

License Management

Beginning with Cisco Nexus Dashboard Fabric Controller Release 12.0.1a, support is removed for the following:

- Eval license state is not supported.
- Server License files are not supported.

  You must convert existing server license files to smart licenses on Cisco Smart Software Manager (CSSM). For more information, see Cisco Smart Software Manager

This chapter contains the following topics:

- Overview, on page 1
- NDFC Server Licenses, on page 2
- Smart Licensing, on page 3
- Switch Licenses, on page 6
- Switch License Files, on page 8

Overview

You can view the existing Cisco Nexus Dashboard Fabric Controller licenses by choosing **Operations** > **License Management** > **Overview**. You can view and assign licenses in the following tabs:

- **NDFC**
- **Smart**
- **Switch License Files**

Note By default, the **Overview** tab appears.

The **Overview** tab has three cards namely NDFC, Switch, and Smart. These cards display the total number of licenses to purchase and the total number of licenses expiring.

To enable Smart Licensing on switches, click **Setup Smart Licensing**. For more information on Smart Licensing, check Smart section.

NDFC Server Licenses

On NDFC tab, you can review the status of NDFC licenses for each switch. These license may be provisioned on the device, or a Smart License, or an Honor License or Unlicensed device.

Choose one or multiple switches, click **Actions** > **Assign** or **Assign All**.

When you assign a license to a device, the NDFC license service assigns the available license, based on availability on the device, status of smart licensing, and other factors.

Server based smart license is supported for Cisco MDS switches, and Nexus 9000, 3000 7000, and 5000 series of switches.

To add license from your local directory:

1. Click **Add license**.

   The **Add License File** window appears.

2. Click **Select License File** and choose appropriate files from your local directory.

3. Click **Upload** and click **Refresh** icon to refresh table and to view uploaded license files.

   The license filename, type of license, and expiration date details are extracted from the imported license file and listed in the table.

The following table displays the fields that appear on **License Management** > **NDFC**.

Field	Description
Switch Name	Displays the name of the switch.
License Type	Displays the license type of the switch that can be one of the following: • Switch • Smart • Switch Smart
State	Displays the license type of the switch that can be one of the following: • Permanent • Unlicensed • Smart • Expired • Not Applicable • Invalid
Expiration Date	Specifies the expiration date of license.
WWN/Chassis ID	Displays the world wide name or Chassis ID.

Field	Description
Model	Displays the model of the device. For example, DS-C9124 or N5K-C5020P-BF.
Fabric	Specifies the name of the fabric.

The following table describes the action items, in the **Actions** menu drop-down list, that appear on **License Management** > **NDFC**.

Action Item	Description
Assign	Choose a switch, from the **Actions** drop-down list, select **Assign**. A confirmation message appears.
Unassign	Choose a switch, from the **Actions** drop-down list, select **UnAssign**. A confirmation message appears.
Assign All	• To assign license to all switches in the table, from the **Actions** drop-down list, choose **Assign All**. A confirmation message appears • Click **OK** to refresh table.
Unassign All	• To unassign license to all switches in the table, from the **Actions** drop-down list, choose **UnAssign All**. A confirmation message appears • Click **OK** to refresh table.

Smart Licensing

Cisco Nexus Dashboard Fabric Controller allows you to configure Smart Licensing and you can use the Smart Licensing feature to manage licenses at device-level and renew them if required.

Introduction to 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**: Cisco License Central 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 Licensing Central. For a more detailed overview on Cisco Licensing, visit the Licencing Hub.

Smart License Management

This policy runs in the license microservice and provides the ability to manage the licenses for NDFC using CSSM. From this release, you can register smart licensing OnPrem, or offline mode.

When you register smart licensing on NDFC directly with internet access, Cisco Nexus Dashboard uses IP addresses to access the smart license instead of hostname and displays an error.

Ensure that subnets for IP addresses on `smartreceiver.cisco.com` are added to the routing IP address in Cisco Nexus Dashboard.

To add IP addresses, On Cisco Nexus Dashboard Web UI, navigate to **Admin Console**, **Infrastructure** > **Cluster Configuration** > **Routes** area. Click the edit icon and add IP addresses for **Management Network Routes**. Click **Save** to confirm.

The **Smart** page shows the following cards:

- **Enable Smart Licensing**

  Use the toggle switch to enable Smart Licensing. Once enabled, Smart License can assign in two ways, **Establish Trust** or **Offline Mode**.

- **Trust Status**

  Click on **Establish Trust** to establish trust. You can view two options **Transport Gateway - OnPrem with CSLU** and connecting through CSSM either directly with Cisco's licensing servers or **Proxy - Proxy via intermediate HTTP or HTTPS proxy**.

