

# Understand Licensing Modes Supported on NDFC

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## Introduction

This document describes the licensing modes supported on Nexus Dashboard Fabric Controller (NDFC) when managing N3K/N9K.

## Prerequisites

### Requirements

Cisco recommends that you have a familiarity with the Cisco Nexus Dashboard, Nexus Dashboard Fabric Controller, Nexus Operating System (NX-OS) and basic Nexus architecture before you proceed with the information that is described in this document.

### Components Used

The information in this document is based on these software and hardware versions:

Nexus Dashboard Version 3.0.1i

Nexus Dashboard Fabric Controller Version 12.1.3b

NX-OS 9.3(2) 10.2(4)

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.

## Licensing Modes

First of all, as a service running on Nexus Dashboard, NDFC itself does not require a license. Licenses are required for switches managed by NDFC. For Nexus switches, a license starting with DCNM-LAN is required to be managed by NDFC. Therefore, NDFC is only interested in whether the switch it manages

owns a DCNM-LAN license, if not, whether it can obtain one for the switch. NDFC is not responsible for other licenses including LAN\_ENTERPRISE consumed when using routing protocols.

When it discovers a device, NDFC detects the license of the device in the order of Switch Legacy, Switch Smart, Server Smart, and Server Honor.

## Switch Legacy

NDFC first checks if a PAK-based license file (\*.lic) is installed on the switch, and if so, the switch is detected as switch legacy mode. On the License Management tab, the state of the switch is Permanent.

Switch Name	Type	State
 N9K-PAK	Switch	Permanent

```
N9K-PAK(config)# show license usage
Feature                Ins  Lic  Status Expiry Date Comments Count
-----
ACI-STRG                No   -   Unused
ACI-AD-GF                No   -   Unused
ACI-AD-XF                Yes  -   In use never
ACI-ES-GF                No   -   Unused
ACI-ES-XF                No   -   Unused
ACI-AD-XF2               No   -   Unused
ACI-ES-XF2               No   -   Unused
```

## Switch Smart

If the license file is not installed on the switch, NDFC then checks whether the switch is operating in smart license mode (traditional smart license or smart licensing using policy), and if smart license is enabled, NDFC issues the command **license dcnm-lan enable** to check out DCNM-LAN license on the switch. You can confirm the behavior from the accounting log of the switch.

```
N9K-SLP(config)# show accounting log | grep dcnm-lan
```

```
Fri Mar 8 09:01:35 2024:type=update:id=10.124.1.101@pts/1:user=admin:cmd=license dcnm-lan enable (SUCC
```

DCNM-LAN license has been checked out on the switch.

```
N9K-PAK(config)# show license usage
```

```
(LAN_ENTERPRISE_SERVICES_PKG):
Description: LAN license for Nexus 9300-XF
Count: 1
Version: 1.0
Status: IN USE
```

Enforcement Type: NOT ENFORCED  
License Type: Generic

(DCNM-LAN):  
Description: DCNM for LAN Adv License for Nexus9300\_XF  
Count: 1  
Version: 1.0  
Status: IN USE  
Enforcement Type: NOT ENFORCED  
License Type: Generic

DCNM-LAN consumption and reporting are done independently with CSSM on the switch side.

	Switch Name	Type	State
<input type="radio"/>	N9K-SLP	Switch Smart	Smart

### Server Smart

If license file is not installed on the switch and smart license is not enabled, NDFC with smart license configured checks out the DCNM-LAN license from CSSM for the switch. NDFC only gets DCNM-LAN for switch, no other licenses are involved. As you can see in the example, the switch managed by NDFC shows Smart on both Type and State on NDFC, but still does not own a LAN-Enterprise license on the device.

	Switch Name	Type	State
<input type="radio"/>	N9K-Server-Smart	Smart	Smart

```
N9K-Server-Smart# show license usage
Feature                Ins Lic  Status Expiry Date Comments Count
-----
<snip>
LAN_ENTERPRISE_SERVICES_PKG  No   -   In use                Honor Start 12H 54M
-----
```

```
N9K-Honor# show logging log | grep honor
%LICMGR-2-LOG_LIC_MISSING_WARNING: A feature that requires LAN_ENTERPRISE_SERVICES_PKG license is not i
```

### Server Honor

Finally, if the switch itself does not own any form of license and NDFC has not been configured smart license, the switch falls into honor mode. Honor mode does not affect functionality, however, be sure to purchase a license properly.

Switch Name	Type	State
N9K-Honor	DCNM-Server	Honor

```
N9K-Honor# show logging log | grep honor
%LICMGR-2-LOG_LIC_MISSING_WARNING: A feature that requires LAN_ENTERPRISE_SERVICES_PKG license is not i
```

## Summary

To summarize, NDFC detects the licensing mode of the device as shown in the diagram during device discovery.

