



Cisco Smart Licensing

A new licensing model, based on a single technology, has been designed for Cisco called Smart Licensing that is intended to provide Enterprise Level Agreement-like capabilities for all Cisco products. The Cisco Smart Licensing is based on the Trust but Verify model.

Finding Feature Information

Your software release may not support all the features documented in this module. For the latest feature information and caveats, see the release notes for your platform and software release. To find information about the features documented in this module, and to see a list of the releases in which each feature is supported, see the Feature Information Table at the end of this document.

Use Cisco Feature Navigator to find information about platform support and Cisco software image support. To access Cisco Feature Navigator, go to <http://tools.cisco.com/ITDIT/CFN/>. An account on <http://www.cisco.com/> is not required.

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Hardware Compatibility Matrix for Cisco cBR Series Routers


Note

The hardware components introduced in a given Cisco IOS-XE Release are supported in all subsequent releases unless otherwise specified.

Table 1: Hardware Compatibility Matrix for the Cisco cBR Series Routers

Cisco CMTS Platform	Processor Engine	Interface Cards
Cisco cBR-8 Converged Broadband Router	<p>Cisco IOS-XE Release 3.15.0S and Later Releases</p> <p>Cisco cBR-8 Supervisor:</p> <ul style="list-style-type: none"> • PID—CBR-CCAP-SUP-160G • PID—CBR-CCAP-SUP-60G¹ • PID—CBR-SUP-8X10G-PIC 	<p>Cisco IOS-XE Release 3.15.0S and Later Releases</p> <p>Cisco cBR-8 CCAP Line Cards:</p> <ul style="list-style-type: none"> • PID—CBR-LC-8D30-16U30 • PID—CBR-LC-8D31-16U30 • PID—CBR-RF-PIC • PID—CBR-RF-PROT-PIC <p>Cisco cBR-8 Downstream PHY Modules:</p> <ul style="list-style-type: none"> • PID—CBR-D30-DS-MOD • PID—CBR-D31-DS-MOD <p>Cisco cBR-8 Upstream PHY Modules:</p> <ul style="list-style-type: none"> • PID—CBR-D30-US-MOD

¹ Effective with Cisco IOS-XE Release 3.17.0S, CBR-CCAP-SUP-60G supports 8 cable line cards. The total traffic rate is limited to 60Gbps, the total number of downstream service flow is limited to 72268, and downstream unicast low-latency flow does not count against the limits.

Prerequisites for Cisco Smart Licensing

- You must configure the DNS server using the **ip name-server** global configuration command.
- You must configure the IP DNS-based hostname-to-address translation using the **ip domain-lookup** global configuration command.
- Cisco Smart Licensing is enabled by default on the Cisco cBR router. However, you must ensure that the CiscoTAC-1 call-home profile points to the Cisco Smart Software Manager at the following URL using the **show call-home profile CiscoTAC-1** command:

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

The following is a sample output of the **show call-home profile CiscoTAC-1** command:

```
Router# show call-home profile CiscoTAC-1

Load for five secs: 10%/1%; one minute: 9%; five minutes: 8%
Time source is NTP, 16:49:35.525 PDT Thu Oct 29 2015

Profile Name: CiscoTAC-1
  Profile status: ACTIVE
  Profile mode: Anonymous Reporting Only
  Reporting Data: Smart Call Home, Smart Licensing
  Preferred Message Format: xml
  Message Size Limit: 3145728 Bytes
  Transport Method: http
  Email address(es): callhome@cisco.com
  HTTP address(es): https://tools.cisco.com/its/service/oddce/services/DDCEService

Periodic configuration info message is scheduled every 19 day of the month at 11:41

Periodic inventory info message is scheduled every 19 day of the month at 11:26

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

Syslog-Pattern            Severity
-----
.*                          major
```

- Ensure that you can ping the DNS server. If you are unable to ping the server, verify the connectivity to the NME port on the Cisco cBR router.



Note If you are using a Virtual Routing and Forwarding (VRF) instance, ensure that you can ping the VRF instance.

Information About Cisco Smart Licensing

Cisco Smart Licensing is software-based licensing that consists of tools and processes to authorize the customers for the usage and reporting of the Cisco products. The feature has the capability to capture the customer order and communicate with the Cisco Cloud License Service through Smart Call Home transport media to complete the product registration and authorization. If the Cisco products stop communicating with the Cisco Cloud License Service for 90 days, the cable interfaces in the Cisco products will be locked, which means the customer can no longer enable/disable the cable interfaces.

The Cisco Smart Licensing feature is aimed at giving users an experience of a single, standardized licensing solution for all Cisco products.

In the Cisco Smart Licensing Model, you can activate licensed features (also known as entitlements) without the use of a special software key or upgrade license file. You can activate the new functionality using the appropriate product commands and configurations and the functionality is activated. A software reboot is not required for the Cisco cBR router.

Effective with Cisco IOS-XE Release 3.15, the Cisco cBR router supports software activation using Cisco Smart Licensing. The Cisco Smart Licensing is enabled by default on the Cisco cBR router.



Note A LCHA license is needed for each working linecard that is protected by the protect linecard.

Downstream License

The DOCSIS 3.1 license scheme provides support to identify the DOCSIS 3.1 channels and their width. The DOCSIS 3.1 entitlement is DOCSIS 3.1 Downstream Channel License.

