



Manage Azure Key Vaults

ONTAP 9.10.1 REST API Documentation

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January 31, 2025

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Manage Azure Key Vaults

Security azure-key-vaults endpoint overview

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

Creating an AKV for a cluster using the client secret authentication method

The example AKV is configured at the cluster-scope. Note the *return_records=true* query parameter is used to obtain the newly created key manager 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 "{
\"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",
      "client_id": "client1",
      "tenant_id": "tenant1",
      "name": "https://mykeyvault.azure.vault.net/",
      "key_id": "https://keyvault-test.vault.azure.net/keys/key1",
      "_links": {
        "self": {
          "href": "/api/security/azure-key-vaults/85619643-9a06-11ea-8d52-
005056bbeba5"
        }
      }
    }
  ]
}

```

Creating an AKV for an SVM using the certificate authentication method

The example AKV is configured for a specific SVM. Note the *return_records=true* query parameter is used to obtain the newly created key manager 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.azure.vault.net/\\", \\"key_id\\": \\"https://keyvault-  
test.vault.azure.net/keys/key1\\", \\"client_certificate\\" :  
\\\"MIIQKQIBAZCCD+8GCSqGSIb3DQEHAaCCD+AEgg/cMIIP2DCCBg8GCSqGSIb3DQEBqCCBgAw  
ggX8AgEAMIIIF9QYJKoZIhvcNAQcBMBwGCiqGSIb3DQEMAQYwDgQIWKY7ojViJDYCAggAgIIFyJ  
PjIfmM6yTCKVw5ep2oZLwwvRca8pKhISVjw+WjWngh/f6Py/Ty0CwCjDFUZPsUUdSmk78E7SAz  
0CpQyBwmUuFJQShjZjftHLKRWld3O4sJKB8DzH9Yw1C7En94cyJ1rT4WYoVFmeJcmOXx6h+NFH  
c7njtXVsKwxc5BF88K3+3kHdV3WyVdXoeXe7yY/+EjFfjtBryp8ljuielX/NFlh5kowhoj+yxn  
00c1/0OI1iV3mTIOTXD8qrZVp9ZhAxSTRBd5uDuYWMfppqxW2L+9vCUU+ZgmRxtU3VsRLOp/T14  
0OP7Sn1Ch2OE0bIrbYYtcbpi04QcUtefEJBM1bbTbJPHDAtiO2KIQKviZL4QMZgho9NNGl4MUpIb  
NSzDCbuIC+nNMxfGfs0nPZewY+b43H/tMmnZ8Q4kiCFwrUqbFbflBiPMOaJsS0eQaJhDmzM90Q  
EgbesHWgPreAcfMUCn1+BaqHFLHUxLXDxQix6zYiCatDX6/EKlirRh1TFpmFX2PBd+X6uODhmw  
m4ub9RKj3In8t5qgtN4q/mTBXjAVDAbTIIeGobBRaXGSSXCBC9W/jRed0DRZD9Bm8T/nV39sZN  
ducwZa5ojYTX8fFMA0cfY6IFivXHjB00coHEEGdgCfC0G8vACqLbb+2NuhMJPtR7Iq50iAPUMc  
670Z5ItOTQhyYOZ/KagOtvV8sKPCzeAkcMoHlsm189V79zt1fCJQTVWnaGiMj50rcbskk6vCxh  
DGeU6q1kgvXJKXOYRF8/wIpv8Y7/rEpnGwE/I0ZOxzdIDHXqA53B1zyOVem25ezWCD+kpoH89X  
JssY1NjIMJhjVRED61w/DbSXg2yFu/v3ckGapVvTuyAiz5hWUNfl3pt++da6GoekKnLqtL4G/R  
GXCnebLbXg838dlTGBznoCwGTVxXDeVYaFz8AjI10qYtTMcbN56ya9kK7IHSkrnFX24xQRQOfm  
D0Vob71pjdZ8r1aXKvD/1X2TkYJHoeEHq0nWpU8vwdG/xhv4YgKJGN9qsEZgiTXETUh5gak8e1  
tGNkP+fum+10q105oS+Swna5/eB8eFeJl2Oi48Xi5UapaTRHPFp6kZfPXOu9ceJhILowRIi6gl  
g7FUbmOJcu5OvDIyP9JlyQklw2VtgNlm1QOIvzRenXmy18XnP50NTxx2cIwby8tIcdSn2C2qhj  
8Gk7q8oxVZGiBgtz4BwyzyKkypwm60BBRrHpAKLw6JM5RISeZnYQfIsId0tGgb61go0RJf0sFt  
buvZcSvLI+2Onj8KH1TlmmR4dbuCWEE9Ym4sVRmD1D6/f6BoNH0DRg7TJkEFbOadJsNPGzHbKte  
LdaSMGTNUZ3hEDQeomakQMfvCgypbOLxrTTqfbenHRTn+iFNYW0zCUW6EJoAXp+lqFnwQL52I1  
2QxwZike01P2k0GharzAJkXnNaFGnmHIIP6wJrCCSDZwDmr7GI2R5evDlRi17QUg2sulxQV0U8  
zezzwIUgEe/Whf0ngGJv/QcsL2jyri/tSQbUWs4g+yep4S1E3iddhfqSJzI2iKdAE+HLiHGVO1  
z70fGEs06dPLnmh4eoWidgZi9N/SoBy1aT0JpIQ6z6N5ImpFDWu9Y6TWXUg1iyOIXGsXIQVIgU  
NoB5Ru/ApDxpYpFLk0fh9k9OnEWK5Im33puOQKLno1uwrOmdBG8+x1EY8wc9FvkHGH0Zh4Hydi  
CVUcYSdiGWUxVmgm4OgyiYzcpB+Ar2dzikGc4pBg8fa1a1HN5Q3TK3w4h/HeOulm4vWOYuVO1  
H93ILGP6Pwfkgug+1Tam6+8yD0W5meiz0UIZR8TF/9gDb4+4wTFnPgwfTrggEauA8tt8uJtiyBC  
rYexgZTXIZGTUj/86KXQaJKCreRr/kqWJOWqkNW4CGUVzw7LiI+sArOZqUp/TsxnbcNC73XCMN1  
PsnByb2zCeK13V26Crl84U9sDuqQTRaIse01MN9AAjpa2QWEwggnBBgkqhkiG9w0BBwGggmy  
BIIJrjCCCaowggmmBgsqhkig9w0BDAoBAqCCCW4wgg1qMBwGCiqGSIb3DQEMAQMwDgQIEjm88b  
1+pnkCAGgABIIJSDD3P+vn11So1mQvmYgZVfV37T3KpurJvMxQScPvalWiF7Q1Iwasf/+N0hKK  
Nr2j/aGZLunLkaG6mLPeBP212LCwnUxDu5kYffVVE90WX/bXewbYQribwFNkNhUrSgen8BfhnR  
lvDrzbBLoHIvDrUFszSVBCYh31Vwgu8p9SjC8K/XlumcLdjSFko85XpoK23euhowjWH+X0kRoY  
GzorcdNE8z03BKvfr61W2XWzTSaWQ6eZHG6UrnX5Fe/w50U9tMIi3BCCCqgapUHVdmHqKkmWL  
ikX8LssUcn30JVeK2aJ9v4Y06CoegKAMVDS0tVSov3KbGC3GNX6lgHu4y1LOZP1PLfPXb0wDH  
qavlXK3zpHl8sIRzuX3HXSdEdenHYAkSV/IQZ89h+CZUkf0nu/og8eoA8ATDA5g7fj3HXpQ6cY  
drUBaHc7ruxHOiWR0GcT4XK4TTz7zZTO1wWPViprUo6ayw0dYZSG22MeDA027YirM044Ifosn9  
CsqnNLZoOwvA2ao4ippDoBRqv5Hv6n0I3fOAYS5nPq3jJtKQ5neqUYo0MrAkoKHo0h6zn0Bfvi  
syB88aM9N0mPD76ykbAERq7151biKba2tk8bb9dy/sJmk2ojM/D/W1YtrNL4iM6azL2kVN5eiC  
hxCof33/RuRpXfGR8YNeJTl7bq42wL70QKDBRoG1TPcLqdVqz74oshlRspfqvZsbsUatbASBt2  
T0YG4zfgfGh7sb2ezyougVvzdp77wAJ6n39dc/ZLDdYDzFkQb07984y8LlhIM1AcwFcMh43gWp  
6A8CJ02174ednirSqSVOPZ7K9dRw6Y0X8MB4/WGzEcvFeHYIGLBCXi1sBY5wjWnbeuhlWLiSkM  
DQRB6oGOvF7bJsilKx5PwgWbbqw8KUSuU01skbMAA5T8Hkm40iStf2a78E0zIKLGZg7yu9FDII
```

