



# Manage Google Cloud KMS

## REST API reference

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# Manage Google Cloud KMS

## Security gcp-kms endpoint overview

### Overview

Google Cloud Key Management Services is a cloud key management service (KMS) that provides a secure store for encryption keys. This feature allows ONTAP to securely store its encryption keys using Google Cloud KMS. In order to use Google Cloud KMS with ONTAP, a user must first deploy a Google Cloud application with appropriate access to the Google Cloud KMS and then provide ONTAP with the necessary details, such as, project ID, key ring name, location, key name and application credentials to allow ONTAP to communicate with the deployed Google Cloud application. The properties `state`, `google_reachability` and `ekmip_reachability` are considered advanced properties and are populated only when explicitly requested.

### Examples

#### Enabling GCKMS for an SVM

The following example shows how to enable GCKMS at the SVM-scope. Note the `return_records=true` query parameter is used to obtain the newly created key manager configuration.

```

# The API:
POST /api/security/gcp-kms

# The call:
curl -X POST 'https://<mgmt-ip>/api/security/gcp-kms?return_records=true'
-H 'accept: application/hal+json' -d '{"svm": {"uuid": "f36ff553-e713-11ea-
bd56-005056bb4222"}, "project_id": "testProj",
"key_ring_name": "testKeyRing", "key_ring_location": "global", "key_name": "key1", "application_credentials": "myAppCred"}'

# The response:
{
  "num_records": 1,
  "records": [
    {
      "uuid": "f72098a2-e908-11ea-bd56-005056bb4222",
      "svm": {
        "uuid": "f36ff553-e713-11ea-bd56-005056bb4222",
        "name": "vs0"
      },
      "project_id": "testProj",
      "key_ring_name": "testKeyRing",
      "key_ring_location": "global",
      "key_name": "key1",
      "_links": {
        "self": {
          "href": "/api/security/gcp-kms/f72098a2-e908-11ea-bd56-
005056bb4222"
        }
      }
    }
  ]
}

```

## Retrieving all GCKMS configurations

The following example shows how to retrieve all GCKMS configurations.

```

# The API:
GET /api/security/gcp-kms

# The call:
curl -X GET 'https://<mgmt-ip>/api/security/gcp-kms?fields='

# The response:
{
  "records": [
    {
      "uuid": "f72098a2-e908-11ea-bd56-005056bb4222",
      "scope": "svm",
      "svm": {
        "uuid": "f36ff553-e713-11ea-bd56-005056bb4222",
        "name": "vs0"
      },
      "project_id": "testProj",
      "key_ring_name": "testKeyRing",
      "key_ring_location": "global",
      "key_name": "key1",
      "_links": {
        "self": {
          "href": "/api/security/gcp-kms/f72098a2-e908-11ea-bd56-005056bb4222"
        }
      }
    },
    "num_records": 1,
    "_links": {
      "self": {
        "href": "/api/security/gcp-kms?fields='"
      }
    }
  ]
}

```

## Retrieving a specific GCKMS configuration

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

```

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

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

# The response:
{
  "uuid": "f72098a2-e908-11ea-bd56-005056bb4222",
  "scope": "svm",
  "svm": {
    "uuid": "f36ff553-e713-11ea-bd56-005056bb4222",
    "name": "vs0"
  },
  "project_id": "testProj",
  "key_ring_name": "testKeyRing",
  "key_ring_location": "global",
  "key_name": "key1",
  "_links": {
    "self": {
      "href": "/api/security/gcp-kms/f72098a2-e908-11ea-bd56-005056bb4222"
    }
  }
}

```

## Retrieving a specific GCKMS's advanced properties

The following example shows how to retrieve advanced properties for a specific GCKMS configuration.

```

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

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

# The response:
{
  "uuid": "f72098a2-e908-11ea-bd56-005056bb4222",
  "state": {
    "cluster_state": false,
    "message": "The Google Cloud Key Management Service key protection is

```

```
unavailable on the following nodes: cluster1-node1.",  
    "code": 65537708  
},  
"google_reachability": {  
    "reachable": true,  
    "message": "",  
    "code": 0  
},  
"ekmip_reachability": [  
    {  
        "node": {  
            "uuid": "d208115f-7721-11eb-bf83-005056bb150e",  
            "name": "node1",  
            "_links": {  
                "self": {  
                    "href": "/api/cluster/nodes/d208115f-7721-11eb-bf83-  
005056bb150e"  
                }  
            }  
        },  
        "reachable": true,  
        "message": "",  
        "code": 0  
},  
    {  
        "node": {  
            "uuid": "e208115f-7721-11eb-bf83-005056bb150e",  
            "name": "node2",  
            "_links": {  
                "self": {  
                    "href": "/api/cluster/nodes/e208115f-7721-11eb-bf83-  
005056bb150e"  
                }  
            }  
        },  
        "reachable": true,  
        "message": "",  
        "code": 0  
}  
],  
"_links": {  
    "self": {  
        "href": "/api/security/gcp-kms/f72098a2-e908-11ea-bd56-005056bb4222"  
    }  
}
```

