



7-Mode Transition Tool installation and administration

ONTAP 7-Mode Transition

NetApp
August 29, 2024

This PDF was generated from https://docs.netapp.com/us-en/ontap-7mode-transition/install-admin/concept_ontap_target_releases_supported_by_7mtt.html on August 29, 2024. Always check docs.netapp.com for the latest.

Table of Contents

- Installation and Setup Guide 1
 - Transition to clustered ONTAP by using the 7-Mode Transition Tool 1
 - Installing or uninstalling the 7-Mode Transition Tool on a Windows system 4
 - Installing or uninstalling the 7-Mode Transition Tool on Linux (Copy-based transition only) 10
 - Modifying the configuration options of the 7-Mode Transition Tool 12
 - Troubleshooting issues 13

Installation and Setup Guide

This guide describes how to install and set up the 7-Mode Transition Tool for copy-free transition or copy-based transition.

Transition to clustered ONTAP by using the 7-Mode Transition Tool

The 7-Mode Transition Tool enables you to collect inventory of 7-Mode controllers, hosts, switches, and applications, and assess their readiness for transition to clustered ONTAP. After assessment, you can migrate your data and configurations from 7-Mode to clustered ONTAP either by using the copy-based transition method or copy-free transition method. The 7-Mode Transition Tool can be downloaded from the NetApp Support Site and installed on a Linux or Windows system.

Be sure to consult the current 7-Mode Transition Tool *Release Notes* for the latest information about supported target releases and known issues.

[7-Mode Transition Tool Release Notes](#)

ONTAP target releases supported by the 7-Mode Transition Tool

Release support for ONTAP transition target clusters depends on the transition method you want to use, copy-based or copy-free, and on the version of the 7-Mode Transition Tool.

Be sure to consult the current 7-Mode Transition Tool [Release Notes](#) for the latest information about supported target releases and known issues.

Copy-based transitions are supported to these ONTAP target releases.

| If your transition target is running ... | You must use this 7-Mode Transition Tool version ... |
|--|--|
| ONTAP 9.10.1, ONTAP 9.11.1 or earlier supported release | 3.5.0 |
| ONTAP 9.9.1 or earlier supported release | 3.4.0 |
| ONTAP 9.8 or earlier supported release | 3.3.3 |
| ONTAP 9.7P2 or later 9.7 P release | 3.3.2 |
| <div> Earlier 9.7 releases are not supported.</div> | |

| If your transition target is running ... | You must use this 7-Mode Transition Tool version ... |
|---|--|
| ONTAP 9.6P7 or later 9.6 P release  Earlier 9.6 releases are not supported. | 3.3.2 |
| ONTAP 9.5 or earlier ONTAP 9 release | 3.3.2 or 3.3.1 |
| Clustered Data ONTAP 8.1.4P4 and later 8.x releases. | 3.3.2 or 3.3.1 |

Copy-free transitions are supported to these ONTAP target releases using 7-Mode Transition Tool 3.3.1.

- ONTAP 9.4 and earlier ONTAP 9 releases.
- Clustered Data ONTAP 8.3.2 and later 8.x releases.




You cannot use the 7-Mode Transition Tool to transition to ONTAP 9.5 or later using the copy-free method. To do so, you must first transition to ONTAP 9.4 using 7-Mode Transition Tool 3.3.1 and then upgrade your cluster to ONTAP 9.5 or later. 7-Mode Transition Tool 3.3.2 does not support copy-free transitions.

