



Manage Azure Key Vaults

REST API reference

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Manage Azure Key Vaults

Manage Azure Key Vaults

Overview

Azure Key Vault (AKV) is a cloud key management service (KMS) that provides a secure store for secrets. This feature allows ONTAP to securely store its encryption keys using AKV. In order to use AKV with ONTAP, you must first deploy an Azure application with the appropriate access to an AKV and then provide ONTAP with the necessary details, such as key vault name, application ID so that ONTAP can communicate with the deployed Azure application. The properties "state", "azure_reachability" and "ekmip_reachability" are considered advanced properties and are populated only when explicitly requested.

Examples

Enabling an AKV configuration for an SVM using the certificate authentication method

The example AKV configuration is enabled for a specific SVM. Note the *return_records=true* query parameter is used to obtain the newly created key-manager keystore configuration.

```
# The API:
POST /api/security/azure-key-vaults

# The call:
curl -X POST 'https://<mgmt-ip>/api/security/azure-key-
vaults?return_records=true' -H 'accept: application/hal+json' -d "{
  \"svm\": { \"uuid\": \"4f7abf4c-9a07-11ea-8d52-005056bbeba5\" },
  \"client_id\": \"client1\", \"tenant_id\": \"tenant1\", \"name\":
  \"https://mykeyvault.vault.azure.net/\", \"key_id\": \"https://keyvault-
test.vault.azure.net/keys/key1/a8e619fd8f234db3b0b95c59540e2a74\",
  \"client_certificate\" : \"<CERTIFICATE-CONTENT>\" }"

# The response:
{
  "num_records": 1,
  "records": [
    {
      "uuid": "024cd3cf-9a08-11ea-8d52-005056bbeba5",
      "svm": {
        "uuid": "4f7abf4c-9a07-11ea-8d52-005056bbeba5",
        "name": "vs0"
      },
      "client_id": "client1",
      "tenant_id": "tenant1",
      "name": "https://mykeyvault.azure.vault.net/",
      "key_id": "https://keyvault-
test.vault.azure.net/keys/key1/a8e619fd8f234db3b0b95c59540e2a74",
      "_links": {
        "self": {
          "href": "/api/security/azure-key-vaults/024cd3cf-9a08-11ea-8d52-
005056bbeba5"
        }
      }
    }
  ]
}
```

Creating an inactive AKV configuration for an SVM using the client secret authentication method

The example AKV configuration is created for a specific SVM but is not enabled. Note the *create_inactive=true* parameter that is used to indicate that the configuration should be created but not enabled. Note the *return_records=true* query parameter is used to obtain the newly created key-manager keystore configuration.

```
# The API:
POST /api/security/azure-key-vaults

# The call:
curl -X POST 'https://<mgmt-ip>/api/security/azure-key-
vaults?create_inactive=true&return_records=true' -H 'accept:
application/hal+json' -d "{ \"svm\": { \"uuid\": \"4f7abf4c-9a07-11ea-
8d52-005056bbeba5\" }, \"configuration\": {\"name\": \"myConfiguration\"},
\"client_id\": \"client1\", \"tenant_id\": \"tenant1\", \"name\":
\"https://mykeyvault.azure.vault.net/\", \"key_id\": \"https://keyvault-
test.vault.azure.net/keys/key1/a8e619fd8f234db3b0b95c59540e2a74\",
\"client_secret\" : \"myclientPwd\" }"

# The response:
{
  "num_records": 1,
  "records": [
    {
      "uuid": "85619643-9a06-11ea-8d52-005056bbeba5",
      "configuration": {"name": "myConfiguration"},
      "client_id": "client1",
      "tenant_id": "tenant1",
      "name": "https://mykeyvault.azure.vault.net/",
      "key_id": "https://keyvault-
test.vault.azure.net/keys/key1/a8e619fd8f234db3b0b95c59540e2a74",
      "_links": {
        "self": {
          "href": "/api/security/azure-key-vaults/85619643-9a06-11ea-8d52-
005056bbeba5"
        }
      }
    }
  ]
}
```

Retrieving the AKVs configured for all clusters and SVMs

The following example shows how to retrieve all configured AKVs along with their configurations.

```
# The API:
GET /api/security/azure-key-vaults

# The call:
```

```

curl -X GET 'https://<mgmt-ip>/api/security/azure-key-vaults?fields=*'

# The response:
{
  "records": [
    {
      "configuration": {
        "uuid": "024cd3cf-9a08-11ea-8d52-005056bbeba5",
        "name" : "default"
      },
      "uuid": "024cd3cf-9a08-11ea-8d52-005056bbeba5",
      "scope": "svm",
      "svm": {
        "uuid": "4f7abf4c-9a07-11ea-8d52-005056bbeba5",
        "name": "vs0"
      },
      "client_id": "client1",
      "tenant_id": "tenant1",
      "name": "https://mykeyvault.azure.vault.net/",
      "key_id": "https://keyvault-
test.vault.azure.net/keys/key1/a8e619fd8f234db3b0b95c59540e2a74",
      "authentication_method": "client_secret",
      "enabled": true,
      "_links": {
        "self": {
          "href": "/api/security/azure-key-vaults/024cd3cf-9a08-11ea-8d52-
005056bbeba5"
        }
      }
    },
    {
      "configuration": {
        "uuid": "85619643-9a06-11ea-8d52-005056bbeba5",
        "name" : "new-config"
      },
      "uuid": "85619643-9a06-11ea-8d52-005056bbeba5",
      "scope": "cluster",
      "client_id": "client1",
      "tenant_id": "tenant1",
      "name": "https://mykeyvault.azure.vault.net/",
      "key_id": "https://keyvault-
test.vault.azure.net/keys/key1/a8e619fd8f234db3b0b95c59540e2a74",
      "authentication_method": "certificate",
      "enabled": false,
      "_links": {
        "self": {

