

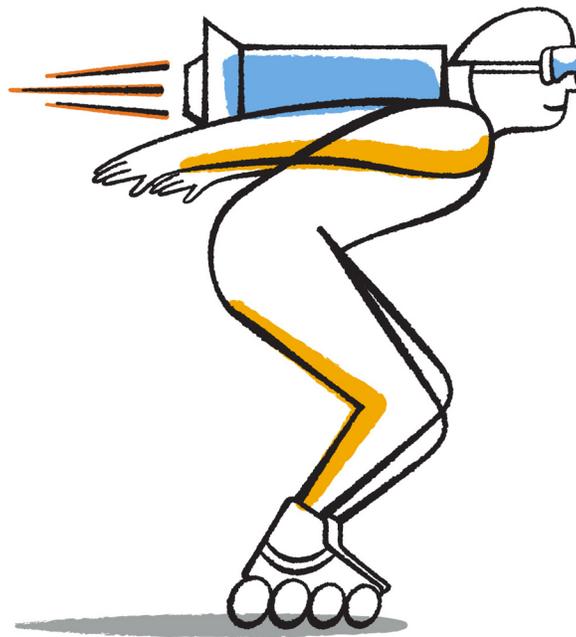


NetApp®

Updated for 8.3.1

Clustered Data ONTAP® 8.3

CIFS/SMB Configuration Express Guide



NetApp, Inc.
495 East Java Drive
Sunnyvale, CA 94089
U.S.

Telephone: +1 (408) 822-6000
Fax: +1 (408) 822-4501
Support telephone: +1 (888) 463-8277
Web: www.netapp.com
Feedback: doccomments@netapp.com

Part number: 215-09055_B0
June 2015

Contents

Deciding whether to use this guide	4
CIFS/SMB configuration workflow	5
Creating an aggregate	5
Deciding where to provision the new volume	6
Creating a new CIFS-enabled SVM	7
Creating a new SVM with a CIFS volume and share	7
Mapping the CIFS server in the DNS server	10
Verifying CIFS access as a Windows administrator	11
Configuring and verifying CIFS client access	11
Configuring CIFS/SMB access to an existing SVM	13
Adding CIFS access to an existing SVM	13
Mapping the CIFS server in the DNS server	15
Verifying CIFS access as a Windows administrator	15
Configuring and verifying CIFS client access	16
Adding a CIFS volume to a CIFS-enabled SVM	17
Creating and configuring a volume	17
Creating a share and setting its permissions	18
Verifying CIFS access as a Windows administrator	19
Configuring and verifying CIFS client access	20
Where to find additional information	21
Copyright information	22
Trademark information	23
How to send comments about documentation and receive update notifications	24
Index	25

Deciding whether to use this guide

This guide describes how to quickly set up CIFS/SMB access to a new volume on either a new or existing Storage Virtual Machine (SVM).

You should use this guide if you want to configure access to a volume in the following way:

- You want to use best practices, not explore every available option.
- You do not want to read a lot of conceptual background.
- You want to use OnCommand System Manager, not the Data ONTAP command-line interface or an automated scripting tool.
- You want to create FlexVol volumes, not Infinite Volumes.
- NTFS file permissions will be used to secure the new volume.

