Certificaat voor FND instellen op SSM-communicatie

Inhoud

Inleiding

In dit document wordt beschreven hoe u communicatieproblemen correct kunt configureren tussen Veldnetwerkdirecteur (FND) en Software Security Module (SSM).

Probleem

Sinds FND 4.4 vereist de communicatie tussen de FND-toepassingsserver en de SSM-service wederzijdse authenticatie.

Indien deze wederzijdse authenticatie niet correct is ingesteld of de certificaten niet overeenkomen, wordt de verbinding van FND naar het SSM geweigerd.

Dit kan op **server.log** worden gezien, als het loggen is ingesteld op debug, en wel als volgt:

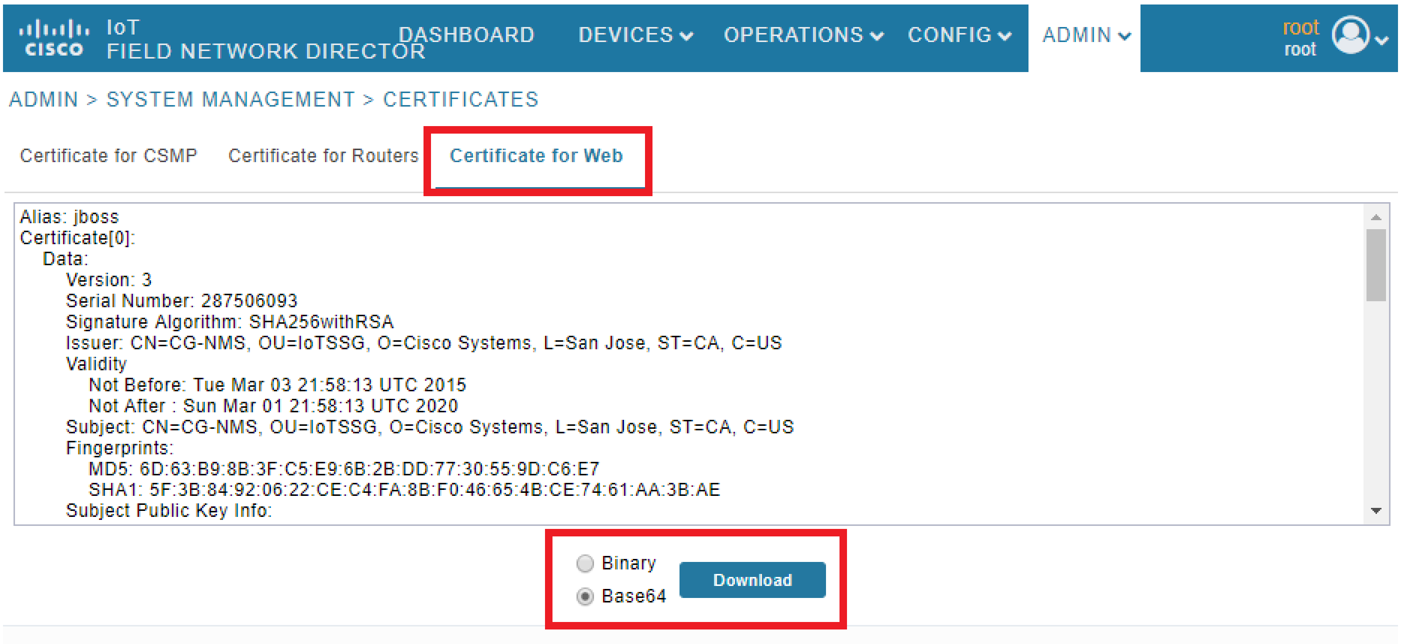
```
7645: SLC-FND: Jun 20 2019 13:22:49.929 +0000: %IOTFND-7-UNSPECIFIED:
%[ch=SSMClient][sev=DEBUG][tid=http-/0.0.0.0:443-5]: Sending request to SSM Server. Request
:https://127.0.0.1:8445/api/v0/ssmws/loadKeyStore.json
7646: SLC-FND: Jun 20 2019 13:22:49.930 +0000: %IOTFND-7-UNSPECIFIED:
%[ch=BasicClientConnectionManager][sev=DEBUG][tid=http-/0.0.0.0:443-5]: Get connection for route
{s}->https://127.0.0.1:8445
7647: SLC-FND: Jun 20 2019 13:22:49.931 +0000: %IOTFND-7-UNSPECIFIED:
%[ch=DefaultClientConnectionOperator][sev=DEBUG][tid=http-/0.0.0.0:443-5]: Connecting to
127.0.0.1:8445
7648: SLC-FND: Jun 20 2019 13:22:49.938 +0000: %IOTFND-7-UNSPECIFIED:
%[ch=DefaultClientConnection][sev=DEBUG][tid=http-/0.0.0.0:443-5]: Connection
org.apache.http.impl.conn.DefaultClientConnection@370804ff closed
7649: SLC-FND: Jun 20 2019 13:22:49.938 +0000: %IOTFND-7-UNSPECIFIED:
%[ch=DefaultClientConnection][sev=DEBUG][tid=http-/0.0.0.0:443-5]: Connection
org.apache.http.impl.conn.DefaultClientConnection@370804ff shut down
7650: SLC-FND: Jun 20 2019 13:22:49.938 +0000: %IOTFND-7-UNSPECIFIED:
%[ch=BasicClientConnectionManager][sev=DEBUG][tid=http-/0.0.0.0:443-5]: Releasing connection
org.apache.http.impl.conn.ManagedClientConnectionImpl@7bc2e02f
7651: SLC-FND: Jun 20 2019 13:22:49.938 +0000: %IOTFND-7-UNSPECIFIED:
%[ch=BasicClientConnectionManager][sev=DEBUG][tid=http-/0.0.0.0:443-5]: Connection can be kept
alive for 9223372036854775807 MILLISECONDS
7652: SLC-FND: Jun 20 2019 13:22:49.938 +0000: %IOTFND-7-UNSPECIFIED:
%[ch=SSMClient][sev=DEBUG][tid=http-/0.0.0.0:443-5][part=7652.1/114]: Please verify SSM server
status. No response received.
7653: SLC-FND: Jun 20 2019 13:22:49.938 +0000: %IOTFND-7-UNSPECIFIED:
%[ch=SSMClient][sev=DEBUG][tid=http-/0.0.0.0:443-5][part=7652.2/114]:
javax.net.ssl.SSLPeerUnverifiedException: peer not authenticated
```

