



SnapMirror

ONTAP 9

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SnapMirror

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...																			
	9.1 5.1	9.1 5.0*	9.1 4.1	9.1 4.0*	9.1 3.1	9.1 3.0*	9.1 2.1	9.1 2.0*	9.1 1.1	9.1 1.0*	9.1 0.1	9.1 0.0*	9.9. 1	9.9. 0*	9.8	9.7	9.6	9.5	9.4	9.3
9.1 5.1	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No
9.1 5.0*	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No
9.1 4.1	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No
9.1 4.0*	Yes	Yes	Yes	Yes	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	No	No	No	No	No	No
9.1 3.1	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No
9.1 3.0*	Yes	Yes	Yes	No	Yes	Yes	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	No	No	No	No

9.1 2.1	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No
9.1 2.0*	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes	No	Yes	No	Yes	No	Yes	Yes	No	No	No	No
9.1 1.1	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No
9.1 1.0*	Yes	Yes	Yes	No	Yes	No	Yes	No	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes	No	No	No
9.1 0.1	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No
9.1 0.0*	Yes	Yes	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	Yes	Yes	No	No
9.9. 0*	No	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	No	No
9.8	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes
9.7	No	No	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	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes
9.5	No	No	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	No	No	Yes	Yes	Yes
9.3	No	No	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...										
	9.15.1	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
9.15.1	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No
9.14.1	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No
9.13.1	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No
9.12.1	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No
9.11.1	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No
9.10.1	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No
9.9.1	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No
9.8	No	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	No

9.7	No	No	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes
9.6	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes
9.5	No	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	9.15.0*	9.15.1
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/ Mig rati on	Mig rati on	Mig rati on	Mig rati on	Mig rati on									
9.9. 0*							DR/ Mig rati on	Mig rati on	Mig rati on	Mig rati on	Mig rati on								
9.9. 1								DR/ Mig rati on	Mig rati on	Mig rati on	Mig rati on	Mig rati on							
9.1 0.0*									DR/ Mig rati on	Mig rati on	Mig rati on	Mig rati on	Mig rati on						
9.1 0.1										DR/ Mig rati on	Mig rati on	Mig rati on	Mig rati on	Mig rati on					
9.1 1.0*											DR/ Mig rati on	Mig rati on	Mig rati on	Mig rati on	Mig rati on				
9.1 1.1												DR/ Mig rati on	Mig rati on	Mig rati on	Mig rati on	Mig rati on			
9.1 2.0*													DR/ Mig rati on	Mig rati on	Mig rati on	Mig rati on	Mig rati on		
9.1 2.1														DR/ Mig rati on	Mig rati on	Mig rati on	Mig rati on	Mig rati on	
9.1 3.0*															DR/ Mig rati on	Mig rati on	Mig rati on	Mig rati on	Mig rati on
9.1 3.1																DR/ Mig rati on	Mig rati on	Mig rati on	Mig rati on

9.1 4.0*																	DR/ Mig rati on	Mig rati on	Mig rati on	Mig rati on
9.1 4.1																		DR/ Mig rati on	Mig rati on	Mig rati on
9.1 5.0*																			DR/ Mig rati on	Mig rati on
9.1 5.1																				DR/ Mig rati on

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.

Convert an existing DP-type relationship to XDP

If you are upgrading to ONTAP 9.12.1 or later, you must convert DP-type relationships to XDP before upgrading. ONTAP 9.12.1 and later does not support DP-type relationships. You can easily convert an existing DP-type relationship to XDP to take advantage of version-flexible SnapMirror.

About this task

- SnapMirror does not automatically convert existing DP-type relationships to XDP. To convert the relationship, you need to break and delete the existing relationship, create a new XDP relationship, and resync the relationship. For background information, see [XDP replaces DP as the SnapMirror default](#).
- When planning your conversion, you should be aware that background preparation and the data warehousing phase of an XDP SnapMirror relationship can take a long time. It is not uncommon to see the SnapMirror relationship reporting the status "preparing" for an extended time period.



After you convert a SnapMirror relationship type from DP to XDP, space-related settings, such as autosize and space guarantee are no longer replicated to the destination.

