



View and update MetroCluster interconnects

ONTAP 9.14.1 REST API reference

NetApp
May 23, 2024

Table of Contents

- View and update MetroCluster interconnects 1
 - Cluster MetroCluster interconnects endpoint overview 1
 - Retrieve interconnect adapter information for nodes in MetroCluster 9
 - Retrieve information about a MetroCluster interconnect for a partner type and adapter 17
 - Update a MetroCluster interconnect interface 22

View and update MetroCluster interconnects

Cluster MetroCluster interconnects endpoint overview

Overview

You can use this API to retrieve and display relevant information pertaining to MetroCluster interconnect status. The `/cluster/metrocluster/interconnects` endpoint returns a list of all the interconnects in MetroCluster and their status. Each individual interconnect can be queried individually using the `/cluster/metrocluster/interconnects/{node.uuid}/{partner_type}/{adapter}` endpoint. You can also use this API to modify relevant information related to MetroCluster interconnect. These include address, netmask, and gateway. Modify a MetroCluster interconnect using the `/cluster/metrocluster/interconnects/{node.uuid}/{partner_type}/{adapter}` endpoint.

Examples

Retrieving MetroCluster interconnects

```
GET https://<mgmt-ip>/api/cluster/metrocluster/interconnects
{
  "records": [
    {
      "node": {
        "name": "cluster1_01",
        "uuid": "6fead8fe-8d81-11e9-b5a9-005056826931",
        "_links": {
          "self": {
            "href": "/api/cluster/nodes/6fead8fe-8d81-11e9-b5a9-005056826931"
          }
        }
      },
      "partner_type": "ha",
      "adapter": "e0f",
      "_links": {
        "self": {
          "href": "/api/cluster/metrocluster/interconnects/6fead8fe-8d81-11e9-b5a9-005056826931/ha/e0f"
        }
      }
    },
    {
      "node": {
        "name": "cluster1_01",
```

```

        "uuid": "6fead8fe-8d81-11e9-b5a9-005056826931",
        "_links": {
            "self": {
                "href": "/api/cluster/nodes/6fead8fe-8d81-11e9-b5a9-
005056826931"
            }
        },
        "partner_type": "ha",
        "adapter": "e0g",
        "_links": {
            "self": {
                "href":
"/api/cluster/metrocluster/interconnects/6fead8fe-8d81-11e9-b5a9-
005056826931/ha/e0g"
            }
        }
    },
    {
        "node": {
            "name": "cluster1_01",
            "uuid": "6fead8fe-8d81-11e9-b5a9-005056826931",
            "_links": {
                "self": {
                    "href": "/api/cluster/nodes/6fead8fe-8d81-11e9-b5a9-
005056826931"
                }
            }
        },
        "partner_type": "dr",
        "adapter": "e0f",
        "_links": {
            "self": {
                "href":
"/api/cluster/metrocluster/interconnects/6fead8fe-8d81-11e9-b5a9-
005056826931/dr/e0f"
            }
        }
    },
    {
        "node": {
            "name": "cluster1_01",
            "uuid": "6fead8fe-8d81-11e9-b5a9-005056826931",
            "_links": {
                "self": {
                    "href": "/api/cluster/nodes/6fead8fe-8d81-11e9-b5a9-

```

```

005056826931"
    }
  },
  "partner_type": "dr",
  "adapter": "e0g",
  "_links": {
    "self": {
      "href":
"/api/cluster/metrocluster/interconnects/6fead8fe-8d81-11e9-b5a9-
005056826931/dr/e0g"
    }
  },
  {
    "node": {
      "name": "cluster1_01",
      "uuid": "6fead8fe-8d81-11e9-b5a9-005056826931",
      "_links": {
        "self": {
          "href": "/api/cluster/nodes/6fead8fe-8d81-11e9-b5a9-
005056826931"
        }
      }
    },
    "partner_type": "aux",
    "adapter": "e0f",
    "_links": {
      "self": {
        "href":
"/api/cluster/metrocluster/interconnects/6fead8fe-8d81-11e9-b5a9-
005056826931/aux/e0f"
      }
    }
  },
  {
    "node": {
      "name": "cluster1_01",
      "uuid": "6fead8fe-8d81-11e9-b5a9-005056826931",
      "_links": {
        "self": {
          "href": "/api/cluster/nodes/6fead8fe-8d81-11e9-b5a9-
005056826931"
        }
      }
    }
  },

