



Manage security certificates

REST API reference

NetApp

February 06, 2026

This PDF was generated from https://docs.netapp.com/us-en/ontap-restapi/security_certificates_endpoint_overview.html on February 06, 2026. Always check docs.netapp.com for the latest.

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Manage security certificates

Manage security certificates

Overview

This API displays security certificate information and manages the certificates in ONTAP.

Installing certificates in ONTAP

The security certificates GET request retrieves all of the certificates in the cluster.

Examples

Retrieving all certificates installed in the cluster with their common-names

```
# The API:
/api/security/certificates

# The call:
curl -X GET "https://<mgmt-
ip>/api/security/certificates?fields=common_name" -H "accept:
application/hal+json"

# The response:
{
  "records": [
    {
      "svm": {
        "name": "vs0"
      },
      "uuid": "dad2363b-8ac0-11e8-9058-005056b482fc",
      "common_name": "vs0",
      "_links": {
        "self": {
          "href": "/api/security/certificates/dad2363b-8ac0-11e8-9058-
005056b482fc"
        }
      }
    },
    {
      "uuid": "1941e048-8ac1-11e8-9058-005056b482fc",
      "common_name": "ROOT",
      "_links": {
        "self": {
          "href": "/api/security/certificates/1941e048-8ac1-11e8-9058-
```

```
005056b482fc"
    }
  },
  {
    "uuid": "5a3a77a8-892d-11e8-b7da-005056b482fc",
    "common_name": "cert_name",
    "_links": {
      "self": {
        "href": "/api/security/certificates/5a3a77a8-892d-11e8-b7da-005056b482fc"
      }
    }
  }
],
"num_records": 3,
"_links": {
  "self": {
    "href": "/api/security/certificates?fields=common_name"
  }
}
}
```

Retrieving all certificates installed at cluster-scope with their common-names

```
# The API:
/api/security/certificates

# The call:
curl -X GET "https://<mgmt-
ip>/api/security/certificates?scope=cluster&fields=common_name" -H
"accept: application/hal+json"

# The response:
{
  "records": [
    {
      "uuid": "1941e048-8ac1-11e8-9058-005056b482fc",
      "scope": "cluster",
      "common_name": "ROOT",
      "_links": {
        "self": {
          "href": "/api/security/certificates/1941e048-8ac1-11e8-9058-
005056b482fc"
        }
      }
    },
    {
      "uuid": "5a3a77a8-892d-11e8-b7da-005056b482fc",
      "scope": "cluster",
      "common_name": "cert_name",
      "_links": {
        "self": {
          "href": "/api/security/certificates/5a3a77a8-892d-11e8-b7da-
005056b482fc"
        }
      }
    }
  ],
  "num_records": 2,
  "_links": {
    "self": {
      "href": "/api/security/certificates?scope=cluster&fields=common_name"
    }
  }
}
```

Retrieving all certificates installed on a specific SVM with their common-names

```
# The API:
/api/security/certificates

# The call:
curl -X GET "https://<mgmt-
ip>/api/security/certificates?svm.name=vs0&fields=common_name" -H "accept:
application/hal+json"

# The response:
{
  "records": [
    {
      "svm": {
        "name": "vs0"
      },
      "uuid": "dad2363b-8ac0-11e8-9058-005056b482fc",
      "common_name": "vs0",
      "_links": {
        "self": {
          "href": "/api/security/certificates/dad2363b-8ac0-11e8-9058-
005056b482fc"
        }
      }
    }
  ],
  "num_records": 1,
  "_links": {
    "self": {
      "href": "/api/security/certificates?svm.name=vs0&fields=common_name"
    }
  }
}
```

Retrieving a certificate using its UUID for all fields

```
# The API:
/api/security/certificates/{uuid}

# The call:
curl -X GET "https://<mgmt-ip>/api/security/certificates/dad2363b-8ac0-11e8-9058-005056b482fc?fields=*" -H "accept: application/hal+json"

# The response:
{
  "svm": {
    "uuid": "d817293c-8ac0-11e8-9058-005056b482fc",
    "name": "vs0"
  },
  "uuid": "dad2363b-8ac0-11e8-9058-005056b482fc",
  "scope": "svm",
  "type": "server",
  "common_name": "vs0",
  "serial_number": "15428D45CF81CF56",
  "ca": "vs0",
  "hash_function": "sha256",
  "key_size": 2048,
  "expiry_time": "2019-07-18T15:29:14-04:00",
  "public_certificate": "<CERTIFICATE-CONTENT>",
  "_links": {
    "self": {
      "href": "/api/security/certificates/dad2363b-8ac0-11e8-9058-005056b482fc"
    }
  }
}
```

Creating a certificate in a cluster

These certificates can be used to help administrators enable certificate-based authentication and to enable SSL-based communication to the cluster.

```
# The API:
/api/security/certificates

# The call:
curl -X POST "https://<mgmt-ip>/api/security/certificates" -H "accept: application/hal+json" -H "Content-Type: application/json" -d "{
  \"common_name\": \"TEST-SERVER\", \"type\": \"server\" }"
```


