



View security key managers

ONTAP 9.14.1 REST API reference

NetApp
May 23, 2024

Table of Contents

- View security key managers 1
 - Security key-managers security_key_manager.uuid keys node.uuid key-ids endpoint overview 1

View security key managers

Security key-managers security_key_manager.uuid keys node.uuid key-ids endpoint overview

Overview

Retrieves the key manager keys on the give node. The following operations are supported:

- Get

Examples

Retrieving key manager key-id information for a node

The following example shows how to retrieve key-ids present on a node for a key manager.

```

# The API:
GET /api/security/key-
managers/{security_key_manager.uuid}/keys/{node.uuid}/key-ids

# The call:
curl -X GET 'https://<mgmt-ip>/api/security/key-managers/f4f98a48-8a5c-
c548-cd03-c6335f5803a8/keys/00000000-0000-0000-0000-000000000000/key-
ids/000000000000000002000000000005009ad4da8fea2cafe2bed803078b780ebe000000
0000000c01' -H 'accept: application/hal+json'

# The response:
{
  "security_key_manager": {
    "uuid": "f4f98a48-8a5c-c548-cd03-c6335f5803a8"
  },
  "node": {
    "uuid": "00000000-0000-0000-0000-000000000000"
  },
  "key_id":
"000000000000000002000000000005009ad4da8fea2cafe2bed803078b780ebe000000000
0000c01",
  "svm": {
    "name": "cluster-1"
  },
  "key_tag": "vsim1",
  "key_type": "vek",
  "restored": false,
  "key_store": "onboard",
  "key_user": "datavs",
  "key_manager": "onboard",
  "key_store_type": "okm",
  "encryption_algorithm": "XTS-AES-256",
  "_links": {
    "self": {
      "href": "/api/security/key-managers/f4f98a48-8a5c-c548-cd03-
c6335f5803a8/keys/00000000-0000-0000-0000-000000000000/key-
ids/000000000000000002000000000005009ad4da8fea2cafe2bed803078b780ebe000000
0000000c01"
    }
  }
}

```

Retrieving key manager key-id information of a specific key-type for a node

The following example shows how to retrieve key-ids of a specific key-type present on a node for a key manager.

= The API:

```
GET /api/security/key-  
manager/{security_key_manager.uuid}/keys/{node.uuid}/key-ids
```

= The call:

```
curl -X GET "https://+++<mgmt-ip>+++/api/security/key-managers/7c179931-  
044b-11ed-b7cd-005056bbc535/keys/44dac31e-0449-11ed-b7cd-005056bbc535/key-  
ids?key_type=nse_ak&return_records=true&return_timeout=15" -H "accept:  
application/json"+++</mgmt-ip>+++
```

= The response:

```
{  
  "records": [  
    {  
      "key_server": "10.225.89.34:5696",  
      "key_id":  
"000000000000000002000000000001003d5c5f8c497e8e36aa80566e08749a3d00000000  
000000",  
      "key_type": "nse_ak"  
    },  
    {  
      "key_server": "10.225.89.34:5696",  
      "key_id":  
"00000000000000000200000000000100c2dce9a3a15aeb8480db8d49c17d056c00000000  
000000",  
      "key_type": "nse_ak"  
    }  
  ],  
  "num_records": 2  
}
```

```
[[ID6fed8977d2c338d9bca36390bd2412e]]
```

= Retrieve key manager configurations

```
[.api-doc-operation .api-doc-operation-get]#GET# [.api-doc-code-
```

```
block]#`/security/key-  
managers/{security_key_manager.uuid}/keys/{node.uuid}/key-ids`#
```

Introduced In: 9.11

Retrieves key manager configurations.

== Required properties

* `security_key_manager.uuid` - Key manager UUID.

* `node.uuid` - Node UUID.

== Related ONTAP commands

* `security key-manager key query`

* `security key-manager key query -node <node>`

* `security key-manager key query -node <node> -key-manager <key_manager>`

== Parameters

[cols=5*,options=header]

|===

|Name

|Type

|In

|Required

|Description

|key_user

|string

|query

|False

a|Filter by key_user

* Introduced in: 9.12

|key_tag

|string

|query

|False

a|Filter by key_tag

* Introduced in: 9.12

```
|key_manager
|string
|query
|False
a|Filter by key_manager
```

* Introduced in: 9.12

```
|encryption_algorithm
|string
|query
|False
a|Filter by encryption_algorithm
```

* Introduced in: 9.12

```
|crn
|string
|query
|False
a|Filter by crn
```

* Introduced in: 9.12

```
|node.name
|string
|query
|False
a|Filter by node.name
```

