



License Management for the ASA

Cisco Smart Software Licensing lets you purchase and manage a pool of licenses centrally. You can easily deploy or retire devices without having to manage each unit's license key. Smart Software Licensing also lets you see your license usage and needs at a glance.



Note This section only applies to ASA logical devices on the Firepower 4100/9300 chassis. For more information on licensing for Firepower Threat Defense logical devices, see the Firepower Management Center Configuration Guide.

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About Smart Software Licensing

This section describes how Smart Software Licensing works.



Note This section only applies to ASA logical devices on the Firepower 4100/9300 chassis. For more information on licensing for Firepower Threat Defense logical devices, see the Firepower Management Center Configuration Guide.

Smart Software Licensing for the ASA

For the ASA application on the Firepower 4100/9300 chassis, Smart Software Licensing configuration is split between the Firepower 4100/9300 chassis supervisor and the application.

- Firepower 4100/9300 chassis—Configure all Smart Software Licensing infrastructure in the supervisor, including parameters for communicating with the License Authority. The Firepower 4100/9300 chassis itself does not require any licenses to operate.



Note Inter-chassis clustering requires that you enable the same Smart Licensing method on each chassis in the cluster.

- ASA Application—Configure all license entitlements in the application.



Note Cisco Transport Gateway is not supported on Firepower 4100/9300 security appliances.

Smart Software Manager and Accounts

When you purchase 1 or more licenses for the device, you manage them in the Cisco Smart Software Manager:

<https://software.cisco.com/#module/SmartLicensing>

The Smart Software Manager lets you create a master account for your organization.



Note If you do not yet have an account, click the link to [set up a new account](#). The Smart Software Manager lets you create a master account for your organization.

By default, your licenses are assigned to the *Default Virtual Account* under your master account. As the account administrator, you can optionally create additional virtual accounts; for example, you can create accounts for regions, departments, or subsidiaries. Multiple virtual accounts let you more easily manage large numbers of licenses and devices.

Offline Management

If your devices do not have Internet access, and cannot register with the License Authority, you can configure offline licensing.

Permanent License Reservation

If your devices cannot access the internet for security reasons, you can optionally request permanent licenses for each ASA. Permanent licenses do not require periodic access to the License Authority. Like PAK licenses, you will purchase a license and install the license key for the ASA. Unlike a PAK license, you obtain and manage the licenses with the Smart Software Manager. You can easily switch between regular smart licensing mode and permanent license reservation mode.

You can obtain a license that enables all features: Standard tier with maximum Security Contexts and the Carrier license. The license is managed on the Firepower 4100/9300 chassis, but you also need to request the entitlements in the ASA configuration so that the ASA allows their use.

Satellite Server

If your devices cannot access the internet for security reasons, you can optionally install a local Smart Software Manager satellite server as a virtual machine (VM). The satellite provides a subset of Smart Software Manager functionality, and allows you to provide essential licensing services for all your local devices. Only the satellite needs to connect periodically to the main License Authority to sync your license usage. You can sync on a schedule or you can sync manually.

Once you download and deploy the satellite application, you can perform the following functions without sending data to Cisco SSM using the Internet:

- Activate or register a license
- View your company's licenses
- Transfer licenses between company entities

For more information, see the Smart Software Manager satellite installation and configuration guides on [Smart Account Manager satellite](#).

Licenses and Devices Managed per Virtual Account

Licenses and devices are managed per virtual account: only that virtual account's devices can use the licenses assigned to the account. If you need additional licenses, you can transfer an unused license from another virtual account. You can also transfer devices between virtual accounts.

Only the Firepower 4100/9300 chassis registers as a device, while the ASA applications in the chassis request their own licenses. For example, for a Firepower 9300 chassis with 3 security modules, the chassis counts as one device, but the modules use 3 separate licenses.

Evaluation License

The Firepower 4100/9300 chassis supports two types of evaluation license:

- Chassis-level evaluation mode—Before the Firepower 4100/9300 chassis registers with the Licensing Authority, it operates for 90 days (total usage) in evaluation mode. The ASA cannot request specific entitlements in this mode; only default entitlements are enabled. When this period ends, the Firepower 4100/9300 chassis becomes out-of-compliance.
- Entitlement-based evaluation mode—After the Firepower 4100/9300 chassis registers with the Licensing Authority, you can obtain time-based evaluation licenses that can be assigned to the ASA. In the ASA, you request entitlements as usual. When the time-based license expires, you need to either renew the time-based license or obtain a permanent license.



