



Manage Barbican KMS configurations

REST API reference

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Table of Contents

Manage Barbican KMS configurations	1
Manage Barbican KMS configurations	1
Overview	1
Examples	1
Retrieve Barbican KMS configurations for all SVMs	7
Related ONTAP commands	7
Parameters	7
Response	9
Error	11
Definitions	12
Create a Barbican KMS configuration for an SVM	17
Required properties	17
Optional properties	17
Related ONTAP commands	17
Parameters	17
Request Body	18
Response	21
Error	22
Definitions	23
Retrieve the Barbican KMS configuration for an SVM	28
Related ONTAP commands	28
Parameters	28
Response	28
Error	32
Definitions	32
Update the Barbican KMS configuration	35
Optional properties	35
Related ONTAP commands	35
Parameters	35
Request Body	36
Response	38
Error	39
Definitions	39
Rekey the internal key in the key hierarchy for an SVM with a Barbican KMS configuration	43
Related ONTAP commands	44
Parameters	44
Response	45
Error	45
Definitions	47
Restore the keys for an SVM from a configured Barbican KMS	48

Related ONTAP commands	49
Parameters	49
Response	50
Response	50
Error	50
Definitions	51

Manage Barbican KMS configurations

Manage Barbican KMS configurations

Overview

Barbican Key Management Services (KMS) is a key management service that provides a secure store for encryption keys. This feature allows ONTAP to securely protect its encryption keys using Barbican KMS. Before you can use Barbican KMS with ONTAP, you must provide ONTAP with the necessary details to allow ONTAP to communicate with the deployed Barbican application. These details include the key ID URL, Keystone authentication URL, and the application credentials ID and secret. The property `barbican_reachability` is considered an advanced property and is populated only when explicitly requested.

Examples

Creating an inactive Barbican configuration for an SVM

The example Barbican configuration is created for a specific SVM but is not enabled. Note the `return_records=true` query parameter can be used to return the newly created key-manager keystore configuration.

```
# The API:  
POST /api/security/barbican-kms  
  
# The call:  
curl -X POST 'https://<mgmt-ip>/api/security/barbican-kms' -H 'accept: application/hal+json' -H 'Content-Type: application/json' -d '{ "svm": { "name": "barbican_svm" }, "configuration": { "name": "myConfiguration" }, "application_cred_id": "app1", "application_cred_secret": "secret1", "key_id": "https://sample.keyid.com:9311/v1/secrets/5c610a4f-ea97-44b5-8682-f4daeafa9647/", "keystone_url": "https://sample.keystone.com:5000/v3/auth/tokens" }'  
  
# The response:  
{  
  "job": {  
    "uuid": "5a208fb0-fa58-11ef-8c9f-005056bbeee5",  
    "_links": {  
      "self": {  
        "href": "/api/cluster/jobs/5a208fb0-fa58-11ef-8c9f-005056bbeee5"  
      }  
    }  
  }  
}
```

Listing all Barbican configurations

The following example shows how to retrieve a list of all created Barbican configurations.

```
# The API:  
GET /api/security/barbican-kms  
  
# The call:  
curl -X GET 'https://<mgmt-ip>/api/security/barbican-kms'  
  
# The response:  
{  
  "records": [  
    {  
      "configuration": {  
        "name": "myConfiguration",  
        "uuid": "5a134975-fa58-11ef-8c9f-005056bbeee5"  
      },  
      "uuid": "5a134975-fa58-11ef-8c9f-005056bbeee5",  
      "_links": {  
        "self": {  
          "href": "/api/security/barbican-kms/5a134975-fa58-11ef-8c9f-005056bbeee5"  
        }  
      }  
    }  
  ],  
  "num_records": 1,  
  "_links": {  
    "self": {  
      "href": "/api/security/barbican-kms"  
    }  
  }  
}
```

Retrieving a specific Barbican configuration

The following example shows how to retrieve information for a specific Barbican configuration.

```

# The API:
GET /api/security/barbican-kms/{uuid}

# The call:
curl -X GET 'https://<mgmt-ip>/api/security/barbican-kms/5a134975-fa58-11ef-8c9f-005056bbeee5?fields='

# The response:
{
  "configuration": {
    "name": "myConfiguration",
    "uuid": "5a134975-fa58-11ef-8c9f-005056bbeee5"
  },
  "uuid": "5a134975-fa58-11ef-8c9f-005056bbeee5",
  "scope": "svm",
  "svm": {
    "uuid": "ec8e0954-fa10-11ef-8c9f-005056bbeee5",
    "name": "barbican_svm"
  },
  "key_id": "https://sample.keyid.com:9311/v1/secrets/5c610a4f-ea97-44b5-8682-f4daea9647/",
  "application_cred_id": "app1",
  "keystone_url": "https://sample.keystone.com:5000/v3/auth/tokens",
  "proxy_type": "https",
  "proxy_host": "",
  "proxy_port": 0,
  "proxy_username": "",
  "verify": true,
  "verify_host": true,
  "enabled": false,
  "timeout": 10,
  "_links": {
    "self": {
      "href": "/api/security/barbican-kms/5a134975-fa58-11ef-8c9f-005056bbeee5"
    }
  }
}

