

Configure Smart Licensing

This chapter describes the procedures to configure smart licensing.

For more information about smart licensing, see Smart Licensing Overview.

For more information about the consumption model, see Consumption Model.

- Configure Smart Software Licensing Using CLI, on page 1
- Verify Smart Licensing Configuration Using CLI, on page 4
- Configuring Call Home HTTP Proxy Server Using CLI, on page 8
- Configuring and Activating Call Home Destination Profiles Using CLI, on page 8

Configure Smart Software Licensing Using CLI

Perform these steps to register or deregister the device. You can also manually renew the ID certificate and authorization.

Before you begin

You must have purchased the product for which you are adding the license. When you purchase the product, you are provided with a user name and password to the Cisco Smart Software Manager portal, from where you can generate the product instance registration tokens.

Procedure

Step 1 To register the device, perform Steps 5 through 8.

Step 2 To deregister the device, perform Step 9.

Step 3 To renew ID certificate, perform Step 10.

Step 4 To renew authorization, perform Steps 11.

Step 5 Login to your smart account in Cisco Smart Software Manager (https://software.cisco.com/#SmartLicensing-Inventory) or smart software manager satellite using the Cisco provided username and password.

Step 6 Generate a product instance registration token. Copy or download the token to a text file.

The token is used to register and activate a device, and assign the device to a virtual account.

Step 7 **license smart register idtoken** *token_ID*

Example:

```
RP/0/# license smart register idtoken YTk3NmVlYTAtODNlMy00NGZjLTgxN$
License command "license smart register idtoken " completed successfully.
Registration process is in progress. Use the 'show license status' command to check the
progress and result
```

In case the token is invalid, the initial registration fails.

```
RP/0/#%SMART_LIC-3-AGENT_REG_FAILED:Smart Agent for Licensing Registration with Cisco
licensing cloud failed: Response error: {"token":["The token
'YTk3NmVlYTAtODNlMy00NGZjLTgxNIQtMjNkOGFjZjJiZjAxLTE1MDAxMDQx%0AMEQMDF8bFRvVmRFYjhPaFdKSmVmT3ZiSEVxbVUxUkRIRW9lellMZHhCNGM1%0AIEMxCD0%3'
 is not valid."]}
```

In case there is a communication failure between the device and the portal or satellite, the registration fails as seen in the example below. CTC waits for 24 hours before attempting to register the device again. To force the registration, perform Step 8.

```
RP/0/ # show license status
Wed Jun  7 02:20:49.377 UTC
Smart Licensing is ENABLED
  Initial Registration: FAILED on Tue Jun 06 2017 23:50:17 UTC
    Failure reason: Fail to send out Call Home HTTP message

License Authorization:
  Status: No Licenses in Use
```

Step 8 **license smart register idtoken** *token_ID* force

Example:

```
RP/0/# license smart register idtoken YTk3NmVlYTAtODNlMy00NGZjLTgxN$ force
License command "license smart register idtoken " completed successfully.
Registration process is in progress. Use the 'show license status' command to check the
progress and result
```

Step 9 **license smart deregister**

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 **license smart deregister** command to cancel the registration on your device. All smart licensing entitlements and certificates on the platform are removed.

Note
Though the product instance has been de-registered from the Cisco license cloud service, smart licensing is still enabled.

Example:

```
RP/0/#license smart deregister
Wed Jun  7 14:56:04.312 UTC

License command "license smart deregister " completed successfully.
```

Step 10 **license smart renew id**

ID certificates are renewed automatically after six months. In case, the renewal fails, the product instance goes into unidentified state. You can manually renew the ID certificate.

Example:

```
RP/0/#license smart renew id
Fri Jun  9 05:11:18.982 UTC
Id certificate renew process is in progress. Use the 'show license status' command to check
 the progress and result
```

Step 11 **license smart renew auth**

Authorization periods are renewed by the Smart Licensing system every 30 days. As long as the license is in an 'Authorized' or 'Out-of-compliance' (OOC), the authorization period is renewed. Use the **license smart renew auth** command to make an on-demand manual update of your registration. Thus, instead of waiting 30 days for the next registration renewal cycle, you can issue this command to instantly find out the status of your license.

After 90 days, the authorization period expires and the status of the associated licenses display "AUTH EXPIRED". Use the **license smart renew auth** command to retry the authorization period renewal. If the retry is successful, a new authorization period begins.

