Preparing for SMB/CIFS transition

ONTAP 7-Mode Transition

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February 11, 2024

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If SMB/CIFS is licensed and SMB/CIFS service is running on the 7-Mode systems, you must manually perform some tasks, such as adding the SMB/CIFS license and creating a SMB/CIFS server, on the target cluster and SVM for transitioning SMB/CIFS configurations.

You must also be aware of what configurations are transitioned. Some SMB/CIFS configurations operating in 7-Mode are not supported in ONTAP. Some configurations are not transitioned by the 7-Mode Transition Tool and must be manually applied to the SVM.

Prerequisites for transitioning CIFS configurations

CIFS configurations are transitioned by the 7-Mode Transition Tool only when certain prerequisites are met on the 7-Mode system and cluster. If any of the conditions are not met, the tool does not transition the configuration.

7-Mode prerequisites

- The CIFS license must be added.
- If the MultiStore license is enabled, CIFS must be added to the list of allowed protocols for the vFiler unit that owns the transitioning volumes.
- CIFS must be set up and running during transition.

  Even after client access is disconnected and you prepare to start the export phase, the CIFS service must be running on the 7-Mode systems.

- The authentication type for CIFS must be Active Directory (AD) or Workgroup.

Cluster prerequisites

- The CIFS license must be added.
- The following CIFS authentication methods are supported in different ONTAP versions:
  - Clustered Data ONTAP 8.2.x and 8.3.x support AD authentication.
  - ONTAP 9.0 or later supports AD authentication and Workgroup authentication.
- The following table identifies which authentication method must be used on the target SVM:

7-Mode authentication method	Clustered Data ONTAP 8.2.x and 8.3.x authentication method	ONTAP 9.5 or earlier authentication method
AD	AD	AD
Workgroup	AD	Workgroup or AD

- You can transition the CIFS configuration from 7-Mode to ONTAP if the AD domains do not match between the 7-Mode CIFS server and the target SVM CIFS server.

The tool triggers an ignorable blocking error when an AD domain name mismatch is detected. To proceed with the transition, you can acknowledge the blocking error.

- The CIFS server must be manually configured before the apply configuration (precutover) phase.

  You can create the CIFS server on the SVM in the following two ways:

If you want to…	Do the following…
Transfer or preserve the CIFS server identity to the target SVM	`You have the following two options to create the CIFS server:` a. Applicable for all versions of ONTAP: ◦ Before the SVM provision phase, you must reconfigure the CIFS server on the 7-Mode system system by using a temporary CIFS identity. This reconfiguration allows the original CIFS server identity to be configured on the SVM. You must verify that the CIFS server is running on the 7-Mode system during the “SVM Provision” and “Export & Halt” phases with the new temporary identity. This action is required to read CIFS configurations from 7-Mode during the SVM Provision and “Export & Halt” phases. ◦ You must configure the CIFS server on the target SVM with the original 7-Mode CIFS identity. ◦ After these conditions are met, you can perform the “SVM Provision” operation, and then perform the “Export & Halt” operation to enable client access to ONTAP volumes. b. Applicable for ONTAP releases 9.0 through 9.5: ◦ Use the `vserver cifs modify` command to change the CIFS server name (CIFS Server NetBIOS Name). Using this feature, you should create a CIFS server on the target SVM with a temporary identity, and then perform the “SVM Provision” operation. ◦ After the “import”' phase, you can run the `vserver cifs modify` command on the target cluster to replace the target SVM CIFS identity with the 7-Mode CIFS identity.

If you want to…	Do the following…
Use a new identity	• Before the “SVM Provision” phase, you must configure the CIFS server on the target SVM with a new CIFS identity. • You must verify that the CIFS server is up and running on the 7-Mode system during the “SVM Provision” and “Export & Halt” phases. This action is required to read CIFS configurations from 7-Mode during the “SVM Provision`"and "`Export & Halt”. • After verifying these conditions, you can perform the “SVM Provision” operation. You can then test the SVM configurations, and then plan to perform the storage cutover.

Supported and unsupported CIFS configurations for transition to ONTAP

Some CIFS configurations are not transitioned to ONTAP because either they are not supported in ONTAP or they must be manually transitioned. You should verify all precheck error and warning messages to evaluate the impact of such configurations on transition.

