



## CHAPTER 4

# Licensing

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This chapter describes how to identify and resolve problems related to licensing for the Cisco Nexus 1000V.

This chapter includes the following sections.

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## Licensing Overview

The name for the Cisco Nexus 1000V license package is NEXUS1000V\_LAN\_SERVICES\_PKG.

The licensing model for Cisco Nexus 1000V is based on the number of CPU sockets of the ESX servers attached as VEMs to the VSM.

A module is licensed or unlicensed according to the following definitions:

- Licensed module—A VEM is considered to be licensed if it is able to acquire licenses for all of its CPU sockets.
- Unlicensed module—A VEM is considered to be unlicensed if it is not able to acquire licenses for any, or a subset of, its CPU sockets.

In the case that a VEM is unlicensed, all the virtual Ethernet ports on the VEM corresponding to the virtual machines (VMs) are kept down, with a reason code indicating that the VEM is unlicensed.

The VSM does not contain any licenses by default.

For additional information about licensing, see the *Cisco Nexus 1000V License Configuration Guide, Release 4.0(4)SV1(1)*.

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## Troubleshooting Unlicensed Modules

By default, the VSM does not contain any licenses. As a result, if you add a VEM to the VSM, the VEM comes up unlicensed.

To identify an unlicensed module, enter the **show module** command on the VSM.

```
n1000v# show module
Mod  Ports  Module-Type                Model                Status
---  ---  -
1    0      Virtual Supervisor Module  Nexus1000V          active *
5    248    Virtual Ethernet Module    NA                   unlicensed
Mod  Sw                Hw
---  ---  -
1    4.0(4)SV1(1)      0.0
5    4.0(4)SV1(1)      0.4
Mod  MAC-Address(es)      Serial-Num
---  ---  -
1    00-19-07-6c-5a-a8 to 00-19-07-6c-62-a8  NA
5    02-00-0c-00-05-00 to 02-00-0c-00-05-80  NA
Mod  Server-IP          Server-UUID                Server-Name
---  ---  -
1    172.23.232.140     NA                          NA
5    172.23.233.100     33393935-3234-5553-4539-30364e345630  172.23.233.100
```

As shown, the status field for VEM 5 is unlicensed.

To gather information about why vEthernet interfaces are in VEM unlicensed state, enter the **show interface veth** command.

```
n1000v# 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
```

If you power on a virtual machine with ports on a Cisco Nexus 1000V port group set, the interfaces are kept down with the status as VEM Unlicensed if the VEM is unlicensed.



### Note

The server administrator has no information on whether the VEMs are licensed or unlicensed. Therefore, the license state of the VEMs must be communicated to the server administrators so that they are aware that the vEthernet interfaces on unlicensed modules will not be able to pass traffic.

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## Troubleshooting License Installation Issues

This section assumes that you have a valid Cisco Nexus 1000V license file.

For information on how to purchase or install a license file, see the *Cisco Nexus 1000V License Configuration Guide, Release 4.0(4)SV1(1)*.

### License Troubleshooting Checklist

Before you start the troubleshooting process, follow these requirements:

- Make sure the name of the license file is less than 32 characters.
- Make sure no other license file with the same name is installed on the VSM. 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, please contact your Cisco Customer Support Account Team.
- Make sure the Host-ID in the license file is the same as that on the switch.

### Contents of the License File

The Cisco Nexus 1000V license file looks as follows:

```
SERVER this_host ANY
VENDOR cisco
INCREMENT NEXUS1000V_LAN_SERVICES_PKG cisco 1.0 26-jun-2009 16 \

HOSTID=VDH=4724514071229227089 \
NOTICE="<LicFileID>20090427142506674</LicFileID><LicLineID>1</LicLineID> \
<PAK12345></PAK12345>" SIGN=E0AF5428C434

Host-ID of the VSM
n1000v#show license host-id
License hostid: VDH=4724514071229227089
```

Notice that both instances of the host-id match and are equal to VDH=4724514071229227089.

### Removing an Evaluation License File

If an evaluation license file is already installed on the VSM, then it must be removed from the VSM before installing a permanent license file. For more information, see the *Cisco Nexus 1000V License Configuration Guide, Release 4.0(4)SV1(1)*.