Comparison of copy-free transition and copy-based transition

You can use the 7-Mode Transition Tool to migrate your data and configurations from 7-Mode to ONTAP by using either copy-based transition or copy-free transition. It is important to understand the differences between the two methods before transition.

| Parameter | Copy-free transition | Copy-based transition |
|----------------------|--|---|
| Unit of transition | HA pair | Group of volumes |
| Hardware requirement | Disk shelves are reused | New disks shelves and disks to host the transitioned volumes |
| Platform requirement | Supported only on mid-level and high-level platforms NetApp Interoperability Matrix Tool | Supported on all platforms |
| Transition duration | Overall, shorter transition duration (no data copy required) | Longer duration (initial baseline and update transfer time varies based on workload, network bandwidth, and data capacity being migrated) |

| Parameter | Copy-free transition | Copy-based transition |
|---------------------------|--|-------------------------|
| Disruption to data access | <p>In the range of hours</p> <div>  <p>In most cases, the storage cutover time can be 3 through 8 hours. Cutover time includes the time taken by the tool to perform two automated operations—the export and halt operation and the import operation—as well as the time taken for manually cabling the disk shelves to the new controllers. The export and halt operation and the import operation together can take up to 2 hours. Cabling of the disk shelves can take from 1 hour through 6 hours.</p> </div> <p>This cutover time guidance does not include the time taken for the required preproduction testing and assumes an error-free transition without unexpected failures such as a disk failure.</p> | In the range of minutes |

Interfaces and transition capabilities available on Windows and Linux

You can install the 7-Mode Transition Tool on Windows or Linux. You must be aware of the features and the user interfaces that are supported before installing the 7-Mode Transition Tool.

| Migration method | Feature | Supported on Windows | Supported on Linux |
|-----------------------|--------------------------------|--|--------------------|
| Copy-free transition | Graphical user interface (GUI) | Yes | No |
| | Command-line interface (CLI) | No You cannot use the CLI for creating and managing projects; however, you have to run certain commands, such as commands for ignoring blocking errors, during the transition from the Windows CLI. | No |
| | Collect and assess | Yes | No |
| Copy-based transition | GUI | Yes | No |
| | CLI | Yes | Yes |
| | Collect and assess | Yes | No |

Installing or uninstalling the 7-Mode Transition Tool on a Windows system

You can download and install the 7-Mode Transition Tool on a Windows system by using the standard wizard-based installer. However, if you have a previously installed version of the 7-Mode Transition Tool, you need to be aware of certain prerequisites before doing so.

- If you have a 7-Mode Transition Tool version earlier than 3.0 installed in your system, then you need to uninstall that before installing the latest version.

You must create a backup of the log files if you choose to retain the log files during uninstallation. The 7-Mode Transition Tool installer installs the tool to the same folder and overwrites the log files the next time you run it.

- If you have 7-Mode Transition Tool 3.0 or later installed in your system, then the following conditions must be met before installing the latest version of the 7-Mode Transition Tool:
 - All existing copy-based transition projects must either be completed or aborted.
 - All existing copy-free transition projects must either be completed or rollback complete.

System requirements for installing the 7-Mode Transition Tool on Windows systems

You must ensure that the Windows host meets the required configuration to install and run the 7-Mode Transition Tool.

Be sure to consult the current 7-Mode Transition Tool [Release Notes](#) for the latest information about supported hosts and known issues.

Hardware requirements

- Dual-core x64 processor, 1.0 GHz or more
- 8 GB RAM
- 40 GB free disk space

Software requirements

- Your 64-bit Windows system must be running one of the following operating system versions:
 - Windows 7 Enterprise
 - Windows 7 Enterprise SP1
 - Windows Server 2008 Standard
 - Windows Server 2008 R2 Standard
 - Windows Server 2008 R2 Enterprise with SP1
 - Windows Server 2012 Standard
 - Windows Server 2012 R2 Standard
 - Windows 8.1 Enterprise
 - Windows Server 2012 R2 Datacenter edition
 - For 7-Mode Transition Tool version 3.3.2P1, you can also use one of the following operating system versions:
 - Windows 10 Enterprise
 - Windows Server 2016 Standard
 - Windows Server 2016 Datacenter
 - Windows Server 2019 Standard
 - Windows Server 2019 Datacenter
 - For 7-Mode Transition Tool version 3.3.3, you can also use one of the following operating system versions:
 - Windows 10 Professional



You can use a Windows virtual machine that meets the required software requirements and hardware requirements to install the 7-Mode Transition Tool.