```

Retrieving an advanced property for a specific Barbican configuration

The following example shows how to retrieve an advanced property for a specific Barbican configuration.

```

# The API:
GET /api/security/barbican-kms/{uuid}

# The call:
curl -X GET 'https://<mgmt-ip>/api/security/barbican-kms/f72098a2-e908-
11ea-bd56-005056bb4222?fields=barbican_reachability'

# The response:
{
  "configuration": {
    "name": "myConfiguration",
    "uuid": "f72098a2-e908-11ea-bd56-005056bb4222"
  },
  "uuid": "f72098a2-e908-11ea-bd56-005056bb4222",
  "barbican_reachability": {
    "reachable": true,
    "message": "",
    "code": "0"
  },
  "_links": {
    "self": {
      "href": "/api/security/barbican-kms/f72098a2-e908-11ea-bd56-
005056bb4222"
    }
  }
}

```

Updating the application credentials ID and secret for a specific Barbican configuration

The following example shows how to update the application credentials for a specific Barbican configuration.

```
# The API:  
PATCH /api/security/barbican-kms/{uuid}  
  
# The call:  
curl -X PATCH 'https://<mgmt-ip>/api/security/barbican-kms/f72098a2-e908-  
11ea-bd56-005056bb4222/' -d '{"application_cred_id": "app345",  
"application_cred_secret" : "secret"}'  
  
# The response:  
{  
  "job": {  
    "uuid": "921ee66a-fa5a-11ef-8c9f-005056bbeee5",  
    "_links": {  
      "self": {  
        "href": "/api/cluster/jobs/921ee66a-fa5a-11ef-8c9f-005056bbeee5"  
      }  
    }  
  }  
}
```

Enabling a Barbican configuration

The newly created Barbican configuration is inactive by default. Use the REST API PATCH method `"/api/security/key-stores/{uuid}"` to enable the configuration.

Restoring keys

The following example shows how to restore keys for a specific Barbican configuration.

```

# The API:
POST /api/security/barbican-kms/{uuid}/restore

# The call:
curl -X POST 'https://<mgmt-ip>/api/security/barbican-kms/f72098a2-e908-
11ea-bd56-005056bb4222/restore'

# The response:
{
  "job": {
    "uuid": "e89e7283-2c49-11f0-831c-005056bb33a5",
    "_links": {
      "self": {
        "href": "/api/cluster/jobs/e89e7283-2c49-11f0-831c-005056bb33a5"
      }
    }
  }
}

```

Rekey the internal key

The following example shows how to rekey the internal key based on a specific Barbican configuration.

```

# The API:
POST /api/security/barbican-kms/{uuid}/rekey-internal

# The call:
curl -X POST 'https://<mgmt-ip>/api/security/barbican-kms/f72098a2-e908-
11ea-bd56-005056bb4222/rekey-internal'

# The response:
{
  "job": {
    "uuid": "921ee66a-fa5a-11ef-8c9f-005056bbeee5",
    "_links": {
      "self": {
        "href": "/api/cluster/jobs/921ee66a-fa5a-11ef-8c9f-005056bbeee5"
      }
    }
  }
}

```

Retrieve Barbican KMS configurations for all SVMs

GET /security/barbican-kms

Introduced In: 9.17

Retrieves Barbican KMS configurations for all SVMs.

Related ONTAP commands

- `security key-manager external barbican show`
- `security key-manager external barbican check`

Parameters

Name	Type	In	Required	Description
keystone_url	string	query	False	Filter by keystone_url
uuid	string	query	False	Filter by uuid
timeout	integer	query	False	Filter by timeout
proxy_type	string	query	False	Filter by proxy_type
enabled	boolean	query	False	Filter by enabled
proxy_port	integer	query	False	Filter by proxy_port
barbican_reachability.message	string	query	False	Filter by barbican_reachability.message
barbican_reachability.code	string	query	False	Filter by barbican_reachability.code
barbican_reachability.reachable	boolean	query	False	Filter by barbican_reachability.reachable
configuration.uuid	string	query	False	Filter by configuration.uuid
configuration.name	string	query	False	Filter by configuration.name

Name	Type	In	Required	Description
state.cluster_state	boolean	query	False	Filter by state.cluster_state
state.message	string	query	False	Filter by state.message
state.code	string	query	False	Filter by state.code
key_id	string	query	False	Filter by key_id
proxy_host	string	query	False	Filter by proxy_host
scope	string	query	False	Filter by scope
verify	boolean	query	False	Filter by verify
proxy_username	string	query	False	Filter by proxy_username
application_cred_id	string	query	False	Filter by application_cred_id
verify_host	boolean	query	False	Filter by verify_host
svm.name	string	query	False	Filter by svm.name
svm.uuid	string	query	False	Filter by svm.uuid
fields	array[string]	query	False	Specify the fields to return.
max_records	integer	query	False	Limit the number of records returned.