Installing a certificate in a cluster

These certificates can be used to help administrators enable certificate-based authentication and to enable-SSL based communication to the cluster.

```
# The API:
/api/security/certificates

# The call:
curl -X POST "https://<mgmt-ip>/api/security/certificates" -H "accept:
application/json" -H "Content-Type: application/json" -d "{ \"type\":
\"server_ca\", \"public_certificate\": \"<CERTIFICATE-CONTENT>\" }"
```

Installing a certificate on a specific SVM

```
# The API:
/api/security/certificates

# The call:
curl -X POST "https://<mgmt-ip>/api/security/certificates" -H "accept:
application/json" -H "Content-Type: application/json" -d "{  \"svm\" : {
\"name\" : \"vs0\" }, \"type\": \"server_ca\", \"public_certificate\":
\"<CERTIFICATE-CONTENT>\" }"
```

Installing a CA-signed certificate on a specific SVM

```
# The API:
/api/security/certificates

# The call:
curl -X POST "https://<mgmt-ip>/api/security/certificates" -H "accept:
application/json" -H "Content-Type: application/json" -d "{  \"svm\" : {
\"name\" : \"vs0\" }, \"type\": \"server\", \"public_certificate\":
\"<CERTIFICATE-CONTENT>\", \"intermediate_certificates\": [\"<CERTIFICATE-
CONTENT>\", \"<CERTIFICATE-CONTENT>\"]}"
```

Deleting a certificate using its UUID

```
# The API:
/api/security/certificates/{uuid}

# The call:
curl -X DELETE "https://<mgmt-ip>/api/security/certificates/dad2363b-8ac0-11e8-9058-005056b482fc?fields=*" -H "accept: application/hal+json"
```

Signing a new certificate signing request using an existing CA certificate UUID

Once you have created a certificate of type "root_ca", you can use that certificate to act as a local Certificate Authority to sign new certificate signing requests. The following example signs a new certificate signing request using an existing CA certificate UUID. If successful, the API returns a signed certificate.

```
# The API:
/api/security/certificates/{ca.uuid}/sign

# The call:
curl -X POST "https://<mgmt-ip>/api/security/certificates/253add53-8ac9-11e8-9058-005056b482fc/sign" -H "accept: application/json" -H "Content-Type: application/json" -d "{ \"signing_request\": \"<CERTIFICATE-CONTENT>\", \"hash_function\": \"sha256\"}"

# The response:
{
  "public_certificate": "<CERTIFICATE-CONTENT>"
}
```

Generate a new Certificate Signing Request (CSR)

```
# The API:
/api/security/certificate-signing-request

# The call:
curl -X POST "https://<mgmt-ip>/api/security/certificate-signing-request"
-H "accept: application/json" -H "Content-Type: application/json" -d "{
  \"algorithm\": \"rsa\", \"extended_key_usage\": [\"serverauth\"],
  \"hash_function\": \"sha256\", \"key_usage\": [\"digitalsignature\"],
  \"security_strength\": \"112\", \"subject_alternatives\": { \"dns\": [
    \"*.example.com\", \"*.example1.com\" ], \"email\": [\"abc@example.com\",
    \"abc@example1.com\"], \"ip\": [\"10.225.34.223\", \"10.225.34.224\"],
    \"uri\": [\"http://example.com\", \"http://example1.com\"] },
  \"subject_name\": \"C=US,O=NTAP,CN=test.domain.com\"}"
{
  \"csr\": \"-----BEGIN CERTIFICATE REQUEST-----\n-----END CERTIFICATE
  REQUEST-----\n\",
  \"generated_private_key\": \"-----BEGIN PRIVATE KEY-----\n-----END PRIVATE
  KEY-----\n\"
}
```

Download and install a certificate from the Azure Key Vault.

The API:

/api/security/certificates

The call:

```
curl -X POST "https://<mgmt-ip>/api/security/certificates" -H "accept: application/json" -H "Content-Type:
application/json" -d "{\"svm\": {\"name\": \"vs0\"}, \"name\": \"vs0-client-cert\", \"type\": \"client\", \"azure\": {
  \"key_vault\": \"https://example.vault.azure.net\", \"client_id\": \"12345678-abcd-1234-12ad-dfasdffgfdaaa\",
  \"tenant_id\": \"12345678-abcd-abcd-test-720ef604b100\", \"client_secret\": \"clientSecretString\",
  \"verify_host\": false }}" { \"job\": { \"uuid\": \"be8d45cb-1d41-11ee-9725-005056ae0f31\", \"_links\": { \"self\": { \"href\":
  \"/api/cluster/jobs/be8d45cb-1d41-11ee-9725-005056ae0f31\" } } } }</mgmt-ip>
```

...