tWYWOkG96MXEBAdOuH+wWYmaEexh51ONrffWkDuDMZ7MO20TTEQU8oQdjRRoAofXvTcj22GSM
TY6XleskZX2ZKxSQdD1tCtkjGRKHSTYza3zLHbBiJTIJw4z6sw9FyTTApG66UAKntiMa1r9nqT
TNaxRWEXMEQVRLzAL2F9aqjgW65xrbYXu/J9Y/SYtCYbX2SRA/JkQ+Y8F68K0oS1pvK1p5/FcE
DvprTND54lf+aj3HNWuK5wOsrpBhMlb2Ifluk/9QwPh9IC/RhHRfimyTPRXAf73cehNdp8DpKw
Lm+jr30vazFwICpvSbi6Etb6GXfPkKaX7ztpQBqG92m2/0g3LWfPtilzwrPHPBz8y1qQMU268D
oo8YvWtI4KGaDAFb6XQhR6t6mqoq/3IP6/g//PZVEnSyUVsPLDJ1LF9fiOwTbMZnaiscKv8SGE
s//B9JkKrdSrrQRZcnnPjJnJLILblRVAZGuXpSKSYVPzYmOjUx3sSeLSiPoSOcqRIJ0X3s4ED0
92W3tr4ZXK3fnkFyrIVtrJsB3k/2smiQ6Pc1VuKHh1yTzYjXKRQcDaY3EDP9IWftjiUfZQoZci
jMwT6YXim23m2aN2Ed8qIedikR6OjFHE4Kus/2yegTszSs5CrM7NamKWzeIeNNth/cTcmT++GD
umsGNTBAsHHSq1KYpqLi4GKLHzU7WNCQRdAcIDEvMZH/CHlmZK7bzb9z038rPf/D5WZrcK1ttD
5BjTJjj7GerS0xLkvYIklaJqurjMdWYmQtT4JAHF90/zRKqFFVpSiW074brQ+PfaLI5C+TwoX5
lYD+R91A0qyGKIkJFITa8hZFY+Up+rSuREqnpAvdAVL9/gLPF6I+5+D+sVBSGRbw2rFVRbCHdwa
TQcAVPeJJy0f/+sOs/PXoejr3siORpf8iLLYOaziGYf1EtunFcCLj8PEOznaUyouJ+lm9YKPBS
LULC/sVvy6XUARyfJfQ0Ag31YXpJeWPbORxVP/VCm8d/sNjWTQXGN/IjNZaZulixNgq5nRkPBK
wF23ZUYG4pLGPgROLup9nLSgEbpiDmN1Gq/IHSFI/8HpG/yRAoCdqUdre3yL/f9caj8RBBHRYb
bfrxtyQ9u2vsrqoloZ7F+Mu+kjuc9BxCMvJ7JaKwvQJckAkzTo6t10t6MzwiqJ7Au+2oOJ2Ukb
/985+TFGS219fmqWfwisOfpuvSkjRj8vIDBBm9itKIS+pVpfz+Mg7kl3WmkUrgF3yjTH5/C51u
aSzK2KeEVoWPx/PsCX7ATo6AsETp8Na38dT6d+Dm4WM4sBieKt/yOEFhiBNkpvKAqawKRvLW
3U73OIKC8VLFhhuU+ogGxcUq5mZXvMbNDIaU2LvtmtPPo/qL0bOYu76TKc1ZX0R6AXkeImQgRP
sdeXPPANTw31a585oZbYxUXRfEIEkMkcv3eSGnPCVesbxxd1SaIJe2j7H9MbHdjYkeFQuECnUh
Kxg63BVP1/qAEIO5+OKBzM7ctuP8apeGW1iHAueKzJXc5IeFS/3iwkfdLRkrgzBenILOIINo3C
oGSvn95Z8+LhNSopyqt3uB4rQksUYIwXgkfrEVYujCO0T5dSk5j10X7W1Dm4DHZVLJH+GtL6v
9A6xFJNDQfQF0hS+w1XkTkMq7pUiX+Qohf8QRJZEyU5Vwo2CesR63j1MFpkB3xybpbjt8oI47X
C20GEn3uCjwMwq/3K4ibHnqi16pPPRgI/u3R9TVfvOC2e0xgllrFG6cKUfoguUaXoxHqP1KKjUw
23bpd9L09LzSDdSHcoDPokWzDee0ZP/Z6VH3rdjQR71kw4VBeT8nKfLP2dGBd0tpWDQhCFK7I9
axxxthnv0v09x/J7jhyoLrt5e8lMEfrqtnMwdqjFgYVEQndthZ+9/XvfNk6f5MD8fDheMuvbNT
hduFSZEcZCL1W4GWKneVji4wdBrV3aCrzAzxy0H7y7nnkyCEvac503UDtr1bk1VJIVsYfYrN2S
2DPbp3H2E8r/n6jfBilwFyp3JTJvnRqQTcYHXDieW8Njq46JO606wsPwKQTKMfHGxxTRJdRe5y
vJD54xvFWw1YEJ/Q2c8cr1NNXEN32e5psfIJ7o48k6bsiyXnbHKSjK781Z5h8Hc3FbUF2U2p5J
qLwcD7+bknEunsbWSC37imk7oweF3hMhKRMm9iYJ8tpxMRcWCot7ador+Y2fYWBSu/bwXwcRI0
8TElMCMGCSqGSIB3DQJEJFTEWBBRymjnEbJmrRwh4sRnwudfsQP6KDAxMCEwCQYFKw4DAhFAA
QU+YFhgKEYjfxN/cL70yRrJSHFgUwECHeCTQnUEU0BAgIIAA==\" }"