Oplossing

Het certificaat dat door de FND-server wordt gebruikt om de client-verificatie op de SSM-server uit te voeren, is het FND-webcertificaat van de **jbossas_keystore**.

U moet deze stappen ondernemen om het SSM te laten vertrouwen:

1. Exporteren van het webcertificaat met behulp van de GUI. Blader naar **Admin > System Management > Certificaten > certificaatnummer voor het web** en klik vervolgens op **Download (base64)** zoals in de afbeelding.



```
Alias: jboss
Certificate[0]:
    Data:
        Version: 3
        Serial Number: 287506093
        Signature Algorithm: SHA256withRSA
        Issuer: CN=CG-NMS, OU=IoTSSG, O=Cisco Systems, L=San Jose, ST=CA, C=US
        Validity
            Not Before: Tue Mar 03 21:58:13 UTC 2015
            Not After : Sun Mar 01 21:58:13 UTC 2020
        Subject: CN=CG-NMS, OU=IoTSSG, O=Cisco Systems, L=San Jose, ST=CA, C=US
        Fingerprints:
            MD5: 6D:63:B9:8B:3F:C5:E9:6B:2B:DD:77:30:55:9D:C6:E7
            SHA1: 5F:3B:84:92:06:22:CE:C4:FA:8B:F0:46:65:4B:CE:74:61:AA:3B:AE
        Subject Public Key Info:
```

