



# **Volume disaster recovery**

System Manager Classic

NetApp

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# Volume disaster recovery

## Volume disaster recovery overview

You can quickly activate a destination volume after a disaster and then reactivate the source volume in ONTAP using the ONTAP System Manager classic interface (ONTAP 9.7 and earlier).

Use this procedure if you want to perform volume-level disaster recovery in the following way:

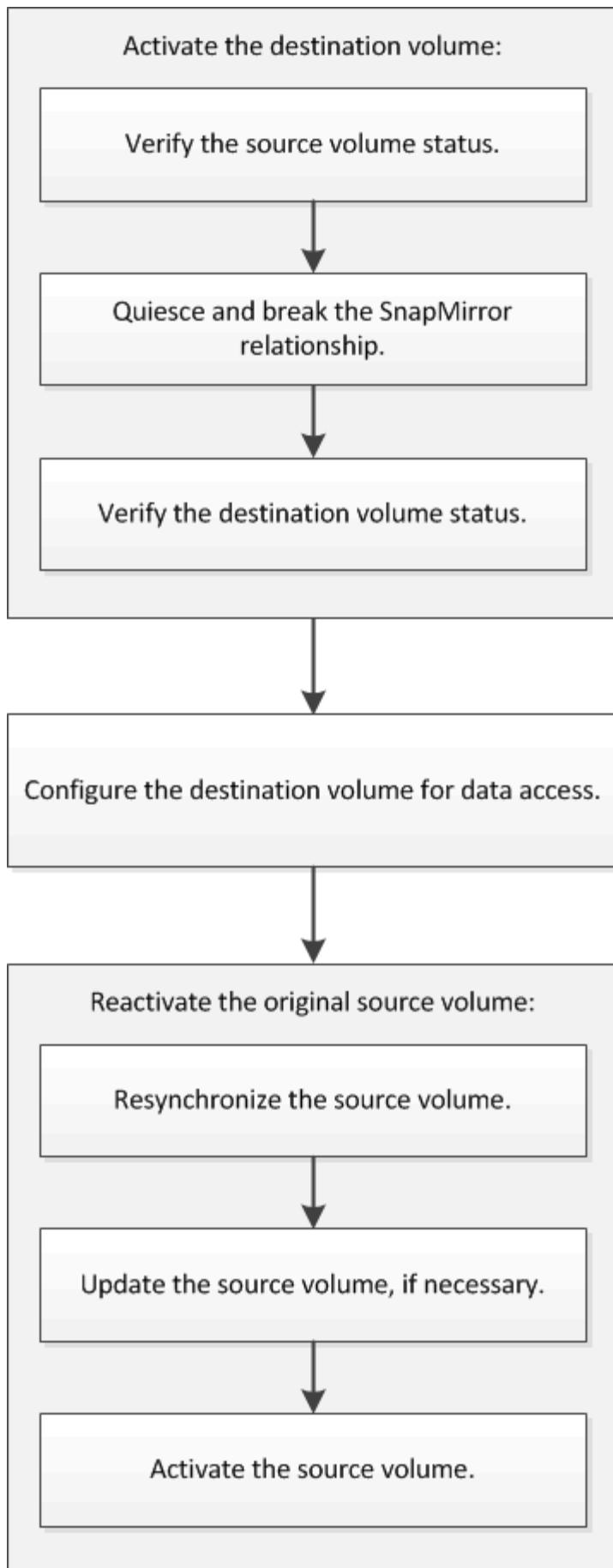
- You are working with clusters running ONTAP 9.
- You are a cluster administrator.
- You have configured the SnapMirror relationship following [Volume disaster recovery preparation](#)
- The cluster administrator of the source cluster has declared that the data in the source volume is unavailable due to events such as virus infection leading to data corruption or accidental deletion of data.
- You want to use System Manager, not the ONTAP command-line interface or an automated scripting tool.
- You want to use the System Manager classic interface for ONTAP 9.7 and earlier releases, not the ONTAP System Manager UI for ONTAP 9.7 and later.
- You want to use best practices, not explore every available option.
- You do not want to read a lot of conceptual background.

