



# **SnapMirror technical details**

ONTAP 9

NetApp  
January 29, 2024

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# SnapMirror technical details

## Use path name pattern matching

You can use pattern matching to specify the source and destination paths in `snapmirror` commands.

`snapmirror` commands use fully qualified path names in the following format: `vserver:volume`. You can abbreviate the path name by not entering the SVM name. If you do this, the `snapmirror` command assumes the local SVM context of the user.

Assuming that the SVM is called “vserver1” and the volume is called “vol1”, the fully qualified path name is `vserver1:vol1`.

You can use the asterisk (\*) in paths as a wildcard to select matching, fully qualified path names. The following table provides examples of using the wildcard to select a range of volumes.

*	Matches all paths.
vs*	Matches all SVMs and volumes with SVM names beginning with <code>vs</code> .
:*src	Matches all SVMs with volume names containing the <code>src</code> text.
:vol	Matches all SVMs with volume names beginning with <code>vol</code> .

```
vs1::> snapmirror show -destination-path *:*dest*

Progress
Source          Destination  Mirror          Relationship  Total
Last
Path            Type   Path            State          Status          Progress
Healthy Updated
-----
vs1:sm_src2
DP   vs2:sm_dest1
Snapmirrored  Idle
true          -
```

# Use extended queries to act on many SnapMirror relationships

You can use *extended queries* to perform SnapMirror operations on many SnapMirror relationships at one time. For example, you might have multiple uninitialized SnapMirror relationships that you want to initialize using one command.

## About this task

You can apply extended queries to the following SnapMirror operations:

- Initializing uninitialized relationships
- Resuming quiesced relationships
- Resynchronizing broken relationships
- Updating idle relationships
- Aborting relationship data transfers

## Step

1. Perform a SnapMirror operation on many relationships:

```
snapmirror command {-state state } *
```

The following command initializes SnapMirror relationships that are in an Uninitialized state:

```
vs1::> snapmirror initialize {-state Uninitialized} *
```

# Ensure a common Snapshot copy in a mirror-vault deployment

You can use the `snapmirror snapshot-owner create` command to preserve a labeled Snapshot copy on the secondary in a mirror-vault deployment. Doing so ensures that a common Snapshot copy exists for the update of the vault relationship.

## About this task

If you use a combination mirror-vault fan-out or cascade deployment, you should keep in mind that updates will fail if a common Snapshot copy does not exist on the source and destination volumes.

This is never an issue for the mirror relationship in a mirror-vault fan-out or cascade deployment, since SnapMirror always creates a Snapshot copy of the source volume before it performs the update.

It might be an issue for the vault relationship, however, since SnapMirror does not create a Snapshot copy of the source volume when it updates a vault relationship. You need to use the `snapmirror snapshot-owner create` to ensure that there is at least one common Snapshot copy on both the source and destination of the vault relationship.

## Steps

1. On the source volume, assign an owner to the labeled Snapshot copy you want to preserve:

```
snapmirror snapshot-owner create -vserver SVM -volume volume -snapshot snapshot -owner owner
```

The following example assigns ApplicationA as the owner of the snap1 Snapshot copy:

```
clust1::> snapmirror snapshot-owner create -vserver vs1 -volume vol1 -snapshot snap1 -owner ApplicationA
```

2. Update the mirror relationship, as described in [Updating a replication relationship manually](#).

Alternatively, you can wait for the scheduled update of the mirror relationship.

3. Transfer the labeled Snapshot copy to the vault destination:

```
snapmirror update -source-path SVM:volume|cluster://SVM/volume, ... -destination -path SVM:volume|cluster://SVM/volume, ... -source-snapshot snapshot
```

For complete command syntax, see the man page.

**The following example transfers the snap1 Snapshot copy**

```
clust1::> snapmirror update -vserver vs1 -volume vol1 -source-snapshot snap1
```

The labeled Snapshot copy will be preserved when the vault relationship is updated.

4. On the source volume, remove the owner from the labeled Snapshot copy:

```
snapmirror snapshot-owner delete -vserver SVM -volume volume -snapshot snapshot -owner owner
```

The following examples removes ApplicationA as the owner of the snap1 Snapshot copy:

```
clust1::> snapmirror snapshot-owner delete -vserver vs1 -volume vol1 -snapshot snap1 -owner ApplicationA
```

## Compatible ONTAP versions for SnapMirror relationships

The source and destination volumes must be running compatible ONTAP versions before creating a SnapMirror data protection relationship. Before you upgrade ONTAP, you should verify that your current ONTAP version is compatible with your target ONTAP version for SnapMirror relationships.

### Unified replication relationships

For SnapMirror relationships of type “XDP”, using on premises or Cloud Volumes ONTAP releases:

Beginning with ONTAP 9.9.0:



- ONTAP 9.x.0 releases are cloud-only releases and support Cloud Volumes ONTAP systems. The asterisk (\*) after the release version indicates a cloud-only release.
- ONTAP 9.x.1 releases are general releases and support both on-premises and Cloud Volumes ONTAP systems.



Interoperability is bidirectional.

### Interoperability for ONTAP version 9.3 and later

ONTAP version ...	Interoperates with these previous ONTAP versions...																	
	9.14 .1	9.14 .0*	9.13 .1	9.13 .0*	9.12 .1	9.12 .0*	9.11 .1	9.11 .0*	9.10 .1	9.10 .0*	9.9. 1	9.9. 0*	9.8	9.7	9.6	9.5	9.4	9.3
9.14 .1	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No
9.14 .0*	Yes	Yes	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	No	No	No	No
9.13 .1	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No
9.13 .0*	Yes	No	Yes	Yes	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	No	No	No	No
9.12 .1	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No
9.12 .0*	Yes	No	Yes	No	Yes	Yes	Yes	No	Yes	No	Yes	No	Yes	Yes	No	No	No	No
9.11 .1	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No
9.11 .0*	Yes	No	Yes	No	Yes	No	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes	No	No	No
9.10 .1	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No
9.10 .0*	Yes	No	Yes	No	Yes	No	Yes	No	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	No	No
9.9. 1	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No
9.9. 0*	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	No	No
9.8	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes
9.7	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes

9.6	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes
9.5	No	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
9.4	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	Yes	Yes	Yes
9.3	No	No	No	No	No	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes

## SnapMirror Synchronous relationships



SnapMirror Synchronous is not supported for ONTAP cloud instances.

