



ONTAP® 9

Volume Move Express Guide

June 2018 | 215-11197_GO
doccomments@netapp.com

 **NetApp**®

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Deciding whether to use the Volume Move Express Guide

You can use this guide to nondisruptively move a volume from one node to another node within the same storage virtual machine (SVM) in an ONTAP 9 cluster.

Requirements for using this guide

Before you use this guide, ensure that the following conditions are met:

- The cluster is running ONTAP 9.
- You have cluster administrator privileges.
- 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.

The UI navigation in OnCommand System Manager 9.3 is different from the UI navigation in previous releases. This guide provides the common steps that you must perform for completing a task in any ONTAP 9 release. If you want the exact steps for navigating to a particular screen or window, you should view the OnCommand System Manager Online Help for your version of ONTAP.

For some tasks, you must use the ONTAP command-line interface (CLI).

- You know which volume you want to move.
For help in deciding which volumes to move, you can use OnCommand Unified Manager.
- The volume that will be moved is a data volume, not a root volume.
- Any new or repurposed hardware is fully installed and already has aggregates.
- If the cluster has LUNs, all nodes have two paths per LUN.
- Flow control is not enabled on cluster network ports.

If this guide is not suitable for your situation, you should see the following documentation instead:

- [Logical storage management](#)
Describes how to move volumes by using the CLI.
- [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.

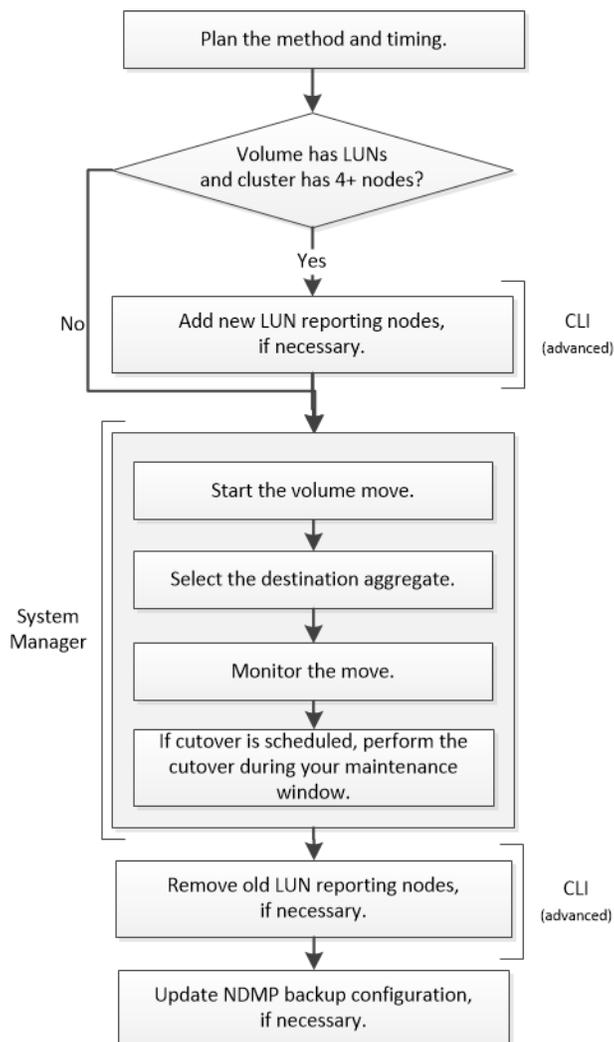
Alternatives to volume move

Before moving volumes, you should evaluate whether the following approaches are better suited to your situation:

- If you want to nondisruptively upgrade a controller in place, you can consider using aggregate relocation (ARL), which does not require physical data movement.
[High-availability configuration](#)
- If you want to move only a LUN—without its containing volume—you can use the LUN move mechanism.
[SAN administration](#)

Volume move workflow

Before moving a volume, you should select a method for the volume move operation and plan the timing of the operation. You can move a volume by using System Manager. After the move, you might have to update the NDMP backup configuration.



Planning the method and timing of a volume move

You can use System Manager to move a volume and to decide whether to have a manual cutover. If you need to update LUN reporting nodes, you must follow an advanced procedure in the command-line interface (CLI). Optionally, you can also plan the timing of a volume move.

About this task

The source volume of a SnapMirror or SnapVault relationship can be moved while the volume is being mirrored. SnapMirror services encounter a brief pause during the cutover phase of the volume move job.

The destination volume can also be moved. In the iterative phase, SnapMirror or SnapVault updates and volume move operations run concurrently. When evaluating whether a cutover is possible in the cutover phase, priority between the cutover and SnapMirror or SnapVault updates is determined on a first-come, first-served basis. Until the first operation finishes, other operations are blocked.

Steps

1. Decide whether you require a manual cutover.

Cutover is the moment at which the move operation finishes and ONTAP starts serving data from the volume on the new aggregate. The cutover can occur automatically or you can trigger the cutover manually.

If your company's standard practice requires you to control when changes occur in the storage system, you can manually perform the final cutover of the move operation during a maintenance window.