### Other ways to do this in ONTAP

To perform these tasks with...	See this content...
The redesigned System Manager (available with ONTAP 9.7 and later)	<a href="#">Serve data from a SnapMirror destination</a>
The ONTAP command line interface	<a href="#">Activate the destination volume</a>

## Volume disaster recovery workflow

The volume disaster recovery workflow includes activating the destination volume, configuring the destination volume for data access, and reactivating the original source volume.



Additional information is available to help you to manage the volume-level disaster recovery relationships and provides other methods of disaster recovery to protect the availability of your data resources.

- [Volume backup using SnapVault](#)

Describes how to quickly configure backup vault relationships between volumes that are located in different ONTAP clusters.

- [Volume restore management using SnapVault](#)

Describes how to quickly restore a volume from a backup vault in ONTAP.

## Activate the destination volume

When the source volume is unable to serve data due to events such as data corruption, accidental deletion or an offline state, you must activate the destination volume to provide data access until you recover the data on the source volume. Activation involves stopping future SnapMirror data transfers and breaking the SnapMirror relationship.

### Verify the status of the source volume

When the source volume is unavailable, you must verify that the source volume is offline and then identify the destination volume that must be activated for providing data access.

#### About this task

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

#### Steps

1. Navigate to the **Volumes** window.
2. Select the source volume, and then verify that the source volume is offline.
3. Identify the destination volume in the SnapMirror relationship.
  - Beginning with ONTAP 9.3: Double-click the source volume to view the details, and then click **PROTECTION** to identify the destination volume in the SnapMirror relationship and the name of the SVM that contains the volume.



The screenshot shows the ONTAP Volumes window with the following details:

Health	Destination SVM	Destination Volume	Destination Clu...	Relationship...	Transfer S...	Type	Lag Time	Policy
Green	svm2	vol_mirror_me_012	cluster2	Snapmirrored	Idle	Version-Flexible	45 min(1)	Minor(0)Sangs...

- ONTAP 9.2 or earlier: Click the **Data Protection** tab at the bottom of the Volumes page to identify the destination volume in the SnapMirror relationship and the name of the SVM that contains the volume.

The screenshot shows a table of storage volumes and a detailed view of a SnapMirror relationship. The table columns include Name, Aggregate, Status, Thin Pro., % Used, Available, Total Sp., Storage, Is Volu..., and Encrypted. The detailed view shows Destination St., Destination Vo..., Is Healthy, Relationship St., Transfer Status, Type, Lag Time, and Policy. The policy is set to DPDefault.

Name	Aggregate	Status	Thin Pro.	% Used	Available	Total Sp.	Storage	Is Volu...	Encrypted
svm1_svm1_root...	aggr2	Online	No	5	970.48 MB	1 GB	Disabled	No	No
svm1_vvol123_vault	aggr2	Online	No	5	121.35 MB	128.02 MB	Enabled	No	No
VOL1	aggr3	Offline	NA	NA	NA	NA	Disabled	No	No
svm2_root	aggr1	Online	No	5	971.12 MB	1 GB	Disabled	No	No

Destination St...	Destination Vo...	Is Healthy	Relationship St...	Transfer Status	Type	Lag Time	Policy
svm1	VOL1	Yes	Snapmirrored	Idle	Mirror	7 day(s) 12 hr(s)	DPDefault

## Break the SnapMirror relationship

You must quiesce and break the SnapMirror relationship to activate the destination volume. After quiescing, future SnapMirror data transfers are disabled.

### Before you begin

The destination volume must be mounted on the destination SVM namespace.