Creating a root-ca certificate in a cluster when DCN cluster is configured.

```
# The API:
/api/security/certificates

# The call:
curl -X POST "https://<mgmt-ip>/api/security/certificates" -H "accept:
application/json" -H "Content-Type: application/json" -d "{
\"common_name\": \"TEST-ROOT-CA\", \"type\": \"root_ca\" }"

# The response:
{
  "job": {
    "uuid": "be8d45cb-1d41-11ee-9725-005056ae0f31",
    "_links": {
      "self": {
        "href": "/api/cluster/jobs/be8d45cb-1d41-11ee-9725-005056ae0f31"
      }
    }
  }
}
```

Deleting a CA certificate using its UUID when DCN cluster is configured.

```
# The API:
/api/security/certificates/{uuid}

# The call:
curl -X DELETE "https://<mgmt-ip>/api/security/certificates/dad2363b-8ac0-
11e8-9058-005056b482fc?fields=*" -H "accept: application/hal+json"

# The response:
{
  "job": {
    "uuid": "be8d45cb-1d41-11ee-9725-005056ae0f31",
    "_links": {
      "self": {
        "href": "/api/cluster/jobs/be8d45cb-1d41-11ee-9725-005056ae0f31"
      }
    }
  }
}
```

Retrieve security certificates

GET /security/certificates

Introduced In: 9.6

Retrieves security certificates.

Related ONTAP commands

- `security certificate show`

Parameters

Name	Type	In	Required	Description
subject_key_identifier	string	query	False	Filter by subject_key_identifier <ul style="list-style-type: none">• Introduced in: 9.8
svm.name	string	query	False	Filter by svm.name
svm.uuid	string	query	False	Filter by svm.uuid
ca	string	query	False	Filter by ca <ul style="list-style-type: none">• maxLength: 256• minLength: 1
serial_number	string	query	False	Filter by serial_number <ul style="list-style-type: none">• maxLength: 40• minLength: 1
common_name	string	query	False	Filter by common_name
scope	string	query	False	Filter by scope
hash_function	string	query	False	Filter by hash_function
expiry_time	string	query	False	Filter by expiry_time

Name	Type	In	Required	Description
public_certificate	string	query	False	Filter by public_certificate <ul style="list-style-type: none"> • Introduced in: 9.8
name	string	query	False	Filter by name <ul style="list-style-type: none"> • Introduced in: 9.8
type	string	query	False	Filter by type
subject_alternatives.uri	string	query	False	Filter by subject_alternatives.uri <ul style="list-style-type: none"> • Introduced in: 9.15
subject_alternatives.ip	string	query	False	Filter by subject_alternatives.ip <ul style="list-style-type: none"> • Introduced in: 9.15
subject_alternatives.email	string	query	False	Filter by subject_alternatives.email <ul style="list-style-type: none"> • Introduced in: 9.15
subject_alternatives.dns	string	query	False	Filter by subject_alternatives.dns <ul style="list-style-type: none"> • Introduced in: 9.15
authority_key_identifier	string	query	False	Filter by authority_key_identifier <ul style="list-style-type: none"> • Introduced in: 9.8
key_size	integer	query	False	Filter by key_size

Name	Type	In	Required	Description
uuid	string	query	False	Filter by uuid <ul style="list-style-type: none"> Introduced in: 9.8
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. <ul style="list-style-type: none"> 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. <ul style="list-style-type: none"> Default value: 1
order_by	array[string]	query	False	Order results by specified fields and optional [asc

Response

Status: 200, Ok

Name	Type	Description
_links	_links	
num_records	integer	Number of records
records	array[security_certificate]	

Example response

```
{
  "_links": {
    "next": {
      "href": "/api/resourcelink"
    },
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "num_records": 1,
  "records": [
    {
      "_links": {
        "self": {
          "href": "/api/resourcelink"
        }
      },
      "authority_key_identifier":
"26:1F:C5:53:5B:D7:9E:E2:37:74:F4:F4:06:09:03:3D:EB:41:75:D7",
      "azure": {
        "verify_host": true
      },
      "ca": "string",
      "common_name": "test.domain.com",
      "expiry_time": "2030-01-25 11:20:13 +0000",
      "hash_function": "string",
      "key_size": 512,
      "name": "string",
      "public_certificate": "<CERTIFICATE-CONTENT>",
      "scope": "string",
      "serial_number": "string",
      "subject_alternatives": {
        "dns": [
          "*.example.com"
        ],
        "email": [
          "<a href='mailto:abc@example.com'>abc@example.com</a>"
        ],
        "ip": [
          "10.225.34.10"
        ],
        "uri": [
          "http://example.com"
        ]
      }
    }
  ]
}
```

```

    },
    "subject_key_identifier":
    "26:1F:C5:53:5B:D7:9E:E2:37:74:F4:F4:06:09:03:3D:EB:41:75:D8",
    "svm": {
      "_links": {
        "self": {
          "href": "/api/resourcelink"
        }
      },
      "name": "svm1",
      "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
    },
    "type": "string",
    "uuid": "string"
  }
]
}

```

Error

Status: Default, Error

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	

proxy

azure

Name	Type	Description
proxy	proxy	

subject_alternatives

Name	Type	Description
dns	array[string]	A list of DNS names for Subject Alternate name extension.
email	array[string]	A list of email addresses for Subject Alternate name extension
ip	array[string]	A list of IP addresses for Subject Alternate name extension.
uri	array[string]	A list of URIs for Subject Alternate name extension.

