



Create and manage data volumes in NAS namespaces

ONTAP 9

NetApp
July 12, 2023

Table of Contents

- Create and manage data volumes in NAS namespaces 1
 - Create and manage data volumes in NAS namespaces overview 1
 - Create data volumes with specified junction points 1
 - Create data volumes without specifying junction points 2
 - Mount or unmount existing volumes in the NAS namespace 3
 - Display volume mount and junction point information 4

Create and manage data volumes in NAS namespaces

Create and manage data volumes in NAS namespaces overview

To manage file access in a NAS environment, you must manage data volumes and junction points on your storage virtual machine (SVM). This includes planning your namespace architecture, creating volumes with or without junction points, mounting or unmounting volumes, and displaying information about data volumes and NFS server or CIFS server namespaces.

Create data volumes with specified junction points

You can specify the junction point when you create a data volume. The resultant volume is automatically mounted at the junction point and is immediately available to configure for NAS access.

Before you begin

The aggregate in which you want to create the volume must already exist.



The following characters cannot be used in the junction path: * # " > < | ? \

In addition, the junction path length cannot be more than 255 characters.

Steps

1. Create the volume with a junction point: `volume create -vserver vservers_name -volume volume_name -aggregate aggregate_name -size {integer[KB|MB|GB|TB|PB]} -security-style {ntfs|unix|mixed} -junction-path junction_path`

The junction path must start with the root (/) and can contain both directories and junctioned volumes. The junction path does not need to contain the name of the volume. Junction paths are independent of the volume name.

Specifying a volume security style is optional. If you do not specify a security style, ONTAP creates the volume with the same security style that is applied to the root volume of the storage virtual machine (SVM). However, the root volume's security style might not be the security style you want applied to the data volume you create. The recommendation is to specify the security style when you create the volume to minimize difficult-to-troubleshoot file-access issues.

The junction path is case insensitive; /ENG is the same as /eng. If you create a CIFS share, Windows treats the junction path as if it is case sensitive. For example, if the junction is /ENG, the path of a CIFS share must start with /ENG, not /eng.

There are many optional parameters that you can use to customize a data volume. To learn more about them, see the man pages for the `volume create` command.

2. Verify that the volume was created with the desired junction point: `volume show -vserver`

```
vserver_name -volume volume_name -junction
```

Example

The following example creates a volume named “home4” located on SVM vs1 that has a junction path /eng/home:

```
cluster1::> volume create -vserver vs1 -volume home4 -aggregate aggr1
-size 1g -junction-path /eng/home
[Job 1642] Job succeeded: Successful
```

```
cluster1::> volume show -vserver vs1 -volume home4 -junction
```

		Junction		Junction
Vserver	Volume	Active	Junction Path	Path Source
vs1	home4	true	/eng/home	RW_volume

Create data volumes without specifying junction points

You can create a data volume without specifying a junction point. The resultant volume is not automatically mounted, and is not available to configure for NAS access. You must mount the volume before you can configure SMB shares or NFS exports for that volume.

Before you begin

The aggregate in which you want to create the volume must already exist.

Steps

1. Create the volume without a junction point by using the following command: `volume create -vserver vserver_name -volume volume_name -aggregate aggregate_name -size {integer[KB|MB|GB|TB|PB]} -security-style {ntfs|unix|mixed}`

Specifying a volume security style is optional. If you do not specify a security style, ONTAP creates the volume with the same security style that is applied to the root volume of the storage virtual machine (SVM). However, the root volume's security style might not be the security style you want applied to the data volume. The recommendation is to specify the security style when you create the volume to minimize difficult-to-troubleshoot file-access issues.

There are many optional parameters that you can use to customize a data volume. To learn more about them, see the man pages for the `volume create` command.

2. Verify that the volume was created without a junction point: `volume show -vserver vserver_name -volume volume_name -junction`

Example

The following example creates a volume named “sales” located on SVM vs1 that is not mounted at a junction point:

```
cluster1::> volume create -vserver vs1 -volume sales -aggregate aggr3
-size 20GB
[Job 3406] Job succeeded: Successful
```

```
cluster1::> volume show -vserver vs1 -junction
```

Vserver	Volume	Active	Junction Path	Junction Path Source
vs1	data	true	/data	RW_volume
vs1	home4	true	/eng/home	RW_volume
vs1	vs1_root	-	/	-
vs1	sales	-	-	-

Mount or unmount existing volumes in the NAS namespace

A volume must be mounted on the NAS namespace before you can configure NAS client access to data contained in the storage virtual machine (SVM) volumes. You can mount a volume to a junction point if it is not currently mounted. You can also unmount volumes.