```

```

    "partner_type": "aux",
    "adapter": "e0g",
    "_links": {
      "self": {
        "href":
"/api/cluster/metrocluster/interconnects/6fead8fe-8d81-11e9-b5a9-
005056826931/aux/e0g"
      }
    }
  },
  {
    "node": {
      "name": "cluster1_02",
      "uuid": "f5435191-8d81-11e9-9d4b-00505682dc8b",
      "_links": {
        "self": {
          "href": "/api/cluster/nodes/f5435191-8d81-11e9-9d4b-
00505682dc8b"
        }
      }
    },
    "partner_type": "ha",
    "adapter": "e0f",
    "_links": {
      "self": {
        "href":
"/api/cluster/metrocluster/interconnects/f5435191-8d81-11e9-9d4b-
00505682dc8b/ha/e0f"
      }
    }
  },
  {
    "node": {
      "name": "cluster1_02",
      "uuid": "f5435191-8d81-11e9-9d4b-00505682dc8b",
      "_links": {
        "self": {
          "href": "/api/cluster/nodes/f5435191-8d81-11e9-9d4b-
00505682dc8b"
        }
      }
    },
    "partner_type": "ha",
    "adapter": "e0g",
    "_links": {
      "self": {

```



```

    }
  },
  {
    "node": {
      "name": "cluster1_02",
      "uuid": "f5435191-8d81-11e9-9d4b-00505682dc8b",
      "_links": {
        "self": {
          "href": "/api/cluster/nodes/f5435191-8d81-11e9-9d4b-00505682dc8b"
        }
      }
    },
    "partner_type": "aux",
    "adapter": "e0f",
    "_links": {
      "self": {
        "href": "/api/cluster/metrocluster/interconnects/f5435191-8d81-11e9-9d4b-00505682dc8b/aux/e0f"
      }
    }
  },
  {
    "node": {
      "name": "cluster1_02",
      "uuid": "f5435191-8d81-11e9-9d4b-00505682dc8b",
      "_links": {
        "self": {
          "href": "/api/cluster/nodes/f5435191-8d81-11e9-9d4b-00505682dc8b"
        }
      }
    },
    "partner_type": "aux",
    "adapter": "e0g",
    "_links": {
      "self": {
        "href": "/api/cluster/metrocluster/interconnects/f5435191-8d81-11e9-9d4b-00505682dc8b/aux/e0g"
      }
    }
  }
],
"num_records": 12,

```



```
"_links": {
  "self": {
    "href": "/api/cluster/metrocluster/interconnects"
  }
}
```

Retrieves information about a specific MetroCluster interconnect

```
https://<mgmt-ip>/api/cluster/metrocluster/interconnects/774b4fbc-86f9-11e9-9051-005056825c71/aux/e0f
{
  "node": {
    "name": "cluster1_01",
    "uuid": "46147363-9857-11e9-9a55-005056828eb9",
    "_links": {
      "self": {
        "href": "/api/cluster/nodes/46147363-9857-11e9-9a55-005056828eb9"
      }
    }
  },
  "partner_type": "aux",
  "adapter": "e0f",
  "state": "up",
  "type": "iwarp",
  "interfaces": [
    {
      "address": "10.2.3.5",
      "netmask": "255.255.255.0"
    }
  ],
  "mirror": {
    "state": "online",
    "enabled": true
  },
  "multipath_policy": "static_map",
  "_links": {
    "self": {
      "href": "/api/cluster/metrocluster/interconnects/46147363-9857-11e9-9a55-005056828eb9/ha/e0f"
    }
  }
}
```

