



# **cluster image commands**

## **ONTAP 9.12.1 commands**

NetApp  
December 14, 2022

# Table of Contents

- cluster image commands ..... 1
  - cluster image cancel-update ..... 1
  - cluster image pause-update ..... 1
  - cluster image resume-update ..... 2
  - cluster image show-update-history ..... 2
  - cluster image show-update-log-detail ..... 4
  - cluster image show-update-log ..... 6
  - cluster image show-update-progress ..... 9
  - cluster image show ..... 13
  - cluster image update ..... 14
  - cluster image validate ..... 16
  - cluster image package delete ..... 17
  - cluster image package get ..... 18
  - cluster image package show-repository ..... 18

# cluster image commands

## cluster image cancel-update

Cancel an update

**Availability:** This command is available to *cluster* administrators at the *admin* privilege level.

### Description

The `cluster image cancel-update` command is used to cancel an update that is in either paused-by-user or paused-on-error state. An update can only be canceled if it is in a paused state.

### Examples

The following example displays a cancel-update operation:

```
cluster1::> cluster image cancel-update

Warning: The cancel operation can result in a mixed version
         cluster and/or mixed version HA pair. The cancel
         operation can take several minutes to complete.
Do you want to proceed with the cancel operation? {y|n}: y

Info: Canceling update. It may take a few minutes to finish canceling the
update
```

## cluster image pause-update

Pause an update

**Availability:** This command is available to *cluster* administrators at the *admin* privilege level.

### Description

The `cluster image pause-update` command is used to pause a currently running update. The update pauses at the next predefined pause point (for example, after validation, download to the boot device, takeover completion, or giveback completion) which might take some time to reach. When the update reaches the pause point, it transitions into the pause-by-user state.

### Examples

The following example displays pause-update operation:

```
cluster1::> cluster image pause-update
```

```
Info: Pausing update. It may take a few minutes to finish pausing the update
```

## cluster image resume-update

Resume an update

**Availability:** This command is available to *cluster* administrators at the *admin* privilege level.

### Description

The `cluster image resume-update` command is used to resume an update that is currently paused in paused-by-user or paused-on-error state. If the update is not paused then an error is returned.

### Parameters

**[-ignore-post-update-checks-failures {true|false}] - Ignore Post-update-checks Phase Failures**

Specifies whether the post update checks phase warnings and/or errors should be ignored. The default value is false.

**[-skip-firmware-update-checks {true|false}] - Skip Firmware Update Status Checks**

Specifies whether firmware update status check will be skipped or not. By default, firmware update status check will not be skipped.

### Examples

The following example shows an resume-update operation:

```
cluster1::> cluster image resume-update
```

```
Info: Resuming update...
```

## cluster image show-update-history

Display the update history

**Availability:** This command is available to *cluster* administrators at the *admin* privilege level.

### Description

The `cluster image show-update-history` command displays the update history for each node. By default, the command displays the following information:

- Status
- Package version
- Start time
- Completion time
- Component ID
- Previous version
- Updated version

## Parameters

**{ [-fields <fieldname>,...]**

If you specify the `-fields <fieldname>`, ... parameter, the command output also includes the specified field or fields. You can use `'-fields ?'` to display the fields to specify.

**| [-instance ] }**

If you specify the `-instance` parameter, the command displays detailed information about all fields.

**[-component-id <text>] - Component ID**

Displays updates for the specified component.

**[-start-time <MM/DD/YYYY HH:MM:SS>] - Start Time**

Displays updates with the specified start time.

**[-package-version <text>] - Package Version**

Displays updates for the specified package version.

**[-status {successful|canceled|back-out}] - Status**

Displays updates that completed with the specified status.

**[-completion-time <MM/DD/YYYY HH:MM:SS>] - Completion Time**

Displays updates with the specified completion time.

**[-previous-version <text>] - Previous Version**

Displays updates with the specified previous version.

**[-updated-version <text>] - Updated Version**

Displays updates with the specified updated version.