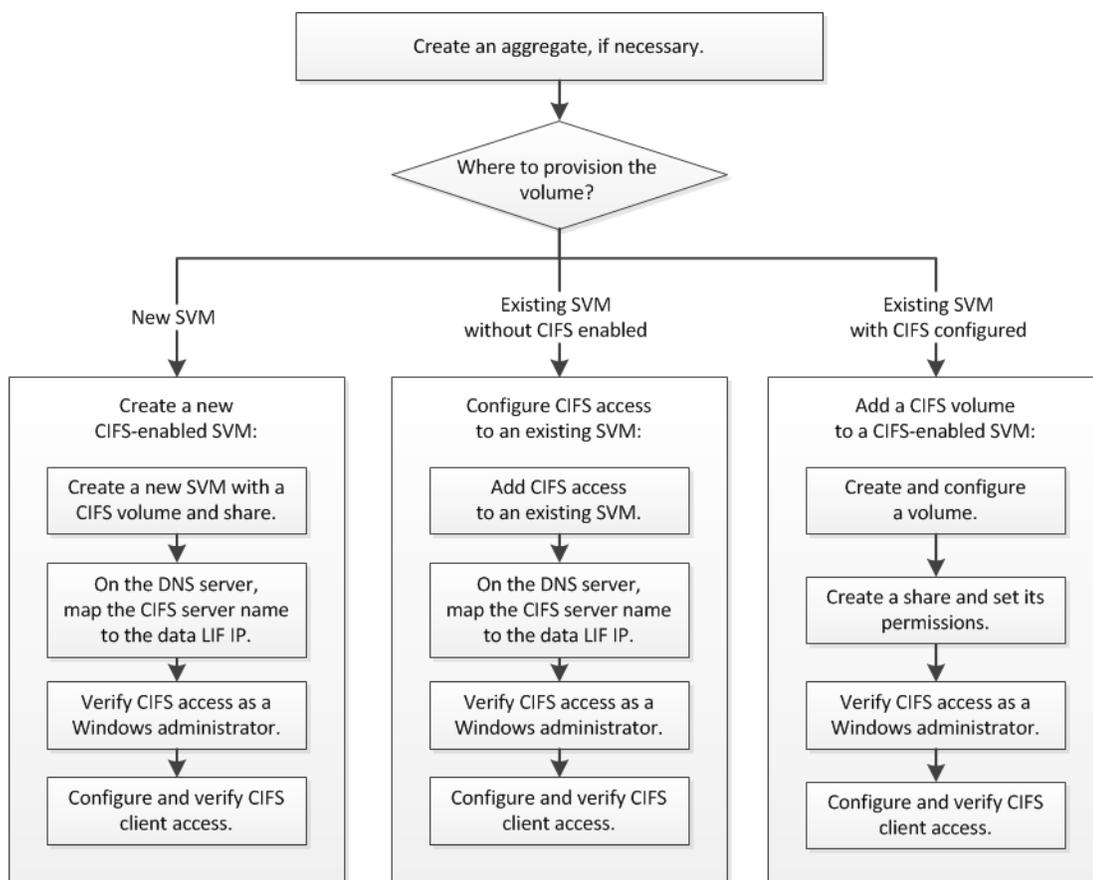
If this guide is not suitable for your situation, you should see the following documentation instead:

- [*Clustered Data ONTAP 8.3 File Access Management Guide for CIFS*](#)
- [*Clustered Data ONTAP 8.3 Network Management Guide*](#)
- [*NetApp Documentation: OnCommand Workflow Automation \(current releases\)*](#)

OnCommand Workflow Automation enables you to run prepackaged workflows that automate management tasks such as the workflows described in Express Guides.

CIFS/SMB configuration workflow

Configuring CIFS/SMB involves optionally creating an aggregate and then choosing a workflow that is specific to your goal—creating a new CIFS-enabled SVM, configuring CIFS access to an existing SVM, or simply adding a CIFS volume to an existing SVM that is already fully configured for CIFS access.



Creating an aggregate

If you do not want to use an existing aggregate, you can create a new aggregate to provide physical storage to the volume you are provisioning.

About this task

If you have an existing aggregate that you want to use for the new volume, you can skip this procedure.

Steps

1. Enter the URL `https://IP-address-of-cluster-management-LIF` in a web browser and log in to System Manager using your cluster administrator credential.
2. In the navigation pane, expand the **Cluster** hierarchy and click **Storage > Aggregates**.

3. Click **Create**.
4. Follow the instructions on the screen to create the aggregate using the default RAID-DP configuration, and then click **Create**.

Create Aggregate

To create an aggregate, select a disk type then specify the number of disks.

Name:

Disk Type:

Number of Disks: Max: 8 (excluding 1 hot spare), min: 5 for RAID-DP

RAID Configuration: RAID-DP; RAID group size of 16 disks

New Usable Capacity: 4.968 TB (Estimated)

Result

The aggregate is created with the specified configuration and added to the list of aggregates in the Aggregates window.

Deciding where to provision the new volume

Before you create a new CIFS volume, you must decide whether to place it in an existing Storage Virtual Machine (SVM), and, if so, how much configuration the SVM requires. This decision determines your workflow.

Choices

- If you want a new SVM, see [Creating a new CIFS-enabled SVM](#) on page 7.
You must choose this option if CIFS is not enabled on an existing SVM.
- If you want to provision a volume on an existing SVM that has CIFS enabled but not configured, see [Configuring CIFS/SMB access to an existing SVM](#) on page 13.
You should choose this option if you created the SVM for SAN access by using the relevant Express Guide.
- If you want to provision a volume on an existing SVM that is fully configured for CIFS access, see [Adding a CIFS volume to a CIFS-enabled SVM](#) on page 17.

Creating a new CIFS-enabled SVM

Setting up a new CIFS-enabled SVM involves creating the new SVM with a CIFS volume and share, adding a mapping on the DNS server, and verifying CIFS access from a Windows administration host. You can then configure CIFS client access.

Steps

1. [Creating a new SVM with a CIFS volume and share](#) on page 7
2. [Mapping the CIFS server in the DNS server](#) on page 10
3. [Verifying CIFS access as a Windows administrator](#) on page 11
4. [Configuring and verifying CIFS client access](#) on page 11

Creating a new SVM with a CIFS volume and share

You can use a wizard that guides you through the process of creating a new SVM, configuring DNS, creating a data LIF, configuring a CIFS server, and creating and sharing a volume.