* Introduced in: 9.12

```
|policy
|string
|query
|False
a|Filter by policy
```

* Introduced in: 9.12

```
|restored
```

```
|boolean  
|query  
|False  
a|Filter by restored
```

* Introduced in: 9.12

```
|key_store_type  
|string  
|query  
|False  
a|Filter by key_store_type
```

* Introduced in: 9.12

```
|svm.uuid  
|string  
|query  
|False  
a|Filter by svm.uuid
```

* Introduced in: 9.14

```
|svm.name  
|string  
|query  
|False  
a|Filter by svm.name
```

* Introduced in: 9.14

```
|key_type  
|string  
|query  
|False  
a|Filter by key_type
```

* Introduced in: 9.12

```
|key_store  
|string  
|query
```


|False
a|Filter by key_store

* Introduced in: 9.12

|scope
|string
|query
|False
a|Filter by scope

* Introduced in: 9.14

|key_id
|string
|query
|False
a|Filter by key_id

* Introduced in: 9.12

|key_server
|string
|query
|False
a|Filter by key_server

* Introduced in: 9.12

|security_key_manager.uuid
|string
|path
|True
a|Key manager UUID.

|node.uuid
|string
|path
|True
a|Node UUID.

```
|max_records
|integer
|query
|False
a|Limit the number of records returned.
```

```
|return_records
|boolean
|query
|False
a|The default is true for GET calls. When set to false, only the number
of records is returned.
```

```
* Default value: 1
```

```
|return_timeout
|integer
|query
|False
a|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.
```

```
* Default value: 1
```

```
* Max value: 120
```

```
* Min value: 0
```

```
|order_by
|array[string]
|query
|False
a|Order results by specified fields and optional [asc|desc] direction.
Default direction is 'asc' for ascending.
```

```
|fields
|array[string]
|query
|False
a|Specify the fields to return.
```

```
|===
```

== Response

Status: 200, Ok

```
[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
|link:#_links[_links]
a|

|num_records
|integer
a|Number of records

|records
|array[link:#key_manager_keys[key_manager_keys]]
a|

|===

.Example response
[%collapsible%closed]
=====
[source,json,subs=+macros]
{
  "_links": {
    "next": {
      "href": "/api/resourcelink"
    },
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "num_records": 1,
  "records": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    }
  },
}
```

```

"crn": "CRN=v1:bluemix:public:containers-kubernetes",
"encryption_algorithm": "XTS-AES-256",
"key_id":
"0000000000000000000000000000000000000000000000000000000000000000"
,
"key_manager": "keyserver1.local:5696",
"key_server": "keyserver1.com:5698",
"key_store": "onboard",
"key_store_type": "okm",
"key_tag": "key#",
"key_type": "nse_ak",
"key_user": "vs1",
"node": {
  "_links": {
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "name": "node1",
  "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
},
"policy": "IBM_Key_Lore",
"restored": 1,
"scope": "svm",
"svm": {
  "_links": {
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "name": "svm1",
  "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
}
}
}
====

== Error

```

Status: Default

ONTAP Error Response Codes

|===

| Error Code | Description

```
| 65537125
| The provided key manager UUID is not the UUID of a keymanager.
|===
```

Also see the table of common errors in the [xref:{relative_path}getting_started_with_the_ontap_rest_api.html#Response_body\[Response body\]](#) overview section of this documentation.

```
[cols=3*,options=header]
|===
|Name
|Type
|Description

|error
|link:#returned_error[returned_error]
a|
```

```
|===
```

.Example error

```
[%collapsible%closed]
```

```
=====
```

```
[source,json,subs=+macros]
{
  "error": {
    "arguments": {
      "code": "string",
      "message": "string"
    },
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
}
}
=====
```

```
== Definitions
```

```
[.api-def-first-level]
```

.See Definitions

```
[%collapsible%closed]
```

```
//Start collapsible Definitions block
```

```
=====
```

```

[#href]
[.api-collapsible-fifth-title]
href

[cols=3*,options=header]
|===
|Name
|Type
|Description

|href
|string
a|

|===

[#_links]
[.api-collapsible-fifth-title]
_links

[cols=3*,options=header]
|===
|Name
|Type
|Description

|next
|link:#href[href]
a|

|self
|link:#href[href]
a|

|===

[#self_link]
[.api-collapsible-fifth-title]
self_link

[cols=3*,options=header]
|===
|Name
|Type
|Description

```

```

|self
|link:#href[href]
a|

|===

[#_links]
[.api-collapsible-fifth-title]
_links

[cols=3*,options=header]
|===
|Name
|Type
|Description

|self
|link:#href[href]
a|

|===

[#node]
[.api-collapsible-fifth-title]
node

[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
|link:#_links[_links]
a|

|name
|string
a|

|uuid
|string
a|