How to Configure Cisco Smart Licensing

This section contains the following:

Using Cisco Smart Licensing Agent on the Router

Procedure

- Step 1** Set up a Cisco Smart Account. See [Setting Up a Cisco Smart Account](#), on page 4.
- Step 2** Log in to the [Cisco Smart Software Manager](#).
- Step 3** (Optional) Create a virtual account. See [Creating Virtual Accounts](#), on page 11.
- Note** A single default virtual account is always available.
- Step 4** Create a product instance registration token. See [Creating a Product Instance Registration Token](#), on page 13.
- Step 5** Register the router with the Cisco Licensing Cloud using the product instance registration token. See [Registering the Router with the Cisco Licensing Cloud Using the Registration Token](#), on page 14.
- Step 6** Log in to the [Cisco Smart Software Manager](#) for managing licenses.
For more information, see the *Cisco Smart Software Manager User Guide*, which is accessible from the Cisco Smart Software Manager tool.
-

Setting Up a Cisco Smart Account

Cisco Smart Account enables you to fully utilize the license management features of the smart-enabled products.

Before You Begin

- Ensure that you have a CCO ID.

Procedure

- Step 1** Log in to [Cisco Software Workspace](#) (CSW) with your CCO ID.
- Step 2** Hover the cursor over the *Administration* tab and click **Create Smart Accounts**.

Figure 1: Creating Smart Account



- Step 3** Perform one of the following to select the Account Approver:
- To select yourself as the Approver, click the **Yes, I will be the Approver for the account** radio button.
 - To select other person as the Approver, click the **No, the person specified below will be the Approver for the account** radio button and specify the person's e-mail ID.
- Note** The specified Approver must have the authority to enter legal agreements. The Approver serves as the primary owner and nominates account administrators.

Figure 2: Selecting the Approver

 A screenshot of the 'Smart Account Request' form in Cisco Software Workspace. The form title is 'Smart Account Request' with a 'Help' link. Below the title, there is a paragraph explaining the purpose of the Smart Account. The 'Account Approver' section contains two radio buttons: 'Yes, I will be the Approver for the account' (which is selected) and 'No, the person specified below will be the Approver for the account'. Below these is a text input field for 'Enter person's company email address'. The 'Account Information' section shows 'Account Domain Identifier: test.big-u.edu Edit' and 'Account Name: big-u.edu'. A 'Continue' button is at the bottom left.

Step 4 If you are the Approver, perform the following:

- a) Enter the Account Name, Company/Organization Name, Country, and State/Province/Region information.
- b) (Optional) Click **Edit**. In the *Edit Account Identifier* window, enter a valid Proposed Domain Identifier and Contact Phone Number. Click **OK**.

Note The default domain identifier is the Approver e-mail domain. If you edit the domain identifier, the change goes through a manual approval process.

- c) Click **Continue** to select the legal address to be linked to your Cisco Smart Account.

Figure 3: Setting Up Account Information When You Are The Approver

The screenshot displays two overlapping windows from the Cisco Smart Account setup process. The background window is titled "Account Information" and contains the following text: "Below is the information for the company. The Account Domain Identifier is based on the email address of the Approver and must belong to the company that will own this account. Learn More". It shows the "Account Domain Identifier" as "test.big-u.edu" with an "Edit" link. Below this is a field for "Account Home" containing "big-u.edu" and a "Continue" button. The foreground window is titled "Edit Account Identifier" and contains the following text: "This Account Domain Identifier is generated based on the domain of the primary email address in your Cisco.com profile and will need to undergo an approval process if you change it. Cisco will contact you by telephone to complete this process, so please verify or enter your desired contact phone number below." It also includes a note: "If you do decide to change the Account Domain Identifier, it must maintain domain format and can include subdomains to the left of the domain, e.g., east.example.com or west.example.com." This window has two input fields: "Proposed Domain Identifier" with the value "twister.big-u.edu" and "Contact Phone Number" with the value "+1 408-855-1225". At the bottom of this dialog are "OK" and "Cancel" buttons.

Step 5 If you are not the Approver, perform the following:

- a) Enter the Account Name and an optional Message to Approver.
- b) (Optional) Click **Edit**. In the *Edit Account Identifier* window, enter a valid Proposed Domain Identifier. Click **OK**.

Note The default domain identifier is the Approver e-mail domain. If you edit the domain identifier, the change goes through a manual approval process.

- c) Click **Continue**.

Figure 4: Setting Up Account Information When You Are Not The Approver

The screenshot displays the 'Account Information' section of the Cisco Smart Account setup. It includes a text area for 'Message to Approver' and a 'Continue' button. An 'Edit Account Identifier' dialog box is overlaid on the right, showing the 'Proposed Domain Identifier' field and a warning message: 'Please enter a valid domain, i.e. example.com or west.example.com'. The dialog also has 'OK' and 'Cancel' buttons.

- Step 6** If you are not the Approver, the Approver will receive an e-mail and must perform the following:
- a) Click **Complete Smart Account Setup** in the received e-mail.

Figure 5: Complete Smart Account Setup Link in E-mail

New Cisco Smart Account - NTT Demo Account (Pending)

A new Cisco Smart Account has been requested for "NTT Demo Account" and you have been designated as an "Approver" for this account. A Smart Account is used for managing your company's relationship with Cisco, including initiatives such as Smart Licensing. This account is currently in a Pending state, as it requires a person designated as an "Approver" to complete the process. Review the Account Summary information below and click the Complete Smart Account Setup link to continue. As a part of this process, you will be asked to accept a Smart Account Agreement. If you'd like to look at the agreement beforehand, you can [preview the agreement](#).