Before you begin

- Your network must be configured and the relevant physical ports must be connected to the network.
- You must know which of the following networking components the SVM will use:
 - IPspace, if the network has more than one IPspace
You cannot change the IPspace after the SVM is created.
 - Node and the specific port on that node where the data logical interface (LIF) will be created
 - The subnet from which the data LIF's IP address will be provisioned, and optionally the specific IP address you want to assign to the data LIF
 - Active Directory (AD) domain that this SVM will join, along with the credentials required to add the SVM to it
- The subnet must be routable to all external servers required for services such as NIS, LDAP, AD, and DNS.
- Any external firewalls must be appropriately configured to allow access to network services.
- The time on the AD domain controllers, clients, and SVM must be synchronized to within five minutes of each other.

Steps

1. Expand the **Storage Virtual Machines** hierarchy in the left navigation pane, and then click **Create**.
2. In the **Storage Virtual Machine (SVM) Setup** window, create the SVM:
 - a. Specify a unique name for the SVM.
The name must either be a fully qualified domain name (FQDN) or follow another convention that ensures unique names across a cluster.
 - b. Select the IPspace to which the SVM will belong.

If the cluster does not use multiple IPspaces, the Default IPspace is used.

- c. Select all the protocols that you have licenses for and that you will eventually use on the SVM, even if you do not want to configure all the protocols immediately.

If NFS access is required eventually, you must select **NFS** now so that CIFS and NFS clients can share the same data LIF.

- d. Keep the default language setting, C.UTF-8.

This language is inherited by the volume that you create later, and a volume's language cannot be changed.

- e. Optional: Select the root aggregate to contain the SVM root volume.

The aggregate that you select for the root volume does not determine the location of the data volume. The aggregate for the data volume is selected automatically when you provision storage in a later step.

SVM Details

? Specify a unique name and the data protocols for the SVM

SVM Name:

? IPspace:

? Volume Type: FlexVol volumes Infinite Volume

An SVM can contain either multiple FlexVol volumes or a single Infinite Volume.
You cannot change the volume type of the SVM after you set it.

? Data Protocols: CIFS NFS iSCSI FC/FCoE

? Default Language:

The language of the SVM determines the character set used to display the file names and data for all NAS volumes in the SVM. Therefore, you must set the language with correct value.

? Security Style:

Root Aggregate:

- f. Optional: In the **DNS Configuration** area, ensure that the default DNS search domain and name servers are the ones that you want to use for this SVM.

DNS Configuration

Specify the DNS domain and name servers. DNS details are required to configure CIFS protocol.

? Search Domains:

? Name Servers:

- g. Click **Submit & Continue**.

The SVM is created, but protocols are not yet configured.

3. In the **Data LIF Configuration** section of the **Configure CIFS/NFS protocol** page, specify the details of the LIF that clients will use to access data:
 - a. Assign an IP address to the LIF automatically from a subnet you specify or manually enter the address.
 - b. Click **Browse** and select a node and port that will be associated with the LIF.

4. In the **CIFS Server Configuration** section, define the CIFS server and configure it to access the AD domain:
 - a. Specify a name for the CIFS server that is unique in the AD domain.
 - b. Specify the FQDN of the AD domain that the CIFS server can join.
 - c. If you want to associate an organizational unit (OU) within the AD domain other than CN=Computers, enter the OU.
 - d. Specify the name and password of an administrative account that has sufficient privileges to add the CIFS server to the OU.

5. Create a volume for CIFS/SMB access and provision a share on it:
 - a. Name the share that CIFS/SMB clients will use to access the volume.
The name you enter for the share will also be used as the volume name.
 - b. Specify a size for the volume.

You do not have to specify the aggregate for the volume because it is automatically located on the aggregate with the most available space.

6. Optional: Restrict access to the share by modifying the share ACL:
 - a. In the **Permission** field, click **Change**.
 - b. Select the Everyone group, and click **Remove**.
 - c. Optional: Click **Add**, and enter the name of an administrator group defined in the Windows Active Directory domain that includes the SVM.

- d. Select the new administrator group, and then select **Full Control**.
 - e. Click **Save and Close**.
7. Click **Submit & Continue**.
- The following objects are created:
- A data LIF named after the SVM with the suffix “_cifs_lif1”
 - A CIFS server that is part of the AD domain
 - A volume that is located on the aggregate with the most available space and has a name that matches the name of the share and ends in the suffix “_CIFS_volume”
 - A share on the volume
8. For all other protocol configuration pages that are displayed, click **Skip** and configure the protocol later.
9. When the **SVM Administration** page is displayed, configure or defer configuring a separate administrator for this SVM:
- Click **Skip** and configure an administrator later if required.
 - Enter the requested information and then click **Submit & Continue**.
10. Review the **Summary** page, record any information you might require later and then click **OK**.
- The DNS administrator needs to know the CIFS server name and the IP address of the data LIF. Windows clients need to know the names of the CIFS server and the share.

