



# Configuring Networking Objects in Cisco UCS Manager

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## 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 Network Service 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](#).



### Note

The service profile for VM-FEX configuration must have at least 2 eNICs created on it, one for VM-FEX and another for communication with SCVMM. If there is just one eNIC on the service profile to implement SRIOV and talk to SCVMM, the configuration will not work when a logical switch is deployed on the eNIC.

## Configuring a VLAN

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

## Configuring an IP Pool

Configure an IP pool in the VM tab.

## Procedure

	Command or Action	Purpose
<b>Step 1</b>	UCS-A# <b>scope system</b>	Enters system mode.
<b>Step 2</b>	UCS-A /system # <b>scope vm-mgmt</b>	Enters system VM management mode.
<b>Step 3</b>	UCS-A /system/vm-mgmt # <b>scope vnetset</b>	Enters VM network set (vnetset) mode.
<b>Step 4</b>	UCS-A /system/vm-mgmt/vnetset # <b>create ip-pool SCJ2-pool</b>	Creates an IP pool.
<b>Step 5</b>	UCS-A /system/vm-mgmt/vnetset/ip-pool # <b>set {dhcp-support   guid   net-bios   ...}ip-pool-name</b>	Sets DHCP support and Netbios mode. <b>Note</b> Do not configure the GUID. It is automatically generated by the Cisco UCSM.
<b>Step 6</b>	UCS-A /system/vm-mgmt/vnetset/ip-pool # <b>create {block   dns-suffix   wins-server }ip-pool-name</b>	Sets DNS suffix and wins-server mode.
<b>Step 7</b>	UCS-A /system/vm-mgmt/vnetset/ip-pool/dns-suffix # <b>commit-buffer</b>	Commits the transaction. <b>Note</b> Configuring both IPv6 and IPv4 IP pools at the same time is not supported. When configuring the IP pool blocks, only one block is supported.

## Example

The following example shows how to create an IP pool and commit the transaction:

```
UCS-A # scope system
UCS-A /system # scope vm-mgmt
UCS-A /system/vm-mgmt # scope vnetset
UCS-A /system/vm-mgmt/vnetset # create ip-pool SJC-pool
UCS-A /system/vm-mgmt/vnetset/ip-pool # create block 192.168.100.1 192.168.100.200 192.168.100.10 255.255.255.0
UCS-A /system/vm-mgmt/vnetset/ip-pool/dns-suffix # commit-buffer
UCS-A /system/vm-mgmt/vnetset/ip-pool # create dns-suffix test-cli.com
UCS-A /system/vm-mgmt/vnetset/ip-pool/dns-suffix # commit-buffer
UCS-A /system/vm-mgmt/vnetset/ip-pool # create wins-server test-wins
UCS-A /system/vm-mgmt/vnetset/ip-pool/wins-server # set ipv4-address 10.10.8.8
UCS-A /system/vm-mgmt/vnetset/ip-pool/wins-server # commit-buffer
UCS-A /system/vm-mgmt/vnetset/ip-pool/wins-server # exit
UCS-A /system/vm-mgmt/vnetset/ip-pool # scope dns-suffix test-cli.com
UCS-A /system/vm-mgmt/vnetset/ip-pool/dns-suffix # set host-name test.com
UCS-A /system/vm-mgmt/vnetset/ip-pool/dns-suffix # commit-buffer
UCS-A /system/vm-mgmt/vnetset/ip-pool # set net-bios active
UCS-A /system/vm-mgmt/vnetset/ip-pool # commit-buffer
UCS-A /system/vm-mgmt/vnetset/ip-pool # set dhcp-support supported
UCS-A /system/vm-mgmt/vnetset/ip-pool # commit-buffer
UCS-A /system/vm-mgmt/vnetset/ip-pool # exit
```

# Configuring a Fabric Network

Configure a Fabric Network in the VM tab.

## Procedure

	Command or Action	Purpose
<b>Step 1</b>	UCS-A# <b>scope system</b>	Enters system mode.
<b>Step 2</b>	UCS-A /system # <b>scope vm-mgmt</b>	Enters system VM management mode.
<b>Step 3</b>	UCS-A /system/vm-mgmt # <b>scope vnetset</b>	Enters VM network set (vnetset) mode.
<b>Step 4</b>	UCS-A /system/vm-mgmt/vnetset # <b>create fabric-network</b> <i>fabric-network-name</i>	Creates a Fabric Network.
<b>Step 5</b>	UCS-A /system/vm-mgmt/vnetset/fabric-network # <b>commit-buffer</b>	Commits the transaction.