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",
    "_links": {
      "self": {
        "href": "/api/security/azure-key-vaults/024cd3cf-9a08-11ea-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": [
    {
      "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",
      "authentication_method": "client_secret",
      "_links": {
        "self": {
          "href": "/api/security/azure-key-vaults/024cd3cf-9a08-11ea-8d52-005056bbeba5"
        }
      }
    },
    {

```

```
"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",
"authentication_method": "certificate",
"_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 the AKV configured for a specific SVM

The following example retrieves a configured AKV for a specific SVM.


```
# 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:
{
  "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",
  "authentication_method": "client_secret",
  "_links": {
    "self": {
      "href": "/api/security/azure-key-vaults/85619643-9a06-11ea-8d52-005056bbeba5"
    }
  }
}
```

Retrieving the advanced properties of an AKV configured for a specific SVM

The following example retrieves the advanced properties of a configured AKV for a specific SVM.

```
# 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'

{
  "uuid": "fc0b7718-18c9-11eb-88e3-005056bb605d",
  "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/fc0b7718-18c9-11eb-88e3-005056bb605d"
  }
}
}
```

Updating the client secret of a specific SVM

The following example updates the client secret of a configured AKV for a specific SVM.

```
# 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\": \"newSecret\" }"
```

Updating the client certificate and key of a specific SVM

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

```
# 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\":
\"MIIQKQIBAzCCD+8GCSqGSIb3DQEHAaCCD+AEgg/cMIIP2DCCBg8GCSqGSIb3DQEHBqCCBgAw
ggX8AgEAMIIIF9QYJKoZIhvcNAQcBMBwGCiqGSIb3DQEMAQYwDgQIWKY7ojViJDYCAggAgIIFyJ
PjIfmM6yTCKVw5ep2oZLwvRca8pKhISVjw+WjWngh/f6Py/Ty0CwCjDFUZPsUUdSmk78E7SAz
0CpQyBwmUuFJQShjZjftHLKRWld3O4sJKB8DzH9Yw1C7En94cyJ1rT4WYoVFmeJcmOXx6h+NFH
c7njtXVsKwxc5BF88K3+3kHdV3WyVdXoeXe7yY/+EjFfjtBryp8ljuielX/NFlh5kowhoj+yxn
00c1/0OI1iV3mTIOTXD8qrZVp9ZhAxSTRBd5uDuYWMfppqxW2L+9vCUU+ZgmRxtU3VsRLOp/T14
0OP7Sn1Ch2OE0bIrbYYtCpi04QcUtfeJBM1bbTbJPHDAtiO2KIQKviZL4QMZgho9NNgLMUpIb
NSzDCbuIC+nNMxfGfs0nPZewY+b43H/tMmnZ8Q4kiCFwrUqbFbflBiPMOaJsS0eQaJhDmzM90Q
EgbesHWgPreAcfMUCN1+BaqHFLHUxLXDxQix6zYiCatDX6/EKlirRh1TFpmFX2PBd+X6uODhmw
m4ub9RKj3In8t5qgtN4q/mTBXjAVDAbTIIIEgobBRaXGSSXCbc9W/jRed0DRZD9Bm8T/nV39sZN
ducwZa5ojYTX8fFMA0cfY6IFivXHjB00coHEEGdgCfC0G8vACqLbb+2NuhMJPtR7Ig50iAPUMc
670Z5ItOTQhyYOZ/KagOtvV8sKPCzeAkcMoHlsm189V79zt1fCJQTVWnaGiMj5Orcbsskk6vCxh
DGeU6q1kgvXJKXOYRF8/wIpv8Y7/rEpnGwE/I0ZOXzdIDHXqA53B1zyOVem25ezWCD+kpoH89X
JssY1NjIMJhjVRED61w/DbSXg2yFu/v3ckGapVvTuyAiz5hWUNfl3pt++da6GoekKnLqtL4G/R
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```

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```
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QU+YFhgKEYjfxN/cL70yRrJSHFgUwECHeCTQnUEU0BAgIIAA==\" }"
```

Deleting an AKV configuration for a specific SVM

The following example deletes a configured AKV for a specific SVM.

```
# 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 SVM configured with an AKV

The following example restores all the keys of a specific SVM configured with an AKV.

```
# 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 SVM configured with an AKV

The following example rekeys the internal key of a specific SVM configured with an AKV.

```
# 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
svm.uuid	string	query	False	Filter by svm.uuid
svm.name	string	query	False	Filter by svm.name

Name	Type	In	Required	Description
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
proxy_port	integer	query	False	Filter by proxy_port
proxy_host	string	query	False	Filter by proxy_host
proxy_username	string	query	False	Filter by proxy_username
state.available	boolean	query	False	Filter by state.available
state.message	string	query	False	Filter by state.message
state.code	integer	query	False	Filter by state.code
tenant_id	string	query	False	Filter by tenant_id
scope	string	query	False	Filter by scope
name	string	query	False	Filter by name
proxy_type	string	query	False	Filter by proxy_type
client_id	string	query	False	Filter by client_id

Name	Type	In	Required	Description
azure_reachability.reachable	boolean	query	False	Filter by azure_reachability.reachable
azure_reachability.message	string	query	False	Filter by azure_reachability.message
azure_reachability.code	integer	query	False	Filter by azure_reachability.code
key_id	string	query	False	Filter by key_id
uuid	string	query	False	Filter by uuid
authentication_method	string	query	False	Filter by authentication_method • Introduced in: 9.10
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: 1 • Max value: 120 • Min value: 0

Name	Type	In	Required	Description
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
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"
    }
  },
  "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_certificate":
      "MIIQKQIBAzCCD+8GCSqGSIB3DQEHAaCCD+AEgg/cMIIP2DCCBg8GCSqGSIB3DQEHbqCCBg
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```

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8PEOznaUyouJ+lm9YKPBLSLULC/sVvy6XUARyFJfq0Ag31YXpJeWPbORxVP/VCM8d/sNjWTQ
XGN/IjNZaZuliXNgq5nRkPBKwF23ZUYG4pLGPgROLup9nLSgEbpiDmN1Gq/IHSfI/8HpG/y
RAoCdqUdre3yL/f9caj8RBBHRYbbfRxyQ9u2vsrqo1oZ7F+Mu+kjuc9BxCMvJ7JaKwvQJc
kAkzTo6t10t6MzwiqJ7Au+2oOJ2Ukb/985+TFGS219fmqWfwisOfpuvSkjRj8vIDBBm9itK
IS+pVpfz+Mg7k13WmkUrgF3yjTH5/C51uaSzK2KeEVoWPx/Ps2CX7ATo6AsETp8Na38dT6d
+Dm4WM4sBieKt/yOEFhiBNkGPVKAqawKRvLW3U730IKC8VLFhhu+ogGxcUq5mZXvMbNDIa
U2LvtmtPPo/qL0bOYu76TKc1ZXOR6AXkeImQgRPsdexPPANTW31a585oZbYxUXRfEIEKmkc
v3eSGnPCVesbxxd1SaIJe2j7H9MbHdjYkeFQuECnUhKxg63BVPL/qAEIO5+OKBz7ctuP8a
peGWliHAueKzJXc5IeFS/3iwkfdLRkrGzBeNIL0IINo3CoGSvn95Z8+LhNSopyqt3uB4rQk