```

```
      "href": "/api/security/azure-key-vaults/85619643-9a06-11ea-8d52-005056bbeba5"
    }
  }
},
"num_records": 2,
"_links": {
  "self": {
    "href": "/api/security/azure-key-vaults?fields=*"
  }
}
}
```

Retrieving a specific AKV configuration

The following example retrieves a specific AKV configuration.


```
# The API:
GET /api/security/azure-key-vaults

# The call:
curl -X GET 'https://<mgmt-ip>/api/security/azure-key-vaults/85619643-9a06-11ea-8d52-005056bbeba5?fields=*'

# The response:
{
  "configuration": {
    "uuid": "85619643-9a06-11ea-8d52-005056bbeba5",
    "name" : "default"
  },
  "uuid": "85619643-9a06-11ea-8d52-005056bbeba5",
  "scope": "cluster",
  "client_id": "client1",
  "tenant_id": "tenant1",
  "name": "https://mykeyvault.azure.vault.net/",
  "key_id": "https://keyvault-
test.vault.azure.net/keys/key1/a8e619fd8f234db3b0b95c59540e2a74",
  "authentication_method": "client_secret",
  "enabled": true,
  "_links": {
    "self": {
      "href": "/api/security/azure-key-vaults/85619643-9a06-11ea-8d52-005056bbeba5"
    }
  }
}
```

Retrieving the advanced properties of a specific, enabled AKV configuration

The following example retrieves the advanced properties of a specific enabled AKV configuration (inactive AKV configurations do not have these advanced properties).

```
# The API:
GET /api/security/azure-key-vaults

# The call:
curl -X GET 'https://<mgmt-ip>/api/security/azure-key-vaults/85619643-9a06-11ea-8d52-005056bbeba5?fields=state,azure_reachability,ekmip_reachability'
{
```

```

"configuration": {
  "uuid": "85619643-9a06-11ea-8d52-005056bbeba5",
  "name" : "default"
},
"uuid": "85619643-9a06-11ea-8d52-005056bbeba5",
"name": "https://10.234.237.18",
"state": {
  "cluster_state": true,
  "message": "",
  "code": "0"
},
"azure_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/azure-key-vaults/85619643-9a06-11ea-8d52-005056bbeba5"
    }
  }
}
}

```

Updating the client secret of a specific AKV configuration

The following example updates the client secret of a specific AKV configuration.

```

# The API:
PATCH /api/security/azure-key-vaults

# The call:
curl -X PATCH 'https://<mgmt-ip>/api/security/azure-key-vaults/85619643-9a06-11ea-8d52-005056bbeba5' -d '{"client_secret": "<NEW-SECRET>" }'

```

Updating the client certificate and key of a specific AKV configuration

The following example updates the client certificate and key of a configured AKV for a specific AKV configuration.

```

# The API:
PATCH /api/security/azure-key-vaults

# The call:
curl -X PATCH 'https://<mgmt-ip>/api/security/azure-key-vaults/85619643-9a06-11ea-8d52-005056bbeba5' -d '{"client_certificate": "<CERTIFICATE-CONTENT>" }'

```

Deleting a specific AKV configuration

The following example deletes a specific, enabled AKV.

```
# The API:
DELETE /api/security/azure-key-vaults

# The call:
curl -X DELETE 'https://<mgmt-ip>/api/security/azure-key-vaults/85619643-9a06-11ea-8d52-005056bbeba5'
```

Restoring the keys for a specific AKV configuration

The following example restores all the keys of a specific AKV configuration.

```
# The API:
POST security/azure-key-vaults/{uuid}/restore

# The call:
curl -X POST 'https://<mgmt-ip>/api/security/azure-key-vaults/85619643-9a06-11ea-8d52-005056bbeba5/restore'

# The response:
{
  "job": {
    "uuid": "6ab6946f-9a0c-11ea-8d52-005056bbeba5",
    "_links": {
      "self": {
        "href": "/api/cluster/jobs/6ab6946f-9a0c-11ea-8d52-005056bbeba5"
      }
    }
  }
}
```

Rekeying the internal key for a specific AKV configuration

The following example rekeys the internal key of a specific AKV configuration.

```
# The API:
POST security/azure-key-vaults/{uuid}/rekey-internal

# The call:
curl -X POST 'https://<mgmt-ip>/api/security/azure-key-vaults/85619643-9a06-11ea-8d52-005056bbeba5/rekey-internal'

# The response:
{
  "job": {
    "uuid": "6ab6946f-9a0c-11ea-8d52-005056bbeba5",
    "_links": {
      "self": {
        "href": "/api/cluster/jobs/6ab6946f-9a0c-11ea-8d52-005056bbeba5"
      }
    }
  }
}
```

Retrieve AKVs configured for all clusters and SVMs

GET /security/azure-key-vaults

Introduced In: 9.8

Retrieves AKVs configured for all clusters and SVMs.

