



Installing the Cisco Nexus 1000V VSM

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Installing a VSM as a VM on a Physical Server

Installing the VSM

The Virtual Supervisor Module (VSM) can be installed in stand-alone or high-availability (HA) mode. Although we highly recommend high availability mode, it is not mandatory. This procedure covers installation for both stand-alone and HA modes.

If you are installing VSMs in HA mode, deploy the first VSM (including setting up the initial configuration), then repeat step 4 to create the second VSM and proceed with setting up the initial configuration. See [Setting Up the VSM's Initial Configuration, on page 4](#).

Before You Begin

Make sure that you have RHEL7 physical servers for VSM active and standby hosts, as recommended. (See [Topology with Openstack in Standalone Mode](#) and [Topology with OpenStack in High-Availability Mode](#).)

Make sure that the Cisco Yum repository has been set up correctly. For information, see [Setting Up the Cisco Yum Repository](#).

Make sure the servers in the provisioning network have connectivity to the RHEL7 physical sever where the VSM is installed as a VM.

Procedure

Step 1 Download the VSM image from the Cisco yum repository.

Note You can also download the image from Cisco.com.

```
yum install nexus-1000v-iso
```

The VSM image is downloaded to `/opt/cisco/vsm/`.

Step 2 Create an OVS bridge.

```
ovs-vsctl add-br bridge-name
```

Note If you do not already have the OVS package, it is available in `rhel-7-server-opensstack-5.0-rpms`. To install it, enter the following command:

```
yum install -y openvswitch
```

Step 3 Customize the VSM domain XML file according to your setup. Use the following table as a guide:

Parameter	Variable Example	Description
Domain name	<code><name>vsm</name></code>	Domain name of the VSM VM.
UUID	<code><uuid>85badf15-1234-4819-1234-8c3d50641375</uuid></code>	A universally unique identifier (UUID) of the VM.
RAM	<code><memory unit='KiB'>4096000</memory></code> <code><currentMemory unit='KiB'>4096000</currentMemory></code>	RAM allocated to the VSM VM. A minimum of 4-GB RAM is required for a VSM. Make sure both the memory unit and currentMemory unit variables are set to 4 GB.
vCPU	<code><vcpu placement='static'>2</vcpu></code>	Virtual CPUs allocated to the VSM VM. A minimum of 2 vCPUs is required.
Source file location of the disk	<code><source file='/var/lib/libvirt/images/vsm.img /></code>	Source file location of the VM hard disk drive that you created.
Source file location of CDROM	<code><source file='/opt/cisco/vsm/n1000v-dk9.5.2.1.SK1.3.0.78.iso' /></code>	Source file location of the VSM ISO image. Note The image is located at <code>/opt/cisco/vsm/</code> .

Parameter	Variable Example	Description
Interface-related parameters	<mac address='0e:1f:1f:1f:45:2e'/>	Unique identifier of a network interface. The VSM requires three initial interfaces. Make sure that all MAC address are unique among all of the VMs.
	<source bridge='vsm-br'/>	The bridge name that you created when you created the OVS bridge and brought up the VM.
	<parameters interfaceid='14054688-1444-46db-b981-0aba3172b956'/>	Universally unique identifier (UUID) of the interface. Make sure that all interface IDs are unique among all of the VMs.

Step 4 Deploy the VSM as a VM on a server using above xml file. If the RHEL-OSP Installer is also a VM on a bare metal server, the VSM can be deployed on the same server as the RHEL-OSP Installer VM.

a) Create a hard disk for the VM.

```
qemu-img create DIR_path/vsm.img 10G
```

Example:

```
# qemu-img create /var/lib/libvirt/images/vsm.img 10G
```

```
qemu-img create /var/lib/libvirt/images/vsm.img 10G
```

b) Define and start the VSM VM.

```
virsh define xml_name
virsh start domain_name
```

Example:

```
# virsh define vsm.xml
virsh start vsm
```

c) If the domain VSM fails to start and permission denied errors occur, determine whether the enforcing mode is set to enforcing or permissive:

```
getenforce
```

d) If the Enforcing message is returned, set the enforcement to permissive by entering the following command:

```
setenforce 0
```

e) Repeat step b.

What to Do Next

Proceed to [Setting Up the VSM's Initial Configuration](#), on page 4.

Setting Up the VSM's Initial Configuration

Before you can use your VSM, you must configure some initial information on it. You can accept most of the default configuration. However, you must configure some required parameters.

Procedure

Step 1 Log in to the VSM console.

Note You can use virt-manager to log in to the VSM console. Virt-manager is available in rhel-7-server-rpms. To access virt-manager, enter the following command:

```
yum install -y virt-manager
```

The System Admin Account Setup script begins.

Step 2 Configure the parameters by accepting the defaults or entering the desired values. Ensure that you enter values in the following required parameters:

- Admin password
- HA role (standalone for non-HA mode, primary or secondary for HA pair)
- Domain ID (For an HA pair, enter the same domain ID for both the primary and secondary VSMs. After entering the domain ID for the secondary VSM, the VSM reboots, discovers the primary VSM, and forms the HA pair. From the primary VSM, enter the show module command to verify that the primary VSM recognizes two modules, one primary/active module and the other secondary/standby module. The secondary VSM configuration is complete.)
- Switch name
- Mgmt0 IPv4 address
- Mgmt0 IPv4 netmask
- Default gateway IPv4 address

When you are done, the setup script displays all of the configuration settings.