```

sUYIwXgkfrEVYujCO0T5dSkk5j10X7WlDm4DHZVLJH+GtL6v9A6xFJNDQfQF0hS+wLXkTkM
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oFAAQU+YFhgKEYjfXN/cL70yRrJSHFgUwECHeCTQnUEU0BAgIIAA==",
  "client_id": "aaaaaaaa-bbbb-aaaa-bbbb-aaaaaaaaaaaa",
  "client_secret": "abcdef",
  "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",
  "name": "https://kmip-akv-keyvault.vault.azure.net/",
  "proxy_host": "proxy.eng.com",
  "proxy_password": "proxypassword",
  "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"
    },
    "tenant_id": "zzzzzzzz-yyyy-zzzz-yyyy-zzzzzzzzzzz",
    "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
}
]
}

```

Error

Status: Default, Error

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	

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 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 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.

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.

state

Indicates whether or not the AKV wrapped internal key is available cluster wide. 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
available	boolean	Set to true when an AKV wrapped internal key is present on all nodes of the cluster.
code	integer	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

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

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 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]	
key_id	string	Key Identifier of AKV key encryption key.

Name	Type	Description
name	string	Name of the deployed AKV that will be used by ONTAP for storing keys. <ul style="list-style-type: none"> • example: https://kmip-akv-keyvault.vault.azure.net/ • format: uri • Introduced in: 9.8 • readCreate: 1
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".
state	state	Indicates whether or not the AKV wrapped internal key is available cluster wide. 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	
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).

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.

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` - Secret used by the application to prove its identity to AKV.
- `client_certificate` - 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

- `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.

Related ONTAP commands

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

Parameters

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

Request Body

Name	Type	Description
<code>_links</code>	_links	
<code>authentication_method</code>	string	Authentication method for the AKV instance.
<code>azure_reachability</code>	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 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.
<code>client_certificate</code>	string	PKCS12 Certificate used by the application to prove its identity to AKV.
<code>client_id</code>	string	Application client ID of the deployed Azure application with appropriate access to an AKV.

Name	Type	Description
client_secret	string	Secret used by the application to prove its identity to AKV.
ekmip_reachability	array[ekmip_reachability]	
key_id	string	Key Identifier of AKV key encryption key.
name	string	<p>Name of the deployed AKV that will be used by ONTAP for storing keys.</p> <ul style="list-style-type: none"> • example: https://kmip-akv-keyvault.vault.azure.net/ • format: uri • Introduced in: 9.8 • readCreate: 1
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".
state	state	Indicates whether or not the AKV wrapped internal key is available cluster wide. 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	

Name	Type	Description
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).

Example request

```
{
  "_links": {
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "authentication_method": "client_secret",
  "azure_reachability": {
    "code": 346758,
    "message": "AKV service is not reachable from all nodes - reason."
  },
  "client_certificate":
  "MIIQKQIBAzCCD+8GCSqGSIb3DQEHAaCCD+AEgg/cMIIP2DCCBg8GCSqGSIb3DQEHbqCCBg
  AwggX8AgEAMIIF9QYJKoZIhvcNAQcBMBwGCiqGSIb3DQEMAQYwDgQIWKY7ojViJDYCAggAg
  IIFyJPjIfmM6yTCKVw5ep2oZLwvRca8pKhISVjw+WjWngh/f6Py/Ty0CwCjDFUZPsUUdSm
  k78E7SAz0CpQyBwmUuFJQShjZjftHLKRWld3O4sJKB8DzH9Yw1C7En94cyJ1rT4WYoVFmeJ
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  l89V79zt1fCJQTVWnaGiMj50rcbskk6vCxdGeU6q1kgvXJKXOYRF8/wIvp8Y7/rEpnGwE/
  IOZOxzdIDHXqA53B1zyOVem25ezWCD+kpoH89XJssY1NjIMJhjVRED61w/DbSXg2yFu/v3c
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  B5Ru/ApDxpYpFLk0fH9k9OnEWK5Im33puOQKLno1uwrOmdB8+x1EY8wc9FvkHGh0Zh4Hyd
  iCVUcYsdiGWUxVmgm4OgyiYzcpB+Ar2dzikGc4pBg8fa1a1HN5Q3TK3w4h/HeOUlMA4vWOY
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  uJtiyBCrYexgZTXIZGTUj/86KXQaJKCreRr/kqwJOWqkNW4CGUVzw7LiI+SArOZqUp/Tsxn
  bNC73XCMN1PsnByb2zCeK13V26Cr184U9sDuqQTJRaIse01MN9AAjpa2QWEwgggnBBgkqhki
  G9w0BBwGgggmyBIIJrjCCCAowggmmBgsqhkig9w0BDAoBAqCCCW4wgg1qMBwGCiqGSIb3DQ
  EMAQMwDgQIEjM88b1+pnkCAggABIIJSDD3P+vn1lSolmQvmYgZVfV37T3KpurJvMxQScPva
```

lWiF7Q1Iwasf/+N0hKKNr2j/aGZLunLkaG6mLPeBP212LCwnUxDu5kYffVVE90WX/bXewBY
QribwFNkNhUrSgen8BfhnRlvDrzbBLoHIvDrUFszSVBCYh31Vwgu8p9SjC8K/XluncLdjSF
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KbGC3GNX6lgHu4y1LOZPlPlfPXb0wDHqavlXK3zPH18sIRZuX3HXSdEdenHYAkSV/IQZ89h
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sUYIwXgkfrEVYujCO0T5dSkk5j10X7W1Dm4DHZVLJH+GtL6v9A6xFJNDQfQF0hS+wLXkTKM
q7pUiX+Qohf8QRJZEyU5VWo2CesR63j1MFpkB3xybpbjt8oI47XC20GEn3uCjwMwq/3K4ib
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J7jhYoLRt5e8lMEfrqtnMwdqjFgYVEQndthZ+9/XvfNk6f5MD8fDheMuvbNThduFSZEcZCL
lW4GwkneVji4wdBrV3aCrzAzxy0H7y7nnkyCEvac503UDtr1bk1VJIVsYfYrN2S2DPbp3H2
E8r/n6jfbilwFyp3JTJvnRqQTcYHXDieW8Njq46JO606wsPwKQTKMfHGxxTRJdRe5yvJD54
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wcD7+bknEunsbWSC37iMk7oweF3hMhKRMm9iYJ8tpxMRcWCot7ador+Y2fYWBSu/bwXwCRI
08TElMCMGCSqGSib3DQEJFTEWBBRymjnEbJmrRwh4sRnwudfSQP6KDAxMCEwCQYFKw4DAh
oFAAQU+YFhgKEYjfxN/cL70yRrJSHFgUwECHeCTQnUEU0BAgiIAA==" ,

