



# **Volume disaster recovery preparation**

System Manager Classic

NetApp

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# Table of Contents

Volume disaster recovery preparation .....	1
Volume disaster recovery preparation overview .....	1
Other ways to do this in ONTAP .....	1
Volume disaster recovery preparation workflow .....	1
Verify the cluster peer relationship and SVM peer relationship .....	2
Create the SnapMirror relationship (Beginning with ONTAP 9.3) .....	3
Create the SnapMirror relationship (ONTAP 9.2 or earlier) .....	5
Set up the destination SVM for data access .....	7
Monitor the status of SnapMirror data transfers .....	8

# Volume disaster recovery preparation

## Volume disaster recovery preparation overview

You can quickly protect a source volume on a peered ONTAP cluster in preparation for disaster recovery. You should use this procedure if you want to configure and monitor SnapMirror relationships between peered clusters for volume disaster recovery and do not need a lot of conceptual background for the tasks.

SnapMirror provides scheduled asynchronous, block-level data protection. SnapMirror replicates Snapshot copies and can replicate NAS or SAN volumes on which deduplication, data compression, or both are run, including volumes containing qtrees and LUNs. SnapMirror configuration information is stored in a database that ONTAP replicates to all the nodes in the cluster.

Use this procedure if you want to create SnapMirror relationships for volume-level disaster recovery in the following way:

- You are working with clusters running ONTAP 9.
- You are a cluster administrator.
- You have configured the cluster peer relationship and the SVM peer relationship.

### [Cluster and SVM peering configuration](#)

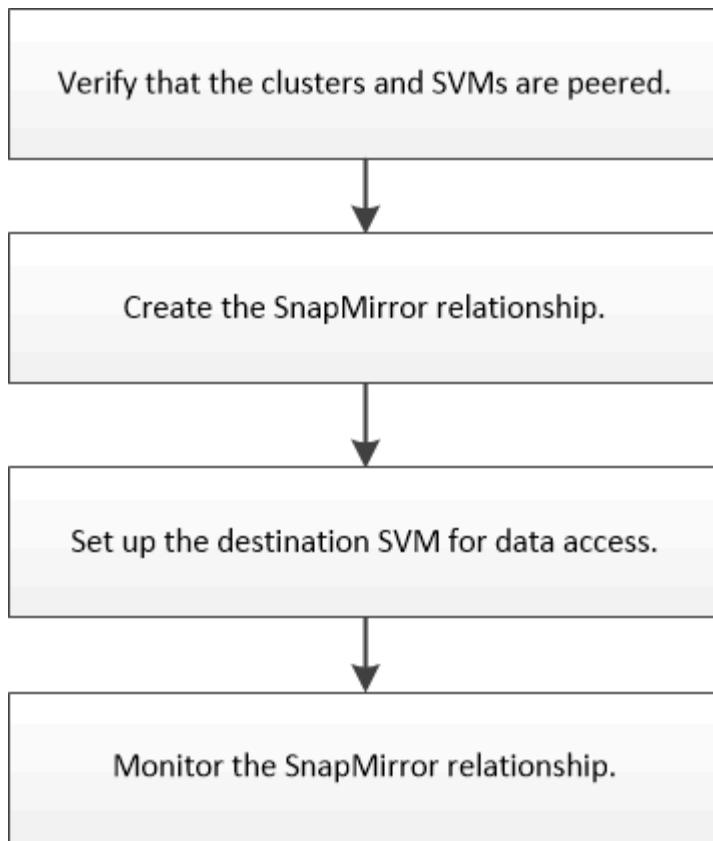
- You have enabled the SnapMirror license on both the source and the destination clusters.
- You want to use default policies and schedules, and not create custom policies.
- You want to use best practices, not explore every available option (ONTAP 9.7 and earlier).