Name	Type	In	Required	Description
return_timeout	integer	query	False	<p>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.</p> <ul style="list-style-type: none"> • Default value: 15 • Max value: 120 • Min value: 0
return_records	boolean	query	False	<p>The default is true for GET calls. When set to false, only the number of records is returned.</p> <ul style="list-style-type: none"> • 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	_links	
num_records	integer	Number of records
records	array[barbican]	

Example response

```
{  
  "_links": {  
    "next": {  
      "href": "/api/resourcelink"  
    },  
    "self": {  
      "href": "/api/resourcelink"  
    }  
  },  
  "num_records": 1,  
  "records": [  
    {  
      "_links": {  
        "self": {  
          "href": "/api/resourcelink"  
        }  
      },  
      "application_cred_id": "63e3cb77f84f42b7a0395a3efb7636f9",  
      "barbican_reachability": {  
        "code": "346758",  
        "message": "Barbican KMS is not reachable from all nodes -  
<reason>.",  
        "reachable": ""  
      },  
      "configuration": {  
        "_links": {  
          "self": {  
            "href": "/api/resourcelink"  
          }  
        },  
        "name": "default",  
        "uuid": "1cd8a442-86d1-11e0-ae1c-123478563434"  
      },  
      "key_id": "https://172.29.58.184:9311/v1/secrets/5c610a4f-ea97-  
44b5-8682-f4daeafa9647",  
      "keystone_url": "https://keystoneip:5000/v3/auth/tokens",  
      "proxy_host": "proxy.eng.com",  
      "proxy_port": 1234,  
      "proxy_type": "http",  
      "proxy_username": "proxyuser",  
      "scope": "string",  
      "state": {  
        "cluster_state": "",  
        "code": "346758",  
        "message": "Barbican KMS is not reachable from all nodes -  
<reason>.",  
        "reachable": ""  
      }  
    }  
  ]  
}
```

```

    "message": "Top-level internal key encryption key is
unavailable on the following nodes with the associated reasons: Node:
node1. Reason: No volumes created yet for the SVM. Wrapped KEK status
will be available after creating encrypted volumes."
    },
    "svm": {
        "_links": {
            "self": {
                "href": "/api/resourcelink"
            }
        },
        "name": "svm1",
        "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
    },
    "timeout": 60,
    "uuid": "1cd8a442-86d1-11e0-ae1c-123478563434"
}
]
}

```

Error

Status: Default

ONTAP Error Response Codes

Error Code	Description
65539801	The Barbican Key Management Service is unreachable from one or more nodes.

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	

_links

Name	Type	Description
next	href	
self	href	

_links

Name	Type	Description
self	href	

barbican_reachability

Indicates whether the Barbican KMS is reachable from all nodes in the cluster. This is an advanced property; there is an added computational cost to retrieving its value. The property is not populated for either a collection GET request or an instance GET request unless it is explicitly requested using the field's query parameter or GET for all advanced properties is enabled.

Name	Type	Description
code	string	Code corresponding to the error message. Returns 0 if Barbican KMS is reachable from all nodes in the cluster.
message	string	Set to the appropriate error message when 'reachable' is false.
reachable	boolean	Set to true if the Barbican KMS is reachable from all nodes of the cluster.

configuration

Security keystore object reference.

Name	Type	Description
_links	_links	

Name	Type	Description
name	string	Name of the configuration.
uuid	string	Keystore UUID.

state

Indicates whether or not the SVM key encryption key (KEK) is available cluster wide. This is an advanced property; there is an added computational cost to retrieving its value. The property is not populated for either a collection GET or an instance GET unless it is explicitly requested using the `fields` query parameter or GET for all advanced properties is enabled.

Name	Type	Description
cluster_state	boolean	Set to true when an SVM-KEK is present on all nodes of the cluster.
code	string	Code corresponding to the status message. Returns a 0 if the SVM-KEK is available on all nodes in the cluster.
message	string	Error message returned when there's no SVM-KEK availability on the cluster.

svm

SVM, applies only to SVM-scoped objects.

Name	Type	Description
_links	_links	
name	string	The name of the SVM. This field cannot be specified in a PATCH method.
uuid	string	The unique identifier of the SVM. This field cannot be specified in a PATCH method.

barbican

Name	Type	Description
_links	_links	

Name	Type	Description
application_cred_id	string	Keystone application credentials ID required to access the specified Barbican KMS.
barbican_reachability	barbican_reachability	Indicates whether the Barbican KMS is reachable from all nodes in the cluster. This is an advanced property; there is an added computational cost to retrieving its value. The property is not populated for either a collection GET request or an instance GET request unless it is explicitly requested using the field's query parameter or GET for all advanced properties is enabled.
configuration	configuration	Security keystore object reference.
enabled	boolean	Indicates whether the configuration is enabled.
key_id	string	Key Identifier URL of the Barbican KMS key encryption key. Must be an HTTPS URL.
keystone_url	string	Keystone URL for the access token. Must be an HTTPS URL.
proxy_host	string	Proxy host name.
proxy_port	integer	Proxy port number.
proxy_type	string	Type of proxy.
proxy_username	string	Proxy username.
scope	string	Set to "svm" for interfaces owned by an SVM. Otherwise, set to "cluster".

Name	Type	Description
state	state	Indicates whether or not the SVM key encryption key (KEK) is available cluster wide. This is an advanced property; there is an added computational cost to retrieving its value. The property is not populated for either a collection GET or an instance GET unless it is explicitly requested using the <code>fields</code> query parameter or GET for all advanced properties is enabled.
svm	svm	SVM, applies only to SVM-scoped objects.
timeout	integer	Connection timeout in seconds.
uuid	string	A unique identifier of the Barbican KMS.
verify	boolean	Verify the identity of the Barbican KMS.
verify_host	boolean	Verify the identity of the Barbican KMS host name.

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

Name	Type	Description
target	string	The target parameter that caused the error.