## Examples

The following example displays history of automated nondisruptive updates:



- Message

## Parameters

**{ [-fields <fieldname>,...]**

If you specify the `-fields <fieldname>`, ... parameter, the command output also includes the specified field or fields. You can use `'-fields ?'` to display the fields to specify.

**| [-instance ] }**

If you specify the `-instance` parameter, the command displays detailed information about all fields.

**[-node {<nodename>|local}] - Node**

Displays information only for the specified node.

**[-task-id <integer>] - Task Id**

Displays information only for the specified task ID.

**[-posted-time <MM/DD/YYYY HH:MM:SS>] - Posted Time**

Displays information that occurred at the specified time.

**[-msg-seq-no <integer>] - Message Sequence**

Displays information only for the specified message sequence number.

**[-current-pid <integer>] - Process ID**

Displays information only for the specified process ID.

**[-destination <text>] - Task Target node**

Displays information only for the specified destination node.

**[-ndu-phase {validation|prereq-updates|ontap-updates|package-management|default-phase|post-update-checks}] - Update phase**

Displays information only for the specified phase.

**[-task-name {initialize|mount-image|restart-hm|get-health|run-scripts|unmount-image|clear-alert|post-restart-hm|cleanup-rd|synch-image|do-download-job|do-failover-job|do-giveback-job|check-progress|complete-validation|invalid-task|default-task|do-postupdate-checks-task}] - Task Name**

Displays information only for the specified task name.

**[-status {created|ready-to-run|running|completed|failed|pause\_req|paused|paused-error|cancel\_req|canceled|resume\_req|default\_status}] - Status Of Task**

Displays information only for items with the specified status.

**[-message <text>] - Update Log Message**

Displays information only for items with the specified message.

**[-msg-type <text>] - Type of Message**

Displays information only for items with the specified message type.

## **[-src-info <text>] - Source Information**

Displays information only for items for the specified source.

## **Examples**

The following example displays detailed information automated nondisruptive updates:

```
cluster1::*> cluster image show-update-log-detail
      Time      Dest      Task  Task  Task
Node  TID Stamp   Node  Phase Name  Status Message
-----
-----
node1  15  3/19/    MUM    ontap- initia ready- Created Task
      2014          update lize  to-run
      13:52:38    s
node1  15  3/19/    MUM    ontap- initia runnin Updated Task Status
      2014          update lize  g
      13:52:38    s
node1  16  3/19/   node1  ontap- do-    ready- Created Task
      2014          update downlo to-run
      13:52:38    s      ad-job
node1  16  3/19/   node1  ontap- do-    runnin Updated Task Status
      2014          update downlo g
      13:52:39    s      ad-job
node1  17  3/19/   node2  ontap- do-    ready- Created Task
      2014          update downlo to-run
      13:52:38    s      ad-job
node2  17  3/19/   node2  ontap- do-    runnin Updated Task Status
      2014          update downlo g
      13:52:38    s      ad-job
6 entries were displayed.
```

## **cluster image show-update-log**

Display the update transaction log

**Availability:** This command is available to *cluster* administrators at the *advanced* privilege level.

### **Description**

The `cluster image show-update-log` command displays detailed information about the currently running, or previously run nondisruptive updates. By default, the command displays the following information:

- Phase
- Transaction
- Transaction ID



- Component ID
- Time stamp
- Status

## Parameters

**{ [-fields <fieldname>,...]**

If you specify the `-fields <fieldname>`, ... parameter, the command output also includes the specified field or fields. You can use `'-fields ?'` to display the fields to specify.

**| [-instance ] }**

If you specify the `-instance` parameter, the command displays detailed information about all fields.

**[-trans-id <integer>] - Transaction ID**

Displays information for the step associated with the specified transaction ID.

**[-component-id {<nodename>|local}] - Component ID**

Displays information for steps associated with the specified component.

**[-phase {validation|prereq-updates|ontap-updates|package-management|default-phase|post-update-checks}] - Transaction Phase**

Displays information for steps associated with the specified update phase.

