



# Installing and Configuring Licenses

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## Information About Installing and Upgrading Licenses

### Licensing for New Software Installations

By default, the switch uses the Essential edition license. Default licenses are valid for 60 days from the time of installation. During this time, you are allowed to change the license edition to Advanced and try out the advanced features.

When you install the evaluation or permanent licenses at any time during the default license period, the switch stops using the default licenses and starts using the installed licenses. When the default or the installed licenses expire, if the switch edition is Advanced, it remains in the Advanced edition. You can change the switch edition to the Essential edition even after the license has expired.

### Licensing for Software Upgrades

When you upgrade the Cisco Nexus 1000V software, the default edition depends on whether your current software version supports Essential and Advanced editions.

- If you are upgrading from a version of the Cisco Nexus 1000V software that supports Essential and Advanced editions, the upgraded Cisco Nexus 1000V software defaults to the same edition as your existing system.
- If you are upgrading from a version of the Cisco Nexus 1000V software that does not include tier-based licensing, the upgraded Cisco Nexus 1000V software defaults to the Advanced edition.
- If you are upgrading from any version of the Cisco Nexus 1000V software during the default evaluation period, the trial period is reset to the Advanced edition and the license (socket) count is doubled after the upgrade.

At any time, if you change from the Advanced edition to the Essential edition, the software checks in any licenses that it has checked out of the license pool.

## Licensing Guidelines and Limitations

Licensing has the following configuration guidelines and limitations:

### Licensing Guidelines and Limitations for All Cisco Nexus 1000V Switches

- If you modify a license key file, it is invalidated.
- A license file contains the number of licenses ordered for your VSM. One license is required for each CPU socket on each VEM, but you do not need a license for the VSM itself.
- 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 Security Configuration Guide* for your platform.
- If you are installing multiple licenses for the same VSM, which is also called license stacking, each license key filename must be unique.
- Licenses cannot be applied to a VEM unless sufficient licenses are in the pool to cover all of its CPU sockets.
- If a license is in use, you cannot delete its license file. You must first transfer all licenses from the VEMs to the VSM license pool before uninstalling the license file.
- When you install a license file, the default licenses are invalidated.
- When you upgrade the Cisco Nexus 1000V on Hyper-V from the 5.2(1)SM1(5.2) software release, the Advanced and Essential license modes have the following guidelines:
  - 1 You must install the Hyper-V based licenses (Evaluation or Permanent) before you upgrade the software to the 5.2(1)SM1(5.2) software release.
  - 2 If you try to upgrade the software with the default license, then the upgrade will fail.
  - 3 Platform specific licenses are checked in and the Multi-Hypervisor Licenses are checked out only after the VSM upgrade.
  - 4 The upgrade from the 5.2(1)SM1(5.2) software release is supported in an Essential edition, when the default license is in use.
  - 5 After a successful upgrade, the License Socket count is changed to 1024 with the evaluation period changed to 60 days.

- When you upgrade to a new software release, all previously installed licenses remain in effect. If the switch is still in the default licensing period, that period is extended for another 60 days from the software upgrade date.
- The license expiry warning messages are logged even when the expiring licenses are not in use.
- After you install a license on a VSM, the VEMs that are attached to that VSM request licenses from the Cisco Nexus 1000V License Manager when they come up. If the request for licenses fails, the VEM is marked as unlicensed and the virtual Ethernet (vEth) interfaces that are attached to that VEM are not allowed to come up.
- If you have more than 4,096 vEthernet interfaces and want to change the license edition from Advanced to Essentials, you must reduce the number of virtual interfaces by migrating the virtual machines from the Cisco Nexus 1000V DVS to the vSwitch or DVS.

#### Licensing Guidelines and Limitations for Cisco Nexus 1000V for VMware Only

- When you purchase permanent licenses, the license key file is sent to you in an e-mail. It authorizes use on only the host ID device.
- For the Cisco Nexus 1000V for VMware, the Cisco VSG is included with the Advanced Edition 1.0 license. A separate license for Cisco VSG is no longer required for using Cisco VSG. If you try to install a Cisco VSG license (that you purchased earlier) on a Cisco Nexus 1000V Release 5.2(1)SV3(1.1) or later, the installation will fail with the following message:

```
Installing license failed: VSG license is no longer required.
VSG feature is now included in Nexus 1000V Advanced Edition.
To activate VSG, please ensure system is in Advanced Edition
and a valid license for NEXUS1000V_LAN_SERVICES_PKG is installed.
```

## Default License Configuration Settings

Configuration Option	Description
license package name	NEXUS1000V_LAN_SERVICES_PKG
switch edition	New installs use the Essential edition by default. Upgrades use the same edition as the previous install, if one was configured. If not, upgrades (for example, from versions older than 4.2(1)SV2(1.1) use the Advanced edition by default.
volatile/nonvolatile licensing	The Cisco Nexus 1000V uses nonvolatile licensing by default, which maintains the link between a license and its assigned VEM until you manually transfer that license, even if the VEM goes out of service.

