



Installing Cisco Prime vNAM on Red Hat Enterprise Linux KVM

This chapter provides instructions on how to install Cisco Prime vNAM virtual appliance on Red Hat Enterprise Linux KVM using an ISO file.

[Table 4-1](#) summarizes how to quickly get up and running on Red Hat Enterprise Linux KVM:

Table 4-1 *Installation Overview on KVM*

Task	See...
1. Review the requirements and preparations for Prime vNAM	Installation Requirements, page 2-1
2. Set up the network bridges to the Prime vNAM management and data ports. You may also use passthrough mode for data traffic.	Configuring Virtual Network Bridges, page 4-1
3. Download the Prime vNAM ISO file from Cisco.com	Downloading Your Prime vNAM Virtual Appliance ISO File, page 4-2
4. Install Prime vNAM software on the virtual machine	Deploying Prime vNAM on KVM using Virtual Machine Manager, page 4-3.
5. (Optional) Request permanent license to replace 60-day evaluation license	Installing the License, page 2-4

Configuring Virtual Network Bridges

In order to make the Prime vNAM accessible to the public network and to provide an interface that will accept SPAN data, you must create network bridging which reflects the local configuration and matches the bridges appropriately to the interfaces on the VM. This cannot be standardized and delivered as an automatic and simple installation due to the generic KVM environment and requires customer input. You must perform this task before Prime vNAM installation.

This section provides details on how to configure your virtual network bridges for the two required Prime vNAM ports:

- Management port—Bridge to include the external physical management port

You can skip this step if you already have a network bridge configured, which can be used for the Prime vNAM management port.

- Data port—Bridge to include the physical port receiving the SPAN traffic

To configure the virtual network bridges to the Prime vNAM ports:



Note

There are many options, so we recommend you see your Red Hat KVM user documentation.

Step 1 Log into RHEL KVM as root.

Step 2 Enter the commands to add the two bridges.

For example, the commands below assume eth0 is the physical management port and eth1 is the data port.

```
brctl addbr bridge1
brctl addbr bridge2
brctl addif bridge1 eth0
brctl addif bridge2 eth1
```

Continue to [Downloading Your Prime vNAM Virtual Appliance ISO File, page 4-2](#) to download the Prime vNAM image onto your KVM host.

Downloading Your Prime vNAM Virtual Appliance ISO File

The ISO file contains configuration requirements. The file will be named similar to *nam-yyy-x.x.x.bin.gz*. One ISO file contains the pieces necessary for Prime vNAM installation.

Step 1 Access the Cisco Prime vNAM application image at the following location:

<http://software.cisco.com/download/navigator.html>

Step 2 Download the Prime vNAM image onto the RH KVM host where there is enough disk space. Usually /home is the largest partition. An example of the internal download command follows:

```
wget ftp://172.20.98.174/pub/nam1/mydir/kvm/filename.iso -O /home/admin/filename.iso
```

Deploying Prime vNAM on KVM

You can install Prime vNAM by deploying the vNAM image using the following methods:

Installation Method	See...
Command Line	Deploying Prime vNAM on KVM using CLI, page 4-3
Virtual Machine Manager	Deploying Prime vNAM on KVM using Virtual Machine Manager, page 4-3
Openstack running on RHEL or Ubuntu VM	Deploying Prime vNAM on KVM using Openstack, page 4-4
Command Line on RHEL Openstack host	Deploying Prime vNAM on RHEL Openstack KVM using CLI, page 4-5

Deploying Prime vNAM on KVM using CLI

You can deploy Prime vNAM using command line interface. See KVM documentation for details. See also the [Host Configuration Requirements](#)

To deploy the Prime vNAM and start a console connection, use something similar to the following command. Change the iso path (-disk), and network bridge names as appropriate.

```
virt-install -n <name>_ -c /<path to .iso file> -r 4096 --vcpus=2 --arch=x86_64
--os-type=linux --os-variant=generic26 --disk
path=</path/to/file/that/contains/disk,size=100,bus=ide --network
bridge=<management_bridge>,model=virtio --network bridge=<data_bridge>,model=virtio
```

This command starts a console session on the terminal. You should see the installation process and eventually the Prime vNAM login appears. See [Configuring the Cisco Prime vNAM](#) for details on configuring the Prime vNAM.

Deploying Prime vNAM on KVM using Virtual Machine Manager

This section provides steps to perform Prime vNAM installation on the RHEL KVM operating system.

