

Troubleshoot Catalyst Center Licensing Use Cases and Workflows

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Introduction

This document describes different Cisco Catalyst Center licensing scenarios that are frequently encountered.

Prerequisites

Requirements

There are no specific requirements for this document.

Components Used

This document is not restricted to specific software and hardware versions.

The information in this document was created from the devices in a specific lab environment. All of the devices used in this document started with a cleared (default) configuration. If your network is live, ensure that you understand the potential impact of any command.

Background Information

This document provides the step-by-step details of how to use the License Manager workflow of Cisco

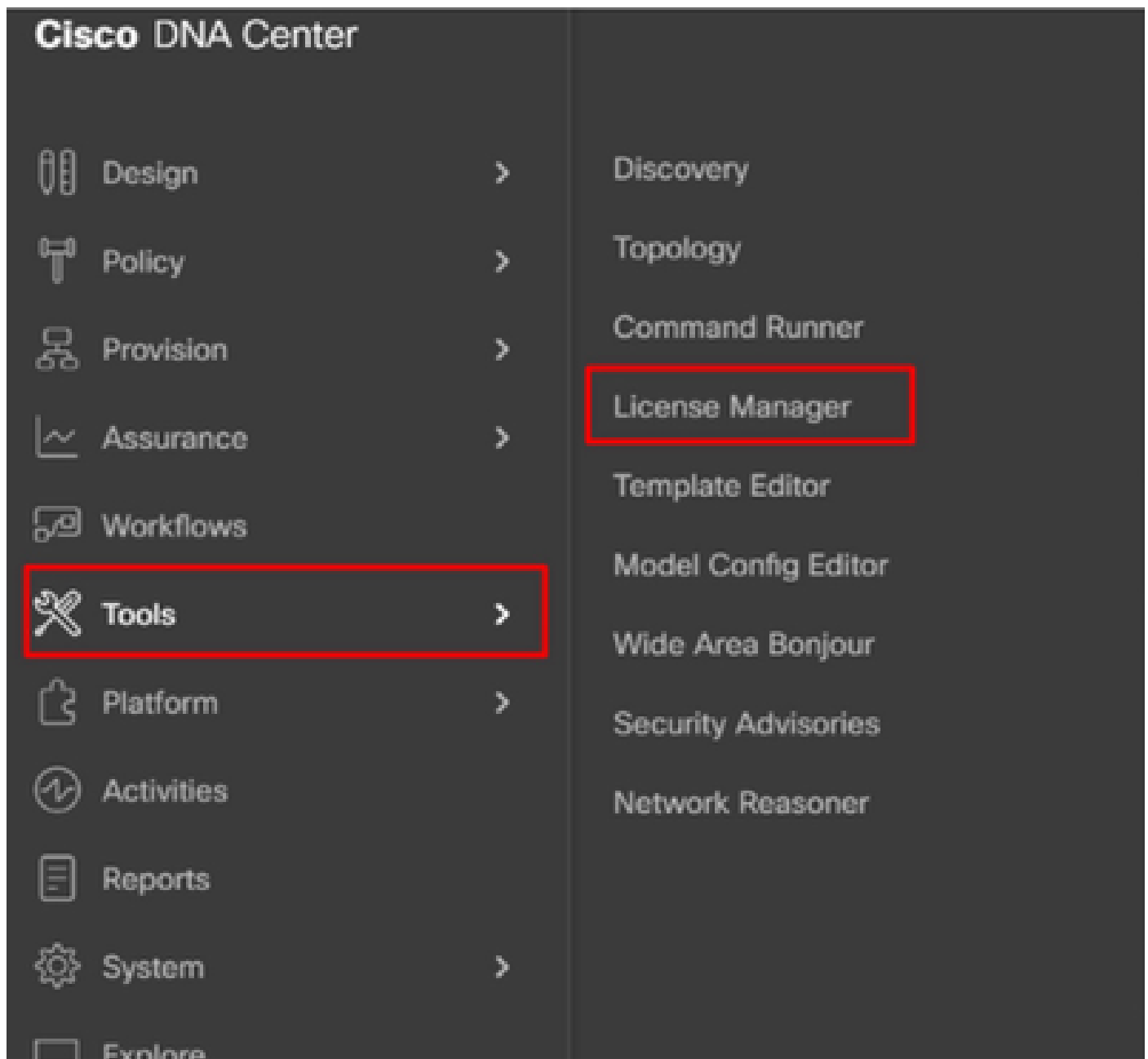
Catalyst Center (formerly known as DNA Center) for device license registration, license migration between Virtual Accounts via CSSM, and so on.

Scenarios

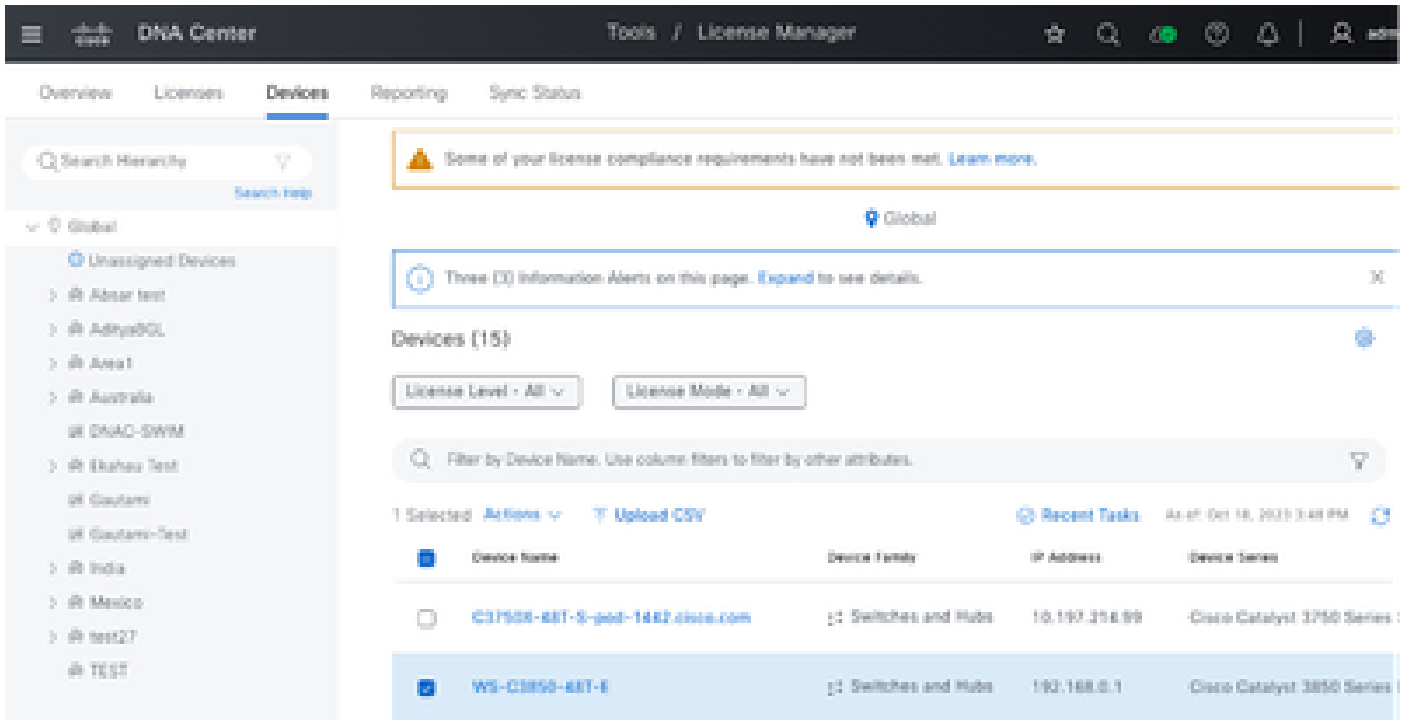
Scenario 1: Device License Registration via Cisco Catalyst Center License Manager: Legacy Method