- 64-bit Oracle Java Runtime Environment (JRE) 1.8 update 331



If the Windows host does not have JRE or has 32-bit JRE installed, the 7-Mode Transition Tool installer automatically installs 64-bit JRE 1.8 update 331. If an earlier version of 64-bit JRE is installed, the installer automatically updates JRE to JRE 1.8 update 331.

When JRE is updated automatically, the other applications that require earlier versions of JRE might be affected.



With JRE versions 1.8 update 46 or later (including JRE 1.8 update 331), for the 7-Mode Transition Tool to communicate with Data ONTAP operating in 7-Mode systems and ONTAP systems, the SSL key length on the Data ONTAP operating in 7-Mode systems and ONTAP systems must be at least 1024.

7MTT: How to resolve TLS or SSL communication issue

Server configuration requirements

To access the web interface, the Windows system on which the tool is installed must be configured as follows:

- Port 8443 of the 7-Mode Transition Tool server must be available.

If port 8443 is not available, or if you want to use a different port, you must change the port specified by the `tool.https.port` parameter in the `$INSTALL_DIR\etc\conf\transition-tool.conf` file.

The best practice is to use HTTPS for accessing the web interface. However, if you want to use HTTP for accessing the web interface, port 8088 must be available. For an alternative to port 8088, you must change the port specified by the `tool.http.port` parameter in the `transition-tool.conf` file.



You must restart the 7-Mode Transition Tool service after changing the port in the configuration file.

- The firewall should be either turned off or configured to allow traffic on the port that is used to access the tool.

To transition netgroups and CIFS local users and groups, the following requirements must be met:

- Port 8088 of the 7-Mode Transition Tool must be available.

For an alternative to port 8088, you must change the port specified by the `tool.http.port` parameter in the `transition-tool.conf` file, and then restart the 7-Mode Transition Tool service.

- Each node in the cluster must have at least one data LIF configured for the target SVM.
- All of the SVM data LIFs must be able to communicate with the 7-Mode Transition Tool port 8088 or the port specified by the `tool.http.port` parameter in the `transition-tool.conf` file.



You must ensure that firewalls do not block this traffic.

Client (web interface) requirements

The system that accesses the web interface must have the following:

- One of the following web browsers:

- Microsoft Internet Explorer 9, 10, or 11
- Google Chrome 27 or later
- Mozilla Firefox 20 or later All of the browsers must be TLS-enabled.



If you are using Microsoft Internet Explorer as your web browser, you must disable SSLv2.

- A screen resolution of 1280 × 1024 or higher

Every time you install a new version of the tool, you must clear the browser cache by pressing Ctrl+F5 on the system.

Related information

[NetApp Interoperability](#)

Installing the 7-Mode Transition Tool on a Windows system

You can install the 7-Mode Transition Tool on a Windows system by using the wizard-based installer.

- You must have reviewed the system requirements for the 7-Mode Transition Tool.

[System requirements for the 7-Mode Transition Tool on Windows](#)

- You must have the necessary administrator privileges to install and launch the application.
- You must have cleared the browser cache by pressing Ctrl+F5.

You must clear the cache every time you install a new version of the tool.

Steps

1. Download the software from the NetApp Support Site.

[NetApp Downloads: Software](#)

2. Run the `NetApp_7ModeTransitionTool_Setup.exe` file.
3. In the 7-Mode Transition Tool Setup welcome screen, click **Next**.
4. Follow the on-screen prompts to continue with the installation.
5. Select **Launch the tool** to open the 7-Mode Transition Tool immediately after the installation.
6. Click **Finish** to complete the installation.

Enabling login for users not part of the Administrator group

By default, users must be members of the Administrator group on the Windows system on which the 7-Mode Transition Tool is installed. At any time, you can enable login for users who are not members of the Administrators group and who cannot install the tool but are authenticated to use the Windows system on which the tool is installed.

