Install a Trusted Certificate for FXOS Chassis Manager

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Introduction

This document describes how to generate a CSR and install identity certificate for use with the Chassis Manager for FXOS on FP 4100/9300 series devices.

Prerequisites

Requirements

Cisco recommends that you have knowledge of these topics:

- Configure Firepower eXtensible Operating System (FXOS) from the Command Line
- Use Certificate Signing Request (CSR)
- Private Key Infrastructure (PKI) Concepts

Components Used

The information in this document is based on these software and hardware versions:

- Firepower (FP) 4100 and 9300 Series Hardware
- FXOS Versions 2.10

The information in this document was created from the devices in a specific lab environment. All of the devices used in this document started with a cleared (default) configuration. If your network is live, ensure that you understand the potential impact of any command.

Background Information

After the initial configuration, a self-signed SSL certificate is generated for use with the Chassis Manager web application. Since that certificate is self-signed, it is not automatically trusted by client browsers. The first time that a new client browser accesses the Chassis Manager web interface, the browser throws an SSL warning similar to your connection tha it is not private, and requires the user to accept the certificate before you access the Chassis Manager. This process allows a certificate signed by a trusted certificate authority to be installed, which allows a client browser to trust the connection, and bring up the web interface with no warnings.

Configure

Generate a CSR

Perform these steps in order to obtain a certificate that contains the IP address or Fully Qualified Domain Name (FQDN) of the device (which allows a client browser to identify the server properly):

- Create a keyring and select the modulus size of the private key.

Note: The keyring name can be any input. In these examples, firepower_cert is used.

This example creates a keyring with a key size of 1024 bits:

```
Firepower-chassis# scope security
Firepower-chassis /security # create keyring kr220
Firepower-chassis /security/keyring* # set modulus mod1024
Firepower-chassis /security/keyring* # commit-buffer
```

- Configure the CSR fields. The CSR can be generated with just basic options like a subject name. This prompts for a certificate request password as well.

This example creates and displays a certificate request with an IPv4 address for a key ring, with basic

options:

```
Firepower-chassis# scope security
Firepower-chassis /security # scope keyring kr220
Firepower-chassis /security/keyring # create certreq ip 192.168.200.123 subject-name sjc04Certificate r
Confirm certificate request password:
Firepower-chassis /security/keyring* # commit-buffer
```

- The CSR can also be generated with more advanced options that allow information like locale and organization to be embedded in the certificate.

```
Firepower-chassis# scope security
Firepower-chassis /security # scope keyring kr220
Firepower-chassis /security/keyring # create certreq
Firepower-chassis /security/keyring/certreq* # set "ip 192.168.200.123"
Firepower-chassis /security/keyring/certreq* #  set subject-name "sjc04"
Firepower-chassis /security/keyring/certreq* # set country "US"
Firepower-chassis /security/keyring/certreq* # set dns "bg1-samc-15A"
Firepower-chassis /security/keyring/certreq* # set email "test@cisco.com"
Firepower-chassis /security/keyring/certreq* # set locality "new york city"
Firepower-chassis /security/keyring/certreq* # set org-name "Cisco Systems"
Firepower-chassis /security/keyring/certreq* # set org-unit-name "Testing"
Firepower-chassis /security/keyring/certreq* # set state "new york"
Firepower-chassis /security/keyring/certreq* # commit-buffer
```

- Export the CSR to provide to your certificate authority. Copy the output that starts with (and includes) -----BEGIN CERTIFICATE REQUEST----- ends with (and includes) -----END CERTIFICATE REQUEST-----.

```
Firepower-chassis /security/keyring/certreq # show certreq
Certificate request subject name: sjc04
Certificate request ip address: 192.168.200.123
Certificate request e-mail name: test@cisco.com
Certificate request country name: US
State, province or county (full name): New York
Locality name (eg, city): new york city
Organization name (eg, company): Cisco
Organization Unit name (eg, section): Testing
Request:
-----BEGIN CERTIFICATE REQUEST-----
MIIBfTCB5wIBADARMQ8wDQYDVQQDEwZzYW1jMDQwgZ8wDQYJKoZIhvcNAQEBBQAD
gY0AMIGJAoGBALpKn1t8qMZO4UGqILKFXQQc2c8b/vW2rnRF8OPhKbhghLA1YZ1F
JqcYEG5Yl1+vgohLBTd45s0GC8m4RTLJWHo4SwccAUXQ5Zngf45YtX1WsylwUWV4
Ore/zgTk/WCd56RfOBvWR2Dtztu2pGA14sd761zLxt29K7R8mzj6CAUVAgMBAAGg
LTArBgkqhkiG9w0BCQ4xHjAcMBoGA1UdEQEB/wQQMA6CBnNhbWMwNIcECsEiXjAN
BgkqhkiG9w0BAQQFAAOBgQCsxN0qUHYGFoQw56RwQueLTNPnrndqUwuZHUO03Teg
nhsyu4satpyiPqVV9viKZ+spvc6x5PWIcTWgHhH8BimOb/OOKuG8kwfIGGsEDlAv
TTYvUP+BZ9OFiPbRIA718S+V8ndXr1HejiQGxlDNqoN+odCXPc5kjoXD0lZTL09H
BA==
-----END CERTIFICATE REQUEST-----
```