Steps

1. From the destination cluster, ensure that the SnapMirror relationship is type DP, that the mirror state is SnapMirrored, the relationship status is Idle, and the relationship is healthy:

```
snapmirror show -destination-path <SVM:volume>
```

The following example shows the output from the `snapmirror show` command:


```
cluster_dst:>snapmirror show -destination-path svm_backup:volA_dst
```

```
Source Path: svm1:volA
Destination Path: svm_backup:volA_dst
Relationship Type: DP
SnapMirror Schedule: -
Tries Limit: -
Throttle (KB/sec): unlimited
Mirror State: Snapmirrored
Relationship Status: Idle
Transfer Snapshot: -
Snapshot Progress: -
Total Progress: -
Snapshot Checkpoint: -
Newest Snapshot: snapmirror.10af643c-32d1-11e3-954b-
123478563412_2147484682.2014-06-27_100026
Newest Snapshot Timestamp: 06/27 10:00:55
Exported Snapshot: snapmirror.10af643c-32d1-11e3-954b-
123478563412_2147484682.2014-06-27_100026
Exported Snapshot Timestamp: 06/27 10:00:55
Healthy: true
```



You might find it helpful to retain a copy of the `snapmirror show` command output to keep track existing of the relationship settings.

2. From the source and the destination volumes, ensure that both volumes have a common Snapshot copy:

```
volume snapshot show -vserver <SVM> -volume <volume>
```

The following example shows the `volume snapshot show` output for the source and the destination volumes:

```
cluster_src:> volume snapshot show -vserver vsml -volume volA
---Blocks---
Vserver Volume Snapshot State Size Total% Used%
-----
svm1 volA
weekly.2014-06-09_0736 valid 76KB 0% 28%
weekly.2014-06-16_1305 valid 80KB 0% 29%
daily.2014-06-26_0842 valid 76KB 0% 28%
hourly.2014-06-26_1205 valid 72KB 0% 27%
hourly.2014-06-26_1305 valid 72KB 0% 27%
hourly.2014-06-26_1405 valid 76KB 0% 28%
hourly.2014-06-26_1505 valid 72KB 0% 27%
hourly.2014-06-26_1605 valid 72KB 0% 27%
daily.2014-06-27_0921 valid 60KB 0% 24%
hourly.2014-06-27_0921 valid 76KB 0% 28%
snapmirror.10af643c-32d1-11e3-954b-123478563412_2147484682.2014-06-
27_100026
valid 44KB 0% 19%
11 entries were displayed.
```

```
cluster_dest:> volume snapshot show -vserver svm_backup -volume volA_dst
---Blocks---
Vserver Volume Snapshot State Size Total% Used%
-----
svm_backup volA_dst
weekly.2014-06-09_0736 valid 76KB 0% 30%
weekly.2014-06-16_1305 valid 80KB 0% 31%
daily.2014-06-26_0842 valid 76KB 0% 30%
hourly.2014-06-26_1205 valid 72KB 0% 29%
hourly.2014-06-26_1305 valid 72KB 0% 29%
hourly.2014-06-26_1405 valid 76KB 0% 30%
hourly.2014-06-26_1505 valid 72KB 0% 29%
hourly.2014-06-26_1605 valid 72KB 0% 29%
daily.2014-06-27_0921 valid 60KB 0% 25%
hourly.2014-06-27_0921 valid 76KB 0% 30%
snapmirror.10af643c-32d1-11e3-954b-123478563412_2147484682.2014-06-
27_100026
```

3. To ensure scheduled updates will not run during the conversion, quiesce the existing DP-type relationship:

```
snapmirror quiesce -source-path <SVM:volume> -destination-path  
<SVM:volume>
```

For complete command syntax, see the [man page](#).



You must run this command from the destination SVM or the destination cluster.

The following example quiesces the relationship between the source volume `volA` on `svm1` and the destination volume `volA_dst` on `svm_backup`:

```
cluster_dst::> snapmirror quiesce -destination-path svm_backup:volA_dst
```

4. Break the existing DP-type relationship:

```
snapmirror break -destination-path <SVM:volume>
```

For complete command syntax, see the [man page](#).



You must run this command from the destination SVM or the destination cluster.

The following example breaks the relationship between the source volume `volA` on `svm1` and the destination volume `volA_dst` on `svm_backup`:

```
cluster_dst::> snapmirror break -destination-path svm_backup:volA_dst
```

5. If automatic deletion of Snapshot copies is enabled on the destination volume, disable it:

```
volume snapshot autodelete modify -vserver _SVM_ -volume _volume_  
-enabled false
```

The following example disables Snapshot copy autodelete on the destination volume `volA_dst`:

```
cluster_dst::> volume snapshot autodelete modify -vserver svm_backup  
-volume volA_dst -enabled false
```

6. Delete the existing DP-type relationship:

```
snapmirror delete -destination-path <SVM:volume>
```

For complete command syntax, see the [man page](#).



You must run this command from the destination SVM or the destination cluster.