Steps

1. Log in to the Windows host using admin privileges.

2. Modify the configuration file of the tool to enable users who are not part of the Administrator group to log in to the tool:
 - a. Open the `\etc\conf\transition-tool.conf` file from the installation directory.
 - b. Set the value of the `tool.login.non.admin.enabled` parameter in the `transition-tool.conf` file to `true`.
 - c. Save the file.
3. Restart the transition service.
 - a. Click **Start > Control Panel > System and Services > Administrative Tools > Services**.
 - b. Right-click the **NetApp 7-Mode Transition Tool** service and click **Stop**.
 - c. Right-click the **NetApp 7-Mode Transition Tool** service again and click **Start**.

Related information

[Modifying the configuration options of the 7-Mode Transition Tool](#)

Logging in to the 7-Mode Transition Tool

You can log in to the 7-Mode Transition Tool (web interface) by using your credentials of the Windows system on which the tool is installed. The procedure to log in varies depending on the type of user credentials you have.

Guest users are not allowed to log in to the tool.

Steps

1. Navigate to the login page:

| If you are a... | Then... |
|---|--|
| User who is a member of the Administrator group and if you are accessing the tool (web interface) from the server on which it was installed | Double-click the 7-Mode Transition Tool icon on your desktop. |
| User who is a member of the Administrator group and if you have not installed the tool | <p>Use a supported browser to navigate to one of the following URLs:</p> <ul style="list-style-type: none"> • <code>https://IP_address:port/transition</code> • <code>http://IP_address:port/transition</code> <i>IP_address</i> is the IP address of the server and <i>port</i> can be 8443 (default), the value specified for <code>tool.https.port</code>, or 8088, the value specified for the <code>tool.http.port</code> parameter in the <code>transition-tool.conf</code> file. |

| If you are a... | Then... |
|---|---|
| User who is a member of the Administrator group and if you are accessing the tool (web interface) from another computer | <p>Use a supported browser to navigate to one of the following URLs:</p> <ul style="list-style-type: none"> • <code>https://IP_address:port/transition</code> • <code>http://IP_address:port/transition</code> <i>IP_address</i> is the IP address of the server and port can be 8443 (default), the value specified for <i>tool.https.port</i>, or 8088, the value specified for the <i>tool.http.port</i> parameter in the <i>transition-tool.conf</i> file. |
| User who is not a member of the Administrator group and if you are accessing the tool (web interface) either from the server on which it was installed or from another computer | <p>Use a supported browser to navigate to one of the following URLs:</p> <ul style="list-style-type: none"> • <code>https://IP_address:port/transition</code> • <code>http://IP_address:port/transition</code> <i>IP_address</i> is the IP address of the server and port can be 8443 (default), the value specified for the <i>tool.https.port</i>, or 8088, the value specified for the <i>tool.http.port</i> parameter in the <i>transition-tool.conf</i> file. |

2. If the browser displays a message about the self-signed SSL certificate, then accept the self-signed certificate to continue.
3. Log in to the web interface by using the credentials of the Windows system in which the tool is installed.

Uninstalling the 7-Mode Transition Tool on a Windows system

You can uninstall the 7-Mode Transition Tool by using the Windows Uninstall program utility.

- You must have completed all in-progress transitions.



Installing a newer version or reinstalling the same version of the tool does not allow you to access the transition operations started by the uninstalled instance.

- If the 7-Mode Transition Tool is running, it must be closed.

Java Runtime Environment (JRE) is not removed as part of the uninstallation.

Steps

1. Click **Start > Control Panel > Uninstall a program**.
2. Select the 7-Mode Transition Tool from the list of programs and click **Uninstall**.
3. Complete the steps in the wizard to uninstall the 7-Mode Transition Tool.

You can choose to save the project details and logs for troubleshooting purposes.

You must create a backup of the log files if you choose to retain the log files during uninstallation. The 7-Mode Transition Tool installer installs the tool to the same folder and overwrites the log files the next time you run it.

Installing or uninstalling the 7-Mode Transition Tool on Linux (Copy-based transition only)

You can download and install the 7-Mode Transition Tool on a Linux system by using the command-line interface. When required, you can uninstall the 7-Mode Transition Tool.

You can perform only copy-based transition on a Linux system. Copy-free transition is not supported on Linux.