Step 1. Log into Cisco Catalyst Center via admin credentials or via a custom role with super-admin privileges.

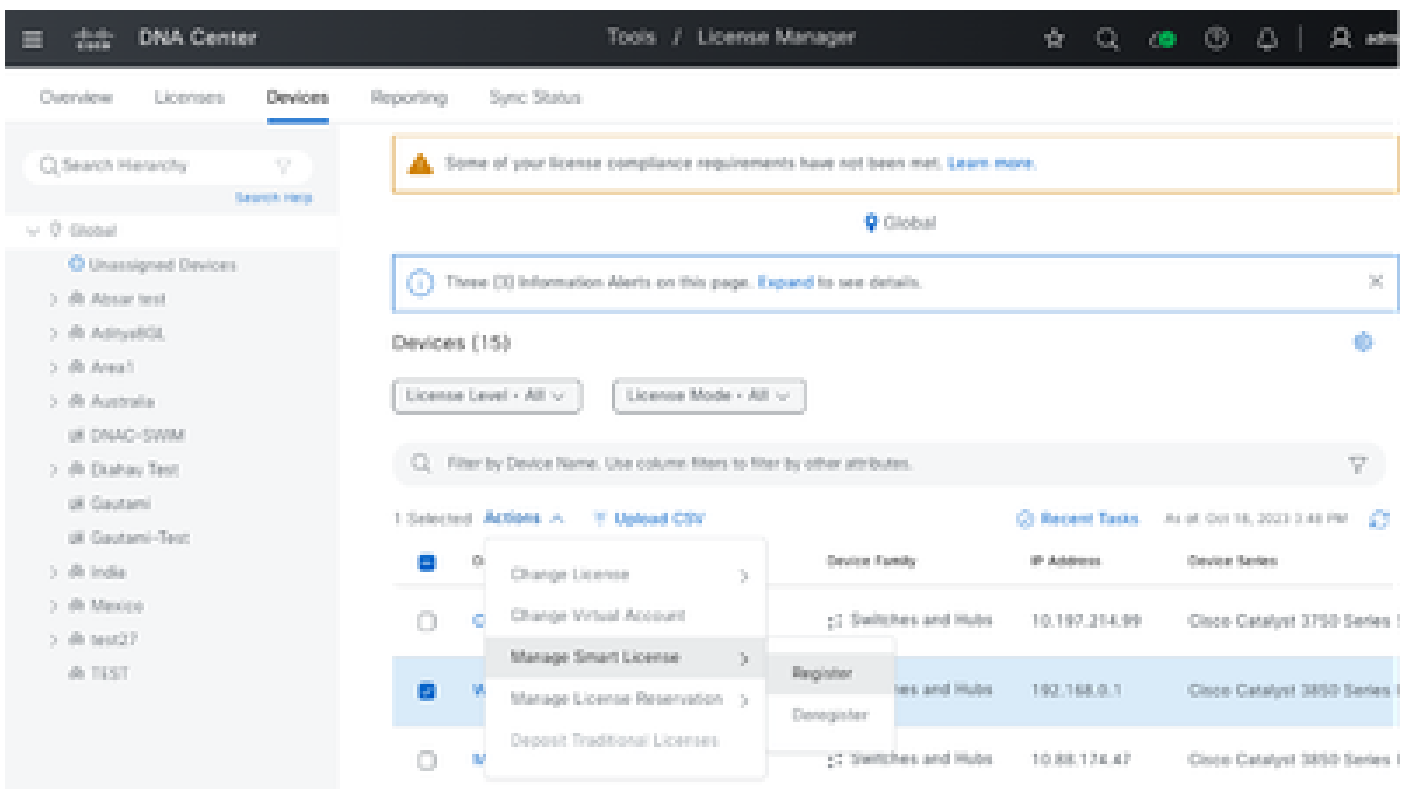
Step 2. Navigate to **Hamburger** and select **Tools > License Manager**.



Step 3. Select **Devices** tab and use the **Filter** option or scroll through the table to find the devices whose licenses you want to register.



Step 4. Select the check box next to each device whose license you want to register, then choose **Actions > Manage Smart License > Register**.



Step 5. Choose the **Virtual Account** where the respective license is deposited and click **Continue**.

Register Smart License

SMART ACCOUNT

Name Cisco Systems, TAC Domain tac.cisco.com

Search Table

	Name	Cisco DNA License Count	Description
<input type="radio"/>	Bangalore DNAC TAC	0	DNAC TAC-POD's Device Licenses are deposited here.
<input type="radio"/>	NMS	0	

Showing 2 of 2

Cancel

Continue

Step 6. Cisco Catalyst Center prompts whether the change is to be applied immediately or later. Choose the desired option and click **Confirm**.