## Updating the application credentials of a specific GCKMS configuration

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

```
# The API:  
PATCH /api/security/gcp-kms/{uuid}  
  
# The call:  
curl -X PATCH 'https://<mgmt-ip>/api/security/gcp-kms/f72098a2-e908-11ea-  
bd56-005056bb4222/' -d '{"application_credentials": "newAppCred"}'
```

## Deleting a specific GCKMS configuration

The following example shows how to delete a specific GCKMS configuration.

```
# The API:  
DELETE /api/security/gcp-kms/{uuid}  
  
# The call:  
curl -X DELETE 'https://<mgmt-ip>/api/security/gcp-kms/f72098a2-e908-11ea-  
bd56-005056bb4222'
```

## Restoring keys from KMIP server

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

```
# The API:  
POST /api/security/gcp-kms/{uuid}/restore  
  
# The call:  
curl -X POST 'https://<mgmt-ip>/api/security/gcp-kms/33820b57-ec90-11ea-  
875e-005056bbf3f0/restore'
```

# Retrieve Google Cloud KMS configurations for all clusters and SVMs

GET /security/gcp-kms

**Introduced In:** 9.9

Retrieves Google Cloud KMS configurations for all clusters and SVMs.

## Related ONTAP commands

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

## Parameters

Name	Type	In	Required	Description
google_reachability_code	integer	query	False	Filter by google_reachability_code
google_reachability_message	string	query	False	Filter by google_reachability_message
google_reachability_reachable	boolean	query	False	Filter by google_reachability_reachable
key_ring_location	string	query	False	Filter by key_ring_location
project_id	string	query	False	Filter by project_id
uuid	string	query	False	Filter by uuid
proxy_type	string	query	False	Filter by proxy_type
key_ring_name	string	query	False	Filter by key_ring_name
state.code	integer	query	False	Filter by state.code
state.message	string	query	False	Filter by state.message
state.cluster_state	boolean	query	False	Filter by state.cluster_state
proxy_username	string	query	False	Filter by proxy_username
proxy_host	string	query	False	Filter by proxy_host

Name	Type	In	Required	Description
scope	string	query	False	Filter by scope
svm.uuid	string	query	False	Filter by svm.uuid
svm.name	string	query	False	Filter by svm.name
key_name	string	query	False	Filter by key_name
proxy_port	integer	query	False	Filter by proxy_port
ekmip_reachability.message	string	query	False	Filter by ekmip_reachability.message
ekmip_reachability.reachable	boolean	query	False	Filter by ekmip_reachability.reachable
ekmip_reachability.code	integer	query	False	Filter by ekmip_reachability.code
ekmip_reachability.node.uuid	string	query	False	Filter by ekmip_reachability.node.uuid
ekmip_reachability.node.name	string	query	False	Filter by ekmip_reachability.node.name
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"> <li>• Default value: 1</li> <li>• Max value: 120</li> <li>• Min value: 0</li> </ul>
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"> <li>• Default value: 1</li> </ul>
order_by	array[string]	query	False	Order results by specified fields and optional [asc]

## Response

Status: 200, Ok

Name	Type	Description
_links	<a href="#">_links</a>	
num_records	integer	Number of records
records	array[gcp_kms]	

## Example response

```
{  
  "_links": {  
    "next": {  
      "href": "/api/resourcelink"  
    },  
    "self": {  
      "href": "/api/resourcelink"  
    }  
  },  
  "records": [  
    {  
      "_links": {  
        "self": {  
          "href": "/api/resourcelink"  
        }  
      },  
      "ekmip_reachability": [  
        {  
          "code": 346758,  
          "message": "embedded KMIP server status unavailable on  
node.",  
          "node": {  
            "_links": {  
              "self": {  
                "href": "/api/resourcelink"  
              }  
            },  
            "name": "node1",  
            "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"  
          }  
        }  
      ],  
      "google_reachability": {  
        "code": 346758,  
        "message": "Google Cloud KMS service is not reachable from all  
nodes - <reason>."  
      },  
      "key_name": "cryptokey1",  
      "key_ring_location": "global",  
      "key_ring_name": "gcpapp1-keyring",  
      "project_id": "gcpapp1",  
      "proxy_host": "proxy.eng.com",  
      "proxy_port": 1234,  
      "proxy_type": "http",  
    }  
  ]  
}
```

```

"proxy_username": "proxyuser",
"scope": "string",
"state": {
    "code": 346758,
    "message": "Top-level internal key protection key (KEK) 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"
},
"uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
}
]
}

