



7-Mode Transition Tool 1.0

Data and Configuration Transition Guide

For Transitioning to Clustered Data ONTAP 8.2



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Transitioning from 7-Mode to clustered Data ONTAP

Transition is a copy-based process of migrating Data ONTAP 7G and 7-Mode FlexVol volumes and configuration to new hardware that is running clustered Data ONTAP 8.2, with minimum client disruption and retention of storage efficiency options.

Attention: Transitioning to clustered Data ONTAP 8.2 is supported only for NAS (NFS and CIFS) environments. It is not supported for SAN (FC, FCoE, and iSCSI) environments.

The transition process involves the following capabilities:

- Transitioning existing FlexVol volumes from a 7G or 7-Mode controller to a virtual storage server (Vserver)
- Preserving Snapshot copies and storage efficiency in the volumes during transition
- Transitioning primary and secondary FlexVol volumes in a SnapMirror relationship, and retaining the SnapMirror relationship after transition
You do not have to perform a rebaseline of the secondary volume on the cluster.
- In a copy-based transitioning process, continued use of the 7-Mode or 7G deployments while data is being copied to a newly deployed cluster

Certain 7-Mode configurations are not supported for transitioning and certain configurations behave differently after transitioning to clustered Data ONTAP. You must evaluate whether the 7-Mode configurations meet your requirements after transitioning to a cluster. You must plan the transition process based on the following factors:

- 7-Mode features and functionality
- Workload (number of volumes that affect a single or group of related applications)
- Requirements after transitioning to clustered Data ONTAP

Features not supported for transition

You cannot transition certain 7-Mode volumes, such as traditional volumes or SnapLock volumes by using the 7-Mode Transition Tool. You cannot transition certain 7-Mode features, such as qtrees or synchronous SnapMirror relationships, or MetroCluster configurations because some of these features might not be available in clustered Data ONTAP or the tool cannot transition these features.

Note: You can transition a 7-Mode volume only to a Vserver with FlexVol volumes, not to a Vserver with Infinite Volume.

Some of these features might require a manual post-transition setup in the cluster.

You cannot transition the following 7-Mode volumes:

- Volumes with LUNs and LUN clones (SAN transition)

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- Restricted volumes
- Traditional volumes
- Volumes with NFS-to-CIFS character mapping (charmap)
- Volumes with Storage-Level Access Guard configurations
- SnapLock volumes
- FlexCache volumes
- 7-Mode volumes in a 64-bit aggregate to a 32-bit aggregate in clustered Data ONTAP
- FlexClone volumes while preserving storage efficiency
- Root volume of a vFiler unit, where the root volume is based on a qtree that belongs to the default vFiler unit, vfiler0

You cannot transition the following 7-Mode configurations:

- IPv6 configurations
- SnapVault relationships
- FPolicy configurations
- Branch Cache configurations
- Antivirus configurations
- Qtree SnapMirror relationships
- FCoE configurations
- PC-NFS
- WebNFS
- NFSv2
- CIFS local users and groups
- CIFS NT4 authentication
- CIFS NetBIOS aliases
- CIFS and NFS auditing configurations
- CIFS share-level ACLs for UNIX users and groups
- Map entries in the `/etc/symlink.translations` file
- Configuration to allow the administrator to connect to the CIFS home directories of other users (`cifs.homedirs_public_for_admin` option on the 7-Mode system)
- Volume SnapMirror cascade relationships
- Synchronous SnapMirror
- MetroCluster configurations
- Disaster recovery vFiler unit (vFiler DR)
Only the volumes in the source vFiler unit can be transitioned.
- NDMP configurations
- Subvolume or qtree export rules
- Fencing of NFS export rules (fencing of NFS clients from a file system path)
- SFTP server
- TFTP server
- GARP VLAN Registration Protocol (GVRP)

- NIS for host name lookup

What the 7-Mode Transition Tool does

You can transition 7-Mode stand-alone volumes and volumes in a SnapMirror relationship by using the 7-Mode Transition Tool. The tool provides a web interface and automates the process of preparing for transition, copying data from multiple 7-Mode volumes, and applying the 7-Mode configuration to the Vserver.

You can also transition the volumes by using either the 7-Mode Transition Tool CLI or by using the SnapMirror commands that are available in clustered Data ONTAP.

Related concepts

[*Understanding the 7-Mode Transition Tool*](#) on page 27

[*Transitioning volumes using the 7-Mode Transition Tool \(web interface\)*](#) on page 42

[*Transitioning volumes using the 7-Mode Transition Tool \(CLI\)*](#) on page 64

Related tasks

[*Transitioning volumes manually*](#) on page 149

Types of transitions

You can transition either stand-alone volumes or volumes that are in a data protection relationship (in a volume SnapMirror relationship).

The following transition workflows are supported:

- Single volume from a 7-Mode system to a clustered Data ONTAP volume in a Vserver
- Group of volumes (less than or equal to 20 volumes) from a 7-Mode system to a Vserver
- 7-Mode volumes that are in a volume SnapMirror relationship to two Vservers that are in a volume SnapMirror relationship
- Group of 7-Mode volumes in two controllers (less than or equal to 20 volumes) that are in a SnapMirror relationship to two peered Vservers

How transition works

The transition workflow consists of the following phases: the preparation phase, data copy phase, and cutover phase. Understanding what occurs during each phrase helps you to manage your transition efficiently.

1. Preparation phase

Information about the 7-Mode system and cluster is provided and a verification whether the configuration of 7-Mode volumes can be applied to the clustered Data ONTAP volumes is performed.

2. Data copy phase

The Vserver (if a new Vserver is selected) and its volumes are created and data copy starts from the 7-Mode volumes to the clustered Data ONTAP volumes.

A transition peer relationship is established between the 7-Mode system and cluster. Then, a SnapMirror relationship is established between the 7-Mode volume and clustered Data ONTAP volume and baseline transfer is started. After the baseline transfer is completed, updates occur according to the selected SnapMirror schedule.

3. Precutover phase

This phase requires manual intervention where you monitor the status of the data copy and prepare for cutover.

4. Cutover phase

In this phase, configuration of the 7-Mode volumes is applied to the clustered Data ONTAP volumes. Also, you must disconnect client access from the 7-Mode volumes.

A final data transfer is performed from the 7-Mode volumes to the clustered Data ONTAP volumes and the SnapMirror relationship between the 7-Mode and clustered Data ONTAP volumes is broken. Data LIFs are configured on the Vserver. The configuration of the 7-Mode volumes and vFiler unit (if any) is collected, translated, and applied to the clustered Data ONTAP volumes and Vserver.

You can redirect client access to the clustered Data ONTAP volumes after the cutover phase is completed successfully.

Related concepts

[*How you transition a stand-alone volume*](#) on page 28

[*How you transition volumes in a SnapMirror relationship*](#) on page 31

[*States of a transition subproject or session*](#) on page 35

Considerations for using SnapMirror for transition

You must be aware of how multiple paths work in a SnapMirror relationship for transition and the number of concurrent SnapMirror transfers that are supported for transition.

- SnapMirror supports up to two paths for transition; however, both the paths can be used only for load-balancing, and not for failover.
 - If the secondary path fails before the transfer is started, the baseline transfer starts with a delay.
 - After the transfer starts between the 7-Mode system and the clustered Data ONTAP system, both paths must be available for SnapMirror transfers to continue.
If any path fails when the transfer is in progress, data copy fails.

- You must have two intercluster LIFs on each node of the cluster for multipathing.
- SnapMirror over multiple paths is not supported by the 7-Mode Transition Tool (web interface).

You can specify only one IP address for the primary path.

- There is a limit on the number of concurrent replication operations, which depends on your system model.

The replication operations include SnapMirror and SnapVault operations. Therefore, the number of concurrent operations you can run for a data copy operation for transition is limited if other types of replication operations are performed concurrently on the 7-Mode system.

For information about the maximum number of concurrent operations for your system model, see the *Data ONTAP Data Protection Online Backup and Recovery Guide for 7-Mode*.

Related information

[Documentation on the NetApp Support Site: support.netapp.com](http://support.netapp.com)

Guidelines for deciding when to perform cutover

Because transition cutover is disruptive to clients, you must plan the activity to minimize the downtime. You must schedule the cutover during a low-activity window. Also, you must monitor the transfer duration for the last few update transfers and confirm that the final copy-update does not take a long time.

You must keep monitoring the SnapMirror status for each volume. If the last transfer duration of the previous few updates for the volume is within an acceptable limit, most of the data changes in the volume should have been copied and the time for final data update during cutover should be within the acceptable limit.

You can derive the approximate downtime depending on the number of volumes that are transitioned. Applying configurations on the clustered Data ONTAP volumes consumes additional time.

To minimize the cutover time, the network latency between the 7-Mode Transition Tool and storage systems should be minimum. For transitioning a volume SnapMirror relationship, the network latency between the tool and the primary systems should be minimum.

Preparing for transition

Before initiating a data copy operation from 7-Mode to clustered Data ONTAP, you must understand the requirements and restrictions for transition, and complete certain tasks on the 7-Mode system and the cluster.

You must ensure that the following requirements are met before you transition the 7-Mode volumes:

- The 7-Mode systems must be running Data ONTAP versions that are supported for transition.
- SnapMirror must be licensed on the 7-Mode system for transition.
- Required feature licenses, if exists on the 7-Mode system, must be installed on the cluster.
- NTP server must be configured and time must be synchronized across the 7-Mode system and cluster.
- All preparatory tasks on the 7-Mode system must be completed.
- All preparatory tasks on the cluster must be completed.

Related concepts

[Features not supported for transition](#) on page 7

Considerations for identifying the transition objects

When you select the 7-Mode volumes and configurations for transition, you must consider how the transition might affect the clients and applications. You can limit the scope of a single transition operation to reduce the effect and downtime for applications.

If multiple applications and clients access the same resources (for example, a volume, group of volumes, or a vFiler unit) on the storage controller, you have to appropriately select the volumes to transition.

For example, if you are using vFiler units (MultiStore) for workload isolation and resource-sharing among clients and applications, you can transition the volumes (up to a maximum of 20 volumes) in the vFiler unit in a single transition operation by using the 7-Mode Transition Tool. The following are other examples that require you to plan the granularity of a transition operation:

- Multiple workloads that access the same volume or set of volumes
- Workloads that share the same NFS exports or CIFS shares
- Several workloads that share the same IP address to access the storage system

Restrictions for transition

You must be aware of certain restrictions for transitioning some 7-Mode volumes and configurations, such as FlexClone volumes, volumes with deduplication and compression, and volumes with qtrees.

- If you want to transition 7-Mode primary and secondary volumes, where the 7-Mode source and destination are running Data ONTAP 7.3.x or 8.0.x, you must start transitioning the 7-Mode secondary only when there are no data updates from the 7-Mode primary to the 7-Mode secondary volume.

You must ensure that the data update schedules from the 7-Mode primary volume to the 7-Mode secondary volume do not conflict with the schedules from the 7-Mode secondary volume to the clustered Data ONTAP secondary volume.

- A vFiler unit cannot be transitioned as a single entity.

However, you can transition all the volumes in a vFiler unit by selecting them as a part of one or more subprojects or sessions.

- You can transition root volumes.

However, you must transition root volumes only as part of the final subproject or session that contains the last set of volumes in a particular controller or a vFiler unit.

- Root volume of a vFiler unit cannot be transitioned if the root volume is based on a qtree that belongs to the default vFiler unit, vfiler0.
- The root volume of the Vserver must not have any file or symbolic link named “vol”; otherwise junction path creation fails.
- You must not initiate transition while the aggregates on either the 7-Mode system or cluster are upgrading from 32-bit to 64-bit format; otherwise transition fails.
- A volume with a qtree cannot be transitioned if the volume and qtree are owned by different vFiler units.
- A volume with a qtree that is the destination of a qtree SnapMirror relationship cannot be transitioned.

The qtree SnapMirror relationship must be broken before the volume can be transitioned.

- FlexClone volumes are transitioned as FlexVol volumes to the Vserver.

The clone hierarchy and storage efficiency are lost in this process.

- For deduplication and compression to take effect on any new data written on the clustered Data ONTAP volume, you must enable deduplication and compression schedules after the transition. If you have enabled deduplication and compression on the 7-Mode volumes, the existing data in the transitioned volumes is deduplicated and compressed.
- 7-Mode Snapshot copies that have LUNs cannot be used to restore a clustered Data ONTAP volume.
- If you have a widelink entry for a CIFS share with lowercase “w” in the `/etc/symlink.translations` file, these entries are not transitioned.
- 7-Mode volumes that have names exceeding 203 characters cannot be transitioned by using the 7-Mode Transition Tool (web interface).

The volume names in clustered Data ONTAP must not exceed 203 characters. You can use the 7-Mode Transition Tool (CLI) to transition the volumes. The 7-Mode Transition Tool CLI wizard allows you to truncate the clustered Data ONTAP volume names to less than 203 characters.

- You cannot transition a fanout SnapMirror relationship (a primary volume that is in SnapMirror relationships with more than one secondary volume that are in different controllers) by using the 7-Mode Transition Tool (web interface).

For transitioning the SnapMirror relationships in a fanout configuration, you must use the 7-Mode Transition Tool (CLI). You should create separate sessions for each secondary volume, complete the transition of the secondary sessions, and then create and complete the transition of the primary volume.

The precheck operation displays information about some of these restrictions.

Data ONTAP version requirements for transition

You should be aware of the versions of Data ONTAP operating in 7-Mode that are supported for transitioning to clustered Data ONTAP 8.2.

You can transition volumes from systems running any Data ONTAP version later than 7.3.3; however, only the following Data ONTAP versions are supported:

- Data ONTAP 7.3.3
- Data ONTAP 7.3.7
- Data ONTAP 8.0.3
- Data ONTAP 8.1

License requirements for transition

Before you transition a volume from 7-Mode to clustered Data ONTAP, you must ensure that SnapMirror is licensed on the 7-Mode storage system. Additionally, SnapMirror licenses are required on the primary and secondary clusters to transition a 7-Mode volume SnapMirror relationship. The 7-Mode Transition Tool does not require any license.

If SnapMirror is already licensed on your 7-Mode system, you can use the same for transition. If you do not have the 7-Mode SnapMirror license, you can obtain a temporary SnapMirror license for transition from your sales representative.

Feature licenses that are enabled on the 7-Mode system must be added to the cluster. For information about obtaining feature licenses on the cluster, see the *Clustered Data ONTAP System Administration Guide for Cluster Administrators*.

Related information

[Documentation on the NetApp Support Site: support.netapp.com](https://support.netapp.com)

Preparing the cluster for transition

You must have set up the cluster before transitioning a 7-Mode system and you must ensure that the cluster meets the requirements, such as allowing HTTPS, verifying network connectivity, and setting up intercluster LIFs, for transition.

Before you begin

- The cluster must already be set up.
For information about setting up a cluster, see the *Clustered Data ONTAP Software Setup Guide*.
- The cluster must be healthy and none of the nodes must be in takeover mode.
- The aggregates that are used to place the transitioned volumes in the Vserver must have an SFO policy.
- The aggregates must be on nodes that have not reached the maximum volume limit.
- If you want to transition volumes from a 32-bit aggregate of a 7-Mode system to a 64-bit aggregate of a cluster, you must have provided an additional 5 percent space in the destination aggregate.
The additional space is required to upgrade the transitioned volume to 64-bit format. For more information about aggregates, see the *Clustered Data ONTAP Physical Storage Management Guide*.
- For establishing a Vserver peer relationship when transitioning a volume SnapMirror relationship, the following conditions must be met:
 - The secondary cluster should not have a Vserver with the same name as that of the primary Vserver.
 - The primary cluster should not have a Vserver with the same name as that of the secondary Vserver.

Steps

1. From an administration host, use the following command to verify that the cluster is reachable by using the cluster-management LIF:
ssh username@cluster_mgmt_IP
2. Use the `system services web show` command to verify that SSL is enabled on the cluster.

Example

```
cluster1::> system services web show
External Web Services: true
Status: online
HTTP Protocol Port: 80
HTTPS Protocol Port: 443
TLSv1 Enabled: true
```

```
SSLv3 Enabled: true
SSLv2 Enabled: true
```

3. Verify that HTTPS is allowed on the cluster-management LIF by performing the following steps:

- a) Use the `network interface show` command to view the firewall policy for the cluster-management LIF.

Example

```
cluster1::> network interface show -vserver cluster1 -lif
cluster_mgmt -fields firewall-policy
vserver lif      firewall-policy
-----
cluster1 cluster_mgmt mgmt
```

- b) Use the `system services firewall policy show` command to verify that the firewall policy associated with the cluster-management LIF allows HTTPS access.

Example

```
cluster1::> system services firewall policy show -policy mgmt
Policy      Service      Action IP-List
-----
mgmt
           dns      allow  0.0.0.0/0, ::/0
           http     allow  0.0.0.0/0, ::/0
           https    allow  0.0.0.0/0, ::/0
           ndmp     allow  0.0.0.0/0, ::/0
           ntp      allow  0.0.0.0/0, ::/0
           rsh      deny   0.0.0.0/0, ::/0
           snmp     allow  0.0.0.0/0, ::/0
           ssh      allow  0.0.0.0/0, ::/0
           telnet   deny   0.0.0.0/0, ::/0
9 entries were displayed.
```

For more information about firewall policies, see the *Clustered Data ONTAP System Administration Guide for Cluster Administrators*.

4. Create the intercluster LIF on each node of the cluster for communication between the cluster and 7-Mode system by performing the following steps:

- a) Use the `network interface create` command to create an intercluster LIF.

Example

```
cluster1::> network interface create -vserver cluster1-01 -lif
intercluster_lif -role intercluster -home-node cluster1-01 -home-
port e0c -address 192.0.2.130 -netmask 255.255.255.0
```

- b) Use the `network routing-groups route create` command to create a static route for the intercluster LIF.

Example

```
cluster1::> network routing-groups route create -vserver
cluster1-01 -routing-group i192.0.0.0/18 -destination 0.0.0.0/0 -
gateway 192.0.2.129
```

- c) Use the `network ping` command to verify that you can use the intercluster LIF to ping the 7-Mode system.

Example

```
cluster1::> network ping -lif intercluster_lif -lif-owner
cluster1-01 -destination system7mode
system7mode is alive
```

For multipathing, you must have two intercluster LIFs on each node. For more information about network interfaces, see the *Clustered Data ONTAP Network Management Guide*.

Related information

[Documentation on the NetApp Support Site: support.netapp.com](http://support.netapp.com)

Preparing the 7-Mode system for transition

Before starting the transition, you must complete certain tasks on the 7-Mode system, such as enabling SnapMirror, enabling the 7-Mode system to communicate with the target cluster, and enabling HTTP or HTTPS.

Before you begin

All the 7-Mode volumes to be transitioned must be online.

About this task

For more information about all these commands, see the man pages.

Steps

1. Add and enable the SnapMirror license on the 7-Mode system.
 - a) Add the SnapMirror license on the 7-Mode system by using the following command:


```
license add xxxxxxxx
```

xxxxxxx is the license code you purchased.
 - b) Enable SnapMirror by entering the following command:


```
options snapmirror.enable on
```

- c) Configure the 7-Mode system and the target cluster to communicate with each other by performing one of the following actions:
 - Set the `snapmirror.access` option to `all`.
 - Set the value of the `snapmirror.access` option to the IP addresses of all the intercluster LIFs on the cluster.
 - If the `snapmirror.access` option is `legacy` and the `snapmirror.checkip.enable` is `off`, add the Vserver name to the `/etc/snapmirror.allow` file.
 - If the `snapmirror.access` option is `legacy` and the `snapmirror.checkip.enable` is `on`, add the IP addresses of the intercluster LIFs to the `/etc/snapmirror.allow` file.
2. Enable SSL on the 7-Mode system by performing the following steps:
 - a) Set up and start SSL by entering the following command:


```
secureadmin setup ssl
```
 - b) Enable SSL by entering the following command:


```
options ssl.enable on
```
 - c) If you are running Data ONTAP 8.x, enable SSLv3 by entering the following command:


```
options ssl.v3.enable on
```
3. Depending on whether the 7-Mode Transition Tool uses HTTPS or HTTP for communication, perform one of the following step:

If the 7-Mode Transition Tool uses...	Enter the following command...
HTTPS	<pre>options httpd.admin.ssl.enable on</pre>
HTTP	<pre>options httpd.admin.enable on</pre>

The 7-Mode Transition Tool uses HTTPS by default.

4. Depending on the Data ONTAP version of your 7-Mode system, perform the following steps:
 - a) Allow SnapMirror traffic on all the interfaces by entering the following command:


```
options interface.snapmirror.blocked ""
```
 - b) If you are running Data ONTAP versions 7.3.7, 8.0.3, or 8.1 and using the IP address of the e0M interface as the management IP address to interact with the 7-Mode Transition Tool, allow data traffic on the e0M interface by entering the following command:


```
options interface.blocked.mgmt_data_traffic off
```
5. If you have set these volume-level options on any volumes to be transitioned, disable the options after ensuring that disabling them do not impact other operations:


```
vol options vol_name no_i2p off
```

```
vol options vol_name read_realloc off
```

```
vol options vol_name nvfail off
```

Related information

[Documentation on the NetApp Support Site: support.netapp.com](https://support.netapp.com)

Port requirements for communicating with the 7-Mode Transition Tool

The 7-Mode Transition Tool communicates with the 7-Mode system and the cluster over certain ports. You must ensure that these ports on the 7-Mode system and the cluster are open for allowing communication with the 7-Mode Transition Tool.

The following ports must open on the 7-Mode system for enabling communication with the cluster and 7-Mode Transition Tool:

Ports in the 7-Mode system	To communicate with the cluster (for SnapMirror)	To communicate with 7-Mode Transition Tool (for HTTP/HTTPS)
	• 10565/TCP • 10566/TCP • 10567/TCP • 10568/TCP • 10569/TCP • 10670/TCP	• 80/TCP • 443/TCP

The following ports must be open on the cluster for enabling communication with the 7-Mode system and 7-Mode Transition Tool:

Ports in the cluster	To communicate with the 7-Mode system (for SnapMirror)	To communicate with 7-Mode Transition Tool (for HTTP/HTTPS)
	• 10565/TCP • 10566/TCP • 10567/TCP • 10568/TCP • 10569/TCP • 10670/TCP • 11105/TCP	• 80/TCP • 443/TCP

Transition preparation checklist

Before you start transition, you should verify that you have met all the prerequisites for transition.

- *[Data ONTAP version requirements](#)* on page 20

- [Licensing requirements](#) on page 20
- [SnapMirror requirements on the 7-Mode system](#) on page 20
- [Volume options on the 7-Mode system](#) on page 21
- [Managing access to the cluster](#) on page 21
- [Managing access to the 7-Mode system](#) on page 21
- [Networking requirements](#) on page 22
- [Port requirements](#) on page 22

Data ONTAP version requirements

Item	Yes
7-Mode version is one of the following: • Data ONTAP 7.3.3 • Data ONTAP 7.3.7 • Data ONTAP 8.0.3 • Data ONTAP 8.1	
Cluster is running clustered Data ONTAP 8.2	

Licensing requirements

Item	Yes
SnapMirror license is enabled on the 7-Mode system	
SnapMirror licenses are enabled on the primary and secondary clusters for transitioning a volume SnapMirror relationship	
CIFS license is enabled on the cluster, if it is enabled on the 7-Mode system	
NFS license is enabled on the cluster, if it is enabled on the 7-Mode system	
Other feature licenses, if available on the 7-Mode system, are added to the cluster	

SnapMirror requirements on the 7-Mode system

Item	Yes
SnapMirror license	
options snapmirror.enable on	
options interface.snapmirror.blocked ""	

Item	Yes
Verify if one of the following is true: • The <code>snpmirror.access</code> option is set to <code>all</code> • The <code>snpmirror.access</code> option is set to the IP addresses of all the intercluster LIFs on the cluster • If the <code>snpmirror.access</code> option is set to <code>legacy</code> and the <code>snpmirror.checkip.enable</code> is <code>off</code>, the Vserver name is added to the <code>/etc/snpmirror.allow</code> file • If the <code>snpmirror.access</code> option is set to <code>legacy</code> and the <code>snpmirror.checkip.enable</code> is <code>on</code>, the IP addresses of the intercluster LIFs are added to the <code>/etc/snpmirror.allow</code> file	

Volume settings on the 7-Mode system

Item	Yes
Volume is online	
Volume is not restricted	
The following volume options are disabled: • <code>no_i2p</code> • <code>read_realloc</code> • <code>nvfail</code>	

Managing access to the cluster

Item	Yes
SSL is enabled <pre>system services web show</pre>	
HTTPS is allowed on the cluster-management LIF <pre>system services firewall policy show</pre>	

Managing access to the 7-Mode system

Item	Yes
SSL is enabled <pre>secureadmin setup ssl</pre> <pre>options ssl.v3.enable on</pre>	

Item	Yes
HTTP is enabled options httpd.admin.enable on	
HTTPS is enabled options httpd.admin.ssl.enable on	

Networking requirements

Item	Yes
Cluster is reachable using the cluster-management LIF	
One or more intercluster LIFs are set up on each node of the cluster For multipathing, two intercluster LIFs are required on each node.	
Static routes are created for the intercluster LIFs	
7-Mode system and cluster are reachable from the Windows system on which the 7-Mode Transition Tool is installed	
NTP server is configured and the 7-Mode system time is synchronized with the cluster time	

Port requirements

Item	Yes
7-Mode system • 10565/TCP • 10566/TCP • 10567/TCP • 10568/TCP • 10569/TCP • 10670/TCP • 80/TCP • 443/TCP	

Item	Yes
Cluster • 10565/TCP • 10566/TCP • 10567/TCP • 10568/TCP • 10569/TCP • 10670/TCP • 11105/TCP • 80/TCP • 443/TCP	

Related concepts

Restrictions for transition on page 13

Data ONTAP version requirements for transition on page 14

License requirements for transition on page 14

Related tasks

Preparing the 7-Mode system for transition on page 17

Preparing the cluster for transition on page 15

Installing and uninstalling the 7-Mode Transition Tool

You can download and install the 7-Mode Transition Tool on a system that is running 64-bit Windows 7 operating system. When required, you can uninstall the 7-Mode Transition Tool.

System requirements for 7-Mode Transition Tool

You must ensure that you have the required configuration on the Windows 7 system to install and run the 7-Mode Transition Tool.

Hardware requirements

- Dual-core x64 processor, 1.0 GHz or more
- 4 GB RAM
- 40 GB HDD

Software requirements

- 64-bit Windows 7 or Windows 7 Service Pack 1 (SP1)
- 64-bit Oracle Java Runtime Environment (JRE) 1.6

Note: If JRE 1.6 is not present on the Windows system, it is automatically installed during the installation process.

Server (web interface) configuration requirements

To access the web interface, you must ensure that the Windows system on which the tool is installed is configured as follows:

- Port 8443 must be available.
If port 8443 is not available, or if you want to use a different port, you have to change the port specified by the `tool.https.port` parameter in the `transition-tool.conf` file. You must restart the Transition Tool service after changing the port in the configuration file.
- Firewall should either be turned off or configured to allow traffic on the port that is used to access the tool.

Client (web interface) requirements

The system from which the web interface is accessed must have the following:

- One of the following web browsers:
 - Microsoft Internet Explorer 9.0

- Google Chrome 20
- Mozilla Firefox 14.0 or 16.0
- Screen resolution of 1280 × 1024 or higher

For more information, see the Interoperability Matrix.

Related information

[Interoperability Matrix: support.netapp.com/NOW/products/interoperability](http://support.netapp.com/NOW/products/interoperability)

Installing the 7-Mode Transition Tool

You can install the 7-Mode Transition Tool on your Windows system by using the wizard-based installer.

Before you begin

- You must have reviewed the *[System requirements for the 7-Mode Transition Tool](#)* on page 24.
- You must have the necessary administrator privileges to install and launch the application.
- You must have downloaded the .exe file from the NetApp Support Site.

Steps

1. Run the NetApp_7ModeTransitionTool_Setup.exe file.
2. In the **7-Mode Transition Tool Setup** window, follow the on-screen prompts.
3. Optional: Select **Launch the tool** to open the 7-Mode Transition Tool immediately after the installation.
4. Click **Finish** to complete the installation.

Related concepts

[Understanding the 7-Mode Transition Tool](#) on page 27

[Transitioning volumes using the 7-Mode Transition Tool \(web interface\)](#) on page 42

[Transitioning volumes using the 7-Mode Transition Tool \(CLI\)](#) on page 64

Related information

[NetApp Support Site: support.netapp.com](http://support.netapp.com)

Uninstalling the 7-Mode Transition Tool

You can uninstall the 7-Mode Transition Tool by using the Windows Uninstall program utility.

Before you begin

If the 7-Mode Transition Tool is running, it must be closed.

About this task

JRE is not removed as part of the uninstallation.

Steps

1. Click **Start > Control Panel > Uninstall a program**.
2. Select the 7-Mode Transition Tool from the list of programs and click **Uninstall**.
3. Follow the prompts to uninstall the 7-Mode Transition Tool.

You can choose to save the session details and logs for troubleshooting purposes.

Understanding the 7-Mode Transition Tool

The 7-Mode Transition Tool enables you to transition 7-Mode volumes and configuration to clustered Data ONTAP with minimum client disruption. The 7-Mode Transition Tool provides both web-based graphical and command-line interfaces for performing the transition.

The tool interacts with the 7-Mode storage system to collect information about the volumes and IP address, verifies whether the 7-Mode configuration can be applied to clustered Data ONTAP system, and applies the configuration to the Vserver on the cluster.

You must use only one interface for an end-to end transition workflow. For example, if you start a transition operation for a set of volumes by using the web interface, you must complete the transition for those volumes by using the same interface.

Related concepts

[*Transitioning volumes using the 7-Mode Transition Tool \(web interface\)*](#) on page 42

[*Transitioning volumes using the 7-Mode Transition Tool \(CLI\)*](#) on page 64

Transition terminology

Project	In the 7-Mode Transition Tool (web interface), a project enables you to configure and manage the transition of a group of volumes.
Subproject	In the 7-Mode Transition Tool (web interface), a subproject is a container within a project that groups a set of volumes for transition. A subproject also contains the configuration details that are required for the transition, such as the Vserver mapping, volume mapping, interface mapping, and SnapMirror schedule.
Session	A transition session defines the source and destination of transition. It is the basic unit of transition that is used by the 7-Mode Transition Tool (CLI) to transition 7-Mode volumes. A transition session consists of 7-Mode objects (such as the host name, IP addresses, and volumes) and clustered Data ONTAP objects (such as a cluster, a Vserver, volumes, and LIFs).
Transition peer relationship	Transition peer relationship is an authorization mechanism that enables SnapMirror to establish relationships between a 7-Mode storage system and a Vserver for copying data from the 7-Mode volumes to the clustered Data ONTAP volumes for transition.

Types of transition subprojects or sessions

Transition subprojects or sessions are of three types: stand-alone, primary, and secondary. You should understand what these subproject or session types are to retain your data protection and configurations after transition.

Stand-alone subproject or session	Volumes in this subproject or session are not in any SnapMirror relationship with volumes in other storage systems.
Primary subproject or session	Volumes in this subproject or session are the source volumes of a SnapMirror relationship.
Secondary subproject or session	Volumes in this subproject or session are the destination volumes of a SnapMirror relationship.

You can execute only one of the following transition project at any given time:

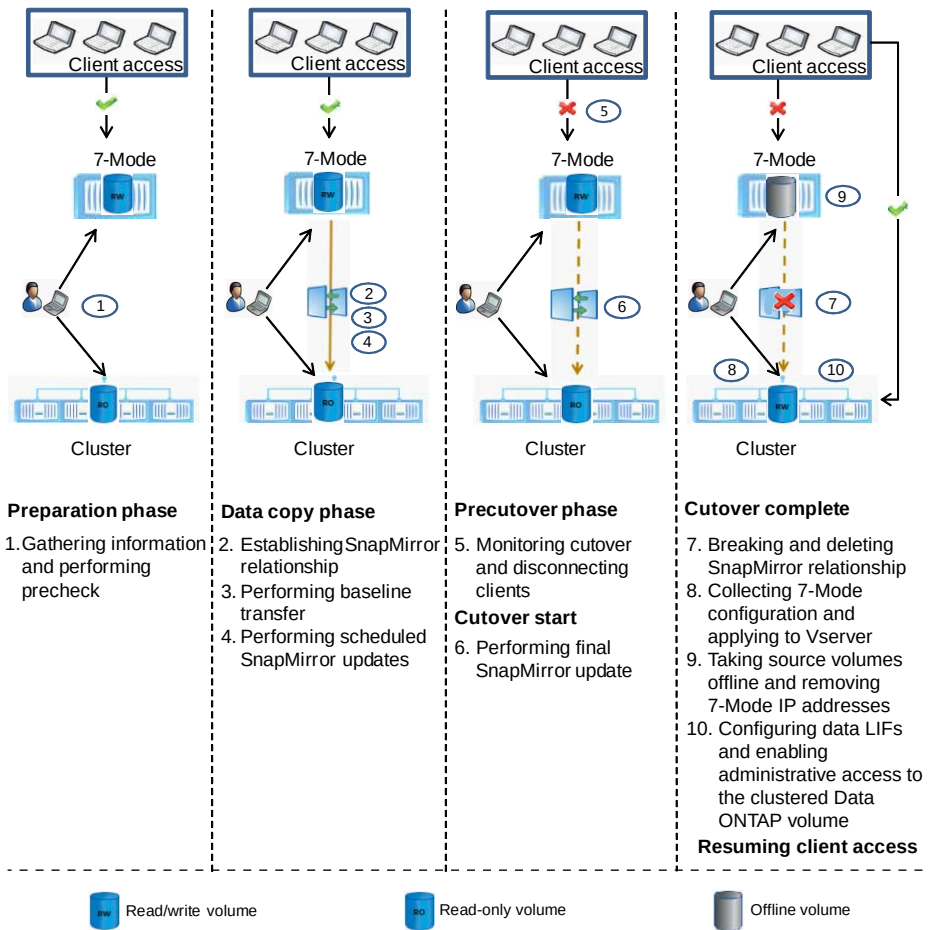
- A stand-alone subproject or session
- One secondary subproject or session and one primary subproject or session

Note: To transition a 7-Mode SnapMirror relationship while retaining the data protection at all times, you must first prepare and complete the transition of volumes in the secondary session, followed by the primary session.

How you transition a stand-alone volume

Transitioning a stand-alone volume includes different phases: preparation, data copy, precutover, and cutover. Understanding what occurs during each phase helps you manage your transition efficiently.

The following image illustrates the steps involved in the transition of a stand-alone volume:



Preparation phase

In this phase, information about the 7-Mode system and the cluster, volumes, and IP addresses is collected. The 7-Mode Transition Tool performs the following tasks in this phase:

1. Collecting and adding 7-Mode storage system and volume information
2. Running the transition precheck
3. Collecting and adding cluster and Vserver information
4. Collecting IP addresses that must be configured on the Vserver:
 - Selecting IP addresses that exist on the 7-Mode system
 - Specifying new IP addresses that must be configured on the Vserver
5. Collecting the SnapMirror schedule from the cluster for update transfers

You should not modify the objects (volumes, IP addresses, system information, and so on) after the subproject or session is prepared.

Data copy phase

In this phase, data from the 7-Mode volumes is copied to the clustered Data ONTAP volumes. The 7-Mode Transition Tool performs the following tasks in this phase:

1. Disabling administrative access to the clustered Data ONTAP volumes, making them read-only
2. Setting up a transition peer relationship between the 7-Mode system and the Vserver
3. Establishing a SnapMirror relationship between the 7-Mode volumes and clustered Data ONTAP volumes
4. Completing the baseline transfer
5. Performing scheduled SnapMirror updates to the clustered Data ONTAP volumes

Precutover phase

This is the preparation phase for the cutover. You must perform the following tasks:

1. Monitor the data copy progress and ensure that data copy is completed.
2. If you have CIFS configured on the 7-Mode system, manually set up the CIFS server on the Vserver before cutover.

Cutover phase

In this phase, you must disconnect client access from the 7-Mode system. When you initiate the cutover, the following tasks are performed by the 7-Mode Transition Tool in this phase:

1. Performing a final SnapMirror update
2. Breaking and deleting the SnapMirror relationship
3. Collecting configuration from 7-Mode volumes and applying it to the volumes in the Vserver
4. Taking the 7-Mode volumes offline and removing the 7-Mode IP addresses selected for transition
5. Configuring the data LIFs on the Vserver
6. Enabling administrative access to the clustered Data ONTAP volume

Resuming client access

After the cutover phase finishes successfully and transition is completed, you must perform some post-transition tasks:

1. Configure the features, such as IPv6 and FPolicy, that were available on the 7-Mode system, but were not transitioned automatically to the Vserver by the tool
2. Ensure that the Vserver is ready to serve data to the clients by verifying the following:

- The volumes on the Vserver are online and read/write
 - The transitioned IP addresses are up and reachable on the Vserver
3. Redirect client access to the clustered Data ONTAP volumes.

Related concepts

Features not supported for transition on page 7

How you transition volumes in a SnapMirror relationship

When you transition 7-Mode volumes that are in a SnapMirror relationship, you should first transition the secondary volume. After the secondary volume is transitioned, you should set up a volume SnapMirror relationship between the 7-Mode primary volume and the clustered Data ONTAP secondary volume.

The 7-Mode volume SnapMirror schedule is applied to the SnapMirror relationship between the 7-Mode primary volume and clustered Data ONTAP secondary volume for regular data transfers from the 7-Mode system to the Vserver.

Preparation phase

In this phase, the 7-Mode system, cluster, volumes, and IP addresses are selected. The 7-Mode Transition Tool performs the following tasks in this phase:

1. Collecting and adding 7-Mode storage system and volume information
2. Collecting the following information for transitioning a volume SnapMirror relationship:
 - For transitioning a secondary volume, information about the 7-Mode primary system
 - For transitioning a primary volume, information about the secondary Vserver
3. Running the transition precheck
4. Collecting and adding cluster and Vserver information
5. Collecting IP addresses that must be configured on the Vserver:
 - Selecting IP addresses that exist on the 7-Mode system
 - Specifying new IP addresses that must be configured on the Vserver
6. Collecting the SnapMirror schedule from the clusters for update transfers

You should not modify the objects (volumes, IP addresses, system information, and so on) after the subproject or session is prepared.

