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Deciding whether to use the Volume Disaster Recovery Preparation Express Guide

This guide describes how to quickly protect a source volume on a peered ONTAP cluster in preparation for disaster recovery. You should use this guide 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.

You should use this guide 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.
- 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.
- You do not want to read a lot of conceptual background.
- You want to use OnCommand System Manager, not the ONTAP command-line interface or an automated scripting tool.

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.
- ONTAP 9 commands
  Provides the set of commands for configuring and managing SnapMirror relationships. You might want to use the SnapMirror commands to write a script that creates multiple SnapMirror relationships.
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.

Verifying 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.

Choices

- If you are running ONTAP 9.3 or later, perform the following steps to verify the cluster peer relationship and SVM peer relationship:
  1. Click Configuration > Cluster Peers.
  2. Verify that the peered cluster is authenticated and is available.
  3. Click Configuration > SVM Peers.
  4. 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:
  1. Click the Configurations tab.
2. In the **Cluster Details** pane, click **Cluster Peers**.

3. Verify that the peered cluster is authenticated and available.

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

5. 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)* on page 8

### Creating the SnapMirror relationship (starting 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**

1. Click **Storage > Volumes**.

2. Select the volume for which you want to create a mirror relationship, and then click **Actions > Protect**.

3. In the **Relationship Type** section, select **Mirror** from the **Relationship Type** drop-down list.

4. In the **Volumes: Protect Volumes** page, provide the following information:

   a. Select **Mirror** as the relationship type.

   b. 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.

   c. Click **MirrorAllSnapshots**.

   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 **Snapmirrored** state.
   a. Navigate to the **Volumes** window, and then select the volume that the volume for which you created the SnapMirror relationship.

   b. Double-click the volume to view the volume details, and then click **PROTECTION** to view the data protection status of the volume.
After you finish

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.

Creating 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:

<table>
<thead>
<tr>
<th>If the SVM is...</th>
<th>Then...</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peered</td>
<td>Select the peered SVM from the list.</td>
</tr>
<tr>
<td>Not peered</td>
<td>a. Select the SVM.</td>
</tr>
<tr>
<td></td>
<td>b. Click Authenticate.</td>
</tr>
<tr>
<td></td>
<td>c. Enter the cluster administrator's credentials of the peered cluster, and then click Create.</td>
</tr>
</tbody>
</table>
8. Create a new destination volume:
a. Select the **New Volume** option.

b. Use the default volume name or specify a new volume name.

c. Select the destination aggregate.

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.

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 44 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:

   a. Select the volume for which you created the SnapMirror relationship from the **Volumes** list, and then click **Data Protection**.

   b. In the **Data Protection** tab, verify that the SnapMirror relationship that you created is listed and that the relationship state is **Snapmirrored**.

**After you finish**

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.
Setting 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.

Choices

• NAS environment:
  1. Create NAS LIFs.
  2. Create CIFS shares with the same share names that were used on the source.
  3. Create appropriate NFS export policies.
  4. Create appropriate quota rules.

• SAN environment:
  1. Create SAN LIFs.
  2. Optional: Configure portsets.
  3. Configure initiator groups.
  4. For FC, zone the FC switches to enable the SAN clients to access the LIFs.

After you finish

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

Monitoring 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.
   • Starting 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.

Where to find additional information

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.

Express guide

• **Volume disaster express recovery**
  Describes how to quickly activate a destination volume after a disaster and then reactivate the source volume in ONTAP.

Power guide

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

Comprehensive guides

• **OnCommand Unified Manager 9.5 Workflow Guide for Managing Cluster Health**
  Provides information about performing OnCommand Unified Manager tasks using the web UI and information about troubleshooting, as well as providing in-depth conceptual information.

• **ONTAP concepts**
  Provides conceptual information about disaster recovery using SnapMirror technology.
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