Related ONTAP commands

- security key-manager external azure show
- security key-manager external azure check

Parameters

Name	Type	In	Required	Description
oauth_host	string	query	False	Filter by oauth_host • Introduced in: 9.14
svm.name	string	query	False	Filter by svm.name
svm.uuid	string	query	False	Filter by svm.uuid

Name	Type	In	Required	Description
proxy_type	string	query	False	Filter by proxy_type
azure_reachability.message	string	query	False	Filter by azure_reachability.message
azure_reachability.code	string	query	False	Filter by azure_reachability.code
azure_reachability.reachable	boolean	query	False	Filter by azure_reachability.reachable
client_id	string	query	False	Filter by client_id
proxy_username	string	query	False	Filter by proxy_username
key_id	string	query	False	Filter by key_id
port	integer	query	False	Filter by port • Introduced in: 9.14
state.message	string	query	False	Filter by state.message
state.available	boolean	query	False	Filter by state.available
state.code	string	query	False	Filter by state.code
scope	string	query	False	Filter by scope
authentication_method	string	query	False	Filter by authentication_method • Introduced in: 9.10
uuid	string	query	False	Filter by uuid
proxy_host	string	query	False	Filter by proxy_host

Name	Type	In	Required	Description
tenant_id	string	query	False	Filter by tenant_id
vault_host	string	query	False	Filter by vault_host Introduced in: 9.14
proxy_port	integer	query	False	Filter by proxy_port
configuration.name	string	query	False	Filter by configuration.name Introduced in: 9.14
configuration.uuid	string	query	False	Filter by configuration.uuid Introduced in: 9.14
ekmip_reachability.reachable	boolean	query	False	Filter by ekmip_reachability.reachable
ekmip_reachability.code	string	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
ekmip_reachability.message	string	query	False	Filter by ekmip_reachability.message
skip_verification	boolean	query	False	Filter by skip_verification Introduced in: 9.16

Name	Type	In	Required	Description
enabled	boolean	query	False	Filter by enabled Introduced in: 9.14
verify_host	boolean	query	False	Filter by verify_host Introduced in: 9.14
verify_ip	boolean	query	False	Filter by verify_ip Introduced in: 9.14
name	string	query	False	Filter by name
fields	array[string]	query	False	Specify the fields to return.
max_records	integer	query	False	Limit the number of records returned.
return_timeout	integer	query	False	The number of seconds to allow the call to execute before returning. When iterating over a collection, the default is 15 seconds. ONTAP returns earlier if either max records or the end of the collection is reached. - Default value: 15 - Max value: 120 - Min value: 0
return_records	boolean	query	False	The default is true for GET calls. When set to false, only the number of records is returned. Default value: 1

Name	Type	In	Required	Description
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[azure_key_vault]	

Example response

```
{
  "_links": {
    "next": {
      "href": "/api/resourcelink"
    },
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "num_records": 1,
  "records": [
    {
      "_links": {
        "self": {
          "href": "/api/resourcelink"
        }
      },
      "authentication_method": "client_secret",
      "azure_reachability": {
        "code": "346758",
        "message": "AKV service is not reachable from all nodes -
reason."
      },
      "client_id": "aaaaaaaa-bbbb-aaaa-bbbb-aaaaaaaaaaaa",
      "configuration": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "name": "default",
        "uuid": "1cd8a442-86d1-11e0-aelc-123478563434"
      },
      "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"
    }
}
],
"key_id":
"https://keyvault1.vault.azure.net/keys/key1/12345678901234567890123456789012",
"name": "https://kmip-akv-keyvault.vault.azure.net/",
"oauth_host": "login.microsoftonline.com",
"port": 443,
"proxy_host": "proxy.eng.com",
"proxy_port": 1234,
"proxy_type": "http",
"proxy_username": "proxyuser",
"scope": "string",
"skip_verification": "",
"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"
},
"tenant_id": "zzzzzzzz-yyy-yyy-zzzzzzzzzzzz",
"uuid": "1cd8a442-86d1-11e0-ae1c-123478563412",
"vault_host": "vault.azure.net",
"verify_host": "",
"verify_ip": ""
}
]
}

```

Error

Status: Default

ONTAP Error Response Codes

Error Code	Description
65537549	The Azure Key Vault Key Management Service is unreachable from one or more nodes.
65537551	Top-level internal key protection key (KEK) unavailable on one or more nodes.
65537552	Embedded KMIP server status not available.

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	

azure_reachability

Indicates whether or not the AKV service is reachable from all the 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 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	string	Code corresponding to the status message. Returns a 0 if AKV service is reachable from all nodes in the cluster.
message	string	Error message set when reachability is false.
reachable	boolean	Set to true when the AKV service is reachable from all nodes of the cluster.

configuration

Security keystore object reference.

Name	Type	Description
_links	_links	
name	string	Name of the configuration.

Name	Type	Description
uuid	string	Keystore UUID.

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 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
code	string	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.

state

Indicates whether or not the AKV wrapped internal key 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
available	boolean	Set to true when an AKV wrapped internal key is present on all nodes of the cluster.
code	string	Code corresponding to the status message. Returns a 0 if AKV wrapped key is available on all nodes in the cluster.
message	string	Error message set when top-level internal key protection key (KEK) availability on cluster is false.

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.

azure_key_vault

Name	Type	Description
_links	_links	
authentication_method	string	Authentication method for the AKV instance.