# Obtaining and Installing a License

## 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 that is associated with the VSM device.
- A license file contains the number of licenses ordered for your VSM. One license is required for each CPU socket on each VEM, but no license is required for the VSM itself.

### 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](#).
- Log in to the CLI in EXEC mode.
- Your username must have a role that is 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 Security Configuration Guide* for your platform.

### Procedure

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

```
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 Product License Registration site at [www.cisco.com/go/license](http://www.cisco.com/go/license).

**Step 4** 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 that you keep the file intact and unchanged.

**Step 5** Save your license to a SCP/SFTP/TFTP server.

**Step 6** 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
```

---

## Installing the License File on the VSM

### Before You Begin

- Make sure that the license file you are installing contains the number of licenses needed to cover all CPU sockets on all VEMs.
- Know that this procedure installs the license file using the name `n1kv_license.lic`. You can specify a different name if needed.
- If you are installing multiple licenses for the same VSM, which is also called license stacking, make sure that each license key filename is unique.
- Repeat this procedure for each additional license file that 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 Security Configuration Guide* for your platform.

### Procedure

	Command or Action	Purpose
<b>Step 1</b>	<code>switch# install license bootflash: <i>filename</i></code>	Installs the license from the active VSM console. The license is installed on the VSM and each VEM automatically acquires a license for every CPU socket.
<b>Step 2</b>	<code>switch# show license file <i>filename</i></code>	Verifies the license installation by displaying the license configured for the VSM.
<b>Step 3</b>	<code>switch# show license usage <i>package_name</i></code>	Verifies the license installation by displaying it in the license usage table.
<b>Step 4</b>	<code>switch# copy running-config startup-config</code>	(Optional) Saves the change persistently through reboots and restarts by copying the running configuration to the startup configuration.

This example shows how to install the Advanced Edition 1.0 license file and then display its contents and usage:

```
switch# install license bootflash:n1kv_license.lic
Installing license ..done
switch# show license file n1kv_license.lic
n1kv_license.lic:
SERVER this_host ANY
VENDOR cisco
INCREMENT NEXUS1000V_LAN_SERVICES_PKG cisco 1.0 permanent 12 \
  HOSTID=VDH=7647652151359566304 \
  NOTICE="<LicFileID>new_3_0_12/<LicFileID><LicLineID>0/<LicLineID> \
  <PAK>dummyPak</PAK>" SIGN=4130C2806DF4
switch# show license usage NEXUS1000V_LAN_SERVICES_PKG
```

```

Feature                               Ver Ins Lic  Status Expiry Date Comments
                               Count
-----
NEXUS1000V_LAN_SERVICES_PKG         1.0 Yes   10  In use Never      -
-----
Feature                               Description
-----
NEXUS1000V_LAN_SERVICES_PKG         NEXUS1000V Advanced services pkg
-----
Note: Licenses are not required for Essential Edition
-----

```

This example shows how to install the Advanced Edition 3.0 license file and display its contents and usage:

```

switch# install license bootflash:nlkv_license.lic
Installing license ..done
switch# show license file nlkv_license.lic
nlkv_license.lic:
SERVER this_host ANY
VENDOR cisco
INCREMENT NEXUS1000V_LAN_SERVICES_PKG cisco 3.0 permanent 16 \
  HOSTID=VDH=7647652151359566304 \
  NOTICE="<LicFileID>test_3_0.lic</LicFileID><LicLineID>0</LicLineID> \
  <PAK>dummyPak</PAK>" SIGN=C8824134C5F4

switch# show license usage NEXUS1000V_LAN_SERVICES_PKG
Feature                               Ver Ins Lic  Status Expiry Date Comments
                               Count
-----
NEXUS1000V_LAN_SERVICES_PKG         3.0 Yes   16  In use Never      -
-----
Feature                               Description
-----
NEXUS1000V_LAN_SERVICES_PKG         NEXUS1000V Advanced services pkg
-----
Note: Licenses are not required for Essential Edition
-----

```

## Verifying the License Configuration

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

Command	Purpose
<b>show license</b>	Displays the license filename for the VSM.
<b>show license brief</b>	Displays the license installed on the VSM.
<b>show license file <i>filename</i></b>	Displays the contents of the license file installed on the VSM, including the license filename, license package name, and the expiration date for evaluation licenses.
<b>show license usage</b>	Displays the total number of licenses in use on the VEMs.