This example shows how to modify the network address assigned to the home port. Fields required: address.

```
curl -X PATCH https://<mgmt-  
ip>/api/cluster/metrocluster/interconnects/3e1bfd38-ffd2-11eb-bcb7-  
005056aceaa9/ha/e0g -d '{"interfaces": [{"address": "1.2.3.4"}]}'
```

PATCH Response

```
HTTP/1.1 200 OK  
Cache-Control: no-cache,no-store,must-revalidate  
Connection: close  
Date: Fri, 20 Aug 2021 21:58:36 GMT  
Server: libzapid-httpd  
Content-Length: 3  
Content-Type: application/hal+json  
X-Content-Type-Options: nosniff  
{  
}
```

This example shows how to modify the netmask assigned to the interface. Be sure to change to a valid subnet. Fields required: netmask.

```
curl -X PATCH https://<mgmt-  
ip>/api/cluster/metrocluster/interconnects/3e1bfd38-ffd2-11eb-bcb7-  
005056aceaa9/ha/e0g -d '{"interfaces": [{"netmask": "2.2.2.2"}]}'
```

PATCH Response

```
HTTP/1.1 200 OK  
Cache-Control: no-cache,no-store,must-revalidate  
Connection: close  
Date: Fri, 20 Aug 2021 22:11:35 GMT  
Server: libzapid-httpd  
Content-Length: 3  
Content-Type: application/hal+json  
X-Content-Type-Options: nosniff  
{  
}
```

This example shows how to modify the gateway assigned to the interface. Please make sure to update it on the switch/router first. Assuming it is a new one, the new gateway and IP address must reside in the same subnet range as the interface IP address. Fields required: gateway.

```
curl -X PATCH https://<mgmt-  
ip>/api/cluster/metrocluster/interconnects/3e1bfd38-ffd2-11eb-bcb7-  
005056aceaa9/ha/e0g -d '{"interfaces": [{"gateway": "1.2.3.4"}]}'
```

PATCH Response

```
HTTP/1.1 200 OK  
Cache-Control: no-cache,no-store,must-revalidate  
Connection: close  
Date: Fri, 20 Aug 2021 22:11:35 GMT  
Server: libzapid-httpd  
Content-Length: 3  
Content-Type: application/hal+json  
X-Content-Type-Options: nosniff  
{  
}
```

Retrieve interconnect adapter information for nodes in MetroCluster

GET /cluster/metrocluster/interconnects

Introduced In: 9.8

Retrieves a list of interconnect adapter information for nodes in the MetroCluster.

Related ONTAP Commands

- `metrocluster interconnect show`

Learn more

- [DOC /cluster/metrocluster/interconnects](#)

Parameters

Name	Type	In	Required	Description
partner_type	string	query	False	Filter by partner_type
node.name	string	query	False	Filter by node.name

Name	Type	In	Required	Description
node.uuid	string	query	False	Filter by node.uuid
vlan_id	integer	query	False	Filter by vlan_id <ul style="list-style-type: none"> • Introduced in: 9.9 • Max value: 4095 • Min value: 10
state	string	query	False	Filter by state
adapter	string	query	False	Filter by adapter
interfaces.gateway	string	query	False	Filter by interfaces.gateway <ul style="list-style-type: none"> • Introduced in: 9.9
interfaces.netmask	string	query	False	Filter by interfaces.netmask <ul style="list-style-type: none"> • Introduced in: 9.9
interfaces.address	string	query	False	Filter by interfaces.address <ul style="list-style-type: none"> • Introduced in: 9.9
mirror.enabled	boolean	query	False	Filter by mirror.enabled <ul style="list-style-type: none"> • Introduced in: 9.11
mirror.state	string	query	False	Filter by mirror.state <ul style="list-style-type: none"> • Introduced in: 9.11
type	string	query	False	Filter by type

