

Troubleshoot ASA Smart License on FXOS Firepower Appliances

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Introduction

This document describes the Adaptive Security Appliance (ASA) Smart Licensing feature on Firepower eXtensible Operating System (FXOS).

Background Information

Smart Licensing on FXOS is used when there is an ASA installed on the chassis. For Firepower Threat Defense (FTD) and Firepower Management Center (FMC), Smart Licensing check [FMC and FTD Smart License Registration and Troubleshooting](#).

This document covers mainly the scenarios where the FXOS chassis has direct Internet access. If your FXOS chassis cannot access the Internet, then you need to consider either a Satellite Server or a Permanent License Reservation (PLR). Check the FXOS configuration guide for more details on [Offline Management](#).

Smart Licensing Architecture

A high-level overview of the chassis components:

Management I/O (MIO)

Module
1

Module
2

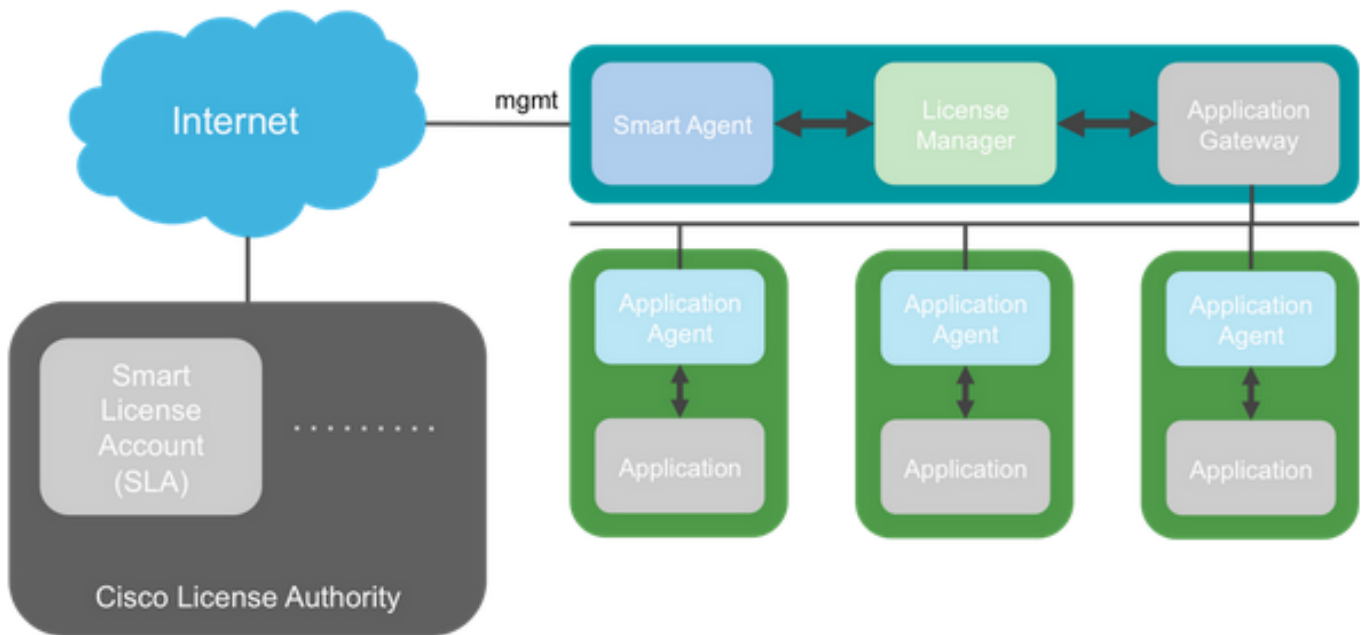
Module
3

- Both Management Input/Output (MIO) and individual modules play roles in Smart Licensing.
- MIO itself does not require any licenses for its operation.
- SA Application(s) on each module needs to be licensed

The FXOS supervisor is the MIO. The MIO contains three main components:

1. Smart Agent
2. License Manager
3. AppAG

Overall Architecture



Nomenclature

Term	Description
Cisco License Authority	The Cisco license backend for Smart Licensing. Maintains all the product licensing-related information. This includes entitlements and device information.
Smart License Account	An account that has all the entitlements for the appliance.
Token ID	An identifier is used to distinguish the Smart License Account when the appliance is registered.
Entitlement	Equivalent to a license. Corresponds to an individual feature or an entire feature tier.
Product Activation Key (PAK)	The older licensing mechanism. Tied to a single appliance.

Smart Agent States

State	Description
Un-Configured	Smart licensing is not enabled.

Un-Identified	Smart licensing has been enabled but the Smart Agent has not yet contacted Cisco to register.
Registered	The agent has contacted the Cisco licensing authority and registered.
Authorized	When an agent receives an in-compliance status in response to an entitlement authorization request.
Out Of Compliance (OOC)	When an agent receives an OOC status in response to an Entitlement Authorization request.
Authorization Expired	If the agent has not communicated with Cisco for 90 days.

ASA Entitlements

These are the supported ASA entitlements:

- Standard tier
- Multi context
- Strong Encryption (3DES)
- Mobile/Service Provider (GTP)

Configuration

Use the instructions from these documents:

- [Smart Software Licensing \(ASAv, ASA on Firepower\)](#)
- [License Management for the ASA](#)

Before any feature tier configuration:

```
<#root>
```

```
asa(config-smart-lic)#
```

```
show license all
```

```
Smart licensing enabled: Yes
```

```
Compliance status: In compliance
```

```
Overall licensed status: Invalid (0)
```

No entitlements in use

Serial Number: FCH12345ABC

License mode: Smart Licensing

Licensed features for this platform:

Maximum Physical Interfaces	: Unlimited
Maximum VLANs	: 1024
Inside Hosts	: Unlimited
Failover	: Active/Active
Encryption-DES	: Enabled
Encryption-3DES-AES	: Enabled
Security Contexts	: 10
Carrier	: Disabled
AnyConnect Premium Peers	: 20000
AnyConnect Essentials	: Disabled
Other VPN Peers	: 20000
Total VPN Peers	: 20000
AnyConnect for Mobile	: Enabled
AnyConnect for Cisco VPN Phone	: Enabled
Advanced Endpoint Assessment	: Enabled
Shared License	: Disabled
Total TLS Proxy Sessions	: 15000
Cluster	: Enabled

* WARNING *

* *

* THIS DEVICE IS NOT LICENSED WITH A VALID FEATURE TIER ENTITLEMENT *

* *

Configure standard tier:

<#root>

asa(config)#

license smart

INFO: License(s) corresponding to an entitlement will be activated only after an entitlement request has been received.
asa(config-smart-lic)#

```
feature tier standard
```

```
asa(config-smart-lic)#
```

```
show license all
```

Smart licensing enabled: Yes

Compliance status: In compliance

Overall licensed status: Authorized (3)

Entitlement(s):

Feature tier:

Tag: regid.2015-10.com.cisco.FIREPOWER_4100_ASA_STANDARD,1.0_7d7f5ee2-1398-4b0e-aced-b3f7fb1cacfc

Version: 1.0

Enforcement mode: Authorized

Handle: 1

Requested time: Tue, 04 Aug 2020 07:58:13 UTC

Requested count: 1

Request status: Complete

Serial Number: FCH12345ABC

License mode: Smart Licensing

Licensed features for this platform:

Maximum Physical Interfaces : Unlimited

Maximum VLANs : 1024

Inside Hosts : Unlimited

Failover : Active/Active

Encryption-DES : Enabled

Encryption-3DES-AES : Enabled

Security Contexts : 10

Carrier : Disabled

AnyConnect Premium Peers : 20000

AnyConnect Essentials : Disabled

Other VPN Peers : 20000

Total VPN Peers : 20000

AnyConnect for Mobile : Enabled

AnyConnect for Cisco VPN Phone : Enabled

Advanced Endpoint Assessment : Enabled

Shared License : Disabled

Total TLS Proxy Sessions : 15000

Clustertext

Failover (High Availability)

As is documented in the ASA Configuration Guide, each Firepower unit must be registered with the License

Authority or satellite server. Verification from the ASA CLI:

<#root>

asa#

show failover | include host

This host: Primary - Active

Other host: Secondary - Standby Ready

asa#

show license all

Smart licensing enabled: Yes

Compliance status: In compliance

Overall licensed status: Authorized (3)

Entitlement(s):

Feature tier:

Tag: regid.2015-10.com.cisco.FIREPOWER_4100_ASA_STANDARD,1.0_7d7f5ee2-1398-4b0e-aced-b3f7fb1cac
Version: 1.0
Enforcement mode: Authorized
Handle: 1
Requested time: Tue, 04 Aug 2020 07:58:13 UTC
Requested count: 1
Request status: Complete

Serial Number: FCH12345ABC

License mode: Smart Licensing

Licensed features for this platform:

Maximum Physical Interfaces	: Unlimited
Maximum VLANs	: 1024
Inside Hosts	: Unlimited
Failover	: Active/Active
Encryption-DES	: Enabled
Encryption-3DES-AES	: Enabled
Security Contexts	: 10
Carrier	: Disabled
AnyConnect Premium Peers	: 20000
AnyConnect Essentials	: Disabled
Other VPN Peers	: 20000
Total VPN Peers	: 20000
AnyConnect for Mobile	: Enabled
AnyConnect for Cisco VPN Phone	: Enabled
Advanced Endpoint Assessment	: Enabled
Shared License	: Disabled
Total TLS Proxy Sessions	: 15000
Cluster	: Enabled

Failover cluster licensed features for this platform:

Maximum Physical Interfaces	: Unlimited
Maximum VLANs	: 1024
Inside Hosts	: Unlimited
Failover	: Active/Active
Encryption-DES	: Enabled
Encryption-3DES-AES	: Enabled
Security Contexts	: 20
Carrier	: Disabled
AnyConnect Premium Peers	: 20000
AnyConnect Essentials	: Disabled
Other VPN Peers	: 20000
Total VPN Peers	: 20000
AnyConnect for Mobile	: Enabled
AnyConnect for Cisco VPN Phone	: Enabled
Advanced Endpoint Assessment	: Enabled
Shared License	: Disabled
Total TLS Proxy Sessions	: 15000
Cluster	: Enabled

The standby unit:

<#root>

asa#

show failover | i host

This host: Secondary - Standby Ready

Other host: Primary - Active

asa#

show license all

Smart licensing enabled: Yes

Compliance status: In compliance

Overall licensed status: Not applicable in standby state

No entitlements in use

Serial Number: FCH12455DEF

License mode: Smart Licensing

Licensed features for this platform:

Maximum Physical Interfaces	: Unlimited
Maximum VLANs	: 1024
Inside Hosts	: Unlimited
Failover	: Active/Active
Encryption-DES	: Enabled
Encryption-3DES-AES	: Disabled
Security Contexts	: 10
Carrier	: Disabled
AnyConnect Premium Peers	: 20000
AnyConnect Essentials	: Disabled
Other VPN Peers	: 20000
Total VPN Peers	: 20000
AnyConnect for Mobile	: Enabled
AnyConnect for Cisco VPN Phone	: Enabled
Advanced Endpoint Assessment	: Enabled
Shared License	: Disabled
Total TLS Proxy Sessions	: 15000
Cluster	: Enabled

Failover cluster licensed features for this platform:

Maximum Physical Interfaces	: Unlimited
Maximum VLANs	: 1024
Inside Hosts	: Unlimited
Failover	: Active/Active
Encryption-DES	: Enabled
Encryption-3DES-AES	: Enabled
Security Contexts	: 20
Carrier	: Disabled
AnyConnect Premium Peers	: 20000
AnyConnect Essentials	: Disabled
Other VPN Peers	: 20000
Total VPN Peers	: 20000
AnyConnect for Mobile	: Enabled
AnyConnect for Cisco VPN Phone	: Enabled
Advanced Endpoint Assessment	: Enabled
Shared License	: Disabled
Total TLS Proxy Sessions	: 15000
Cluster	: Enabled

Case Study: ASA HA License on FP2100

- On 2100, the ASA communicates with the Cisco Smart Licensing portal (cloud) through the ASA interfaces, not the FXOS management.
- You need to register both ASAs to the Cisco Smart Licensing portal (cloud).