Data copy phase

In this phase, data from the 7-Mode volumes is copied to the clustered Data ONTAP volumes. The 7-Mode Transition Tool performs the following tasks in this phase:

1. Disabling administrative access to the clustered Data ONTAP volume
2. Setting up a transition peer relationship between the 7-Mode system and the Vserver

3. Establishing a SnapMirror relationship between the 7-Mode volumes and clustered Data ONTAP volumes
4. Completing the baseline transfer
5. Performing scheduled SnapMirror updates to the clustered Data ONTAP volumes

Precutover phase

This is the preparation phase for the cutover. You must perform the following tasks:

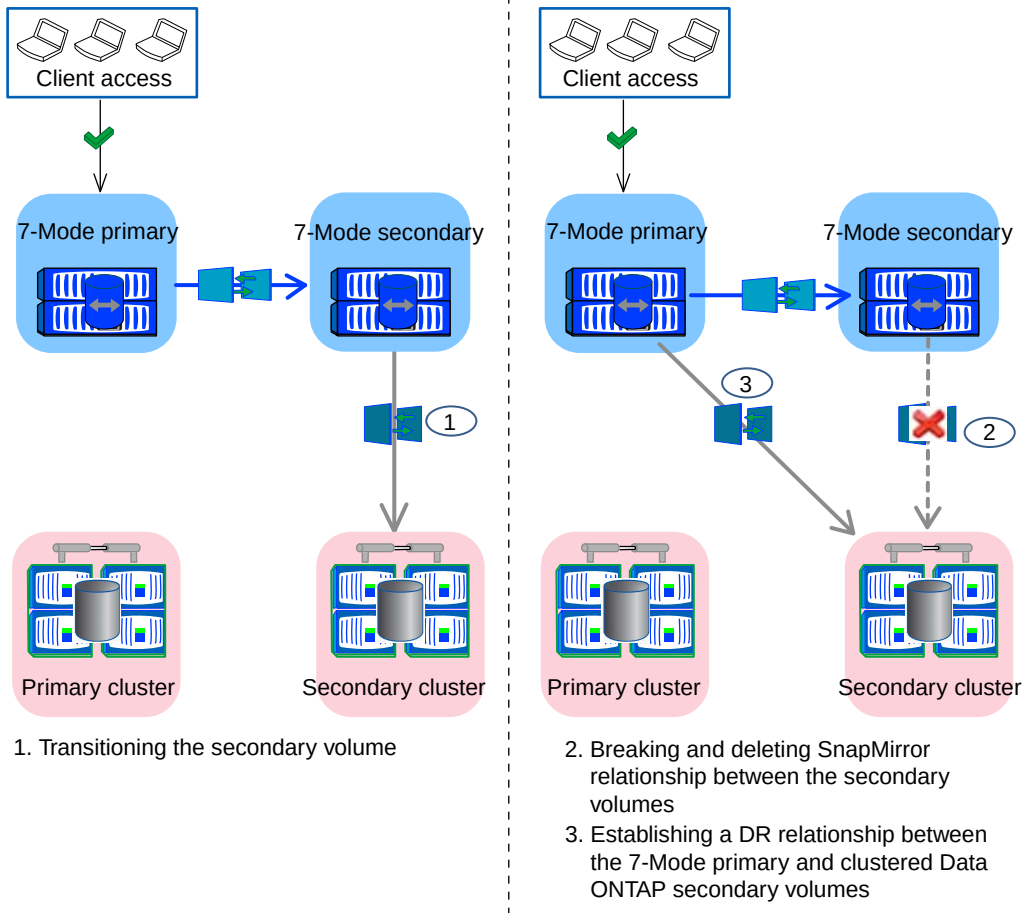
1. Monitor the data copy progress and ensure that data copy is completed.
2. If you have CIFS configured on the 7-Mode system, manually set up the CIFS server on the Vserver before cutover.

Cutover phase (secondary)

In this phase, you must disconnect client access from the 7-Mode secondary system. When you initiate cutover for the secondary volume, the 7-Mode Transition Tool performs the following tasks in this phase:

1. Setting up a transition peer relationship with the 7-Mode primary system
2. Performing a final SnapMirror update from the 7-Mode secondary volume to the clustered Data ONTAP secondary volume
3. Breaking and deleting the SnapMirror relationship between the 7-Mode secondary volume to the clustered Data ONTAP secondary volume
4. Enabling administrative access to the clustered Data ONTAP secondary volume
5. Applying volume and services configuration to the Vserver
6. Establishing a SnapMirror relationship between the volumes on the 7-Mode primary system to the clustered Data ONTAP secondary volumes
7. Taking the 7-Mode volumes offline and removing the 7-Mode IP addresses selected for transition
8. Configuring the data LIFs on the Vserver

The following illustration depicts the transition of a secondary volume:



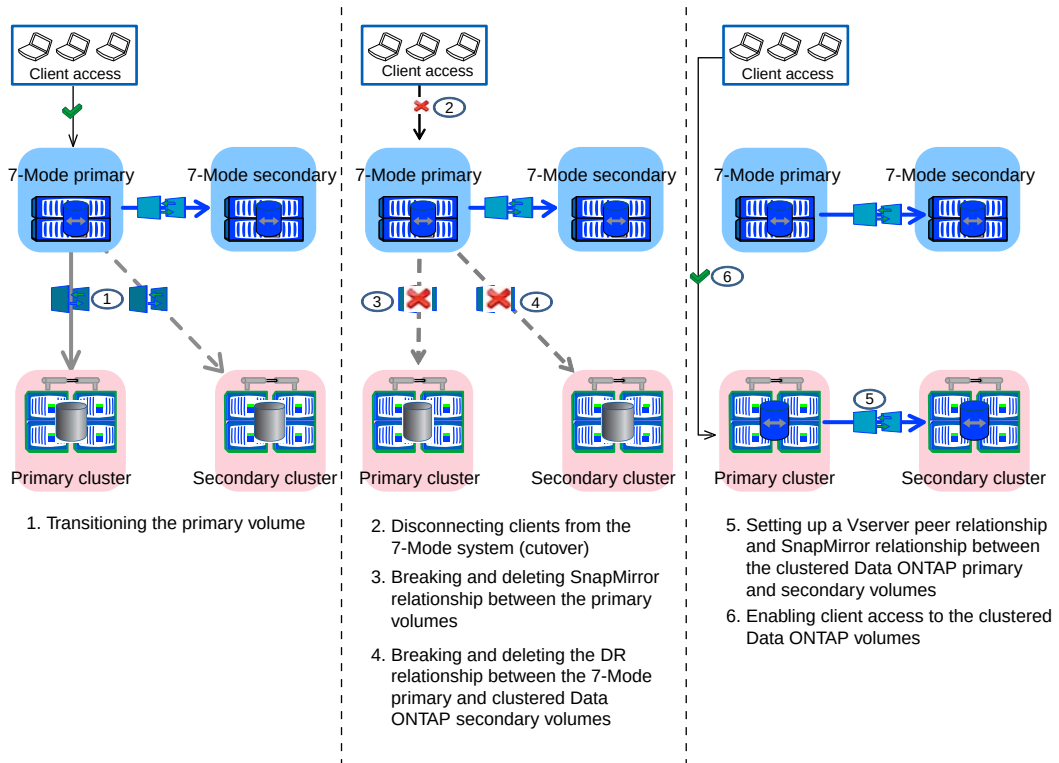
Cutover phase (primary)

In this phase, you must disconnect client access from the 7-Mode primary system. When you initiate cutover for the primary volume, the 7-Mode Transition Tool performs the following tasks in this phase:

1. Performing a final SnapMirror update from the 7-Mode primary volume to the clustered Data ONTAP primary volume
2. Breaking and deleting the SnapMirror relationship between the 7-Mode primary volume to the clustered Data ONTAP primary volume
3. Enabling administrative access to the clustered Data ONTAP primary volume
4. Applying volume and services configuration to the Vserver
5. Setting up cluster peer and Vserver peer relationships between the primary and secondary clusters
6. Taking the 7-Mode volumes offline and removing the 7-Mode IP addresses selected for transition

7. Breaking and deleting the SnapMirror relationship between the 7-Mode primary volume and the clustered Data ONTAP secondary volumes and the relationship between the clustered Data ONTAP primary and secondary volumes
8. Configuring the data LIFs on the Vserver
9. Setting up a SnapMirror relationship between the primary and secondary clustered Data ONTAP volumes

The following illustration depicts the transition of a secondary volume:



Resuming client access

After the cutover phase finishes successfully and transition is completed, you must perform the following post-transition tasks:

1. Configure the features, such as IPv6 and FPolicy, that were available on the 7-Mode system, but were not transitioned automatically to the Vserver by the tool.
2. Ensure that the Vserver is ready to serve data to the clients by verifying the following:
 - The volumes on the Vserver are online and read/write
 - The transitioned IP addresses are up and reachable on the Vserver
3. Redirect client access to the clustered Data ONTAP volumes.

Related concepts

Features not supported for transition on page 7

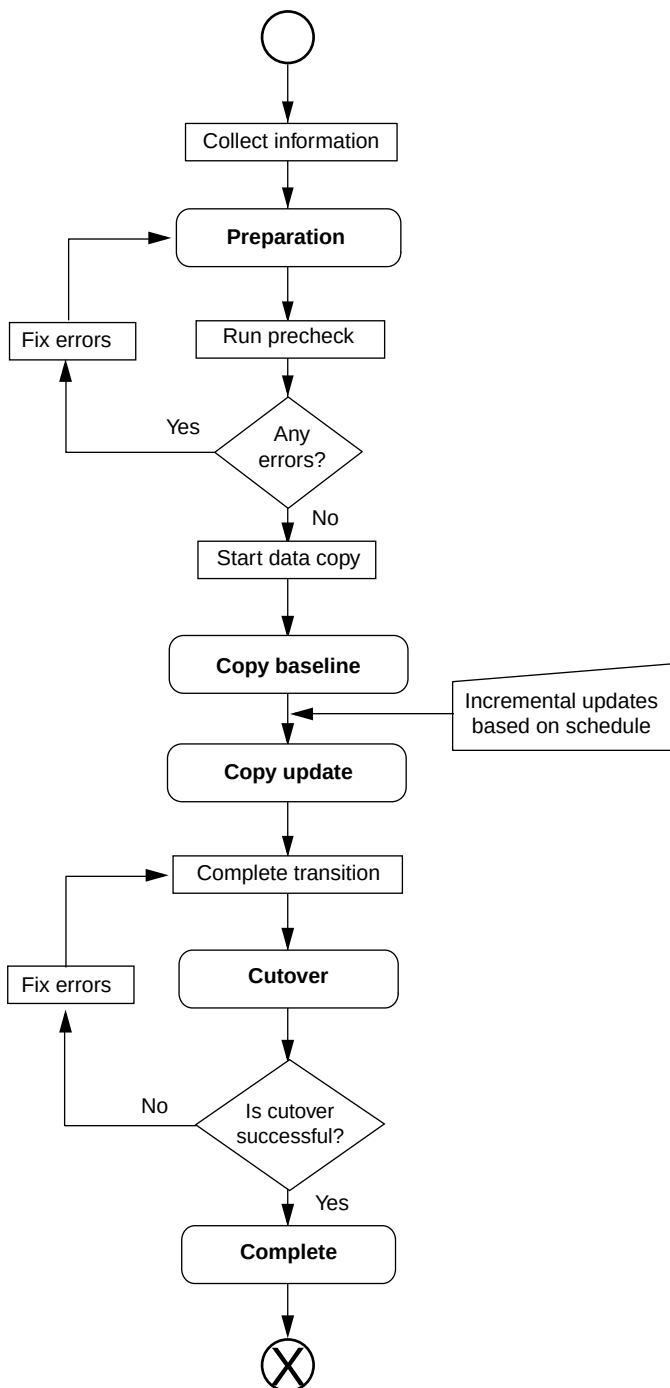
States of a transition subproject or session

You should be aware of what the various states of a transition subproject or session to manage the transition process: preparation, copy baseline, copy update, copy pause, cutover, complete, aborted, and deleted.

A transition subproject or session goes through the following states in a normal transition workflow:

- **Preparation**
When a transition subproject or session is created, it enters the preparation state.
In this state, 7-Mode and cluster information, such as host names, volume names, and IP addresses, is collected. You must run a precheck in this state and resolve all the errors, if any, in order to proceed with the transition process.
- **Copy baseline**
When a transition subproject or session is started, a SnapMirror relationship is established between the 7-Mode and clustered Data ONTAP volumes and the baseline copy is started.
- **Copy update**
A transition subproject or session moves to the copy-update state when the baseline transfer is completed for all the volumes.
In this state, the clustered Data ONTAP volumes are periodically updated according to the schedule specified in the subproject or session.
- **Cutover**
A transition subproject or session moves to the cutover state when you initiate the cutover for the volumes.
You must stop client access to the 7-Mode volumes before initiating cutover. A final update transfer is performed and the 7-Mode IP addresses are removed and configured on the Vserver. The SnapMirror relationship is broken and deleted. The duration of the cutover phase depends on the time taken for the final data transfer, for collecting all configurations from the 7-Mode system, and applying the configurations to the Vserver.
- **Complete**
The subproject or session moves to the completed state when cutover is successful and the 7-Mode configuration is applied to the clustered Data ONTAP volumes.
For a secondary subproject or session, a volume SnapMirror relationship is established with the 7-Mode primary volume. For a primary subproject or session, a volume SnapMirror relationship is established with the secondary cluster.

The following image shows the different states in the transition process:



There are additional states that a subproject or session can go through depending on the transition operation:

- **Copy pause**
A transition subproject or session moves to the copy-pause state if you pause the subproject or session.
You can pause a subproject or session only if the subproject or session is in the copy-baseline or copy-update state. All SnapMirror transfers are paused in this state. You can resume a paused subproject or session. If you paused the subproject or session when transition was in the copy-baseline state, the resumed subproject or session returns to the copy-baseline state. Similarly, if you paused the subproject or session at copy-update, the resumed subproject or session returns to the copy-update state.
- **Copy-unknown**
This is a transient state and a subproject or session might move to this state due to any of the following causes:
 - Baseline transfer fails
 - Tool is unable to retrieve the volume status
 - Transition server is restarted and the tool is unable to retrieve the credentials of the cluster
 - Invalid cluster credentials (for example, if the system password is changed during transition)
- **Aborted**
You can abort a subproject or session when it is in the copy-baseline, copy-update, or copy-pause state. You cannot abort a subproject or session that is in the copy-unknown or cutover state.
When you abort a subproject or session, all the SnapMirror relationships between the 7-Mode system and the Vserver that are created during transition are deleted. After a subproject or session moves to the aborted state, the only operation possible on the subproject or session is to delete it.

What the transition configuration file is

The `/etc/transition-tool.conf` file is installed with the 7-Mode Transition Tool and contains information about all the configurable options that are necessary for the tool to operate properly.

The file contains various parameters such as the port on which the tool service starts and the port that the tool uses to communicate with the 7-Mode system or cluster.

You can edit the file to modify any configuration parameter that is used by the tool. After you modify any parameter, you must restart the 7-Mode Transition Tool service for the new values to take effect. After the 7-Mode Transition Tool service is restarted, you must add the 7-Mode system and cluster credentials again.

For example, port 8443 must be available for the 7-Mode Transition Tool (web interface) to communicate with the 7-Mode system and cluster. If port 8443 is not available or if you want to use a different port, you must change the port specified by the `tool.https.port` parameter in the `transition-tool.conf` file.

Severity levels for precheck messages

You can validate the feasibility of transition and verify if the 7-Mode volumes can be transitioned by running the transition precheck operation. Transition precheck reports all transition issues. Transition issues are assigned different severity levels, depending on the impact of the issue on the transition process.

Precheck errors are classified into the following categories:

- Error** Configurations that cannot be transitioned.
- You cannot continue the transition if there is even one error. The following are some example configurations on the 7-Mode system that cause an error:
- Traditional volumes
 - SnapLock volumes
 - LUNs
 - Volumes are offline
- Warning** Configurations that can cause serious inconveniences.
- However, you can continue the transition with these warnings. Post-transition, you might lose some of these configurations or might need to complete some manual tasks for enabling these configurations in clustered Data ONTAP. The following are some example configurations on the 7-Mode system that generate a warning:
- MetroCluster configuration
 - IPv6
 - NFSv2
- Notification** Configurations that might cause some inconvenience after transition.
- You can continue the transition with these notifications. You might need to complete some manual tasks post-transition for enabling these configurations in clustered Data ONTAP. The following are some example configurations on the 7-Mode system that generate a notification:
- NDMP configurations
 - Interface groups and VLANs
 - Routing Information Protocol (RIP)
- Information** Configurations that have been successfully transitioned.

Related tasks

[*Running precheck on a session*](#) on page 111

Mode types you can use for completing the transition

You can complete the transition in either normal mode or test mode. Normal mode involves removing access to the 7-Mode volumes and IP addresses, completing data and configuration transition, and enabling administrative access to the clustered Data ONTAP volumes. In test mode, clients can continue to access the 7-Mode volumes.

Normal mode	The tool performs the following operations when transition is completed in normal mode: • Performs a final data copy from the 7-Mode volumes to the clustered Data ONTAP volumes • Establishes a SnapMirror relationship between the clustered Data ONTAP primary and secondary volumes if the session type is <i>primary</i> • Establishes a SnapMirror relationship between the 7-Mode primary volume and the clustered Data ONTAP secondary volume if the session type is <i>secondary</i> • Applies the 7-Mode configurations (including protocols and services configuration) to the clustered Data ONTAP volumes • Takes the 7-Mode volumes offline • Removes the 7-Mode IP addresses that are selected for transition • Configures the data LIFs on the Vserver with IP addresses • Sets the administrative state of the data LIFs on the Vserver to up • Enables administrative access to all the clustered Data ONTAP volumes
Test mode	In the test mode, the transitioning 7-Mode volumes are not taken offline and the transitioning IP addresses are not removed from the 7-Mode system. The tool performs the following operations when transition is completed in test mode: • Performs a final data copy from the 7-Mode volumes to the clustered Data ONTAP volumes • Establishes a SnapMirror relationship between the clustered Data ONTAP primary and secondary volumes if the session type is <i>primary</i> • Establishes a SnapMirror relationship between the 7-Mode primary volume and clustered Data ONTAP secondary volume if the session type is <i>secondary</i> • Applies the 7-Mode configurations (including protocols and services configuration) to the clustered Data ONTAP volumes • Configures the data LIFs on the Vserver with IP addresses • Sets the administrative state of the data LIFs on the Vserver to down

Related tasks

[Completing a subproject](#) on page 57

[Completing the transition](#) on page 114

Limits for transition

You should consider certain limits for transition, such as the number of volumes in a session and the number of sessions that can run simultaneously, when you transition volumes by using the 7-Mode Transition Tool.

Parameter	Maximum limit
Number of projects in the 7-Mode Transition Tool (web interface)	Only one project can be active at a time.
Number of sessions that can be run in parallel in the 7-Mode Transition Tool (CLI)	Any one of the following: • One stand-alone session • One primary and secondary session
Number of volumes in a subproject or session	20

Prerequisites for transitioning NFS and CIFS configurations

You should meet certain prerequisites on the 7-Mode system and the Vserver for CIFS and NFS configurations to be transitioned by the 7-Mode Transition Tool. If any of the condition is not met, the tool does not transition the configuration.

Transitioning NFS

- On the 7-Mode system, the following conditions must be met:
 - NFS must be licensed.
 - If MultiStore license is enabled, NFS must be added to the list of allowed protocols for the vFiler unit that owns the transitioning volumes.
 - For transitioning an Active Directory (AD) based Kerberos server to a new Vserver, a DNS entry must exist for the AD domain.
- On the cluster, the following conditions must be met:
 - NFS must be licensed.
 - NFS must be added to the list of allowed protocols for the Vserver.
 - For transitioning an AD-based Kerberos server to an existing Vserver with DNS configured, a DNS entry must exist for the AD domain.
 - The clock skew between the Kerberos key distribution center (KDC) and the clustered Data ONTAP system must be less than or equal to 5 minutes.

Transitioning CIFS

- On the 7-Mode system, the following conditions must be met:
 - CIFS license must be added.
 - If MultiStore license is enabled, CIFS must be added to the list of allowed protocols for the vFiler unit that owns the transitioning volumes.
 - CIFS must be set up and running.
 - The authentication type for CIFS must be Active Directory (AD).
- On the cluster, the following conditions must be met:
 - CIFS license must be added.
 - CIFS must be added to the list of allowed protocols for the Vserver.
 - DNS must be configured for the Vserver.
 - CIFS server must be manually configured before cutover.
 - CIFS must be running.

After disconnecting client access to the volumes, you can create the CIFS server on the Vserver before cutover in the following two ways:

- **Transfer or preserve identity:** You can create the CIFS server on the Vserver by reusing the same CIFS server name of the 7-Mode system or vFiler unit.
To preserve the identity of the CIFS server, the following conditions must be met:
 - The number of volumes in the 7-Mode system or vFiler unit to be transitioned must be less than or equal to 20 so that all the 7-Mode volumes can be transitioned in a single subproject or session.
 - Before cutover, the CIFS server must be re-created on the 7-Mode system with a different name.
 - During cutover, there must not be any active CIFS sessions on the 7-Mode system.
 - During cutover, the new CIFS server must be up and running on the 7-Mode system.
- **Use a new identity:** You can create the CIFS server on the Vserver by using a new CIFS server name.

The CIFS server must be up and running on the 7-Mode system.

Related concepts

[*How you transition a stand-alone volume*](#) on page 28

[*How you transition volumes in a SnapMirror relationship*](#) on page 31

Transitioning volumes using the 7-Mode Transition Tool (web interface)

The 7-Mode Transition Tool (web interface) is a web-based application that enables you to transition 7-Mode volumes to clustered Data ONTAP nodes.

You configure, execute, and manage a transition process in the web interface by using projects and subprojects. Projects are the containers for subprojects. The actual configuration, execution, and management of the transition is done by using subprojects.

Related concepts

[Installing and uninstalling the 7-Mode Transition Tool](#) on page 24

[Transition terminology](#) on page 27

[Requirements and restrictions on a transition project](#) on page 51

[Managing a transition project](#) on page 58

Related tasks

[Running a transition project](#) on page 52

Understanding the transition process

The transition process involves creating a transition project and running it. You use the same interface for transitioning stand-alone volumes and volumes with SnapMirror relationships. However, the workflows for transitioning stand-alone volumes and volumes with SnapMirror relationships are different.

The transition process involves the following two phases:

- Creating a project by using the New Transition Project wizard.
This includes grouping similar volumes into subprojects and configuring the transition in the subprojects.
- Starting and completing a project by using Dashboard.

Each phase has two workflows, one for transitioning volumes as stand-alone volumes and one for volumes with SnapMirror relationships.

Related concepts

[How transition works](#) on page 9

[Types of transition subprojects or sessions](#) on page 28

[States of a transition subproject or session](#) on page 35

Understanding the project creation workflows

When you create a project by using the New Transition Project wizard, you first group volumes into subprojects and then configure how these groups of volumes will transition by configuring the subprojects. While the process of configuring the individual subprojects is the same, the workflow for creating a project varies based on the types of subprojects in the project.

The key features of the project creation workflows are as follows:

- You can add the controllers and clusters that you need for the project.
- A number of restrictions are enforced to ensure that only those volumes that can be transitioned together are grouped in a subproject.
- You can run prechecks at the following two stages in the wizard:
 - After you add the 7-mode volumes that you want to transition.
 - After you map the volumes to aggregates on the cluster.

Related concepts

[Types of transition subprojects or sessions](#) on page 28

[Features not supported for transition](#) on page 7

Guidelines for selecting and grouping volumes

You should be aware of the guidelines that determine which volumes you can add to a subproject, which types of subprojects are created, and how the volumes are grouped in the subprojects. These guidelines explain why some volumes and vFiler units are disabled on the Volume selection pane of the New Transition Project wizard.

The guidelines for selecting and grouping volumes in a subproject are as follows:

- Volumes are grouped into subprojects primarily on the basis of the type of transition that needs to be performed.
 Volumes that have to be transitioned to a stand-alone volume are grouped into a stand-alone subproject. A stand-alone subproject can include stand-alone volumes, primary, and secondary volumes that you want to transition as stand-alone volumes. Primary and secondary volumes that you want to transition with their SnapMirror relationships are grouped into a primary and a secondary subproject, respectively. A primary subproject can also include volumes that have to be transitioned as stand-alone volumes.
- A subproject must have at least one volume.
 You cannot save a subproject that has no volume.
- A subproject can have a maximum 20 volumes.
 If you select more volumes, you receive an error.
- All the volumes in a subproject must be from only one vFiler unit.
 The Volume selection pane allows you to add volumes from a single vFiler only. While creating a project, the volumes included in the project are removed if you select a different vFiler unit.

For the transition of volumes with SnapMirror relationships, the single vFiler unit guideline is implemented as follows:

- You can select only one type of volume (primary or secondary) from the current vFiler unit. For example, if the first volume you select for transition with the SnapMirror relationship is a primary volume, you can only select primary volumes from the selected vFiler unit for transition with the SnapMirror relationship. Secondary volumes get included by the tool automatically.
- You can select only those volumes that are on a matching pair of vFiler units. For example, if the first volume you select for transition with the SnapMirror relationship is a primary volume on a vFiler unit named vFiler1 with the secondary volume on a vFiler unit named vFiler3, you can only select only those primary volumes on vFiler1 that have their secondary volumes on vFiler3.
- You can select primary and secondary volumes for transition as stand-alone volumes.
- Volumes that have multiple SnapMirror relationships, such as volumes that are primary in one SnapMirror relationship and secondary in another, volumes that have more than one primary or secondary volume, or a combination of both can be transitioned as stand-alone volumes only. The check box under the Transition with SnapMirror relationship column is disabled for such volumes.

Related concepts

[*Restrictions for transition*](#) on page 13

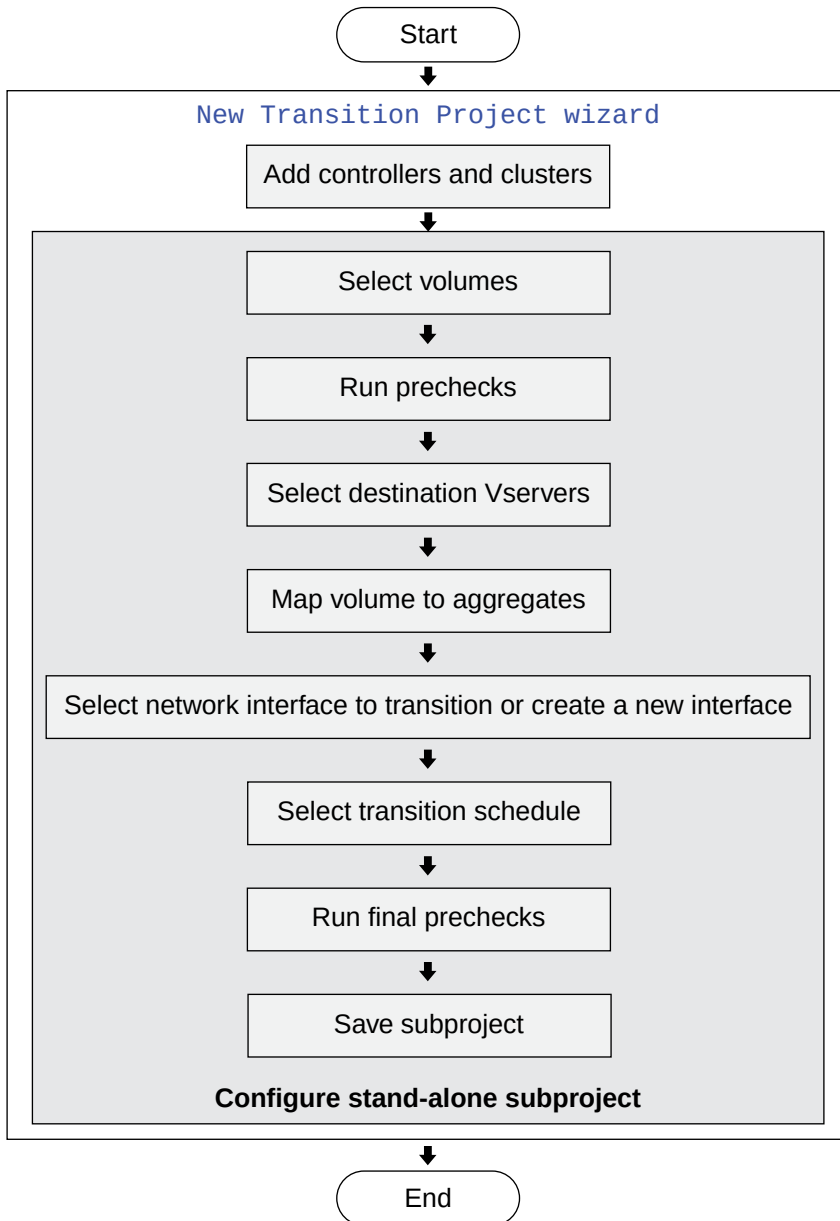
Related references

[*Limits for transition*](#) on page 40

How you create a project that transitions stand-alone volumes

You need to understand how to create a project that transitions stand-alone volumes if you want to separately transition a group of volumes as stand-alone volumes. You can add any volume from the vFiler unit to a stand-alone project.

The following illustration shows the steps for creating a project that transitions stand-alone volumes:



Related concepts

[Types of transition subprojects or sessions](#) on page 28

[Features not supported for transition](#) on page 7

[Restrictions for transition](#) on page 13

Guidelines for selecting and grouping volumes on page 43

Requirements and restrictions on a transition project on page 51

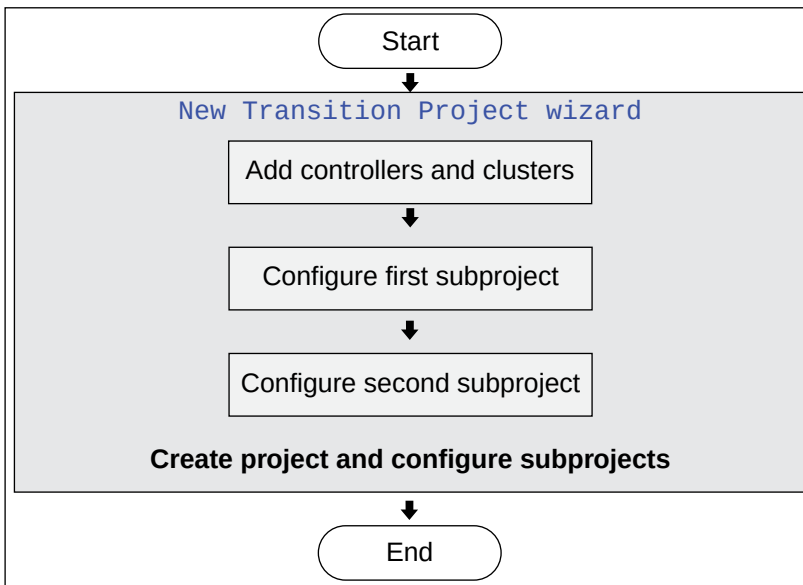
Related references

Limits for transition on page 40

How you create a project that transitions SnapMirror relationships

You need to understand how to create a project that transitions volumes with SnapMirror relationships to plan the transition.

The following illustration shows the steps involved in creating a project that transitions volumes with SnapMirror relationships:



Projects that transition SnapMirror relationships have two subprojects that can be configured, started, and completed separately. The workflow for configuring both the subprojects is the same. You use the New Transition Project wizard to complete the configuration of the first subproject and save it before you start configuring the second one.

The process for creating a project that transitions volumes with SnapMirror relationships is different from the process for creating a project that transitions stand-alone volumes in the following ways:

- In the Volume selection pane, you use the Transition with SnapMirror relationship column, instead of the Transition as Stand-alone column to add primary or secondary volumes.
- You have to configure two subprojects, instead of one for stand-alone projects.

Related concepts

[Types of transition subprojects or sessions](#) on page 28

[Features not supported for transition](#) on page 7

[Restrictions for transition](#) on page 13

[Guidelines for selecting and grouping volumes](#) on page 43

[Requirements and restrictions on a transition project](#) on page 51

Related references

[Limits for transition](#) on page 40

Understanding the project start and completion workflows

You need to understand the start and completion workflows to manage the data transfer and cutover operations.

Related concepts

[Types of transition subprojects or sessions](#) on page 28

[Mode types you can use for completing the transition](#) on page 39

[Guidelines for deciding when to perform cutover](#) on page 11

Dashboard

You can edit subprojects, run prechecks and review the results, and start and complete subprojects from Dashboard. You can also review the status of the running subprojects and delete projects that have no active subprojects.

Following are the key controls on the Dashboard page:

Project navigation	The tree control on the left of the page lists all the projects that you have created.
Delete project	You can delete projects that have either completed or have not started. If you want to delete a project that has been started, you need to first abort the subproject that has been started.
Start	You select a subproject and click this button to start the transition for the selected subproject.
Cutover	You select a subproject and click this button to complete the selected subproject.
Target Volume Status	This table displays the status of data copy operations between the 7-Mode volumes and the target volumes for the selected subproject.
View transition details	You select a subproject and click this button to view the detailed status of the target volumes for the selected subproject.

Refresh	You select a subproject and click this button to refresh the Target Volume Status table. The Target Volume Status table is refreshed automatically if the auto –refresh option is selected.
Origin Network Address To Be Migrated	This tables displays the network addresses to be migrated for the selected subproject.
Run Prechecks	You select a subproject and click this button to run prechecks on the selected subproject.
Edit configuration	You select a subproject and click this button to edit the selected subproject.
Pause	You can select a subproject that has been started and click this button to pause the data copy operations for the selected subproject.
Resume	You can select a subproject that has been paused and click this button to resume the data copy operations for the selected subproject.
Abort	You can select a subproject that has been started and click this button to abort the data copy operations for the selected subproject.

Related concepts

[Severity levels for precheck messages](#) on page 38

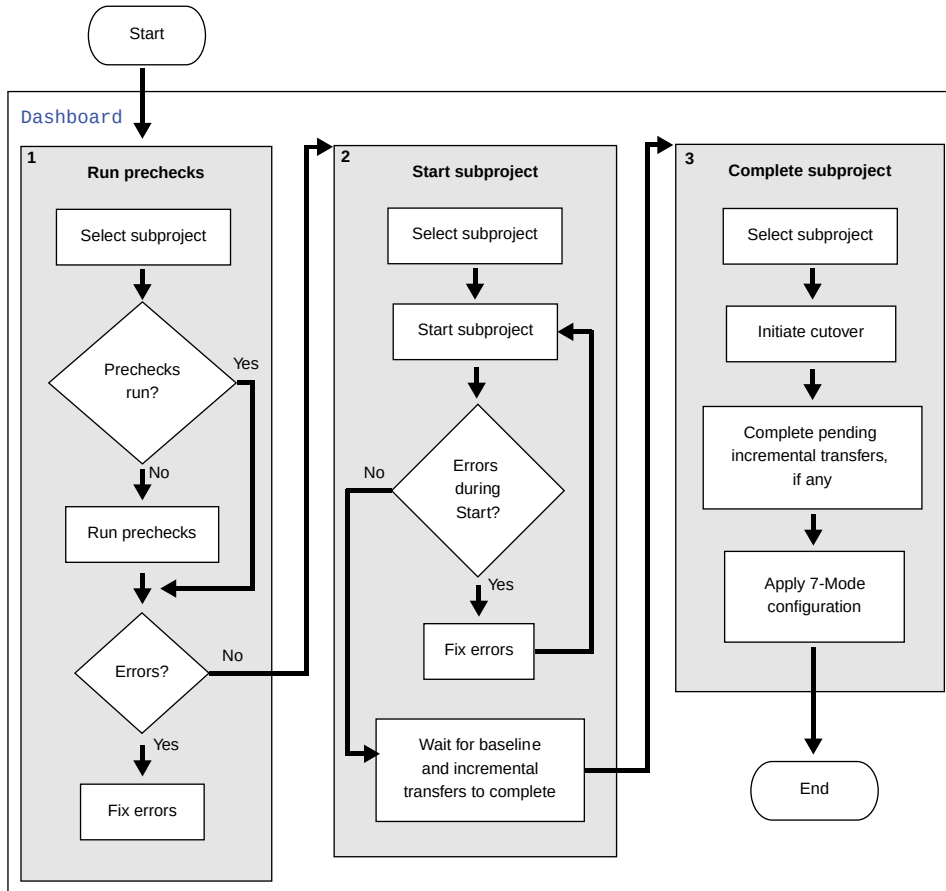
[How you start and complete a project that transitions stand-alone volumes](#) on page 48

[How you start and complete a project that transitions volumes with SnapMirror relationships](#) on page 50

How you start and complete a project that transitions stand-alone volumes

You need to understand how to start and complete projects that transition stand-alone volumes to manage and complete such transitions.

The following illustration shows the steps involved in starting and completing a project that transitions stand-alone volumes:



You can manage this workflow in the following ways:

- You can pause and resume a subproject any time after it has started. However, you cannot edit the configuration if after you have started it.
- You can abort a subproject that you have started and then delete the project that contains it.
- After the baseline transfer is complete for all the volumes in the subproject, the tool performs incremental data transfers at the intervals specified in the selected SnapMirror schedule that you selected while configuring the subproject. At this stage, you can initiate cutover to complete the transition.

Related concepts

[Severity levels for precheck messages](#) on page 38

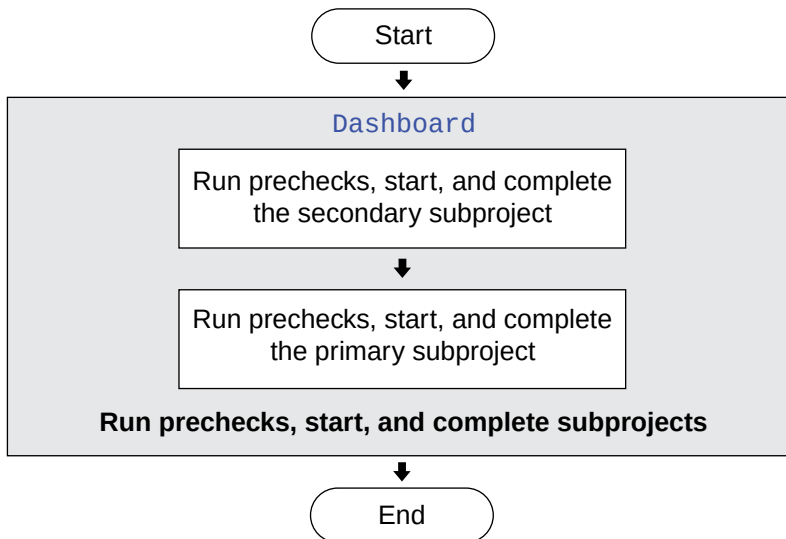
[Mode types you can use for completing the transition](#) on page 39

[Guidelines for deciding when to perform cutover](#) on page 11

How you start and complete a project that transitions volumes with SnapMirror relationships

You need to understand how to start and complete a project that transitions volumes with SnapMirror relationships and the various states it goes through, to complete the transition. The transition for volumes with SnapMirror relationships is complete when both the primary and secondary subprojects are complete.

The following illustration shows the steps for starting and completing a project that transitions volumes with SnapMirror relationships:



The workflow for completing each of these two subprojects is the same as the workflow for completing a stand-alone subproject.

You must start and complete the secondary subproject before you start and complete the primary subproject. This ensures that the SnapMirror relationship is maintained after the transition to clustered Data ONTAP. When the transition of only the secondary volumes is complete, a SnapMirror relationship is formed between the 7-Mode primary volume and the secondary volume created on the cluster.

If you choose to transition only the secondary volumes, you do not need to start or complete the primary subproject. In this case, the SnapMirror relationships are between the primary volumes on the 7-Mode and the secondary volumes on clustered Data ONTAP.

Related concepts

[Severity levels for precheck messages](#) on page 38

[Mode types you can use for completing the transition](#) on page 39

[Guidelines for deciding when to perform cutover](#) on page 11

Requirements and restrictions on a transition project

You must be aware of the restrictions and requirements when creating or managing a project in the 7-Mode Transition Tool (web interface).

Requirements of the transition process

- For projects that transition volumes with SnapMirror relationships, you must first start and complete the transition on the secondary subproject.
- You should not use the web interface and the command-line interface (CLI) simultaneously or interchangeably.

For example, if you create a project by using the web interface, you should start and complete the project by using the web interface. Similarly, if you define a transition session by using the CLI, you should perform all the transition operations on that session by using the CLI.

- The Transition Tool service must be running on the machine where it was installed.
The service is set to automatic by default and should start even when you restart the machine.

Restrictions on the transition process

- Only one project can be active at a time.
- You cannot start more than one subproject at a time.
- You cannot edit a subproject configuration if the subproject has been started.
- You can select only one Vserver as the target.
- All 7-Mode volumes added to a subproject must be from a single vFiler unit.

