

Configure Catalyst 9800 WLC Smart Licensing Using Policy with DNA Center

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Introduction

This document describes Smart Licensing Using Policy (SLUP) on air-gapped Catalyst 9800 Wireless LAN Controller (WLC) via Cisco Digital Network Architecture (DNA) Center.

Prerequisites

Basic knowledge of Cisco Catalyst 9800 WLC and Cisco DNA Center.

Requirements

Smart Licensing Using Policy (SLUP) on Catalyst 9800 WLC with the help of DNA Center requires WLC image version 17.3.2a or higher, and DNA Center version 2.2.1 or higher.

Components Used

- 9800 WLC 17.3.3.
- DNA Center 2.2.2.5.

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.

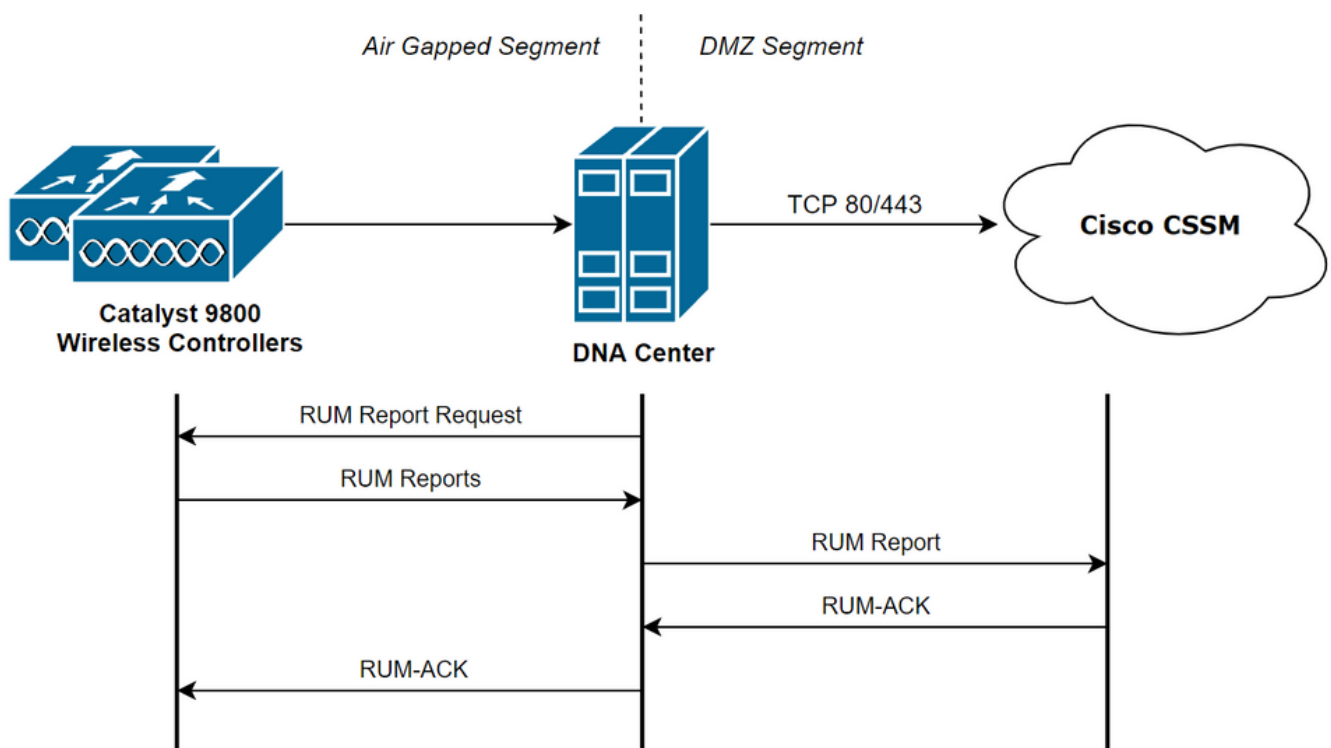
SLUP Workflow With DNA Center

Like older AireOS based controllers, the 9800 WLC itself does not need to be licensed. You only need to license the Access Points (APs) that are joined to the controller. The access point license usage needs to be reported to Cisco's smart license server (also known as Cisco Smart Software Manager - CSSM). There are several ways to achieve this. In wireless enterprise networks, WLCs

are often air gapped without Internet access. This makes it difficult to report AP license usage to the CSSM. This article assumes that the WLC is air gapped and that DNA Center has access to CSSM over TCP ports 80 and 443.