```

## Error

Status: Default

### ONTAP Error Response Codes

Error Code	Description
65537551	Top-level internal key protection key (KEK) unavailable on one or more nodes.
65537552	Embedded KMIP server status not available.
65537730	The Google Cloud Key Management Service is unreachable from one or more nodes.

Name	Type	Description
error	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	

node

Name	Type	Description
_links	_links	
name	string	
uuid	string	

ekmip\_reachability

Provides the connectivity status for the given SVM on the given node to all EKMIP servers configured on all nodes of the cluster. This is an advanced property; there is an added 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
code	integer	Code corresponding to the error message. Returns a 0 if a given SVM is able to communicate to the EKMIP servers of all of the nodes in the cluster.
message	string	Error message set when cluster-wide EKMIP server availability from the given SVM and node is false.
node	node	

Name	Type	Description
reachable	boolean	Set to true if the given SVM on the given node is able to communicate to all EKMIP servers configured on all nodes in the cluster.

#### google\_reachability

Indicates whether or not the Google Cloud KMS service is reachable from all nodes in the cluster. This is an advanced property; there is an added 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
code	integer	Code corresponding to the error message. Returns a 0 if Google Cloud KMS service is reachable from all nodes in the cluster.
message	string	Set to the error message when 'reachable' is false.
reachable	boolean	Set to true if the Google Cloud KMS service is reachable from all nodes of the cluster.

#### state

Google Cloud Key Management Services is a cloud key management service (KMS) that provides a secure store for encryption keys. This object indicates whether or not the Google Cloud KMS key protection is available on all nodes in the cluster. This is an advanced property; there is an added 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 Google Cloud KMS key protection is available on all nodes of the cluster.
code	integer	Error code corresponding to the status message. Returns 0 if Google Cloud KMS key protection is available in all nodes of the cluster.

Name	Type	Description
message	string	Error message set when top-level internal key protection key (KEK) availability on cluster is false.

svm

Name	Type	Description
_links	<a href="#">_links</a>	
name	string	The name of the SVM.
uuid	string	The unique identifier of the SVM.

gcp\_kms

Name	Type	Description
_links	<a href="#">_links</a>	
ekmip_reachability	<a href="#">array[ekmip_reachability]</a>	
google_reachability	<a href="#">google_reachability</a>	Indicates whether or not the Google Cloud KMS service is reachable from all nodes in the cluster. This is an advanced property; there is an added 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.
key_name	string	Key Identifier of Google Cloud KMS key encryption key.
key_ring_location	string	Google Cloud KMS key ring location.
key_ring_name	string	Google Cloud KMS key ring name of the deployed Google Cloud application.

Name	Type	Description
project_id	string	Google Cloud project (application) ID of the deployed Google Cloud application that has appropriate access to the Google Cloud KMS.
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".
state	state	Google Cloud Key Management Services is a cloud key management service (KMS) that provides a secure store for encryption keys. This object indicates whether or not the Google Cloud KMS key protection is available on all nodes in the cluster. This is an advanced property; there is an added 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	
uuid	string	A unique identifier for the Google Cloud KMS.

#### error\_arguments

Name	Type	Description
code	string	Argument code

Name	Type	Description
message	string	Message argument
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.

## Create the Google Cloud KMS configuration for an SVM

POST /security/gcp-kms

**Introduced In:** 9.9

Configures the Google Cloud KMS configuration for the specified SVM.

### Required properties

- `svm.uuid` or `svm.name` - Existing SVM in which to create a Google Cloud KMS.
- `project_id` - Google Cloud project (application) ID of the deployed Google Cloud application with appropriate access to the Google Cloud KMS.
- `key_ring_name` - Google Cloud KMS key ring name of the deployed Google Cloud application with appropriate access to the specified Google Cloud KMS.
- `key_ring_location` - Google Cloud KMS key ring location.
- `key_name` - Key Identifier of the Google Cloud KMS key encryption key.
- `application_credentials` - Google Cloud application's service account credentials required to access the specified KMS. It is a JSON file containing an email address and the private key of the service account holder.