**[-trans-name {initialize|mount-image|restart-hm|get-health|run-scripts|unmount-image|clear-alert|post-restart-hm|cleanup-rd|synch-image|do-download-job|do-failover-job|do-giveback-job|check-progress|complete-validation|invalid-task|default-task|do-postupdate-checks-task}] - Transaction Name**

Displays information for steps associated with the specified transaction.

**[-timestamp <MM/DD/YYYY HH:MM:SS>] - Timestamp**

Displays information for steps associated with the specified timestamp.

**[-status {waiting|started|completed|paused-on-error|paused-by-user|pause-pending|cancel-pending|canceled|failed}] - Status**

Displays information for steps matching the specified status.

## Examples

The following example displays information about automated nondisruptive update events:

```

cluster1::*> cluster image show-update-log
Trans
Phase      Transaction  Id    Component Id      Time Stamp  Status
-----
validation initialize   50    MUM                2/18/2014  completed
                                10:32:57
validation mount-image  51    node1              2/18/2014  completed
                                10:32:52
validation mount-image  52    node2              2/18/2014  completed
                                10:32:53
validation get-health  53    MUM                2/18/2014  completed
                                10:32:53
validation run-scripts  54    node1              2/18/2014  completed
                                10:32:53
validation run-scripts  55    node2              2/18/2014  completed
                                10:32:57
validation unmount-    56    node1              2/18/2014  completed
image
validation unmount-    57    node2              2/18/2014  completed
image
validation complete-  58    MUM                2/18/2014  completed
validation
package-   cleanup-    66    node1              3/14/2014  completed
management package
                                09:11:51
package-   cleanup-    67    node2              3/14/2014  completed
management package
                                09:11:51
package-   process-   68    node1              3/14/2014  completed
management package
                                09:13:41
package-   synch-     69    node2              3/14/2014  completed
management
                                09:14:25

13 entries were displayed.

```

# cluster image show-update-progress

Display the update progress

**Availability:** This command is available to *cluster* administrators at the *admin* privilege level.

## Description

The `cluster image show-update-progress` command displays information about the current state of an update. By default, the command displays the following information:

- Update phase
- Status
- Estimated Duration
- Elapsed Duration

## Parameters

**{ [-fields <fieldname>,...]**

If you specify the `-fields <fieldname>, ...` parameter, the command output also includes the specified field or fields. You can use `'-fields ?'` to display the fields to specify.

**| [-instance ] }**

If you specify the `-instance` parameter, the command displays detailed information about all fields.

**[-ndu-phase {validation|prereq-updates|ontap-updates|package-management|default-phase|post-update-checks}] - Update Phase**

Displays information about the specified update phase.

**[-phase-status {in-progress|waiting|paused-by-user|paused-on-error|completed|canceled|failed|pause-pending|cancel-pending}] - Phase Status**

Displays information about progress matching the specified phase status.

**[-phase-duration <text>] - Phase Duration**

Displays information about progress matching the specified phase duration.

**[-phase-comments <text>] - Phase Comments**

Displays information about progress matching the specified phase comments.

**[-elapsed-duration {<seconds>|[<d> days] <hh>:<mm>[:<ss>]}] - Elapsed duration of the phase**

Displays information about progress matching the specified elapsed duration.

**[-estimated-duration {<seconds>|[<d> days] <hh>:<mm>[:<ss>]}] - Estimated duration of the phase**

Displays information about progress matching the specified estimated duration.

### **[`-phase-description <text>`] - Phase Description**

Displays information about progress matching the specified phase description.

### **[`-subsystem-name <text>`] - Subsystem Name**

Displays information about progress matching the specified subsystem name.

### **[`-subsystem-status <text>`] - Subsystem Status**

Displays information about progress matching the specified subsystem status.

### **[`-subsystem-details <text>`] - Subsystem Details**

Displays information about progress matching the specified subsystem details.

### **[`-subsystem-action <text>`] - Subsystem Action**

Displays information about progress matching the specified subsystem action.

