Amazon FSx for ONTAP

Cloud Manager

NetApp
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Amazon FSx for ONTAP

Learn about Amazon FSx for ONTAP

Amazon FSx for ONTAP is a fully managed service allowing customers to launch and run file systems powered by NetApp's ONTAP storage operating system. FSx for ONTAP provides the same features, performance, and administrative capabilities NetApp customers use on premises, with the simplicity, agility, security, and scalability of a native AWS service.

Features

- No need to configure or manage storage devices, software, or backups.
- Support for NFSv3, NFSv4.0, NFSv4.1, and SMB v2.0 - v3.1.1 protocols.
- Low cost, virtually unlimited data storage capacity using available Infrequently Accessed (IA) storage tier.
- Certified to run on latency-sensitive applications including SAP HANA and Oracle RAC.
- Choice of bundled and pay-as-you-go pricing.

Additional features in Cloud Manager

- Using a Connector in AWS and Cloud Manager, you can create and manage volumes, replicate data, and integrate FSx for ONTAP with NetApp cloud services, such as Data Sense and Cloud Sync.
- Using Artificial Intelligence (AI) driven technology, Cloud Data Sense can help you understand data context and identify sensitive data that resides in your FSx for ONTAP accounts. Learn more.
- Using NetApp Cloud Sync, you can automate data migration to any target in the cloud or on premises. Learn more

Cost

Your FSx for ONTAP account is maintained by AWS and not by Cloud Manager. Amazon FSx for ONTAP getting started guide

There is an additional cost associated with using the Connector in AWS and the optional data services such as Cloud Sync and Data Sense.

Supported regions

View supported Amazon regions.

Getting help

Amazon FSx for ONTAP is an AWS first-party solution. For questions or technical support issues associated with your AWS FSx file system, infrastructure or any AWS solution using this service, use the Support Center in your AWS console to open a support case to AWS. Select the "FSx for ONTAP" service and appropriate category. Provide the remaining information required to create your AWS support case.

For general questions specific to Cloud Manager or Cloud Manager micro-services, you can start with the in-line Cloud Manager chat.

For technical support issues specific to Cloud Manager or micro-services within, you can open a NetApp support ticket using your Cloud Manager account level serial number. You will need to register your Cloud Manager serial number to activate support.

Limitations

- Cloud Manager can replicate data only from on-premises or Cloud Volumes ONTAP to FSx for ONTAP.
- Currently, you cannot edit volumes on FSx for ONTAP using Cloud Manager.
- At this time:
  - NFS volumes can be created using Cloud Manager.
  - CIFS volumes can be created using the ONTAP CLI or ONTAP API.
  - iSCSI volumes can be created using the ONTAP CLI or ONTAP API.

Get started with Amazon FSx for ONTAP

Get started with Amazon FSx for ONTAP in a few steps.

You can get started with FSx for ONTAP in just a few steps.

Create an FSx for ONTAP working environment

You must create an Amazon FSx for ONTAP working environment before adding volumes. You will need an AWS access key and secret key for an IAM user with FSx for ONTAP permissions.

Create a Connector

You must have a Connector for AWS to open the FSx for ONTAP working environment, create volumes, or perform other actions. When a Connector is required, Cloud Manager will prompt you if one is not already added.

Add volumes

You can create FSx for ONTAP volumes using Cloud Manager.

Manage your volumes

Use Cloud Manager to manage your volumes and configure additional services such as replication, Cloud Sync, and Data Sense.

Related links

- Creating a Connector from Cloud Manager
- Launching a Connector from the AWS Marketplace
- Installing the Connector software on a Linux host

Set up permissions for FSx for ONTAP

To create or manage your Amazon FSx for ONTAP working environment, you need an AWS access key and secret key for an IAM user role with FSx for ONTAP permissions. These permissions are different from the permissions required to create a Connector in AWS.

You can create a new IAM user role with FSx for ONTAP permissions or edit an existing IAM user role to include the additional FSx for ONTAP permissions. We recommend the latter to avoid having to use multiple keys for your Connector and for FSx for ONTAP access.

Steps

To grant FSx for ONTAP permissions to an IAM user role:

1. From the AWS IAM console, create a new policy or edit an existing policy to include the following actions for FSx for ONTAP:

   ```
   "ec2:Describe*"
   "kms:Describe*"
   "kms:List*"
   "fsx:*"
   "iam:CreateServiceLinkedRole"
   "ec2:CreateTags"
   ```

   AWS Documentation: Creating IAM Policies

2. Attach the policy you created in the previous step to the IAM user role.

   AWS Documentation: Creating IAM Roles

   AWS Documentation: Adding and Removing IAM Policies

Result

The AWS user now has permissions required for FSx for ONTAP in Cloud Manager.

Related links

- AWS credentials and permissions
- Create a Connecter in AWS
- Managing AWS credentials for Cloud Manager
- What Cloud Manager does with AWS permissions

Create an Amazon FSx for ONTAP working environment

Cloud Manager enables you to create an FSx for ONTAP working environment to add volumes and manage additional data services.

Create an Amazon FSx for ONTAP working environment

The first step is to create an FSx for ONTAP working environment. If you already created an FSx for ONTAP file system in the AWS Management Console, you can discover it using Cloud Manager.