```

"client_id": "aaaaaaaa-bbbb-aaaa-bbbb-aaaaaaaaaaaa",
"client_secret": "abcdef",
"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",
"name": "https://kmip-akv-keyvault.vault.azure.net/",
"proxy_host": "proxy.eng.com",
"proxy_password": "proxypassword",
"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"
},
"tenant_id": "zzzzzzzz-yyyy-zzzz-yyyy-zzzzzzzzzzzz",
"uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
}

```


Response

Status: 201, Created

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"
    }
  },
  "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_certificate":
"MIIQKQIBAzCCD+8GCSqGSIB3DQEHAaCCD+AEgg/cMIIP2DCCBg8GCSqGSIB3DQEHbqCCBg
AwggX8AgEAMIIF9QYJKoZIhvcNAQcBMBwGCiqGSIb3DQEMAQYwDgQIWKY7ojViJDYCAggAg
IIFyJPjIfmM6yTCKVw5ep2oZLwvwRca8pKhISVjw+WjWngh/f6Py/Ty0CwCjDFUZPsUUdSm
k78E7SAz0CpQyBwmUuFJQShjZjftHLKRWld3O4sJKB8DzH9Yw1C7En94cyJ1rT4WYoVFmeJ
cmOXx6h+NFHc7njtXVsKwxc5BF88K3+3kHdV3WYVdXoeXe7yY/+EjFfjtBryp81juielX/N
Flh5kowhoj+yxn00c1/0OI1iV3mTIOTXD8qrZVp9ZhAxSTRBd5uDyWMfppqxW2L+9vCUU+Z
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I0ZOXzdIDHXqA53B1zyOVem25ezWCD+kpoH89XJssY1NjIMJhjVRED61w/DbSXg2yFu/v3c
kGapVvTuyAiz5hWUNfl3ptda6GoekKnLqtL4G/RGXCnebLbXg838dlTGBznoCwGTVxXDeVY
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1TlmMR4dbuCWE9Ym4sVRmD1D6/f6BoNH0DRg7TJkEFbOadJsNPGzHbKteLdaSMGTNUZ3hED
```

QeomakQMfvCgypbOLxrTTqfbenHRtN+iFNyW0zCUW6EJoAXp+lqFnwQL52I12QxwZike01P
2k0GharzAJkXnNaFGnmHIIP6wJrCCSDZwDmr7GI2R5evDlRi17QUg2sulxQV0U8zezzwIUg
Ee/Whf0ngGJv/QcsL2jyri/tSQbUWs4g+yep4S1E3iddhfqSJzI2iKdAE+HLiHGVO1z70fG
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B5Ru/ApDxpYpFlk0fH9k9OnEWK5Im33puOQKLno1uwrOmdbG8+x1EY8wc9FvkHGH0Zh4Hyd
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lWiF7Q1Iwasf/+N0hKKNr2j/aGZLunLkaG6mLPeBP212LCwnUxDu5kyffVVE90WX/bXewBY
QribwFNkNhUrSgen8BfhnRlvDrzBLoHIvDrUFszSVBCYh31Vwgu8p9SjC8K/XluncLdjSF
ko85XpoK23euhowjWH+X0kRoYGzorcdNE8z03BKvfr61W2XWzTSaWQ6eZHG6UrnX5Fe/w5
0U9tMIi3BCCCqgapUHVdmHqKkmWLiKX8LssUcN30JvekM2aJ9v4YO6CoegKAMVDS0tVSov3
KbGC3GNX6lgHu4y1LOZPlPlfPxb0wDHqavlXK3zph18sIRZuX3HXSdEdenHYAkSV/IQZ89h
+CZUkf0nu/og8eoA8ATDA5g7fj3HXpQ6cYdrUBaHc7ruxHOiWR0GcT4XK4TTz7zZTO1wWPV
iprUo6ayw0dYZSG22MeDA027YirM044Ifosn9CsqnNLZoOwvA2ao4ippDoBRqv5Hv6n0I3f
OAys5nPq3jJtKQ5neqUYo0MrAkoKHO0h6zn0BfvisyB88aM9N0mPD76ykbAERq7151biKbA
2tk8bb9dy/sJmk2ojM/D/W1YtrNL4im6azL2kVn5eiChxCoF33/RuRpXfGR8YNeJtL7bq42
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7K9dRw6Y0X8MB4/WGzEcvFeHYIGLBCxi1sBY5wjWnbeuhlWLiSkMDQRB6oGOvF7bJsilKx5
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/D5WZrcK1ttd5BjTjJ7GerS0xLkvYIklAJqurjMdWYmQtT4JAHF90/zRKqFFVpSiW074bR
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8PEOznaUyouJ+lM9YKPBLSLULC/sVVY6XUARyFJfq0Ag31YXpJeWPbORxVP/VCM8d/sNjWTQ
XGN/IjNZaZuliXNgq5nRkPBKwF23ZUYG4pLGPgROLup9nLSgEbpiDmN1Gq/IHSfI/8HpG/y
RAoCdqUdre3yL/f9caj8RBBHRYbbfRxyQ9u2vsrqo1oZ7F+Mu+kjuc9BxCMvJ7JaKwvQJc
kAkzTo6t10t6MzwiqJ7Au+2oOJ2Ukb/985+TFGS219fmqWfwisOfpuvSkjRj8vIDBBm9itK
IS+pVpfz+Mg7k13WmkUrgF3yjTH5/C51uaSzk2KeEvoWPx/Ps2CX7ATo6AsETp8Na38dT6d
+Dm4WM4sBieKt/yOEFhiBNkGPVKAqawKRvLW3U730IKC8VLFhhu+ogGxcUq5mZXvMbNDIa
U2LvtmtPPo/qL0bOYu76TKc1ZXOR6AXkeImQgRPsdexPPANTw31a585oZbYxUXRfEIEKmkc
v3eSGnPCVesbxxd1SaIJe2j7H9MbHdjYkeFQuECnUhKxg63BVPL/qAEIO5+OKBz7ctU8a
peGWliHAueKzJXc5IeFS/3iwkfdLRkrGzBeNIL0IINo3CoGSvn95Z8+LhNSopyqt3uB4rQk

```

sUYIwXgkfrEVYujCO0T5dSkk5j10X7WlDm4DHZVLJH+GtL6v9A6xFJNDQfQF0hS+wLXkTkM
q7pUiX+Qohf8QRJZEyU5VWo2CesR63j1MFpkB3xybpbjt8oI47XC20GEn3uCjwMwq/3K4ib
Hnqi16pPPRgI/u3R9TVfvOC2e0xgllrFG6cKUfoguUaXoxHqP1KKjUw23bpd9L09LzSDdSHc
oDPokWzDee0ZP/Z6VH3rdjQR71kw4VBet8nKfLP2dGBd0tpWDQhCFK7I9axxxthnv0v09x/
J7jhyoLRt5e8lMEfrqtnMWdqjFgYVEQndthZ+9/XvfNk6f5MD8fDheMuvbNThduFSZEcZCL
lW4GWNkVji4wdBrV3aCrzAzxy0H7y7nnkyCEvac503UDtr1bk1VJIVsYfYrN2S2DPbp3H2
E8r/n6jfBilwFyp3JTJvnRqQTcYHXDieW8Njq46JO6O6wsPwKQTKMfHGxxTRJdRe5yvJD54
xvFWw1YEJ/Q2c8cr1NNXEN32e5psfIJ7o48k6bsiyXnbHKSjK781Z5h8Hc3FbUF2U2p5JqL
wcD7+bknEunsbWSC37iMk7oweF3hMhKRMm9iYJ8tpxMRcWCot7ador+Y2fYWBSu/bwXwCRI
08TElMCMGCSqGSib3DQEJFTEWBRRymjnEbJmrRwh4sRnwudfSQP6KDAxMCEwCQYFKw4DAh
oFAAQU+YFhgKEYjfxN/cL70yRrJSHFgUwECHeCTQnUEU0BAgIIAA==",
  "client_id": "aaaaaaaa-bbbb-aaaa-bbbb-aaaaaaaaaaaa",
  "client_secret": "abcdef",
  "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",
  "name": "https://kmip-akv-keyvault.vault.azure.net/",
  "proxy_host": "proxy.eng.com",
  "proxy_password": "proxypassword",
  "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"
    },
    "tenant_id": "zzzzzzzz-yyyy-zzzz-yyyy-zzzzzzzzzzzz",
    "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
}
]
}