The following example deletes the relationship between the source volume `volA` on `svm1` and the destination volume `volA_dst` on `svm_backup`:

```
cluster_dst::> snapmirror delete -destination-path svm_backup:volA_dst
```

7. Release the origin SVM disaster recovery relationship on the source:

```
snapmirror release -destination-path <SVM:volume> -relationship-info  
-only true
```

The following example releases the SVM disaster recovery relationship:

```
cluster_src::> snapmirror release -destination-path svm_backup:volA_dst  
-relationship-info-only true
```

8. You can use the output you retained from the `snapmirror show` command to create the new XDP-type relationship:

```
snapmirror create -source-path <SVM:volume> -destination-path  
<SVM:volume> -type XDP -schedule <schedule> -policy <policy>
```

The new relationship must use the same source and destination volume. For complete command syntax, see the man page.



You must run this command from the destination SVM or the destination cluster.

The following example creates a SnapMirror disaster recovery relationship between the source volume `volA` on `svm1` and the destination volume `volA_dst` on `svm_backup` using the default `MirrorAllSnapshots` policy:

```
cluster_dst::> snapmirror create -source-path svm1:volA -destination  
-path svm_backup:volA_dst  
-type XDP -schedule my_daily -policy MirrorAllSnapshots
```

9. Resync the source and destination volumes:

```
snapmirror resync -source-path <SVM:volume> -destination-path  
<SVM:volume>
```

To improve resync time, you can use the `-quick-resync` option, but you should be aware that storage efficiency savings can be lost. For complete command syntax, see the man page: [SnapMirror resync command](#).



You must run this command from the destination SVM or the destination cluster. Although resync does not require a baseline transfer, it can be time-consuming. You might want to run the resync in off-peak hours.

The following example resyncs the relationship between the source volume `volA` on `svm1` and the destination volume `volA_dst` on `svm_backup`:

```
cluster_dst::> snapmirror resync -source-path svm1:volA -destination
-path svm_backup:volA_dst
```

10. If you disabled automatic deletion of Snapshot copies, reenable it:

```
volume snapshot autodelete modify -vserver <SVM> -volume <volume>
-enabled true
```

After you finish

1. Use the `snapmirror show` command to verify that the SnapMirror relationship was created.
2. Once the SnapMirror XDP destination volume begins updating Snapshot copies as defined by the SnapMirror policy, use the output of `snapmirror list-destinations` command from the source cluster to display the new SnapMirror XDP relationship.

Disable long-term retention snapshots before ONTAP upgrade

If you are upgrading from ONTAP 9.9.1 or earlier to ONTAP 9.10.1 or later and you have a SnapMirror cascade relationship configured on your cluster, you should disable long-term retention (LTR) snapshots from middle volumes in the cascade before you upgrade. Cascading a volume with LTR snapshots enabled is not supported in ONTAP 9.10.1 or later. Using this configuration after upgrading could result in missed backups and snapshots.

You need to take action in the following scenarios:

- Long-Term Retention (LTR) snapshots are configured on the "B" volume in an **A > B > C** SnapMirror cascade or on another middle SnapMirror destination volume in your larger cascade.
- LTR snapshots are defined by a schedule applied to a SnapMirror policy rule. This rule does not replicate snapshots from the source volume but creates them directly on the destination volume.



For more information on schedules and SnapMirror policies, see the Knowledge Base article [How does the "schedule" parameter in an ONTAP 9 SnapMirror policy rule work?](#).

Steps

1. Remove the LTR rule from the SnapMirror policy on the middle volume of the cascade:

```
Secondary::> snapmirror policy remove-rule -vserver <> -policy <>  
-snapmirror-label <>
```

2. Add the rule again for the SnapMirror label without the LTR schedule:

```
Secondary::> snapmirror policy add-rule -vserver <> -policy <>  
-snapmirror-label <> -keep <>
```



Removing LTR snapshots from the SnapMirror policy rules means SnapMirror will pull the snapshots with the given label from the source volume. You might also need to add or modify a schedule on the source volume's snapshot policy to create properly labeled snapshots.

3. If necessary, modify (or create) a schedule on the source volume snapshot policy to allow snapshots to be created with a SnapMirror label:

```
Primary::> volume snapshot policy modify-schedule -vserver <> -policy <>  
-schedule <> -snapmirror-label <>
```

```
Primary::> volume snapshot policy add-schedule -vserver <> -policy <>  
-schedule <> -snapmirror-label <> -count <>
```



LTR snapshots can still be enabled on the final SnapMirror destination volume within a SnapMirror cascade configuration.

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