Name	Type	In	Required	Description
multipath_policy	string	query	False	Filter by multipath_policy <ul style="list-style-type: none"> • Introduced in: 9.11
fields	array[string]	query	False	Specify the fields to return.
max_records	integer	query	False	Limit the number of records returned.
return_records	boolean	query	False	The default is true for GET calls. When set to false, only the number of records is returned. <ul style="list-style-type: none"> • Default value: 1
return_timeout	integer	query	False	The number of seconds to allow the call to execute before returning. When iterating over a collection, the default is 15 seconds. ONTAP returns earlier if either max records or the end of the collection is reached. <ul style="list-style-type: none"> • Max value: 120 • Min value: 0 • Default value: 1
order_by	array[string]	query	False	Order results by specified fields and optional [asc

Response

Status: 200, Ok

Name	Type	Description
_links	collection_links	
num_records	integer	Number of Records
records	array[metrocluster_interconnect]	

Example response

```
{
  "_links": {
    "next": {
      "href": "/api/resourcelink"
    },
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "num_records": 1,
  "records": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "adapter": "string",
    "interfaces": {
      "address": "10.10.10.7",
      "gateway": "10.1.1.1",
      "netmask": "24"
    },
    "mirror": {
      "state": "online"
    },
    "multipath_policy": "no_mp",
    "node": {
      "_links": {
        "self": {
          "href": "/api/resourcelink"
        }
      },
      "name": "node1",
      "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
    },
    "partner_type": "aux",
    "state": "down",
    "type": "roce",
    "vlan_id": 0
  }
}
```

Error

Status: Default

ONTAP Error Response Codes

Error Code	Description
2424994	MetroCluster is not supported when HAOSC is not set to "mcc", "mcc-2n" or "mccip". Run the "ha-config modify chassis" and "ha-config modify controller" commands in maintenance mode to change the HAOSC settings on node "node" in cluster "cluster".
2425734	An internal error occurred. Wait a few minutes, and try the operation again. For further assistance, contact technical support.
2427132	MetroCluster is not configured on this cluster.

Also see the table of common errors in the [Response body](#) overview section of this documentation.

Name	Type	Description
error	returned_error	

Example error

```
{
  "error": {
    "arguments": {
      "code": "string",
      "message": "string"
    },
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
}
```

Definitions

See Definitions

href

Name	Type	Description
href	string	

collection_links

Name	Type	Description
next	href	
self	href	

self_link

Name	Type	Description
self	href	

interfaces

Object to setup an interface along with its default router.

Name	Type	Description
address	string	IPv4 or IPv6 address
gateway	string	The IPv4 or IPv6 address of the default router.
netmask	string	Input as netmask length (16) or IPv4 mask (255.255.0.0). For IPv6, the default value is 64 with a valid range of 1 to 127. Output is always netmask length.

mirror

Name	Type	Description
enabled	boolean	Specifies the administrative state of the NVRAM mirror between partner nodes.
state	string	Specifies the operational state of the NVRAM mirror between partner nodes.

_links

Name	Type	Description
self	href	

node

Name	Type	Description
_links	_links	
name	string	
uuid	string	

metrocluster_interconnect

Data for a MetroCluster interconnect. REST: /api/cluster/metrocluster/interconnects

Name	Type	Description
_links	self_link	
adapter	string	Adapter
interfaces	array[interfaces]	List of objects which contain interface information such as its IP address, netmask and gateway.
mirror	mirror	
multipath_policy	string	Displays the NVRAM mirror multipath policy for the nodes configured in a MetroCluster.
node	node	
partner_type	string	Partner type
state	string	Adapter status
type	string	Adapter type
vlan_id	integer	VLAN ID

error_arguments

Name	Type	Description
code	string	Argument code
message	string	Message argument

returned_error

Name	Type	Description
arguments	array[error_arguments]	Message arguments
code	string	Error code
message	string	Error message
target	string	The target parameter that caused the error.

Retrieve information about a MetroCluster interconnect for a partner type and adapter

GET /cluster/metrocluster/interconnects/{node.uuid}/{partner_type}/{adapter}

Introduced In: 9.8

Retrieves information about a MetroCluster Interconnect for a specific partner type and adapter.