[Complete Smart Account Setup »](#)

Note: You will need to log in with a Cisco.com ID. If you don't have one, you will need to [register for a new account](#).

- b) Click the appropriate radio button to accept, decline, or nominate another Approver. To nominate another Approver, enter the person's e-mail address. Click **Continue**.

Note If the Approver declines, the Cisco Smart Account is deleted. If the Approver nominates another approver, the new Approver must accept the role.

Figure 6: Accepting the Account Approver Role

The screenshot shows the 'Smart Account Setup' page in Cisco Software Workspace. The 'Account Approver' section contains the following text: 'You have been nominated as the Approver for the "NTT Demo Account" Smart Account. Do you accept this role? This person will approve terms and conditions for the account and will be the one completing the account setup process. Learn More'. There are three radio button options: 'Yes, I accept the role of Account Approver' (selected), 'No, I do not accept the role of Account Approver', and 'No, but I nominate the person specified below to be the Account Approver'. Below the options is a text input field for 'Enter person's company email address'. The 'Account Summary' section shows: 'Account Domain Identifier: ntdzla.com', 'Account Name: NTT Demo Account', and 'Requested By: Heather Deng (hdeng@cisco.com)'. A 'Continue' button is at the bottom.

- c) After accepting the Approver role, click the appropriate radio button to select the Account Domain Identifier or specify a different Account Domain Identifier.

Figure 7: Completing the Account Information

The screenshot shows the 'Account Information' section of the 'Smart Account Setup' page. It includes the text: 'Below is the information for the company. The Account Domain identifier is based on the email address of the Approver and must belong to the company that will own this account. Learn More'. There are two radio button options for 'Account Domain Identifier': 'ntdzla.com' (selected) and 'cisco.com'. A note states: 'this was entered by person requesting the account, because it does not match your email address, it will require an approval process with Cisco Learn More'. Below the options is a link: 'Specify a different Account Domain Identifier'. The 'Account Name' field contains 'NTT Demo Account'. 'Back' and 'Continue' buttons are at the bottom.

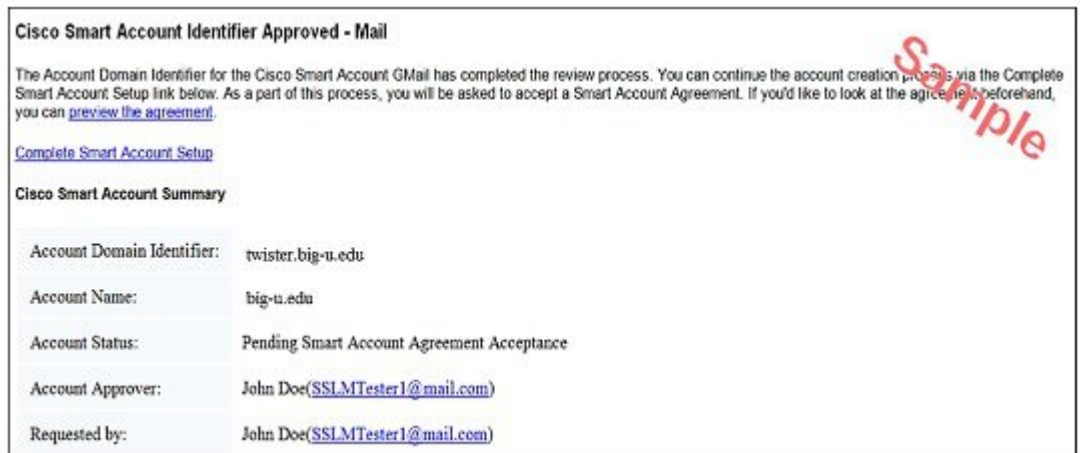
- d) Enter the Account Name and click **Continue**.

The Approver role is accepted and Cisco Smart Account is pending Account Domain approval.

Step 7 After the Account Domain is approved, the Approver will receive an e-mail and must perform the following:

- a) Click **Complete Smart Account Setup** in the received e-mail.

Figure 8: Cisco Smart Account Identifier Approved E-mail



- b) Enter the Account Name, Company/Organization Name, Country, and State/Province/Region information.

Figure 9: Completing the Account Information and Company/Organization Information

Cisco Software Workspace
Smart Accounts

Smart Account Setup

Account Information

The Account Domain Identifier has been approved and the account process can be completed, just a few more steps are required.

Account Domain Identifier: twister.big-u.edu

* Account Name: big-u.edu

Company/Organization Information

Enter information about the company that will own the account. This information will be used in the next step to search for the company or organization's primary address in Cisco's customer database.

* Company/Organization Name: Ug U

* Country: United States

State/Province/Region: California

[Continue](#)

- c) Click **Continue** to select the legal address to be linked to the Cisco Smart Account.

- d) Select the Company/Organization Primary Address using the Refine Search option and click **Continue**.

Figure 10: Selecting the Company/Organization Primary Address

Cisco Software Workspace
Smart Accounts

Smart Account Setup

In order to validate the identity of the new account, Cisco requires that the account be associated with an existing primary address in its customer database. All matching results are displayed below but only primary addresses can be associated with the Smart Account.