Name	Type	Description
azure_reachability	azure_reachability	Indicates whether or not the AKV service is reachable from all the 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 or an instance GET unless it is explicitly requested using the <code>fields</code> query parameter or GET for all advanced properties is enabled.
client_id	string	Application client ID of the deployed Azure application with appropriate access to an AKV.
configuration	configuration	Security keystore object reference.
ekmip_reachability	array[ekmip_reachability]	
enabled	boolean	Indicates whether the configuration is enabled.
key_id	string	Key Identifier of AKV key encryption key.
name	string	Name of the deployed AKV that will be used by ONTAP for storing keys. • example: https://kmip-akv-keyvault.vault.azure.net/ • format: uri • Introduced in: 9.8 • readCreate: 1 • x-nullable: true
oauth_host	string	Open authorization server host name.
port	integer	Authorization server and vault port number.
proxy_host	string	Proxy host.

Name	Type	Description
proxy_port	integer	Proxy port.
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".
skip_verification	boolean	Set to true to skip the verification of the updated user credentials when updating credentials. The default value is false.
state	state	Indicates whether or not the AKV wrapped internal key 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.
tenant_id	string	Directory (tenant) ID of the deployed Azure application with appropriate access to an AKV.
uuid	string	A unique identifier for the Azure Key Vault (AKV).
vault_host	string	AKV host subdomain.
verify_host	boolean	Verify the identity of the AKV host name.
verify_ip	boolean	Verify the identity of the AKV IP address.

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.

Create an AKV configuration for all clusters and SVMs

POST /security/azure-key-vaults

Introduced In: 9.8

Configures the AKV configuration for all clusters and SVMs.

Required properties:

- `svm.uuid` or `svm.name` - Existing SVM in which to create a AKV.
- `client_id` - Application (client) ID of the deployed Azure application with appropriate access to an AKV.
- `tenant_id` - Directory (tenant) ID of the deployed Azure application with appropriate access to an AKV.
- `client_secret` or `client_certificate` - Secret or PKCS12 Certificate used by the application to prove its identity to AKV.
- `key_id` - Key Identifier of AKV encryption key.
- `name` - Name of the deployed AKV used by ONTAP for storing keys.

Optional properties:

- `port` - Authorization server and vault port number.
- `oauth_host` - Open authorization server host name.
- `vault_host` - AKV host subdomain.
- `proxy_type` - Type of proxy (http, https etc.) 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.
- `configuration.name` - The configuration name to use when also setting the `create_inactive` flag.

Optional parameters:

- `create_inactive` - Create an AKV configuration without enabling it. This flag is set to "false" by default.

Related ONTAP commands

- `security key-manager external azure enable`
- `security key-manager external azure create-config`
- `security key-manager external azure update-config`

Parameters

Name	Type	In	Required	Description
<code>create_inactive</code>	boolean	query	False	Indicates whether to create an active or inactive configuration. • Introduced in: 9.16

Name	Type	In	Required	Description
return_timeout	integer	query	False	The number of seconds to allow the call to execute before returning. When doing a POST, PATCH, or DELETE operation on a single record, the default is 0 seconds. This means that if an asynchronous operation is started, the server immediately returns HTTP code 202 (Accepted) along with a link to the job. If a non-zero value is specified for POST, PATCH, or DELETE operations, ONTAP waits that length of time to see if the job completes so it can return something other than 202. • Default value: 0 • Max value: 120 • Min value: 0
return_records	boolean	query	False	The default is false. If set to true, the records are returned. • Default value:

Request Body

Name	Type	Description
_links	_links	
authentication_method	string	Authentication method for the AKV instance.

Name	Type	Description
azure_reachability	azure_reachability	Indicates whether or not the AKV service is reachable from all the 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 or an instance GET unless it is explicitly requested using the <code>fields</code> query parameter or GET for all advanced properties is enabled.
client_certificate	string	PKCS12 Certificate used by the application to prove its identity to AKV.
client_id	string	Application client ID of the deployed Azure application with appropriate access to an AKV.
client_secret	string	Secret used by the application to prove its identity to AKV.
configuration	configuration	Security keystore object reference.
ekmip_reachability	array[ekmip_reachability]	
enabled	boolean	Indicates whether the configuration is enabled.
key_id	string	Key Identifier of AKV key encryption key.
name	string	Name of the deployed AKV that will be used by ONTAP for storing keys. • example: https://kmip-akv-keyvault.vault.azure.net/ • format: uri • Introduced in: 9.8 • readCreate: 1 • x-nullable: true
oauth_host	string	Open authorization server host name.

Name	Type	Description
port	integer	Authorization server and vault port number.
proxy_host	string	Proxy host.
proxy_password	string	Proxy password. Password is not audited.
proxy_port	integer	Proxy port.
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".
skip_verification	boolean	Set to true to skip the verification of the updated user credentials when updating credentials. The default value is false.
state	state	Indicates whether or not the AKV wrapped internal key 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.
tenant_id	string	Directory (tenant) ID of the deployed Azure application with appropriate access to an AKV.
uuid	string	A unique identifier for the Azure Key Vault (AKV).
vault_host	string	AKV host subdomain.

