# Get started

## BlueXP replication

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# Get started

## Learn about BlueXP replication

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 BlueXP replication, but you'll need to check your cloud provider for applicable data ingress and egress charges.

### Supported working environments

BlueXP enables data replication between the following types of working environments.

| Source working environment | Supported target working environments |
|---|---|
| Cloud Volumes ONTAP | • Amazon FSx for ONTAP<br>• Cloud Volumes ONTAP<br>• On-prem ONTAP cluster |
| On-prem ONTAP cluster | • Amazon FSx for ONTAP<br>• Cloud Volumes ONTAP<br>• On-prem ONTAP cluster |
| Amazon FSx for ONTAP | • Amazon FSx for ONTAP<br>• Cloud Volumes ONTAP<br>• On-prem ONTAP cluster |

### How data replication works

BlueXP 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, BlueXP 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

BlueXP 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.

### Replicate data using BlueXP backup and recovery

Starting with the BlueXP Connector 3.9.31 release, BlueXP backup and recovery enables you to replicate data between volumes on separate ONTAP systems using SnapMirror and SnapVault technologies. So if you plan to replicate data to other ONTAP systems, and you also want to create backups of the same data to object storage, you may want to use BlueXP backup and recovery so that you can manage your data protection needs with a single service.

Currently, the following functionality is only supported in the BlueXP replication service - not when using the replication feature of BlueXP backup and recovery.

- There is no support for a cascade configuration where replication occurs from volume A to volume B, and then from volume B to volume C.
- There is no support for replicating data to or from FSx for ONTAP systems.
- There is no support for creating a one-time replication of a volume.

So if you require any of this functionality, use BlueXP replication.

# 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.

### Step 1: Review 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
- Create a Cloud Volumes ONTAP working environment
- 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.

View compatible ONTAP versions for SnapMirror relationships

**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 the cloud. This is typically a VPN connection.
- ONTAP clusters must meet additional subnet, port, firewall, and cluster requirements.

  View prerequisites for cluster peering in the ONTAP documentation

**Requirements specific to Amazon FSx for ONTAP**

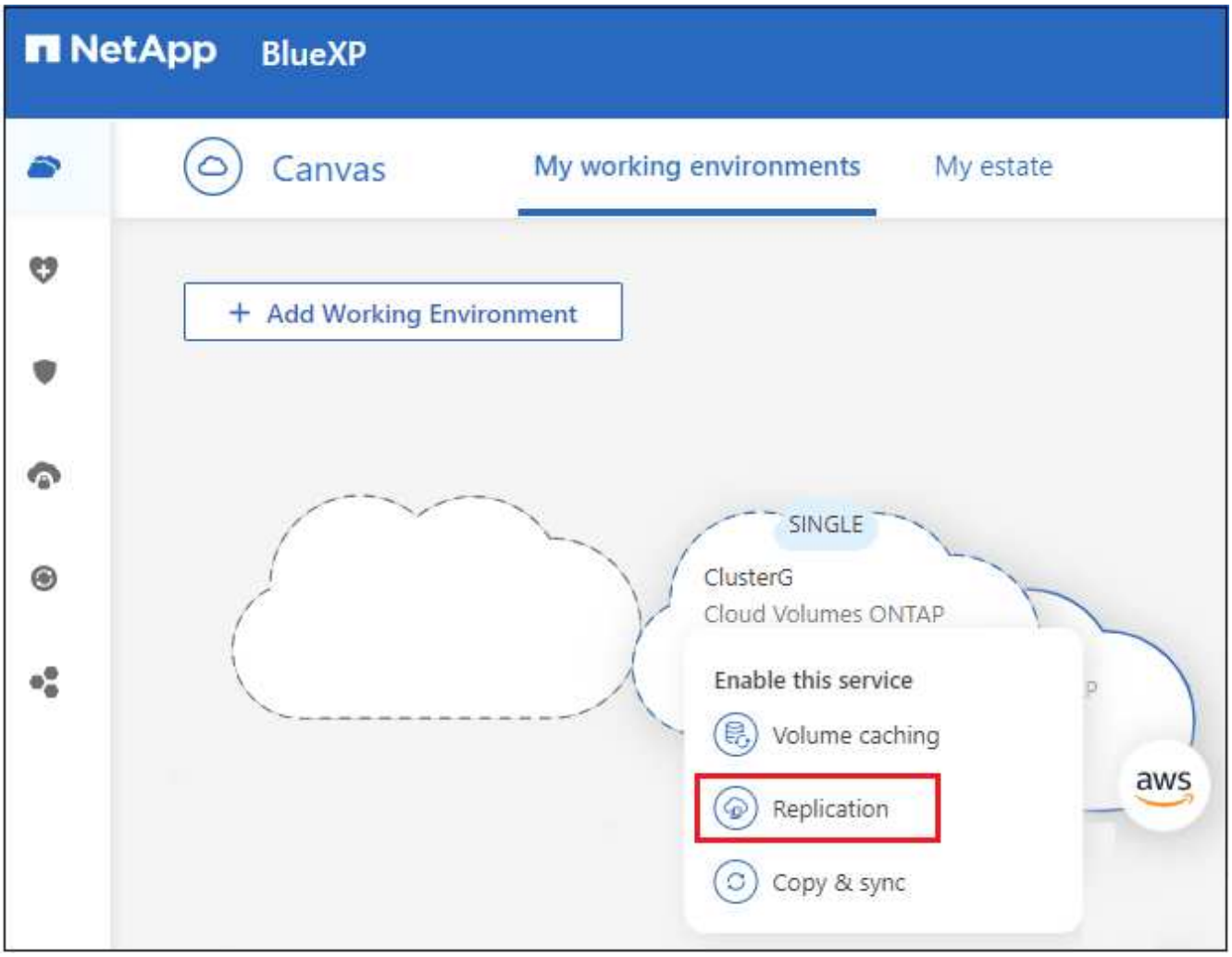
- If Cloud Volumes ONTAP is part of the relationship, ensure connectivity between VPCs by enabling VPC peering or by using a Transit Gateway.
- If an on-prem ONTAP cluster is part of the relationship, ensure connectivity between your on-premises network and the AWS VPC by using a Direct Connect or VPN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

## Step 2: 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. From the navigation menu, select **Storage > Canvas**.
2. On the Canvas, select the working environment that contains the source volume, drag it to the working environment to which you want to replicate the volume, and then select **Replication**.




The remaining steps provide an example of how to create a sync relationship between Cloud Volumes ONTAP or on-prem ONTAP clusters.

3. **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.

4. **Source Volume Selection**: Select the volume that you want to replicate.
5. **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.
6. **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.

7. **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.

8. **Replication Policy**: Choose a default policy or select **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.

9. **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.

10. **Review**: Review your selections and select **Go**.

**Result**

BlueXP starts the data replication process. You can view details about the volume relationship from the BlueXP replication service.

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