Command	Purpose
<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 <b>Default Eval days</b> left field displays the number of default evaluation days that are remaining before the license expires, not including the present day.
<code>show module vem [<i>module</i>] license-info</code>	Displays the license mode and the usage of licenses by each module.

## Transferring Licenses

### Transferring Licenses Between VEMs

You can transfer licenses from one VEM to another, for example, when one VEM is removed from service.

- Licenses cannot be transferred to a VEM unless there are sufficient licenses in the pool to cover all of its CPUs.
- When licenses are successfully transferred from one VEM to another, the virtual Ethernet interfaces on the source VEM are removed from service, and the virtual Ethernet interfaces on the destination VEM are brought into service. The licenses on the source VEM are checked in regardless of any failure that might occur while the destination module is being licensed.
- The VEM can operate independent of VSM. This mode of operation is called headless mode. In headless mode, the VEM uses that last known licensing information.

#### Before You Begin

- Log in to the CLI in EXEC mode.
- You know the VEM that you want to transfer licenses from and the number of licenses it has.
- You know the VEM that you are transferring licenses to and the number of licenses required.
- You know the number of CPUs installed on the destination VEM.

#### Procedure

	Command or Action	Purpose
<b>Step 1</b>	<code>switch# configure terminal</code>	Enters global configuration mode.
<b>Step 2</b>	<code>switch(config)# svs license transfer src-vem <i>vem_no</i> dst-vem <i>vem_no</i></code>	Transfers the licenses from one VEM to another.

	Command or Action	Purpose
<b>Step 3</b>	switch# <b>show license usage</b> <i>package_name</i>	Verifies the transfer by displaying the licenses in use on each VEM.
<b>Step 4</b>	switch(config)# <b>copy running-config 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 transfer a license from VEM 3 to VEM 5 and verify the transfer in the license usage:

```
switch# configure terminal
switch(config)# svs license transfer src-vem 3 dst-vem 5
switch(config)# show license usage NEXUS1000V_LAN_SERVICES_PKG
Feature                               Ver  Ins  Lic  Status  Expiry Date  Comments
Count
-----
NEXUS1000V_LAN_SERVICES_PKG          1.0  Yes   12   In use  Never         -
-----
Feature                               Description
-----
NEXUS1000V_LAN_SERVICES_PKG          NEXUS1000V Advanced services pkg
-----

switch(config)# copy running-config startup-config
```

## Transferring Licenses to the License Pool

You can transfer licenses from a VEM to the VSM license pool. This procedure must be performed in the following cases:

- If you want to uninstall a license file that contains one or more licenses currently assigned to a VEM.
- If you are using nonvolatile licensing and you want to take a VEM out of service.



### Note

When you transfer its licenses to the VSM license pool, all virtual Ethernet interfaces on the VEM are removed from service.

### Before You Begin

Log in to the CLI in EXEC mode.

### Procedure

	Command or Action	Purpose
<b>Step 1</b>	switch# <b>configure terminal</b>	Enters global configuration mode.



	Command or Action	Purpose
<b>Step 2</b>	switch(config)# <b>svs license transfer src-vem <i>vem_no</i> license_pool</b>	Transfers the licenses from a VEM to the license pool.
<b>Step 3</b>	switch(config)# <b>show module vem <i>module</i> license-info</b>	(Optional) Verifies the transfer by displaying the licenses in use on the VEM.
<b>Step 4</b>	switch(config)# <b>copy running-config 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 transfer a license from VEM 3 to the license pool:

```
switch# configure terminal
switch(config)# svs license transfer src-vem 3 license_pool
switch(config)# copy running-config startup-config
```

## Transferring Licenses from the License Pool to a VEM

### Before You Begin

- Configure the switch to use the Advanced edition.
- Log in to the CLI in EXEC mode.
- Verify that there are enough available licenses for all CPU sockets on the VEM. If the license request fails for a module, enter the **svs license transfer license\_pool dst-vem *module*** command to transfer the licenses from the license pool to the VEM.

