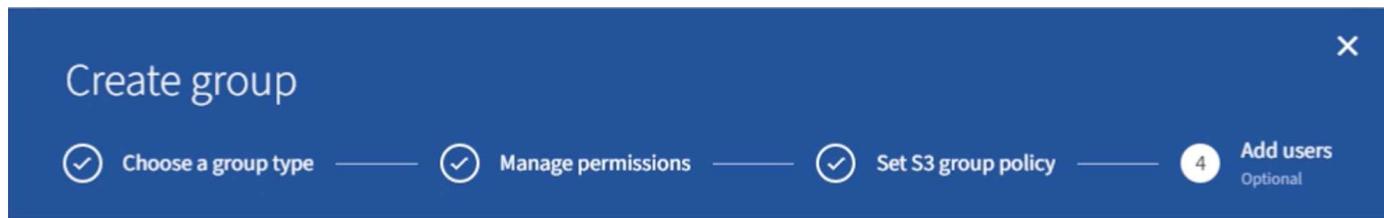
(Must be a valid JSON formatted string.)

```

    "Effect": "Allow",
    "Action": "s3>ListAllMyBuckets",
    "Resource": "arn:aws:s3:::*"
  },
  {
    "Effect": "Allow",
    "Action": "s3:*",
    "Resource": ["arn:aws:s3:::bucket", "arn:aws:s3:::bucket/*"]
  }
}
  
```

[Previous](#) [Continue](#)

Finally, add the user to the group and finish.



Previous

Create group

## Create two buckets

Navigate to the buckets tab and click on the Create bucket button.

Buckets

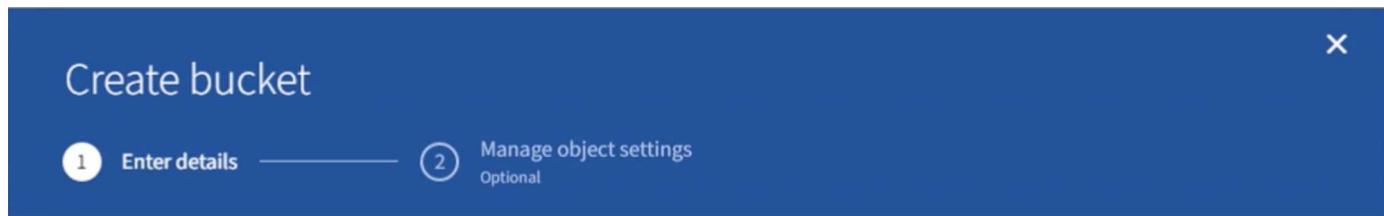
Create buckets and manage bucket settings.

0 buckets

Create bucket

Name	Region	Object Count	Space Used	Date Created
No buckets found				

Define the bucket name and region.



## Enter bucket details

Enter the bucket's name and select the bucket's region.

Bucket name [?](#)

bucket

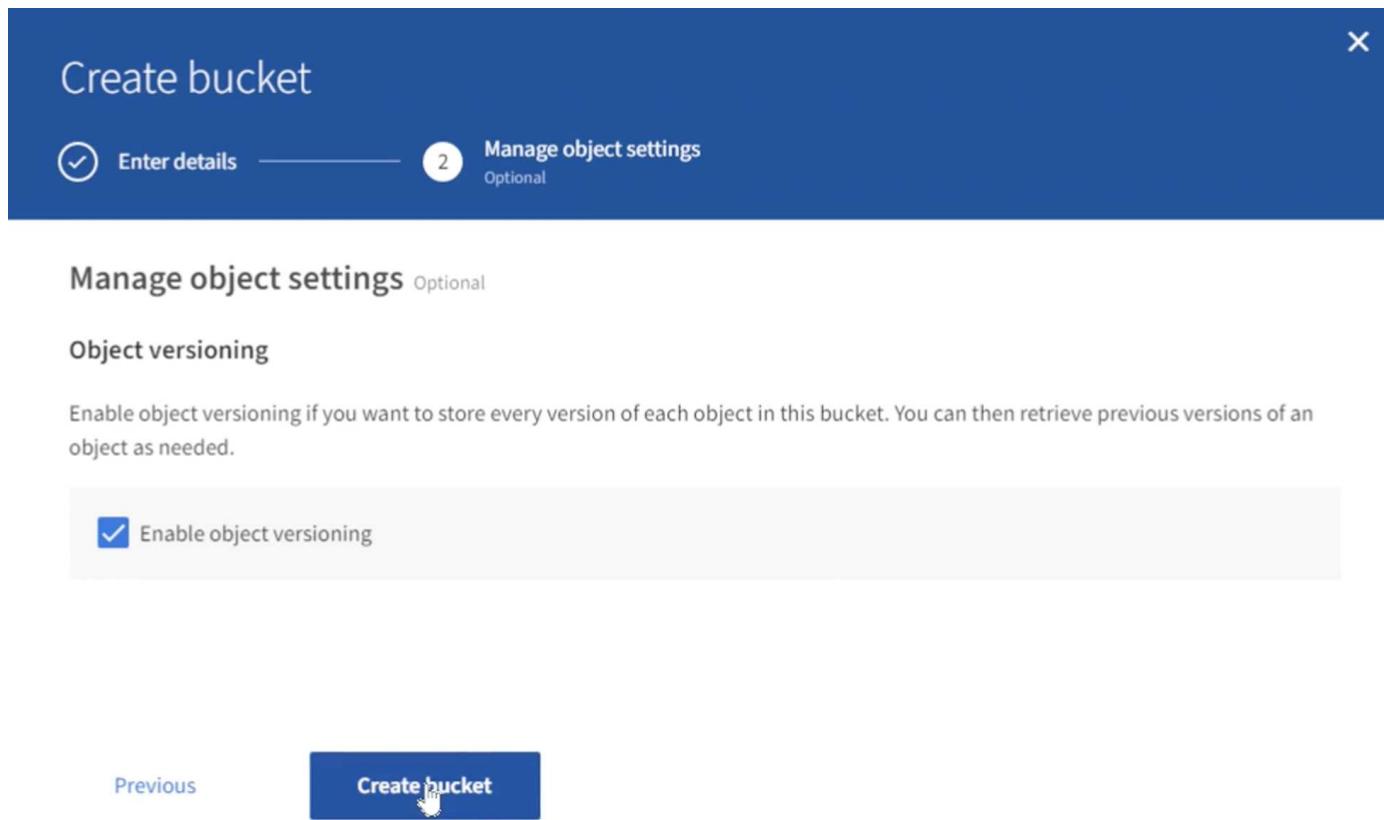
Region [?](#)