Restrictions of the web interface

- The tool does not support web browser navigation.
The browser session is terminated if you use the browser buttons.
- The session times out after 60 minutes.

Related concepts

[Restrictions for transition](#) on page 13

[Limits for transition](#) on page 40

[Guidelines for selecting and grouping volumes](#) on page 43

[Managing a transition project](#) on page 58

Related tasks

[Running a transition project](#) on page 52

Running a transition project

To transition volumes by using the 7-Mode Transition Tool (web interface), you must first create a project and configure the subprojects, and then start and complete the subprojects in the project.

Before you begin

- You must have installed the 7-Mode Transition Tool.
- You must have a Windows user account for the machine on which the 7-Mode Transition Tool is installed.

Steps

1. [Adding controllers and clusters](#) on page 52
2. [Creating a transition project](#) on page 53
3. [Starting a subproject](#) on page 56
4. [Completing a subproject](#) on page 57

Related concepts

[Understanding the project creation workflows](#) on page 43

[Understanding the project start and completion workflows](#) on page 47

[Managing a transition project](#) on page 58

Adding controllers and clusters

You need to add the controllers and clusters that are required for the transition before you create a transition project. You can also add these by using the Storage Systems page.

Before you begin

- The 7-Mode controllers and the clustered Data ONTAP nodes that you want to include in the transition must be reachable from the computer where the tool is installed.
- You must have administrator-level access to the controllers and clusters.

About this task

You can add controllers and clusters at any stage of the transition by using the Storage Systems page. However, the tool does not allow you to remove the controllers and clusters on which a transition has been started.

Note: Credentials for the controllers and clusters that you add are not persistent. Therefore, you have to provide the credentials again if the Transition Tool service is restarted for any reason.

Steps

1. Navigate to the login page.

If you are accessing the web application...	Then...
On the server on which it was installed	Double-click the 7-Mode Transition Tool icon on your desktop.
From another computer	Navigate to <code>https://IP_address:port/transition</code> by using one of the supported web browsers. In this URL, <i>IP_address</i> is the IP address of the server and <i>port</i> is either 8443 (default) or the value specified for the <i>tool.https.port</i> parameter in the <code>transition-tool.conf</code> file.

2. Log in to the application using your Windows credentials for the server.
3. Click **Storage Systems**.
4. In **Hostname**, enter the fully qualified domain name (FQDN) or the IP address of a 7-Mode controller or a clustered Data ONTAP system.

For a cluster, you can specify the IP address (or FQDN) of the management interface, or the IP address (or FQDN) of any node within the cluster. For a 7-Mode controller, you need to specify the IP address of the default vFiler unit, because the IP addresses of individual vFiler units are not accepted.
5. In **Username** and **Password**, enter the administrator credentials for the specified host, and click **Add**.

The tool detects the type of system added, and includes it in the correct column of the table.
6. Repeat Steps 4 and 5 to add all the controllers and clusters that you require for the transition.

Related concepts

[Features not supported for transition](#) on page 7

[Restrictions for transition](#) on page 13

[Preparing for transition](#) on page 12

[Understanding the 7-Mode Transition Tool](#) on page 27

Creating a transition project

Creating a transition project includes selecting and mapping 7-Mode volumes to clustered Data ONTAP Vservers, mapping interfaces, running prechecks, and defining a SnapMirror schedule for copying incremental data.

Before you begin

- You must have gathered the required information for creating a transition project.

- The 7-Mode controllers and the clustered Data ONTAP nodes that you want to include in the transition must be reachable from the machine where the 7-Mode Transition Tool is installed.
- You must have created the required Vservers on the target cluster.
- You must have administrator-level access to the controllers and clusters that you want to include in the transition project.
- You must have created a SnapMirror schedule, which will be used for incremental data transfer, on the cluster.

Steps

1. On the **Home** page, click **New Transition Project**.
2. Optional: If the controller and cluster required by the new project are not listed, add them from the **Enter Device Credentials** pane, and click **Next**.
3. In the **New Transition Project Name** dialog box, enter a name for the project and click **Continue**.

Note: A project name can contain up to 25 alphanumeric characters. Special characters and spaces are not allowed.

4. From the **Volume selection** pane, select the vFiler unit from which you want to add volumes.
You can select volumes from one default vFiler unit or vFiler unit only. By default, the volumes in a default vFiler unit are displayed.
5. From the **Choose Origin Volumes to Transition** pane, add the source volumes by selecting one of the following:

If you want to transition the...	Then...
Volume to a stand-alone volume	Select Transition as stand-alone . A stand-alone subproject is created if you select the first volume from this column.
Volume and its corresponding SnapMirror volume, while maintaining the SnapMirror relationship	a. Select Transition with SnapMirror Relationship. Two subprojects are created—a primary subproject for primary volumes and a secondary subproject for secondary volumes—if you select the first volume from this column. The selected volume and the corresponding SnapMirror primary or secondary volume are added to the appropriate subproject. b. If the controller for the corresponding SnapMirror volume is not included in the project, in the Need additional storage system credentials dialog box, enter the details for the controller to be included.

The volumes that cannot be added are dimmed in the Choose Origin Volumes to Transition pane.

6. After you have selected all volumes you want to include in the project, click **Create Project and Continue**.

7. Optional: From the **Prechecks** pane, click **Run Prechecks**.

The prechecks might take several minutes to complete. After the prechecks are complete, the page is updated with the results. You can review the displayed results and save them to a file by clicking **Save as CSV**.

8. Click **Next**.

9. From the **Vserver Mapping** pane, select the Vserver to which the 7-Mode volumes will be transitioned, and click **Next**.

10. From the **Volume Mapping** pane, select the aggregate to which the 7-Mode volumes will be copied, and click **Next**.

11. From the **Interface Mapping** pane, select the logical interface (LIF) to which the volume will be transitioned from the following:

If you want to...	Then...
Use an existing LIF	a. Select the row first. b. Click Choose Node and Port. c. From the Choose Node and Port dialog box, select the target node and port to which the LIF will be migrated and click Save. d. Click the edit icon in the Target Default Gateway column, enter a default gateway, and click the Save icon.
Create a new LIF	a. Click Create New LIF. b. In the Create New LIF dialog box, enter the details for the new LIF and click Add.

The new LIF is created only if the transition completes successfully.

12. Click **Next**.

13. From the **Transition Schedule** pane, select the required SnapMirror schedule for transition, and click **Next**.

Cron jobs that start with sched_ and CronJob_ are not included in the list of SnapMirror schedules displayed.

14. Optional: From the **Final Precheck** pane, click **Run Prechecks**.

The Final precheck pane is similar to the Precheck pane described in Step 6. Review the precheck results, and click **Next**.

15. From the **Subproject Summary** pane, save the project by clicking one of the following:

If you want to...	Then...
Save the subproject and go to the Dashboard page	Click Save & Goto Dashboard .
Save the current subproject and configure the next subproject	Click Save & Configure Next Subproject . This button is displayed only for projects that have two subprojects.

Related concepts

- [Understanding the project creation workflows](#) on page 43
- [Guidelines for selecting and grouping volumes](#) on page 43
- [Severity levels for precheck messages](#) on page 38
- [Managing a transition project](#) on page 58

Related tasks

- [Starting a subproject](#) on page 56
- [Completing a subproject](#) on page 57

Related references

- [Limits for transition](#) on page 40

Starting a subproject

After you create a project, you can start copying data from the 7-Mode volumes. You start copying data by starting individual subprojects.

Before you begin

- You must have created a transition project.
- You must have ensured that there are no errors in the precheck results.
- You must have completed a secondary subproject.

Steps

1. From the **Dashboard** page, select the subproject that you want to start.

If the precheck was not run or if it resulted in an error, the **Start** button is not available. If the precheck detects errors, you must perform the corrective actions specified in the precheck message and run the prechecks again.
2. Click **Start**.

The precheck is run once again in the background, and if no errors are detected, a baseline transfer is started. If the precheck detects errors, they are displayed in a dialog box.
3. Click **Refresh** to refresh the Target Volume Status table for the selected subproject.

The Target Volume Status table is updated with the latest status and progress values. The details shown in the table (and the details displayed when the **View Transition Details** button is clicked) are details of the SnapMirror relationships between the volumes in the transition. These details are not shown after the transition is completed or aborted.

Related concepts

Requirements and restrictions on a transition project on page 51

Severity levels for precheck messages on page 38

Managing a transition project on page 58

Related tasks

Creating a transition project on page 53

Completing a subproject on page 57

Completing a subproject

You can complete a transition by completing the individual subprojects in the transition project.

Before you begin

- You must have ensured that the baseline copy has completed successfully.
- For projects that transition volume SnapMirror relationships, you must have completed the secondary subproject before completing the primary subproject.
- You must have ensured that the 7-Mode host from which volumes are being transitioned is down or you have prepared for a short downtime of the host.

Steps

1. From **Dashboard**, select the subproject that you want to complete.
2. Click **Cutover**.
A message is displayed warning you that the cutover operation is disruptive.
3. Click **Yes** to continue.
A message confirms that the cutover was successful.
Note: The cutover operation might take several minutes to complete.
4. Click **OK**.
Your data is now successfully transitioned to clustered Data ONTAP.

After you finish

If you have created a new logical interface (LIF), users and applications of the transitioned volumes must remap the drives by using the new IP addresses and ports after all the subprojects have been completed.

Related concepts

[Severity levels for precheck messages](#) on page 38

[Guidelines for deciding when to perform cutover](#) on page 11

[Managing a transition project](#) on page 58

[Requirements and restrictions on a transition project](#) on page 51

Related tasks

[Creating a transition project](#) on page 53

[Starting a subproject](#) on page 56

Managing a transition project

You can manage transition projects and subprojects by using the 7-Mode Transition Tool (web interface). You can edit, pause, resume, abort, delete, and run prechecks on a subproject.

Related concepts

[Understanding the project start and completion workflows](#) on page 47

[Severity levels for precheck messages](#) on page 38

[Requirements and restrictions on a transition project](#) on page 51

[Guidelines for deciding when to perform cutover](#) on page 11

Related tasks

[Running a transition project](#) on page 52

Running prechecks

You can run prechecks to identify the issues with a transition. Prechecks verify that the 7-Mode sources, clustered Data ONTAP targets, and configurations are valid for your transition.

Before you begin

- You must have created a transition project.

About this task

You can run prechecks any number of times from Dashboard.

Steps

1. From **Dashboard**, select the subproject on which you want to run the prechecks.

The precheck message and the Precheck Status pane are updated with the results of the last precheck.

2. Click **Run Prechecks**.

After the prechecks are complete, the results summary is displayed in the Precheck Status pane.

Note: The prechecks might take several minutes to complete.

3. Click **See Precheck Results** to view the results.

4. To export the results, click **Save as CSV**.

After you finish

You must resolve all the errors, and review the notifications that are detected by the prechecks before you start a transition.

Related concepts

[Severity levels for precheck messages](#) on page 38

[Requirements and restrictions on a transition project](#) on page 51

Related tasks

[Creating a transition project](#) on page 53

[Starting a subproject](#) on page 56

[Completing a subproject](#) on page 57

Editing a subproject

You can edit a subproject to add or remove the volumes that are included and to modify the transition configuration.

Before you begin

- You must have created a subproject, but not started it.

About this task

You can edit a subproject to change the volumes that are selected for transition, Vserver mapping, volume mapping, interface mapping, and SnapMirror schedule. When you are editing a subproject, you cannot change the subproject type or the vFiler unit.

Steps

1. From **Dashboard**, select the subproject that you want to edit.

2. Click **Edit Configuration**.

The Volume selection pane of the New Transition Project wizard is displayed.

3. Complete the wizard to edit your subproject.

Related concepts

[Requirements and restrictions on a transition project](#) on page 51

[Guidelines for selecting and grouping volumes](#) on page 43

Related tasks

[Creating a transition project](#) on page 53

Pausing and resuming a subproject

You can pause and resume a subproject that has started.

Before you begin

- You must have started a subproject.

About this task

If you pause a subproject, the data copy operation for all the volumes in the subproject also stops.

For primary subprojects, two copy operations run simultaneously when you start the subproject. One copy operation is from the 7-Mode primary volume to the corresponding clustered Data ONTAP primary volume. The other is the from the 7-Mode primary volume to the clustered Data ONTAP secondary volume that was transitioned from the 7-Mode secondary volume. When you pause a primary subproject, only the first type of copy operation is paused. The second type of copy operation is required for the SnapMirror relationship and it continues to run as and when required. This ensures continued data protection for your SnapMirror volumes.

You can resume the subproject to continue the copy operation from where it was paused.

Steps

1. From **Dashboard**, select the subproject that you want to pause.
2. Click **Pause**.
3. To resume the paused subproject, click **Resume**.

Related concepts

[Requirements and restrictions on a transition project](#) on page 51

Related tasks

[Creating a transition project](#) on page 53

[Starting a subproject](#) on page 56

[Aborting a subproject](#) on page 61

[Completing a subproject](#) on page 57

Aborting a subproject

You might want to abort a subproject that is started for reasons, such as performance of the controller or the cluster is impacted. You can abort a running subproject from Dashboard.

Before you begin

- You must have started a stand-alone or secondary subproject.

About this task

For primary subprojects, two copy operations run simultaneously when you start the subproject. One copy operation is from the 7-Mode primary volume to the corresponding clustered Data ONTAP primary volume. The other is the from the 7-Mode primary volume to the clustered Data ONTAP secondary volume that was transitioned from the 7-Mode secondary volume.

When you abort a primary subproject, the first type of copy operation is aborted. However, the second type of copy operation that is required for the SnapMirror relationship continues to run as and when required. This ensures continued data protection for your SnapMirror volumes.

Steps

1. From **Dashboard**, select the subproject that you want to abort.
2. Click **Abort**.

Related concepts

[Requirements and restrictions on a transition project](#) on page 51

Related tasks

[Creating a transition project](#) on page 53

[Starting a subproject](#) on page 56

[Completing a subproject](#) on page 57

[Pausing and resuming a subproject](#) on page 60

[Deleting a project](#) on page 61

Deleting a project

You can delete a project from Dashboard.

Before you begin

- You must have created a project.

Steps

1. From **Dashboard**, select the project that you want to delete.

2. Click **Delete Project**.

Related tasks

Aborting a subproject on page 61

Troubleshooting web interface issues

You need to be aware of some of the common issues with the web interface and the steps to resolve them.

Cannot select a secondary volume from the Volume selection pane in some scenarios

You cannot select a secondary volume from the Volume selection pane if the volume is not online or if the SnapMirror relationship is broken.

Workaround

Use the Data ONTAP command line to perform either of the following workarounds:

- Bring the secondary volume online if it is offline.
- Fix the SnapMirror relationship if it is broken.

Cannot select a volume with a broken SnapMirror relationship for transition

This issue usually occurs if the volume you selected for transition with the SnapMirror relationship has a broken SnapMirror relationship.

Workaround

Fix the SnapMirror relationship and include it in the project.

Cannot select a volume for transition if the tool fails to retrieve the volume information

The Volume selection pane displays the Failed to retrieve volume information error message when you try to select a volume. This error usually occurs if the controller is busy.

Workaround

Select the volume after some time.

Cannot proceed from the Volume mapping pane if the selected Vserver has no aggregate

The tool displays the Vserver does not have aggregate assigned. Please assign some aggregates to the vservers and click on the refresh button error message on

the Volume mapping pane. This issue occurs if the selected Vserver has no aggregate other than the node root aggregate.

Workaround

Add an aggregate to the Vserver in clustered Data ONTAP.

Stand-alone volume is incorrectly displayed as primary in the Volume selection pane

A stand-alone volume that has a FlexClone volume is incorrectly displayed as a primary volume in the Volume selection pane. Further, the check box under the Transition with SnapMirror Relationship column is incorrectly enabled for such a volume.

Note: For a stand-alone volume that is incorrectly displayed as a primary volume, the SnapMirror source/destination column displays only a FlexClone volume and no secondary volume.

Workaround

Select the volume for transition as a stand-alone volume by selecting the check box under the Transition as Stand-alone column.

Initiating edit configuration causes the subproject to go to the incomplete state

If you select a subproject from Dashboard and click **Edit Configuration**, the subproject state changes to incomplete and the results of the prechecks that were run earlier are lost.

Workaround

1. Select the subproject from Dashboard and click **Edit Configuration**.
2. Complete the steps in the wizard and save the subproject.

Windows Program Compatibility Assistant notification displayed while installing the tool

Sometimes while installing the tool, you receive the Windows Program Compatibility Assistant notification that the program might not have installed correctly. This notification does not necessarily indicate that the program did not install correctly.

You can ignore this notification by clicking **This program installed correctly**.

Transitioning volumes using the 7-Mode Transition Tool (CLI)

The 7-Mode Transition Tool CLI provides a CLI wizard and commands that enable you to transition 7-Mode volumes. You must perform some tasks manually in the CLI, such as selecting the volumes in a session and transitioning a volume SnapMirror relationship. The CLI provides certain additional capabilities, such as creating a new Vserver.

The tool interacts with the 7-Mode storage system to collect volume and IP address information, verifies the 7-Mode configuration, and interacts with the cluster to apply the configuration on the Vserver.

You must perform the following tasks manually:

- You must select the volumes for transition.
- For transitioning a volume SnapMirror relationship, you must ensure that the secondary volumes and the primary volumes are correctly grouped in different sessions.
You must ensure that the secondary volume transition is completed before the primary volume transition.

You can perform the following additional tasks:

- Creating a new Vserver
- Providing multiple paths for SnapMirror data copy
- Editing the LIF configuration after the session is started
- Transitioning Kerberos configurations

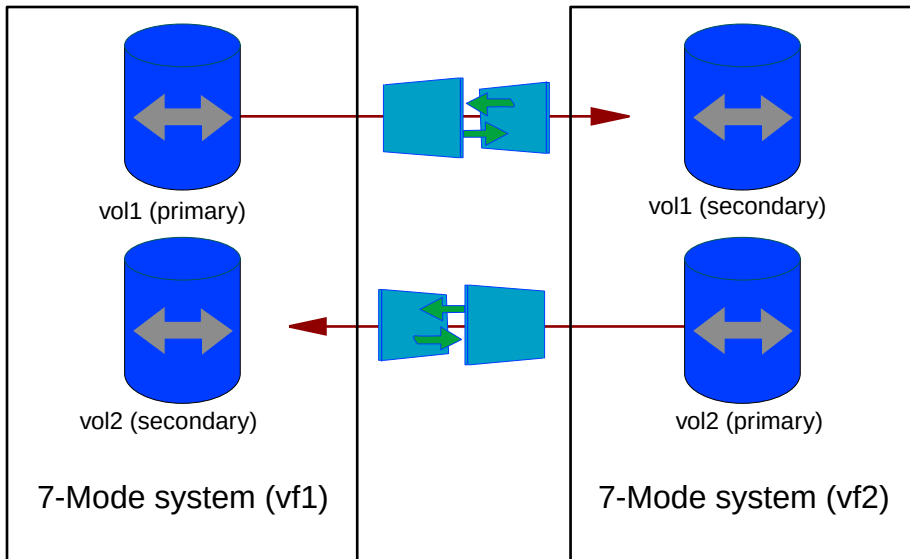
Scenarios for selecting volumes in a session

Planning a session composition and deciding which 7-Mode volumes to transition in a single transition operation can help in reducing the downtime for applications. Understanding some sample scenarios can help you while creating sessions in your environment.

Bidirectional SnapMirror relationship

To transition a bidirectional SnapMirror relationship, you must create different transition sessions for each volume.

For example, as shown in the illustration below, consider a volume SnapMirror relationship that exists between vf1:vol1 (primary) on system1 and vf2:vol1 (secondary) on system2. Similarly, another volume SnapMirror relationship exists between vf2:vol2 (primary) on system2 and vf1:vol2 (secondary) on system1.



You cannot combine the volumes vf1:vol1 and vf1:vol2 in one transition session. Similarly, you cannot combine the volumes vf2:vol1 and vf2:vol2 in one transition session. You must create separate transition sessions for each volume to transition the volume SnapMirror relationship.

Volumes with CIFS configuration

You must group volumes that have CIFS configuration in one session so that all the CIFS-related configuration is transitioned completely to the Vserver.

For example, if 10 volumes in a 7-Mode system or a vFiler unit have associated CIFS shares, home-directory search path, and audit configuration, these 10 volumes must be transitioned in one session. This ensures that all the volumes and CIFS configuration are completely applied on the Vserver after transition.

SnapMirror relationship between a primary volume and multiple secondary volumes

If a SnapMirror relationship exists between a primary volume and multiple secondary volumes and if all the secondary volumes are on the same 7-Mode controller, you can create a secondary session to group all the secondary volumes and complete the transition of all secondary volumes in that session. You can then create a primary session to transition the primary volume and complete the SnapMirror transition.

Transitioning stand-alone volumes by using the transition wizard

You can create a transition session of type stand-alone, where you can add a 7-Mode volume or a set of 7-Mode volumes that are not in a SnapMirror relationship. Transitioning stand-alone volumes involves creating a session, verifying the configuration, copying data to the clustered Data ONTAP volumes, and performing a cutover.

Before you begin

- The 7-Mode system and cluster must be prepared for transition.
- You must have gathered the [required information](#) on page 79 before you start the transition wizard.
- The 7-Mode system and the cluster must be always reachable from the Windows system that hosts the 7-Mode Transition Tool during the transition process; otherwise transition fails. The 7-Mode Transition Tool uses the management IP addresses to communicate with the 7-Mode system and the cluster. If these IP addresses are in the down state at any point, transition fails.
- Local users and groups that are accessing CIFS shares must not exist. If you have volumes with local users and groups that are being used for CIFS access, transition of such volumes is not supported and the session is stopped.

Steps

1. From the **Start** menu, click **All Programs > NetApp 7-Mode Transition Tool > NetApp 7-Mode Transition Tool (cli) 1.0** to open the 7-Mode Transition Tool.

The main menu is displayed.

2. Create a new session by entering **2**.

Example

```
Step: Main menu
=====
Select one of the following menu items:
1. Show all sessions
2. Create a new session
3. Select existing session
4. Exit
Enter your selection(1-4): 2
```

- a) Press Enter to select the type of session as standalone.

```
Select the type of the session {primary, secondary, standalone} [standalone]:
```

- b) Select the 7-Mode storage system and enter the administrative user name and password.

Example

```

Step: Select the 7-Mode storage system
=====
You can type 'back', 'exit', 'help' or '?' at any time.

Enter the FQDN or IP address of the 7-Mode system: system1.example.com
Enter the administrative user-name for the 7-Mode system 'system1.example.com' [root]:
Enter the password for 'root@system1.example.com':
INFO: Login to 'system1.example.com' as 'root' is successful.

```

- c) Optional: If you have enabled the MultiStore license, select the vFiler unit for transition.

Example

```

....
Found 5 vFiler units on the 7-Mode system 'system1':
vFiler Name                vFiler Status
-----
vfiler0                     running
testVF1                     running
testVF2                     running
testVF3                     running
testVF4                     running
The vFiler unit contains volumes and protocol configurations.
You can select volumes for transition to Cluster-Mode.

Select the vFiler unit for transition [vfiler0]:

```

- d) Optional: Select the multipath IP address for transition.

Example

```

Enter another IP address for setting up multipath to the 7-Mode system(Press 'Enter'
to skip):

```

3. Press Enter to confirm that there are no local users or groups that are used for CIFS access.

If you enter **yes**, the session is stopped because transition of local users and groups is not supported.

Example

```

Transition of local users and groups is not supported. Do you have local users and groups
accessing CIFS shares or files on the transitioning volumes in the 7-Mode storage system
'system1.example.com'? {yes, no} [no]:

```

The session is created and saved with a temporary name. You can change the session name later.

4. Select the 7-Mode volumes for transition.

Example

```

Step: Select 7-Mode volumes
=====
You can type 'back', 'exit', 'help' or '?' at any time.

Retrieving volume information from 7-Mode system 'vfiler0@system1'.

```

This might take a few seconds.

Found 3 volumes that are candidates for transition on the 7-Mode system 'vfiler0@system1':

VolumeName	Size	Used(%)	Snapmirror
vol0	851.48MB	31%	-
finance	50.00MB	0%	-
Purchase	50.00MB	0%	-

Enter the comma separated list of volumes for transition: finance, Purchase

You selected 2 volume(s):

VolumeName	Size	Used(%)	Snapmirror
finance	50.00MB	0%	-
Purchase	50.00MB	0%	-

Confirm your selection {yes, no} [yes]:

5. Run a precheck operation on the 7-Mode system and resolve errors and warnings.

- Optional: Enter a name for the session.
- Run precheck on the 7-Mode system.

The precheck report lists the errors, warnings, notifications, and informational messages.

Step: Run precheck

=====

Provide a name for this session [Session_20130310_231131]: session_finance

Do you want to run precheck on the session {yes, no} [yes]:

Verify feasibility of transition - Check if all the features and functionality included in this session is supported in Cluster-Mode.

Starting 7-Mode Precheck for this session 'session_finance'. This might take several minutes.

[1/11] Session status checks	[	Ok	]
[2/11] Validating 7-Mode system information	[	Ok	]
[3/11] Validating 7-Mode volumes information	[	Ok	]
[4/11] WAFL prechecks	[	Ok	]
[5/11] UNIX users and groups prechecks	[	Ok	]
[6/11] SnapMirror prechecks	[	Notifications	]
[7/11] NFS prechecks	[	Warnings	]
[8/11] Networking prechecks	[	Notifications	]
[9/11] CIFS prechecks	[	Warnings	]
[10/11] Name services prechecks	[	Warnings	]
[11/11] SAN prechecks	[	Ok	]

Operation summary:

The 'precheck' operation is completed with warnings and notifications.

0 Errors - No action required
 15 Warnings - Need your attention!
 15 Notifications - Please review
 86 Informational messages

- Review the precheck report and resolve all errors to continue with the transition process.

Transition cannot be continued if even one error is present. You must also review the warnings and notifications to assess the impact of transition before continuing.

Example

Do you want to see a detailed report {yes, no} [yes]:

```

15 Warnings:
-----
30141: Checking whether router failover is configured on the 7-Mode storage
system [ Warning ]
      'vfiler0@system1'.
      > Router failover is configured on the 7-Mode storage system. However, router
      failover is not
      > supported on the cluster.

40532: Verifying if netgroup entry comparisons will consider the domainnames in the
search directive [ Warning ]
      from the '/etc/resolv.conf' file ('nis.netgroup.domain_search.enable' option) on 7-
      Mode storage system.
      > Considering the domainnames in search directives from the '/etc/resolv.conf' file
      while
      > doing netgroup entry comparison is not supported in clustered Data ONTAP.

40542: Verifying if netgroup entry comparisons will consider the legacy SUNOS
compatible nisdomainname [ Warning ]

To continue, press Enter. To quit, press q and Enter:
    
```

6. Select the target cluster and enter the information as prompted by the wizard.

Example

```

Step: Select target cluster
=====
You can type 'back', 'exit', 'help' or '?' at any time.

Enter the FQDN or management IP address of the cluster: cluster1.example.com
Enter the administrative user-name for the cluster 'cluster1.example.com' [admin]:
Enter the password for 'admin@cluster1.example.com':
INFO: Login to 'cluster1.example.com' as 'admin' is successful.
INFO: The name of the target cluster is 'cluster1'.
    
```

7. Configure the target Vserver.
 - a) Select the target Vserver or provide information about the new Vserver that is to be created during the transition start operation.

Note: If you opted to create a new Vserver, the Vserver is created during the start operation, but does not have any configurations applied to it. The Vserver is fully configured and ready to use after the transition is completed.

Example

```

Step: Select target Vserver
=====
You can type 'back', 'exit', 'help' or '?' at any time.

In this step, you can select a Vserver from the list of existing Vservers in the
cluster or provide information about a
new Vserver, which will be created by the 'transition start' operation.

Retrieving Vserver information from the cluster 'cluster1'.
This might take a few seconds.

Vserver          Root volume      State
-----          -
vs3              rootvs3          running
vs2              vs2root          running

Select an existing 'data' Vserver or enter a new Vserver name that must be created
    
```

```
during 'transition start' operation: vs_finance
INFO: You selected a new Vserver name 'vs_finance'.
```

- b) If you have selected a new Vserver, select the aggregate on which the root volume of the Vserver must be created.

Example

```
Retrieving aggregate information from the cluster 'cluster1'.
This might take a few seconds.

Found 1 online aggregate(s) on this cluster:
Aggregate name      Size      Used(%)      Node
-----
aggr1               1008.45MB    6%          cluster1-01

Select Vserver ('vs_finance') root volume aggregate [aggr1]:
INFO: Successfully added the cluster and Vserver information to the session.
```

8. Configure the clustered Data ONTAP volumes.
- a) Select the aggregates where the new clustered Data ONTAP volumes should be created.

Example

```
Step: Configure target volumes
=====
You can type 'back', 'exit', 'help' or '?' at any time.

Retrieving aggregate information from the Cluster 'cluster1'.
This might take a few seconds.

Found 1 online aggregate(s) on this cluster:
Aggregate name      Size      Used(%)      Node
-----
aggr1               1008.45MB    6%          cluster-01

Enter the comma separated list of aggregates to be used for Cluster-Mode volume
creation [aggr1]:
INFO: Aggregates 'aggr1' will be used for volume placement.

7-Mode volume      Cluster-Mode volume Size      Aggregate  In-Session?  Status
-----
finance            finance        20.00MB    aggr1        no          To be created
Purchase           Purchase       20.00MB    aggr1        no          To be created
```

- b) Optional: From the menu that appears, modify the volumes added to the session or the aggregates hosting the volumes.
- c) Accept the settings and save the session information by entering **1**.

```
Select one of the following menu items:
1. Accept the settings and commit the information to the session.
2. Include,exclude,or modify volumes.
3. Select aggregates.
4. Skip and continue.
Enter your selection(1-4): 1

INFO: Successfully modified volume-pair <finance, finance> in the session.
INFO: Successfully modified volume-pair <Purchase, Purchase> in the session.
```

9. Configure the network information to be transitioned.

- a) Specify the 7-Mode IP addresses that you want to transition to the target Vserver.

Example

```
Step: Configure network information
=====
You can type 'back', 'exit', 'help' or '?' at any time.

Do you want to transition 7-Mode IP addresses {yes, no} [yes]:

NOTICE : All transitioning IP addresses will be configured on the target Vserver after
they have been removed from the 7-Mode storage system as part of the transition
complete operation.

IP addresses on the 7-Mode storage system 'system1':
IP address      Netmask      Default Gateway      Port
-----
192.0.2.69      255.255.255.192    192.40.0.1           e0c
192.0.2.70      255.255.255.192    192.40.0.1           e0d

Enter the comma separated list of IPv4 addresses from the previous list(Press 'Enter'
to skip):192.0.2.69
```

- b) Specify any new IP addresses that you want to configure on the Vserver after transition.
You can also add IP addresses that exist on the Vserver to the session.

Example

```
Specify the comma (,) separated list of new IPv4 addresses which do not exist on the 7-
Mode storage system :192.0.2.65
```

- c) Optional: From the menu that appears, modify the LIFs added to the session.

Example

```
Review the IP address configuration for transition based on the network connectivity
between the 7-Mode and Cluster-Mode systems.

IP address Netmask      Default Gateway      Home Node      Home Port @7Mode/@Session/Status
-----
192.0.2.69 255.255.255.192 192.40.0.1 cluster1-01 e0c          Yes/No/To be created
```

- d) Accept the settings and save the session information by entering **1**.

```
Select one of the following menu items:
1. Accept the settings and commit the information to the session.
2. Include,exclude,or modify network interfaces.
3. Skip and continue.
Enter your selection(1-3): 1
```

10. Set the data copy schedule to be used for SnapMirror updates.

Example

```
Step: Get the data copy schedule parameters
=====
You can type 'back', 'exit', 'help' or '?' at any time.

Fetching cron schedule information from the cluster 'cluster1'.
```

```

Found '5' cron schedules:
Cron schedule name      Description
-----
weekly                  Sun@0:15
8hour                   @2:15,10:15,18:15
5min                    @:
00,:05,:10,:15,:20,:25,:30,:35,:40,:45,:50,:55
hourly                  @:05
daily                   @0:10

Enter a cron schedule that exists in the cluster and which should be used for SnapMirror
updates [daily]:
INFO: Specified cron schedule added to the session.

```

11. Run the precheck operation on the 7-Mode system and cluster and resolve errors and warnings.

a) Run precheck on the 7-Mode system and cluster.

Example

```

Step: Run precheck
=====
Verify feasibility of transition - Check if all the features and functionality
included in this session is supported in Cluster-Mode.
Additionally, check for potential conflicts in configuration between the 7-Mode and
Cluster-Mode systems.

Starting full Precheck for this session 'session_finance'. This might take several
minutes.

[1/14 ] Session status checks                [      Ok      ]
[2/14 ] Validating 7-Mode system information [      Ok      ]
[3/14 ] Validating 7-Mode volumes information [      Ok      ]
[4/14 ] Validating Cluster-Mode system information [      Ok      ]
[5/14 ] Validating Cluster-Mode volume information [      Ok      ]
[6/14 ] Validating LIF information            [ Notifications ]
[7/14 ] WAFL prechecks                       [      Ok      ]
[8/14 ] UNIX users and groups prechecks       [      Ok      ]
[9/14 ] SnapMirror prechecks                  [ Notifications ]
[10/14] NFS prechecks                        [   Warnings   ]
[11/14] Networking prechecks                  [ Notifications ]
[12/14] CIFS prechecks                       [   Warnings   ]
[13/14] Name services prechecks                [   Warnings   ]
[14/14] SAN prechecks                        [      Ok      ]

Operation summary:
-----
The 'precheck' operation is completed with warnings and notifications.

 0 Errors - No action required
19 Warnings - Need your attention!
16 Notifications - Please review
91 Informational messages

```

b) Review the results of the precheck and resolve errors and warnings.

12. From the main menu, view the session status by entering 4.

Example

```

Step: View session status
=====
                Session name : session_finance
                Session status : Preparation
                Session type  : standalone
                Apply configuration : Yes
                7-Mode system FQDN : system1.example.com

```

```

7-Mode version : NetApp Release 8.1 7-Mode: Fri Nov 16 11:17:42 IST
2012
vFiler unit : vfiler0
Multipath IP address : -
Cluster-Mode system FQDN : cluster1.example.com
Cluster-Mode system Version : NetApp Release clustered Data ONTAP 8.2.0: Mon Mar
04 23:37:16 PST 2013
Vserver information : vs_finance:aggr1
Volume-Pairs : finance:finance, Purchase:Purchase
Vserver data LIFs : 192.0.2.69
SnapMirror schedule : daily

7-Mode volume Cluster-Mode volume Aggregate Snapmirror state Cluster-Mode volume status
-----
finance finance aggr1 -/- To be created
Purchase Purchase aggr1 -/- To be created

To continue, press Enter:
    
```

The session moves to the preparation state.

13. Start the data copy for the volumes in the session.

- a) From the main menu, start the baseline transfer by entering 7.

Example

```

Step: Start data copy
=====
Do you want to run the start (data copy) operation on this session? {yes, no} [yes]:

Running the start (data copy) operation on the session 'session_finance'.

[1/18 ] Session status checks [ Ok ]
[2/18 ] Validating 7-Mode system information [ Ok ]
[3/18 ] Validating 7-Mode volumes information [ Ok ]
[4/18 ] Validating Cluster-Mode system information [ Ok ]
[5/18 ] Validating Cluster-Mode volume information [ Ok ]
[6/18 ] Validating LIF information [ Notifications ]
[7/18 ] WAFL prechecks [ Ok ]
[8/18 ] UNIX users and groups prechecks [ Ok ]
[9/18 ] SnapMirror prechecks [ Notifications ]
[10/18] NFS prechecks [ Warnings ]
[11/18] Networking prechecks [ Notifications ]
[12/18] CIFS prechecks [ Warnings ]
[13/18] Name services prechecks [ Warnings ]
[14/18] SAN prechecks [ Ok ]
[15/18] Creating Cluster-Mode Vserver [ Ok ]
[16/18] Creating Cluster-Mode volumes [ Ok ]
[17/18] Establishing SnapMirror relationships between the 7-Mode and Cluster-Mode
volumes [ Ok ]
[18/18] Initializing SnapMirror relationships between the 7-Mode and Cluster-Mode
volumes [ Ok ]

Operation summary:
-----
The 'start' operation is completed with warnings and notifications.

 0 Errors - No action required
15 Warnings - Need your attention!
16 Notifications - Please review
97 Informational messages

Do you want to see a detailed report {yes, no} [yes]:
....
    
```

The session is in the copy-baseline state.

- b) Verify the results of the start operation.

c) Press Enter to view the session status.

After the baseline transfer is completed, the session state changes to copy update. SnapMirror updates are performed based on the schedule selected. This is the state where you prepare for a cutover.

Example

```
Next suggested steps:
-----
1. Use the 'transition job-results -j 0efc4c54-0860-48e2-88b6-05a0f62f4b59' command to
see the results of this
operation.
2. Keep monitoring the session status by selecting 'View session status' or by running
the CLI 'transition job-results
0efc4c54-0860-48e2-88b6-05a0f62f4b59'.
3. Once the session status is 'Copy-update', cut-over operation can be started by
selecting 'Start cut-over' from the
transition main menu or by running 'transition complete -s session_finance' command
from the CLI.

Do you want to see the session status? {yes, no} [yes]:

          Session name : session_finance
          Session status : Copy-update
          Session type : standalone
          Apply configuration : Yes
          7-Mode system FQDN : system1.example.com
          7-Mode version : NetApp Release 8.1 7-Mode: Fri Nov 16 11:17:42

IST 2012
          vFiler unit : vfiler0
          Multipath IP address : -
          Cluster-Mode system FQDN : cluster1.example.com
          Cluster-Mode system Version : NetApp Release 8.2.0 Cluster-Mode: Mon Mar 04
23:37:16 PST 2013
          Vserver information : vs_finance:aggr1:Created
          Volume-Pairs : finance:finance, Purchase:Purchase
          Vserver data LIFs : 192.0.2.69
          SnapMirror schedule : daily

7-Mode volume Cluster-Mode volume Snapmirror state Comments
-----
finance        finance        snapmirrored/idle * Last transfer size: 944.00KB
seconds                                     * Last transfer duration: 12
                                                * Lag time: 3 minutes 12 seconds

Purchase       Purchase       snapmirrored/idle * Last transfer size: 680.00KB
seconds                                     * Last transfer duration: 12
                                                * Lag time: 3 minutes 12 seconds

SUMMARY:
-----
1. Baseline transfer from the 7-Mode volumes to the Cluster-Mode volumes has been
completed successfully. The session
status is 'Copy-update'.
2. Cluster-Mode volumes are being updated periodically with the 7-Mode volumes based
on the data copy schedule provided.
3. You can start the 'complete(cut-over)' operation by using the transition CLI
command 'transition complete -s
session_finance' or by selecting 'Start cut-over' from the 'transition menu'.
```

To continue, press Enter:

14. Monitor the data copy status and disconnect the client access when you are ready to perform cutover.

15. Optional: If you have NFS and Kerberos configured on the 7-Mode system, perform the following steps on the Vserver before cutover:

- a) Log in as administrator to the cluster.
- b) Use the `system license add` command to add the NFS license.

Example

```
cluster1::> system license add -license-code BBBB BBBB BBBB
```

- c) Use the `vserver services kerberos-realm show` command to verify whether the clock skew between the Kerberos KDC and the Vserver is less than or equal to 5 minutes.

