Configuring Networking Objects in Cisco UCS Manager

This chapter includes the following sections:

Understanding the Cisco UCSM and Microsoft SCVMM Workflow

See the following steps for a complete workflow of Cisco UCSM with Microsoft SCVMM:

1. Configure the service profile network settings for the Hyper-V hosts.
2. Configure VLANs and IP pools.
3. Configure the fabric network sets, the fabric network, the network site, and the network segment.
4. Associate a VM network to the network segment.

5 Create a Microsoft SCVMM provider.
6 Create a logical switch.
7 Configure an uplink port profile (UPP).
8 Create a virtual port profile (VPP) (for example, port classification for Microsoft).
9 Create a port profile client for the virtual port profile (VPP) and choose the logical switch that was created under the Microsoft SCVMM provider.
10 Install the Cisco UCS provider plugin in SCVMM.
11 Create a Virtual Switch Extension Manager (VSEM) instance on the provider. The provider fetches all the network definitions from Cisco UCSM. The users can schedule the polls for periodic updates.
12 Create a logical switch in SCVMM by checking the **Enable single root I/O virtualization (SR-IOV)** check box and adding Cisco UCSM's logical switch as an extension. Choose an appropriate uplink port profile and virtual port profile.
13 Create a VM network in SCVMM and choose the network segment from the drop-down list.
14 Attach the Hyper-V hosts to SCVMM.
15 Deploy the logical switch to the Hyper-V host.
16 Create a VM instance in SCVMM. Assign the VM NIC to a VM network and the port classification.
17 Power on the VM and load the eNIC driver on the VM. The eNIC driver now establishes a network link with the Cisco UCS fabric interconnect (FI). The FI enforces the port classification as per the assigned port profile properties.
18 Verify the VM vNICs in the Cisco UCSM GUI.

Configuring Service Profile Network Settings for Hyper-V Hosts

As a prerequisite for the Hyper-V host that you plan on using in the Cisco UCS cluster, configure the service profile network settings first. In the **Modify vNIC** window in the GUI, configure the dynamic vNIC connection policy on the static vNIC.

- In the **Adapter Performance Profile** panel, select an **SRIOV** adapter policy for static vNICs.
- In the **Connection Policies** panel, select **Dynamic vNIC** connection policy on one or more static vNICs that you plan on using.
- In the **Connection Policies** panel, click **Add** to create a dynamic vNIC connection policy. A new window opens.
- Select **windows** as the adapter policy for the dynamic vNIC.
- Specify the number of dynamic vNICs.
- Click **OK**.

After completing the steps outlined in this section, SR-IOV is enabled on the vNICs. For more information on configuring policies, see Configuring Policies.

Configuring a VLAN

For more information on creating VLANs, see the GUI configuration guide for the Cisco UCSM version that you are using.

Configuring an IP Pool

You can configure an IP pool by using the **VM** tab.

Note IP pools are used by Microsoft SCVMM; they are not used by Cisco UCSM.

Procedure

Step 1 In the **Navigation** pane, click the **VM** tab.

Step 2 On the **VM** tab, expand the **All** node.

Step 3 Right-click **IP Pools** and choose the **Create IP Pool** option.
The **Create IP Pool** window appears.

Step 4 In the **Define Name and Description** panel, enter the name of the IP pool.

Step 5 (Optional) Enter a description of the IP pool.

Step 6 In the **NetBios Mode** field, choose **Active** if you want to enable the NetBios mode for the IP pool or choose **Not-Active** if you do not want to enable the NetBios mode.

Step 7 In the **Supports DHCP** field, choose **Supported** if you want to get the DHCP IP address from the DHCP server or choose **Not-Supported** to get a static IP pool.

Step 8 Click **Next**.

Step 9 Iin the **Create IP Pool** window, choose **Add** to add a valid DNS suffix for the IP pool.

Step 10 Click **OK**.

Step 11 Click **Next**.
The **IPV4 WINS Servers** window appears.

Step 12 In the IPV4 WINS Servers field, add a valid IP address for the WINS server.

Step 13 Click **Next**.
The **Add IPV4 Blocks** window appears.