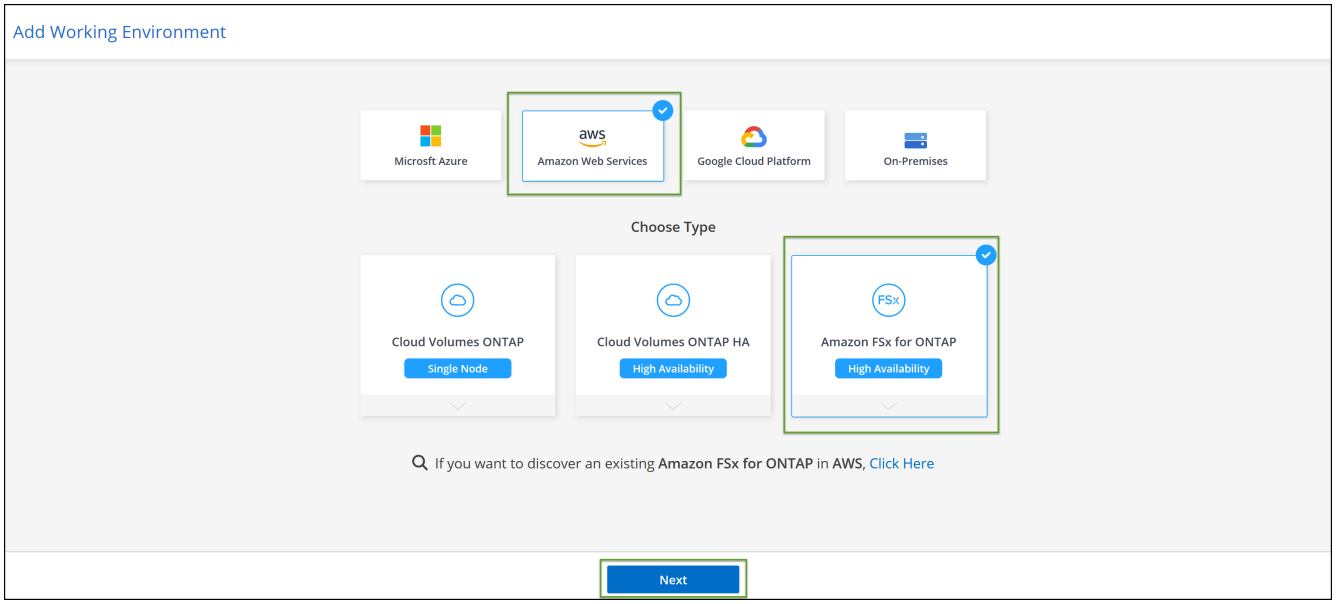
Before you begin

Before creating your FSx for ONTAP working environment in Cloud Manager, you will need:

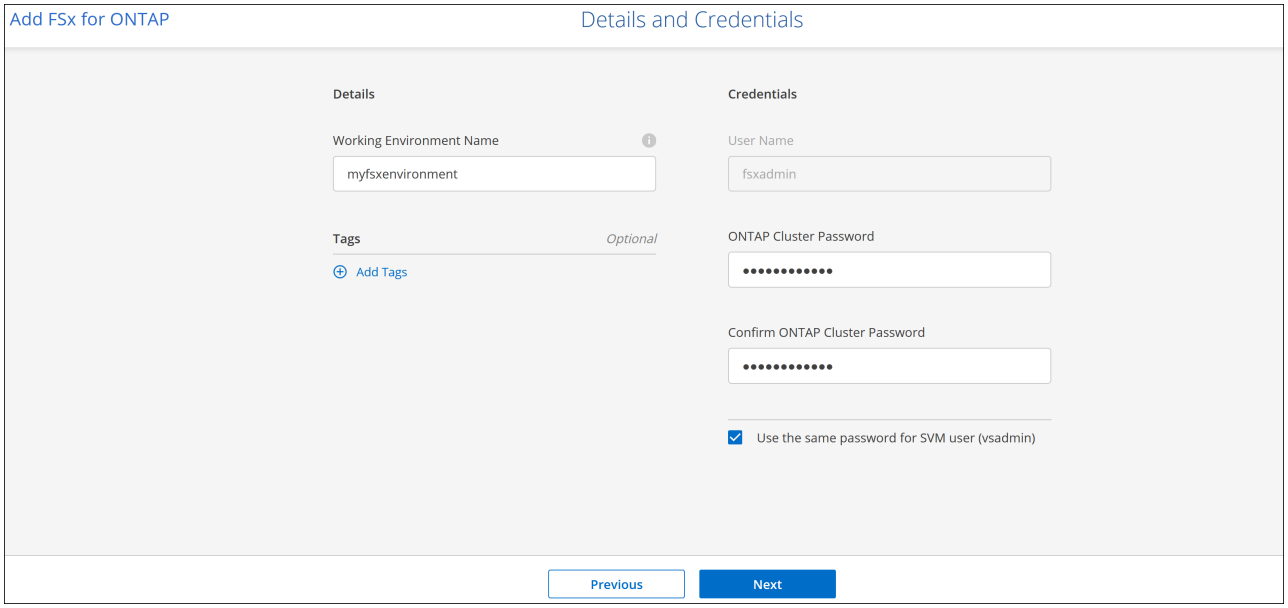
- An AWS access key and secret key for an IAM user with the required FSx for ONTAP permissions.
- The region and VPN information for where you will create the FSx for ONTAP instance.

Steps

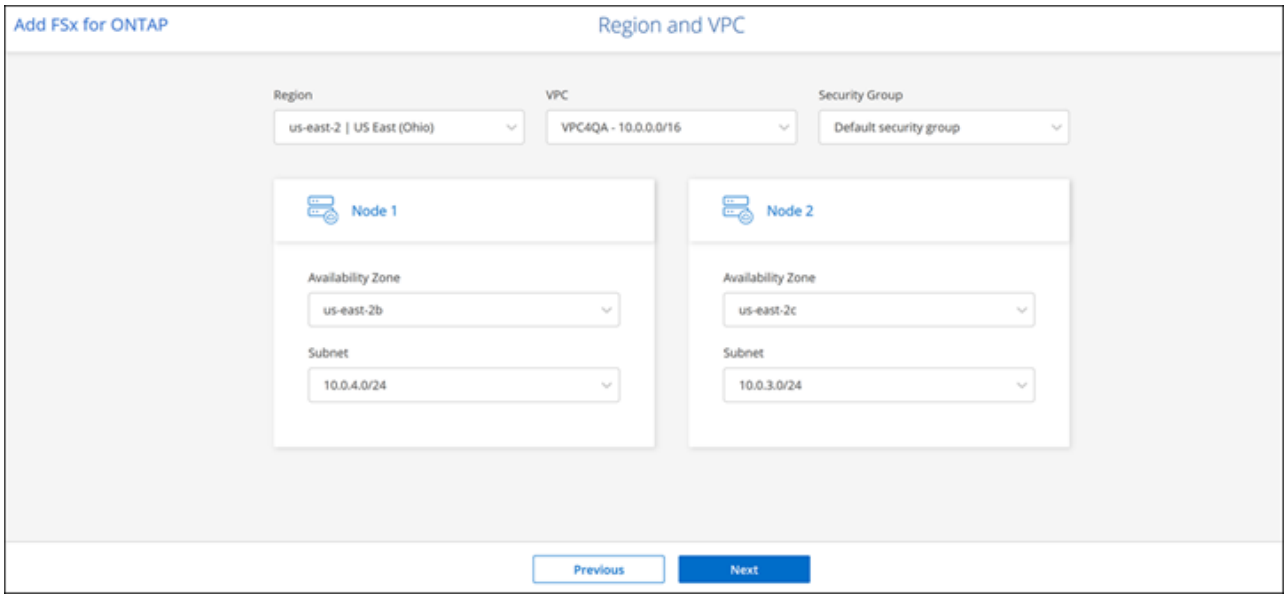
1. In Cloud Manager, add a new Working Environment, select the location **Amazon Web Services**, and click **Next**.
2. Select **Amazon FSx for ONTAP** and click **Next**.