### About this task

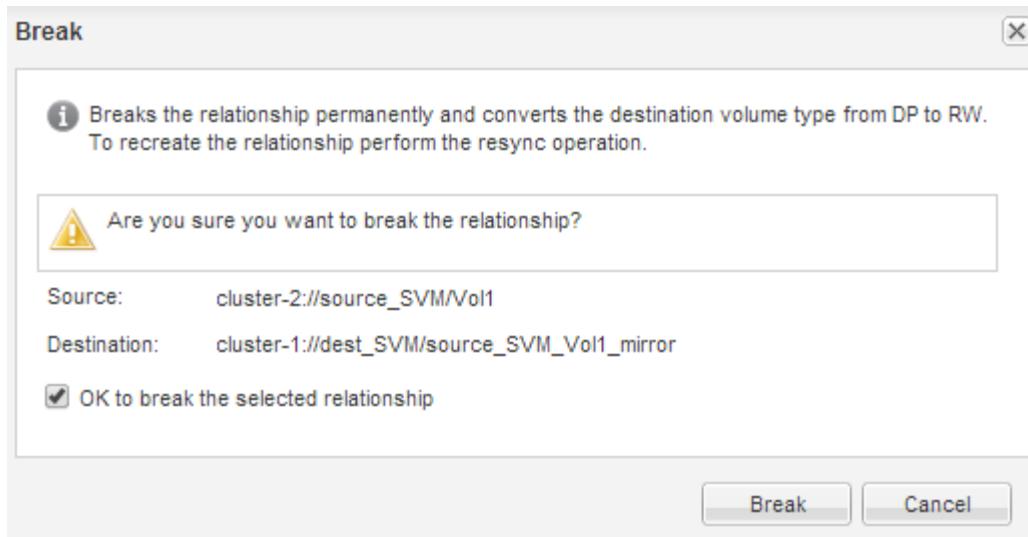
You must perform this task from the **destination** cluster.

### 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.
3. Click **Operations > Quiesce** to disable future data transfers.
4. Select the confirmation check box, and then click **Quiesce**.

The quiesce operation might take some time; you must not perform any other operation on the SnapMirror relationship until the transfer status is displayed as **Quiesced**.

5. Click **Operations > Break**.
6. Select the confirmation check box, and then click **Break**.



The SnapMirror relationship is in **Broken Off** state.

Source Sto...	Source Vol...	Destinatio...	Destinatio...	Is Healthy...	Relationship...	Transfer St...	Relationship...	Lag Time...	Policy Name...	Policy Type...
svm1	svm1_root	svm1_svm1_r...	svm2	Yes	Snapmirrored	Idle	Mirror	26 min(s)	DPDefault	Asynchronous
svm1	vol1	svm1_vol1_m...	svm2	Yes	<b>Broken Off</b>	Idle	Mirror	None	DPDefault	Asynchronous
<hr/>										
Source Location:	svm1.vol1	Is Healthy:	Yes	Transfer Status:	Idle					
Destination Location:	svm2:svm1_vol1_mirror	Relationship State:	<b>Broken Off</b>	Current Transfer Type:	None					
Source Cluster:	cluster-1	Network Compression Ratio:	Not Applicable	Current Transfer Error:	None					
Destination Cluster:	cluster-1			Last Transfer Error:	None					
Transfer Schedule:	hourly			Last Transfer Type:	Update					
Data Transfer Rate:	Unlimited			Latest Snapshot Timestamp:	02/22/2017 13:05:00					
Lag Time:	None			Latest Snapshot Copy:	snpmirror:9b4dea7c-e6d0-11e6-544a-00a1981a1bda_2149622820.2017					

## Verify the destination volume status

After breaking the SnapMirror relationship, you must verify that the destination volume has read/write access and that the destination volume settings match the settings of the source volume.

### About this task

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

### Steps

1. Navigate to the **Volumes** window.
2. Select the destination volume from the **Volumes** list, and then verify that the destination volume type is **rw**, which indicates read/write access.
3. Verify that the volume settings such as thin provisioning, deduplication, compression, and autogrow on the destination volume match the settings of the source volume.

You can use the volume settings information that you noted after creating the SnapMirror relationship to verify the destination volume settings.

4. If the volume settings do not match, modify the settings on the destination volume as required:

- a. Click **Edit**.
- b. Modify the general settings, storage efficiency settings, and advanced settings for your environment, as required.
- c. Click **Save and Close**.