us-east-1

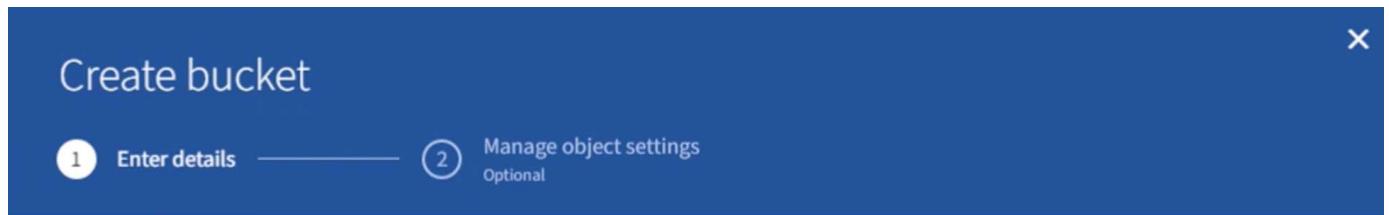
[Cancel](#)

[Continue](#)

On this first bucket enable versioning.



Now create a second bucket without versioning enabled.



## Enter bucket details

Enter the bucket's name and select the bucket's region.

Bucket name ?

sg-dummy

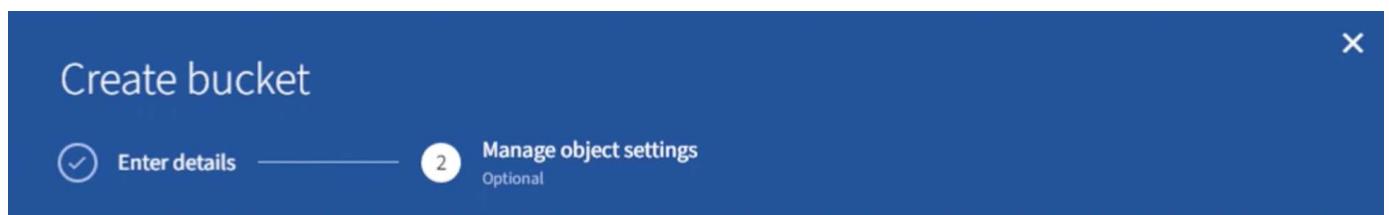
Region ?

us-east-1

Cancel

Continue

Do not enable versioning on this second bucket.



## Manage object settings Optional

### Object 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.



Enable object versioning

Previous

Create bucket

By Rafael Guedes, and Aron Klein

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## **Populate the Source Bucket**

Lets put some objects in the source ONTAP bucket. We will use S3Browser for this demo but you could use any tool you are comfortable with.

Using the ONTAP user s3 keys created above, configure S3Browser to connect to your ontap system.

 Add New Account

**Add New Account**

Enter new account details and click Add new account

Display name:

Bucket (original and post-migration)

Assign any name to your account.

Account type:

S3 Compatible Storage

Choose the storage you want to work with. Default is Amazon S3 Storage.

REST Endpoint:

s3portal.demo.netapp.com:8080

Specify S3-compatible API endpoint. It can be found in storage documentation. Example: rest.server.com:8080

Access Key ID:

3TVPI142JGE3Y7FV2KC0

Required to sign the requests you send to Amazon S3, see more details at <https://s3browser.com/keys>

Secret Access Key:

\*\*\*\*\*

Required to sign the requests you send to Amazon S3, see more details at <https://s3browser.com/keys>

Encrypt Access Keys with a password:

Turn this option on if you want to protect your Access Keys with a master password.

