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:

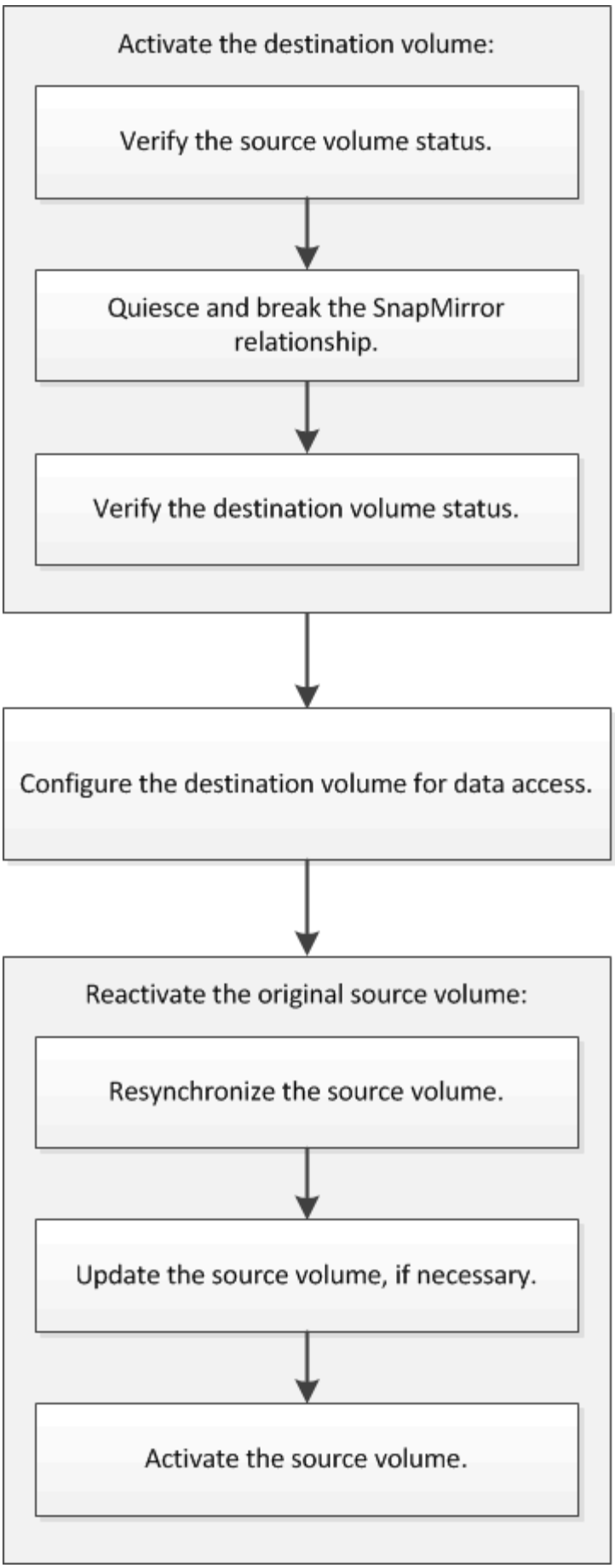
- You are working with clusters running ONTAP 9.
- You are a cluster administrator.
- You have configured the SnapMirror relationship following Volume disaster recovery preparation
- The cluster administrator of the source cluster has declared that the data in the source volume is unavailable due to 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)	Serve data from a SnapMirror destination
The ONTAP command line interface	Activate the destination volume

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.


Activate the destination volume:
Verify the source volume status.
Quiesce and break the SnapMirror relationship.
Verify the destination volume status.
Configure the destination volume for data access.
Reactivate the original source volume:
Resynchronize the source volume.
Update the source volume, if necessary.
Activate the 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.

   - 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.