```

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.

Error Code	Description
65537523	Invalid key ID format. Example key ID format: "https://mykeyvault.vault.azure.net/keys/key1".
65537526	Failed to enable Azure Key Vault feature.
65537567	No authentication method provided.
65537573	Invalid client certificate.

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	

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 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 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.

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.

state

Indicates whether or not the AKV wrapped internal key is available cluster wide. 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
available	boolean	Set to true when an AKV wrapped internal key is present on all nodes of the cluster.
code	integer	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

Name	Type	Description
_links	_links	
name	string	The name of the SVM.

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

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 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]	
key_id	string	Key Identifier of AKV key encryption key.

Name	Type	Description
name	string	Name of the deployed AKV that will be used by ONTAP for storing keys. <ul style="list-style-type: none"> • example: https://kmip-akv-keyvault.vault.azure.net/ • format: uri • Introduced in: 9.8 • readCreate: 1
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".
state	state	Indicates whether or not the AKV wrapped internal key is available cluster wide. 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	
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).

_links

Name	Type	Description
next	href	
self	href	

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.

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

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 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.

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 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 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.

Name	Type	Description
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]	
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. <ul style="list-style-type: none"> • example: https://kmip-akv-keyvault.vault.azure.net/ • format: uri • Introduced in: 9.8 • readCreate: 1
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".

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 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	
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).