## Other ways to do this in ONTAP

To perform these tasks with...	Refer to...
The redesigned System Manager (available with ONTAP 9.7 and later)	<a href="#">Prepare for mirroring and vaulting</a>
The ONTAP command line interface	<a href="#">Create a cluster peer relationship (ONTAP 9.3 and later)</a>

## Volume disaster recovery preparation workflow

Preparing volumes for disaster recovery involves verifying the cluster peer relationship, creating the SnapMirror relationship between volumes residing on peered clusters, setting up the destination SVM for data access, and monitoring the SnapMirror relationship periodically.



Additional documentation is available to help you activate the destination volume to test the disaster recovery setup or when a disaster occurs. You can also learn more about how to reactivate the source volume after the disaster.

#### [Volume disaster recovery](#)

+ Describes how to quickly activate a destination volume after a disaster and then reactivate the source volume in ONTAP.

### Verify the cluster peer relationship and SVM peer relationship

Before you set up a volume for disaster recovery, you must verify that the source and destination clusters are peered and are communicating with each other through the peer relationship.

#### Procedure

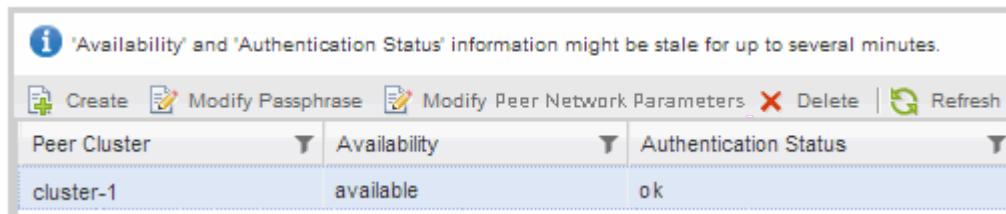
- If you are running ONTAP 9.3 or later, perform the following steps to verify the cluster peer relationship and SVM peer relationship:
  - a. Click **Configuration > Cluster Peers**.
  - b. Verify that the peered cluster is authenticated and is available.

Cluster Peers					
Peer Cluster	Availability	Authentication Status	Local Cluster IP Space	Peer Cluster Intercluster IP Addresses	Last Updated Time
cluster2	Available	OK	Default	10.237.213.119, 10.237.213.127	Nov 27, 2017, 2:13 PM

- c. Click **Configuration > SVM Peers**.

d. Verify that the destination SVM is peered with the source SVM.

- If you are running ONTAP 9.2 or earlier, perform the following steps to verify the cluster peer relationship and SVM peer relationship:
  - Click the **Configurations** tab.
  - In the **Cluster Details** pane, click **Cluster Peers**.
  - Verify that the peered cluster is authenticated and available.



The screenshot shows a table titled 'Cluster Peers' with three columns: 'Peer Cluster', 'Availability', and 'Authentication Status'. There is one entry: 'cluster-1' under 'Peer Cluster', 'available' under 'Availability', and 'ok' under 'Authentication Status'. A note at the top of the interface says: "'Availability' and 'Authentication Status' information might be stale for up to several minutes.'

Peer Cluster	Availability	Authentication Status
cluster-1	available	ok

d. Click the **SVMs** tab and select the source SVM.

e. In the **Peer Storage Virtual Machines** area, verify the destination SVM is peered with the source SVM.

If you do not see any peered SVM in this area, you can create the SVM peer relationship when creating the SnapMirror relationship.

#### [Creating the SnapMirror relationship \(ONTAP 9.2 or earlier\)](#)

## Create the SnapMirror relationship (Beginning with ONTAP 9.3)

You must create a SnapMirror relationship between the source volume on one cluster and the destination volume on the peered cluster for replicating data for disaster recovery.

### Before you begin

- The destination aggregate must have available space.
- Both the clusters must be configured and set up appropriately to meet the requirements of your environment for user access, authentication, and client access.

### About this task

You must perform this task from the **source** cluster.