The 7-Mode Transition Tool web interface is not supported on Linux. You must use the CLI to perform copy-based transition tasks on a Linux system.

System requirements for installing 7-Mode Transition Tool on Linux

You must ensure that the Linux host has the required configuration to install and run the 7-Mode Transition Tool.

Be sure to consult the current 7-Mode Transition Tool [Release Notes](#) for the latest information about supported hosts and known issues.

Hardware requirements

- Dual-core x64 processor, 1.0 GHz or more
- 8 GB RAM
- 40 GB free disk space

Software requirements

- Your Linux system must be running one of the following:
 - Red Hat Enterprise Linux 5.6
 - Red Hat Enterprise Linux 6.0
 - Red Hat Enterprise Linux 7.0 (7-Mode Transition Tool version 3.3.2 and later)
 - CentOS release 6.4



You can use a Linux virtual machine that meets the required software and hardware requirements to install the 7-Mode Transition Tool.

- 64-bit Oracle JRE 1.8 update 331
- 7-zip utility (`rpmforge-release-0.3.6-1.el5.rf.x86_64.rpm`)



JRE 1.8 and the 7-zip utility must be installed on the Linux system before configuring the 7-Mode Transition Tool.

Installing 7-Mode Transition Tool on Linux

You can install the 7-Mode Transition Tool on your Linux system by using the command-line interface.

- You must have reviewed the system requirements for 7-Mode transition tool.

[System requirements for installing 7-Mode Transition Tool on Linux](#)

- You must have root user privileges to install and launch the application.

Steps

1. Download the `tar.gz` file from the NetApp Support Site.

[NetApp Downloads: Software](#)

2. Extract the `tar.gz` file to a directory in the Linux system:

```
tar -xzf NetApp_7ModeTransitionTool_Setup.tar.gz -C directory_path
```

3. Change the directory to the installation directory:

```
cd directory_path/NetApp_7ModeTransitionTool
```

4. Configure the 7-Mode Transition Tool server:

```
./configure
```

This starts the 7-Mode Transition Tool service on the Linux system.

5. Verify that the 7-Mode Transition Tool service is running on the Linux system:

```
service transition-service status
```

Example

```
bash-4.2# tar -xzf NetApp_7ModeTransitionTool_Setup.tar.gz -C
/root/Downloads/extracted_folder
bash-4.2# cd /root/Downloads/extracted_folder/NetApp_7ModeTransitionTool
bash-4.2# ./configure
bash-4.2# service transition-service status
The transition-service (NetApp 7-Mode Transition Tool server) is running.
PID=38384.
```

Uninstalling 7-Mode Transition Tool on Linux

You can uninstall the 7-Mode Transition Tool on Linux by using the command-line interface.

- You must have completed all in-progress transitions.



Installing a newer version or reinstalling the same version of the tool does not allow you to access the transition operations started by the uninstalled instance.

- If the 7-Mode Transition Tool is running, it must be stopped.

JRE is not removed as part of the uninstallation.

Steps

1. Uninstall 7-Mode Transition Tool by running the following command from the location where you extracted the 7-Mode Transition Tool:

```
./unconfigure
```

2. Remove the 7-Mode Transition Tool directory:

a. **cd ..**

b. **rm -rf NetApp_7ModeTransitionTool**

Example

```
bash-4.2# cd /root/Downloads/extracted_folder/NetApp_7ModeTransitionTool
bash-4.2# ./unconfigure
bash-4.2# cd ..
bash-4.2# rm -rf NetApp_7ModeTransitionTool
```

Modifying the configuration options of the 7-Mode Transition Tool

You can edit the `$INSTALL_DIR/etc...` file to modify any configuration option that is used by the 7-Mode Transition Tool. This file contains information about all of the configurable options that are necessary for the tool to operate.

The file contains various options; for example, you can specify the port on which the tool service starts, and the port that the tool uses to communicate with the 7-Mode system or cluster.

Steps

1. From the system in which the 7-Mode Transition Tool is installed, open the `$INSTALL_DIR/etc/conf/transition-tool.conf` file from the installation directory, and then modify it.

