



# Installing and Configuring Licenses

---

This chapter includes the following sections:

- [Information About Licenses](#), page 1
- [Licensing Guidelines and Limitations](#), page 1
- [Default License Configuration Settings](#), page 2
- [Obtaining and Installing a License](#), page 2
- [Changing the Serial Number in a License](#), page 4
- [Verifying the License Configuration](#), page 6
- [Feature History for Licenses](#), page 6

## Information About Licenses

### Licensing Guidelines and Limitations

Use the following guidelines and limitations when configuring the permanent licenses:

- If you modify a permanent license key file, it is invalidated.
- When you purchase permanent licenses, the license key file is sent to you in an e-mail. The license key authorizes use on only the host ID device. You must obtain a separate license key file for each of your VSMs.
- A license file contains the number of licenses ordered for your VSM. One license is required for every active VM in the cloud.
- A VSM can have more than one license file depending on the number of VMs in the cloud.
- You must have a role equivalent to that of network-admin to install, uninstall, or copy a permanent license file. For information about user accounts and roles, see the *Cisco Nexus 1000V InterCloud Security Configuration Guide*.
- If you are installing multiple permanent licenses for the same VMs, also called license stacking, each permanent license key filename must be unique.

- If a license is in use, you cannot delete its license file. You must first transfer all licenses from the VMs to the VSM license pool before uninstalling the license file by powering down the VMs.
- When you install a permanent license file, all default and evaluation licenses are invalidated.

## Default License Configuration Settings

Configuration Option	Description
license filename	NEXUS1000V_INTERCLOUD_VM_PKG

## Obtaining and Installing a License

This section describes how to obtain the license file that is required for each VSM and then install it. This section includes the following topics:

- [Obtaining the License File, on page 2.](#)
- [Installing the License File on the VSM, on page 3.](#)

## Obtaining the License File

License files have the following characteristics:

- A license file is tied to each VSM by the host ID or the serial number associated with the VSM device.
- A license file contains the number of licenses ordered for your VSM. One license is required for each VM, but no license is required for the VSM or InterCloud Switch or InterCloud Extender itself.
- A VSM can have more than one license file depending on the VMs in the cloud.

### Before You Begin

- Make sure that you have your product authorization key (PAK), which is in your software license claim certificate.  
If you cannot locate your software license claim certificate, contact [Cisco Technical Support](#).
- You are logged in to the CLI in EXEC mode.
- In this procedure, you must copy a license file. This process requires that your username has a role equivalent to that of the network-admin role which allows you to copy files. For information about user accounts and roles, see the *Cisco Nexus 1000V InterCloud Security Configuration Guide*.

## Procedure

- Step 1** Obtain the serial number, also called the host ID, for your VSM using the following command: **show license host-id**

```
switch# show license host-id
License hostid: VDH=1280389551234985805
```

**Note** The host ID includes everything that appears after the equal sign (=). In this example, the host ID is 1280389551234985805.

- Step 2** From your software license claim certificate, locate the product authorization key (PAK).

- Step 3** Go to the [Software Download](#) site.

- Step 4** From the Software Download site, go to the [Product License Registration](#) site.

- Step 5** From the Product License Registration website, follow the instructions for registering your VSM license. The license key file is sent to you in an e-mail. The license key authorizes use on only the host ID device. You must obtain separate license key file(s) for each of your VSMs.

**Caution** Modifying the license key file in any way invalidates it. Make sure you keep the file intact and unchanged.

- Step 6** Save your license to a SCP/SFTP/TFTP server.

- Step 7** Copy your license to bootflash on the VSM.

```
switch# copy scp://user@linux-box.cisco.com/home/user/nlkv_license.lic bootflash:
Enter vrf (If no input, current vrf 'default' is considered):
user@linux-box.cisco.com's password:
nlkv_license.lic                               100% 252      0.3KB/s   00:00

switch#
```

## Installing the License File on the VSM

You can install the license files on the VSM. Default licenses are invalidated when a permanent license file is installed.

### Before You Begin

- Make sure that the license file you are installing contains the number of licenses needed to cover all the VMs in the cloud.
- The example below installs the license file using the name `kumo_perm.lic`. You can specify a different name if needed.
- If you are installing multiple licenses for the same VSM, also called license stacking, make sure that each license key filename is unique.
- Repeat this procedure for each additional license file you are installing, or stacking, on the VSM.
- You are logged in to the CLI in EXEC mode.
- You must have a role with privileges equivalent to that of the network-admin role to install a license. For information about user accounts and roles, see the *Cisco Nexus 1000V InterCloud Security Configuration Guide*.