Create a Barbican KMS configuration for an SVM

POST /security/barbican-kms

Introduced In: 9.17

Creates a Barbican KMS configuration for the specified SVM.

Required properties

- `configuration.name` - Name for the new Barbican configuration.
- `svm.uuid` or `svm.name` - Existing SVM in which to create a Barbican KMS.
- `key_id` - Barbican key URL.
- `keystone_url` - Keystone authentication URL.
- `application_cred_id` - Keystone authentication application ID with access to the Barbican KMS.
- `application_cred_secret` - Application credentials secret to authenticate the application credentials ID with Keystone.

Optional properties

- `proxy_type` - Type of proxy (http/https) if proxy configuration is used.
- `proxy_host` - Proxy hostname if proxy configuration is used.
- `proxy_port` - Proxy port number if proxy configuration is used.
- `proxy_username` - Proxy username if proxy configuration is used.
- `proxy_password` - Proxy password if proxy configuration is used.
- `verify` - Verify the identity of the Barbican KMS?
- `verify_host` - Verify the identity of the Barbican KMS host name?
- `timeout` - Connection timeout in seconds.

Related ONTAP commands

- `security key-manager external barbican create-config`

Parameters

Name	Type	In	Required	Description
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: 0 • Max value: 120 • Min value: 0
return_records	boolean	query	False	<p>The default is false. If set to true, the records are returned.</p> <ul style="list-style-type: none"> • Default value:

Request Body

Name	Type	Description
_links	_links	
application_cred_id	string	Keystone application credentials ID required to access the specified Barbican KMS.

Name	Type	Description
application_cred_secret	string	Keystone application credentials secret required to access the specified Barbican KMS. It is not audited.
barbican_reachability	barbican_reachability	Indicates whether the Barbican KMS is reachable from all nodes in the cluster. This is an advanced property; there is an added computational cost to retrieving its value. The property is not populated for either a collection GET request or an instance GET request unless it is explicitly requested using the field's query parameter or GET for all advanced properties is enabled.
configuration	configuration	Security keystore object reference.
enabled	boolean	Indicates whether the configuration is enabled.
key_id	string	Key Identifier URL of the Barbican KMS key encryption key. Must be an HTTPS URL.
keystone_url	string	Keystone URL for the access token. Must be an HTTPS URL.
proxy_host	string	Proxy host name.
proxy_password	string	Proxy password. Password is not audited.
proxy_port	integer	Proxy port number.
proxy_type	string	Type of proxy.
proxy_username	string	Proxy username.
scope	string	Set to "svm" for interfaces owned by an SVM. Otherwise, set to "cluster".

Name	Type	Description
state	state	Indicates whether or not the SVM key encryption key (KEK) is available cluster wide. This is an advanced property; there is an added computational cost to retrieving its value. The property is not populated for either a collection GET or an instance GET unless it is explicitly requested using the <code>fields</code> query parameter or GET for all advanced properties is enabled.
svm	svm	SVM, applies only to SVM-scoped objects.
timeout	integer	Connection timeout in seconds.
uuid	string	A unique identifier of the Barbican KMS.
verify	boolean	Verify the identity of the Barbican KMS.
verify_host	boolean	Verify the identity of the Barbican KMS host name.

Example request

```
{  
  "application_cred_id": "63e3cb77f84f42b7a0395a3efb7636f9",  
  "application_cred_secret": "secret",  
  "barbican_reachability": {  
    "code": "346758",  
    "message": "Barbican KMS is not reachable from all nodes -  
<reason>.",  
    "reachable": ""  
  },  
  "configuration": {  
    "name": "default",  
    "uuid": "1cd8a442-86d1-11e0-ae1c-123478563434"  
  },  
  "key_id": "https://172.29.58.184:9311/v1/secrets/5c610a4f-ea97-44b5-  
8682-f4daeafa9647",  
  "keystone_url": "https://keystoneip:5000/v3/auth/tokens",  
  "proxy_host": "proxy.eng.com",  
  "proxy_password": "proxypassword",  
  "proxy_port": 1234,  
  "proxy_type": "http",  
  "proxy_username": "proxyuser",  
  "scope": "string",  
  "state": {  
    "cluster_state": "",  
    "code": "346758",  
    "message": "Top-level internal key encryption key is unavailable on  
the following nodes with the associated reasons: Node: node1. Reason:  
No volumes created yet for the SVM. Wrapped KEK status will be  
available after creating encrypted volumes."  
  },  
  "svm": {  
    "name": "svml",  
    "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"  
  },  
  "timeout": 60,  
  "uuid": "1cd8a442-86d1-11e0-ae1c-123478563434"  
}
```

Response

Status: 202, Accepted

Name	Type	Description
job	job_link	

Example response

```
{
  "job": {
    "uuid": "string"
  }
}
```

Headers

Name	Description	Type
Location	Useful for tracking the resource location	string

Response

Status: 201, Created

Error

Status: Default

ONTAP Error Response Codes

Error Code	Description
1115127	Package MT_EK_MGMT is not licensed in the cluster.
65539805	Failed to create a Barbican Key Management Service configuration because the "application-cred-secret" field is invalid or was not provided.
65539806	Barbican Key Management Service (KMS) cannot be configured because not all nodes in the cluster are running an effective cluster version of 9.17 or later to support the Barbican KMS feature.
65539807	Barbican Key Management Service is not supported for the admin SVM.