In this case, HTTP local authentication is used on an outside interface:

```
<#root>
```

```
ciscoasa(config)#
```

```
show run http
```

```
http server enable
http 0.0.0.0 0.0.0.0 outside
ciscoasa(config)#
```

```
show run aaa
```

```
aaa authentication http console LOCAL
ciscoasa(config)#
```

```
show run username
```

```
username cisco password ***** pbkdf2
```

You can only connect to the ASA via ASDM, if there is a 3DES/AES license enabled. For an ASA that is not already registered, this is possible only on an interface that is `management-only`. Per the configuration guide: "Strong Encryption (3DES/AES) is available for management connections before you connect to the License Authority or Satellite server so you can launch ASDM. Note that ASDM access is only available on management-only interfaces with the default encryption. Through-the-box traffic is not allowed until you connect and obtain the Strong Encryption license." In a different case you get:

```
<#root>
```

```
ciscoasa(config)#
```

```
debug ssl 255
```

```
debug ssl enabled at level 255.
```

```
error:1408A0C1:SSL routines:ssl3_get_client_hello:
```

```
no shared cipher
```

To overcome the ASA, management-only is configured on the Internet-facing interface, and thus ASDM connection is possible:

```
<#root>
```

```
interface Ethernet1/2
```

```
management-only
```

```
nameif outside
```

```
security-level 100
```

```
ip address 192.168.123.111 255.255.255.0 standby 192.168.123.112
```



Cisco ASDM 7.10(1)



Cisco ASDM 7.10(1) provides an intuitive graphical user interface that makes it easy to set up, configure and manage your Cisco security appliances.

Cisco ASDM can run as a local application or as a Java Web Start application.

Run Cisco ASDM as a local application

When you run Cisco ASDM as a local application, it connects to your security appliance from your desktop using SSL. Running Cisco ASDM as an application has these advantages:

- You can invoke ASDM from a desktop shortcut. No browser is required.
- One desktop shortcut allows you to connect to *multiple* security appliances.

[Install ASDM Launcher](#)

Run Cisco ASDM as a Java Web Start application

Java Web Start is required to run ASDM, but it is not installed on this computer.

[Install Java Web Start](#)

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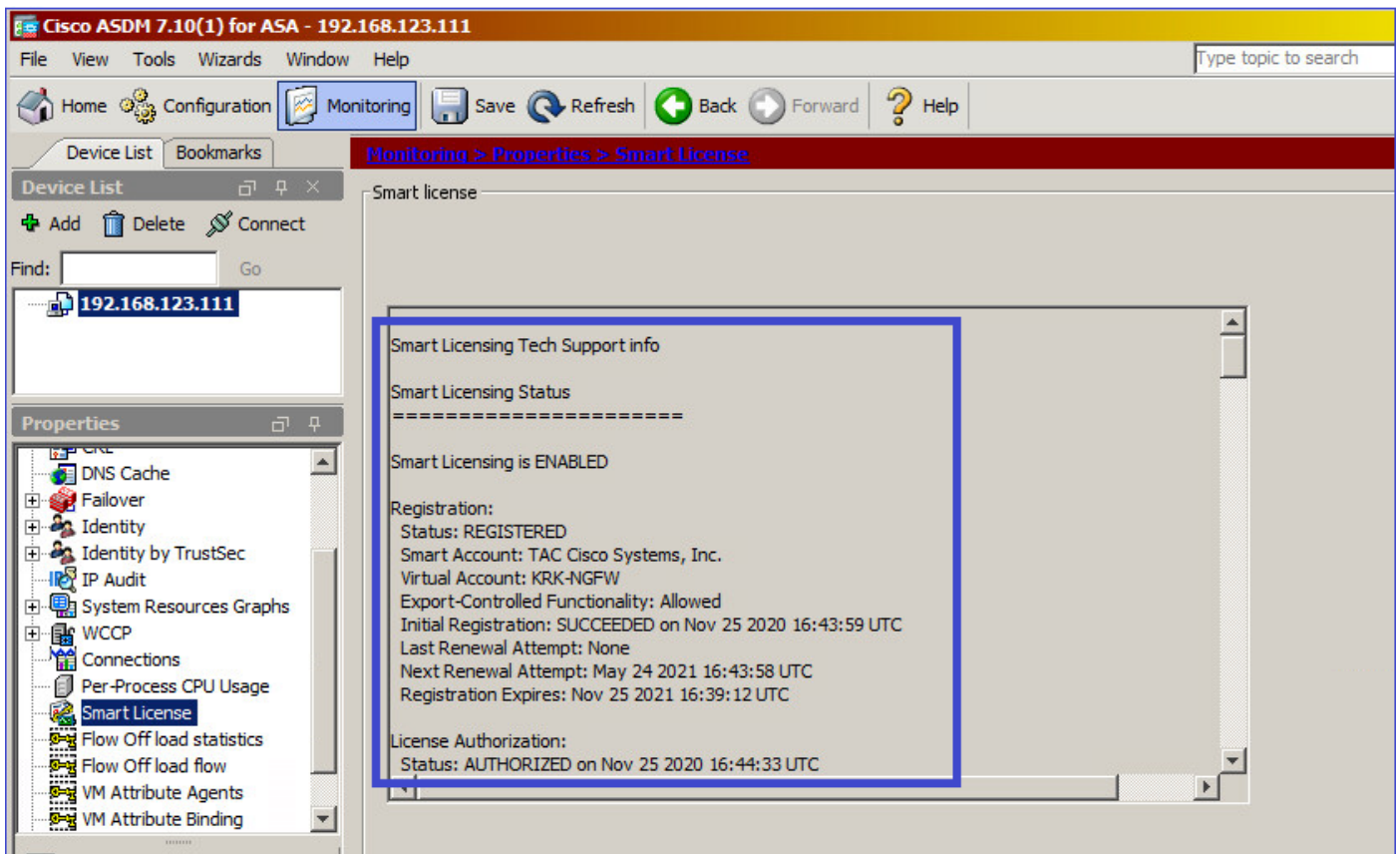
Configure the Smart Licensing on Primary ASA:

The screenshot shows the Cisco ASDM 7.10(1) for ASA - 192.168.123.111 interface. The main window displays the configuration page for Smart Licensing, with the following settings:

- Enable Smart license configuration
- Feature Tier: standard
- Context: (1-38)
- Enable strong-encryption protocol

The Registration Status is UNREGISTERED. Below the configuration, there are buttons for Register, Renew ID Certificate, and Renew Authorization. A "Smart License Registration" dialog box is open, showing the ID Token field and a Register button.

Navigate to **Monitoring > Properties > Smart License** to check the status of the registration:



Primary ASA CLI verification:

```
<#root>
```

```
ciscoasa/pri/act#
```

```
show license all
```

```
Smart Licensing Status
```

```
=====
```

```
Smart Licensing is ENABLED
```

```
Registration:
```

```
Status: REGISTERED
```

```
Smart Account: Cisco Systems, Inc.
```

```
Virtual Account: NGFW
```

```
Export-Controlled Functionality: Allowed
```

```
Initial Registration: SUCCEEDED on Nov 25 2020 16:43:59 UTC
```

```
Last Renewal Attempt: None
```

```
Next Renewal Attempt: May 24 2021 16:43:58 UTC
```

```
Registration Expires: Nov 25 2021 16:39:12 UTC
```

```
License Authorization:
```

```
Status: AUTHORIZED on Nov 25 2020 16:47:42 UTC
```

```
Last Communication Attempt: SUCCEEDED on Nov 25 2020 16:47:42 UTC
```

```
Next Communication Attempt: Dec 25 2020 16:47:41 UTC
```

```
Communication Deadline: Feb 23 2021 16:42:46 UTC
```

Utility:
Status: DISABLED

Data Privacy:
Sending Hostname: yes
Callhome hostname privacy: DISABLED
Smart Licensing hostname privacy: DISABLED
Version privacy: DISABLED

Transport:
Type: Callhome

License Usage
=====

Firepower 2100 ASA Standard (FIREPOWER_2100_ASA_STANDARD):
Description: Firepower 2100 ASA Standard
Count: 1
Version: 1.0
Status: AUTHORIZED

Product Information
=====

UDI: PID:FPR-2140,SN:JAD12345ABC

Agent Version
=====

Smart Agent for Licensing: 4.3.6_rel/38

ciscoasa/pri/act#

show run license

license smart
feature tier standard

<#root>

ciscoasa/pri/act#

show license features

Serial Number: JAD12345ABC
Export Compliant: YES

License mode: Smart Licensing

Licensed features for this platform:
Maximum Physical Interfaces : Unlimited
Maximum VLANs : 1024
Inside Hosts : Unlimited
Failover : Active/Active
Encryption-DES : Enabled
Encryption-3DES-AES : Enabled
Security Contexts : 2
Carrier : Disabled
AnyConnect Premium Peers : 10000
AnyConnect Essentials : Disabled

Other VPN Peers : 10000
Total VPN Peers : 10000
AnyConnect for Mobile : Enabled
AnyConnect for Cisco VPN Phone : Enabled
Advanced Endpoint Assessment : Enabled
Shared License : Disabled
Total TLS Proxy Sessions : 10000
Cluster : Disabled

Failover cluster licensed features for this platform:

Maximum Physical Interfaces : Unlimited
Maximum VLANs : 1024
Inside Hosts : Unlimited
Failover : Active/Active
Encryption-DES : Enabled
Encryption-3DES-AES : Enabled
Security Contexts : 4
Carrier : Disabled
AnyConnect Premium Peers : 10000
AnyConnect Essentials : Disabled
Other VPN Peers : 10000
Total VPN Peers : 10000
AnyConnect for Mobile : Enabled
AnyConnect for Cisco VPN Phone : Enabled
Advanced Endpoint Assessment : Enabled
Shared License : Disabled
Total TLS Proxy Sessions : 10000
Cluster : Disabled

Connect via ASDM to the standby ASA (this is only possible if the ASA has been configured with a standby IP). The standby ASA is shown as UNREGISTERED and this is expected since it has not been registered yet to the Smart Licensing portal:

mzafeiro_Win7-2 on ksec-sfucs-1

File View VM

Cisco ASDM 7.10(1) for ASA - 192.168.123.112

File View Tools Wizards Window Help

Home Configuration Monitoring Save Refresh Back Forward Help

Configuration > Device Management > Licensing > Smart Licensing

Device List

Find: 192.168.123.111 192.168.123.112

Device Management

- Management Access
- Licensing
- Smart Licensing
- System Image/Configuration
- High Availability and Scalability
- Logging
- Smart Call-Home
- Cloud Web Security
- Users/AAA
- Certificate Management
- DHCP
- DNS
- REST API Agent
- Advanced

Device Setup

Firewall

Remote Access VPN

Site-to-Site VPN

Device Management

To configure an HTTP proxy for smart licensing, see the [Smart Call-Home](#) page. Note that Smart Call Home is automatically enabled and is required for smart licensing.