Example

```
cluster1::> vserver services kerberos-realm show -fields clock-skew
configname      clock-skew
-----
krb_realm_0     5
```

- d) If the clock skew is greater than 5 minutes, use the `vserver services kerberos-realm modify` command to modify the Kerberos realm configuration.

For more information, see the *Clustered Data ONTAP File Access and Protocols Management Guide*.

- e) If you want to transition an Active Directory-based Kerberos server, use the `vserver services dns create` command to configure a DNS entry for the AD domain on the Vserver.

Example

```
cluster1::> vserver services dns create -vserver vs_finance -domains
nfs.lab.example.com -name-servers 192.0.2.143 -state enabled
```

For more information about setting up a DNS domain, see the *Clustered Data ONTAP Network Management Guide*.

- f) Use the `vserver services dns show` command to verify that a DNS entry exists for the AD domain on the Vserver.

Example

```
cluster1::> vserver services dns show -vserver vs_finance

Vserver: vs_finance
Domains: nfs.lab.example.com
Name Servers: 192.0.2.143
Enable/Disable DNS: enabled
Timeout (secs): 2
Maximum Attempts: 1
```

16. Optional: If you have CIFS configured on the 7-Mode system, perform the following manual tasks before cutover:

- a) Log in to the 7-Mode system.
- b) Depending on whether you want to preserve the CIFS server name or use a new name, perform one of the following actions on the 7-Mode system:

If you want to...	Then...
Preserve the CIFS server name	a. Disconnect all CIFS access to the 7-Mode system. b. Use the <code>cifs terminate</code> command to terminate the CIFS service. c. Use the <code>cifs setup</code> command to create the CIFS server with a different name. The new CIFS server must be created on the 7-Mode system for transitioning CIFS configurations; otherwise, transition of CIFS share-level ACLs fails. The CIFS server name must be unique in the domain. d. Ensure that the CIFS server is up and running.
Use a new CIFS server name	Ensure that the CIFS server is up and running.

Attention: If you want to preserve the CIFS server name of the 7-Mode system on the Vserver, the number of volumes in the 7-Mode system or vFiler unit to be transitioned must be less than or equal to 20 so that all the 7-Mode volumes can be transitioned in a single subproject or session.

- c) Log in as administrator to the cluster.
- d) Use the `system license add` command to add the CIFS license.

Example

```
cluster1::> system license add -license-code AAAAAAAAAAAAAA
```

- e) Verify that at least one data LIF exists on the Vserver.

If a data LIF does not exist, you can use the `network interface create` command to create the data LIF. For more information about creating data LIFs, see the *Clustered Data ONTAP Network Management Guide*.

- f) Use the `vserver services dns create` command to configure DNS on the Vserver.

Note: If you want to set up the CIFS server on the Vserver by preserving the identity, you must add the same DNS server as that of the 7-Mode system.

Example

```
cluster1::> vserver services dns create -vserver vs_finance -domains  
cifs.lab.example.com -name-servers 192.0.2.145 -state enabled
```

For more information about setting up a DNS domain, see the *Clustered Data ONTAP Network Management Guide*.

- g) Use the `vserver cifs create` command to create a CIFS server on the Vserver.

If you want to preserve the 7-Mode CIFS server name on the Vserver, you must use the original CIFS server name that is used on the 7-Mode system.

For more information about configuring CIFS server, see the *Clustered Data ONTAP File Access and Protocols Management Guide*.

Example

```
cluster1::> vserver cifs create -vserver vs_finance -name CIFSSERVER1 -domain
cifs.lab.example.com
```

17. Start the cutover operation.

- a) Enter **yes** to start the cutover operation.

Example

```
Step: Start the cutover operation
=====
Do you want to run the complete (cut-over) operation on this session? {yes, no} [yes]:
```

- b) Optional: If you have NFS Kerberos configuration on the 7-Mode system that you want to transition, enter the details of the Kerberos server.

Example

The following example shows a 7-Mode system that has a UNIX-based Kerberos server:

```
NFS Unix Kerberos configured on 7-Mode filer, do you want to transition {yes, no}
[yes]: yes
Enter the FQDN or IP Address of the Key Distribution Center(KDC) Server: 192.0.2.170
Enter the administrative user-name for the Key Distribution Center(KDC) Server
'192.0.2.170' [root]:
Enter the password for 'root@192.0.2.170':
```

The following example shows a 7-Mode system that has an Active Directory-based Kerberos server:

```
NFS Microsoft Kerberos configured on 7-Mode filer, do you want to transition {yes, no}
[yes]: yes
Enter the FQDN of the Active Directory Server: AUTH.SEC.EXAMPLE.COM
Enter the IP address of the Active Directory Server 'AUTH.SEC.EXAMPLE.COM'
[192.0.2.171]:
Enter the administrative user-name for the Active Directory Server
'AUTH.SEC.EXAMPLE.COM' [administrator]:
Enter the password for 'administrator@AUTH.SEC.EXAMPLE.COM':
```

- c) Select the mode in which to run the complete operation.

The default mode for completing the transition is `normal`.

Example

This complete operation can be run in either of the following two modes.

Test mode : If you select test mode, all the 7-Mode IP addresses and volumes added to the session are not modified in any way. All the client applications can continue to access data from the 7-Mode storage system after the complete operation. All the LIFs added to the session will be created on the Vserver in the 'down' state.

Normal mode : If you select normal mode, all the 7-Mode IP addresses added to the session will be unconfigured on the 7-Mode storage system and created on the Vserver in the 'up' state. All the 7-Mode volumes added to the session are made offline.

Select the mode in which you want to run this complete operation {normal, test}
[normal]:

d) Verify the results of the complete operation and rectify any warnings.

18. From the main menu, verify that the session state is complete by entering **4**.

Example

```
Step: Main menu
=====
Current session : session_finance
Select one of the following menu items:
1. Show all sessions
2. Create a new session
3. Select existing session
4. View session status
5. Exit
Enter your selection(1-5): 4

Step: View session status
=====
                Session name : session_finance
                Session status : Complete
                Session type : standalone
                Apply configuration : Yes
                7-Mode system FQDN : system1.example.com
                7-Mode version : NetApp Release 8.1 7-Mode: Tue Oct 16 10:16:50 IST
2012
                vFiler unit : vfiler0
                Multipath IP address : -
                Cluster-Mode system FQDN : cluster1.example.com
                Cluster-Mode system Version : NetApp Release 8.2.0 Cluster-Mode: Tue Oct 16
14:16:59 IST 2012
                Vserver information : vs_finance:aggr1:Created
                Volume-Pairs : finance:finance, Purchase:Purchase
                Vserver data LIFs : -
                SnapMirror schedule : daily

7-Mode volume      Cluster-Mode volume      Snapmirror state      Comments
-----
finance            finance            -/-                  -
Purchase           Purchase           -/-                  -
```

After you finish

Perform any post-transition tasks before enabling client access to the Vserver.

Related concepts

[How you transition a stand-alone volume](#) on page 28

[Preparing for transition](#) on page 12

[Severity levels for precheck messages](#) on page 38

[Guidelines for deciding when to perform cutover](#) on page 11

[Mode types you can use for completing the transition](#) on page 39

[Prerequisites for transitioning NFS and CIFS configurations](#) on page 40

[Error codes and corrective tasks for transition](#) on page 141

Related information

[Documentation on the NetApp Support Site: \[support.netapp.com\]\(http://support.netapp.com\)](#)

Transition setup worksheet for a stand-alone volume

Before you transition stand-alone volumes, you must gather the required information to complete the transition wizard for a stand-alone session.

You can use this worksheet to record the values that you require during the transition setup process. In the wizard, some fields might have a default value. You can either select the default value or enter your own value.

Session information

Information	Your value
Session name	

7-Mode information

Information	Your values
7-Mode storage system	
FQDN or IP address of the 7-Mode system	
User name	
Password	
vFiler unit, if any	
IP address for multipath	
7-Mode volumes	
List of volumes	
Network configuration information	

Information	Your values
IP addresses to be transitioned	
New IP addresses to be configured on the Vserver	
Netmask	
Default gateway	
Route	

Cluster information

Information	Your values
Target cluster	
FQDN or cluster-management IP	
User name	
Password	
Target Vserver	
Vserver name	
Aggregate name For a new Vserver, the aggregate on which you want to create the Vserver's root volume	
Target volumes	
List of aggregates to be used for clustered Data ONTAP volume creation	
Data copy schedule parameters	
Data copy schedule on the cluster that is used to update the clustered Data ONTAP volumes	

NFS configuration information

If you have Kerberos authentication configured on the 7-Mode system, you need to enter the Kerberos server details during cutover when the 7-Mode Transition Tool prompts you. The tool detects whether the Kerberos Key Distribution Center (KDC) type is Active Directory-based or UNIX-based.

Information	Your values
Active Directory-based Kerberos KDC	
FQDN of the Active Directory server	
IP address of the Active Directory server	
User name	
Password	
UNIX-based Kerberos KDC	
IP address of the KDC server	
User name	
Password	

CIFS configuration information

If you have CIFS configured on the 7-Mode system, you need to manually configure DNS and CIFS server on the Vserver before the cutover operation.

Information	Your values
DNS domain	
Name server IP addresses	
CIFS server name	
Active Directory domain	
Vserver name	

Transitioning a volume SnapMirror relationship by using the transition wizard

To transition a 7-Mode volume SnapMirror relationship, you must transition the secondary volume before the primary volume. When the secondary transition is completed, a SnapMirror relationship is established between the 7-Mode primary and the clustered Data ONTAP secondary volumes. When the primary volume transition is completed, a SnapMirror relationship is established between the clustered Data ONTAP primary and secondary volumes.

Steps

1. [Transition setup worksheet for a SnapMirror relationship](#) on page 82

2. [Transitioning secondary volumes by using the transition wizard](#) on page 86
3. [Transitioning primary volumes by using the transition wizard](#) on page 97

Related concepts

[Preparing for transition](#) on page 12

[How you transition volumes in a SnapMirror relationship](#) on page 31

Transition setup worksheet for a SnapMirror relationship

Before you transition a volume SnapMirror relationship, you must gather the required information for completing the wizard for the primary and secondary session types.

You can use this worksheet to record the values that you require during the transition setup process. You can either accept the default value or enter your own value for the information types.

Session information

Information	Your value
Session name for secondary	
Session name for primary	

Secondary session

You must gather the following information about the 7-Mode environment:

Information	Your values
7-Mode storage system	
FQDN or IP address of the 7-Mode secondary system	
User name	
Password	
vFiler unit, if any	
IP address for multipathing	
7-Mode volumes	
List of volumes	
Network information	
IP addresses to be transitioned	

Information	Your values
New IP addresses to be configured on the Vserver	
Netmask	
Default gateway	
SnapMirror primary 7-Mode storage system details	
FQDN or IP address of the 7-Mode primary system	
User name	
Password	
SnapMirror source data copy IP address	
Multipath IP address	

You must gather the following information about the cluster and Vserver:

Information	Your values
Target cluster	
FQDN or cluster-management IP	
User name	
Password	
Target Vserver	
Vserver name	
Aggregate name For a new Vserver, the aggregate on which you want to create the Vserver's root volume	
Target volumes	
List of aggregates to be used for clustered Data ONTAP volume creation	
Data copy schedule parameters	
Data copy schedule on the cluster that is used to update the clustered Data ONTAP secondary volumes	

Primary session

You must gather the following information about the 7-Mode environment:

Information	Your values
7-Mode storage system	
FQDN or IP address of the 7-Mode primary system	
User name	
Password	
vFiler unit, if any	
IP address for multipathing	
7-Mode volumes	
List of volumes	
Network information	
IP addresses to be transitioned	
New IP addresses to be configured on the Vserver	
SnapMirror secondary cluster details	
FQDN or IP address of the clustered Data ONTAP secondary system	
Vserver name	
User name	
Password	

You must gather the following information about the cluster and Vserver:

Information	Your values
Target cluster	
FQDN or cluster-management IP	
User name	
Password	
Target Vserver	

Information	Your values
Vserver name	
Aggregate name For a new Vserver, the aggregate on which you want to create the Vserver's root volume	
Target volumes	
List of aggregates to be used for creating the clustered Data ONTAP volume	
Data copy schedule parameters	
Data copy schedule on the cluster that is used to update the clustered Data ONTAP primary volumes	

NFS configuration information

If you have Kerberos authentication configured on the 7-Mode system, you have to enter the Kerberos server details during cutover when the 7-Mode Transition Tool prompts you. The tool detects whether the Kerberos Key Distribution Center (KDC) type is Active Directory based or UNIX-based.

Information	Your values
Active Directory based Kerberos KDC	
FQDN of the Active Directory server	
IP address of the Active Directory server	
User name	
Password	
UNIX-based Kerberos KDC	
IP address of the KDC server	
User name	
Password	

CIFS configuration information

If you have CIFS configured on the 7-Mode system, you have to manually configure DNS and CIFS server on the Vserver before the cutover operation.

Information	Your values
DNS domain	
Name server IP addresses	
CIFS server name	
Active Directory domain	
Vserver name	

Transitioning secondary volumes by using the transition wizard

Transitioning a secondary volume involves creating a session, verifying the configuration, copying data to the clustered Data ONTAP volumes, and setting up a SnapMirror relationship between the 7-Mode primary volume and the clustered Data ONTAP secondary volume.

Before you begin

- The 7-Mode system and cluster must be prepared for transition.
- You must have gathered the *required information* on page 82 before you start the Transition wizard.
- The 7-Mode system and the cluster must be always reachable from the 7-Mode Transition Tool during the transition process; otherwise transition fails.

The 7-Mode Transition Tool uses the management IP addresses to reach the 7-Mode system and the cluster. If the IP addresses are in the down state at any point, transition fails.

- Local users and groups must not exist.
If local users and groups exist, the session is stopped because transition of local users and groups is not supported.

Steps

1. From the **Start** menu, click **All Programs > NetApp 7-Mode Transition Tool > NetApp 7-Mode Transition Tool (cli) 1.0** to open the 7-Mode Transition Tool.

The transition main menu is displayed.

2. Create a new session by entering **2**.

Example

```
Step: Main menu
=====
Select one of the following menu items:
1. Show all sessions
2. Create a new session
3. Select existing session
4. Exit
Enter your selection(1-4): 2
```

- a) Enter **secondary** to select the session type as secondary.

Example

```
Select the type of the session {primary, secondary, standalone} [standalone]:secondary
```

- b) Select the 7-Mode storage system and enter the administrative user name and password.

Example

```
Step: Select the 7-Mode storage system
=====
You can type 'back', 'exit', 'help' or '?' at any time.

Enter the FQDN or IP address of the secondary 7-Mode system: host4.example.com
Enter the administrative user-name for the secondary 7-Mode system 'host4.example.com'
[root]:
Enter the password for 'root@host4.example.com':
INFO: Login to 'host4.example.com' as 'root' is successful.
```

- c) Optional: If you have enabled the MultiStore license, select the vFiler unit for transition.

Example

```
....
Found 5 vFiler units on the 7-Mode system 'host4.example.com':
vFiler Name                vFiler Status
-----
vfiler0                     running
testVF1                     running
testVF2                     running
testVF3                     running
testVF4                     running
The vFiler unit contains volumes and protocol configurations.
You can select volumes for transition to Cluster-Mode.

Select the vFiler unit for transition [vfiler0]:
```

- d) Optional: Select the multipath IP address for transition.

Example

```
Enter another IP address for setting up multipath to the 7-Mode system(Press 'Enter'
to skip):
```

- e) Press Enter to confirm there are no local users or groups.

If you enter **yes**, the session is stopped because transition of local users and groups is not supported.

Example

```
Transition of local users and groups is not supported. Do you have local users and
groups
accessing CIFS shares or files on the transitioning volumes in the 7-Mode storage
system 'system1.example.com'? {yes, no} [no]:

INFO: This session is saved under the temporary name: 'Session_20130510_122022'.
You can select a new name for this session later.
```

The session is created and saved with a temporary name. You can change the session name later.

- f) Select the 7-Mode volumes for transition.

Example

```
Step: Select 7-Mode volumes
=====
You can type 'back', 'exit', 'help' or '?' at any time.

Retrieving volume information from 7-Mode system 'host4.example.com'.
This might take a few seconds.

Found 5 volumes that are candidates for transition on the 7-Mode system 'host4':
VolumeName      Size      Used(%)      Snapmirror
-----
vol0             851.48MB    33%          -
Purchase_bk      20.00MB    1%           secondary
testVol1         20.00MB    1%           primary
Sales_bk         20.00MB    1%           secondary,primary
testVol          20.00MB    1%           primary

Enter the comma separated list of volumes for transition: Purchase_bk

You selected 1 volume(s):
VolumeName      Size      Used(%)      Snapmirror
-----
Purchase_bk      20.00MB    1%           secondary

Confirm your selection {yes, no} [yes]:
```

- g) Run a precheck operation on the 7-Mode system.

The precheck report lists the errors, warnings, notifications, and informational messages.

Example

```
Step: Run precheck
=====
Provide a name for this session [Session_20121213_143318]: session_purchase
Do you want to run precheck on the session {yes, no} [yes]:

Verify feasibility of transition - Check if all the features and functionality
included in
this session is supported in Cluster-Mode.

Starting 7-Mode Precheck for this session 'session_purchase'. This might take several
minutes.

[1/11 ] Session status checks                               [      Ok      ]
[2/11 ] Validating 7-Mode system information                 [      Ok      ]
[3/11 ] Validating 7-Mode volumes information                [      Ok      ]
[4/11 ] WAFL prechecks                                       [      Ok      ]
[5/11 ] UNIX users and groups prechecks                      [      Ok      ]
[6/11 ] SnapMirror prechecks                                  [ Notifications ]
[7/11 ] NFS prechecks                                         [ Warnings      ]
[8/11 ] Networking prechecks                                  [ Notifications ]
[9/11 ] CIFS prechecks                                        [      Ok      ]
[10/11] Name services prechecks                               [ Warnings      ]
[11/11] SAN prechecks                                         [      Ok      ]

Operation summary:
-----
The 'precheck' operation is completed with warnings and notifications.
```

```

0  Errors - No action required
10 Warnings - Need your attention!
13 Notifications - Please review
68 Informational messages

Do you want to see a detailed report {yes, no} [yes]:

```

- h) Verify the precheck report and resolve all the errors to continue with the transition process.
Transition cannot continue if even one error is present.
- i) Select the secondary target cluster and enter the information as prompted by the wizard.

Example

```

Step: Select target cluster
=====
You can type 'back', 'exit', 'help' or '?' at any time.

Enter the FQDN or management IP address of the secondary cluster: cluster3.example.com
Enter the administrative user-name for the secondary cluster 'cluster3.example.com'
[admin]:
Enter the password for 'admin@cluster3.example.com':
INFO: Login to 'cluster3.example.com' as 'admin' is successful.
INFO: The name of the target cluster is 'cluster3'.
INFO: Using '192.0.2.115' as the cluster-management LIF.

```

- j) Select the target Vserver or provide information about the new Vserver that is to be created during the transition start operation.

Example

```

Step: Select target Vserver
=====
You can type 'back', 'exit', 'help' or '?' at any time.

In this step, you can select a Vserver from the list of existing Vservers in the
cluster or provide information about a
new Vserver, which will be created by the 'transition start' operation.

Retrieving Vserver information from the cluster 'cluster3'.
This might take a few seconds.

Vserver          Root volume      State
-----          -
vssec            rootVolume       running

Select an existing 'data' Vserver or enter a new Vserver name that must be created
during 'transition start' operation: vssec

INFO: You selected an existing Vserver 'vssec'.

INFO: Successfully added the cluster and Vserver information to the session.

```

- k) Configure the target volumes by selecting the aggregates where the new clustered Data ONTAP volumes should be created.

Note: You must ensure that there is enough space in the aggregates to place the volumes.

Example

```

Step: Configure target volumes
=====

```

```

You can type 'back', 'exit', 'help' or '?' at any time.

Retrieving aggregate information from the Cluster 'cluster3'.
This might take a few seconds.

Found 4 online aggregate(s) on this cluster:
Aggregate name      Size      Used(%)      Node
-----
aggr3               224.12MB    0%           cluster3-01
aggr4               168.08MB    0%           cluster3-01
aggr1               56.04MB    73%          cluster3-01
aggr2               56.04MB    73%          cluster3-01

Enter the comma separated list of aggregates to be used for Cluster-Mode volume
creation [aggr3]:
INFO: Aggregates 'aggr3' will be used for volume placement.

7-Mode volume Cluster-Mode volume Size      Aggregate In-Session? Status
-----
Purchase_bk    Purchase_bk    20.00MB aggr3      no           To be created

Select one of the following menu items:
1. Accept the settings and commit the information to the session.
2. Include,exclude,or modify volumes.
3. Select aggregates.
4. Skip and continue.
Enter your selection(1-4): 1

INFO: Successfully modified volume-pair <Purchase_bk, Purchase_bk> in the session.

```

- l) From the menu that appears, accept the settings and save the session information by entering **1**.

Example

```

Select one of the following menu items:
1. Accept the settings and commit the information to the session.
2. Include,exclude,or modify volumes.
3. Select aggregates.
4. Skip and continue.
Enter your selection(1-4): 1

INFO: Successfully modified volume-pair <Purchase_bk, Purchase_bk> in the session.

```

- m) Configure the network information by specifying the IP addresses that you want to transition to the target Vserver.

```

Step: Configure network information
=====
You can type 'back', 'exit', 'help' or '?' at any time.

Do you want to transition 7-Mode IP addresses {yes, no} [yes]:

NOTICE : All transitioning IP addresses will be configured on the target Vserver after
they have been removed from the
7-Mode storage system as part of the transition complete operation.

IP addresses on the 7-Mode storage system 'host4':
IP address      Netmask      Default Gateway      Port
-----
192.0.2.75      255.255.255.192    192.40.0.1           e0c

Enter the comma separated list of IPv4 addresses from the previous list(Press 'Enter'
to skip):

Specify the comma separated list of new IPv4 addresses that do not exist on the 7-Mode
storage system(Press 'Enter' to skip):
192.0.2.67

```

```

Selected IP addresses:
1) 192.0.2.67

Confirm your selection {yes, no} [yes]:

Collecting LIF configurations of '192.0.2.67'
Enter the network mask: 255.255.255.192
Enter default gateway for the IP address '192.0.2.67': 192.40.0.1

Review the IP address configuration for transition based on the network connectivity
between the 7-Mode and Cluster-Mode systems.

IP address Netmask      Default Gateway Home Node   Home Port @7Mode/@Session/Status
-----
192.0.2.67 255.255.255.192 192.40.0.1 cluster3-01 e0c      No/No/To be created
    
```

- n) Add the details of the 7-Mode primary system.

Example

```

Step: Add details of the 7-Mode primary system
=====
You can type 'back', 'exit', 'help' or '?' at any time.

List of SnapMirror relationships between 7-Mode primary and secondary, which can be
added to the session are:

Source Host   Source Volumes   Destination Host   Destination Volumes
-----
192.0.2.123   Purchase         host4.example.com   Purchase_bk

Do you want to add details for the 7-Mode primary system '192.0.2.123' {yes, no} [yes]:
Enter the FQDN or IP address of the 7-Mode primary system (or the default vFiler unit
if Multistore is licensed) [192.0.2.123]: host5.example.com
Enter the administrative user-name for the 7-Mode system 'host5.example.com' [root]:
Enter the password for 'root@host5.example.com':
INFO: Login to 'host5.example.com' as 'root' is successful.
Enter the SnapMirror source data copy IPv4 address [192.0.2.123]:
    
```

- o) Set the data copy schedule to be used for SnapMirror updates.

Example

```

Step: Get the data copy schedule parameters
=====
You can type 'back', 'exit', 'help' or '?' at any time.

Fetching cron schedule information from the cluster 'cluster3'.
Found '7' cron schedules:
Cron schedule name      Description
-----
weekly                  Sun@0:15
8hour                  @2:15,10:15,18:15
nightly                  @0:00
4hour                  @8:00,12:00,16:00,20:00
5min                   @:
00,:05,:10,:15,:20,:25,:30,:35,:40,:45,:50,:55
daily                  @0:10
avUpdateSchedule       @2:00

Enter a cron schedule that exists in the cluster and which should be used for
SnapMirror updates [daily]:
INFO: Specified cron schedule added to the session.
    
```

- p) View the results of the precheck on the 7-Mode system and cluster and resolve errors, if any.

The transition session is in the preparation state.

3. Start data copy by entering 7.

Example

```
Step: Start data copy
=====
Do you want to run the start (data copy) operation on this session? {yes, no} [yes]:

Running the start (data copy) operation on the session 'session_purchase'.

[1/17 ] Session status checks                [      Ok      ]
[2/17 ] Validating 7-Mode system information [      Ok      ]
[3/17 ] Validating 7-Mode volumes information [      Ok      ]
[4/17 ] Validating Cluster-Mode system information [      Ok      ]
[5/17 ] Validating Cluster-Mode volume information [      Ok      ]
[6/17 ] Validating LIF information            [      Ok      ]
[7/17 ] WAFL prechecks                       [      Ok      ]
[8/17 ] UNIX users and groups prechecks       [      Ok      ]
[9/17 ] SnapMirror prechecks                  [      Warnings ]
[10/17] NFS prechecks                        [      Warnings ]
[11/17] Networking prechecks                  [ Notifications ]
[12/17] CIFS prechecks                       [      Ok      ]
[13/17] Name services prechecks               [      Warnings ]
[14/17] SAN prechecks                        [      Ok      ]
[15/17] Creating Cluster-Mode volumes         [      Ok      ]
[16/17] Establishing SnapMirror relationships between the 7-Mode and Cluster-Mode volumes [      Ok      ]
[17/17] Initializing SnapMirror relationships between the 7-Mode and Cluster-Mode volumes [      Ok      ]

Operation summary:
-----
The 'start' operation is completed with warnings and notifications.

 0 Errors - No action required
11 Warnings - Need your attention!
13 Notifications - Please review
81 Informational messages
```

The tool performs another precheck during data copy. The session is in the copy-baseline state.

4. Optional: View the session status and prepare for cutover.

After the baseline transfer is completed, the session state changes to copy update. SnapMirror updates are performed based on the schedule selected. This is the state where you prepare for a cutover.

Example

```

                Session name : Session_20121213_163606
                Session status : Copy-update
                Session type : secondary
                Apply configuration : Yes
                7-Mode system FQDN : host4.example.com
                7-Mode version : NetApp Release 8.1 7-Mode: Sun Nov 18 11:15:50 IST
2012
                vFiler unit : vfiler0
                Multipath IP address : -
                Cluster-Mode system FQDN : 192.0.2.115
                Cluster-Mode system Version : NetApp Release 8.2.0 Cluster-Mode: Wed Dec 05
01:45:54 IST 2012
                Vserver information : vssec:Pre-existing
```

```

Volume-Pairs : Purchase_bk:Purchase_bk
Vserver data LIFs : 192.0.2.67
SnapMirror schedule : daily
Primary 7-Mode details : 192.0.2.123:host5.example.com:192.0.2.123:-

7-Mode volume Cluster-Mode volume Snapmirror state  Comments
-----
Purchase_bk    Purchase_bk          snapmirrored/idle  * Last transfer size: 400.00KB
                                                         * Last transfer duration: 9 seconds
                                                         * Lag time: 24 days 21 hours 0
minutes 16 seconds
    
```

5. Monitor the data copy status and disconnect the client access when you are ready to perform cutover.
6. Optional: If you have NFS and Kerberos configured on the 7-Mode system, perform the following steps on the Vserver before cutover:
 - a) Log in as administrator to the cluster.
 - b) Use the `system license add` command to add the NFS license.

Example

```
cluster1::> system license add -license-code BBBB BBBB BBBB
```

- c) Use the `vserver services kerberos-realm show` command to verify whether the clock skew between the Kerberos KDC and the Vserver is less than or equal to 5 minutes.

Example

```

cluster1::> vserver services kerberos-realm show -fields clock-skew
configname      clock-skew
-----
krb_realm_0     5
    
```

- d) If the clock skew is greater than 5 minutes, use the `vserver services kerberos-realm modify` command to modify the Kerberos realm configuration.

For more information, see the *Clustered Data ONTAP File Access and Protocols Management Guide*.

- e) If you want to transition an Active Directory-based Kerberos server, use the `vserver services dns create` command to configure a DNS entry for the AD domain on the Vserver.

Example

```
cluster1::> vserver services dns create -vserver vs_finance -domains
nfs.lab.example.com -name-servers 192.0.2.143 -state enabled
```

For more information about setting up a DNS domain, see the *Clustered Data ONTAP Network Management Guide*.

- f) Use the `vserver services dns show` command to verify that a DNS entry exists for the AD domain on the Vserver.

Example

```
cluster1:> vserver services dns show -vserver vs_finance

Vserver: vs_finance
Domains: nfs.lab.example.com
Name Servers: 192.0.2.143
Enable/Disable DNS: enabled
Timeout (secs): 2
Maximum Attempts: 1
```

7. Optional: If you have CIFS configured on the 7-Mode system, perform the following manual tasks before cutover:
- Log in to the 7-Mode system.
 - Depending on whether you want to preserve the CIFS server name or use a new name, perform one of the following actions on the 7-Mode system:

If you want to...	Then...
Preserve the CIFS server name	- Disconnect all CIFS access to the 7-Mode system. - Use the <code>cifs terminate</code> command to terminate the CIFS service. - Use the <code>cifs setup</code> command to create the CIFS server with a different name. The new CIFS server must be created on the 7-Mode system for transitioning CIFS configurations; otherwise, transition of CIFS share-level ACLs fails. The CIFS server name must be unique in the domain. - Ensure that the CIFS server is up and running.
Use a new CIFS server name	Ensure that the CIFS server is up and running.

Attention: If you want to preserve the CIFS server name of the 7-Mode system on the Vserver, the number of volumes in the 7-Mode system or vFiler unit to be transitioned must be less than or equal to 20 so that all the 7-Mode volumes can be transitioned in a single subproject or session.

- Log in as administrator to the cluster.
- Use the `system license add` command to add the CIFS license.

Example

```
cluster1:> system license add -license-code AAAAAAAAAAAAAA
```

- Verify that at least one data LIF exists on the Vserver.

If a data LIF does not exist, use the `network interface create` command to create the data LIF. For more information about creating data LIFs, see the *Clustered Data ONTAP Network Management Guide*.

- f) Use the `vserver services dns create` command to configure DNS on the Vserver.

Note: If you want to set up the CIFS server on the Vserver by preserving the identity, you must add the same DNS server as that of the 7-Mode system.

Example

```
cluster1:> vserver services dns create -vserver vs_finance -domains
cifs.lab.example.com -name-servers 192.0.2.145 -state enabled
```

For more information about setting up a DNS domain, see the *Clustered Data ONTAP Network Management Guide*.

- g) Use the `vserver cifs create` command to create a CIFS server on the Vserver.

If you want to preserve the 7-Mode CIFS server name on the Vserver, you must use the original CIFS server name that is used on the 7-Mode system.

For more information about configuring CIFS server, see the *Clustered Data ONTAP File Access and Protocols Management Guide*.

Example

```
cluster1:> vserver cifs create -vserver vs_finance -name CIFSSEVER1 -domain
cifs.lab.example.com
```

8. From the 7-Mode Transition Tool, confirm that the data copy is completed and start the cutover operation.
- a) Enter **yes** to start the cutover operation.

Example

```
Step: Start the cutover operation
=====
Do you want to run the complete (cut-over) operation on this session? {yes, no} [yes]:
```

- b) Optional: If you have NFS Kerberos configuration on the 7-Mode system that you want to transition, enter the details of the Kerberos server.

Example

The following example shows a 7-Mode system that has a UNIX-based Kerberos server:

```
NFS Unix Kerberos configured on 7-Mode filer, do you want to transition {yes, no}
[yes]: yes
Enter the FQDN or IP Address of the Key Distribution Center(KDC) Server: 192.0.2.170
Enter the administrative user-name for the Key Distribution Center(KDC) Server
'192.0.2.170' [root]:
Enter the password for 'root@192.0.2.170':
```

The following example shows a 7-Mode system that has an Active Directory-based Kerberos server:

```
NFS Microsoft Kerberos configured on 7-Mode filer, do you want to transition {yes, no}
[yes]: yes
Enter the FQDN of the Active Directory Server: AUTH.SEC.EXAMPLE.COM
Enter the IP address of the Active Directory Server 'AUTH.SEC.EXAMPLE.COM'
[192.0.2.171]:
Enter the administrative user-name for the Active Directory Server
'AUTH.SEC.EXAMPLE.COM' [administrator]:
Enter the password for 'administrator@AUTH.SEC.EXAMPLE.COM':
```

- c) Select the mode in which to run the complete operation.

The default mode for completing the transition is normal.

Example

This complete operation can be run in either of the following two modes.

Test mode : If you select test mode, all the 7-Mode IP addresses and volumes added to the session are not modified in any way. All the client applications can continue to access data from the 7-Mode storage system after the complete operation. All the LIFs added to the session will be created on the Vserver in the 'down' state.

Normal mode : If you select normal mode, all the 7-Mode IP addresses added to the session will be unconfigured on the 7-Mode storage system and created on the Vserver in the 'up' state. All the 7-Mode volumes added to the session are made offline.

Select the mode in which you want to run this complete operation {normal, test}
[normal]:

- d) Verify the results of the complete operation and rectify any errors or warnings.

9. Verify that the session state is complete by entering 4.

```
Step: Main menu
=====
Current session : session_finance
Select one of the following menu items:
1. Show all sessions
2. Create a new session
3. Select existing session
4. View session status
5. Exit
Enter your selection(1-5): 4
```

Example

The following example shows that the session state is Complete.

```
Step: View session status
=====
                Session name : Session_20121213_163606
                Session status : Complete
                Session type  : secondary
                Apply configuration : Yes
                7-Mode system FQDN : host4.example.com
                7-Mode version  : NetApp Release 8.1 7-Mode: Sun Nov 18 11:15:50 IST
2012
                vFiler unit  : vfiler0
```

```

Multipath IP address : -
Cluster-Mode system FQDN : 192.0.2.115
Cluster-Mode system Version : NetApp Release 8.2.0 Cluster-Mode: Wed Dec 05
01:45:54 IST 2012
Vserver information : vssec:Pre-existing
Volume-Pairs : Purchase_bk:Purchase_bk
Vserver data LIFs : 192.0.2.67
SnapMirror schedule : daily
Primary 7-Mode details : 192.0.2.123:host5.example.com:192.0.2.123:-

7-Mode volume      Cluster-Mode volume      Snapmirror state      Comments
-----
Purchase_bk        Purchase_bk              -/-                   -

```

After you finish

Perform any post-transition tasks before enabling client access to the Vserver.

Related concepts

[Preparing for transition](#) on page 12

[Severity levels for precheck messages](#) on page 38

[Guidelines for deciding when to perform cutover](#) on page 11

[Mode types you can use for completing the transition](#) on page 39

[Prerequisites for transitioning NFS and CIFS configurations](#) on page 40

[Error codes and corrective tasks for transition](#) on page 141

Related information

[Documentation on the NetApp Support Site: support.netapp.com](#)

Transitioning primary volumes by using the transition wizard

Transitioning a primary volume involves creating a session, verifying the configuration, copying data to the primary clustered Data ONTAP volumes, and setting up a SnapMirror relationship between the primary and secondary clustered Data ONTAP volumes.

Before you begin

- The 7-Mode system and cluster must be prepared for transition.
- You must have gathered the [required information](#) on page 82 before you start the transition wizard.
- The 7-Mode system and the cluster must be always reachable from the 7-Mode Transition Tool during the transition process; otherwise transition fails.

The 7-Mode Transition Tool uses the management IP addresses to reach the 7-Mode system and the cluster. If these IP addresses are in the down state at any point, transition fails.

- Local users and groups must not exist.

If local users and groups exist, the session is stopped because transition of local users and groups is not supported.

Steps

1. From the **Start** menu, click **All Programs > NetApp 7-Mode Transition Tool > NetApp 7-Mode Transition Tool (cli) 1.0** to open the 7-Mode Transition Tool.

The transition main menu is displayed.

2. Create a new session by entering **2**.

Example

```
Step: Main menu
=====
Select one of the following menu items:
1. Show all sessions
2. Create a new session
3. Select existing session
4. Exit
Enter your selection(1-4): 2
```

- a) Enter **primary** to select the type of session as primary.

```
Select the type of the session {primary, secondary, standalone} [standalone]:primary
```

- b) Select the 7-Mode storage system and enter the administrative user name and password.

Example

```
Step: Select the 7-Mode storage system
=====
You can type 'back', 'exit', 'help' or '?' at any time.

Enter the FQDN or IP address of the primary 7-Mode system: host1.example.com
Enter the administrative user-name for the primary 7-Mode system 'host1.example.com'
[root]:
Enter the password for 'root@host1.example.com':
INFO: Login to 'host1.example.com' as 'root' is successful.
```

- c) Optional: If you have enabled the MultiStore license, select the vFiler unit for transition.

Example

```
....
Found 5 vFiler units on the 7-Mode system 'host1.example.com':
vFiler Name          vFiler Status
-----
vfiler0              running
testVF1              running
testVF2              running
testVF3              running
testVF4              running
The vFiler unit contains volumes and protocol configurations.
You can select volumes for transition to Cluster-Mode.

Select the vFiler unit for transition [vfiler0]:
```

- d) Optional: Select the multipath IP address for transition.

Example

```
Enter another IP address for setting up multipath to the 7-Mode system(Press 'Enter'
to skip):
```

- e) Press Enter to confirm there are no local users or groups.

If you enter **yes**, the session is stopped because transition of local users and groups is not supported.

Example

```
Transition of local users and groups is not supported. Do you have local users and
groups
accessing CIFS shares or files on the transitioning volumes in the 7-Mode storage
system 'system1.example.com'? {yes, no} [no]:
```

```
INFO: This session is saved under the temporary name: 'Session_20130510_122022'.
You can select a new name for this session later.
```

The session is created and saved with a temporary name. You can change the session name later.

- f) Select the 7-Mode volumes for transition.

Example

```
Step: Select 7-Mode volumes
=====
You can type 'back', 'exit', 'help' or '?' at any time.

Retrieving volume information from 7-Mode system 'vfiler0@host1.example.com'.
This might take a few seconds.
```

```
Found 7 volumes that are candidates for transition on the 7-Mode system
'vfiler0@host4.example.com':
```

VolumeName	Size	Used(%)	Snapmirror
Sales	20.00MB	1%	fan-out(4)
dataVol5	20.00MB	1%	-
vol0	851.48MB	54%	-
rootVol5	20.00MB	1%	-
testVol1	20.00MB	1%	-
Purchase	20.00MB	1%	fan-out(3)
testVol	20.00MB	1%	-

```
Enter the comma separated list of volumes for transition: Purchase
```

```
You selected 1 volume(s):
```

VolumeName	Size	Used(%)	Snapmirror
Purchase	20.00MB	1%	fan-out(3)

- g) Run a precheck operation on the 7-Mode system and optionally provide a name for the session.

The precheck report lists the errors, warnings, notifications, and informational messages.

- h) Verify the precheck report and resolve all the errors to continue with the transition process.

Transition cannot continue if even one error is present.

- i) Select the target cluster and enter the information as prompted by the wizard.

Example

```

Step: Select target cluster
=====
You can type 'back', 'exit', 'help' or '?' at any time.

Enter the FQDN or management IP address of the primary cluster: cluster1.example.com
Enter the administrative user-name for the primary cluster 'cluster1.example.com'
[admin]:
Enter the password for 'admin@cluster1.example.com':
INFO: Login to 'cluster1.example.com' as 'admin' is successful.
INFO: The name of the target cluster is 'cluster1'.
INFO: Using '192.0.2.126' as the cluster-management LIF.

