



# **CIFS protocol**

## **System Manager Classic**

NetApp  
July 01, 2022

# Table of Contents

- Configure the CIFS protocol with System Manager - ONTAP 9.7 and earlier ..... 1
  - Set up CIFS ..... 1
  - Edit the general properties for CIFS ..... 1
  - Manage home directory paths - ONTAP 9.7 and earlier ..... 2
  - Reset CIFS domain controllers with System Manager - ONTAP 9.7 and earlier ..... 3
  - Manage the CIFS group policy configuration with System Manager - ONTAP 9.7 and earlier ..... 3
  - Configure BranchCache with System Manager - ONTAP 9.7 and earlier ..... 4
  - Manage preferred domain controllers with System Manager - ONTAP 9.7 and earlier ..... 6
  - View CIFS domain information with System Manager - ONTAP 9.7 and earlier ..... 7
  - CIFS window in System Manager - ONTAP 9.7 and earlier ..... 7

# Configure the CIFS protocol with System Manager - ONTAP 9.7 and earlier

You can use ONTAP System Manager classic (available in ONTAP 9.7 and earlier) to enable and configure CIFS servers to allow CIFS clients to access files on the cluster.

## Set up CIFS

You can use System Manager to enable and configure CIFS servers to allow CIFS clients to access the files on the cluster.

### Before you begin

- The CIFS license must be installed on your storage system.
- While configuring CIFS in the Active Directory domain, the following requirements must be met:
  - DNS must be enabled and configured correctly.
  - The storage system must be able to communicate with the domain controller by using the fully qualified domain name (FQDN).
  - The time difference (clock skew) between the cluster and the domain controller must not be more than five minutes.
- If CIFS is the only protocol that is configured on the storage virtual machine (SVM), the following requirements must be met:
  - The root volume security style must be NTFS.

By default, System Manager sets the security style as UNIX.

- Superuser access must be set to `Any` for the CIFS protocol.

### Steps

1. Click **Storage > SVMs**.
2. Select the SVM, and then click **SVM Settings**.
3. In the **Configuration** tab, click **Set up**.
4. In the **General** tab of the **CIFS Server Setup** dialog box, specify the NetBIOS name and the Active Directory domain details.
5. Click the **Options** tab, and then perform the following actions:
  - In the SMB settings area, select or clear the SMB signing check box and the SMB encryption check box, as required.
  - Specify the default UNIX user.
  - In the WINS Servers area, add the required IP address.
6. Click **Set up**.

## Edit the general properties for CIFS

You can modify the general properties for CIFS such as the default UNIX user and default Windows user by using System Manager. You can also enable or disable SMB signing for the CIFS server.

## Steps

1. Click **Storage > SVMs**.
2. Select the SVM, and then click **SVM Settings**.
3. In the **Configuration** tab, click **Options**.
4. In the **CIFS Options** dialog box, modify the following CIFS server properties, as required:
  - UNIX user
  - Windows user
  - IP address
  - Enable or disable SMB signing

Enabling SMB signing prevents the data from being compromised. However, you might encounter performance degradation in the form of increased CPU usage on both the clients and the server, although the network traffic remains the same. You can disable SMB signing on any of your Windows clients that do not require protection against replay attacks.

For information about disabling SMB signing on Windows clients, see the Microsoft Windows documentation.

- Enable or disable SMB 3.0 encryption

You should enable SMB Multichannel to establish multiple channels between an SMB 3.0 session and transport connections.

5. Click either **Save** or **Save and Close**.

## Related information

[Creating a CIFS share](#)

[CIFS window](#)

[Editing volume properties](#)

[Modifying export policy rules](#)

[SMB/CIFS management](#)

## Manage home directory paths - ONTAP 9.7 and earlier

You can use ONTAP System Manager classic (available in ONTAP 9.7 and earlier) to specify one or more paths that can be used by the storage system to resolve the location of the CIFS home directories of users.

## Steps

1. Click **Storage > SVMs**.
2. Select the SVM, and then click **SVM Settings**.
3. In the **Home Directories** area of the **Configuration** tab, click **Manage**.
4. In the **Manage Home Directories** dialog box, specify the paths that are to be used by the storage system to search for the CIFS home directories of users.

5. Click **Add**, and then click **Save and Close**.

## Delete home directory paths

You can use System Manager to delete a home directory path when you do not want the storage system to use the path to resolve the location of the CIFS home directories of users.

### Steps

1. Click **Storage > SVMs**.
2. Select the SVM, and then click **SVM Settings**.
3. In the **Home Directories** area of the **Configuration** tab, click **Manage**.
4. In the **Manage Home Directories** dialog box, select the home directory path that you want to delete, and then click **Delete**.
5. Click **Save and Close**.

### Related information

## Reset CIFS domain controllers with System Manager - ONTAP 9.7 and earlier

You can use ONTAP System Manager classic (available in ONTAP 9.7 and earlier) to reset the CIFS connection to domain controllers for the specified domain. Failure to reset the domain controller information can cause a connection failure.

