



security certificate commands

ONTAP 9.7 commands

NetApp

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security certificate commands

security certificate create

Create and Install a Self-Signed Digital Certificate

Availability: This command is available to *cluster* and *Vserver* administrators at the *admin* privilege level.

Description

The `security certificate create` command creates and installs a self-signed digital certificate, which can be used for server authentication, for signing other certificates by acting as a certificate authority (CA), or for Data ONTAP as an SSL client. The certificate function is selected by the `-type` field. Self-signed digital certificates are not as secure as certificates signed by a CA. Therefore, they are not recommended in a production environment.

Parameters

-vserver <Vserver Name> - Name of Vserver

This specifies the name of the Vserver on which the certificate will exist.

-common-name <FQDN or Custom Common Name> - FQDN or Custom Common Name

This specifies the desired certificate name as a fully qualified domain name (FQDN) or custom common name or the name of a person. The supported characters, which are a subset of the ASCII character set, are as follows:

- Letters a through z, A through Z
- Numbers 0 through 9
- Asterisk (*), period (.), underscore (_) and hyphen (-)

The common name must not start or end with a "-" or a ".". The maximum length is 253 characters.

-type <type of certificate> - Type of Certificate

This specifies the certificate type. Valid values are the following:

- *server* - creates and installs a self-signed digital certificate and intermediate certificates to be used for server authentication
- *root-ca* - creates and installs a self-signed digital certificate to sign other certificates by acting as a certificate authority (CA)
- *client* - includes a self-signed digital certificate and private key to be used for Data ONTAP as an SSL client

[-subtype <kmip-cert>] - (DEPRECATED)-Certificate Subtype



This parameter has been deprecated in ONTAP 9.6 and may be removed in a future release of Data ONTAP.

This specifies a certificate subtype. This optional parameter can have an empty value (the default). The only valid value is as follows:

- *kmip-cert* - this is a Key Management Interoperability Protocol (KMIP) certificate

`[-cert-name <text>]` - Unique Certificate Name

This specifies the system's internal identifier for the certificate. It must be unique within a Vserver. If not provided, it is automatically generated by the system.

`-size <size of requested certificate in bits>` - Size of Requested Certificate in Bits

This specifies the number of bits in the private key. The larger the value, the more secure is the key. The default is 2048. Possible values include *512*, *1024*, *1536*, *2048* and *3072* when the "FIPS Mode" in "security config" is false. When the "FIPS Mode" is true, the possible values are *2048* and *3072*.

`-country <text>` - Country Name

This specifies the country where the Vserver resides. The country name is a two-letter code. The default is US. Here is the list of country codes:

[Country Codes](#)

`-state <text>` - State or Province Name

This specifies the state or province where the Vserver resides.

`-locality <text>` - Locality Name

This specifies the locality where the Vserver resides. For example, the name of a city.

`-organization <text>` - Organization Name

This specifies the organization where the Vserver resides. For example, the name of a company.

`-unit <text>` - Organization Unit

This specifies the unit where the Vserver resides. For example, the name of a section or a department within a company.

`-email-addr <mail address>` - Contact Administrator's Email Address

This specifies the email address of the contact administrator for the Vserver.

`-expire-days <integer>` - Number of Days until Expiration

This specifies the number of days until the certificate expires. The default value is 365 days. Possible values are between *1* and *3652*.

`-protocol <protocol>` - Protocol

This specifies the protocol type. This parameter currently supports only the SSL protocol type. The default is SSL.

`-hash-function <hashing function>` - Hashing Function

This specifies the cryptographic hashing function for signing the certificate. The default is SHA256. Possible values include *SHA1*, *SHA256*, *MD5*, *SHA224*, *SHA384* and *SHA512* when the "FIPS Mode" in "security config" is false. When the "FIPS Mode" is true, the possible values are *SHA224*, *SHA256*, *SHA384* and *SHA512*.

Examples

This example creates a server type, self-signed digital certificate for a Vserver named `vs0` at a company whose custom common name is `www.example.com` and whose Vserver name is `vs0`.

```
cluster1::> security certificate create -vserver vs0 -common-name
www.example.com -type server
```

This example creates a root-ca type, self-signed digital certificate with a 2048-bit private key generated by the SHA256 hashing function that will expire in 365 days for a Vserver named `vs0` for use by the Software group in IT at a company whose custom common name is `www.example.com`, located in Sunnyvale, California, USA. The email address of the contact administrator who manages the Vserver is `web@example.com`.

```
cluster1::> security certificate create -vserver vs0 -common-name
www.example.com -type root-ca -size 2048 -country US -state California
-locality Sunnyvale -organization IT -unit Software -email-addr
web@example.com -expire-days 365 -hash-function SHA256
```

This example creates a client type of self-signed digital certificate for a Vserver named `vs0` at a company that uses Data ONTAP as an SSL client. The company's custom common name is `www.example.com` and its Vserver name is `vs0`.

```
cluster1::> security certificate create -vserver vs0 -common-name
www.example.com -type client -size 2048 -country US -state California
-locality Sunnyvale -organization IT -unit Software -email-addr
web@example.com -expire-days 365 -hash-function SHA256
```

security certificate delete

Delete an Installed Digital Certificate

Availability: This command is available to *cluster* and *Vserver* administrators at the *admin* privilege level.

Description

This command deletes an installed digital security certificate.

Parameters

-vserver <Vserver Name> - Name of Vserver

This specifies the Vserver that contains the certificate.

-common-name <FQDN or Custom Common Name> - FQDN or Custom Common Name

This specifies the desired certificate name as a fully qualified domain name (FQDN) or custom common name or the name of a person. The supported characters, which are a subset of the ASCII character set, are as follows:

- Letters a through z, A through Z
- Numbers 0 through 9
- Asterisk (*), period (.), underscore (_) and hyphen (-)

The common name must not start or end with a "-" or a ".". The maximum length is 253 characters.

`[-serial <text>]` - Serial Number of Certificate

This specifies the certificate serial number.

`-ca <text>` - Certificate Authority

This specifies the certificate authority (CA).

`-type <type of certificate>` - Type of Certificate

This specifies the certificate type. Valid values are the following:

- *server* - includes server certificates and intermediate certificates
- *root-ca* - includes a self-signed digital certificate to sign other certificates by acting as a certificate authority (CA)
- *client-ca* - includes the public key certificate for the root CA of the SSL client. If this client-ca certificate is created as part of a root-ca, it will be deleted along with the corresponding deletion of the root-ca.
- *server-ca* - includes the public key certificate for the root CA of the SSL server to which Data ONTAP is a client. If this server-ca certificate is created as part of a root-ca, it will be deleted along with the corresponding deletion of the root-ca.
- *client* - includes a public key certificate and private key to be used for Data ONTAP as an SSL client

`[-subtype <kmip-cert>]` - (DEPRECATED)-Certificate Subtype



This parameter has been deprecated in ONTAP 9.6 and may be removed in a future release of Data ONTAP.

This specifies a certificate subtype. This optional parameter can have an empty value (the default). The only valid value is as follows:

- *kmip-cert* - this is a Key Management Interoperability Protocol (KMIP) certificate

`[-cert-name <text>]` - Unique Certificate Name

This specifies the system's internal identifier for the certificate. It is unique within a Vserver.

Examples

This example deletes a root-ca type digital certificate for a Vserver named vs0 in a company named *www.example.com* with serial number 4F57D3D1.

```
cluster1::> security certificate delete -vserver vs0 -common-name  
www.example.com -ca www.example.com -type root-ca -serial 4F57D3D1
```

security certificate generate-csr

Generate a Digital Certificate Signing Request

Availability: This command is available to *cluster* and *Vserver* administrators at the *admin* privilege level.

Description

This command generates a digital certificate signing request and displays it on the console. A certificate signing request (CSR or certification request) is a message sent securely to a certificate authority (CA) via any electronic media, to apply for a digital identity certificate.

Parameters

-common-name <FQDN or Custom Common Name> - FQDN or Custom Common Name

This specifies the desired certificate name as a fully qualified domain name (FQDN) or custom common name or the name of a person. The supported characters, which are a subset of the ASCII character set, are as follows:

- Letters a through z, A through Z
- Numbers 0 through 9
- Asterisk (*), period (.), underscore (_) and hyphen (-)

The common name must not start or end with a "-" or a ".". The maximum length is 253 characters.

[-size <size of requested certificate in bits>] - Size of Requested Certificate in Bits

This specifies the number of bits in the private key. The higher the value, the more secure is the key. The default is 2048. Possible values include *512*, *1024*, *1536* and *2048*.

[-country <text>] - Country Name

This specifies the country where the Vserver resides. The country name is a two-letter code. The default is US. Here is the list of country codes:

[Country Codes](#)

[-state <text>] - State or Province Name

This specifies the state or province where the Vserver resides.

[-locality <text>] - Locality Name

This specifies the locality where the Vserver resides. For example, the name of a city.

[-organization <text>] - Organization Name

This specifies the organization where the Vserver resides. For example, the name of a company.

[-unit <text>] - Organization Unit

This specifies the unit where the Vserver resides. For example, the name of a section or a department within a company.

[-email-addr <mail address>] - Contact Administrator's Email Address

This specifies the email address of the contact administrator for the Vserver.