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

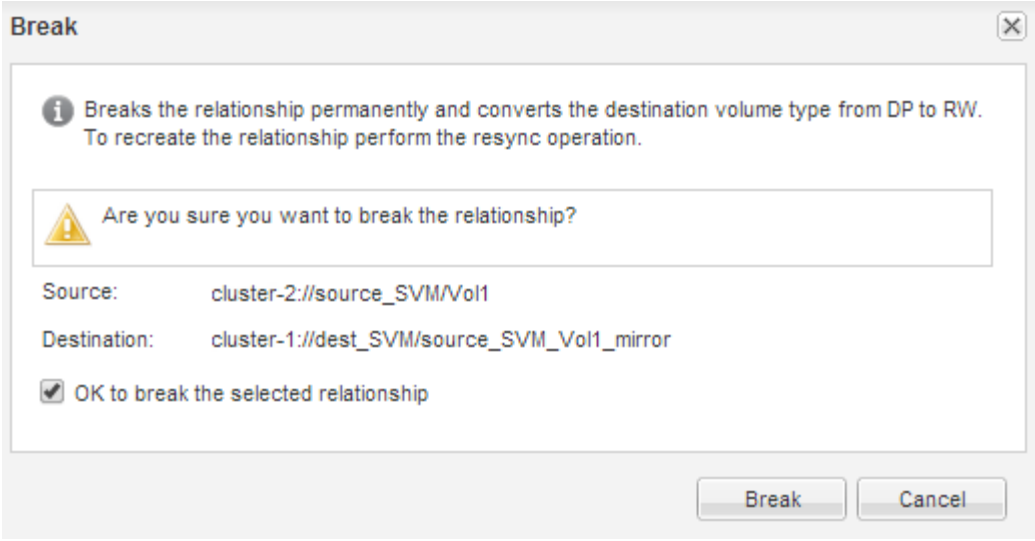
You must perform this task from the **destination** cluster.

Steps

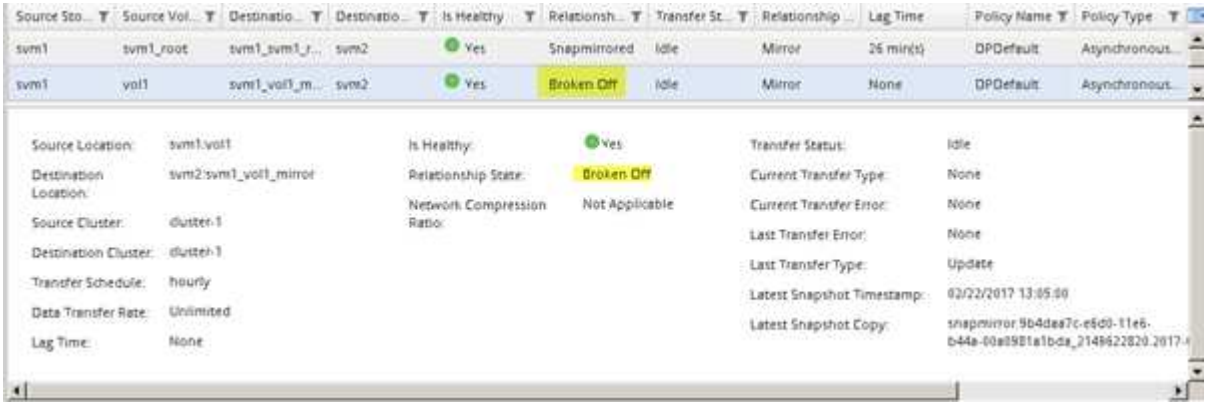
1. Depending on the System Manager version that you are running, perform one of the following steps:
   - ONTAP 9.4 or earlier: Click **Protection** > **Relationships**.
   - Beginning with ONTAP 9.5: Click **Protection** > **Volume Relationships**.
2. Select the SnapMirror relationship between the source 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.



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.