Enable Smart license configuration

Feature Tier: standard

Context: (1-38)

Enable strong-encryption protocol

Registration Status: UNREGISTERED

Register Renew ID Certificate Renew Authorization

Effective Running Licenses

License Feature	License Value	License Duration
Maximum Physical Interfaces	Unlimited	
Maximum VLANs	1024	
Inside Hosts	Unlimited	
Failover	Active/Active	
Encryption-DES	Enabled	
Encryption-3DES-AES	Enabled	
Security Contexts	4	
Carrier	Disabled	
AnyConnect Premium Peers	10000	
AnyConnect Essentials	Disabled	
Other VPN Peers	10000	
Total VPN Peers	10000	
AnyConnect for Mobile	Enabled	
AnyConnect for Cisco VPN Phone	Enabled	
Advanced Endpoint Assessment	Enabled	

Cisco ASDM 7.10(1) for ASA - 192.168.123.112

File View Tools Wizards Window Help

Home Configuration Monitoring Save Refresh Back Forward Help

Monitoring > Properties > Smart License

Device List

Find: 192.168.123.111 192.168.123.112

Properties

- AAA Servers
- Device Access
- Connection Graphs
- CRL
- DNS Cache
- Failover
- Identity
- Identity by TrustSec
- IP Audit
- System Resources Graphs
- WCCP
- Connections
- Per-Process CPU Usage
- Smart License

Smart license

Smart Licensing Tech Support info

Smart Licensing Status

=====

Smart Licensing is ENABLED

Registration:
Status: UNREGISTERED
Export-Controlled Functionality: Not Allowed

License Authorization:
Status: No Licenses in Use

Utility:
Status: DISABLED

Data Privacy:
Sending Hostname: yes
Callhome hostname privacy: DISABLED

The standby ASA CLI shows:

<#root>

ciscoasa/sec/stby#

show license all

Smart Licensing Status

=====

Smart Licensing is ENABLED

Registration:

Status: UNREGISTERED

Export-Controlled Functionality: Not Allowed

License Authorization:

Status: No Licenses in Use

Utility:

Status: DISABLED

Data Privacy:

Sending Hostname: yes

Callhome hostname privacy: DISABLED

Smart Licensing hostname privacy: DISABLED

Version privacy: DISABLED

Transport:

Type: Callhome

License Usage

=====

No licenses in use

Product Information

=====

UDI: PID:FPR-2140,SN:JAD123456A

Agent Version

=====

Smart Agent for Licensing: 4.3.6_rel/38

ciscoasa/sec/stby#

show run license

license smart

feature tier standard

The license features enabled on the standby ASA:

<#root>

ciscoasa/sec/stby#

show license features

Serial Number: JAD123456A
Export Compliant: NO

License mode: Smart Licensing

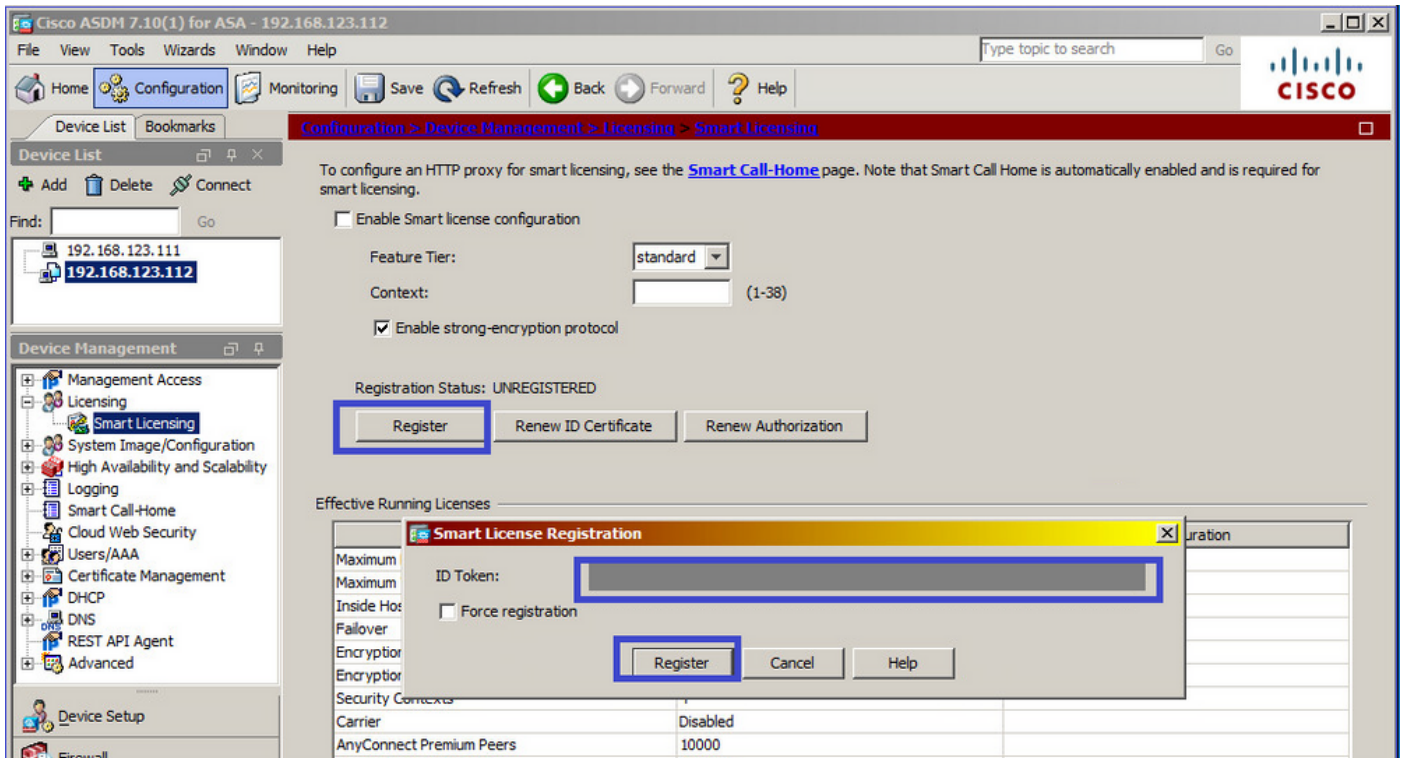
Licensed features for this platform:

Maximum Physical Interfaces : Unlimited
Maximum VLANs : 1024
Inside Hosts : Unlimited
Failover : Active/Active
Encryption-DES : Enabled
Encryption-3DES-AES : Disabled
Security Contexts : 2
Carrier : Disabled
AnyConnect Premium Peers : 10000
AnyConnect Essentials : Disabled
Other VPN Peers : 10000
Total VPN Peers : 10000
AnyConnect for Mobile : Enabled
AnyConnect for Cisco VPN Phone : Enabled
Advanced Endpoint Assessment : Enabled
Shared License : Disabled
Total TLS Proxy Sessions : 10000
Cluster : Disabled

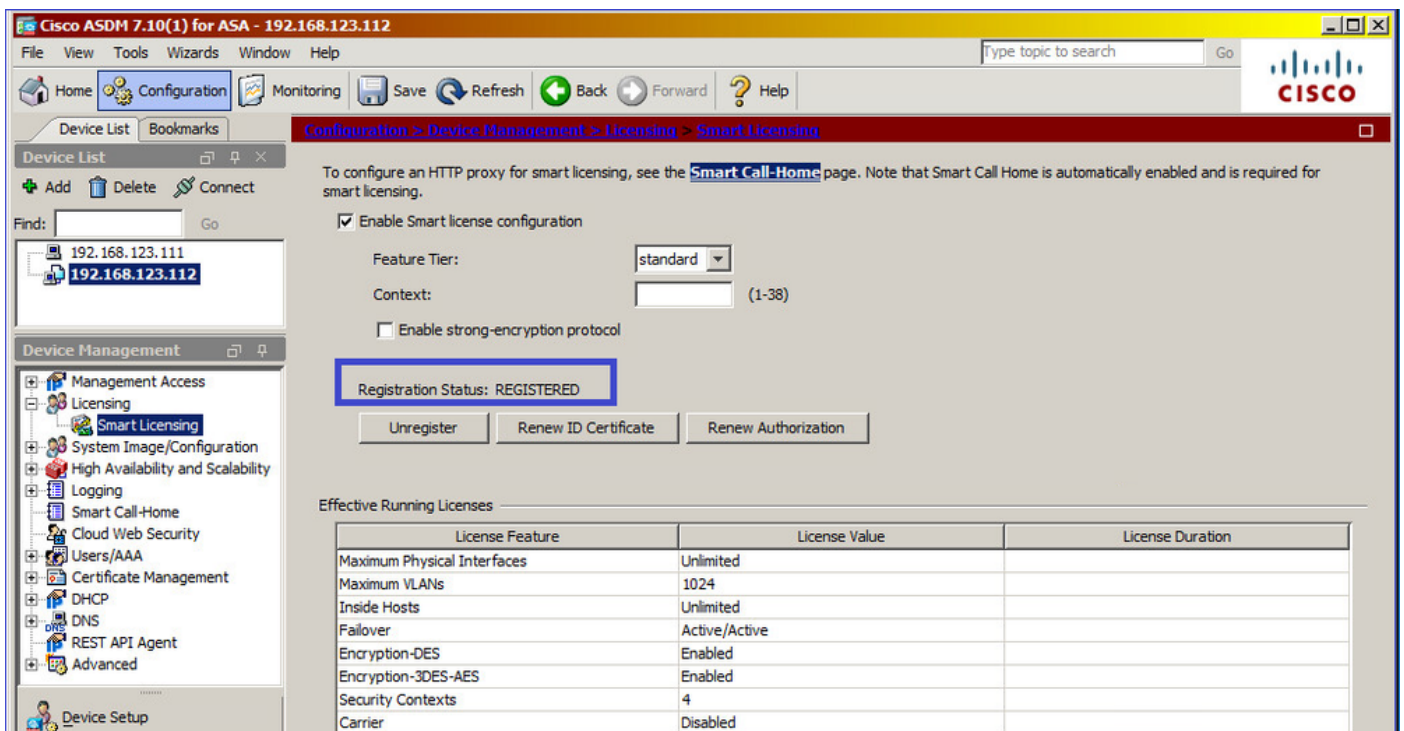
Failover cluster licensed features for this platform:

Maximum Physical Interfaces : Unlimited
Maximum VLANs : 1024
Inside Hosts : Unlimited
Failover : Active/Active
Encryption-DES : Enabled
Encryption-3DES-AES : Enabled
Security Contexts : 4
Carrier : Disabled
AnyConnect Premium Peers : 10000
AnyConnect Essentials : Disabled
Other VPN Peers : 10000
Total VPN Peers : 10000
AnyConnect for Mobile : Enabled
AnyConnect for Cisco VPN Phone : Enabled
Advanced Endpoint Assessment : Enabled
Shared License : Disabled
Total TLS Proxy Sessions : 10000
Cluster : Disabled

Register the standby ASA:



The result on standby ASA is that it is REGISTERED :



CLI verification on standby ASA:

```
<#root>
ciscoasa/sec/stby#
show license all
```

Smart Licensing Status

=====

Smart Licensing is ENABLED

Registration:

Status: REGISTERED

Smart Account: Cisco Systems, Inc.