Note: Unlike AireOS WLCs, 9800 WLC that is not correctly licensed continues to function even after the evaluation license expires.

Once the APs are joined to the WLC, license consumption information is stored in a secured location on the device in the form of RUM/Usage reports. Cisco DNA Center pulls these reports from WLC and upload it to CSSM on demand or periodically. Each time a RUM report is uploaded to the CSSM, the DNA Center needs to let the WLC know.



Catalyst 9800 WLC Configuration

There is minimal configuration related to licenses required on the 9800 side. Once the license level is configured on WLC, majority of the work is handled by DNA Center.

The only requirement is that WLC is added to the DNA Center device inventory and assigned to a site.

Since the only thing that needs license in a 9800 deployment are the access points joined to it, **ensure that there is at least 1 AP joined to the WLC.**

License level can be changed in the WLC web interface under **Licensing** menu when you select the **Change Wireless License Level** button:

Licensing

General Service Settings Policy Attributes

Smart Licensing Status	ENABLED	Smart Licensing Using Policy	ENABLED
Unique Product ID	C9800-CL-K9	Unique Serial Number	9493HVIECSG
LICENSES IN USE		Change Wireless License Level	Reload
No licenses in use			

License level can either be set to essential or advantage level. Both AIR Network License and AIR DNA License need to be the same level. The change of the license level requires a reload.

Change Wireless License Level

License Type	Current Level	Next Reload Level
AIR Network License	air-network-advantage	air-network-advantage
AIR DNA License	air-dna-advantage	air-dna-advantage

[Cancel](#) [Save & Reload](#) [Save without Reload](#)

Before WLC is added to the DNA Center, ensure that:

1. WLC must be added to the DNA Center via its Wireless Management Interface. Other out of band management interfaces like GigabitEthernet0 cannot be used
2. WLC needs to have 2 aaa commands configured:

```
aaa authorization exec default <local or radius/tacacs group> aaa authentication login default <local or radius/tacacs group>
```

3. NetCONF protocol needs to be enabled (port 830 used by default)
4. Simple Network Management Protocol (SNMP) needs to be enabled and communities/users need to be configured on WLC
5. WLC wireless management interface and DNA Center need to be able to communicate over ports 161/162 (SNMP), 830 (NetCONF) and 20830 (telemetry)

Refer to this article for additional information about WLC and DNA Center integration:

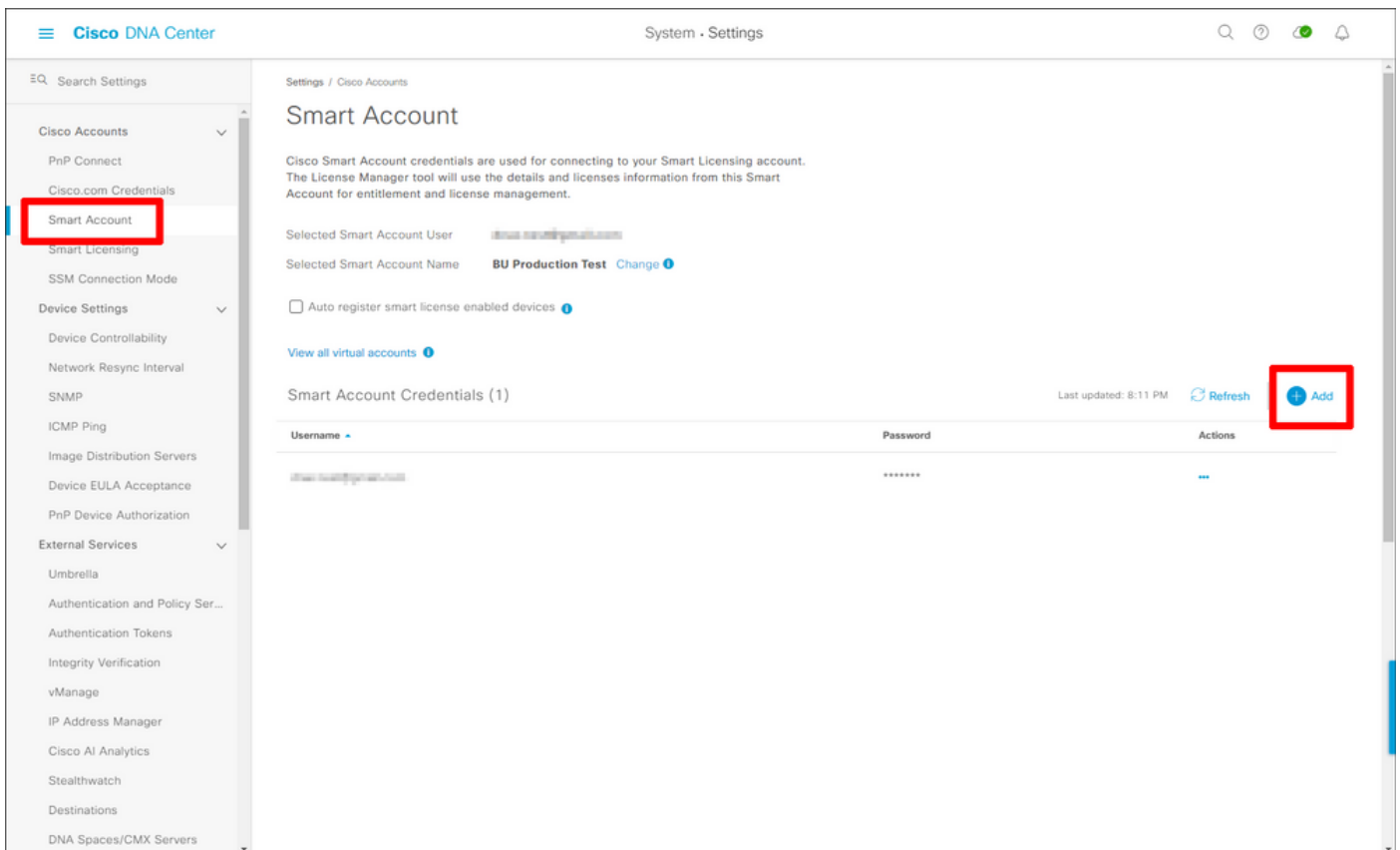
<https://www.cisco.com/c/en/us/support/docs/wireless/wireless-lan-controller-software/214587-managing-and-provisioning-non-fabric-cat.html>

DNA Center Configuration

Configure Smart Account Details