Example:

```
RP/0/#show license all
Mon Jun 12 15:17:19.805 UTC

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

Smart Licensing is ENABLED

Registration:
  Status: REGISTERED
  Smart Account: NCS4K
  Virtual Account: NCS4K-VIRTUAL-AC
  Initial Registration: SUCCEEDED on Mon Jun 12 2017 15:12:35 UTC
  Last Renewal Attempt: None
  Next Renewal Attempt: Sat Dec 09 2017 15:14:50 UTC
  Registration Expires: Tue Jun 12 2018 09:45:25 UTC

License Authorization:
  Status: AUTH EXPIRED on Mon Jun 12 2017 15:15:27 UTC
  Last Communication Attempt: SUCCEEDED on Mon Jun 12 2017 15:15:27 UTC
  Next Communication Attempt: Mon Jun 12 2017 16:16:49 UTC
  Communication Deadline: DEADLINE EXCEEDED

License Usage
==============

NCS 4000 400G Packet/OTN/WDM - QSFP28/CFP2 - Lic. 100G OTN (NCS4K-4H-OPW-LO):
  Description: NCS 4000 400G Packet/OTN/WDM - QSFP28/CFP2 - Lic. 100G OTN
  Count: 1
  Version: 1.0
  Status: AUTH EXPIRED

NCS4K 100G Bandwidth Licenses (S-NCS4K-100G-LIC):
  Description: NCS4K 100G Bandwidth Licenses
  Count: 2
  Version: 1.0
  Status: AUTH EXPIRED

SW License for WDM CFP2 Pluggable port (S-CFP2-WDM-LIC):
  Description: SW License for WDM CFP2 Pluggable port
  Count: 1
  Version: 1.0
  Status: AUTH EXPIRED
```

```
Product Information
====================
UDI: SN:SAL1834Z18D,UUID:default-sdr

HA UDI List:
    Active:SN:SAL1834Z18D,UUID:default-sdr
    Standby:SN:SAL1834Z18D,UUID:default-sdr

Agent Version
=============
Smart Agent for Licensing: 2.2.0_rel/30
```

To manually renew the authorization, use the **license smart renew auth** command.

Example:

```
RP/0/#license smart renew auth
Fri Jun  9 10:55:43.262 UTC
Authorization process is in progress. Use the 'show license status' command to check the
progress and result
```

What to do next

You can use the show commands to verify the default Smart Licensing configuration. If any issue is detected, take corrective action before making further configurations.

Verify Smart Licensing Configuration Using CLI

Use the show commands to verify the default smart licensing configuration.

Procedure

Step 1 **show license status**

Displays the compliance status of Smart Licensing. The following status are reported:

- **Authorized:** Indicates that your device is able to communicate with the Cisco license manager, and is authorised to initiate requests for license entitlements.
- **Out-Of-Compliance:** Indicates that one or more of your licenses are out-of-compliance. You must buy additional licenses.

Example:

Output 1

```
RP/0/# show license status
Wed Jun  7 05:42:22.392 UTC

Smart Licensing is ENABLED
  Initial Registration: SUCCEEDED on Wed Jun 07 2017 05:40:12 UTC
  Last Renewal Attempt: None
  Next Renewal Attempt: Mon Dec 04 2017 05:40:11 UTC
  Registration Expires: Thu Jun 07 2018 05:37:25 UTC
```

```
License Authorization:
  Status: OUT OF COMPLIANCE on Wed Jun 07 2017 05:40:28 UTC
  Last Communication Attempt: SUCCEEDED on Wed Jun 07 2017 05:40:28 UTC
  Next Communication Attempt: Wed Jun 07 2017 17:40:27 UTC
  Communication Deadline: Tue Sep 05 2017 05:37:42 UTC
```

Example:

Output 2:

```
RP/0/# show license status
Wed Jun  7 12:08:09.919 UTC

Smart Licensing is ENABLED
  Initial Registration: SUCCEEDED on Wed Jun 07 2017 12:06:50 UTC
  Last Renewal Attempt: None
  Next Renewal Attempt: Mon Dec 04 2017 12:07:10 UTC
  Registration Expires: Thu Jun 07 2018 06:40:34 UTC

License Authorization:
  Status: AUTHORIZED on Wed Jun 07 2017 12:07:50 UTC
  Last Communication Attempt: SUCCEEDED on Wed Jun 07 2017 12:07:50 UTC
  Next Communication Attempt: Fri Jul 07 2017 12:07:49 UTC
  Communication Deadline: Tue Sep 05 2017 06:41:16 UTC
```