## **Examples**

The following example shows the automated nondisruptive update of two nodes, nodeA and nodeB. In this case, nodeA's update is waiting, nodeB's update is in progress. nodeB's giveback operation is in progress.

```
cluster1::> cluster image show-update-progress
Estimated      Elapsed
Update Phase   Status          Duration        Duration
-----
Pre-update checks    completed      00:10:00        00:00:02
Data ONTAP updates  in-progress    01:23:00        00:32:07

Details:

Node name      Status          Status Description
-----
nodeA          waiting
nodeB          in-progress     Performing giveback operation.
3 entries were displayed.

cluster1::>
```

The following example shows the automated nondisruptive update of two nodes, nodeA and nodeB. In this case, automated nondisruptive update is paused-on-error in "Data ONTAP updates" phase. nodeA's update is waiting, nodeB's update is failed. "Status Description" show nodeB's error and action.

```
cluster1:> cluster image show-update-progress
```

Estimated	Elapsed		
Update Phase	Status	Duration	Duration
Pre-update checks	completed	00:10:00	00:00:02
Data ONTAP updates	paused-on-error	00:49:00	00:05:21

Details:

Node name	Status	Status Description
nodeA	waiting	
nodeB	failed	Error: Takeover of node "nodeB" is not possible. Action: Use the "storage failover show" command to view the cause of the failure.

2 entries were displayed.

Status: Paused - An error occurred in "Data ONTAP updates" phase. The non-disruptive update cannot continue until the error has been resolved. Resolve all issues, then use the "cluster image resume-update" command to resume the update.

```
cluster1:>
```

The following example shows that the automated nondisruptive update is paused-on-error in "Post-update checks" update phase and "Status Description" shows the error and action.

```

cluster1::> cluster image show-update-progress
Estimated      Elapsed
Update Phase   Status          Duration        Duration
-----
Data ONTAP updates  completed      02:19:00       00:00:03
Post-update checks  paused-on-error 00:10:00       00:00:02

Details:

Post-update Check  Status          Error-Action
-----
Cluster Quorum    Error           Error: Cluster is not in quorum.
Status

Action: Use the (privilege: advanced)
"cluster ring show" command to verify
all replication unit details.

5 entries were displayed.

Status: Paused - An error occurred in "Post-update checks" phase. The
non-disruptive update cannot continue until the error has been resolved.
Resolve all issues, then use the "cluster image resume-update" command
to resume the update.

cluster1::>

```

The following example shows that the automated nondisruptive update is completed on nodeA and nodeB.

```

cluster1::> cluster image show-update-progress
Estimated      Elapsed
Update Phase   Status          Duration        Duration
-----
Pre-update checks  completed      00:10:00       00:00:13
Data ONTAP updates  completed      01:23:00       01:15:11
Post-update checks  completed      00:10:00       00:00:02
3 entries were displayed.

Updated nodes: nodeA, nodeB.
cluster1:>

```

The following example shows the automated update of two-node MetroCluster configuration having clusters cluster\_A and cluster\_B. In this case, cluster\_A's update is waiting and cluster\_B's update is in progress. cluster\_B's switchback operation is in progress.

```

cluster_A::> cluster image show-update-progress
Estimated      Elapsed
Cluster                Duration          Duration      Status
-----
cluster_A                00:00:00          00:00:00      waiting
cluster_B                00:00:00          00:06:42      in-
progress

Details: Switchback in progress.

Waiting for partner cluster "sti60-vsimsim-ucs134f_siteB" to be up.

cluster_A::>

```

The following example shows that the automated update is completed on both cluster\_A and cluster\_B in two-node MetroCluster configuration.

```

cluster_A::> cluster image show-update-progress
Estimated      Elapsed
Cluster                Duration          Duration      Status
-----
cluster_A                00:00:00          00:20:44      completed
cluster_B                00:00:00          00:10:43      completed

Details: MetroCluster updated successfully.

cluster_A::>

```

## cluster image show

Display currently running image information

**Availability:** This command is available to *cluster* administrators at the *admin* privilege level.

### Description

The `cluster image show` command displays information about the version of Data ONTAP that is running on each node and the date/time when it was installed. By default, the command displays the following information:

- Node name
- Current version

- Installation date and time

## Parameters

**{ [-fields <fieldname>,...]**

If you specify the `-fields <fieldname>`, ... parameter, the command output also includes the specified field or fields. You can use `'-fields ?'` to display the fields to specify.