[-hash-function <hashing function>] - Hashing Function

This specifies the cryptographic hashing function for signing the certificate. The default is SHA256. Possible values include *SHA1* , *SHA256* and *MD5* .

Examples

This example creates a certificate-signing request with a 2048-bit private key generated by the SHA256 hashing function for use by the Software group in IT at a company whose custom common name is *www.example.com* , located in Sunnyvale, California, USA. The email address of the contact administrator who manages the Vserver is *web@example.com* .

```
cluster1::> security certificate generate-csr -common-name www.example.com
-size 2048 -country US -state California -locality Sunnyvale -organization
IT -unit Software
-email-addr web@example.com -hash-function SHA256
```

Certificate Signing Request :

-----BEGIN CERTIFICATE REQUEST-----

```
MIIBGjCBxQIBADBgMRQwEgYDVQQDEwtleGFtcGxlLmNvbTELMakGA1UEBhMCVVMx
CTAHBgNVBAgTADExJMacGA1UEBxMAMQkwBwYDVQQKEwAxCTAHBgNVBAsTADExPMA0G
CSqGSIB3DQEJARYAMFwwDQYJKoZIhvcNAQEBBQADSwAwSAJBAPXFanNoJApTlnzS
xOcxixqImRRGZCR7tVmTYyqPSuTvfVhVtwDJbmXuj6U3alwoUsb13wfEvQnHVFNCi
2ninsJ8CAwEAAaAAMA0GCSqGSIB3DQEBwUAA0EA6EagLfso5+4g+ejiRKKKTUPQO
UqOUEoKuvxhOvPC2w7b//fNSFsFHvXloqEOhYECn/NX9h8mbphCoM5YZ4OfnKw==
```

-----END CERTIFICATE REQUEST-----

Private Key :

-----BEGIN RSA PRIVATE KEY-----

```
MIIBOwIBAAJBAPXFanNoJApTlnzSxOcxixqImRRGZCR7tVmTYyqPSuTvfVhVtwDJb
mXuj6U3alwoUsb13wfEvQnHVFNCi2ninsJ8CAwEAAQJAWt2AO+bW3FKezEuIrQlu
KoMyRYK455wtMk8BrOyJfhYsB20B28eifjJvRWdTOBEav99M7cEzgPv+p5kaZTTM
gQIhAPsp+j1hrUXSRj979LIJJY0sNez397i7ViFXWQScx/ehAiEA+oDbOooWlVvu
xj4aitxVBu6ByVckYU8LbsfeRNsZwD8CIQCbZ1/ENvmlJ/P7N9Exj2NCtEYxd0Q5
cwBZ5NfZeMBpwQIhAPk0KWQSLadGfsKO077itF+h9FGFNHbtuNTrVq4vPW3nAiAA
peMBQgEv28y2r8D4dkYzxcXmjzJluUSZSZ9c/wS6fA==
```

-----END RSA PRIVATE KEY-----

Note: Please keep a copy of your certificate request and private key for future reference.

security certificate install

Install a Digital Certificate

Availability: This command is available to *cluster* and *Vserver* administrators at the *admin* privilege level.

Description

The `security certificate install` command installs digital security certificates signed by a certificate authority (CA) and the public key certificate of the root CA. Digital security certificates also include the intermediate certificates to construct the chain for server certificates (the `server` type), client-side root CA certificates (the `client-ca` type), or server-side root CA certificates (the `server-ca` type). with FIPS enabled, the following restrictions apply to the certificate getting installed. `server/client/server-ca/client-ca`: Key size \geq 2048, `server/client`: Hash function (No MD-5, No SHA-1), `server-ca/client-ca`: (Intermediate CA), Hash Function (No MD-5, No SHA-1), `server-ca/client-ca`: (Root CA), Hash Function (No MD-5)

Parameters

-vserver <Vserver Name> - Name of Vserver

This specifies the Vserver that contains the certificate.

-type <type of certificate> - Type of Certificate

This specifies the certificate type. Valid values are the following:

- `server` - includes server certificates and intermediate certificates.
- `client-ca` - includes the public key certificate for the root CA of the SSL client
- `server-ca` - includes the public key certificate for the root CA of the SSL server to which Data ONTAP is a client
- `client` - includes a self-signed or CA-signed digital certificate and private key to be used for Data ONTAP as an SSL client

[-subtype <kmip-cert>] - (DEPRECATED)-Certificate Subtype



This parameter has been deprecated in ONTAP 9.6 and may be removed in a future release of Data ONTAP.

This specifies a certificate subtype. This optional parameter can have an empty value (the default). The only valid value is as follows:

- `kmip-cert` - this is a Key Management Interoperability Protocol (KMIP) certificate

[-kmip-server-ip <IP Address>] - (DEPRECATED)-IPv4 and IPv6 address



This parameter is deprecated and might be removed in the future releases of Data ONTAP.

This parameter is applicable only to the ```_kmip-cert_``` subtype. It specifies the IP address of the KMIP server.

[-cert-name <text>] - Unique Certificate Name

This specifies the system's internal identifier for the certificate. It must be unique within a Vserver. If not provided, it is automatically generated by the system.

Examples

This example installs a CA-signed certificate (along with intermediate certificates) for a Vserver named vs0.

```
cluster1::> security certificate install -vserver vs0 -type server
Please enter Certificate: Press <Enter> when done
-----BEGIN CERTIFICATE-----
MIIB8TCCA ZugAwIBAwIBADANBgkqhkiG9w0BAQQFAADBfMRMwEQYDVQQDEwpuZXRh
cHAuY29tMQswCQYDVQQGEwJVUzEJMAcGA1UECBMAMQkwBwYDVQQHEwAxCTAHBgNV
BAoTADBJMAcGA1UECzMAMQ8wDQYJKoZIhvcNAQkBFgAwHhcNMTAwNDI2MTk0OTI4
WhcNMTAwNTI2MTk0OTI4WjBfMRMwEQYDVQQDEwpuZXRhY29tMQswCQYDVQQG
EwJVUzEJMAcGA1UECBMAMQkwBwYDVQQHEwAxCTAHBgNVBAoTADBJMAcGA1UECzMAMQ8wDQYJKoZIhvcNAQkBFgAwXDANBgkqhkiG9w0BAQEFAANLADBIAkEAyXrK2sry
-----END CERTIFICATE-----
Please enter Private Key: Press <Enter> when done
-----BEGIN RSA PRIVATE KEY-----
MIIBPAIBAAJBAMl6ytrK8nQj82UsWeHOeT8gk0BPX+Y5MLyCsUdXA7hXhumHNpvF
C61X2G32Sx8VEalth94tx+vOEzq+UaqHlt0CAwEAAQJBAMZjDWlgmlm3qIr/n8VT
PFnnZnbVcXVM70tbUsgPKw+QCC9dF1jmuQKeDr+wUMWkn1DeGrfhILpzfJGHRlJ
z7UCIQDr8d3gOG71UyX+BbFmo/N0uAKjS2cvUU+Y8a8pDxGLLwIhANqa99SuS18U
DiPvdaKTj6+EcGuXfCXz+G0rfgTZK8uzAiEArlmnrFYC8KwE9k7A0ylRzBLdUwK9
AvuJDn+/z+H1Bd0CIQDD93P/xpaJETNz53Au49VE5Jba/Jugckrbosd/1Sd7nQIg
aEMAZt6qHHT4mndi8Bo8sDGedG2SKx6Qbn2IpuNZ7rc=
-----END RSA PRIVATE KEY-----

Do you want to continue entering root and/or intermediate certificates
{y|n}: y

Please enter Intermediate Certificate: Press <Enter> when done
-----BEGIN CERTIFICATE-----
MIIE+zCCBGSGAwIBAgICAQ0wDQYJKoZIhvcNAQEFBQAwbGbsxJDAiBgNVBACtG1Zh
bGlDZXJ0IFZhbGlkYXRpb24gTmV0d29yazEXMBUGA1UEChMOVmFsaUNlcnQsIElu
Yy4xNTAzBgNVBASTLFZhbGlDZXJ0IENsYXNzIDIgUG9saWN5IFZhbGlkYXRpb24g
QXV0aG9yaXR5MSEwHwYDVQQDExhodHRWoi8vd3d3LnZhbGljZXJ0LmNvbS8xIDAe
BgkqhkiG9w0BCQEWElwZm9AdmFsaWNlcnQuY29tMB4XDTA0MDYyOTE3MDYyMFoX
DTI0MDYyOTE3MDYyMFowYzELMAkGA1UEBhMCVVMxITAfBgNVBAoTGFROZSBHbyBE
YWRkeSBHcm91cCwgSW5jLjExMC8GA1UECzM0R28gRGFkZHZkgQ2xhc3MgMiBDZXJ0
-----END CERTIFICATE-----
Do you want to continue entering root and/or intermediate certificates
{y|n}: y

Please enter Intermediate Certificate: Press <Enter> when done
```

-----BEGIN CERTIFICATE-----

```
MIIC5zCCALACAQEwDQYJKoZIhvcNAQEFBQAwbG9w0BAQUFADCB
IFZhbGlkYXRpb24gTmV0d29yazEXMBUGA1UEChMOVmFsaUNlcnQsIEluYy4xNTAz
BgNVBAsTLFZhbGlDZXJ0IENsYXNzIDIGUG9saWN5IFZhbGlkYXRpb24gQXV0aG9y
aXR5MSEwHwYDVQQDEzhodHRwOi8vd3d3LnZhbGljZXJ0LmNvbS8xIDAeBgkqhkiG
9w0BCQEWEluZm9AdmFsaWNlcnQuY29tMB4XDtk5MDYyNjAwMTk1NFoXDTE5MDYy
NjAwMTk1NFowgbsxJDAiBgNVBACG1ZhbGlDZXJ0IFZhbGlkYXRpb24gTmV0d29y
azEXMBUGA1UEChMOVmFsaUNlcnQsIEluYy4xNTAzBgNVBAsTLFZhbGlDZXJ0IENs
YXNzIDIGUG9saWN5IFZhbGlkYXRpb24gQXV0aG9yaXR5MSEwHwYDVQQDEzhodHRw
```

-----END CERTIFICATE-----

Do you want to continue entering root and/or intermediate certificates
{y|n}: n

You should keep a copy of the private key and the CA-signed digital
certificate
for future reference.