### 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.

## Related ONTAP commands

- security key-manager external gcp enable

## Parameters

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"> <li>• Default value:</li> </ul>

## Request Body

Name	Type	Description
application_credentials	string	Google Cloud application's service account credentials required to access the specified KMS. It is a JSON file containing an email address and the private key of the service account holder.
ekmip_reachability	array[ <a href="#">ekmip_reachability</a> ]	
key_name	string	Key Identifier of Google Cloud KMS key encryption key.
key_ring_location	string	Google Cloud KMS key ring location.
key_ring_name	string	Google Cloud KMS key ring name of the deployed Google Cloud application.
project_id	string	Google Cloud project (application) ID of the deployed Google Cloud application that has appropriate access to the Google Cloud KMS.
proxy_host	string	Proxy host name.
proxy_password	string	Proxy password. Password is not audited.

Name	Type	Description
proxy_port	integer	Proxy port number.
proxy_type	string	Type of proxy.
proxy_username	string	Proxy username.
svm	<a href="#">svm</a>	
uuid	string	A unique identifier for the Google Cloud KMS.

## Example request

```
{  
  "application_credentials": "{ type: service_account, project_id:  
project-id, private_key_id: key-id, private_key: -----BEGIN PRIVATE  
KEY-----\nprivate-key\n-----END PRIVATE KEY-----\n, client_email:  
service-account-email, client_id: client-id, auth_uri: <a  
href=\"https://accounts.google.com/o/oauth2/auth\" class=\"  
bare\">https://accounts.google.com/o/oauth2/auth</a>, token_uri: <a  
href=\"https://accounts.google.com/o/oauth2/token\" class=\"  
bare\">https://accounts.google.com/o/oauth2/token</a>,  
auth_provider_x509_cert_url: <a href=\"https://www.googleapis.com/oauth  
2/v1/certs\" class=\"bare\">https://www.googleapis.com/oauth2/v1/  
certs</a>, client_x509_cert_url: <a  
href=\"https://www.googleapis.com/robot/v1/metadata/x509/service-  
account-email\" class=\"bare\">https://www.googleapis.com/robot/v1/  
metadata/x509/service-account-email</a> }",  
  "ekmip_reachability": [  
    {  
      "code": 346758,  
      "message": "embedded KMIP server status unavailable on node.",  
      "node": {  
        "name": "node1",  
        "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"  
      }  
    }  
  ],  
  "key_name": "cryptokey1",  
  "key_ring_location": "global",  
  "key_ring_name": "gcpapp1-keyring",  
  "project_id": "gcpapp1",  
  "proxy_host": "proxy.eng.com",  
  "proxy_password": "proxypassword",  
  "proxy_port": 1234,  
  "proxy_type": "http",  
  "proxy_username": "proxyuser",  
  "svm": {  
    "name": "svml1",  
    "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"  
  },  
  "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"  
}
```

## Response

Status: 201, Created

Name	Type	Description
num_records	integer	Number of records
records	array[gcp_kms]	

**Example response**

```

{
  "records": [
    {
      "application_credentials": "{ type: service_account, project_id: project-id, private_key_id: key-id, private_key: -----BEGIN PRIVATE KEY-----\nprivate-key\n-----END PRIVATE KEY-----\n, client_email: service-account-email, client_id: client-id, auth_uri: <a href=\"https://accounts.google.com/o/oauth2/auth\" class=\"bare\">https://accounts.google.com/o/oauth2/auth</a>, token_uri: <a href=\"https://accounts.google.com/o/oauth2/token\" class=\"bare\">https://accounts.google.com/o/oauth2/token</a>, auth_provider_x509_cert_url: <a href=\"https://www.googleapis.com/oauth2/v1/certs\" class=\"bare\">https://www.googleapis.com/oauth2/v1/certs</a>, client_x509_cert_url: <a href=\"https://www.googleapis.com/robot/v1/metadata/x509/service-account-email\" class=\"bare\">https://www.googleapis.com/robot/v1/metadata/x509/service-account-email</a> }",
      "ekmip_reachability": [
        {
          "code": 346758,
          "message": "embedded KMIP server status unavailable on node.",
          "node": {
            "name": "node1",
            "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
          }
        }
      ],
      "key_name": "cryptokey1",
      "key_ring_location": "global",
      "key_ring_name": "gcpapp1-keyring",
      "project_id": "gcpapp1",
      "proxy_host": "proxy.eng.com",
      "proxy_password": "proxypassword",
      "proxy_port": 1234,
      "proxy_type": "http",
      "proxy_username": "proxyuser",
      "svm": {
        "name": "svml1",
        "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
      },
      "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
    }
  ]
}

