



# Configuring Smart Licensing

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## Prerequisites for Configuring Smart Licensing

You must have the following in [CSSM](#):

- Cisco Smart Account
- One or more Virtual Account
- User role with proper access rights
- You should have accepted the Smart Software Licensing Agreement on CSSM to register devices.
- Network reachability to <https://tools.cisco.com>.

## Introduction to Smart Licensing

Cisco Smart Licensing is a flexible licensing model that provides you with an easier, faster, and more consistent way to purchase and manage software across the Cisco portfolio and across your organization. And it's secure – you control what users can access. With Smart Licensing you get:

- **Easy Activation:** Smart Licensing establishes a pool of software licenses that can be used across the entire organization—no more PAKs (Product Activation Keys).
- **Unified Management:** My Cisco Entitlements (MCE) provides a complete view into all of your Cisco products and services in an easy-to-use portal, so you always know what you have and what you are using.

- License Flexibility: Your software is not node-locked to your hardware, so you can easily use and transfer licenses as needed.

To use Smart Licensing, you must first set up a Smart Account on Cisco Software Central ([software.cisco.com](https://software.cisco.com)).

For a more detailed overview on Cisco Licensing, go to [cisco.com/go/licensingguide](https://cisco.com/go/licensingguide).



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**Note** Licenses are managed as *Smart licenses* from Cisco IOS XE Fuji 16.9.1 and later. Right-to-Use licenses are deprecated from Cisco IOS XE Fuji 16.9.1.

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## Overview of CSSM

CSSM enables you to manage all your Cisco smart software licenses from one centralized portal. With CSSM, you can organize and view your licenses in groups called virtual accounts (collections of licenses and product instances).

You can access the CSSM on <https://software.cisco.com/#>, by clicking the **Smart Software Licensing** link under the **License** tab.



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**Note** Use a Chrome 32.0, Firefox 25.0, or Safari 6.0.5 web browser to access CSSM. Also, ensure that Javascript 1.5 or a later version is enabled in your browser.

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Use the CSSM to do the following tasks:

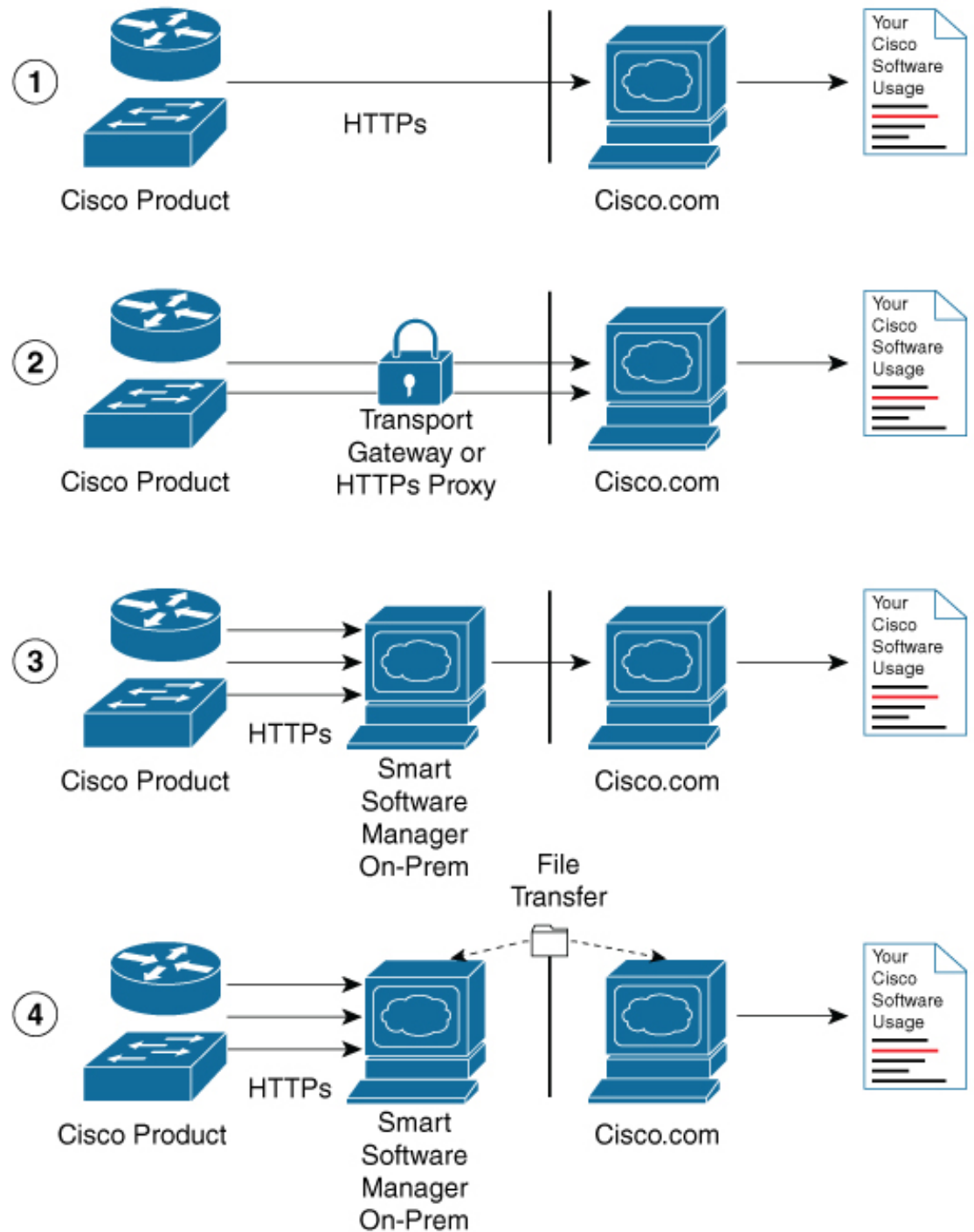
- Create, manage, or view virtual accounts.
- Create and manage Product Instance Registration Tokens.
- Transfer licenses between virtual accounts or view licenses.
- Transfer, remove, or view product instances.
- Run reports against your virtual accounts.
- Modify your email notification settings.
- View overall account information.