This example installs a CA certificate for client authentication for a Vserver named vs0.

```
cluster1::> security certificate install -vserver vs0 -type client-ca
```

Please enter Certificate: Press <Enter> when done

-----BEGIN CERTIFICATE-----

```
MIIDNjCCAp+gAwIBAgIQNhIilsXjOKUgodJfTNcJVDANBgkqhkiG9w0BAQUFADCB
zjELMAkGA1UEBhMCWkExFTATBgNVBAGTDFdlc3Rlcm4gQ2FwZTESMBAGA1UEBxMJ
Q2FwZSBUb3duMR0wGwYDVQQKEXRUAaGF3dGUgQ29uc3VsdGluZyBjYzEoMCYGA1UE
CxMfQ2VydGhmaWNhdGlvbiBTZXJ2aWNlcYBEaXZpc2lvdjEhMB8GA1UEAxMYVGhh
d3RlIFByZW1pdW0gU2VydMvYIENBMSgwJgYJKoZIhvcNAQkBFhlwcmVtaXVtLXNl
cnZlc3Rlcm4gQ2FwZGUuY29tMB4XDtk2MDgwMTAwMDAwMFoXDTEwMDYwMTIzNTk1OVow
gc4xCzAJBgNVBAYTAlpBMRUwEwYDVQQIEwxxZXN0ZXJ0IENhcGUxEjAQBgNVBAcT
```

-----END CERTIFICATE-----

You should keep a copy of the CA-signed digital certificate for future
reference.

This example installs a CA certificate for server authentication for a Vserver named vs0. In this case, Data
ONTAP acts as an SSL client.

```
cluster1::> security certificate install -vserver vs0 -type server-ca
```

Please enter Certificate: Press <Enter> when done

-----BEGIN CERTIFICATE-----

```
MIIDNjCCAp+gAwIBAgIQNhIilsXjOKUgodJfTNcJVDANBgkqhkiG9w0BAQUFADCB
zjELMAkGA1UEBhMCWkExFTATBgNVBAGTDfdlc3Rlcm4gQ2FwZTESMBAGA1UEBxMJ
Q2FwZSBUb3duMR0wGwYDVQQKEXRUaGF3dGUgQ29uc3VsdGluZyBjYzEoMCYGA1UE
CxMfQ2VydGhmaWNhdGlvbiBTZXJ2aWNlcYBEaXZpc2lvbjEhMB8GA1UEAxMYVGhh
d3RlIFByZW1pdW0gU2VydMvYIENBMSgwJgYJKoZIhvcNAQkBFhlwcmVtaXVtLXNl
cnZlckB0aGF3dGUuY29tMB4XDTE2MDgwMTAwMDAwMFoXDTE2MDEwMTIzNTk1OVow
gc4xCzAJBgNVBAYTAUpBMRUwEwYDVQQIEWwXZXN0ZXJuIENhcGUxEjAQBgNVBAcT
```

-----END CERTIFICATE-----

You should keep a copy of the CA-signed digital certificate for future reference.

security certificate print

Display the contents of a certificate

Availability: This command is available to *cluster* and *Vserver* administrators at the *admin* privilege level.

Description

This command displays the details of either an installed certificate or by reading a certificate from user input.

Parameters

-vserver <Vserver Name> - Vserver Name

Use this parameter to specify the Vserver that has the certificate installed.

{ [-cert-name <text>] - Installed Certificate Name

Use this parameter to specify the unique name of the installed certificate to read and display.

| [-cert-uuid <UUID>] - Installed Certificate UUID }

Use this parameter to specify the unique UUID of the installed certificate to read and display. With no name or UUID specified, the certificate will read and display from user input.

Examples

The following example reads and prints the details of the certificate.

```
cluster1::> security certificate print -vserver vs0 -cert-name
AAACertificateServices
Certificate details:
Certificate:
    Data:
```

```
Version: 3 (0x2)
Serial Number: 6271844772424770508 (0x570a119742c4e3cc)
Signature Algorithm: sha256WithRSAEncryption
Issuer: C=IT, L=Milan, O=Actalis S.p.A./03358520967, CN=Actalis
Authentication Root CA
Validity
  Not Before: Sep 22 11:22:02 2011 GMT
  Not After : Sep 22 11:22:02 2030 GMT
Subject: C=IT, L=Milan, O=Actalis S.p.A./03358520967, CN=Actalis
Authentication Root CA
Subject Public Key Info:
  Public Key Algorithm: rsaEncryption
  Public-Key: (4096 bit)
  Modulus:
    00:a7:c6:c4:a5:29:a4:2c:ef:e5:18:c5:b0:50:a3:
    6f:51:3b:9f:0a:5a:c9:c2:48:38:0a:c2:1c:a0:18:
    7f:91:b5:87:b9:40:3f:dd:1d:68:1f:08:83:d5:2d:
    1e:88:a0:f8:8f:56:8f:6d:99:02:92:90:16:d5:5f:
    08:6c:89:d7:e1:ac:bc:20:c2:b1:e0:83:51:8a:69:
    4d:00:96:5a:6f:2f:c0:44:7e:a3:0e:e4:91:cd:58:
    ee:dc:fb:c7:1e:45:47:dd:27:b9:08:01:9f:a6:21:
    1d:f5:41:2d:2f:4c:fd:28:ad:e0:8a:ad:22:b4:56:
    65:8e:86:54:8f:93:43:29:de:39:46:78:a3:30:23:
    ba:cd:f0:7d:13:57:c0:5d:d2:83:6b:48:4c:c4:ab:
    9f:80:5a:5b:3a:bd:c9:a7:22:3f:80:27:33:5b:0e:
    b7:8a:0c:5d:07:37:08:cb:6c:d2:7a:47:22:44:35:
    c5:cc:cc:2e:8e:dd:2a:ed:b7:7d:66:0d:5f:61:51:
    22:55:1b:e3:46:e3:e3:3d:d0:35:62:9a:db:af:14:
    c8:5b:a1:cc:89:1b:e1:30:26:fc:a0:9b:1f:81:a7:
    47:1f:04:eb:a3:39:92:06:9f:99:d3:bf:d3:ea:4f:
    50:9c:19:fe:96:87:1e:3c:65:f6:a3:18:24:83:86:
    10:e7:54:3e:a8:3a:76:24:4f:81:21:c5:e3:0f:02:
    f8:93:94:47:20:bb:fe:d4:0e:d3:68:b9:dd:c4:7a:
    84:82:e3:53:54:79:dd:db:9c:d2:f2:07:9b:2e:b6:
    bc:3e:ed:85:6d:ef:25:11:f2:97:1a:42:61:f7:4a:
    97:e8:8b:b1:10:07:fa:65:81:b2:a2:39:cf:f7:3c:
    ff:18:fb:c6:f1:5a:8b:59:e2:02:ac:7b:92:d0:4e:
    14:4f:59:45:f6:0c:5e:28:5f:b0:e8:3f:45:cf:cf:
    af:9b:6f:fb:84:d3:77:5a:95:6f:ac:94:84:9e:ee:
    bc:c0:4a:8f:4a:93:f8:44:21:e2:31:45:61:50:4e:
    10:d8:e3:35:7c:4c:19:b4:de:05:bf:a3:06:9f:c8:
    b5:cd:e4:1f:d7:17:06:0d:7a:95:74:55:0d:68:1a:
    fc:10:1b:62:64:9d:6d:e0:95:a0:c3:94:07:57:0d:
    14:e6:bd:05:fb:b8:9f:e6:df:8b:e2:c6:e7:7e:96:
    f6:53:c5:80:34:50:28:58:f0:12:50:71:17:30:ba:
    e6:78:63:bc:f4:b2:ad:9b:2b:b2:fe:e1:39:8c:5e:
```

```
        ba:0b:20:94:de:7b:83:b8:ff:e3:56:8d:b7:11:e9:
        3b:8c:f2:b1:c1:5d:9d:a4:0b:4c:2b:d9:b2:18:f5:
        b5:9f:4b
    Exponent: 65537 (0x10001)
X509v3 extensions:
    X509v3 Subject Key Identifier:

52:D8:88:3A:C8:9F:78:66:ED:89:F3:7B:38:70:94:C9:02:02:36:D0
    X509v3 Basic Constraints: critical
        CA:TRUE
    X509v3 Authority Key Identifier:

keyid:52:D8:88:3A:C8:9F:78:66:ED:89:F3:7B:38:70:94:C9:02:02:36:D0
X509v3 Key Usage: critical
    Certificate Sign, CRL Sign
Signature Algorithm: sha256WithRSAEncryption
0b:7b:72:87:c0:60:a6:49:4c:88:58:e6:1d:88:f7:14:64:48:
a6:d8:58:0a:0e:4f:13:35:df:35:1d:d4:ed:06:31:c8:81:3e:
6a:d5:dd:3b:1a:32:ee:90:3d:11:d2:2e:f4:8e:c3:63:2e:23:
66:b0:67:be:6f:b6:c0:13:39:60:aa:a2:34:25:93:75:52:de:
a7:9d:ad:0e:87:89:52:71:6a:16:3c:19:1d:83:f8:9a:29:65:
be:f4:3f:9a:d9:f0:f3:5a:87:21:71:80:4d:cb:e0:38:9b:3f:
bb:fa:e0:30:4d:cf:86:d3:65:10:19:18:d1:97:02:b1:2b:72:
42:68:ac:a0:bd:4e:5a:da:18:bf:6b:98:81:d0:fd:9a:be:5e:
15:48:cd:11:15:b9:c0:29:5c:b4:e8:88:f7:3e:36:ae:b7:62:
fd:1e:62:de:70:78:10:1c:48:5b:da:bc:a4:38:ba:67:ed:55:
3e:5e:57:df:d4:03:40:4c:81:a4:d2:4f:63:a7:09:42:09:14:
fc:00:a9:c2:80:73:4f:2e:c0:40:d9:11:7b:48:ea:7a:02:c0:
d3:eb:28:01:26:58:74:c1:c0:73:22:6d:93:95:fd:39:7d:bb:
2a:e3:f6:82:e3:2c:97:5f:4e:1f:91:94:fa:fe:2c:a3:d8:76:
1a:b8:4d:b2:38:4f:9b:fa:1d:48:60:79:26:e2:f3:fd:a9:d0:
9a:e8:70:8f:49:7a:d6:e5:bd:0a:0e:db:2d:f3:8d:bf:eb:e3:
a4:7d:cb:c7:95:71:e8:da:a3:7c:c5:c2:f8:74:92:04:1b:86:
ac:a4:22:53:40:b6:ac:fe:4c:76:cf:fb:94:32:c0:35:9f:76:
3f:6e:e5:90:6e:a0:a6:26:a2:b8:2c:be:d1:2b:85:fd:a7:68:
c8:ba:01:2b:b1:6c:74:1d:b8:73:95:e7:ee:b7:c7:25:f0:00:
4c:00:b2:7e:b6:0b:8b:1c:f3:c0:50:9e:25:b9:e0:08:de:36:
66:ff:37:a5:d1:bb:54:64:2c:c9:27:b5:4b:92:7e:65:ff:d3:
2d:e1:b9:4e:bc:7f:a4:41:21:90:41:77:a6:39:1f:ea:9e:e3:
9f:d0:66:6f:05:ec:aa:76:7e:bf:6b:16:a0:eb:b5:c7:fc:92:
54:2f:2b:11:27:25:37:78:4c:51:6a:b0:f3:cc:58:5d:14:f1:
6a:48:15:ff:c2:07:b6:b1:8d:0f:8e:5c:50:46:b3:3d:bf:01:
98:4f:b2:59:54:47:3e:34:7b:78:6d:56:93:2e:73:ea:66:28:
78:cd:1d:14:bf:a0:8f:2f:2e:b8:2e:8e:f2:14:8a:cc:e9:b5:
7c:fb:6c:9d:0c:a5:e1:96
```