Result

A new SVM is created with a CIFS server containing a new volume that is shared.

Mapping the CIFS server in the DNS server

Your site's DNS server must have an entry pointing the CIFS server name to the IP address of the data LIF so that Windows users can map a drive to the CIFS server name.

Before you begin

You must have administrative access to your site's DNS server. If you do not have administrative access, you must ask the DNS administrator to perform this task.

Step

1. Create forward (A - Address record) and reverse (PTR - Pointer record) lookup entries to map the CIFS server name and the IP address of the data LIF.

Result

After the mapping is propagated across the network, Windows users can map a drive to the CIFS server name.

Verifying CIFS access as a Windows administrator

You should verify that you have configured CIFS correctly by accessing and writing data to the share as a Windows administrator. You should test access using the IP address and the CIFS server name.

Before you begin

You must have the credentials of a member of the administrators group that you specified earlier when configuring share permissions.

Steps

1. Log on to a Windows client.
You can use the administrator credentials to log in to the client or wait to enter the credentials when you map a drive in the next step.
2. Test access using the IP address:
 - a. In Windows Explorer, map a drive using the IP address of the data LIF for the Storage Virtual Machine (SVM) instead of the CIFS server name.

Example

If the IP address of the SVM is 10.53.33.1 and the share is named Eng, you should enter the following: `\\10.53.33.1\Eng`

- b. On the newly created drive, create a test file and then delete the file.

You have verified write access to the share using the IP address.

3. Test access using the CIFS server name:
 - a. In Windows Explorer, map a drive to the share in the following format:

`\\CIFS_Server_Name\Share_Name`

If the mapping is not successful, it is possible that the DNS mapping has not yet propagated throughout the network. You must test access using the CIFS server name later.

Example

If the CIFS server is named vs0.example.com and the share is named Eng, you should enter the following: `\\vs0.example.com\Eng`

- b. On the newly created drive, create a test file and then delete the file.

You have verified write access to the share using the CIFS server name.

Configuring and verifying CIFS client access

When you are ready, you can give select clients access to the share by setting NTFS file permissions in Windows Explorer and modifying the share ACL in System Manager. Then you should test that the affected users or groups can access the volume.

Steps

1. Decide which clients and users or groups will be given access to the share.

2. On a Windows client, use an administrator role to give the users or groups permissions to the files and folders.
 - a. Log in to a Windows client as an administrator who has sufficient administrative rights to manage NTFS permissions.
 - b. In Windows Explorer, right-click the drive, and then select **Properties**.
 - c. Select the **Security** tab, and adjust the security settings for the groups and users as required.
3. In System Manager, modify the share ACL to give Windows users or groups access to the share.
 - a. In the navigation pane, select the Storage Virtual Machine (SVM), and click **Storage > Shares**.
 - b. Select the share, and click **Edit**.
 - c. Select the **Permissions** tab, and give the users or groups access to the share.
4. On a Windows client, log in as one of the users who now has access to the share and files, and verify that you can access the share and create a file.

Configuring CIFS/SMB access to an existing SVM

Adding access for CIFS/SMB clients to an existing SVM involves adding CIFS configurations to the SVM, adding a mapping on the DNS server, and verifying CIFS access from a Windows administration host. You can then configure CIFS client access.

Steps

1. [Adding CIFS access to an existing SVM](#) on page 13
2. [Mapping the CIFS server in the DNS server](#) on page 15
3. [Verifying CIFS access as a Windows administrator](#) on page 15
4. [Configuring and verifying CIFS client access](#) on page 16

Adding CIFS access to an existing SVM

Adding CIFS/SMB access to an existing SVM involves creating a data LIF, configuring a CIFS server, provisioning a volume, sharing the volume, and configuring the share permissions.

Before you begin

- You must know which of the following networking components the SVM will use:
 - Node and the specific port on that node where the data logical interface (LIF) will be created
 - The subnet from which the data LIF's IP address will be provisioned, and optionally the specific IP address you want to assign to the data LIF
 - Active Directory (AD) domain that this SVM will join, along with the credentials required to add the SVM to it
- Any external firewalls must be appropriately configured to allow access to network services.
- The CIFS protocol must be allowed on the SVM.
This is the case if you created the SVM while following another Express Guide to configure a SAN protocol.

Steps

1. Navigate to the area where you can configure the protocols of the SVM:
 - a. In the navigation pane, expand the **Storage Virtual Machines** hierarchy and select the cluster.
 - b. In the list of SVMs, select the SVM that you want to configure.
 - c. In the **Details** pane, next to **Protocols**, click **CIFS**.

