



Convert FlexVol volumes to FlexGroup volumes

ONTAP 9

NetApp
June 12, 2023

Table of Contents

- Convert FlexVol volumes to FlexGroup volumes 1
 - Converting FlexVol volumes to FlexGroup volumes overview 1
 - Convert a FlexVol volume to a FlexGroup volume 2
 - Convert a FlexVol volume SnapMirror relationship to a FlexGroup volume SnapMirror relationship 3

Convert FlexVol volumes to FlexGroup volumes

Converting FlexVol volumes to FlexGroup volumes overview

If you want to expand a FlexVol volume beyond its space limit, you can convert the FlexVol volume to a FlexGroup volume. Beginning with ONTAP 9.7, you can convert standalone FlexVol volumes or FlexVol volumes that are in a SnapMirror relationship to FlexGroup volumes.

Considerations for converting FlexVol volumes to FlexGroup volumes

You should be aware of the features and operations that are supported before you decide to convert FlexVol volumes to FlexGroup volumes.

Beginning with ONTAP 9.13.1, Autonomous Ransomware Protection can remain enabled during conversions. If protection is active, the original FlexVol will become the FlexGroup root constituent after conversion. If protection is inactive, a new FlexGroup will be created during conversion and the original FlexVol will take the role of root constituent.

Operations not supported during conversion

The following operations are not allowed when volume conversion is in progress:

- Volume move
- Aggregate autobalance
- Aggregate relocation
- Planned takeover and giveback in a high-availability configuration
- Manual and automatic giveback in an high-availability configuration
- Cluster upgrade and revert
- FlexClone volume split
- Volume rehost
- Volume modify and autosize
- Volume rename
- Attaching an object store to an aggregate
- Negotiated switchover in MetroCluster configuration
- SnapMirror operations
- Restoring from a Snapshot copy
- Quota operations
- Storage efficiency operations

You can perform these operations on the FlexGroup volume after successful conversion.

Configurations that are not supported with FlexGroup volumes

- Offline or restricted volume
- SVM root volume
- SAN
- SMB 1.0
- NVMe namespaces
- Remote Volume Shadow Copy Service (VSS)

Convert a FlexVol volume to a FlexGroup volume

Beginning with ONTAP 9.7, you can perform an in-place conversion of a FlexVol volume to a FlexGroup volume without requiring a data copy or additional disk space.

What you'll need

- Transitioned volumes can be converted to FlexGroup volumes beginning in ONTAP 9.8. If you are converting a transitioned volume to FlexGroup, see Knowledge Base article [How To Convert a Transitioned FlexVol to FlexGroup](#) for more information.
- The FlexVol volume that is being converted must be online.
- The operations and configurations on the FlexVol volume must be compatible with the conversion process.

An error message is generated if the FlexVol volume has any incompatibility and the volume conversion is aborted. You can take corrective actions and retry the conversion.

- If a FlexVol volume is very large (for example, 80 to 100 TB) and very full (80 to 100 percent), you should copy the data rather than convert it.



Converting a very large FlexGroup volume results in a very full FlexGroup volume member constituent, which can create performance issues. For more information, see the section called "When not to create a FlexGroup volume" in the TR [FlexGroup volumes - Best Practices and Implementation Guide](#).

Steps

1. Verify that the FlexVol volume is online: `volume show vol_name -volume-style-extended, state`

```
cluster-1::> volume show my_volume -fields volume-style-extended, state
vserver volume      state  volume-style-extended
-----
vs0      my_volume online flexvol
```

2. Verify whether the FlexVol volume can be converted without issues:
 - a. Log in to the advance privilege mode: `set -privilege advanced`
 - b. Verify the conversion process: `volume conversion start -vserver vs1 -volume flexvol -check-only true`

You must rectify all errors before converting the volume.



You cannot convert a FlexGroup volume back to a FlexVol volume.

3. Start the conversion: `volume conversion start -vserver svm_name -volume vol_name`

```
cluster-1::*> volume conversion start -vserver vs0 -volume my_volume

Warning: Converting flexible volume "my_volume" in Vserver "vs0" to a
FlexGroup
        will cause the state of all Snapshot copies from the volume to
be set
        to "pre-conversion". Pre-conversion Snapshot copies cannot be
        restored.
Do you want to continue? {y|n}: y
[Job 57] Job succeeded: success
```

4. Verify that the conversion is successful: `volume show vol_name -fields -volume-style -extended,state`

```
cluster-1::*> volume show my_volume -fields volume-style-extended,state
vserver volume      state  volume-style-extended
-----
vs0      my_volume online flexgroup
```

Results

The FlexVol volume is converted to a single-member FlexGroup volume.

After you finish

You can expand the FlexGroup volume, as required.

Convert a FlexVol volume SnapMirror relationship to a FlexGroup volume SnapMirror relationship

To convert a FlexVol volume SnapMirror relationship to a FlexGroup volume SnapMirror relationship in ONTAP, you must first convert the destination FlexVol volume followed by the source FlexVol volume.

What you'll need

- The FlexVol volume that is being converted must be online.
- The source FlexVol volume in the SnapMirror relationship must not be the source volume for multiple SnapMirror relationships.