Port 8443 or 8088 must be available for the 7-Mode Transition Tool to communicate with the 7-Mode system and cluster. If port 8443 or 8088 is not available or if you want to use a different port, you must change the port specified by the `tool.https.port` option in the `transition-tool.conf` file. If port 8088 is not available or if you want to use a different port, you must change the port specified by the `tool.http.port` option in the `transition-tool.conf` file.

2. Restart the 7-Mode Transition Tool service for the new values to take effect:

| If your system type is... | Do the following... |
|---------------------------|--|
| Windows | <ol style="list-style-type: none"> Click Start > Control Panel > System and Security > Administrative Tools > Services. Right-click the NetApp 7-Mode Transition Tool service, and then click Stop. Right-click the NetApp 7-Mode Transition Tool service again, and then click Start. |
| Linux | <p>Run the following command:</p> <pre>service transition-service restart</pre> |

3. After the 7-Mode Transition Tool service is restarted, add the 7-Mode system and cluster credentials again.

Troubleshooting issues

You need to be aware of some of the common issues with the 7-Mode Transition Tool and the steps to resolve them.

Tool installation fails with an incompatible OS error

Installation of the 7-Mode Transition Tool fails with the error message 7-Mode Transition Tool is not compatible with this version of Windows.

- **Workaround**

- Right-click the `NetApp_7ModeTransitionTool_Setup.exe` file, and then select **Properties**.
- In the Compatibility tab, click **Change settings for all users**.
- Verify that the **Run this program in compatibility mode for:** check box is not selected, and then click **Apply**.

Installation or uninstallation of the 7-Mode Transition Tool is blocked

When you use the 7-Mode Transition Tool installer or the uninstaller to perform any operation (such as install, repair, reinstall, upgrade, uninstall), the following error message is displayed: Another instance of NetApp 7-Mode Transition Tool Setup or Uninstall is running. Only one instance can run at a time.

Workaround

Before you begin, ensure that there are no open instances or dialog boxes of the 7-Mode Transition Tool. Otherwise, you might have to perform the steps again.

- Open **Registry** by clicking **Start**.
- In **Search programs and files**, enter **RegEdit**.

3. When Registry Editor is open, locate the HKEY_LOCAL_MACHINE registry hive.
4. Expand the HKEY_LOCAL_MACHINE hive by clicking the expand icon to the left of the folder icon.
5. Continue to expand the registry keys and subkeys until you locate HKEY_LOCAL_MACHINE\ SOFTWARE \NetApp \7-Mode Transition Tool.
6. Click **7-Mode Transition Tool**.
7. Right-click INSTALLATION_STATUS, and select **Modify**.
8. Change the value from INSTALLER_RUNNING to INSTALLED, and click **OK**.

You should now be able to perform any operation using the 7-Mode Transition Tool installer or the uninstaller.

Reinstalling or upgrading the 7-Mode Transition Tool fails on Windows system

This section provides information about the error when you reinstall or upgrade the 7-Mode Transition Tool on Windows system. It also provides the reason for the error and the steps to resolve the error.

- **Message**

Another instance of NetApp 7-Mode Transition Tool setup or uninstall is running. Only one instance can run at a time.

- **Cause**

Some of the files in the 7-Mode Transition Tool installation folder are open.

- **Corrective action**

- a. Close all of the 7-Mode Transition Tool installation files.
- b. Open the registry entry for 7-Mode Transition Tool:
 - i. Check the **INSTALLATION_STATUS** field.
 - ii. If the value is **INSTALLER_IS_RUNNING**, change it to **INSTALLED**.
- c. Retry reinstalling or upgrading the tool.

Windows Program Compatibility Assistant notification displayed while installing the tool

Sometimes while installing the tool, you receive the Windows Program Compatibility Assistant notification that the program might not have installed correctly. This notification does not necessarily indicate that the program did not install correctly.

You can ignore this notification by clicking **This program installed correctly**.

Copyright information

Copyright © 2024 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.