A cutover does not require an outage, but you can use a maintenance window to control *when* it occurs.

Note: The volume move operation is nondisruptive, regardless of whether you choose automatic or manual cutover.

2. If the volume contains LUNs and the cluster contains four or more nodes, use the CLI to update the LUN reporting nodes if the volume moves to a different HA pair.

If the volume does not contain LUNs or if the cluster contains only two nodes, you can skip this step.

3. Optional: Plan a time using the following considerations:

- A volume move operation might take more time than expected because moves are designed to occur nondisruptively in the background in a manner that preserves client access and overall system performance.
For example, ONTAP throttles the resources that are available to the volume move operation.
- If you want the move to occur as quickly as possible, you must select a time with less cluster activity, especially the following activities:
 - I/O operations on the volume
 - Jobs using background resources, for example, when controller CPU usage is less than 50 percent
 - Jobs using the cluster interconnect
- A move cannot be started while the volume is affected by the following operations: volume offline, restrict, or destroy; SnapMirror resync, break, or restore; and Snapshot restore.
You must wait for any of these specific operations to finish before you can start the move.
- While the volume move operation occurs, a MetroCluster switchback cannot occur, although a switchover can occur.
- MetroCluster switchbacks are blocked when volume move operations are in progress for volumes belonging to the switched over site. Switchbacks are not blocked when volume move operations are in progress for volumes local to the surviving site.
- Forced MetroCluster switchovers can occur when volume move operations are in progress.

Related tasks

[Adding LUN reporting nodes before moving a volume](#) on page 7

Adding LUN reporting nodes before moving a volume

If the volume that you plan to move contains LUNs, and the destination aggregate is on another high-availability (HA) pair, you should add a HA pair to the Selective LUN Map reporting-nodes list. Adding LUN reporting nodes before moving a volume helps to maintain optimized LUN paths after the volume is moved.

Before you begin

Two LIFs must be configured, one LIF on the destination node and the other LIF on the HA partner of the destination node.

About this task

This procedure is required only if you plan to move a volume from one HA pair to a different HA pair. If you plan to move a volume to a different node of the same HA pair—for example, if you have a two-node cluster or a MetroCluster configuration—you can skip this procedure.

Steps

1. Add the destination node and its partner node to the reporting-nodes list of the volume:

```
lun mapping add-reporting-nodes
```

You should set the `-destination-aggregate` parameter to the aggregate that you selected as the destination.

Example

```
cluster1::> lun mapping add-reporting-nodes -vserver SVM1 -volume vol1 -lun * -igroup ig1
-destination-aggregate aggr3
```

2. Verify that the LUN map contains four nodes:

```
lun mapping show -vserver svm_name -volume vol_name -fields reporting-nodes
```

Example

```
cluster1::> lun mapping show -vserver SVM1 -volume vol1 -fields reporting-nodes
vserver  path          igroup  reporting-nodes
-----  -
SVM1     /vol/vol1      ig1     cluster1-1,cluster1-2,cluster1-3,cluster1-4
```

3. Rescan from the host to discover the newly added paths.
4. Add the new paths to your MPIO configuration.
5. Remove the previous LUN owner and its partner node from the reporting-nodes list:

```
lun mapping remove-reporting-nodes-remote-nodes -vserver vserver_name -
path lun_path -igroup igroup_name
```

6. Rescan the host to verify removal of old paths.

See your host documentation for specific steps to rescan your hosts.

Moving a volume using System Manager

You can move a volume in System Manager by selecting a volume and the destination aggregate, starting the volume move operation, and optionally monitoring the volume move job. When using System Manager, a volume move operation finishes automatically.

Before you begin

You should have reviewed the available space on the source aggregate and destination aggregate before the volume move operation and after the volume move operation.

About this task

A volume move operation is supported only within the same cluster. In addition, you should note that the aggregate you are moving the volume to and the aggregate you are moving the volume from must be in the same storage virtual machine (SVM). A volume move does not disrupt client access.

Steps

1. Navigate to the **Volumes** window.
2. Select the volume that you want to move, and then click **Actions > Move**.
3. Select the destination aggregate, and then start the volume move operation:
 - a. Select a destination aggregate from the list of possible aggregates, which includes only the aggregates that have the required capacity.
 You should review the available space, total space, RAID type, and storage type of the aggregates. For example, if the goal is to alter the performance characteristics of the volume, you can focus on aggregates with the desired storage type.
 - b. Click **Move**, and then click **Move** again to confirm that you want to proceed with the volume move operation.
 When the Move Volume dialog box is displayed, leave the dialog box open if you want to monitor the volume move job.
4. Optional: Monitor the volume move job:
 - a. In the **Move Volume** dialog box, click the link to the **Job ID** of the volume move job.
 - b. Locate the volume move job, and then review the information in the **Status** column.
 The job can be in any one of several phases, such as transferring the initial baseline of data or starting a cutover attempt.

241	03/05/2015 07:3...	Volume Move	node1-1	running	Move "vol1" in V...	Cutover Started:(1 of 3 attempts) Transferring final da...
-----	--------------------	-------------	---------	---------	---------------------	--

- c. Click **Refresh** in the **Jobs** window to view the updated job status.