### Steps

- Click **Storage > Volumes**.
- Select the volume for which you want to create a mirror relationship, and then click **Actions > Protect**.
- In the **Relationship Type** section, select **Mirror** from the **Relationship Type** drop-down list.
- In the **Volumes: Protect Volumes** page, provide the following information:
  - Select **Mirror** as the relationship type.
  - Select the destination cluster, destination SVM, and the suffix for the name of the destination volume.

Only peered SVMs and allowed SVMs are listed under destination SVMs.

- Click .

d. In the **Advanced Options** dialog box, verify that **MirrorAllSnapshots** is set as the protection policy.

**DPDefault** and **MirrorLatest** are the other default protection policies that are available for SnapMirror relationships.

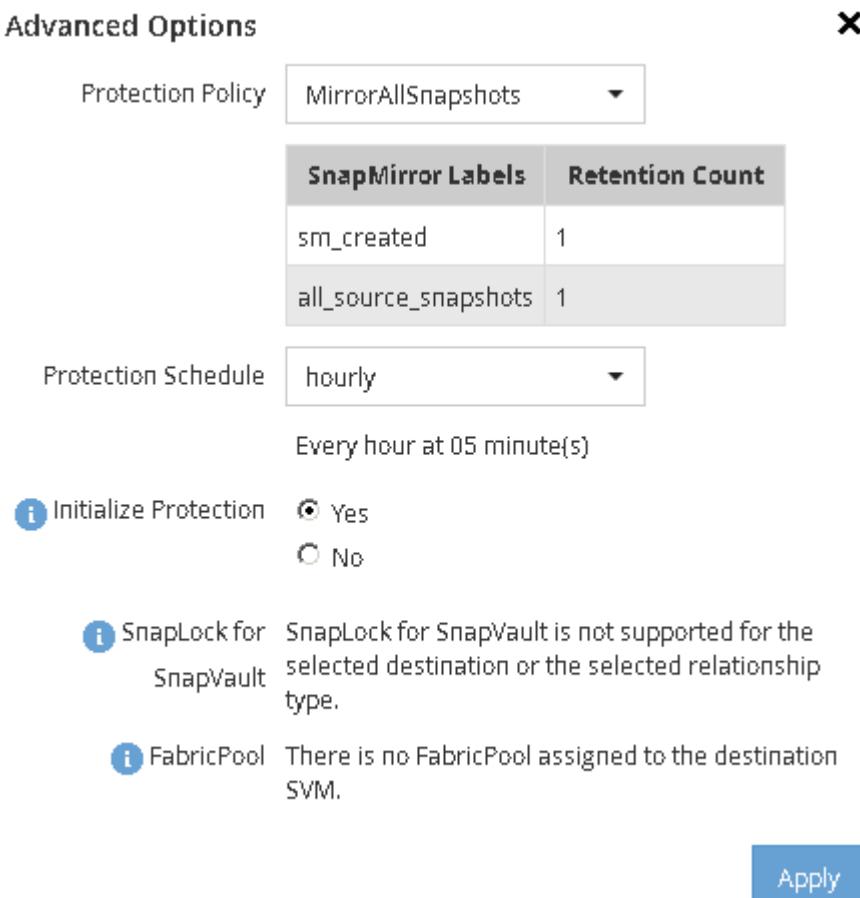
e. Select a protection schedule.

By default, the **hourly** schedule is selected.

f. Verify that **Yes** is selected for initializing the SnapVault relationship.

All of the data protection relationships are initialized by default. Initializing the SnapMirror relationship ensures that the destination volume has a baseline to start protecting the source volume.

g. Click **Apply** to save the changes.



5. Click **Save** to create the SnapMirror relationship.

6. Verify that the relationship status of the SnapMirror relationship is in the **Snapshotmirrored** state.

- Navigate to the **Volumes** window, and then select the volume that the volume for which you created the SnapMirror relationship.
- Double-click the volume to view the volume details, and then click **PROTECTION** to view the data protection status of the volume.