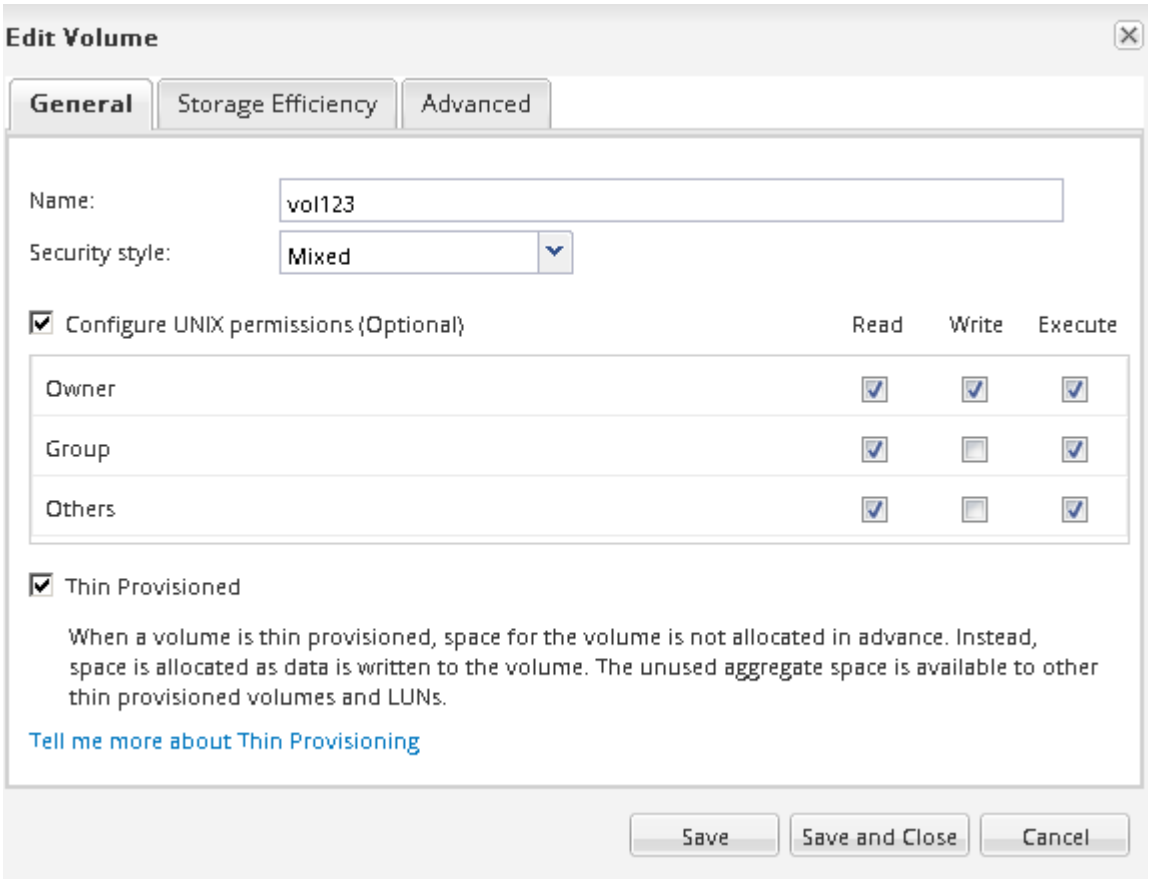
   You can use the volume settings information that you noted after creating the SnapMirror relationship to verify the destination volume settings.

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**.