Virtual Account: NGFW

Export-Controlled Functionality: Allowed

Initial Registration: SUCCEEDED on Nov 25 2020 17:06:51 UTC

Last Renewal Attempt: None

Next Renewal Attempt: May 24 2021 17:06:51 UTC

Registration Expires: Nov 25 2021 17:01:47 UTC

License Authorization:

Status: AUTHORIZED on Nov 25 2020 17:07:28 UTC

Last Communication Attempt: SUCCEEDED on Nov 25 2020 17:07:28 UTC

Next Communication Attempt: Dec 25 2020 17:07:28 UTC

Communication Deadline: Feb 23 2021 17:02:15 UTC

Utility:

Status: DISABLED

Data Privacy:

Sending Hostname: yes

Callhome hostname privacy: DISABLED

Smart Licensing hostname privacy: DISABLED

Version privacy: DISABLED

Transport:

Type: Callhome

License Usage

=====

No licenses in use

Product Information

=====

UDI: PID:FPR-2140,SN:JAD123456AX

Agent Version

=====

Smart Agent for Licensing: 4.3.6_rel/38

ciscoasa/sec/stby#

show license feature

Serial Number: JAD123456A

Export Compliant: YES

License mode: Smart Licensing

Licensed features for this platform:

Maximum Physical Interfaces : Unlimited

Maximum VLANs : 1024

Inside Hosts : Unlimited

Failover : Active/Active

Encryption-DES : Enabled
Encryption-3DES-AES : Enabled
Security Contexts : 2
Carrier : Disabled
AnyConnect Premium Peers : 10000
AnyConnect Essentials : Disabled
Other VPN Peers : 10000
Total VPN Peers : 10000
AnyConnect for Mobile : Enabled
AnyConnect for Cisco VPN Phone : Enabled
Advanced Endpoint Assessment : Enabled
Shared License : Disabled
Total TLS Proxy Sessions : 10000
Cluster : Disabled

Failover cluster licensed features for this platform:

Maximum Physical Interfaces : Unlimited
Maximum VLANs : 1024
Inside Hosts : Unlimited
Failover : Active/Active
Encryption-DES : Enabled
Encryption-3DES-AES : Enabled
Security Contexts : 4
Carrier : Disabled
AnyConnect Premium Peers : 10000
AnyConnect Essentials : Disabled
Other VPN Peers : 10000
Total VPN Peers : 10000
AnyConnect for Mobile : Enabled
AnyConnect for Cisco VPN Phone : Enabled
Advanced Endpoint Assessment : Enabled
Shared License : Disabled
Total TLS Proxy Sessions : 10000
Cluster : Disabled

ASA Cluster

If the devices have a license mismatch, then the cluster is not formed:

```
<#root>
```

```
Cluster unit unit-1-1 transitioned from DISABLED to CONTROL  
New cluster member unit-2-1
```

```
rejected due to encryption license mismatch
```

A successful cluster setup:

```
<#root>
```

```
asa(config)#
```

```
cluster group GROUP1
```

```
asa(cfg-cluster)#
```

```
enable
```

```
Removed all entitlements except per-unit entitlement configuration before joining cluster as data unit.
```

```
Detected Cluster Control Node.
```

```
Beginning configuration replication from Control Node.
```

```
.  
Cryptochecksum (changed): ede485ad d7fb9644 2847deaf ba16830b
```

```
End configuration replication from Control Node.
```

Cluster Control Node:

```
<#root>
```

```
asa#
```

```
show cluster info | i state
```

```
    This is "unit-1-1" in state CONTROL_NODE
```

```
    Unit "unit-2-1" in state DATA_NODE
```

```
asa#
```

```
show license all
```

```
Smart licensing enabled: Yes
```

```
Compliance status: In compliance
```

```
Overall licensed status: Authorized (3)
```

```
Entitlement(s):
```

```
Feature tier:
```

```
    Tag: regid.2015-10.com.cisco.FIREPOWER_4100_ASA_STANDARD,1.0_7d7f5ee2-1398-4b0e-aced-b3f7fb1cac
```

```
    Version: 1.0
```

```
    Enforcement mode: Authorized
```

```
    Handle: 2
```

```
    Requested time: Mon, 10 Aug 2020 08:12:38 UTC
```

```
    Requested count: 1
```

```
    Request status: Complete
```

```
Serial Number: FCH12345ABC
```

```
License mode: Smart Licensing
```

Licensed features for this platform:

```
Maximum Physical Interfaces : Unlimited
Maximum VLANs              : 1024
Inside Hosts               : Unlimited
Failover                   : Active/Active
Encryption-DES             : Enabled
Encryption-3DES-AES       : Enabled
Security Contexts         : 10
Carrier                     : Disabled
AnyConnect Premium Peers  : 20000
AnyConnect Essentials     : Disabled
Other VPN Peers           : 20000
Total VPN Peers           : 20000
AnyConnect for Mobile     : Enabled
AnyConnect for Cisco VPN Phone : Enabled
Advanced Endpoint Assessment : Enabled
Shared License             : Disabled
Total TLS Proxy Sessions  : 15000
Cluster                    : Enabled
```

Failover cluster licensed features for this platform:

```
Maximum Physical Interfaces : Unlimited
Maximum VLANs              : 1024
Inside Hosts               : Unlimited
Failover                   : Active/Active
Encryption-DES             : Enabled
Encryption-3DES-AES       : Enabled
Security Contexts         : 20
Carrier                     : Disabled
AnyConnect Premium Peers  : 20000
AnyConnect Essentials     : Disabled
Other VPN Peers           : 20000
Total VPN Peers           : 20000
AnyConnect for Mobile     : Enabled
AnyConnect for Cisco VPN Phone : Enabled
Advanced Endpoint Assessment : Enabled
Shared License             : Disabled
Total TLS Proxy Sessions  : 15000
Cluster                    : Enabled
```

Cluster data unit:

```
<#root>
```

```
asa#
```

```
show cluster info | i state
```

```
    This is "unit-2-1" in state DATA_NODE
    Unit "unit-1-1" in state CONTROL_NODE
```

```
asa#
```

```
show license all
```

Smart licensing enabled: Yes

Compliance status: In compliance

Overall licensed status: Authorized (3)

Entitlement(s):

Strong encryption:

Tag: regid.2015-10.com.cisco.FIREPOWER_4100_ASA_ENCRYPTION,1.0_052986db-c5ad-40da-97b1-ee0438d3
Version: 1.0
Enforcement mode: Authorized
Handle: 3
Requested time: Mon, 10 Aug 2020 07:29:45 UTC
Requested count: 1
Request status: Complete

Serial Number: FCH12345A6B

License mode: Smart Licensing

Licensed features for this platform:

Maximum Physical Interfaces	: Unlimited
Maximum VLANs	: 1024
Inside Hosts	: Unlimited
Failover	: Active/Active
Encryption-DES	: Enabled
Encryption-3DES-AES	: Enabled
Security Contexts	: 10
Carrier	: Disabled
AnyConnect Premium Peers	: 20000
AnyConnect Essentials	: Disabled
Other VPN Peers	: 20000
Total VPN Peers	: 20000
AnyConnect for Mobile	: Enabled
AnyConnect for Cisco VPN Phone	: Enabled
Advanced Endpoint Assessment	: Enabled
Shared License	: Disabled
Total TLS Proxy Sessions	: 15000
Cluster	: Enabled

Failover cluster licensed features for this platform:

Maximum Physical Interfaces	: Unlimited
Maximum VLANs	: 1024
Inside Hosts	: Unlimited
Failover	: Active/Active
Encryption-DES	: Enabled
Encryption-3DES-AES	: Enabled
Security Contexts	: 20
Carrier	: Disabled
AnyConnect Premium Peers	: 20000
AnyConnect Essentials	: Disabled
Other VPN Peers	: 20000
Total VPN Peers	: 20000
AnyConnect for Mobile	: Enabled
AnyConnect for Cisco VPN Phone	: Enabled
Advanced Endpoint Assessment	: Enabled
Shared License	: Disabled
Total TLS Proxy Sessions	: 15000
Cluster	: Enabled

Verification and Debugging

Chassis (MIO) Summary of Verification Commands:

```
<#root>
```

```
FPR4125#
```

```
show license all
```

```
FPR4125#
```

```
show license techsupport
```

```
FPR4125#
```

```
scope monitoring
```

```
FPR4125 /monitoring #
```

```
scope callhome
```

```
FPR4125 /monitoring/callhome #
```

```
show expand
```

```
FPR4125#
```

```
scope system
```

```
FPR4125 /system #
```

```
scope services
```

```
FPR4125 /system/services #
```

```
show dns
```

```
FPR4125 /system/services #
```

```
show ntp-server
```

```
FPR4125#
```

```
scope security
```

```
FPR4125 /security #
```

```
show trustpoint
```

```
FPR4125#
```

```
show clock
```

```
FPR4125#
```

```
show timezone
```

```
FPR4125#
```

```
show license usage
```

Configuration Verification:

```
<#root>
```

```
FPR4125-1#
```

```
scope system
```

```
FPR4125-1 /system #
```

```
scope services
```

```
FPR4125-1 /system/services #
```

```
show configuration
```

ASA Summary of Verification Commands:

```
<#root>
```

```
asa#
```

```
show run license
```

```
asa#
```

```
show license all
```

```
asa#
```

```
show license entitlement
```

```
asa#
```

```
show license features
```

```
asa#
```

```
show tech-support license
```

```
asa#
```

```
debug license 255
```

Chassis (MIO) Sample Outputs of Verification Commands

```
<#root>
```

```
FPR4125-1#
```

```
show license all
```

```
Smart Licensing Status
```

```
=====
```

```
Smart Licensing is ENABLED
```

```
Registration:
```

```
Status: REGISTERED
```

```
Smart Account: TAC Cisco Systems, Inc.
```

```
Virtual Account: EU TAC
```

```
Export-Controlled Functionality: ALLOWED
```

```
Initial Registration: SUCCEEDED on Dec 10 2018 23:30:02 UTC
```

```
Last Renewal Attempt: SUCCEEDED on Mar 12 2020 23:16:11 UTC
```

```
Next Renewal Attempt: Sep 08 2020 23:16:10 UTC
```

```
Registration Expires: Mar 12 2021 23:11:09 UTC
```

```
License Authorization:
```

```
Status: AUTHORIZED on Aug 04 2020 07:58:46 UTC
```

```
Last Communication Attempt: SUCCEEDED on Aug 04 2020 07:58:46 UTC
```

```
Next Communication Attempt: Sep 03 2020 07:58:45 UTC
```

```
Communication Deadline: Nov 02 2020 07:53:44 UTC
```

```
License Conversion:
```

```
Automatic Conversion Enabled: True
```

```
Status: Not started
```

```
Export Authorization Key:
```

```
Features Authorized:
```

```
<none>
```

```
Utility:
```

```
Status: DISABLED
```

```
Data Privacy:
```

```
Sending Hostname: yes
```

```
Callhome hostname privacy: DISABLED
```

```
Smart Licensing hostname privacy: DISABLED
```

```
Version privacy: DISABLED
```

```
Transport:
```

```
Type: Callhome
```