Register Smart License

Registering 1 device(s) to **Bangalore DNAC TAC**

Now Later

Task Name*

License mode update

Cancel

Confirm

Scenario 2: Device License Registration via Cisco Catalyst Center License Manager:

CSLU Reporting Workflow

- On DNA Center release 2.2.1.0 and devices running 17.3.2 or higher:
 - Devices are no longer required to get registered with CSSM
 - License usage information will be stored in a secured location on the device
 - RUM or Usage Reports
 - Now, Cisco DNA Center is going to pull the reports and upload it to CSSM
 - Uploads can be done periodically or on demand basis
 - CSSM go through reports and make the respective updates on Virtual Account
 - After that, CSSM is going to send and Acknowledge to DNAC if report is good
 - Finally, Cisco DNA Center is going to update the license status on GUI and on the Device itself
 - Cisco DNA Center can generate PDF reports for users

Prerequisites

Cisco Catalyst Center

- Cisco Catalyst Center must be running on the release 2.2.1.0 and later.
- Cisco Catalyst Center must be able to communicate with CSSM portal and be able to reach **tools.cisco.com**.
- Correct SSM Connection mode must be chosen on Catalyst Center. CSLU workflow is not applicable for On-Prem CSSM (Satellite Server) as of Catalyst Center release 2.3.5.5.
- CSLU workflow is not applicable for AireOS Wireless Controllers (Models: 3504, 5520, 8540).

Network Device

- Device must be running on Cisco IOS® XE 17.3.2 or later and must have enough space in flash for the Rum report.
- Device must have **netconf-yang** model configured and Cisco Catalyst Center must be able to communicate with the device over Netconf port 830.

To validate:

```
show run | sec netconf-yang
```

- i. During Device discovery on Cisco Catalyst Center, the **Netconf** parameter under credentials section must be enabled.

Provide Credentials

Next, enter the following credentials that Cisco DNA Center will configure for the devices it discovers. At least one CLI credential and one SNMP credential are required. You can have a maximum of five global credentials and one job-specific credential for each type.

- CLI
- SNMPv2(s) Read
- SNMPv2(s) Write
- SNMPv3
- HTTP(S) Read
- HTTP(S) Write
- NETCONF**

If your network contains IOS XE-based wireless controllers, please enter the port that should be used for discovery and the enabling of wireless services on these controllers. Select from existing ports or add new ones. You can also enter a job-specific port or a global port.

We recommend using port number 830. See also standard ports like 22, 80, 8080.

EXISTING GLOBAL NETCONF PORT

830

ii. If the **Netconf** parameter was not enabled at the time of **Device Discovery**, use the **Edit Device** option on the Cisco Catalyst Center Inventory to enable it.

- Device must have the **sdn-network-infra-iwan** trustpoint installed; this is done by the Cisco Catalyst Center.

To validate:

show crypto pki trustpoint sdn-network-infra-iwan (To check the trustpoint)

show crypto pki certificates verbose sdn-network-infra-iwan (To check the trustpoint in detail)

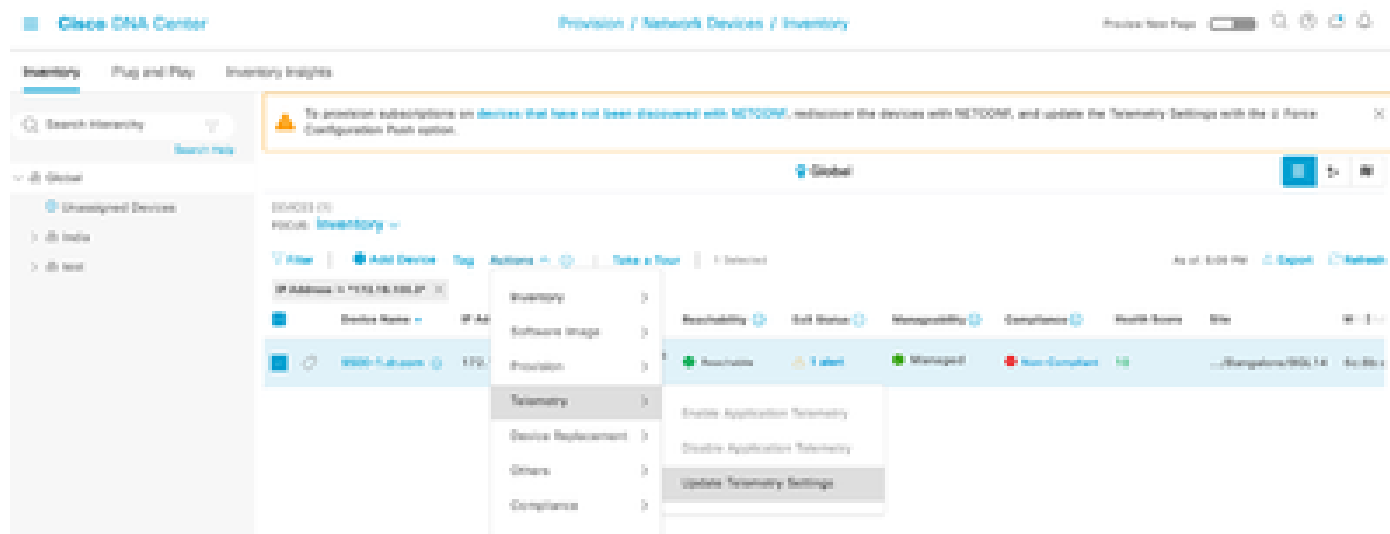
- If the **sdn-network-infra-iwan** trustpoint is not installed, do these steps:

Step 1. Log into Cisco Catalyst Center via admin credentials or via a custom role with super-admin

privileges.

Step 2. Navigate to **Hamburger** and select **Provision > Inventory**.

Step 3. Select the device you want to install the trustpoint on, click **Actions > Telemetry > Update Telemetry Settings**.



Step 4. Select **Force Configuration Push** and click **Next**

Update Telemetry Settings



Force Configuration Push ⓘ

GLOBAL/INDIA/BANGALORE/ISGL14

9500-1.dr.com

9500-1.dr.com

The following settings will be deployed during assignment to site.

Syslog Server	Cisco DNA Center
Netflow Collector	Cisco DNA Center
Cisco TrustSec (CTS) Credentials	Yes
Wireless Streaming Telemetry	Yes
SNMP Trap Receiver	Cisco DNA Center
DTLS Ciphersuite	Skipped
AP Impersonation	Enabled
Cisco TrustSec (CTS) Credentials	Yes
Syslog Level	6 - Information Messages
Controller Certificates	Yes

Cancel

Next

Step 5. Select **Now** and click on **Apply**. This has no effect on production.