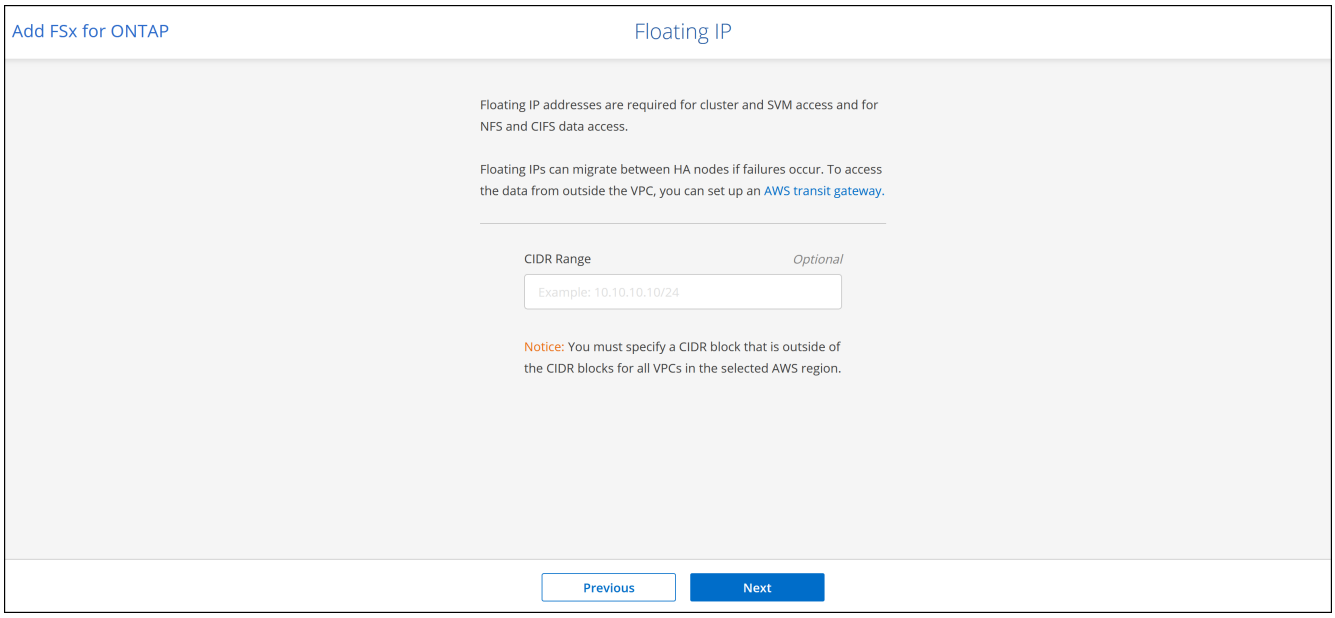
3. You can select existing FSx for ONTAP credentials or create new credentials using your AWS access key and secret key. Click to verify your IAM user policy adheres to FSx for ONTAP requirements.
4. Provide information about your FSx for ONTAP instance:
   a. Enter the working environment name you want to use.
   b. Optionally, you can create tags by clicking the plus sign and entering a tag name and value.
   c. Enter and confirm the ONTAP Cluster password you want to use.
   d. Select the option to use the same password for your SVM user or set a different password.
   e. Click **Next**.



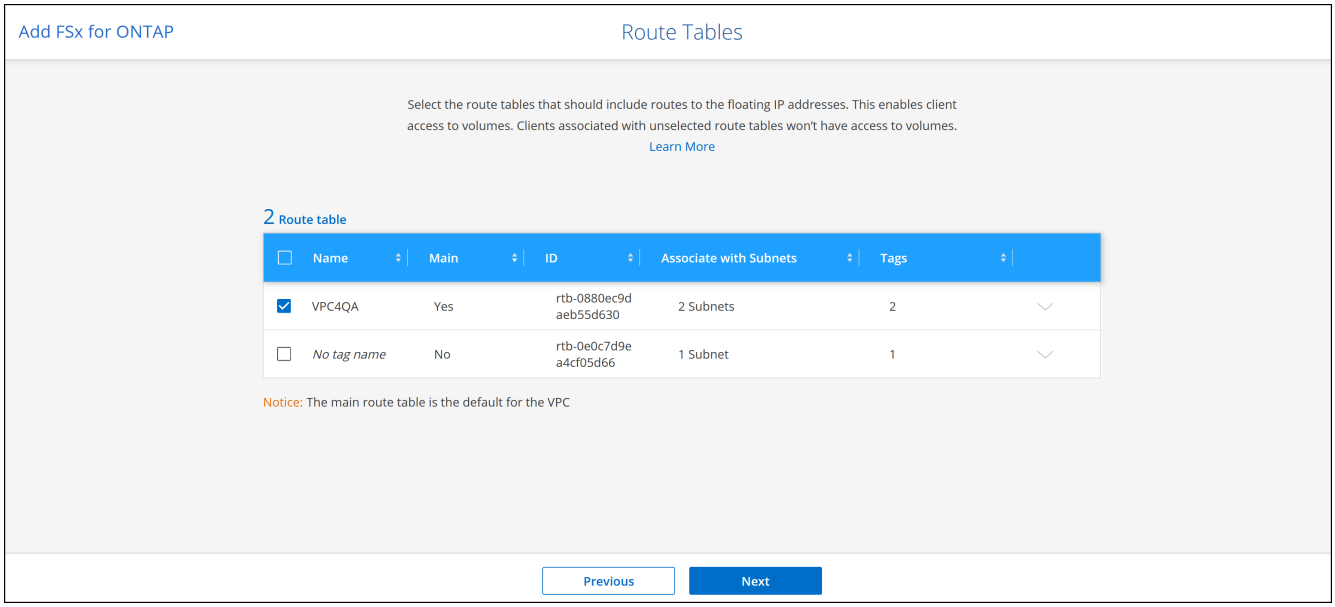
5. Provide region and VPC information:
   a. Select a region and VPC with subnets in at least two Availability Zones so each node is in a dedicated Availability Zone.
   b. Accept the default security group or select a different one. AWS security groups control inbound and outbound traffic. These are configured by your AWS admin and are associated with your AWS elastic network interface (ENI).
   c. Select an Availability Zone and subnet for each node.
   d. Click **Next**.