Select Company/Organization Primary Address: [Refine Search](#)

Company/Organization Name:

Country:

Address:

City:

State/Province/Region:

BIG U 170 W TASMAN DR, SAN JOSE, CA, UNITED STATES - (Primary Address)
 BIG U FOR US INTERNAL DEMO EVAL ONLY 2001 BRAINARD RD BLDG 57105, FORT HUACHUCA, AZ, UNITED STATES
 BIG U FOR US INTERNAL DEMO EVAL ONLY 3133 N MADERA MESA PL, TUCSON, AZ, UNITED STATES

- e) (Optional) Enter the e-mail addresses of the Additional Account Approvers and Additional Account Administrators.
 The initial Approver automatically becomes an Administrator. Additional Administrators can be created or assigned separately from the Approver creation process.

Figure 11: Nominating Additional Account Approvers and Administrators

Cisco Software Workspace
Smart Accounts

Smart Account Setup

Additional Account Approvers

You will be an Approver for this account, but you can also nominate other persons to act as Approvers. [Learn More](#)

Additional Approvers:

Additional Account Administrators

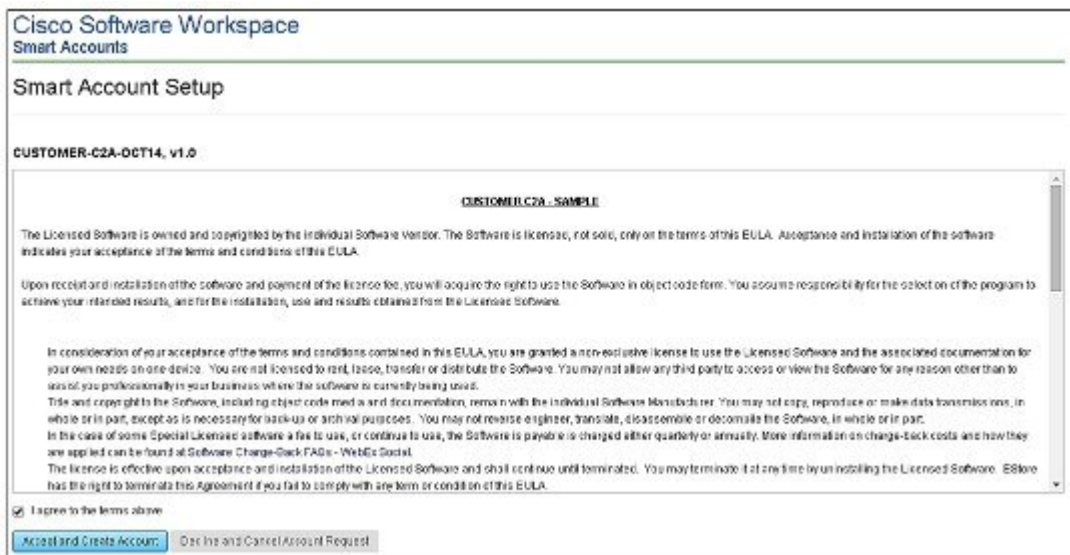
You will be an Administrator for this account, but you can also nominate other persons to act as Administrators. [Learn More](#)

Account Administrators:

- f) Click **Continue**.
 g) Review the agreement and check the **I agree to the terms above** check box to accept.

- h) Click **Accept and Create Account** to create the Cisco Smart Account.

Figure 12: Accepting the Agreement and Creating the Cisco Smart Account



You will receive an e-mail confirming the creation of the Cisco Smart Account.

Creating Virtual Accounts

This procedure is optional. Virtual accounts are collections of licenses and product instances. You can create virtual accounts in Cisco Smart Software Manager to organize the licenses for your company into logical entities. A single virtual account is available by default.

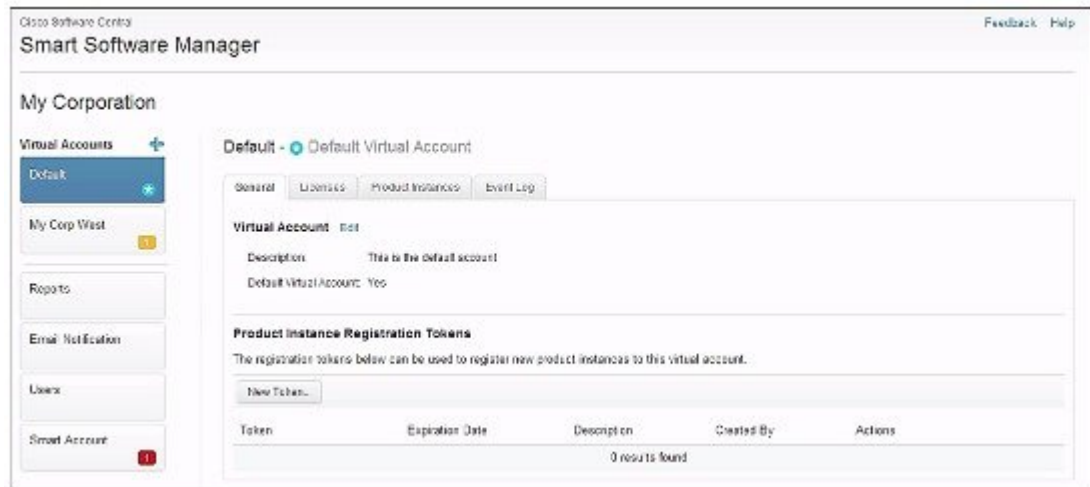
Before You Begin

Set up a Cisco Smart Account. See [Setting Up a Cisco Smart Account](#), on page 4.