```

- j) Select the target Vserver or provide information about the new Vserver that is to be created during the transition start operation.

Example

```

Step: Select target Vserver
=====
You can type 'back', 'exit', 'help' or '?' at any time.

In this step, you can select a Vserver from the list of existing Vservers in the
cluster or provide information about a
new Vserver, which will be created by the 'transition start' operation.

Retrieving Vserver information from the cluster 'cluster1'.
This might take a few seconds.

Vserver                Root volume            State
-----                -
vs39                   rootVolume             running

Select an existing 'data' Vserver or enter a new Vserver name that must be created
during 'transition start' operation: vs39
INFO: You selected an existing Vserver 'vs39'.

INFO: Successfully added the cluster and Vserver information to the session.

```

- k) Configure the target volumes by selecting the aggregates where the new clustered Data ONTAP volumes should be created.

Example

```

Step: Configure target volumes
=====
You can type 'back', 'exit', 'help' or '?' at any time.

Retrieving aggregate information from the Cluster 'cluster1'.
This might take a few seconds.

Found 2 online aggregate(s) on this cluster:
Aggregate name      Size      Used(%)      Node
-----
aggr2               1.47GB      0%           cluster1-01
aggr1               1.47GB      1%           cluster1-01

Enter the comma separated list of aggregates to be used for Cluster-Mode volume
creation [aggr2]:
INFO: Aggregates 'aggr2' will be used for volume placement.

7-Mode volume Cluster-Mode volume Size      Aggregate In-Session? Status

```

```
-----
Purchase      Purchase      20.00MB aggr2      no      To be created
-----
```

- l) From the menu that appears, accept the settings and save the session information by entering **1**.

Example

```
Select one of the following menu items:
1. Accept the settings and commit the information to the session.
2. Include, exclude, or modify volumes.
3. Select aggregates.
4. Skip and continue.
Enter your selection(1-4): 1

INFO: Successfully modified volume-pair <Purchase, Purchase> in the session.
```

- m) Configure the network information by specifying the IP addresses that you want to transition to the target Vserver.

```
Step: Configure network information
=====
You can type 'back', 'exit', 'help' or '?' at any time.

Do you want to transition 7-Mode IP addresses {yes, no} [yes]:

NOTICE : All transitioning IP addresses will be configured on the target Vserver after
they have been removed from the
7-Mode storage system as part of the transition complete operation.

IP addresses on the 7-Mode storage system 'vfiler0@user1-vsrm2':
IP address      Netmask      Default Gateway      Port
-----
192.0.2.65      255.255.255.192      192.40.0.1          e0c

Enter the comma separated list of IPv4 addresses from the previous list(Press 'Enter'
to skip):

Specify the comma separated list of new IPv4 addresses that do not exist on the 7-Mode
storage system(Press 'Enter' to skip):
192.0.2.66

Selected IP addresses:
1) 192.0.2.66

Confirm your selection {yes, no} [yes]:

Collecting LIF configurations of '192.0.2.66'
Enter the network mask: 255.255.255.192
Enter default gateway for the IP address '192.0.2.66': 192.40.0.1

Review the IP address configuration for transition based on the network connectivity
between the 7-Mode and Cluster-Mode systems.

IP address Netmask      Default Gateway      Home Node      Home Port      @7Mode/@Session/Status
-----
192.0.2.66 255.255.255.192 192.40.0.1 cluster1-01 e0c          No/No/To be created
```

- n) Specify the SnapMirror secondary cluster details.

Example

```
Step: Add details of the Cluster-Mode secondary system
=====
You can type 'back', 'exit', 'help' or '?' at any time.
```

List of SnapMirror relations between 7-Mode primary and C-Mode secondary(possibly), which are not yet added to the session:

7-Mode primary	Primary volumes	Destination Vserver	Destination volumes
-----	-----	-----	-----
user1-vs1m2	Purchase	vssec	Purchase_bk
user1-vs1m2	Purchase	vs783	Purchase_bk
user1-vs1m2	Purchase	user1-vs1m4	Purchase_bk

INFO: Entries in the 'Destination Vserver' column may not represent the Vserver. If it is not a Vserver no need to add it to the session.

Do you want to add details for the Vserver 'vssec' (Enter 'no' if it is not a Vserver) [yes, no] [yes]:
 Enter the FQDN or management IP address of the secondary cluster: cluster2.example.com
 Enter the administrative user-name for the secondary cluster 'cluster2.example.com' [admin]:
 Enter the password for 'admin@cluster2.example.com':
 INFO: Login to 'cluster2.example.com' as 'admin' is successful.
 INFO: The name of the target cluster is 'cluster2'.
 INFO: Using '192.0.2.66' as the cluster-management LIF.
 INFO: Information about the secondary cluster has been added to the session.

- o) Provide the data copy schedule to be used for SnapMirror updates.

Example

Step: Get the data copy schedule parameters

=====

You can type 'back', 'exit', 'help' or '?' at any time.

Fetching cron schedule information from the cluster 'cluster1'.

Found '5' cron schedules:

Cron schedule name	Description
-----	-----
weekly	Sun@0:15
CronJob_vs3_voltest_1	@8:00,12:00,16:00,20:00
CronJob_vs3_voltest_0	@0:00
CronJob_vs2_fin_data_7	@8:00,12:00,16:00,20:00
daily	@0:10
hourly	@:05

Enter a cron schedule that exists in the cluster and which should be used for SnapMirror updates [daily]:

- p) View the results of the precheck on the 7-Mode system and cluster and resolve errors, if any.
- The transition session is in the preparation state.

3. Start data copy by entering 7.

Example

Step: Start data copy

=====

Do you want to run the start (data copy) operation on this session? {yes, no} [yes]:

Running the start (data copy) operation on the session 'session_purchase2'.

[1/17]	Session status checks	[	Ok	]
[2/17]	Validating 7-Mode system information	[	Ok	]
[3/17]	Validating 7-Mode volumes information	[	Ok	]
[4/17]	Validating Cluster-Mode system information	[	Ok	]
[5/17]	Validating Cluster-Mode volume information	[	Ok	]

```

[6/17 ] Validating LIF information
[7/17 ] WAFL prechecks
[8/17 ] UNIX users and groups prechecks
[9/17 ] SnapMirror prechecks
[10/17] NFS prechecks
[11/17] Networking prechecks
[12/17] CIFS prechecks
[13/17] Name services prechecks
[14/17] SAN prechecks
[15/17] Creating Cluster-Mode volumes
[16/17] Establishing SnapMirror relationships between the 7-Mode and Cluster-Mode volumes

[      Ok      ]
[17/17] Initializing SnapMirror relationships between the 7-Mode and Cluster-Mode volumes

[      Ok      ]

Operation summary:
-----
The 'start' operation is completed with warnings and notifications.

 0 Errors - No action required
16 Warnings - Need your attention!
14 Notifications - Please review
78 Informational messages

```

The tool performs another precheck during data copy. The session is in the copy-baseline state.

4. Optional: View the session status.

After the baseline transfer is completed, the session state changes to copy update. SnapMirror updates are performed based on the schedule selected. This is state where you prepare for cutover.

Example

```

                Session name : session_purchase2
                Session status : Copy-update
                Session type  : primary
                Apply configuration : Yes
                7-Mode system FQDN : host1.example.com
                7-Mode version  : NetApp Release 8.1 7-Mode: Fri Nov 16 11:17:42 IST
2012
                vFiler unit   : vfiler0
                Multipath IP address : -
                Cluster-Mode system FQDN : 192.0.2.126
                Cluster-Mode system Version : NetApp Release 8.2.0 Cluster-Mode: Wed Dec 12
01:47:08 IST 2012
                Vserver information : vs39:Pre-existing
                Volume-Pairs       : Purchase:Purchase
                Vserver data LIFS   : -
                SnapMirror schedule : -
                Secondary cluster details : -

7-Mode volume Cluster-Mode volume Snapmirror state Comments
-----
Purchase      Purchase      snapmirrored/idle * Last transfer size: 932.00KB
                                     * Last transfer duration: 12 seconds
                                     * Lag time: 8 minutes 31 seconds

```

5. Monitor the data copy status and disconnect the client access when you are ready to perform cutover.
6. Optional: If you have NFS and Kerberos configured on the 7-Mode system, perform the following steps on the Vserver before cutover:

- a) Log in as administrator to the cluster.
- b) Use the `system license add` command to add the NFS license.

Example

```
cluster1::> system license add -license-code BBBBBBBBBBBBBB
```

- c) Use the `vserver services kerberos-realm show` command to verify whether the clock skew between the Kerberos KDC and the Vserver is less than or equal to 5 minutes.

Example

```
cluster1::> vserver services kerberos-realm show -fields clock-skew
configname      clock-skew
-----
krb_realm_0      5
```

- d) If the clock skew is greater than 5 minutes, use the `vserver services kerberos-realm modify` command to modify the Kerberos realm configuration.

For more information, see the *Clustered Data ONTAP File Access and Protocols Management Guide*.

- e) If you want to transition an Active Directory-based Kerberos server, use the `vserver services dns create` command to configure a DNS entry for the AD domain on the Vserver.

Example

```
cluster1::> vserver services dns create -vserver vs_finance -domains
nfs.lab.example.com -name-servers 192.0.2.143 -state enabled
```

For more information about setting up a DNS domain, see the *Clustered Data ONTAP Network Management Guide*.

- f) Use the `vserver services dns show` command to verify that a DNS entry exists for the AD domain on the Vserver.

Example

```
cluster1::> vserver services dns show -vserver vs_finance

Vserver: vs_finance
Domains: nfs.lab.example.com
Name Servers: 192.0.2.143
Enable/Disable DNS: enabled
Timeout (secs): 2
Maximum Attempts: 1
```

7. Optional: If you have CIFS configured on the 7-Mode system, perform the following manual tasks before cutover:

- a) Log in to the 7-Mode system.

- b) Depending on whether you want to preserve the CIFS server name or use a new name, perform one of the following actions on the 7-Mode system:

If you want to...	Then...
Preserve the CIFS server name	a. Disconnect all CIFS access to the 7-Mode system. b. Use the <code>cifs terminate</code> command to terminate the CIFS service. c. Use the <code>cifs setup</code> command to create the CIFS server with a different name. The new CIFS server must be created on the 7-Mode system for transitioning CIFS configurations; otherwise, transition of CIFS share-level ACLs fails. The CIFS server name must be unique in the domain. d. Ensure that the CIFS server is up and running.
Use a new CIFS server name	Ensure that the CIFS server is up and running.

Attention: If you want to preserve the CIFS server name of the 7-Mode system on the Vserver, the number of volumes in the 7-Mode system or vFiler unit to be transitioned must be less than or equal to 20 so that all the 7-Mode volumes can be transitioned in a single subproject or session.

- c) Log in as administrator to the cluster.
d) Use the `system license add` command to add the CIFS license.

Example

```
cluster1::> system license add -license-code AAAAAAAAAAAAAA
```

- e) Verify that at least one data LIF exists on the Vserver.

If a data LIF does not exist, use the `network interface create` command to create the data LIF. For more information about creating data LIFs, see the *Clustered Data ONTAP Network Management Guide*.

- f) Use the `vserver services dns create` command to configure DNS on the Vserver.

Note: If you want to set up the CIFS server on the Vserver by preserving the identity, you must add the same DNS server as that of the 7-Mode system.

Example

```
cluster1::> vserver services dns create -vserver vs_finance -domains
cifs.lab.example.com -name-servers 192.0.2.145 -state enabled
```

For more information about setting up a DNS domain, see the *Clustered Data ONTAP Network Management Guide*.

- g) Use the `vserver cifs create` command to create a CIFS server on the Vserver.

If you want to preserve the 7-Mode CIFS server name on the Vserver, you must use the original CIFS server name that is used on the 7-Mode system.

For more information about configuring CIFS server, see the *Clustered Data ONTAP File Access and Protocols Management Guide*.

Example

```
cluster1::> vserver cifs create -vserver vs_finance -name CIFSSERVER1 -domain
cifs.lab.example.com
```

8. From the 7-Mode Transition Tool, confirm that the data copy is completed and start the cutover operation.

Note: You must ensure that the secondary session has been completed.

- a) Enter **yes** to start the cutover operation.

Example

```
Step: Start the cutover operation
=====
Do you want to run the complete (cut-over) operation on this session? {yes, no} [yes]:
```

- b) Optional: If you have NFS Kerberos configuration on the 7-Mode system that you want to transition, enter the details of the Kerberos server.

Example

The following example shows a 7-Mode system that has a UNIX-based Kerberos server:

```
NFS Unix Kerberos configured on 7-Mode filer, do you want to transition {yes, no}
[yes]: yes
Enter the FQDN or IP Address of the Key Distribution Center(KDC) Server: 192.0.2.170
Enter the administrative user-name for the Key Distribution Center(KDC) Server
'192.0.2.170' [root]:
Enter the password for 'root@192.0.2.170':
```

The following example shows a 7-Mode system that has an Active Directory based Kerberos server:

```
NFS Microsoft Kerberos configured on 7-Mode filer, do you want to transition {yes, no}
[yes]: yes
Enter the FQDN of the Active Directory Server: AUTH.SEC.EXAMPLE.COM
Enter the IP address of the Active Directory Server 'AUTH.SEC.EXAMPLE.COM'
[192.0.2.171]:
Enter the administrative user-name for the Active Directory Server
'AUTH.SEC.EXAMPLE.COM' [administrator]:
Enter the password for 'administrator@AUTH.SEC.EXAMPLE.COM':
```

- c) Select the mode in which to run the complete operation.

The default mode for completing the transition is `normal`.

Example

This complete operation can be run in either of the following two modes.

Test mode : If you select test mode, all the 7-Mode IP addresses and volumes added to the session are not modified in any way. All the client applications can continue to access data from the 7-Mode storage system after the complete operation. All the LIFs added to the session will be created on the Vserver in the 'down' state.

Normal mode : If you select normal mode, all the 7-Mode IP addresses added to the session will be unconfigured on the 7-Mode storage system and created on the Vserver in the 'up' state. All the 7-Mode volumes added to the session are made offline.

Select the mode in which you want to run this complete operation {normal, test}
[normal]:

d) Verify the results of the complete operation and rectify any errors or warnings.

9. Verify that the session state is complete by entering 4.

Example

```
Step: View session status
=====
                Session name : session_purchase2
                Session status : Complete
                Session type  : primary
                Apply configuration : Yes
                7-Mode system FQDN : host1.example.com
                7-Mode version  : NetApp Release 8.1 7-Mode: Fri Nov 16 11:17:42 IST
2012
                vFiler unit   : vfiler0
                Multipath IP address : -
                Cluster-Mode system FQDN : 192.0.2.126
                Cluster-Mode system Version : NetApp Release 8.2.0 Cluster-Mode: Wed Dec 12
01:47:08 IST 2012
                Vserver information : vs39:Pre-existing
                Volume-Pairs       : Purchase:Purchase
                Vserver data LIFs  : -
                SnapMirror schedule : -
                Secondary cluster details : -

7-Mode volume      Cluster-Mode volume      Snapmirror state      Comments
-----
Purchase           Purchase           -/-                  -
```

A SnapMirror relationship is set up between the clustered Data ONTAP primary volumes to the clustered Data ONTAP secondary volumes. After the complete operation, you must wait till the SnapMirror resynchronization is successful to make the clustered Data ONTAP secondary volume available for read-only access.

After you finish

Perform any post-transition tasks before enabling client access to the Vserver.

Related concepts

Preparing for transition on page 12

Severity levels for precheck messages on page 38

Guidelines for deciding when to perform cutover on page 11

Mode types you can use for completing the transition on page 39

Prerequisites for transitioning NFS and CIFS configurations on page 40

Error codes and corrective tasks for transition on page 141

Related information

Documentation on the NetApp Support Site: support.netapp.com

Managing transition sessions by using the command-line interface

You can manage the transition sessions and perform the transition manually in stages by using the 7-Mode Transition Tool command-line interface.

You can manage transition sessions in the following ways:

- Creating a session
- Modifying a session
- Adding information about a cluster, primary 7-Mode system, or secondary cluster to a session
- Managing the credentials of the 7-Mode system and cluster
- Displaying the list of sessions or information about a session
- Verifying the feasibility of transition using the entities in the session
- Starting the data transfer from the 7-Mode volumes to the Clustered Data ONTAP volumes
- Pausing or resuming the data transfer
- Removing information about a primary 7-Mode system or a secondary cluster from a session
- Managing LIFs in transition
- Managing the volumes in transition
- Managing transition jobs
- Completing the transition
- Aborting a transition session
- Deleting a transition session

If any transition operation (such as start, pause, resume, or complete) fails, you must run the transition operation again.

Related concepts

States of a transition subproject or session on page 35

Related references

Commands for managing transition on page 119

Creating a transition session by using the command-line interface

You can create a transition session that identifies the 7-Mode objects to be transitioned and how they map to the clustered Data ONTAP objects. While creating the session, the 7-Mode Transition Tool collects and saves the information about the transition objects. This session information can be used to perform transition in stages.

Before you begin

You must have gathered the following information:

- Session type: Possible values are stand-alone, primary, or secondary
- FQDN or IP address of the 7-Mode storage system or the default vFiler unit, if MultiStore is licensed
- Administrative user name and password of the 7-Mode storage system
- List of 7-Mode volumes
- FQDN of the cluster or IP address of the cluster-management LIF
- Vserver name
- SnapMirror schedule on the cluster

Steps

1. From the **Start** menu, click **All Programs > NetApp 7-Mode Transition Tool > NetApp 7-Mode Transition Tool (cli) 1.0** to open the 7-Mode Transition Tool.

The transition main menu is displayed.

2. Exit the transition CLI wizard by entering **4**.

Example

```
Step: Main menu
=====
Select one of the following menu items:
1. Show all sessions
2. Create a new session
3. Select existing session
4. Exit
Enter your selection(1-4): 4

7-Mode Transition Tool>
```

3. From the 7-Mode Transition Tool command prompt, add the user name and password of the systems that are a part of the transition session to the 7-Mode Transition Tool cache by entering the following command:

```
transition credentials add -h host_name -u user_name
```

host_name is FQDN or IP address of the 7-Mode system or cluster.

user_name is the administrative user name for the system.

Note: You must repeat this step for each host that you want to add to the transition sessions.

You are prompted to enter the password of the system.

```
7-Mode Transition Tool>transition credentials add -h
system1.example.com -u root
Enter password for 'root@system1.example.com':
```

4. Create a transition session by entering the following command:

```
transition create -s session_name -t session_type -n 7-Mode_system [-f
vfiler_name] [-h cluster -v vserver_name -d schedule -a {true|false}]
```

session_name is the name of the transition session.

session_type is the session type. Valid values are standalone, secondary, primary.

7-Mode_system is the FQDN or IP address of the 7-Mode system.

vfiler_name is the name of the non-default vFiler unit.

cluster is the FQDN of the cluster or IP address of the cluster-management LIF.

vserver_name is the name of the Vserver.

Note: For a new Vserver, you must provide the aggregate name of the root volume of the Vserver with the *-g* option.

schedule is the data copy schedule for SnapMirror updates.

When the *-a* option is set to *true*, all configurations related to the volume, protocol, and services are applied. When set to *false*, only volume configurations are applied and protocol and services configurations are skipped.

Example

```
7-Mode Transition Tool>transition create -s session_finance -t
standalone -n system1.example.com -h cluster1.example.com -v vs2 -d
daily
```

The transition session moves to the preparation state.

5. Add the 7-Mode volume and clustered Data ONTAP volume to the session by entering the following command:

```
transition volumepair add -s session_name -v 7-Mode_volume -c
vserver_volume -g aggr_name
```

7-Mode_volume is the 7-Mode volume name.

vserver_volume is the clustered Data ONTAP volume on the Vserver.

aggr_name is the aggregate on which the clustered Data ONTAP volume *vserver_volume* is created during the start operation.

Example

```
7-Mode Transition Tool>transition volumepair add -s session_finance -
v finance -c finance -g aggr1
```

6. Add the IP addresses to be transitioned to the session by entering the following command:

```
transition lif add -s session_name -i ip-address [-m netmask] [-g
default-gateway] [-p home_port] [-n home_node]
```

Example

```
7-Mode Transition Tool>transition lif add -s session_finance -i
192.0.2.250 -m 255.255.255.128 -g 192.40.0.1 -p e0a -n cluster1-01
```

Running precheck on a session

After creating a transition session, you can validate the session to verify if the 7-Mode environment can be transitioned by using the `transition precheck` command. You can verify the compatibility between the 7-Mode storage system and the Vserver for factors such as features and security settings.

Before you begin

The transition session must be in the preparation state.

About this task

The `transition precheck` command generates a detailed error message report. Issues identified in the report are assigned different severity levels, depending on the impact of the issue on the transition process. Because some errors can hinder the transition, you must perform corrective actions for errors and warnings. You should also review the impact of messages of other severity levels before proceeding with the transition.

Step

1. Verify the compatibility for transition by entering the following command:

```
transition precheck -s session_name
```

Example

```
7-Mode Transition Tool>transition precheck -s session_finance

[1/14 ] Session status checks
[      Errors      ]
```

```

Operation summary:
-----
The 'precheck' operation on the session 'session_finance' has failed.

1 Errors - Failed!

Do you want to see a detailed report {yes, no} [yes]:

1 Errors:
-----
90202: Checking whether any of the 7-Mode volumes are in 'offline'
state. [          Error          ]
> Following volumes are in 'offline'
state.
> CORRECTIVE-ACTION: Bring offline volumes online by using the following command: 'vol
online
>
<volume_name>'.

> AFFECTED-OBJECTS: { vol2 }

Next suggested steps:
-----
1. Review the 'precheck' operation results, fix all blocking errors and run the
'precheck' operation again.
2. Use the 'transition job-results -j 6e33e0a7-bb36-49df-91f3-2e52cbfa3074' command to
see the results of this
operation.

Ran precheck for session 'session_finance'.

```

After you finish

You must resolve all the errors that might cause problems with the transition before starting the data copy from the 7-Mode volumes.

Related concepts

[Severity levels for precheck messages](#) on page 38

Starting data copy for a transition session

You can initiate a data copy from the 7-Mode volumes to clustered Data ONTAP volumes for a baseline transfer. After the baseline transfer is complete, the clustered Data ONTAP volumes are updated periodically based on the SnapMirror schedule selected on the cluster.

Before you begin

- The session must be in the preparation state.
- You must have run precheck on the session and resolved all errors.
- You must have configured a dedicated, high-bandwidth, low-latency network between the source and destination systems for data transfer.

Note: You can use SnapMirror multipathing to balance the data transfer load between the two paths.

- A SnapMirror schedule for incremental transfers must exist on the cluster.

About this task

If you are transitioning to an existing Vserver, the volumes are created during this operation. If you are transitioning to a new Vserver, the Vserver and its volumes get created during this operation.

Step

1. To start the data copy, enter the following command:

```
transition start -s session_name [-v]
```

If the start operation fails and data copy is not started, you must resolve the issues and run the `transition start` command again.

Example

```
7-Mode Transition Tool>transition start -s session_finance

[1/17 ] Session status checks                [      Ok      ]
[2/17 ] Validating 7-Mode system information [      Ok      ]
[3/17 ] Validating 7-Mode volumes information [      Ok      ]
[4/17 ] Validating Cluster-Mode system information [      Ok      ]
[5/17 ] Validating Cluster-Mode volume information [      Ok      ]
[6/17 ] Validating LIF information            [ Notifications ]
[7/17 ] WAFL prechecks                      [      Ok      ]
[8/17 ] UNIX users and groups prechecks      [   Warnings   ]
[9/17 ] SnapMirror prechecks                 [ Notifications ]
[10/17] NFS prechecks                       [   Warnings   ]
[11/17] Networking prechecks                 [ Notifications ]
[12/17] CIFS prechecks                      [   Warnings   ]
[13/17] Name services prechecks              [   Warnings   ]
[14/17] SAN prechecks                       [      Ok      ]
[15/17] Creating Cluster-Mode volumes         [      Ok      ]
[16/17] Establishing SnapMirror relationships between the 7-Mode and Cluster-Mode
volumes                                     [      Ok      ]
[17/17] Initializing SnapMirror relationships between the 7-Mode and Cluster-Mode
volumes                                     [      Ok      ]

Operation summary:
-----
The 'start' operation is completed with warnings and notifications.

 0 Errors - No action required
22 Warnings - Need your attention!
16 Notifications - Please review
102 Informational messages

Do you want to see a detailed report {yes, no} [yes]:

22 Warnings:
-----
20362: Checking whether 7-Mode UNIX groups' names are in use in the Vserver 'vs2'.
[   Warning   ]
> The following 7-Mode UNIX groups' names are already in use in the Vserver 'vs2'.
> AFFECTED-OBJECTS: { daemon }

20372: Checking whether 7-Mode UNIX groups' ids are in use in the Vserver 'vs2'.
[   Warning   ]
> The following 7-Mode UNIX groups' ids are already in use in the Vserver 'vs2'.
> AFFECTED-OBJECTS: { daemon }
```

The session moves to the copy-baseline state. After the baseline transfer is completed, the session moves to the copy-update state.

Pausing and resuming a copy operation

You can pause or stop all ongoing and scheduled SnapMirror transfers—for example during a controller takeover or for troubleshooting. You can then resume the data copy of a paused session.

Before you begin

- The session must be in the copy-baseline or copy-update state.
- To pause a session that is in the copy-baseline state, all the volumes in the session must have a restart checkpoint available.

About this task

When you pause a primary session, only the SnapMirror transfers between the 7-Mode and clustered Data ONTAP primary volumes are paused. The SnapMirror transfers between the 7-Mode primary and clustered Data ONTAP secondary volumes are not paused.

Steps

1. To pause a session, enter the following command:

```
transition pause -s session_name
```

The session moves to the copy-pause state.

2. To resume the data copy of a paused session, enter the following command:

```
transition resume -s session_name
```

If you paused the session when transition was in the copy-baseline state, the resumed session returns to the copy-baseline state. Similarly, if the session was paused at copy-update, the resumed session returns to the copy-update state.

Completing the transition

After you have verified and decided to cutover, you can complete the transition. You can complete the transition in either normal mode or test mode.

Before you begin

If you are running transition complete in normal mode, you must have disconnected the clients that are accessing the 7-Mode volumes.

Attention: Because transition cutover is disruptive to the clients, you must plan the activity to minimize the downtime.

About this task

The transition complete operation might take several minutes to complete, depending on the number of volumes in the session, the time taken for the final data transfer, and the configurations to be applied on the cluster.

Step

1. Complete the transition process by entering the following command:

```
transition complete -s session_name -m
```

session_name is the name of the session.

-m: Completes the transition in test mode. If the complete operation is run in test mode, the 7-Mode volumes are not taken offline and IP addresses are not removed. Clients can continue to access the 7-Mode volumes. All configurations are applied to the clustered Data ONTAP volumes, and the data LIFs are configured on the Vserver in the down state.

Note: If the cutover is not successful for some reason—for example, the 7-Mode system or cluster is not reachable—you must resolve the issues and run the `transition complete` command again.

The transition session moves to the cutover state. If the cutover is successful, the session moves to the completed state.

After you finish

Once the session state changes to completed, you cannot re-run the `transition complete` command. Therefore, if you complete the transition in test mode and want to enable client access to the clustered Data ONTAP volumes, you must manually take the 7-Mode volumes offline, remove the 7-Mode IP addresses, and configure the data LIFs on the Vserver to the up state.

You must perform any post-transition tasks and reconnect the clients to the clustered Data ONTAP volumes.

Related concepts

[Mode types you can use for completing the transition](#) on page 39

Displaying transition session details

You can display transition session information, such as the session name, session state, 7-Mode system FQDN, Data ONTAP version, Vserver information, and SnapMirror schedule. After baseline copy is completed and a session moves to the copy-update state, you must monitor the state of the session by viewing the session status and prepare for cutover.

Step

1. View the session status by entering the following command:

```
transition show -s session_name -c
```

Example

The following example shows the details of the session `session_finance`:

```
7-Mode Transition Tool>transition show -s session_finance -c
      Session name : session_finance
      Session status : Complete
      Session type : standalone
      Apply configuration : Yes
      7-Mode system FQDN : myhost.example.com
      7-Mode version : NetApp Release 8.1 7-Mode: Fri Nov 16
11:17:42 IST 2012
      vFiler unit : vfiler0
      Multipath IP address : -
      Cluster-Mode system FQDN : 192.0.2.149
      Cluster-Mode system Version : NetApp Release 8.2.0 Cluster-Mode: Wed
Dec 12 01:47:08 IST 2012
      Vserver information : vs49:Pre-existing
      Volume-Pairs : testVol1:testVol1
      Vserver data LIFs : -
      SnapMirror schedule : daily

7-Mode volume      Cluster-Mode volume      Snapmirror state      Comments
-----
testVol1           testVol1           -/-                   -
```

Aborting a transition session

You can abort a specified transition session if there are issues with data copy. When a session is aborted, all data transfers between the 7- Mode volumes and clustered Data ONTAP volumes are stopped and all SnapMirror relationships between the 7-Mode system and the Vserver are deleted.

Before you begin

The session must be in copy-baseline, copy-update, or copy-pause state.

About this task

You cannot abort a session that in the copy-unknown or cutover state.

Step

- 1. To abort a session, enter the following command:

```
transition abort -s session_name
```

The only operation that you can perform on an Aborted session is to delete it.

Deleting a transition session

You can delete a specified transition session. The session can be deleted only if it is in the preparation, completed, or aborted state.

Before you begin

A session that is in the copy-baseline, copy-update, or copy-pause state must be aborted before it can be deleted.

Step

1. To delete a session, enter the following command:

```
transition delete -s session_name
```

Example

```
7-Mode Transition Tool>transition delete -s session_vol0
```

Viewing transition jobs

Every time a transition operation is executed, a transition job is created by the 7-Mode Transition Tool. You can view all the jobs of a session. You can also view the status and result of each job to view the errors and warnings, if any, for each operation. You can also redirect the output of a job result to a text file to view the results offline.

About this task

Jobs are created for the following transition operations:

- transition precheck
- transition start
- transition pause
- transition resume
- transition abort
- transition complete

Step

1. Depending on the job details that you want to view, perform the appropriate action:

If you want to...	Enter this command...
--------------------------	------------------------------

View the jobs in a session

transition jobs -s *session_name*

The following example shows the jobs of the session named session_finance:

```
7-Mode Transition Tool>transition jobs -s session_finance
Unique job identifier      Operation      Status      Start
time      End time
-----
caa97f28-5cfd-4882-b18b-b80bf36307b7  complete  completed  12-12-2012 07:01:01
EST  12-12-2012 07:01:22 EST
2bd46417-0e0f-4330-b296-4e19e4b610d7  start     completed  12-12-2012 06:53:43
EST  12-12-2012 06:53:54 EST
03bcd690-2e85-41e6-a46b-4cfde54a6202  start     completed  12-12-2012 06:53:11
EST  12-12-2012 06:53:21 EST
9b9e6e73-aa49-4eee-bbf3-321d820d0730  start     completed  12-12-2012 06:51:20
EST  12-12-2012 06:51:30 EST
44740214-1cd0-4d55-aa99-5a78603e9c22  precheck  completed  12-12-2012 06:50:04
EST  12-12-2012 06:50:13 EST
8dcba885-f1bd-496e-ab59-0c10e46af60d  precheck  completed  12-12-2012 06:18:50
EST  12-12-2012 06:18:57 EST
```

View the job status

transition job-status -j *job_id*

The job status can be one of the possible values: running, completed, rejected, or aborted.

The following example shows the status of the start operation for a particular session:

```
7-Mode Transition Tool>transition job-status -j 02a86aba-34fe-418a-881a-51097b0c0cf2
Job id : 02a86aba-34fe-418a-881a-51097b0c0cf2
Job type : start
Job status : completed
```

If you want to... **Enter this command...**

View the job results **transition job-results -j *job_id***

The following example shows the results of the start operation for a particular session:

```
7-Mode Transition Tool>transition job-results -j 02a86aba-34fe-418a-881a-51097b0c0cf2
[1/17 ] Session status checks [ Ok ]
[2/17 ] Validating 7-Mode system information [ Ok ]
[3/17 ] Validating 7-Mode volumes information [ Ok ]
[4/17 ] Validating Cluster-Mode system information [ Ok ]
[5/17 ] Validating Cluster-Mode volume information [ Ok ]
[6/17 ] Validating LIF information [ Ok ]
[7/17 ] WAFL prechecks [ Ok ]
[8/17 ] UNIX users and groups prechecks [ Ok ]
[9/17 ] SnapMirror prechecks [ Warnings ]
[10/17] NFS prechecks [ Warnings ]
[11/17] Networking prechecks [ Notifications ]
[12/17] CIFS prechecks [ Ok ]
[13/17] Name services prechecks [ Warnings ]
[14/17] SAN prechecks [ Ok ]
[15/17] Creating Cluster-Mode volumes [ Ok ]
[16/17] Establishing SnapMirror relationships between the 7-Mode and Cluster-Mode
volumes [ Ok ]
[17/17] Initializing SnapMirror relationships between the 7-Mode and Cluster-Mode
volumes [ Ok ]

Operation summary:
-----
The 'start' operation is completed with warnings and notifications.

 0 Errors - No action required
11 Warnings - Need your attention!
13 Notifications - Please review
81 Informational messages

Do you want to see a detailed report {yes, no} [yes]:
```

Export the job results to a text file **transition job-results -j *job_id* -r no>filepath**

The following example shows how to redirect the job results to a file named transition_job_results:

```
transition job-results -j
02a86aba-34fe-418a-881a-51097b0c0cf2 -r no>C:
\transition_job_result.rtf
```

Commands for managing transition

You can use the transition command to manage transition, such as creating, modifying, deleting, and displaying transition sessions.

- [Commands to manage transition sessions](#) on page 120
- [Commands to manage transition operations](#) on page 120
- [Commands to manage volume SnapMirror relationships](#) on page 120
- [Commands to manage credentials of Data ONTAP systems](#) on page 121
- [Commands to manage the volume pairs in a session](#) on page 121
- [Commands to manage LIF details](#) on page 121

- [Commands to manage transition jobs](#) on page 122

Commands to manage transition sessions

If you want to...	Use this command...
Run the end-to-end transition wizard	<code>transition menu</code>
Use the wizard to prepare a transition session	<code>transition setup</code>
Modify a transition session	<code>transition modify</code>

Commands to manage transition operations

If you want to...	Use this command...
Create a transition session	<code>transition create</code>
Start data copy for the volumes in a session	<code>transition start</code>
Pause data copy for the volumes in a session	<code>transition pause</code>
Resume data copy of a paused session	<code>transition resume</code>
Abort a session	<code>transition abort</code>
Delete a session	<code>transition delete</code>
Display the details of a transition session	<code>transition show</code>

You can run all these commands with the `-v` option to run in verbose mode.

Commands to manage volume SnapMirror relationships

If you want to...	Use this command...
Add information about a 7-Mode primary system to a secondary session	<code>transition add-primary-seven-mode-system</code>
Add information about a clustered Data ONTAP secondary system to a primary session	<code>transition add-secondary-cluster-mode-system</code>
Remove information about a 7-Mode primary system from a secondary session	<code>transition remove-primary-seven-mode-system</code>
Remove information about a clustered Data ONTAP secondary system from a primary session	<code>transition remove-secondary-cluster-mode-system</code>

If you want to...	Use this command...
View information about the 7-Mode primary systems added to a secondary session	<code>transition show-primary-seven-mode-systems</code>
View information about the clustered Data ONTAP secondary systems added to a primary session	<code>transition show-secondary-cluster-mode-systems</code>

Commands to manage credentials of Data ONTAP systems

If you want to...	Use this command...
Save the credentials (user name and password) of a host in the transition server	<code>transition credentials add</code>
Retrieve the user name of a host	<code>transition credentials get</code>
Modify the user name or password of a host	<code>transition credentials modify</code>
Delete the credentials of a host from the transition server	<code>transition credentials remove</code>

Commands to manage the volume pairs in a session

If you want to...	Use this command...
Add the 7-Mode volume and the clustered Data ONTAP volume (volume pair) to a session	<code>transition volumepair add</code>
Modify the clustered Data ONTAP volume of a session	<code>transition volumepair modify</code>
Remove a volume pair from a session	<code>transition volumepair remove</code>
List the volume pairs in a session	<code>transition volumepair show</code>

Commands to manage LIF details

If you want to...	Use this command...
Add a Vserver's data LIF to a session	<code>transition lif add</code>
Modify a Vserver data LIF of a session	<code>transition lif modify</code>
Remove an IP address from a session	<code>transition lif remove</code>
List all the IP addresses added to a session	<code>transition lif show</code>

Commands to manage transition jobs

If you want to...	Use this command...
Display the list of jobs in a session	<code>transition jobs</code>
View the status of a job	<code>transition job-status</code>
View the results of a job	<code>transition job-results</code>

The following options can be used with all commands:

- `-v`: Enables verbose mode for the command
- `-r no`: Disables the interactive nature of this command

By default, this option is enabled.

For more information about these commands, see the man pages of the 7-Mode Transition Tool (CLI).

Troubleshooting transition issues

You should be aware of how to troubleshoot issues with the 7-Mode Transition Tool and where to look for log files. When you use the 7-Mode Transition Tool, you might see error messages that identify the issue and provide the solution.

Log files for the 7-Mode Transition Tool

The 7-Mode Transition Tool creates log files that provide processing details of the transition operations that have occurred on your system. The log files are located in the `logs` directory of the path where the 7-Mode Transition Tool is installed.

You can also use the EMS messages related to SnapMirror logs from the 7-Mode system and the cluster to troubleshoot issues.

The following table lists the log files that are related to a particular transition session:

Log file path	Contains information about...
<code>session_name/transition.log</code>	Debug messages that are specific to a session
<code>session_name/zapi-outbound.log</code>	Output of all the Data ONTAP APIs that are executed by the 7-Mode Transition Tool for a particular session

The following table lists the log files that are not related to a particular session:

Log file path	Contains information about...
<code>transition-cli.log</code>	Debug messages that are part of the CLI wizard

Log file path	Contains information about...
transition-gui.log	Entries of all the actions performed by using the web interface
zapi-outbound-cli.log	All the Data ONTAP APIs and their outputs that are executed by the 7-Mode Transition Tool when the CLI wizard is run
default/audit.log	- All the parameters—such as HTTP or HTTPS port and log directory path—that are used by the tool every time the 7-Mode Transition Tool is run - All the transition commands that are executed with the outputs
default/transition.log	Debug messages that are not specific to any session
default/zapi-outbound.log	Output of all the Data ONTAP APIs that are executed by the 7-Mode Transition Tool and which do not belong to any session
server-console.log	Log entries of all the packet exchanges done with the 7-Mode Transition Tool server This file helps in troubleshooting issues related to a server crash.

Error messages in 7-Mode Transition Tool

You might encounter issues when using the 7-Mode Transition Tool. The tool displays the error messages and possible solutions. You can also use the log files of the tool and the transition session files to troubleshoot the issues.

Failed to communicate with 7-Mode Transition Tool server

Message	Failed to communicate with 7-Mode Transition Tool server.
Cause	The 7-Mode Transition Tool service is not running.
Corrective action	1. Open Windows Task Manager and click the Services tab. 2. Click Services. 3. Right-click the Transition Tool service and select Start.

Host not found in credential bank

Message	Host <i>host_name</i> not found in credential bank.
Cause	- The 7-Mode Transition Tool service was restarted and the credentials were lost. - Credentials were removed by using the CLI.