security certificate rename

Rename a certificate

Availability: This command is available to *cluster* and *Vserver* administrators at the *admin* privilege level.

Description

This command allows the user to modify the system's identifier for an installed digital certificate. It does not alter the certificate itself.

Parameters

-vserver <Vserver Name> - Vserver Name

This specifies the name of the Vserver on which the certificate exists.

-cert-name <text> - Existing Certificate Name

This specifies the current system identifier for the certificate.

-new-name <text> - New Certificate Name

This specifies the desired system identifier for the certificate. It must be unique among certificates in the Vserver.

Examples

```
cluster1::> security certificate rename -vserver vs0 -cert-name  
AAACertificateServices -new-nameAAACertServ
```

security certificate show-generated

Display ONTAP generated certificates

Availability: This command is available to *cluster* and *Vserver* administrators at the *admin* privilege level.

Description

This command displays information about the Data ONTAP generated digital digital certificates. Some details are displayed only when you use the command with the *-instance* parameter.

Parameters

{ [-fields <fieldname>,...]

If you specify the *-fields <fieldname>, ...* parameter, the command output also includes the specified field or fields. You can use *'-fields ?'* to display the fields to specify.

| [-instance] }

If you specify the *-instance* parameter, the command displays detailed information about all fields.

[`-vserver <Vserver Name>`] - Name of Vserver

Selects the Vserver whose digital certificates you want to display.

[`-common-name <FQDN or Custom Common Name>`] - FQDN or Custom Common Name

Selects the certificates that match this parameter value.

[`-serial <text>`] - Serial Number of Certificate

Selects the certificates that match this parameter value.

[`-ca <text>`] - Certificate Authority

Selects the certificates that match this parameter value.

[`-type <type of certificate>`] - Type of Certificate

Selects the certificates that match this parameter value.

[`-subtype <kmip-cert>`] - (DEPRECATED)-Certificate Subtype



This parameter has been deprecated in ONTAP 9.6 and may be removed in a future release of Data ONTAP.

Selects the certificate subtype that matches the specified value. The valid values are as follows:

- *kmip-cert* - this is a Key Management Interoperability Protocol (KMIP) certificate

[`-cert-name <text>`] - Unique Certificate Name

This specifies the system's internal identifier for the certificate. It is unique within a Vserver.

[`-size <size of requested certificate in bits>`] - Size of Requested Certificate in Bits

Selects the certificates that match this parameter value.

[`-start <Date>`] - Certificate Start Date

Selects the certificates that match this parameter value.

[`-expiration <Date>`] - Certificate Expiration Date

Selects the certificates that match this parameter value.

[`-public-cert <certificate>`] - Public Key Certificate

Selects the certificates that match this parameter value.

[`-country <text>`] - Country Name

Selects the certificates that match this parameter value.

[`-state <text>`] - State or Province Name

Selects the certificates that match this parameter value.

[`-locality <text>`] - Locality Name

Selects the certificates that match this parameter value.

[-organization <text>] - Organization Name

Selects the certificates that match this parameter value.

[-unit <text>] - Organization Unit

Selects the certificates that match this parameter value.

[-email-addr <mail address>] - Contact Administrator's Email Address

Selects the certificates that match this parameter value.

[-protocol <protocol>] - Protocol

Selects the certificates that match this parameter value.

[-hash-function <hashing function>] - Hashing Function

Selects the certificates that match this parameter value.

[-self-signed {true|false}] - Self-Signed Certificate

Selects the certificates that match this parameter value.

[-is-root {true|false}] - Is Root CA Certificate?

Selects the certificates that match this parameter value.

Examples

The examples below display information about Data ONTAP generated digital certificates.

```
cluster1::> security certificate show-generated
```

Vserver	Serial Number	Certificate Name	Type
vs0	4F4E4D7B	www.example.com	server
Certificate Authority: www.example.com			
Expiration Date: Thu Feb 28 16:08:28 2013			

```

cluster1::> security certificate show-generated -instance
                Vserver: vs0
                Certificate Name: www.example.com
                FQDN or Custom Common Name: www.example.com
                Serial Number of Certificate: 4F4E4D7B
                Certificate Authority: www.example.com
                Type of Certificate: server
                Size of Requested Certificate(bits): 2048
                Certificate Start Date: Fri Apr 30 14:14:46 2010
                Certificate Expiration Date: Sat Apr 30 14:14:46 2011
                Public Key Certificate: -----BEGIN CERTIFICATE-----

MIIDfTCCAmWgAwIBAwIBADANBgkqhkiG9w0BAQsFADBgMRQwEgYDVQQDEwtsYWlu
YWJjLmNvbTELMakGA1UEBhMCVVMxCTAHBgNVBAgTADAJMAcGA1UEBxMAMQkwBwYD
VQQKEwAxCTAHBgNVBAStADEPMA0GCSqGSIb3DQEJARYAMB4XDTEwMDQzMDE4MTQ0
BgNVHQ8BAf8EBAMCAQYwHQYDVR0OBBYEFcVG7dYGe51akE14ecaCdL+LOAxUMA0G
CSqGSIb3DQEBCwUAA4IBAQBj1E51pkDY3ZpsSrQeMOoWLteIR+1H0wKZOM1Bhy6Q
+gsE3XEtnN07AE4npjIT0eVP0nI9QIJAbP0uPKaCGAVBSBMom2mOwbfswI7aJoEh
+XuEoNr0GOz+mltnfhgvl1fT6Ms+xzd3LGZYQTworus2
                -----END CERTIFICATE-----

                Country Name (2 letter code): US
                State or Province Name (full name): California
                Locality Name (e.g. city): Sunnyvale
                Organization Name (e.g. company): example
                Organization Unit (e.g. section): IT
                Email Address (Contact Name): web@example.com
                Protocol: SSL
                Hashing Function: SHA256

```

security certificate show-truststore

Display default truststore certificates

Availability: This command is available to *cluster* and *Vserver* administrators at the *admin* privilege level.