Procedure

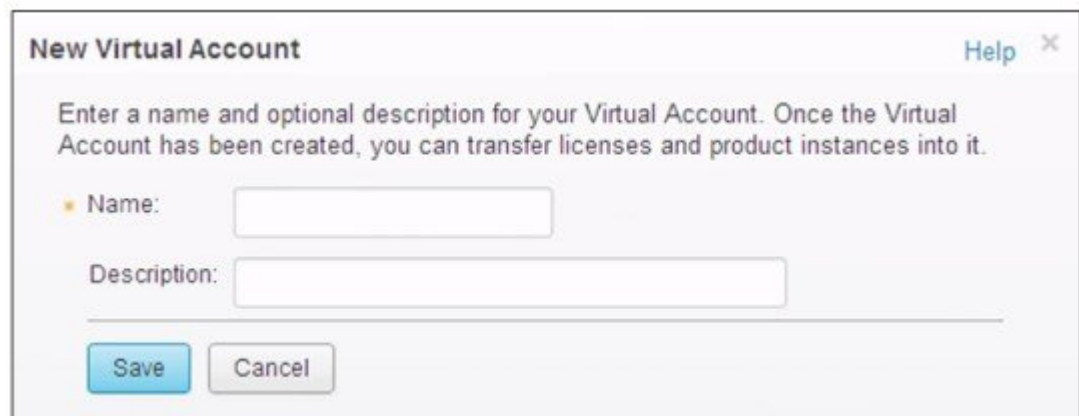
- Step 1** Log in to the [Cisco Smart Software Manager](#).
- Step 2** Click the + (plus) symbol to create a virtual account.

Figure 13: Creating a Virtual Account



- Step 3** In the New Virtual Account dialog box, enter the Name and Description.

Figure 14: New Virtual Account Dialog Box



- Step 4** Click Save.

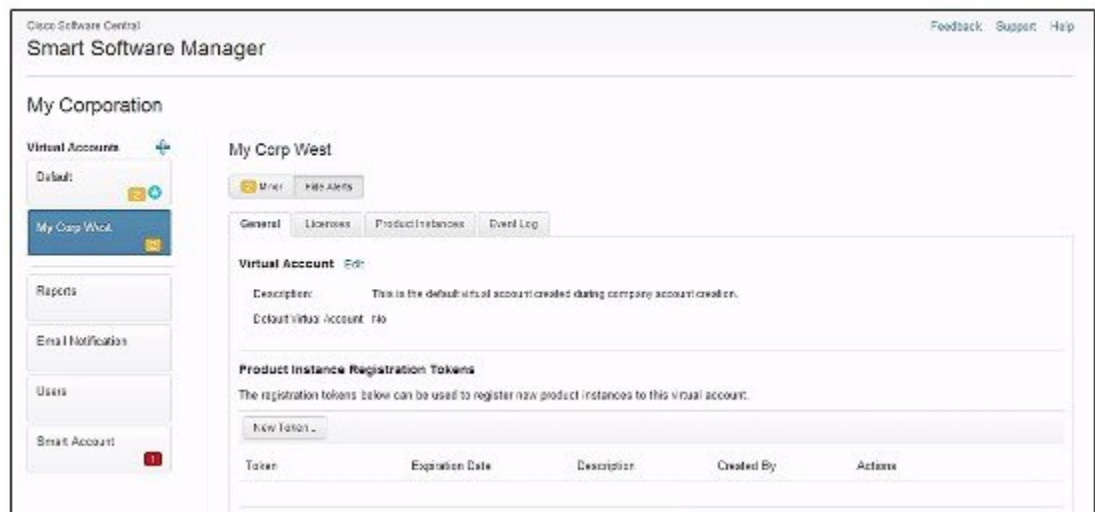
Creating a Product Instance Registration Token

Product instance registration tokens are used to register and consume a product for Cisco Smart Licensing. You must generate a token to register the product and add the product instance to a specified virtual account. Registration tokens can be valid from 1 to 365 days.

Procedure

- Step 1** Log in to the [Cisco Smart Software Manager](#).
- Step 2** Click an existing virtual account.
- Step 3** In the **General** tab, click **New Token**.

Figure 15: Creating a New Registration Token



- Step 4** In the **Create Registration Token** dialog box, enter the Description and Expire After information and click **Create Token**.

Figure 16: Create Registration Token Dialog Box

What to Do Next

Register the router with the Cisco Licensing Cloud. See [Registering the Router with the Cisco Licensing Cloud Using the Registration Token](#), on page 14.

Registering the Router with the Cisco Licensing Cloud Using the Registration Token

The router registration is performed only once for each product instance.

Before You Begin

- Ensure that you have the product instance registration token.

Procedure

	Command or Action	Purpose
Step 1	<p>enable</p> <p>Example: Router> enable</p>	<p>Enables privileged EXEC mode.</p> <ul style="list-style-type: none"> • Enter your password if prompted.

	Command or Action	Purpose
Step 2	license smart register idtoken <i>id-token</i> Example: <pre>Router# license smart register idtoken YjBkOWM5YTItMDFiOS00ZjBmLT11Y2YtODEzMzg1YTMzZDVhLTEz ODE0MjE0%0ANzc5NDF8U1BDUTAySWFRtmJqa1NnbmlzRUIyaG1YU 053L0pHZTNvUW9VTFpE%0AekxCOD0%3D%0A</pre> <p>The system will now contact the Cisco Smart Licensing servers to obtain authorization for Smart Licensing</p>	Registers the router instance with the Cisco licensing cloud.