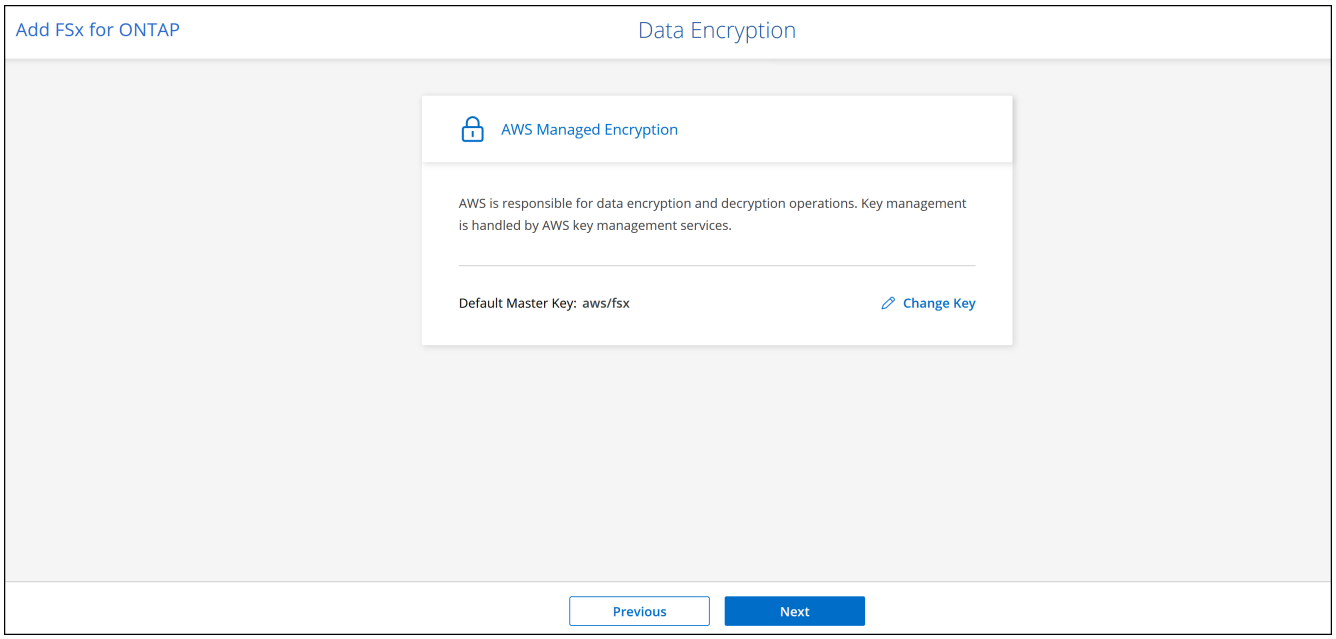
6. Leave *CIDR Range* empty and click **Next** to automatically set an available range. Optionally, you can use AWS Transit Gateway to manually configure a range.



7. Select route tables that include routes to the floating IP addresses. If you have just one route table for the subnets in your VPC (the main route table), Cloud Manager automatically adds the floating IP addresses to that route table. Click **Next** to continue.

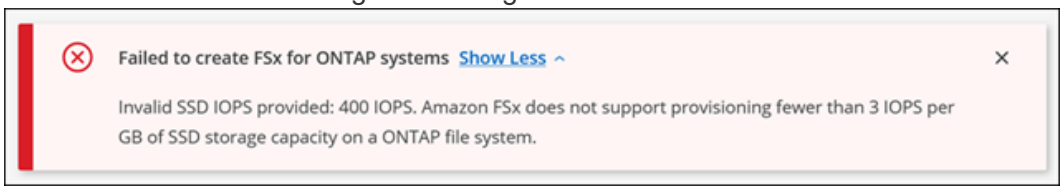


8. Accept the default AWS master key or click **Change Key** to select a different AWS Customer Master Key (CMK). For more information on CMK, see Setting up the AWS KMS. Click **Next** to continue.

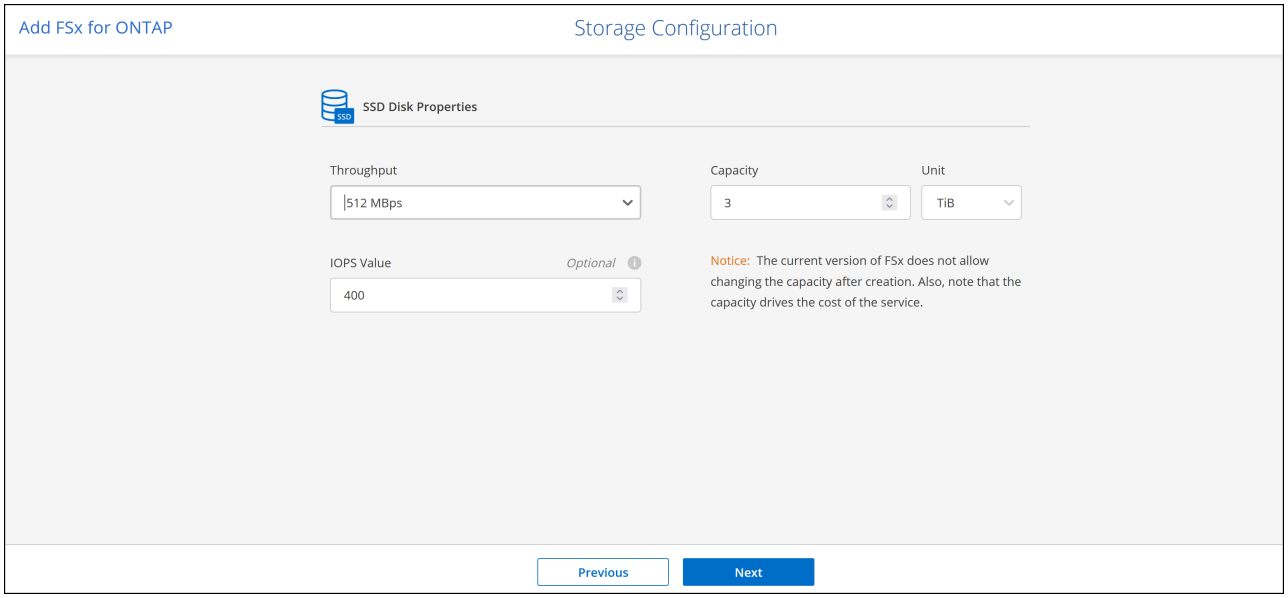


9. Configure your storage:
   a. Select the throughput, capacity, and unit.
   b. You can optionally specify an IOPS value. If you don't specify an IOPS value, Cloud Manager will set a default value based on 3 IOPS per GiB of the total capacity entered. For example, if you enter 2000 GiB for the total capacity and no value for the IOPS, the effective IOPS value will be set to 6000.