License Usage

=====

Firepower 4100 ASA Standard (FIREPOWER_4100_ASA_STANDARD):

Description: Firepower 4100 ASA Standard
Count: 1
Version: 1.0
Status: AUTHORIZED
Export status: NOT RESTRICTED

Product Information

=====

UDI: PID:FPR-4125-SUP,SN:JAD12345678

Agent Version

=====

Smart Agent for Licensing: 4.6.9_rel/104

Reservation Info

=====

License reservation: DISABLED

<#root>

FPR4125-1#

scope monitoring

FPR4125-1 /monitoring #

scope callhome

FPR4125-1 /monitoring/callhome #

show expand

Callhome:

Admin State: Off
Throttling State: On
Contact Information:
Customer Contact Email:
From Email:
Reply To Email:
Phone Contact e.g., +1-011-408-555-1212:
Street Address:
Contract Id:
Customer Id:
Site Id:
Switch Priority: Debugging
Enable/Disable HTTP/HTTPS Proxy: Off
HTTP/HTTPS Proxy Server Address:
HTTP/HTTPS Proxy Server Port: 80
SMTP Server Address:
SMTP Server Port: 25

Anonymous Reporting:

Admin State

Off

Callhome periodic system inventory:
Send periodically: Off
Interval days: 30
Hour of day to send: 0
Minute of hour: 0
Time last sent: Never
Next scheduled: Never

Destination Profile:
Name: full_txt
Level: Warning
Alert Groups: All,Cisco Tac,Diagnostic,Environmental
Max Size: 5000000
Format: Full Txt
Reporting: Smart Call Home Data

Name: short_txt
Level: Warning
Alert Groups: All,Cisco Tac,Diagnostic,Environmental
Max Size: 5000000
Format: Short Txt
Reporting: Smart Call Home Data

Name: SLProfile
Level: Normal
Alert Groups: Smart License
Max Size: 5000000
Format: Xml
Reporting: Smart License Data

Destination:
Name Transport Protocol Email or HTTP/HTTPS URL Address

SLDest Https

<https://tools.cisco.com/its/service/oddce/services/DDCEService>

<#root>

FPR4125-1#

scope system

FPR4125-1 /system #

scope services

FPR4125-1 /system/services #

show dns

Domain Name Servers:

IP Address: 172.16.200.100

FPR4125-1 /system/services #

show ntp-server

NTP server hostname:	Time Sync Status
Name	-----
10.62.148.75	Unreachable Or Invalid Ntp Server
172.18.108.14	

Time Synchronized

172.18.108.15

Candidate

<#root>

FPR4125-1#

scope security

FPR4125-1 /security #

show trustpoint

```
Trustpoint Name: CHdefault
Trustpoint certificate chain: -----BEGIN CERTIFICATE-----
MIIFtzCCA5+gAwIBAgICBQkwdQYJKoZIhvcNAQEFBQAwRTElMAkGA1UEBhMCQk0x
...
8e0x79+Rj1QqCyXBJhnEUhAFZdwCEOrCMc0u
-----END CERTIFICATE-----
Cert Status: Valid
Trustpoint Name: CiscoLicRoot
Trustpoint certificate chain: -----BEGIN CERTIFICATE-----
MIIDITCCAqmgAwIBAgIBATANBgkqhkiG9w0BAQsFADAYMQ4wDAYDVQQKEwVDaXNj
...
QYYWqUCT4E1NEKt1J+hvc5MuNbwIYv2uAnUVb3GbsvDW199/KA==
-----END CERTIFICATE-----
Cert Status: Valid
Trustpoint Name: CSC02099SUDI
Trustpoint certificate chain: -----BEGIN CERTIFICATE-----
MIIDITCCAqmgAwIBAgIJAZozWHjOFsHBMA0GCSqGSIb3DQEBCwUAMC0xDjAMBgNV
...
PKkmB1NQ9hQcNM3CSzVvEAK0CCEo/NJ/xzZ6WX1/f8Df1eXbFg==
-----END CERTIFICATE-----
Cert Status: Valid
Trustpoint Name: CSC0BA2099SUDI
Trustpoint certificate chain: -----BEGIN CERTIFICATE-----
MIIDQTCCAimgAwIBAgIJAAZa8V7p10vhMA0GCSqGSIb3DQEBCwUAMD0xDjAMBgNV
...
b/JPEAZkbji0RQTWLyfR82LWFL00
-----END CERTIFICATE-----
Cert Status: Valid
```

<#root>

FPR4125-1#

show clock

Tue Aug 4 09:55:50 UTC 2020

FPR4125-1#

show timezone

Timezone:

<#root>

FPR4125-1#

scope system

FPR4125-1 /system #

scope services

FPR4125-1 /system/services #

show configuration

scope services

```
create ssh-server host-key rsa
delete ssh-server host-key ecdsa
disable ntp-authentication
disable telnet-server
enable https
enable ssh-server
```

```
enter dns 192.0.2.100
```

```
enter ip-block 0.0.0.0 0 https
exit
enter ip-block 0.0.0.0 0 ssh
exit
```

```
enter ntp-server 10.62.148.75
```

```
!       set ntp-sha1-key-id 0
!       set ntp-sha1-key-string
exit
```

```
enter ntp-server 172.18.108.14
```

```
!       set ntp-sha1-key-id 0
!       set ntp-sha1-key-string
exit
```

```
enter ntp-server 172.18.108.15
```

```
!       set ntp-sha1-key-id 0
!       set ntp-sha1-key-string
exit
scope shell-session-limits
set per-user 32
```

```
    set total 32
exit
scope telemetry
  disable
exit
scope web-session-limits
  set per-user 32
  set total 256
exit
set domain-name ""
set https auth-type cred-auth
set https cipher-suite "ALL:!DHE-PSK-AES256-CBC-SHA:!EDH-RSA-DES-CBC3-SHA:!
EDH-DSS-DES-CBC3-SHA:!DES-CBC3-SHA:!ADH:!3DES:!EXPORT40:!EXPORT56:!LOW:!MEDIUM:!NULL:!RC4:!MD5:!IDEA:+H
set https cipher-suite-mode high-strength
set https crl-mode strict
set https keyring default
set https port 443
set ssh-server host-key ecdsa secp256r1
set ssh-server host-key rsa 2048
set ssh-server kex-algorithm diffie-hellman-group14-sha1
set ssh-server mac-algorithm hmac-sha1 hmac-sha2-256 hmac-sha2-512
set ssh-server encrypt-algorithm aes128-cbc aes128-ctr aes192-cbc aes192-ctr aes256-cbc aes256-ctr
set ssh-server rekey-limit volume none time none
set ssh-client kex-algorithm diffie-hellman-group14-sha1
set ssh-client mac-algorithm hmac-sha1 hmac-sha2-256 hmac-sha2-512
set ssh-client encrypt-algorithm aes128-ctr aes192-ctr aes256-ctr
set ssh-client rekey-limit volume none time none
set ssh-client stricthostkeycheck disable

set timezone ""
```

```
exit
```

```
<#root>
```

```
FPR4125-1#
```

```
show license usage
```

```
License Authorization:
```

```
Status: AUTHORIZED on Aug 04 2020 07:58:46 UTC
```

```
Firepower 4100 ASA Standard (FIREPOWER_4100_ASA_STANDARD):
```

```
Description: Firepower 4100 ASA Standard
```

```
Count: 1
```

```
Version: 1.0
```

```
Status: AUTHORIZED
```

```
Export status: NOT RESTRICTED
```

ASA Sample Outputs of Verification Commands

```
<#root>
```


asa#

show run license

license smart
feature tier standard

<#root>

asa#

show license all

Smart licensing enabled: Yes

Compliance status: In compliance

Overall licensed status: Authorized (3)

Entitlement(s):

Feature tier:

Tag: regid.2015-10.com.cisco.FIREPOWER_4100_ASA_STANDARD,1.0_7d7f5ee2-1398-4b0e-aced-b3f7fb1cac
Version: 1.0
Enforcement mode: Authorized
Handle: 1
Requested time: Tue, 04 Aug 2020 07:58:13 UTC
Requested count: 1
Request status: Complete

Serial Number: FCH12345ABC

License mode: Smart Licensing

Licensed features for this platform:

Maximum Physical Interfaces	: Unlimited
Maximum VLANs	: 1024
Inside Hosts	: Unlimited
Failover	: Active/Active
Encryption-DES	: Enabled
Encryption-3DES-AES	: Enabled
Security Contexts	: 10
Carrier	: Disabled
AnyConnect Premium Peers	: 20000
AnyConnect Essentials	: Disabled
Other VPN Peers	: 20000
Total VPN Peers	: 20000
AnyConnect for Mobile	: Enabled
AnyConnect for Cisco VPN Phone	: Enabled
Advanced Endpoint Assessment	: Enabled
Shared License	: Disabled
Total TLS Proxy Sessions	: 15000
Cluster	: Enabled

<#root>

asa#

show license entitlement

Entitlement(s):

Feature tier:

Tag: regid.2015-10.com.cisco.FIREPOWER_4100_ASA_STANDARD,1.0_7d7f5ee2-1398-4b0e-aced-b3f7fb1cac
Version: 1.0
Enforcement mode: Authorized
Handle: 1
Requested time: Tue, 04 Aug 2020 07:58:13 UTC
Requested count: 1
Request status: Complete

<#root>

asa#

show license features

Serial Number: FCH12345ABC

License mode: Smart Licensing

Licensed features for this platform:

Maximum Physical Interfaces	: Unlimited
Maximum VLANs	: 1024
Inside Hosts	: Unlimited
Failover	: Active/Active
Encryption-DES	: Enabled
Encryption-3DES-AES	: Enabled
Security Contexts	: 10
Carrier	: Disabled
AnyConnect Premium Peers	: 20000
AnyConnect Essentials	: Disabled
Other VPN Peers	: 20000
Total VPN Peers	: 20000
AnyConnect for Mobile	: Enabled
AnyConnect for Cisco VPN Phone	: Enabled
Advanced Endpoint Assessment	: Enabled
Shared License	: Disabled
Total TLS Proxy Sessions	: 15000
Cluster	: Enabled

<#root>

asa#

show tech-support license

Smart licensing enabled: Yes

Compliance status: In compliance

Overall licensed status: Authorized (3)

Entitlement(s):

Feature tier:

Tag: regid.2015-10.com.cisco.FIREPOWER_4100_ASA_STANDARD,1.0_7d7f5ee2-1398-4b0e-aced-b3f7fb1cac

Version: 1.0

Enforcement mode: Authorized

Handle: 1

Requested time: Tue, 04 Aug 2020 07:58:13 UTC

Requested count: 1

Request status: Complete

Successful Registration

The output is from the chassis manager User Interface (UI):

<#root>

Smart Licensing is ENABLED

Utility:

Status: DISABLED

Data Privacy:

Sending Hostname: yes

Callhome hostname privacy: DISABLED

Smart Licensing hostname privacy: DISABLED

Version privacy: DISABLED

Transport:

Type: Callhome

Registration:

Status: REGISTERED

Smart Account: TAC Cisco Systems, Inc.

