



## Get started

### Replication

NetApp  
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# Get started

## Learn about the Replication service

NetApp SnapMirror replicates data at high speeds over LAN or WAN, so you get high data availability and fast data replication in both virtual and traditional environments. When you replicate data to NetApp storage systems and continually update the secondary data, your data is kept current and remains available whenever you need it. No external replication servers are required.

### Features

- Replicate data between ONTAP storage systems to support backup and disaster recovery to the cloud or between clouds.
- Ensure the reliability of your DR environment with high availability.
- Efficient block-level replication between ONTAP storage is fast and efficient, with granular recovery points for both DR and backup.

### Cost

NetApp doesn't charge you for using the Replication service, but you'll need to check your cloud provider for applicable data ingress and egress charges.

### Supported working environments

Cloud Manager enables data replication between the following types of working environments.

Source working environment	Supported target working environments
Cloud Volumes ONTAP	<ul style="list-style-type: none"><li>• Amazon FSx for ONTAP</li><li>• Cloud Volumes ONTAP</li><li>• On-prem ONTAP cluster</li></ul>
On-prem ONTAP cluster	<ul style="list-style-type: none"><li>• Amazon FSx for ONTAP</li><li>• Cloud Volumes ONTAP</li><li>• On-prem ONTAP cluster</li></ul>

### How data replication works

Cloud Manager simplifies data replication between volumes on separate ONTAP systems using SnapMirror and SnapVault technologies. You simply need to identify the source volume and the destination volume, and then choose a replication policy and schedule.

For Cloud Volumes ONTAP, Cloud Manager purchases the required disks, configures relationships, applies the replication policy, and then initiates the baseline transfer between volumes.



The baseline transfer includes a full copy of the source data. Subsequent transfers contain differential copies of the source data.

## Supported data protection configurations

Cloud Manager supports simple, fanout, and cascade data protection configurations:

- In a simple configuration, replication occurs from volume A to volume B.
- In a fanout configuration, replication occurs from volume A to multiple destinations.
- In a cascade configuration, replication occurs from volume A to volume B and from volume B to volume C.

## Set up data replication

You can replicate data between ONTAP working environments by choosing a one-time data replication for data transfer, or a recurring schedule for disaster recovery or long-term retention. For example, you can set up data replication from an on-prem ONTAP system to Cloud Volumes ONTAP for disaster recovery.

### Data replication requirements

Before you can replicate data, you should confirm that specific requirements are met for Cloud Volumes ONTAP, on-prem ONTAP clusters, or Amazon FSx for ONTAP.

#### Working environments

If you haven't done so already, you need to create the working environments for the source and target in the data replication relationship.

- [Create an Amazon FSx for ONTAP working environment](#)
- [Launch Cloud Volumes ONTAP in AWS](#)
- [Launch Cloud Volumes ONTAP in Azure](#)
- [Launch Cloud Volumes ONTAP in GCP](#)
- [Add existing Cloud Volumes ONTAP systems](#)
- [Discover ONTAP clusters](#)

#### Version requirements

You should verify that the source and destination volumes are running compatible ONTAP versions before replicating data. For details, see the [Data Protection Power Guide](#).

#### Requirements specific to Cloud Volumes ONTAP

- The instance's security group must include the required inbound and outbound rules: specifically, rules for ICMP and ports 11104 and 11105.

These rules are included in the predefined security group.

- To replicate data between two Cloud Volumes ONTAP systems in different subnets, the subnets must be routed together (this is the default setting).
- To replicate data between two Cloud Volumes ONTAP systems in different cloud providers, you must have a VPN connection between the virtual networks.

## Requirements specific to ONTAP clusters

- An active SnapMirror license must be installed.
- If the cluster is on your premises, you should have a connection from your corporate network to your virtual network in AWS, Azure, or GCP. This is typically a VPN connection.
- ONTAP clusters must meet additional subnet, port, firewall, and cluster requirements.

For details, see the [Cluster and SVM Peering Express Guide](#).

## Requirements specific to Amazon FSx for ONTAP

- An Amazon FSx for ONTAP working environment must be the target in the data replication relationship.

The source can be Cloud Volumes ONTAP or an on-prem ONTAP cluster.

- If Cloud Volumes ONTAP is the source, ensure connectivity between VPCs by enabling VPC peering or by using a Transit Gateway.
- If an on-prem ONTAP cluster is the source, ensure connectivity between your on-premises network and the AWS VPC by using a Direct Connect or VPN connection.

## Replicate data between systems

You can replicate data by choosing a one-time data replication, which can help you move data to and from the cloud, or a recurring schedule, which can help with disaster recovery or long-term retention.

### Steps

1. On the Canvas page, select the working environment that contains the source volume, and then drag it to the working environment to which you want to replicate the volume.



2. **Source and Destination Peering Setup:** If this page appears, select all of the intercluster LIFs for the cluster peer relationship.

The intercluster network should be configured so that cluster peers have *pair-wise full-mesh connectivity*, which means that each pair of clusters in a cluster peer relationship has connectivity among all of their intercluster LIFs.

These pages appear if an ONTAP cluster that has multiple LIFs is the source or destination.

3. **Source Volume Selection:** Select the volume that you want to replicate.
4. **Destination Disk Type and Tiering:** If the target is a Cloud Volumes ONTAP system, select the destination disk type and choose whether you want to enable data tiering.
5. **Destination Volume Name:** Specify the destination volume name and choose the destination aggregate.

If the destination is an ONTAP cluster, you must also specify the destination storage VM.

6. **Max Transfer Rate:** Specify the maximum rate (in megabytes per second) at which data can be transferred.

You should limit the transfer rate. An unlimited rate might negatively impact the performance of other applications and it might impact your internet performance.

7. **Replication Policy:** Choose a default policy or click **Additional Policies**, and then select one of the advanced policies.

For help, [learn about replication policies](#).

If you choose a custom backup (SnapVault) policy, the labels associated with the policy must match the labels of the Snapshot copies on the source volume. For more information, [learn how backup policies work](#).

8. **Schedule:** Choose a one-time copy or a recurring schedule.

Several default schedules are available. If you want a different schedule, you must create a new schedule on the *destination* cluster using System Manager.

9. **Review:** Review your selections and click **Go**.

## Result

Cloud Manager starts the data replication process. You can view details about the volume relationship in the Replication service.

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