



Volume disaster recovery workflow

System Manager Classic

NetApp
January 13, 2022

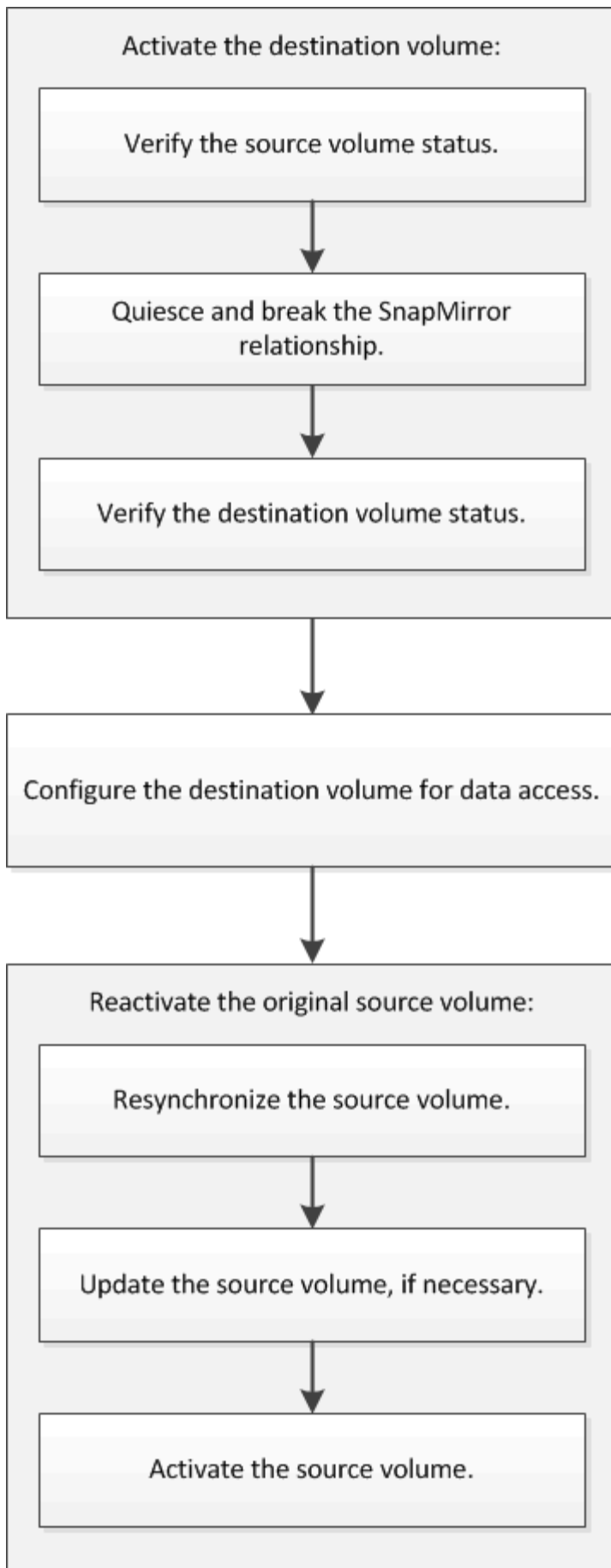
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Volume disaster recovery workflow

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

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

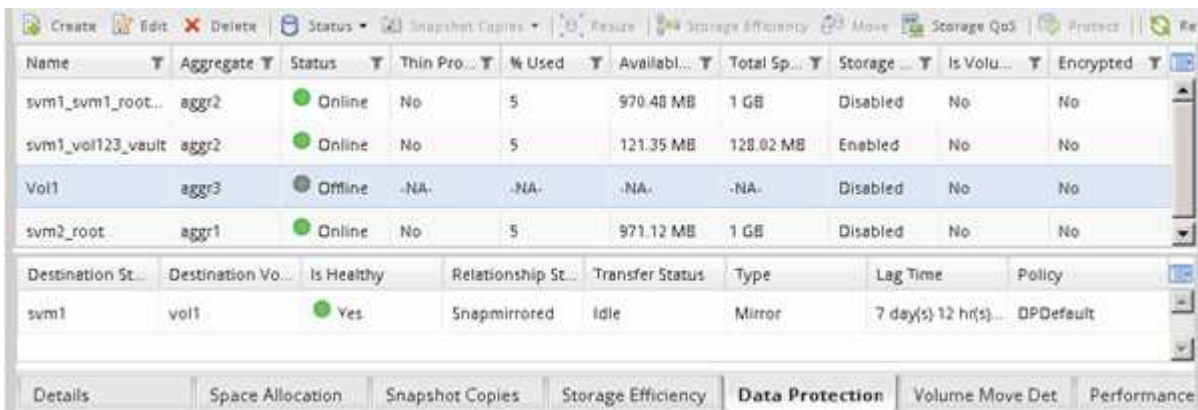
You must perform this task from the **source** cluster.