Error Code	Description
65539808	Failed to create the specified Barbican Key Management Service configuration because a Barbican Key Management Service configuration with the same name already exists.
65539809	Barbican Key Management Service is not supported in MetroCluster configurations.
65539810	Failed to create a Barbican Key Management Service configuration because the "key-id" field is invalid or was not provided. The URI scheme must be HTTPS.
65539811	Failed to create a Barbican Key Management Service configuration because the "keystone-url" field is invalid or was not provided. The URI scheme must be HTTPS.
65539835	Failed to create a Barbican Key Management Service configuration because the "application-cred-id" field cannot be empty.

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

Definitions

See Definitions

href

Name	Type	Description
href	string	

_links

barbican_reachability

Indicates whether the Barbican KMS is reachable from all nodes in the cluster. This is an advanced property; there is an added computational cost to retrieving its value. The property is not populated for either a collection GET request or an instance GET request unless it is explicitly requested using the field's query parameter or GET for all advanced properties is enabled.

Name	Type	Description
code	string	Code corresponding to the error message. Returns 0 if Barbican KMS is reachable from all nodes in the cluster.
message	string	Set to the appropriate error message when 'reachable' is false.
reachable	boolean	Set to true if the Barbican KMS is reachable from all nodes of the cluster.

configuration

Security keystore object reference.

Name	Type	Description
name	string	Name of the configuration.
uuid	string	Keystore UUID.

state

Indicates whether or not the SVM key encryption key (KEK) is available cluster wide. This is an advanced property; there is an added computational cost to retrieving its value. The property is not populated for either a collection GET or an instance GET unless it is explicitly requested using the `fields` query parameter or GET for all advanced properties is enabled.

Name	Type	Description
cluster_state	boolean	Set to true when an SVM-KEK is present on all nodes of the cluster.
code	string	Code corresponding to the status message. Returns a 0 if the SVM-KEK is available on all nodes in the cluster.
message	string	Error message returned when there's no SVM-KEK availability on the cluster.

svm

SVM, applies only to SVM-scoped objects.

Name	Type	Description
name	string	The name of the SVM. This field cannot be specified in a PATCH method.
uuid	string	The unique identifier of the SVM. This field cannot be specified in a PATCH method.

barbican

Name	Type	Description
_links	_links	
application_cred_id	string	Keystone application credentials ID required to access the specified Barbican KMS.
application_cred_secret	string	Keystone application credentials secret required to access the specified Barbican KMS. It is not audited.

Name	Type	Description
barbican_reachability	barbican_reachability	Indicates whether the Barbican KMS is reachable from all nodes in the cluster. This is an advanced property; there is an added computational cost to retrieving its value. The property is not populated for either a collection GET request or an instance GET request unless it is explicitly requested using the field's query parameter or GET for all advanced properties is enabled.
configuration	configuration	Security keystore object reference.
enabled	boolean	Indicates whether the configuration is enabled.
key_id	string	Key Identifier URL of the Barbican KMS key encryption key. Must be an HTTPS URL.
keystone_url	string	Keystone URL for the access token. Must be an HTTPS URL.
proxy_host	string	Proxy host name.
proxy_password	string	Proxy password. Password is not audited.
proxy_port	integer	Proxy port number.
proxy_type	string	Type of proxy.
proxy_username	string	Proxy username.
scope	string	Set to "svm" for interfaces owned by an SVM. Otherwise, set to "cluster".

Name	Type	Description
state	state	Indicates whether or not the SVM key encryption key (KEK) is available cluster wide. This is an advanced property; there is an added computational cost to retrieving its value. The property is not populated for either a collection GET or an instance GET unless it is explicitly requested using the <code>fields</code> query parameter or GET for all advanced properties is enabled.
svm	svm	SVM, applies only to SVM-scoped objects.
timeout	integer	Connection timeout in seconds.
uuid	string	A unique identifier of the Barbican KMS.
verify	boolean	Verify the identity of the Barbican KMS.
verify_host	boolean	Verify the identity of the Barbican KMS host name.

job_link

Name	Type	Description
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.

Retrieve the Barbican KMS configuration for an SVM

GET /security/barbican-kms/{uuid}

Introduced In: 9.17

Retrieves the Barbican KMS configuration for the SVM specified by the UUID.

Related ONTAP commands

- security key-manager external barbican show
- security key-manager external barbican check

Parameters

Name	Type	In	Required	Description
uuid	string	path	True	Barbican KMS UUID
fields	array[string]	query	False	Specify the fields to return.

Response

Status: 200, Ok

Name	Type	Description
_links	_links	
application_cred_id	string	Keystone application credentials ID required to access the specified Barbican KMS.

Name	Type	Description
barbican_reachability	barbican_reachability	Indicates whether the Barbican KMS is reachable from all nodes in the cluster. This is an advanced property; there is an added computational cost to retrieving its value. The property is not populated for either a collection GET request or an instance GET request unless it is explicitly requested using the field's query parameter or GET for all advanced properties is enabled.
configuration	configuration	Security keystore object reference.
enabled	boolean	Indicates whether the configuration is enabled.
key_id	string	Key Identifier URL of the Barbican KMS key encryption key. Must be an HTTPS URL.
keystone_url	string	Keystone URL for the access token. Must be an HTTPS URL.
proxy_host	string	Proxy host name.
proxy_port	integer	Proxy port number.
proxy_type	string	Type of proxy.
proxy_username	string	Proxy username.
scope	string	Set to "svm" for interfaces owned by an SVM. Otherwise, set to "cluster".