CSSM Help describes the procedures for carrying out these tasks.

## Connecting to CSSM

The following illustration shows the various options available to connect to CSSM:

Figure 1: Connection Options



1. Direct cloud access: In this method, Cisco products send usage information directly over the internet to Cisco.com; no additional components are needed for the connection.

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2. Direct cloud access through an HTTPs proxy: In this method, Cisco products send usage information over the internet through a proxy server - either a Call Home Transport Gateway or an off-the-shelf proxy (such as Apache) to Cisco.com.
3. Mediated access through a connected on-premises collector: In this method, Cisco products send usage information to a locally-connected collector, which acts as a local license authority. Periodically, this information is exchanged to keep the databases synchronized.
4. Mediated access through a disconnected on-premises collector: In this method, Cisco products send usage information to a local disconnected collector, which acts as a local license authority. Exchange of human-readable information takes place occasionally (maybe once a month) to keep the databases synchronized.

Options 1 and 2 provide an easy connection option, and options 3 and 4 provide a secure environment connection option. Cisco Smart Software Manager On-Prem (formerly known as Cisco Smart Software Manager satellite) provides support for options 3 and 4.

## Configuring a Connection to CSSM and Setting Up the License Level

The following sections provide information about how to set up a connection to CSSM and set up the license level.

### Setting Up a Connection to CSSM

The following steps show how to set up a Layer 3 connection to CSSM to verify network reachability. Skip this section if you already have Layer 3 connectivity to CSSM.

#### SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **{ip | ipv6} name-server** *server-address 1* [*server-address 2*] [*server-address 3*] [*server-address 4*] [*server-address 5*] [*server-address 6*]
4. **ip name-server vrf** **Mgmt-vrf** *server-address 1* [*server-address 2*] [*server-address 3*] [*server-address 4*] [*server-address 5*] [*server-address 6*]
5. **ip domain lookup source-interface** *interface-type interface-number*
6. **ip domain name** **example.com**
7. **ip host** **tools.cisco.com** *ip-address*
8. **interface** *vlan\_id*
9. **ntp server** *ip-address* [**version number**] [**key key-id**] [**prefer**]
10. **switchport access vlan** *vlan\_id*
11. **ip route** *ip-address ip-mask subnet mask*
12. **license smart transport callhome**
13. **ip http client source-interface** *interface-type interface-number*
14. **exit**
15. **copy running-config startup-config**

## DETAILED STEPS

	Command or Action	Purpose
Step 1	<b>enable</b> <b>Example:</b> Device> <b>enable</b>	Enables privileged EXEC mode. Enter your password, if prompted.
Step 2	<b>configure terminal</b> <b>Example:</b> Device# <b>configure terminal</b>	Enters global configuration mode.
Step 3	<b>{ip   ipv6} name-server server-address 1 [server-address 2] [server-address 3] [server-address 4] [server-address 5] [server-address 6]</b> <b>Example:</b> Device(config)# <b>ip name-server 209.165.201.1 209.165.200.225 209.165.201.14 209.165.200.230</b>	Configures Domain Name System (DNS).
Step 4	<b>ip name-server vrf Mgmt-vrf server-address 1 [server-address 2] [server-address 3] [server-address 4] [server-address 5] [server-address 6]</b> <b>Example:</b> Device(config)# <b>ip name-server vrf Mgmt-vrf 209.165.201.1 209.165.200.225 209.165.201.14 209.165.200.230</b>	(Optional) Configures DNS on the VRF interface. <b>Note</b> You should configure this command as an alternative to the <b>ip name-server</b> command.
Step 5	<b>ip domain lookup source-interface interface-type interface-number</b> <b>Example:</b> Device(config)# <b>ip domain lookup source-interface Vlan100</b>	(Optional) Configures the source interface for the DNS domain lookup.
Step 6	<b>ip domain name example.com</b> <b>Example:</b> Device(config)# <b>ip domain name example.com</b>	Configures the domain name.
Step 7	<b>ip host tools.cisco.com ip-address</b> <b>Example:</b> Device(config)# <b>ip host tools.cisco.com 209.165.201.30</b>	(Optional) Configures static hostname-to-address mappings in the DNS hostname cache if automatic DNS mapping is not available.
Step 8	<b>interface vlan_id</b> <b>Example:</b> Device(config)# <b>interface Vlan100</b> Device(config-if)# <b>ip address 192.0.2.10 255.255.255.0</b> Device(config-if)# <b>exit</b>	Configures a Layer 3 interface.

	Command or Action	Purpose
<b>Step 9</b>	<p><b>ntp server</b> <i>ip-address</i> [<b>version number</b>] [<b>key key-id</b>] [<b>prefer</b>]</p> <p><b>Example:</b></p> <pre>Device(config)# ntp server 198.51.100.100 version 2 prefer</pre>	<p>Forms a server association with the specified system.</p> <p><b>Note</b> The <b>ntp server</b> command is mandatory to ensure that the device time is synchronized with CSSM.</p>
<b>Step 10</b>	<p><b>switchport access vlan</b> <i>vlan_id</i></p> <p><b>Example:</b></p> <pre>Device(config)# interface GigabitEthernet1/0/1 Device(config-if)# switchport access vlan 100 Device(config-if)# switchport mode access Device(config-if)# exit Device(config)#</pre>	<p>(Optional) Enables the VLAN for which this access port carries traffic and sets the interface as a nontrunking nontagged single-VLAN Ethernet interface.</p> <p><b>Note</b> This step is to be configured only if the switchport access mode is required.</p>
<b>Step 11</b>	<p><b>ip route</b> <i>ip-address ip-mask subnet mask</i></p> <p><b>Example:</b></p> <pre>Device(config)# ip route 192.0.2.0 255.255.255.255 192.0.2.1</pre>	<p>Configures a route on the device.</p> <p><b>Note</b> You can configure either a static route or a dynamic route.</p>
<b>Step 12</b>	<p><b>license smart transport callhome</b></p> <p><b>Example:</b></p> <pre>Device(config)# license smart transport callhome</pre>	<p>Enables the transport mode as Call Home.</p> <p><b>Note</b> The <b>license smart transport callhome</b> command is mandatory.</p>
<b>Step 13</b>	<p><b>ip http client source-interface</b> <i>interface-type interface-number</i></p> <p><b>Example:</b></p> <pre>Device(config)# ip http client source-interface Vlan100</pre>	<p>Configures a source interface for the HTTP client.</p> <p><b>Note</b> The <b>ip http client source-interface</b> <i>interface-type interface-number</i> command is mandatory.</p>
<b>Step 14</b>	<p><b>exit</b></p> <p><b>Example:</b></p> <pre>Device(config)# exit</pre>	<p>(Optional) Exits global configuration mode and returns to privileged EXEC mode.</p>
<b>Step 15</b>	<p><b>copy running-config startup-config</b></p> <p><b>Example:</b></p> <pre>Device# copy running-config startup-config</pre>	<p>(Optional) Saves your entries in the configuration file.</p>