Configurations that are supported for transition

At a high level, the 7-Mode Transition Tool transitions the following CIFS configurations:

- CIFS preferred DC configuration
- User mapping configuration:
  - `/etc/usermap.cfg`
  - *`wafl.nt_admin_priv_map_to_root`*
- CIFS local users and groups
- Symlink and widelink configuration (`/etc/symlink.translations`)
- CIFS audit configuration
- CIFS shares
- CIFS share ACLs
- CIFS home directory configuration
- CIFS options:
  - `cifs.gpo.enable`

- `cifs.smb2.enable`
- `cifs.smb2.signing.required`
- `cifs.wins_servers`
- `cifs.grant_implicit_exe_perms`
- `cifs.restrict_anonymous`

- SMB2 connections to external servers, such as a domain controller. The following command implements this support:
  - **`cifs security modify -vserver SVM1 -smb2-enabled-for-dc-connections`**
- FPolicy native file blocking configuration

See the precheck results for details about these CIFS configurations.

Configurations that are not supported in ONTAP

The following 7-Mode configurations are not supported in ONTAP. Therefore, these configurations cannot be transitioned.

- NT4, and password authentication types
- Separate options for SMB1 and SMB2 signing
- CIFS statistics on a per-client basis
- ◦ Authentication for clients earlier than Windows NT
- Auditing of account management events for local users and groups
- Usermap entries with IP addresses, host names, network names, or network names with subnet specified in dotted notation
- CIFS shares with access restriction for machine accounts

  Machine accounts can access all shares after transition.

Configurations that must be manually transitioned

Some CIFS configurations are supported in ONTAP, but are not transitioned by the 7-Mode Transition Tool.

The following CIFS configurations generate a warning message in the precheck. You must manually apply these configurations on the SVM:

- Antivirus settings
- FPolicy configurations

  7-Mode FPolicy and antivirus servers do not work with ONTAP. You must contact the server vendors for upgrading these servers. However, you must not decommission the 7-Mode FPolicy and antivirus servers until you commit the transition. These are required in case you decide to roll back the transition.

- BranchCache configurations
- Character mapping configuration (charmap)
- Forcegroup attribute of CIFS shares to create files with a specified UNIX group as owning group

- Maxusers attribute of CIFS shares to specify the maximum number of simultaneous connections allowed to a 7-Mode CIFS share
- Storage-Level Access Guard (SLAG) configurations
- Share-level ACLs with UNIX-style permission
- Share ACLs for UNIX users and groups
- LAN Manager authentication level
- NetBIOS aliases
- CIFS search domains
- Some CIFS options

  See the precheck results for details about these options.

Related information

Customizing the transition of 7-Mode configurations

Considerations for transitioning CIFS local users and groups

You must be aware of the considerations for running the transition operations when migrating CIFS local users and groups.

- Transition of CIFS data-serving volumes from a 7-Mode controller or a vFiler unit that has local users and groups to an SVM that has non-BUILTIN CIFS local users and groups is not supported.

  The SVM must have only BUILTIN CIFS local users and groups for transition.

- You must ensure that the number of local users and groups in 7-Mode does not exceed the local users and groups limit for ONTAP.

  You must contact technical support if the number of local users and groups in 7-Mode exceeds the limit defined in ONTAP.

- A local user account with an empty password or local user accounts with passwords containing more than 14 characters on the 7-Mode system are transitioned to ONTAP software with the password **`cifsUser@1`**.

  After the transition is complete, you can access these users from the Windows system by using the password **`cifsUser@1`**. You must then manually change the password for such CIFS local users on the SVM by using the following command:

  `cifs users-and-groups local-user set-password -vserver` ***`svm_name`*** **`-user-name`** ***`user_name`***.

- If the 7-Mode Transition Tool IP address is not reachable from the target ONTAP software, the 7-Mode Transition Tool blocks the transition of CIFS local users and groups to the ONTAP software during the precheck phase. If you see this error during the precheck phase, use the

  `network ping -node local -destination` ***`ip_address`***

command to make sure the 7-Mode Transition Tool IP address is reachable from the target ONTAP software. You can edit the `\etc\conf\transition-tool.conf` file that is installed with the 7-Mode Transition Tool to modify any configuration option that is used by the tool, such as the 7-Mode Transition Tool IP address.

- The SVM to which the local users and groups are transitioned must have a data LIF.
- If a local group has multiple member system identifiers (SIDs) mapped to a single domain user or group on the 7-Mode system, the 7-Mode Transition Tool blocks the transition of local users and groups to ONTAP during the precheck phase.

  If you see this error during the precheck phase, you must manually remove the additional SIDs that are mapped to a single domain user or group on the 7-Mode system. You must then rerun the precheck operation with only a single SID mapped to the domain user or group.

  Troubleshooting Workflow: CIFS: Device attached to the system is not functioning

Related information

SMB/CIFS management

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