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.
 - Starting 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**.
 - Starting with ONTAP 9.5: Click **Protection > Volume Relationships**.

2. Select the SnapMirror relationship between the source and the destination volumes.

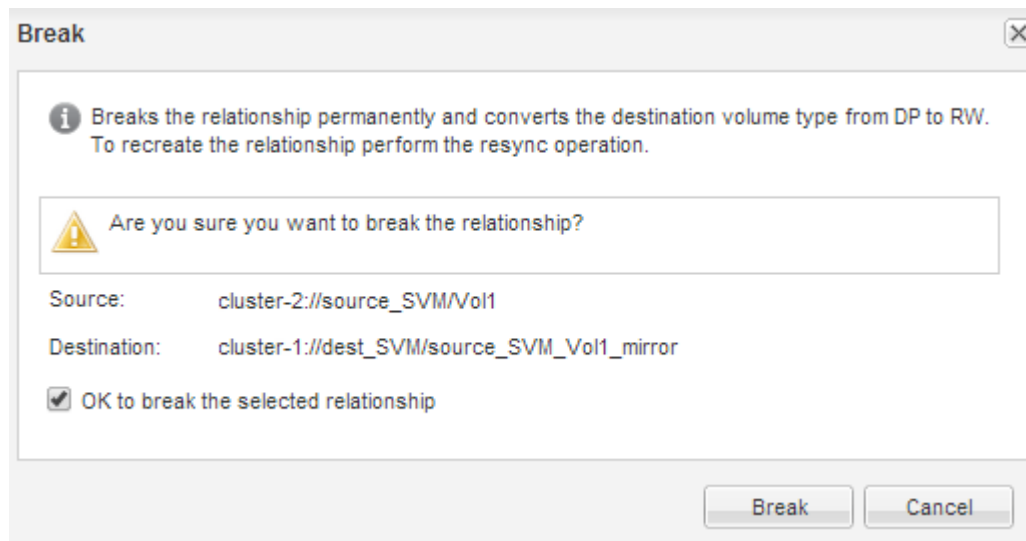
3. Click **Operations > Quiesce** to disable future data transfers.

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	Relationsh...	Transfer St...	Relationship ...	Lag Time	Policy Name	Policy Type
svm1	svm1_root	svm1_svm1_r...	svm2	Yes	Snapmirrored	Idle	Mirror	25 min(s)	DPDefault	Asynchronous...
svm1	vol1	svm1_vol1_m...	svm2	Yes	Broken Off	Idle	Mirror	None	DPDefault	Asynchronous...

Source Location:	svm1.vol1	Is Healthy:	Yes	Transfer Status:	Idle
Destination Location:	svm2.svm1_vol1_mirror	Relationship State:	Broken Off	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:	snapmirror-9b4d8a7c-e6d0-11e6-b44a-00a1981a1bda_2148622820.2017...

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 [X]

General | Storage Efficiency | Advanced

Name:

Security style: ▼

Configure UNIX permissions (Optional)

	Read	Write	Execute
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"/>

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.

[Tell me more about Thin Provisioning](#)

Save Save and Close 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:

Starting 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 Volume Snapshot Copies

Snapshot Reserve (%):

Make Snapshot directory (.snapshot) visible
Visibility of .snapshot directory on this volume at the client mount points.

Enable scheduled Snapshot Copies

Snapshot Policies and Schedules

Select a Snapshot policy that has desired schedules for Snapshot copies:

Snapshot Policy:

Schedules of Selected Snapshot Policy:

Schedul...	Retained S...	Schedule	SnapMirror Label
hourly	6	Advance cron - {Minu...	-
daily	2	Daily - Run at 0 hour 1...	daily
weekly	2	On weekdays - Sund...	weekly

Current Timezone: US/Pacific

[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:
 - 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