While the following procedure provides a general guideline for how to deploy Cisco Prime vNAM, the exact steps that you need to perform may vary depending on the characteristics of your KVM environment and setup.

These steps assume you have already configured the virtual network bridges before starting the installation. The network bridges enable Prime vNAM to share the KVM host system's physical network connections.

To create a new Prime vNAM virtual machine:

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- Step 1** Log in to the server, and launch the KVM console.
 - Step 2** Launch the Virtual Machine Manager, and click the Create a New Virtual Machine icon.
 - Step 3** Enter the unique name for this instance of Prime vNAM and select the installation option, then click **Forward**. In the example below, the name is *vNAM_Sample*.
 - Step 4** Under Choose how you would like to install the operating system, select Local install media (ISO image or CDROM), then click **Forward**.
 - Step 5** Select Use ISO Image, click **Browse** to select the location of the Prime vNAM iso file, then click **Forward**.
 - Step 6** Enter the RAM memory size of 4096 MB and select two CPUs.
 - Step 7** Select **Enable storage for this virtual machine** and ensure the **Allocate entire disk now** check box is checked.



Tip

Ensure the LUN is readable and writable by everyone if your Prime vNAM is using external storage.

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- Step 8** Create a new volume, and choose raw format. You must also enter the maximum size for the storage unit (100GB).
 - Step 8** Select the new volume and click **Choose Volume**.
 - Step 9** Verify your VM settings, check the **Customize configuration before install** check box.
 - Step 10** Click Advanced Options drop-down. Make sure that the bridge you have created for management is selected.

- Step 11** Click **Finish**.
Before you install, make sure the following are configured correctly.
- Step 12** Select **Disk 1** in the installation menu panel, change the advanced option Disk Bus to *IDE*, then click **Apply**.
- Step 13** Select **Boot Options** in the installation menu panel. Check the select hard disk, then click **Apply**.
- Step 14** Select **NIC** in the installation menu panel. The NIC that displays is that of the management port for the Prime vNAM. In the Device Model drop-down, choose **virtio**.
- Step 15** Click **Add Hardware**.
- Step 16** In the Add new virtual hardware window, select **Network**.
- Step 17** From the Host device details drop-down, select the interface on which your Prime vNAM will connect to the network. This will be the bridge you created for data.
- Step 18** In the Device Model drop-down, choose **virtio**.
- Step 19** Click **Finish**. Do a quick review of the NIC and other details.
- Step 20** Close the window.
The installation begins.
We recommend that you monitor the messages that appear in the console window to ensure that you are informed about the progress of the installation process.

**Note**

You may want to set your hypervisor to automatically power up the Cisco Prime vNAM virtual appliance when power is restored to the hypervisor layer. This will avoid having to manually restart your Prime vNAM software. See your hypervisor software documentation for detailed instructions.

Deploying Prime vNAM on KVM using Openstack

To deploy a vNAM on KVM using Openstack:

- Step 1** Install Openstack on RHEL or Ubuntu VM and make sure that the Openstack dashboard is up and running. It should be reachable using an IP address in the URL.
- Step 2** Download the qcow2 image of the vNAM on the RHEL/Ubuntu VM from the below location:
<https://software.cisco.com/download/navigator.html>
- Step 3** Add the downloaded image to the glance storage.
For details on the glance image CLI, see http://docs.openstack.org/user-guide/content/cli_manage_images.html.
- Step 4** Modify the properties of the image by adding the hw-diskbus property as IDE.
For details, see http://docs.openstack.org/user-guide/content/cli_manage_images.html.
- Step 5** Create a vNAM flavor (2 VCPUs, 4GB RAM and 100GB hard disk) by running the following command on the RHEL/Ubuntu VM:

```
$ nova flavor-create FLAVOR_NAME FLAVOR_ID RAM_IN_MB ROOT_DISK_IN_GB NUMBER_OF_VCPUS
```
- Step 6** Open the openstack dashboard from RHEL/Ubuntu VM and launch the vNAM instance from the image added to glance storage and choose the flavor you created.
- Step 7** Add two NICs in the Networking section by dragging the required two networks.

- Step 8** Choose a config drive and also upload the configuration file, if you wish to configure the vNAM. The configuration file is in the XML file format.
- Step 9** Click the **Launch** button to launch the vNAM instance. You can view the logs in the console as the vNAM is booting up.
- Step 10** Associate a floating IP address to the vNAM.