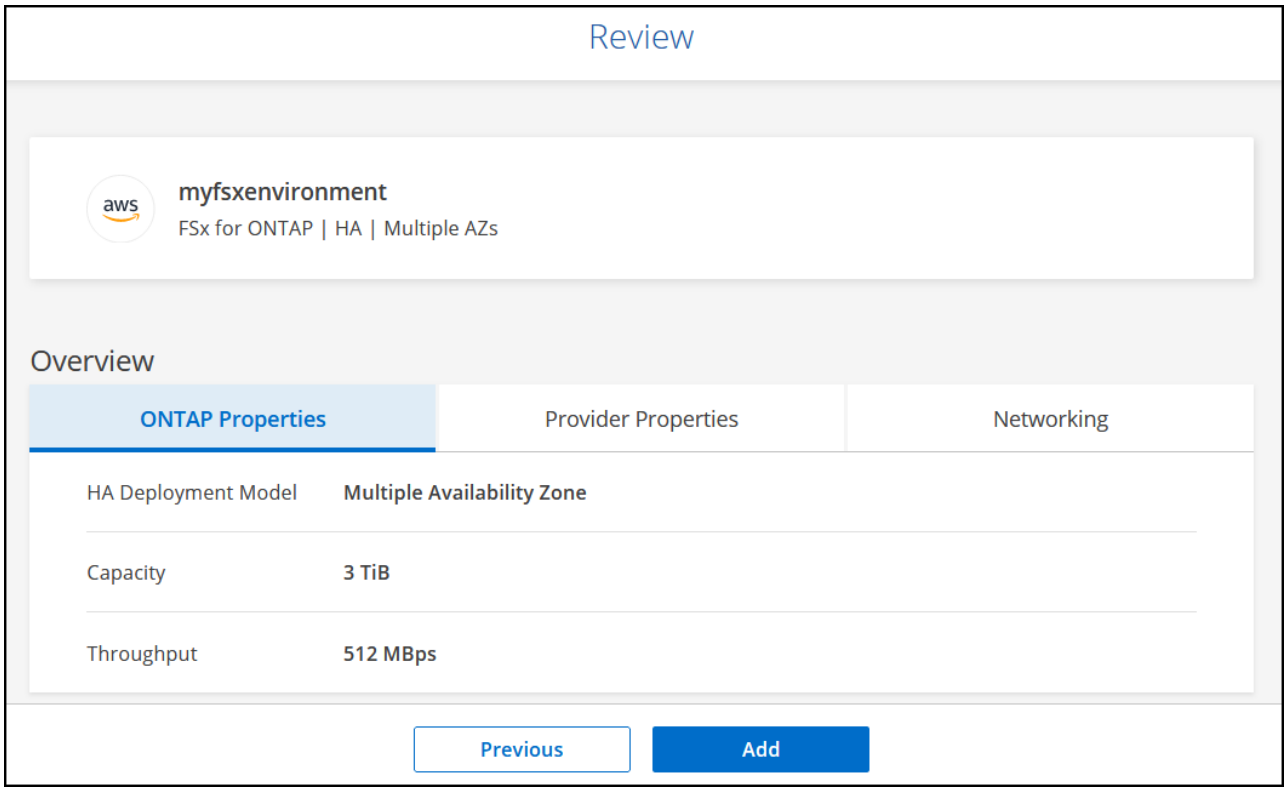
If you specify an IOPS value that does not meet the minimum requirements, you'll receive an error when adding the working environment.



   c. Click **Next**.

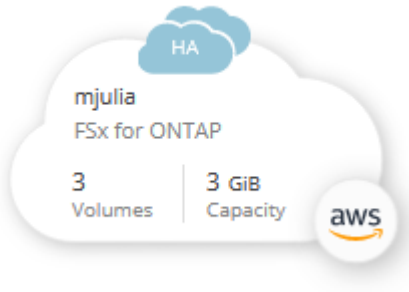


10. Review your configuration:
    a. Click the tabs to review your ONTAP properties, provider properties, and networking configuration.
    b. Click **Previous** to make changes to any settings.
    c. Click **Add** to accept the settings and create your Working Environment.



Result

Cloud Manager displays your FSx for ONTAP configuration on the Canvas page.



You can now add volumes from to your FSx for ONTAP working environment using Cloud Manager.

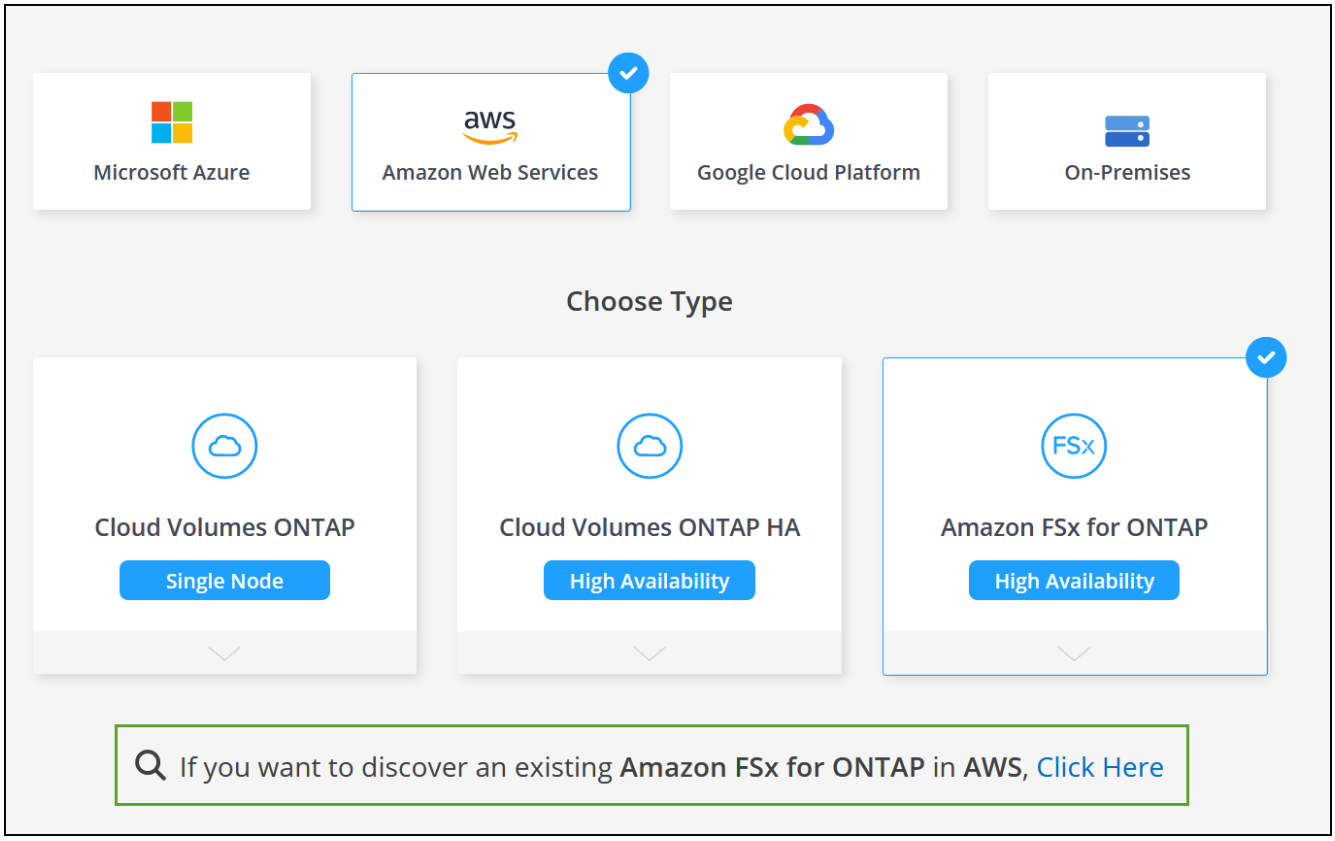
Discover an existing FSx for ONTAP file system

If you created an FSx for ONTAP file system using the AWS Management Console or if you want to restore a working environment you previously removed, you can discover it using Cloud Manager.