**Procedure**

	<b>Command or Action</b>	<b>Purpose</b>
<b>Step 1</b>	switch# <b>install license bootflash:</b> <i>filename</i>	Installs the license from the active VSM console.  <b>Note</b> If you specify a license filename, the file is installed with the specified name. Otherwise, the default filename is used.  The license is installed on the VSM.
<b>Step 2</b>	switch# <b>show license file</b> <i>filename</i>	Verifies the license installation by displaying the license configured for the VSM.
<b>Step 3</b>	switch# <b>show license usage</b> <i>package_name</i>	Verifies the license installation by displaying it in the license usage table.
<b>Step 4</b>	switch# <b>copy running-config</b> <b>startup-config</b>	(Optional) Saves the change persistently through reboots and restarts by copying the running configuration to the startup configuration.

This example shows how to install a license file and then display its contents and usage:

```
switch# install license bootflash:kumo_perm.lic
Installing license ..done
switch# show license file kumo_perm.lic
kumo_perm.lic:
SERVER this_host ANY
VENDOR cisco
INCREMENT NEXUS1000V_INTERCLOUD_VM_PKG cisco 1.0 permanent 3 \
  HOSTID=VDH=1260092958136993530 \
  NOTICE="<LicFileID>20130605162046006</LicFileID><LicLineID>1</LicLineID>
\
  <PAK></PAK>" SIGN=D6A9A75E8E18
switch# show license file usage NEXUS1000V_InterCloud_VM_SERVICES_PKG
-----
Feature Usage Info
-----
      Installed Licenses : 3
      Default Eval Licenses : 0
      Max Overdraft Licenses : 16
      Installed Licenses in Use : 0
      Overdraft Licenses in Use : 0
      Default Eval Lic in Use : 0
      Default Eval days left : 0
      Licenses Available : 19
      Shortest Expiry : Never
-----
switch#
```

## Changing the Serial Number in a License

You can change the serial number, or host ID, associated with a license. This process is also called rehosting and is required if you replace a VSM in your network with a new VSM.

**Caution**

Service Disruption—When you remove a VSM from your network, the vEthernet interfaces on the VEMs are removed from service and the traffic flowing to them from virtual machines is dropped. This traffic flow is not resumed until you add a new VSM and new license file with the new host ID.

- A license file is tied to each VSM by the host ID associated with the VSM device.
- A license file contains the number of licenses ordered for your VSM. One license is required for every VM.
- A VSM can have more than one license file depending on the number of installed VMs.
- If you have multiple license files stacked on your VSM, repeat this process for each license file.

**Before You Begin**

- You have a copy of your existing license files with the host ID of the existing VSM.
- You are logged in to the CLI in EXEC mode.
- You must copy a license file. Your username must have the network-admin role that allows you to copy files. For information about user accounts and roles, see the *Cisco Nexus 1000V InterCloud Security Configuration Guide*.

**Procedure**

**Step 1** Obtain the serial number, also called the host ID, for your new VSM:

```
switch# show license host-id
License hostid: VDH=1280389551234985805
```

**Note** The host ID number appears after the equal sign (=). In this example, the host ID is 1280389551234985805.

**Step 2** E-mail the following information to [licensing@cisco.com](mailto:licensing@cisco.com), requesting the license file be rehosted to the new host ID:

- The old host ID
- The new host ID

A new license key file, with the host ID of the new VSM, is sent to you in e-mail within 48 hours.

**Note** Do not modify the license key file. The license key file is invalidated if you modify it.

**Step 3** Save your license to a SCP/SFTP/TFTP server.

**Step 4** Copy your license to bootflash on the VSM.

```
switch# copy scp://user@linux-box.cisco.com/home/user/nlkv_license.lic bootflash:
Enter vrf (If no input, current vrf 'default' is considered):
user@linux-box.cisco.com's password:
nlkv_license.lic                               100% 252      0.3KB/s   00:00
switch#
```

**What to Do Next**

Install the license file on the VSM. See [Installing the License File on the VSM](#), on page 3.

## Verifying the License Configuration

To verify the license configuration, use one of the following commands:

Command	Purpose
<code>show license</code>	Displays the license filename for the VSM.
<code>show license brief</code>	Displays the license installed on the VSM.
<code>show license file <i>filename</i></code>	Displays the contents of the license file installed on the VSM, including the license filename and the expiration date for evaluation licenses.
<code>show license usage</code>	Displays the total number of licenses in use on the VEMs.
<code>show license usage <i>package_name</i></code>	Displays statistics about the number of evaluation and permanent licenses available, installed, and in use on the VSM.  When you use this command, the <code>Default Eval days left</code> field displays the number of default evaluation days that are remaining before the license expires, not including the present day.

## Feature History for Licenses

This table includes only the updates for those releases that have resulted in additions or changes to the feature.

Feature Name	Releases	Feature Information
License	Release 5.2(1)IC1(1.1)	This feature was introduced.