Corrective action

1. From the 7-Mode Transition Tool CLI, use the `transition credentials get` command to verify that the credentials are not available on the transition server.

```
7-Mode Transition Tool>transition credentials get -h 192.238.55.34
Error(21500) : Host '192.238.55.34' not found in credential bank.
```

2. Use the `transition credentials add` command to add the credentials of the cluster.

```
7-Mode Transition Tool>transition credentials add -h 192.238.55.34 -u
admin
Enter password for 'admin@192.238.55.34':
```

Error messages when opening 7-Mode Transition Tool (CLI)**Details**

Immediately after launching the 7-Mode Transition Tool CLI wizard, you might see a series of error messages.

An output similar to the following is displayed:

```
*****
*                               *
*       Welcome to NetApp 7-Mode Transition Tool.                       *
*                               *
* - Use 'transition menu' to perform all the steps of transition process. *
* - Type 'help' or '?' to see the list of commands provided by the tool. *
* - To get help on any command use 'transition <command name> help'.      *
*   Example: 'transition menu help'                                       *
* - Recommended terminal width is 120 or more characters for best experience. *
*   Default terminal width is 125 characters.                             *
*****
16:10:43,054 |-INFO in ch.qos.logback.classic.LoggerContext[default] - Could NOT find
resource [logback.groovy]
16:10:43,055 |-INFO in ch.qos.logback.classic.LoggerContext[default] - Could NOT find
resource [logback-test.xml]
16:10:43,056 |-INFO in ch.qos.logback.classic.LoggerContext[default] - Found resource
[logback.xml] at [file:/C:/Program%20Fi
les/NetApp/7-Mode%20Transition%20Tool/etc/logback.xml]
16:10:43,249 |-INFO in ch.qos.logback.classic.joran.action.ConfigurationAction - debug
attribute not set
16:10:43,309 |-INFO in ch.qos.logback.core.joran.action.AppenderAction - About to
instantiate appender of type [ch.qos.logbac
k.core.rolling.RollingFileAppender]
16:10:43,317 |-INFO in ch.qos.logback.core.joran.action.AppenderAction - Naming appender as
[audit]
16:10:43,387 |-INFO in ch.qos.logback.core.joran.action.NestedComplexPropertyIA - Assuming
default type [ch.qos.logback.class
ic.encoder.PatternLayoutEncoder] for [encoder] property
16:10:43,596 |-INFO in ch.qos.logback.core.rolling.FixedWindowRollingPolicy@214a55f2 - Will
use zip compression
16:10:43,623 |-INFO in ch.qos.logback.core.rolling.RollingFileAppender[audit] - Active log
file name: logs/audit.log
16:10:43,623 |-INFO in ch.qos.logback.core.rolling.RollingFileAppender[audit] - File
property is set to [logs/audit.log]
16:10:43,628 |-ERROR in ch.qos.logback.core.rolling.RollingFileAppender[audit] -
openFile(logs/audit.log,true) call failed. j
ava.io.FileNotFoundException: logs\audit.log (Access is denied)
    at java.io.FileNotFoundException: logs\audit.log (Access is denied)
    at java.io.FileOutputStream.openAppend(Native Method)
    at java.io.FileOutputStream.<init>(Unknown Source)
```

Cause

You have logged in to Windows system as a nonadministrator user.

Corrective action You must have administrator privileges on the Windows system to run the 7-Mode Transition Tool.

Failed to fetch volume information from the 7-Mode system

Message Failed to fetch volume information from the 7-Mode system

Cause Some operations might be in progress on the 7-Mode volumes when the tool is collecting 7-Mode volume information. These operations can be an aggregate or a volume going offline, a volume being deleted, and so on.

Corrective action Retry the operation by selecting volume configuration from the Setup menu.

Error occurred with Cluster-Mode storage system

Message ERROR: Error occurred with Cluster-mode storage system *cluster*. Error Message :RPC: Port mapper failure - RPC: Timed out.

Cause One of the nodes in the cluster is in takeover mode and is waiting for a giveback.

Corrective action Wait till the giveback operation is complete and all the nodes of the cluster are in healthy state.

Related concepts

[*Impact of takeover and giveback on transition*](#) on page 196

Error onlining volume

Error message Error onlining volume "vserver_name:volume". Unable to set volume attributes for volume "Vserver_volume" on Vserver "Vserver". Reason: Volume was left in an inconsistent state by an aborted copy or an aborted snapmirror initial (level 0) transfer. In order to bring it online, you must either destroy and recreate the volume, or complete an initial snapmirror transfer or copy.

Cause The clustered Data ONTAP volume was left in an inconsistent state because the SnapMirror initialization was aborted.

Corrective action

1. Log in to the cluster.
2. Use the `snapmirror show` command to verify the SnapMirror status of the volume. The following example shows how to identify an aborted SnapMirror initialization:

```

cluster1::> snapmirror show -destination-path vs1:vol_dst
      Source Path: vs2:vol_src
      Destination Path: vs1:vol_dst
      Relationship Type: TDP
      SnapMirror Schedule: -
        Tries Limit: -
      Throttle (KB/sec): unlimited
      Mirror State: Uninitialized
      Relationship Status: Idle
      Transfer Snapshot: -
      Snapshot Progress: -
      Total Progress: -
      Snapshot Checkpoint: -
        Newest Snapshot: -
      Newest Snapshot Timestamp: -
      Exported Snapshot: -
      Exported Snapshot Timestamp: -
        Healthy: false
        Unhealthy Reason: Transfer failed.
      Constituent Relationship: false
      Destination Volume Node: cluster1-01
        Relationship ID: 59fcdaf2-4b26-11e2-a038-123478563412
        Transfer Type: -
        Transfer Error: -
        Current Throttle: -
        Current Transfer Priority: -
      Last Transfer Type: initialize           Last Transfer Error:
Transfer aborted.
      Last Transfer Size: -
      Last Transfer Duration: -
      Last Transfer From: vs2:vol_src
      Last Transfer End Timestamp: 12/21 04:25:55
      Progress Last Updated: -
      Relationship Capability: 8.2 and above
      Lag Time: -
      SnapMirror Policy: DPDefault

```

The Snapshot Checkpoint field is empty, the Last Transfer Type is initialize, and the Last Transfer Error is Transfer aborted, indicating that the volume is in an inconsistent state and cannot be recovered by running the transition start operation.

3. Use the `snapmirror break` command to break the SnapMirror relationship of this volume.

```
cluster1::> snapmirror break -destination-path vs1:vol_dst
```

4. Use the `snapmirror delete` command to delete the SnapMirror relationship of this volume.

```
cluster1::> snapmirror delete -destination-path
vs1:vol_dst
```

5. Use the `volume offline` command to take the volume offline.

```
cluster1::> volume offline -vserver vs1 -volume vol_dst
```

6. Use the `volume create` command to create a new volume of type DP with the same name and properties as the deleted volume.

```
cluster1::> volume create -vserver vs1 -volume vol_dst -
aggregate aggr1 -size 50m -state online -type DP
```

7. From the 7-Mode Transition Tool, re-run the transition start operation.

Network connectivity issues with the 7-Mode system

Details

The following example outputs show errors related to connectivity problems:

```
7-Mode Transition Tool>transition credentials add -h 192.238.55.34 -u root
Enter password for 'root@192.238.55.34':
Error(31010) : Host '192.238.55.34' is not reachable.
```

```
01032: Communication problem occurred.
> Timeout occurred while communicating with 7-Mode storage system
'192.238.55.34'.
> CORRECTIVE-ACTION: Check your network configuration, correct the problem
and re-run the operation
```

```
Step: Select the 7-Mode storage system
=====
You can type 'back', 'exit', 'help' or '?' at any time.

Enter the FQDN or IP address of the 7-Mode system [192.238.55.34]:
Enter the administrative user-name for the 7-Mode system '192.238.55.34'
[root]:
Enter the password for 'root@192.238.55.34':
ERROR: Host '192.238.55.34' timed out.
```

Cause 1

The 7-Mode system is down or unreachable.

Corrective action 1

1. From the command prompt of the Windows machine, ping the 7-Mode system by using the following command:
ping IP_address
2. If the 7-Mode system cannot be pinged, resolve any network issues and make the 7-Mode system reachable.

Cause 2

HTTP is disabled on the 7-Mode system, but the 7-Mode Transition Tool uses HTTP to communicate with the 7-Mode system.

Corrective action 2

1. Open the `/etc/transition-tool.conf` file to verify that the tool uses HTTP to communicate with the 7-Mode system.
The following example shows the contents of such a file:

```
#####
# Data ONTAP API HTTP/HTTPS configurations
#####

# Default value is false
ontap.http.enabled = true

# Default value is true
ontap.https.enabled = false
```

2. Log in to the 7-Mode system.
3. Enable HTTP on the 7-Mode system by entering the following command:
options httpd.admin.enable on

Cause 3 SSLv3 is disabled on the 7-Mode system, but tool is using HTTPS (through SSLv3) to communicate with 7-Mode system

**Corrective
action 3**

1. Open the `/etc/transition-tool.conf` file to verify that the tool uses HTTPS to communicate with the 7-Mode system.
The following example shows the contents of such a file:

```
#####
# Data ONTAP API HTTP/HTTPS configurations
#####

# Default value is false
ontap.http.enabled = false

# Default value is true
ontap.https.enabled = true
```

2. Log in to the 7-Mode system.
3. Enable SSLv3 on the 7-Mode system by entering the following command:
options ssl.v3.enable on
4. Enable HTTPS on the 7-Mode system by entering the following command:
options httpd.admin.ssl.enable on

Related tasks

[Preparing the 7-Mode system for transition](#) on page 17

Network connectivity issues with the cluster

Details The following example outputs show errors related to connectivity problems:

```
7-Mode Transition Tool>transition credentials add -h 192.238.55.35 -u admin
Enter password for 'admin@192.238.55.35':
Error(31009) : Host '192.238.55.35' timed out.
```

```
01032: Communication problem
occurred.
[   Error   ]
> Timeout occurred while communicating with Cluster-Mode storage system
'192.238.55.35'.
> CORRECTIVE-ACTION: Check your network configuration, correct the problem and
re-run the
> operation.
```

```
Step: Select target cluster
=====
Enter the FQDN or management IP address of the cluster: 192.238.55.35
Enter the administrative user-name for the cluster '192.238.55.35' [admin]:
Enter the password for 'admin@10.238.55.32':
ERROR: Host '192.238.55.35' timed out.
```

Cause 1 The cluster is down or unreachable.

Corrective action 1 1. From the command prompt of the Windows machine, ping the cluster by using the following command:

ping cluster-mgmt_IP_address

2. If there is no response to the ping request from the cluster, bring the IP address to the up state, and try again.

Cause 2 HTTP is disabled on the cluster, but the 7-Mode Transition Tool uses HTTP to communicate with the cluster.

Corrective action 2 1. Open the `/etc/transition-tool.conf` file to verify that the tool uses HTTP to communicate with the cluster.

The following example shows the contents of such a file:

```
#####
# Data ONTAP API HTTP/HTTPS configurations
#####
```

```
# Default value is false
ontap.http.enabled = true
```

```
# Default value is true
ontap.https.enabled = false
```

2. Log in to the cluster.
3. Use the `network interface show` command to view the firewall policy of the LIF that is used to communicate with the 7-Mode Transition Tool.

```
cluster1::> network interface show -vserver vs1 -lif cluster_mgmt
Vserver Name: vs1
Logical Interface Name: cluster_mgmt
Role: cluster-mgmt
Data Protocol: none
Home Node: node1
Home Port: e0c
Current Node: node1
Current Port: e0c
Operational Status: up
Extended Status: -
Is Home: true
Network Address: 192.0.2.134
Netmask: 255.255.255.192
Bits in the Netmask: 18
IPv4 Link Local: -
Routing Group Name: c192.0.0.0/18
Administrative Status: up
Failover Policy: nextavail
Firewall Policy: policy123
Auto Revert: false
Fully Qualified DNS Zone Name: none
DNS Query Listen Enable: false
Failover Group Name: system-defined
FCP WPN: -
Address family: ipv4
Comment: -
```

4. Use the `system services firewall policy show` command to view whether the firewall policy associated with the cluster-management LIF is blocking the HTTP service.

```
cluster1::> system services firewall policy show -policy policy123
Policy      Service  Action IP-List
-----
policy123
           dns      allow  0.0.0.0/0, ::/0
           http    deny  0.0.0.0/0, ::/0
           https   allow  0.0.0.0/0, ::/0
           ndmp    allow  0.0.0.0/0, ::/0
           ntp     allow  0.0.0.0/0, ::/0
           rsh     deny   0.0.0.0/0, ::/0
           snmp    allow  0.0.0.0/0, ::/0
           ssh     allow  0.0.0.0/0, ::/0
           telnet  deny   0.0.0.0/0, ::/0
9 entries were displayed.
```

5. Use the `system services firewall policy create` command to create a firewall policy that allows HTTP service along with other services that are required.

```
cluster1::> system services firewall policy create -policy
policyAllow -service http,service1,service2 -ip-list
0.0.0.0/0 -action allow
```

Specify the other services that must be allowed for the policy as a comma-separated list.

6. Use the `network interface modify` command to apply the firewall policy to the LIF that is used to communicate with the 7-Mode Transition Tool.

```
cluster1::> network interface modify -vserver vs1 -lif
cluster_mgmt -firewall-policy policyAllow
```

Cause 3 SSLv3 is disabled on the cluster, but tool is using HTTPS (through SSLv3) to communicate with cluster.

Corrective action 3 1. Open the `/etc/transition-tool.conf` file to verify that the tool uses HTTPS to communicate with the cluster.

The following example shows the contents of such a file:

```
#####
# Data ONTAP API HTTP/HTTPS configurations
#####
```

```
# Default value is false
ontap.http.enabled = false
```

```
# Default value is true
ontap.https.enabled = true
```

2. Log in to the cluster.
3. Use the `system services web show` command to view whether SSLv3 is disabled on the cluster.

```
cluster1::> system services web show
External Web Services: true
Status: online
HTTP Protocol Port: 80
HTTPS Protocol Port: 443
TLSv1 Enabled: true
SSLv3 Enabled: false
SSLv2 Enabled: true
```

Cause 4 HTTPS is disallowed on the cluster, but the tool is using HTTPS to communicate with the cluster.

Corrective action 4 1. Open the `/etc/transition-tool.conf` file to verify that the tool uses HTTP to communicate with the cluster.

The following example shows the contents of such a file:

```
#####
# Data ONTAP API HTTP/HTTPS configurations
#####
```

```
# Default value is false
ontap.http.enabled = false
```

```
# Default value is true
ontap.https.enabled = true
```

2. Log in to the cluster.
3. Use the `network interface show` command to view the firewall policy of the LIF that is used to communicate with the 7-Mode Transition Tool.

```
cluster1::> network interface show -vserver vs1 -lif cluster_mgmt
      Vserver Name: vs1
      Logical Interface Name: cluster_mgmt
                        Role: cluster-mgmt
      Data Protocol: none
      Home Node: node1
      Home Port: e0c
      Current Node: node1
      Current Port: e0c
      Operational Status: up
      Extended Status: -
      Is Home: true
      Network Address: 192.0.2.134
      Netmask: 255.255.255.192
      Bits in the Netmask: 18
      IPv4 Link Local: -
      Routing Group Name: c192.0.0.0/18
      Administrative Status: up
      Failover Policy: nextavail
      Firewall Policy: policy123
      Auto Revert: false
      Fully Qualified DNS Zone Name: none
      DNS Query Listen Enable: false
      Failover Group Name: system-defined
      FCP WPN: -
      Address family: ipv4
      Comment: -
```

4. Use the `system services firewall policy show` command to view whether the firewall policy associated with the cluster-management LIF is blocking the HTTPS service.

```
cluster1::> system services firewall policy show -policy policy123
Policy      Service      Action IP-List
-----
policy123
      dns      allow  0.0.0.0/0, ::/0
      http     allow  0.0.0.0/0, ::/0
      https     deny  0.0.0.0/0, ::/0
      ndmp     allow  0.0.0.0/0, ::/0
      ntp      allow  0.0.0.0/0, ::/0
      rsh      deny   0.0.0.0/0, ::/0
      snmp     allow  0.0.0.0/0, ::/0
      ssh      allow  0.0.0.0/0, ::/0
```

```
telnet deny 0.0.0.0/0, ::/0
9 entries were displayed.
```

5. Use the `system services firewall policy create` command to create a firewall policy that allows HTTPS service along with other services that are required.

```
cluster1::> system services firewall policy create -policy
policyAllow -service https,service1,service2 -ip-list
0.0.0.0/0 -action allow
```

Specify the other services that must be allowed for the policy as a comma-separated list.

6. Use the `network interface modify` command to apply the firewall policy to the LIF that is used to communicate with the 7-Mode Transition Tool.

```
cluster1::> network interface modify -vserver vs1 -lif
cluster_mgmt -firewall-policy policyAllow
```

Related tasks

[Preparing the cluster for transition](#) on page 15

Windows system out of memory

Details

The following example outputs show errors related to low system memory:

```
....
Unexpected error occurred while detecting java. Error code: 1.
Close other programs. And try again later.
Press any key to continue . . .
```

```
...
Unexpected error occurred while detecting java. Error code: 1.
Close other programs. And try again later.
Press any key to continue . . .
```

```
Step: Select the 7-Mode storage system
=====
You can type 'back', 'exit', 'help' or '?' at any time.
Enter the FQDN or IP address of the 7-Mode system: 192.72.219.21
Enter the administrative user-name for the 7-Mode system '192.72.219.21' [root]:
Enter the password for 'root@10.72.219.21':
Error: null
Exception in thread "main" java.lang.OutOfMemoryError
  at java.util.zip.Inflater.inflateBytes(Native Method)
  at java.util.zip.Inflater.inflate(Unknown Source)
  at java.util.zip.InflaterInputStream.read(Unknown Source)
  at sun.misc.Resource.getBytes(Unknown Source)
  at java.net.URLClassLoader.defineClass(Unknown Source)
  at java.net.URLClassLoader.access$100(Unknown Source)
  at java.net.URLClassLoader$1.run(Unknown Source)
  at java.net.URLClassLoader$1.run(Unknown Source)
  at java.security.AccessController.doPrivileged(Native Method)
  at java.net.URLClassLoader.findClass(Unknown Source)
  at java.lang.ClassLoader.loadClass(Unknown Source)
  at sun.misc.Launcher$AppClassLoader.loadClass(Unknown Source)
  at java.lang.ClassLoader.loadClass(Unknown Source)
```

```
at com.netapp.transition.cli.logging.CliAuditLogger.logMessage(CliAuditLogger.java:99)
at com.netapp.transition.cli.logging.CliAuditLogger.error(CliAuditLogger.java:74)
at com.netapp.transition.cli.logging.AuditLoggingCliResponseListener.handleResponse
(AuditLoggingCliResponseListener.java:77)
at com.netapp.autocli.CliExecutor.execute(CliExecutor.java:279)
at com.netapp.transition.cli.CliMain.main(CliMain.java:64)
```

Cause High memory usage by other processes running on the Windows workstation.

- Corrective action**
1. Open Windows Task Manager and click the **Performance** tab.
 2. In the Physical Memory (MB) area, verify that the free memory is low (usually less than 50 MB).
 3. Click the **Processes** tab.
 4. Select the unused processes and click **End Process**.
 5. Rerun the 7-Mode Transition Tool.

Related information

[Documentation on the NetApp Support Site: support.netapp.com](http://support.netapp.com)

Session state changes to copy-unknown

Issue Session state changes to copy-unknown.

Cause 1 Credentials of the cluster are lost from the transition server because either the server is restarted or the credentials are removed from the server.

You can view the session status to view the state. The following output shows the error message that is displayed for this issue:

```
Session name : Session_20130220_101147
Session status : Copy-unknown
Session type : standalone
Apply configuration : Yes
7-Mode system FQDN : 192.238.55.28
7-Mode version : xxx
vFiler unit : vfiler0
Multipath IP address : -
Cluster-Mode system FQDN : 192.238.55.34
Cluster-Mode system Version : xxx
Vserver information : vs1:Pre-existing
Volume-Pairs : vol0:vol0
Vserver data LIFs : -
SnapMirror schedule : daily

7-Mode volume Cluster-Mode volume Snapmirror state Comments
-----
vol0 vol0 -/- * Error: Host
'192.238.55.34' not found in credential bank.
```

- Corrective action for cause 1**
1. From the 7-Mode Transition Tool CLI, use the `transition credentials get` command to verify that the credentials are not available on the transition server.

```
7-Mode Transition Tool>transition credentials get -h 192.238.55.34
Error(21500) : Host '192.238.55.34' not found in credential bank.
```

2. Use the `transition credentials add` command to add the credentials of the cluster.

```
7-Mode Transition Tool>transition credentials add -h 192.238.55.34 -u admin
Enter password for 'admin@192.238.55.34':
```

Cause 2 Transition start operation failed on some volumes in the session.

The following example shows the part of the session status output that indicates this issue:

```
.....
7-Mode volume Cluster-Mode volume  Snapmirror state
Comments
-----
vol1                                vol1                uninitialized/
transferring
-
vol2                                vol2_21              -/-                  * Error:
SnapMirror relationship does not exist.
vol3                                vol3                  -/-                  * Error:
SnapMirror relationship does not exist.
```

- Corrective action for cause 2**
1. Verify the results of the start operation and resolve any blocking errors.
 2. Use the `transition start` command to rerun the start operation.

```
7-Mode Transition Tool>transition start -s session_finance
```

3. Use the `transition show` command to verify that the start operation was successful on all the volumes in the session.

Related concepts

[States of a transition subproject or session](#) on page 35

Final update failed for one or more volumes during transition complete

Message Final update failed for the clustered Data ONTAP volume `volume_name`. Reason: Transfer failed.

Cause 1 The 7-Mode volume contains the maximum limit of 255 Snapshot copies and cannot create a Snapshot copy for the final update transfer.

Corrective action *[Delete one or more Snapshot copies of the 7-Mode volume](#) on page 136*

- | | |
|----------------------------|--|
| Cause 2 | The latest common Snapshot copy between the 7-Mode system and the Vserver is deleted from the 7-Mode system. |
| Corrective action 2 | <i>Restore the latest common Snapshot copy between the clustered Data ONTAP volume and the 7-Mode volume on the 7-Mode system</i> on page 137 |
| Cause 3 | Volume does not have enough space to create a Snapshot copy for the final update transfer. |
| Corrective action 3 | Ensure that the volume has sufficient space to create Snapshot copies.
For more information about space allocation in volumes, see the <i>Clustered Data ONTAP Logical Storage Management Guide</i> . |

Deleting a Snapshot copy from the 7-Mode volume

If the final update transfer for any volume fails during the transition complete operation because the number of Snapshot copies on the 7-Mode system has exceeded 255 copies, you must delete one or more Snapshot copies.

About this task

The complete operation fails with the following message: Final update failed for the clustered Data ONTAP volume *volume_name*. Reason: Transfer failed.

Steps

1. Log in to the 7-Mode system.
2. View the total number of Snapshot copies for the 7-Mode volume by entering the following command:
snap list -v *volume_name*
3. If the total number of Snapshot copies is 255, delete one or more Snapshot copies for the volume by entering the following command:
snap delete -v *volume_name* *snapshot_name*
4. Log in to the 7-Mode Transition Tool.
5. Run the transition complete operation by entering the following command:
transition complete -s *session_name* [-m]

Restoring the latest common Snapshot copy on the 7-Mode system

If the final update transfer for any volume fails during the transition complete operation because the latest common Snapshot copy between the 7-Mode system and the Vserver is deleted from the 7-Mode system, you must restore the latest Snapshot copy on the 7-Mode system.

About this task

The complete operation fails with the following message: Final update failed for the clustered Data ONTAP volume *volume_name*. Reason: Transfer failed.

Steps

1. Verify what is the latest Snapshot copy of the clustered Data ONTAP volume.
 - a) Log in to the cluster.
 - b) Verify what is the latest Snapshot copy of the clustered Data ONTAP volume by entering the following command:

snapmirror show -destination-path vs1:vol1

The Newest Snapshot field provides information about the latest Snapshot copy.

Example

In the following example, vs1(2014307946)_vol1.9 is the latest Snapshot copy of the transitioned volume vol1:

```
cluster1::> snapmirror show -destination-path vs1:vol1
      Source Path: 10.225.243.7:vol_sat
      Destination Path: vs1:vol1
      Relationship Type: TDP
      SnapMirror Schedule: -
        Tries Limit: -
      Throttle (KB/sec): unlimited
      Mirror State: Snapmirrored
      Relationship Status: Transferring
      Transfer Snapshot: -
      Snapshot Progress: -
      Total Progress: 84KB
      Snapshot Checkpoint: -
      Newest Snapshot: vs1(2014307946)_vol1.9
      .....
```

2. Verify what the latest Snapshot copy is in the 7-Mode system.
 - a) Log in to the 7-Mode system.
 - b) Verify whether the latest Snapshot copy on the Vserver also exists in the 7-Mode system by entering the following command:

snap list -V volume_name

Example

The following example shows that the latest Snapshot copy vs1(2014307946)_vol1.9 for Vserver vs1 does not exist on the 7-Mode volume:

```
system1> snap list vol1
Volume vol1
working...
```

%/used	%/total	date	name
0% (0%)	0% (0%)	Feb 28 20:00	hourly.0
0% (0%)	0% (0%)	Feb 28 16:00	hourly.1
0% (0%)	0% (0%)	Feb 28 12:00	hourly.2
0% (0%)	0% (0%)	Feb 28 08:00	hourly.3
0% (0%)	0% (0%)	Feb 27 00:00	nightly.0
0% (0%)	0% (0%)	Feb 26 20:00	hourly.4
0% (0%)	0% (0%)	Feb 26 16:00	hourly.5
0% (0%)	0% (0%)	Feb 25 03:56	vol1_snap1

3. If the Snapshot copy does not exist in the 7-Mode system, break the SnapMirror relationship from the cluster by entering the following command:

snapmirror break -destination-path vs1:vol1

Example

```
cluster1::>snapmirror break -destination-path vs1:vol1
```

4. Resynchronize the SnapMirror relationship by entering the following command:

snapmirror resync -destination-path vs1:vol1

Example

```
cluster1::>snapmirror resync -destination-path vs1:vol1
```

5. From the 7-Mode system, verify whether the latest Snapshot copy now exists in the 7-Mode system by entering the following command:

snap list -V vol1

6. From the 7-Mode Transition Tool, run the transition complete operation again.

a) Log in to the 7-Mode Transition Tool.

b) Run the transition complete operation by entering the following command:

transition complete -s session_name [-m]

Transition pause operation failed

Details The transition pause operation fails.

Cause 1 The pause operation was run on a volume with a failed baseline transfer.

Corrective action 1 1. On the cluster, use the `snapmirror show` command to verify whether the baseline transfer failed for the volume.
The following example shows a failed baseline transfer for `vol1`, where the `Mirror State` is `empty`, `Last Transfer Type` is “initialize”, and `Last Transfer Error` provides the reason of failure for the baseline transfer:

```
cluster1::> snapmirror show -destination-path vs1:vol1
Source Path: 192.0.55.28:vol1
Destination Path: vs1:vol1_1
Relationship Type: TDP
SnapMirror Schedule: daily
Tries Limit: -
Throttle (KB/sec): unlimited
Mirror State: -
Relationship Status: Idle
Transfer Snapshot: -
Snapshot Progress: -
Total Progress: -
Snapshot Checkpoint: -
Newest Snapshot: -
Newest Snapshot Timestamp: -
Exported Snapshot: -
Exported Snapshot Timestamp: -
Healthy: false
Unhealthy Reason: Transfer failed.
Constituent Relationship: false
Destination Volume Node: cluster1-01
Relationship ID: 5a175c4b-86ee-11e2-b061-123478563412
Transfer Type: -
Transfer Error: -
-
Current Throttle: -
Current Transfer Priority: -
Last Transfer Type: initialize
not connect to the source host 192.0.55.28.
Last Transfer Size: -
Last Transfer Duration: -
Last Transfer From: 192.0.55.28:vol1
Last Transfer End Timestamp: 03/07 06:16:28
Progress Last Updated: -
Relationship Capability: 8.2 and above
Lag Time: -
SnapMirror Policy: DPDefault
```

2. Fix the cause for the last transfer error.
3. From the 7-Mode Transition Tool, start the baseline transfer by using the `transition start` command.
The baseline transfer is started.
4. Run the `transition pause` command after the baseline transfer has started and a restart checkpoint is created.

Cause 2 The pause operation is run immediately after running the transition start operation. To pause a session that is in the copy-baseline state, all the volumes in the session must have a restart checkpoint available, which is created some time after the transfer is started.

Corrective action 2

1. From the destination cluster, use the `snapmirror show` command with the `-snapshot-checkpoint` parameter to verify that a restart checkpoint exists for the volume.

```
cluster2::> snapmirror show -destination-path
dest_vserver:vol3 -fields snapshot-checkpoint
source-path      destination-path snapshot-checkpoint
-----
src_system:vol3   dest_vserver:vol3 50MB
```

2. From the 7-Mode Transition Tool, run the `transition pause` command.

Transition DR relationship not established if relationship is established using vFiler context

When transitioning the secondary volume of a volume SnapMirror relationship, if the host name of the primary 7-Mode system is not resolvable from the default vFiler context (vfiler0) of the secondary 7-Mode system, the transition DR relationship between the 7-Mode primary volume and clustered Data ONTAP secondary is not established.

Workaround

Edit the `/etc/hosts` file of the default vFiler unit of the secondary 7-Mode system and add the host entry for the primary 7-Mode system to the file.

Error codes and corrective tasks for transition

Certain configurations are not transitioned by the 7-Mode Transition Tool because either these configurations are not supported or the tool fails to apply the configuration. In such cases, you should perform certain corrective tasks on the 7-Mode system or the cluster.

Tip: The precheck report provides a corrective action that you can perform after the transition for all errors and warnings. You can view the job ID of the precheck operation to view the precheck results.

The following tables list the information source for completing the corrective tasks on the 7-Mode system and the cluster for each of the following feature areas:

- [CIFS](#) on page 141
- [NFS](#) on page 143
- [Name services](#) on page 145
- [Networking](#) on page 146
- [Volumes and Vservers](#) on page 147
- [Data protection](#) on page 147

CIFS

Error code	Corrective task	More information
20042	Configuring CIFS server on the 7-Mode storage system to use Active Directory style authentication	<i>Data ONTAP File Access and Protocols Management Guide for 7-Mode</i>
20062	Removing Storage-Level Access Guard from a 7-Mode volume before transition	• Man page of the <code>fsecurity remove-guard</code> command • <i>Data ONTAP File Access and Protocols Management Guide for 7-Mode</i>
20072	Removing Storage-Level Access Guard from a 7-Mode qtree before transition	
20082	Removing character mapping on the 7-Mode volume before transition	• Man page of the <code>charmap</code> command • <i>Data ONTAP File Access and Protocols Management Guide for 7-Mode</i>
20102	Editing the <code>/etc/usermap.cfg</code> file to remove the dot notation	<i>Data ONTAP File Access and Protocols Management Guide for 7-Mode</i>

Error code	Corrective task	More information
20122	Adding CIFS license to the cluster	• <i>Clustered Data ONTAP System Administration Guide for Cluster Administrators</i> • Man page of the <code>system license add</code> command
20132 20133	Configuring CIFS server on the Vserver	<i>Clustered Data ONTAP File Access and Protocols Management Guide</i>
20142 20042	Reconfiguring the CIFS server to use the Active Directory domain of the 7-Mode system	• Man page of the <code>cifs setup</code> command • <i>Data ONTAP File Access and Protocols Management Guide for 7-Mode</i>
20213 20221	Creating an export rule for the export policy after completing the transition to allow CIFS access on the clustered Data ONTAP volume	• Man page of the <code>vserver export-policy rule create</code> command • <i>Clustered Data ONTAP File Access and Protocols Management Guide</i>
20303 20304	Creating CIFS shares and applying ACLs to these shares	<i>Clustered Data ONTAP File Access and Protocols Management Guide</i>
20312	Configuring CIFS share-level ACLs for users or groups	
20412	Creating CIFS shares	
20422 20423	Adding CIFS to the allowed list of protocols on the Vserver	• Man page of the <code>vserver modify</code> command • <i>Clustered Data ONTAP File Access and Protocols Management Guide</i>
20432	Modifying the administrative status of the CIFS server on the Vserver	• Man page of the <code>vserver modify</code> command • <i>Clustered Data ONTAP File Access and Protocols Management Guide</i>

Error code	Corrective task	More information
20442	Configuring FPolicy on the Vserver	<i>Clustered Data ONTAP File Access and Protocols Management Guide</i>
20512	Applying group policy objects (GPOs) to the CIFS server	
20702	Configuring CIFS home-directory paths	
20772	Creating local UNIX users and groups	
20602	Configuring Branch Cache	• Man page of the <code>vserver cifs branchcache create</code> command • <i>Clustered Data ONTAP File Access and Protocols Management Guide</i>
20612	Enabling CIFS over IPv6	• <i>Clustered Data ONTAP File Access and Protocols Management Guide</i> • <i>Clustered Data ONTAP Network Management Guide</i>
20621 20622	Configuring CIFS auditing on the Vserver	<i>Clustered Data ONTAP File Access and Protocols Management Guide</i>
20632	Enabling SMB	
20452	Adding CIFS access-based enumeration on CIFS shares after transition	• Man page of the <code>vserver cifs share properties</code> command • <i>Clustered Data ONTAP File Access and Protocols Management Guide</i>

NFS

Error code	Corrective task	More information
10012	Enabling NFS license on the cluster	Man page of the <code>system license add</code> command

Error code	Corrective task	More information
10031 10041 10072 10082 10092 10102 10112 10122 10132 10052	Editing the <code>/etc/exports</code> file to match the entries supported in clustered Data ONTAP	• <i>Data ONTAP File Access and Protocols Management Guide for 7-Mode</i> • <i>Clustered Data ONTAP File Access and Protocols Management Guide</i> • <i>Clustered Data ONTAP Commands: Manual Page Reference</i>
10201	Configuring NFS over IPv6	<i>Clustered Data ONTAP File Access and Protocols Management Guide</i> <i>Clustered Data ONTAP Network Management Guide</i>
10221 10223 10252 10272	Configuring an Active Directory-based Kerberos server	<i>Clustered Data ONTAP File Access and Protocols Management Guide</i>
10222 10224 10262	Configuring an UNIX-based Kerberos server	
10227 10372	Creating a Kerberos realm configuration	
10241 10282	Configuring Kerberos on the LIFs	
10393 10471 10472 10474	Creating an export rule for the default export policy on the Vserver	• Man page of the <code>vserver nfs kerberos-config modify</code> • <i>Clustered Data ONTAP File Access and Protocols Management Guide</i> • Man page of the <code>vserver export-policy rule create</code> command • <i>Clustered Data ONTAP Network Management Guide</i>

Error code	Corrective task	More information
10752	Enabling NFS auditing on the Vserver	<i>Clustered Data ONTAP File Access and Protocols Management Guide</i>
10212	Adding NFS to the allowed list of protocols on the Vserver	• Man page of the <code>vserver modify</code> command • <i>Clustered Data ONTAP File Access and Protocols Management Guide</i>

Name services

Error code	Corrective task	More information
99172	Configuring protocols and services	<i>Clustered Data ONTAP File Access and Protocols Management Guide</i> <i>Clustered Data ONTAP Network Management Guide</i>
40105 40107	Configuring DNS domains after transition	<i>Clustered Data ONTAP Network Management Guide</i>
40143 40144	Configuring NIS after transition	<i>Clustered Data ONTAP File Access and Protocols Management Guide</i>
40151	Configuring LDAP on the cluster	
40162 40172	Modifying an LDAP schema	
40182 40183	Creating an LDAP client configuration	
40063	Configuring NIS domain on the Vserver with specific NIS servers	
40202	Applying LDAP client configuration to the Vserver	
40191 40591 40592	Configuring LDAP bind password	• Man page of the <code>vserver services ldap client modify</code> command • <i>Clustered Data ONTAP File Access and Protocols Management Guide</i>

Error code	Corrective task	More information
40312	Configuring netgroups on the Vserver	- Man page of the vserver services netgroup load command <i>Clustered Data ONTAP File Access and Protocols Management Guide</i>

Networking

Error code	Corrective task	More information
10233 10234 96702 96752 99162 30092	Configuring data LIFs and IP addresses on the Vserver after transition	<i>Clustered Data ONTAP Network Management Guide</i>
30021	Configuring interface groups on the cluster	- Man page of the network port ifgrp create command <i>Clustered Data ONTAP Network Management Guide</i>
30031	Configuring VLANs on the cluster	- Man page of the network port vlan create command <i>Clustered Data ONTAP Network Management Guide</i>
30071	Configuring interface groups or VLANs on the cluster	- Man page of the network port ifgrp create command - Man page of the network port vlan create command <i>Clustered Data ONTAP Network Management Guide</i>
30041	Creating routing groups and routes	<i>Clustered Data ONTAP Network Management Guide</i>
30512	Configuring IPv6 on the cluster	

Volumes and Vservers

Error code	Corrective task	More information
10321 10332 10341	Creating junction paths for the volumes in the Vserver	<i>Clustered Data ONTAP Logical Storage Management Guide</i>
95312 95372	Adding disks to the aggregate	- Man page of the storage aggregate <code>add-disks</code> command <i>Clustered Data ONTAP Logical Storage Management Guide</i>
60323	Configuring deduplication and compression on the volumes after transition	<i>Clustered Data ONTAP Logical Storage Management Guide</i>
95432	Increasing the maximum number of volumes that can be created for a Vserver	Man page of the <code>vserver modify</code> command
70102 70112 70122 70123 70182 70192 90242	Enabling quotas and applying quota rules to volumes after transition	<i>Clustered Data ONTAP Logical Storage Management Guide</i>
96803	Taking the volume offline on the 7-Mode system	Man page of <code>vol offline</code> command

Data protection

Item	Corrective task	More information
70132 70202	Creating a Snapshot copy schedule	<i>Clustered Data ONTAP Data Protection Guide</i>
70212	Applying space reservation configuration to the clustered Data ONTAP volumes	<i>Clustered Data ONTAP Data Protection Guide</i>

Item	Corrective task	More information
90252	Deleting the Snapshot copies from the 7-Mode system	- Man page of the <code>snap delete</code> command <i>Data ONTAP Data Protection Online Backup and Recovery Guide for 7-Mode</i>
90303	Breaking the qtree SnapVault relationships on the 7-Mode system	<i>Data ONTAP Data Protection Online Backup and Recovery Guide for 7-Mode</i>
70073	Breaking the qtree SnapMirror relationship on the 7-Mode destination system	<i>Data ONTAP Data Protection Online Backup and Recovery Guide for 7-Mode</i>
91151 91161	Configuring SnapMirror schedules on the destination after transition	<i>Clustered Data ONTAP Data Protection Guide</i>
60352	Configuring NDMP backup policies	<i>Clustered Data ONTAP Data Protection Tape Backup and Recovery Guide</i>
90843	1. Breaking the SnapMirror relationship manually from the destination cluster 2. Running the transition complete operation again	1. Man page of the <code>snapmirror break</code> command 2. Completing a transition subproject on page 57
90853	Running the transition complete operation again	Completing a transition subproject on page 57

Related information

[Documentation on the NetApp Support Site: support.netapp.com](http://support.netapp.com)

Transitioning volumes manually

You can copy data from the 7-Mode volumes to the clustered Data ONTAP volumes manually by using the clustered Data ONTAP 8.2 SnapMirror commands. However, you must manually set up protocols, services, and other configuration on the cluster after transition is complete.

Before you begin

You must have completed all the [preparatory tasks](#) on page 19 on the cluster and the 7-Mode system for transition.