Related ONTAP Commands

- `metrocluster interconnect show`

Parameters

Name	Type	In	Required	Description
node.uuid	string	path	True	Node UUID
partner_type	string	path	True	DR Partner type
adapter	string	path	True	Interconnect adapter.
fields	array[string]	query	False	Specify the fields to return.

Response

Status: 200, Ok

Name	Type	Description
_links	self_link	
adapter	string	Adapter
interfaces	array[interfaces]	List of objects which contain interface information such as its IP address, netmask and gateway.
mirror	mirror	
multipath_policy	string	Displays the NVRAM mirror multipath policy for the nodes configured in a MetroCluster.
node	node	
partner_type	string	Partner type
state	string	Adapter status
type	string	Adapter type
vlan_id	integer	VLAN ID

Example response

```
{
  "_links": {
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "adapter": "string",
  "interfaces": {
    "address": "10.10.10.7",
    "gateway": "10.1.1.1",
    "netmask": "24"
  },
  "mirror": {
    "state": "online"
  },
  "multipath_policy": "no_mp",
  "node": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "name": "node1",
    "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
  },
  "partner_type": "aux",
  "state": "down",
  "type": "roce",
  "vlan_id": 0
}
```

Error

Status: Default

ONTAP Error Response Codes

Error Code	Description
2425734	An internal error occurred. Wait a few minutes, and try the operation again. For further assistance, contact technical support.

Error Code	Description
2427132	MetroCluster is not configured on this cluster.

Also see the table of common errors in the [Response body](#) overview section of this documentation.

Name	Type	Description
error	returned_error	

Example error

```
{
  "error": {
    "arguments": {
      "code": "string",
      "message": "string"
    },
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
}
```

Definitions

See Definitions

href

Name	Type	Description
href	string	

self_link

Name	Type	Description
self	href	

interfaces

Object to setup an interface along with its default router.

Name	Type	Description
address	string	IPv4 or IPv6 address
gateway	string	The IPv4 or IPv6 address of the default router.
netmask	string	Input as netmask length (16) or IPv4 mask (255.255.0.0). For IPv6, the default value is 64 with a valid range of 1 to 127. Output is always netmask length.

mirror

Name	Type	Description
enabled	boolean	Specifies the administrative state of the NVRAM mirror between partner nodes.
state	string	Specifies the operational state of the NVRAM mirror between partner nodes.

_links

Name	Type	Description
self	href	

node

Name	Type	Description
_links	_links	
name	string	
uuid	string	

error_arguments

Name	Type	Description
code	string	Argument code
message	string	Message argument

returned_error

Name	Type	Description
arguments	array[error_arguments]	Message arguments
code	string	Error code
message	string	Error message
target	string	The target parameter that caused the error.

Update a MetroCluster interconnect interface

PATCH /cluster/metrocluster/interconnects/{node.uuid}/{partner_type}/{adapter}

Introduced In: 9.10

Updates a MetroCluster interconnect interface.

Related ONTAP commands * metrocluster configuration-settings
interface modify

Parameters

Name	Type	In	Required	Description
node.uuid	string	path	True	Node UUID
partner_type	string	path	True	DR Partner type

Name	Type	In	Required	Description
adapter	string	path	True	Interconnect adapter
return_timeout	integer	query	False	<p>The number of seconds to allow the call to execute before returning. When doing a POST, PATCH, or DELETE operation on a single record, the default is 0 seconds. This means that if an asynchronous operation is started, the server immediately returns HTTP code 202 (Accepted) along with a link to the job. If a non-zero value is specified for POST, PATCH, or DELETE operations, ONTAP waits that length of time to see if the job completes so it can return something other than 202.</p> <ul style="list-style-type: none"> • Default value: 1 • Max value: 120 • Min value: 0

Request Body

Name	Type	Description
_links	self_link	
adapter	string	Adapter
interfaces	array[interfaces]	List of objects which contain interface information such as its IP address, netmask and gateway.
mirror	mirror	

Name	Type	Description
multipath_policy	string	Displays the NVRAM mirror multipath policy for the nodes configured in a MetroCluster.
node	node	
partner_type	string	Partner type
state	string	Adapter status
type	string	Adapter type
vlan_id	integer	VLAN ID