Note You cannot receive an evaluation license for Strong Encryption (3DES/AES); only permanent licenses support this entitlement.

Smart Software Manager Communication

This section describes how your device communicates with the Smart Software Manager.

Device Registration and Tokens

For each virtual account, you can create a registration token. This token is valid for 30 days by default. Enter this token ID plus entitlement levels when you deploy each chassis, or when you register an existing chassis. You can create a new token if an existing token is expired.

At startup after deployment, or after you manually configure these parameters on an existing chassis, the chassis registers with the Cisco License Authority. When the chassis registers with the token, the License Authority issues an ID certificate for communication between the chassis and the License Authority. This certificate is valid for 1 year, although it will be renewed every 6 months.

Periodic Communication with the License Authority

The device communicates with the License Authority every 30 days. If you make changes in the Smart Software Manager, you can refresh the authorization on the device so the change takes place immediately. Or you can wait for the device to communicate as scheduled.

You can optionally configure an HTTP proxy.

The Firepower 4100/9300 chassis must have internet access either directly or through an HTTP proxy at least every 90 days. Normal license communication occurs every 30 days, but with the grace period, your device will operate for up to 90 days without calling home. After the grace period, you must contact the Licensing Authority, or you will not be able to make configuration changes to features requiring special licenses; operation is otherwise unaffected.



Note If your device is unable to communicate with the license authority for one year, the device will enter an unregistered state without strong encryption licenses.

Out-of-Compliance State

The device can become out of compliance in the following situations:

- Over-utilization—When the device uses unavailable licenses.
- License expiration—When a time-based license expires.
- Lack of communication—When the device cannot reach the Licensing Authority for re-authorization.

To verify whether your account is in, or approaching, an Out-of-Compliance state, you must compare the entitlements currently in use by your Firepower 4100/9300 chassis against those in your Smart Account.

In an out-of-compliance state, you will not be able to make configuration changes to features requiring special licenses, but operation is otherwise unaffected. For example, existing contexts over the Standard license limit can continue to run, and you can modify their configuration, but you will not be able to add a *new* context.

Smart Call Home Infrastructure

By default, a Smart Call Home profile exists in the FXOS configuration that specifies the URL for the Licensing Authority. You cannot remove this profile. Note that the only configurable option for the License profile is the destination address URL for the License Authority. Unless directed by Cisco TAC, you should not change the License Authority URL.



Note Cisco Transport Gateway is not supported on Firepower 4100/9300 security appliances.

Prerequisites for Smart Software Licensing

- Note that this chapter only applies to ASA logical devices on the Firepower 4100/9300 chassis. For more information on licensing for Firepower Threat Defense logical devices, see the Firepower Management Center Configuration Guide.
- Create a master account on the Cisco Smart Software Manager:
<https://software.cisco.com/#module/SmartLicensing>
If you do not yet have an account, click the link to [set up a new account](#). The Smart Software Manager lets you create a master account for your organization.
- Purchase 1 or more licenses from the [Cisco Commerce Workspace](#). On the home page, search for your platform in the **Find Products and Solutions** search field. Some licenses are free, but you still need to add them to your Smart Software Licensing account.
- Ensure internet access or HTTP proxy access from the chassis, so the chassis can contact the Licensing Authority.
- Configure a DNS server so the chassis can resolve the name of the Licensing Authority.
- Set the time for the chassis.
- Configure the Smart Software Licensing infrastructure on the Firepower 4100/9300 chassis before you configure the ASA licensing entitlements.

Guidelines for Smart Software Licensing

ASA Guidelines for Failover and Clustering

Each Firepower 4100/9300 chassis must be registered with the License Authority or satellite server. There is no extra cost for secondary units. For permanent license reservation, you must purchase separate licenses for each chassis.

Defaults for Smart Software Licensing

The Firepower 4100/9300 chassis default configuration includes a Smart Call Home profile called “SLProfile” that specifies the URL for the Licensing Authority.

```
scope monitoring
  scope callhome
    scope profile SLProfile
      scope destination SLDest
```

```
set address https://tools.cisco.com/its/service/oddce/services/DDCEService
```

Configure Regular Smart Software Licensing

To communicate with the Cisco License Authority, you can optionally configure an HTTP proxy. To register with the License Authority, you must enter the registration token ID on the Firepower 4100/9300 chassis that you obtained from your Smart Software License account.

