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Preface

About this guide

This document applies to IBM N series systems running Data ONTAP, including systems with gateway functionality. If the terms Cluster-Mode or clustered Data ONTAP are used in this document, they refer to the Data ONTAP features and functionality designed for clusters, which are different from 7-Mode and prior Data ONTAP 7.1, 7.2, and 7.3 release families.

In this document, the term gateway describes IBM N series storage systems that have been ordered with gateway functionality. Gateways support various types of storage, and they are used with third-party disk storage systems—for example, disk storage systems from IBM, HP®, Hitachi Data Systems®, and EMC®. In this case, disk storage for customer data and the RAID controller functionality is provided by the back-end disk storage system. A gateway might also be used with disk storage expansion units specifically designed for the IBM N series models.

The term filer describes IBM N series storage systems that either contain internal disk storage or attach to disk storage expansion units specifically designed for the IBM N series storage systems. Filer storage systems do not support using third-party disk storage systems.

Supported features

IBM System Storage N series storage systems are driven by NetApp Data ONTAP software. Some features described in the product software documentation are neither offered nor supported by IBM. Please contact your local IBM representative or reseller for further details.

Information about supported features can also be found on the N series support website (accessed and navigated as described in Websites).

Websites

IBM maintains pages on the World Wide Web where you can get the latest technical information and download device drivers and updates. The following web pages provide N series information:

• A listing of currently available N series products and features can be found at the following web page:
  [www.ibm.com/storage/nas/]

• The IBM System Storage N series support website requires users to register in order to obtain access to N series support content on the web. To understand how the N series support web content is organized and navigated, and to access the N series support website, refer to the following publicly accessible web page:
  [www.ibm.com/storage/support/nseries/]
  This web page also provides links to AutoSupport information as well as other important N series product resources.

• IBM System Storage N series products attach to a variety of servers and operating systems. To determine the latest supported attachments, go to the IBM N series interoperability matrix at the following web page:
Getting information, help, and service

If you need help, service, or technical assistance or just want more information about IBM products, you will find a wide variety of sources available from IBM to assist you. This section contains information about where to go for additional information about IBM and IBM products, what to do if you experience a problem with your IBM N series product, and whom to call for service, if it is necessary.

Before you call

Before you call, make sure you have taken these steps to try to solve the problem yourself:

• Check all cables to make sure they are connected.
• Check the power switches to make sure the system is turned on.
• Use the troubleshooting information in your system documentation and use the diagnostic tools that come with your system.
• Refer to the N series support website (accessed and navigated as described in Websites) for information on known problems and limitations.

Using the documentation

The latest versions of N series software documentation, including Data ONTAP and other software products, are available on the N series support website (accessed and navigated as described in Websites).

Current N series hardware product documentation is shipped with your hardware product in printed documents or as PDF files on a documentation CD. For the latest N series hardware product documentation PDFs, go to the N series support website.

Hardware documentation, including planning, installation and setup, and hardware monitoring, service, and diagnostics, is also provided in an IBM N series Information Center at the following web page:

publib.boulder.ibm.com/infocenter/nasinfo/nseries/index.jsp

Hardware service and support

You can receive hardware service through IBM Integrated Technology Services. Visit the following web page for support telephone numbers:

www.ibm.com/planetwide/

Firmware updates

IBM N series product firmware is embedded in Data ONTAP. As with all devices, ensure that you run the latest level of firmware. Any firmware updates are posted to the N series support website (accessed and navigated as described in Websites).
Note: If you do not see new firmware updates on the N series support website, you are running the latest level of firmware.

Verify that the latest level of firmware is installed on your machine before contacting IBM for technical support.

How to send your comments

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- Exact publication title
- Publication form number (for example, GC26-1234-02)
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Deciding whether to use this guide

This guide describes how to quickly configure and monitor SnapMirror relationships between volumes in different Data ONTAP clusters. You should use this guide if you want to configure and monitor SnapMirror relationships for 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 Data ONTAP replicates to all the nodes in the cluster.

This guide is written with the following assumptions:
- You are a cluster administrator.
- You are using FlexVol volumes and not an Infinite Volume.
- You are using OnCommand System Manager 3.0 or later for the tasks.

If you want to write a script that creates multiple SnapMirror relationships, you might want to use the set of commands provided by Data ONTAP for configuring and managing SnapMirror relationships. See the Data ONTAP Data Protection Express Guide or the Clustered Data ONTAP Commands: Manual Page Reference for more information about the SnapMirror commands.

If these assumptions are not correct for your situation, or if you want more conceptual background information, you should see the following documentation instead, available from the IBM N series support website (accessed and navigated as described in Websites):
- Clustered Data ONTAP Data Protection Guide
- Clustered Data ONTAP Logical Storage Management Guide

Note: This technical report contains information about NetApp products that IBM licenses and in some cases customizes. Technical reports might contain information about models and features that are not supported by IBM.

Related information:
- IBM N series support website: www.ibm.com/storage/support/nseries
SnapMirror intercluster configuration workflow

You can configure and monitor SnapMirror relationships between volumes residing on different clusters (intercluster) for disaster recovery. To configure SnapMirror relationships between intercluster volumes, you must create the SnapMirror relationship, which includes creating a destination volume, selecting an update schedule and mirror policy, and initializing the relationship.

