



# **Generate and install a CA-signed server certificate**

**ONTAP 9**

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# Generate and install a CA-signed server certificate

## Generate and install a CA-signed server certificate overview

On production systems, it is a best practice to install a CA-signed digital certificate for use in authenticating the cluster or SVM as an SSL server. You can use the `security certificate generate-csr` command to generate a certificate signing request (CSR), and the `security certificate install` command to install the certificate you receive back from the certificate authority.

## Generate a certificate signing request

You can use the `security certificate generate-csr` command to generate a certificate signing request (CSR). After processing your request, the certificate authority (CA) sends you the signed digital certificate.

### What you'll need

You must be a cluster or SVM administrator to perform this task.

### Steps

1. Generate a CSR:

```
security certificate generate-csr -common-name FQDN_or_common_name -size
512|1024|1536|2048 -country country -state state -locality locality
-organization organization -unit unit -email-addr email_of_contact -hash
-function SHA1|SHA256|MD5
```

The following command creates a CSR with a 2048-bit private key generated by the SHA256 hashing function for use by the Software group in the IT department of a company whose custom common name is `server1.companyname.com`, located in Sunnyvale, California, USA. The email address of the SVM contact administrator is `web@example.com`. The system displays the CSR and the private key in the output.

```
cluster1::>security certificate generate-csr -common-name
server1.companyname.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-----

```
MIIBGjCBxQIBADBqMRQwEgYDVQQDEwtleGFTcGx1LmNvbTElMAkGA1UEBhMCVVMx
CTAHBgNVBAgTADUJMAcGA1UEBxMAMQkwBwYDVQQKEwAxCTAHBgNVBAStADEPMA0G
CSqGSIB3DQEJARYAMFwwDQYJKoZIhvcNAQEBBQADSwAwSAJBAPXFanNoJApTlnzS
xOcxixqImRRGZCR7tVmTYyqPSuTvfhVtwDJbmXuj6U3alwoUsb13wfEvQnHVFNCi
2ninsJ8CAwEAAaAAMA0GCSqGSIB3DQEBCwUAA0EA6EagLfso5+4g+ejiRKKTUPQO
UqOUEoKuvxhOvPC2w7b//fNSFsFHvXloqEOhYECn/NX9h8mbphCoM5YZ4OfnKw==
-----END CERTIFICATE REQUEST-----
```

Private Key :

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

```
MIIBOwIBAAJBAPXFanNoJApTlnzSxOcxixqImRRGZCR7tVmTYyqPSuTvfhVtwDJb
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.

2. Copy the certificate request from the CSR output, and send it in electronic form (such as email) to a trusted third-party CA for signing.

After processing your request, the CA sends you the signed digital certificate. You should keep a copy of the private key and the CA-signed digital certificate.

## Install a CA-signed server certificate

You can use the `security certificate install` command to install a CA-signed server certificate on an SVM. ONTAP prompts you for the certificate authority (CA) root and intermediate certificates that form the certificate chain of the server certificate.

### What you'll need

You must be a cluster or SVM administrator to perform this task.

### Step

1. Install a CA-signed server certificate: `security certificate install -vserver SVM_name -type certificate_type`

For complete command syntax, see the [worksheet](#).



ONTAP prompts you for the CA root and intermediate certificates that form the certificate chain of the server certificate. The chain starts with the certificate of the CA that issued the server certificate, and can range up to the root certificate of the CA. Any missing intermediate certificates result in the failure of server certificate installation.