```

## Error

Status: Default

### ONTAP Error Response Codes

Error Code	Description
65537703	The Google Cloud Key Management Service is not supported for the admin Vserver.
65537704	The Google Cloud Key Management Service is not supported in MetroCluster configurations.
65537706	Internal error. Failed to encrypt the application credentials.
65537713	Internal Error. Failed to store the application credentials.
65537719	Failed to enable the Google Cloud Key Management Service for SVM <svm-name> because invalid application credentials were provided.</svm-name>
65537720	Failed to configure Google Cloud Key Management Service for SVM <svm-name> because a key manager has already been configured for this SVM. Use the REST API GET method "/api/security/key-managers" to view all of the configured key managers.</svm-name>

## Definitions

## See Definitions

href

Name	Type	Description
href	string	

\_links

node

Name	Type	Description
name	string	
uuid	string	

ekmip\_reachability

Provides the connectivity status for the given SVM on the given node to all EKMIP servers configured on all nodes of the cluster. This is an advanced property; there is an added 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
code	integer	Code corresponding to the error message. Returns a 0 if a given SVM is able to communicate to the EKMIP servers of all of the nodes in the cluster.
message	string	Error message set when cluster-wide EKMIP server availability from the given SVM and node is false.
node	node	
reachable	boolean	Set to true if the given SVM on the given node is able to communicate to all EKMIP servers configured on all nodes in the cluster.

google\_reachability

Indicates whether or not the Google Cloud KMS service is reachable from all nodes in the cluster. This is an advanced property; there is an added 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
code	integer	Code corresponding to the error message. Returns a 0 if Google Cloud KMS service is reachable from all nodes in the cluster.
message	string	Set to the error message when 'reachable' is false.
reachable	boolean	Set to true if the Google Cloud KMS service is reachable from all nodes of the cluster.

## state

Google Cloud Key Management Services is a cloud key management service (KMS) that provides a secure store for encryption keys. This object indicates whether or not the Google Cloud KMS key protection is available on all nodes in the cluster. This is an advanced property; there is an added 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 Google Cloud KMS key protection is available on all nodes of the cluster.
code	integer	Error code corresponding to the status message. Returns 0 if Google Cloud KMS key protection is available in all nodes of the cluster.
message	string	Error message set when top-level internal key protection key (KEK) availability on cluster is false.

## svm

Name	Type	Description
name	string	The name of the SVM.
uuid	string	The unique identifier of the SVM.

## gcp\_kms

Name	Type	Description
application_credentials	string	Google Cloud application's service account credentials required to access the specified KMS. It is a JSON file containing an email address and the private key of the service account holder.
ekmip_reachability	array[ekmip_reachability]	
key_name	string	Key Identifier of Google Cloud KMS key encryption key.
key_ring_location	string	Google Cloud KMS key ring location.
key_ring_name	string	Google Cloud KMS key ring name of the deployed Google Cloud application.
project_id	string	Google Cloud project (application) ID of the deployed Google Cloud application that has appropriate access to the Google Cloud KMS.
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.
svm	svm	
uuid	string	A unique identifier for the Google Cloud KMS.

#### error\_arguments

Name	Type	Description
code	string	Argument code

Name	Type	Description
message	string	Message argument
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.

## Delete a Google Cloud KMS configuration

DELETE /security/gcp-kms/{uuid}

**Introduced In:** 9.9

Deletes a Google Cloud KMS configuration.

### Related ONTAP commands

- security key-manager external gcp disable

### Parameters

Name	Type	In	Required	Description
uuid	string	path	True	Google Cloud KMS UUID

### Response

Status: 200, Ok

### Error

Status: Default

## ONTAP Error Response Codes

Error Code	Description
65536242	One or more self-encrypting drives are assigned an authentication key.
65536243	Cannot determine authentication key presence on one or more self-encrypting drives.
65536817	Internal error. Failed to determine if it is safe to disable key manager.
65536827	Internal error. Failed to determine if the given SVM has any encrypted volumes.
65536834	Internal error. Failed to get existing key-server details for the given SVM.
65536867	Volume encryption keys (VEK) for one or more encrypted volumes are stored on the key manager configured for the given SVM.
65536883	Internal error. Volume encryption key is missing for a volume.
65536884	Internal error. Volume encryption key is invalid for a volume.
65536924	Cannot remove key manager that still contains one or more authentication keys for self-encrypting drives.
65537721	The Google Cloud Key Management Service is not configured for the SVM.
196608080	One or more nodes in the cluster have the root volume encrypted using NVE (NetApp Volume Encryption).
196608301	Internal error. Failed to get encryption type.
196608305	NAE aggregates found in the cluster.