**| [-instance ] }**

If you specify the `-instance` parameter, the command displays detailed information about all fields.

**[-node {<nodename>|local}] - Node**

Displays information about the specified node.

**[-version <text>] - Current Version**

Displays information about the nodes running the specified version.

**[-date <MM/DD/YYYY HH:MM:SS>] - Date Installed**

Displays information about the nodes with the specified installation date.

## Examples

The following example displays information about currently running images on all nodes of the cluster:

```
cluster1::> cluster image show
                Current          Installation
Node            Version          Date
-----
node1           8.3                -
node2           8.3                -
2 entries were displayed.
```

## cluster image update

### Manage an update

**Availability:** This command is available to *cluster* administrators at the *admin* privilege level.

### Description

The `cluster image update` command is used to initiate a Data ONTAP update. The update is preceded by a validation of the cluster to ensure that any issues that might affect the update are identified. There are two types of updates of a cluster. A rolling update updates Data ONTAP one HA pair at a time. This type of update is performed for clusters with fewer than eight nodes or when the `-force-rolling` option is specified for clusters with eight or more nodes. A batch update is used for clusters of eight or more nodes, and performs updates of multiple HA pairs at the same time.

There are predefined points in the update when the update can be paused (either by the user or by an error).



These pause points occur after validation, after download to the boot device, after takeover has completed, and after giveback has completed.

## Parameters

### **-version <text> - Update Version**

Specifies the Data ONTAP version to use to update the cluster.

### **[-nodes {<nodename>|local}] - Node**

Specifies the nodes that are to be updated. This parameter is not supported for MetroCluster configurations updates or two-stage upgrades. The node upgrade sequence does not follow the node order entered in `cluster image update` command

### **[-estimate-only <>true>] - Estimate Only**

Creates a report of the steps that occur during the update without performing them precisely.

### **[-pause-after {none|takeover-giveback|all}] - Update Pause**

Specifies that the update should pause at each predefined pause points (for example, after validation, after download to the boot device, after takeover, and after giveback) during the update.

### **[-ignore-validation-warning {true|false}] - Ignore Validation**

Specifies that the update should proceed even if the validation reports warnings.

### **[-skip-confirmation {true|false}] - Skip Confirmation**

Specifies that a validation that does not detect any error issues should not ask the user to confirm the update but simply proceed with the update.

### **[-force-rolling <>true>] - Force Rolling Update**

This option is used for clusters with eight or more nodes to specify that a rolling update (one HA pair at a time) should be done. This parameter is not supported for single-node cluster and two-node MetroCluster.

### **[-stabilize-minutes <integer>] - Minutes to stabilize**

Specifies the number of minutes that the update should wait after a takeover or giveback is completed. This allows time for the clients to recover from the pause in I/O that occurs during takeover and giveback. This parameter is not supported for single-node cluster.

### **[-show-validation-details <>true>] - Shows All Validation Details**

Specify to display all validation details. Default: do not display all details.

## Examples

The following example shows the update operation:

```
cluster1::> cluster image update -version 8.3
```

It can take several minutes to complete validation...

```
Pre-update Check      Status      Error-Action
```

```
-----  
-----
```

```
CIFS status           OK
```

```
Cluster health status OK
```

```
Cluster quorum status OK
```

```
Disk status           OK
```

```
High Availability     OK
```

```
status
```

```
LIF status            OK
```

```
LIFs on home node    OK
```

```
status
```

```
MetroCluster          OK
```

```
configuration status
```

```
SnapMirror status     OK
```

```
Overall Status        OK
```

```
10 entries were displayed.
```

```
Do you want to continue? {y|n}: y
```

```
Starting update...
```

## cluster image validate

Validates the cluster's update eligibility

**Availability:** This command is available to *cluster* administrators at the *admin* privilege level.

### Description

The `cluster image validate` command checks for issues within the cluster that might lead to problems during the update.