Update Telemetry Settings ✕

Now Later

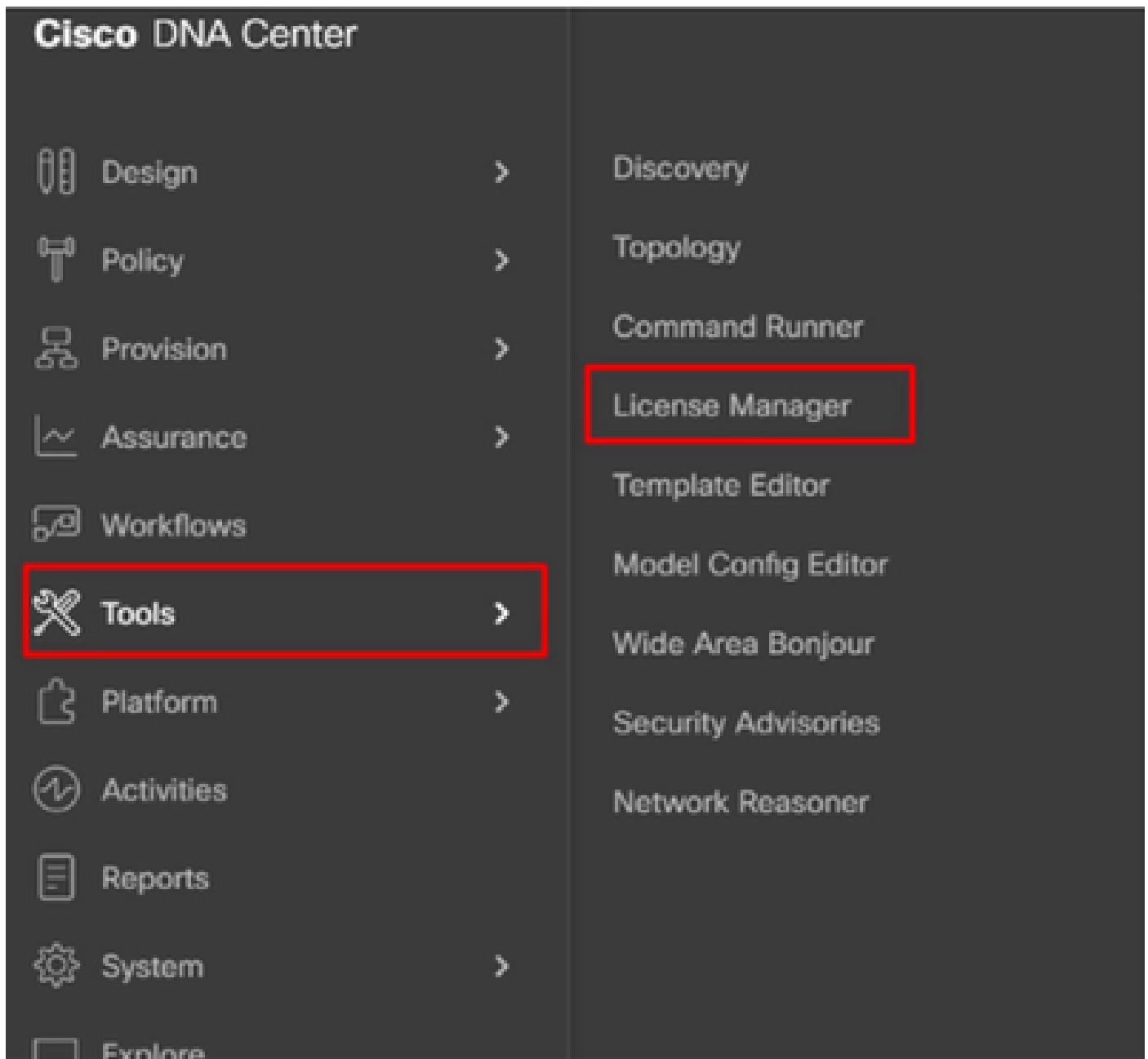
Generate configuration preview
Creates preview which can be later used to deploy on selected devices. View status in [Work Items](#)

Task Name*
Update Telemetry Settings Task

[Cancel](#) [Back](#) [Apply](#)

If all prerequisites are met then do these next steps to execute the **Reporting Workflow**:

Step 1. Log into Cisco Catalyst Center via admin credentials or via a custom role with super-admin privileges.



Step 2. Navigate to **Hamburger** and select **Tools > License Manager**.

Step 3. Select the **Reporting** tab and locate the **Smart License Compliance** dashlet; click on the dashlet to launch the workflow.

Overview Licenses Devices **Reporting** Sync Status

Search Hierarchy

Search Help

Global

Unassigned Devices

India

test

Some of your license compliance requirements have not been met. [Learn more.](#)

Available Workflows [Recent Workflows](#)



Smart License Compliance

5 device(s) are ready right now for streamlined licensing updates.

Step 4. Select the **Smart Account** and **Virtual Account** where the device licenses are stored and click **Next**.

Cisco DNA Center Smart License Compliance

Select Smart Account

Choose the Smart account or Virtual Account which these Network Devices will be associated with. If multiple accounts need to be utilized, you may associate devices by site or by selection later.

Workflow Name
Started on: December 12th 2020, 4:10:51 PM

Smart Account	
Cisco Systems, TAC	✔
Virtual Account	
Bangalore (PRAC) TAC	✔

Save All changes saved Next

Step 5. Choose the device whose license utilization you want to report.

Cisco DNA Center Smart License Compliance

Choose Sites and Devices

There are 6 network device(s) across several sites which are running IOS 17.3.2 or greater. You can choose to list all of them right now, or just a subset. If you don't list with the Cisco Smart Software Manager role, you may list at any time later.

Search Results

Device Name	Device Family	Device Series	IP Address	Software Version	Cisco DNA License	Last Report
9500-1-lab.com	Switches and Hubs	Cisco Catalyst 9500 Series Switches	172.16.100.3	17.3.1	Advantage	December 8, 2023 4:27 PM
9500-1-lab.com	Routers	Cisco 4000 Series Integrated Services Routers	172.16.100.2	17.3.1	NA	November 16, 2023 6:06 AM
9500-2-lab.com	Routers	Cisco 4000 Series Integrated Services Routers	172.16.100.10	17.3.4	NA	NA
9500-1000-2-lab.com	Switches and Hubs	Cisco Catalyst 9500 Series Switches	172.16.100.8	17.3.0	Advantage	NA
9500-1000-2-lab.com	Switches and Hubs	Cisco Catalyst 9500 Series Switches	172.16.100.7	17.3.1	Advantage	NA
9500-lab.com (1 site)	Wireless Controller	Cisco Catalyst 9500 Series Wireless Controllers	172.160.200.1	17.3.3	Advantage	NA

1 Results

Exit All changes saved

Back Next

Step 6. Modify the **Reporting** interval, if required.

Cisco DNA Center Smart License Compliance

Modify Policy

The policy defines how often the network device(s) will report their feature usage. It overrides the default policy which enables only the core functionality on each device.