Name	Type	Description
error	error	

## Example error

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

## Definitions

### See Definitions

error\_arguments

Name	Type	Description
code	string	Argument code
message	string	Message argument

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 Google Cloud KMS configuration

GET /security/gcp-kms/{uuid}

**Introduced In:** 9.9

Retrieves the Google Cloud KMS configuration for the SVM specified by the UUID.

## Related ONTAP commands

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

## Parameters

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

## Response

Status: 200, Ok

Name	Type	Description
_links	<a href="#">_links</a>	
ekmip_reachability	array[ <a href="#">ekmip_reachability</a> ]	
google_reachability	<a href="#">google_reachability</a>	Indicates whether or not the Google Cloud KMS service is reachable from all nodes in the cluster. This is an advanced property; there is an added 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.
key_name	string	Key Identifier of Google Cloud KMS key encryption key.

Name	Type	Description
key_ring_location	string	Google Cloud KMS key ring location.
key_ring_name	string	Google Cloud KMS key ring name of the deployed Google Cloud application.
project_id	string	Google Cloud project (application) ID of the deployed Google Cloud application that has appropriate access to the Google Cloud KMS.
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".
state	state	Google Cloud Key Management Services is a cloud key management service (KMS) that provides a secure store for encryption keys. This object indicates whether or not the Google Cloud KMS key protection is available on all nodes in the cluster. This is an advanced property; there is an added 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	
uuid	string	A unique identifier for the Google Cloud KMS.

## Example response

```
{  
  "_links": {  
    "self": {  
      "href": "/api/resourcelink"  
    }  
  },  
  "ekmip_reachability": [  
    {  
      "code": 346758,  
      "message": "embedded KMIP server status unavailable on node.",  
      "node": {  
        "_links": {  
          "self": {  
            "href": "/api/resourcelink"  
          }  
        },  
        "name": "node1",  
        "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"  
      }  
    }  
  ],  
  "google_reachability": {  
    "code": 346758,  
    "message": "Google Cloud KMS service is not reachable from all  
nodes - <reason>."  
  },  
  "key_name": "cryptokey1",  
  "key_ring_location": "global",  
  "key_ring_name": "gcpapp1-keyring",  
  "project_id": "gcpapp1",  
  "proxy_host": "proxy.eng.com",  
  "proxy_port": 1234,  
  "proxy_type": "http",  
  "proxy_username": "proxyuser",  
  "scope": "string",  
  "state": {  
    "code": 346758,  
    "message": "Top-level internal key protection key (KEK) 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"
  },
  "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
}

```

## Error

Status: Default

### ONTAP Error Response Codes

Error Code	Description
65537551	Top-level internal key protection key (KEK) unavailable on one or more nodes.
65537552	Embedded KMIP server status not available.
65537730	The Google Cloud Key Management Service is unreachable from one or more nodes.

Name	Type	Description
error	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	

node

Name	Type	Description
_links	_links	
name	string	
uuid	string	

ekmip\_reachability

Provides the connectivity status for the given SVM on the given node to all EKMIP servers configured on all nodes of the cluster. This is an advanced property; there is an added 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
code	integer	Code corresponding to the error message. Returns a 0 if a given SVM is able to communicate to the EKMIP servers of all of the nodes in the cluster.
message	string	Error message set when cluster-wide EKMIP server availability from the given SVM and node is false.
node	node	
reachable	boolean	Set to true if the given SVM on the given node is able to communicate to all EKMIP servers configured on all nodes in the cluster.

google\_reachability

Indicates whether or not the Google Cloud KMS service is reachable from all nodes in the cluster. This is an advanced property; there is an added 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
code	integer	Code corresponding to the error message. Returns a 0 if Google Cloud KMS service is reachable from all nodes in the cluster.
message	string	Set to the error message when 'reachable' is false.
reachable	boolean	Set to true if the Google Cloud KMS service is reachable from all nodes of the cluster.

## state

Google Cloud Key Management Services is a cloud key management service (KMS) that provides a secure store for encryption keys. This object indicates whether or not the Google Cloud KMS key protection is available on all nodes in the cluster. This is an advanced property; there is an added 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 Google Cloud KMS key protection is available on all nodes of the cluster.
code	integer	Error code corresponding to the status message. Returns 0 if Google Cloud KMS key protection is available in all nodes of the cluster.
message	string	Error message set when top-level internal key protection key (KEK) availability on cluster is false.

## svm

Name	Type	Description
<code>_links</code>	<a href="#">_links</a>	
name	string	The name of the SVM.