### Determining License Usage

To view the license state of the VEMs on your VSM and the number of CPU sockets per VEM, use the following command:

**show module vem internal license-info**

**Example:**

```
n1000v# show module vem internal license-info
```

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```

License Sync Initiator      : VEM 5
License Sync Stages        : Complete
Num of Def Licenses in Use : 0
Num of Sync participants   : 1
License Host-ID            : 4724514071229227089
-----VEM License Info -----
Vem      Current License Operation      License Status  License Flags
-----
5                None                    licensed      None
-----VEM Socket License Info -----
Vem      Sync      License Usage      Sockets License Version
-----
5                Yes                2                2                1.0

```

In this output, VEM 5 is Licensed. It has 2 CPU sockets and it currently uses 2 licenses.

## Installed License Information

Use the **show license usage** command to view the installed license count.

```

n1000v#show license usage
Feature                               Ins Lic  Status Expiry Date Comments
                               Count
-----
NEXUS1000V_LAN_SERVICES_PKG    Yes  16   In use 26 Jun 2009 -
-----

```

The output shows that 16 licenses have been installed and they will expire on June 26, 2009.

## Troubleshooting Post License Installation Problems

After you install a license, you might see syslog messages like the following, which indicate a problem:

### PLATFORM-2-PFM-VEM\_UNLICENSED Syslog

**Error Message** 2008 Dec 19 22:28:30 N1KV %PLATFORM-2-PFM\_VEM\_UNLICENSED: License for VEM 5 could not be obtained. Please contact your Cisco account team or partner to purchase Licenses. To activate your purchased licenses, click on [www.cisco.com/go/license](http://www.cisco.com/go/license).

**Explanation** It means that enough licenses were not installed to license the CPU Sockets of all the VEMs connected to the VSM.

**Recommended Action** Install additional licenses for the VEMs that have not been able to acquire licenses.



#### Note

To determine how many CPU sockets a particular VEM has, see the [“Determining License Usage” procedure on page 4-3](#).

If the license file is about to expire, then you might see the following syslog message:

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### PLATFORM-2-PFM\_LIC\_WARN\_EXP Syslog

**Error Message** 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](http://www.cisco.com/go/license).

**Explanation** This is a warning message saying that the license file is going to expire within a certain period of time.

**Recommended Action** Contact your Cisco Account team to purchase a license file.

## Troubleshooting the Removal of a License

You cannot clear a license file that is currently being used.

To see how many licenses have currently been checked out, use the **show module vem internal license-info** command.

```
n1000v#show module vem internal license-info
License Sync Initiator      : VEM 5
License Sync Stages        : Complete
Num of Def Licenses in Use : 0
Num of Sync participants   : 1
License Host-ID            : 4724514071229227089
-----VEM License Info -----
Vem      Current License Operation      License Status  License Flags
--      -
5                None                    licensed      None
6                None                    licensed      None
-----VEM Socket License Info -----
Vem      Sync      License Usage      Sockets License Version
--      -
5        Yes        2                2                1.0
6        Yes        2                2                1.0
```

To clear a license file, you need to manually release the licenses bound to each of the VEMs, and then clear the license file using the **clear license** command.

```
n1000v#clear license n1kv_license.lic
Clearing license failed: License is in use
n1000v#svs license transfer src-vem 5 license_pool
n1000v#svs license transfer src-vem 6 license_pool
```

```
n1000v#show module 5
Mod  Ports  Module-Type      Model      Status
--  -
5    248    Virtual Ethernet Module  NA        unlicensed
Mod  Sw      Hw
--  -
5    NA     NA
Mod  MAC-Address(es)      Serial-Num
--  -
5    02-00-0c-00-05-00 to 02-00-0c-00-05-80  NA
Mod  Server-IP      Server-UUID      Server-Name
--  -
```

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```

5      172.23.233.100      33393935-3234-5553-4539-30364e345630      172.23.233.100

n1000v#show module 6
Mod  Ports  Module-Type                Model                Status
---  ---
6    248    Virtual Ethernet Module   NA                   unlicensed
Mod  Sw      Hw
--  --
6    NA     NA
Mod  MAC-Address(es)          Serial-Num
---  ---
6    02-00-0c-00-05-00 to 02-00-0c-00-05-80  NA
Mod  Server-IP                Server-UUID          Server-Name
---  ---
6    172.23.233.101          12354635-3192-7653-3690-12375a5345721  172.23.233.101

n1000v#clear license n1kv_license.lic
Clearing license .....done

```