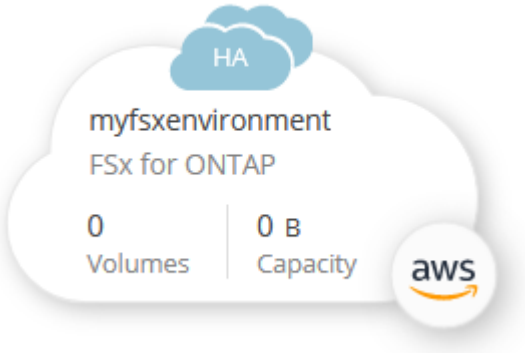
Steps

1. In Cloud Manager, click **Add Working Environment**, select **Amazon Web Services**.

2. Select **Amazon FSx for ONTAP** and click **Click Here**.



3. Select existing credentials or create new credentials. Click **Next**.
4. Select the AWS region and the working environment you want to add.



5. Click **Add**.

Result

Cloud Manager displays your discovered FSx for ONTAP file system.

Create and manage volumes for Amazon FSx for ONTAP

After you set up your working environment, you can create and manage FSx for ONTAP volumes, clones, and snapshots, change tiering policies, and remove or delete FSx for ONTAP.

Creating volumes

You can create NFS volumes in a new or existing FSx for ONTAP working environment. If CIFS volumes were created using ONTAP CLI, they will be visible in your FSx for ONTAP working environment.

At this time, you cannot edit FSx for ONTAP volumes from Cloud Manager.

Before you begin

You need:

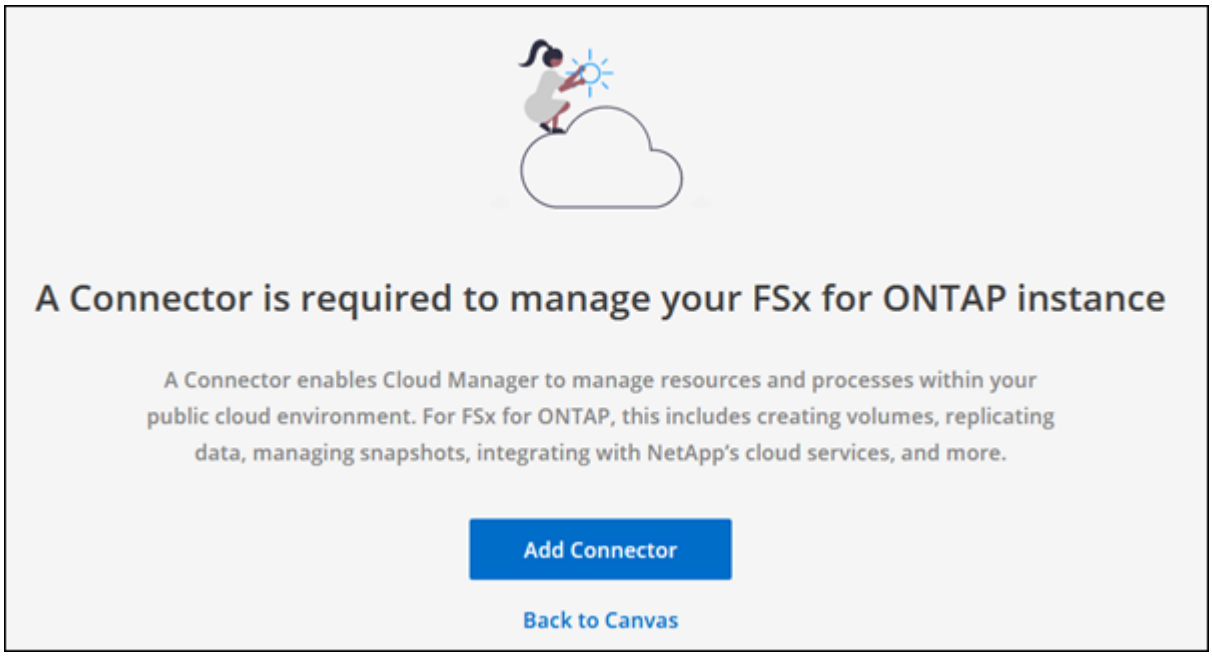
- An active Connector in AWS.

  You do not need a Connector in AWS to remove or delete a working environment.

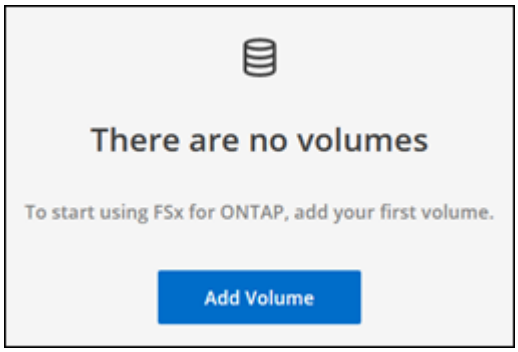
- If you want to use SMB, you must have set up DNS and Active Directory.

Steps

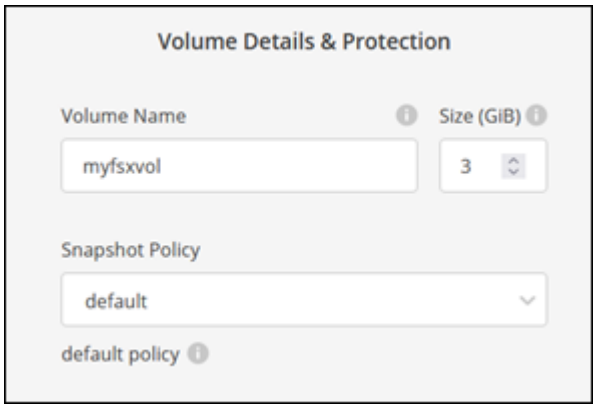
1. Open the FSx for ONTAP working environment.
2. If you don't have a Connector enabled, you'll be prompted to add one.