Use secure transfer (SSL/TLS)

If checked, all communications with the storage will go through encrypted SSL/TLS channel

[advanced settings..](#)

 [Add new account](#)  [Cancel](#)

Now lets upload some files to the versioning enabled bucket.

S3 Browser 11.6.7 - Free Version (for non-commercial use only) - Bucket (original and post-migration)

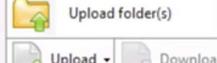
Accounts Buckets Files Bookmarks Tools Upgrade to Pro! Help

New bucket + Add external bucket Refresh

Path: /

Name	Size	Type	Last Modified	Storage Class

Upload file(s) 

Upload folder(s) 

Upload Download Delete New Folder Refresh

Tasks (1) Permissions Headers Tags Properties Preview Versions Eventlog

Task	Size	%	Progress	Status	Speed

S3 Browser 11.6.7 - Free Version (for non-commercial use only) - Bucket (original and post-migration)

Open

Downloads This PC Downloads

Search Downloads

Organize New folder

Name	Date modified	Type	Size
9141P1_q_image.tgz	3/22/2024 1:25 AM	TGZ File	2,641,058 KB
cluster1_demo_s3_user_s3_user.txt	3/23/2024 11:04 PM	Text Document	1 KB
cluster1_svm_demo_s3_details (1).txt	3/23/2024 11:03 PM	Text Document	1 KB
cluster1_svm_demo_s3_details.txt	3/23/2024 11:01 PM	Text Document	1 KB
hfs.exe	3/22/2024 1:24 AM	Application	2,121 KB
hotfix-install-11.6.0.14	3/23/2024 11:55 AM	14 File	717,506 KB
putty	7/18/2020 6:39 PM	Shortcut	2 KB
s3browser-11-6-7.exe	3/23/2024 12:36 PM	Application	9,807 KB

File name: "s3browser-11-6-7.exe" "cluster1\_demo\_s3\_user\_s3\_user.txt" "cluster1\_svm\_demo\_s3\_details (1).txt" "cluster1\_svm\_demo\_s3\_details.txt" "hfs.exe" "putty"

Open Cancel

S3 Browser 11.6.7 - Free Version (for non-commercial use only) - Bucket (original and post-migration)

Accounts Buckets Files Bookmarks Tools Upgrade to Pro! Help

New bucket Add external bucket Refresh

Path: /

Name	Size	Type	Last Modified	Storage Class
cluster1 дем...	157 bytes	Text Document	3/23/2024 11:23:25 PM	STANDARD
cluster1_svm...	211 bytes	Text Document	3/23/2024 11:23:25 PM	STANDARD
cluster1_svm...	211 bytes	Text Document	3/23/2024 11:23:25 PM	STANDARD
putty.exe	834.05 KB	Application	3/23/2024 11:23:25 PM	STANDARD
hfs.exe	2.07 MB	Application	3/23/2024 11:23:25 PM	STANDARD
s3browser-11...	9.58 MB	Application	3/23/2024 11:23:26 PM	STANDARD

Upload Download Delete New Folder Refresh

Tasks (1) Permissions Headers Tags Properties Preview Versions Eventlog

Now lets create some object versions in the bucket.

Delete a file.

S3 Browser 11.6.7 - Free Version (for non-commercial use only) - Bucket (original and post-migration)

Accounts Buckets Files Bookmarks Tools Upgrade to Pro! Help

New bucket Add external bucket Refresh

Path: /

Name	Size	Type	Last Modified	Storage Class
cluster1 дем...	157 bytes	Text Document	3/23/2024 11:23:25 PM	STANDARD
cluster1_svm...	211 bytes	Text Document	3/23/2024 11:23:25 PM	STANDARD
cluster1_svm...	211 bytes	Text Document	3/23/2024 11:23:25 PM	STANDARD
putty.exe	834.05 KB	Application	3/23/2024 11:23:25 PM	STANDARD
hfs.exe	2.07 MB	Application	3/23/2024 11:23:25 PM	STANDARD
s3browser-11...	9.58 MB	Application	3/23/2024 11:23:26 PM	STANDARD