About this task

The complete workflow for manual transition involves the high-level tasks described in this procedure.

Steps

1. Create a Vserver and its volumes to which the 7-Mode volumes must be transitioned.
2. Create a transition peer relationship between the 7-Mode system as the source and the Vserver as the destination.
3. Establish a SnapMirror relationship between the 7-Mode volume and clustered Data ONTAP volume for copying data.
4. Create a data LIF on the Vserver to enable client access.

After you finish

Configure protocols, networking, and services on the Vserver.

For more information, see the clustered Data ONTAP documentation on the NetApp Support Site.

Related information

[Documentation on the NetApp Support Site: support.netapp.com](http://support.netapp.com)

Setting up a Vserver with FlexVol Volumes

You can create and configure Vservers with FlexVol volumes fully to start serving data immediately or with minimal configuration to delegate administration to the Vserver administrator by using the `vserver setup` command.

Before you begin

You must have understood the [requirements and gathered the required information](#) on page 156 before you start the Vserver Setup wizard or any of the subwizards.

About this task

By using the `vserver setup` command, which launches a CLI wizard, you can perform the following tasks:

- Creating and configuring a Vserver fully
- Creating and configuring a Vserver with minimal network configuration
- Configuring existing Vservers
 - Setting up a network interface
 - Provisioning storage by creating volumes
 - Configuring services
 - Configuring protocols

Note: When you select NDMP as one of the protocols for protocol configuration, NDMP is added to the allowed list of protocols of the Vserver. The Vserver setup wizard does not configure the NDMP protocol.

Steps

1. Depending on your requirements, enter the appropriate command:

If you want to...	Enter the following command...
-------------------	--------------------------------

Set up a Vserver by using the Vserver Setup wizard

vserver setup

The `vserver setup` command prompts you to create and configure a Vserver in the following sequence:

- a. Create a Vserver
- b. Create data volumes
- c. Create logical interfaces
- d. Configure services
- e. Configure protocols

The following example shows how to set up a Vserver by using the Vserver Setup wizard:

```
cluster1::>vserver setup
Welcome to the Vserver Setup Wizard, which will lead you through
the steps to create a virtual storage server that serves data to clients.

You can enter the following commands at any time:
"help" or "?" if you want to have a question clarified,
"back" if you want to change your answers to previous questions, and
"exit" if you want to quit the Vserver Setup Wizard. Any changes
you made before typing "exit" will be applied.

You can restart the Vserver Setup Wizard by typing "vserver setup". To
accept a default
or omit a question, do not enter a value.

Vserver Setup wizard creates and configures only data Vservers.
If you want to create a Vserver with Infinite Volume use the vserver
create command.

Step 1. Create a Vserver.
You can type "back", "exit", or "help" at any question.
.....
Enter the Vserver name: vs2.example.com
.....
```

If you want to...	Enter the following command...
Set up a network interface for an existing Vserver	vserver setup -vserver <i>vserver_name</i> -network true <i>vserver_name</i> is the name of the Vserver. The following example shows how to set up a network interface by using the Vserver Setup wizard: <pre>cluster1::> vserver setup -vserver vs2.example.com -network true Welcome to the Vserver Setup Wizard, which will lead you through the steps to create a virtual storage server that serves data to clients. Step 1: Create a Vserver. You can type "back", "exit", or "help" at any question. Choose the Vserver data protocols to be configured {nfs, cifs, fcp, iscsi, ndmp} [nfs,cifs,fcp,iscsi,ndmp]: Choose the Vserver client services to be configured {ldap, nis, dns}: Vserver vs2.example.com's allowed protocol list has been modified to nfs,cifs,fcp,iscsi,ndmp Step 2: Create a logical interface. You can type "back", "exit", or "help" at any question. Do you want to create a logical interface? {yes, no} [yes]:</pre>

If you want to...	Enter the following command...
-------------------	--------------------------------

Provision storage by creating volumes on an existing Vserver

`vserver setup -vserver vserver_name -storage true`

vserver_name is the name of the Vserver.

The following example shows how to create volumes by using the Vserver Setup wizard:

```
cluster1::> vserver setup -vserver vs2.example.com -storage true
Welcome to the Vserver Setup Wizard, which will lead you through
the steps to create a virtual storage server that serves data to clients.
```

```
.....
```

```
Step 1. Create a Vserver.
```

```
You can type "back", "exit", or "help" at any question.
```

```
Choose the Vserver data protocols to be configured {nfs, cifs, fcp, iscsi, ndmp}
```

```
[nfs,cifs,fcp,iscsi,ndmp]:
```

```
Choose the Vserver client services to be configured {ldap, nis, dns}:
```

```
Vserver vs2.example.com's allowed protocol list has been modified to
nfs,cifs,fcp,iscsi,ndmp
```

```
Step 2: Create a data volume
```

```
You can type "back", "exit", or "help" at any question.
```

```
Do you want to create a data volume? {yes, no} [yes]:
```

```
.....
```

Note: You cannot set up IPv6 network interface by using the Vserver setup wizard.

**If you
want to...**

Enter the following command...

Configure
services
for an
existing
Vserver

If you want to configure your Vserver to use `ldap` or `nis` as the name service (`-ns-switch`), you should also include `file` as a name service. Including `file` as a name service enables the Vserver user account authentication through the Vserver's local administrative repository.

`vserver setup -vserver vserver_name -services ldap,nis,dns`

`vserver_name` is the name of the Vserver.

The following example shows how to configure services by using the Vserver Setup wizard:

```
cluster1::> vserver setup -vserver vs2.example.com -services ldap

Welcome to the Vserver Setup Wizard, which will lead you through
the steps to create a virtual storage server that serves data to clients.

.....

Step 1: Create a Vserver.
You can type "back", "exit", or "help" at any question.

Choose the Vserver data protocols to be configured {nfs, cifs, fcp, iscsi,
ndmp}
[nfs,cifs,fcp,iscsi,ndmp]:
Choose the Vserver client services to be configured {ldap, nis, dns}:

Vserver vs2.example.com's allowed protocol list has been modified to
nfs,cifs,fcp,iscsi,ndmp

Step 2: Configure LDAP (Lightweight Directory Access Protocol).
You can type "back", "exit", or "help" at any question.

Do you want to configure LDAP? {yes, no} [yes]:
.....
```

If you want to...	Enter the following command...
--------------------------	---------------------------------------

Configure protocols for an existing Vserver	You must have created LIFs for the protocols. vserver setup -vserver <i>vserver_name</i> -protocols <i>nfs,cifs,iscsi,fcp, ndmp</i> <i>vserver_name</i> is the name of the Vserver.
---	---

Note: When you specify the protocols value as `fcp`, you can configure both FC and FCoE for a Vserver.

The following example shows how to configure protocols by using the Vserver Setup wizard:

```
cluster1::> vserver setup -vserver vs2.example.com -protocols iscsi

Welcome to the Vserver Setup Wizard, which will lead you through
the steps to create a virtual storage server that serves data to clients.

.....

Step 1: Create a Vserver.
You can type "back", "exit", or "help" at any question.

Choose the Vserver client services to be configured {ldap, nis, dns}:

Vserver vs2.example.com's allowed protocol list has been modified to
nfs,cifs,fcp,iscsi,ndmp

Step 2: Configure iSCSI.
You can type "back", "exit", or "help" at any question.

Do you want to configure iSCSI? {yes, no} [yes]:
.....
```

- Follow the prompts to complete the Setup wizard:
 - To accept the default value for a prompt, press Enter.
 - To enter your own value for the prompt, enter the value and then press Enter.
- Use the `vserver show` command to verify the newly created Vserver.

You can view the attributes of the Vserver in detail by using the `vserver show -instance` command.

Example

The following example shows how to display information about all existing Vservers:

```
cluster1::>vserver show
```

Vserver	Type	Admin State	Root Volume	Aggregate	Name Service	Name Mapping
vs1.example.com	data	running	root_vol1	aggr1	file	file
cluster1	admin	-	-	-	-	-
cluster1-01	node	-	-	-	-	-
cluster1-02	node	-	-	-	-	-

```
vs2.example.com  data  running  root_vol2  aggr2  file  file
5 entries were displayed.
```

Result

When a Vserver is created, its root volume of 1 GB size is created. When you set up a Vserver, it is started automatically and is in running state. By default, the vsadmin user account is created and is in the locked state. The vsadmin role is assigned to the default vsadmin user account.

After you finish

To delegate the administration to a Vserver administrator, you must set up a password, unlock the vsadmin user account, and create a LIF for accessing and enable the firewall policy for managing the Vserver.

For more information about delegating administration to a Vserver administrator, see the *Clustered Data ONTAP System Administration Guide for Cluster Administrators*.

If you want to change the role of the default user vsadmin, you must set the password for vsadmin user before changing the role.

For Vservers with FlexVol volumes, it is best to create a load-sharing mirror copy for the root volume on each node of the cluster so that the namespace directory information remains available in the event of a node outage or failover. For more information about creating load-sharing mirror copy, see the *Clustered Data ONTAP Logical Storage Management Guide*.

Completing the Vserver setup worksheet

Before you start the Vserver Setup wizard to create and configure a Vserver, you must gather the required information to complete the wizard successfully.

Note: You can create and configure only Vservers with FlexVol volumes by using the Vserver Setup wizard.

The Vserver Setup wizard has the following subwizards, which you can run after you create a Vserver:

- Network setup
- Storage setup
- Services setup
- Data access protocol setup

Each subwizard has its specific requirements, depending on the types of services, protocols, and the protocol traffic.

You can use the following worksheet to record values for the setup process:

Vserver information

Types of information	Your values
<i>Vserver name</i> The name of a Vserver can contain alphanumeric characters and the following special characters: ".", "-", and "_". However, the name of a Vserver should not start with a number or the following special characters: "." and "-". The maximum number of characters allowed in a Vserver name is 47. Note: Vserver names must be unique. You must use the fully qualified domain name (FQDN) of the Vserver or another convention that ensures unique Vserver names.	
<i>Data protocols</i> Protocols that you want to configure or allow on that Vserver	
<i>Client services</i> Services that you want to configure on the Vserver	
<i>Aggregate name</i> Aggregate on which you want to create the Vserver's root volume. The default aggregate name is used if you do not specify one.	
<i>Language setting</i> The default language 'C.UTF-8 ' is used if you do not specify one. The language is set for a Vserver. The language of the Vserver determines default language setting for volumes in that Vserver. Note: The language of a Vserver is inherited by its volumes if the language is not specified when creating the volumes. For more information about the available language options, see the <i>Clustered Data ONTAP System Administration Guide for Cluster Administrators</i>.	

Types of information	Your values
<i>Vserver root volume's security style</i> Determines the type of permissions that can be used to control data access to a volume For more information about the security styles, see the <i>Clustered Data ONTAP File Access and Protocols Management Guide</i>.	

Information for creating volumes on the Vserver

Types of information	Values
<i>Volume name</i> The default volume name is used if you do not specify one.	
<i>Aggregate name</i> Aggregate on which you want to create the volume. The default aggregate name is used if you do not specify one.	
<i>Volume size</i>	
<i>Volume junction path</i> The default junction path is used if you do not specify one.	

Information for creating an IP network interface on the Vserver

Types of information	Values
<i>LIF name</i> The default LIF name is used if you do not specify one.	
<i>Protocols</i> Protocols that can use the LIF Note: Protocols that can use the LIF cannot be modified after the LIF is created.	
<i>Home node</i> Home node is the node on which you want to create a LIF. The default home node is used if you do not specify one.	

Types of information	Values
<i>Home port</i> Home port is the port on which you want to create a LIF. The default home port is used if you do not specify one.	
<i>IP address</i>	
<i>Network mask</i>	
<i>Default gateway IP address</i>	

Information for creating an FC network interface on the Vserver

Types of information	Values
<i>LIF name</i> The default LIF name is used if you do not specify one.	
<i>Protocols</i> Protocols that can use the LIF Note: Protocols that can use the LIF cannot be modified after the LIF is created.	
<i>Home node</i> Home node is the node on which you want to create a LIF. The default home node is used if you do not specify one.	
<i>Home port</i> Home port is the port on which you want to create a LIF. The default home port is used if you do not specify one.	

Information for configuring LDAP

Types of information	Values
<i>LDAP server IP address</i>	
<i>LDAP server port number</i> The default LDAP server port number is used if you do not specify one.	
<i>LDAP server minimum bind authentication level</i>	

Types of information	Values
<i>Bind domain name and password</i>	
<i>Base domain name</i>	

Information for configuring NIS

Types of information	Values
<i>NIS domain name</i>	
<i>IP addresses of the NIS servers</i>	

Information for configuring DNS

Types of information	Values
<i>DNS domain name</i>	
<i>IP addresses of the DNS servers</i>	

Note: You do not need to enter any information to configure NFS on a Vserver. The NFS configuration is created when you specify the protocol value as nfs.

Information for configuring CIFS protocol

Types of information	Values
<i>Domain name</i>	
<i>CIFS share name</i> The default CIFS share name is used if you do not specify one. Note: You must not use space characters or Unicode characters in CIFS share names. You can use alphanumeric characters and any of the following special characters: ! @ # \$ % & () _ ' { } . ~ -.	
<i>CIFS share path</i> The default CIFS share path is used if you do not specify one.	

Types of information	Values
<i>CIFS access control list</i> The default CIFS access control list is used if you do not specify one.	

Information for configuring iSCSI protocol

Types of information	Values
<i>igroup name</i> The default igroup name is used if you do not specify one.	
<i>Names of the initiators</i>	
<i>Operating system type of the initiator</i>	
<i>LUN name</i> The default LUN name is used if you do not specify one.	
<i>Volume for LUN</i> Volume that is to be used for the LUN	
<i>LUN size</i>	

Information for configuring Fibre Channel (FC) protocol (FCoE included)

Types of information	Values
<i>igroup name</i> The default igroup name is used if you do not specify one.	
<i>World wide port number (WWPN) of the initiators</i>	
<i>Operating system type of the initiator</i>	
<i>LUN name</i> The default LUN name is used if you do not specify one.	
<i>Volume for LUN</i> Volume that is to be used for the LUN	
<i>LUN size</i>	

What a transition peer relationship is

Transition peer relationship is an authorization mechanism that enables SnapMirror to establish relationships between a 7-Mode storage system and a Vserver in the cluster for copying data from the 7-Mode volumes to the clustered Data ONTAP volumes for transition. A transition peer relationship can be created only by a cluster administrator and is initiated from the cluster.

In a transition peer relationship, the 7-Mode storage system and the cluster communicate over the intercluster LIF.

A Vserver can be in a transition peer relationship with multiple 7-Mode systems. Similarly, a 7-Mode system can have a transition peer relationship with multiple Vservers at the same time.

Managing transition peer relationships

As a cluster administrator, you can transition volumes from 7-Mode by setting up a transition peer relationship from the 7-Mode storage system to the Vserver. You can create, modify, view, and delete the transition peer relationships.

Creating a transition peer relationship

You must create a transition peer relationship before you can set up a SnapMirror relationship for transition between a 7-Mode system and a cluster. As a cluster administrator, you can create a transition peer relationship between a Vserver and a 7-Mode system by using the `vserver peer transition create` command.

Before you begin

You must have ensured that the name of the source 7-Mode system does not conflict with any of local Vservers or already peered Vservers.

About this task

When creating a transition peer relationship, you can also specify a multipath FQDN or IP address for load balancing the data transfers.

Steps

1. Use the `vserver peer transition create` command to create a transition peer relationship.
2. Use the `vserver peer transition show` to verify that the transition peer relationship is created successfully.

Example of creating and viewing transition peer relationships

The following command creates a transition peer relationship between the Vserver vs1.example.com and the 7-Mode system src1.example.com with the multipath address src1-e0d.example.com:

```
cluster1::> vsserver peer transition create -local-vserver
vs1.example.com -src-filer-name src1.example.com -multi-path-
address src1-e0d.example.com
```

The following examples show a transition peer relationship between a single Vserver (vs1.example.com) and multiple 7-Mode systems:

```
cluster1::> vsserver peer transition create -local-vserver
vs1.example.com -src-filer-name
src3.example.com
Transition peering created

cluster1::> vsserver peer transition create -local-vserver
vs1.example.com -src-filer-name src2.example.com
Transition peering created

cluster1::> vsserver peer transition create -local-vserver
vs1.example.com -src-filer-name src1.example.com
Transition peering created
```

The following output shows the transition peer relationships of the Vserver vs1.example.com:

```
cluster1::> vsserver peer transition show
Vserver  Source Filer  Multi Path Address
-----  -
vs1.example.com
        src1.example.com
        -
vs1.example.com
        src2.example.com
        -
vs1.example.com
        src3.example.com
```

Commands for managing transition peer relationships

You can use the `vsserver peer transition` command to manage, such as creating, modifying, deleting, and displaying, transition peer relationships.

If you want to...	Use this command...
Create a transition peer relationship	<code>vsserver peer transition create</code>

If you want to...	Use this command...
Modify a transition peer relationship	<code>vserver peer transition modify</code>
Delete a transition peer relationship	<code>vserver peer transition delete</code>
Display transition peer relationships	<code>vserver peer transition show</code>

For more information about these commands, see the *Clustered Data ONTAP Commands: Manual Page Reference*.

Transitioning a stand-alone volume manually

Transitioning a stand-alone volume manually involves creating a transition peer relationship, creating a SnapMirror relationship, performing a baseline transfer, performing incremental updates, monitoring the data copy operation, breaking the SnapMirror relationship, and moving client access from the 7-Mode volume to the clustered Data ONTAP volume.

Before you begin

The cluster and Vserver must already be set up.

Steps

1. Use the `vserver peer transition create` command to create a transition peer relationship between the 7-Mode system and the Vserver.

Example

```
cluster1::> vserver peer transition create -local-vserver
vs1.example.com -src-filer-name system7mode -multi-path-address
192.0.2.150
Transition peering created
```

2. Use the `vol create` command to create a clustered Data ONTAP volume of type DP to which the 7-Mode data must be transitioned.

The size of the clustered Data ONTAP volume must be equal to or greater than the size of the 7-Mode volume.

Example

```
cluster1::> volume create -vserver vs1.example.com -volume dst_vol -
aggregate aggr1 -size 20M -type DP
[Job 59] Job succeeded: Successful
```

3. Create the intercluster LIF by performing the following steps:

- a) Use the `network interface create` command to create an intercluster LIF on the same node that contains the volume.

Example

```
cluster1::> network interface create -vserver cluster1-01 -lif
intercluster_lif -role intercluster -home-node cluster1-01 -home-
port e0c -address 192.0.2.130 -netmask 255.255.255.0
```

- b) Use the `network routing-groups route create` command to create a static route for the intercluster LIF.

Example

```
cluster1::> network routing-groups route create -vserver
cluster1-01 -routing-group i192.0.0.0/18 -destination 0.0.0.0/0 -
gateway 192.0.2.129
```

- c) Use the `network ping` command to verify that you can use the intercluster LIF to ping the 7-Mode system.

Example

```
cluster1::> network ping -lif intercluster_lif -lif-owner
cluster1-01 -destination system7mode
system7mode is alive
```

4. Copy data from the 7-Mode volume to the clustered Data ONTAP volume:

- a) Use the `snapmirror create` command with the relationship type as TDP to create a SnapMirror relationship between the 7-Mode system and the Vserver.

Example

```
cluster1::> snapmirror create -source-path system7mode:dataVol20 -
destination-path vs1.example.com:dst_vol -type TDP
Operation succeeded: snapmirror create the relationship with
destination vs1.example.com:dst_vol.
```

- b) Use the `snapmirror initialize` command to start the baseline transfer.

Example

```
cluster1::> snapmirror initialize -destination-path
vs1.example.com:dst_vol
Operation is queued: snapmirror initialize of destination
vs1.example.com:dst_vol.
```

- c) Depending on whether you want to update the clustered Data ONTAP volume manually or by setting up a SnapMirror schedule, perform the appropriate action:

If you want to perform...	Then...
Update transfers manually	a. Use the <code>snapmirror update</code> command. <pre data-bbox="485 413 1103 470">cluster1::> snapmirror update -destination-path vs1.example.com:vol_trans</pre> b. Use the <code>snapmirror show</code> command to monitor the data copy status. <pre data-bbox="485 604 1083 1420">cluster1::> snapmirror show -destination-path vs1.example.com:dst_vol Source Path: system7mode:dataVol20 Destination Path: vs1.example.com:dst_vol Relationship Type: TDP SnapMirror Schedule: - Tries Limit: - Throttle (KB/sec): unlimited Mirror State: Snapmirrored Relationship Status: Idle Transfer Snapshot: - Snapshot Progress: - Total Progress: - Snapshot Checkpoint: - Newest Snapshot: vs1.example.com(4053132614)_dst_vol.1 Newest Snapshot Timestamp: 02/13 08:10:46 Exported Snapshot: vs1.example.com(4053132614)_dst_vol.1 Exported Snapshot Timestamp: 02/13 08:10:46 Healthy: true Unhealthy Reason: - Constituent Relationship: false Destination Volume Node: cluster1-01 Relationship ID: e106827a-75b3-11e2- add9-123478563412 Transfer Type: - Transfer Error: - Current Throttle: - Current Transfer Priority: - Last Transfer Type: update Last Transfer Error: - Last Transfer Size: 680KB Last Transfer Duration: 0:0:12 Last Transfer From: system7mode:dataVol20 Last Transfer End Timestamp: 02/13 08:13:40 Progress Last Updated: - Relationship Capability: 8.2 and above Lag Time: 0:8:49 SnapMirror Policy: DPDefault</pre> c. Go to Step 6 on page 168.

If you want to perform...	Then...
Scheduled update transfers	a. Use the <code>job schedule cron create</code> command to create a schedule for update transfers. <pre data-bbox="498 374 1036 421">cluster1::> job schedule cron create -name 15_minute_sched -minute 15</pre> b. Use the <code>snapmirror modify</code> command to apply the schedule to the SnapMirror relationship. <pre data-bbox="498 562 1126 609">cluster1::> snapmirror modify -destination-path vs1.example.com:dst_vol -schedule 15_minute_sched</pre> c. Use the <code>snapmirror show</code> command to monitor the data copy status. <pre data-bbox="498 749 1083 1558">cluster1::> snapmirror show -destination-path vs1.example.com:dst_vol Source Path: system7mode:dataVol20 Destination Path: vs1.example.com:dst_vol Relationship Type: TDP SnapMirror Schedule: 15_minute_sched Tries Limit: - Throttle (KB/sec): unlimited Mirror State: Snapmirrored Relationship Status: Idle Transfer Snapshot: - Snapshot Progress: - Total Progress: - Snapshot Checkpoint: - Newest Snapshot: vs1.example.com(4053132614)_dst_vol.1 Newest Snapshot Timestamp: 02/13 08:10:46 Exported Snapshot: vs1.example.com(4053132614)_dst_vol.1 Exported Snapshot Timestamp: 02/13 08:10:46 Healthy: true Unhealthy Reason: - Constituent Relationship: false Destination Volume Node: cluster1-01 Relationship ID: e106827a-75b3-11e2- add9-123478563412 Transfer Type: - Transfer Error: - Current Throttle: - Current Transfer Priority: - Last Transfer Type: update Last Transfer Error: - Last Transfer Size: 680KB Last Transfer Duration: 0:0:12 Last Transfer From: system7mode:dataVol20 Last Transfer End Timestamp: 02/13 08:13:40 Progress Last Updated: - Relationship Capability: 8.2 and above Lag Time: 0:8:49 SnapMirror Policy: DPDefault</pre>

5. If you have a schedule for incremental transfers, perform the following steps when you are ready to perform cutover:
 - a) Optional: Use the `snapmirror quiesce` command to disable all future update transfers.

Example

```
cluster1::> snapmirror quiesce -destination-path vs1.example.com:dst_vol
```

- b) Use the `snapmirror modify` command to delete the SnapMirror schedule.

Example

```
cluster1::> snapmirror modify -destination-path vs1.example.com:dst_vol -
schedule ""
```

- c) Optional: If you quiesced the SnapMirror transfers earlier, use the `snapmirror resume` command to enable SnapMirror transfers.

Example

```
cluster1::> snapmirror resume -destination-path vs1.example.com:dst_vol
```

6. Wait for any ongoing transfers between the 7-Mode volumes and the clustered Data ONTAP volumes to complete, and then disconnect client access from the 7-Mode volumes to start cutover.
7. Use the `snapmirror update` command to perform a final data update to the clustered Data ONTAP volume.

Example

```
cluster1::> snapmirror update -destination-path
vs1.example.com:dst_vol
Operation is queued: snapmirror update of destination
vs1.example.com:dst_vol.
```

8. Use the `snapmirror show` command to verify that the last transfer was successful.
9. Use the `snapmirror break` command to break the SnapMirror relationship between the 7-Mode volume and the clustered Data ONTAP volume.

Example

```
cluster1::> snapmirror break -destination-path vs1.example.com:dst_vol
[Job 60] Job succeeded: SnapMirror Break Succeeded
```

10. Use the `snapmirror delete` command to delete the SnapMirror relationship between the 7-Mode volume and the clustered Data ONTAP volume.

Example

```
cluster1::> snapmirror delete -destination-path
vs1.example.com:dst_vol
```

After you finish

You must delete the Vserver peer relationship between the 7-Mode system and the Vserver when all the required volumes in the 7-Mode system are transitioned to the Vserver.

Transitioning a volume SnapMirror relationship manually

You can transition a 7-Mode volume SnapMirror relationship and retain the data protection relationship by transitioning the secondary volume before the primary volume.

Before you begin

- The primary and secondary clusters and Vservers must already be set up.
- For establishing a Vserver peer relationship when transitioning a volume SnapMirror relationship, the following conditions must be met:
 - The secondary cluster should not have a Vserver with the same name as that of the primary Vserver.
 - The primary cluster should not have a Vserver with the same name as that of the secondary Vserver.

Steps

1. [Transitioning a secondary volume manually](#) on page 169
2. [Transitioning a primary volume manually](#) on page 176

Transitioning a secondary volume manually

Transitioning a secondary volume involves creating a transition peer relationship, creating a SnapMirror relationship, performing a baseline transfer, performing incremental updates, and setting up a SnapMirror relationship between the 7-Mode primary volume and the clustered Data ONTAP secondary volume.

Before you begin

The secondary cluster and Vserver must already be set up.

Steps

1. Use the `vserver peer transition create` command to create a transition peer relationship between the 7-Mode system and the Vserver.

Example

```
sec_cluster::> vserver peer transition create -local-vserver
dst_vserver -src-filer-name dst_system
Transition peering created
```

2. Use the `vol create` command to create a clustered Data ONTAP secondary volume of type DP to which the 7-Mode data must be transitioned.

The size of the clustered Data ONTAP volume must be equal to or greater than the size of the 7-Mode volume.

Example

```
sec_cluster::> volume create -volume dst_c_vol -aggregate aggr1 -size
20M -type DP
[Job 24] Job succeeded: Successful
```

3. Create an intercluster LIF for communication between the secondary Vserver and 7-Mode system by performing the following steps:
 - a) Use the `network interface create` command to create an intercluster LIF on the same node that contains the volume.

Example

```
sec_cluster::> network interface create -vserver sec_cluster-01 -
lif int_lif1 -role intercluster -home-node sec_cluster-01 -home-
port e0c -address 192.0.2.140 -netmask 255.255.255.128
```

- b) Use the `network routing-groups route create` command to create a static route for the intercluster LIF.

Example

```
sec_cluster::> network routing-groups route create -vserver
sec_cluster-01 -routing-group i192.0.2.140/18 -destination
0.0.0.0/0 -gateway 192.0.2.129
```

- c) Use the `network ping` command to verify that you can use the intercluster LIF to ping the 7-Mode system.

Example

```
sec_cluster::> network ping -lif int_lif1 -lif-owner
sec_cluster-01 -destination dst_system
dst_system is alive
```

4. Copy data from the 7-Mode volume to the clustered Data ONTAP volume:

- a) Use the `snapmirror create` command with the relationship type as TDP to create a SnapMirror relationship between the 7-Mode system and the Vserver.

Example

```
sec_cluster::> snapmirror create -source-path sec_system:dst_7_vol  
-destination-path dst_vserver:dst_c_vol -type TDP  
Operation succeeded: snapmirror create the relationship with  
destination dst_vserver:dst_c_vol.
```

- b) Use the `snapmirror initialize` command to start the baseline transfer.

Example

```
sec_cluster::> snapmirror initialize -destination-path  
dst_vserver:dst_c_vol  
Operation is queued: snapmirror initialize of destination  
dst_vserver:dst_c_vol.
```

- c) Depending on whether you want to update the clustered Data ONTAP volume manually or by setting up a SnapMirror schedule, perform the appropriate action:

If you want to perform...	Then...
Update transfers manually	a. Use the <code>snapmirror update</code> command. <pre data-bbox="497 343 1142 387">sec_cluster::> snapmirror update -destination-path dst_vserver:dst_c_vol</pre> b. Use the <code>snapmirror show</code> command to monitor the data copy status. <pre data-bbox="497 526 1220 1302">sec_cluster::> snapmirror show -destination-path dst_vserver:dst_c_vol Source Path: sec_system:dst_7_vol Destination Path: dst_vserver:dst_c_vol Relationship Type: TDP SnapMirror Schedule: - Tries Limit: - Throttle (KB/sec): unlimited Mirror State: Snapmirrored Relationship Status: Idle Transfer Snapshot: - Snapshot Progress: - Total Progress: - Snapshot Checkpoint: - Newest Snapshot: dst_vserver(4053132614)_dst_c_vol.1 Newest Snapshot Timestamp: 02/13 08:10:46 Exported Snapshot: dst_vserver(4053132614)_dst_c_vol.1 Exported Snapshot Timestamp: 02/13 08:10:46 Healthy: true Unhealthy Reason: - Constituent Relationship: false Destination Volume Node: cluster1-01 Relationship ID: e106827a-75b3-11e2- add9-123478563412 Transfer Type: - Transfer Error: - Current Throttle: - Current Transfer Priority: - Last Transfer Type: update Last Transfer Error: - Last Transfer Size: 680KB Last Transfer Duration: 0:0:12 Last Transfer From: system7mode:dataVol20 Last Transfer End Timestamp: 02/13 08:13:40 Progress Last Updated: - Relationship Capability: 8.2 and above Lag Time: 0:8:49 SnapMirror Policy: DPDefault</pre> c. Go to Step 6 on page 174.

If you want to perform...	Then...
Scheduled update transfers	a. Use the <code>job schedule cron create</code> command to create a schedule for update transfers. <pre data-bbox="498 374 1076 421">sec_cluster::> job schedule cron create -name 15_minute_sched -minute 15</pre> b. Use the <code>snapmirror modify</code> command to apply the schedule to the SnapMirror relationship. <pre data-bbox="498 562 1142 609">sec_cluster::> snapmirror modify -destination-path dst_vserver:dst_c_vol -schedule 15_minute_sched</pre> c. Use the <code>snapmirror show</code> command to monitor the data copy status. <pre data-bbox="498 749 1220 1499">sec_cluster::> snapmirror show -destination-path dst_vserver:dst_c_vol Source Path: sec_system:dst_7_vol Destination Path: dst_vserver:dst_c_vol Relationship Type: TDP SnapMirror Schedule: 15_minute_sched Tries Limit: - Throttle (KB/sec): unlimited Mirror State: Snapmirrored Relationship Status: Idle Transfer Snapshot: - Snapshot Progress: - Total Progress: - Snapshot Checkpoint: - Newest Snapshot: dst_vserver(4053132614)_dst_c_vol.1 Newest Snapshot Timestamp: 02/13 08:10:46 Exported Snapshot: dst_vserver(4053132614)_dst_c_vol.1 Exported Snapshot Timestamp: 02/13 08:10:46 Healthy: true Unhealthy Reason: - Constituent Relationship: false Destination Volume Node: cluster1-01 Relationship ID: e106827a-75b3-11e2- add9-123478563412 Transfer Type: - Transfer Error: - Current Throttle: - Current Transfer Priority: - Last Transfer Type: update Last Transfer Error: - Last Transfer Size: 680KB Last Transfer Duration: 0:0:12 Last Transfer From: system7mode:dataVol20 Last Transfer End Timestamp: 02/13 08:13:40 Progress Last Updated: - Relationship Capability: 8.2 and above Lag Time: 0:8:49 SnapMirror Policy: DPDefault</pre>

5. If you have a schedule for incremental transfers, perform the following steps when you are ready to perform cutover:
 - a) Optional: Use the `snapmirror quiesce` command to disable all future update transfers.

Example

```
sec_cluster::> snapmirror quiesce -destination-path dst_vserver:dst_vol
```

- b) Use the `snapmirror modify` command to delete the SnapMirror schedule.

Example

```
sec_cluster::> snapmirror modify -destination-path dst_vserver:dst_vol -
schedule ""
```

- c) Optional: If you quiesced the SnapMirror transfers earlier, use the `snapmirror resume` command to enable SnapMirror transfers.

Example

```
sec_cluster::> snapmirror resume -destination-path dst_vserver:dst_vol
```

6. Wait for any ongoing transfers between the 7-Mode volumes and the clustered Data ONTAP volumes to complete, and then disconnect client access from the 7-Mode volumes to start cutover.
7. Use the `snapmirror update` command to perform a final data update to the clustered Data ONTAP volume.

Example

```
sec_cluster::> snapmirror update -destination-path dst_vserver:dst_vol
Operation is queued: snapmirror update of destination
dst_vserver:dst_vol.
```

8. Use the `snapmirror show` command to verify that the last transfer was successful.
9. Use the `snapmirror break` command to break the SnapMirror relationship between the 7-Mode secondary volume and the clustered Data ONTAP secondary volume.

Example

```
sec_cluster::> snapmirror break -destination-path dst_vserver:dst_vol
[Job 60] Job succeeded: SnapMirror Break Succeeded
```

10. Use the `snapmirror delete` command to delete the SnapMirror relationship between the 7-Mode secondary volume and the clustered Data ONTAP secondary volume.

Example

```
sec_cluster::> snapmirror delete -destination-path dst_vserver:dst_vol
```

11. Establish a disaster recovery relationship between the 7-Mode primary volume and clustered Data ONTAP secondary volume:

- a) Use the `vserver peer transition create` command to create a Vserver peer relationship between the 7-Mode primary volume and the clustered Data ONTAP secondary volume.

Example

```
sec_cluster::> vserver peer transition create -local-vserver
dst_vserver -src-filer-name src_system
Transition peering created
```

- b) Use the `job schedule cron create` command to create a job schedule that matches the schedule configured for the 7-Mode SnapMirror relationship.

Example

```
sec_cluster::> job schedule cron create -name 15_minute_sched -
minute 15
```

- c) Use the `snapmirror create` command to create a SnapMirror relationship between the 7-Mode primary volume and the clustered Data ONTAP secondary volume.

Example

```
sec_cluster::> snapmirror create -source-path src_system:src_7_vol
-destination-path dst_vserver:dst_c_vol -type TDP -schedule
15_minute_sched
Operation succeeded: snapmirror create the relationship with
destination dst_vserver:dst_c_vol.
```

- d) Use the `snapmirror resync` command to resynchronize the clustered Data ONTAP secondary volume.

For successful resynchronization, a common 7-Mode Snapshot copy must exist between the 7-Mode primary volume and the clustered Data ONTAP secondary volume.

Example

```
sec_cluster::> snapmirror resync -destination-path
dst_vserver:dst_c_vol
```

After you finish

- Delete the Vserver peer relationship between the secondary 7-Mode system and the secondary Vserver when all the required volumes in the 7-Mode system are transitioned to the Vserver.

- Delete the SnapMirror relationship between the 7-Mode primary and the 7-Mode secondary systems.

Related concepts

[Preparing for transition](#) on page 12

[Considerations for using SnapMirror for transition](#) on page 10

Transitioning a primary volume manually

Transitioning a primary volume involves copying data from the 7-Mode primary volumes to the clustered Data ONTAP primary volumes, deleting the disaster recovery relationship between the 7-Mode primary and clustered Data ONTAP secondary volumes, and establishing a SnapMirror relationship between the clustered Data ONTAP primary and secondary volumes.

Before you begin

The primary cluster and Vserver must already be set up.

Steps

1. Use the `vserver peer transition create` command to create a transition peer relationship between the 7-Mode primary system and the primary Vserver.

Example

```
pri_cluster::> vserver peer transition create -local-vserver
src_vserver -src-filer-name src_system
Transition peering created
```

2. Use the `vol create` command to create a clustered Data ONTAP volume of type DP to which the 7-Mode data must be transitioned.

The size of the clustered Data ONTAP volume must be equal to or greater than the size of the 7-Mode volume.

Example

```
pri_cluster::> vol create -vserver src_vserver -volume src_c_vol -
aggregate aggr1 -size 50M -state online -type DP -policy default
(volume create)
[Job 1480] Job succeeded: Successful
```

3. Create an intercluster LIF by performing the following steps:
 - a) Use the `network interface create` command to create an intercluster LIF on the same node that contains the volume.

Example

```
pri_cluster::> network interface create -vserver pri_cluster-01 -
lif lif_trans -role intercluster -home-node pri_cluster-01 -home-
port e0c -address 192.0.2.136 -netmask 255.255.192.0
```

- b) Use the `network routing-groups route create` command to create a static route for the intercluster LIF.

Example

```
pri_cluster::> network routing-groups route create -vserver
pri_cluster-01 -routing-group i192.0.2.136/18 -destination
0.0.0.0/0 -gateway 192.0.2.129
```

- c) Use the `network ping` command to verify that you can use the intercluster LIF to ping the 7-Mode system.

Example

```
pri_cluster::> network ping -lif lif_trans -lif-owner
pri_cluster-01 -destination src_system
src_system is alive
```

4. Copy the data from the 7-Mode primary volume to the clustered Data ONTAP primary volume:
 - a) Use the `snapmirror create` command with the relationship type as TDP to create a SnapMirror relationship between the 7-Mode system and the Vserver.

Example

```
pri_cluster::> snapmirror create -source-path src_system:finance -
destination-path src_vserver:src_c_vol -type TDP
Operation succeeded: snapmirror create the relationship with
destination src_vserver:src_c_vol.
```

- b) Use the `snapmirror initialize` command to start the baseline transfer.

Example

```
pri_cluster::> snapmirror initialize -destination-path
src_vserver:src_c_vol
Operation is queued: snapmirror initialize of destination
src_vserver:src_c_vol.
```

- c) Depending on whether you want to update the clustered Data ONTAP volume manually or by setting up a SnapMirror schedule, perform the appropriate action:

If you want to perform...	Then...
Update transfers manually	a. Use the <code>snapmirror update</code> command. <pre data-bbox="483 338 1237 407">pri_cluster::> snapmirror update -destination-path src_vserver:src_c_vol</pre> b. Use the <code>snapmirror show</code> command to monitor the data copy status. <pre data-bbox="483 512 1237 1310">pri_cluster::> snapmirror show -destination-path src_vserver:src_c_vol Source Path: pri_system:src_7_vol Destination Path: src_vserver:src_c_vol Relationship Type: TDP SnapMirror Schedule: - Tries Limit: - Throttle (KB/sec): unlimited Mirror State: Snapmirrored Relationship Status: Idle Transfer Snapshot: - Snapshot Progress: - Total Progress: - Snapshot Checkpoint: - Newest Snapshot: src_vserver(4053132614)_src_c_vol.1 Newest Snapshot Timestamp: 02/13 08:10:46 Exported Snapshot: src_vserver(4053132614)_src_c_vol.1 Exported Snapshot Timestamp: 02/13 08:10:46 Healthy: true Unhealthy Reason: - Constituent Relationship: false Destination Volume Node: cluster1-01 Relationship ID: e106827a-75b3-11e2- add9-123478563412 Transfer Type: - Transfer Error: - Current Throttle: - Current Transfer Priority: - Last Transfer Type: update Last Transfer Error: - Last Transfer Size: 680KB Last Transfer Duration: 0:0:12 Last Transfer From: system7mode:dataVol20 Last Transfer End Timestamp: 02/13 08:13:40 Progress Last Updated: - Relationship Capability: 8.2 and above Lag Time: 0:8:49 SnapMirror Policy: DPDefault</pre> c. Go to Step 6 on page 180.

