Troubleshoot Certificate Error "Fail to Configure CA Certificate" on FMC

Contents

Introduction

This document describes how to troubleshoot and fix the Certificate Authority (CA) import error on Firepower Threat Defense devices managed by FMC.

Prerequisites

Requirements

Cisco recommends that you have knowledge of these topics:

- Public Key Infrastructure (PKI)
- Firepower Management Center (FMC)
- Firepower Threat Defense (FTD)
- OpenSSL

Components used

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

- MacOS x 10.14.6
- FMC 6.4
- OpenSSL

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, make sure that you understand the potential impact of any command.

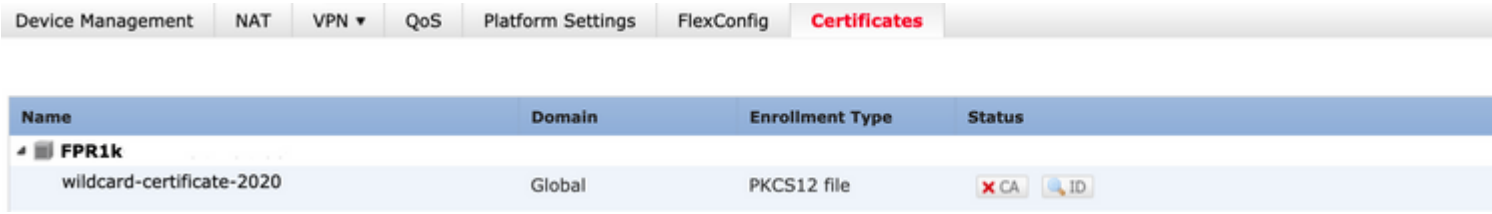
Background information

Note: On FTD devices, the CA certificate is needed before the Certificate Signing Request (CSR) is generated.

- If the CSR is generated in an external server (such as Windows Server or OpenSSL), the manual enrollment method is intended to fail, since FTD does not support manual key enrollment. A different method must be used such as PKCS12.

Problem

In this particular scenario, the FMC displays a red cross in the CA certificate status (as shown in the image), which states that the certificate enrollment failed to install the CA certificate. This error is commonly seen when the certificate has not been properly packaged or the PKCS12 file does not contain the correct issuer certificate as shown in the image.



Note: In newer FMC versions, this problem has been addressed to match the ASA behavior that creates an additional trustpoint with the root CA included in the chain of trust of the .pfx cert.

Solution

Step 1. Locate the .pfx Certificate

Get the pfx certificate that was enrolled in the FMC GUI, **save** it and locate the file in the Mac Terminal (CLI).

```
docs# ls -l
total 16
-rw-r--r--  1 holguins  staff  4701 May 23 15:11 c
```

ls

Step 2. Extract the Certificates and Key from the .pfx File

Extract the client certificate (not CA certificates) from the pfx file (the passphrase that was used to generate the .pfx file is required).

```
openssl pkcs12 -in cert.pfx -clcerts -nokeys -out id.pem
```

```
docs# openssl pkcs12 -in cert.pfx -clcerts -nokey
Enter Import Password:
MAC verified OK
```

identity export

Extract the CA certificates (not client Certificates).

```
openssl pkcs12 -in cert.pfx -cacerts -nokeys -out certs.pem
```

```
docs# openssl pkcs12 -in cert.pfx -cacerts -nokeys
Enter Import Password:
MAC verified OK
```

cacerts export

Extract the private key from the pfx file (the same passphrase from Step 2 is required).

```
openssl pkcs12 -in cert.pfx -nocerts -out key.pem
```

```
docs# openssl pkcs12 -in cert.pfx -nocerts -out ke
Enter Import Password:
MAC verified OK
Enter PEM pass phrase:
Verifying - Enter PEM pass phrase:
```

key export

Four files now exist: cert.pfx (the original pfx bundle), certs.pem (the CA certificates), id.pem (client certific

```
openssl x509 -in cacert-ab.pem -subject -noout
```

```
docs# openssl x509 -in cacert-ab.pem -subject -noout
subject= /C=MX/ST=CDMX/O=Ungu Corp/OU=Ungu Corp Certificate Authority/CN=U
```

subject check

The cacert file that matches the Subject with the Issuer of the id.pem file (as shown in the previous images), is the Sub CA that is later used to create the PFX cert.

Delete the cacert file that does not have the matching Subject. In this case, that cert was cacert-aa.pem.

```
rm -f cacert-aa.pem
```

Step 6. Merge the Certificates in a PKCS12 File

Merge the sub CA certificate (for this case, the name was cacert-ab.pem) along with the ID certificate (id.pem) and private key (key.pem) in a new pfx file. You must protect this file with a passphrase. If needed, change the cacert-ab.pem file name to match your file.