Upload Download Delete New Folder

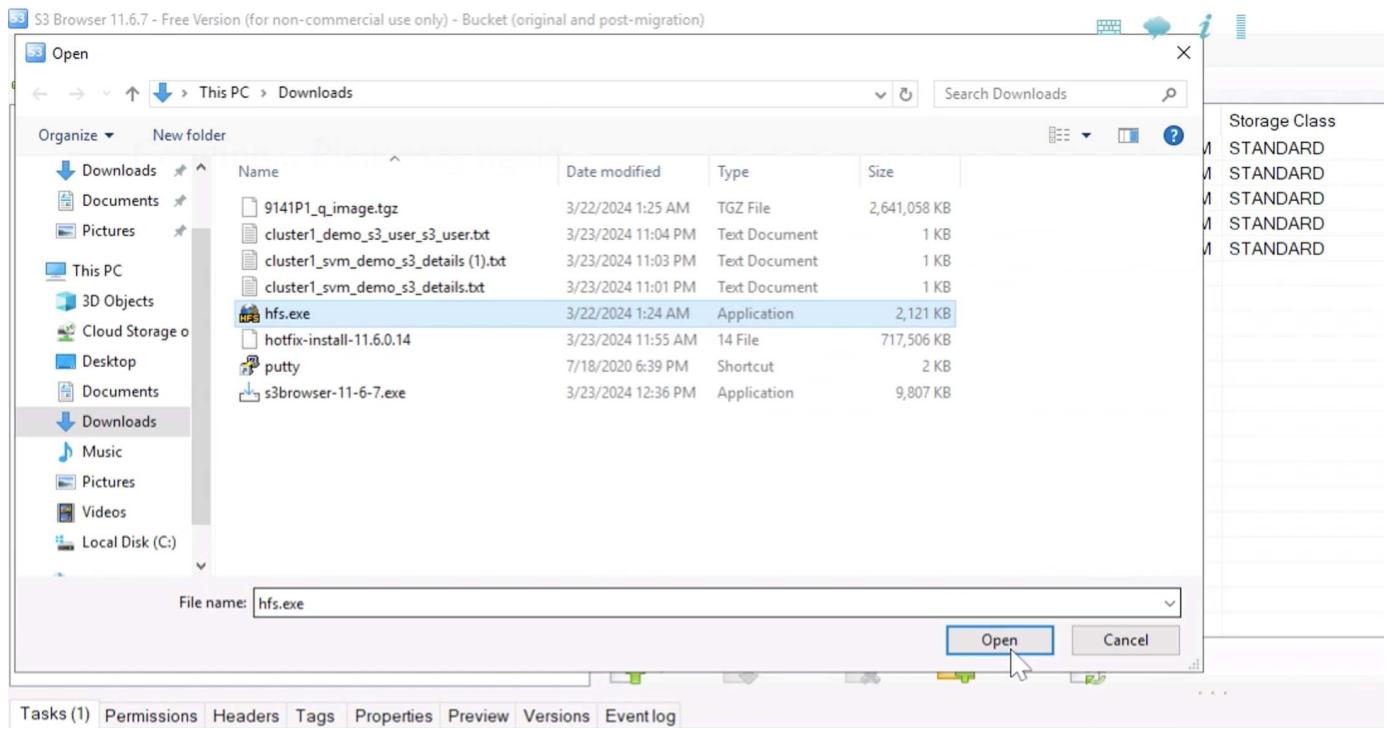
Confirm File Delete

Are you sure to delete 'putty.exe'?

Yes No

Tasks (1) Permissions Headers Tags Properties Preview Versions Eventlog

Upload a file that already exists in the bucket to copy the file over itself and create a new version of it.



In S3Browser we can view the versions of the objects we just created.

The screenshot shows the S3 Browser interface with the 'Versions' tab selected. The table lists the following objects:

Name	Size	Type	Last Modified	Storage Class
cluster1_demo_s3_user_s3_user.txt	157 bytes	Text Document	3/23/2024 11:23:25 PM	STANDARD
cluster1_svm_demo_s3_details (1).txt	211 bytes	Text Document	3/23/2024 11:23:25 PM	STANDARD
cluster1_svm_demo_s3_details.txt	211 bytes	Text Document	3/23/2024 11:23:25 PM	STANDARD
hfs.exe	2.07 MB	Application	3/23/2024 11:23:36 PM	STANDARD
s3browser-11-6-7.exe	9.58 MB	Application	3/23/2024 11:23:26 PM	STANDARD

The 'Tasks (1)' tab is selected, showing a list of tasks including 'Permissions', 'Headers', 'Tags', 'Properties', 'Preview', 'Versions', and 'Event log'. The URL is listed as <http://bucket.s3portal.demo.netapp.com:8080/>.

## Establish the replication relationship

Lets start sending data from ONTAP to StorageGRID.

In ONTAP System Manager navigate to "Protection/Overview". Scroll down to "Cloud object stores". and click the "Add" button and select "StorageGRID".

Lets you select specific volumes for protection if you don't need to protect entire storage VMs.

Lets you select which volumes you want to be backed up to a cloud destination.

NetApp SnapCenter software simplifies backup, restore, and clone management for the applications hosted across ONTAP enabled platforms. [Use NetApp SnapCenter for application-consistent protection.](#)

**Bucket protection**

**SnapMirror (local or remote)**

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100% **2 of the 2 buckets aren't protected.**

**Back up to cloud**

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100% **2 of the 2 buckets aren't backed up to the cloud.**

**Protect buckets**

Lets you select specific buckets for setting up SnapMirror protection to either an ONTAP destination or a cloud destination.

**StorageGRID** **i**

**ONTAP S3** **i**

**AWS Amazon S3** **i**

**Others** **i**

StorageGRID is a cloud object store that provides a simple, efficient, and cost-effective way to store and manage data in the cloud. It offers a range of features, including data replication, data deduplication, and data compression, to help you manage your data more effectively. StorageGRID is designed to be highly available and reliable, with built-in redundancy and failover mechanisms.

**+ Add**

Input the StorageGRID information by providing a name, URL style (for this demo we will use Path-style URLs). Set the object store scope to "Storage VM".

