Preparing storage systems for SnapMirror and SnapVault replication

SnapManager for SAP

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Table of Contents

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You can use SnapManager with ONTAP SnapMirror technology to create mirror copies of backup sets on another volume, and with ONTAP SnapVault technology to perform disk-to-disk backup replication for standards compliance and other governance-related purposes. Before you perform these tasks, you must configure a *data-protection relationship* between the source and destination volumes and *initialize* the relationship.

A data protection relationship replicates data on primary storage (the source volume) to secondary storage (the destination volume). When you initialize the relationship, ONTAP transfers the data blocks referenced on the source volume to the destination volume.

Understanding the differences between SnapMirror and SnapVault

SnapMirror is disaster recovery technology, designed for failover from primary storage to secondary storage at a geographically remote site. SnapVault is disk-to-disk backup replication technology, designed for standards compliance and other governance-related purposes.

These objectives account for the different balance each technology strikes between the goals of backup currency and backup retention:

- SnapMirror stores *only* the Snapshot copies that reside in primary storage, because, in the event of a disaster, you need to be able to fail over to the most recent version of primary data you know to be good.

  Your organization, for example, might mirror hourly copies of production data over a ten-day span. As the failover use case implies, the equipment on the secondary system must be equivalent or nearly equivalent to the equipment on the primary system to serve data efficiently from mirrored storage.

- SnapVault, in contrast, stores Snapshot copies *whether or not* they currently reside in primary storage, because, in the event of an audit, access to historical data is likely to be as important as access to current data.

  You might want to keep monthly Snapshot copies of your data over a 20-year span, for example, to comply with government accounting regulations for your business. Because there is no requirement to serve data from secondary storage, you can use slower, less expensive disks on the vault system.

The different weights that SnapMirror and SnapVault give to backup currency and backup retention ultimately derive from the limit of 255 Snapshot copies for each volume. While SnapMirror retains the most recent copies, SnapVault retains the copies made over the longest period of time.

Prepare storage systems for SnapMirror replication

Before you can use SnapManager's integrated SnapMirror technology to mirror Snapshot copies, you must configure and initialize a *data-protection relationship* between the source and destination volumes. On initialization, SnapMirror makes a Snapshot copy of

the source volume, then transfers the copy and all the data blocks it references to the destination volume. It also transfers any other, less recent Snapshot copies on the source volume to the destination volume.

About this task

You can use the ONTAP CLI or OnCommand System Manager to perform these tasks. The procedure below is based on the assumption that you are using the CLI. For more information, see the Data ONTAP 8.2 Data Protection Online Backup and Recovery Guide for 7-Mode.

You cannot use SnapManager to mirror qtrees. SnapManager supports volume mirroring only.

You cannot use SnapManager for synchronous mirroring. SnapManager supports asynchronous mirroring only.

If you are storing database files and transaction logs on different volumes, you must create relationships between the source and destination volumes for the database files and between the source and destination volumes for the transaction logs.

1. On the source system console, use the `options snapmirror.access` command to specify the host names of systems that are allowed to copy data directly from the source system.

   Example

   The following entry allows replication to destination_systemB:

   ```
   options snapmirror.access host=destination_systemB
   ```

2. On the destination system, create or edit the `/etc/snapmirror.conf` file to specify the volume to be copied.

   Example

   The following entry specifies replication from vol0 of source_systemA to vol2 of destination_systemB:

   ```
   source_systemA:vol0 destination_systemB:vol2
   ```

3. On both the source and destination system consoles, use the `snapmirror on` command to enable SnapMirror.

   Example

   The following command enables SnapMirror:

   ```
   snapmirror on
   ```

4. On the destination system console, use the `vol create` command to create a SnapMirror destination volume that is the same or greater in size than the source volume.