Import the Certificate Authority Certificate Chain



Note: All certificates must be in Base64 format to be imported into FXOS. If the certificate or chain received from the Certificate Authority is in a different format, you must first convert it with an SSL tool such as OpenSSL.

- Create a new trustpoint to hold the certificate chain.



Note: The trustpoint name can be any input. In the examples, firepower_chain is used.

```
Firepower-chassis# scope security
Firepower-chassis /security # create trustpoint tPoint10
Firepower-chassis /security/trustpoint* # set certchain
Enter lines one at a time. Enter ENDOFBUF to finish. Press ^C to abort.
Trustpoint Certificate Chain:
> -----BEGIN CERTIFICATE-----
> MIIDMDCCApmgAwIBAgIBADANBgkqhkiG9w0BAQQFADB0MQswCQYDVQQGEwJVUzEL
> BxMMU2FuIEpvc2UsIENBMRUwEwYDVQQKEwxFeGFtcGxlIEluYy4xEzARBgNVBAsT
> ClRlc3QgR3JvdXAxGTAXBgNVBAMTEHRlc3QuZXhhbXBsZS5jb20xHzAdBgkqhkiG
> 9w0BCQEWEHVzZXJAZXhhbXBsZS5jb20wgZ8wDQYJKoZIhvcNAQEBBQADgY0AMIGJ
> AoGBAMZw4nTepNIDhVzb0j7Z2Je4xAG56zmSHRMQeOGHemdh66u2/XAoLx7YCcYU
> ZgAMivyCsKgb/6CjQtsofvtrmC/eAehuK3/SINv7wd6Vv2pBt6ZpXgD4VBNKONDl
> GMbkPayVlQjbG4MD2dx2+H8EH3LMtdZrgKvPxPTE+bF5wZVNAgMBAAGgJTAjBgkq
> hkiG9w0BCQcxFhMUQSBjaGFsbGVuZ2UgcGFzc3dvcmQwDQYJKoZIhvcNAQEFBQAD
> gYEAG61CaJoJaVMhzCl9O3O6Mg51zq1zXcz75+VFj2I6rH9asckCld3mkOVx5gJU
> Ptt5CVQpNgNLdvbDPSsXretysOhqHmp9+CLv8FDuy1CDYfuaLtvlWvfhevskV0j6
> jtcEMyZ+f7+3yh421ido3nO4MIGeBgNVHSMEgZYwgZOAFLlNjtcEMyZ+f7+3yh42
> 1ido3nO4oXikdjB0MQswCQYDVQQGEwJVUzELMAkGA1UECBMCQ0ExFDASBgNVBAcT
> C1NhbnRhIENsYXJhMRswGQYDVQQKExJOdW92YSBTeXN0ZW1zIEluYy4xFDASBgNV
> BAsTC0VuZ2luZWVyaW5nMQ8wDQYDVQQDEwZ0ZXN0Q0GCAQAwDAYDVR0TBAUwAwEB
> /zANBgkqhkiG9w0BAQQFAAOBgQAhWaRwXNR6B4g6Lsnr+fptHv+WVhB5fKqGQqXc
> wR4pYiO4z42/j9Ijenh75tCKMhW51az8copP1EBmOcyuhf5C6vasrenn1ddkkYt4
> PR0vxGc4OwhuiozBolesmsmjBbedUCwQgdFDWhDIZJwK5+N3x/kfa2EHU6id1avt
> 4YL5Jg==
> -----END CERTIFICATE-----
> ENDOFBUF
Firepower-chassis /security/trustpoint* # commit-buffer
```



Note: For a Certificate Authority that uses intermediate certificates, the root and intermediate certificates must be combined. In the text file, paste the root certificate at the top, followed by each intermediate certificate in the chain (that includes all BEGIN CERTIFICATE and END CERTIFICATE flags). Then paste that entire file before the ENDOFBUF delineation.