Create the SnapMirror relationship:

- Create a destination volume.
- Selected an updated schedule.
- Select the mirror policy.
- Initialize the SnapMirror relationship.

Monitor the SnapMirror relationship.
Creating SnapMirror relationships

You can create a SnapMirror relationship between volumes on different clusters for disaster recovery. You must create a new destination volume for creating a SnapMirror relationship.

**Before you begin**
- The source and destination clusters must be peered.
- The source and destination Vservers must be peered and the peer relationship must be in the peered state.
  For details, see the *Data ONTAP Cluster and Vserver Peering Express Guide*.
  For verifying the peer relationship state, see [Monitoring the status of SnapMirror data transfers](#).
- You must have the administrator user name and password for the source and destination clusters.
- The source and destination clusters must be added to System Manager.
- The SnapMirror license must be enabled on both the source and the destination clusters.
- All storage must be configured and set up appropriately to meet the needs of your environment regarding user access, authentication, and client access.

**Procedure**
1. From the System Manager home page, double-click the appropriate cluster.
2. Expand the Vservers hierarchy in the left navigation pane.
3. Select the source Vserver from the left navigation pane that contains the volume you want to protect, and then select Storage > Volumes.
4. In the Details tab, select the volume you want to protect, and then click Protect by > Mirror. The Create Mirror Relationship window is displayed.
5. In the Destination Volume section, specify the following details:
   a. Select the cluster.
   b. Select the Vserver.
   c. Click New Volume.
   d. Enter the volume name.
   e. Select the aggregate for the new volume.

System Manager creates the destination volume with type DP and a capacity greater than the capacity of the source volume. The following example shows the Create Mirror Relationship window that is launched from the source Vserver.
6. In the Configuration Details section, specify the following details:
   a. Retain the default policy **DPDefault** as the mirror policy.
   b. Select the mirror schedule as **hourly**.
   c. Ensure that the **Initialize Relationship** check box is selected. Initializing the SnapMirror relationship ensures that the destination volume has a baseline to start protecting the source volume.

7. Click **Create**. The wizard creates the relationship with the default **DPDefault** mirror policy and the **hourly** schedule, and then it initializes the relationship by starting a baseline transfer of data from the source volume to the destination volume. The Status section shows the status of each job.

8. Select the volume from the Volumes list and click **Data protection**.
9. In the Data protection tab, verify that the SnapMirror relationship you created is listed and the relationship state is **Snapmirrored**.

What to do next

You must understand the requirements and workflow for SnapMirror failover and resynchronization to fail over and resynchronize data.
Monitoring the status of SnapMirror data transfers

You should periodically monitor the status of SnapMirror relationships, including the status of the cluster peer and Vserver peer relationships, to ensure that the SnapMirror data transfers are occurring per the specified schedule.

About this task

You can perform this task either from the source or destination cluster.

Procedure

1. From the System Manager home page, double-click the appropriate cluster.
2. Expand the Cluster hierarchy in the left navigation pane.
3. Click Configuration > Peers, and then verify that the peer cluster is available.
4. Expand the Vservers hierarchy in the left navigation pane.
5. Select the source Vserver from the “Vservers window,’’ and then verify that the peer relationship with the destination Vserver is in the peered state.
6. Click **Protection**, and then verify the status of the SnapMirror relationships in the Details section. The Details section displays the health status of the SnapMirror relationship, and also shows the transfer errors and lag time.

- The **Is Healthy** field must display **Yes**.
  
  For most SnapMirror data transfer failures, the **Is Healthy** field displays **No**.
  
  In some failure cases, however, the **Is Healthy** field continues to display **Yes**. You must check the transfer errors in the Details section to be certain that no SnapMirror data transfer failure occurred.

- The **Relationship State** field must either display **Uninitialized** or **Snapmirrored**.
  
  - The **Lag Time** must be no more than two times the transfer schedule.

  For example, if the SnapMirror relationship is assigned a transfer schedule of **hourly**, the transfer occurs once every day at 05 minutes past the hour. The lag time should be no more than 2 hours since the last transfer.
Where to find additional information

There are additional documents to help you learn more about data protection and other related subjects.

All of the following documentation is available from the IBM N series support website (accessed and navigated as described in Websites):

**Technical Report 4015: SnapMirror Configuration and Best Practices Guide for Clustered Data ONTAP 8.2**

Provides information and best practices related to configuring replication in clustered Data ONTAP.

*Note:* This technical report contains information about NetApp products that IBM licenses and in some cases customizes. Technical reports might contain information about models and features that are not supported by IBM.

**OnCommand System Manager Online Help**

Describes how to use System Manager to complete typical tasks.

**Clustered Data ONTAP Data Protection Guide**

Describes how to manage your backup and recover data on clustered systems.

**Clustered Data ONTAP Logical Storage Management Guide**

Describes how to efficiently manage your logical storage resources on systems running clustered Data ONTAP, using volumes, FlexClone volumes, files and LUNs, FlexCache volumes, deduplication, compression, qtrees, and quotas.

**Clustered Data ONTAP Network Management Guide**

Describes how to connect your cluster to your Ethernet networks and how to manage logical interfaces (LIFs).

**Clustered Data ONTAP System Administration Guide for Cluster Administrators**

Describes general system administration for IBM systems running clustered Data ONTAP.

**Related information:**

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