

This article describes how to troubleshoot licensing on a Cisco NX-OS device.


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## Information About Troubleshooting Licensing Issues

Cisco NX-OS requires licenses select features. The icenses enable those features on your system. You must purchase a license for each system that you want to enable the licensed features on.

 **Note:** You can enable a feature without installing the license. Cisco NX-OS provides a grace period that allows you to try out the feature before purchasing the license.

### Chassis Serial Numbers

Licenses are created using the serial number of the chassis where the license file is to be installed. Once you order a license based on a chassis serial number, you cannot use this license on any other system.

### Swapping out a Chassis

If you swap out a chassis which included licenses, you must contact TAC to generate a new license. The old license was based on the chassis serial number and will not work with the new chassis.

### Grace Period

If you use a feature that requires a license but you have not installed a license for that feature, you are given a 120-grace period to evaluate the feature. You must purchase and install the number of licenses required for that feature before the grace period ends or Cisco NX-OS will disable the feature at the end of the grace period.

License packages can contain several features. If you disable a feature during the grace period and there are other features in that license package that are still enabled, the clock does not stop for that license package. To suspend the grace period countdown for a licensed feature, you must disable every feature in that license package. Use the **show license usage** command to determine which features are enabled for a license package.

## Licensing Guidelines

Follow these guidelines when dealing with licenses for Cisco NX-OS:

- Do not ignore the grace period expiration warnings. Allow 60 days before the grace period expires to allow time for ordering, shipping, and installation for a new license purchase.
- Carefully determine the license(s) that you require based on the features that require a license.
- Order your license accurately, as follows:
  - ◆ Enter the Product Authorization Key that appears in the Proof of Purchase document that comes with your system.
  - ◆ Enter the correct chassis serial number when ordering the license. The serial number must be for the same chassis that you plan to install the license on. Use the **show license host-id** command to obtain your chassis serial number.
  - ◆ Enter serial numbers accurately. Do not use the letter "O" instead of a zero in the serial number.

- ◆ Order the license that is specific to your chassis.
- Back up the license file to a remote, secure place. Archiving your license files ensures that you will not lose the licenses in the case of a failure on your system.
- Install the correct licenses on each system, using the licenses that were ordered using that system's serial number. Licenses are serial-number specific and platform specific.
- Use the **show license usage** command to verify the license installation.
- Never modify a license file or attempt to use it on a system that it was not ordered for. If you return a chassis, contact your customer support representative to order a replacement license for the new chassis.

## Initial Troubleshooting Checklist

Begin troubleshooting license issues by checking the following issues first:

Checklist	Check off
Verify the chassis serial number for all licenses ordered.	
Verify the platform or module type for all licenses ordered.	
Verify that the Product Authorization Key that you used to order the licenses comes from the same chassis that you retrieved the chassis serial number on.	
Verify that you have installed all licenses on all systems that require the licenses for the features you enable.	

## Displaying License Information Using the CLI

Use the **show license** commands to display all license information configured on this system.

### Example: Displays Information About Current License Usage

```
switch(config)# show license usage
Feature                               Ins  Lic  Status Expiry Date Comments
                                Count
-----
LAN_ADVANCED_SERVICES_PKG            No   -   In use           Grace 102D 0H
LAN_ENTERPRISE_SERVICES_PKG          No   -   In use           Grace 103D 22H
-----
```

### Example: Displays the List of Features in a Specified Package

```
switch(config)# show license usage LAN_ENTERPRISE_SERVICES_PKG
Application
-----
pbr
Tunnel
-----
```

**Example: Displays the Host ID for the License**

```
switch# show license host-id
License hostid: VDH=FOX0646S017
```

**Note:** Use the entire ID that appears after the colon (:). The VDH is the Vendor Host ID.

**Example: Displays All Installed License Key Files and Contents**

```
switch# show license
entp.lic:
SERVER this_host ANY
VENDOR cisco
INCREMENT LAN_ENTERPRISE_SERVICES_PKG cisco 1.0 permanent uncounted \
  VENDOR_STRING=<LIC_SOURCE>MDS_SWIFT</LIC_SOURCE><SKU>N7K-LAN1K9=</SKU> \
  HOSTID=VDH=TBC10412106 \ >
  NOTICE="<LicFileID>20071025133322456</LicFileID>LicLineID>1/LicLineID>
\
```

## Licensing Installation Issues

Common problems with licenses usually occur from incorrectly ordering the license file, installing the license file on an incorrect system, or not ordering the correct number of licenses for your fabric.

### Serial Number Issues

Make sure that you use the correct chassis serial number when ordering your license. Use the **show license host-id** command to obtain the correct chassis serial number for your system using the CLI.

If you use a license meant for another chassis, you may see the following system message:

**Error Message:** LICMGR-3-LOG\_LIC\_INVALID\_HOSTID: Invalid license hostid VDH=[chars] for feature [chars].

**Explanation:** The feature has a license with an invalid license Host ID. This can happen if a supervisor module with licensed features for one system is installed on another system.