Step 14 Click **Add**.
The **Create Block of IPV4 Addresses** window appears.

Note Both IPv4 and IPv6 pools are supported but they cannot coexist at the same time. Multiple blocks of IP addresses are not supported.

Step 15 In the **From** field, enter a valid IP address.

Step 16 In the **Size** field, enter the size of the block.

Step 17 In the **Subnet Mask** field, enter a valid IP address.

Step 18 in the **Default Gateway** field, enter a valid IP address.

Step 19 Enter a valid IP address in the **Subnet Mask** field.

Step 20 (Optional) In the **Primary DNS** and **Secondary DNS** fields, enter valid IP addresses.

Step 21 In the **Add IPV4 Blocks** window, click **OK**.

Step 22 In the **Create a Block of IPV4 Addresses** window, click **Next**.

Step 23 Click **Finish**.
A Create IP Pool message window indicates that the IP pool has been successfully created.

Step 24 In the message window, click **OK**.

The configured IP pool is displayed in the Cisco UCSM GUI.

Configuring a Fabric Network

Configure a Fabric Network using the VM tab.

Procedure

Step 1 In the **Navigation** pane, click the **VM** tab.

Step 2 On the **VM** tab, expand the **All** node.

Step 3 In the left panel, right-click **Fabric Network**and choose **Create Fabric Network**.
The **Create Fabric Network** window appears.

Step 4 Enter the name of the fabric network.

Step 5 (Optional) Enter the description of the fabric network.

Step 6 Click **Next**.

Configuring a Network Site

You can configure a network site by using the **VM** tab.

Procedure

Step 1 In the **Navigation** pane, click the **VM** tab.

Step 2 On the **VM** tab, expand the **All** node.

Step 3 In the **Create Fabric Network** window, in the **Network Sites** panel click **ADD**. The **Add a Network Site** window appears.

Step 4 Enter the name of the network site in the **Name** field.

Step 5 (Optional) Enter the description of the network site in the **Description** field.

Step 6 In the **Network Segment** pane, click **Add** to associate network segments to the network sites.
You can configure many network segments under a network site. A network site can contain network segments with both regular and isolated VLANs. A network segment cannot have an isolated VLAN when another segment that belongs to the same network site contains an isolated VLAN.

Step 7 Click **OK**.
The network site is displayed in the Cisco UCSM GUI.

Configuring a Network Segment

You can configure a network segment in the **VM** tab.

Procedure

Step 1 In the **Add a Network Site** window, click **ADD** in the **Network Segments** panel.
The **Add a Network Segment** window displays.

Step 2 Enter the name of the network segment.

Step 3 (Optional) Enter the description of the network segment.

Step 4 Enter the number of maximum ports for the network segment.

Step 5 Add VLANs from the drop-down window to the network segment.
Only one VLAN and one IP pool can be selected per a network segment due to a constraint with Microsoft SCVMM.

Step 6 Select an IP Pool from the drop-down window for the network Segment.

Note Modifying the IP Pool attribute on the network segment can have undesirable effects in SCVMM if the network segment is assigned to a Virtual Machine. Please ensure that this object is not used by the Virtual Machines, including the powered-off Virtual Machines, before modifying this object.

Step 7 Click **OK**.

Associating a VM Network to a Network Segment

You can associate a VM Network to a network segment by using the VM tab.

Procedure

Step 1 In the **Navigation** pane, click the **VM** tab.

Step 2 On the **VM** tab, expand the **All** node.

Step 3 Right-click **VM Network** and select the **Create Virtual Network** option.
The **Create Virtual Network** window appears.

Step 4 In the **Name** field, enter the name of the virtual network.

Step 5 (Optional) In the **Description** field, enter the description of the VM network.

Step 6 Select the fabric network that contains the network segment that you wish to associate the VM network to.

Step 7 Select the network segment. As per SCVMM restrictions, you can associate only one network segment with a VM network.

Note Modifying the network segment and the logical network attributes on the VM network can have undesirable effects in SCVMM if they have already been assigned to a VM. You must ensure that the network segment and the logical network attributes are not used by the VMs, including powered-off VMs before modifying these objects.

Step 8 Click **OK**.
The VM network is displayed in the Cisco UCS Manager GUI window.