**Edit Volume**

**General**   **Storage Efficiency**   **Advanced**

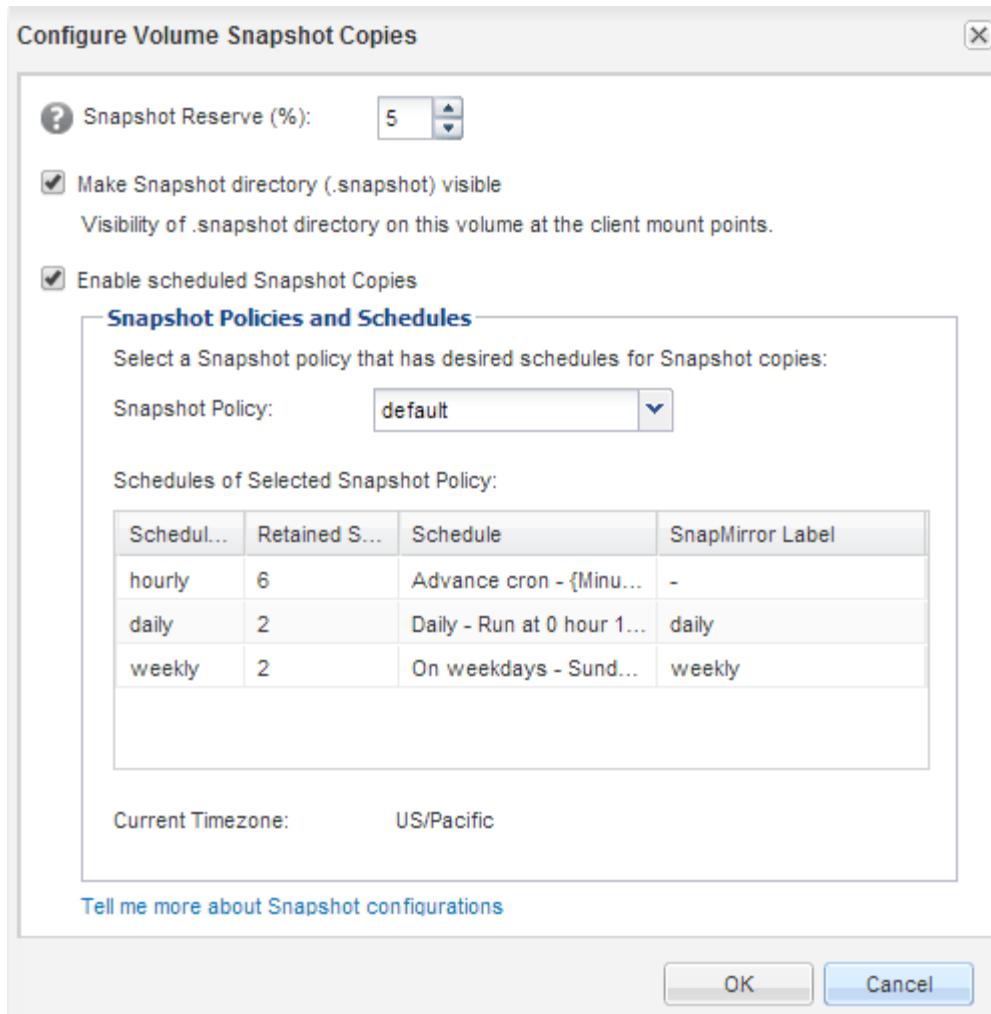
Name:	vol123		
Security style:	Mixed		
<input checked="" type="checkbox"/> Configure UNIX permissions (Optional)			
Read <input checked="" type="checkbox"/> Write <input checked="" type="checkbox"/> Execute <input checked="" type="checkbox"/>			
Owner	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Group	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Others	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> Thin Provisioned			
When a volume is thin provisioned, space for the volume is not allocated in advance. Instead, space is allocated as data is written to the volume. The unused aggregate space is available to other thin provisioned volumes and LUNs.			
<a href="#">Tell me more about Thin Provisioning</a>			
<input type="button" value="Save"/> <input type="button" value="Save and Close"/> <input type="button" value="Cancel"/>			

- d. Verify that the columns in the **Volumes** list are updated with the appropriate values.

5. Enable Snapshot copy creation for the destination volume.
  - a. Depending on your ONTAP version, navigate to the **Configure Volume Snapshot Copies** page in one of the following ways:
 

Beginning with ONTAP 9.3: Select the destination volume, and then click **Actions > Manage Snapshots > Configure**.