Example request

```
{
  "authentication_method": "client_secret",
  "azure_reachability": {
    "code": "346758",
    "message": "AKV service is not reachable from all nodes - reason."
  },
  "client_certificate": "<CERTIFICATE-CONTENT>",
  "client_id": "aaaaaaaa-bbbb-aaaa-bbbb-aaaaaaaaaaaa",
  "client_secret": "abcdef",
  "configuration": {
    "name": "default",
    "uuid": "1cd8a442-86d1-11e0-ae1c-123478563434"
  },
  "ekmip_reachability": [
    {
      "code": "346758",
      "message": "embedded KMIP server status unavailable on node.",
      "node": {
        "name": "node1",
        "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
      }
    }
  ],
  "key_id":
  "https://keyvault1.vault.azure.net/keys/key1/12345678901234567890123456789012",
  "name": "https://kmip-akv-keyvault.vault.azure.net/",
  "oauth_host": "login.microsoftonline.com",
  "port": 443,
  "proxy_host": "proxy.eng.com",
  "proxy_password": "proxypassword",
  "proxy_port": 1234,
  "proxy_type": "http",
  "proxy_username": "proxyuser",
  "scope": "string",
  "skip_verification": "",
  "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": {
```

```
    "name": "svm1",
    "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
  },
  "tenant_id": "zzzzzzzz-yyyy-zzzz-yyyy-zzzzzzzzzzzz",
  "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412",
  "vault_host": "vault.azure.net",
  "verify_host": "",
  "verify_ip": ""
}
```

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
3735553	Failed to create self-signed certificate.
3735664	The specified key size is not supported in FIPS mode.
3735665	The specified hash function is not supported in FIPS mode.
3735700	The specified key size is not supported.
52559972	The certificates start date is later than the current date.
65537500	A key manager has already been configured for this SVM.
65537504	Internal error. Failed to store configuration in internal database.
65537505	One or more volume encryption keys of the given SVM are stored on a key manager configured for the admin SVM.
65537506	AKV is not supported in MetroCluster configurations.
65537512	AKV cannot be configured for the given SVM as not all nodes in the cluster can enable the Azure Key Vault feature.
65537514	Failed to check if the Azure Key Vault feature is enabled.
65537518	Failed to find an interface with Cluster role.
65537523	Invalid key ID format. Example key ID format: "https://mykeyvault.vault.azure.net/keys/key1/a8e619fd8f234db3b0b95c59540e2a74".
65537526	Failed to enable Azure Key Vault feature.
65537567	No authentication method provided.
65537573	Invalid client certificate.
65537589	The specified configuration.name already exists on the given SVM.
65537592	The configuration.name field requires an ECV of 9.14.0 or greater.
65537593	The create_inactive flag requires an effective cluster version of 9.14.0 or greater.
65537594	The configuration.name field is required when the create_inactive flag is set to true.
65537595	The configuration.name field can only be specified when the create_inactive flag is set to true.

Error Code	Description
65538902	The configuration.name is reserved for use by the system.
65538903	The configuration.name field cannot be an empty string.
65539704	The key manager cannot be configured because the SVM has NAE volumes.

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

azure_reachability

Indicates whether or not the AKV service is reachable from all the 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 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	string	Code corresponding to the status message. Returns a 0 if AKV service is reachable from all nodes in the cluster.
message	string	Error message set when reachability is false.
reachable	boolean	Set to true when the AKV service 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.

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 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
code	string	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.

state

Indicates whether or not the AKV wrapped internal key 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
available	boolean	Set to true when an AKV wrapped internal key is present on all nodes of the cluster.
code	string	Code corresponding to the status message. Returns a 0 if AKV wrapped key is available on all nodes in the cluster.
message	string	Error message set when top-level internal key protection key (KEK) availability on cluster is false.

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.

azure_key_vault

Name	Type	Description
_links	_links	
authentication_method	string	Authentication method for the AKV instance.
azure_reachability	azure_reachability	Indicates whether or not the AKV service is reachable from all the 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 or an instance GET unless it is explicitly requested using the <code>fields</code> query parameter or GET for all advanced properties is enabled.
client_certificate	string	PKCS12 Certificate used by the application to prove its identity to AKV.
client_id	string	Application client ID of the deployed Azure application with appropriate access to an AKV.
client_secret	string	Secret used by the application to prove its identity to AKV.
configuration	configuration	Security keystore object reference.
ekmip_reachability	array[ekmip_reachability]	
enabled	boolean	Indicates whether the configuration is enabled.

Name	Type	Description
key_id	string	Key Identifier of AKV key encryption key.
name	string	Name of the deployed AKV that will be used by ONTAP for storing keys. • example: https://kmip-akv-keyvault.vault.azure.net/ • format: uri • Introduced in: 9.8 • readCreate: 1 • x-nullable: true
oauth_host	string	Open authorization server host name.
port	integer	Authorization server and vault port number.
proxy_host	string	Proxy host.
proxy_password	string	Proxy password. Password is not audited.
proxy_port	integer	Proxy port.
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".
skip_verification	boolean	Set to true to skip the verification of the updated user credentials when updating credentials. The default value is false.

Name	Type	Description
state	state	Indicates whether or not the AKV wrapped internal key 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.
tenant_id	string	Directory (tenant) ID of the deployed Azure application with appropriate access to an AKV.
uuid	string	A unique identifier for the Azure Key Vault (AKV).
vault_host	string	AKV host subdomain.

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

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

Re-key the external key in the key hierarchy

POST /security/azure-key-vaults/{azure_key_vault.uuid}/rekey-external

Introduced In: 9.11

Rekeys the external key in the key hierarchy for an SVM with an AKV configuration.

Required properties

- `key_id` - Key identifier of the new AKV key encryption key.

Related ONTAP commands

- `security key-manager external azure rekey-external`

Parameters

Name	Type	In	Required	Description
azure_key_vault.uuid	string	path	True	UUID of the existing AKV configuration.