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.

security_certificate

Name	Type	Description
_links	_links	
authority_key_identifier	string	Provides the key identifier of the issuing CA certificate that signed the SSL certificate.
azure	azure	
ca	string	Certificate authority
common_name	string	FQDN or custom common name. Provide on POST when creating a self-signed certificate.
expiry_time	string	Certificate expiration time, in ISO 8601 duration format or date and time format. Can be provided on POST if creating self-signed certificate. The expiration time range is between 1 day to 10 years.
hash_function	string	Hashing function. Can be provided on POST when creating a self-signed certificate. Hash functions md5 and sha1 are not allowed on POST.
key_size	integer	Key size of requested Certificate in bits. One of 512, 1024, 1536, 2048, 3072. Can be provided on POST if creating self-signed certificate with a minimum permissible value of 2048.

Name	Type	Description
name	string	Certificate name or name of the certificate to be downloaded from the Azure Key Vault (AKV). If not provided in POST, a unique name specific to the SVM is automatically generated.
public_certificate	string	Public key Certificate in PEM format. If this is not provided in POST, a self-signed certificate is created.
scope	string	Set to "svm" for interfaces owned by an SVM. Otherwise, set to "cluster".
serial_number	string	Serial number of certificate.
subject_alternatives	subject_alternatives	
subject_key_identifier	string	Provides the key identifier used to identify the public key in the SSL certificate.
svm	svm	SVM, applies only to SVM-scoped objects.

Name	Type	Description
type	string	<p>Type of Certificate. The following types are supported:</p> <ul style="list-style-type: none"> • client - a certificate and its private key used by an SSL client in ONTAP. • server - a certificate and its private key used by an SSL server in ONTAP. • client_ca - a Certificate Authority certificate used by an SSL server in ONTAP to verify an SSL client certificate. • server_ca - a Certificate Authority certificate used by an SSL client in ONTAP to verify an SSL server certificate. • root_ca - a self-signed certificate used by ONTAP to sign other certificates by acting as a Certificate Authority. • enum: ["client", "server", "client_ca", "server_ca", "root_ca"] • Introduced in: 9.6 • x-nullable: true
uuid	string	Unique ID that identifies a certificate.

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.

Create or install security certificates

POST /security/certificates

Introduced In: 9.6

Creates or installs a certificate or downloads a certificate from Azure Key Vault (AKV) and installs it on the ONTAP cluster.

Required properties

- `svm.uuid` or `svm.name` - Existing SVM in which to create or install the certificate.
- `common_name` - Common name of the certificate. Required when creating a certificate.
- `type` - Type of certificate.
- `public_certificate` - Public key certificate in PEM format. Required when installing a certificate.
- `private_key` - Private key certificate in PEM format. Required when installing a CA-signed certificate.

Recommended optional properties

- `expiry_time` - Certificate expiration time. Specifying an expiration time is recommended when creating a certificate.
- `key_size` - Key size of the certificate in bits. Specifying a strong key size is recommended when creating a certificate.
- `name` - Unique certificate name per SVM or the name of the certificate in AKV, required for downloading AKV certificates. If one is not provided, it is automatically generated.

AKV required properties for downloading a certificate

- `azure.key_vault` - URI of the Azure Key Vault.
- `azure.client_id` - Application (client) ID of the deployed Azure application with appropriate access to an AKV.
- `azure.tenant_id` - Directory (tenant) ID of the deployed Azure application with appropriate access to an AKV.
- `azure.client_secret` - Secret used by the application to prove its identity to AKV.
- `azure.client_certificate` - PKCS12 certificate used by the application to prove its identity to AKV.

AKV optional properties for downloading a certificate

- `azure.oauth_host` - Open authorization server host name.
- `azure.proxy.type` - Type of proxy (http, https etc.) if proxy configuration is used.
- `azure.proxy.host` - Proxy hostname if proxy configuration is used.
- `azure.proxy.port` - Proxy port number if proxy configuration is used.
- `azure.proxy.username` - Proxy username if proxy configuration is used.
- `azure.proxy.password` - Proxy password if proxy configuration is used.
- `azure.timeout` - AKV connection timeout in seconds.
- `azure.verify_host` - Verify the identity of the AKV host name.