# Add cloud object store

**NAME**

**URL STYLE**

Path-style URL

**OBJECT STORE SCOPE**

Cluster  Storage VM

**USE BY** **i**

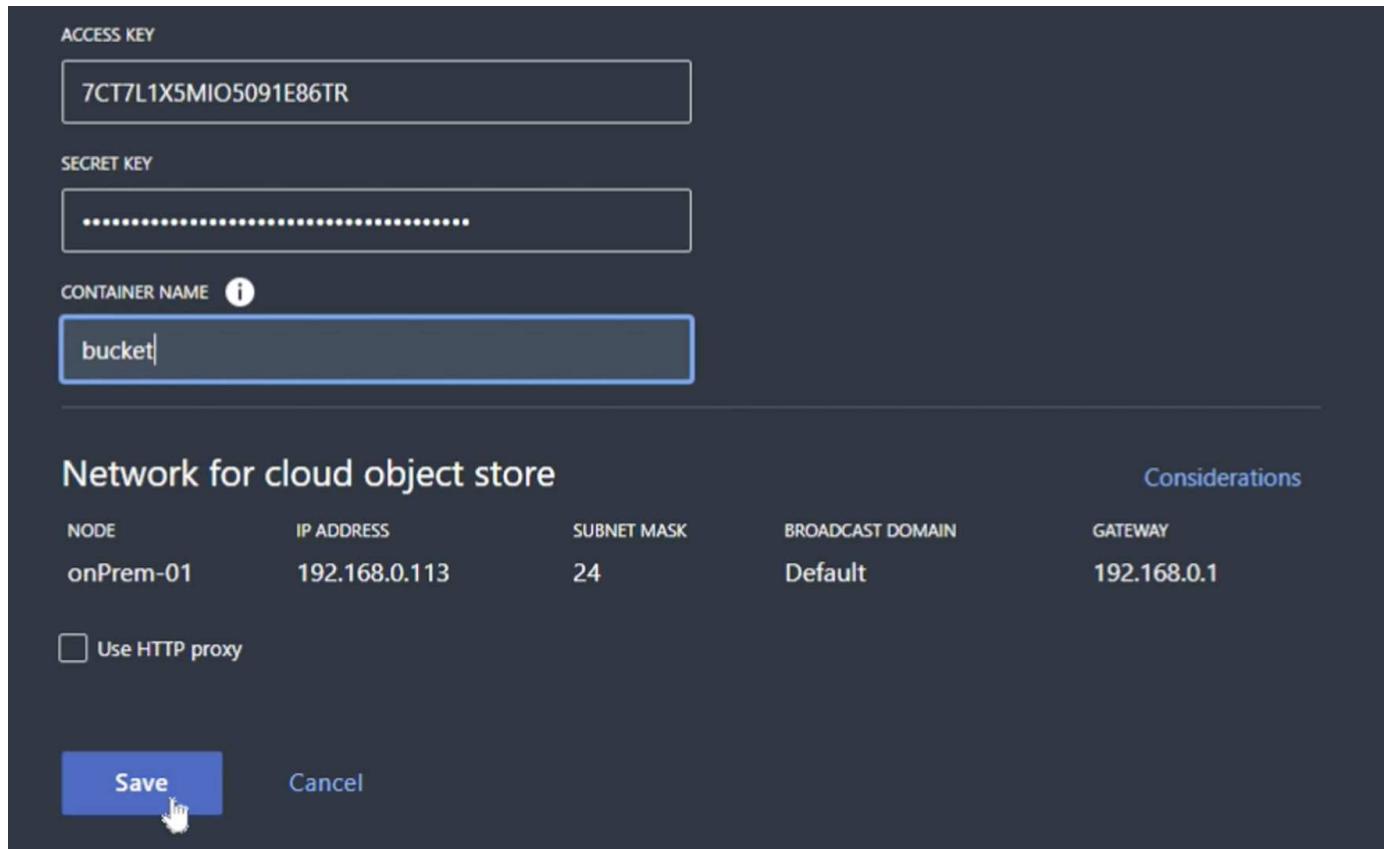
SnapMirror  ONTAP S3 SnapMirror

**SERVER NAME (FQDN)**

If you are using SSL, set the load balancer endpoint port and copy in the StorageGRID endpoint certificate

here. otherwise uncheck the SSL box and input the HTTP endpoint port here.

Input the StorageGRID user S3 keys and bucket name from the StorageGRID configuration above for the destination.