Name	Type	Description
state	state	Indicates whether or not the SVM key encryption key (KEK) is available cluster wide. This is an advanced property; there is an added computational cost to retrieving its value. The property is not populated for either a collection GET or an instance GET unless it is explicitly requested using the <code>fields</code> query parameter or GET for all advanced properties is enabled.
svm	svm	SVM, applies only to SVM-scoped objects.
timeout	integer	Connection timeout in seconds.
uuid	string	A unique identifier of the Barbican KMS.
verify	boolean	Verify the identity of the Barbican KMS.
verify_host	boolean	Verify the identity of the Barbican KMS host name.

Example response

```
{  
  "_links": {  
    "self": {  
      "href": "/api/resourcelink"  
    }  
  },  
  "application_cred_id": "63e3cb77f84f42b7a0395a3efb7636f9",  
  "barbican_reachability": {  
    "code": "346758",  
    "message": "Barbican KMS is not reachable from all nodes -  
<reason>.",  
    "reachable": ""  
  },  
  "configuration": {  
    "_links": {  
      "self": {  
        "href": "/api/resourcelink"  
      }  
    },  
    "name": "default",  
    "uuid": "1cd8a442-86d1-11e0-ae1c-123478563434"  
  },  
  "key_id": "https://172.29.58.184:9311/v1/secrets/5c610a4f-ea97-44b5-  
8682-f4daeafa9647",  
  "keystone_url": "https://keystoneip:5000/v3/auth/tokens",  
  "proxy_host": "proxy.eng.com",  
  "proxy_port": 1234,  
  "proxy_type": "http",  
  "proxy_username": "proxyuser",  
  "scope": "string",  
  "state": {  
    "cluster_state": "",  
    "code": "346758",  
    "message": "Top-level internal key encryption key is unavailable on  
the following nodes with the associated reasons: Node: node1. Reason:  
No volumes created yet for the SVM. Wrapped KEK status will be  
available after creating encrypted volumes."  
  },  
  "svm": {  
    "_links": {  
      "self": {  
        "href": "/api/resourcelink"  
      }  
    },  
  },  
}
```

```

        "name": "svm1",
        "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
    },
    "timeout": 60,
    "uuid": "1cd8a442-86d1-11e0-ae1c-123478563434"
}

```

Error

Status: Default

ONTAP Error Response Codes

Error Code	Description
65539801	The Barbican Key Management Service is unreachable from one or more nodes.

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	

_links

Name	Type	Description
self	href	

barbican_reachability

Indicates whether the Barbican KMS is reachable from all nodes in the cluster. This is an advanced property; there is an added computational cost to retrieving its value. The property is not populated for either a collection GET request or an instance GET request unless it is explicitly requested using the field's query parameter or GET for all advanced properties is enabled.

Name	Type	Description
code	string	Code corresponding to the error message. Returns 0 if Barbican KMS is reachable from all nodes in the cluster.
message	string	Set to the appropriate error message when 'reachable' is false.
reachable	boolean	Set to true if the Barbican KMS is reachable from all nodes of the cluster.

configuration

Security keystore object reference.

Name	Type	Description
_links	_links	
name	string	Name of the configuration.
uuid	string	Keystore UUID.

state

Indicates whether or not the SVM key encryption key (KEK) is available cluster wide. This is an advanced property; there is an added computational cost to retrieving its value. The property is not populated for

either a collection GET or an instance GET unless it is explicitly requested using the `fields` query parameter or GET for all advanced properties is enabled.

Name	Type	Description
cluster_state	boolean	Set to true when an SVM-KEK is present on all nodes of the cluster.
code	string	Code corresponding to the status message. Returns a 0 if the SVM-KEK is available on all nodes in the cluster.
message	string	Error message returned when there's no SVM-KEK availability on the cluster.

svm

SVM, applies only to SVM-scoped objects.

Name	Type	Description
_links	_links	
name	string	The name of the SVM. This field cannot be specified in a PATCH method.
uuid	string	The unique identifier of the SVM. This field cannot be specified in a PATCH method.

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

Name	Type	Description
message	string	Error message
target	string	The target parameter that caused the error.

Update the Barbican KMS configuration

PATCH /security/barbican-kms/{uuid}

Introduced In: 9.17

Updates the Barbican KMS configuration.

Optional properties

- `application_cred_id` - New credentials used to verify the application's identity to the Barbican KMS. You must provide both `application_cred_id` and `application_cred_secret` to update the credentials.
- `application_cred_secret` - New credentials secret used to verify the application's identity to the Barbican KMS. You must provide both `application_cred_id` and `application_cred_secret` to update the credentials.
- `proxy_type` - Type of proxy (http/https) if proxy configuration is used.
- `proxy_host` - Proxy hostname if proxy configuration is used.
- `proxy_port` - Proxy port number if proxy configuration is used.
- `proxy_username` - Proxy username if proxy configuration is used.
- `proxy_password` - Proxy password if proxy configuration is used.
- `verify` - Verify the identity of the Barbican KMS?
- `verify_host` - Verify the identity of the Barbican KMS host name?
- `timeout` - Connection timeout in seconds.