POLICY SETTINGS

Policy Name

Policy Description NA

Policy Version

Smart Account Cisco Systems, TAC

Reporting Interval 30 Days [Modify](#)

COSSM POLICY

License	First Report Within	Report Usage Every	Report After Usage Change
No data to display			

Step 7. Review the summary of devices and click **Next** to trigger **Reporting**.

Cisco DNA Center Smart License Compliance

Sync Data with Cisco

When you click "Next" Cisco DNA Center is going to retrieve the usage data from the device(s) and then send the data to COSSM. A report will be generated once that completes.

Submitting Devices

Search Tools

Device Name	Device Family	Device Series	IP Address	Software Version	Cisco DNA License
9500-1-lab.com	Switches and Hubs	Cisco Catalyst 9500 Series Switches	172.16.100.3	17.3.1	Advantage

Summary

These are the following operations performed in this flow.

Syncing Data

Sending device license usage data to CSSM. The time taken to sync this data depends on the size of usage data and number of requests queued for processing on CSSM.

Overall Sync Progress



Fetching Usage Report

Device	Status
9500-1.dn.com(172.19.180.3)	Usage consumption report collected from device successfully

Summary

These are the following operations performed in this flow.

Syncing Data

Sending device license usage data to CSSM. The time taken to sync this data depends on the size of usage data and number of requests queued for processing on CSSM.

Overall Sync Progress



Fetching Usage Report

Uploading Usage Report

Device	Status
9500-1.dn.com(172.19.180.3)	Usage consumption report uploaded to Cisco ICM cloud, waiting for acknowledgement

Summary

These are the following operations performed in this flow.

Syncing Data

Sending device license usage data to CSSM. The time taken to sync this data depends on the size of usage data and number of requests queued for processing on CSSM.

Overall Sync Progress

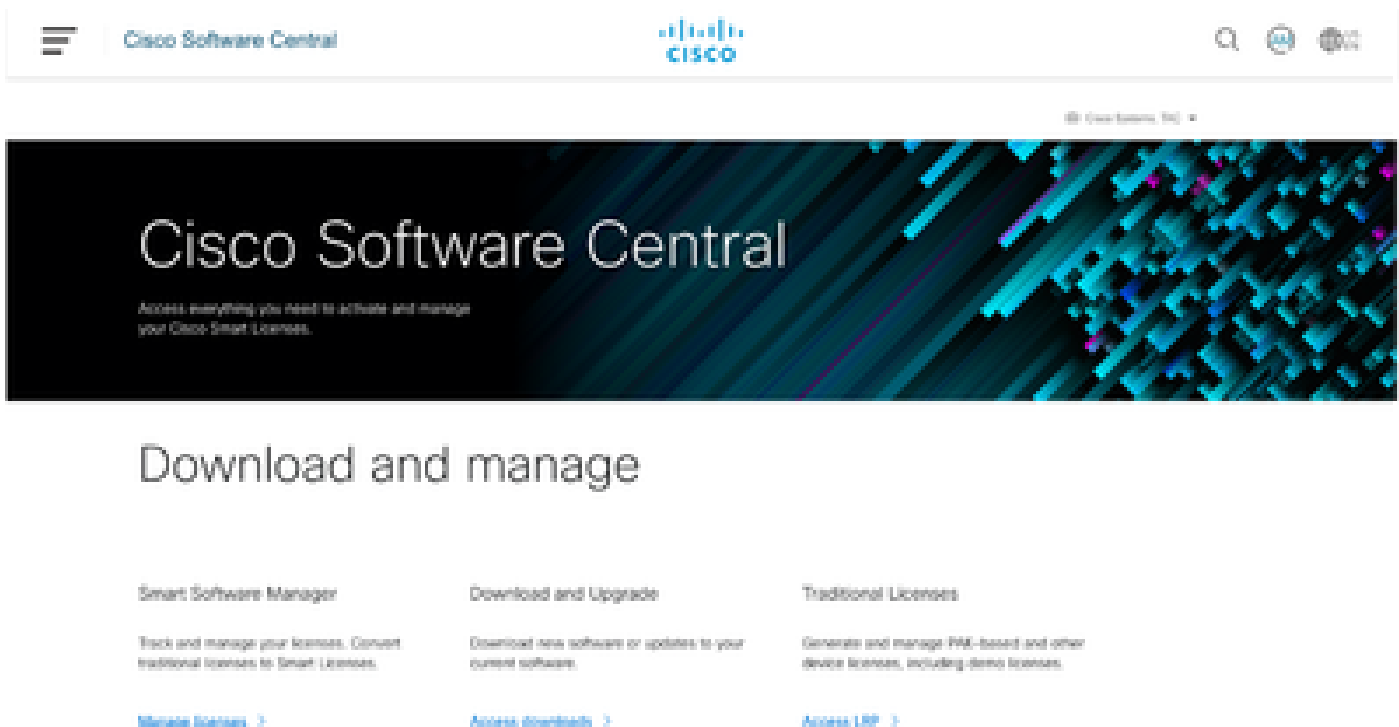


- 1. Fetching Usage Report
- 2. Uploading Usage Report
- 3. Provisioning Acknowledgement

Scenario 3: License Migration between Virtual Accounts

Step 1. Log into Cisco Catalyst Center via admin credentials or via a custom role with super-admin privileges.

Step 2. Log into **software.cisco.com** and select **Manage Licenses**.

The screenshot shows the Cisco Software Central website. The header includes the Cisco logo and navigation icons. The main content area features a large banner with the text "Cisco Software Central" and a sub-headline "Access everything you need to activate and manage your Cisco Smart Licenses." Below the banner, there is a section titled "Download and manage" which contains three columns of information: "Smart Software Manager" (with a "Manage Licenses" link), "Download and Upgrade" (with an "Access downloads" link), and "Traditional Licenses" (with an "Access LRP" link).

Step 3. Navigate to **Inventory** and select the source **Virtual Account**.

Smart Software Licensing

[Alerts](#) | [Inventory](#) | [Convert to Smart Licensing](#) | [Reports](#) | [Preferences](#) | [On-Prem Accounts](#) | [Activity](#)

Virtual Account: **TAC Cisco Systems, Inc....** ▾

On-Prem Virtual Account

General | License

Virtual Account

Description:

Virtual Account Type:

Product Instances

Because this virtual account is a "non-eligible" virtual account, all product instance registration tokens must be generated from the "eligible" virtual account.

	By Name	By Tag
6 node cluster	335	38 2
AMM-ARCH-ONPREM	2	3
Bangalore DNAC TAC	11	2
deleted3		
RTP-CX2	2	1
sdwan-lab		3
sindhrao		1
TAC Cisco Systems, Inc....	1	3

TAC Cisco Systems, Inc....