## Configuring the Call Home Service for Direct Cloud Access



**Note** By default, the CiscoTAC-1 profile is already set up on the device. Use the **show call-home profile all** command to check the profile status.

The Call Home service provides email-based and web-based notification of critical system events to CSSM. To configure and enable the Call Home service, perform this procedure:

## SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **call-home**
4. **no http secure server-identity-check**
5. **contact-email-address** *email-address*
6. **profile** **CiscoTAC-1**
7. **destination transport-method** **http**
8. **destination address** **http** *url*
9. **active**
10. **no destination transport-method** **email**
11. **exit**
12. **exit**
13. **service call-home**
14. **exit**
15. **copy running-config startup-config**

## DETAILED STEPS

	Command or Action	Purpose
<b>Step 1</b>	<b>enable</b> <b>Example:</b> Device> <b>enable</b>	Enables privileged EXEC mode. Enter your password, if prompted.
<b>Step 2</b>	<b>configure terminal</b> <b>Example:</b> Device# <b>configure terminal</b>	Enters global configuration mode.
<b>Step 3</b>	<b>call-home</b> <b>Example:</b> Device(config)# <b>call-home</b>	Enters Call Home configuration mode.
<b>Step 4</b>	<b>no http secure server-identity-check</b> <b>Example:</b> Device(config-call-home)# <b>no http secure server-identity-check</b>	Disables server identity check when HTTP connection is established.
<b>Step 5</b>	<b>contact-email-address</b> <i>email-address</i> <b>Example:</b> Device(config-call-home)# <b>contact-email-addr</b> <b>username@example.com</b>	Assigns customer's email address. You can enter up to 200 characters in email address format with no spaces.

	Command or Action	Purpose
<b>Step 6</b>	<b>profile CiscoTAC-1</b> <b>Example:</b> Device (config-call-home) # <b>profile CiscoTAC-1</b>	By default, the CiscoTAC-1 profile is inactive. To use this profile with the Call Home service, you must enable the profile.
<b>Step 7</b>	<b>destination transport-method http</b> <b>Example:</b> Device (config-call-home-profile) # <b>destination transport-method http</b>	Enables the Call Home service via HTTP.
<b>Step 8</b>	<b>destination address http url</b> <b>Example:</b> Device (config-call-home-profile) # <b>destination address http</b> <a href="https://tools.cisco.com/its/service/oddce/services/DDCEService">https://tools.cisco.com/its/service/oddce/services/DDCEService</a>	Connects to CSSM.
<b>Step 9</b>	<b>active</b> <b>Example:</b> Device (config-call-home-profile) # <b>active</b>	Enables the destination profile.
<b>Step 10</b>	<b>no destination transport-method email</b> <b>Example:</b> Device (config-call-home-profile) # <b>no destination transport-method email</b>	Disables the Call Home service via email.
<b>Step 11</b>	<b>exit</b> <b>Example:</b> Device (config-call-home-profile) # <b>exit</b>	Exits Call Home destination profile configuration mode and returns to Call Home configuration mode.
<b>Step 12</b>	<b>exit</b> <b>Example:</b> Device (config-call-home) # <b>exit</b>	Exits Call Home configuration mode and returns to global configuration mode.
<b>Step 13</b>	<b>service call-home</b> <b>Example:</b> Device (config) # <b>service call-home</b>	Enables the Call Home feature.
<b>Step 14</b>	<b>exit</b> <b>Example:</b> Device (config) # <b>exit</b>	Exits global configuration mode and returns to privileged EXEC mode.
<b>Step 15</b>	<b>copy running-config startup-config</b> <b>Example:</b> Device# <b>copy running-config startup-config</b>	(Optional) Saves your entries in the configuration file.



# Configuring the Call Home Service for Direct Cloud Access through an HTTPs Proxy Server

The Call Home service can be configured through an HTTPs proxy server. This configuration requires no user authentication to connect to CSSM.



**Note** Authenticated HTTPs proxy configurations are not supported.

To configure and enable the Call Home service through an HTTPs proxy, perform this procedure:

## SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **call-home**
4. **contact-email-address** *email-address*
5. **http-proxy** *proxy-address* **proxy-port** *port-number*
6. **profile** **CiscoTAC-1**
7. **destination transport-method** **http**
8. **no destination transport-method** **email**
9. **profile** *name*
10. **reporting smart-licensing-data**
11. **destination transport-method** **http**
12. **destination address** **http** *url*
13. **active**
14. **exit**
15. **exit**
16. **service call-home**
17. **ip http client proxy-server** *proxy-address* **proxy-port** *port-number*
18. **exit**
19. **copy running-config startup-config**

## DETAILED STEPS

	Command or Action	Purpose
Step 1	<b>enable</b> <b>Example:</b> Device> <b>enable</b>	Enables privileged EXEC mode. Enter your password, if prompted.
Step 2	<b>configure terminal</b> <b>Example:</b> Device# <b>configure terminal</b>	Enters global configuration mode.