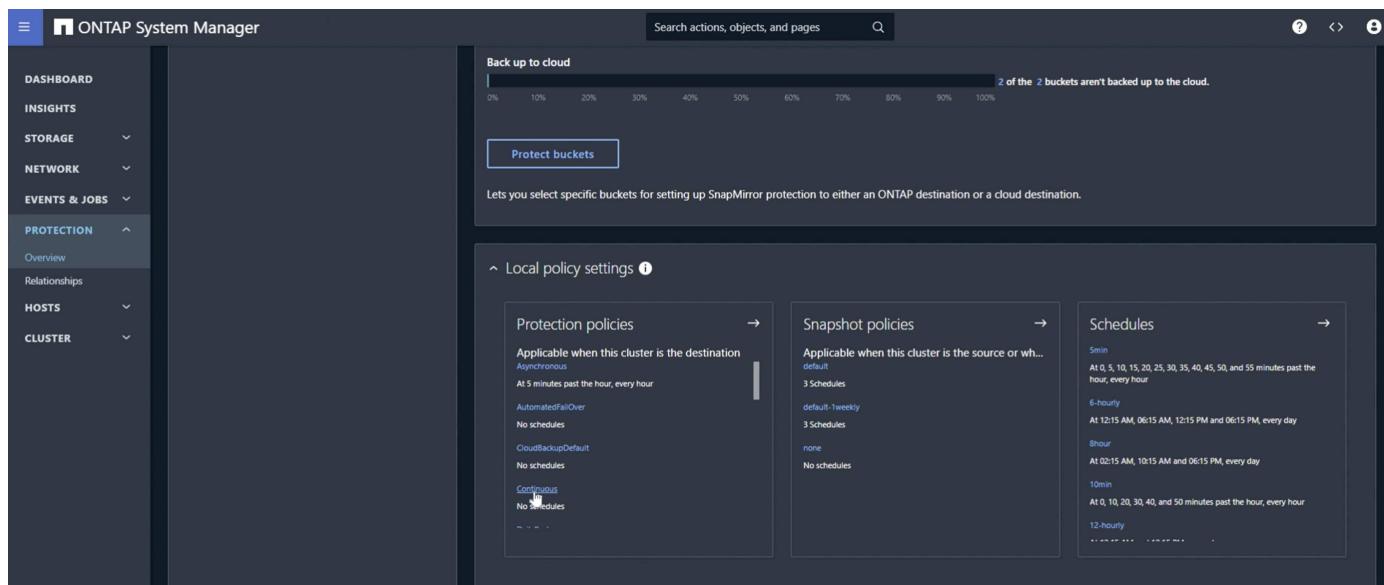


NODE	IP ADDRESS	SUBNET MASK	BROADCAST DOMAIN	GATEWAY
onPrem-01	192.168.0.113	24	Default	192.168.0.1

Use HTTP proxy

**Save** **Cancel**

Now that we have a destination target configured, we can configure the policy settings for the target. Expand "Local policy settings" and select "continuous".



Edit the continuous policy and change the "Recovery point objective" from "1 Hours" to "3 Seconds".

## Policies Protection overview

Name	Description	Policy type	Scope
Continuous	Policy for S3 bucket mirroring.	(All)	Cluster
THROTTLE Unlimited	RECOVERY POINT OBJECTIVE 1 Hours		

Now we can configure snapmirror to replicate the bucket.

```
snapmirror create -source-path sv_demo: /bucket/bucket -destination-path sgws_demo: /objstore -policy Continuous
```

```
cluster1-mgmt
Using username "admin".
Using keyboard-interactive authentication.
Password:

Last login time: 3/24/2024 00:02:00
cluster1::> snapmirror create -source-path sv_demo:/bucket/bucket -destination-path sgws_demo:/objstore -policy Continuous
[Job 220] Job is queued: Create an S3 SnapMirror relationship between bucket "sv_demo:bucket" and bucket "objstore/sgws_demo"..
cluster1::>
```

The bucket will now show a cloud symbol in the bucket list under protection.

Name	Storage VM	Lifecycle rules	Capacity (available   total)	Protection	Path
bucket	svm_demo	0	100 GiB 100 GiB	Cloud	-
ontap-dummy	svm_demo	0	100 GiB 100 GiB	Cloud	-

If we select the bucket and go to the "SnapMirror (ONTAP or Cloud)" tab we will see the snapmirror relationship status.

The screenshot shows the ONTAP SnapMirror configuration interface. On the left, a sidebar lists buckets: 'bucket' (selected) and 'ontap-dummy'. The main area shows a table with a single row for the replication session. The table has columns: Source, Destination, Protection policy, Relationship health, and State. The data is as follows:

Source	Destination	Protection policy	Relationship health	State
svm_demo/bucket/bucket	sgws_demo/objstore	Continuous	Healthy	Mirrored

## The replication details

We now have a successfully replicating bucket from ONTAP to StorageGRID. But what is actually replicating? Our source and destination are both versioned buckets. Do the previous versions also replicate to the destination? If we look at our StorageGRID bucket with S3Browser we see that the existing versions did not replicate and our deleted object does not exist, nor does a delete marker for that object. Our duplicated object only has 1 version in the StorageGRID bucket.

The screenshot shows the S3 Browser interface. The left sidebar shows buckets: 'bucket' (selected) and 'sg-dummy'. The main area shows a list of objects in the 'bucket' folder:

Name	Size	Type	Last Modified	Storage Class
cluster1_demo...	157 bytes	Text Document	3/24/2024 12:13:53 AM	STANDARD
cluster1_svm...	211 bytes	Text Document	3/24/2024 12:13:53 AM	STANDARD
cluster1_svm...	211 bytes	Text Document	3/24/2024 12:13:53 AM	STANDARD
<b>hfs.exe</b>	2.07 MB	Application	3/24/2024 12:13:53 AM	STANDARD
sgstore\user11...	9.58 MB	Application	3/24/2024 12:13:53 AM	STANDARD

The 'hfs.exe' object is selected. The bottom of the interface shows a toolbar with 'Upload', 'Download', 'Delete', 'New Folder', and 'Refresh' buttons. The URL is listed as 'http://192.168.0.80:8080/bucket/hfs.exe'.

