



# **Use qtrees to partition your FlexVol volumes**

**ONTAP 9**

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# 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.

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