Import the Signed Identity Certificate for the Server

- Associate the trustpoint created in the previous step with the keyring that was created for the CSR.

```
Firepower-chassis# scope security
Firepower-chassis /security # scope keyring kr220
Firepower-chassis /security/keyring # set trustpoint tPoint10
```

- Paste the contents of the identity certificate provided by the Certificate Authority.

```
Firepower-chassis /security/keyring* # set cert
Enter lines one at a time. Enter ENDOFBUF to finish. Press ^C to abort.
Keyring certificate:
> -----BEGIN CERTIFICATE-----
> MIIB/zCCAWgCAQAwgZkxCzAJBgNVBAYTAlVTMQswCQYDVQQIEwJDQTEVMBMGA1UE
> BxMMU2FuIEpvc2UsIENBMRUwEwYDVQQKEwxFeGFtcGxlIEluYy4xEzARBgNVBAsT
> ClRlc3QgR3JvdXAxGTAXBgNVBAMTEHRlc3QuZXhhbXBsZS5jb20xHzAdBgkqhkiG
> 9w0BCQEWEHVzZXJAZXhhbXBsZS5jb20wgZ8wDQYJKoZIhvcNAQEBBQADgY0AMIGJ
> AoGBAMZw4nTepNIDhVzb0j7Z2Je4xAG56zmSHRMQeOGHemdh66u2/XAoLx7YCcYU
> ZgAMivyCsKgb/6CjQtsofvtrmC/eAehuK3/SINv7wd6Vv2pBt6ZpXgD4VBNKONDl
> GMbkPayVlQjbG4MD2dx2+H8EH3LMtdZrgKvPxPTE+bF5wZVNAgMBAAGgJTAjBgkq > hkiG9w0BCQcxFhMUQSBjaGFsbGVuZ2UgcG
> Ptt5CVQpNgNLdvbDPSsXretysOhqHmp9+CLv8FDuy1CDYfuaLtvlWvfhevskVOj6 > mK3Ku+YiORnv6DhxrOoqau8r/hyI/L43l7
Firepower-chassis /security/keyring* # commit-buffer
```

Configure Chassis Manager to Use the New Certificate

The certificate has now been installed, but the web service is not yet configured to use it.

```
Firepower-chassis# scope system Firepower-chassis /system # scope services Firepower-chassis /system/se
Firepower-chassis /system/services* # commit-buffer
```

Verify

Use this section in order to confirm that your configuration works properly.

- **show https -** Output displays the keyring associated with the HTTPS server. It can reflect the name created in the steps mentioned previously. It if still shows default, then it has not been updated to use the new certificate.

<#root>

```
Firepower-chassis /system/services #
```

show https

```
 Name: https Admin State: Enabled Port: 443 Operational port: 443 Key Ring: kring7984 Cipher suite mode
```

- **show keyring <keyring_name> detail -** Output displays the contents of the certificate that is imported, and shows if it is valid or not.

<#root>

```
fp4120 /security #
```

scope security

```
fp4120 /security #
```

show keyring

```
kring7984
```

detail

```
 Keyring kring7984: RSA key modulus: Mod2048 Trustpoint CA: tPoint10
```

Certificate status: Valid

```
 Certificate: Data: Version: 3 (0x2) Serial Number: 45:00:00:00:0a:de:86:55:16:82:24:f3:be:00:00:00:00:
```

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

```
MIIE8DCCBJagAwIBAgITRQAAAArehlUWgiTzvgAAAAAACjAKBggqhkjOPQQDAjBT MRUwEwYKCZImiZPyLGQBGRYFbG9jYWwxGDAWBg
```

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

```
 Zeroized: No
```

- Enter **https://<FQDN_or_IP>/** in the address bar of a web browser, and browse to the **Firepower Chassis Manager**, and verify that the new trusted certificate is presented.

Warning: Browsers also verify the subject-name of a certificate against the input in the address bar, so if the certificate is issued to the fully qualified domain name, it must be accessed that way in the browser. If it is accessed via IP address, a different SSL error is thrown (Common Name Invalid) even if the trusted certificate is used.

Troubleshoot

There is currently no specific information available to troubleshoot this configuration.

Related Information

- Accessing the FXOS CLI
- Technical Support & Documentation - Cisco Systems