	Command or Action	Purpose
<b>Step 3</b>	<b>call-home</b> <b>Example:</b> Device(config)# <b>call-home</b>	Enters Call Home configuration mode.
<b>Step 4</b>	<b>contact-email-address</b> <i>email-address</i> <b>Example:</b> Device(config-call-home)# <b>contact-email-addr</b> <b>sch-smart-licensing@cisco.com</b>	Configures the default email address as sch-smart-licensing@cisco.com.
<b>Step 5</b>	<b>http-proxy</b> <i>proxy-address</i> <b>proxy-port</b> <i>port-number</i> <b>Example:</b> Device(config-call-home)# <b>http-proxy 198.51.100.10</b> <b>port 3128</b>	Configures the proxy server information to the Call Home service.
<b>Step 6</b>	<b>profile CiscoTAC-1</b> <b>Example:</b> Device(config-call-home)# <b>profile CiscoTAC-1</b>	By default, the CiscoTAC-1 profile is inactive. To use this profile with the Call Home service, you must enable the profile.
<b>Step 7</b>	<b>destination transport-method http</b> <b>Example:</b> Device(config-call-home-profile)# <b>destination</b> <b>transport-method http</b>	Enables the Call Home service via HTTP.
<b>Step 8</b>	<b>no destination transport-method email</b> <b>Example:</b> Device(config-call-home-profile)# <b>no destination</b> <b>transport-method email</b>	Disables the Call Home service via email.
<b>Step 9</b>	<b>profile</b> <i>name</i> <b>Example:</b> Device(config-call-home)# <b>profile test1</b>	Enters Call Home destination profile configuration mode for the specified destination profile name. If the specified destination profile does not exist, it is created.
<b>Step 10</b>	<b>reporting smart-licensing-data</b> <b>Example:</b> Device(config-call-home-profile)# <b>reporting</b> <b>smart-licensing-data</b>	Enables data sharing with the Call Home service via HTTP.
<b>Step 11</b>	<b>destination transport-method http</b> <b>Example:</b> Device(config-call-home-profile)# <b>destination</b> <b>transport-method http</b>	Enables the HTTP message transport method.
<b>Step 12</b>	<b>destination address</b> <i>http url</i> <b>Example:</b>	Connects to CSSM.

	Command or Action	Purpose
	Device(config-call-home-profile)# <b>destination address http</b> <code>https://tools.cisco.com/its/service/oddoe/services/DCEService</code>	
<b>Step 13</b>	<b>active</b> <b>Example:</b> Device(config-call-home-profile)# <b>active</b>	Enables the destination profile.
<b>Step 14</b>	<b>exit</b> <b>Example:</b> Device(config-call-home-profile)# <b>exit</b>	Exits Call Home destination profile configuration mode and returns to Call Home configuration mode.
<b>Step 15</b>	<b>exit</b> <b>Example:</b> Device(config-call-home)# <b>exit</b>	Exits Call Home configuration mode and returns to global configuration mode.
<b>Step 16</b>	<b>service call-home</b> <b>Example:</b> Device(config)# <b>service call-home</b>	Enables the Call Home feature.
<b>Step 17</b>	<b>ip http client proxy-server proxy-address proxy-port port-number</b> <b>Example:</b> Device(config)# <b>ip http client proxy-server 198.51.100.10 port 3128</b>	Enables the Call Home feature.
<b>Step 18</b>	<b>exit</b> <b>Example:</b> Device(config)# <b>exit</b>	Exits global configuration mode and returns to privileged EXEC mode.
<b>Step 19</b>	<b>copy running-config startup-config</b> <b>Example:</b> Device# <b>copy running-config startup-config</b>	(Optional) Saves your entries in the configuration file.

## Configuring the Call Home Service for Cisco Smart Software Manager On-Prem

For information about Cisco Smart Software Manager On-Prem (formerly known as Cisco Smart Software Manager satellite), see <https://www.cisco.com/c/en/us/buy/smart-accounts/software-manager-satellite.html>.

To configure the Call Home service for the Cisco Smart Software Manager On-Prem (formerly known as Cisco Smart Software Manager satellite), perform this procedure:

### SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **call-home**

4. **no http secure server-identity-check**
5. **profile** *name*
6. **reporting smart-licensing-data**
7. **destination transport-method** *http*
8. **destination address** *http url*
9. **destination preferred-msg-format** {*long-text* | *short-text* | *xml*}
10. **active**
11. **exit**
12. **exit**
13. **ip http client source-interface** *interface-type interface-number*
14. **crypto pki trustpoint** *name*
15. **revocation-check** *none*
16. **end**
17. **copy running-config startup-config**

## DETAILED STEPS

	Command or Action	Purpose
<b>Step 1</b>	<b>enable</b> <b>Example:</b> Device> <b>enable</b>	Enables privileged EXEC mode. Enter your password if prompted.
<b>Step 2</b>	<b>configure terminal</b> <b>Example:</b> Device# <b>configure terminal</b>	Enters global configuration mode.
<b>Step 3</b>	<b>call-home</b> <b>Example:</b> Device(config)# <b>call-home</b>	Enters Call Home configuration mode.
<b>Step 4</b>	<b>no http secure server-identity-check</b> <b>Example:</b> Device(config-call-home)# <b>no http secure server-identity-check</b>	Disables server identity check when HTTP connection is established.
<b>Step 5</b>	<b>profile</b> <i>name</i> <b>Example:</b> Device(config-call-home)# <b>profile test1</b>	Enters Call Home destination profile configuration mode for the specified destination profile name. If the specified destination profile does not exist, it is created.
<b>Step 6</b>	<b>reporting smart-licensing-data</b> <b>Example:</b> Device(config-call-home-profile)# <b>reporting smart-licensing-data</b>	Enables data sharing with the Call Home service via HTTP.
<b>Step 7</b>	<b>destination transport-method</b> <i>http</i> <b>Example:</b>	Enables the HTTP message transport method.

	Command or Action	Purpose
	Device(config-call-home-profile)# <b>destination transport-method http</b>	
<b>Step 8</b>	<b>destination address http <i>url</i></b> <b>Example:</b> Device(config-call-home-profile)# <b>destination address http</b> <del>https://209.165.201.15:443/Transportgateway/services/DeviceRequestHandler</del> OR Device(config-call-home-profile)# <b>destination address http</b> <del>http://209.165.201.15:80/Transportgateway/services/DeviceRequestHandler</del>	Configures the destination URL (CSSM) to which Call Home messages are sent. <b>Note</b> Ensure the IP address or the fully qualified domain name (FQDN) in the destination URL matches the IP address or the FQDN as configured for the <b>Satellite Name</b> on the Cisco Smart Software Manager On-Prem.
<b>Step 9</b>	<b>destination preferred-msg-format {long-text   short-text   xml}</b> <b>Example:</b> Device(config-call-home-profile)# <b>destination preferred-msg-format xml</b>	(Optional) Configures a preferred message format. The default is XML.
<b>Step 10</b>	<b>active</b> <b>Example:</b> Device(config-call-home-profile)# <b>active</b>	Enables the destination profile. By default, a profile is enabled when it is created.
<b>Step 11</b>	<b>exit</b> <b>Example:</b> Device(config-call-home-profile)# <b>exit</b>	Exits Call Home destination profile configuration mode and returns to Call Home configuration mode.
<b>Step 12</b>	<b>exit</b> <b>Example:</b> Device(config-call-home)# <b>exit</b>	Exits Call Home configuration mode and returns to global configuration mode.
<b>Step 13</b>	<b>ip http client source-interface <i>interface-type interface-number</i></b> <b>Example:</b> Device(config)# <b>ip http client source-interface Vlan100</b>	Configures a source interface for the HTTP client. <b>Note</b> The <b>ip http client source-interface <i>interface-type interface-number</i></b> command is mandatory for a vrf interface.
<b>Step 14</b>	<b>crypto pki trustpoint <i>name</i></b> <b>Example:</b> Device(config)# <b>crypto pki trustpoint SLA-TrustPoint</b>	(Optional) Declares the trustpoint and a given name and enters ca-trustpoint configuration mode.
<b>Step 15</b>	<b>revocation-check none</b> <b>Example:</b> Device(ca-trustpoint)# <b>revocation-check none</b>	(Optional) Specifies that certificate checking is ignored.

	Command or Action	Purpose
<b>Step 16</b>	<b>end</b> <b>Example:</b> Device (ca-trustpoint) # <b>end</b>	(Optional) Exits ca-trustpoint configuration mode and returns to privileged EXEC mode.
<b>Step 17</b>	<b>copy running-config startup-config</b> <b>Example:</b> Device# <b>copy running-config startup-config</b>	(Optional) Saves your entries in the configuration file.

## Configuring the License Level

This procedure is optional. You can use this procedure to :

- Downgrade or upgrade licenses.
- Enable or disable an evaluation or extension license
- Clear an upgrade license

The required license level(s) needs to be configured on the device before registering. The following are the license levels available for Cisco Catalyst 9000 Series Switches:

Base licenses

- Network Essentials
- Network Advantage (includes Network Essentials)

Add-on licenses—These can be subscribed for a fixed term of three, five, or seven years.

- Digital Networking Architecture (DNA) Essentials
- DNA Advantage (includes DNA Essentials)

To configure the license levels, follow this procedure:

### SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **license boot level** *license\_level*
4. **exit**
5. **write memory**
6. **show version**
7. **reload**

### DETAILED STEPS

	Command or Action	Purpose
<b>Step 1</b>	<b>enable</b>	Enables privileged EXEC mode.

	Command or Action	Purpose															
	<b>Example:</b> Device> <b>enable</b>	Enter your password, if prompted.															
<b>Step 2</b>	<b>configure terminal</b> <b>Example:</b> Device# <b>configure terminal</b>	Enters global configuration mode.															
<b>Step 3</b>	<b>license boot level</b> <i>license_level</i> <b>Example:</b> Device(config)# <b>license boot level network-essentials</b>	Activates the licenses on the switch.															
<b>Step 4</b>	<b>exit</b> <b>Example:</b> Device(config)# <b>exit</b>	Returns to the privileged EXEC mode.															
<b>Step 5</b>	<b>write memory</b> <b>Example:</b> Device# <b>write memory</b>	Saves the license information on the switch.															
<b>Step 6</b>	<b>show version</b> <b>Example:</b> Device# <b>show version</b>  <table border="1"> <thead> <tr> <th>Technology-package</th> <th>Current</th> <th>Type</th> </tr> </thead> <tbody> <tr> <td>Technology-package</td> <td>Next</td> <td>reboot</td> </tr> <tr> <td>network-essentials</td> <td></td> <td>Smart License</td> </tr> <tr> <td>None</td> <td>network-essentials</td> <td></td> </tr> <tr> <td>License</td> <td>None</td> <td>Subscription Smart</td> </tr> </tbody> </table>	Technology-package	Current	Type	Technology-package	Next	reboot	network-essentials		Smart License	None	network-essentials		License	None	Subscription Smart	Shows license-level information.
Technology-package	Current	Type															
Technology-package	Next	reboot															
network-essentials		Smart License															
None	network-essentials																
License	None	Subscription Smart															
<b>Step 7</b>	<b>reload</b> <b>Example:</b> Device# <b>reload</b>	Reloads the device.															

## Registering a Device on CSSM

To register a device on CSSM, you must do the following tasks:

1. Generate a unique token from the CSSM.
2. Register the device with the generated token.

On successful registration, the device will receive an identity certificate. This certificate is saved on your device and automatically used for all future communications with Cisco. CSSM will attempt to renew the registration information every 30 days..

Additionally, license usage data is collected and a report is sent to you every month. If required, you can configure your Call Home settings to filter out sensitive information (like hostname, username and password) from the usage report.



**Note** Downgrading a device from Cisco IOS XE Fuji 16.9.1 to any prior release will migrate the smart license to traditional license. All smart license information on the device will be removed. In case the device needs to be upgraded back to Cisco IOS XE Fuji 16.9.1, the license status will remain in evaluation mode until the device is registered again in CSSM.

## Generating a New Token from CSSM

Tokens are generated to register new product instances to the virtual account.

- Step 1** Log in to CSSM from <https://software.cisco.com/#>.  
You must log in to the portal using the username and password provided by Cisco.
- Step 2** Click the **Inventory** tab.
- Step 3** From the **Virtual Account** drop-down list, choose the required virtual account.
- Step 4** Click the **General** tab.
- Step 5** Click **New Token**.

Cisco Software Central > Smart Software Licensing

Smart Software Licensing

Alerts | Inventory | License Conversion | Reports | Preferences | Satellites | Activity

Virtual Account: **Virtual Account 1**

28 Major | 9 Minor | Hide Alerts

**General** | Licenses | Product Instances | Event Log

**Virtual Account**

Description: Account 1  
Default Virtual Account: No

**Product Instance Registration Tokens**

The registration tokens below can be used to register new product instances to this virtual account.

New Token...

Token	Expiration Date	Description	Export-Controlled	Created By	Actions
ZjgxNzdjYjctOVRhMC00M2I0L...	Expired	Token 1	Allowed	User 1	Actions
ZTg2MjBjMzUjN2U0Ni00NDdkL...	Expired		Allowed	User 1	Actions

The **Create Registration Token** window is displayed.

- Step 6** In the **Description** field, enter the token description.
- Step 7** In the **Expire After** field, enter the number of days the token must be active.
- Step 8** (Optional) In the **Max. Number of Uses** field, enter the maximum number of uses allowed after which the token expires.



### Create Registration Token ? x

This will create a token that is used to register product instances, so that they can use licenses from this virtual account. Once it's created, go to the Smart Licensing configuration for your products and enter the token, to register them with this virtual account.

Virtual Account: Virtual Account 1

Description : Token 2

\* Expire After: 30 Days  
Between 1 - 365, 30 days recommended

Max. Number of Uses:    
The token will be expired when either the expiration or the maximum uses is reached

Allow export-controlled functionality on the products registered with this token i

Create Token
Cancel

**Step 9** Check the **Allow export-controlled functionality on the products registered with this token** checkbox.

Enabling this checkbox ensures Cisco compliance with US and country-specific export policies and guidelines. For more information, see <https://www.cisco.com/c/en/us/about/legal/global-export-trade.html>.

**Step 10** Click **Create Token** to create a token.

**Step 11** After the token is created, click **Copy** to copy the newly created token.

### Create Registration Token ? x

This will create a token that is used to register product instances, so that they can use licenses from this virtual account. Once it's created, go to the Smart Licensing configuration for your products and enter the token, to register them with this virtual account.

Virtual Account: Virtual Account 1

Description : Token 2

\* Expire After: 30 Days  
Between 1 - 365, 30 days recommended

Max. Number of Uses:    
The token will be expired when either the expiration or the maximum uses is reached

Allow export-controlled functionality on the products registered with this token i

Create Token
Cancel

## Registering a Device with the New Token

To register a device with the new token, perform this procedure:

## SUMMARY STEPS

1. enable
2. license smart register idtoken *token\_ID*
3. write memory

## DETAILED STEPS

	Command or Action	Purpose
Step 1	<b>enable</b> <b>Example:</b> Device> <b>enable</b>	Enables privileged EXEC mode. Enter your password, if prompted.
Step 2	<b>license smart register idtoken <i>token_ID</i></b> <b>Example:</b> Device# <b>license smart register idtoken</b> \$T14UytrNXBzEs1ck8veUtWag5abnZJOFdDa1FwbVRa%0Ab1FRMbz0%3D%0A	Registers the device with the back-end server using the token generated from CSSM.
Step 3	<b>write memory</b> <b>Example:</b> Device# <b>write memory</b>	Saves the license information on the device.

## Verifying the License Status After Registration

To verify the status of a license after registration, use the **show license all** command.

```

Device> enable
Device# show license all
Smart Licensing Status
=====

Smart Licensing is ENABLED

Registration:
  Status: REGISTERED
  Smart Account: Smart Account Name
  Virtual Account: Virtual Account 1
  Export-Controlled Functionality: Allowed
  Initial Registration: First Attempt Pending
  Last Renewal Attempt: SUCCEEDED on Jul 19 14:49:49 2018 IST
  Next Renewal Attempt: Jan 15 14:49:48 2019 IST
  Registration Expires: Jul 19 14:43:48 2019 IST

License Authorization:
  Status: AUTHORIZED on Jul 28 07:02:56 2018 IST
  Last Communication Attempt: SUCCEEDED on Jul 28 07:02:56 2018 IST
  Next Communication Attempt: Aug 27 07:02:56 2018 IST
  Communication Deadline: Oct 26 06:57:50 2018 IST

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
=====

C9200L DNA Advantage, 48-port Term license (C9200L-DNA-A-48):
  Description: C9200L DNA Advantage, 48-port Term license
  Count: 1
  Version: 1.0
  Status: AUTHORIZED

C9200L Network Advantage, 48-port license (C9200L-NW-A-48):
  Description: C9200L Network Advantage, 48-port license
  Count: 1
  Version: 1.0
  Status: AUTHORIZED

Product Information
=====
UDI: PID:C9200L-48P-4X,SN:JPG221300KP

Agent Version
=====
Smart Agent for Licensing: 4.4.13_rel/116
Component Versions: SA:(1_3_dev)1.0.15, SI:(dev22)1.2.1, CH:(rel5)1.0.3, PK:(dev18)1.0.3

Reservation Info
=====
License reservation: DISABLED
    
```

## Canceling a Device's Registration in CSSM

When your device is taken off the inventory, shipped elsewhere for redeployment, or returned to Cisco for replacement using the return merchandise authorization (RMA) process, you can use the **deregister** command to cancel the registration of your device.

To cancel device registration, follow this procedure:

### Before you begin

Layer 3 connection to CSSM must be available to successfully deregister the device.

### SUMMARY STEPS

1. **enable**
2. **license smart deregister**

### DETAILED STEPS

	Command or Action	Purpose
Step 1	<b>enable</b> <b>Example:</b>	Enables privileged EXEC mode. Enter your password, if prompted.

	Command or Action	Purpose
	Device> <code>enable</code>	
<b>Step 2</b>	<b>license smart deregister</b>  <b>Example:</b> Device# <code>license smart deregister</code>	Cancels the device's registration, and sends the device into evaluation mode. All smart licensing entitlements and certificates on the corresponding platform are removed. The device product instance stored on CSSM is also removed.

## Monitoring Smart Licensing Configuration

Use the following commands in privileged EXEC mode to monitor smart licensing configuration.

*Table 1: Commands to Monitor Smart Licensing Configuration*

Command	Purpose
<code>show license status</code>	Displays the compliance status of smart licensing. The following is the list of possible statuses: <ul style="list-style-type: none"> <li>• <b>Enabled:</b> Indicates that smart licensing is enabled.</li> <li>• <b>Waiting:</b> Indicates the initial state after your device has made a license entitlement request. The device establishes communication with Cisco and successfully registers itself with the CSSM.</li> <li>• <b>Registered:</b> Indicates that your device is able to communicate with the CSSM, and is authorized to initiate requests for license entitlements.</li> <li>• <b>Authorized:</b> Indicates that your device is in Compliance status and is authorized to use the requested type and count of licenses. The Authorization status has a lifetime of 90 days. At the end of 30 days, the device will send a new entitlement authorization request to the CSSM to renew the authorization.</li> <li>• <b>Out Of Compliance:</b> Indicates that one or more of your licenses are out of compliance. You must buy additional licenses.</li> <li>• <b>Eval Mode:</b> You must register the device with the CSSM within 90 days (of device usage). Otherwise, your device's evaluation period will expire.</li> <li>• <b>Evaluation Period Expired:</b> At the end of 90 days, if your device has not registered, the device enters Evaluation Expired mode.</li> </ul>

Command	Purpose
<b>show license all</b>	Displays all the entitlements in use. Additionally, it shows the associated licensing certificates, compliance status, UDI, and other details.
<b>show tech-support license</b>	Displays the detailed debug output.
<b>show license usage</b>	Displays the license usage information.
<b>show license summary</b>	Displays the summary of all the active licenses.

## Configuration Examples for Smart Licensing

The following sections provide various Smart Licensing configuration examples.

### Example: Viewing the Call Home Profile

#### Example

To display the Call Home profile, use the **show call-home profile all** command:

```
Device> enable
Device# show call-home profile all
Profile Name: CiscoTAC-1
  Profile status: ACTIVE
  Profile mode: Full Reporting
  Reporting Data: Smart Call Home, Smart Licensing
  Preferred Message Format: xml
  Message Size Limit: 3145728 Bytes
  Transport Method: http
  HTTP address(es): https://tools.cisco.com/its/service/oddce/services/DDCEService
  Other address(es): default

Periodic configuration info message is scheduled every 1 day of the month at 09:15

Periodic inventory info message is scheduled every 1 day of the month at 09:00

Alert-group                Severity
-----
crash                      debug
diagnostic                 minor
environment                warning
inventory                  normal

Syslog-Pattern             Severity
-----
APF-.-WLC_.*              warning
.*                          major
```

## Example: Viewing the License Information Before Registering

### Example

To display the license entitlements, use the **show license all** command:

```

Device> enable
Device# show license all
Smart Licensing Status
=====

Smart Licensing is ENABLED

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

License Authorization:
  Status: EVAL MODE
  Evaluation Period Remaining: 68 days, 0 hours, 30 minutes, 5 seconds

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
=====

C9200L DNA Advantage, 48-port Term license (C9200L-DNA-A-48):
  Description: C9200L DNA Advantage, 48-port Term license
  Count: 1
  Version: 1.0
  Status: EVAL MODE

C9200L Network Advantage, 48-port license (C9200L-NW-A-48):
  Description: C9200L Network Advantage, 48-port license
  Count: 1
  Version: 1.0
  Status: EVAL MODE

Product Information
=====
UDI: PID:C9200L-48P-4X,SN:JPG221300KP

Agent Version
=====
Smart Agent for Licensing: 4.4.13_rel/116
Component Versions: SA:(1_3_dev)1.0.15, SI:(dev22)1.2.1, CH:(rel15)1.0.3, PK:(dev18)1.0.3

Reservation Info
=====
License reservation: DISABLED

```

**Example**

To display the license usage information, use the **show license usage** command:

```
Device> enable
Device# show license usage
Load for five secs: 1%/0%; one minute: 0%; five minutes: 0%
No time source, 09:28:34.123 EDT Fri Jul 13 2018

License Authorization:
  Status: EVAL MODE
  Evaluation Period Remaining: 68 days, 0 hours, 29 minutes, 38 seconds

C9200L DNA Advantage, 48-port Term license (C9200L-DNA-A-48):
  Description: C9200L DNA Advantage, 48-port Term license
  Count: 1
  Version: 1.0
  Status: EVAL MODE

C9200L Network Advantage, 48-port license (C9200L-NW-A-48):
  Description: C9200L Network Advantage, 48-port license
  Count: 1
  Version: 1.0
  Status: EVAL MODE
```

**Example**

To display all the license summaries, use the **show license summary** command:

```
Device> enable
Device# show license summary

Smart Licensing is ENABLED

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

License Authorization:
  Status: EVAL MODE
  Evaluation Period Remaining: 68 days, 0 hours, 29 minutes, 33 seconds

License Usage:
  License                               Entitlement tag                Count Status
  -----
                               (C9200L-DNA-A-48)              1 EVAL MODE
                               (C9200L-NW-A-48)              1 EVAL MODE
```

**Example**

To display the license status information, use the **show license status** command:

```
Device> enable
Device# show license status
Load for five secs: 1%/0%; one minute: 0%; five minutes: 0%
No time source, 09:28:37.683 EDT Fri Jul 13 2018
```

```

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: UNREGISTERED
  Export-Controlled Functionality: Not Allowed

License Authorization:
  Status: EVAL MODE
  Evaluation Period Remaining: 68 days, 0 hours, 29 minutes, 35 seconds

```

## Example: Registering a Device

### Example

To register a device, use the **license smart register idtoken** command:

```

Device> enable
Device# license smart register idtoken
T14UytrNXBzbEs1ck8veUtWaG5abnZJOFdDa1FwbVVRa%0Ab1RMbz0%3D%0A
Device# write memory

```

## Example: Viewing the License Status After Registering

### Example

To display the license entitlements, use the **show license all** command:

```

Device> enable
Device# show license all
Smart Licensing Status
=====

Smart Licensing is ENABLED

Registration:
  Status: REGISTERED
  Smart Account: Smart Account Name
  Virtual Account: Virtual Account 1
  Export-Controlled Functionality: Allowed
  Initial Registration: First Attempt Pending
  Last Renewal Attempt: SUCCEEDED on Jul 19 14:49:49 2018 IST
  Next Renewal Attempt: Jan 15 14:49:48 2019 IST

```



```

Registration Expires: Jul 19 14:43:48 2019 IST

License Authorization:
  Status: AUTHORIZED on Jul 28 07:02:56 2018 IST
  Last Communication Attempt: SUCCEEDED on Jul 28 07:02:56 2018 IST
  Next Communication Attempt: Aug 27 07:02:56 2018 IST
  Communication Deadline: Oct 26 06:57:50 2018 IST

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
=====

C9200L DNA Advantage, 48-port Term license (C9200L-DNA-A-48):
  Description: C9200L DNA Advantage, 48-port Term license
  Count: 1
  Version: 1.0
  Status: AUTHORIZED

C9200L Network Advantage, 48-port license (C9200L-NW-A-48):
  Description: C9200L Network Advantage, 48-port license
  Count: 1
  Version: 1.0
  Status: AUTHORIZED

Product Information
=====
UDI: PID:C9200L-48P-4X,SN:JPG221300KP

Agent Version
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Smart Agent for Licensing: 4.4.13_rel/116
Component Versions: SA:(1_3_dev)1.0.15, SI:(dev22)1.2.1, CH:(rel5)1.0.3, PK:(dev18)1.0.3

Reservation Info
=====
License reservation: DISABLED

```

## Example

To display license usage information, use the **show license usage** command:

```

Device> enable
Device# show license usage
License Authorization:
  Status: AUTHORIZED on Jul 28 07:02:56 2018 IST

C9200L DNA Advantage, 48-port Term license (C9200L-DNA-A-48):
  Description: C9200L DNA Advantage, 48-port Term license

```

## Example: Viewing the License Status After Registering

```

Count: 1
Version: 1.0
Status: AUTHORIZED

C9200L Network Advantage, 48-port license (C9200L-NW-A-48):
Description: C9200L Network Advantage, 48-port license
Count: 1
Version: 1.0
Status: AUTHORIZED

```

### Example

To display all the license summaries, use the **show license summary** command:

```

Device> enable
Device# show license summary
Smart Licensing is ENABLED

Registration:
  Status: REGISTERED
  Smart Account: Smart Account Name
  Virtual Account: Virtual Account 1
  Export-Controlled Functionality: Allowed
  Last Renewal Attempt: SUCCEEDED
  Next Renewal Attempt: Jan 15 14:49:48 2019 IST

License Authorization:
  Status: AUTHORIZED
  Last Communication Attempt: SUCCEEDED
  Next Communication Attempt: Aug 27 07:02:56 2018 IST

License Usage:
  License                               Entitlement tag                Count Status
  -----
  C9200L DNA Advantage... (C9200L-DNA-A-48)      1 AUTHORIZED
  C9200L Network Advan... (C9200L-NW-A-48)      1 AUTHORIZED

```

### Example

To display the license status information, use the **show license status** command:

```

Device> enable
Device# show license status

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: Smart Account Name
Virtual Account: Virtual Account 1
Export-Controlled Functionality: Allowed
Initial Registration: First Attempt Pending
Last Renewal Attempt: SUCCEEDED on Jul 19 14:49:49 2018 IST
Next Renewal Attempt: Jan 15 14:49:47 2019 IST
Registration Expires: Jul 19 14:43:47 2019 IST
```

## License Authorization:

```
Status: AUTHORIZED on Jul 28 07:02:56 2018 IST
Last Communication Attempt: SUCCEEDED on Jul 28 07:02:56 2018 IST
Next Communication Attempt: Aug 27 07:02:56 2018 IST
Communication Deadline: Oct 26 06:57:50 2018 IST
```

## Additional References

### Related Documents

Related Topic	Document Title
Cisco Smart Software Manager Help	<a href="#">Smart Software Manager Help</a>
Cisco Smart Software Manager On-Prem	<a href="#">Cisco Smart Software Manager On-Prem</a>

### Technical Assistance

Description	Link
<p>The Cisco Support website provides extensive online resources, including documentation and tools for troubleshooting and resolving technical issues with Cisco products and technologies.</p> <p>To receive security and technical information about your products, you can subscribe to various services, such as the Product Alert Tool (accessed from Field Notices), the Cisco Technical Services Newsletter, and Really Simple Syndication (RSS) Feeds.</p> <p>Access to most tools on the Cisco Support website requires a Cisco.com user ID and password.</p>	<a href="http://www.cisco.com/support">http://www.cisco.com/support</a>

## Feature Information for Smart Licensing

The following table provides release information about the feature or features described in this module. This table lists only the software release that introduced support for a given feature in a given software release train. Unless noted otherwise, subsequent releases of that software release train also support that feature.

Use Cisco Feature Navigator to find information about platform support and Cisco software image support. To access Cisco Feature Navigator, go to [www.cisco.com/go/cfn](http://www.cisco.com/go/cfn). An account on Cisco.com is not required.

*Table 2: Feature Information for Smart Licensing*

<b>Feature Name</b>	<b>Releases</b>	<b>Feature Information</b>
Smart Licensing	Cisco IOS XE Fuji 16.9.2	Smart Licensing is a cloud-based, software license management solution that allows you to manage and track the status of your license and hardware and software usage trends.