



Use qtrees to partition your FlexVol volumes

ONTAP 9

NetApp
July 19, 2023

Table of Contents

- Use qtrees to partition your FlexVol volumes 1
 - Use qtrees to partition your FlexVol volumes overview 1
 - Obtain a qtree junction path 1
 - Qtree name restrictions 1
 - Convert a directory to a qtree 2
 - Commands for managing and configuring qtrees 3

Use qtrees to partition your FlexVol volumes

Use qtrees to partition your FlexVol volumes overview

Qtrees enable you to partition your FlexVol volumes into smaller segments that you can manage individually. You can use qtrees to manage quotas, security style, and CIFS oplocks.

ONTAP creates a default qtree, called *qtree0*, for each volume. If you do not put data into a qtree, it resides in *qtree0*.

Qtree names must have no more than 64 characters.

Directories cannot be moved between qtrees. Only files can be moved between qtrees.

If you create qtree-level and volume-level shares on the same FlexVol or SCVMM pool, the qtrees appear as directories on the FlexVol share. Therefore, you need to be careful not to delete them accidentally.

Obtain a qtree junction path

You can mount an individual qtree by obtaining the junction path or namespace path of the qtree. The qtree path displayed by the CLI command `qtree show -instance` is of the format `/vol/<volume_name>/<qtree_name>`. However, this path does not refer to the junction path or namespace path of the qtree.

About this task

You need to know the junction path of the volume to obtain the junction path or namespace path of the qtree.

Step

1. Use the `vserver volume junction-path` command to obtain the junction path of a volume.

The following example displays the junction path of the volume named `vol1` located on the storage virtual machine (SVM) named `vs0`:

```
cluster1::> volume show -volume vol1 -vserver vs0 -fields junction-path
-----
vs0 vol1 /vol1
```

From the above output, the volume's junction path is `/vol1`. Since qtrees are always rooted at the volume, the junction path or namespace path of the qtree will be `/vol1/qtree1`.

Qtree name restrictions

Qtree names can be no more than 64 characters in length. In addition, using some

special characters in qtree names, such as commas and spaces, can cause problems with other capabilities, and should be avoided.

Convert a directory to a qtree

Convert a directory to a qtree overview

If you have a directory at the root of a FlexVol volume that you want to convert to a qtree, you must migrate the data contained in the directory to a new qtree with the same name, using your client application.

About this task

The steps you take to convert a directory to a qtree depend on what client you use. The following process outlines the general tasks you need to complete:

Steps

1. Rename the directory to be made into a qtree.
2. Create a new qtree with the original directory name.
3. Use the client application to move the contents of the directory into the new qtree.
4. Delete the now-empty directory.



You cannot delete a directory if it is associated with an existing CIFS share.

Convert a directory to a qtree using a Windows client

To convert a directory to a qtree using a Windows client, you rename the directory, create a qtree on the storage system, and move the directory's contents to the qtree.

About this task

You must use Windows Explorer for this procedure. You cannot use the Windows command-line interface or the DOS prompt environment.

Steps

1. Open Windows Explorer.
2. Click the folder representation of the directory you want to change.



The directory must reside at the root of its containing volume.

3. From the **File** menu, select **Rename** to give this directory a different name.
4. On the storage system, use the `volume qtree create` command to create a new qtree with the original name of the directory.
5. In Windows Explorer, open the renamed directory folder and select the files inside it.
6. Drag these files into the folder representation of the new qtree.



The more subfolders contained in the folder that you are moving, the longer the move operation takes.

7. From the **File** menu, select **Delete** to delete the renamed, now-empty directory folder.

Convert a directory to a qtree using a UNIX client

To convert a directory to a qtree in UNIX, you rename the directory, create a qtree on the storage system, and move the directory's contents to the qtree.

Steps

1. Open a UNIX client window.
2. Use the `mv` command to rename the directory.

```
client: mv /n/user1/vol1/dir1 /n/user1/vol1/olddir
```

3. From the storage system, use the `volume qtree create` command to create a qtree with the original name.

```
system1: volume qtree create /n/user1/vol1/dir1
```

4. From the client, use the `mv` command to move the contents of the old directory into the qtree.



The more subdirectories contained in a directory that you are moving, the longer the move operation will take.

```
client: mv /n/user1/vol1/olddir/* /n/user1/vol1/dir1
```

5. Use the `rmdir` command to delete the old, now-empty directory.

```
client: rmdir /n/user1/vol1/olddir
```

After you finish

Depending on how your UNIX client implements the `mv` command, file ownership and permissions might not be preserved. If this occurs, update file owners and permissions to their previous values.

Commands for managing and configuring qtrees

You can manage and configure qtrees by using specific ONTAP commands.

If you want to...	Use this command...
Create a qtree	<code>volume qtree create</code>
Display a filtered list of qtrees	<code>volume qtree show</code>

Delete a qtree	<pre>volume qtree delete</pre> <div>  <p>The <code>qtree</code> command <code>volume qtree delete</code> will fail unless the <code>qtree</code> is empty or the <code>-force true</code> flag is added.</p> </div>
Modify a qtree's UNIX permissions	<pre>volume qtree modify -unix-permissions</pre>
Modify a qtree's CIFS oplocks setting	<pre>volume qtree oplocks</pre>
Modify a qtree's security setting	<pre>volume qtree security</pre>
Rename a qtree	<pre>volume qtree rename</pre>
Display a qtree's statistics	<pre>volume qtree statistics</pre>
Reset a qtree's statistics	<pre>volume qtree statistics -reset</pre>



The `volume rehost` command can cause other concurrent administrative operations targeted at that volume to fail.

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.