2. Kopieert het tekstbestand of maakt een nieuw bestand op de FND-server met de certificaatinhoud uit Stap 1. Dit voorbeeld, het bestand wordt opgeslagen in **/opt/cgms/server/cgms/conf/webcert.crt**:

```
[root@fndnms ~]# vi /opt/cgms/server/cgms/conf/webcert.crt
[root@fndnms ~]# cat /opt/cgms/server/cgms/conf/webcert.crt
-----BEGIN CERTIFICATE-----
MIIDbTCCAlWgAwIBAgIEESL+rTANBgkqhkiG9w0BAQsFADBnMQswCQYDVQQGEwJV
UzELMAkGA1UECBMCQ0ExETAPBgNVBAcTCFNhbiBKb3NlMRYwFAYDVQQKEw1DaXNj
byBTeXN0ZW1zMQ8wDQYDVQQLEwZJb1RTU0cxDzANBgNVBAMTBkNHLU5NUzAeFw0x
NTAzMDMyMTU4MTNaFw0yMDAzMDEyMTU4MTNaMGcxCzAJBgNVBAYTAlVTMQswCQYD
VQQIEwJDQTERMA8GA1UEBxMIU2FuIEpvc2UxFjAUBgNVBAoTDUNpc2NvIFN5c3Rl
bXMxDzANBgNVBAsTBklvVFNTRzEPMA0GA1UEAxMGQ0ctTk1TMIIBIjANBgkqhkiG
9w0BAQEFAAOCAQ8AMIIBCgKCAQEAlsgdELNUFi9eXHcb550y0UgbPMgucsKqT1+E
xmwEri517fo+BHdg6AuXpDP4KvLW1/cx8xqWbheKAfPht/HqiFX0ltZdoWaQcaJz
YJOiuL/W3BwQW6UMWPnC1p/Dgnz+qR3JQpR20hC4ymHIIVwKwVfiaJZAnSFNKaZ4
uhOuJDkEC0ZyBbp5Y2Mi9zVRTv/g98p0IqpOjxV0JUtlRkWkjkvCma/Q6dZzSdle
YZzyAS/ud4KVxytKKoxBBDPrtPRbT6lu2VMyWe26cRjPCveZffBABoSvLjptnb7H
mxJMW7EbL+zjTAL/GmHh8J9P16MX7EoePCPCQdwPRdfQ3GkTKwIDAQABoyEwHzAd
BgNVHQ4EFgQUfyFoDj0hJLtUu6ZtKCHuisCQfl4wDQYJKoZIhvcNAQELBQADggEB
AF9fVfEwqbP4BszGHfzTa8pf4zUPJ3Lcz1z6RxwtyGXq8oZK8YQWRpa2NQKLDnve
VjXSdOBvDKRYqPkZeAmTRS0BobeZr2NdHb/FNXMlR6eBm56UrefW+VdQE7syOmGq
Ynlwb/1KF/Fkyp2xVk7nHCtHl+I90l3DlyPmGbQ/TxgA6PXY6V6d571IARNdohYm
qZ/3B+ZK/F4PLOcUwWDtxTBFnlElyq+YjhZiqsCmsxI1GWqleWltUVGMXNM1YLN5
N1KAbOeC0O4n2MqzTWTU9Ss51WfceWsBoSPO+4xyzcRDZmo7IWZiwp4ZAO3eYOz/
```

```
4aUEdBZxv29+QQ7dq6ZZOXQ=
-----END CERTIFICATE-----
```