The screenshot shows a table with the following data:

Health	Destination SVM	Destination Volume	Destination Cluster	Relationship	Transfer S...	Type	Lag Time	Policy
Green	svm2	vol_mirror_src_dsc	cluster2	Synchronized	Idle	Version-Flexible	None	Mirror/Snap...

## What to do next

You must make a note of the settings for the source volume such as thin provisioning, deduplication, compression, and autogrow. You can use this information to verify the destination volume settings when you break the SnapMirror relationship.

## Create the SnapMirror relationship (ONTAP 9.2 or earlier)

You must create a SnapMirror relationship between the source volume on one cluster and the destination volume on the peered cluster for replicating data for disaster recovery.

### Before you begin

- You must have the cluster administrator user name and password for the destination cluster.
- The destination aggregate must have available space.
- Both the clusters must be configured and set up appropriately to meet the requirements of your environment for user access, authentication, and client access.

### About this task

You must perform this task from the **source** cluster.

### Steps

1. Click **Storage > SVMs**.
2. Select the SVM, and then click **SVM Settings**.
3. Click the **Volumes** tab.
4. Select the volume for which you want to create a mirror relationship, and then click **Protect**.

The Create Protection Relationship window is displayed.

5. In the **Relationship Type** section, select **Mirror** from the **Relationship Type** drop-down list.
6. In the **Destination Volume** section, select the peered cluster.
7. Specify the SVM for the destination volume:

If the SVM is...	Then...
Peered	Select the peered SVM from the list.
Not peered	<ol style="list-style-type: none"> <li>a. Select the SVM.</li> <li>b. Click <b>Authenticate</b>.</li> <li>c. Enter the cluster administrator's credentials of the peered cluster, and then click <b>Create</b>.</li> </ol>

8. Create a new destination volume:

- Select the **New Volume** option.
- Use the default volume name or specify a new volume name.
- Select the destination aggregate.

**Destination Volume**

Cluster:	cluster-1	<input type="button" value="Browse..."/>
Storage Virtual Machine:	svm2(peered)	<input type="button" value="Browse..."/>
Volume:	<input checked="" type="radio"/> New Volume <input type="radio"/> Select Volume	
Volume name:	svm1_svm1_root_mirror	Aggregate:
		aggr2
Space Reserve (optional):	Default	<input type="button" value="Browse..."/>

387.19 GB available (of 390.21 GB)

9. In the **Configuration Details** section, select **MirrorAllSnapshots** as the mirror policy.

DPDefault and MirrorLatest are the other default mirror policies that are available for SnapMirror relationships.

10. Select a protection schedule from the list of schedules.

11. Ensure that the **Initialize Relationship** check box is selected, and then click **Create**.

Initializing the SnapMirror relationship ensures that the destination volume has a baseline to start protecting the source volume.

**Configuration Details**

Mirror Policy:	MirrorAllSnapshots	<input type="button" value="Browse..."/>	<a href="#">Create Policy</a>
	SnapMirror labels:sm_created		
Schedule:	<input checked="" type="radio"/> hourly	<input type="button" value="Browse..."/>	<a href="#">Create Schedule</a>
	Every hour at 05 minute(s)		
	<input type="radio"/> None		

Initialize Relationship

The relationship is initialized by starting a baseline transfer of data from the source volume to the destination volume.

The initialization operation might take some time. The Status section shows the status of each job.

## Create Protection Relationship

### Source Volume

Cluster: cluster-1  
Storage Virtual Machine: svm1  
Volume: svm1\_root ( Used space 844 KB )

### Destination Volume

Cluster: cluster-1  
Storage Virtual Machine: svm2  
Volume: svm1\_svm1\_root\_mirror

### Configuration Details

Mirror Policy: DPDefault  
Schedule: hourly

### Status

Create volume	✓ Completed successfully
Create relationship	✓ Completed successfully
Initialize relationship	✓ Started successfully

## 12. Verify the relationship status of the SnapMirror relationship:

- Select the volume for which you created the SnapMirror relationship from the **Volumes** list, and then click **Data Protection**.
- In the **Data Protection** tab, verify that the SnapMirror relationship that you created is listed and that the relationship state is **Snapmirrored**.