Description

This command displays information about the default CA certificates that come pre-installed with Data ONTAP. Some details are displayed only when you use the command with the *-instance* parameter.

Parameters

{ [-fields <fieldname>,...]

If you specify the `-fields <fieldname>`, ... parameter, the command output also includes the specified field or fields. You can use `'-fields ?'` to display the fields to specify.

| [-instance] }

If you specify the `-instance` parameter, the command displays detailed information about all fields.

[-vserver <Vserver Name>] - Name of Vserver

Selects the Vserver whose digital certificates you want to display.

[-common-name <FQDN or Custom Common Name>] - FQDN or Custom Common Name

Selects the certificates that match this parameter value.

[-serial <text>] - Serial Number of Certificate

Selects the certificates that match this parameter value.

[-ca <text>] - Certificate Authority

Selects the certificates that match this parameter value.

[-type <type of certificate>] - Type of Certificate

Selects the certificates that match this parameter value.

[-subtype <kmip-cert>] - (DEPRECATED)-Certificate Subtype



This parameter has been deprecated in ONTAP 9.6 and may be removed in a future release of Data ONTAP.

Selects the certificate subtype that matches the specified value. The valid values are as follows:

- *kmip-cert* - this is a Key Management Interoperability Protocol (KMIP) certificate

[-cert-name <text>] - Unique Certificate Name

This specifies the system's internal identifier for the certificate. It is unique within a Vserver.

[-size <size of requested certificate in bits>] - Size of Requested Certificate in Bits

Selects the certificates that match this parameter value.

[-start <Date>] - Certificate Start Date

Selects the certificates that match this parameter value.

[-expiration <Date>] - Certificate Expiration Date

Selects the certificates that match this parameter value.

[-public-cert <certificate>] - Public Key Certificate

Selects the certificates that match this parameter value.

[-country <text>] - Country Name

Selects the certificates that match this parameter value.

[-state <text>] - State or Province Name

Selects the certificates that match this parameter value.

[-locality <text>] - Locality Name

Selects the certificates that match this parameter value.

[-organization <text>] - Organization Name

Selects the certificates that match this parameter value.

[-unit <text>] - Organization Unit

Selects the certificates that match this parameter value.

[-email-addr <mail address>] - Contact Administrator's Email Address

Selects the certificates that match this parameter value.

[-protocol <protocol>] - Protocol

Selects the certificates that match this parameter value.

[-hash-function <hashing function>] - Hashing Function

Selects the certificates that match this parameter value.

[-self-signed {true|false}] - Self-Signed Certificate

Selects the certificates that match this parameter value.

[-is-root {true|false}] - Is Root CA Certificate?

Selects the certificates that match this parameter value.

Examples

The examples below display information about the pre-installed truststore digital certificates.

```
cluster1::> security certificate show-truststore
```

Vserver	Serial Number	Certificate Name	Type
vs0	4F4E4D7B	www.example.com	server-ca
Certificate Authority: www.example.com			
Expiration Date: Thu Feb 28 16:08:28 2013			

```

cluster1::> security certificate show-truststore -instance
                Vserver: vs0
                Certificate Name: www.example.com
                FQDN or Custom Common Name: www.example.com
                Serial Number of Certificate: 4F4E4D7B
                Certificate Authority: www.example.com
                Type of Certificate: server-ca
                Size of Requested Certificate(bits): 2048
                Certificate Start Date: Fri Apr 30 14:14:46 2010
                Certificate Expiration Date: Sat Apr 30 14:14:46 2011
                Public Key Certificate: -----BEGIN CERTIFICATE-----

MIIDfTCCAmWgAwIBAwIBADANBgkqhkiG9w0BAQsFADBgMRQwEgYDVQQDEwtsYWlu
YWJjLmNvbTELMakGA1UEBhMCMVVMxCTAHBgNVBAgTADAJMAcGA1UEBxMAMQkwBwYD
VQQKEwAxCTAHBgNVBAStADEPMA0GCSqGSIB3DQEJARYAMB4XDTEwMDQzMDE4MTQ0
BgNVHQ8BAf8EBAMCAQYwHQYDVR0OBBYEFcVG7dYGe51akE14ecaCdL+LOAxUMA0G
CSqGSIB3DQEBCwUAA4IBAQBj1E51pkDY3ZpsSrQeMOoWLteIR+1H0wKZOM1Bhy6Q
+gsE3XEtnN07AE4npjIT0eVP0nI9QIJAbP0uPKaCGAVBSBMom2mOwbfswI7aJoEh
+XuEoNr0GOz+mltnfhgvl1fT6Ms+xzd3LGZYQTworus2
                -----END CERTIFICATE-----

                Country Name (2 letter code): US
                State or Province Name (full name): California
                Locality Name (e.g. city): Sunnyvale
                Organization Name (e.g. company): example
                Organization Unit (e.g. section): IT
                Email Address (Contact Name): web@example.com
                Protocol: SSL
                Hashing Function: SHA256

```

security certificate show-user-installed

Display user installed certificates

Availability: This command is available to *cluster* and *Vserver* administrators at the *admin* privilege level.

Description

This command displays information about the user installed digital certificates. Some details are displayed only when you use the command with the *-instance* parameter. In systems upgraded to Data ONTAP 9.4 or later, existing Data ONTAP generated certificates will also be shown as part of this command.

Parameters

{ [-fields <fieldname>,...]

If you specify the `-fields <fieldname>`, ... parameter, the command output also includes the specified field or fields. You can use `'-fields ?'` to display the fields to specify.

| [-instance] }

If you specify the `-instance` parameter, the command displays detailed information about all fields.

[-vserver <Vserver Name>] - Name of Vserver

Selects the Vserver whose digital certificates you want to display.

[-common-name <FQDN or Custom Common Name>] - FQDN or Custom Common Name

Selects the certificates that match this parameter value.

[-serial <text>] - Serial Number of Certificate

Selects the certificates that match this parameter value.

[-ca <text>] - Certificate Authority

Selects the certificates that match this parameter value.

[-type <type of certificate>] - Type of Certificate

Selects the certificates that match this parameter value.

[-subtype <kmip-cert>] - (DEPRECATED)-Certificate Subtype



This parameter has been deprecated in ONTAP 9.6 and may be removed in a future release of Data ONTAP.

Selects the certificate subtype that matches the specified value. The valid values are as follows:

- *kmip-cert* - this is a Key Management Interoperability Protocol (KMIP) certificate

[-cert-name <text>] - Unique Certificate Name

This specifies the system's internal identifier for the certificate. It is unique within a Vserver.

[-size <size of requested certificate in bits>] - Size of Requested Certificate in Bits

Selects the certificates that match this parameter value.

[-start <Date>] - Certificate Start Date

Selects the certificates that match this parameter value.

[-expiration <Date>] - Certificate Expiration Date

Selects the certificates that match this parameter value.

[-public-cert <certificate>] - Public Key Certificate

Selects the certificates that match this parameter value.

[-country <text>] - Country Name

Selects the certificates that match this parameter value.

[-state <text>] - State or Province Name

Selects the certificates that match this parameter value.

[-locality <text>] - Locality Name

Selects the certificates that match this parameter value.

[-organization <text>] - Organization Name

Selects the certificates that match this parameter value.

[-unit <text>] - Organization Unit

Selects the certificates that match this parameter value.

[-email-addr <mail address>] - Contact Administrator's Email Address

Selects the certificates that match this parameter value.

[-protocol <protocol>] - Protocol

Selects the certificates that match this parameter value.

[-hash-function <hashing function>] - Hashing Function

Selects the certificates that match this parameter value.

[-self-signed {true|false}] - Self-Signed Certificate

Selects the certificates that match this parameter value.

[-is-root {true|false}] - Is Root CA Certificate?

Selects the certificates that match this parameter value.