3. Start deze opdracht om het certificaat te importeren zoals vertrouwd in de **ssm_web_keystore**:

```
[root@fndnms ~]# keytool -import -trustcacerts -alias fnd -keystore /opt/cgms-
ssm/conf/ssm_web_keystore -file /opt/cgms/server/cgms/conf/webcert.crt
Enter keystore password:
Owner: CN=CG-NMS, OU=IoTSSG, O=Cisco Systems, L=San Jose, ST=CA, C=US
Issuer: CN=CG-NMS, OU=IoTSSG, O=Cisco Systems, L=San Jose, ST=CA, C=US
Serial number: 1122fead
Valid from: Tue Mar 03 22:58:13 CET 2015 until: Sun Mar 01 22:58:13 CET 2020
Certificate fingerprints:
         MD5:  6D:63:B9:8B:3F:C5:E9:6B:2B:DD:77:30:55:9D:C6:E7
         SHA1: 5F:3B:84:92:06:22:CE:C4:FA:8B:F0:46:65:4B:CE:74:61:AA:3B:AE
         SHA256:
1C:59:50:40:92:09:66:D3:67:E9:AE:CA:6D:C8:25:88:FF:A8:26:F7:62:8A:13:EB:0E:EC:57:32:DB:03:94:31
         Signature algorithm name: SHA256withRSA
         Version: 3

Extensions:

#1: ObjectId: 2.5.29.14 Criticality=false
SubjectKeyIdentifier [
KeyIdentifier [
0000: 7F 21 68 0E 3D 21 24 BB   54 BB A6 6D 28 21 EE 8A  .!h.=!$.T..m(!..
0010: C0 90 7E 5E                                        ...^
]
]

Trust this certificate? [no]:  yes
Certificate was added to keystore
```

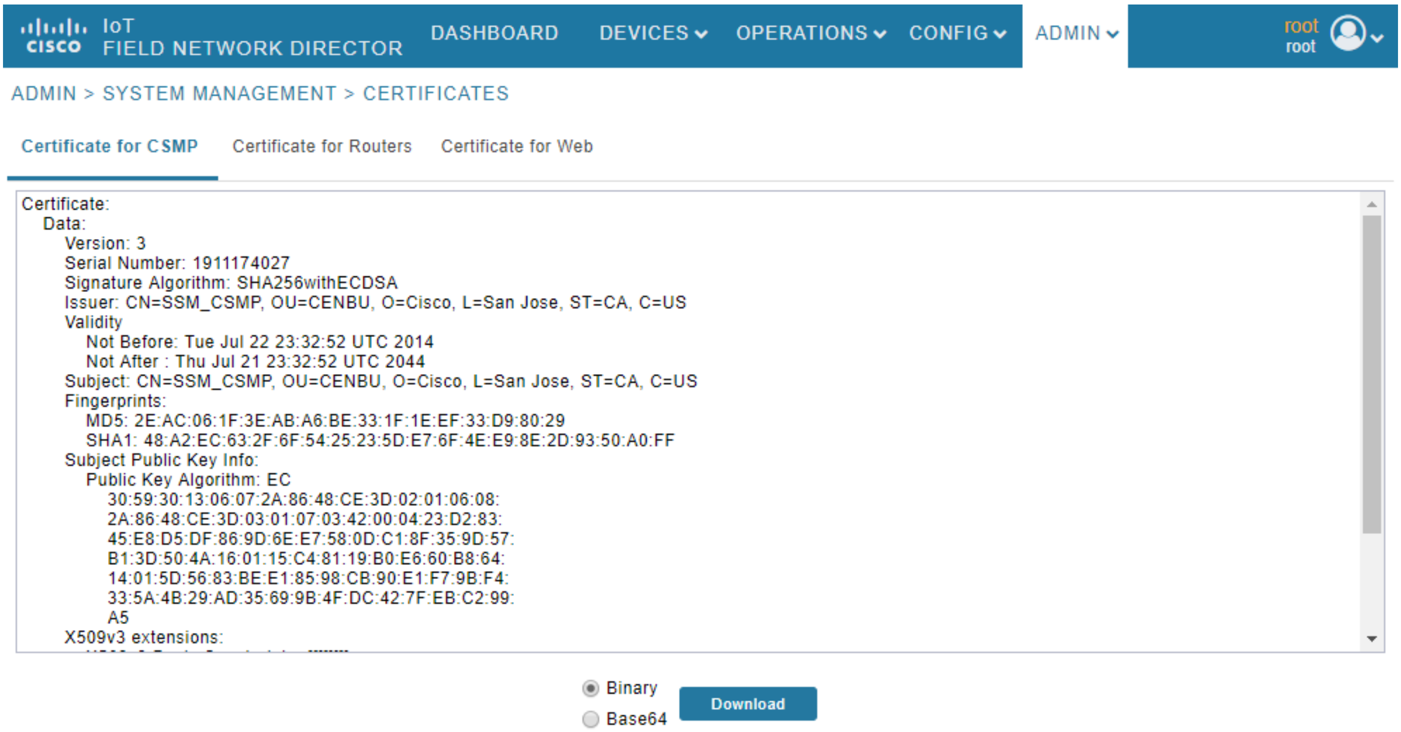
4. Zodra het certificaat is ingevoerd, start u de SSM-dienst opnieuw:

```
[root@fndnms ~]# systemctl restart ssm
[root@fndnms ~]# systemctl status ssm
 ssm.service - (null)
   Loaded: loaded (/etc/rc.d/init.d/ssm; bad; vendor preset: disabled)
   Active: active (running) since Thu 2019-06-20 17:44:11 CEST; 5s ago
     Docs: man:systemd-sysv-generator(8)
  Process: 11463 ExecStop=/etc/rc.d/init.d/ssm stop (code=exited, status=0/SUCCESS)
  Process: 11477 ExecStart=/etc/rc.d/init.d/ssm start (code=exited, status=0/SUCCESS)
   CGroup: /system.slice/ssm.service
           11485 java -server -Xms128m -Xmx1g -XX:MaxPermSize=256m -server -
XX:+HeapDumpOnOutOfMemoryError -XX:HeapDumpPath=/opt/cgms-ssm/log -XX:-OmitStackTraceInFastThrow
-Dbase.dir=/opt/cgms-ssm -Dlog4j...

Jun 20 17:44:10 fndnms systemd[1]: Starting (null)...
Jun 20 17:44:11 fndnms ssm[11477]: Starting Software Security Module Server: [  OK  ]
Jun 20 17:44:11 fndnms systemd[1]: Started (null).
```