Virtual Account: EU TAC

Export-Controlled Functionality: ALLOWED

Initial Registration: SUCCEEDED on Dec 10 2018 23:30:02 UTC

Last Renewal Attempt: SUCCEEDED on Mar 12 2020 23:16:11 UTC

Next Renewal Attempt: Sep 08 2020 23:16:10 UTC

Registration Expires: Mar 12 2021 23:11:09 UTC

License Authorization:

Status: AUTHORIZED on Jul 05 2020 17:49:15 UTC

Last Communication Attempt: SUCCEEDED on Jul 05 2020 17:49:15 UTC

Next Communication Attempt: Aug 04 2020 17:49:14 UTC

Communication Deadline: Oct 03 2020 17:44:13 UTC

License Conversion:

Automatic Conversion Enabled: True

Status: Not started

Export Authorization Key:

Features Authorized:

<none>

Cisco Success Network: DISABLED

Expired Authorization

The output is from the chassis manager UI:

<#root>

Smart Licensing is ENABLED

Utility:

Status: DISABLED

Data Privacy:

Sending Hostname: yes

Callhome hostname privacy: DISABLED

Smart Licensing hostname privacy: DISABLED

Version privacy: DISABLED

Transport:

Type: Callhome

Registration:

Status: REGISTERED

Smart Account: Cisco SVS temp - request access through licensing@cisco.com

Virtual Account: Sample Account

Export-Controlled Functionality: ALLOWED

Initial Registration: SUCCEEDED on Nov 22 2019 08:17:30 UTC

Last Renewal Attempt: FAILED on Aug 04 2020 07:32:08 UTC

Failure reason: Agent received a failure status in a response message. Please check the Agent log file

Next Renewal Attempt: Aug 04 2020 08:33:48 UTC

Registration Expires: Nov 21 2020 08:12:20 UTC

License Authorization:

status: AUTH EXPIRED

on Aug 04 2020 07:10:16 UTC

Last Communication Attempt: FAILED on Aug 04 2020 07:10:16 UTC

Failure reason: Data and signature do not match

Next Communication Attempt: Aug 04 2020 08:10:14 UTC

Communication Deadline: DEADLINE EXCEEDED

License Conversion:

Automatic Conversion Enabled: True

Status: Not started

Export Authorization Key:

Features Authorized:

<none>

Last Configuration Error

=====
Command : register idtoken ZDA2MjFfODktYjllMS00NjQwLTk0MmUtYmVkyWU2NzIyZjYwLTE1ODIxODY2%0AMzEwODV8K2RWV

Error : Smart Agent already registered

Cisco Success Network: DISABLED

Sample Outputs from Chassis CLI

Unregistered

```
<#root>
```

```
firepower#
```

```
show license all
```

```
Smart Licensing Status
```

```
=====
```

```
Smart Licensing is ENABLED
```

```
Registration:
```

```
  Status: UNREGISTERED
```

```
License Authorization:
```

```
  Status: No Licenses in Use
```

```
License Usage
```

```
=====
```

```
No licenses in use
```

```
Product Information
```

```
=====
```

```
UDI: PID:F9K-C9300-SUP-K9,SN:JAD12345678
```

```
Agent Version
```

```
=====
```

```
Smart Agent for Licensing: 1.2.2_throttle/6
```

Registration in Progress

```
<#root>
```

```
firepower#
```

scope license

firepower /license #

register idtoken <id-token>

firepower /license #

show license all

Smart Licensing Status

=====

Smart Licensing is **ENABLED**

Registration:

Status: **UNREGISTERED - REGISTRATION PENDING**

Initial Registration: **First Attempt Pending**

License Authorization:

Status: **No Licenses in Use**

License Usage

=====

No licenses in use

Product Information

=====

UDI: PID:F9K-C9300-SUP-K9,SN:JAD12345678

Agent Version

=====

Smart Agent for Licensing: 1.2.2_throttle/6

Registration Error

<#root>

firepower /license #

show license all

Smart Licensing Status

=====

Smart Licensing is ENABLED

Registration:

Status: UNREGISTERED - REGISTRATION FAILED

Initial Registration: FAILED on Aug 04 04:46:47 2020 UTC

Failure reason: HTTP transport failed

License Authorization:

Status: No Licenses in Use

License Usage

=====

No licenses in use

Product Information

=====

UDI: PID:F9K-C9300-SUP-K9,SN:JAD12345678

Agent Version

=====

Smart Agent for Licensing: 1.2.2_throttle/6

Evaluation Period

<#root>

firepower#

show license all

Smart Licensing Status

=====

Smart Licensing is ENABLED

Registration:

Status: REGISTERING - REGISTRATION IN PROGRESS

Initial Registration: FAILED on Aug 04 04:46:47 2020 UTC

Next Registration Attempt: Aug 04 05:06:16 2020 UTC

License Authorization:

Status: EVALUATION MODE

Evaluation Period Remaining: 89 days, 14 hours, 26 minutes, 20 seconds

License Usage

=====

(ASA-SSP-STD):

Description:

Count: 1

Version: 1.0

Status: EVALUATION MODE

Product Information

=====

UDI: PID:F9K-C9300-SUP-K9,SN:JAD12345678

Agent Version

=====

Smart Agent for Licensing: 1.2.2_throttle/6

Common License Problems on FXOS Chassis (MIO)

Registration Error: Invalid Token

```
<#root>
```

```
FPR4125-1#
```

```
show license all
```

```
Smart Licensing Status
```

```
=====
```

```
Smart Licensing is ENABLED
```

```
Registration:
```

```
status: UNREGISTERED - REGISTRATION FAILED
```

```
Export-Controlled Functionality: NOT ALLOWED
```

```
Initial Registration: FAILED on Aug 07 2020 06:39:24 UTC
```

```
Failure reason: {"token"
```

```
:[\"The token 'ODNmNTExMTAtY2YzOS00Mzc1LWEzNWmtYmNiMm  
UyNzM4ZmFjLTE1OTkxMTkz%0ANDkONjR8NkJJdWZpQzRDbmtPROxBWTVpUzZqMjlySnT5QUczT2M0YVI  
vcmxm%0ATGczND0%3D%0B'
```

```
is not valid
```

```
."]}]
```


Recommended Steps

1. Check if the call-home URL points to CSSM.
2. Log in to the CSSM and check if the token is generated from there, or if the token has expired.

Registration Error: Product Already Registered

```
<#root>
```

```
FPR4125-1#
```

```
show license all
```

```
Smart Licensing Status
```

```
=====
```

```
Smart Licensing is ENABLED
```

```
Registration:
```

```
Status: UNREGISTERED - REGISTRATION FAILED
```

```
Export-Controlled Functionality: Not Allowed
```

```
Initial Registration: FAILED on Aug 07 01:30:00 2020 UTC
```

```
Failure reason
```

```
: {"sudi":["The product 'firepower.com.cisco.  
FPR9300,1.0_ed6dadbe-c965-4aeb-ab58-62e34033b453' and sudi {"suvi"=>nil,  
"uid"=>nil, "host_identifier"=>nil, "udi_pid"=>"FPR9K-SUP",  
"udi_serial_number"=>"JAD1234567S", "udi_vid"=>nil, "mac_address"=>nil}
```

```
have already been registered
```

```
."]}}
```

Recommended Steps

1. Log in to the CSSM.
2. Check the Product Instances tab in ALL virtual accounts.
3. Locate the old registration instance by SN and remove it.
4. This issue could be caused by these two:
 1. Failure to automatically renew when time/date is not set up correctly, for example, no NTP server is configured.
 2. Wrong order of operations when you switch between a Satellite and a Production server, for example, change the URL first and then issue deregister.

Registration Error: Date Offset Beyond the Limit

<#root>

FPR4125-1#

show license all

Smart Licensing Status

=====

Smart Licensing is ENABLED

Registration:

Status: UNREGISTERED - REGISTRATION FAILED

Export-Controlled Functionality: Not Allowed

Initial Registration: FAILED on Aug 07 01:30:00 2020 UTC

Failure reason: {"

timestamp

":["The device date '1453329321505'

is offset beyond the allowed tolerance limit

."]}]

Recommended Step

Check the time/date configuration to ensure that an NTP server is configured.

Registration Error: Failed to Resolve Host

<#root>

FPR4125-1#

show license all

Smart Licensing Status

=====

Smart Licensing is ENABLED

Registration:

Status: REGISTERING - REGISTRATION IN PROGRESS

Export-Controlled Functionality: NOT ALLOWED

Initial Registration: FAILED on Aug 07 2020 06:58:46 UTC

Failure reason: Failed to resolve host

Next Registration Attempt: Aug 07 2020 07:16:42 UTC

Registration Error: Failed to resolve host

Recommended Steps

1. Check if the callhome SLDest URL is correct (scope monitoring > scope callhome > show expand)
2. Check if the MIO DNS server configuration is correct, for example, from CLI:

```
<#root>
```

```
FPR4125-1#
```

```
scope system
```

```
FPR4125-1 /system #
```

```
scope services
```

```
FPR4125-1 /system/services #
```

```
show dns
```

```
Domain Name Servers:
```

```
IP Address: 172.31.200.100
```

3. Try to ping from the chassis CLI the `tools.cisco.com` and see if it resolves:

```
<#root>
```

```
FPR4125-1#
```

```
connect local-mgmt
```

```
FPR4125-1(local-mgmt)#
```

```
ping tools.cisco.com
```

4. Try to ping from the chassis CLI the DNS server:

```
<#root>
```

```
FPR4125-1#
```

```
connect local-mgmt
```

```
FPR4125-1(local-mgmt)#
```

```
ping 172.31.200.100
```

```
PING 172.31.200.100 (172.31.200.100) from 10.62.148.225 eth0: 56(84) bytes of data.
```

```
^C
```

```
--- 172.31.200.100 ping statistics ---
```

```
4 packets transmitted, 0 received,
```

```
100% packet loss
```

```
, time 3001ms
```

5. Enable capture on chassis (MIO) mgmt interface (this is only applicable on FP41xx/FP93xx) and check the DNS communication as you run a ping test to the tools.cisco.com:

```
<#root>
```

```
FPR4125-1#
```

```
connect fxos
```

```
FPR4125-1(fxos)#
```

```
ethalyzer local interface mgmt capture-filter "udp port 53" limit-captured-frames 0 limit-frame-size 1
```

```
Capturing on 'eth0'
```

```
1 2020-08-07 08:10:45.252955552 10.62.148.225 → 172.31.200.100 DNS 75 Standard query 0x26b4 A tools
2 2020-08-07 08:10:47.255015331 10.62.148.225 → 172.31.200.100 DNS 75 Standard query 0x26b4 A tools
3 2020-08-07 08:10:49.257160749 10.62.148.225 → 172.31.200.100 DNS 75 Standard query 0x5019 A tools
4 2020-08-07 08:10:51.259222753 10.62.148.225 → 172.31.200.100 DNS 75 Standard query 0x5019 A tools
```