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_certificate":
  "MIIQKQIBAzCCD+8GCSqGSIb3DQEHAaCCD+AEgg/cMIIP2DCCBg8GCSqGSIb3DQEHbqCCBg
  AwggX8AgEAMIIF9QYJKoZIhvcNAQcBMBwGCiqGSIb3DQEMAQYwDgQIWKY7ojViJDYCAggAg
  IIFyJPjIfmM6yTCKVw5ep2oZLwvRca8pKhISVjw+WjWngh/f6Py/Ty0CwCjDFUZPsUudSm
  k78E7SAz0CpQyBwmUuFJQShjZjftHLKRWld3O4sJKB8DzH9Yw1C7En94cyJ1rT4WYoVFmeJ
  cmOXx6h+NFHc7njtXVsKwxc5BF88K3+3kHdV3WyVdXoeXe7yY/+EjFfjtBryp81juielX/N
  Flh5kowhoj+yxn00c1/0OI1iV3mTIOTXD8qrZVp9ZhAxSTRBd5uDyWMfppqxW2L+9vCUU+Z
  gmRxtU3VsRLOp/T140OP7Sn1Ch2OE0bIrbYYtcpi04QcUtFEJBMLbbTbJPHDAti02KIQKvi
  ZL4QMZgho9NNgL4MUpIbNSzDCbuIC+nNMXfgfs0nPZewY+b43H/tMmnZ8Q4kiCFwrUqbFbf
  lBiPMoaJsS0eQaJhDmzM90QEgbesHWgPreAcfMUcN1+BaqHFLHUxLXDxQix6zYiCAtdX6/E
  KlirRh1TFpmFX2PBd+X6uODhmwm4ub9RKj3In8t5qgtN4q/mTBXjAVDAbTIIegobBRaXGSS
  XCBc9W/jRed0DRZD9Bm8T/nV39sZNducwZa5ojYTX8fFMA0cfY6IFivXHjB00coHEEGdgCf
  C0G8vACqLbb+2NuhMJPtR7Ig50iAPUmC670Z5ItOTQhyYOZ/KagOtvV8sKPCzeAkcMoHlsm
  l89V79zt1fCJQTVWnaGiMj50rcbskk6vCxdGeU6q1kgvXJKXOYRF8/wIvp8Y7/rEpnGwE/
  IOZOxzdIDHXqA53B1zyOVem25ezWCD+kpOH89XJssY1NjIMJhjVRED61w/DbSXg2yFu/v3c
  kGapVvTuyAiz5hWUNfl3ptda6GoekKnLqtL4G/RGXCnebLbXg838dlTGBznoCwGTVxXDeVY
  afz8AjI10qYtTmcbN56ya9kK7IHSkrnFX24xQRQOfmD0Vob71pjdZ8r1aXKvD/1X2TkYJHo
  eEHq0nWpU8vwdG/xhv4YgKJGN9qsEZgiTXETUh5gak8eltGNkP+fum+10q105oS+Swna5/e
  B8eFeJ12Oi48Xi5UapaTRHPFp6kZfPXOu9cEjhILowRIi6glg7FUbmoJcu50vDIyP9JlyQk
  lw2VtgNlm1QOIvzRenXmy18XnP50NTxx2cIwby8tIcdSn2C2qhj8Gk7q8oxVZGiBgtz4Bwy
  zyKkypwm60BBRrHpAKLw6JM5RISeZnYQfIsId0tGgb61go0Rjf0sFtbuvZcSvLI+2Onj8KH
  1TlmMR4dbuCWE9Ym4sVRmD1D6/f6BoNH0DRg7TJkEFbOadJsNPGzHbKteLdaSMGTNUZ3hED
  QeomakQMfvCgypbOLxrtTqfbenHRtN+iFNYW0zCUW6EJoAXp+lqFnwQL52I12QxwZike01P
  2k0GharzAJkXnNaFGnmHIIP6wJrCCSDZwDmr7GI2R5evDlRi17QUg2sulxQV0U8zezzwIUg
  Ee/Whf0ngGJv/QcsL2jyri/tSQbUWs4g+yep4S1E3iddhfqSjzI2iKdAE+HLiHGVO1z70fG
  Es06dPLnmh4eoWidgZi9N/SoBy1aT0JpIQ6z6N5ImPfdWu9Y6TWXUg1iyOIXGsxiQVIgUNo
  B5Ru/ApDxpYpFLk0fH9k9OnEWK5Im33puOQKLno1uwrOmdB8+x1EY8wc9FvkHGH0Zh4Hyd
  iCVUcYsdiGWUxVmgm4OgyiYzcpB+Ar2dzikGc4pBg8fa1a1HN5Q3TK3w4h/HeOUlMA4vWOY
  uV01H93ILGP6Pwfkgu+1Tam6+8yD0W5meiz0UIZR8TF/9gDb4+4wTFnPgwfTrggEauA8tt8
  uJtiyBCrYexgZTXIZGTUj/86KXQaJKCreRr/kqwJOWqkNW4CGUVzw7LiI+SArOZqUp/Tsxn
  bNC73XCMN1PsnByb2zCeK13V26Cr184U9sDuqQTJRaIse01MN9AAjpa2QWEwgggnBBgkqhki
  G9w0BBwGgggmyBIIJrjCCCAowggmmBgsqhkig9w0BDAoBAqCCCW4wgg1qMBwGCiqGSIb3DQ
  EMAQMwDgQIEjM88b1+pnkCAggABIIJSDD3P+vn1lSolmQvmYgZVfV37T3KpurJvMxQScPva
```

lWiF7Q1Iwasf/+N0hKKNr2j/aGZLunLkaG6mLPeBP212LCwnUxDu5kYffVVE90WX/bXewBY
QribwFNkNhUrSgen8BfhnRlvDrzbBLoHIvDrUFszSVBCYh31Vwgu8p9SjC8K/XluncLdjSF
ko85XpoK23euhowjWH+X0kRoYGzorcdNE8z03BKvfr61W2XWzTSaWQ6eZHG6UrnX5Fe/w5
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KbGC3GNX6lgHu4y1LOZPlPlfPXb0wDHqavlXK3zPH18sIRZuX3HXSdEdenHYAkSV/IQZ89h
+CZUkf0nu/og8eoA8ATDA5g7fj3HXpQ6cYdrUBaHc7ruxHOiWR0GcT4XK4TTz7zZTO1wWPV
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OAYS5nPq3jJtKQ5neqUYo0MrAkoKHO0h6zn0BfvisyB88aM9N0mPD76ykbAERq7151biKbA
2tk8bb9dy/sJmk2ojM/D/W1YtrNL4iM6azL2kVN5eiChxCOF33/RuRpXfGR8YNeJTL7bq42
wL70QKDBRoG1TPcLqdVqz74oshlRspfqvZsbsUatbASbt2T0YG4zfgfGh7sb2ezyougVvzd
p77wAJ6n39dc/ZLDdYDzFkQb07984y8LlhIM1AcwFcmh43gWp6A8CJ02174ednirSqsVOPZ
7K9dRw6Y0X8MB4/WGzEcvFeHYIGLBCXilSBy5wjWnbeuhlWLiSkMDQRb6oGOvF7bJsilKx5
PwgWbbqW8KUSuU01skbMAa5T8Hkm4OiSTf2a78E0zIKLGZg7yu9FDIItWYwOKG96MXEBAdO
uH+wWYmaEexh51ONrffwKDuDMzh7MO20TTEQU8oQdjRRoAofXvTcj22GSMTY6XleskZX2ZK
xSQdD1tCtkjGRKHSTYza3zLHbBiJTIJw4z6sw9FyTTApG66UAKntiMalr9nqTTNaxRWEXME
QVRLzAL2F9aqjgW65xrbYXu/J9Y/SYTCyBx2SRA/JkQ+Y8F68KOoS1pvK1p5/FcEdvprTND
S41f+aj3HNWuK5wOsrpBhMlb2IfluK/9QwPh9IC/RhHRfimyTPRXAf73cehNdp8DpKwLm+j
r30vazFwICpvSbi6Etb6GXfPkKaX7ztpQBqG92m2/0g3LWfPtilzwrPHPBz8y1qQMU268Do
o8YvWtI4KGaDAFb6XQhR6t6mqoq/3IP6/g//PZVENsYUVsPLDJLLF9fiOwTbMZnaiscKv8S
GEs//B9JkKrdSRRQRZcnnPjJnJLILblRVAZGuXpSKSYVPzYmOjUx3sSeLSiPoSOcqRIJ0X3
s4ED092W3tR4ZXK3fnkFyrIVtRJsB3k/2smiQ6Pc1VuKhh1yTzYjXKRQcDaY3EDP9IWftji
UfZQoZcijMwt6YXim23m2aN2Ed8qIedikR6OjFHE4Kus/2yegTszSs5CrM7NamKWzeIeNnt
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/D5WZrcK1ttd5BjTjJj7GerS0xLkvYiklAJqurjMdWYmQtT4JAHF90/zRKqFFVpSiW074bR
Q+PfaLI5C+TwoX5lYD+R91A0qyGKIkiFITa8hZFY+Up+rSuREqnpAvdAVL9/gLpF6I+5+D+s
VBsGRbw2rFVRbCHdwaTQcAVPeJjy0f/+sOs/PXoejr3siORpf8iLLYOaziGYf1EtunFcClj
8PEOznaUyouJ+lM9YKPBsLULC/sVVY6XUARyFJfq0Ag31YXpJeWPbORxVP/VCM8d/sNjWTQ
XGN/IjNZaZuliXNgq5nRkPBKwF23ZUYG4pLGPgROLup9nLSgEbpiDmN1Gq/IHSFI/8HpG/y
RAoCdqUdre3yL/f9caj8RBBHRYbbfRxyQ9u2vsrqo1oZ7F+Mu+kjuc9BxCMvJ7JaKwvQJc
kAkzTo6t10t6MzwiqJ7Au+2oOJ2Ukb/985+TFGS219fmqWfwisOfpuvSkjRj8vIDBm9itK
IS+pVpfz+Mg7k13WmkUrgF3yjTH5/C51uaSzK2KeEvoWPx/Ps2CX7ATo6AsETp8Na38dT6d
+Dm4WM4sBieKt/yOEFhiBNkGPVKAqawKRvLW3U73OIKC8VLfhhnU+ogGxcUq5mZXvMbNDIa
U2LvtmtPPo/qL0bOYu76TKc1ZX0R6AXkeImQgRPsdeXPPANtW31a585oZbYxUXRfEIEKmkc
v3eSGnPCVesbxxd1SaIJe2j7H9MbHdjYkeFQuECnUhKxg63BVPl/qAEIO5+OKBzm7ctuP8a
peGWliHAueKzJXc5IeFS/3iwkfdLRkrGzBenILOIINo3CoGSvn95Z8+LhNSopyqt3uB4rQk
sUYIwXgkfrEVYujCO0T5dSkk5j10X7W1Dm4DHZVLJH+GtL6v9A6xFJNDQfQF0hS+wLXkTKM
q7pUiX+Qohf8QRJZEyU5VWo2CesR63j1MFpkB3xybpbjt8oI47XC20Gen3uCjwMwq/3K4ib
Hnqi16pPPRgI/u3R9TVfvOC2e0xgl1rFG6cKUfoguUaXoxHqP1KKjUw23bpd9L09LzSDdShc
oDPokWzDee0ZP/Z6VH3rdjQR71kw4VBet8nKfLP2dGBd0tpWDQhCFK7I9axxxthnv0v09x/
J7jhyoLRt5e8lMEfrqtnMwdqjFgYVEQndthZ+9/Xvfnk6f5MD8fDheMuvbnThduFSZEcZCL
lW4GwkneVji4wdBrV3aCrzAzxy0H7y7nnkyCEvac503UDtr1bk1VJIVsYfYrN2S2DPbp3H2
E8r/n6jfbilwFyp3JTJvnRqQTcYHXDieW8Njq46JO606wsPwKQTKMfHGxxTRJdRe5yvJD54
xvFWw1YEJ/Q2c8cr1NNXEN32e5psfIJ7o48k6bsiyXnbHKSjK781Z5h8Hc3FbUF2U2p5JqL
wcD7+bknEunsbWSC37imk7oweF3hMhKRMm9iYJ8tpxMRcWCot7ador+Y2fYWBSu/bwXwCRI
08TElMCMGCSqGSib3DQEJFTEWBBRymjnJebJmrRwh4sRnwudfSQP6KDAxMCEwCQYFKw4DAh
oFAAQU+YFhgKEYjfxN/cL70yRrJSHFgUwECHeCTQnUEU0BAgiIAA==" ,