Step 2 **show license summary**

Example:

```
RP/0/#show license summary

Fri Jun  9 15:53:53.301 UTC

Smart Licensing is ENABLED

Registration:
  Status: REGISTERED
  Smart Account: NCS4K
  Virtual Account: NCS4K-VIRTUAL-AC
  Last Renewal Attempt: None
  Next Renewal Attempt: Wed Dec 06 2017 15:51:48 UTC

License Authorization:
  Status: OUT OF COMPLIANCE on Fri Jun 09 2017 15:53:08 UTC
  Last Communication Attempt: SUCCEEDED
  Next Communication Attempt: Sat Jun 10 2017 03:53:08 UTC

License Usage:
  License             Entitlement tag          Count  Status
  -----------------------------------------------------------------
  NCS 4000 400G Packet/OTN/WDM - QSFP28/CFP2 - Lic. 100G OTN(NCS4K-4H-OPW-LO)           1
  OUT OF COMPLIANCE
  NCS4K 100G Bandwidth Licenses(S-NCS4K-100G-LIC)          2   OUT OF COMPLIANCE
  SW License for WDM CFP2 Pluggable port(S-CFP2-WDM-LIC)            1   OUT OF COMPLIANCE
```

Step 3 **show license all**

Displays all entitlements in use. It can also be used to check if Smart Licensing is enabled. Additionally, it shows associated licensing certificates, compliance status, UDI, and other details.

Example:

```
RP/0/# show license all
```

```
Wed Jun  7 11:18:35.953 UTC

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

Smart Licensing is ENABLED

Registration:
  Status: REGISTERED
  Smart Account: NCS4K
  Virtual Account: Default
  Initial Registration: SUCCEEDED on Fri Jun 02 2017 14:27:19 UTC
  Last Renewal Attempt: SUCCEEDED on Fri Jun 02 2017 14:56:40 UTC
    Failure reason:
  Next Renewal Attempt: Wed Nov 29 2017 14:56:41 UTC
  Registration Expires: Sat Jun 02 2018 09:29:55 UTC

License Authorization:
  Status: AUTHORIZED on Tue Jun 06 2017 09:53:03 UTC
  Last Communication Attempt: FAILED on Tue Jun 06 2017 09:53:03 UTC
    Failure reason: Fail to send out Call Home HTTP message
  Next Communication Attempt: Thu Jul 06 2017 04:16:31 UTC
  Communication Deadline: Mon Sep 04 2017 04:16:31 UTC

License Usage
==============

 NCS 4000 400G Packet/OTN/WDM - QSFP28/CFP2 - Lic. 100G OTN (NCS4K-4H-OPW-LO):
  Description: NCS 4000 400G Packet/OTN/WDM - QSFP28/CFP2 - Lic. 100G OTN
  Count: 1
  Version: 1.0
  Status: PENDING

 NCS4K 100G Bandwidth Licenses (S-NCS4K-100G-LIC):
  Description: NCS4K 100G Bandwidth Licenses
  Count: 2
  Version: 1.0
  Status: PENDING

 SW License for WDM CFP2 Pluggable port (S-CFP2-WDM-LIC):
  Description: SW License for WDM CFP2 Pluggable port
  Count: 1
  Version: 1.0
  Status: PENDING

Product Information
===================
UDI: SN:SAL1834Z18D,UUID:default-sdr
HA UDI List:
    Active:SN:SAL1834Z18D,UUID:default-sdr
    Standby:SN:SAL1834Z18D,UUID:default-sdr

Agent Version
=============
Smart Agent for Licensing: 2.2.0_rel/30
```

Step 4 **show alarms brief system active**

The following conditions are reported if:

- One or more entitlements are out of compliance (LICENSE-OUT-OF-COMPLIANCE): This alarm is raised when the license consumption is more than the licenses that have been allocated in the Cisco Smart Software Manager (CSSM) license cloud server. The alarm is cleared when more licenses are purchased and updated in the CSSM license cloud server.

- Communication to the cloud server failure (LICENSE-COMM-FAIL): This alarm is raised when the router is not able to communicate with the CSSM license cloud server. The alarm is cleared. when the communication is restored.