### About this task

You have to update the discovery information of the storage system's available domain controller after you add or delete a domain from the list of preferred domain controllers. You can update the storage system's available domain controller discovery information in ONTAP through the command-line interface (CLI).

### Steps

1. Click **Storage > SVMs**.
2. Select the SVM, and then click **SVM Settings**.
3. In the **Domain** tab, click **Reset**.

### Related information

[CIFS window](#)

## Manage the CIFS group policy configuration with System Manager - ONTAP 9.7 and earlier

You can use the CIFS window in ONTAP System Manager classic (available in ONTAP 9.7 and earlier) to update and manage the group policy.

### Update the CIFS group policy configuration

You have to update the group policy after the policy configuration is changed through the command-line

interface (CLI).

### Steps

1. Click **Storage > SVMs**.
2. Select the SVM, and then click **SVM Settings**.
3. Click the **Domain** tab.
4. In the **Group Policy** area, select the group policy configuration that you want to update, and then click **Update**.

## Enable or disable a CIFS group policy configuration

You can enable or disable the CIFS group policy configuration from the CIFS window in System Manager.

### Steps

1. Click **Storage > SVMs**.
2. Select the SVM, and then click **SVM Settings**.
3. Click the **Domain** tab.
4. In the **Group Policy** area, select the group policy configuration that you want to enable or disable, and then click **Enable** or **Disable**, as required.

## Reload CIFS group policy

You have to reload a CIFS group policy if the status of the policy is changed. You can use the CIFS window in System Manager to reload the group policy.

### Steps

1. Click **Storage > SVMs**.
2. Select the SVM, and then click **SVM Settings**.
3. Click the **Domain** tab.
4. In the **Group Policy** area, select the group policy configuration that you want to reload, and then click **Reload**.

## Configure BranchCache with System Manager - ONTAP 9.7 and earlier

You can use ONTAP System Manager classic (available in ONTAP 9.7 and earlier) to configure BranchCache on a CIFS-enabled storage virtual machine (SVM) to enable the caching of content on computers that are local to the requesting clients.

### Before you begin

- CIFS must be licensed, and a CIFS server must be configured.
- For BranchCache version 1, SMB 2.1 or later must be enabled.
- For BranchCache version 2, SMB 3.0 must be enabled, and the remote Windows clients must support BranchCache 2.

### About this task

- You can configure BranchCache on SVMs.
- You can create an all-shares BranchCache configuration if you want to offer caching services for all of the content that is contained within all of the SMB shares on the CIFS server.
- You can create a per-share BranchCache configuration if you want to offer caching services for the content that is contained within selected SMB shares on the CIFS server.

### Steps

1. Click **Storage > SVMs**.
2. Select the SVM, and then click **SVM Settings**.
3. In the **BranchCache** tab, click **Set Up**.
4. In the **BranchCache Setup** dialog box, enter the following information:

- a. Specify the path to the hash store.

The path can be to an existing directory where you want the hash data to be stored. The destination path must be read-writable. Read-only paths such as Snapshot directories are not allowed.

- b. Specify the maximum size (in KB, MB, GB, TB, or PB) for a hash data store.

If the hash data exceeds this value, older hashes are deleted to provide space for newer hashes. The default size for a hash store is 1 GB.

- c. Specify the operating mode for the BranchCache configuration.

The default operating mode is set to all shares.

- d. Specify a server key to prevent clients from impersonating the BranchCache server.

You can set the server key to a specific value so that if multiple servers are providing BranchCache data for the same files, clients can use hashes from any server using that same server key. If the server key contains any spaces, you must enclose the server key in quotation marks.

- e. Select the required BranchCache version.

By default, all of the versions that are supported by the client are selected.

5. Click **Set Up**.

## Modify the BranchCache settings

You can use the CIFS window in System Manager to modify the BranchCache settings that are configured for a CIFS-enabled storage virtual machine (SVM). You can change the hash store path, the hash store size, the operating mode, and the BranchCache versions that are supported.

### Steps

1. Click **Storage > SVMs**.
2. Select the SVM, and then click **SVM Settings**.
3. In the **BranchCache** tab, click **Edit**.
4. In the **Modify BranchCache Settings** dialog box, modify the required information:
  - Hash store path

If you modify the hash store path, you are provided with an option to retain the cached hash data from the previous hash store.

- Hash store size
- Operating mode
- BranchCache version

5. Click **Modify**.

## Delete the BranchCache configuration

You can use System Manager to delete the BranchCache configuration if you no longer want to offer caching services on the storage virtual machine (SVM) that is configured for BranchCache.

### Steps

1. Click **Storage > SVMs**.
2. Select the SVM, and then click **SVM Settings**.
3. In the **BranchCache** tab, click **Delete**.
4. Select the confirmation check box, and then click **Delete**.

You can also remove existing hashes from the hash store.

## Manage preferred domain controllers with System Manager - ONTAP 9.7 and earlier

You can use ONTAP System Manager classic (available in ONTAP 9.7 and earlier) to manage preferred domain controllers.