### Parameters

**[-fields <fieldname>,...]**

If you specify the `-fields <fieldname>, ...` parameter, the command output also includes the specified field or fields. You can use `'-fields ?'` to display the fields to specify.

**[-version <text>] - Update Version**

Specifies the Data ONTAP version to use to validate the cluster.

**[-rolling <>true>] - Rolling Update**

Specify this optional parameter on a cluster with eight or more nodes to perform a rolling-update check. The default is to perform a batch-update check.



This parameter is only supported on a cluster with eight or more nodes, and is not supported for two-node MetroCluster.

### **[`-nodes` {<nodename>|local}] - Nodes**

Specifies the nodes that are to be validated. This parameter is not supported for MetroCluster configurations and for two-stage upgrades.

### **[`-show-validation-details` <true>] - Shows All Validation Details**

Specify to display all validation details. Default: do not display all details.

## **Examples**

The following example shows the validate operation:

```
cluster1::> cluster image validate -version 8.3

It can take several minutes to complete validation...
Pre-update Check      Status      Error-Action
-----
-----
CIFS status           OK
Cluster health status OK
Cluster quorum status OK
Disk status           OK
High Availability
status                OK
LIF status            OK
LIFs on home node     OK
MetroCluster
configuration status  OK
SnapMirror status     OK
Overall Status        OK
10 entries were displayed.
```

## **cluster image package delete**

Remove a package from the cluster image package repository

**Availability:** This command is available to *cluster* administrators at the *admin* privilege level.

### **Description**

The `cluster image package delete` command deletes the specified version of the package from the package repository. The associated information about the package is also deleted from the update database.

## Parameters

### **-version <text> - Version To Be Deleted**

Specifies the package version that is to be deleted.

## Examples

The following example deletes the package with version 8.3:

```
cluster1::> cluster image package delete -version 8.3  
  
Package Delete Operation Completed Successfully
```

## cluster image package get

Fetch a package file from a URL into the cluster image package repository

**Availability:** This command is available to *cluster* administrators at the *admin* privilege level.

## Description

The `cluster image package get` command fetches a Data ONTAP package file specified by the URL into the cluster. The package is stored in the cluster package repository and the information from the package is stored in the update database.

## Parameters

### **-url <text> - Package URL**

Specifies the URL from which to get the package.

## Examples

The following example displays how to get a package from a URL:

```
cluster1::> cluster image package get -url http://example.com/image.tgz
```

## cluster image package show-repository

Display information about packages available in the cluster image package repository

**Availability:** This command is available to *cluster* administrators at the *admin* privilege level.

## Description

The `cluster image package show-repository` command displays the package versions that are in the cluster package repository. By default, the command displays the following information:

- Package version

## Parameters

**{ [-fields <fieldname>,...]**

If you specify the `-fields <fieldname>`, ... parameter, the command output also includes the specified field or fields. You can use `'-fields ?'` to display the fields to specify.

**| [-detail ]**

This parameter specifies that detailed information should be displayed.

**| [-instance ] }**

If you specify the `-instance` parameter, the command displays detailed information about all fields.

**[-download-ver <text>] - Downloaded Version**

Displays packages with the specified download version.

**[-component-name <text>,...] - Component Name**

Displays packages for the specified component.

**[-component-version <text>,...] - Component Version**

Displays packages with the specified component version.

**[-package-build-time <MM/DD/YYYY HH:MM:SS>] - Package Build Time**

Displays packages with the specified build time.

## Examples

The following example displays the packages in the cluster package repository:

```
cluster1::> cluster image package show-repository
Package Version Package Build Time
-----
8.3           9/12/2014 10:27:33
```

## 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.

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.