```

```
|===
```

```
[#svm]  
[.api-collapsible-fifth-title]  
svm
```

SVM, applies only to SVM-scoped objects.

```
[cols=3*,options=header]
```

```
|===
```

```
|Name  
|Type  
|Description
```

```
|_links
```

```
|link:#_links[_links]
```

```
a|
```

```
|name
```

```
|string
```

a|The name of the SVM. This field cannot be specified in a PATCH method.

```
|uuid
```

```
|string
```

a|The unique identifier of the SVM. This field cannot be specified in a PATCH method.

```
|===
```

```
[#key_manager_keys]  
[.api-collapsible-fifth-title]  
key_manager_keys
```

Displays the keys stored in a key manager.

```
[cols=3*,options=header]
```

```
|===
```

```
|Name  
|Type  
|Description
```



```
|_links
|link:#self_link[self_link]
a|

|crn
|string
a|Cloud resource name.

|encryption_algorithm
|string
a|Encryption algorithm for the key

|key_id
|string
a|Key identifier.

|key_manager
|string
a|Key manager key server managing the key. Indicates the external key
server when external key manager is configured.

|key_server
|string
a|External key server for key management.

|key_store
|string
a|Security key manager configured for the given key manager UUID. Key
manager keystore value can be onboard or external.

|key_store_type
|string
a|Security key manager keystore type. Keystore type can be onboard,
external, or supported cloud key manager.

|key_tag
|string
a|Additional information associated with the key.
```

```

|key_type
|string
a|Encryption Key type.

|key_user
|string
a|SVM associated with the key.

|node
|link:#node[node]
a|

|policy
|string
a|Key store policy.

|restored
|boolean
a|Indicates whether the key is present locally on the node.

|scope
|string
a|Set to "svm" for interfaces owned by an SVM. Otherwise, set to
"cluster".

|svm
|link:#svm[svm]
a|SVM, applies only to SVM-scoped objects.

|===

[#error_arguments]
[.api-collapsible-fifth-title]
error_arguments

[cols=3*,options=header]
|===
|Name
|Type
|Description

```

```
|code
|string
a|Argument code
```

```
|message
|string
a|Message argument
```

```
|===
```

```
[#returned_error]
[.api-collapsible-fifth-title]
returned_error
```

```
[cols=3*,options=header]
```

```
|===
```

```
|Name
|Type
|Description
```

```
|arguments
|array[link:#error_arguments[error_arguments]]
a|Message arguments
```

```
|code
|string
a|Error code
```

```
|message
|string
a|Error message
```

```
|target
|string
a|The target parameter that caused the error.
```

```
|===
```

```

//end collapsible .Definitions block
====

[[IDbf1e64787af51f2b182e5e0019bb8aba]]
= Retrieve key management key information for specified keys

[.api-doc-operation .api-doc-operation-get]#GET# [.api-doc-code-
block]#`/security/key-
managers/{security_key_manager.uuid}/keys/{node.uuid}/key-ids/{key_id}`#

*Introduced In:* 9.11

Retrieves the key management keys information for the specified key_id.

== Related ONTAP commands

* `security key-manager key query -key-id <key_id>`
* `security key-manager key query -key-id <key_id> -node <node>`
* `security key-manager key query -key-id <key_id> -node <node> -key
-manager <key_manager>`

== Parameters

[cols=5*,options=header]
|===
|Name
|Type
|In
|Required
|Description

|security_key_manager.uuid
|string
|path
|True
a|Key manager UUID.

|node.uuid
|string
|path
|True
a|Node UUID.

```

```
|key_id
|string
|path
|True
a|Key identifier.

|fields
|array[string]
|query
|False
a|Specify the fields to return.

|===

== Response
```

Status: 200, Ok

```
[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
|link:#self_link[self_link]
a|

|crn
|string
a|Cloud resource name.

|encryption_algorithm
|string
a|Encryption algorithm for the key

|key_id
|string
a|Key identifier.
```

|key_manager
|string
a|Key manager key server managing the key. Indicates the external key server when external key manager is configured.

|key_server
|string
a|External key server for key management.

|key_store
|string
a|Security key manager configured for the given key manager UUID. Key manager keystore value can be onboard or external.

|key_store_type
|string
a|Security key manager keystore type. Keystore type can be onboard, external, or supported cloud key manager.

|key_tag
|string
a|Additional information associated with the key.

|key_type
|string
a|Encryption Key type.

|key_user
|string
a|SVM associated with the key.