  On the **Establish Trust for Smart License** window, select the transport type to use when establishing trust with the Smart Licensing agent.

  - Choose **Default** to communicate directly with the Cisco Licensing Server.
  - Choose **Transport Gateway - OnPrem with CSLU** and enter appropriate URL.

    You don't require trust token to enable licensing. The trust is established between CSSM and the OnPrem CSLU. From NDFC and OnPrem CSLU, trust is constant, as it expected to be a local connection.
  - Choose **Proxy - Proxy via intermediate HTTP or HTTPS proxy** to transport using the proxy server. Enter the URL and Port details to access via the proxy server. For more information, refer to Smart Licensing using Policy to Establish Trust with CSSM, on page 7.

  If using the default Transport, enter the registration token obtained from CSSM.



Note After Smart Licensing is registered, you must manually assign licenses to the existing switches. For all switches discovered after registration, smart licenses are automatically assigned to the switches.

- **Offline Mode**

In Offline mode you can share data in alternative between NDFC instance and CSSM. Operating in an air-gap or disconnected environment, use of Offline mode allows you to export state, upload it to CSSM, and import a response back to NDFC.

To export license data and to import the response from CSSM, follow below perform the following steps:

1. On **Trust Status** click **Switch to Offline mode** to enable offline mode.
2. In offline mode with one or moe licenses assigned, click **Export License Data**.
3. On https://software.cisco.com/software/csws/ws/platform/home, navigate to smart licensing section, click **Reports** tab, and choose subsequent usage data files tab. The usage report from NDFC can be uploaded and after few minutes a response can be downloaded and imported to NDFC.
4. Click **Import License Data** and upload the CSSM acknowledge file on NDFC.

- **License Status**

  Specifies the status of the licensing on NDFC. The value is **UNCONFIGURED** if the smart licensing is not enabled. After you enable the smart licensing without registering, the value is set to **NO LICENSES IN USE**. The value is set to **IN USE** or **NOT IN USE** after registering and assigning licenses. Click the license status to view the last action, last authorization attempt, next authorization attempt, and the authorization expiry in the **License Authorization Details** pop-up window.

  Click **Policy Details**, to view smart license policy details. You can view the default smart license policy of initial 90 days and ongoing reporting within 365 days of that report.

Note You can view reports after 30 days of initial registering.

Resync

When the total number of NDFC license are not same as CSSM license counts, click **Resync**, to refresh the license counts.

Resync causes a local audit of the NDFC licenses in the switch inventory and updates the smart license counts for reporting

CSSM allows you to convert traditional licenses to Smart Licenses. For instructions, refer to https://www.cisco.com/c/dam/en/us/products/se/2020/8/Collateral/brownfield-conversion-qrg.pdf.

To migrate from Smart Licensing to Smart Licensing using Policy, launch Cisco Nexus Dashboard Fabric Controller. On the Web UI, choose **Operations > License Management > Smart** tab. Establish trust with CCSM using SLP. For instructions, refer to Smart Licensing using Policy to Establish Trust with CSSM, on page 7.

The following table describes the fields that appear in the **Switch Licenses** section.

Field	Description
Name	Specifies the license name.
Count	Specifies the number of licenses used.
Status	Specifies the status of the licenses used. Valid values are **IN USE** and **NOT IN USE**.

Field	Description
Description	Specifies the type and details of the license.

To upload or download license reports, go to https://software.cisco.com/, navigate to **Smart Software Licensing > Reports**. On **Usage Data Files** tab, click **Upload Usage Data** to upload Usage Report from NDFC. After few minutes of uploading the report, click **Download** in the **Acknowledgment** column to download a response brought back to the NDFC and imported.

Switch Licenses

If the switch is pre-configured with a smart license, Nexus Dashboard Fabric Controller validates and assigns a switch smart license. To assign licenses to switch using the Cisco Nexus Dashboard Fabric Controller UI, choose **Operations** > **License Management** > **Smart**. Click **Enable Smart Licensing** toggle button to enable smart licensing feature.

Switch based smart license is supported for MDS switches, and Nexus 9000, and 3000 Series of switches.

Note For the switches which are in managed mode, switch smart license must be assigned through Nexus Dashboard Fabric Controller.

To enable switch smart license on Nexus Dashboard Fabric Controller:

- Enable smart license feature on the switch, using freeform CLI configuration.
- Configure smart licensing on the switch, using feature license smart or license smart enable command on the switch.
- Push token of your device to smart account using license smart register id token command. Use **EXEC** option in Nexus Dashboard Fabric Controller to push token.