Procedure

-
- Step 1** (Optional) [Configure the HTTP Proxy, on page 6.](#)
 - Step 2** (Optional) [Delete the Call Home URL, on page 7](#)
 - Step 3** [Register the Firepower Security Appliance with the License Authority, on page 8.](#)
-

(Optional) Configure the HTTP Proxy

If your network uses an HTTP proxy for Internet access, you must configure the proxy address for Smart Software Licensing. This proxy is also used for Smart Call Home in general.



Note HTTP proxy with authentication is not supported.

Procedure

-
- Step 1** Enable the HTTP proxy:

```
scope monitoring
scope callhome
set http-proxy-server-enable on
```

Example:

```
scope monitoring
  scope callhome
    set http-proxy-server-enable on
```

- Step 2** Set the proxy URL:
- ```
set http-proxy-server-url url
```
- where *url* is the http or https address of the proxy server.

#### Example:

```
set http-proxy-server-url https://10.1.1.1
```

- Step 3** Set the port:  
**set http-proxy-server-port *port***

**Example:**

```
set http-proxy-server-port 443
```

- Step 4** Commit the buffer:  
**commit-buffer**
- 

## (Optional) Delete the Call Home URL

Use the following procedure to delete a previously configured Call Home URL.

### Procedure

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- Step 1** Enter the monitoring scope:  
**scope monitoring**

- Step 2** Enter the callhome scope:  
**scope callhome**

- Step 3** Look for the SLProfile:  
**scope profile SLProfile**

- Step 4** Show the destination:  
**show destination**

**Example:**

```
SLDest https https://tools.cisco.com/its/odce/services/DDCEService
```

- Step 5** Delete the URL:  
**delete destination SLDest**

- Step 6** Commit the buffer:  
**commit-buffer**
-

## Register the Firepower Security Appliance with the License Authority

When you register the Firepower 4100/9300 chassis, the License Authority issues an ID certificate for communication between the Firepower 4100/9300 chassis and the License Authority. It also assigns the Firepower 4100/9300 chassis to the appropriate virtual account. Normally, this procedure is a one-time instance. However, you might need to later re-register the Firepower 4100/9300 chassis if the ID certificate expires because of a communication problem, for example.

### Procedure

**Step 1** In the Smart Software Manager or the Smart Software Manager Satellite, request and copy a registration token for the virtual account to which you want to add this Firepower 4100/9300 chassis.

For more information on how to request a registration token using the Smart Software Manager Satellite, see the Cisco Smart Software Manager Satellite User Guide (<https://www.cisco.com/c/en/us/buy/smart-accounts/software-manager-satellite.html>).

**Step 2** Enter the registration token on the Firepower 4100/9300 chassis:

**scope license**

**register idtoken** *id-token*

#### Example:

```
scope license
 register idtoken ZGFmNWM5NjgtYmNjYS00ZWl3L
 WE3NGItMWJkOGExZjIxNGQ0LTE0NjI2NDYx%0AMDIzNT
 V8N3R0dXm1Z0NjWkdPR214eFZhM1dBOS9CVnNEYnVKM1
 g3R3dvemRD%0AY29NQT0%3D%0A
```

**Step 3** To later unregister the device, enter:

**scope license**

**deregister**

Deregistering the Firepower 4100/9300 chassis removes the device from your account. All license entitlements and certificates on the device are removed. You might want to deregister to free up a license for a new Firepower 4100/9300 chassis. Alternatively, you can remove the device from the Smart Software Manager.

**Step 4** To renew the ID certificate and update the entitlements on all security modules, enter:

**scope license**

**scope licdebug**

**renew**

By default, the ID certificate is automatically renewed every 6 months, and the license entitlement is renewed every 30 days. You might want to manually renew the registration for either of these items if you have a limited window for Internet access, or if you make any licensing changes in the Smart Software Manager, for example.

## Change Cisco Success Network Enrollment

You enable Cisco Success Network when you register the Firepower 4100/9300 with the Cisco Smart Software Manager. After that, use the following procedure to view or change enrollment status.



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**Note** Cisco Success Network does not work in evaluation mode.

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### Procedure

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**Step 1** Enter the system scope.