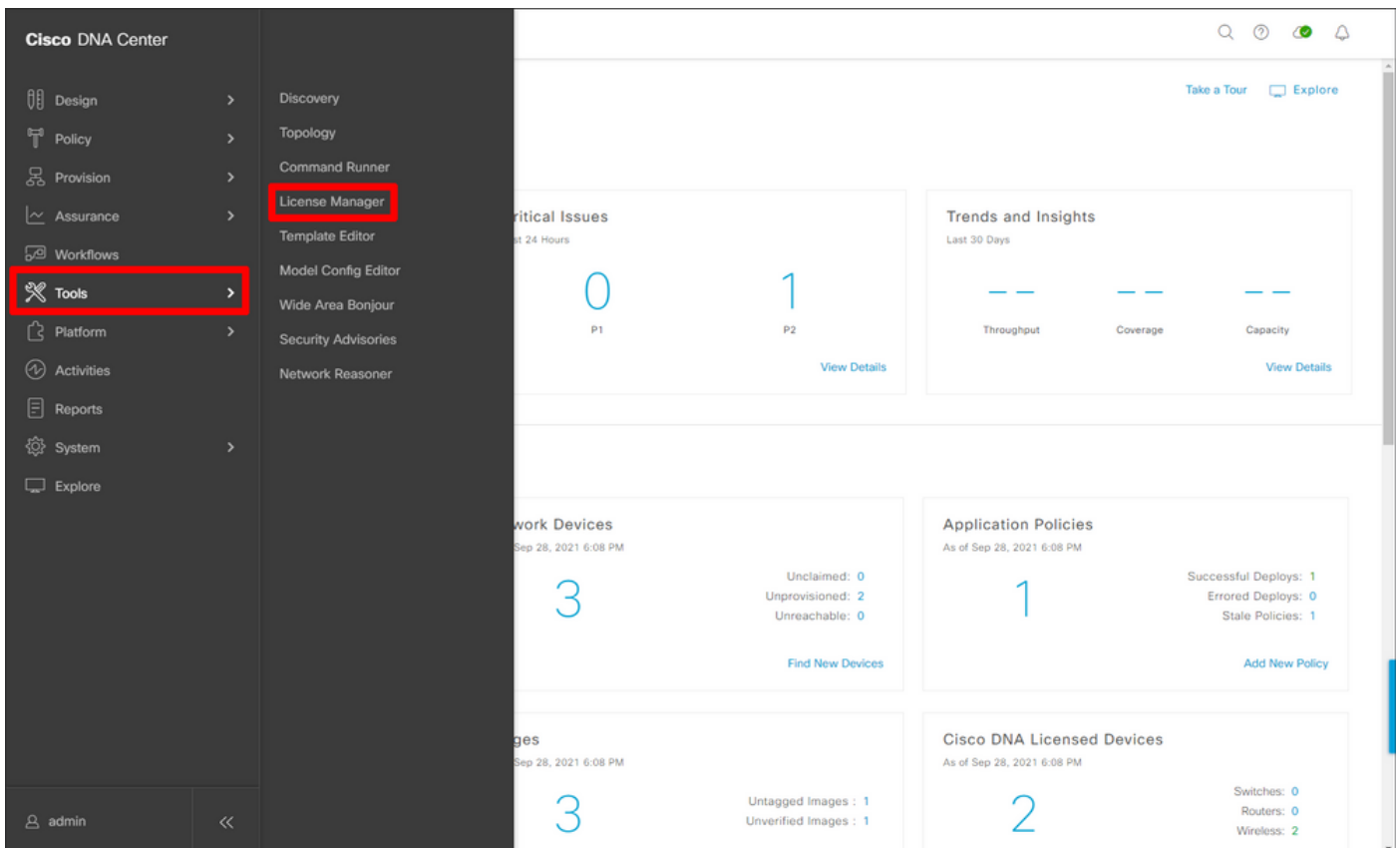
Before licensing is configured, smart account credentials need to be added to the DNA Center. In DNA Center web interface navigate to **System > Settings > Cisco Accounts > Smart Account**.

