



Licenses

This chapter describes how to identify and resolve problems related to licenses and includes the following sections:

- [Information About Licenses, page 4-1](#)
- [Prerequisites to License Troubleshooting, page 4-2](#)
- [Problems with Licenses, page 4-3](#)
- [License Troubleshooting Commands, page 4-4](#)

Information About Licenses

The name for the Cisco Nexus 1000V license package is NEXUS1000V_LAN_SERVICES_PKG and the version is 3.0. By default, 1024 licenses are installed with the Virtual Supervisor Module (VSM). These default licenses are valid for 60 days. You can purchase permanent licenses that do not expire.

Licensing is based on the number of CPU sockets on the ESX servers attached as Virtual Ethernet Modules (VEM) to the VSM.

A module is either licensed or unlicensed:

- **Licensed module**—A VEM is licensed if it acquires licenses for all of its CPU sockets from the pool of available licenses installed on the VSM.
- **Unlicensed module**—A VEM is unlicensed if it does not acquire licenses for all of its CPU sockets from the pool of available licenses installed on the VSM.

If a VEM is unlicensed, the virtual Ethernet ports correspond to the virtual machines (VMs) that are kept down and are shown as unlicensed.



Note

The server administrator has no information about VEM licenses. The VEM licensed state must be communicated to server administrators so they are aware that vEthernet interfaces on unlicensed modules cannot pass traffic.

For additional information about licensing, including how to purchase, install, or remove an installed license, see the *Cisco Nexus 1000V License Configuration Guide*.

Contents of the License File

The contents of the Cisco Nexus 1000V license file indicates the number of licenses purchased and the host ID. To display the contents of a license file, use the **show license file** *license_name* command.

```
switch# show license file sample.lic
sample.lic:
SERVER this_host ANY
VENDOR cisco
INCREMENT NEXUS1000V_LAN_SERVICES_PKG cisco 1.0 permanent 16 \
  HOSTID=VDH=8449368321243879080 \
  NOTICE="<LicFileID>sample.lic</LicFileID><LicLineID>0</LicLineID> \
  <PAK>dummyPak</PAK>" SIGN=34FCB2B24AE8
```

The host ID that appears in the license file must match that shown on the VSM. To verify the match, use the **show license host-id** command. See [Example 4-3 on page 4-6](#).



Caution

Do not edit the contents of the license file. The license is invalidated if its contents are altered. If you have already done so, contact your Cisco Customer Support Account Team.

Prerequisites to License Troubleshooting

Before you begin troubleshooting licenses, verify the information in this checklist:

- Make sure that the name of the license file has fewer than 32 characters by using the **show license usage** command. See [Example 4-1 on page 4-5](#).
- Make sure that no other license file with the same name is installed on the VSM by using the **show license usage** command. See [Example 4-1 on page 4-5](#). If there is a license file with the same name, rename your new license file to something else.
- Do not edit the contents of the license file. If you have already done so, contact your Cisco Customer Support Account Team.
- Make sure that the host ID in the license file is the same as the host ID on the switch by using the **show license host-id** command and the **show license file** command. See [Example 4-3 on page 4-6](#) and [Example 4-4 on page 4-6](#).

Problems with Licenses

The following are symptoms, possible causes, and solutions for problems with licenses.

Symptom	Possible Causes	Solution
<p>When you power on a virtual machine with ports on a Cisco Nexus 1000V port group, the interfaces do not come up, but display the following status:</p> <pre>VEM Unlicensed</pre>	<p>A license could not be obtained for the server (VEM) where the virtual machine resides.</p>	<ol style="list-style-type: none"> 1. Verify the license usage. show license usage <i>license_name</i> See Example 4-1 on page 4-5. 2. Determine the number of licenses required by viewing the sockets installed on the VEM. show module vem license-info See Example 4-8 on page 4-7. 3. Contact your Cisco Customer Support Account Team to acquire additional licenses.
<p>You see the following system message:</p> <pre>PLATFORM-2-PFM_LIC_WARN_EXP Syslog 2008 Dec 19 22:28:30 N1KV %PLATFORM-2-PFM_LIC_WARN_EXP: WARNING License for VEMs is about to expire in 1 days! The VEMs' VNICS will be brought down if license is allowed to expire. Please contact your Cisco account team or partner to purchase Licenses. To activate your purchased licenses, click on www.cisco.com/go/license.</pre>	<p>The default or evaluation license in use is about to expire.</p> <p>Note Permanent licenses do not expire.</p>	<ol style="list-style-type: none"> 1. Verify the license usage. show license usage <i>license_name</i> See Example 4-1 on page 4-5. 2. Contact your Cisco Customer Support Account Team to acquire additional licenses.

Symptom	Possible Causes	Solution
<p>You see the following system message:</p> <pre>%LICMGR-2-LOG_LIC_USAGE: Feature NEXUS1000V_LAN_SERVICES_PKG is using 17 licenses, only 16 licenses are installed.</pre>	<p>More licenses are being used than are installed.</p>	<ol style="list-style-type: none"> Verify the license usage. show license usage <i>license_name</i> See Example 4-1 on page 4-5. Contact your Cisco Customer Support Account Team to acquire additional licenses.
<p>VEMs fails to acquire licenses even though the show license usage command shows there are enough licenses available. The following syslog messages are seen:</p> <pre>2014 Jun 7 20:15:36 vsm-demo LICMGR-3-LOG_LIC_CHECKOUT_FAIL_B AD_CLOCK: License checkout failed for feature NEXUS1000V_LAN_SERVICES_PKG (VEM 3 - Socket 1(1.0)) because system clock has been set back. Please set the clock to the correct value.</pre> <pre>2014 Jun 7 20:15:36 vsm-demo VEM_MGR-2-VEM_MGR_UNLICENSED: License for VEM 3 could not be obtained. Please contact your Cisco account team or partner to purchase Licenses or downgrade to Essential Edition. To activate your purchased licenses, click on www.cisco.com/go/license.</pre>	<p>The clock has been changed back manually or through NTP, which has invalidated evaluation licenses. The problem is seen even if there are enough permanent licenses available to license the VEMs as long as evaluation licenses are present. You can look for the following syslog message to find the time when the clock changed:</p> <pre>2014 Jun 7 20:15:24 vsm-demo VEM_MGR-5-VEM_MGR_CLOCK_CHANGE : Clock setting has been changed on the system. Please be aware that, in Advanced edition, clock changes will force a recheckout of all existing VEM licenses. During this recheckout procedure, licensed VEMs which are offline will lose their licenses.</pre>	<ol style="list-style-type: none"> Undo the clock change using the clock set command or uninstall all evaluation licenses using the clear license command. Ensure there are enough permanent licenses available before uninstalling evaluation licenses. Verify that the modules are licensed using the show module vem license-info command.