Examples

The examples below display information about user installed digital certificates.

```
cluster1::> security certificate show-user-installed
```

Vserver	Serial Number	Certificate Name	Type
vs0	4F4E4D7B	www.example.com	server

Certificate Authority: www.example.com

Expiration Date: Thu Feb 28 16:08:28 2013

```

cluster1::> security certificate show-user-installed -instance
                Vserver: vs0
                Certificate Name: www.example.com
                FQDN or Custom Common Name: www.example.com
                Serial Number of Certificate: 4F4E4D7B
                Certificate Authority: www.example.com
                Type of Certificate: server
                Size of Requested Certificate(bits): 2048
                Certificate Start Date: Fri Apr 30 14:14:46 2010
                Certificate Expiration Date: Sat Apr 30 14:14:46 2011
                Public Key Certificate: -----BEGIN CERTIFICATE-----

MIIDfTCCAmWgAwIBAwIBADANBgkqhkiG9w0BAQsFADBgMRQwEgYDVQQDEwtsYWlu
YWJjLmNvbTELMakGA1UEBhMCVVMxCTAHBgNVBAgTADAJMacGA1UEBxMAMQkwBwYD
VQQKEwAxCTAHBgNVBAStADEPMA0GCSqGSIb3DQEJARYAMB4XDTEwMDQzMDE4MTQ0
BgNVHQ8BAf8EBAMCAQYwHQYDVR0OBBYEFcVG7dYGe51akE14ecaCdL+LOAxUMA0G
CSqGSIb3DQEBCwUAA4IBAQBj1E51pkDY3ZpsSrQeMOoWLteIR+1H0wKZOM1Bhy6Q
+gsE3XEtnN07AE4npjIT0eVP0nI9QIJAbP0uPKaCGAVBSBMom2mOwbfswI7aJoEh
+XuEoNr0GOz+mltnfhgvl1fT6Ms+xzd3LGZYQTworus2
                -----END CERTIFICATE-----

                Country Name (2 letter code): US
                State or Province Name (full name): California
                Locality Name (e.g. city): Sunnyvale
                Organization Name (e.g. company): example
                Organization Unit (e.g. section): IT
                Email Address (Contact Name): web@example.com
                Protocol: SSL
                Hashing Function: SHA256

```

security certificate show

Display Installed Digital Certificates

Availability: This command is available to *cluster* and *Vserver* administrators at the *admin* privilege level.

Description

This command displays information about the installed digital certificates. Some details are displayed only when you use the command with the *-instance* parameter.

Parameters

{ [-fields <fieldname>,...]

If you specify the `-fields <fieldname>`, ... parameter, the command output also includes the specified field or fields. You can use `'-fields ?'` to display the fields to specify.

| [-instance] }

If you specify the `-instance` parameter, the command displays detailed information about all fields.

[-vserver <Vserver Name>] - Name of Vserver

Selects the Vserver whose digital certificates you want to display.

[-common-name <FQDN or Custom Common Name>] - FQDN or Custom Common Name

Selects the certificates that match this parameter value.

[-serial <text>] - Serial Number of Certificate

Selects the certificates that match this parameter value.

[-ca <text>] - Certificate Authority

Selects the certificates that match this parameter value.

[-type <type of certificate>] - Type of Certificate

Selects the certificates that match this parameter value.

[-subtype <kmip-cert>] - (DEPRECATED)-Certificate Subtype



This parameter has been deprecated in ONTAP 9.6 and may be removed in a future release of Data ONTAP.

Selects the certificate subtype that matches the specified value. The valid values are as follows:

- *kmip-cert* - this is a Key Management Interoperability Protocol (KMIP) certificate

[-cert-name <text>] - Unique Certificate Name

This specifies the system's internal identifier for the certificate. It is unique within a Vserver.

[-size <size of requested certificate in bits>] - Size of Requested Certificate in Bits

Selects the certificates that match this parameter value.

[-start <Date>] - Certificate Start Date

Selects the certificates that match this parameter value.

[-expiration <Date>] - Certificate Expiration Date

Selects the certificates that match this parameter value.

[-public-cert <certificate>] - Public Key Certificate

Selects the certificates that match this parameter value.

[-country <text>] - Country Name

Selects the certificates that match this parameter value.

[-state <text>] - State or Province Name

Selects the certificates that match this parameter value.

[-locality <text>] - Locality Name

Selects the certificates that match this parameter value.

[-organization <text>] - Organization Name

Selects the certificates that match this parameter value.

[-unit <text>] - Organization Unit

Selects the certificates that match this parameter value.

[-email-addr <mail address>] - Contact Administrator's Email Address

Selects the certificates that match this parameter value.

[-protocol <protocol>] - Protocol

Selects the certificates that match this parameter value.

[-hash-function <hashing function>] - Hashing Function

Selects the certificates that match this parameter value.

[-self-signed {true|false}] - Self-Signed Certificate

Selects the certificates that match this parameter value.

[-is-root {true|false}] - Is Root CA Certificate?

Selects the certificates that match this parameter value.

Examples

The examples below display information about digital certificates.

```
cluster1::> security certificate show
```

Vserver	Serial Number	Certificate Name	Type
vs0	4F4E4D7B	www.example.com	
server			
	Certificate Authority:	www.example.com	
	Expiration Date:	Thu Feb 28 16:08:28 2013	

```

cluster1::> security certificate show -instance
                Vserver: vs0
                Certificate Name: www.example.com
                FQDN or Custom Common Name: www.example.com
                Serial Number of Certificate: 4F4E4D7B
                Certificate Authority: www.example.com
                Type of Certificate: server
                Size of Requested Certificate(bits): 2048
                Certificate Start Date: Fri Apr 30 14:14:46 2010
                Certificate Expiration Date: Sat Apr 30 14:14:46 2011
                Public Key Certificate: -----BEGIN CERTIFICATE-----

MIIDfTCCAmWgAwIBAwIBADANBgkqhkiG9w0BAQsFADBgMRQwEgYDVQQDEwtsYWlu
YWJjLmNvbTELMakGA1UEBhMCVVMxCTAHBgNVBAgTADAJMAcGA1UEBxMAMQkwBwYD
VQQKEwAxCTAHBgNVBAStADEPMA0GCSqGSIb3DQEJARYAMB4XDTEwMDQzMDE4MTQ0
BgNVHQ8BAf8EBAMCAQYwHQYDVR0OBBYEFcVG7dYGe51akE14ecaCdL+LOAxUMA0G
CSqGSIb3DQEBCwUAA4IBAQBjLE51pkDY3ZpsSrQeMOoWLteIR+1H0wKZOM1Bhy6Q
+gsE3XEtnN07AE4npjIT0eVP0nI9QIJAbP0uPKaCGAVBSBMom2mOwbfswI7aJoEh
+XuEoNr0GOz+mltnfhgvl1fT6Ms+xzd3LGZYQTworus2
                -----END CERTIFICATE-----

                Country Name (2 letter code): US
                State or Province Name (full name): California
                Locality Name (e.g. city): Sunnyvale
                Organization Name (e.g. company): example
                Organization Unit (e.g. section): IT
                Email Address (Contact Name): web@example.com
                Protocol: SSL
                Hashing Function: SHA256

```

security certificate sign

Sign a Digital Certificate using Self-Signed Root CA

Availability: This command is available to *cluster* and *Vserver* administrators at the *admin* privilege level.

Description

This command signs a digital certificate signing request and generates a certificate using a Self-Signed Root CA certificate in either PEM or PKCS12 format. You can use the [security certificate generate-csr](#) command to generate a digital certificate signing request.

Parameters

-vserver <Vserver Name> - Name of Vserver

This specifies the name of the Vserver on which the signed certificate will exist.

-ca <text> - Certificate Authority to Sign

This specifies the name of the Certificate Authority that will sign the certificate.

-ca-serial <text> - Serial Number of CA Certificate

This specifies the serial number of the Certificate Authority that will sign the certificate.

[-expire-days <integer>] - Number of Days until Expiration

This specifies the number of days until the signed certificate expires. The default value is 365 days. Possible values are between 1 and 3652.

[-format <certificate format>] - Certificate Format

This specifies the format of signed certificate. The default value is PEM. Possible values include *PEM* and *PKCS12*.

[-destination {(ftp|http)://(hostname|IPv4 Address|['IPv6 Address'])...}] - Where to Send File

This specifies the destination to upload the signed certificate. This option can only be used when the format is PKCS12.

[-hash-function <hashing function>] - Hashing Function

This specifies the cryptographic hashing function for the self-signed certificate. The default value is SHA256. Possible values include *SHA1*, *SHA256* and *MD5*.

Examples

This example signs a digital certificate for a Vserver named vs0 using a Certificate Authority certificate that has a ca of *www.ca.com* and a ca-serial of 4F4EB629 in PEM format using the SHA256 hashing function.

```
cluster1::> security certificate sign -vserver vs0 -ca www.ca.com -ca
-serial 4F4EB629 -expire-days 36 -format PEM -hash-function SHA256
```

Please enter Certificate Signing Request (CSR): Press <Enter> when done

-----BEGIN CERTIFICATE REQUEST-----

```
MIIBGjCBxQIBADBGMRQwEgYDVQQDEwtleGFtcGxlLmNvbTELMakGA1UEBhMCMVVMx
CTAHBgNVBAGTADEJMAcGA1UEBxMAMQkwBwYDVQQKEwAxCTAHBgNVBAsTADEPMA0G
CSqGSIB3DQEJARYAMFwwDQYJKoZIhvcNAQEBBQADSwAwSAJBAPXFanNoJApt1nzS
xOcxixqImRRGZCR7tVmTYyqPSuTvfhVtwDJbmXuj6U3alwoUsb13wfEvQnHVFNCi
2ninsJ8CAwEAAaAAMA0GCSqGSIB3DQEBChMA0GCSqGSIb3DQEBAQUAA0sAMEgCQQD1xWpz
UqOUEoKuvxhOvPC2w7b//fNSFsFHvXloqEOhYECn/NX9h8mbphCoM5YZ4OfnKw==
```

-----END CERTIFICATE REQUEST-----

Signed Certificate: :