How to Configure Cisco Smart Licensing using Transport Gateway Solution

The steps below describe how to configure Cisco smart licensing using transport gateway solution.

Before You Begin

Procedure

	Command or Action	Purpose
Step 1	enable Example: <pre>Router> enable</pre>	Enables privileged EXEC mode. <ul style="list-style-type: none"> • Enter your password if prompted.
Step 2	configure terminal Example: <pre>Router# configure terminal</pre>	Enters global configuration mode.
Step 3	crypto pki trustpoint Example: <pre>Router(config)# crypto pki trustpoint cisco</pre>	Declare the trustpoint that the router should use.
Step 4	enrollment terminal Example: <pre>Router(ca-trustpoint)# enrollment terminal</pre>	Specify manual cut-and-paste certificate enrollment.

	Command or Action	Purpose
Step 5	revocation-check <i>method</i> Example: Router(ca-trustpoint)# revocation-check none	Check the revocation status of a certificate. Method none means certificate checking is not required.
Step 6	crypto pki authenticate Example: Router(config)# crypto pki authenticate cisco	Authenticate the certification authority.
Step 7	no reporting smart-licensing-data Example: Router(config)# call-home Router(cfg-call-home)# profile CiscoTAC-1 Router(cfg-call-home-profile)# no reporting smart-licensing-data	Configure the default profile to not to communicate with tools.cisco.com.
Step 8	destination address http <i>address</i> Example: Router(config)# call-home Router(cfg-call-home)# profile Custom-Profile-1 Router(cfg-call-home-profile)# reporting smart-licensing-data Router(cfg-call-home-profile)# destination transport-method http Router(cfg-call-home-profile)# no destination transport-method email Router(cfg-call-home-profile)# destination address http https://TDS.IP.HERE:8443/Transportgateway/services/DeviceRequestHandler	Configure the custom profile to communicate with the transport server, here we use Custom Profile 1 as the name of the custom profile.

Verifying Cisco Smart Licensing Configuration

Use the following commands to verify the Cisco Smart Licensing Configuration on the Cisco cBR router:

- **show license all**—Displays all the license information.

The following is a sample output of this command:

```
Router# show license all

Smart Licensing Status
=====

Smart Licensing is ENABLED

Registration:
  Status: REGISTERED
  Virtual Account: auto-test-1
```



```

Initial Registration: SUCCEEDED on Mar  5 02:01:03 2015 UTC
Last Renewal Attempt: None
Next Renewal Attempt: Sep  1 02:03:51 2015 UTC
Registration Expires: Never

License Authorization:
Status: OUT OF COMPLIANCE on Mar  5 03:34:54 2015 UTC
Last Communication Attempt: SUCCEEDED on Mar  5 03:35:57 2015 UTC
Next Communication Attempt: Mar  5 15:35:57 2015 UTC
Communication Deadline: Jun  3 03:32:51 2015 UTC

License Usage
=====

(US_License):
Description:
Count: 64
Version: 1.0
Status: AUTHORIZED

(DS_License):
Description:
Count: 768
Version: 1.0
Status: AUTHORIZED

(WAN_License):
Description:
Count: 8
Version: 1.0
Status: OUT OF COMPLIANCE

Product Information
=====
UDI: PID:CBR-8-CCAP-CHASS,SN:FXS1739Q0NT

HA UDI List:
Active:PID:CBR-8-CCAP-CHASS,SN:FXS1739Q0NT
Standby:PID:CBR-8-CCAP-CHASS,SN:FXS1739Q0NT

Agent Version
=====
Smart Agent for Licensing: 1.2.1_throttle/5
Component Versions: SA:(1_2_1_throttle)1.1.0, SI:(rel20)1.0.1, CH:(rel4)1.0.15,
PK:(rel16)1.0.7

```

- **show license status**—Displays the license status information.

The following is a sample output of this command:

```

Router# show license status

Smart Licensing is ENABLED

Registration:
Status: REGISTERED
Virtual Account: auto-test-1
Initial Registration: SUCCEEDED on Mar  5 02:01:03 2015 UTC
Last Renewal Attempt: None
Next Renewal Attempt: Sep  1 02:03:51 2015 UTC
Registration Expires: Never

License Authorization:
Status: OUT OF COMPLIANCE on Mar  5 03:34:54 2015 UTC
Last Communication Attempt: SUCCEEDED on Mar  5 03:35:57 2015 UTC
Next Communication Attempt: Mar  5 15:35:56 2015 UTC
Communication Deadline: Jun  3 03:32:50 2015 UTC

```

- **show license summary**—Displays the license summary information.

The following is a sample output of this command:

```
Router# show license summary

Smart Licensing is ENABLED

Registration:
  Status: REGISTERED
  Virtual Account: auto-test-1
  Last Renewal Attempt: None
  Next Renewal Attempt: Sep  1 02:03:51 2015 UTC

License Authorization:
  Status: OUT OF COMPLIANCE
  Last Communication Attempt: SUCCEEDED
  Next Communication Attempt: Mar  5 15:35:56 2015 UTC

License Usage:
-----
                License           Entitlement tag      Count Status
-----
                                (US_License) 64      AUTHORIZED
                                (DS_License) 768     AUTHORIZED
                                (WAN_License) 8        OUT OF COMPLIANCE
```

- **show license tech support**—Displays the license technical support information.