Add the credentials of the Cisco Smart account:



Configure License Manager

In the DNA Center web interface, navigate to **Tools > License Manager**.



Navigate to **Reporting & Compliance** tab and select the **Smart Licensing Compliance**

workflow:

Reporting & Compliance

LICENSE SUMMARY - Total Licenses Purchased 6754

ESSENTIALS			ADVANTAGE			PREMIER		
3429	3150	914	3325	3125	12	0	0	0
Total Licenses	About to Expire	Out of Compliance	Total Licenses	About to Expire	Out of Compliance	Total Licenses	About to Expire	Out of Compliance

Smart License Compliance

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

Device Name	Device Family	Device Series	IP Address	Software Version	Cisco DNA License	Cisco DNA License Expiry
WLC 2 APs	Wireless Controller	Cisco Catalyst 9800 Wireless Controllers for Cloud	10.48.39.133	17.3.3	Advantage	NA

The guided workflow wizard pops up. To begin, select **Let's Do It**.

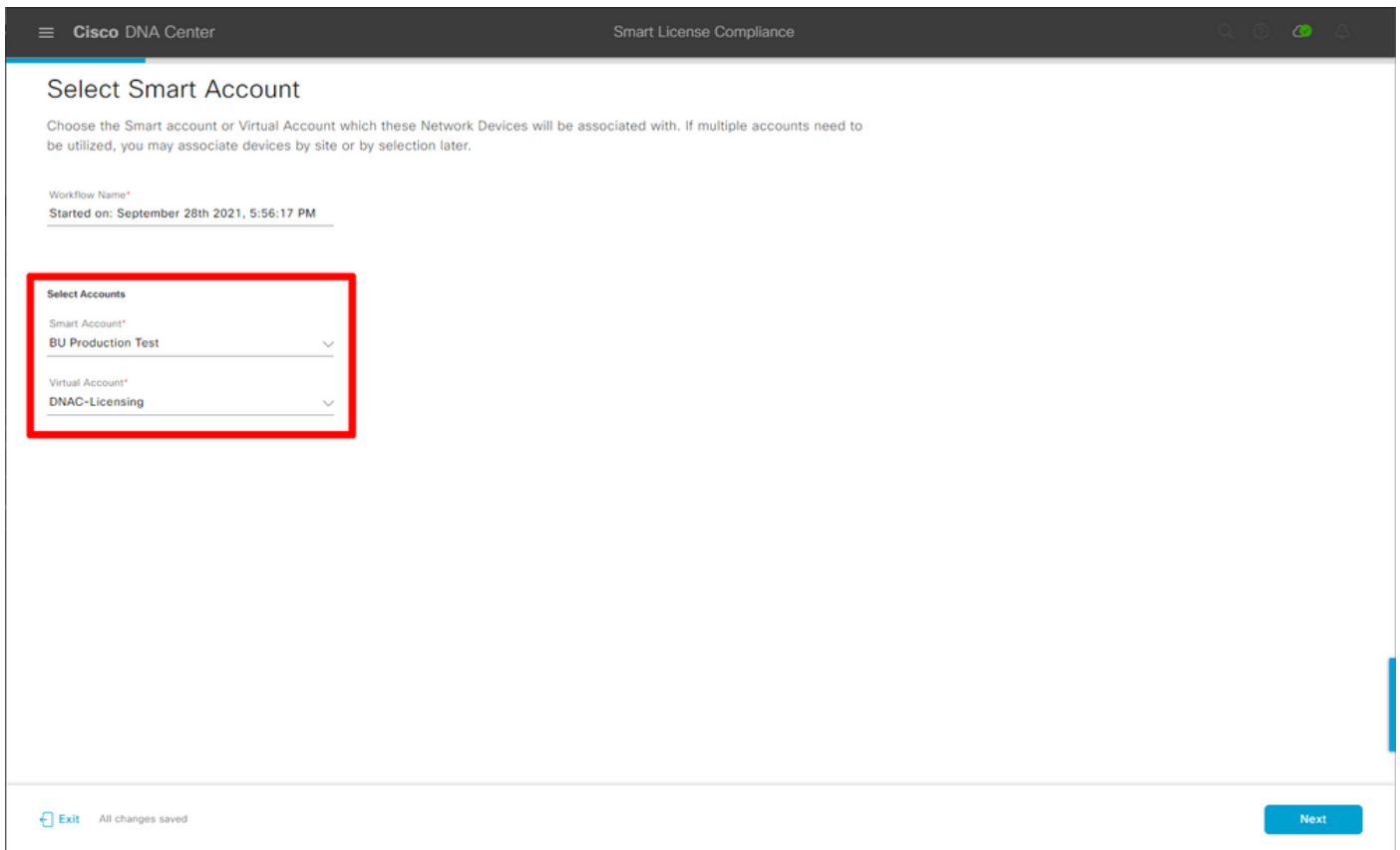
Smart License Update

In an effort to simplify your organizations licensing structure, we have enhanced licensing capabilities across Cisco.