Example request

```
{
  "_links": {
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "adapter": "string",
  "interfaces": {
    "address": "10.10.10.7",
    "gateway": "10.1.1.1",
    "netmask": "24"
  },
  "mirror": {
    "state": "online"
  },
  "multipath_policy": "no_mp",
  "node": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "name": "node1",
    "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
  },
  "partner_type": "aux",
  "state": "down",
  "type": "roce",
  "vlan_id": 0
}
```

Response

Status: 200, Ok

Name	Type	Description
job	job_link	

Example response

```
{
  "job": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "uuid": "string"
  }
}
```

Response

Status: 202, Accepted

Error

Status: Default

ONTAP Error Response Codes

Error Code	Description
2425734	An internal error has occurred. Wait a few minutes, and try the operation again. For further assistance, contact technical support.
2430347	The interface is already configured for port "adapter" with IP address "interfaces.address" on node "node.name". To configure a new IP address, run the "metrocluster configuration-settings interface delete" command to delete this interface and then run the "metrocluster configuration-settings interface create" command with the new IP address.
2430348	The interface is already configured for port "adapter" with gateway "interfaces.gateway" on node "node.name". To configure a new gateway or no gateway, run the "metrocluster configuration-settings interface delete" command to delete this interface and then run the "metrocluster configuration-settings interface create" command with the new gateway or no gateway.

Error Code	Description
2430352	The interface is already configured for port "adapter" with netmask "interfaces.netmask" on node "node.name". To configure a new netmask, run the "metrocluster configuration-settings interface delete" command to delete this interface and then run the "metrocluster configuration-settings interface create" command with the new netmask.
2430445	Configuration for the interface "port" on node "node.name" in cluster "cluster" does not exist. Use the "metrocluster configuration-settings interface show" command to list the valid interfaces configured for MetroCluster over IP.
2432885	Unable to modify the interface for adapter "port". Reason: At least one interface parameter is required to modify the interface.

Also see the table of common errors in the [Response body](#) overview section of this documentation.

Name	Type	Description
error	returned_error	

Example error

```
{
  "error": {
    "arguments": {
      "code": "string",
      "message": "string"
    },
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
}
```

Definitions

See Definitions

href

Name	Type	Description
href	string	

self_link

Name	Type	Description
self	href	

interfaces

Object to setup an interface along with its default router.

Name	Type	Description
address	string	IPv4 or IPv6 address
gateway	string	The IPv4 or IPv6 address of the default router.
netmask	string	Input as netmask length (16) or IPv4 mask (255.255.0.0). For IPv6, the default value is 64 with a valid range of 1 to 127. Output is always netmask length.

mirror

Name	Type	Description
enabled	boolean	Specifies the administrative state of the NVRAM mirror between partner nodes.
state	string	Specifies the operational state of the NVRAM mirror between partner nodes.

_links

Name	Type	Description
self	href	

node

Name	Type	Description
_links	_links	
name	string	
uuid	string	

metrocluster_interconnect

Data for a MetroCluster interconnect. REST: /api/cluster/metrocluster/interconnects

Name	Type	Description
_links	self_link	
adapter	string	Adapter
interfaces	array[interfaces]	List of objects which contain interface information such as its IP address, netmask and gateway.
mirror	mirror	
multipath_policy	string	Displays the NVRAM mirror multipath policy for the nodes configured in a MetroCluster.
node	node	
partner_type	string	Partner type
state	string	Adapter status
type	string	Adapter type
vlan_id	integer	VLAN ID

job_link

Name	Type	Description
_links	_links	
uuid	string	The UUID of the asynchronous job that is triggered by a POST, PATCH, or DELETE operation.

error_arguments

Name	Type	Description
code	string	Argument code
message	string	Message argument

returned_error

Name	Type	Description
arguments	array[error_arguments]	Message arguments
code	string	Error code
message	string	Error message
target	string	The target parameter that caused the error.

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.