The following command installs the CA-signed server certificate and intermediate certificates on the SVMengData2.

```
cluster1::>security certificate install -vserver engData2 -type server
Please enter Certificate: Press <Enter> when done
-----BEGIN CERTIFICATE-----
MIIB8TCCA ZugAwIBAwIBADANBgkqhkiG9w0BAQQFADBfMRMwEQYDVQQDEwpuZXRh
cHAuY29tMQswCQYDVQQGEwJVUzEJMACGA1UECBMAMQkwBwYDVQQHEwAxCTAHBG NV
BAoTAD EJMAGCA1UECXMAMQ8wDQYJKoZIhvcNAQkBFgAwHhcNMTAwNDI2MTk0OTI4
WhcNMTAwNTI2MTk0OTI4WjBfMRMwEQYDVQQDEwpuZXRhcHAuY29tMQswCQYDVQQG
EwJVUzEJMACGA1UECBMAMQkwBwYDVQQHEwAxCTAHBG NVBAoTAD EJMAGCA1UEC xMA
MQ8wDQYJKoZIhvcNAQkBFgAwXDANBgkqhkiG9w0BAQEFAANLADBIaKEAyXrK2sry
-----END CERTIFICATE-----

Please enter Private Key: Press <Enter> when done
-----BEGIN RSA PRIVATE KEY-----
MIIBPAIBAAJBAMl6ytrK8nQj82UsWeHOeT8gk0BPX+Y5MLyCsUdXA7hXhumHNpvF
C61X2G32Sx8VEa1th94tx+vOEzq+UaqHlt0CAwEAAQJBAMZjDWlgmlm3qIr/n8VT
PFnnZnbVcXVM70tbUsgPKw+QCCh9dF1jmuQKeDr+wUMWkn1DeGrfhILpzfJGHR LJ
z7UCIQDr8d3gOG71UyX+BbFmo/N0uAKjS2cvUU+Y8a8pDxGLLwIhANqa99SuS18U
DiPvdaKTj6+EcGuXfCXz+G0rfgTZK8uzAiEArlmnrFYC8KwE9k7A0ylRzBLdUwK9
AvuJDn+/z+H1Bd0CIQDD93P/xpaJETNz53Au49VE5Jba/Jugckrbosd/lSd7nQIg
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+zCCBGSGAwIBAgICAQ0wDQYJKoZIhvcNAQEFBQAwwbsxJDAiBgNVBACGTG1Zh
bGlDZXJ0IFZhbGlkYXRpb24gTmV0d29yazEXMBUGA1UEChMOVmFsaUNlcnQsIElu
Yy4xNTAzBgNVBAsTLFZhbGlDZXJ0IENsYXNzIDIGUG9saWN5IFZhbGlkYXRpb24g
QXV0aG9yaXR5MSEwHwYDVQQDExhodHRwOi8vd3d3LnZhbGljZXJ0LmNvbS8xIDAe
BgkqhkiG9w0BCQEWEluZm9AdmFsaWNlcnQuY29tMB4XDTA0MDYyOTE3MDYyMFoX
DTI0MDYyOTE3MDYyMFOwYzELMAkGA1UEBhMCVVMxITAfBgNVBAoTGFROZSBHbyBE
```

```
YWRkeSBHcm91cCwgSW5jLjExMC8GA1UECXMOR28gRGFkZHkgQ2xhc3MgMiBDZXJ0
```

```
-----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-----
```

```
MIIC5zCCAlACAQEwDQYJKoZIhvcNAQEFBQAwbgsxJDAiBgNVBActG1ZhbG1DZXJ0  
IFZhbGlkYXRpb24gTmV0d29yazEXMBUGA1UEChMOVmFsaUNlcnQsIEluYy4xNTAz  
BgNVBAsTTFZhbG1DZXJ0IENsYXNzIDIGUG9saWN5IFZhbGlkYXRpb24gQXV0aG9y  
aXR5MSEwHwYDVQQDEzhodHRwOi8vd3d3LnZhbGljZXJ0LmNvbS8xIDAeBgkqhkiG  
9w0BCQEWEluZm9AdmFsaWNlcnQuY29tMB4XDTE5MDYyNjAwMTk1NFoXDTE5MDYy  
NjAwMTk1NFowgbsxJDAiBgNVBActG1ZhbG1DZXJ0IFZhbGlkYXRpb24gTmV0d29y  
azEXMBUGA1UEChMOVmFsaUNlcnQsIEluYy4xNTAzBgNVBAsTTFZhbG1DZXJ0IENs  
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.

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