|node
|link:#node[node]
a|

|policy
|string
a|Key store policy.

```
|restored
|boolean
a|Indicates whether the key is present locally on the node.
```

```
|scope
|string
a|Set to "svm" for interfaces owned by an SVM. Otherwise, set to
"cluster".
```

```
|svm
|link:#svm[svm]
a|SVM, applies only to SVM-scoped objects.
```

```
|===
```

```
.Example response
```

```
[%collapsible%closed]
```

```
====
```

```
[source,json,subs=+macros]
```

```
{
  "_links": {
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "crn": "CRN=v1:bluemix:public:containers-kubernetes",
  "encryption_algorithm": "XTS-AES-256",
  "key_id":
"00000000000000000200000000001008963c9213194c59555c1bec8db3603c800000000"
,
  "key_manager": "keyserver1.local:5696",
  "key_server": "keyserver1.com:5698",
  "key_store": "onboard",
  "key_store_type": "okm",
  "key_tag": "key#",
  "key_type": "nse_ak",
  "key_user": "vs1",
  "node": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    }
  }
}
```

```

    },
    "name": "node1",
    "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
  },
  "policy": "IBM_Key_Lore",
  "restored": 1,
  "scope": "svm",
  "svm": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "name": "svm1",
    "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
  }
}
====

== Error

```

Status: Default, Error

```

[cols=3*,options=header]
|===
|Name
|Type
|Description

|error
|link:#returned_error[returned_error]
a|

|===

.Example error
[%collapsible%closed]
====
[source,json,subs=+macros]
{
  "error": {
    "arguments": {
      "code": "string",
      "message": "string"
    }
  }
}

```



```

    },
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
}
=====

```

== Definitions

```

[.api-def-first-level]
.See Definitions
[%collapsible%closed]
//Start collapsible Definitions block
=====

```

```

[#href]
[.api-collapsible-fifth-title]
href

```

```

[cols=3*,options=header]

```

```

|===
|Name
|Type
|Description

```

```

|href
|string
a|

```

```

|===

```

```

[#self_link]
[.api-collapsible-fifth-title]
self_link

```

```

[cols=3*,options=header]

```

```

|===
|Name
|Type
|Description

```

```

|self
|link:#href[href]
a|

```

```

|===

```

```
[#_links]
[.api-collapsible-fifth-title]
_links
```

```
[cols=3*,options=header]
```

```
|===
```

```
|Name
```

```
|Type
```

```
|Description
```

```
|self
```

```
|link:#href[href]
```

```
a|
```

```
|===
```

```
[#node]
```

```
[.api-collapsible-fifth-title]
```

```
node
```

```
[cols=3*,options=header]
```

```
|===
```

```
|Name
```

```
|Type
```

```
|Description
```

```
|_links
```

```
|link:#_links[_links]
```

```
a|
```

```
|name
```

```
|string
```

```
a|
```

```
|uuid
```

```
|string
```

```
a|
```

```
|===
```

```
[#svm]
```

```
[.api-collapsible-fifth-title]
```

```
svm
```

SVM, applies only to SVM-scoped objects.

```
[cols=3*,options=header]
```

```
|===
```

```
|Name
```

```
|Type
```

```
|Description
```

```
|_links
```

```
|link:#_links[_links]
```

```
a|
```

```
|name
```

```
|string
```

```
a|The name of the SVM. This field cannot be specified in a PATCH method.
```

```
|uuid
```

```
|string
```

```
a|The unique identifier of the SVM. This field cannot be specified in a PATCH method.
```

```
|===
```

```
[#error_arguments]
```

```
[.api-collapsible-fifth-title]
```

```
error_arguments
```

```
[cols=3*,options=header]
```

```
|===
```

```
|Name
```

```
|Type
```

```
|Description
```

```
|code
```

```
|string
```

```
a|Argument code
```

```
|message
```

```
|string
```

```
a|Message argument
```

```

|===

[#returned_error]
[.api-collapsible-fifth-title]
returned_error

[cols=3*,options=header]
|===
|Name
|Type
|Description

|arguments
|array[link:#error_arguments[error_arguments]]
a|Message arguments

|code
|string
a|Error code

|message
|string
a|Error message

|target
|string
a|The target parameter that caused the error.

|===

//end collapsible .Definitions block
=====

[[IDc8de77f6e1d5d32757b54ba391a7fd04]]
= Retrieve and restore unrestored keys

[.api-doc-operation .api-doc-operation-post]#POST# [.api-doc-code-
block]#`/security/key-managers/{security_key_manager.uuid}/restore`#

```

Introduced In: 9.13

Retrieves and restores any current unrestored keys (associated with the storage controller) from the specified key management server.