Default property values

If not specified in POST, the following default property values are assigned:

- `key_size` - *2048*
- `expiry_time` - *P365DT*
- `hash_function` - *sha256*

Related ONTAP commands

- `security certificate create`
- `security certificate install`
- `security certificate azure-install`

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>authority_key_identifier</code>	string	Provides the key identifier of the issuing CA certificate that signed the SSL certificate.
<code>azure</code>	azure	

Name	Type	Description
ca	string	Certificate authority
common_name	string	FQDN or custom common name. Provide on POST when creating a self-signed certificate.
expiry_time	string	Certificate expiration time, in ISO 8601 duration format or date and time format. Can be provided on POST if creating self-signed certificate. The expiration time range is between 1 day to 10 years.
hash_function	string	Hashing function. Can be provided on POST when creating a self-signed certificate. Hash functions md5 and sha1 are not allowed on POST.
intermediate_certificates	array[string]	Chain of intermediate Certificates in PEM format. Only valid in POST when installing a certificate.
key_size	integer	Key size of requested Certificate in bits. One of 512, 1024, 1536, 2048, 3072. Can be provided on POST if creating self-signed certificate with a minimum permissible value of 2048.
name	string	Certificate name or name of the certificate to be downloaded from the Azure Key Vault (AKV). If not provided in POST, a unique name specific to the SVM is automatically generated.
private_key	string	Private key Certificate in PEM format. Only valid for create when installing a CA-signed certificate. This is not audited.
public_certificate	string	Public key Certificate in PEM format. If this is not provided in POST, a self-signed certificate is created.

Name	Type	Description
serial_number	string	Serial number of certificate.
subject_alternatives	subject_alternatives	
subject_key_identifier	string	Provides the key identifier used to identify the public key in the SSL certificate.
svm	svm	SVM, applies only to SVM-scoped objects.
type	string	<p>Type of Certificate. The following types are supported:</p> <ul style="list-style-type: none"> • client - a certificate and its private key used by an SSL client in ONTAP. • server - a certificate and its private key used by an SSL server in ONTAP. • client_ca - a Certificate Authority certificate used by an SSL server in ONTAP to verify an SSL client certificate. • server_ca - a Certificate Authority certificate used by an SSL client in ONTAP to verify an SSL server certificate. • root_ca - a self-signed certificate used by ONTAP to sign other certificates by acting as a Certificate Authority. • enum: ["client", "server", "client_ca", "server_ca", "root_ca"] • Introduced in: 9.6 • x-nullable: true
uuid	string	Unique ID that identifies a certificate.

Example request

```
{
  "authority_key_identifier":
    "26:1F:C5:53:5B:D7:9E:E2:37:74:F4:F4:06:09:03:3D:EB:41:75:D7",
  "azure": {
    "client_certificate": "PEM Cert",
    "client_id": "aaaaaaaa-bbbb-aaaa-bbbb-aaaaaaaaaaaa",
    "client_secret": "abcdef",
    "key_vault": "https://kmip-akv-keyvault.vault.azure.net/",
    "oauth_host": "login.microsoftonline.com",
    "proxy": {
      "host": "proxy.eng.com",
      "password": "proxypassword",
      "port": 1234,
      "type": "string",
      "username": "proxyuser"
    },
    "tenant_id": "zzzzzzzz-yyyy-zzzz-yyyy-zzzzzzzzzzzz",
    "timeout": 25
  },
  "ca": "string",
  "common_name": "test.domain.com",
  "expiry_time": "2030-01-25 11:20:13 +0000",
  "hash_function": "string",
  "intermediate_certificates": [
    "<CERTIFICATE-CONTENT>"
  ],
  "key_size": 512,
  "name": "string",
  "private_key": "-----BEGIN PRIVATE KEY-----\\nprivate-key\\n-----END
PRIVATE KEY-----\\n",
  "public_certificate": "<CERTIFICATE-CONTENT>",
  "serial_number": "string",
  "subject_alternatives": {
    "dns": [
      "*.example.com"
    ],
    "email": [
      "<a href='mailto:abc@example.com'>abc@example.com</a>"
    ],
    "ip": [
      "10.225.34.10"
    ],
    "uri": [
      "http://example.com"
    ]
  }
}
```

```
]
},
"subject_key_identifier":
"26:1F:C5:53:5B:D7:9E:E2:37:74:F4:F4:06:09:03:3D:EB:41:75:D8",
"svm": {
  "name": "svm1",
  "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
},
"type": "string",
"uuid": "string"
}
```