### Procedure

	Command or Action	Purpose
<b>Step 1</b>	switch# <b>configure terminal</b>	Enters global configuration mode.
<b>Step 2</b>	switch(config)# <b>svs license transfer license_pool dst-vem <i>module</i></b>	Transfers a license from the license pool to the VEM. The <i>module</i> argument range is from 3 to 66.
<b>Step 3</b>	switch(config)# <b>show module vem <i>module</i> license-info</b>	Verifies the transfer by displaying the licenses in use on each VEM.
<b>Step 4</b>	switch(config)# <b>copy running-config 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 transfer licences to the CPU sockets on VEM 3 and verify that these licenses have been applied:

```
switch# configure terminal
switch(config)# svcs license transfer license_pool dst-vem 3
switch(config)# show module vem 3 license-info
Licenses are Sticky
Mod      Socket Count      License Usage Count      License Version      License Status
---      -
3        2                  2                          1.0                  licensed
switch(config)# copy running-config startup-config
```

## Configuring Volatile Licenses

### Enabling Volatile Licenses

You can enable volatile licenses so that whenever a VEM is taken out of service, its licenses are returned to the VSM pool of available licenses.



#### Caution

Service Disruption—Volatile licenses are removed from a VEM during a loss in connectivity and must be reassigned when connectivity resumes. We recommend that you use nonvolatile licensing and you transfer unused licenses as described in [Transferring Licenses to the License Pool](#), on page 8.

#### Before You Begin

Log in to the CLI in EXEC mode.

#### Procedure

	Command or Action	Purpose
<b>Step 1</b>	switch# <b>configure terminal</b>	Enters global configuration mode.
<b>Step 2</b>	switch(config)# <b>svcs license volatile</b>	Enables volatile licenses in the running configuration.
<b>Step 3</b>	switch(config)# <b>copy running-config 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 enable volatile licensing:

```
switch# configure terminal
switch(config)# svcs license volatile
switch(config)# copy running-config startup-config
```

## Disabling Volatile Licenses

You can disable volatile licenses so that whenever a VEM is taken out of service, its licenses are not returned to the VSM pool of available licenses.


**Note**

By default, the licenses are nonvolatile (sticky) in nature, which is the recommended configuration. This configuration ensures that the licenses are reserved for a VEM. Even after a period of brief connectivity loss between the VEM and the VSM, the VEM is guaranteed to get the needed licenses.

**Before You Begin**

Log in to the CLI in EXEC mode.

**Procedure**

	Command or Action	Purpose
<b>Step 1</b>	switch# <b>configure terminal</b>	Enters global configuration mode.
<b>Step 2</b>	switch(config)# <b>no svl license volatile</b>	Disables volatile licenses in the running configuration.
<b>Step 3</b>	switch(config)# <b>copy running-config 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 disable a volatile license:

```
switch# configure terminal
switch(config)# no svl license volatile
switch(config)# copy running-config startup-config
```

## Rehosting a License on a Different VSM

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 the virtual machines (VMs) is dropped. This traffic flow is not resumed until you add a new VSM and a 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 each CPU on each VEM.

- A VSM can have more than one license file depending on the number of installed VEM CPUs.
- If you have multiple license files stacked on your VSM, repeat this process for each license file.
- You can rehost a license across hypervisor platforms.

### Before You Begin

- You have a copy of your existing license files with the host ID of the existing VSM.
- Log in to the CLI in EXEC mode.
- 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 Security Configuration Guide* for your platform.

### 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** Go to the Product License Registration website at [www.cisco.com/go/license](http://www.cisco.com/go/license).

**Step 3** From the Product License Registration website, click **Continue to Product License Registration**. Click **Licenses**, check the check box for the appropriate license file, click **Actions**, click **Rehost/Transfer**, and enter the host ID of the new VSM.

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

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

**Step 4** Save your license to a SCP/SFTP/TFTP server.

**Step 5** 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.

## Configuring the License Edition on the Switch

You can configure the license edition that your switch uses.

### Before You Begin

If you are changing from the Essential to the Advanced license edition, make sure that you have sufficient licenses installed for all CPU sockets in the VEMs associated with the VSM.

If you are changing from the Advanced to the Essential license edition, make sure that you have turned off all advanced features.

Ensure that you are familiar with the licensing guidelines and limitations.