If you want to perform...	Then...
Scheduled update transfers	a. Use the <code>job schedule cron create</code> command to create a schedule for update transfers. <pre data-bbox="483 364 1075 425">pri_cluster::> job schedule cron create -name 15_minute_sched -minute 15</pre> b. Use the <code>snapmirror modify</code> command to apply the schedule to the SnapMirror relationship. <pre data-bbox="483 555 1142 607">pri_cluster::> snapmirror modify -destination-path src_vserver:src_c_vol -schedule 15_minute_sched</pre> c. Use the <code>snapmirror show</code> command to monitor the data copy status. <pre data-bbox="483 737 1223 1501">pri_cluster::> snapmirror show -destination-path src_vserver:src_c_vol Source Path: pri_system:src_7_vol Destination Path: src_vserver:src_c_vol Relationship Type: TDP SnapMirror Schedule: 15_minute_sched Tries Limit: - Throttle (KB/sec): unlimited Mirror State: Snapmirrored Relationship Status: Idle Transfer Snapshot: - Snapshot Progress: - Total Progress: - Snapshot Checkpoint: - Newest Snapshot: src_vserver(4053132614)_src_c_vol.1 Newest Snapshot Timestamp: 02/13 08:10:46 Exported Snapshot: src_vserver(4053132614)_src_c_vol.1 Exported Snapshot Timestamp: 02/13 08:10:46 Healthy: true Unhealthy Reason: - Constituent Relationship: false Destination Volume Node: cluster1-01 Relationship ID: e106827a-75b3-11e2- add9-123478563412 Transfer Type: - Transfer Error: - Current Throttle: - Current Transfer Priority: - Last Transfer Type: update Last Transfer Error: - Last Transfer Size: 680KB Last Transfer Duration: 0:0:12 Last Transfer From: system7mode:dataVol20 Last Transfer End Timestamp: 02/13 08:13:40 Progress Last Updated: - Relationship Capability: 8.2 and above Lag Time: 0:8:49 SnapMirror Policy: DPDefault</pre>

5. If you have a schedule for incremental transfers, perform the following steps when you are ready to perform cutover:
 - a) Optional: Use the `snapmirror quiesce` command to disable all future update transfers.

Example

```
pri_cluster::> snapmirror quiesce -destination-path src_vserver:src_c_vol
```

- b) Use the `snapmirror modify` command to delete the SnapMirror schedule.

Example

```
pri_cluster::> snapmirror modify -destination-path src_vserver:src_c_vol -
schedule ""
```

- c) Optional: If you quiesced the SnapMirror transfers earlier, use the `snapmirror resume` command to enable SnapMirror transfers.

Example

```
pri_cluster::> snapmirror resume -destination-path src_vserver:src_c_vol
```

6. Create a Vserver peer relationship between the clustered Data ONTAP secondary and primary Vservers.

- a) Use the `cluster peer create` command to create a cluster peer relationship.

Example

```
pri_cluster::> cluster peer create -peer-addr sec_cluster -
username admin
Password: *****
```

- b) From the source cluster, use the `vserver peer create` command to create a Vserver peer relationship between the clustered Data ONTAP primary and secondary volumes.

Example

```
pri_cluster::> vserver peer create -vserver src_vserver -
peervserver src_c_vserver -applications snapmirror -peer-cluster
sec_cluster
```

- c) From the destination cluster, use the `vserver peer accept` command to accept the Vserver peer request and establish the Vserver peer relationship.

Example

```
sec_cluster::> vserver peer accept -vserver dst_vserver -
peervserver src_vserver
```

7. From the destination cluster, use the `snapmirror quiesce` command to suspend any data transfers between the 7-Mode primary volume and the clustered Data ONTAP secondary volume if a schedule is set up for update transfers.

Example

```
sec_cluster::> snapmirror quiesce -destination-path dst_vserver:dst_c_vol
```

8. Monitor the data copy operation and initiate cutover:
 - a) Wait for any ongoing transfers from the 7-Mode primary volumes to the clustered Data ONTAP primary and clustered Data ONTAP secondary volumes to complete, and disconnect client access from the 7-Mode primary volume to start cutover.
 - b) Use the `snapmirror update` command to perform a final data update to the clustered Data ONTAP primary volume from the 7-Mode primary volume.

Example

```
pri_cluster::> snapmirror update -destination-path  
src_vserver:src_c_vol
```

- c) Use the `snapmirror break` command to break the SnapMirror relationship between the 7-Mode primary volume and clustered Data ONTAP primary volume.

Example

```
pri_cluster::> snapmirror break -destination-path  
src_vserver:src_c_vol  
[Job 1485] Job is queued: snapmirror break for destination  
src_vserver:src_c_vol.
```

- d) Use the `snapmirror delete` command to delete the relationship.

Example

```
pri_cluster::> snapmirror delete -destination-path  
src_vserver:src_c_vol
```

9. From the destination cluster, break and delete the disaster recovery relationship between the 7-Mode primary volume and clustered Data ONTAP secondary volume.
 - a) Use the `snapmirror break` command to break the disaster recovery relationship between the 7-Mode primary volume and clustered Data ONTAP secondary volume.

Example

```
sec_cluster::> snapmirror break -destination-path  
dst_vserver:dst_c_vol
```

```
[Job 1485] Job is queued: snapmirror break for destination
dst_vserver:dst_c_vol.
```

- b) Use the `snapmirror delete` command to delete the relationship.

Example

```
sec_cluster::> snapmirror delete -destination-path
dst_vserver:dst_c_vol
```

10. From the destination cluster, establish a SnapMirror relationship between the clustered Data ONTAP primary and secondary volumes:

- a) Use the `snapmirror create` command to create a SnapMirror relationship between the clustered Data ONTAP primary and secondary volumes.

Example

```
sec_cluster::> snapmirror create -source-path
src_vserver:src_c_vol -destination-path dst_vserver:dst_c_vol -
type DP -schedule 15_minute_sched
```

- b) Use the `snapmirror resync` command to resynchronize the SnapMirror relationship between the clustered Data ONTAP volumes.

For successful resynchronization, a common Snapshot copy must exist between the clustered Data ONTAP primary secondary volumes.

Example

```
sec_cluster::> snapmirror resync -destination-path
dst_vserver:dst_c_vol
```

- c) Use the `snapmirror show` command to verify that the status of SnapMirror resynchronization shows `SnapMirrored`.

Note: You must ensure that the SnapMirror resynchronization is successful to make the clustered Data ONTAP secondary volume available for read-only access.

After you finish

You must delete the Vserver peer relationship between the 7-Mode system and the Vserver when all the required volumes in the 7-Mode system are transitioned to the Vserver.

Related concepts

[Preparing for transition](#) on page 12

[Considerations for using SnapMirror for transition](#) on page 10

Resuming a failed SnapMirror baseline transfer

During transition, SnapMirror baseline transfers can fail due to a number of reasons, such as loss of network connectivity, transfer aborted, or controller failover. After rectifying the cause of failure, you can resume the SnapMirror transfers if a restart checkpoint is available.

About this task

If the restart checkpoint for the baseline transfer is not available, you must delete and re-create the volume, reestablish the SnapMirror relationship, and initiate the transition again.

Steps

1. From the destination cluster, use the `snapmirror show` command with the `-snapshot-checkpoint` parameter to view the status of the baseline transfer and the restart checkpoint.

Example

```
cluster2::> snapmirror show -destination-path dest_vserver:vol3 -
fields snapshot-checkpoint
source-path          destination-path snapshot-checkpoint
-----
src_system:vol3      dest_vserver:vol3 50MB
```

2. If the SnapMirror checkpoint exists, use the `snapmirror initialize` command to resume the baseline transfer.

Example

```
cluster2::> snapmirror initialize -destination-path dest_vserver:vol3
```

Recovering from a disaster at the 7-Mode site during transition

If you have established a SnapMirror disaster recovery (DR) relationship between the 7-Mode primary volume and the clustered Data ONTAP secondary volume and if a disaster occurs at the 7-Mode primary site, you can direct client access to the clustered Data ONTAP secondary volume.

After the 7-Mode primary volume comes back online, you have to perform additional steps to redirect the clients to the clustered Data ONTAP primary volume.

About this task

To retain any data written on the clustered Data ONTAP secondary volume after the disaster, you must transition the 7-Mode primary volume after the 7-Mode primary volume comes back online and establish a SnapMirror relationship between the clustered Data ONTAP primary and secondary volumes. You can then redirect the clients to the clustered Data ONTAP primary volume.

SnapMirror resynchronization from clustered Data ONTAP volumes to the 7-Mode volumes is not supported. Therefore, if you reestablish the DR relationship between the 7-Mode primary volume and clustered Data ONTAP secondary volume after the disaster, any data written on the secondary clustered Data ONTAP will be lost.

Steps

1. [*Redirecting clients to the clustered Data ONTAP secondary volume after disaster*](#) on page 184
When a disaster strikes at the 7-Mode primary volume, you can redirect the clients from the 7-Mode primary volume to the clustered Data ONTAP secondary volume.
2. [*Transitioning the 7-Mode primary as a stand-alone volume*](#) on page 185
After the 7-Mode primary volume comes back online after the disaster, you must transition the 7-Mode primary volume. Because all SnapMirror relationships to the 7-Mode primary volume are broken and deleted at this stage, you can follow the steps to transition a stand-alone volume for this type of transition.
3. [*Redirecting clients to the clustered Data ONTAP primary volume*](#) on page 191
After transition to the clustered Data ONTAP primary volume is complete, you can resynchronize the clustered Data ONTAP primary volume for the data written on the clustered Data ONTAP secondary volume. You can then redirect the clients to the clustered Data ONTAP primary volume.

Redirecting clients to the clustered Data ONTAP secondary volume after a disaster

If you have established a SnapMirror disaster recovery (DR) relationship between the 7-Mode primary volume and the clustered Data ONTAP secondary volume and if a disaster occurs at the 7-Mode primary site, you must redirect client access to the clustered Data ONTAP secondary volume.

Steps

1. From the secondary cluster, use the `snapmirror break` command to break the SnapMirror relationship between the 7-Mode primary volume and the clustered Data ONTAP secondary volume.

Example

```
sec_cluster::> snapmirror break -destination-path
dst_vserver:dst_c_vol
```

2. From the secondary cluster, use the `snapmirror delete` command to delete the SnapMirror relationship between the 7-Mode primary volume and the clustered Data ONTAP secondary volume.

Example

```
sec_cluster::> snapmirror delete -destination-path
dst_vserver:dst_c_vol
```

3. Redirect client access to the clustered Data ONTAP secondary volume.

For more information about setting up client access in clustered Data ONTAP, see the *Clustered Data ONTAP File Access and Protocols Management Guide*.

Transitioning a stand-alone volume manually

After the 7-Mode primary volume comes back online after the disaster, you must transition the 7-Mode primary volume. Because all SnapMirror relationships to the 7-Mode primary volume are broken and deleted at this stage, you can follow the steps to transition a stand-alone volume for this type of transition.

Before you begin

The cluster and Vserver must already be set up.

Steps

1. Use the `vserver peer transition create` command to create a transition peer relationship between the 7-Mode system and the Vserver.

Example

```
cluster1::> vserver peer transition create -local-vserver
vs1.example.com -src-filer-name system7mode -multi-path-address
192.0.2.150
Transition peering created
```

2. Use the `vol create` command to create a clustered Data ONTAP volume of type DP to which the 7-Mode data must be transitioned.

The size of the clustered Data ONTAP volume must be equal to or greater than the size of the 7-Mode volume.

Example

```
cluster1::> volume create -vserver vs1.example.com -volume dst_vol -
aggregate aggr1 -size 20M -type DP
[Job 59] Job succeeded: Successful
```

3. Create the intercluster LIF by performing the following steps:

- a) Use the `network interface create` command to create an intercluster LIF on the same node that contains the volume.

Example

```
cluster1::> network interface create -vserver cluster1-01 -lif
intercluster_lif -role intercluster -home-node cluster1-01 -home-
port e0c -address 192.0.2.130 -netmask 255.255.255.0
```

- b) Use the `network routing-groups route create` command to create a static route for the intercluster LIF.

Example

```
cluster1::> network routing-groups route create -vserver
cluster1-01 -routing-group i192.0.0.0/18 -destination 0.0.0.0/0 -
gateway 192.0.2.129
```

- c) Use the `network ping` command to verify that you can use the intercluster LIF to ping the 7-Mode system.

Example

```
cluster1::> network ping -lif intercluster_lif -lif-owner
cluster1-01 -destination system7mode
system7mode is alive
```

4. Copy data from the 7-Mode volume to the clustered Data ONTAP volume:

- a) Use the `snapmirror create` command with the relationship type as TDP to create a SnapMirror relationship between the 7-Mode system and the Vserver.

Example

```
cluster1::> snapmirror create -source-path system7mode:dataVol20 -
destination-path vs1.example.com:dst_vol -type TDP
Operation succeeded: snapmirror create the relationship with
destination vs1.example.com:dst_vol.
```

- b) Use the `snapmirror initialize` command to start the baseline transfer.

Example

```
cluster1::> snapmirror initialize -destination-path  
vs1.example.com:dst_vol  
Operation is queued: snapmirror initialize of destination  
vs1.example.com:dst_vol.
```

- c) Depending on whether you want to update the clustered Data ONTAP volume manually or by setting up a SnapMirror schedule, perform the appropriate action:

If you want to perform...	Then...
Update transfers manually	a. Use the <code>snapmirror update</code> command. <pre data-bbox="497 343 1102 387">cluster1::> snapmirror update -destination-path vs1.example.com:vol_trans</pre> b. Use the <code>snapmirror show</code> command to monitor the data copy status. <pre data-bbox="497 526 1081 1341">cluster1::> snapmirror show -destination-path vs1.example.com:dst_vol Source Path: system7mode:dataVol20 Destination Path: vs1.example.com:dst_vol Relationship Type: TDP SnapMirror Schedule: - Tries Limit: - Throttle (KB/sec): unlimited Mirror State: Snapmirrored Relationship Status: Idle Transfer Snapshot: - Snapshot Progress: - Total Progress: - Snapshot Checkpoint: - Newest Snapshot: vs1.example.com(4053132614)_dst_vol.1 Newest Snapshot Timestamp: 02/13 08:10:46 Exported Snapshot: vs1.example.com(4053132614)_dst_vol.1 Exported Snapshot Timestamp: 02/13 08:10:46 Healthy: true Unhealthy Reason: - Constituent Relationship: false Destination Volume Node: cluster1-01 Relationship ID: e106827a-75b3-11e2- add9-123478563412 Transfer Type: - Transfer Error: - Current Throttle: - Current Transfer Priority: - Last Transfer Type: update Last Transfer Error: - Last Transfer Size: 680KB Last Transfer Duration: 0:0:12 Last Transfer From: system7mode:dataVol20 Last Transfer End Timestamp: 02/13 08:13:40 Progress Last Updated: - Relationship Capability: 8.2 and above Lag Time: 0:8:49 SnapMirror Policy: DPDefault</pre> c. Go to Step 6 on page 168.

If you want to perform...	Then...
Scheduled update transfers	a. Use the <code>job schedule cron create</code> command to create a schedule for update transfers. <pre data-bbox="498 374 1036 421">cluster1::> job schedule cron create -name 15_minute_sched -minute 15</pre> b. Use the <code>snapmirror modify</code> command to apply the schedule to the SnapMirror relationship. <pre data-bbox="498 562 1126 609">cluster1::> snapmirror modify -destination-path vs1.example.com:dst_vol -schedule 15_minute_sched</pre> c. Use the <code>snapmirror show</code> command to monitor the data copy status. <pre data-bbox="498 749 1083 1558">cluster1::> snapmirror show -destination-path vs1.example.com:dst_vol Source Path: system7mode:dataVol20 Destination Path: vs1.example.com:dst_vol Relationship Type: TDP SnapMirror Schedule: 15_minute_sched Tries Limit: - Throttle (KB/sec): unlimited Mirror State: Snapmirrored Relationship Status: Idle Transfer Snapshot: - Snapshot Progress: - Total Progress: - Snapshot Checkpoint: - Newest Snapshot: vs1.example.com(4053132614)_dst_vol.1 Newest Snapshot Timestamp: 02/13 08:10:46 Exported Snapshot: vs1.example.com(4053132614)_dst_vol.1 Exported Snapshot Timestamp: 02/13 08:10:46 Healthy: true Unhealthy Reason: - Constituent Relationship: false Destination Volume Node: cluster1-01 Relationship ID: e106827a-75b3-11e2- add9-123478563412 Transfer Type: - Transfer Error: - Current Throttle: - Current Transfer Priority: - Last Transfer Type: update Last Transfer Error: - Last Transfer Size: 680KB Last Transfer Duration: 0:0:12 Last Transfer From: system7mode:dataVol20 Last Transfer End Timestamp: 02/13 08:13:40 Progress Last Updated: - Relationship Capability: 8.2 and above Lag Time: 0:8:49 SnapMirror Policy: DPDefault</pre>

5. If you have a schedule for incremental transfers, perform the following steps when you are ready to perform cutover:

- a) Optional: Use the `snapmirror quiesce` command to disable all future update transfers.

Example

```
cluster1::> snapmirror quiesce -destination-path vs1.example.com:dst_vol
```

- b) Use the `snapmirror modify` command to delete the SnapMirror schedule.

Example

```
cluster1::> snapmirror modify -destination-path vs1.example.com:dst_vol -
schedule ""
```

- c) Optional: If you quiesced the SnapMirror transfers earlier, use the `snapmirror resume` command to enable SnapMirror transfers.

Example

```
cluster1::> snapmirror resume -destination-path vs1.example.com:dst_vol
```

6. Wait for any ongoing transfers between the 7-Mode volumes and the clustered Data ONTAP volumes to complete, and then disconnect client access from the 7-Mode volumes to start cutover.
7. Use the `snapmirror update` command to perform a final data update to the clustered Data ONTAP volume.

Example

```
cluster1::> snapmirror update -destination-path
vs1.example.com:dst_vol
Operation is queued: snapmirror update of destination
vs1.example.com:dst_vol.
```

8. Use the `snapmirror show` command to verify that the last transfer was successful.
9. Use the `snapmirror break` command to break the SnapMirror relationship between the 7-Mode volume and the clustered Data ONTAP volume.

Example

```
cluster1::> snapmirror break -destination-path vs1.example.com:dst_vol
[Job 60] Job succeeded: SnapMirror Break Succeeded
```

10. Use the `snapmirror delete` command to delete the SnapMirror relationship between the 7-Mode volume and the clustered Data ONTAP volume.

Example

```
cluster1::> snapmirror delete -destination-path
vs1.example.com:dst_vol
```

After you finish

You must delete the Vserver peer relationship between the 7-Mode system and the Vserver when all the required volumes in the 7-Mode system are transitioned to the Vserver.

Related concepts

[Preparing for transition](#) on page 12

[Considerations for using SnapMirror for transition](#) on page 10

Redirecting clients to the clustered Data ONTAP primary volume

After the 7-Mode primary volume comes back online, you can transition the 7-Mode primary volume, establish a SnapMirror relationship with the clustered Data ONTAP secondary volume, and redirect client access to the clustered Data ONTAP primary volume.

Steps

1. Create the Vserver peer relationship between the primary and secondary Vservers.
 - a) Use the `cluster peer create` command to create the cluster peer relationship.

Example

```
pri_cluster::> cluster peer create -peer-addr sec_cluster -
username admin
Password: *****
```

- b) From the source cluster, use the `vserver peer create` command to create a Vserver peer relationship between the clustered Data ONTAP primary volume and clustered Data ONTAP secondary volume.

Example

```
pri_cluster::> vserver peer create -vserver src_vserver -
peer_vserver src_c_vserver -applications snapmirror -peer-cluster
sec_cluster
```

- c) From the destination cluster, use the `vserver peer accept` command to accept the Vserver peer request and establish the Vserver peer relationship.

Example

```
sec_cluster::> vsync peer accept -vsync dst_vserver -
peer_vserver src_vserver
```

2. Use the `vsync create` command to create a SnapMirror relationship with the clustered Data ONTAP secondary volume as the source and the clustered Data ONTAP primary volume as destination.

Example

```
pri_cluster::> vsync create -source-path dst_vserver:dst_c_vol -
destination-path src_vserver:src_c_vol
```

3. From the primary cluster, use the `vsync resync` command to resynchronize the clustered Data ONTAP secondary volume.

Example

```
pri_cluster::> vsync resync -source-path dst_vserver:dst_c_vol -
destination-path src_vserver:src_c_vol
```

Wait till the resynchronization finishes. The SnapMirror state changes to SnapMirrored when resynchronization is complete.

4. When you are ready to switch over to the clustered Data ONTAP primary volume, disconnect client access from the clustered Data ONTAP secondary volume.
5. From the primary cluster, use the `vsync update` command to update the primary volume.

Example

```
pri_cluster::> vsync update -destination-path
src_vserver:src_c_vol
```

6. From the primary cluster, use the `vsync break` command to break the SnapMirror relationship between the clustered Data ONTAP primary and secondary volumes.

Example

```
pri_cluster::> vsync break -destination-path
src_vserver:src_c_vol
```

7. Enable client access to the clustered Data ONTAP primary volume.
8. From the primary cluster, use the `vsync delete` command to delete the SnapMirror relationship between the clustered Data ONTAP primary and secondary volumes.

Example

```
pri_cluster::> snapmirror delete -destination-path
src_vserver:src_c_vol
```

9. From the secondary cluster, use the `snapmirror create` command to create a SnapMirror relationship with the clustered Data ONTAP primary volume as the source and the clustered Data ONTAP secondary volume as destination, with a schedule that is same as the schedule that existed between the 7-Mode primary volume and clustered Data ONTAP secondary volume.

Example

```
sec_cluster::> snapmirror create -source-path src_vserver:src_c_vol -
destination-path dst_vserver:dst_c_vol -schedule 15_minute_sched
```

10. From the secondary cluster, use the `snapmirror resync` command to resynchronize the clustered Data ONTAP primary volume.

Example

```
sec_cluster::> snapmirror resync -source-path src_vserver:src_c_vol -
destination-path dst_vserver:dst_c_vol
```

Creating a LIF

A LIF is an IP address associated with a physical port. If there is any component failure, a LIF can fail over to or be migrated to a different physical port, thereby continuing to communicate with the cluster.

Before you begin

- The underlying physical network port must have been configured to the administrative up status.
- You should have considered the guidelines for creating LIFs: [Guidelines for creating LIFs](#) on page 194

About this task

- You cannot assign NAS and SAN protocols to a LIF.
The supported protocols are CIFS, NFS, FlexCache, iSCSI, and FCP.
- The `data-protocol` option must be specified when the LIF is created, and cannot be modified later.
If you specify `none` as the value for the `data-protocol` option, the LIF does not support any data protocol.
- A cluster LIF should not be on the same subnet as a management LIF or a data LIF.

Steps

1. Use the `network interface create` command to create a LIF.

Example

```
cluster1::> network interface create -vserver vs1 -lif
datalif1 -role data -home-node node-4 -home-port e1c
-address 192.0.2.145 -netmask 255.255.255.0 -firewall-policy
data -auto-revert true
```

2. Use the `network interface show` command to verify that LIF has been created successfully.

Example

The following example demonstrates different LIFs created in the cluster:

```
cluster1::> network interface show
```

Vserver	Logical Interface	Status Admin/Oper	Network Address/Mask	Current Node	Current Port	Is Home
cluster1						
node-1	cluster_mgmt	up/up	192.0.2.3/24	node-1	e1a	true
	clus1	up/up	192.0.2.12/24	node-1	e0a	true
	clus2	up/up	192.0.2.13/24	node-1	e0b	true
node-2	mgmt1	up/up	192.0.2.68/24	node-1	e1a	true
	clus1	up/up	192.0.2.14/24	node-2	e0a	true
	clus2	up/up	192.0.2.15/24	node-2	e0b	true
node-3	mgmt1	up/up	192.0.2.69/24	node-2	e1a	true
	clus1	up/up	192.0.2.17/24	node-3	e0a	true
	clus2	up/up	192.0.2.18/24	node-3	e0b	true
node-4	mgmt1	up/up	192.0.2.68/24	node-3	e1a	true
	clus1	up/up	192.0.2.20/24	node-4	e0a	true
	clus2	up/up	192.0.2.21/24	node-4	e0b	true
vs1	mgmt1	up/up	192.0.2.70/24	node-4	e1a	true
	datalif1	up/down	192.0.2.145/30	node-4	e1c	true

14 entries were displayed.

3. Use the `network ping` command to verify that the configured IPv4 addresses are reachable.

Guidelines for creating LIFs

There are certain guidelines that you should consider before creating a LIF.

Consider the following points while creating a LIF:

- In data LIFs used for file services, the default `data protocol` options are NFS and CIFS.

- In node-management LIFs, the default `data_protocol` option is set to `none` and the `firewall_policy` option is automatically set to `mgmt`.
You can use such a LIF as a Vserver management LIF. For more information about using a Vserver management LIF to delegate Vserver management to Vserver administrators, see the *Clustered Data ONTAP System Administration Guide for Cluster Administrators*.
- In cluster LIFs the default `data_protocol` option is set to `none` and the `firewall_policy` option is automatically set to `cluster`
- FC LIFs can be configured only on FC ports. iSCSI LIFs cannot coexist with any other protocols. For more information about configuring the SAN protocols, see the *Data ONTAP SAN Administration Guide for Cluster-Mode*.
- NAS and SAN protocols cannot coexist on the same LIF.
- The `firewall_policy` option associated with a LIF is defaulted to the role of the LIF except for a Vserver management LIF.
For example, the default `firewall_policy` option of a data LIF is `data`. For more information about firewall policies, see the *Clustered Data ONTAP System Administration Guide for Cluster Administrators*.
- Avoid configuring LIFs with addresses in the 192.168.1/24 and 192.168.2/24 subnets. Doing so might cause the LIFs to conflict with the private iWARP interfaces and prevent the LIFs from coming online after a node reboot or LIF migration.

Impact of Data ONTAP features on transition

You should be aware of the impact of some of the Data ONTAP features, such as tape backup and high-availability configurations, during transition.

Impact of takeover and giveback on transition

Transition operations, such as transition prepare, start, pause, resume, or complete, fail during a controller takeover or giveback.

If a transition operation fails due to a takeover, you must wait for the giveback to complete and run the transition operation again.

If a controller takeover occurs during a baseline transfer, the transfer fails. To resume the baseline transfer from the point where it was aborted, you must wait for the giveback to complete and then run the transition start operation again.

About backing up volumes in transition to tape

You can use the dump engine to perform tape backup and restore operations on a clustered Data ONTAP volume that is in transition during all transition phases except when the baseline transfer (SnapMirror initialization) is in progress. Whenever the volume changes state from read/write to read-only or from read-only to read/write, you must perform a baseline backup.

You must perform a baseline backup on the transitioned volume in the following scenarios:

- After SnapMirror initialization, a SnapMirror relationship is established between the 7-Mode volume and the clustered Data ONTAP volume.
The clustered Data ONTAP volume is now in the read-only state.
- When a SnapMirror relationship breaks between the 7-Mode volume and the clustered Data ONTAP volume.
The clustered Data ONTAP volume is now in the read/write state.

For a 7-Mode volume SnapMirror relationship, the additional scenarios in which you must perform a baseline backup on the clustered Data ONTAP secondary volume are as follows:

- When a SnapMirror relationship is established between the 7-Mode primary volume and the clustered Data ONTAP secondary volume.
The clustered Data ONTAP secondary volume is in the read-only state.
- After the 7-Mode primary volume is transitioned to a clustered Data ONTAP volume, the SnapMirror relationship is broken between the 7-Mode primary volume and the clustered Data ONTAP secondary volume.
The clustered Data ONTAP secondary volume is now in the read/write state.

- When a SnapMirror relationship is established between the clustered Data ONTAP primary and secondary volumes.

For more information about the dump engine, see the *Clustered Data ONTAP Data Protection Tape Backup and Recovery Guide*.

Glossary

A

ACL Access control list.

AD Active Directory.

administration host A client computer that is used to manage a storage system through a Telnet or Remote Shell connection.

aggregate A grouping of physical storage resources (disks or array LUNs) that provides storage to volumes associated with the aggregate. Aggregates provide the ability to control the RAID configuration for all associated volumes.

C

CFO See *controller failover (CFO)* or *cluster failover (CFO)*.

CIFS share

- In Data ONTAP, a directory or directory structure that has been made available to network users and can be mapped to a drive letter on a CIFS client. Also known simply as a *share*.
- In OnCommand Insight (formerly SANscreen suite), a service exposed from a NAS device to provide file-based storage through the CIFS protocol. CIFS is mostly used for Microsoft Windows clients, but many other operating systems can access CIFS shares as well.

CLI command-line interface. The storage system prompt is an example of a command-line interface.

client A workstation or PC in a client-server architecture; that is, a computer system or process that requests services from and accepts the responses of another computer system or process.

cluster

- In clustered Data ONTAP 8.x, a group of connected nodes (storage systems) that share a namespace and that you can manage as a single virtual server or multiple virtual servers, providing performance, reliability, and scalability benefits.
- In the Data ONTAP 7.1 release family and earlier releases, a pair of storage systems (sometimes called *nodes*) configured to serve data for each other if one of the two systems stops functioning.
- In the Data ONTAP 7.3 and 7.2 release families, this functionality is referred to as an *active/active configuration*.
- For some storage array vendors, *cluster* refers to the hardware component on which host adapters and ports are located. Some storage array vendors refer to this component as a *controller*.

cluster failover (CFO)	In Data ONTAP 7.1.x and earlier, the method of ensuring data availability by transferring the data service of a failed node to another node in an HA pair. Transfer of data service is often transparent to users and applications. In Data ONTAP 7.2 and later, and in Data ONTAP operating in 7-Mode, the failover method is called <i>controller failover</i> . In clustered Data ONTAP, the failover method is called <i>storage failover</i> .
cluster Vserver	Previous name for a <i>data Vserver</i> . See <i>data Vserver</i> .
Common Internet File System (CIFS)	Microsoft's file-sharing networking protocol that evolved from SMB.
D	
data protection	The combination of processes and systems that ensures that data is available, accessible, secure, recoverable, and in compliance with applicable requirements. Can imply elements of availability, backup and recovery, disaster recovery, security, and compliance.
data Vserver	In clustered Data ONTAP, a virtual server that facilitates data access from the cluster; the hardware and storage resources of the cluster are dynamically shared by data Vservers within a cluster. Previously referred to as a <i>cluster Vserver</i> .
dedupe	See <i>deduplication</i> .
deduplication	The consolidation of blocks of duplicate data into single blocks to store more information using less storage space.
destination	The volume or qtree to which data is mirrored in a SnapMirror relationship. The destination volume or qtree must be the same as the source volume or qtree.
disaster recovery (DR)	The recovery of data, access to data, and associated comprehensive processing of setting up the equipment and work space of a redundant site to continue business operations after a loss of use of all or part of a data center. This involves not only recovering an essential set of data but also an essential set of all the hardware and software to continue the processing of that data and business. Any disaster recovery might involve some amount of down time.
DNS	See <i>Domain Name System (DNS)</i> .
Domain Controller (DC)	The computer running NT Server that is contacted when a request comes in to log in a CIFS client or validate a request from an NFS client accessing a file with NTFS-style security. A given domain has one Primary Domain Controller (PDC) and optionally one or more Backup Domain Controllers (BDCs).
Domain Name System (DNS)	An Internet service for finding computers on an IP network.

DR	See <i>disaster recovery (DR)</i> .
E	
export	The NFS mechanism used to define which areas of the storage system are to be made available to NFS clients.
F	
failover	A process that reroutes data immediately to an alternate path so that services remain uninterrupted, if a physical disruption to a network component occurs. Failover applies to clustering and to multiple paths to storage. In the case of clustering, one or more services, such as the Exchange service, is moved to a standby server. In the case of multiple paths to storage, a path failure results in data being rerouted to a different physical connection to the storage.
FlexClone	A NetApp software technology that allows instant replication of data files, LUNs, and volumes without requiring additional storage space. Each cloned file, LUN, or volume is a virtual copy of the original data.
FPolicy	The Data ONTAP proprietary file policy feature that provides the ability to control access permissions based on file properties, such as file type.
FQDN	See <i>Fully Qualified Domain Name (FQDN)</i> .
Fully Qualified Domain Name (FQDN)	The complete name of a specific computer on the Internet, consisting of the computer's host name and its domain name.
G	
GID	See <i>Group ID (GID)</i> .
giveback	The technology that enables two storage systems to return control of each other's data after the issues that caused a controller failover are resolved.
global namespace	See <i>namespace</i> .
group	In Data ONTAP operating in 7-Mode, a group of users defined in the storage system's <code>/etc/group</code> file.
Group ID (GID)	The number used by UNIX systems to identify groups.
H	
HA (high availability)	- In Data ONTAP 8.x, the recovery capability provided by a pair of nodes (storage systems), called an <i>HA pair</i>, that are configured to serve data for each other if one of the two nodes stops functioning. - In the Data ONTAP 7.3 and 7.2 release families, this functionality is referred to as an <i>active/active configuration</i>.

HA pair	- In Data ONTAP 8.x, a pair of nodes whose controllers are configured to serve data for each other if one of the two nodes stops functioning. Depending on the system model, both controllers can be in a single chassis, or one controller can be in one chassis and the other controller can be in a separate chassis. - In the Data ONTAP 7.3 and 7.2 release families, this functionality is referred to as an <i>active/active configuration</i>.
L	
LIF	logical interface. Formerly known as <i>VIF</i> (virtual interface) in Data ONTAP GX. A logical network interface, representing a network access point to a node. LIFs currently correspond to IP addresses, but could be implemented by any interconnect. A LIF is generally bound to a physical network port; that is, an Ethernet port. LIFs can fail over to other physical ports (potentially on other nodes) based on policies interpreted by the LIF manager.
local group	A collection of user accounts and global groups in a Windows NT domain. Unlike <i>global groups</i> , local groups can contain members from other, trusted domains.
LUN (Logical Unit Number)	The identifier of an FC or iSCSI logical unit. A logical unit typically corresponds to a storage volume and is represented within a computer operating system as a device.
M	
MultiStore	In Data ONTAP operating in 7-Mode, an optional software product that enables you to partition the storage and network resources of a single storage system so that it appears as multiple storage systems on the network.
migration	The process of moving a set of data from one storage location to another storage location. See also <i>offline migration</i> and <i>online migration</i> .
N	
namespace	In network-attached storage (NAS) environments, a collection of files and path names to the files.
NAS	network-attached storage.
NDMP	Network Data Management Protocol. A protocol that allows storage systems to communicate with backup applications and provides capabilities for controlling the robotics of multiple tape backup devices.
Network File System (NFS) export	A service exposed from a NAS device to provide file-based storage through the NFS protocol. NFS is mostly used for UNIX-like operating systems, but other operating systems can access NFS exports as well.
NFS	Network File System.

normal mode	The state of a storage system when there is no takeover in the high-availability configuration.
O	
offline migration	A data migration process in which the data being migrated is not available to users during the migration cutover operation. All operations in the migration process must be initiated manually.
online migration	A data migration process in which the data being migrated is available to users at all times during the migration. The online migration process allows you to enable the automatic start of the migration cutover operation when the migration start operation is complete.
P	
partner mode	The method you use to communicate through the command-line interface with a virtual storage system during a takeover.
partner node	From the point of view of the local node (storage system), the other node in a high-availability configuration.
(PC)NFS	Personal Computer Network File System.
pcnfsd	A storage system daemon that permits PCs to mount storage system file systems. The corresponding PC client software is called <i>PC-NFS</i> .
Q	
qtree	A special subdirectory of the root of a volume that acts as a virtual subvolume with special attributes.
R	
RIP	Routing Information Protocol.
S	
SAN	storage area network.
share	A directory or directory structure that has been made available to network users and can be mapped to a drive letter on a CIFS client. Also known as a <i>CIFS share</i> .
SFO	See <i>storage failover (SFO)</i> .
SID	Security identifier used by the Windows operating system.
Snapshot copy	An online, read-only copy of an entire file system that protects against accidental deletions or modifications of files without duplicating file contents. Snapshot copies enable users to restore files and to back up the storage system to tape while the storage system is in use.
SSH	Secure Shell.

SSL	Secure Sockets Layer.
storage controller	The component of a storage system that runs the operating system and controls its disk subsystem. Storage controllers are also sometimes called <i>controllers</i> , <i>storage appliances</i> , <i>appliances</i> , <i>storage engines</i> , <i>heads</i> , <i>CPU modules</i> , or <i>controller modules</i> .
storage efficiency	The ratio of usable capacity to effective used capacity, accounting for efficiency returns. Calculated by the effective used capacity / the usable capacity.
storage failover (SFO)	In clustered Data ONTAP, the method of ensuring data availability by transferring the data service of a failed node to another node in an HA pair. Transfer of data service is often transparent to users and applications. In Data ONTAP 7.2 and later, and in Data ONTAP operating in 7-Mode, the failover method is called <i>controller failover</i> .
storage system	The hardware device running Data ONTAP that receives data from and sends data to native disk shelves, third-party storage, or both. Storage systems include a controller component and an internal or external disk storage subsystem component. Storage systems are sometimes referred to as <i>filers</i> , <i>appliances</i> , <i>storage appliances</i> , <i>V-Series systems</i> , or <i>systems</i> .
T	
takeover	The emulation of the failed node identity by the takeover node in a high-availability configuration; the opposite of <i>giveback</i> .
takeover mode	The method you use to interact with a node (storage system) when it has taken over its partner. The console prompt indicates when the node is in takeover mode.
takeover node	A node (storage system) that remains in operation after the other node stops working and that hosts a virtual node that manages access to the failed node disk shelves and network connections. The takeover node maintains its own identity and the virtual node maintains the failed node identity.
U	
UID	user identification number.
Unicode	A 16-bit character set standard. It was designed and is maintained by the nonprofit consortium Unicode Inc.
V	
vFiler unit	In Data ONTAP operating in 7-Mode, a virtual storage system that you create using MultiStore, which enables you to partition the storage and network resources of a single storage system so that it appears as multiple storage systems on the network.
VLAN	virtual local area network.

volume	A file system.
Vserver	In clustered Data ONTAP, a virtual storage server that provides network access through unique network addresses, that might serve data out of a distinct namespace, and that is separately administrable from the rest of the cluster. There are three types of Vservers— <i>admin</i> , <i>node</i> , and <i>cluster</i> (“cluster Vserver” is called “data Vserver” in Data ONTAP 8.2 and later)—but unless there is a specific need to identify the type of Vserver, Vserver usually refers to the cluster/data Vserver.
W	
WAFL	Write Anywhere File Layout. A file system designed for the storage system to optimize write performance.
WAFL External Cache	On a storage system that has a Performance Acceleration Module (PAM), Flash Cache, or Flash Cache 2 module installed, this cache improves storage system performance by reducing the number of disk reads. Sometimes referred to as <i>WAFL extended cache</i> .
WINS	Windows Internet Name Service.
workgroup	A collection of computers running Windows NT or Windows for Workgroups that is grouped for browsing and sharing.

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