Protocols: CIFS FC/FCOE

2. In the **Data LIF Configuration** section of the **Configure CIFS protocol** dialog box, create a data LIF for the SVM:
 - a. Assign an IP address to the LIF automatically from a subnet you specify or manually enter the address.
 - b. Click **Browse** and select a node and port that will be associated with the LIF.

3. In the **CIFS Server Configuration** section, define the CIFS server and configure it to access the AD domain:
 - a. Specify a name for the CIFS server that is unique in the AD domain.
 - b. Specify the FQDN of the AD domain that the CIFS server can join.
 - c. If you want to associate an organizational unit (OU) within the AD domain other than CN=Computers, enter the OU.
 - d. Specify the name and password of an administrative account that has sufficient privileges to add the CIFS server to the OU.

4. Create a volume for CIFS/SMB access and provision a share on it:
 - a. Name the share that CIFS/SMB clients will use to access the volume.
The name you enter for the share will also be used as the volume name.
 - b. Specify a size for the volume.

You do not have to specify the aggregate for the volume because it is automatically located on the aggregate with the most available space.

5. Optional: Restrict access to the share by modifying the share ACL:
 - a. In the **Permission** field, click **Change**.
 - b. Select the Everyone group, and click **Remove**.
 - c. Optional: Click **Add**, and enter the name of an administrator group defined in the Windows Active Directory domain that includes the SVM.

- d. Select the new administrator group, and then select **Full Control**.
 - e. Click **Save and Close**.
6. Click **Submit & Close**, and then click **OK**.

Mapping the CIFS server in the DNS server

Your site's DNS server must have an entry pointing the CIFS server name to the IP address of the data LIF so that Windows users can map a drive to the CIFS server name.

Before you begin

You must have administrative access to your site's DNS server. If you do not have administrative access, you must ask the DNS administrator to perform this task.

Step

1. Create forward (A - Address record) and reverse (PTR - Pointer record) lookup entries to map the CIFS server name and the IP address of the data LIF.

Result

After the mapping is propagated across the network, Windows users can map a drive to the CIFS server name.

Verifying CIFS access as a Windows administrator

You should verify that you have configured CIFS correctly by accessing and writing data to the share as a Windows administrator. You should test access using the IP address and the CIFS server name.

Before you begin

You must have the credentials of a member of the administrators group that you specified earlier when configuring share permissions.

Steps

1. Log on to a Windows client.

You can use the administrator credentials to log in to the client or wait to enter the credentials when you map a drive in the next step.
2. Test access using the IP address:
 - a. In Windows Explorer, map a drive using the IP address of the data LIF for the Storage Virtual Machine (SVM) instead of the CIFS server name.

Example

If the IP address of the SVM is 10.53.33.1 and the share is named Eng, you should enter the following: `\\10.53.33.1\Eng`

- b. On the newly created drive, create a test file and then delete the file.

You have verified write access to the share using the IP address.

3. Test access using the CIFS server name:

- a. In Windows Explorer, map a drive to the share in the following format:
`\\CIFS_Server_Name\Share_Name`

If the mapping is not successful, it is possible that the DNS mapping has not yet propagated throughout the network. You must test access using the CIFS server name later.

Example

If the CIFS server is named `vs0.example.com` and the share is named `Eng`, you should enter the following: `\\vs0.example.com\Eng`

- b. On the newly created drive, create a test file and then delete the file.

You have verified write access to the share using the CIFS server name.

Configuring and verifying CIFS client access

When you are ready, you can give select clients access to the share by setting NTFS file permissions in Windows Explorer and modifying the share ACL in System Manager. Then you should test that the affected users or groups can access the volume.

Steps

1. Decide which clients and users or groups will be given access to the share.
2. On a Windows client, use an administrator role to give the users or groups permissions to the files and folders.
 - a. Log in to a Windows client as an administrator who has sufficient administrative rights to manage NTFS permissions.
 - b. In Windows Explorer, right-click the drive, and then select **Properties**.
 - c. Select the **Security** tab, and adjust the security settings for the groups and users as required.
3. In System Manager, modify the share ACL to give Windows users or groups access to the share.
 - a. In the navigation pane, select the Storage Virtual Machine (SVM), and click **Storage > Shares**.
 - b. Select the share, and click **Edit**.
 - c. Select the **Permissions** tab, and give the users or groups access to the share.
4. On a Windows client, log in as one of the users who now has access to the share and files, and verify that you can access the share and create a file.

Adding a CIFS volume to a CIFS-enabled SVM

Adding a CIFS volume to a CIFS-enabled SVM involves creating and configuring a volume, creating a share and setting its permissions, and verifying access from a Windows administration host. You can then configure CIFS client access.

Before you begin

CIFS must be completely set up on the SVM.

