ONTAP® 9

Volume Disaster Recovery Express Guide

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Updated for ONTAP 9.5
Deciding whether to use the Volume Disaster Recovery Express Guide

This guide describes how to quickly activate a destination volume after a disaster and then reactivate the source volume in ONTAP.

You should use this guide if you want to perform a volume-level disaster recovery procedure in the following way:

• You are working with clusters running ONTAP 9.
• You are a cluster administrator.
• You have configured the SnapMirror relationship following the *Volume Disaster Recovery Preparation Express Guide.*

*Volume disaster recovery express 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 OnCommand System Manager, not the ONTAP command-line interface or an automated scripting tool.
• You want to use best practices, not explore every available option.
• You do not want to read a lot of conceptual background.

If these assumptions are not correct for your situation, or if you want more conceptual background information, you should see the following resources:

• *Data protection*
• *Logical storage management*
• *NetApp Documentation: OnCommand Workflow Automation (current releases)*

OnCommand Workflow Automation enables you to run prepackaged workflows that automate management tasks such as the workflows described in Express Guides.
**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.

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### Activating 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.
Steps

1. Verifying the status of the source volume on page 6
2. Breaking the SnapMirror relationship on page 6
3. Verifying the destination volume status on page 7

Verifying 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.

Breaking 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.

Verifying 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:
      
      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**.
Configuring 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.

Choices
- NAS environment:
  1. Mount the NAS volumes to the namespace using the same junction path that the source volume was mounted to in the source SVM.
  2. Apply the appropriate ACLs to the CIFS shares at the destination volume.
  3. Assign the NFS export policies to the destination volume.
  4. Apply the quota rules to the destination volume.
  5. Redirect clients to the destination volume by performing the necessary steps such as changing the DNS name resolution.
  6. Remount the NFS and CIFS shares on the clients.
- SAN environment:
  1. Map the LUNs to the appropriate initiator group to make the LUNs in the volume available to the SAN clients.
  2. For iSCSI, create iSCSI sessions from the SAN host initiators to the SAN LIFs.
  3. On the SAN client, perform a storage re-scan to detect the connected LUNs.
After you finish

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

Reactivating 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.

Steps

1. Resynchronizing the source volume on page 10
2. Updating the source volume on page 11
3. Reactivating the source volume on page 12

Resynchronizing 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:

![Diagram showing data replication from destination to 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.
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**.

**Updating 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. 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.

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**Reactivating 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**.

**Result**

The source volume has read/write access and is protected by the destination volume.
Where to find additional information

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.

Express guides

• **Volume express backup using SnapVault**
  Describes how to quickly configure backup vault relationships between volumes that are located in different ONTAP clusters.

• **Volume restore express management using SnapVault**
  Describes how to quickly restore a volume from a backup vault in ONTAP.

Power guide

• **Data protection**
  Describes how to prevent data loss using Snapshot copies and SnapMirror replication to a remote system

Comprehensive guides

  Describes information and best practices about configuring replication in ONTAP.

• **Data protection using tape backup**
  Describes how to back up and recover data using tape backup and recovery features in clusters, using NDMP and dump technologies.

• **ONTAP concepts**
  Provides conceptual information about disaster recovery and disk-to-disk backup of clustered systems.
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Index

A
- about this guide
  - deciding whether to use the Volume Disaster Recovery Express Guide 4
- activating
  - destination volume for disaster recovery 5

C
- comments
  - how to send feedback about documentation 18
- configuring
  - data access on the destination volume 9

D
- data access
  - configuring the destination volume 9
- destination volumes
  - activating for disaster recovery 5
  - breaking the mirror relationship to activate 6
  - configuring data access for 9
  - verifying the status 7
- diagrams
  - volume disaster recovery workflow 5
- disaster recovery
  - activating the destination volume 5
  - reactivating the source volume 10
  - where to get additional information about 15
- documentation
  - how to receive automatic notification of changes to 18
  - how to send feedback about 18

F
- failover
  - where to get additional information about 15
- feedback
  - how to send comments about documentation 18
- flowcharts
  - volume disaster recovery workflow 5

I
- information
  - how to send feedback about improving documentation 18
- intercluster SnapMirror relationships
  - volume disaster recovery workflow for 5

M
- mirror relationships
- breaking 6
- reverse resynchronizing 10
- updating 11

R
- reactivating
  - source volume 10
  - relationships
    - mirror, reverse resynchronizing 10
  - resynchronization
    - where to get additional information about 15
  - reverse resync
    - mirror relationships 10
    - returning source volume to RW role 12

S
- SnapMirror
  - volume disaster recovery workflow 5
- SnapMirror relationships
  - See mirror relationships
- source volumes
  - considerations for recovering 12
  - reactivating for disaster recovery 10
  - returning RW role to 12
  - verifying the status 6
- suggestions
  - how to send feedback about documentation 18

T
- Twitter
  - how to receive automatic notification of documentation changes 18

V
- volume-level disaster recovery
  - requirements for using Volume Disaster Recovery Express Guide to perform 4
- volumes
  - activating the destination 5
  - reactivating the source 10
  - updating the source 11
  - verifying status of the source volume 6
  - verifying the destination volume status 7

W
- workflows
  - disaster recovery flowchart 5