Response

Status: 201, Created

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

Example response

```
{
  "num_records": 1,
  "records": [
    {
      "authority_key_identifier":
"26:1F:C5:53:5B:D7:9E:E2:37:74:F4:F4:06:09:03:3D:EB:41:75:D7",
      "azure": {
        "client_certificate": "PEM Cert",
        "client_id": "aaaaaaaa-bbbb-aaaa-bbbb-aaaaaaaaaaaa",
        "client_secret": "abcdef",
        "key_vault": "https://kmip-akv-keyvault.vault.azure.net/",
        "oauth_host": "login.microsoftonline.com",
        "proxy": {
          "host": "proxy.eng.com",
          "password": "proxypassword",
          "port": 1234,
          "type": "string",
          "username": "proxyuser"
        },
        "tenant_id": "zzzzzzzz-yyyy-zzzz-yyyy-zzzzzzzzzzzz",
        "timeout": 25
      },
      "ca": "string",
      "common_name": "test.domain.com",
      "expiry_time": "2030-01-25 11:20:13 +0000",
      "hash_function": "string",
      "intermediate_certificates": [
        "<CERTIFICATE-CONTENT>"
      ],
      "key_size": 512,
      "name": "string",
      "private_key": "-----BEGIN PRIVATE KEY-----\\nprivate-key\\n-----
END PRIVATE KEY-----\\n",
      "public_certificate": "<CERTIFICATE-CONTENT>",
      "serial_number": "string",
      "subject_alternatives": {
        "dns": [
          "*.example.com"
        ],
        "email": [
          "<a href='mailto:abc@example.com'>abc@example.com</a>"
        ],
        "ip": [
          "10.225.34.10"
        ]
      }
    }
  ]
}
```

```

    ],
    "uri": [
        "http://example.com"
    ],
    },
    "subject_key_identifier":
    "26:1F:C5:53:5B:D7:9E:E2:37:74:F4:F4:06:09:03:3D:EB:41:75:D8",
    "svm": {
        "name": "svm1",
        "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
    },
    "type": "string",
    "uuid": "string"
}
]
}

```

Headers

Name	Description	Type
Location	Useful for tracking the resource location	string

Error

Status: Default

ONTAP Error Response Codes

Error Code	Description
3735645	Cannot specify a value for serial. It is generated automatically.
	3735622
The certificate type is not supported.	
3735664	The specified key size is not supported in FIPS mode.
	3735665
The specified hash function is not supported in FIPS mode.	
3735553	Failed to create self-signed Certificate.
	3735646
Failed to store the certificates.	

Error Code	Description
3735693	The certificate installation failed as private key was empty.
	3735618
Cannot accept private key for server_ca or client_ca.	
52363365	Failed to allocate memory.
	52559975
Failed to read the certificate due to incorrect formatting.	
52363366	Unsupported key type.
	52560123
Failed to read the key due to incorrect formatting.	
52559972	The certificates start date is later than the current date.
	52559976
The certificate and private key do not match.	
52559973	The certificate has expired.
	52363366
Logic error: use of a dead object.	
3735696	Intermediate certificates are not supported with client_ca and server_ca type certificates.
	52559974
The certificate is not supported in FIPS mode.	
3735676	Cannot continue the installation without a value for the common name. Since the subject field in the certificate is empty, the field "common_name" must have a value to continue with the installation.
	3735558
Failed to extract information about Common Name from the certificate.	
3735588	The common name (CN) extracted from the certificate is not valid.
	3735632
Failed to extract Certificate Authority Information from the certificate.	
3735700	The specified key size is not supported.
	52560173

Error Code	Description
The hash function is not supported for digital signatures.	
3735751	Failed to authenticate and fetch the access token from Azure OAuth host.
	3735752
Failed to extract the private key from the Azure Key Vault certificate.	3735753
Unsupported content_type in the Azure secrets response.	3735754
Internal error. Failed to parse the JSON response from Azure Key Vault.	3735755
REST call to Azure failed.	3735756
Invalid client certificate.	3735757
Internal error. Failed to generate client assertion.	3735762
Provided Azure Key Vault configuration is incorrect.	3735763
Provided Azure Key Vault configuration is incomplete.	3735764

Definitions

See Definitions

href

Name	Type	Description
href	string	

_links

proxy

Name	Type	Description
host	string	Proxy host.
password	string	Proxy password. Password is not audited.
port	integer	Proxy port.
type	string	Proxy type.
username	string	Proxy username.

azure

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.

Name	Type	Description
key_vault	string	URI of the deployed AKV that is used by ONTAP for storing keys. <ul style="list-style-type: none"> • example: https://kmip-akv-keyvault.vault.azure.net/ • format: uri • x-ntap-createOnly: true • Introduced in: 9.14 • x-nullable: true
oauth_host	string	Open authorization server host name.
proxy	proxy	
tenant_id	string	Directory (tenant) ID of the deployed Azure application with appropriate access to an AKV.
timeout	integer	AKV connection timeout, in seconds. The allowed range is between 0 to 30 seconds.
verify_host	boolean	Verify the identity of the AKV host name. By default, verify_host is set to true.

subject_alternatives

Name	Type	Description
dns	array[string]	A list of DNS names for Subject Alternate name extension.
email	array[string]	A list of email addresses for Subject Alternate name extension
ip	array[string]	A list of IP addresses for Subject Alternate name extension.
uri	array[string]	A list of URIs for Subject Alternate name extension.