Registration Error: Failed to Authenticate Server

```
<#root>
```

```
FPR4125-1#
```

```
show license all
```

```
Smart Licensing Status
```

```
=====
```

```
Smart Licensing is ENABLED
```

Registration:

Status: UNREGISTERED - REGISTRATION FAILED

Export-Controlled Functionality: Not Allowed

Initial Registration: FAILED on Aug 07 2020 06:58:46 UTC

Failure reason: Failed to authenticate server

Recommended Steps

1. Check if the MIO trustpoint CHdefault has the correct certificate, for example:

```
<#root>
```

```
FPR4125-1#
```

```
scope security
```

```
FPR4125-1 /security #
```

```
show trustpoint
```

```
Trustpoint Name: CHdefault
```

```
Trustpoint certificate chain: -----BEGIN CERTIFICATE-----
```

```
MIIFtzCCA5+gAwIBAgICBQkwdQYJKoZIhvcNAQEFBQAwRTElMAkGA1UEBhMCQk0x
```

```
...
```

```
8e0x79+Rj1QqCyXBJhnEUhAFZdwCEOrCMc0u
```

```
-----END CERTIFICATE-----
```

```
Cert Status: Valid
```

2. Check if the NTP server and timezone are set correctly. Certificate verification needs the same time between server and client. To accomplish this, use NTP to synchronize the time. For example, FXOS UI verification:

Overview Interfaces Logical Devices Security Engine **Platform Settings**

NTP

- SSH
- SNMP
- HTTPS
- AAA
- Syslog
- DNS
- FIPS and Common Criteria
- Access List
- MAC Pool
- Resource Profiles
- Network Control Policy
- Chassis URL

Time Synchronization Current Time

Set Time Source

Set Time Manually

Date: (mm/dd/yyyy)

Time: : AM (hh:mm)

NTP Server Authentication: Enable

Use NTP Server

NTP Server	Server Status	Actions
172.18.108.15	Candidate	
172.18.108.14	Synchronized	
10.62.148.75	Unreachable/Invalid	

Use same settings on Firepower Management Center managing this application in case you are running a Firepower Threat Defense Device.

CLI Verification

```
<#root>
```

```
FPR4125-1#
```

```
scope system
```

```
FPR4125-1 /system #
```

```
scope services
```

```
FPR4125-1 /system/services #
```

```
show ntp-server
```

```
NTP server hostname:
```

Name	Time Sync Status
10.62.148.75	Unreachable Or Invalid Ntp Server
172.18.108.14	Time Synchronized
172.18.108.15	Candidate

Enable a capture and check the TCP communication (HTTPS) between the MIO and the tools.cisco.com. Here you have a few options:

- You can close your HTTPS session to the FXOS UI and then set a capture filter on CLI for HTTPS, for example:

```
<#root>
```

```
FPR4100(fxos)#
```

```
ethanalyzer local interface mgmt capture-filter "tcp port 443" limit-captured-frames 50
```

```
Capturing on eth0
```

```
2017-01-12 13:09:44.296256 10.62.148.37 -> 72.163.4.38 TCP 43278 > https [
```

```
SYN
```

```
] Seq=0 Len=0 MSS=1460 TSV=206433871 TSER=0 WS=9
```

```
2017-01-12 13:09:44.452405 72.163.4.38 -> 10.62.148.37 TCP https > 43278 [
```

```
SYN
```

```
,
```

```
ACK
```

```
] Seq=0 Ack=1 Win=32768 Len=0 MSS=1380 TSV=2933962056 TSER=206433871
```

```
2017-01-12 13:09:44.452451 10.62.148.37 -> 72.163.4.38 TCP 43278 > https [
```

```
ACK
```

```
] Seq=1 Ack=1 Win=5840 Len=0 TSV=206433887 TSER=2933962056
```

```
2017-01-12 13:09:44.453219 10.62.148.37 -> 72.163.4.38
```

```
SSL Client Hello
```

```
2017-01-12 13:09:44.609171 72.163.4.38 -> 10.62.148.37 TCP https > 43278 [ACK] Seq=1 Ack=518 Win=32251
```

```
2017-01-12 13:09:44.609573 72.163.4.38 -> 10.62.148.37 SSL Continuation Data
```

```
2017-01-12 13:09:44.609595 10.62.148.37 -> 72.163.4.38 TCP 43278 > https [ACK] Seq=518 Ack=1369 Win=82
```

```
2017-01-12 13:09:44.609599 72.163.4.38 -> 10.62.148.37 SSL Continuation Data
```

```
2017-01-12 13:09:44.609610 10.62.148.37 -> 72.163.4.38 TCP 43278 > https [ACK] Seq=518 Ack=2737 Win=10
```

- Additionally, if you want to keep the FXOS UI open you can specify in the capture the destination IPs (72.163.4.38 and 173.37.145.8 are the tools.cisco.com servers at the time of this writing). It is also highly recommended to save the capture in pcap format and check it in Wireshark. This is an example of a successful registration:

```
<#root>
```

```
FPR4125-1(fxos)#
```

```
ethanalyzer local interface mgmt capture-filter "tcp port 443 and (host 72.163.4.38 or host 173.37.145.8"
```

```
Capturing on 'eth0'
```

```
1 2020-08-07 08:39:02.515693672 10.62.148.225 -> 173.37.145.8 TCP 74 59818 -> 443 [
```

```
SYN
```

```
] Seq=0 Win=29200 Len=0 MSS=1460 SACK_PERM=1 TSval=800212367 TSecr=0 WS=512
```

```
2 2020-08-07 08:39:02.684723361 173.37.145.8 → 10.62.148.225 TCP 60 443 → 59818 [
SYN, ACK
] Seq=0 Ack=1 Win=8190 Len=0 MSS=1330
3 2020-08-07 08:39:02.684825625 10.62.148.225 → 173.37.145.8 TCP 54 59818 → 443 [
ACK
] Seq=1 Ack=1 Win=29200 Len=0
4 2020-08-07 08:39:02.685182942 10.62.148.225 → 173.37.145.8 TLSv1 571
```

Client Hello

```
...
11 2020-08-07 08:39:02.854525349 10.62.148.225 → 173.37.145.8 TCP 54 59818 → 443 [ACK] Seq=518 Ack=3
```

- To export the pcap file to a remote FTP server:

```
<#root>
```

```
FPR4125-1#
```

```
connect local-mgmt
```

```
FPR4125-1(local-mgmt)#
```

```
dir
```

```
1 56936 Aug 07 08:39:35 2020
```

```
SSL.pcap
```

```
1 29 May 06 17:48:02 2020 blade_debug_plugin
1 19 May 06 17:48:02 2020 bladelog
1 16 Dec 07 17:24:43 2018 cores
2 4096 Dec 07 17:28:46 2018 debug_plugin/
1 31 Dec 07 17:24:43 2018 diagnostics
2 4096 Dec 07 17:22:28 2018 lost+found/
1 25 Dec 07 17:24:31 2018 packet-capture
2 4096 Sep 24 07:05:40 2019 techsupport/
```

```
Usage for workspace://
3999125504 bytes total
284364800 bytes used
3509907456 bytes free
FPR4125-1(local-mgmt)#
```

```
copy workspace:///SSL.pcap ftp://ftp_user@10.62.148.41/SSL.pcap
```

```
Password:
```

```
FPR4125-1(local-mgmt)#
```


No.	Time	Source	Destination	Protocol	Length	Server Name	Info
4	2020-08-07 10:39:02.68...	10.62.148.225	173.37.145.8	TLSv1..	571	tools.cisco.com	Client Hello
13	2020-08-07 10:39:03.02...	173.37.145.8	10.62.148.225	TLSv1..	78		Server Hello, Certificate, Server Hello Done
15	2020-08-07 10:39:03.02...	10.62.148.225	173.37.145.8	TLSv1..	372		Client Key Exchange, Change Cipher Spec, Encrypted Handshake Message
18	2020-08-07 10:39:03.19...	173.37.145.8	10.62.148.225	TLSv1..	99		Encrypted Handshake Message
43	2020-08-07 10:39:11.20...	10.62.148.225	173.37.145.8	TLSv1..	571	tools.cisco.com	Client Hello
52	2020-08-07 10:39:11.54...	173.37.145.8	10.62.148.225	TLSv1..	78		Server Hello, Certificate, Server Hello Done
54	2020-08-07 10:39:11.55...	10.62.148.225	173.37.145.8	TLSv1..	372		Client Key Exchange, Change Cipher Spec, Encrypted Handshake Message
57	2020-08-07 10:39:11.72...	173.37.145.8	10.62.148.225	TLSv1..	99		Encrypted Handshake Message
80	2020-08-07 10:39:14.51...	10.62.148.225	72.163.4.38	TLSv1..	571	tools.cisco.com	Client Hello
89	2020-08-07 10:39:14.83...	72.163.4.38	10.62.148.225	TLSv1..	78		Server Hello, Certificate, Server Hello Done
91	2020-08-07 10:39:14.84...	10.62.148.225	72.163.4.38	TLSv1..	372		Client Key Exchange, Change Cipher Spec, Encrypted Handshake Message
94	2020-08-07 10:39:15.00...	72.163.4.38	10.62.148.225	TLSv1..	99		Encrypted Handshake Message

Registration Error: HTTP Transport Failed

```
<#root>
```

```
FPR4125-1#
```

```
show license all
```

```
Smart Licensing Status
```

```
=====
```

```
Smart Licensing is ENABLED
```

```
Registration:
```

```
  Status: UNREGISTERED - REGISTRATION FAILED
```

```
Export-Controlled Functionality: Not Allowed
```

```
Initial Registration: FAILED on Aug 07 2020 06:58:46 UTC
```

```
Failure reason: HTTP transport failed
```

Recommended Steps

1. Check if the call-home URL is correct. You can check this from the FXOS UI or the CLI (`scope monitoring > show callhome detail expand`).
2. Enable a capture and check the TCP communication (HTTPS) between the MIO and the `tools.cisco.com` as it is demonstrated in the Failed to Authenticate Server section of this document.

Registration Error: Could Not Connect to Host

```
<#root>
```

```
FPR4125-1#
```

```
show license all
```

```
Smart Licensing Status  
=====
```

```
Smart Licensing is ENABLED
```

```
Registration:
```

```
Status: UNREGISTERED - REGISTRATION FAILED
```

```
Export-Controlled Functionality: Not Allowed  
Initial Registration: FAILED on Aug 07 2020 06:58:46 UTC
```

```
Failure reason: Could Not connect to host
```

Recommended Steps

1. If a proxy configuration is enabled, check the proxy URL and port are configured correctly.
2. Enable a capture and check the TCP communication (HTTPS) between the MIO and the tools.cisco.com as it is demonstrated in the Failed to Authenticate Server section of this document.