Name	Type	Description
uuid	string	The unique identifier of the SVM.

error\_arguments

Name	Type	Description
code	string	Argument code
message	string	Message argument

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 the Google Cloud KMS configuration

PATCH /security/gcp-kms/{uuid}

**Introduced In:** 9.9

Updates the Google Cloud KMS configuration.

### Optional properties

- `key_name` - Key Identifier of the Google Cloud KMS key encryption key.
- `application_credentials` - New credentials used to verify the application's identity to the Google Cloud KMS.
- `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.
- `project_id` - Google Cloud project (application) ID of the deployed Google Cloud application with

appropriate access to the Google Cloud KMS.

- `key_ring_name` - Google Cloud KMS key ring name of the deployed Google Cloud application with appropriate access to the specified Google Cloud KMS.
- `key_ring_location` - Google Cloud KMS key ring location.

## Related ONTAP commands

- `security key-manager external gcp update-credentials`
- `security key-manager external gcp rekey-external`

## Parameters

Name	Type	In	Required	Description
<code>uuid</code>	string	path	True	Google Cloud KMS UUID
<code>return_timeout</code>	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"><li>• Default value: 1</li><li>• Max value: 120</li><li>• Min value: 0</li></ul>

## Request Body

Name	Type	Description
application_credentials	string	Google Cloud application's service account credentials required to access the specified KMS. It is a JSON file containing an email address and the private key of the service account holder.
ekmip_reachability	array[ <a href="#">ekmip_reachability</a> ]	
key_name	string	Key Identifier of Google Cloud KMS key encryption key.
key_ring_location	string	Google Cloud KMS key ring location.
key_ring_name	string	Google Cloud KMS key ring name of the deployed Google Cloud application.
project_id	string	Google Cloud project (application) ID of the deployed Google Cloud application that has appropriate access to the Google Cloud KMS.
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.
svm	<a href="#">svm</a>	
uuid	string	A unique identifier for the Google Cloud KMS.

## Example request

```
{  
  "application_credentials": "{ type: service_account, project_id:  
project-id, private_key_id: key-id, private_key: -----BEGIN PRIVATE  
KEY-----\nprivate-key\n-----END PRIVATE KEY-----\n, client_email:  
service-account-email, client_id: client-id, auth_uri: <a  
href=\"https://accounts.google.com/o/oauth2/auth\" class=\"  
bare\">https://accounts.google.com/o/oauth2/auth</a>, token_uri: <a  
href=\"https://accounts.google.com/o/oauth2/token\" class=\"  
bare\">https://accounts.google.com/o/oauth2/token</a>,  
auth_provider_x509_cert_url: <a href=\"https://www.googleapis.com/oauth  
2/v1/certs\" class=\"bare\">https://www.googleapis.com/oauth2/v1/  
certs</a>, client_x509_cert_url: <a  
href=\"https://www.googleapis.com/robot/v1/metadata/x509/service-  
account-email\" class=\"bare\">https://www.googleapis.com/robot/v1/  
metadata/x509/service-account-email</a> }",  
  "ekmip_reachability": [  
    {  
      "code": 346758,  
      "message": "embedded KMIP server status unavailable on node.",  
      "node": {  
        "name": "node1",  
        "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"  
      }  
    }  
  ],  
  "key_name": "cryptokey1",  
  "key_ring_location": "global",  
  "key_ring_name": "gcpapp1-keyring",  
  "project_id": "gcpapp1",  
  "proxy_host": "proxy.eng.com",  
  "proxy_password": "proxypassword",  
  "proxy_port": 1234,  
  "proxy_type": "http",  
  "proxy_username": "proxyuser",  
  "svm": {  
    "name": "svml1",  
    "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"  
  },  
  "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"  
}
```

## Response

Status: 200, Ok

## Response

Status: 202, Accepted

## Error

Status: Default

### ONTAP Error Response Codes

Error Code	Description
65537541	No inputs were provided for the patch request.
65537547	One or more volume encryption keys for encrypted volumes of this data SVM are stored in the key manager configured for the admin SVM. Use the REST API POST method to migrate this data SVM's keys from the admin SVM's key manager to this data SVM's key manager before running the rekey operation.
65537713	Internal Error. Failed to store the application credentials.
65537714	The "application_credentials" field must be specified.
65537721	The Google Cloud Key Management Service is not configured for the SVM.
65537724	Failed to update the Google Cloud Key Management Service because invalid application credentials were provided.
65537729	External rekey failed on one or more nodes. Use the REST API PATCH method "/api/security/gcp-kms/{uuid}" to try the rekey operation again.
65537732	ONTAP 9.9.1 does not allow modification of the following fields, "project_id", "key_ring_name" and "key_ring_location".