ONTAP 9.2 or earlier: Select the destination volume, and then click **Snapshot Copies > Configure**.
  - b. Select the **Enable scheduled Snapshot Copies** check box, and then click **OK**.



[Tell me more about Snapshot configurations](#)

OK

Cancel

## Configure the destination volume for data access

After activating the destination volume, you must configure the volume for data access. NAS clients and SAN hosts can access the data from the destination volume until the source volume is reactivated.

### About this task

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

### Procedure

- NAS environment:
  - Mount the NAS volumes to the namespace using the same junction path that the source volume was mounted to in the source SVM.
  - Apply the appropriate ACLs to the CIFS shares at the destination volume.
  - Assign the NFS export policies to the destination volume.
  - Apply the quota rules to the destination volume.
  - Redirect clients to the destination volume by performing the necessary steps such as changing the DNS name resolution.

- f. Remount the NFS and CIFS shares on the clients.
- SAN environment:
  - a. Map the LUNs to the appropriate initiator group to make the LUNs in the volume available to the SAN clients.
  - b. For iSCSI, create iSCSI sessions from the SAN host initiators to the SAN LIFs.
  - c. On the SAN client, perform a storage re-scan to detect the connected LUNs.

## What to do next

You should resolve the problem that caused the source volume to become unavailable. You must bring the source volume back online when possible, and then resynchronize and reactivate the source volume.

## Related information

[ONTAP 9 Documentation Center](#)

## Reactivate the source volume

When the source volume becomes available, you must resynchronize the data from the destination volume to the source volume, update any modifications after the resynchronization operation, and activate the source volume.

### Resynchronize the source volume

When the source volume is online, you must resynchronize the data between the destination volume and the source volume to replicate the latest data from the destination volume.

#### Before you begin

The source volume must be online.

#### About this task

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

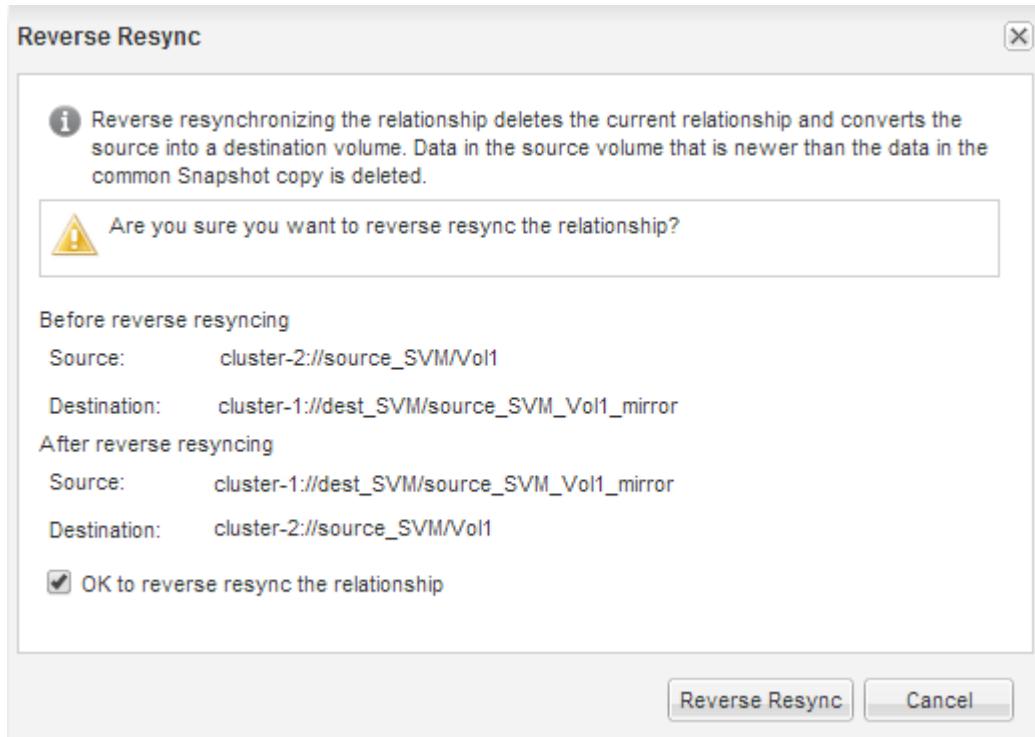
The following image shows that the data is replicated from the active destination volume to the read-only source volume:



#### 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 destination volumes.
3. Make a note of the transfer schedule and the policy configured for the SnapMirror relationship.
4. Click **Operations > Reverse Resync**.
5. Select the confirmation check box, and then click **Reverse Resync**.