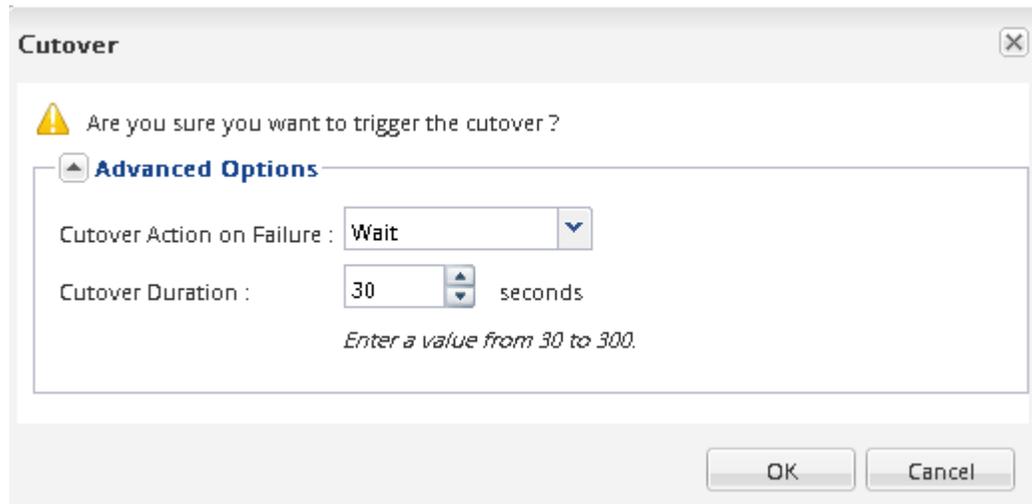
241	03/05/2015 07:3...	Volume Move	node1-1	success	Move "vol1" in V...	Complete: Successful [0]
-----	--------------------	-------------	---------	---------	---------------------	--------------------------

The job status changes to **Complete: Successful** when the volume move operation finishes.

5. If the volume move job enters the cutover deferred phase, perform a manual cutover.
 - a. From the **Volumes** window, select the volume for which you initiated the volume move job.
 - b. Initiate cutover for the volume:

If you are running...	Perform these steps...
ONTAP 9.3 or later	<ol style="list-style-type: none"> i. Expand the volume and click the Show More Details link to view more information about the volume. ii. In the Overview tab, click Cutover.
ONTAP 9.2 or earlier	In the Volume Move Details tab, click Cutover .

- c. In the **Cutover** dialog box, click **Advanced Options**.
- d. Specify the cutover action and the cutover duration.



- e. Click **OK**.
6. Repeat [Step 4](#).

Updating LUN reporting nodes after moving a volume

If the volume that you moved contained LUNs and the volume is now on a different HA pair, you should remove all remote nodes from the Selective LUN Map (SLM) reporting-nodes list. The LUN map then contains only the owner node and its HA partner, which ensures that only optimized LUN paths are used.

About this task

This procedure is necessary only if you moved the volume from its HA pair to a different HA pair. If the volume is on a different node of the same HA pair, you can skip this procedure.

Steps

1. Remove all of the remote nodes from the reporting-nodes list by using the `lun mapping remove-reporting-nodes` command with the `-remote-nodes` parameter.

Example

```
cluster1::> lun mapping remove-reporting-nodes -vserver SVM1 -volume voll -igroup ig1 -
remote-nodes true
```

2. Verify that the LUN map contains only the owner node and its partner by using the `lun mapping show` command with the `-fields reporting-nodes` parameter.

Example

```
cluster1::> lun mapping show -vserver SVM1 -volume voll -fields reporting-nodes
vserver  path          igroup    reporting-nodes
-----  -
SVM1     /vol/voll       ig1       cluster1-3,cluster1-4
```

3. Remove stale device entries for the host operating system.
4. Rescan from the host to refresh the host's available paths.

See your host documentation for specific steps to rescan your hosts.

Updating NDMP backup after moving a volume

If the volume that you moved was previously backed up to tape using NDMP in a specific configuration, after moving the volume, you can perform one of the following actions to ensure the volume continues to be backed up successfully: create a baseline or migrate the backup LIF to the node containing the moved volume.

About this task

- This procedure is necessary only if the backup application does not support the cluster-aware backup (CAB) extension and the backup process uses node-scoped NDMP. If the backup application supports CAB and it is configured to use the SVM-scoped NDMP mode, you can skip this procedure.
- You must perform only one of these actions, not both.

Choices

- From the backup application, create a new baseline.
- Identify the LIF that is configured for the backup process, and then migrate the LIF to the node where the volume now resides.

Where to find additional information

If you want more information about administering ONTAP, you can see the ONTAP 9 product library.

Related information

[NetApp Documentation: ONTAP 9](#)

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- NetApp, Inc., 495 East Java Drive, Sunnyvale, CA 94089 U.S.
- Telephone: +1 (408) 822-6000
- Fax: +1 (408) 822-4501
- Support telephone: +1 (888) 463-8277

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