-----BEGIN CERTIFICATE-----

```
MIICwDCCAAigAwIBAgIET1oskDANBgkqhkiG9w0BAQsFADBdMREwDwYDVQQDEwh2
czAuY2VydDELMAkGA1UEBhMCMVVMxCTAHBgNVBAGTADEJMAcGA1UEBxMAMQkwBwYD
VQQKEwAxCTAHBgNVBAsTADEPMA0GCSqGSIB3DQEJARYAMB4XDTEyMDMwOTE2MTUx
M1oXDTEyMDQxNDE2MTUxM1owYDEUMBIGAlUEAxMLZXhhbXBsZS5jb20xCzAJBgNV
BAYTA1VTMkQkwBwYDVQQIEwAxCTAHBgNVBACTADEJMAcGA1UEChMAMQkwBwYDVQQQL
EwAxDzANBgkqhkiG9w0BCQEWADBCMA0GCSqGSIB3DQEBQUAA0sAMEgCQQD1xWpz
```

-----END CERTIFICATE-----

This example signs and exports a digital certificate to destination <ftp://10.98.1.1/u/sam/sign.pfx> for a Vserver named vs0 using a Certificate Authority certificate that expires in 36 days and has a ca value of `www.ca.com` and a ca-serial value of 4F4EB629 in PKCS12 format by the MD5 hashing function.

```
cluster1::> security certificate sign -vserver vs0 -ca www.ca.com -ca
-serial 4F4EB629
-expire-days 36 -format PKCS12 -destination
ftp://10.98.1.1//u/sam/sign.pfx -hash-function MD5
```

Please enter Certificate Signing Request (CSR): Press <Enter> when done

-----BEGIN CERTIFICATE REQUEST-----

```
MIIBGjCBxQIBADBGMRQwEgYDVQQDEwtleGFtcGxlLmNvbTELMakGA1UEBhMCVVMx
CTAHBgNVBAGTADEJMAcGA1UEBxMAMQkwBwYDVQQKEwAxCTAHBgNVBAsTADEPMA0G
CSqGSIB3DQEJARYAMFwwDQYJKoZIhvcNAQEBBQADSwAwSAJBAPXFanNoJApTlnzS
xOcxixqImRRGZCR7tVmTYyqPSuTvfhVtwDJbmXuj6U3alwoUsb13wfEvQnHVFNCi
2ninsJ8CAwEAAaAAMA0GCSqGSIB3DQEBcWUAA0EA6EagLfso5+4g+ejIRKKTUPQO
UqOUeOkuvxhOvPC2w7b//fNSFsFHvXloqEOhYECn/NX9h8mbphCoM5YZ4OfnKw==
```

-----END CERTIFICATE REQUEST-----

Signed Certificate: :

-----BEGIN CERTIFICATE-----

```
MIICwDCCAaigAwIBAgIET1ot8jANBgkqhkiG9w0BAQsFADBdMREwDwYDVQQDEwh2
czAuY2VydeLMakGA1UEBhMCVVMxCTAHBgNVBAGTADEJMAcGA1UEBxMAMQkwBwYD
VQQKEwAxCTAHBgNVBAsTADEPMA0GCSqGSIB3DQEJARYAMB4XDTEyMDMwOTE2MjEw
Nl0XDTEyMDQxNDE2MjEwNl0YDEUMBIGA1UEAxMLZXhhbXBsZS5jb20xCzAJBgNV
BAYTA1VTMqkwBwYDVQQIEwAxCTAHBgNVBACTADEJMAcGA1UEChMAMQkwBwYDVQQL
EwAxDzANBgkqhkiG9w0BCQEWADBCMA0GCSqGSIB3DQEBAQUAA0sAMEgCQQD1xWpz
oarXHSyDzv3T5QIxBGRJ0ActgdjJuqtuAdmnKvKfLS1o4C90
```

-----END CERTIFICATE-----

Please enter Private Key: Press <Enter> when done

-----BEGIN RSA PRIVATE KEY-----

```
MIIBOwIBAAJBAPXFanNoJApTlnzSxOcxixqImRRGZCR7tVmTYyqPSuTvfhVtwDJb
mXuj6U3alwoUsb13wfEvQnHVFNCi2ninsJ8CAwEAAQJAWt2AO+bW3FKezEuIrQlu
KoMyRYK455wtMk8BrOyJfhYsB20B28eifjJvRWdTOBEav99M7cEzgPv+p5kaZTTM
gQIhAPsp+j1hrUXSRj979LIJJY0sNez397i7ViFXWQScx/ehAiEA+oDbOooWLVvu
xj4aitxVBu6ByVckYU8LbsfeRNsZwD8CIQCbZ1/ENvmlJ/P7N9Exj2NctEYxd0Q5
cwBZ5NfZeMBpwQIhAPk0KWQSLadGfsKO077itF+h9FGFNHbtuNTrVq4vPW3nAiAA
peMBQgEv28y2r8D4dkYzxcXmjzJluUSZSZ9c/ws6fA==
```

-----END RSA PRIVATE KEY-----

Please enter a password for pkcs12 file:

Please enter it again:

Enter User for Destination URI: sam

Enter Password:

Related Links

- [security certificate generate-csr](#)

security certificate ca-issued revoke

Revoke a Digital Certificate

Availability: This command is available to *cluster* and *Vserver* administrators at the *admin* privilege level.

Description

This command revokes a digital certificate signed by a Self-Signed Root CA.

Parameters

-vserver <Vserver Name> - Vserver

This specifies the name of the Vserver on which the certificate is stored.

-serial <text> - Serial Number of Certificate

This specifies the serial number of the certificate.

-ca <text> - Certificate Authority

This specifies the name of the Certificate Authority whose certificate will be revoked.

-ca-serial <text> - Serial Number of CA Certificate

This specifies the serial number of Certificate Authority.

[-common-name <FQDN or Custom Common Name>] - FQDN or Custom Common Name

This specifies a fully qualified domain name (FQDN) or custom common name or the name of a person.
This field is optional if ca-serial is specified.

Examples

This example revokes a signed digital certificate for a Vserver named vs0 with serial as 4F5A2DF2 for a Certificate Authority certificate that has a ca of *www.ca.com* and a ca-serial of 4F4EB629.

```
cluster1::> security certificate ca-issued revoke -vserver vs0 -serial  
4F5A2DF2 -ca www.ca.com -ca-serial 4F4EB629
```

security certificate ca-issued show

Display CA-Issued Digital Certificates

Availability: This command is available to *cluster* and *Vserver* administrators at the *admin* privilege level.

Description

This command displays the following information about the digital certificates issued by the self-signed root-ca:

- Vserver
- Serial number of certificate

- FQDN or custom common name or the name of a person
- Serial number of CA certificate
- Status (active, revoked)
- Certificate Authority
- Expiration date
- Revocation date

To display more details, run the command with the `-instance` parameter. This will add the following information:

- Country name
- State or province name
- Locality name
- Organization name
- Organization unit
- Contact administrator's email address

Parameters

{ [-fields <fieldname>,...]

If you specify the `-fields <fieldname>`, ... parameter, the command output also includes the specified field or fields. You can use `-fields ?` to display the fields to specify.

| [-instance] }

If you specify the `-instance` parameter, the command displays detailed information about all fields.

[-vserver <Vserver Name>] - Vserver

Selects the certificates that match this parameter value.

[-serial <text>] - Serial Number of Certificate

Selects the certificates that match this parameter value.

[-ca <text>] - Certificate Authority

Selects the certificates that match this parameter value.

[-ca-serial <text>] - Serial Number of CA Certificate

Selects the certificates that match this parameter value.

[-common-name <FQDN or Custom Common Name>] - FQDN or Custom Common Name

Selects the certificates that match this parameter value.

[-status <status of certificate>] - Status of Certificate

Selects the certificates that match this parameter value. Possible values include active and revoked.

[-expiration <Date>] - Certificate Expiration Date

Selects the certificates that match this parameter value.

[-revocation <Date>] - Certificate Revocation Date

Selects the certificates that match this parameter value.

[-country <text>] - Country Name (2 letter code)

Selects the certificates that match this parameter value.

[-state <text>] - State or Province Name (full name)

Selects the certificates that match this parameter value.

[-locality <text>] - Locality Name (e.g. city)

Selects the certificates that match this parameter value.

[-organization <text>] - Organization Name (e.g. company)

Selects the certificates that match this parameter value.

[-unit <text>] - Organization Unit (e.g. section)

Selects the certificates that match this parameter value.

[-email-addr <mail address>] - Email Address (Contact Name)

Selects the certificates that match this parameter value.

Examples

The examples below display information about CA issued digital certificates.

```
cluster1::> security certificate ca-issued show
Serial Number of
Vserver      Serial Number  Common Name          CA's Certificate
Status
-----
-----
vs0          4F5A2C90       example.com          4F4EB629
active
    Certificate Authority: vs0.cert
    Expiration Date: Sat Apr 14 16:15:13 2012
    Revocation Date: -

vs0          4F5A2DF2       example.com          4F4EB629
revoked
    Certificate Authority: vs0.cert
    Expiration Date: Sat Apr 14 16:21:06 2012
    Revocation Date: Fri Mar 09 17:08:30 2012

2 entries were displayed.
```

```
cluster1::> security certificate ca-issued show -instance
Vserver: vs0
    Serial Number of Certificate: 4F5A2C90
    Certificate Authority: vs0.cert
    Serial Number of CA Certificate: 4F4EB629
    FQDN or Custom Common Name: example.com
    Status of Certificate: active
    Certificate Expiration Date: Sat Apr 14 16:15:13 2012
    Certificate Revocation Date: -
    Country Name (2 letter code): US
    State or Province Name (full name): California
    Locality Name (e.g. city): Sunnyvale
    Organization Name (e.g. company): example
    Organization Unit (e.g. section): IT
    Email Address (Contact Name): web@example.com
```

security certificate config modify

Modify the certificate management configurations

Availability: This command is available to *cluster* administrators at the *advanced* privilege level.