Example

The following command creates a 2-GB destination volume named vol2 on the aggregate aggr1:

```
vol create vol2 aggr1 2g
```

5. On the destination system console, use the vol restrict command to mark the destination volume as restricted.

   Example

   The following command marks the destination volume vol2 as restricted:

   ```
   vol restrict vol2
   ```

6. On the source system console, use the `snap sched` command to disable any scheduled transfers.

   Example

   You must disable scheduled transfers to avoid scheduling conflicts with SnapDrive.

   The following command disables scheduled transfers:

   ```
   snap sched vol1 -----
   ```

7. On the destination system console, use the `snapmirror initialize` command to create a relationship between the source and destination volumes, and initialize the relationship.

   The initialization process performs a *baseline transfer* to the destination volume. SnapMirror makes a Snapshot copy of the source volume, then transfers the copy and all the data blocks it references to the destination volume. It also transfers any other Snapshot copies on the source volume to the destination volume.

   Example

   The following command creates a SnapMirror relationship between the source volume vol0 on source_systemA and the destination volume vol2 on destination_systemB, and initializes the relationship:

   ```
   snapmirror initialize -S source_systemA:vol0 destination_systemB:vol2
   ```

Prepare storage systems for SnapVault replication

Before you can use SnapManager's integrated SnapVault technology to archive Snapshot copies to disk, you must configure and initialize a *data-protection relationship* between the source and destination volumes. On initialization, SnapVault makes a Snapshot copy of the source volume, then transfers the copy and all the data blocks it

references to the destination volume.

What you'll need

- You must have configured a dataset for the primary storage location in the SnapManager Configuration wizard.
- All LUNs must be in qtrees, with one LUN per qtree.

> If you are storing database files and transaction logs on different volumes, you must create relationships between the source and destination volumes for the database files and between the source and destination volumes for the transaction logs.

Steps

1. On both the source and destination system consoles, enable SnapVault:

   Example

   ```
   options snapvault.enable on
   ```

2. On the source system console, use the `options snapvault.access` command to specify the host names of systems that are allowed to copy data directly from the source system.

   Example

   The following command allows replication to destination_systemB:

   ```
   options snapvault.access host=destination_systemB
   ```

3. On the destination system console, use the `options snapvault.access` command to specify the host names of systems to which copied data can be restored.

   Example

   The following command allows copied data to be restored to source_systemA:

   ```
   options snapvault.access host=destination_systemA
   ```

4. On the source system console, use the `ndmpd on` command to enable NDMP.

   Example

   The following command enables NDMP:

   ```
   ndmpd on
   ```

5. On the destination system console, use the `vol create` command to create a SnapMirror destination

volume that is the same or greater in size than the source volume.

Example

The following command creates a 2-GB destination volume named vol2 on the aggregate aggr1:

```
vol create vol2 aggr1 2g
```

6. In the OnCommand Unified Manager (UM) NetApp Management Console, add the resource pool for the destination volume:
   a. Click **Data** > **Resource Pools** to open the **Resource Pools** page.
   b. On the Resource Pools page, click **Add** to start the **Add Resource Pool** wizard.
   c. Follow the prompts in the wizard to specify the aggregate for the destination volume.
   d. Click **Finish** to exit the wizard.
7. In the UM NetApp Management Console, assign the resource pool to the dataset you created in the SnapManager Configuration wizard:
   a. Click **Data** > **Datasets** to open the Datasets page.
   b. On the **Datasets** page, select the dataset you created and click **Edit**.
   c. On the **Edit Dataset** page, click **Backup** > **Provisioning/Resource Pools** to open the **Configure Dataset Node** wizard.
   d. Follow the prompts in the wizard to assign the resource pool to the dataset.

      Resource pool assignment specifies the data-protection relationship between the source and destination volumes.

   e. Click **Finish** to exit the wizard and initialize the data-protection relationship.

      The initialization process performs a *baseline transfer* to the destination volume. SnapVault makes a Snapshot copy of the source volume, then transfers the copy and all the data blocks it references to the destination volume.

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