Beginning with ONTAP 9.9.1, fanout SnapMirror relationships are supported for FlexGroup volumes. For more information, see [Considerations for creating SnapMirror cascade and fanout relationships for](#)

FlexGroups.

- The operations and configurations on the FlexVol volume must be compatible with the conversion process.

An error message is generated if the FlexVol volume has any incompatibility and the volume conversion is aborted. You can take corrective actions and retry the conversion.

About this task

FlexGroup conversion is supported only for asynchronous SnapMirror relationships.

Steps

1. Verify that the SnapMirror relationship is healthy: `snapmirror show`

Only XDP type mirror relationships can be converted.

```
cluster2::> snapmirror show
```

Progress	Source	Destination	Mirror	Relationship	Total		
Last	Path	Type	Path	State	Status	Progress	Healthy
Updated							
-----	-----	-----	-----	-----	-----	-----	-----
-----	vs0:src_dpv	DP	vs2:dst_dpv	Snapmirrored			
				Idle	-	true	-
	vs0:src_xdp	XDP	vs2:dst_xdp	Snapmirrored			
				Idle	-	true	-

2. Verify whether the source volume is compatible for conversion:
 - a. Log in to the advance privilege mode: `set -privilege advanced`
 - b. Verify the conversion process: `volume conversion start -vserver vs1 -volume src_vol -check-only true`

You must rectify all errors before converting the volume.

3. Convert the destination FlexVol volume to FlexGroup volume.
 - a. Quiesce the FlexVol SnapMirror relationship: `snapmirror quiesce -destination-path dest_svm:dest_volume`

```
cluster2::> snapmirror quiesce -destination-path vs2:dst_xdp
```

- b. Start the conversion: `volume conversion start -vserver dest_svm -volume dest_volume`

```
cluster-1::> volume conversion start -vserver vs2 -volume dst_xdp
```

Warning: After the volume is converted to a FlexGroup, it will not be possible to change it back to a flexible volume.
Do you want to continue? {y|n}: y

[Job 510] Job succeeded: SnapMirror destination volume "dst_xdp" has been successfully converted to a FlexGroup volume.
You must now convert the relationship's source volume, "vs0:src_xdp", to a FlexGroup.
Then, re-establish the SnapMirror relationship using the "snapmirror resync" command.

4. Convert the source FlexVol volume to FlexGroup volume: `volume conversion start -vserver src_svm_name -volume src_vol_name`

```
cluster-1::> volume conversion start -vserver vs0 -volume src_xdp
```

Warning: Converting flexible volume "src_xdp" in Vserver "vs0" to a FlexGroup

will cause the state of all Snapshot copies from the volume to be set

to "pre-conversion". Pre-conversion Snapshot copies cannot be restored.

Do you want to continue? {y|n}: y

[Job 57] Job succeeded: success

5. Resync the relationship: `snapmirror resync -destination-path dest_svm_name:dest_volume`

```
cluster2::> snapmirror resync -destination-path vs2:dst_xdp
```

After you finish

You must ensure that when the source FlexGroup volume is expanded to include more constituents, the destination volume is also expanded.

Copyright information

Copyright © 2023 NetApp, Inc. All Rights Reserved. Printed in the U.S. No part of this document covered by copyright may be reproduced in any form or by any means—graphic, electronic, or mechanical, including photocopying, recording, taping, or storage in an electronic retrieval system—without prior written permission of the copyright owner.

Software derived from copyrighted NetApp material is subject to the following license and disclaimer:

THIS SOFTWARE IS PROVIDED BY NETAPP “AS IS” AND WITHOUT ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, WHICH ARE HEREBY DISCLAIMED. IN NO EVENT SHALL NETAPP BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

NetApp reserves the right to change any products described herein at any time, and without notice. NetApp assumes no responsibility or liability arising from the use of products described herein, except as expressly agreed to in writing by NetApp. The use or purchase of this product does not convey a license under any patent rights, trademark rights, or any other intellectual property rights of NetApp.

The product described in this manual may be protected by one or more U.S. patents, foreign patents, or pending applications.

LIMITED RIGHTS LEGEND: Use, duplication, or disclosure by the government is subject to restrictions as set forth in subparagraph (b)(3) of the Rights in Technical Data -Noncommercial Items at DFARS 252.227-7013 (FEB 2014) and FAR 52.227-19 (DEC 2007).

Data contained herein pertains to a commercial product and/or commercial service (as defined in FAR 2.101) and is proprietary to NetApp, Inc. All NetApp technical data and computer software provided under this Agreement is commercial in nature and developed solely at private expense. The U.S. Government has a non-exclusive, non-transferrable, nonsublicensable, worldwide, limited irrevocable license to use the Data only in connection with and in support of the U.S. Government contract under which the Data was delivered. Except as provided herein, the Data may not be used, disclosed, reproduced, modified, performed, or displayed without the prior written approval of NetApp, Inc. United States Government license rights for the Department of Defense are limited to those rights identified in DFARS clause 252.227-7015(b) (FEB 2014).

Trademark information

NETAPP, the NETAPP logo, and the marks listed at <http://www.netapp.com/TM> are trademarks of NetApp, Inc. Other company and product names may be trademarks of their respective owners.