Beginning with ONTAP 9.3, the SnapMirror policy of the relationship is set to `MirrorAllSnapshots` and the mirror schedule is set to `None`.

If you are running ONTAP 9.2 or earlier, the SnapMirror policy of the relationship is set to `DPDefault` and the mirror schedule is set to `None`.

6. On the source cluster, specify a SnapMirror policy and schedule that match the protection configuration of the original SnapMirror relationship:
  - a. 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**.
  - b. Select the SnapMirror relationship between the resynchronized source volume and the destination volume, and then click **Edit**.
  - c. Select the SnapMirror policy and schedule, and then click **OK**.

#### Update the source volume

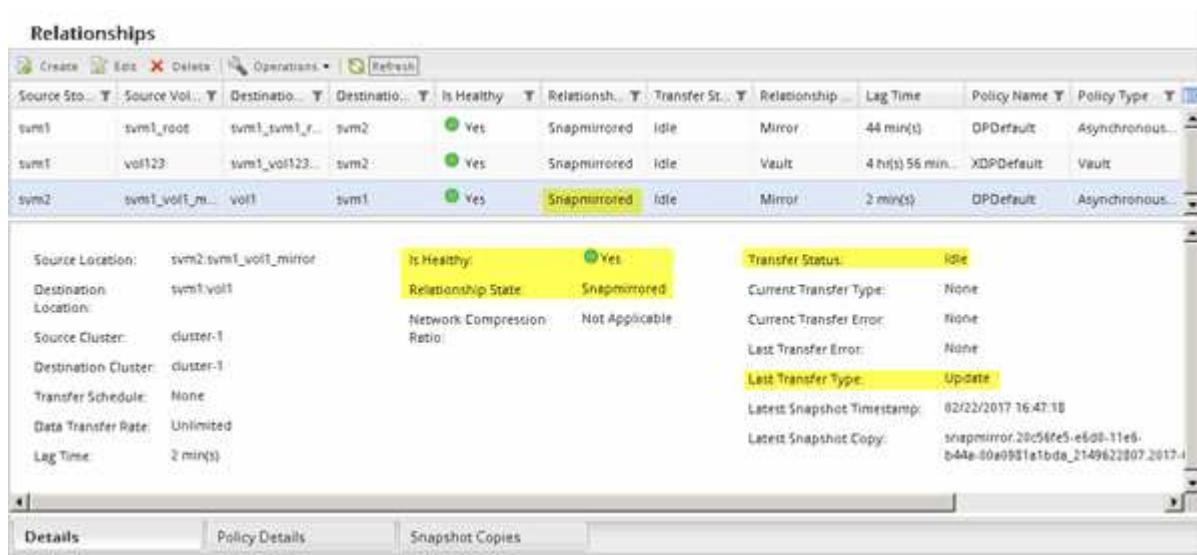
After resynchronizing the source volume, you might want to ensure that all the latest changes are updated on the source volume before activating the source volume.

#### About this task

You must perform this task from the **source** 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 click **Operations > Update**.
3. Perform an incremental transfer from the recent common Snapshot copy between the source and destination volumes.
  - Beginning with ONTAP 9.3: Select the **As per policy** option.
  - ONTAP 9.2 or earlier: Select the **On demand** option.
4. **Optional:** Select **Limit transfer bandwidth to** in order to limit the network bandwidth used for transfers, and then specify the maximum transfer speed.
5. Click **Update**.
6. Verify that the transfer status is **Idle** and last transfer type is **Update** in the **Details** tab.