ONTAP version ...	Interoperates with these previous ONTAP versions...									
	9.14.1	9.13.1	9.12.1	9.11.1	9.10.1	9.9.1	9.8	9.7	9.6	9.5
9.14.1	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No
9.13.1	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No
9.12.1	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No
9.11.1	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No
9.10.1	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No
9.9.1	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No
9.8	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	No
9.7	No	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes
9.6	No	No	No	No	No	No	Yes	Yes	Yes	Yes
9.10.2	No	No	No	No	No	No	No	Yes	Yes	Yes

## SnapMirror SVM disaster recovery relationships

- For SVM disaster recovery data and SVM protection:

SVM disaster recovery is supported only between clusters running the same version of ONTAP. **Version-independence is not supported for SVM replication.**

- For SVM disaster recovery for SVM migration:
  - Replication is supported in a single direction from an earlier version of ONTAP on the source to the same or later version of ONTAP on the destination.
- The ONTAP version on the target cluster must be no more than two major on-premises versions newer or two major cloud versions newer, as shown in the table below.
  - Replication is not supported for long-term data protection use cases.

The asterisk (\*) after the release version indicates a cloud-only release.

To determine support, locate the source version in the left table column, and then locate the destination version on the top row (DR/Migration for like versions and Migration only for newer versions).

Source	Destination																	
	9.3	9.4	9.5	9.6	9.7	9.8	9.9.0*	9.9.1	9.10.0*	9.10.1	9.11.0*	9.11.1	9.12.0*	9.12.1	9.13.0*	9.13.1	9.14.0*	9.14.1
9.3	DR/Migration	Migration	Migration	Migration	Migration													
9.4		DR/Migration	Migration	Migration	Migration	Migration												
9.5			DR/Migration	Migration	Migration	Migration	Migration											
9.6				DR/Migration	Migration	Migration	Migration	Migration										
9.7					DR/Migration	Migration	Migration	Migration	Migration									
9.8						DR/Migration	Migration	Migration	Migration	Migration								
9.9.0*							DR/Migration	Migration	Migration	Migration	Migration							
9.9.1								DR/Migration	Migration	Migration	Migration	Migration						
9.10.0*									DR/Migration	Migration	Migration	Migration	Migration					
9.10.1										DR/Migration	Migration	Migration	Migration	Migration				



9.11.0*										DR/Migration	Migration	Migration	Migration	Migration			
9.11.1										DR/Migration	Migration	Migration	Migration	Migration			
9.12.0*											DR/Migration	Migration	Migration	Migration	Migration		
9.12.1												DR/Migration	Migration	Migration	Migration	Migration	
9.13.0*													DR/Migration	Migration	Migration	Migration	
9.13.1														DR/Migration	Migration	Migration	
9.14.0*															DR/Migration	Migration	
9.14.1																DR/Migration	

## SnapMirror disaster recovery relationships

For SnapMirror relationships of type “DP” and policy type “async-mirror”:



DP-type mirrors cannot be initialized beginning with ONTAP 9.11.1 and are completely deprecated in ONTAP 9.12.1. For more information, see [Deprecation of data protection SnapMirror relationships](#).



In the following table, the column on the left indicates the ONTAP version on the source volume, and the top row indicates the ONTAP versions you can have on your destination volume.

Source	Destination											
	9.11.1	9.10.1	9.9.1	9.8	9.7	9.6	9.5	9.4	9.3	9.2	9.1	9

9.11.1	Yes	No	No	No	No	No	No	No	No	No	No	No
9.10.1	Yes	Yes	No	No	No	No	No	No	No	No	No	No
9.9.1	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No
9.8	No	Yes	Yes	Yes	No	No	No	No	No	No	No	No
9.7	No	No	Yes	Yes	Yes	No	No	No	No	No	No	No
9.6	No	No	No	Yes	Yes	Yes	No	No	No	No	No	No
9.5	No	No	No	No	Yes	Yes	Yes	No	No	No	No	No
9.4	No	No	No	No	No	Yes	Yes	Yes	No	No	No	No
9.3	No	No	No	No	No	No	Yes	Yes	Yes	No	No	No
9.2	No	No	No	No	No	No	No	Yes	Yes	Yes	No	No
9.1	No	No	No	No	No	No	No	No	Yes	Yes	Yes	No
9	No	No	No	No	No	No	No	No	No	Yes	Yes	Yes



Interoperability is not bidirectional.

## SnapMirror limitations

You should be aware of basic SnapMirror limitations before creating a data protection relationship.

- A destination volume can have only one source volume.



A source volume can have multiple destination volumes. The destination volume can be the source volume for any type of SnapMirror replication relationship.

- Depending on the array model, you can fan out a maximum of eight or sixteen destination volumes from a single source volume. See the [Hardware Universe](#) to learn details for your specific configuration.
- You cannot restore files to the destination of a SnapMirror DR relationship.
- Source or destination SnapVault volumes cannot be 32-bit.
- The source volume for a SnapVault relationship should not be a FlexClone volume.



The relationship will work, but the efficiency offered by FlexClone volumes will not be preserved.

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