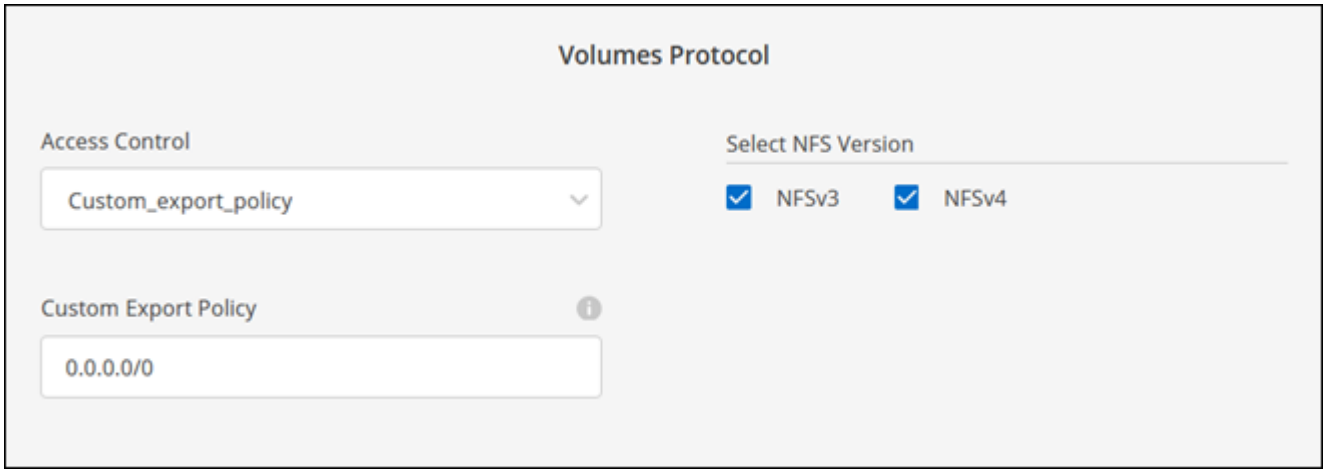
3. Click the **Volumes** tab
4. Click **Add Volume**.



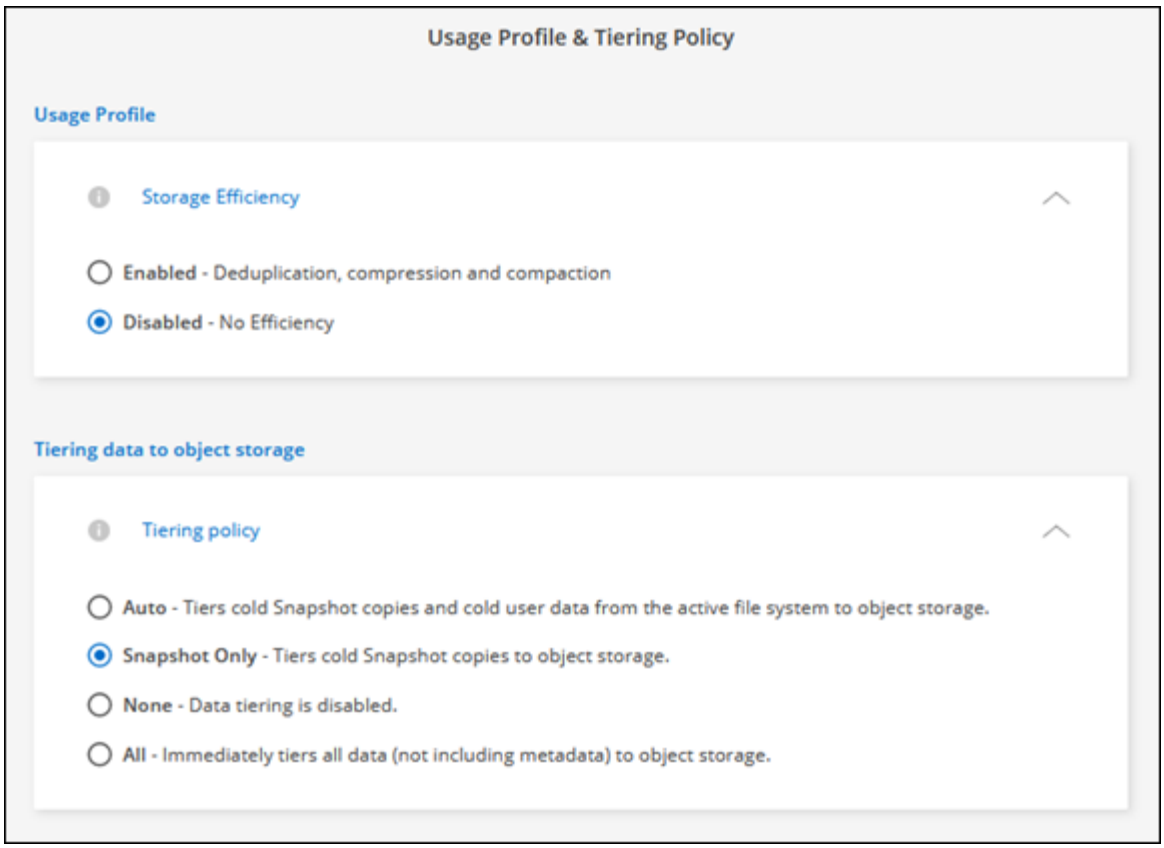
5. **Volume Details and Protection**:
    a. Enter a name for your new volume.
    b. Enter the volume size. Note that the volume size will grow with usage.
    c. Select a snapshot policy. By default, a snapshot is taken every hour (keeping the last six copies), every day (keeping the last two copies), and every week (keeping the last two copies).
    d. Click **Next**.



6. **Protocol**: Select the NFS versions and Access Control policy. Optionally, specify a custom export policy. Click **Next**.



7. **Usage Profile and Tiering**:
    a. By default, **Storage Efficiency** is disabled. You can change this setting to enable deduplication and compression.
    b. By default, **Tiering Policy** is set to **Snapshot Only**. You can select a different tiering policy based on your needs.
    c. Click **Next**.



8. **Review**: Review your volume configuration. Click **Previous** to change settings or click **Add** to create the volume.

Result

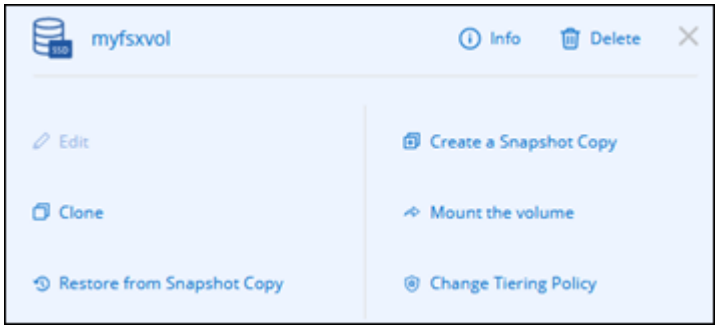
The new volume is added to the working environment.

Mounting volumes

Access mounting instructions from within Cloud Manager so you can mount the volume to a host.

Steps

1. Open the working environment.
2. Open the volume menu and select **Mount the volume**.



3. Follow the instructions to mount the volume.

Cloning the volume

After you create a volume, you can create a new read-write volume from a new Snapshot.

Steps

1. Open the working environment.
2. Open the volume menu and select **Clone**.
3. Enter a name for the cloned volume.
4. Click **Clone**.

Managing Snapshot copies

Snapshot copies provide a point-in-time copy of your volume. Create Snapshot copies and restore the data to a new volume.