== Required properties

* `security_key_manager.uuid` - UUID of the key management server. The UUID of the external key manager can be retrieved using [`GET /api/security/key-managers``].

== Related ONTAP commands

* `security key-manager external restore`

== Parameters

```
[cols=5*,options=header]
|===
```

```
|Name
|Type
|In
|Required
|Description
```

```
|security_key_manager.uuid
|string
|path
|True
a|Key manager UUID.
```

```
|return_timeout
|integer
|query
|False
```

a|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.

```

* Default value: 1
* Max value: 120
* Min value: 0

|return_records
|boolean
|query
|False
a|The default is false. If set to true, the records are returned.

* Default value:

|===

== Request Body

[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
|link:#_links[_links]
a|

|key_id
|string
a|Key identifier.

|key_server
|string
a|External key server for key management.

|key_tag
|string
a|Additional information associated with the key.

|node
|link:#node[node]
a|

```

|===

.Example request

[%collapsible%closed]

====

[source,json,subs=+macros]

```
{
  "_links": {
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "key_id":
"000000000000000002000000000001003aa8ce6a4fea3e466620134bea9510a1000000000
000000",
  "key_server": "keyserver1.com:5698",
  "key_tag": "Authentication-Key-01",
  "node": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "name": "node1",
    "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
  }
}
```

====

== Response

Status: 202, Accepted

```

[cols=3*,options=header]
|===
|Name
|Type
|Description

|job
|link:#job_link[job_link]
a|

|===

.Example response
[%collapsible%closed]
=====
[source,json,subs=+macros]
{
  "job": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "uuid": "string"
  }
}
=====

== Response

```

Status: 201, Created

```
== Error
```

Status: Default

ONTAP Error Response Codes

```

|===
| Error Code | Description
| 65536083
| Internal error. Failed to restore the authentication key.

```



```
| 65536843
| The key management server is not configured for the SVM.

| 65536855
| Internal error. Failed to restore the volume encryption key.

| 65538500
| This command only restores keys from primary key servers.
|===
```

Also see the table of common errors in the [xref:{relative_path}getting_started_with_the_ontap_rest_api.html#Response_body\[Response body\]](#) overview section of this documentation.

```
[cols=3*,options=header]
|===
|Name
|Type
|Description

|error
|link:#returned_error[returned_error]
a|

|===
```

```
.Example error
[%collapsible%closed]
====
[source,json,subs=+macros]
{
  "error": {
    "arguments": {
      "code": "string",
      "message": "string"
    },
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
}
====
```

```

== Definitions

[.api-def-first-level]
.See Definitions
[%collapsible%closed]
//Start collapsible Definitions block
====
[#href]
[.api-collapsible-fifth-title]
href

[cols=3*,options=header]
|===
|Name
|Type
|Description

|href
|string
a|

|===

[#_links]
[.api-collapsible-fifth-title]
_links

[cols=3*,options=header]
|===
|Name
|Type
|Description

|self
|link:#href[href]
a|

|===

[#node]
[.api-collapsible-fifth-title]
node

[cols=3*,options=header]
|===

```

```

|Name
|Type
|Description

|_links
|link:#_links[_links]
a|

|name
|string
a|

|uuid
|string
a|

|===

[#security_key_manager_restore_keys]
[.api-collapsible-fifth-title]
security_key_manager_restore_keys

[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
|link:#_links[_links]
a|

|key_id
|string
a|Key identifier.

|key_server
|string
a|External key server for key management.

|key_tag
|string
a|Additional information associated with the key.

```

```

|node
|link:#node[node]
a|

|===

[#job_link]
[.api-collapsible-fifth-title]
job_link

[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
|link:#_links[_links]
a|

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

|===

[#error_arguments]
[.api-collapsible-fifth-title]
error_arguments

[cols=3*,options=header]
|===
|Name
|Type
|Description

|code
|string
a|Argument code

|message

```

```

|string
a|Message argument

|===

[#returned_error]
[.api-collapsible-fifth-title]
returned_error

[cols=3*,options=header]
|===
|Name
|Type
|Description

|arguments
|array[link:#error_arguments[error_arguments]]
a|Message arguments

|code
|string
a|Error code

|message
|string
a|Error message

|target
|string
a|The target parameter that caused the error.

|===

//end collapsible .Definitions block
====

:leveloffset: -1

```

:leveloffset: -1

<<<

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 link:<http://www.netapp.com/TM>[<http://www.netapp.com/TM>^] are trademarks of NetApp, Inc. Other company and product names may be trademarks of their respective owners.