Click **Refresh** icon to refresh table.

The following table displays the fields that appear on **License Management** > **Switch**.

Field	Description
Switch	Displays the name of the switch.
Features	Displays the features on the switch.
Status	Displays the status of switch is in use or not. • Unused • In Use • Out Of Compliance

Field	Description
Type	Displays the license type of the switch that can be one of the following: • Temporary • Permanent • Smart • Counter Permanent • Unlicensed • Counted
Warnings	Specifies the warnings about license, such as expiration date and time.
Group	Specifies the fabric or LAN name.

Smart Licensing using Policy to Establish Trust with CSSM

To establish trust with CSSM using the Smart Licensing using Policy on Cisco Nexus Dashboard Fabric Controller, perform the following steps:

Before you begin

- Ensure that there is network reachability between Cisco Nexus Dashboard and CSSM. To configure network reachability, launch **Cisco Nexus Dashboard Web UI**. On **Admin Console**, choose **Infrastructure** > **Cluster Configuration** > **General** tab. In **Routes** area, click the edit icon, and add IP addresses for Data Network Routes. Click **Save** to confirm.
- Ensure that you have obtained the Token from CSSM.

Procedure

Step 1 Choose **Operations** > **License Management** > **Smart** tab.

Step 2 Use the **Enable Smart Licensing** toggle button to enable smart licensing.

Step 3 On the **Trust Status** card, click **Establish Trust**.

The **Establish Trust for Smart License** window appears.

Step 4 Select the **Transport** option to register Smart License Agent.

The options are:

- **Default - NDFC communicates directly with Cisco's licensing servers**

  This option uses the following URL: https://smartreceiver.cisco.com/licservice/license.

- **Transport Gateway – OnPrem with CSLU option**

  Enter the CSLU transport URL.

Note
You must configure the license smart URL on the product to use the CSLU transport URL.

- **Proxy - Proxy via intermediate HTTP or HTTPS proxy**

  Enter the URL and the port if you select this option.

Step 5 In the **Token** field, paste the token that you have obtained from CSSM to establish trust for Smart Licenses.

Step 6 Click **Establish Trust**.

A message appears as confirmation.

The status changes from UNTRUSTED to TRUSTED. The name, count, and status of switch licenses appear.

Click on **TRUSTED** to see the details. The switch details are updated under the Switches/VDCs section of the License Assignments tab. The license type and the license state of switches that are licensed using the smart license option are Smart.

Step 7 Click **NDFC** tab.

Step 8 From the Actions drop-down list, select **Assign All**.

The **Status** of the server licenses shows **InCompliance**.

If the status shows **OutofComplaince**, visit the CSSM portal to acquire the required licenses.

For all other statuses, contact Cisco Technical Assistance Center (TAC).

Switch License Files

Cisco Nexus Dashboard Fabric Controller allows you to upload multiple licenses at a single instance. Nexus Dashboard Fabric Controller parses the license files and extract the switch serial numbers. It maps the serial numbers in the license files with the discovered fabric to install the licenses on each switch. License files are moved to bootflash and installed.

The following table describes the fields that appear on this tab.

Field	Description
Switch	Specifies the switch name.
Switch IP	Specifies the switch IP address.
License File	Specifies the type of license file.
Status	Specifies the status of license.
Result Message	Specifies the license details.
Last Upload Time	Specifies the date and time uploaded on server.
Features	Specifies the license features.

Adding Switch License Files

To bulk install licenses to the switches on the Cisco Nexus Dashboard Fabric Controller Web Client UI, perform the following steps:

Procedure

Step 1 Choose **Operations** > **License Management** > **Switch License Files**.

The **Switch License File** window appears.

Step 2 On the Switch License File tab, click **Add License** to upload the appropriate license file.

The **Add License File** window appears.

Step 3 In the Add License File, click **Select License File**.

Navigate and choose the appropriate license file located in your local directory.

Step 4 Click **Upload**.

The License file is uploaded to the Nexus Dashboard Fabric Controller. The following information is extracted from the license file.

- Switch IP – IP Address of the switch to which this license is assigned.
- License File – filename of the license file
- Features List –list of features supported by the license file

Step 5 Select the set of licenses that you want to upload and install on their respective switches. A license file is applicable for a single specific switch.

Step 6 Click **Actions** > **Install** to install licenses.

The selected licenses are uploaded and installed on their respective switches. Status messages, including any issues or errors are updated for each file as it completes.

Step 7 After the license matches with respective devices and installs, the **Status** column displays the status.