Step 4. Select the **License** tab and choose the **Target Virtual Account**.

Smart Software Licensing

Virtual Account: **TAC Cisco Systems, Inc....** ▼

🔍 On-Prem Virtual Account (cats-satellite)

General Licenses Product Instances Event Log

Transfer Licenses Between Virtual Accounts

Transfer To Virtual Account: **Select Virtual Account** ▼

License Balance

By Name | By Tag

- 6 node cluster
- AMM-ARCH-ONPREM
- Bangalore DNAC TAG**
- deleted3
- RTP-CX2
- sdwan-lab
- sindhrao
- Yazan Bikawi

Transfer Show Preview Cancel

Step 5. Select the license you want to transfer and click **Actions & Select Transfer**.

Cisco Software Central > Smart Software Licensing Cisco Systems, Inc. | SL Product Details | Support | Help

Alerts | Inventory | Convert to Smart Licensing | Reports | Preferences | On-Prem Accounts | Activity

Virtual Account: **TAC Cisco Systems, Inc....** ▼ Major | Minor | Hide Alerts

🔍 On-Prem Virtual Account (cats-satellite)

General Licenses Product Instances Event Log

Available Actions + Manage License Tags Show License Transactions Search by License 🔍

Advanced Search ▼

<input type="checkbox"/> License	Billing	Available to Use	In Use	Substitution	Balance	Alerts	Actions
<input checked="" type="radio"/> CRS0 Network Advantage	Prepaid	0	1	-	-1	Insufficient Licenses	Actions ▼
<input checked="" type="radio"/> CM, - Base	Prepaid	10	0	-	+10		Actions ▼

Transfer

Step 6. Choose the quantity of licenses you want to transfer and click **Transfer**.

General Licenses Product Instances Event Log

Transfer Licenses Between Virtual Accounts

Transfer To Virtual Account: **Bangalore DRAC TAC**

License	Billing	Purchased	In Use	Balance	Transfer
CML - Base	Prepaid	10	0	10	1

Source: Manual Entry
Subscription Id: NA

Sku: CML-ENT-BASE
Family: Learning at Cisco Software Products
Start Date: 2020-Jul-03
Expires: 2024-Jul-03

Transfer Show Preview Cancel

Scenario 4: License Migration between Smart Accounts

Migration of Licenses between different Smart Accounts can be done by the Cisco Licensing team. Please refer to these next steps to raise the case with the respective team.

Step 1. Log into <https://mycase.cloudapps.cisco.com/case?sw1> with Cisco credentials.

Step 2. Click on **Open New Case** and select **Software Licensing > Expand License Management > Select Move Licenses**. Then select **Reassign licenses between SA** and click **Open Case**.

The screenshot shows the 'Support Case Manager' interface. The 'Open New Case' button is highlighted in the top left. The left sidebar shows 'Software Licensing' selected. The main content area shows 'Open a New Case for Software Licensing Support' with 'License Management' and 'Move Licenses' selected. The 'Select a sub-category' panel shows 'Reassign licenses between SA, including HA' selected. The 'Open Case' button is highlighted in the bottom right.

Step 3. Select the relevant product (for example, wireless, switching, and so), fill in the form, and submit the request.

Support Case Manager

Create and manage Support cases for Arista.com. (admin@arista.com)



OPEN NEW CASE
Software Licensing

Need help with your case? [Chat Now](#)

Category

Baseline/Issues between SA, including SA [change](#)

Product

Select a Product

Title

SOLO Parameters

Problem Description

This category is for LICENSING related requests (PRL). For technical issues, please click 'change' above and open a case by using the 'Products & Services' category. Otherwise please provide the details of your LICENSING request below and include the necessary entitlement information (Source/Host (SA), Source/Serial (SA/SA/SA), etc.) and Smart Account/Virtual Account (SA/VA).

Describe the issue you are experiencing...

SOLO Parameters

Note: Files can be uploaded after case is created.

Smart Account/ Domain ID:

Scenario 5: Change of SSM Connection Mode

- Step 1. Log into Cisco Catalyst Center via **admin** credentials or custom role with super-admin privileges.
- Step 2. Navigate to **Hamburger** and select **System > Settings**.

Cisco DNA Center

 Design >

 Policy >

 Provision >

 Assurance >

 Workflows

 Tools >

 Platform >

 Activities

 Reports

 System >

 Explore

System 360

Settings

 Data Platform

System Health

Users & Roles

Backup & Restore

Software Management

Disaster Recovery

Step 3. Select **SSM Connection Mode** and choose the desired option (**Direct/Smart Proxy/On-Prem**).
Click **Save**.

The screenshot shows the Cisco DNA Center interface. On the left is a navigation sidebar with a search bar and categories: Cisco Accounts (with sub-items: POP Connect, Cisco.com Credentials, Smart Account, Smart Licensing, SSM Connection Mode) and Device Settings (with sub-items: Device Controllability, Network Resync Interval, SNMP, iCatP Ping, Image Distribution Servers). The main content area is titled 'Settings / Cisco Accounts' and 'SSM Connection Mode'. It contains three paragraphs of text explaining different connection modes: 'Direct connection mode', 'On-Prem Cisco Smart Software Manager (formerly known as Cisco Smart Software Manager satellite) connection mode', and 'With smart proxy connection mode'. At the bottom, there are three radio buttons: 'Direct' (unselected), 'On-Prem CSRM' (unselected), and 'Smart proxy' (selected). A blue 'Save' button is located below the radio buttons.

Settings / Cisco Accounts

SSM Connection Mode

Direct connection mode requires all smart-enabled devices in your network to have direct internet access to the Cisco SSM cloud.

On-Prem Cisco Smart Software Manager (formerly known as Cisco Smart Software Manager satellite) connection mode offers near real-time visibility and reporting of the Cisco licenses you purchase and consume. If your organization is security-sensitive, you can access a subset of Cisco SSM functionality without using a direct internet connection to manage your licenses with the Cisco SSM cloud.

With smart proxy connection mode, smart-enabled devices in your network don't need direct internet access; only the product instance requires direct internet access to the Cisco SSM cloud. This option is not applicable for registering Cisco DNA Center.

Direct On-Prem CSRM Smart proxy

Save

Scenario 6: Integration of Smart Account with Cisco Catalyst Center

Step 1. Log into Cisco Catalyst Center via admin credentials or via a custom role with super-admin privileges.

Step 2. Navigate to **Hamburger** and select **System > Settings**.