Step 3 At the prompt, verify the configuration settings and enter either yes to accept them or no to edit them.

Step 4 If you are satisfied with the configuration, at the Use this configuration and save it prompt, enter y.

The configuration is saved.

Step 5 Log in to the VSM.

- a) At the login prompt, enter the admin login.
- b) At the password prompt, enter the admin password

Step 6 Create a default port profile named default-pp by entering the following commands:

```
configure terminal
port-profile type vethernet default-pp
no shutdown
state enabled
publish port-profile
copy running-config startup-config
```

Step 7 Create a port profile named uplink by entering the following commands:

```
configure terminal
port-profile type ethernet uplink
switchport mode trunk
switchport trunk allowed starting_vlan-ending_vlan
no shutdown
state enabled
publish port-profile
copy running-config startup-config
```

Step 8 Define the VLAN range to be used:

```
configure terminal
vlan starting_vlan-ending_vlan
copy running-config startup-config
```

Installing a VSM on a Cloud Services Platform

Information About Installing a VSM on the Cisco Nexus Cloud Services Platform

If you choose to install a Virtual Supervisor Module (VSM) on the Cisco Nexus Cloud Services Platform, you must install all primary and secondary VSMs on the Cisco Nexus Cloud Services Platform. You cannot install any other VSMs as a VM.

Installing a VSM on the Cisco Nexus Cloud Services Platform

Before You Begin

Copy the VSM ISO or OVA file to the bootflash:repository/ of the Cisco Nexus Cloud Services Platform.

Procedure

Step 1 Create a virtual service blade.

```
switch(config)# show virtual-service-blade summary
```

```
-----
Name           HA-Role      HA-Status    Status           Location
-----
```

```
switch(config)# virtual-service-blade vsm-1
```

```
switch(config-vsbl-config)# virtual-service-blade-type new nexus-1000v-dk9.5.2.1.SK3.1.2.iso
```

```
switch(config-vs-b-config)# show virtual-service-blade summary
```

```
-----
Name           HA-Role      HA-Status    Status                Location
-----
vsm-1          PRIMARY     NONE         VSB NOT PRESENT      PRIMARY
vsm-1          SECONDARY   NONE         VSB NOT PRESENT      SECONDARY
```

```
switch(config-vs-b-config)#
```

Step 2 Configure the control, packet, and management interface VLANs for static and flexible topologies.

```
switch(config-vs-b-config)# interface management vlan 100
switch(config-vs-b-config)# interface control vlan 101
switch(config-vs-b-config)# interface packet vlan 101
```

Step 3 Configure two vCPUs and the size of the RAM to 4 GB for the VSM.

```
switch(config-vs-b-config)# ramsize 4096
switch(config-vs-b-config)# numcpu 2
```

If desired, you can verify these settings with the following command:

```
switch(config-vs-b-config)# show virtual-service-blade name vsm-1
```

Step 4 Configure the Cisco Nexus 1000V for KVM on the Cisco Nexus Cloud Services Platform.

```
switch(config-vs-b-config)# enable
Enter vsb image: [nexus-1000v.4.2.1.SV2.2.1.iso]
Enter domain id[1-1023]: 127
Management IP version [V4/V6]: [V4]
Enter Management IP address: 192.0.2.79
Enter Management subnet mask: 255.255.255.0
IPv4 address of the default gateway: 192.0.2.1
Enter HostName: n1000v
Enter the password for 'admin': password
Note: VSB installation is in progress, please use show virtual-service-blade commands to
check the installation status.
switch(config-vs-b-config)#
```

Step 5 Display the primary and secondary VSM status.

```
switch(config-vs-b-config)# show virtual-service-blade summary
```

```
-----
Name           HA-Role      HA-Status    Status                Location
-----
vsm-1          PRIMARY     NONE         VSB POWER ON IN PROGRESS PRIMARY
vsm-1          SECONDARY   ACTIVE       VSB POWERED ON       SECONDARY
```

Step 6 Log in to the VSM.

```
switch(config)# virtual-service-blade vsm-1
```

```
switch(config-vs-b-config)# login virtual-service-blade vsm-1
Telnet escape character is '^\'
Trying 192.0.2.18...
Connected to 192.0.2.18.
Escape character is '^\'

Nexus 1000v Switch
n1000v login: admin
Password:
Cisco Nexus operating System (NX-OS) Software
TAC support: http://www.cisco.com/tac
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such license is available at
http://www.opensource.org/licenses/gpl-2.0.php and
http://www.opensource.org/licenses/lgpl-2.1.php
switch#
```

Step 7 Enable the following features in the VSM to ensure that OpenStack can configure the networks appropriately:

- http-server
- network-segmentation-manager
- segmentation

What to Do Next

- Collect the information required for the `site.pp` file, as described in [VSM-Related Configuration](#).
- Create the build server, as described in [Creating the Build Server](#).

