

License Management, Release 12.2.2/12.2.3

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New and Changed Information

The following table provides an overview of the significant changes up to this current release. The table does not provide an exhaustive list of all changes or of the new features up to this release.

Release Version	Feature	Description
There were no major changes from the previous release.		

License Management



Cisco Nexus Dashboard Fabric Controller no longer has support for the following:

- Eval license state
- Server License files

You must convert existing server license files to smart licenses using Cisco Smart Software Manager (CSSM). The CSSM allows you to convert traditional licenses to Smart Licenses. For more information, see Cisco Smart Software Manager and Migrate from Traditional Licensing to Smart Licensing.

To configure license management in Cisco Nexus Dashboard Fabric Controller, navigate to the **License Management** page:

Admin > Licensing

You can view and assign licenses in the following tabs in the **License Management** window:

- Overview
- NDFC Licenses
- Switch License Inventory

Overview

You can view the existing licenses for NDFC-managed devices by choosing **Admin > Licensing**. By default, the **Overview** tab appears.

The **Overview** tab displays all or some of the following cards, depending in the license manager state:

- NDFC Licenses
- Switch License Inventory
- License Management Status
- Smart License Details
- Smart Licenses

NDFC Licenses

The **NDFC Licenses** card in the **Overview** tab displays the total number of unlicensed NDFC-managed devices where licenses need to be purchased or NDFC-managed devices where licenses will be expiring soon. Clicking on the numbers displayed in either the **Need to Purchase** or the **Expiring Soon** areas in the **NDFC Licenses** card redirects you to the NDFC Licenses tab.

Switch License Inventory

The **Switch License Inventory** card in the **Overview** tab displays the total number of switch licenses to purchase and the total number of switch licenses that will be expiring. Clicking on the numbers displayed in either the **Need to Purchase** or the **Expiring Soon** areas in the **Switch License Inventory** card redirects you to the Switch License Inventory tab.

License Management Status

This card displays the license management status. The information displayed in this card varies, depending on the following factors:

- If you have not configured license management yet, then the text "License Management is not configured" appears in the **License Management Status** area. Click Configure License Management to configure license management in this case.
- If you've already configured license management and you selected **Switch-Based License Only** in the Configure License Management window, then the text "Switch based license only" appears in the **License Management Status** area.
- If you've already configured license management and you selected **NDFC Smart License** or **Mixed Mode** in the Configure License Management window, then information related to NDFC Smart Agent appears in the **License Management Status** area:
  - **NDFC Smart Agent**: Shows **Enabled** or **Disabled** as the state for the NDFC Smart Agent.
  - **License Status**: Specifies the status of the licensing on NDFC.

Resync

The **Resync** area is displayed only if you selected **NDFC Smart License** or **Mixed Mode** in the Configure License Management window.

When the total number of licenses for NDFC devices are not same as the CSSM license count, click **Resync** to refresh the license count. Resync causes a local audit of the NDFC licenses in the switch inventory and updates the smart license counts for reporting.

Smart License Details

The **Smart License Details** area is displayed only if you selected **NDFC Smart License** or **Mixed Mode** in the Configure License Management window.

This card provides detailed smart license information, such as the Last report generated date, Next Report generated date, Transport mode, UDI Serial Number, and so on.

- If you enable smart licensing on the server in the *online* mode, you can view information like the Account Name, Virtual Account Name and Transport URL. For more information, see the Online procedure provided in NDFC Smart License.



The **Account Name** and **Virtual Account Name** fields may remain blank until NDFC successfully reports smart licensing usage.

- If you enabled smart licensing on the server in the *offline* mode, the **Export License Data** and **Import License Data** options are displayed, and are used to export the license data and import the response from the CSSM. For more information, see the Offline procedure provided in NDFC Smart License.

Smart Licenses

The **Smart Licenses** area is displayed only if you selected **NDFC Smart License** or **Mixed Mode** in the Configure License Management window.

The following table describes the fields that appear in the **Smart Licenses** area:

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

To upload or download license reports, go to https://software.cisco.com/ and navigate to **Smart Software Licensing > Reports**. In the **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, then import the response into NDFC.