Related ONTAP commands

- `security key-manager external barbican update-credentials`
- `security key-manager external barbican update-config`

Parameters

Name	Type	In	Required	Description
<code>uuid</code>	string	path	True	Barbican KMS UUID

Name	Type	In	Required	Description
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: 0 • Max value: 120 • Min value: 0

Request Body

Name	Type	Description
_links	_links	
application_cred_id	string	Keystone application credentials ID required to access the specified Barbican KMS.
application_cred_secret	string	Keystone application credentials secret required to access the specified Barbican KMS. It is not audited.

Name	Type	Description
barbican_reachability	barbican_reachability	Indicates whether the Barbican KMS is reachable from all nodes in the cluster. This is an advanced property; there is an added computational cost to retrieving its value. The property is not populated for either a collection GET request or an instance GET request unless it is explicitly requested using the field's query parameter or GET for all advanced properties is enabled.
enabled	boolean	Indicates whether the configuration is enabled.
proxy_host	string	Proxy host name.
proxy_password	string	Proxy password. Password is not audited.
proxy_port	integer	Proxy port number.
proxy_type	string	Type of proxy.
proxy_username	string	Proxy username.
scope	string	Set to "svm" for interfaces owned by an SVM. Otherwise, set to "cluster".
state	state	Indicates whether or not the SVM key encryption key (KEK) is available cluster wide. This is an advanced property; there is an added computational cost to retrieving its value. The property is not populated for either a collection GET or an instance GET unless it is explicitly requested using the <code>fields</code> query parameter or GET for all advanced properties is enabled.
timeout	integer	Connection timeout in seconds.

Name	Type	Description
uuid	string	A unique identifier of the Barbican KMS.
verify	boolean	Verify the identity of the Barbican KMS.
verify_host	boolean	Verify the identity of the Barbican KMS host name.

Example request

```
{
  "application_cred_id": "63e3cb77f84f42b7a0395a3efb7636f9",
  "application_cred_secret": "secret",
  "barbican_reachability": {
    "code": "346758",
    "message": "Barbican KMS is not reachable from all nodes - <reason>.",
    "reachable": ""
  },
  "proxy_host": "proxy.eng.com",
  "proxy_password": "proxypassword",
  "proxy_port": 1234,
  "proxy_type": "http",
  "proxy_username": "proxyuser",
  "scope": "string",
  "state": {
    "cluster_state": "",
    "code": "346758",
    "message": "Top-level internal key encryption key is unavailable on the following nodes with the associated reasons: Node: node1. Reason: No volumes created yet for the SVM. Wrapped KEK status will be available after creating encrypted volumes."
  },
  "timeout": 60,
  "uuid": "1cd8a442-86d1-11e0-ae1c-123478563434"
}
```

Response

```
Status: 200, Ok
```

Name	Type	Description
job	job_link	

Example response

```
{
  "job": {
    "uuid": "string"
  }
}
```

Response

Status: 202, Accepted

Error

Status: Default

ONTAP Error Response Codes

Error Code	Description
65539223	Failed to check the health of the Barbican Key Management Service.
65539814	Failed to update the Barbican Key Management Service configuration because the "application-cred-secret" field is invalid or was not provided.
65539815	Failed to update the Barbican Key Management Service configuration because the "application-cred-id" field is invalid or was not provided.
65539832	Specified Barbican Key Management Service configuration does not exist.
65539841	Both "application_cred_id" and "application_cred_secret" are required.

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

Definitions

See Definitions

href

Name	Type	Description
href	string	

_links

barbican_reachability

Indicates whether the Barbican KMS is reachable from all nodes in the cluster. This is an advanced property; there is an added computational cost to retrieving its value. The property is not populated for either a collection GET request or an instance GET request unless it is explicitly requested using the field's query parameter or GET for all advanced properties is enabled.

Name	Type	Description
code	string	Code corresponding to the error message. Returns 0 if Barbican KMS is reachable from all nodes in the cluster.
message	string	Set to the appropriate error message when 'reachable' is false.
reachable	boolean	Set to true if the Barbican KMS is reachable from all nodes of the cluster.

configuration

Security keystore object reference.

Name	Type	Description
name	string	Name of the configuration.
uuid	string	Keystore UUID.

state

Indicates whether or not the SVM key encryption key (KEK) is available cluster wide. This is an advanced property; there is an added computational cost to retrieving its value. The property is not populated for either a collection GET or an instance GET unless it is explicitly requested using the `fields` query parameter or GET for all advanced properties is enabled.

Name	Type	Description
cluster_state	boolean	Set to true when an SVM-KEK is present on all nodes of the cluster.
code	string	Code corresponding to the status message. Returns a 0 if the SVM-KEK is available on all nodes in the cluster.
message	string	Error message returned when there's no SVM-KEK availability on the cluster.

svm

SVM, applies only to SVM-scoped objects.

Name	Type	Description
name	string	The name of the SVM. This field cannot be specified in a PATCH method.
uuid	string	The unique identifier of the SVM. This field cannot be specified in a PATCH method.

barbican

Name	Type	Description
_links	_links	
application_cred_id	string	Keystone application credentials ID required to access the specified Barbican KMS.
application_cred_secret	string	Keystone application credentials secret required to access the specified Barbican KMS. It is not audited.