Name	Type	In	Required	Description
return_timeout	integer	query	False	The number of seconds to allow the call to execute before returning. When doing a POST, PATCH, or DELETE operation on a single record, the default is 0 seconds. This means that if an asynchronous operation is started, the server immediately returns HTTP code 202 (Accepted) along with a link to the job. If a non-zero value is specified for POST, PATCH, or DELETE operations, ONTAP waits that length of time to see if the job completes so it can return something other than 202. • Default value: 0 • Max value: 120 • Min value: 0
return_records	boolean	query	False	The default is false. If set to true, the records are returned. • Default value:

Request Body

Name	Type	Description
key_id	string	Key identifier of the AKV key encryption key.

Example request

```
{
  "key_id":
  "https://keyvault1.vault.azure.net/keys/key1/12345678901234567890123456789012"
}
```

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
65537120	Azure Key Vault is not configured for the given SVM.

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.
65537610	Rekey cannot be performed on the SVM 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 for the SVM. Use the REST API PATCH method <code>"/api/security/key-stores/{uuid}"</code> to re-run and complete the operation.
65539436	Rekey cannot be performed on the SVM 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 on the SVM while the enabled keystore configuration is being disabled.

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

Definitions

See Definitions

azure_key_vault_key

Name	Type	Description
key_id	string	Key identifier of the AKV key encryption key.

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.

Delete an AKV configuration

DELETE /security/azure-key-vaults/{uuid}

Introduced In: 9.8

Deletes an AKV configuration.

Related ONTAP commands

- security key-manager external azure disable

Parameters

Name	Type	In	Required	Description
uuid	string	path	True	AKV UUID
return_timeout	integer	query	False	The number of seconds to allow the call to execute before returning. When doing a POST, PATCH, or DELETE operation on a single record, the default is 0 seconds. This means that if an asynchronous operation is started, the server immediately returns HTTP code 202 (Accepted) along with a link to the job. If a non-zero value is specified for POST, PATCH, or DELETE operations, ONTAP waits that length of time to see if the job completes so it can return something other than 202. • Default value: 0 • Max value: 120 • Min value: 0

Response

Status: 200, Ok

Response

Status: 202, Accepted

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 key manager is safe to disable.
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 NSE authentication keys.
65537120	Azure Key Vault is not configured for the given 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.

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

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 AKV configuration for an SVM specified by the UUID

GET /security/azure-key-vaults/{uuid}

Introduced In: 9.8

Retrieves the AKV configuration for the SVM specified by the UUID.

Related ONTAP commands

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

Parameters

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

Response

Status: 200, Ok

Name	Type	Description
_links	_links	
authentication_method	string	Authentication method for the AKV instance.
azure_reachability	azure_reachability	Indicates whether or not the AKV service is reachable from all the 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 or an instance GET unless it is explicitly requested using the <code>fields</code> query parameter or GET for all advanced properties is enabled.
client_id	string	Application client ID of the deployed Azure application with appropriate access to an AKV.
configuration	configuration	Security keystore object reference.
ekmip_reachability	array[ekmip_reachability]	
enabled	boolean	Indicates whether the configuration is enabled.
key_id	string	Key Identifier of AKV key encryption key.
name	string	Name of the deployed AKV that will be used by ONTAP for storing keys. • example: https://kmip-akv-keyvault.vault.azure.net/ • format: uri • Introduced in: 9.8 • readCreate: 1 • x-nullable: true

Name	Type	Description
oauth_host	string	Open authorization server host name.
port	integer	Authorization server and vault port number.
proxy_host	string	Proxy host.
proxy_port	integer	Proxy port.
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".
skip_verification	boolean	Set to true to skip the verification of the updated user credentials when updating credentials. The default value is false.
state	state	Indicates whether or not the AKV wrapped internal key 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.
tenant_id	string	Directory (tenant) ID of the deployed Azure application with appropriate access to an AKV.
uuid	string	A unique identifier for the Azure Key Vault (AKV).
vault_host	string	AKV host subdomain.

Name	Type	Description
verify_host	boolean	Verify the identity of the AKV host name.
verify_ip	boolean	Verify the identity of the AKV IP address.

Example response

```
{
  "_links": {
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "authentication_method": "client_secret",
  "azure_reachability": {
    "code": "346758",
    "message": "AKV service is not reachable from all nodes - reason."
  },
  "client_id": "aaaaaaaa-bbbb-aaaa-bbbb-aaaaaaaaaaaa",
  "configuration": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "name": "default",
    "uuid": "1cd8a442-86d1-11e0-ae1c-123478563434"
  },
  "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"
      }
    }
  ],
  "key_id":
  "https://keyvault1.vault.azure.net/keys/key1/12345678901234567890123456789012",
  "name": "https://kmip-akv-keyvault.vault.azure.net/",
  "oauth_host": "login.microsoftonline.com",
  "port": 443,
  "proxy_host": "proxy.eng.com",
  "proxy_port": 1234,
```

```

"proxy_type": "http",
"proxy_username": "proxyuser",
"scope": "string",
"skip_verification": "",
"state": {
  "code": "346758",
  "message": "Top-level internal key protection key (KEK) is
unavailable on the following nodes with the associated reasons: Node:
nodel. 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"
},
"tenant_id": "zzzzzzzz-yyyy-zzzz-yyyy-zzzzzzzzzzzz",
"uuid": "1cd8a442-86d1-11e0-ae1c-123478563412",
"vault_host": "vault.azure.net",
"verify_host": "",
"verify_ip": ""
}

```

Error

Status: Default

ONTAP Error Response Codes

Error Code	Description
65537549	The Azure Key Vault Key Management Service is unreachable from one or more nodes.
65537551	Top-level internal key protection key (KEK) unavailable on one or more nodes.
65537552	Embedded KMIP server status not available.