NDFC Licenses

In the **NDFC Licenses** tab, you can review the status of NDFC licenses for each switch. These licenses can be provisioned on the device as a Smart License, an Honor License, or an Unlicensed device.

Choose one or multiple switches by clicking **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, the status of smart licensing, and other factors.

The Cisco MDS switches and Cisco Nexus 3000, 5000, 7000, and 9000 series of switches support a server-based smart license.

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

Field	Description
Switch Name	Displays the name of the switch.
Type	Displays the license type of the switch, which can be one of the following: • Switch • Smart • Switch Smart • DCNM-Server
State	Displays the license type of the switch, which can be one of the following: • Permanent • Unlicensed • Smart • Honor • Expired • Not Applicable • Invalid
Expiration Date	Specifies the expiration date of the license. In the case of the Honor license, the expiration data field shows the date that the switch started using an Honor license.
WWN/Chassis ID	Displays the world wide name or chassis ID.
Model	Displays the model of the device. For example, DS-C9124 or N9K-C93180YC-FX3.
Fabric	Specifies the name of the fabric.

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

Action Item	Description

Assign	Choose a switch, then from the **Actions** drop-down list, choose **Assign**. A confirmation message appears.
Unassign	Choose a switch, then from the **Actions** drop-down list, choose **UnAssign**. A confirmation message appears.
Assign All	To assign license to all switches in the table: 1. From the **Actions** drop-down list, choose **Assign All**. A confirmation message appears. 2. Click **OK** to refresh the table.
Unassign All	To unassign license to all switches in the table: 1. From the **Actions** drop-down list, choose **UnAssign All**. A confirmation message appears. 2. Click **OK** to refresh the table.

Switch License Inventory

The following table displays the fields that appear in **License Management > Switch License Inventory**:

Field	Description
Switch	Displays the name of the switch.
Features	Displays the license features on the switch.
Status	Displays whether the feature on the device is in use or not. - Unused - IN USE - Out Of Compliance
Type	Displays the license type of the switch, which can be one of the following: - Temporary - Permanent License - Smart License - Counter Permanent - Unlicensed - Counted
Warnings	Specifies the warnings about the license, such as the expiration date and time.
Group	Specifies the fabric or LAN name.

Managing License Files

Cisco Nexus Dashboard Fabric Controller allows you to upload multiple licenses with a single instance. Nexus Dashboard Fabric Controller parses the license files and extracts the switch serial numbers. NDFC 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.

To bulk install licenses on the switches on the Cisco Nexus Dashboard Fabric Controller:

1. In the **Switch License Inventory** tab, click **Manage License Files**.

   The **Manage License Files** window appears.

2. Click **Actions > Add License**.

   The **Add License File** window appears.

3. Drag and drop the appropriate files from your local directory, or click **Browse** to navigate to your local directory to select the appropriate files.
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

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

   NDFC uploads and installs the selected licenses on their respective switches. Status messages, including any issues or errors, are updated for each file as the installation completes.

7. After the licenses match with their respective devices and complete their installation, the **Status** column displays the latest status.

The following table describes the fields that appear in the **Manage License Files** window.

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.

Configure License Management

Follow the procedures in this section to configure license management.

1. Navigate to the **License Management** window, if you are not there already.

   Admin > Licensing

   The **License Management** window appears, with the **Overview** tab automatically selected by default.

2. In the **License Management Status** area in the **Overview** tab, click **Configure License Management**.

   The **Configure License Management** window appears.

3. Choose the appropriate license management option based on the licenses that you've purchased.

   The following sections provide more information for each license management type displayed in this window:

   - Switch Based License Only: These are licenses that have one of these characteristics:
     - They are licenses that reside on the switch, such as legacy file-based licenses, or
     - The switch has smart license mode enabled and will retrieve its own license from CSSM (DCN and NX-OS Essentials, Advantage, or Premier License)
   - NDFC Smart License: These are smart licenses for the following switches:
     - N7K
     - N5K
     - 3rd party switches
     - Switches that do not have switch-based licenses
   - Mixed Mode: These are a combination of both switch-based licenses and NDFC smart licenses.

Switch Based License Only

To configure switch-based license management:

1. In the **Configure License Management** window, click the button next to **Switch Based License Only**, then click **Next**.