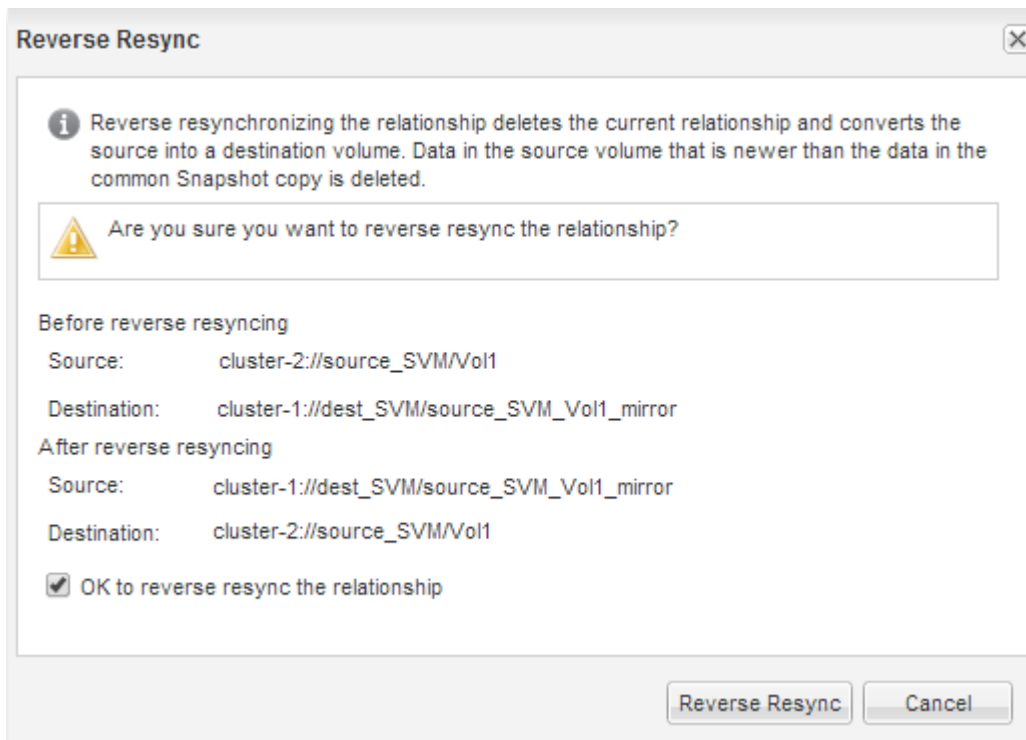
You must perform the task from the **destination** cluster.

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**.
 - Starting 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**.



Starting 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**.

- Starting 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**.
 - Starting 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.
 - Starting with ONTAP 9.3: Select the **As per policy** option.
 - ONTAP 9.2 or earlier: Select the **On demand** option.
4. 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 'Relationships' table with the following data:

Source Sto...	Source Vol...	Destinatio...	Destinatio...	Is Healthy	Relationsh...	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 pane for the selected relationship shows:

- Source Location: svm2:svm1_vol1_mirror
- Destination Location: svm1:vol1
- Source Cluster: cluster-1
- Destination Cluster: cluster-1
- Transfer Schedule: None
- Data Transfer Rate: Unlimited
- Lag Time: 2 min(s)
- Is Healthy: Yes
- Relationship State: Snapmirrored
- Network Compression Ratio: Not Applicable
- Transfer Status: Idle
- Current Transfer Type: None
- Current Transfer Error: None
- Last Transfer Error: None
- Last Transfer Type: Update
- Latest Snapshot Timestamp: 02/22/2017 16:47:10
- Latest Snapshot Copy: snapmirror.20c54fe5-e6d0-11e6-b44e-00a0981e1bde_2149622807.2017-1