License Troubleshooting Commands

You can use the commands in this section to troubleshoot problems related to licenses.

Command	Purpose
show module vem license-info	<p>Displays the VEM license information including the license type, license status, license version, and socket count.</p> <p>See Example 4-8 on page 4-7.</p>
show license usage [<i>license_name</i>]	<p>Displays information about the licenses and where they are used. If displayed for a specific license, indicates VEM and socket information.</p> <p>See Example 4-1 on page 4-5.</p>

Command	Purpose
show interface veth	Displays the messages logged about port profile events within the Cisco Nexus 1000V. See Example 4-2 on page 4-6 .
show license host-id	Displays the serial number for your Cisco Nexus 1000V license. See Example 4-3 on page 4-6 .
show license file	Displays the contents of a named license file. See Example 4-4 on page 4-6 .
sys license transfer src-vem <i>vem no</i> license_pool	Transfers the licenses from a VEM to the license pool. See Example 4-5 on page 4-6 .
show license brief	Displays the version and license count information for each license file. See Example 4-6 on page 4-6 .
show switch edition	Displays the switch edition, advanced feature status, license expiry, module and virtual Ethernet scale. Example 4-7 on page 4-7 .

For detailed information about **show** command output, see the *Cisco Nexus 1000V Command Reference*.

EXAMPLES

Example 4-1 **show license usage** *license_name* **Command**

```
switch# show license usage NEXUS1000V_LAN_SERVICES_PKG
-----
Feature Usage Info
-----
      Installed Licenses :    10
      Eval Licenses :      0
      Max Overdraft Licenses :  16
      Installed Licenses in Use :   4
      Overdraft Licenses in Use :   0
      Eval Licenses in Use :      0
      Licenses Available :    22
-----
Application
-----
VEM 3 - Socket 1
VEM 3 - Socket 2
VEM 4 - Socket 1
VEM 4 - Socket 2
-----
switch#
```

Example 4-2 show interface vethernet Command

```
switch# show int veth1
Vethernet1 is down (VEM Unlicensed)
  Port description is VM-Pri, Network Adapter 1
  Hardware is Virtual, address is 0050.56b7.1c7b
  Owner is VM "VM-Pri", adapter is Network Adapter 1
  Active on module 5
  VMware DVS port 32
  Port-Profile is dhcp-profile
  Port mode is access
  Rx
  5002 Input Packets 4008 Unicast Packets
  85 Multicast Packets 909 Broadcast Packets
  846478 Bytes
  Tx
  608046 Output Packets 17129 Unicast Packets
  502543 Multicast Packets 88374 Broadcast Packets 0 Flood Packets
  38144480 Bytes
  20 Input Packet Drops 0 Output Packet Drops
```

Example 4-3 show license host-id Command

```
switch# show license host-id
License hostid: VDH=8449368321243879080
switch#
```

Example 4-4 show license file Command

```
switch# show license file sample.lic
sample.lic:
  SERVER this_host ANY
  VENDOR cisco
  INCREMENT NEXUS1000V_LAN_SERVICES_PKG cisco 3.0 permanent 16 \
  HOSTID=VDH=8449368321243879080 \
  NOTICE="<LicFileID>sample.lic</LicFileID><LicLineID>0</LicLineID> \
  <PAK>dummyPak</PAK>" SIGN=34FCB2B24AE8

switch#
```

Example 4-5 svcs license transfer src-vem vem no license_pool Command

```
switch# svcs license transfer src-vem 3 license_pool
switch#
```

Example 4-6 show license brief Command

```
switch# show license brief
NOTE: * is UPGRADE FILE
-----
File Name Feature Name Version Count Expiry
-----
eval.lic NEXUS1000V_LAN_SERVICES_PKG 1.0 17 3-nov-2014
eval0715.lic NEXUS1000V_LAN_SERVICES_PKG 3.0 17 15-jul-2015

show switch edition (purpose: Displays the switch edition, advanced feature status,
license expiry and module and veth scale)
```

Example 4-7 show switch edition Command

```

switch# show switch edition
Switch Edition: ADVANCED (3.0)

Feature Status
Name State Licensed In version
-----
cts enabled Y 1.0
dhcp-snooping disabled Y 1.0
vxlan-gateway enabled Y 1.0
bgp disabled Y 3.0
bpduguard disabled Y 3.0

License Status
Edition Available In Use Expiry Date
-----
Advanced 17 0 03 Nov 2014

Scale Support
Edition Modules Virtual Ports
-----
Advanced 256 12288

```

Example 4-8 show module vem license-info Command

```

n100v# show module vem license-info
Licenses are Sticky
Mod Socket Count License Usage Count License Version License Status
-----
103 2 2 3.0 licensed
104 2 2 3.0 licensed

```