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.

security_certificate

Name	Type	Description
authority_key_identifier	string	Provides the key identifier of the issuing CA certificate that signed the SSL certificate.
azure	azure	
ca	string	Certificate authority
common_name	string	FQDN or custom common name. Provide on POST when creating a self-signed certificate.
expiry_time	string	Certificate expiration time, in ISO 8601 duration format or date and time format. Can be provided on POST if creating self-signed certificate. The expiration time range is between 1 day to 10 years.
hash_function	string	Hashing function. Can be provided on POST when creating a self-signed certificate. Hash functions md5 and sha1 are not allowed on POST.
intermediate_certificates	array[string]	Chain of intermediate Certificates in PEM format. Only valid in POST when installing a certificate.

Name	Type	Description
key_size	integer	Key size of requested Certificate in bits. One of 512, 1024, 1536, 2048, 3072. Can be provided on POST if creating self-signed certificate with a minimum permissible value of 2048.
name	string	Certificate name or name of the certificate to be downloaded from the Azure Key Vault (AKV). If not provided in POST, a unique name specific to the SVM is automatically generated.
private_key	string	Private key Certificate in PEM format. Only valid for create when installing a CA-signed certificate. This is not audited.
public_certificate	string	Public key Certificate in PEM format. If this is not provided in POST, a self-signed certificate is created.
serial_number	string	Serial number of certificate.
subject_alternatives	subject_alternatives	
subject_key_identifier	string	Provides the key identifier used to identify the public key in the SSL certificate.
svm	svm	SVM, applies only to SVM-scoped objects.

Name	Type	Description
type	string	<p>Type of Certificate. The following types are supported:</p> <ul style="list-style-type: none"> • client - a certificate and its private key used by an SSL client in ONTAP. • server - a certificate and its private key used by an SSL server in ONTAP. • client_ca - a Certificate Authority certificate used by an SSL server in ONTAP to verify an SSL client certificate. • server_ca - a Certificate Authority certificate used by an SSL client in ONTAP to verify an SSL server certificate. • root_ca - a self-signed certificate used by ONTAP to sign other certificates by acting as a Certificate Authority. • enum: ["client", "server", "client_ca", "server_ca", "root_ca"] • Introduced in: 9.6 • x-nullable: true
uuid	string	Unique ID that identifies a certificate.

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.

Sign security certificates

POST /security/certificates/{ca.uuid}/sign

Introduced In: 9.6

Signs a certificate.

Required properties

- `signing_request` - Certificate signing request to be signed by the given certificate authority.

Recommended optional properties

- `expiry_time` - Certificate expiration time. Specifying an expiration time for a signed certificate is recommended.
- `hash_function` - Hashing function. Specifying a strong hashing function is recommended when signing a certificate.

Default property values

If not specified in POST, the following default property values are assigned:

- `expiry_time` - *P365DT*
- `hash_function` - *sha256*

Related ONTAP commands

- `security certificate sign` This API is used to sign a certificate request using a pre-existing self-signed root certificate. The self-signed root certificate acts as a certificate authority within its scope and maintains the records of its signed certificates.

The root certificate can be created for a given SVM or for the cluster using [POST security/certificates].

Parameters

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

Request Body

Name	Type	Description
expiry_time	string	Certificate expiration time, in ISO 8601 duration format or date and time format. The allowed expiration time range is between 1 day to 10 years.
hash_function	string	Hashing function
signing_request	string	Certificate signing request to be signed by the given certificate authority. Request should be in X509 PEM format.

Example request

```
{
  "expiry_time": "P1DT2H3M4S or '2030-01-25T11:20:13Z'",
  "hash_function": "string",
  "signing_request": "<CERTIFICATE-CONTENT>"
}
```

Response

Status: 200, Ok

Name	Type	Description
public_certificate	string	CA signed public key Certificate

Example response

```
{
  "public_certificate": "string"
}
```

Error

Status: Default

ONTAP Error Response Codes

Error Code	Description
3735628	Failed to use CA certificate for signing.
3735665	The specified hash function is not supported in FIPS mode.
52559974	The certificate is not supported in FIPS mode.
3735626	Failed to generate signed Certificate.
3735558	Failed to extract information about Common Name from the certificate.
3735588	The common name (CN) extracted from the certificate is not valid.
3735632	Failed to extract Certificate Authority Information from the certificate.
3735629	Failed to sign the certificate because Common Name of signing certificate and Common Name of CA certificate are same.
3735630	Failed to sign the certificate because expiry date of signing certificate exceeds the expiry date of CA certificate.
3735701	Invalid expiration period. The allowed range for expiration time is between 1 and 3652 days.

Definitions

See Definitions

security_certificate_sign

Name	Type	Description
expiry_time	string	Certificate expiration time, in ISO 8601 duration format or date and time format. The allowed expiration time range is between 1 day to 10 years.
hash_function	string	Hashing function
signing_request	string	Certificate signing request to be signed by the given certificate authority. Request should be in X509 PEM format.

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 security certificates

DELETE /security/certificates/{uuid}

Introduced In: 9.6

Deletes a security certificate.