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

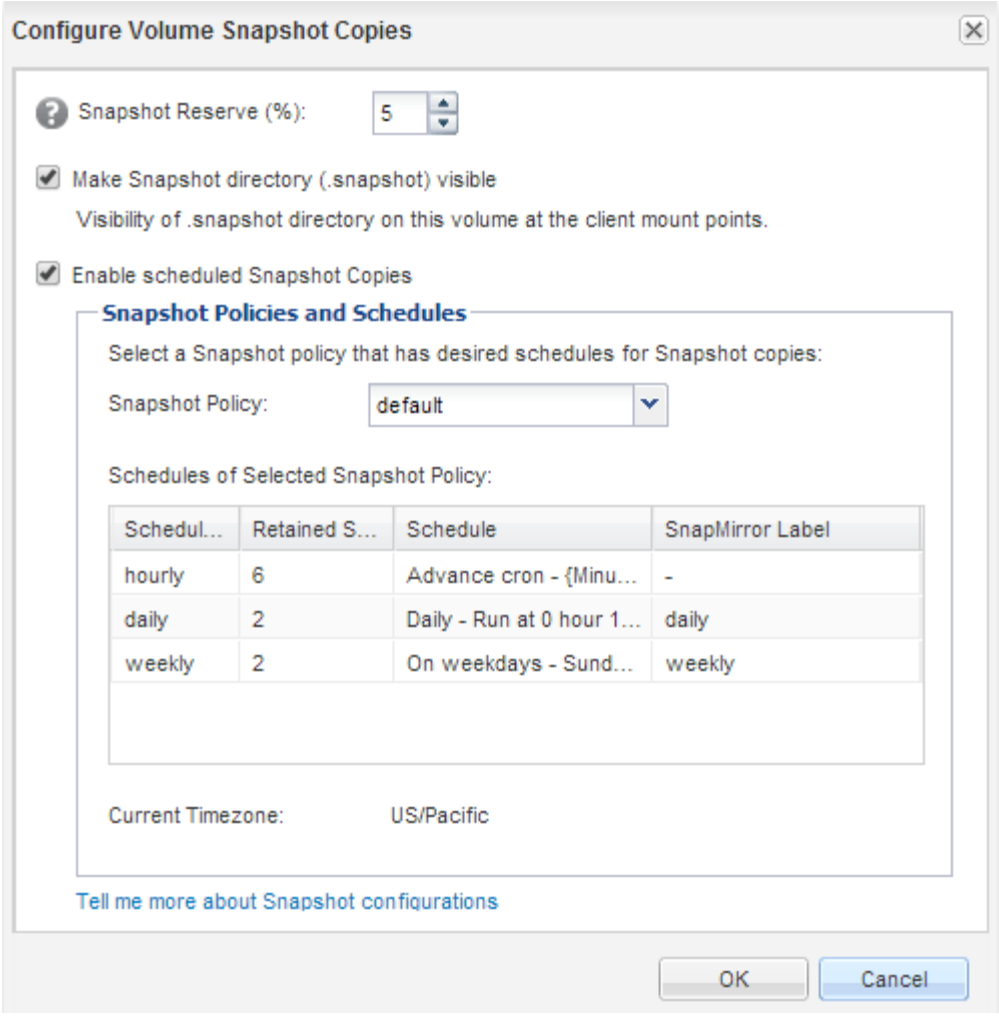
5. Enable Snapshot copy creation for the destination volume.

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**.



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:
  a. Mount the NAS volumes to the namespace using the same junction path that the source volume was mounted to in the source SVM.
  b. Apply the appropriate ACLs to the CIFS shares at the destination volume.
  c. Assign the NFS export policies to the destination volume.
  d. Apply the quota rules to the destination volume.
  e. 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

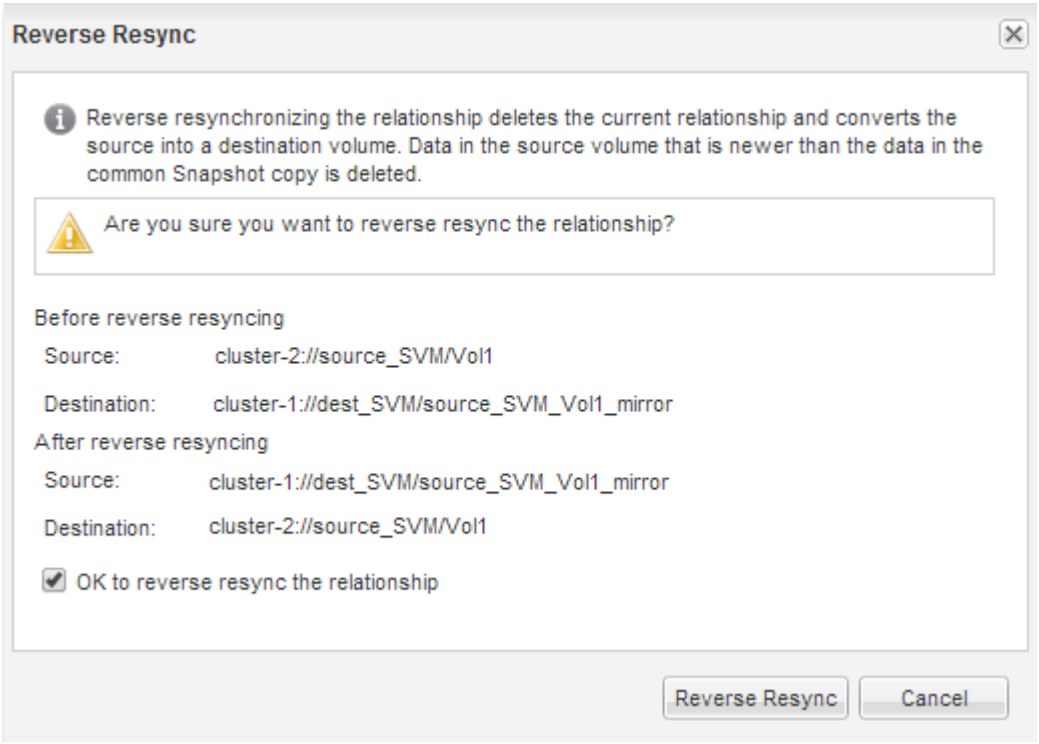
You must perform the task from the **destination** cluster.