In our ONTAP bucket, let's add a new version to our same object that we used previously and see how it replicates.

Name	Size	Type	Last Modified	Storage Class
cluster1_demo_1	157 bytes	Text Document	3/23/2024 11:23:25 PM	STANDARD
cluster1_svm_1	211 bytes	Text Document	3/23/2024 11:23:25 PM	STANDARD
cluster1_svm_2	211 bytes	Text Document	3/23/2024 11:23:25 PM	STANDARD
putty.exe	834.05 KB	Application	3/23/2024 11:23:25 PM	STANDARD
hfs.exe	2.07 MB	Application	3/24/2024 12:14:52 AM	STANDARD
s3browser-11	9.58 MB	Application	3/23/2024 11:23:26 PM	STANDARD

Key	Last Modified	ETag	Size	Storage Class	Owner	Version Id
cluster1_demo_1	3/23/2024 11:23:25 PM	acf4c9543e97e0678b2b6ed5a60e1bc	157 bytes	STANDARD	Unknown (Unknown)	Mzg0MjQ1MDAwL...
cluster1_svm_1	3/23/2024 11:23:25 PM	407753b646a6cfef19de71eefb5ff04	211 bytes	STANDARD	Unknown (Unknown)	NDg0MjQ1MDAw...
cluster1_svm_2	3/23/2024 11:23:25 PM	17d20651856480a587a039ecc10e2	211 bytes	STANDARD	Unknown (Unknown)	NTU2NzI0MDAwL...
putty.exe	revision # 3 (current)	9e8557e98ed1269372ff0ace91d63477	2.07 MB	STANDARD	Unknown (Unknown)	NTY0NDg0MDAw...
	revision # 2	9e8557e98ed1269372ff0ace91d63477	2.07 MB	STANDARD	Unknown (Unknown)	NzQ1OTE4MDAw...
	revision # 1	9e8557e98ed1269372ff0ace91d63477	2.07 MB	STANDARD	Unknown (Unknown)	NjK2ODI0MDAwL...
hfs.exe	revision # 1 (current)	54cb91395cdaad9d7882533c21fe0e9	834.05 KB	STANDARD	Unknown (Unknown)	NzE2NzE4MDAwL...
s3browser-11	revision # 1 (current)	ae36fb97054782962d65937c5d0820-2	9.58 MB	STANDARD	Unknown (Unknown)	NDY2ODcwMDAw...

If we look on the StorageGRID side we see that a new version has been created in this bucket too, but is missing the initial version from before the snapmirror relationship.

Key	Last Modified	ETag	Size	Storage Class	Owner	Version Id
hfs.exe	revision # 2 (current)	"9e8557e98ed1269372ff0ace91d63477"	2.07 MB	STANDARD	tenant_demo (27041610751...)	OE14RjYNDg0RT...
	revision # 1	"9e8557e98ed1269372ff0ace91d63477"	2.07 MB	STANDARD	tenant_demo (27041610751...)	NjU5RDhCNDI0RT...

This is because the ONTAP SnapMirror S3 process only replicates the current version of the object. This is why we created a versioned bucket on the StorageGRID side to be the destination. This way StorageGRID can maintain a version history of the objects.

By Rafael Guedes, and Aron Klein

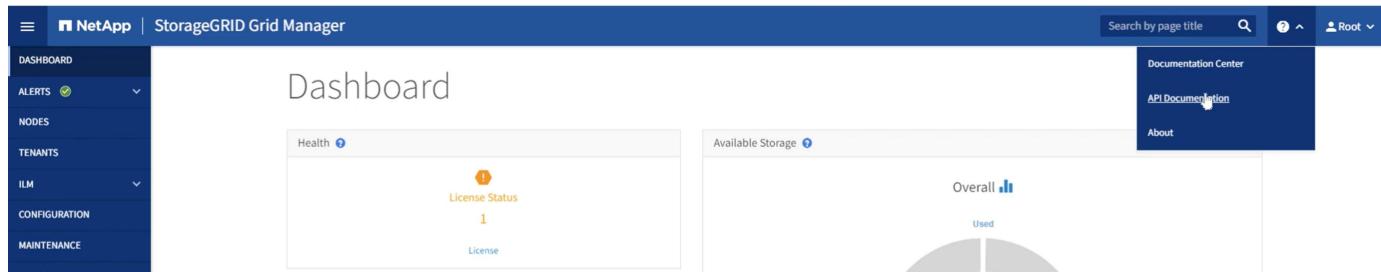
## Enabling enterprise-grade S3 by seamlessly migrating object-based storage from ONTAP S3 to StorageGRID

Enabling enterprise-grade S3 by seamlessly migrating object-based storage from ONTAP S3 to StorageGRID