### Procedure

	Command or Action	Purpose
<b>Step 1</b>	<code>switch# configure terminal</code>	Enters global configuration mode.
<b>Step 2</b>	<code>switch(config)# svs switch edition {essential   advanced}</code>	Configures the Cisco Nexus 1000V switch edition.  If you have the Essentials Edition license already installed, using the <b>switch edition advanced</b> command configures the switch with the Advanced 1.0 or Advanced 3.0 Edition license, whichever one you have purchased. If you have the Advanced 1.0 Edition license already installed, using the <b>switch edition advanced</b> command configures the switch with the Advanced 3.0 Edition license.  The command fails if you change the switch edition to Advanced and not enough licenses are available for all the modules, or if you change the switch edition to Essential but not all advanced features have been disabled. The software displays an error message if the command fails.
<b>Step 3</b>	<code>switch(config)# show switch edition</code>	(Optional) Displays the current edition of the Cisco Nexus 1000V switch, license usage and availability information, expiration dates, and the list of advanced features with their status.  The number of available licenses is the number of default or installed licenses available (including overdraft licenses) minus the number of licenses in use. In the Essential edition, the number of licenses in use is always 0.  With an Advanced edition, if there are multiple permanent license files installed, the license expiry displays the shortest expiration date.
<b>Step 4</b>	<code>switch(config)# copy running-config startup-config</code>	(Optional) Saves the change persistently through reboots and restarts by copying the running configuration to the startup configuration.

This example shows how to validate that the current switch edition is Essential and change to the Advanced Edition 1.0:

```
switch# configure terminal
switch(config)# show switch edition
Switch Edition: ESSENTIAL
```

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

```

License Status
Edition Available In Use Expiry Date
-----
Essential 0 0 Never

Scale Support
Edition Modules Virtual Ports
-----
Essential 128 4096
switch(config)# svs switch edition
Switch Edition: ADVANCED (3.0)

Feature Status
Name State Licensed In version
-----
vxlan-gateway disabled Y 1.0

License Status
Edition Available In Use Expiry Date
-----
Advanced 119 380 Never

Scale Support
Edition Modules Virtual Ports
-----
Advanced 128 8192

```

## Feature History for Licenses

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

**Table 1: Licensing Feature Updates in Cisco Nexus 1000V for VMware Releases**

Feature Name	Release	Feature Information
License Versioning	5.2(1)SV3(1.1)	License versioning feature was introduced.
Advanced 3.0 License	5.2(1)SV3(1.1)	The Advanced 3.0 license version was introduced.
Multi Hypervisor Licensing	4.2(1)SV2(2.2)	This feature was introduced.
VXLAN gateway	4.2(1)SV2(2.1)	The <b>show switch edition</b> displays the VXLAN gateway as an Advanced edition feature.
Licensing for new software installation	4.2(1)SV2(2.1)	The Essential edition is updated to be deployed across 124 hosts and the Advanced edition is updated to support a maximum of maximum of 1024 licenses.
Default license	4.2(1)SV2(1.1)	512 default licenses are included for the Essential edition in the software image. In addition, 512 default licenses are also available for the Advanced edition that are valid for 60 days from the date of installation.

Feature Name	Release	Feature Information
Evaluation license	4.0(4)SV1(3)	16 evaluation licenses that are valid for 60 days are included in the software image. More evaluation licenses of varied durations can be downloaded from Cisco.com and installed separately.
Evaluation license	4.0(4)SV1(2)	Evaluation licenses are part of the software installation or upgrade. A separate evaluation license file no longer needs to be installed.
<b>show license usage</b> <i>package_name</i> command	4.0(4)SV1(2)	The <b>show license usage</b> <i>package_name</i> command output is updated to show statistics about the number of evaluation and permanent licenses available, installed, and in use on the VSM.
License	4.0(4)SV1(1)	This feature was introduced.

**Table 2: Licensing Feature Updates in Cisco Nexus 1000V for KVM Software Releases**

Feature Name	Release	Feature Information
Layer 3 Forwarding	5.2(1)SK3(2.2)	This feature was added to the Advanced Edition license.
Cisco Virtual Security Gateway	5.2(1)SK3(2.2)	This feature was added to the Advanced Edition license.
License Versioning	5.2(1)SK3(1.1)	License versioning was introduced.
Advanced 3.0 License	5.2(1)SK3(1.1)	The Advanced 3.0 license version was introduced.
License	5.2(1)SK3(1.1)	This feature was introduced.

**Table 3: Licensing Feature Updates in Cisco Nexus 1000V for Microsoft Software Releases**

Feature Name	Release	Feature Information
License Versioning	5.2(1)SM3(1.1)	License versioning was introduced.
Advanced 3.0 License	5.2(1)SM3(1.1)	The Advanced 3.0 license version was introduced.
License	5.2(1)SM1(5.1)	This feature was introduced.