The screenshot shows the System Manager Relationships window. The main table lists three relationships:

Source Sto...	Source Vol...	Destinatio...	Destinatio...	Is Healthy	Relationship...	Transfer St...	Relationship...	Lag Time	Policy Name	Policy Type
svm1	svm1_root	svm1_svm1_r...	svm2	Yes	Snapmirrored	Idle	Mirror	44 min(s)	DPDefault	Asynchronous
svm1	vol123	svm1_vol123...	svm2	Yes	Snapmirrored	Idle	Vault	4 hr(s) 56 min...	XDPDefault	Vault
svm2	svm1_vol1_m...	vol1	svm1	Yes	Snapmirrored	Idle	Mirror	2 min(s)	DPDefault	Asynchronous

The Details tab is selected, displaying the following information:

Source Location:	svm2:svm1_vol1_mirror	Is Healthy:	Yes	Transfer Status:	Idle
Destination Location:	svm1/vol1	Relationship State:	Snapmirrored	Current Transfer Type:	None
Source Cluster:	cluster-1	Network Compression Ratio:	Not Applicable	Current Transfer Error:	None
Destination Cluster:	cluster-1			Last Transfer Error:	None
Transfer Schedule:	None			Last Transfer Type:	Update
Data Transfer Rate:	Unlimited			Latest Snapshot Timestamp:	02/22/2017 16:47:18
Lag Time:	2 min(s)			Latest Snapshot Copy:	snapmirror:20c58fe5-e6d0-11e6-b4fe-000981a1b08_2149622807_2017-1

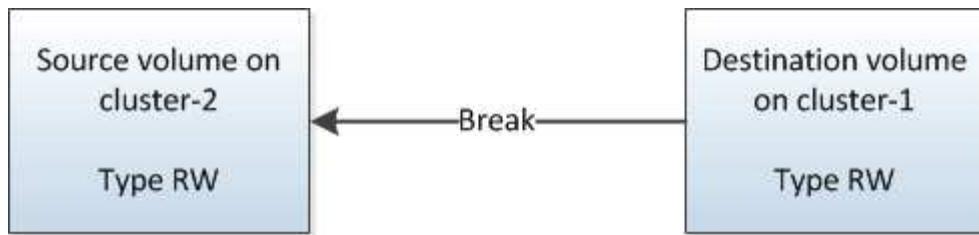
## Reactivate the source volume

After resynchronizing the data from the destination volume to the source volume, you must activate the source volume by breaking the SnapMirror relationship. You should then resynchronize the destination volume to protect the reactivated source volume.

### About this task

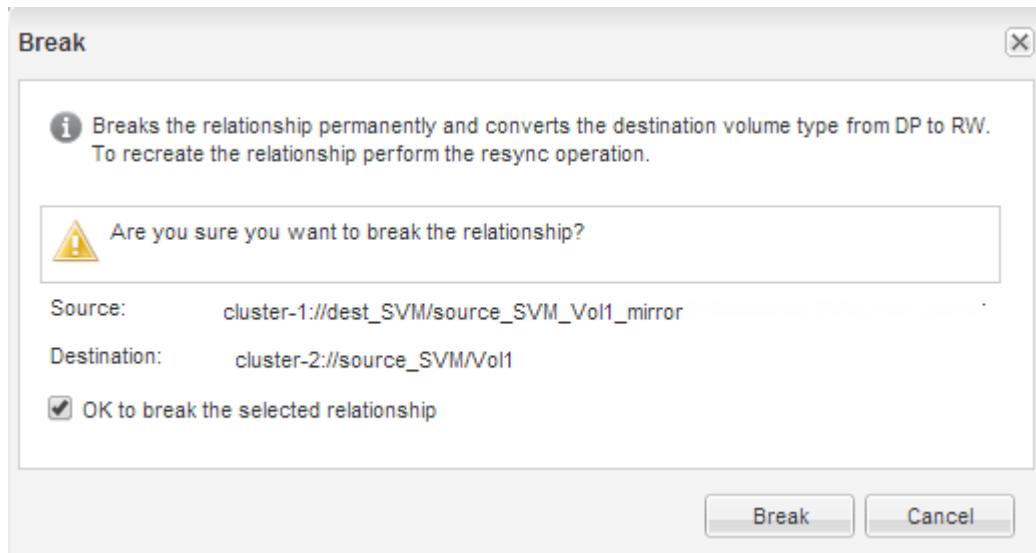
Both the break and reverse resync operations are performed from the **source** cluster.