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

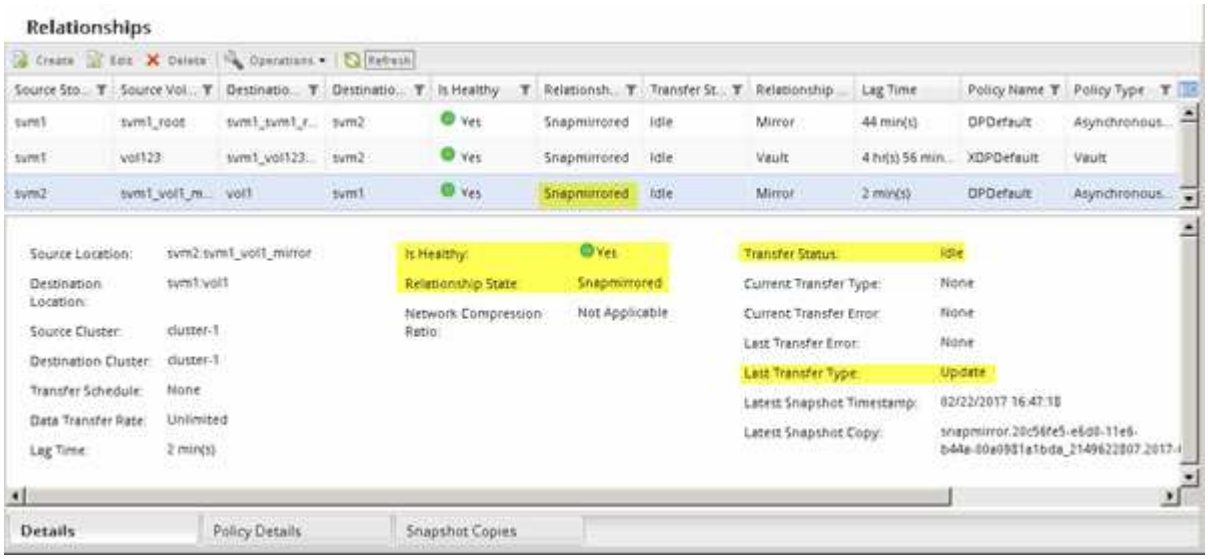
After resynchronizing the source volume, you might want to ensure that all the latest changes are updated on the source volume before activating the source volume.

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.