Description

This command modifies the certificate management configuration information for the cluster.

Parameters

[-min-security-strength <bits of security strength>] - Minimum Security Strength

Use this parameter to modify the allowed minimum security strength for certificates. The security bits mapping to RSA and ECDSA key length are as follows:

Length	Security Bits	Asymmetric Key Length	Elliptic Curve Key
	112	2048	224
	128	3072	256
	192	4096	384

FIPS supported values are restricted to 112 and 128.

+

NOTE: This does not affect root CA certificates.

+

[*-expiration-warn-threshold* <integer>] - Minimum Days to EMS for Expiring Certificates

Use this parameter to modify the number of days prior to certificate expiration the system sends a warning EMS event.

Examples

The following example modifies the minimum security strength allowed for certificates.

```
cluster-1::> security certificate config modify -min-security-strength 192
```

security certificate config show

Displays the certificate management configurations

Availability: This command is available to *cluster* administrators at the *admin* privilege level.

Description

This command displays the certificate management configuration information for the cluster.

"min-security-strength" - If you specify this parameter, the command displays the minimum allowed security strength for certificates.

"expiration-warn-threshold" - If you specify this parameter, the command displays the minimum number of days before expiration date configured for event management system (EMS) notification of expiring certificates.

Examples

The following example lists minimum security strength certificate management configuration.

```
cluster-1::> security certificate config show -fields min-security-  
strength
```

```
Minimum Security Strength
```

```
-----
```

```
112
```

security certificate truststore check

Initiate a TLS connection and identify the root CA certificate

Availability: This command is available to *cluster* and *Vserver* administrators at the *advanced* privilege level.

Description

This command allows the user to check if the node can use the installed set of CA certificates to establish a secure connection with the specified server. If the connection attempt fails, the system reports which expected certificates are missing. If the attempt succeeds, the system displays details of the certificates used.

Parameters

-vserver <Vserver Name> - Vserver Name (privilege: advanced)

Use this parameter to specify the Vserver that needs the connectivity check.

-server <Hostname and Port> - Server Name (privilege: advanced)

Use this parameter to specify the server to establish a connection with and look up the required CA certificate.

Examples

The following example demonstrates a missing CA certificate:

```
cluster1::*> security certificate truststore check -vserver cluster1
-server example.com:443

Error: command failed: Missing certificate with subject name: "CN =
ExampleRoot, C = US"
```

The following example demonstrates the required certificate being present:

```
cluster1::*> security certificate truststore check -server example.com:443

CA certificate with cert-name "ExampleRoot" is already installed in the
truststore. Use "security certificate show -cert-name ExampleRoot" to see
the details of the CA certificate.
```

security certificate truststore clear

Clear the default root certificates from truststore

Availability: This command is available to *cluster* administrators at the *advanced* privilege level.

Description

The `security certificate truststore clear` command deletes the pre-installed certificates of the type 'server-ca'. If you delete these certificates, some of the applications performing SSL communication can fail.

Examples

The following example removes the default certificate bundle:

```
cluster1::> security certificate truststore clear
```

security certificate truststore load

Load the default root certificates to truststore

Availability: This command is available to *cluster* administrators at the *advanced* privilege level.

Description

The `security certificate truststore load` command installs default root certificates in the certificate table of type 'server-ca'. These are the certificates required to validate any incoming server certificate during the SSL handshake process.

Parameters

[`-path <text>`] - File to load certificates from (privilege: advanced)

This specifies the path to the certificate bundle. This optional parameter can have an empty value (the default).

[`-ontap-version <ontap_version>`] - Certificates from specific ONTAP version (privilege: advanced)

This specifies the ONTAP version in which the certificates were introduced. Only those certificates will be loaded. This optional parameter can have an empty value (the default) which indicates that no filtering on version is done.

Examples

The following example installs the default certificate bundle:

```
cluster1::> security certificate truststore load
```

security certificate truststore show

Display default truststore certificates

Availability: This command is available to *cluster* and *Vserver* administrators at the *admin* privilege level.

Description

This command displays information about the default CA certificates that come pre-installed with Data ONTAP. Some details are displayed only when you use the command with the `-instance` parameter.

Parameters

{ [-fields <fieldname>,...]

If you specify the `-fields <fieldname>`, ... parameter, the command output also includes the specified field or fields. You can use `-fields ?` to display the fields to specify.

| [-instance] }

If you specify the `-instance` parameter, the command displays detailed information about all fields.

[-vserver <Vserver Name>] - Name of Vserver

Selects the Vserver whose digital certificates you want to display.

[-common-name <FQDN or Custom Common Name>] - FQDN or Custom Common Name

Selects the certificates that match this parameter value.

[-serial <text>] - Serial Number of Certificate

Selects the certificates that match this parameter value.

[-ca <text>] - Certificate Authority

Selects the certificates that match this parameter value.

[-type <type of certificate>] - Type of Certificate

Selects the certificates that match this parameter value.

[-subtype <kmip-cert>] - (DEPRECATED)-Certificate Subtype

Selects the certificate subtype that matches the specified value. The valid values are as follows:

- *kmip-cert* - this is a Key Management Interoperability Protocol (KMIP) certificate

[-cert-name <text>] - Unique Certificate Name

This specifies the system's internal identifier for the certificate. It is unique within a Vserver.

[-size <size of requested certificate in bits>] - Size of Requested Certificate in Bits

Selects the certificates that match this parameter value.

[-start <Date>] - Certificate Start Date

Selects the certificates that match this parameter value.

[-expiration <Date>] - Certificate Expiration Date

Selects the certificates that match this parameter value.

[-public-cert <certificate>] - Public Key Certificate

Selects the certificates that match this parameter value.

[-country <text>] - Country Name

Selects the certificates that match this parameter value.

[-state <text>] - State or Province Name

Selects the certificates that match this parameter value.

[-locality <text>] - Locality Name

Selects the certificates that match this parameter value.

[-organization <text>] - Organization Name

Selects the certificates that match this parameter value.

[-unit <text>] - Organization Unit

Selects the certificates that match this parameter value.

[-email-addr <mail address>] - Contact Administrator's Email Address

Selects the certificates that match this parameter value.

[-protocol <protocol>] - Protocol

Selects the certificates that match this parameter value.

[-hash-function <hashing function>] - Hashing Function

Selects the certificates that match this parameter value.

[-self-signed {true|false}] - Self-Signed Certificate

Selects the certificates that match this parameter value.

[-is-root {true|false}] - Is Root CA Certificate?

Selects the certificates that match this parameter value.

Examples

The examples below display information about the pre-installed truststore digital certificates.

```
cluster1::> security certificate truststore show
```

Vserver	Serial Number	Certificate Name	Type
vs0	4F4E4D7B	www.example.com	server-ca
Certificate Authority: www.example.com			
Expiration Date: Thu Feb 28 16:08:28 2013			

```

cluster1::> security certificate truststore show -instance
                Vserver: vs0
                Certificate Name: www.example.com
                FQDN or Custom Common Name: www.example.com
                Serial Number of Certificate: 4F4E4D7B
                Certificate Authority: www.example.com
                Type of Certificate: server-ca
                Size of Requested Certificate(bits): 2048
                Certificate Start Date: Fri Apr 30 14:14:46 2010
                Certificate Expiration Date: Sat Apr 30 14:14:46 2011
                Public Key Certificate: -----BEGIN CERTIFICATE-----

MIIDfTCCAmWgAwIBAwIBADANBgkqhkiG9w0BAQsFADBGMQwEgYDVQQDEwtsYWlu
YWJjLmNvbTELMakGA1UEBhMCVVMxCTAHBgNVBAgTADAJMAcGA1UEBxMAMQkwBwYD
VQQKEwAxCTAHBgNVBAStADEPMA0GCSqGSIb3DQEJARYAMB4XDTEwMDQzMDE4MTQ0
BgNVHQ8BAf8EBAMCAQYwHQYDVR0OBBYEFcVG7dYGe51akE14ecaCdL+LOAxUMA0G
CSqGSIb3DQEBCwUAA4IBAQBjLE51pkDY3ZpsSrQeMOoWLteIR+1H0wKZOM1Bhy6Q
+gsE3XEtnN07AE4npjIT0eVP0nI9QIJAbP0uPKaCGAVBSBMom2mOwbfswI7aJoEh
+XuEoNr0GOz+mltnfhgvl1fT6Ms+xzd3LGZYQTworus2

                -----END CERTIFICATE-----

                Country Name (2 letter code): US
                State or Province Name (full name): California
                Locality Name (e.g. city): Sunnyvale
                Organization Name (e.g. company): example
                Organization Unit (e.g. section): IT
                Email Address (Contact Name): web@example.com
                Protocol: SSL
                Hashing Function: SHA256

```


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