   The **Switch Based License Only** window appears.

2. Verify that the information provided in this window applies for your switches.

   This mode supports switches operating with the legacy file-based licenses or the switch smart license mode.

   - **Legacy file based licenses**:

You should have licenses reside on the switch in this mode.

- **Switch Smart License**:

  If smart licensing mode is configured on the switch, the switch reports smart license usage to CSSM (Cisco Smart Software Manager). See the documentation for enabling Smart Mode.

  - Minimum NX-OS version for smart license mode: 9.3(6)
  - Minimum MDS version for smart license mode: 9.2(2)

3. Click **Done** to complete the switch-based license management configurations.

NDFC Smart License

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

To use Smart Licensing, you must first set up a Smart Account on Cisco License Central. For a more detailed overview on Cisco Licensing, visit the Licensing Hub.

The Smart Licensing policy runs in the license microservice and provides the ability to manage licenses for NDFC using CSSM. You can register smart licensing on-premises or in the offline mode.

You can discover, configure, and manage licenses for third-party switches, such as Arista switches, on NDFC. You can either configure third-party Essentials licenses for fixed platforms or third-party Essentials licenses for modular platforms. To view a list of supported platforms and chassis IDs, see Smart Licensing Using Policy for Cisco NDFC, Release 12.1.x.

- Enable NDFC server smart licensing; otherwise, the license will be in the **Honor** state.
- When you register smart licensing on NDFC directly with internet access, you might see an error message because Cisco Nexus Dashboard uses IP addresses to access the smart license rather than using a hostname.

  Ensure that subnets for IP addresses on https://smartreceiver.cisco.com/licservice/license are added to the route table in the Nexus Dashboard running NDFC.

  To add IP addresses/subnets, in the Cisco Nexus Dashboard Web GUI, navigate to **Admin > System Settings > Routes**. Click **Edit** in the **Management Network Routes** area and add the necessary IP addresses/subnets, then click **Save** to confirm.

  You can ping https://smartreceiver.cisco.com/licservice/license to find the most recent subnet. For example:

```
$ ping smartreceiver.cisco.com
PING smartreceiver.cisco.com (146.112.59.81): 56 data bytes
```

```
64 bytes from 146.112.59.81: icmp_seq=0 ttl=52 time=48.661 ms
64 bytes from 146.112.59.81: icmp_seq=1 ttl=52 time=44.730 ms
64 bytes from 146.112.59.81: icmp_seq=2 ttl=52 time=48.188 ms
```

- After you register Smart Licensing, you must manually assign licenses to the existing switches. For all switches discovered after registration, smart licenses are automatically assigned to the switches.
- Switch-based smart licenses are supported for MDS switches and the Nexus 9000 and 3000 series of switches.

To configure NDFC smart license management:

1. In the **Configure License Management** window, click the button next to **NDFC Smart License**, then click **Next**.

   The **Select Mode** step in the **Enable NDFC Smart License** window appears.

2. Select the appropriate mode for your NDFC smart license management:

   - Online: In the **Online** mode, NDFC can communicate with the Cisco Smart Licensing servers to report license usage. This includes:
     - Direct Connection
     - Via a proxy
     - Using a Cisco OnPrem server

   A trust token is required for direct connection and proxy. See the Cisco Software Licensing Guide for more information.

   - Offline: In the **Offline** mode, you can share data between the NDFC instance and CSSM. Operating in an air-gap or disconnected environment, usage reporting is done using an xml file, which is downloaded from NDFC before being uploaded to CSSM. A response file is then downloaded from CSSM, which is then uploaded to NDFC. See the Cisco Software Licensing Guide for more information.

Online

To enable the online mode:

1. Select the **Online** option in the **Enable NDFC Smart License** window, then click **Next**.
2. Select the transport option that you would like to use when establishing trust for the Smart License Agent:
   - **Direct**: With this transport option, NDFC communicates directly with Cisco's licensing servers. This option uses the following URL: https://smartreceiver.cisco.com/licservice/license.
     a. Click **Direct**, then click **Next**.
     b. In the **Select Transport** step, click **Get Trust Token**.