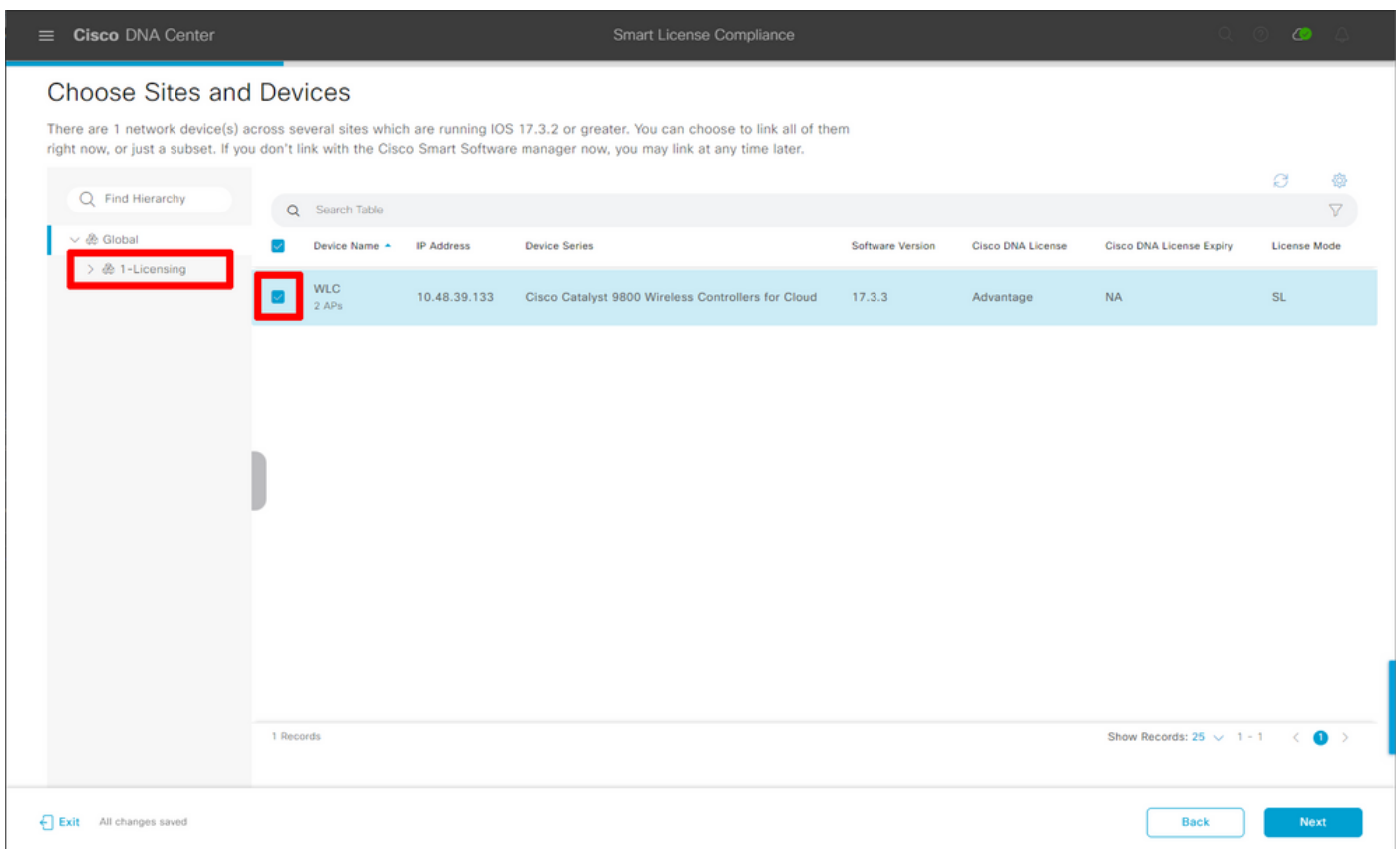
Let's Do It

Don't show this to me again

In this next step select the **Smart Account** and **Virtual Account** you want to use. Click **Next** to proceed.



Select the site and check all the WLCs that DNA Center is intended to license:



Reporting Interval can be modified here. Default value is 30 days:

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: SLE Policy
 Policy Description: NA
 Policy Version: 4
 Smart Account: BU Production Test
 Reporting Interval: 30 Days [Modify](#)

CSSM POLICY

Licenses	First Report Within	Report Usage Every	Report After Usage Change
Perpetual	30 Days	60 Days	60 Days
Enforced	0 Days	90 Days	60 Days
Subscription	120 Days	150 Days	120 Days
Export	0 Days	30 Days	30 Days

Exit All changes saved Back Next

Final page provides a summary of all of the data and devices whose license usage is queued to be reported to the CSSM:

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 CSSM. A report will be generated once that completes.

Submitting Devices

Search Table

Device Name	Device Family	Device Series	IP Address	Software Version	Cisco DNA License	Cisco DNA License Expiry
WLC 2 APs	Wireless Controller	Cisco Catalyst 9800 Wireless Controllers for Cloud	10.48.39.133	17.3.3	Advantage	NA

1 Records Show Records: 25 1 - 1

Exit All changes saved Back Next

Click **Next** to begin the sync of licence usage data and observe the real time status. It takes a minimum of 4 minutes to complete the sync and get the acknowledgement back from the CSSM cloud.

Cisco DNA Center Smart License Compliance

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 33%

- Fetching Usage Report

Device	Status
WLC(10.48.39.133)	● Usage reports collection is in progress
- > ● Uploading Usage Report
- > ● Provisioning Acknowledgement

Exit All changes saved **Finish**

Green color indicates a success. Select **Finish** to complete the workflow:

Cisco DNA Center Smart License Compliance

Overall Sync Progress 100%

- Fetching Usage Report

Device	Status
WLC(10.48.39.133)	● Usage consumption report collected from device successfully
- Uploading Usage Report