## Definitions

## See Definitions

href

Name	Type	Description
href	string	

\_links

node

Name	Type	Description
name	string	
uuid	string	

ekmip\_reachability

Provides the connectivity status for the given SVM on the given node to all EKMIP servers configured on all nodes of the cluster. This is an advanced property; there is an added 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
code	integer	Code corresponding to the error message. Returns a 0 if a given SVM is able to communicate to the EKMIP servers of all of the nodes in the cluster.
message	string	Error message set when cluster-wide EKMIP server availability from the given SVM and node is false.
node	node	
reachable	boolean	Set to true if the given SVM on the given node is able to communicate to all EKMIP servers configured on all nodes in the cluster.

google\_reachability

Indicates whether or not the Google Cloud KMS service is reachable from all nodes in the cluster. This is an advanced property; there is an added 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
code	integer	Code corresponding to the error message. Returns a 0 if Google Cloud KMS service is reachable from all nodes in the cluster.
message	string	Set to the error message when 'reachable' is false.
reachable	boolean	Set to true if the Google Cloud KMS service is reachable from all nodes of the cluster.

## state

Google Cloud Key Management Services is a cloud key management service (KMS) that provides a secure store for encryption keys. This object indicates whether or not the Google Cloud KMS key protection is available on all nodes in the cluster. This is an advanced property; there is an added 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 Google Cloud KMS key protection is available on all nodes of the cluster.
code	integer	Error code corresponding to the status message. Returns 0 if Google Cloud KMS key protection is available in all nodes of the cluster.
message	string	Error message set when top-level internal key protection key (KEK) availability on cluster is false.

## svm

Name	Type	Description
name	string	The name of the SVM.
uuid	string	The unique identifier of the SVM.

## gcp\_kms

Name	Type	Description
application_credentials	string	Google Cloud application's service account credentials required to access the specified KMS. It is a JSON file containing an email address and the private key of the service account holder.
ekmip_reachability	array[ekmip_reachability]	
key_name	string	Key Identifier of Google Cloud KMS key encryption key.
key_ring_location	string	Google Cloud KMS key ring location.
key_ring_name	string	Google Cloud KMS key ring name of the deployed Google Cloud application.
project_id	string	Google Cloud project (application) ID of the deployed Google Cloud application that has appropriate access to the Google Cloud KMS.
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.
svm	svm	
uuid	string	A unique identifier for the Google Cloud KMS.

#### error\_arguments

Name	Type	Description
code	string	Argument code

Name	Type	Description
message	string	Message argument
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.

## Re-key the internal key in the key hierarchy for an SVM

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

**Introduced In:** 9.10

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

### Related ONTAP commands

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

### Parameters

Name	Type	In	Required	Description
uuid	string	path	True	UUID of the existing Google Cloud KMS configuration.

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"> <li>• Default value: 1</li> <li>• Max value: 120</li> <li>• Min value: 0</li> </ul>
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"> <li>• Default value:</li> </ul>

## Response

Status: 202, Accepted

## Error

Status: Default

## ONTAP Error Response Codes

Error Code	Description
65537547	One or more volume encryption keys for encrypted volumes of this data SVM are stored in the key manager configured for the admin SVM. Use the REST API POST method to migrate this data SVM's keys from the admin SVM's key manager to this data SVM's key manager before running the rekey operation.
65537559	There are no existing internal keys for the SVM. A rekey operation is allowed for an SVM with one or more encryption keys.
65537721	Google Cloud KMS is not configured for the given SVM.

## Definitions

### See Definitions

`error_arguments`

Name	Type	Description
code	string	Argument code
message	string	Message argument

`error`

Name	Type	Description
arguments	array[ <code>error_arguments</code> ]	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 Google Cloud KMS

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

**Introduced In:** 9.10

Restores the keys for an SVM from a configured Google Cloud KMS.

## Related ONTAP commands

- `security key-manager external gcp restore`

## Parameters

Name	Type	In	Required	Description
uuid	string	path	True	UUID of the existing Google Cloud KMS configuration.

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"> <li>• Default value: 1</li> <li>• Max value: 120</li> <li>• Min value: 0</li> </ul>
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"> <li>• Default value:</li> </ul>

## Response

Status: 202, Accepted

## Error

Status: Default

## ONTAP Error Response Codes

Error Code	Description
65537721	The Google Cloud Key Management Service is not configured for the given SVM.
65537722	Failed to restore keys on the following SVMs.

## Definitions

### See Definitions

`error_arguments`

Name	Type	Description
code	string	Argument code
message	string	Message argument

`error`

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

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