Cisco DNA Center

 Design >

 Policy >

 Provision >

 Assurance >

 Workflows

 Tools >

 Platform >

 Activities

 Reports

 System >

 Explore

System 360

Settings

 Data Platform

System Health

Users & Roles

Backup & Restore

Software Management

Disaster Recovery

Step 3. Under **Smart Account**, click **Add**.

Class DNA Center System / Settings

Search Settings

- Class Accounts
- WiFi Control
- Classroom Credentials
- Smart Account
- Smart Learning
- WiFi Connection Mode
- Device Settings
- Device Connectivity
- Network Monitor Interface
- Smart
- Smart Plug
- Usage Distribution System
- Device OLA Acceptance
- WiFi Device Authentication

Smart Account

Some of your license compliance requirements have not been met. [Learn more.](#)

Class Smart Account credentials are used for connecting to your Smart Learning product. The License Manager tool will use the device and license information from this Smart Account for activation and license management.

Selected Smart Account user: **admin@**

Selected Smart Account name: **Class Systems, TM** [Change](#)

[Auto-register smart license enabled devices](#)

[View all smart accounts](#)

Smart Account Credentials (2)

[Save](#) [Delete historical information](#)

Step 4. Enter the **Smart Account** username and password and click **Save**.

Add Smart Account Credentials



Username

akimishr



Info

Password

Show

Cancel

Save

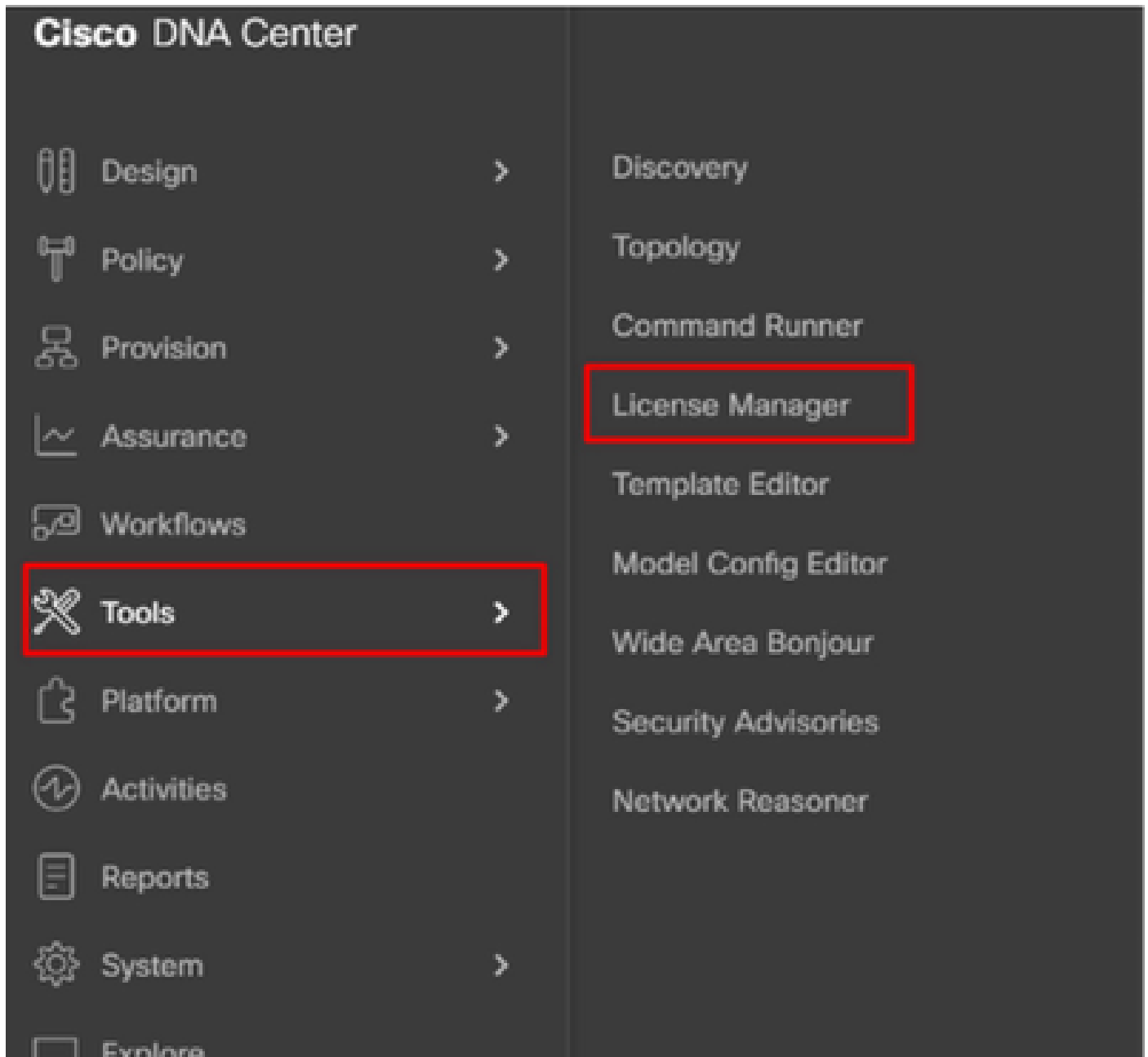
Step 5. If you have multiple **Smart Accounts**, repeat steps 3 and 4.

: If you have multiple Smart Accounts, choose one account to be the default. The License Manager uses the default account for visualization and licensing operations.

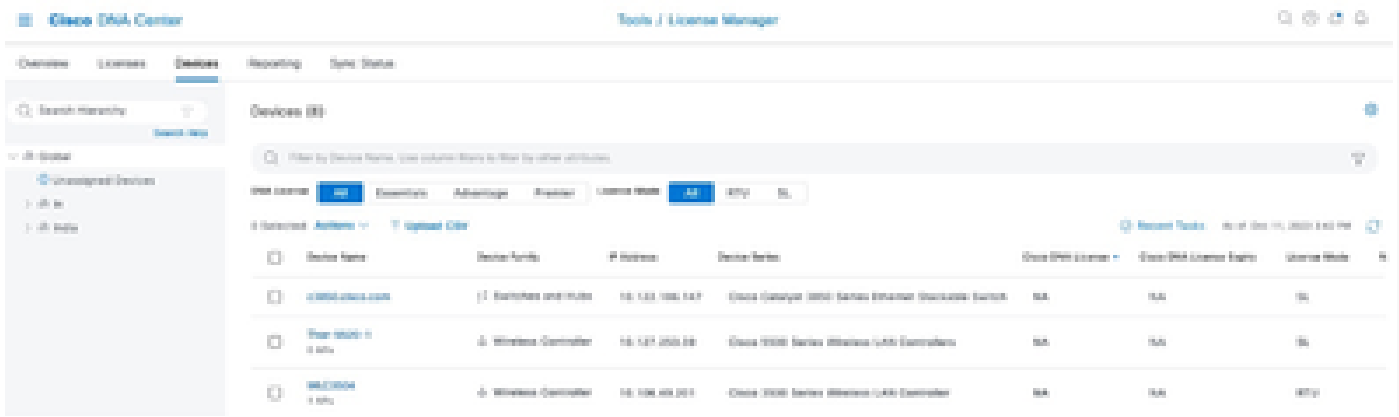
Scenario 7: Change of License Level

Step 1. Log into Cisco Catalyst Center via admin credentials or via a custom role with super-admin privileges.