Example:

```
RP/0/#show alarms brief system active
Fri Jun  9 14:21:20.143 UTC

------------------------------------------------------------------------------------------
Active Alarms
------------------------------------------------------------------------------------------
Location        Severity     Group           Set Time                    Description


------------------------------------------------------------------------------------------
0               Major        Environ         06/01/2017 17:58:15 UTC    Power Shelf
redundancy lost.


0/RP0           Minor        Fabric          06/01/2017 18:00:13 UTC    Fabric Plane-3 is
 Down


0               Major        Shelf           06/01/2017 18:00:32 UTC    Fabric Card
Redundancy Lost


0/RP0           Major        FPD_Infra       06/06/2017 09:18:38 UTC    One Or More FPDs
Need Upgrade Or Not In Current State

0/RP1           Major        FPD_Infra       06/06/2017 09:18:38 UTC    One Or More FPDs
Need Upgrade Or Not In Current State


0/9             Major        FPD_Infra       06/06/2017 09:25:23 UTC    One Or More FPDs
Need Upgrade Or Not In Current State


0/9             Minor        Controller      06/06/2017 09:25:33 UTC    Optics0/9/0/0 -
Port Pluggable Module Mismatched With Pre-Provisoned PPM


0/9             Minor        Controller      06/06/2017 09:25:33 UTC    Optics0/9/0/1 -
Improper Removal


0/9             Minor        Controller      06/06/2017 09:25:34 UTC    Optics0/9/0/11 -
Improper Removal


0/RP0           NotReported  Software        06/09/2017 10:55:51 UTC    One Or More
Entitlements Are Out Of Compliance
0/RP0           NotReported  Software        06/09/2017 14:16:29 UTC    Communications
Failure With Cisco Licensing Cloud
```

Configuring Call Home HTTP Proxy Server Using CLI

Perform these steps to configure the HTTP proxy server.

Procedure

Step 1 **configure**

Example:

```
RP/0/# configure
```

Step 2 **call-home**

Enters the call home configuration mode.

Example:

```
RP/0/(config)# call-home
RP/0/(config-call-home)#
```

Step 3 **http-proxy** *proxy-server-name* **port** *port-number*

Configures the port for the specified HTTP proxy server. Range is 1 to 65535.

Example:

```
RP/0/(config)# call-home
RP/0/(config-call-home)#http-proxy aa.bbb.cc.dd port 100
```

Step 4 **commit**

Configuring and Activating Call Home Destination Profiles Using CLI

Perform these steps to configure and activate a destination profile.

Before you begin

You must have at least one activated destination profile for Call Home messages to be sent. The CiscoTAC-1 profile exists by default and is active. To create and activate a different profile, perform the following steps.

Note Before you activate the new profile, you need to deactivate the CiscoTAC-1 profile using the **no active** command.

Procedure

Step 1 **configure**

Example:

```
RP/0/# configure
```

Step 2 **call-home**

Enters the call home configuration mode.

Example:

```
RP/0/(configure)# call-home
RP/0/(configure-call-home)#
```

Step 3 **profile** *profile-name*

Enters call home profile configuration mode to configure a new or existing profile.

Example:

```
RP/0/(configure-call-home)# profile my-profile
RP/0/(configure-call-home-profile)#
```

Step 4 **destination address http** *http-address-url*

Configures a destination URL to which Call Home and Smart Licensing messages are sent for this profile.

Example:

```
RP/0/(configure-call-home-profile)# destination address http
https://tools.cisco.com/its/service/oddce/services/DDCEService
```

Step 5 **reporting** {**all | smart-call-home-data | smart-licensing-data** }

The smart call home data, smart licensing data, or both are reported to the CSSM.

Example:

```
RP/0/(configure-call-home-profile)# reporting smart-call-home-data
RP/0/(configure-call-home-profile)# reporting smart-licensing-data
```

Step 6 **destination transport-method [email | http]**

Configures the transport method for this profile. Use http if the profile is used for sending Smart Licensing messages.

Example:

```
RP/0/(configure-call-home-profile)# destination
transport-method http
```

Step 7 **active**

Activates the destination profile.

Note
At least one destination profile must be active for Call Home messages to be sent.

Step 8 **commit**

Step 9 **show call-home profile** {**all** | *profile-name* }

Displays information about the destination profile.

Example:

```
RP/0/# show call-home profile all
```