Registration Error: HTTP Server Returns Error Code \geq 400

```
<#root>
```

```
FPR4125-1#
```

```
show license all
```

```
Smart Licensing Status  
=====
```

```
Smart Licensing is ENABLED
```

```
Registration:
```

```
Status: UNREGISTERED - REGISTRATION FAILED
```

```
Export-Controlled Functionality: Not Allowed  
Initial Registration: FAILED on Aug 07 2020 06:58:46 UTC
```

```
Failure reason: HTTP server returns error code  $\geq$  400. Contact proxy server admin if proxy configuration
```

Recommended Steps

1. If a proxy configuration is enabled, contact the proxy server admin about proxy settings.

2. Enable a capture and check the TCP communication (HTTPS) between the MIO and the `tools.cisco.com` as it is demonstrated in the Failed to Authenticate Server section of this document. Try to register again (force option) from the FXOS CLI:

```
<#root>
```

```
FPR4125-1 /license #
```

```
register idtoken ODNmNTExMTAtY2YzOS00Mzc1LWEzNWMTYmNiMmUyNzM4ZmFjLTE1OTkxMTkz%0ANDk0Njr8NkJJdWZpQzRDbmtE
```

Registration Error: Parse Backend Response Message Failed

```
<#root>
```

```
FPR4125-1#
```

```
show license all
```

```
Smart Licensing Status
```

```
=====
```

```
Smart Licensing is ENABLED
```

```
Registration:
```

```
  status: UNREGISTERED - REGISTRATION FAILED
```

```
Export-Controlled Functionality: Not Allowed
```

```
Initial Registration: FAILED on Aug 07 2020 06:58:46 UTC
```

```
Failure reason: Parsing backend response message failed
```

Recommended Steps

1. Auto-retry attempts later. Use `renew` to retry immediately.

```
<#root>
```

```
FPR4125-1#
```

```
scope license
```

```
FPR4125-1 /license #
```

```
scope licdebug
```

```
FPR4125-1 /license/licdebug #
```

```
renew
```

2. Check if the call-home URL is correct.

License Issues on ASA - 1xxx/21xx Series

Registration Error: Communication Message Send Error

```
<#root>
```

```
ciscoasa#
```

```
show license all
```

```
Smart Licensing Status
```

```
=====
```

```
Smart Licensing is ENABLED
```

```
Registration:
```

```
  Status: REGISTERING - REGISTRATION IN PROGRESS
```

```
  Export-Controlled Functionality: NOT ALLOWED
```

```
  Initial Registration: FAILED on Aug 07 2020 11:29:42 UTC
```

```
    Failure reason: Communication message send error
```

```
  Next Registration Attempt: Aug 07 2020 11:46:13 UTC
```

Recommended Steps

1. Check the DNS settings.

```
<#root>
```

```
ciscoasa#
```

```
show run dns
```

2. Try to ping tools.cisco.com. In this case, the management interface is used:

```
<#root>
ciscoasa#
ping management tools.cisco.com

      ^
ERROR: % Invalid Hostname
```

3. Check the routing table:

```
<#root>
ciscoasa#
show route management-only
```


Ensure that you have a license enabled, for example:

```
<#root>
ciscoasa#
show run license

license smart
feature tier standard
feature strong-encryption
```

4. Enable capture on the interface that routes towards the `tools.cisco.com` (if you take the capture without any IP filters, ensure that you do not have ASDM open when you take the capture to avoid unnecessary capture noise).

```
<#root>
ciscoasa#
capture CAP interface management match tcp any any eq 443
```

 **Warning:** Packet capture can have an adverse impact on performance.

5. Temporarily enable Syslog level 7 (debug) and check the ASA Syslog messages during the registration process:

```
<#root>
```

```
ciscoasa(config)#
```

```
logging buffer-size 10000000
```

```
ciscoasa(config)#
```

```
logging buffered 7
```

```
ciscoasa(config)#
```

```
logging enable
```

```
ciscoasa#
```

```
show logging
```

```
%ASA-7-717025: Validating certificate chain containing 3 certificate(s).
```

```
%ASA-7-717029: Identified client certificate within certificate chain. serial number: 3000683B0F7504F7B
```

```
tools.cisco.com
```

```
,O=Cisco Systems\, Inc.,L=San Jose,ST=CA,C=US.
```

```
%ASA-7-717030: Found a suitable trustpoint _SmartCallHome_ServerCA to validate certificate.
```

```
%ASA-6-717028:
```

```
Certificate chain was successfully validated
```

```
with warning, revocation status was not checked.
```

```
%ASA-6-717022:
```

```
Certificate was successfully validated
```

```
. serial number: 3000683B0F7504F7B244B3EA7FC00927E960D735, subject name: CN=
```

```
tools.cisco.com
```

```
,O=Cisco Systems\, Inc.,L=San Jose,ST=CA,C=US.
```

```
%ASA-6-725002: Device completed SSL handshake with server management:10.62.148.184/22258 to 173.37.145.
```

Try to register again:

```
<#root>
```

```
ciscoasa #
```

```
license smart register idtoken <idtoken> force
```

Special Requirements for Add-on Entitlements

- A valid feature tier entitlement needs to be acquired before you configure any add-on entitlements.
- All the add-on entitlements need to be released before you release the feature tier entitlement.

Entitlement State During Reboot Operation

- Entitlement states are saved in the flash.
- During boot time, this information is read from the flash, and the licenses are set based on the enforcement mode saved.
- The startup configuration is applied based on this cached entitlement information.
- Entitlements are requested again after each reboot.

Engage Cisco TAC Support

FP41xx/FP9300

If all of the items mentioned in this document fail, then collect these outputs from the chassis CLI and contact Cisco TAC:

Output 1:

```
<#root>  
FPR4125-1#  
show license techsupport
```

Output 2:

```
<#root>  
FPR4125-1#  
scope monitoring  
  
FPR4125-1 /monitoring #  
scope callhome  
  
FPR4125-1 /monitoring/callhome #  
show detail expand
```

Output 3:

FXOS chassis support bundle

```
<#root>
```

```
FPR4125-1#
```

```
connect local-mgmt
```

```
FPR4125-1(local-mgmt)#
```

```
show tech-support chassis 1 detail
```

Output 4 (highly recommended):

Ethalyzer capture from the chassis CLI

FP1xxx/FP21xx

Output 1:

```
<#root>
```

```
ciscoasa#
```

```
show tech-support license
```

Output 2:

```
<#root>
```

```
ciscoasa#
```

```
connect fxos admin
```

```
firepower-2140#
```

```
connect local-mgmt
```

```
firepower-2140(local-mgmt)#
```

```
show tech-support fprm detail
```


Frequently Asked Questions (FAQs)

On FP21xx, where is the Licensing tab on the chassis (FCM) GUI?

As of 9.13.x, FP21xx supports 2 ASA modes:

- Appliance
- Platform

In Appliance mode, there is no chassis UI. In Platform mode, there is a chassis UI, but the license is configured from the ASA CLI or ASDM.

On the other hand, on FPR4100/9300 platforms, the license must be configured in FCM via GUI or FXOS CLI and ASA entitlements must be requested from ASA CLI or ASDM.

References:

- [License Management for the ASA](#)
- [Logical Devices for the Firepower 4100/9300](#)
- [Licenses: Smart Software Licensing \(ASA v, ASA on Firepower\)](#)
- [ASA Platform Mode Deployment with ASDM and Firepower Chassis Manager](#)

How can you enable a Strong Encryption License?

This functionality is enabled automatically if the token used in the FCM registration had the option to Allow export-controlled functionality on the products registered with this token enabled.

How can you enable a Strong Encryption License if the Export-Controlled Features on the FCM level and the related Encryption-3DES-AES on the ASA level are disabled?

If the token does not have this option enabled, deregister the FCM and register it again with a token that has this option enabled.

What can you do if the option to Allow export-controlled functionality on the products registered with this token is not available when you generate the token?

Contact your Cisco Account team.

Is it mandatory to configure the feature Strong Encryption on the ASA level?

The feature strong-encryption option is mandatory only if FCM is integrated with a pre-2.3.0 Satellite server. This is only one scenario when you must configure this feature.

Which IPs must be allowed in the path between the FCM and the Smart Licensing Cloud?

The FXOS uses the address <https://tools.cisco.com/> (port 443) to communicate with the licensing cloud. The address <https://tools.cisco.com/> is resolved to these IP addresses:

- 72.163.4.38
- 173.37.145.8

Why do you get an Out of Compliance error?

The device can become out of compliance in these situations:

- Over-utilization (the device uses unavailable licenses).
- License expiration - A time-based license expired.
- Lack of communication - The device cannot reach the Licensing Authority for re-authorization.

To verify whether your account is in, or approaches an Out-of-Compliance state, you must compare the entitlements currently in use by your Firepower chassis against those in your Smart Account. In an out-of-compliance state, you can make configuration changes to features that require special licenses, but the operation is otherwise unaffected. For example, over the Standard license limit contexts that already exist continue to run, and you can modify their configuration, but you are not able to add a new context.

Why do you still get an Out of Compliance error after the addition of licenses?

By default, the device communicates with the License Authority every 30 days to check entitlements. If you would like to trigger it manually, you must use these steps:

For FPR1000/2100 platforms it must be done via ASDM or via CLI:

```
<#root>  
ASA#  
license smart renew auth
```

For FPR4100/9300 platforms it must be done via FXOS CLI:

```
<#root>  
FP4100#  
scope system  
  
FP4100 /system #  
scope license  
  
FP4100 /license #  
scope licdebug  
  
FP4100 /license/licdebug #  
renew
```

Why there is no License In Use on the ASA level?

Ensure that ASA entitlement was configured on the ASA level, for example:

```
<#root>  
ASA(config)#
```

```
license smart
```

```
ASA(config-smart-lic)#
```

```
feature tier standard
```

Why licenses are still not in use even after the configuration of an ASA entitlement?

This status is expected if you deployed an ASA Active/Standby failover pair and you check the license usage on the Standby device.

As per the Configuration Guide, the configuration is replicated to the standby unit, but the standby unit does not use the configuration; it remains in a cached state. Only the active unit requests the licenses from the server. The licenses are aggregated into a single failover license that is shared by the failover pair, and this aggregated license is also cached on the standby unit to be used if it becomes the active unit in the future.

For reference: [Failover or ASA Cluster Licenses](#).

What can you do if FCM does not have access to the Internet?

As an alternative, you can deploy Cisco Smart Software Manager On-Prem (formerly known as Cisco Smart Software Manager Satellite). This is a component of Cisco Smart Licensing that works in conjunction with the Cisco Smart Software Manager. It offers near real-time visibility and reports capabilities of the Cisco licenses you purchase and consume. It also gives security-sensitive organizations a way to access a subset of Cisco SSM functionality without the usage of a direct internet connection to manage their install base.

Where can you find more information about Cisco Smart Software Manager On-Prem?

You can find this information in the FXOS Configuration Guide:

- [Configure a Smart License Satellite Server for the Firepower 4100/9300 chassis](#)
- [Configure Firepower Chassis Manager Registration to a Smart Software Manager On-Prem](#)

Related Information

- [Cisco ASA Series General Operations CLI Configuration Guide](#)
- [License Management for the ASA](#)
- [Technical Support & Documentation - Cisco Systems](#)