Name	Type	Description
barbican_reachability	barbican_reachability	Indicates whether the Barbican KMS is reachable from all nodes in the cluster. This is an advanced property; there is an added computational cost to retrieving its value. The property is not populated for either a collection GET request or an instance GET request unless it is explicitly requested using the field's query parameter or GET for all advanced properties is enabled.
enabled	boolean	Indicates whether the configuration is enabled.
proxy_host	string	Proxy host name.
proxy_password	string	Proxy password. Password is not audited.
proxy_port	integer	Proxy port number.
proxy_type	string	Type of proxy.
proxy_username	string	Proxy username.
scope	string	Set to "svm" for interfaces owned by an SVM. Otherwise, set to "cluster".
state	state	Indicates whether or not the SVM key encryption key (KEK) is available cluster wide. This is an advanced property; there is an added computational cost to retrieving its value. The property is not populated for either a collection GET or an instance GET unless it is explicitly requested using the fields query parameter or GET for all advanced properties is enabled.
timeout	integer	Connection timeout in seconds.

Name	Type	Description
uuid	string	A unique identifier of the Barbican KMS.
verify	boolean	Verify the identity of the Barbican KMS.
verify_host	boolean	Verify the identity of the Barbican KMS host name.

job_link

Name	Type	Description
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.

Rekey the internal key in the key hierarchy for an SVM with a Barbican KMS configuration

POST /security/barbican-kms/{uuid}/rekey-internal

Introduced In: 9.17

Rekeys the internal key in the key hierarchy for an SVM with a Barbican KMS configuration.

Related ONTAP commands

- `security key-manager external barbican rekey-internal`

Parameters

Name	Type	In	Required	Description
uuid	string	path	True	UUID of the existing Barbican KMS configuration.
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: 0• Max value: 120• Min value: 0

Name	Type	In	Required	Description
return_records	boolean	query	False	<p>The default is false. If set to true, the records are returned.</p> <ul style="list-style-type: none"> • Default value:

Response

Status: 202, Accepted

Name	Type	Description
job	job_link	

Example response

```
{
  "job": {
    "uuid": "string"
  }
}
```

Response

Status: 201, Created

Error

Status: Default

ONTAP Error Response Codes

Error Code	Description
65536205	Internal error. Failed to generate SVM key in the kernel.
65536882	Internal error. UUID is missing.
65536883	Internal error. Volume encryption key is missing.
65536884	Internal error. Volume encryption key is invalid.

Error Code	Description
65536889	Internal error. Volume has invalid encryption blob.
65536973	Internal error. Volume DSID is missing.
65537533	Internal error. Failed to unwrap SVM key encryption key.
65537547	One or more volume encryption keys (VEKs) for this data SVM's encrypted volumes are stored in the key manager configured for the admin SVM. Use the REST API POST method "/api/security/key-managers/{source.svm.uuid}/migrate" to migrate these keys from the admin SVM's key manager to this data SVM's key manager before running the rekey operation.
65537556	ONTAP is unable to encrypt or decrypt because the configured external key manager is in a blocked state. Possible reasons for a blocked state include the top-level external key protection key is not found, disabled or has insufficient privileges. Resolve the external key manager key issues at the key manager's portal before running the rekey operation.
65537565	Internal error. Failed to update the VDEK blob.
65537610	Rekey cannot be performed while the enabled keystore configuration is being switched. If a previous attempt to switch the keystore configuration failed, or was interrupted, the system will continue to prevent rekeying. Use the REST API PATCH method "/api/security/key-stores/{uuid}" to re-run and complete the operation.
65539200	The key custodian not provided with an external key value store.
65539201	Failed to encrypt.
65539202	Failed to decrypt.
65539416	Internal error. Failed to parse the key value store response.
65539436	Rekey cannot be performed while the enabled keystore configuration is being initialized. Wait until the keystore is in the active state, and rerun the rekey operation.
65539437	Rekey cannot be performed while the enabled keystore configuration is being disabled.
65539817	The Barbican Key Management Service is not configured.
65539834	New Key ID not found.
65539836	No Key Management Service configured.

Error Code	Description
65539844	Failed to import the SVM-KEK.
196608088	Internal error. Failed to get encryption operation status.
196608352	Internal error. The encryption blob was not found in the RDB table.

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

Definitions

See Definitions

href

Name	Type	Description
href	string	

_links

job_link

Name	Type	Description
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.

Restore the keys for an SVM from a configured Barbican KMS

POST /security/barbican-kms/{uuid}/restore

Introduced In: 9.17

Restores the keys for an SVM from a configured Barbican KMS.

Related ONTAP commands

- `security key-manager external barbican restore`

Parameters

Name	Type	In	Required	Description
uuid	string	path	True	UUID of the existing Barbican KMS configuration.
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: 0• Max value: 120• Min value: 0
return_records	boolean	query	False	<p>The default is false. If set to true, the records are returned.</p> <ul style="list-style-type: none">• Default value:

Response

Status: 202, Accepted

Name	Type	Description
job	job_link	

Example response

```
{  
  "job": {  
    "uuid": "string"  
  }  
}
```

Headers

Name	Description	Type
Location	Useful for tracking the resource location	string

Response

Status: 201, Created

Error

Status: Default

ONTAP Error Response Codes

Error Code	Description
65539817	The Barbican Key Management Service is not configured.
65539842	Failed to restore the SVM-KEK on at least one node.

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

Definitions

See Definitions

href

Name	Type	Description
href	string	

_links

job_link

Name	Type	Description
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.

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