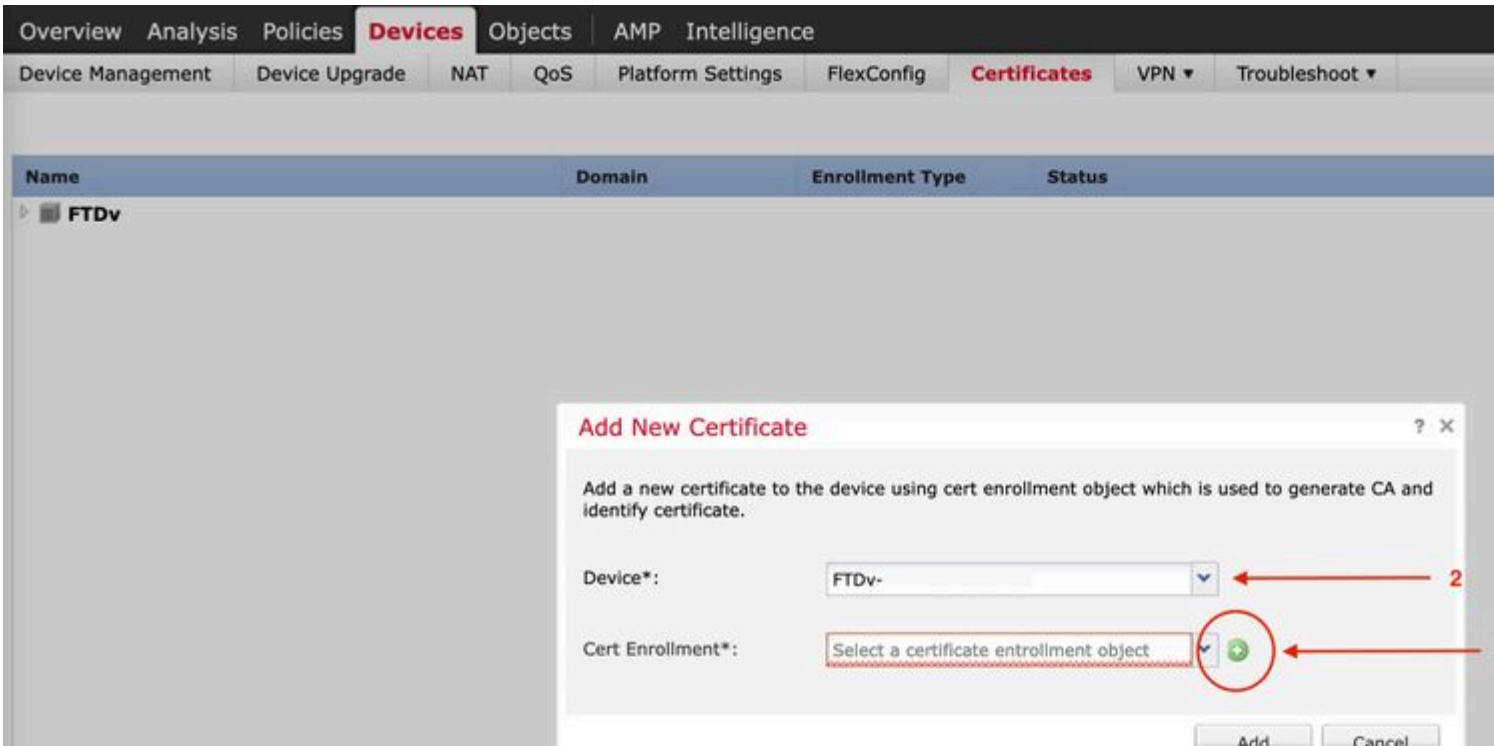
```
openssl pkcs12 -export -in id.pem -certfile cacert-ab.pem -inkey key.pem -out new-cert.pfx
```

```
docs# openssl pkcs12 -export -in id.pem -certfile cacert-ab.pem -inkey ke
Enter Export Password:
Verifying - Enter Export Password:
```

pfx-creation

Step 7. Import the PKCS12 File in the FMC

In the FMC, navigate to **Device > Certificates** and import the certificate to the desired firewall as shown in the image.



In Windows, you can encounter an issue where the OS displays the whole chain for the certificate even though the .pfx file only contains the ID certificate, in the case it has the subCA, CA chain in its store.

In order to check the list of the certificates in a .pfx file, tools like certutil or openssl can be used.

```
certutil -dump cert.pfx
```

The certutil is a command line utility that provides the list of certificates in a .pfx file. You must see the whole chain with ID, SubCA, CA included (if any).

Alternatively, you can use an openssl command, as shown in the command below.

```
openssl pkcs12 -info -in cert.pfx
```

In order to verify the certificate status along with the CA and ID information, you can select the icons and confirm it was successfully imported: