



Smart Licensing

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Information About Cisco Smart Licensing

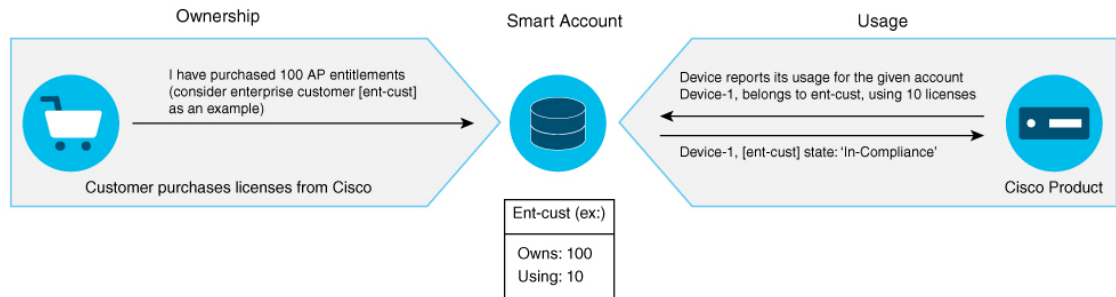
Cisco Smart Licensing is a flexible licensing model that provides you with an easier, faster, and more consistent way to purchase and manage software across the Cisco portfolio and across your organization. And it's secure – you control what users can access. With Smart Licensing you get:

- **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).

For a more detailed overview on Cisco Licensing, go to cisco.com/go/licensingguide.

Figure 1: Relationship Between Ownership, Smart Account, and Usage



Note Starting with Cisco IOS XE Gibraltar 16.12.1, the Cisco Catalyst 9800 Series Wireless Controller does not support satellite server for licensing reporting. You should use the Cisco Smart Software Manager (CSSM) for any licensing reporting.

Once your product is registered in CSSM, you will be able to view the license usage using your Smart Account or Virtual Account for every eight hours.



Note

- Smart Licensing registration is lost when the device switches from controller to autonomous mode and back. In such instances, you should re-register the controller to CSSM to restore licenses authorization.
- After adding new license in the Cisco Smart Software Manager (CSSM) for customer virtual account, run the **license smart renew auth** command on the controller to get the license status changed from Out Of Compliance to Authorised.



Note You need to execute the **write memory** command once in the following cases:

- When the Standby becomes Active after the first switchover.
- When the license de-registers after the switchover.

Access points support the following AIR licensing levels:

- AIR Network Essential (AIR-NE)
- AIR Network Advantage (AIR-NA)
- AIR DNA Essential (AIR-DNA-E)
- AIR DNA Advantage (AIR-DNA-A)



Note The *AIR-DNA-A* and *AIR-DNA-E* are the available license levels on the controller.

The *AIR-DNA-A* is the default mode.

You can configure as *AIR-DNA-A* or *AIR-DNA-E* license level and on term expiry, you can move to the Network Advantage or Network Essentials license level, if you do not want to renew the DNA license.

Smart Licensing Reservation Types

License reservation is a mechanism to reserve node locked licenses and install them on the controller.

The following are the license reservation types:

- Permanent License Reservation (PLR)—All licenses are reserved.
- Specified License Reservation (SLR)—Only specific licenses are reserved. Supports term licenses.

The controller supports four different entitlement registration or reporting on Smart Licensing or service reservation. Every connecting AP requires a Cisco DNA Center License to leverage the unique value properties of the controller.



Note The controller boots up with *AIR-DNA-A* as the default. Any change in the license level requires a reboot.

Entitlement Reporting

Entitlement reporting is nothing but reporting the number of access points on the controller to the Cisco Smart Software Manager (CSSM).

The entitlement reporting is based on the configured AIR license level on the controller.



Note Two types of entitlement reporting occurs when you are in *AIR-DNA-E* and *AIR-DNA-A* levels. For instance, if your controller reports 100 APs as count, your entitlement reporting displays *100 AIR-NE* and *100 AIR-DNA-E*. Similarly, it also displays *100 AIR-NA* and *100 AIR-DNA-A* to CSSM.

Creating a Smart Account

Procedure

- Step 1** Navigate to the Cisco Software Central web page:
<https://software.cisco.com/#>
The Cisco Software Central page is displayed.
- Step 2** From the **Important News** pop-up window, click **Get a Smart Account**.

(Or)

From the **Administration** area, click **Request a Smart Account**.

Follow the process to create a Smart Account.

Note You need to have a Smart Account to use Smart Licensing.

Using Smart Licensing

Before you begin

Follow the procedure given below to cover the high-level steps on how to use smart licensing:

Procedure

- Step 1** Configure your device for smart licensing.
- Step 2** Login to CSSM customer **Smart Account** > **Virtual Account** to generate a token.
- Step 3** Execute the following command on your device:

```
Device# license smart register idtoken <token-id>
```

Note You can get the *token-id* from the CSSM web portal.

Note You can use the **license smart register idtoken *token-id* force** command to register the device again even if the same device was registered with CSSM earlier.

Reregister a License (GUI)

Procedure

- Step 1** Choose **Administration** > **Licensing**.
 - Step 2** In the **Registration Status** field, click **Reregister** link. The **Registration** dialog box is displayed.
 - Step 3** Select the **Register this product instance if it is already registered** check box to forcefully register the product.
 - Step 4** Click **Finish**.
-

Using Specified License Reservation (SLR)

Procedure

Step 1 **configure terminal****Example:**

```
Device# configure terminal
```

Enters global configuration mode.

Step 2 **license smart reservation****Example:**

```
Device(config)# license smart reservation
```

Enables specified license reservation mode on the controller.

Step 3 **license smart reservation request local****Example:**

```
Device(config)# license smart reservation request local
```

Generates a request code.

Note Enter this request code in the Cisco Smart Software Manager portal:

```
CB-ZL-AIR-9500C-K9:9J4FVHMBXCO-BjSeUVwmn-D8
```

Step 4 **end****Example:**

```
Device(config)# end
```

Returns to privileged EXEC mode. Alternatively, you can also press **Ctrl-Z** to exit global configuration mode.

Enabling Smart Software Licensing

Procedure

Step 1 Navigate to the Cisco Software Central web page using the following link:

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

The Cisco Software Central page is displayed.

Step 2 From the **License** tab, click **Smart Software Licensing**.

The Smart Software Licensing page is displayed.

- Step 3** Click the **Inventory** tab to view **Virtual Account: Accounting** page details.
- Step 4** Click **New Token** to register the product instances to this virtual account.
The Create Registration Token page is displayed.
- Step 5** In the **Description** field, enter a description for the ID token.
- Step 6** Check the **Allow export-controlled functionality on the products registered with this token** checkbox to enable export-controlled functionality.
- Step 7** Click **Create Token**.
- Note** Licenses cannot be purchased with the wireless controller. All licenses can be purchased with access points.

Enabling Smart Call Home Reporting

Procedure

- Step 1** **configure terminal**
- Example:**
Device# `configure terminal`
Enters global configuration mode.
- Step 2** **call-home reporting contact-email-addr *email-address* http-proxy *proxy-server* port-number**
- Example:**
Device(config)# `call-home reporting contact-email-addr sample@cisco.com http-proxy 120.20.2.2 5`
Enables Call Home reporting.
- *port-number*—The valid range is from 1 to 65535.
- Step 3** **end**
- Example:**
Device(config)# `end`
Returns to privileged EXEC mode. Alternatively, you can also press **Ctrl-Z** to exit global configuration mode.
For more information on Smart Call Home, see:
https://www.cisco.com/c/en/us/td/docs/switches/lan/smart_call_home/book/SCH31_Ch3.html

Configuring AIR License Level (GUI)

Procedure

-
- Step 1** Choose **Administration > Licensing**.
- Step 2** Click **Change Wireless License Level**. The **Change Wireless License Level** dialog box is displayed.
- Step 3** Select the License Level using the drop-downs.
- Step 4** After changing the **New Level** values, click **Save & Reload (Or) Save without Reload**. Alternatively, you can click **Reload** to reload the device. During this time, you will lose network connectivity to the device. If you wish to continue, click **Yes**.
- Step 5** Click refresh icon to refresh the device.
-

Configuring AIR License Level (CLI)

Procedure

	Command or Action	Purpose
Step 1	configure terminal Example: Device# configure terminal	Enters global configuration mode.
Step 2	license air level {air-network-advantage air-network-essentials} Example: Device(config)# license air level air-network-advantage Device(config)# license air level air-network-essentials	Configures AIR license level. <ul style="list-style-type: none"> • air-network-advantage—Is the AIR network advantage license level. • air-network-essentials—Is the AIR network essential license level.
Step 3	end Example: Device(config)# end	Returns to privileged EXEC mode. Alternatively, you can also press Ctrl-Z to exit global configuration mode.

Configuring AIR Network Essentials License Level

Procedure

	Command or Action	Purpose
Step 1	configure terminal Example: Device# <code>configure terminal</code>	Enters global configuration mode.
Step 2	license air level network-essentials addon air-dna-essentials Example: Device(config)# <code>license air level network-essentials addon air-dna-essentials</code>	Configures AIR network essentials license level.
Step 3	end Example: Device(config)# <code>end</code>	Returns to privileged EXEC mode. Alternatively, you can also press Ctrl-Z to exit global configuration mode.

Configuring AIR Network Advantage License Level

Procedure

	Command or Action	Purpose
Step 1	configure terminal Example: Device# <code>configure terminal</code>	Enters global configuration mode.
Step 2	license air level air-network-advantage addon air-dna-advantage Example: Device(config)# <code>license air level air-network-advantage addon air-dna-advantage</code>	Configures AIR network advantage license level.
Step 3	end Example: Device(config)# <code>end</code>	Returns to privileged EXEC mode. Alternatively, you can also press Ctrl-Z to exit global configuration mode.

Enabling High-Performance License

From Cisco IOS XE Amsterdam 17.1.1s onwards, you can increase the capacity of the Cisco Catalyst C9800-L-K9 Wireless Controller using a high-performance license.

This high-performance license increases the capacity of the controller from 250 APs and 5000 clients to 500 APs and 10000 clients, and throughput from 5 Gbps to 10 Gbps.

Use the following procedure to increase the support of APs, clients, and throughput.

Before you begin

- License activation should be completed during bootup.
- Any change in the license configuration requires reboot of the controller. Ensure that you save the configuration before reload.
- Two licenses are required for the high-availability controllers.

Procedure

	Command or Action	Purpose
Step 1	configure terminal Example: Device# configure terminal	Enters global configuration mode.
Step 2	license wireless high-performance Example: Device(config)# license wireless high-performance	Increases the scale from 250 APs and 5000 clients to 500 APs and 10000 clients, and throughput from 5 Gbps to 10 Gbps. Use the no license wireless high-performance command to unconfigure the high-performance license. Note Reboot the controller for the performance license to take effect.
Step 3	end Example: Device(config)# end	Returns to privileged EXEC mode.
Step 4	show license summary Example: Device# show license summary Smart Licensing is ENABLED Registration: Status: REGISTERED Smart Account: BU Production Test Virtual Account: NplusOne Export-Controlled Functionality:	(Optional) Displays the summary of licenses.

	Command or Action	Purpose
	<pre> ALLOWED Last Renewal Attempt: SUCCEEDED Next Renewal Attempt: Apr 02 02:51:15 2020 IST License Authorization: Status: REGISTERED Last Communication Attempt: SUCCEEDED Next Communication Attempt: Oct 10 22:55:34 2019 IST License Usage: License Entitlement tag Count Status C9800-L performance ... (LIC_C9800L_PERF) 2 AUTHORIZED </pre>	
Step 5	<p>show wireless summary</p> <p>Example:</p> <pre> Device# show wireless summary Max APs supported : 500 Max clients supported : 10000 Access Point Summary Total Up Down ----- 802.11 2.4GHz 0 0 0 802.11 5GHz 0 0 0 802.11 dual-band 0 0 0 802.11 rx-dual-band 0 0 0 Client Serving(2.4GHz) 0 0 0 Client Serving(5GHz) 0 0 0 Monitor 0 0 0 Sensor 0 0 0 Client Summary Total Clients : 0 Excluded : 0 Disabled : 0 Foreign : 0 Anchor : 0 Local : 0 </pre>	(Optional) Displays the number of access points, radios, and wireless clients known to the controller.
Step 6	<p>show license usage</p> <p>Example:</p>	(Optional) Displays license usage information.

	Command or Action	Purpose
	<pre>Device# show license usage License Authorization: Status: AUTHORIZED on Oct 04 14:47:22 2019 IST C9800-L performance license (LIC_C9800L_PERF): Description: C9800-L higher performance license Count: 2 Version: 1.0 Status: AUTHORIZED Export status: NOT RESTRICTED</pre>	

Verifying Smart Licensing Configurations

To verify the smart licensing status and license usage, use the following command:

```
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: 73 days, 1 hours, 33 minutes, 8 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
=====
(AIR_network_essential):
  Description:
  Count: 1
  Version: 1.0
  Status: EVAL MODE

Product Information
=====
UDI: PID:L-AIR-9500C-K9,SN:9J4FVHMBXCO

Agent Version
=====
Smart Agent for Licensing: 4.5.3_rel/43
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
```

To verify the smart licensing status, use the following command:

```
Device# show license status
Tue Oct 02 07:34:36.023 IST
Smart Licensing is ENABLED
  Initial Registration: SUCCEEDED on Mon Oct 01 2018 21:55:46 IST
  Last Renewal Attempt: None
  Registration Expires: Sun Dec 29 2018 11:49:40 IST
License Authorization:
  Status: AUTHORIZED on Mon Oct 01 2018 21:55:46 IST
  Last Communication Attempt: SUCCEEDED on Mon Oct 01 2018 21:55:46 IST
  Next Communication Attempt: Thu Nov 02 2018 21:56:10 IST
  Communication Deadline: Sun Dec 29 2018 11:49:16 IST
```

To verify the air license level and smart licensing status, use the following command:

```
Device# show version
AIR License Level: AIR DNA Advantage
Next reload AIR license Level: AIR DNA Advantage

Smart Licensing Status: UNREGISTERED/No Licenses in Use
```