Steps

1. [Creating and configuring a volume](#) on page 17
2. [Creating a share and setting its permissions](#) on page 18
3. [Verifying CIFS access as a Windows administrator](#) on page 19
4. [Configuring and verifying CIFS client access](#) on page 20

Creating and configuring a volume

You must create a FlexVol volume to contain your data. You can optionally change the volume's default security style, which is inherited from the security style of the root volume. You can also optionally change the volume's default location in the namespace, which is at the root volume of the Storage Virtual Machine (SVM).

Steps

1. In the navigation pane, select the SVM, and click **Storage > Volumes**.
2. Click **Create**.
The Create Volume dialog box is displayed.
3. If you want to change the default name, which ends in a date and time stamp, specify a new name, such as **vol1**.
4. Select an aggregate for the volume.
5. Specify the size of the volume.

The screenshot shows the 'Create Volume' dialog box with the following details:

- Title:** Create Volume
- Tabs:** General (selected), Storage Efficiency, Quality of Service
- Name:** vol1
- Aggregate:** aggr2 (with a 'Choose' button)
- Storage Type:**
 - NAS (Used for CIFS or NFS access)
 - SAN (Used for FC/FCoE or iSCSI access)
- Size:**
 - Total Size: 20
 - Unit: GB

6. Click **Create**.

Any new volume created in System Manager is mounted by default at the root volume using the volume name as the junction name. You use the junction path and the junction name when configuring CIFS shares.

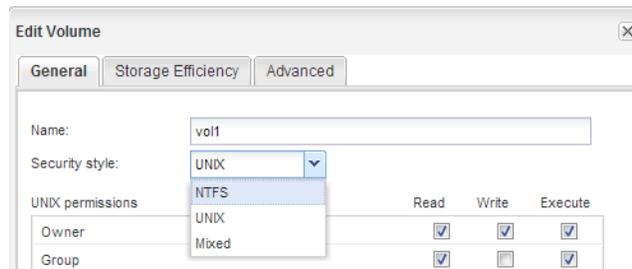
7. Optional: If you do not want the volume to be located at the root of the SVM, modify the place of the new volume in the existing namespace:
 - a. Select **Storage > Namespace**.
 - b. Select the new volume, click **Unmount**, and then confirm the action in the **Unmount Volume** dialog box.
 - c. Click **Mount**.
 - d. In the **Mount Volume** dialog box, specify the volume, the name of its junction path, and the junction path on which you want the volume mounted.
 - e. Verify the new junction path in the **Namespace** window.

Example

If you want to organize certain volumes under a main volume named “data”, you can move the new volume “vol1” from the root volume to the “data” volume.



8. Review the volume's security style and change it, if necessary:
 - a. Click **Storage > Volumes**, select the volume you just created, and click **Edit**.
The Edit Volume dialog box is displayed, showing the volume's current security style, which is inherited from the security style of the SVM root volume.
 - b. Ensure the security style is NTFS.



Creating a share and setting its permissions

Before Windows users can access a volume, you must create a CIFS share on the volume and restrict access to the share by modifying the access control list (ACL) for the share.

About this task

For testing purposes, you should permit access only to administrators. Later, after you have verified that the volume is accessible, you can permit access to more clients.

Steps

1. In the navigation pane, select the Storage Virtual Machine (SVM).
2. Create a share so that SMB clients can access the volume:
 - a. Click **Storage > Shares**.
 - b. Click **Create Share**.
 - c. In the **Create Share** dialog box, click **Browse**, expand the namespace hierarchy, and select the volume that you created earlier.
 - d. Optional: If you want the share name to be different from the volume name, change the share name.
 - e. Click **Create**.

The share is created with a default ACL set to Full Control for the Everyone group.

3. Optional: Restrict access to the share by modifying the share ACL:
 - a. Select the share, and click **Edit**.
 - b. In the **Permissions** tab, select the **Everyone** group, and click **Remove**.
 - c. Click **Add**, and enter the name of an administrator group defined in the Windows Active Directory domain that includes the SVM.
 - d. With the new administrator group selected, select all permissions for it.
 - e. Click **Save and Close**.

The updated share access permissions are listed in the Share Access Control pane.

After you finish

You should verify access as a Windows administrator.

Verifying CIFS access as a Windows administrator

You should verify that you have configured CIFS correctly by accessing and writing data to the share as a Windows administrator. You should test access using the IP address and the CIFS server name.

Before you begin

You must have the credentials of a member of the administrators group that you specified earlier when configuring share permissions.

Steps

1. Log on to a Windows client.

You can use the administrator credentials to log in to the client or wait to enter the credentials when you map a drive in the next step.
2. Test access using the IP address:
 - a. In Windows Explorer, map a drive using the IP address of the data LIF for the Storage Virtual Machine (SVM) instead of the CIFS server name.