About this task

If you unmount and offline a volume, all data within the junction point, including data in volumes with junction points contained within the unmounted volume's namespace, are inaccessible to NAS clients.



To discontinue NAS client access to a volume, it is not sufficient to simply unmount the volume. You must offline the volume, or take other steps to ensure that client-side file handle caches are invalidated. For more information, see the following Knowledge Base article:https://kb.netapp.com/Advice_and_Troubleshooting/Data_Storage_Software/ONTAP_OS/NFSv3_clients_still_have_access_to_a_volume_after_being_removed_from_the_namespace_in_ONTAP [NFSv3 clients still have access to a volume after being removed from the namespace in ONTAP]

When you unmount and offline a volume, data within the volume is not lost. Additionally, existing volume export policies and SMB shares created on the volume or on directories and junction points within the unmounted volume are retained. If you remount the unmounted volume, NAS clients can access the data contained within the volume using existing export policies and SMB shares.

Steps

1. Perform the desired action:

If you want to...	Enter the commands...
Mount a volume	<pre>volume mount -vserver svm_name -volume volume_name -junction-path junction_path</pre>

If you want to...	Enter the commands...
Unmount a volume	<pre>volume unmount -vserver <i>svm_name</i> -volume <i>volume_name</i> volume offline -vserver <i>svm_name</i> -volume <i>volume_name</i></pre>

2. Verify that the volume is in the desired mount state: `volume show -vserver vserver_name -volume volume_name -fields state,junction-path,junction-active`

Examples

The following example mounts a volume named “sales” located on SVM vs1 to the junction point /sales:

```
cluster1::> volume mount -vserver vs1 -volume sales -junction-path /sales

cluster1::> volume show -vserver vs1 state,junction-path,junction-active
```

vserver	volume	state	junction-path	junction-active
vs1	data	online	/data	true
vs1	home4	online	/eng/home	true
vs1	sales	online	/sales	true

The following example unmounts and offlines a volume named “data” located on SVM vs1:

```
cluster1::> volume unmount -vserver vs1 -volume data
cluster1::> volume offline -vserver vs1 -volume data

cluster1::> volume show -vserver vs1 -fields state,junction-path,junction-active
```

vserver	volume	state	junction-path	junction-active
vs1	data	offline	-	-
vs1	home4	online	/eng/home	true
vs1	sales	online	/sales	true

Display volume mount and junction point information

You can display information about mounted volumes for storage virtual machines (SVMs) and the junction points to which the volumes are mounted. You can also determine which volumes are not mounted to a junction point. You can use this information to understand and manage your SVM namespace.

Steps

1. Perform the desired action:

If you want to display...	Enter the command...
Summary information about mounted and unmounted volumes on the SVM	<code>volume show -vserver vs1 -junction</code>
Detailed information about mounted and unmounted volumes on the SVM	<code>volume show -vserver vs1 -volume volume_name -instance</code>
Specific information about mounted and unmounted volumes on the SVM	<p>a. If necessary, you can display valid fields for the <code>-fields</code> parameter by using the following command: <code>volume show -fields ?</code></p> <p>b. Display the desired information by using the <code>-fields</code> parameter: <code>volume show -vserver vs1 -fields fieldname,...</code></p>

Examples

The following example displays a summary of mounted and unmounted volumes on SVM vs1:

```
cluster1::> volume show -vserver vs1 -junction
```

Vserver	Volume	Active	Junction Path	Junction Path Source
vs1	data	true	/data	RW_volume
vs1	home4	true	/eng/home	RW_volume
vs1	vs1_root	-	/	-
vs1	sales	true	/sales	RW_volume

The following example displays information about specified fields for volumes located on SVM vs2:

```
cluster1::> volume show -vserver vs2 -fields
vserver,volume,aggregate,size,state,type,security-style,junction-
path,junction-parent,node
vserver volume    aggregate size state  type security-style junction-path
junction-parent node
-----
vs2      data1      aggr3      2GB  online RW    unix      -              -
node3
vs2      data2      aggr3      1GB  online RW    ntfs      /data2
vs2_root node3
vs2      data2_1    aggr3      8GB  online RW    ntfs      /data2/d2_1
data2     node3
vs2      data2_2    aggr3      8GB  online RW    ntfs      /data2/d2_2
data2     node3
vs2      pubs      aggr1      1GB  online RW    unix      /publications
vs2_root node1
vs2      images    aggr3      2TB  online RW    ntfs      /images
vs2_root node3
vs2      logs      aggr1      1GB  online RW    unix      /logs
vs2_root node1
vs2      vs2_root  aggr3      1GB  online RW    ntfs      /              -
node3
```


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.