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	

azure_reachability

Indicates whether or not the AKV service is reachable from all the 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 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	string	Code corresponding to the status message. Returns a 0 if AKV service is reachable from all nodes in the cluster.
message	string	Error message set when reachability is false.
reachable	boolean	Set to true when the AKV service 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.

node

Name	Type	Description
_links	_links	

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 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
code	string	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.

state

Indicates whether or not the AKV wrapped internal key 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
available	boolean	Set to true when an AKV wrapped internal key is present on all nodes of the cluster.
code	string	Code corresponding to the status message. Returns a 0 if AKV wrapped key is available on all nodes in the cluster.

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

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
message	string	Error message
target	string	The target parameter that caused the error.

Update the AKV configuration

PATCH /security/azure-key-vaults/{uuid}

Introduced In: 9.8

Updates the AKV configuration.

Optional properties

- `client_secret` or `client_certificate` - New secret or new PKCS12 certificate used to prove the application's identity to the AKV.
- `proxy_type` - Type of proxy (http, https etc.) if proxy configuration is used.
- `proxy_host` - Proxy hostname if proxy configuration is used.
- `proxy_port` - Proxy port number if proxy configuration is used.
- `port` - Authorization server and vault port number.
- `oauth_host` - Open authorization server host name.
- `vault_host` - AKV host subdomain.
- `verify_host` - Verify the identity of the AKV host name.
- `verify_ip` - Verify the identity of the AKV IP address.
- `proxy_username` - Proxy username if proxy configuration is used.
- `proxy_password` - Proxy password if proxy configuration is used.
- `client_id` - Application (client) ID of the deployed Azure application with appropriate access to an AKV.
- `tenant_id` - Directory (tenant) ID of the deployed Azure application with appropriate access to an AKV.
- `skip_verification` - Skip the verification of the updated credentials, set to true to bypass the verification. The default value is false.

Related ONTAP commands

- `security key-manager external azure update-client-secret`
- `security key-manager external azure update-credentials`
- `security key-manager external azure update-config`

Parameters

Name	Type	In	Required	Description
uuid	string	path	True	AKV UUID

Name	Type	In	Required	Description
return_timeout	integer	query	False	The number of seconds to allow the call to execute before returning. When doing a POST, PATCH, or DELETE operation on a single record, the default is 0 seconds. This means that if an asynchronous operation is started, the server immediately returns HTTP code 202 (Accepted) along with a link to the job. If a non-zero value is specified for POST, PATCH, or DELETE operations, ONTAP waits that length of time to see if the job completes so it can return something other than 202. • Default value: 0 • Max value: 120 • Min value: 0

Request Body

Name	Type	Description
_links	_links	
authentication_method	string	Authentication method for the AKV instance.

Name	Type	Description
azure_reachability	azure_reachability	Indicates whether or not the AKV service is reachable from all the 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 or an instance GET unless it is explicitly requested using the <code>fields</code> query parameter or GET for all advanced properties is enabled.
client_certificate	string	PKCS12 Certificate used by the application to prove its identity to AKV.
client_id	string	Application client ID of the deployed Azure application with appropriate access to an AKV.
client_secret	string	Secret used by the application to prove its identity to AKV.
ekmip_reachability	array[ekmip_reachability]	
enabled	boolean	Indicates whether the configuration is enabled.
oauth_host	string	Open authorization server host name.
port	integer	Authorization server and vault port number.
proxy_host	string	Proxy host.
proxy_password	string	Proxy password. Password is not audited.
proxy_port	integer	Proxy port.
proxy_type	string	Type of proxy.
proxy_username	string	Proxy username.

Name	Type	Description
scope	string	Set to "svm" for interfaces owned by an SVM. Otherwise, set to "cluster".
skip_verification	boolean	Set to true to skip the verification of the updated user credentials when updating credentials. The default value is false.
state	state	Indicates whether or not the AKV wrapped internal key 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.
tenant_id	string	Directory (tenant) ID of the deployed Azure application with appropriate access to an AKV.
uuid	string	A unique identifier for the Azure Key Vault (AKV).
vault_host	string	AKV host subdomain.
verify_host	boolean	Verify the identity of the AKV host name.
verify_ip	boolean	Verify the identity of the AKV IP address.

Example request

```
{
  "authentication_method": "client_secret",
  "azure_reachability": {
    "code": "346758",
    "message": "AKV service is not reachable from all nodes - reason."
  },
  "client_certificate": "<CERTIFICATE-CONTENT>",
  "client_id": "aaaaaaaa-bbbb-aaaa-bbbb-aaaaaaaaaaaa",
  "client_secret": "abcdef",
  "ekmip_reachability": [
    {
      "code": "346758",
      "message": "embedded KMIP server status unavailable on node.",
      "node": {
        "name": "node1",
        "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
      }
    }
  ],
  "oauth_host": "login.microsoftonline.com",
  "port": 443,
  "proxy_host": "proxy.eng.com",
  "proxy_password": "proxypassword",
  "proxy_port": 1234,
  "proxy_type": "http",
  "proxy_username": "proxyuser",
  "scope": "string",
  "skip_verification": "",
  "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."
  },
  "tenant_id": "zzzzzzzz-yyyy-zzzz-yyyy-zzzzzzzzzzzz",
  "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412",
  "vault_host": "vault.azure.net",
  "verify_host": "",
  "verify_ip": ""
}
```

Response

Status: 200, Ok

Response

Status: 202, Accepted

Error

Status: Default

ONTAP Error Response Codes

Error Code	Description
65537120	Azure Key Vault is not configured for the given SVM.
65537504	Internal error. Failed to store configuration in internal database.
65537517	The field "client_secret" must be specified.
65537540	Invalid client secret.
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.
65537573	Invalid client certificate.
65537577	The AKV certificate authentication method cannot be configured for the given SVM as not all nodes in the cluster support the AKV certificate authentication.