Example

If the IP address of the SVM is 10.53.33.1 and the share is named Eng, you should enter the following: `\\10.53.33.1\Eng`

- b. On the newly created drive, create a test file and then delete the file.

You have verified write access to the share using the IP address.

3. Test access using the CIFS server name:

- a. In Windows Explorer, map a drive to the share in the following format:

`\\CIFS_Server_Name\Share_Name`

If the mapping is not successful, it is possible that the DNS mapping has not yet propagated throughout the network. You must test access using the CIFS server name later.

Example

If the CIFS server is named vs0.example.com and the share is named Eng, you should enter the following: `\\vs0.example.com\Eng`

- b. On the newly created drive, create a test file and then delete the file.

You have verified write access to the share using the CIFS server name.

Configuring and verifying CIFS client access

When you are ready, you can give select clients access to the share by setting NTFS file permissions in Windows Explorer and modifying the share ACL in System Manager. Then you should test that the affected users or groups can access the volume.

Steps

1. Decide which clients and users or groups will be given access to the share.
2. On a Windows client, use an administrator role to give the users or groups permissions to the files and folders.
 - a. Log in to a Windows client as an administrator who has sufficient administrative rights to manage NTFS permissions.
 - b. In Windows Explorer, right-click the drive, and then select **Properties**.
 - c. Select the **Security** tab, and adjust the security settings for the groups and users as required.
3. In System Manager, modify the share ACL to give Windows users or groups access to the share.
 - a. In the navigation pane, select the Storage Virtual Machine (SVM), and click **Storage > Shares**.
 - b. Select the share, and click **Edit**.
 - c. Select the **Permissions** tab, and give the users or groups access to the share.
4. On a Windows client, log in as one of the users who now has access to the share and files, and verify that you can access the share and create a file.

Where to find additional information

After you have successfully tested CIFS client access, you can perform advanced CIFS configuration or add SAN access. When protocol access is complete, you should protect the root volume of SVM. There are express guides, comprehensive guides, and technical reports to help you achieve these goals.

CIFS/SMB configuration

You can further configure CIFS access using the following comprehensive guides and technical reports:

- [Clustered Data ONTAP 8.3 File Access Management Guide for CIFS](#)
Describes how to configure and manage file access using the CIFS/SMB protocol.
- [NetApp Technical Report 4191: Best Practices Guide for Clustered Data ONTAP 8.2 Windows File Services](#)
Provides a brief overview of SMB implementation and other Windows File Services features with recommendations and basic troubleshooting information for Data ONTAP.
- [NetApp Technical Report 3740: SMB 2: Next-Generation CIFS Protocol in Data ONTAP](#)
Describes SMB 2 features, configuration details, and its implementation in Data ONTAP.

SAN protocol configuration

If you want to provide SAN access to the SVM, you can use any of the FC or iSCSI configuration express guides, which are available for multiple host operating systems.

[NetApp Documentation: Clustered Data ONTAP Express Guides](#)

Root volume protection

After configuring protocols on the SVM, you should ensure that its root volume is protected by using the following express guide:

- [Clustered Data ONTAP 8.3 SVM Root Volume Protection Express Guide](#)
Describes how to quickly create load-sharing mirrors on every node of a Data ONTAP 8.3 cluster to protect the SVM root volume, which is a NetApp best practice for NAS-enabled SVMs. Also describes how to quickly recover from volume failures or losses by promoting the SVM root volume from a load-sharing mirror.

Copyright information

Copyright © 1994–2015 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.

RESTRICTED RIGHTS LEGEND: Use, duplication, or disclosure by the government is subject to restrictions as set forth in subparagraph (c)(1)(ii) of the Rights in Technical Data and Computer Software clause at DFARS 252.277-7103 (October 1988) and FAR 52-227-19 (June 1987).

Trademark information

NetApp, the NetApp logo, Go Further, Faster, AltaVault, ASUP, AutoSupport, Campaign Express, Cloud ONTAP, Clustered Data ONTAP, Customer Fitness, Data ONTAP, DataMotion, Fitness, Flash Accel, Flash Cache, Flash Pool, FlashRay, FlexArray, FlexCache, FlexClone, FlexPod, FlexScale, FlexShare, FlexVol, FPolicy, GetSuccessful, LockVault, Manage ONTAP, Mars, MetroCluster, MultiStore, NetApp Insight, OnCommand, ONTAP, ONTAPI, RAID DP, RAID-TEC, SANtricity, SecureShare, Simplicity, Simulate ONTAP, Snap Creator, SnapCenter, SnapCopy, SnapDrive, SnapIntegrator, SnapLock, SnapManager, SnapMirror, SnapMover, SnapProtect, SnapRestore, Snapshot, SnapValidator, SnapVault, StorageGRID, Tech OnTap, Unbound Cloud, and WAFL and other names are trademarks or registered trademarks of NetApp, Inc., in the United States, and/or other countries. All other brands or products are trademarks or registered trademarks of their respective holders and should be treated as such. A current list of NetApp trademarks is available on the web at <http://www.netapp.com/us/legal/netapptmlist.aspx>.