Destination Storage Virtual Machine	Destination Volume	Is Healthy	Relationship State	Transmit Status	Type	Lag Time	Policy
svm2	svm1_svm1_root_mirror	✓	Snapmirrored	idle	Mirror	13 min(s)	DPDefault

## What to do next

You must make a note of the settings for the source volume such as thin provisioning, deduplication, compression, and autogrow. You can use this information to verify the destination volume settings when you break the SnapMirror relationship.

## Set up the destination SVM for data access

You can minimize data access disruption when activating the destination volume by setting up required configurations such as LIFs, CIFS shares, and export policies for the NAS environment, and LIFs and initiator groups for the SAN environment on the SVM containing the destination volume.

## About this task

You must perform this task on the **destination** cluster for the SVM containing the destination volume.

## Procedure

- NAS environment:
  - a. Create NAS LIFs.
  - b. Create CIFS shares with the same share names that were used on the source.
  - c. Create appropriate NFS export policies.
  - d. Create appropriate quota rules.
- SAN environment:
  - a. Create SAN LIFs.
  - b. **Optional:** Configure portsets.
  - c. Configure initiator groups.
  - d. For FC, zone the FC switches to enable the SAN clients to access the LIFs.

## What to do next

If any changes were made on the SVM containing the source volume, you must replicate the changes manually on the SVM containing the destination volume.

## Related information

[ONTAP 9 Documentation Center](#)

## Monitor the status of SnapMirror data transfers

You should periodically monitor the status of the SnapMirror relationships to ensure that the SnapMirror data transfers are occurring as per the specified schedule.

### About this task

You must perform this task from the **destination** cluster.

### Steps

1. Depending on the System Manager version that you are running, perform one of the following steps:
  - ONTAP 9.4 or earlier: Click **Protection > Relationships**.
  - Beginning with ONTAP 9.5: Click **Protection > Volume Relationships**.
2. Select the SnapMirror relationship between the source and the destination volumes, and then verify the status in the **Details** bottom tab.

The Details tab displays the health status of the SnapMirror relationship and shows the transfer errors and lag time.

- The **Is Healthy** field must display **Yes**.

For most SnapMirror data transfer failures, the field displays **No**. In some failure cases, however, the field continues to display **Yes**. You must check the transfer errors in the Details section to ensure that no data transfer failure occurred.

- The **Relationship State** field must display **Snapmirrored**.

- The Lag Time must be no more than the transfer schedule interval.

For example, if the transfer schedule is hourly, then the lag time must not be more than an hour.

You should troubleshoot any issues in the SnapMirror relationships.

#### NetApp Technical Report 4015: SnapMirror Configuration and Best Practices for ONTAP 9.1, 9.2

Source Location:	source_SVM/V0ff	Is Healthy:	Yes	Transfer Status:	idle
Destination Location:	dest_SVM/source_SVM_V6	Relationship State:	Snapmirrored	Current Transfer Type:	None
Source Cluster:	cluster-2	Network Compression Ratio:	Not Applicable	Current Transfer Error:	None
Destination Cluster:	cluster-1			Last Transfer Error:	None
Transfer Schedule:	hourly			Last Transfer Type:	Initialize
Data Transfer Rate:	Unlimited			Latest Snapshot Timestamp:	09/16/2014 23:42:24
Lag Time:	None			Latest Snapshot Copy:	snapmirror.3e51ed5f-31a3-11e4-96c7-005056974d26_2147484688.2014-09-18_233529

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