**scope system**

**Example:**

```
Firepower# scope system
Firepower /system #
```

**Step 2** Enter the services scope.

**scope services**

**Example:**

```
Firepower /system # scope services
Firepower /system/services #
```

**Step 3** Enter the telemetry scope.

**scope telemetry**

**Example:**

```
Firepower /system/services # scope telemetry
Firepower /system/services/telemetry #
```

**Step 4** Enable or disable the Cisco Success Network feature.

**{enable | disable}**

**Example:**

```
Firepower /system/services/telemetry # enable
```

**Step 5** Verify the Cisco Success Network status in the Firepower 4100/9300 Chassis.

**show detail**

**Example:**

Verify that the **Admin State** shows the correct status of Cisco Success Network.

```
Telemetry:
 Admin State: Enabled
 Oper State: Registering
 Error Message:
 Period: 86400
 Current Task: Registering the device for Telemetry
 (FSM-STAGE:sam:dme:CommTelemetryDataExchSeq:RegisterforTelemetry)
```

**Example:**

Verify that the **Oper State** shows **OK**, which indicates that telemetry data is sent.

```
Telemetry:
 Admin State: Enabled
 Oper State: Ok
 Error Message:
 Period: 86400
 Current Task:
```

## Configure a Smart License Satellite Server for the Firepower 4100/9300 chassis

The following procedure shows how to configure the Firepower 4100/9300 chassis to use a Smart License satellite server.

### Before you begin

- Complete all prerequisites listed in the [Prerequisites for Smart Software Licensing, on page 5](#).
- Deploy and set up a Smart Software Satellite Server:
  - Download the [Smart License Satellite](#) OVA file from Cisco.com and install and configure it on a VMwareESXi server. For more information, see the [Smart Software Manager satellite Install Guide](#).
- Verify that the FQDN of the Smart Software Satellite Server can be resolved by your internal DNS server.
- Verify whether the satellite trustpoint is already present:

#### scope security

#### show trustpoint

Note that the trustpoint is added by default in FXOS version 2.4(1) and later. If the trustpoint is not present, you must add one manually using the following steps:

1. Go to <http://www.cisco.com/security/pki/certs/clrca.cer> and copy the entire body of the SSL certificate (from "-----BEGIN CERTIFICATE-----" to "-----END CERTIFICATE-----") into a place you can access during configuration.

2. Enter security mode:

#### scope security

3. Create and name a trusted point:

```
create trustpoint trustpoint_name
```

4. Specify certificate information for the trust point. Note: the certificate must be in Base64 encoded X.509 (CER) format.

```
set certchain certchain
```

For the *certchain* variable, paste the certificate text that you copied in step 1.

If you do not specify certificate information in the command, you are prompted to enter a certificate or a list of trust points defining a certification path to the root certificate authority (CA). On the next line following your input, type **ENDOFBUF** to finish.

5. Commit the configuration:

```
commit-buffer
```

### Procedure

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- Step 1** Set up the satellite server as the callhome destination:
- ```
scope monitoring
scope callhome
scope profile SLProfile
scope destination SLDest
set address https://[FQDN of Satellite server]/Transportgateway/services/DeviceRequestHandler
```
- Step 2** Register the Firepower 4100/9300 chassis with the License Authority (see [Register the Firepower Security Appliance with the License Authority, on page 8](#)). Note that you must request and copy the registration token from the Smart License Manager satellite.
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Configure Permanent License Reservation

You can assign a permanent license to your Firepower 4100/9300 chassis. This universal reservation allows you to use any entitlement for an unlimited count on your device.



- Note** Before you begin, you must purchase the permanent licenses so they are available in the Smart Software Manager. Not all accounts are approved for permanent license reservation. Make sure you have approval from Cisco for this feature before you attempt to configure it.
-

Install the Permanent License

The following procedure shows how to assign a permanent license to your Firepower 4100/9300 chassis.