How to send comments about documentation and receive update notifications

You can help us to improve the quality of our documentation by sending us your feedback. You can receive automatic notification when production-level (GA/FCS) documentation is initially released or important changes are made to existing production-level documents.

If you have suggestions for improving this document, send us your comments by email to doccomments@netapp.com. To help us direct your comments to the correct division, include in the subject line the product name, version, and operating system.

If you want to be notified automatically when production-level documentation is released or important changes are made to existing production-level documents, follow Twitter account @NetAppDoc.

You can also contact us in the following ways:

- NetApp, Inc., 495 East Java Drive, Sunnyvale, CA 94089 U.S.
- Telephone: +1 (408) 822-6000
- Fax: +1 (408) 822-4501
- Support telephone: +1 (888) 463-8277

Index

A

- about this guide
 - deciding whether to use [4](#)
- access
 - additional documentation [21](#)
 - verifying CIFS access by clients [11](#), [16](#), [20](#)
 - See also* permissions
- ACLs
 - See* share ACLs
- Active Directory
 - identifying [7](#)
- aggregates
 - creating [5](#)
 - selecting for new data volumes during SVM creation [7](#)
 - selecting for new volumes [17](#)
 - selecting for SVM [7](#)
- audience
 - for the guide [4](#)

C

- CIFS
 - additional documentation [21](#)
 - requirements for using this guide to set up CIFS [4](#)
 - setup overview [5](#)
 - verifying access by administrators [11](#), [15](#), [19](#)
- CIFS server
 - defining [7](#)
 - mapping on DNS server [10](#), [15](#)
- CIFS shares
 - See* shares
- comments
 - how to send feedback about documentation [24](#)
- configuring
 - CIFS/SMB access [5](#), [13](#), [17](#)
- creating
 - aggregates [5](#)
 - shares on existing SVMs [18](#)
 - shares on new SVMs [7](#)
 - SVMs [7](#)
 - volumes on existing SVMs [17](#)
 - volumes while creating new SVMs [7](#)

D

- data LIFs
 - creating [7](#)
- DNS server
 - mapping CIFS server name [10](#), [15](#)
- documentation
 - additional information about protocol access [21](#)
 - how to receive automatic notification of changes to [24](#)
 - how to send feedback about [24](#)

E

- express guides
 - additional documentation [21](#)
 - CIFS/SMB configuration workflow [5](#), [13](#), [17](#)
 - requirements for using this guide [4](#)

F

- feedback
 - how to send comments about documentation [24](#)
- file permissions
 - setting for NTFS [11](#), [16](#), [20](#)
- files
 - controlling access to, using NTFS permissions [11](#), [16](#), [20](#)
- FlexVol volumes
 - See* volumes

I

- information
 - how to send feedback about improving documentation [24](#)

L

- LIFs
 - mapping the data LIF on the DNS server [10](#), [15](#)

M

- mapping
 - data LIF on the DNS server [10](#), [15](#)

N

- NTFS
 - security style, setting [17](#)
 - setting file permissions [11](#), [16](#), [20](#)

P

- permissions
 - configuring share ACLs on existing SVMs [18](#)
 - configuring share ACLs while creating new SVMs [7](#)
 - setting NTFS file permissions [11](#), [16](#), [20](#)
- provisioning
 - volumes on new SVMs [7](#)

S

- security style
 - changing [17](#)
- setup
 - CIFS, overview of [5](#), [13](#), [17](#)
- share ACLs

- defining on existing SVMs [18](#)
- defining while creating new SVMs [7](#)

shares

- creating on existing SVMs [18](#)
- creating while creating new SVMs [7](#)
- modifying share ACLs while creating new SVMs [7](#)
- setting NTFS file permissions [11](#), [16](#), [20](#)
- verifying administrator access to [11](#), [15](#), [19](#)
- verifying client access [11](#), [16](#), [20](#)

SMB

- See* CIFS

subnets

- choosing [7](#)

suggestions

- how to send feedback about documentation [24](#)

SVMs

- creating CIFS volumes on [17](#)
- creating to support CIFS [7](#)
- provisioning volumes on new [7](#)

T

technical reports

- additional information about file access [21](#)

testing

- See* verifying

twitter

- how to receive automatic notification of documentation changes [24](#)

V

verifying

- CIFS access by administrators [11](#), [15](#), [19](#)
- CIFS access by clients [11](#), [16](#), [20](#)

volumes

- creating on existing SVMs [17](#)
- modifying junction path of [17](#)
- provisioning on new SVMs [7](#)

W

workflows

- CIFS/SMB configuration [5](#), [13](#), [17](#)