The following is a sample output of this command:

```
Router# show license tech support

Smart Licensing Tech Support info

Smart Licensing Status
=====

Smart Licensing is ENABLED

Registration:
  Status: REGISTERED
  Virtual Account: auto-test-1
  Initial Registration: SUCCEEDED on Mar  5 02:01:03 2015 UTC
  Last Renewal Attempt: None
  Next Renewal Attempt: Sep  1 02:03:51 2015 UTC
  Registration Expires: Never

License Authorization:
  Status: OUT OF COMPLIANCE on Mar  5 03:34:54 2015 UTC
  Last Communication Attempt: SUCCEEDED on Mar  5 03:35:57 2015 UTC
  Next Communication Attempt: Mar  5 15:35:57 2015 UTC
  Communication Deadline: Jun  3 03:32:51 2015 UTC

Evaluation Period:
  Evaluation Mode: Not In Use
  Evaluation Period Remaining: 89 days, 23 hours, 25 minutes, 40 seconds

License Usage
=====
Handle: 1
  License: 'nullPtr'
  Entitlement Tag:
  regid.2014-11.com.cisco.US_License,1.0_a3f32909-2c71-426c-b3e0-eeefc946f9b3
  Description: <empty>
  Count: 64
  Version: 1.0
  Status: AUTHORIZED(3)
  Status time: Mar  5 03:34:54 2015 UTC
  Request Time: Mar  5 03:34:17 2015 UTC

Handle: 2
  License: 'nullPtr'
  Entitlement Tag:
  regid.2014-11.com.cisco.DS_License,1.0_71ad0ae1-5e5e-4f02-b380-d2e1b8dcfa03
```

```

Description: <empty>
Count: 768
Version: 1.0
Status: AUTHORIZED(3)
Status time: Mar  5 03:34:54 2015 UTC
Request Time: Mar  5 03:34:17 2015 UTC

Handle: 3
License: 'nullPtr'
Entitlement Tag:
regid.2014-11.com.cisco.WAN_License,1.0_3d8bb7ba-1a92-4f01-a4aa-a4479f1d7612
Description: <empty>
Count: 8
Version: 1.0
Status: OUT OF COMPLIANCE(4)
Status time: Mar  5 03:34:54 2015 UTC
Request Time: Mar  5 03:34:17 2015 UTC

Product Information
=====
UDI: PID:CBR-8-CCAP-CHASS,SN:FXS1739Q0NT

HA UDI List:
Active:PID:CBR-8-CCAP-CHASS,SN:FXS1739Q0NT
Standby:PID:CBR-8-CCAP-CHASS,SN:FXS1739Q0NT

Agent Version
=====
Smart Agent for Licensing: 1.2.1 throttle/5
Component Versions: SA:(1_2_1_throttle)1.1.0, SI:(rel20)1.0.1, CH:(rel14)1.0.15,
PK:(rel16)1.0.7

Upcoming Scheduled Jobs
=====
Current time: Mar  5 03:37:46 2015 UTC
IdCert Expiration Warning: Jan  4 02:00:41 2016 UTC (304 days, 22 hours, 22 minutes,
55 seconds remaining)
Daily: Mar  6 03:21:11 2015 UTC (23 hours, 43 minutes, 25 seconds remaining)
Certificate Renewal: Sep  1 02:03:51 2015 UTC (179 days, 22 hours, 26 minutes, 5 seconds
remaining)
Certificate Expiration Check: Mar  4 02:00:41 2016 UTC (364 days, 22 hours, 22 minutes,
55 seconds remaining)
Authorization Renewal: Mar  5 15:35:57 2015 UTC (11 hours, 58 minutes, 11 seconds
remaining)
Authorization Expiration Check: Jun  3 03:32:51 2015 UTC (89 days, 23 hours, 55 minutes,
5 seconds remaining)
Init Flag Check: Not Available

License Certificates
=====
Production Cert: True
PIID: 36bf91ae-0577-4213-9e62-1b6ee0add02f
Licensing Certificated:
  Id certificate Info:
    Start Date: Mar  5 01:57:54 2015 UTC
    Expiry Date: Mar  4 01:57:54 2016 UTC
    Version Number: 3
    Serial Number: 134418
    Common Name: 05FB26B1A58A106DEA6878C346432186D08BC1C5::1,2

  Signing certificate Info:
    Start Date: Jun 14 20:18:52 2013 UTC
    Expiry Date: Apr 24 21:55:42 2033 UTC
    Version Number: 3
    Serial Number: 3
    Common Name: MMI Signer

  Sub CA Info:
    Start Date: Apr 24 22:19:15 2013 UTC
    Expiry Date: Apr 24 21:55:42 2033 UTC
    Version Number: 3
    Serial Number: 2
    Common Name: Smart Licensing CA - DEV

```

```

HA Info
=====
RP Role: Active
Chassis Role: Active
Behavior Role: Active
RMF: True
CF: True
CF State: Stateless

Other Info
=====
Software ID: regid.2014-12.com.cisco.CBR8V1,1.0_95948658-0b8b-4e8f-838d-b17020364ca9
Agent State: OOC
TS enable: True
Transport: Callhome
Locale: en_US.UTF-8
Debug flags: 0x7
Privacy Send Hostname: True
Privacy Send IP: True
Build type:: Production
sizeof(char)   : 1
sizeof(int)    : 4
sizeof(long)   : 4
sizeof(char *) : 8
sizeof(time_t) : 4
sizeof(size_t) : 8
Endian: Big
enableOnInit:  True
routingReadyByEvent: True
systemInitByEvent: True
WaitForHaRole:  False
standbyIsHot:   True
chkPtType:     2
delayCommInit: False
roleByEvent:   True
maxTraceLength: 150
traceAlwaysOn: False
debugFlags:    7

```

- **show license udi**—Displays the license Unique Device Identifier (UDI) information.