Related ONTAP commands

- `security certificate delete`

Parameters

Name	Type	In	Required	Description
uuid	string	path	True	Certificate UUID

Response

Status: 200, Ok

Error

Status: Default

ONTAP Error Response Codes

Error Code	Description
3735644	Cannot delete server-chain certificate. Reason: There is a corresponding server certificate for it.
3735679	Cannot delete pre-installed server_ca certificates through REST. Use CLI or ZAPI.
3735650	Deleting this client_ca certificate directly is not supported. Delete the corresponding root-ca certificate using type <code>root_ca</code> to delete the root, client, and server certificates.
3735627	Deleting this server_ca certificate directly is not supported. Delete the corresponding root-ca certificate using type <code>root_ca</code> to delete the root, client, and server certificates.
3735589	Cannot delete certificate.
3735590	Cannot delete certificate. Failed to remove SSL configuration for the certificate.
3735683	Cannot remove this certificate while external key manager is configured.
3735681	Cannot delete preinstalled server-ca certificates. Use the CLI to complete the operation.
52560272	The certificate could not be removed due to being in use by one or more subsystems.

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 security certificates

GET /security/certificates/{uuid}

Introduced In: 9.6

Retrieves security certificates.

Related ONTAP commands

- `security certificate show`

Parameters

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

Response

Status: 200, Ok

Name	Type	Description
_links	_links	
authority_key_identifier	string	Provides the key identifier of the issuing CA certificate that signed the SSL certificate.
azure	azure	
ca	string	Certificate authority
common_name	string	FQDN or custom common name. Provide on POST when creating a self-signed certificate.
expiry_time	string	Certificate expiration time, in ISO 8601 duration format or date and time format. Can be provided on POST if creating self-signed certificate. The expiration time range is between 1 day to 10 years.

Name	Type	Description
hash_function	string	Hashing function. Can be provided on POST when creating a self-signed certificate. Hash functions md5 and sha1 are not allowed on POST.
key_size	integer	Key size of requested Certificate in bits. One of 512, 1024, 1536, 2048, 3072. Can be provided on POST if creating self-signed certificate with a minimum permissible value of 2048.
name	string	Certificate name or name of the certificate to be downloaded from the Azure Key Vault (AKV). If not provided in POST, a unique name specific to the SVM is automatically generated.
public_certificate	string	Public key Certificate in PEM format. If this is not provided in POST, a self-signed certificate is created.
scope	string	Set to "svm" for interfaces owned by an SVM. Otherwise, set to "cluster".
serial_number	string	Serial number of certificate.
subject_alternatives	subject_alternatives	
subject_key_identifier	string	Provides the key identifier used to identify the public key in the SSL certificate.
svm	svm	SVM, applies only to SVM-scoped objects.

Name	Type	Description
type	string	<p>Type of Certificate. The following types are supported:</p> <ul style="list-style-type: none"> • client - a certificate and its private key used by an SSL client in ONTAP. • server - a certificate and its private key used by an SSL server in ONTAP. • client_ca - a Certificate Authority certificate used by an SSL server in ONTAP to verify an SSL client certificate. • server_ca - a Certificate Authority certificate used by an SSL client in ONTAP to verify an SSL server certificate. • root_ca - a self-signed certificate used by ONTAP to sign other certificates by acting as a Certificate Authority. • enum: ["client", "server", "client_ca", "server_ca", "root_ca"] • Introduced in: 9.6 • x-nullable: true
uuid	string	Unique ID that identifies a certificate.

Example response

```
{
  "_links": {
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "authority_key_identifier":
  "26:1F:C5:53:5B:D7:9E:E2:37:74:F4:F4:06:09:03:3D:EB:41:75:D7",
  "azure": {
    "verify_host": true
  },
  "ca": "string",
  "common_name": "test.domain.com",
  "expiry_time": "2030-01-25 11:20:13 +0000",
  "hash_function": "string",
  "key_size": 512,
  "name": "string",
  "public_certificate": "<CERTIFICATE-CONTENT>",
  "scope": "string",
  "serial_number": "string",
  "subject_alternatives": {
    "dns": [
      "*.example.com"
    ],
    "email": [
      "<a href='mailto:abc@example.com'>abc@example.com</a>"
    ],
    "ip": [
      "10.225.34.10"
    ],
    "uri": [
      "http://example.com"
    ]
  },
  "subject_key_identifier":
  "26:1F:C5:53:5B:D7:9E:E2:37:74:F4:F4:06:09:03:3D:EB:41:75:D8",
  "svm": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "name": "svm1",
    "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
  }
}
```



```
},
"type": "string",
"uuid": "string"
}
```

Error

Status: Default, Error

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	

proxy

azure

Name	Type	Description
proxy	proxy	

subject_alternatives

Name	Type	Description
dns	array[string]	A list of DNS names for Subject Alternate name extension.
email	array[string]	A list of email addresses for Subject Alternate name extension
ip	array[string]	A list of IP addresses for Subject Alternate name extension.
uri	array[string]	A list of URIs for Subject Alternate name extension.

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.

Name	Type	Description
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.

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