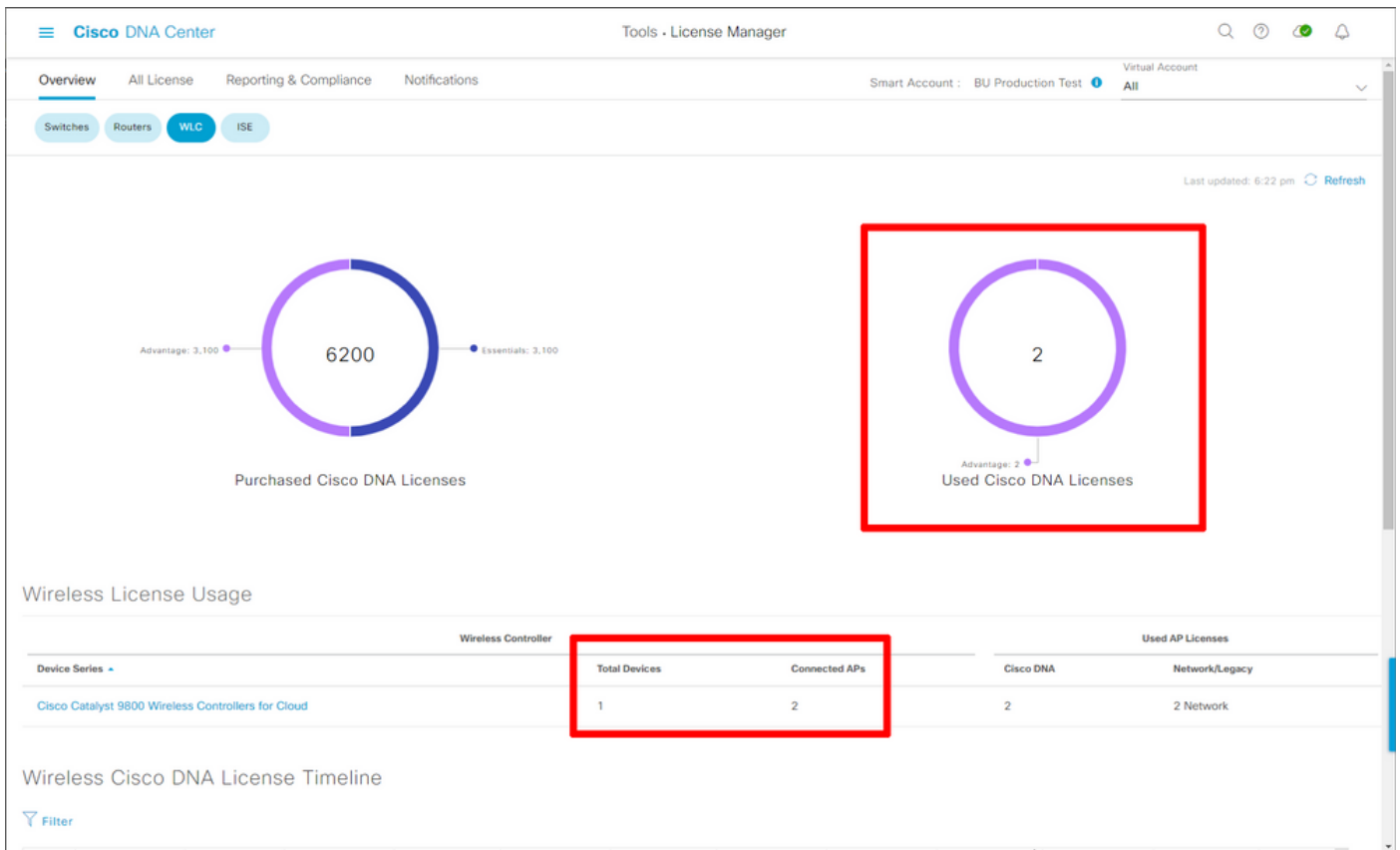
Device	Status
WLC(10.48.39.133)	● Usage consumption reports uploaded to Cisco SSM Cloud and received acknowledgement from Cisco SSM Cloud
- Provisioning Acknowledgement

Device	Status
WLC(10.48.39.133)	● Provisioned usage consumption report's acknowledgement to device

Exit All changes saved **Finish**

Verification

Overview tab of the license manager page shows the current license consumption:



Over on the Catalyst 9800 side, navigate to the **Licensing > Service Settings** and verify if the connection mode is set to **Air Gap**:

Licensing

General | **Service Settings** | Policy Attributes

CSSM Connectivity

Connection Mode

Air Gap ▼

Air Gap Feature

ENABLED