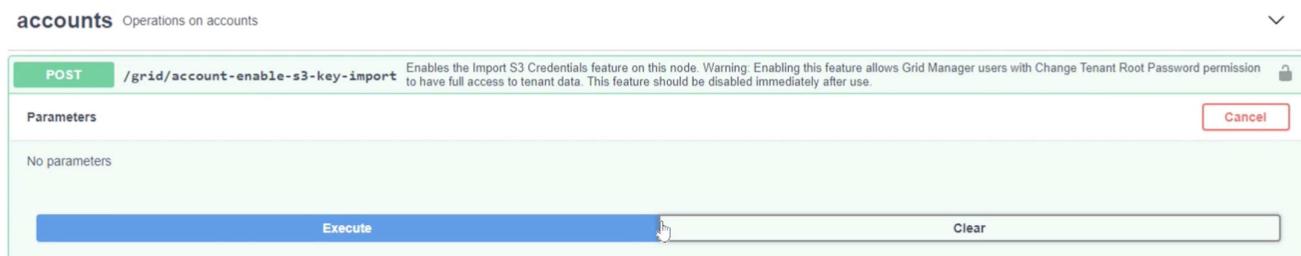
## Migrate S3 Keys

For a migration, most of the time you will want to migrate the credentials for the users rather than generate new credentials on the destination side. StorageGRID provides api's to allow s3 keys to be imported to a user.

Logging into the StorageGRID management UI (not the tenant manager UI) open the API Documentation swagger page.



Expand the "accounts" section, select the "POST /grid/account-enable-s3-key-import", click the "Try it out" button, then click on the execute button.



Now scroll down still under "accounts" to "POST /grid/accounts/{id}/users/{user\_id}/s3-access-keys"

Here is where we are going to input the tenant ID and user account ID we collected earlier. fill in the fields and the keys from our ONTAP user in the json box. you can set the expiration of the keys, or remove the ", "expires": 123456789" and click on execute.

**POST**`/grid/accounts/{id}/users/{user_id}/s3-access-keys` Imports S3 credentials for a given user in a tenant account**Parameters**

Name

Description

**id** \* requiredstring  
(path)

ID of Storage Tenant Account

27041610751165610501

**user\_id** \* requiredstring  
(path)

ID of user in tenant account.

ebc132e2-cfc3-42c0-a445-3b4465cb523c

**body** \* required[Edit Value](#) | Model

(body)

```
{  
  "accessKey": "3TVPI142JGE3Y7FV2KC0",  
  "secretAccessKey": "75a10qKBU4quA132twI4g41C4Gg5PP30ncy0sPE8"  
}
```

Once you have completed all of your user key imports you should disable the key import function in "accounts" "POST /grid/account-disable-s3-key-import"

**POST**`/grid/account-disable-s3-key-import` Disables the Import S3 Credentials feature on this node.[Cancel](#)**Parameters**

No parameters

[Execute](#)**Responses**

Response content type

application/json



If we look at the user account in the tenant manager UI, we can see the new key has been added.

## Overview

Full name: <a href="#">?</a>	Demo S3 User 
Username: <a href="#">?</a>	demo_s3_user
User type: <a href="#">?</a>	Local
Denied access: <a href="#">?</a>	Yes
Access mode: <a href="#">?</a>	Read-only
Group membership: <a href="#">?</a>	Demo S3 Group

- [Password](#)
- [Access](#)
- [Access keys](#)
- [Groups](#)

## Manage access keys

Add or delete access keys for this user.

<a href="#">Create key</a>	<a href="#">Actions</a> 
<input type="checkbox"/>	Access key ID  
<input type="checkbox"/>	*****86TR   None
<input type="checkbox"/>	*****2KC0   None

## The final cut-over

If the intention is to have a perpetually replicating bucket from ONTAP to StorageGRID, you can end here. If this is a migration from ONTAP S3 to StorageGRID, then its time to put an end to it and cut over.

Inside ONTAP system manager, edit the S3 group and set it to "ReadOnlyAccess". This will prevent the users from writing to the ONTAP S3 bucket anymore.

## Edit group

X

### NAME

demo\_s3\_group

### USERS

demo\_s3\_user x

### POLICIES

ReadOnlyAccess x

Cancel

Save

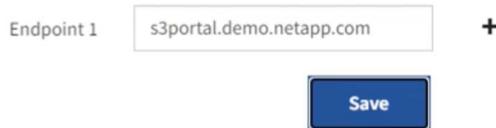


All that is left to do is configure DNS to point from the ONTAP cluster to the StorageGRID endpoint. Make sure your endpoint certificate is correct and if you need virtual hosted style requests then add the endpoint domain names in storageGRID

# Endpoint Domain Names

## Virtual Hosted-Style Requests

Enable support of S3 virtual hosted-style requests by specifying API endpoint domain names. Support is disabled if this list is empty. Examples: s3.example.com, s3.example.co.uk, s3-east.example.com



Endpoint 1    s3portal.demo.netapp.com    +    **Save**

Your clients will either need to wait for the TTL to expire, or flush DNS to resolve to the new system so you can test that everything is working. All that is left is to clean up the initial temporary S3 keys we used to test the StorageGRID data access (NOT the imported keys), remove the snapmirror relationships, and remove the ONTAP data.

*By Rafael Guedes, and Aron Klein*

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