        For Direct transport, NDFC must establish Trust with CSSM. A Trust Token can be retrieved or generated at https://software.cisco.com.

c. Enter the trust token in the **Token** field, then click **Next**.

Go to Step 3.

- **Proxy**: With this transport option, NDFC uses a proxy to reach https://smartreceiver.cisco.com/licservice/license.

a. Click **Proxy**, then enter the URL and port details to access the license using a proxy server.

b. Click **Next**.

Go to Step 3.

- **On prem**: With this transport option, NDFC communicates with OnPrem (CSLU Transport Protocol required).

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

a. Click **On prem**, then enter the CSLU transport URL.

You do not require a trust token to enable licensing. Trust is established between the CSSM and the OnPrem CSLU. From NDFC and the OnPrem CSLU, trust is constant, as it expected to be a local connection.

b. Click **Next**.

Go to Step 3.

3. Verify that the process is proceeding correctly.

A screen appears, displaying the progress at each stage of the online license management configuration:

- The **Enabling Smart Agent** field initially shows **In Progress**, then changes to **Success**.
- The **Verifying connectivity to <URL>** field initially shows **Pending**, then changes to **In Progress**, and finally changes to **Success**.
- The **Establish trust** field initially shows **Pending**, then changes to **In Progress**, and finally changes to **Trusted**.

4. When the state in all fields change to **Success** and **Trusted**, click **Done**.

You return to the main **License Management** window, with the **Overview** tab selected by default.

The fields in the **License Management Status** area should display the following values:

- **NDFC Smart Agent**: Enabled
- **License Status**: In Use
- **Trust Status**: Trusted

Offline

To export the license data and import the response from the CSSM:

1. Select the **Offline** option in the **Enable NDFC Smart License** window, then click **Next**.

   A screen appears, displaying the progress of the offline license management configuration:

   - The **Enabling Smart Agent** field changes to **Success**.
   - The **Setting Mode to OFFLINE** field moves from **In Progress** to **Success**.
2. When the state in both fields change to **Success**, click **Done**.

   You return to the main **License Management** window, with the **Overview** tab selected by default.
3. In the **Smart License Details** area, click **Export License Data**.
4. On Cisco Software Central, navigate to the smart licensing section, then click the **Reports** tab and choose the relevant usage data files tab.

   You can upload the usage report from NDFC, and after few minutes, you can download a response and the import response to NDFC.
5. In the **Smart License Details** area within the **Overview** tab in the **License Management** window, click **Import License Data** and upload the CSSM acknowledge file to NDFC.

Mixed Mode

To configure mixed mode license management:

1. In the **Configure License Management** window, click the button next to **Mixed Mode**, then click **Next**.

   The **Mixed Mode** window appears.
2. Verify that the information provided in this window applies for your switches.

   This mode supports both switch-based license and NDFC Smart License.

   - Switch based licenses include switches operating with the legacy file-based licenses or the switch smart license mode. See the documentation for enabling Smart Mode.
     - **Legacy file based licenses**: You should have licenses reside on the switch in this mode.
     - **Switch Smart License**: If smart licensing mode is configured on the switch, the switch reports smart license usage to CSSM (Cisco Smart Software Manager).
       - Minimum NX-OS version for smart license mode: 9.3(6)
       - Minimum MDS version for smart license mode: 9.2(2)
   - NDFC Smart Licenses include Smart license for N7K, N5K, 3rd party and switches that do not have switch based licenses.
3. Click **Next**.
4. Select the appropriate mode for your NDFC smart license management:

- Online: In the **Online** mode, you can communicate with the Cisco Smart Licensing servers to report license usage. This includes:
  - Direct Connection
  - Via a proxy
  - Using a Cisco OnPrem server

A trust token is required for direct connection and proxy. See the Cisco Software Licensing Guide for more information.

- Offline: In the **Offline** mode, you can share data between the NDFC instance and CSSM. Operating in an air-gap or disconnected environment, usage reporting is done using an xml file, which is downloaded from NDFC before being uploaded to CSSM. A response file is then downloaded from CSSM, which is then uploaded to NDFC. See the Cisco Software Licensing Guide for more information.

NDFC Smart Licensing FAQs

For more information on NDFC smart licensing, see the NDFC Smart Licensing FAQs.

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