Steps

1. Open the working environment.
2. Open the volume menu and choose one of the available options to manage Snapshot copies:
    - **Create a Snapshot copy**
    - **Restore from a Snapshot copy**
3. Follow the prompts to complete the selected action.

Changing the tiering policy

Change the tiering policy for the volume.

Steps

1. Open the working environment.
2. Open the volume menu and select **Change Tiering policy**.
3. Select a new volume tiering policy and click **Change**.

Replicating data

You can replicate data between storage environments using Cloud Manager. To configure FSx for ONTAP replication, see replicating data between systems

Syncing data

You can create sync relationships using Cloud Sync in Cloud Manager. To configure sync relationships, see create sync relationships.

Deleting volumes

Delete the volumes that you no longer need.

Before you begin

You cannot delete a volume that was previously part of a SnapMirror relationship using Cloud Manager. SnapMirror volumes must be deleted using the AWS Management Console or CLI.

Steps

1. Open the working environment.
2. Open the volume menu and select **Delete**.
3. Enter the working environment name and confirm that you want to delete the volume. It can take up to an hour before the volume is completely removed from Cloud Manager.

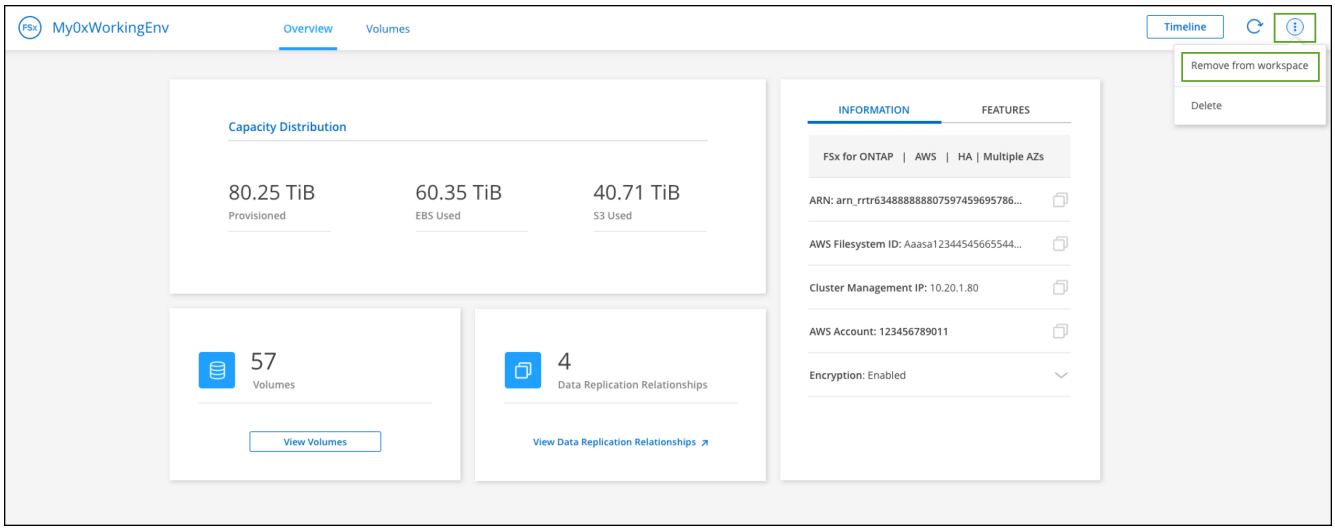
If you try to delete a cloned volume, you will receive an error.

Removing FSx for ONTAP from the workspace

You can remove FSx for ONTAP from Cloud Manager without deleting your FSx for ONTAP account or volumes. You can add the FSx for ONTAP working environment back to Cloud Manager at any time.

Steps

1. Open the working environment. If you don't have a Connector in AWS, you will see the prompt screen. You can ignore this and proceed with removing the working environment.
2. At the top right of the page, select the actions menu and click **Remove from workspace**.



3. Click **Remove** to remove FSx for ONTAP from Cloud Manager.

Deleting the FSx for ONTAP working environment

You can delete the FSx for ONTAP from Cloud Manager.

Before you begin

- You must delete all volumes associated with the file system.
- You cannot delete a working environment that contains failed volumes. Failed volumes must be deleted using the AWS Management Console or CLI prior to deleting FSx for ONTAP files system.

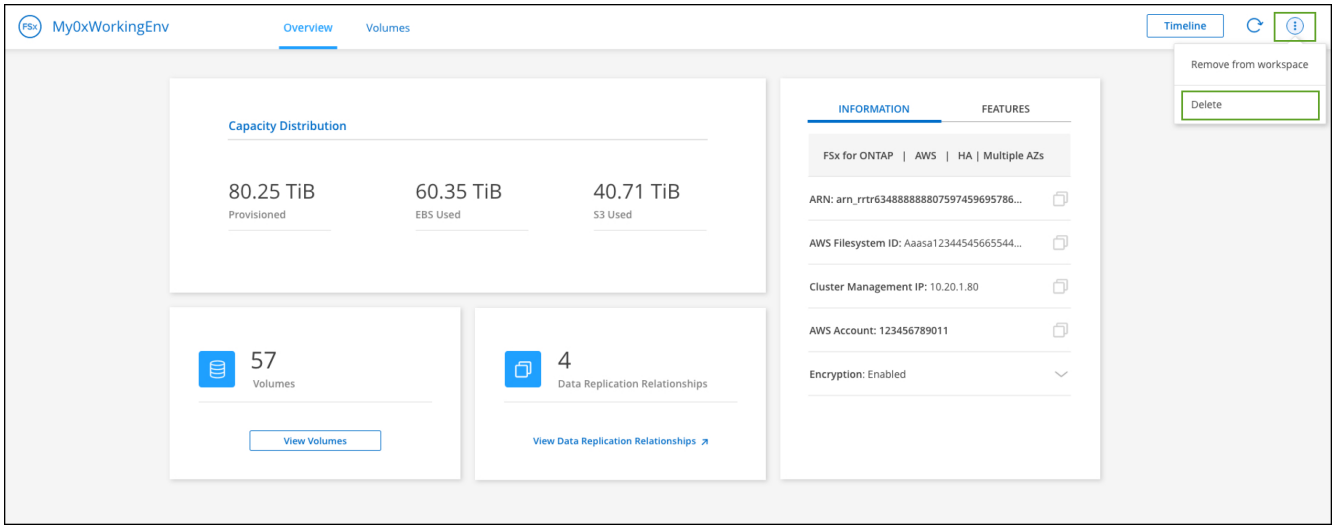
This action will delete all resources associated with the working environment. This action cannot be undone.

Steps

1. Open the working environment. If you don't have a Connector in AWS, you will see the prompt screen. You

can ignore this and proceed to deleting the working environment.

2. At the top right of the page, select the actions menu and click **Delete**.



3. Enter the name of the working environment and click **Delete**.