**Recommended Action:** Reinstall the correct license for the chassis where the supervisor module is installed.

When entering the chassis serial number during the license ordering process, do not use the letter "O" instead of any zeros in the serial number.

## RMA Chassis Errors or License Transfers Between Systems

A license is specific to the system for which it is issued and is not valid on any other system. If you need to transfer a license from one system to another, contact your technical support representative.

### Receiving Grace Period Warnings After License Installation

If the license installation does not proceed correctly, or if you are using a feature that exists in a license package that you have not installed, you will continue to get grace period warnings.

Symptom	Possible Cause	Solution
You are receiving grace period warnings after a license installation.	The license file is copied to the system but is not installed.	Use the <b>license install</b> command to install the license.
	The license installation failed.	Check your logs for any system messages for a failed license installation. Use the <b>show license usage</b> command to determine which feature is in use without a license.

### Grace Period Alerts

Cisco NX-OS gives you a 120-day grace period. This grace period starts or continues when you are evaluating a feature for which you have not installed a license.

The grace period stops if you disable a feature that you are evaluating. If you enable that feature again without a valid license, the grace period countdown continues where it left off.


The grace period operates across all features in a license package. License packages can contain several features. If you disable a feature during the grace period and there are other features in that license package that are still enabled, the countdown does not stop for that license package. To suspend the grace period countdown for a license package, you must disable every feature in that license package.


The Cisco NX-OS license counter keeps track of all licenses on a system. If you are evaluating a feature and the grace period has started, you will receive console messages, SNMP traps, system messages, and daily Call Home messages.

Beyond that, the frequency of these messages become hourly during the last seven days of the grace period. The following example uses the VDC feature. On January 30th, you enabled the VDC feature, using the 120-day grace period. You will receive grace period ending messages as follows:

- Daily alerts from January 30th to May 21st
- Hourly alerts from May 22nd to May 30th

On May 31st, the grace period ends, and the VDC feature is automatically disabled. You will not be allowed to use multiple VDCs until you purchase a valid license.

 **Note:** You cannot modify the frequency of the grace period messages.

 **Caution:** After the final seven days of the grace period, the feature is turned off and your network traffic may be disrupted. Any future upgrade will enforce license requirements and the 120-day grace period.

If you try to use an unlicensed feature, you may see one of the following system messages:

**Error Message:** LICMGR-2-LOG\_LIC\_GRACE\_EXPIRED: Grace period expired for feature [chars].

**Explanation:** The unlicensed feature has exceeded its grace time period. Applications using this license will be shut down immediately.

**Recommended Action:** Install the license file to continue using the feature.

**Error Message:** LICMGR-3-LOG\_LICAPP\_NO\_LIC: Application [chars] running without [chars] license, shutdown in [dec] days.

**Explanation:** The Application [chars1] has not been licensed. The application will work for a grace period of [dec] days after which it will be shut down unless a license file for the feature is installed.

**Recommended Action:** Install the license to continue using the feature.

**Error Message:** LICMGR-3-LOG\_LIC\_LICENSE\_EXPIRED: Evaluation license expired for feature [chars].

**Explanation:** The feature has exceeded its evaluation time period. The feature will be shut down after a grace period.

**Recommended Action:** Install the license to continue using the feature.

**Error Message:** LICMGR-3-LOG\_LIC\_NO\_LIC: No license(s) present for feature [chars]. Application(s) shutdown in [dec] days.

**Explanation:** The feature has not been licensed. The feature will work for a grace period, after which the application(s) using the feature will be shut down.

**Recommended Action:** Install the license to continue using the feature.

**Error Message:** LICMGR-6-LOG\_LICAPP\_EXPIRY\_WARNING: Application [chars] evaluation license [chars] expiry in [dec] days.

**Explanation:** The application will exceed its evaluation time period in the listed number of days and will be shut down unless a permanent license for the feature is installed.

**Recommended Action:** Install the license file to continue using the feature.

Use the **show license usage** command to display grace period information for a system.

```
switch(config)# show license usage
Feature                               Ins Lic   Status Expiry Date Comments
                                   Count
-----
LAN_ADVANCED_SERVICES_PKG            No   -   In use                Grace 102D 0H
LAN_ENTERPRISE_SERVICES_PKG          No   -   In use                Grace 103D 22H
-----
```

## License Listed as Missing

After a license is installed and operating properly, it may show up as missing if you modify your system hardware or encounter a bootflash: issue.

Symptom	Possible Causes	Solutions
A license is listed as missing.	The supervisor module was replaced after the license was installed.	Use the <a href="#">Corrupted Bootflash Recovery</a> procedure to recover from the corrupted bootflash:. Reinstall the license.
	The supervisor bootflash: is corrupted	

## See Also

[Before Contacting Technical Support](#)

## Further Reading

The following links contain further information on this topic from Cisco.com:

[Cisco Nexus 7000 Series Licensing Information](#)

## External Links

External links contain content developed by external authors. Cisco does not review this content for accuracy.