Procedure

- Step 1** From the FXOS CLI, enable license reservation:
- ```
scope license
enable reservation
```

- Step 2** Scope to the license reservation:  
**scope license**  
**scope reservation**
- Step 3** Generate a reservation request code:  
**request universal**  
**show license resvcode**
- Step 4** Go to the Smart Software Manager Inventory screen in the Cisco Smart Software Manager portal, and click the **Licenses** tab:  
<https://software.cisco.com/#SmartLicensing-Inventory>  
 The **Licenses** tab displays all existing licenses related to your account, both regular and permanent.
- Step 5** Click **License Reservation**, and type the generated reservation request code into the box.
- Step 6** Click **Reserve License**.  
 The Smart Software Manager generates an authorization code. You can download the code or copy it to the clipboard. At this point, the license is now in use according to the Smart Software Manager.  
 If you do not see the **License Reservation** button, then your account is not authorized for permanent license reservation. In this case, you should disable permanent license reservation and re-enter the regular smart license commands.
- Step 7** In the FXOS CLI, enter the licensing scope:  
**scope license**
- Step 8** Enter the reservation scope:  
**scope reservation**
- Step 9** Enter the authorization code:  
**install code**  
 Your Firepower 4100/9300 chassis is now fully licensed with PLR.
- Step 10** Enable feature entitlements on the ASA logical device. See the [ASA licensing chapter](#) to enable entitlements.

## (Optional) Return the Permanent License

If you no longer need a permanent license, you must officially return it to the Smart Software Manager using this procedure. If you do not follow all steps, the license stays in an in-use state and cannot be used elsewhere.

### Procedure

- Step 1** From the FXOS CLI, enter the license scope:  
**scope license**

- Step 2** Enter the reservation scope:  
**scope reservation**
- Step 3** Return the permanent license:  
**return**  
The Firepower 4100/9300 chassis immediately becomes unlicensed and moves to the Evaluation state.
- Step 4** View and copy the return reservation code:  
**show license resvcode**
- Step 5** View and copy the FXOS universal device identifier (UDI) so you can find your FXOS instance in the Smart Software Manager:  
**show license udi**
- Step 6** Go to the Smart Software Manager Inventory screen, and click on the **Product Instances** tab:  
<https://software.cisco.com/#SmartLicensing-Inventory>
- Step 7** Search for your Firepower 4100/9300 chassis using its universal device identifier (UDI).
- Step 8** Choose **Actions > Remove**, and type the generated return reservation code into the box.
- Step 9** Click **Remove Product Instance**.  
The permanent license is returned to the available pool.
- Step 10** Reboot the system. For details on how to reboot your Firepower 4100/9300 chassis, see [Rebooting the Firepower 4100/9300 Chassis](#).
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## Monitoring Smart Software Licensing

See the following commands for viewing license status:

- **show license all**

Displays the state of Smart Software Licensing, Smart Agent version, UDI information, Smart Agent state, global compliance status, the entitlements status, licensing certificate information and schedule Smart Agent tasks.

- **show license status**

- **show license techsupport**

# History for Smart Software Licensing

| Feature Name          | Platform Releases | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|-----------------------|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Cisco Success Network | 2.7.1             | <p>Cisco Success Network is a user-enabled cloud service. When you enable Cisco Success Network, a secure connection is established between the Firepower 4100/9300 chassis and the Cisco cloud to stream usage information and statistics. Streaming telemetry provides a mechanism that selects data of interest from the ASA and transmits it in a structured format to remote management stations to do the following:</p> <ul style="list-style-type: none"> <li>• Inform you of available unused features that can improve the effectiveness of the product in your network</li> <li>• Inform you of additional technical support services and monitoring that might be available for your product</li> <li>• Help Cisco improve our products</li> </ul> <p>Once you enroll in the Cisco Success Network, the chassis establishes and maintains the secure connection at all times. You can turn off this connection at any time by disabling Cisco Success Network, which disconnects the device from the Cisco Success Network cloud.</p> <p>We introduced the following commands:</p> <p><b>scope telemetry {enable   disable}</b></p> <p>We introduced the following screens:</p> <p><b>System &gt; Licensing &gt; Cisco Success Network</b></p> |

| Feature Name                                                       | Platform Releases | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|--------------------------------------------------------------------|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Cisco Smart Software Licensing for the Firepower 4100/9300 chassis | 1.1(1)            | <p>Smart Software Licensing lets you purchase and manage a pool of licenses. Smart licenses are not tied to a specific serial number. You can easily deploy or retire devices without having to manage each unit's license key. Smart Software Licensing also lets you see your license usage and needs at a glance. Smart Software Licensing configuration is split between the Firepower 4100/9300 chassis supervisor and the security module.</p> <p>We introduced the following commands:<br/><b>deregister, register idtoken, renew, scope callhome, scope destination, scope licdebug, scope license, scope monitoring, scope profile, set address, set http-proxy-server-enable on, set http-proxy-server-url, set http-proxy-server-port, show license all, show license status, show license techsupport</b></p> |