```

"client_id": "aaaaaaaa-bbbb-aaaa-bbbb-aaaaaaaaaaaa",
"client_secret": "abcdef",
"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",
"name": "https://kmip-akv-keyvault.vault.azure.net/",
"proxy_host": "proxy.eng.com",
"proxy_password": "proxypassword",
"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"
},
"tenant_id": "zzzzzzzz-yyyy-zzzz-yyyy-zzzzzzzzzzzz",
"uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
}

```

Error

Status: Default, Error

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	

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 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 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.

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.

state

Indicates whether or not the AKV wrapped internal key is available cluster wide. 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
available	boolean	Set to true when an AKV wrapped internal key is present on all nodes of the cluster.
code	integer	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

Name	Type	Description
_links	_links	
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 AKV configuration

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

Introduced In: 9.8

Updates the AKV configuration.

Optional properties

- `client_secret` - New secret used to prove the application's identity to the AKV.
- `client_certificate` - New PKCS12 certificate used to prove the application's identity to the AKV.
- `key_id` - Key Identifier of the new AKV key encryption key.
- `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.

- `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.

Related ONTAP commands

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

Parameters

Name	Type	In	Required	Description
<code>uuid</code>	string	path	True	AKV 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"> • Default value: 1 • Max value: 120 • Min value: 0

Request Body

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 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]	
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. <ul style="list-style-type: none"> • example: https://kmip-akv-keyvault.vault.azure.net/ • format: uri • Introduced in: 9.8 • readCreate: 1
proxy_host	string	Proxy host.

Name	Type	Description
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".
state	state	Indicates whether or not the AKV wrapped internal key is available cluster wide. 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	
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).

Example request

```
{
  "_links": {
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "authentication_method": "client_secret",
  "azure_reachability": {
    "code": 346758,
    "message": "AKV service is not reachable from all nodes - reason."
  },
  "client_certificate":
  "MI IQKQIBAzCCD+8GCSqGSIb3DQEHAaCCD+AEgg/cMIIP2DCCBg8GCSqGSIb3DQEHBqCCBg
  AwggX8AgEAMIIF9QYJKoZIhvcNAQcBMBwGCiqGSIb3DQEMAQYwDgQIWKY7ojViJDYCAggAg
  IIFyJPjIfmM6yTCKVw5ep2oZLwvRca8pKhISVjw+WjWngh/f6Py/Ty0CwCjDFUZPsUUdSm
  k78E7SAz0CpQyBwmUuFJQShjZjftHLKRWld3O4sJKB8DzH9Yw1C7En94cyJ1rT4WYoVFmeJ
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```

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```

"client_id": "aaaaaaaa-bbbb-aaaa-bbbb-aaaaaaaaaaaa",
"client_secret": "abcdef",
"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",
"name": "https://kmip-akv-keyvault.vault.azure.net/",
"proxy_host": "proxy.eng.com",
"proxy_password": "proxypassword",
"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"
},
"tenant_id": "zzzzzzzz-yyyy-zzzz-yyyy-zzzzzzzzzzzz",
"uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
}

```

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.

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	

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 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 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.

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.

state

Indicates whether or not the AKV wrapped internal key is available cluster wide. 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
available	boolean	Set to true when an AKV wrapped internal key is present on all nodes of the cluster.
code	integer	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

Name	Type	Description
_links	_links	
name	string	The name of the SVM.

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

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 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]	
key_id	string	Key Identifier of AKV key encryption key.

Name	Type	Description
name	string	Name of the deployed AKV that will be used by ONTAP for storing keys. <ul style="list-style-type: none"> • example: https://kmip-akv-keyvault.vault.azure.net/ • format: uri • Introduced in: 9.8 • readCreate: 1
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".
state	state	Indicates whether or not the AKV wrapped internal key is available cluster wide. 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	
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).

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.

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

Response

Status: 202, Accepted

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.

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.

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.

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

Response

```
Status: 202, Accepted
```

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.

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.

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