Creating SCVMM Provider

You can create a SCVMM provider by using the **VM** tab.

Procedure

Step 1 In the **Navigation** pane, click the **VM** tab.
Step 2 On the **VM** tab, expand the **All** node.
Step 3 Click **Microsoft**.
Step 4 Click **Create SCVMM Provider**.
Step 5 In the **Name** field, enter the name of the SCVMM provider.
Step 6 (Optional) In the **Description** field, enter the description of the SCVMM provider.
Step 7 In the **IP Address** field, enter the IP address of the server. You cannot enter the DNS hostname in the field.
Step 8 Click **OK**.

Configuring a Logical Switch

You can configure a logical switch by using the **VM** tab.

Procedure

Step 1 In the **Navigation** pane, click the **VM** tab.
Step 2 On the **VM** tab, expand the **All** node.
Step 3 Right-click **an SCVMM provider instance** under **Microsoft** and choose the **Create Logical Switch** option. The **Create Logical Switch** window appears.
Step 4 In the **Name** field, enter the name of the logical switch.
Step 5 (Optional) In the **Description** field, enter the description of the logical switch .
Step 6 In the **Create Logical Switch** window, click **OK**.
A message window indicates that the logical switch is successfully created. The newly created logical switch is displayed in the Cisco UCSM GUI.

Configuring an Uplink Port Profile

You can configure an uplink port profile using the **VM** tab.

Procedure

Step 1 In the **Navigation** pane, click the **VM** tab.

Step 2 On the **VM** tab, expand the **All** node.

Step 3 Right-click an existing logical switch instance under **Microsoft** and click **Create an Uplink Port Profile**.

Step 4 In the **Create Uplink Port Profiles** window, enter the name of the uplink port profile.

Step 5 (Optional) In the **Description** field, enter the description of the uplink port profile.

Step 6 Add a network site to the uplink port.

Note Adding or removing a network site on the uplink port can have undesirable effects in SCVMM if the network site is assigned to a VM. You must ensure that this object is not used by the VMs, including the powered-off VMs, before modifying this object.

Step 7 Click **OK**.

You can now view the SCVMM provider and the logical switch configuration in the Cisco UCSM GUI.

Creating a Virtual Port Profile

You can create a virtual port profile using the **VM** tab.

Procedure

Step 1 In the **Navigation** pane, click the **VM** tab.

Step 2 On the **VM** tab, expand the **All** node.

Step 3 Click **Port Profiles**.

Step 4 In the **Name** field, enter the name of the port profile.

Step 5 (Optional) In the **Description** field, enter the description of the port profile.

Step 6 (Optional) From the drop-down list, choose the **QoS policy**.

Step 7 (Optional) From the drop-down list, choose the **Network Control** policy.

Step 8 Enter the number of maximum ports for the port profile.

Step 9 In the **Host Network IO performance** field, click**None**. The **Host Network IO performance** mode is not supported on SR-IOV.

Step 10 (Optional) From the drop-down list, choose the **Pin Group**.

Step 11 Set the **Type** as **SLA Only** for Microsoft Hyper-V.

Note While creating a port profile, set the type as **SLA Only** to make it a virtual port profile. The VLANs cannot be selected for the **SLA Only** port profile.

Step 12 Click **OK**.

Creating a Profile Client

You can create a port profile client using the **Create Profile Client** window.

Procedure

Step 1 In the **Navigation** pane, click the **VM** tab.

Step 2 On the **VM** tab, expand the **All** node.

Step 3 Click **Port Profiles**.

Step 4 Choose a port profile.

Step 5 Right-click **Create Port Profile Client**.
The **Create Profile Client** window appears.

Step 6 In the **Name** field, enter the name of the port profile client.

Step 7 (Optional) In the **Description** field, enter the description of the port profile client.

Step 8 Select the logical switch in the **Distributed Virtual Switch** field. You can select a particular logical switch or all logical switches in this field. The configuration for the selected logical switch is done from **Microsoft -> SCVMM provider -> Logical switch**.

Step 9 Click **OK**.
A message window displays indicating that the profile client is successfully created. The profile client is attached to the logical switch.