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

azure_reachability

Indicates whether or not the AKV service is reachable from all the 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 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	string	Code corresponding to the status message. Returns a 0 if AKV service is reachable from all nodes in the cluster.
message	string	Error message set when reachability is false.
reachable	boolean	Set to true when the AKV service 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.

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 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
code	string	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.

state

Indicates whether or not the AKV wrapped internal key 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
available	boolean	Set to true when an AKV wrapped internal key is present on all nodes of the cluster.
code	string	Code corresponding to the status message. Returns a 0 if AKV wrapped key is available on all nodes in the cluster.
message	string	Error message set when top-level internal key protection key (KEK) availability on cluster is false.

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.

azure_key_vault

Name	Type	Description
_links	_links	
authentication_method	string	Authentication method for the AKV instance.
azure_reachability	azure_reachability	Indicates whether or not the AKV service is reachable from all the 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 or an instance GET unless it is explicitly requested using the <code>fields</code> query parameter or GET for all advanced properties is enabled.
client_certificate	string	PKCS12 Certificate used by the application to prove its identity to AKV.
client_id	string	Application client ID of the deployed Azure application with appropriate access to an AKV.
client_secret	string	Secret used by the application to prove its identity to AKV.
ekmip_reachability	array[ekmip_reachability]	
enabled	boolean	Indicates whether the configuration is enabled.
oauth_host	string	Open authorization server host name.

Name	Type	Description
port	integer	Authorization server and vault port number.
proxy_host	string	Proxy host.
proxy_password	string	Proxy password. Password is not audited.
proxy_port	integer	Proxy port.
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".
skip_verification	boolean	Set to true to skip the verification of the updated user credentials when updating credentials. The default value is false.
state	state	Indicates whether or not the AKV wrapped internal key 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.
tenant_id	string	Directory (tenant) ID of the deployed Azure application with appropriate access to an AKV.
uuid	string	A unique identifier for the Azure Key Vault (AKV).
vault_host	string	AKV host subdomain.
verify_host	boolean	Verify the identity of the AKV host name.

Name	Type	Description
verify_ip	boolean	Verify the identity of the AKV IP address.

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.

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

POST /security/azure-key-vaults/{uuid}/rekey-internal

Introduced In: 9.10

Rekeys the internal key in the key hierarchy for an SVM with an AKV configuration.

Related ONTAP commands

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

Parameters

Name	Type	In	Required	Description
uuid	string	path	True	UUID of the existing AKV configuration.

Name	Type	In	Required	Description
return_timeout	integer	query	False	The number of seconds to allow the call to execute before returning. When doing a POST, PATCH, or DELETE operation on a single record, the default is 0 seconds. This means that if an asynchronous operation is started, the server immediately returns HTTP code 202 (Accepted) along with a link to the job. If a non-zero value is specified for POST, PATCH, or DELETE operations, ONTAP waits that length of time to see if the job completes so it can return something other than 202. • Default value: 0 • Max value: 120 • Min value: 0
return_records	boolean	query	False	The default is false. If set to true, the records are returned. • 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
65537120	Azure Key Vault is not configured for the given SVM.
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.
65537610	Rekey cannot be performed on the SVM 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 for the SVM. Use the REST API PATCH method <code>/api/security/key-stores/{uuid}</code> to re-run and complete the operation.
65539436	Rekey cannot be performed on the SVM while the enabled keystore configuration is being initialized. Wait until the keystore is in the active state, and rerun the rekey operation.

Error Code	Description
65539437	Rekey cannot be performed on the SVM while the enabled keystore configuration is being disabled.

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 keys for an SVM from a configured AKV

POST /security/azure-key-vaults/{uuid}/restore

Introduced In: 9.10

Restore the keys for an SVM from a configured AKV.

Related ONTAP commands

- `security key-manager external azure restore`

Parameters

Name	Type	In	Required	Description
uuid	string	path	True	UUID of the existing AKV configuration.
return_timeout	integer	query	False	The number of seconds to allow the call to execute before returning. When doing a POST, PATCH, or DELETE operation on a single record, the default is 0 seconds. This means that if an asynchronous operation is started, the server immediately returns HTTP code 202 (Accepted) along with a link to the job. If a non-zero value is specified for POST, PATCH, or DELETE operations, ONTAP waits that length of time to see if the job completes so it can return something other than 202. • Default value: 0 • Max value: 120 • Min value: 0

Name	Type	In	Required	Description
return_records	boolean	query	False	The default is false. If set to true, the records are returned. • 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
65537120	Azure Key Vault is not configured for the given SVM.
65537515	Failed to restore keys on some nodes in the cluster.
65537544	Missing wrapped top-level internal key protection key (KEK) from internal database.

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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