### Add preferred domain controllers

System Manager automatically discovers domain controllers through DNS. Optionally, you can add one or more domain controllers to the list of preferred domain controllers for a specific domain.

### Steps

1. Click **Storage > SVMs**.
2. Select the SVM, and then click **SVM Settings**.
3. In the **Domain** tab, click **Add** in the **Preferred Domain Controllers** area.
4. Enter the fully qualified domain name (FQDN) and the IP addresses of the domain controllers that you want to add.

You can add multiple domain controllers by entering the IP addresses of the domain controllers, separated by commas.

5. Click **Save**.
6. Verify that the domain controller that you added is displayed in the list of preferred domain controllers.



## Edit preferred domain controllers

You can use System Manager to modify the IP address of the preferred domain controllers that are configured for a specific domain.

### Steps

1. Click **Storage > SVMs**.
2. Select the SVM, and then click **SVM Settings**.
3. In the **Preferred Domain Controllers** area of the **Domain** tab, double-click the domain controller that you want to edit.
4. Modify the IP addresses of the domain controller, and then click **Save**.

## Delete preferred domain controllers

You can use System Manager to delete a preferred domain controller to which the storage virtual machine (SVM) computer account is associated. You can do this when you no longer want to use a particular domain controller.

### Steps

1. Click **Storage > SVMs**.
2. Select the SVM, and then click **SVM Settings**.
3. In the **Domain** tab, select the domain that you want to delete from the **Preferred Domain Controllers** area, and then click **Delete**.
4. Select the confirmation check box, and then click **Delete**.

## View CIFS domain information with System Manager - ONTAP 9.7 and earlier

You can use ONTAP System Manager classic (available in ONTAP 9.7 and earlier) to view information about the domain controllers and servers that are connected to the storage system.

### Steps

1. Click **Storage > SVMs**.
2. Select the SVM, and then click **SVM Settings**.
3. Click the **Domain** tab.
4. Review the information about the connected domain controllers and servers.

## CIFS window in System Manager - ONTAP 9.7 and earlier

You can use the CIFS window in ONTAP System Manager (available in ONTAP 9.7 and earlier) to configure the CIFS server, to manage domain controllers, to manage symbolic UNIX mappings, and to configure BranchCache.

## Configuration tab

The Configuration tab enables you to create and manage the CIFS server.

- **Server**

Specifies the status of the CIFS server, name of the server, authentication mode, name of the active directory domain, and status of SMB multichannel.

- **Home Directories**

Specifies home directory paths and the style for determining how PC user names are mapped to home directory entries.

- **Command buttons**

- Setup

Opens the CIFS Setup wizard, which enables you to set up CIFS on your storage virtual machine (SVM).

- Options

Displays the CIFS Options dialog box, which enables you to enable or disable SMB 3.0 signing, to enable or disable SMB 3.0 encryption, and to add Windows Internet Name Service (WINS) servers.

SMB signing prevents the network traffic between the CIFS server and the client from being compromised.

- Delete

Enables you to delete the CIFS server.

- Refresh

Updates the information in the window.

## Domain tab

The Domain tab enables you to view and reset your CIFS domain controllers, and to add or delete preferred domain controllers. You can also use this tab to manage CIFS group policy configurations.

- **Servers**

Displays information about discovered authentication servers and your preferred domain controllers on the CIFS-enabled SVM.

You can also reset the information about the discovered servers, add a preferred domain controller, delete a domain controller, or refresh the list of domain controllers.

- **Group Policy**

Enables you to view, enable, or disable group policy configurations on the CIFS server. You can also reload a group policy if the status of the policy is changed.

## Symlinks tab

The Symlinks tab enables you to manage the mappings of UNIX symbolic links for CIFS users.

- **Path Mappings**

Displays the list of symbolic link mappings for CIFS.

- **Command buttons**

- Create

Opens the Create New Symlink Path Mappings dialog box, which enables you to create a UNIX symbolic link mapping.

- Edit

Opens the Edit Symlink Path Mappings dialog box, which enables you to modify the CIFS share and path.

- Delete

Enables you to delete the symbolic link mapping.

- Refresh

Updates the information in the window.

## BranchCache tab

The BranchCache tab enables you to set up and manage BranchCache settings on CIFS-enabled SVMs.

You can view the status of the BranchCache service, the path to the hash store, the size of the hash store, and the operating mode, server key, and version of BranchCache.

- **Command buttons**

- Setup

Opens the BranchCache Setup dialog box, which enables you to configure BranchCache for the CIFS server.

- Edit

Opens the Modify BranchCache Settings dialog box, which enables you to modify the properties of the BranchCache configuration.

- Delete

Enables you to delete the BranchCache configuration.

- Refresh

Updates the information in the window.

## Related information

Setting up CIFS

Editing the general properties for CIFS

Adding home directory paths

Deleting home directory paths

Resetting CIFS domain controllers

## Copyright Information

Copyright © 2022 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, 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.