The following image shows that the source and destination volumes are read/write when you break the SnapMirror relationship. After the reverse resync operation, the data is replicated from the active source volume to the read-only destination volume.

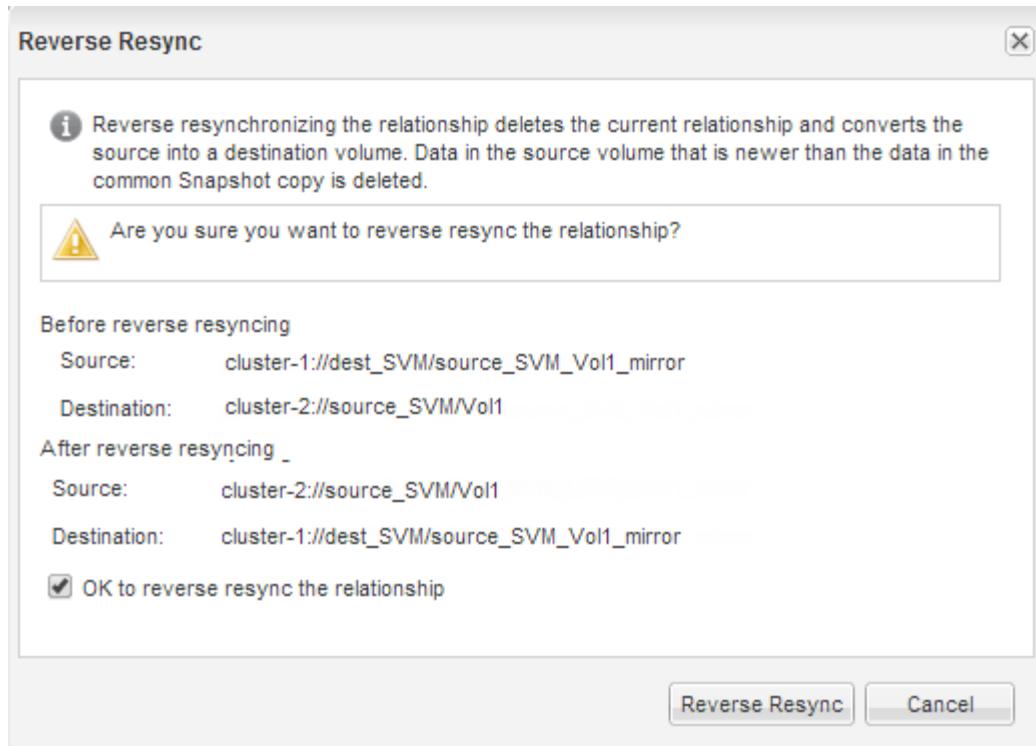


## Steps

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.
3. Click **Operations > Quiesce**.
4. Select the confirmation check box, and then click **Quiesce**.
5. Click **Operations > Break**.
6. Select the confirmation check box, and then click **Break**.



7. Click **Operations > Reverse Resync**.
8. Select the confirmation check box, and then click **Reverse Resync**.



Beginning with ONTAP 9.3, the SnapMirror policy of the relationship is set to `MirrorAllSnapshots` and the SnapMirror schedule is set to `None`.

If you are running ONTAP 9.2 or earlier, the SnapMirror policy of the relationship is set to `DPDefault` and the SnapMirror schedule is set to `None`.

9. Navigate to the source volume in the volumes page, and verify that the SnapMirror relationship you created is listed and the relationship state is `Snapmirrored`.
10. On the destination cluster, specify a SnapMirror policy and schedule that match the protection configuration of the original SnapMirror relationship for the new SnapMirror relationship:
  - a. 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**.
  - b. Select the SnapMirror relationship between the reactivated source and the destination volumes, and then click **Edit**.
  - c. Select the SnapMirror policy and schedule, and then click **OK**.

## Results

The source volume has read/write access and is protected by the destination volume.

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