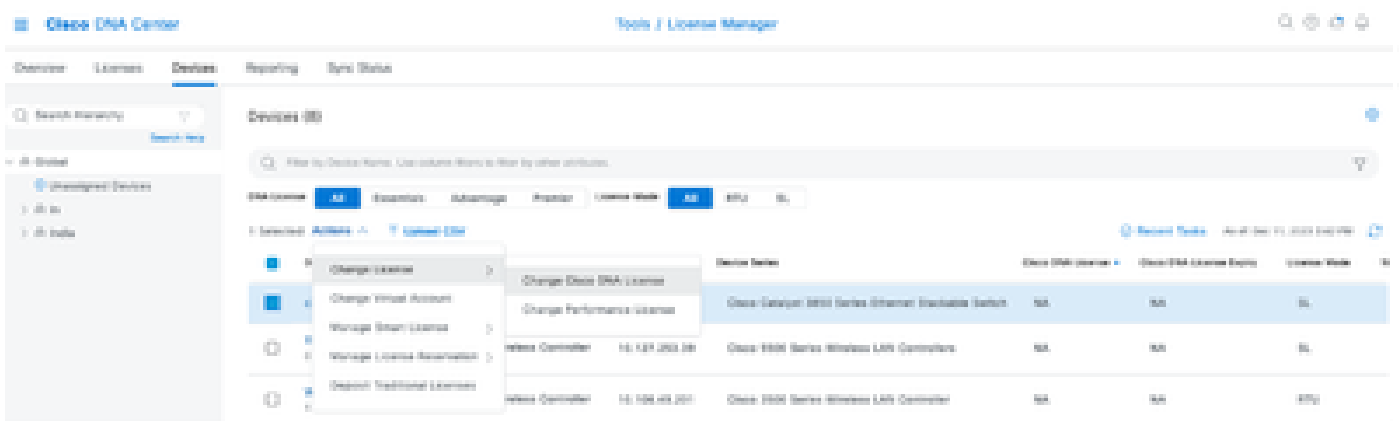
Step 2. Navigate to **Hamburger** and select **Tools > License Manager**.



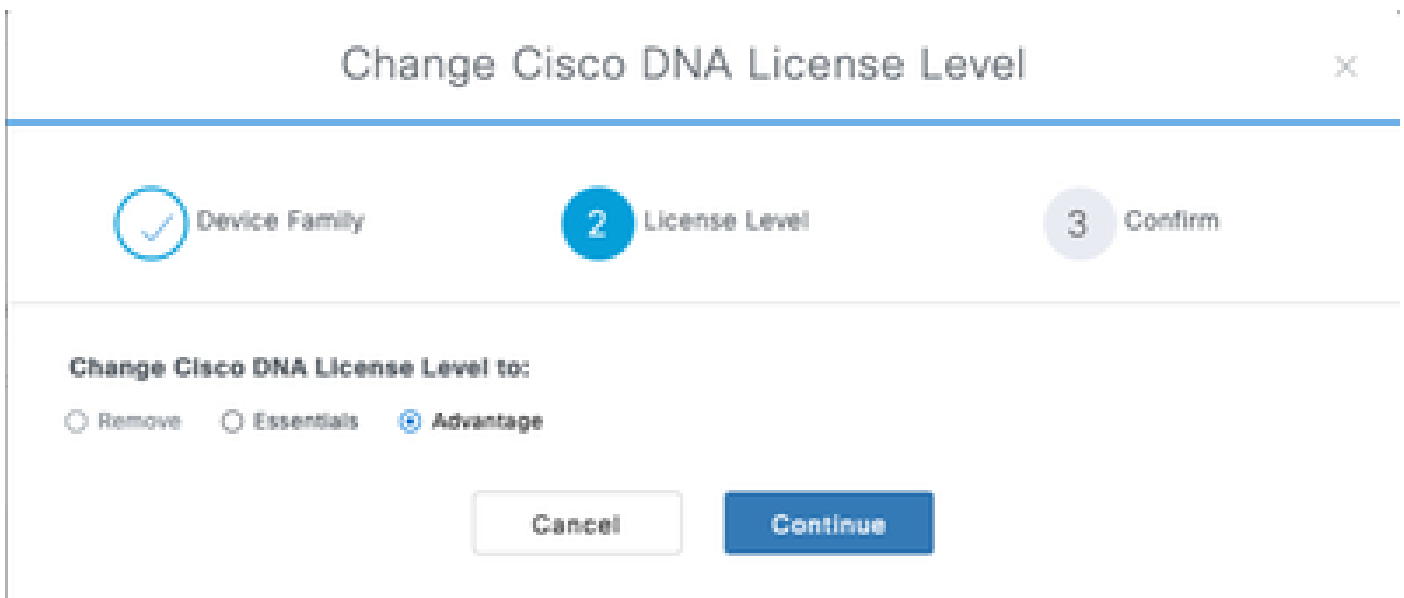
Step 3. Select **Devices** tab and use **Find** or scroll through the table to find the devices whose license level you want to change.



Step 4. Check the check box next to each device whose license level you want to change, then choose **Actions > Change Cisco DNA License**.



Step 5. Click the license level for either the **Essentials** or **Advantage** devices. Then click **Continue**.



Step 6. Cisco Catalyst Center prompts whether the change is to be applied immediately or later. Choose the desired option and click **Confirm**.

Change Cisco DNA License Level



Device Family



License Level



Confirm

Cisco DNA License for 1 device(s) will be activated to Advantage.

Note: Network license may be upgraded to Advantage for applicable devices.

License change will take effect only after the device rebooted. Some devices like CAT3560-CX, AireOS controllers will not reboot even after selecting this checkbox.

Reboot device on update

Now Later

Task Name*

License update

Back

Confirm



Note: You must also choose the option **Reboot device on update** for changes to take effect. Also, this activity needs to be performed in downtime.

Related Information

- [Cisco Technical Support & Downloads](#)