U kunt controleren of FND kan communiceren met SSM. Navigeer naar **Admin > Certificaten > Certificaat voor CSMP** in de FND GUI.

Als alles goed gaat, dient u het CSMP-certificaat in SSM te kunnen zien zoals in de afbeelding.



ADMIN > SYSTEM MANAGEMENT > CERTIFICATES

```
Certificate:
   Data:
      Version: 3
      Serial Number: 1911174027
      Signature Algorithm: SHA256withECDSA
      Issuer: CN=SSM_CSMP, OU=CENBU, O=Cisco, L=San Jose, ST=CA, C=US
      Validity
         Not Before: Tue Jul 22 23:32:52 UTC 2014
         Not After : Thu Jul 21 23:32:52 UTC 2044
      Subject: CN=SSM_CSMP, OU=CENBU, O=Cisco, L=San Jose, ST=CA, C=US
      Fingerprints:
         MD5: 2E:AC:06:1F:3E:AB:A6:BE:33:1F:1E:EF:33:D9:80:29
         SHA1: 48:A2:EC:63:2F:6F:54:25:23:5D:E7:6F:4E:E9:8E:2D:93:50:A0:FF
      Subject Public Key Info:
         Public Key Algorithm: EC
            30:59:30:13:06:07:2A:86:48:CE:3D:02:01:06:08:
            2A:86:48:CE:3D:03:01:07:03:42:00:04:23:D2:83:
            45:E8:D5:DF:86:9D:6E:E7:58:0D:C1:8F:35:9D:57:
            B1:3D:50:4A:16:01:15:C4:81:19:B0:E6:60:B8:64:
            14:01:5D:56:83:BE:E1:85:98:CB:90:E1:F7:9B:F4:
            33:5A:4B:29:AD:35:69:9B:4F:DC:42:7F:EB:C2:99:
            A5
      X509v3 extensions:
```

● Binary
○ Base64