Deploying Prime vNAM on RHEL Openstack KVM using CLI

To boot the vNAM instance on RHEL Openstack KVM using CLI:

- Step 1** Run the following command on the RHEL Openstack KVM:

```
$ nova boot --image vNAM --flavor <#> --nic port-id=<PORT ID> --nic port-id=<Port ID>
vNAM_NAME --config- drive=true --file <FileName>=<Config_File>
```

Where:

- *image* is the vNAM's image name in your glance storage.
- *flavor* is the vNAM's flavor ID.

Run `$ nova flavor-list` command on the host to check the flavor id of the vNAM.

- *port-id* is either the management or data port ids for vNAM.

You can create two ports (Management and Data) from the Openstack GUI or using CLI:

```
$ neutron port-create --fixed-ip subnet_id=<SUBNET_ID> ip_address=<IP_ADDRESS>
<NET_ID>
```

To view the list of subnet IDs in order to choose the right subnet, run the following command:

```
$ neutron subnet-list
```

To view the list of network IDs in order to choose the right network, run the following command:

```
$neutron net-list
```

To view the port IDs, run the following command:

```
$ neutron port-list
```

- *config-drive* is a virtual drive that will contain the configuration file.
Set this option as TRUE to provide the vNAM with virtual drive.
- *file* is the vNAM configuration file in XML format.

When you run the above command with all the parameters in place, you will see the instance booting up on the Openstack dashboard.

- Step 2** Once the instance comes up, vNAM is configured with the properties specified in the configuration file.

Deploying Prime vNAM in Nexus 1000V Environment

[Table 4-2](#) summarizes how to quickly get up and running on Nexus 1000V environment:

Table 4-2 Installation Overview in Nexus 1000V Environment

Task	See...
1. Review the requirements and preparations for Prime vNAM	Installation Requirements, page 2-1
2. Setting up Virtual Supervisor module (VSM) and Virtual Ethernet Module (VEM)	Setting up Virtual Supervisor Module (VSM) and Virtual Ethernet Module (VEM), page 4-6
3. Setting up a vNAM on the RHEL Host Containing VEM	Setting up a vNAM on the RHEL Host Containing VEM, page 4-6

Setting up Virtual Supervisor Module (VSM) and Virtual Ethernet Module (VEM)

To setup the VSM and VEM follow the below steps and run the below commands as root user:

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- Step 1** Deploy the VSM OVA on an ESXi host. Assign an IP address and set up the routing.
- Step 2** Install the VEM RPM on RHEL 7 host by running the below commands:
- `yum install libn`
 - `yum install openvswitch`
 - `rpm -ivh nexus_1000v_vem-7.0-5.2.1.SK3.2.0.196.S0-0.x86_64.rpm`
- Step 3** Restart the host by running the below command:
- ```
systemctl restart nexus1000v
```
- Step 4** Edit `/etc/n1kv/n1kv.conf` to have the correct details of VSM (IP/DomainID) and Management Interface.
- Step 5** Restart the service.
- Step 6** Execute the command `show mod` on the VSM command prompt. You will see the details of the VEM you deployed on the RHEL host.
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### Setting up a vNAM on the RHEL Host Containing VEM

To setup a vNAM on the RHEL host containing VEM:

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- Step 1** Start deploying a vNAM on RHEL host using ISO image.
- Step 2** Create interfaces of type bridge (vNAM\_mgmt and vNAM\_dataport), and then connect them to the OVS bridge.
- Step 3** Run the command `ifconfig` on the RHEL host. You will see the vNAM's interfaces in the output.
- Step 4** Run the below commands on the RHEL host to add the vNAM ports to the VEM:
- ```
ovs-vsctl add-port n1kv dvs vNam_mgmt
ovs-vsctl add-port n1kv dvs
```
- Step 5** Log into the VSM and run the command `attach vem <vem#>`.
- Step 6** Create a port profile for the vNAM_mgmt using the Nexus commands so that you have the management in a private vLAN.
- Step 7** Create a port profile for the vNAM_dataport (without any vlan configs).

Step 8 Run the following command on the RHEL host to attach the ports of the vNAM to the port-profiles:

```
vemcmd attach port vNam_mgmt profile <port-profile name> vemcmd attach port  
vNam_dataport profile <port-profile name>
```

You can now connect data traffic to an available physical interface on the server.

Step 9 Add the port to the OVS bridge and set up a local span using NX-OS commands to span traffic to the vNAM_dataport.

To make the vNAM accessible from outside you need to deploy a virtual or connect a physical router.