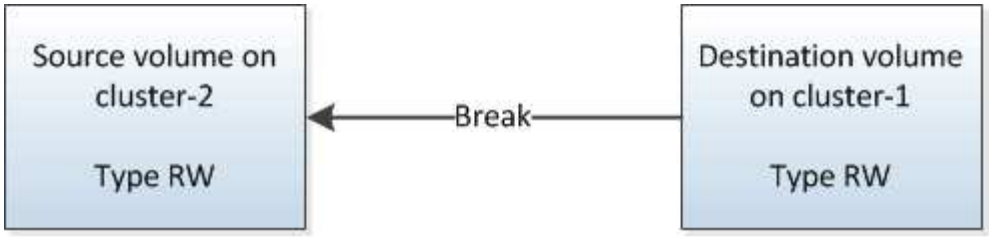
Reactivate the source volume

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

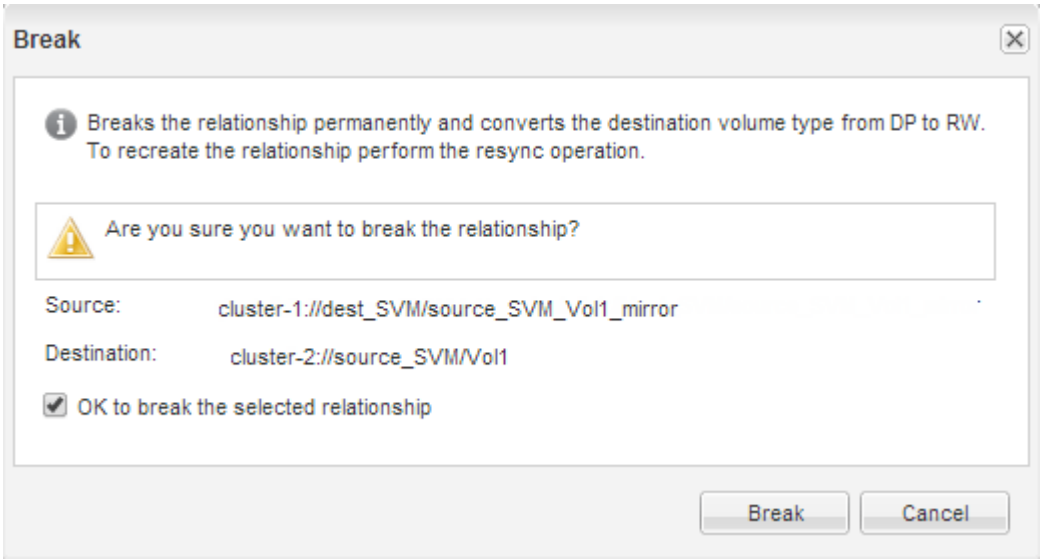
Both the break and reverse resync operations are performed from the **source** cluster.

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.

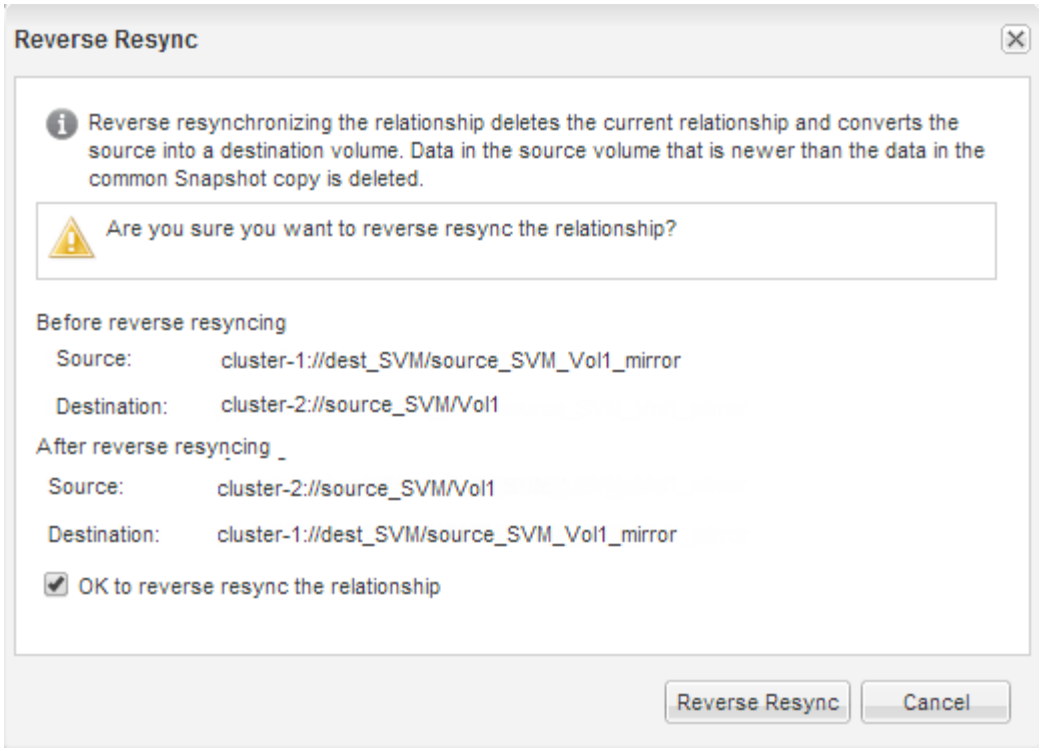


Steps

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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