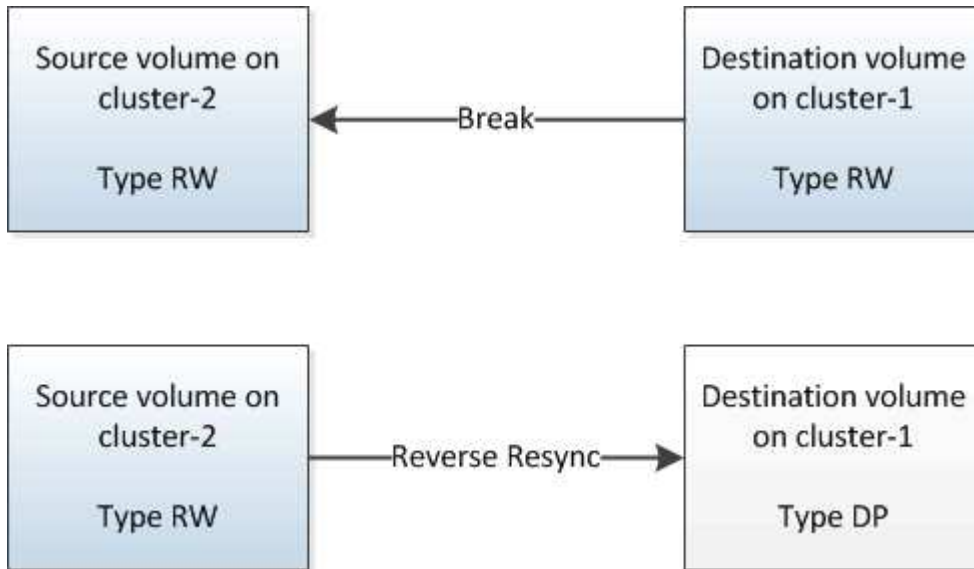
Reactivate the source volume

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

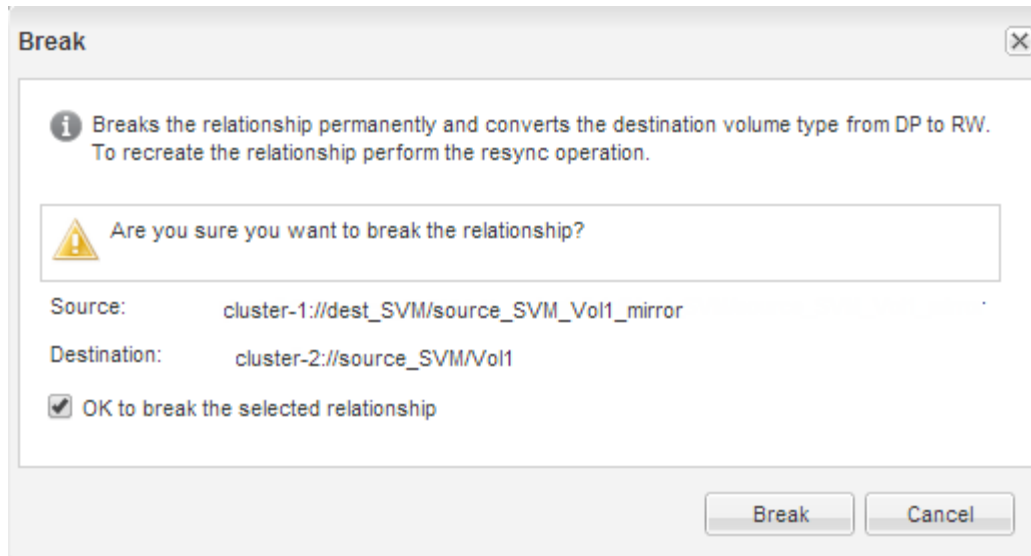
Both the break and reverse resync operations are performed from the **source** cluster.

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.

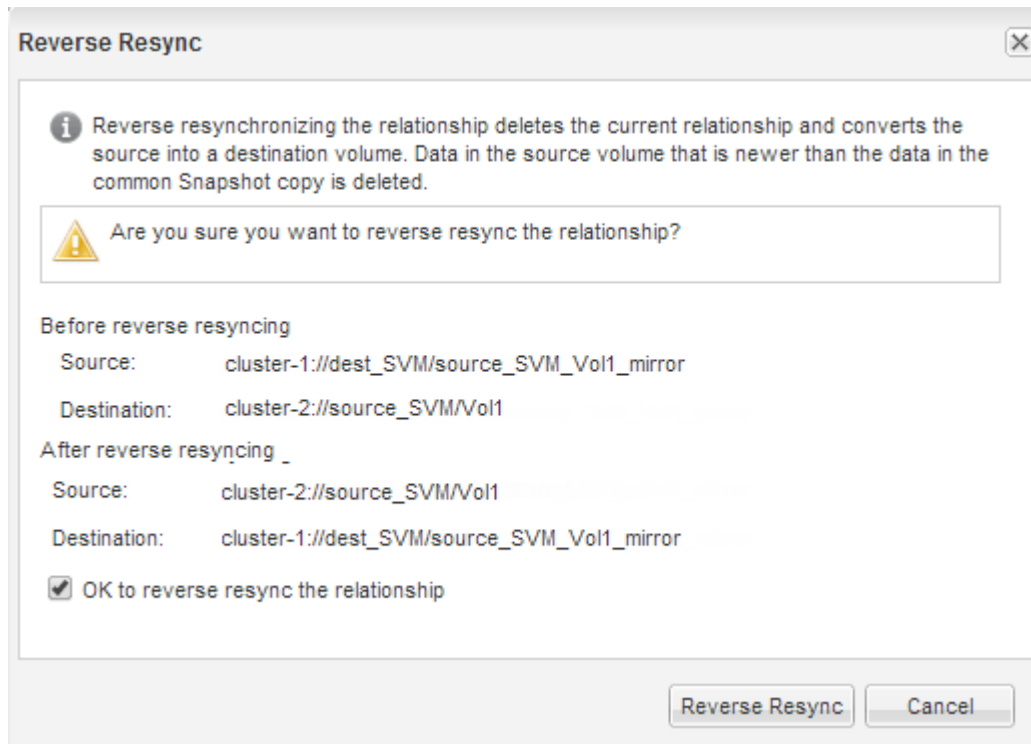


Steps

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**.
 - Starting 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**.



Starting 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**.
 - Starting 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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