The following is a sample output of this command:

```

Router# show license udi

UDI: PID:CBR-8-CCAP-CHASS,SN:FXS1739Q0NT

HA UDI List:
  Active:PID:CBR-8-CCAP-CHASS,SN:FXS1739Q0NT
  Standby:PID:CBR-8-CCAP-CHASS,SN:FXS1739Q0NT

```

- **show license usage**—Displays the license usage information.

The following is a sample output of this command:

```

Router# show license usage

License Authorization:
  Status: OUT OF COMPLIANCE on Mar  5 03:34:54 2015 UTC

(US_License):
  Description:
  Count: 64
  Version: 1.0
  Status: AUTHORIZED

(DS_License):
  Description:
  Count: 768
  Version: 1.0

```

```
Status: AUTHORIZED

(WAN_License):
Description:
Count: 8
Version: 1.0
Status: OUT OF COMPLIANCE
```

- **show call-home profile all**—Displays the call home profile information for all configured profiles.

The following is a sample output of this command:

```
Router# 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
Email address(es): callhome@cisco.com
HTTP address(es): https://tools.cisco.com/its/service/oddce/services/DDCEService

Periodic configuration info message is scheduled every 25 day of the month at 10:03

Periodic inventory info message is scheduled every 25 day of the month at 09:48

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

Syslog-Pattern           Severity
-----
.*                       major
```

- **show call-home smart-licensing statistics**—Displays the call home smart licensing statistics information.

The following is a sample output of this command:

```
Router# show call-home smart-licensing statistics

Success: Successfully sent and response received.
Failed : Failed to send or response indicated error occurred.
Inqueue: In queue waiting to be sent.
Dropped: Dropped due to incorrect call-home configuration.

Msg Subtype      Success Failed Inqueue Dropped Last-sent (GMT-06:00)
-----
REGISTRATION     1         0         0         0    2015-03-13 13:12:13
ACKNOWLEDGEMENT 1         0         0         0    2015-03-13 13:12:20
ENTITLEMENT      5         0         0         0    2015-03-13 13:22:18
```

Use the following commands to verify the DOCSIS 3.1 Downstream License on the Cisco cBR router:

- **show cable license all | begin D3.1**—Displays all the DOCSIS 3.1 downstream license information.

The following is a sample output of this command:

```
Router# show cable license all | begin D3.1

Load for five secs: 21%/1%; one minute: 52%; five minutes: 52%
Time source is NTP, 10:41:11.175 PST Mon May 9 2016
-----
Entitlement: DOCSIS 3.1 Downstream Channel License
```

```
Consumed count: 31
Consumed count reported to SmartAgent: 0
Enforced state: No Enforcement
```

Troubleshooting Cisco Smart Licensing

Before taking the steps below to troubleshoot the Cisco Smart Licensing, the customers should first make sure the configuration is correct and see if they are able to ping the HTTP address they have configured for the smart license. The output of the **show call-home smart-licensing statistics** command should have REGISTERED and ACKNOWLEDGE information. And check the output of **show logging | include SMART | CALL**.

Manually Renewing the Smart License Registration

The license agent automatically renews the registration information with Cisco every 30 days. You may need to manually renew the registration if the license is out of compliance and it needs to be registered immediately.

Procedure

	Command or Action	Purpose
Step 1	enable Example: Router> enable	Enables privileged EXEC mode. • Enter your password if prompted.
Step 2	license smart renew Example: Router# license smart renew	Manually renews the license registration of the device instance with Cisco.

Unregistering the Router from Cisco Smart Licensing

You can unregister the router from Cisco Smart Licensing. You may need to unregister the router for the Return Material Authorization (RMA) of the router.

Procedure

	Command or Action	Purpose
Step 1	enable Example: Router> enable	Enables privileged EXEC mode. • Enter your password if prompted.

	Command or Action	Purpose
Step 2	license smart deregister Example: Router# <code>license smart deregister</code>	Removes the Cisco Smart Licensing registration for the device instance. All Cisco Smart Licensing certificates and entitlements are removed.

Additional References

Related Documents

Related Topic	Document Title
Cisco IOS commands	Cisco IOS Master Command List, All Releases
Cisco Smart Licensing	Cisco Smart Software Licensing

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>	http://www.cisco.com/support

Feature Information for Cisco Smart Licensing

Use Cisco Feature Navigator to find information about platform support and software image support. Cisco Feature Navigator enables you to determine which software images support a specific software release, feature set, or platform. To access Cisco Feature Navigator, go to <http://tools.cisco.com/ITDIT/CFN/>. An account on <http://www.cisco.com/> is not required.

**Note**

The below 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.

Table 2: Feature Information for Cisco Smart Licensing

Feature Name	Releases	Feature Information
Downstream License	Cisco IOS-XE Release 3.18.0SP	This feature was introduced on the Cisco cBR Series Converged Broadband Routers.
Cisco Smart Licensing	Cisco IOS-XE Release 3.15.0S	This feature was introduced on the Cisco cBR Series Converged Broadband Routers.