## Example

The following example shows how to create a Fabric Network:

```
UCS-A # scope system
UCS-A /system # scope vm-mgmt
UCS-A /system/vm-mgmt # scope vnetset
UCS-A /system/vm-mgmt/vnetset # create fabric-network blizzard
UCS-A /system/vm-mgmt/vnetset/fabric-network # commit-buffer
```

# Configuring a Network Site

Configure a Network Site in the VM tab.

## Procedure

	Command or Action	Purpose
<b>Step 1</b>	UCS-A# <b>scope system</b>	Enters system mode.
<b>Step 2</b>	UCS-A /system # <b>scope vm-mgmt</b>	Enters system VM management mode.
<b>Step 3</b>	UCS-A /system/vm-mgmt # <b>scope vnetset</b>	Enters VM network set (vnetset) mode.
<b>Step 4</b>	UCS-A /system/vm-mgmt/vnetset # <b>create fabric-network</b> <i>fabric-network-name</i>	Creates a Fabric Network.
<b>Step 5</b>	UCS-A /system/vm-mgmt/vnetset/fabric-network # <b>create network-site</b> <i>network-site-name</i>	Creates a Network Site.

	Command or Action	Purpose
<b>Step 6</b>	UCS-A /system/vm-mgmt/vnetset/fabric-network/network-site # <b>commit-buffer</b>	Commits the transaction.

### Example

The following example shows how to create a Network Site:

```
UCS-A # scope system
UCS-A /system # scope vm-mgmt
UCS-A /system/vm-mgmt # scope vnetset
UCS-A /system/vm-mgmt/vnetset # create fabric-network blizzard
UCS-A /system/vm-mgmt/vnetset/fabric-network # create network-site blizzard-SJC
UCS-A /system/vm-mgmt/vnetset/fabric-network/network-site # commit-buffer
```

## Configuring a Network Segment

Configure a Network Segment in the VM tab.

### Before you begin

Configure a Network Site before configuring a Network Segment.

### Procedure

	Command or Action	Purpose
<b>Step 1</b>	UCS-A# <b>scope system</b>	Enters system mode.
<b>Step 2</b>	UCS-A /system # <b>scope vm-mgmt</b>	Enters system VM management mode.
<b>Step 3</b>	UCS-A /system/vm-mgmt # <b>scope vnetset</b>	Enters VM network set (vnetset) mode.
<b>Step 4</b>	UCS-A /system/vm-mgmt/vnetset # <b>create fabric-network fabric-network-name</b>	Creates a Fabric Network.
<b>Step 5</b>	UCS-A /system/vm-mgmt/vnetset/fabric-network # <b>create network-site network-site-name</b>	Creates a Network Site.
<b>Step 6</b>	UCS-A /system/vm-mgmt/vnetset/fabric-network/network-site # <b>create network-segment network-segment-name</b>	Creates a Network Segment.
<b>Step 7</b>	UCS-A /system/vm-mgmt/vnetset/fabric-network/network-site/network-segment # <b>set ippool-name ippool-name</b>	Sets an IP pool name.

	Command or Action	Purpose
<b>Step 8</b>	UCS-A /system/mgmt/vnetset/fabric-network/network-site/network-segment # <b>set max-ports</b> <i>max-ports-number</i>	Sets the maximum number of ports.
<b>Step 9</b>	UCS-A /system/mgmt/vnetset/fabric-network/network-site/network-segment # <b>create eth-if</b> 1301	Sets the VLAN.
<b>Step 10</b>	UCS-A /system/mgmt/vnetset/fabric-network/network-site/network-segment # <b>commit buffer</b>	Commits the transaction.
<b>Step 11</b>	UCS-A /system/mgmt/vnetset/fabric-network/network-site/network-segment # <b>exit</b>	Exits the mode.

### Example

The following example shows how to create a Network Segment with a VLAN and an IP pool:

```
UCS-A # scope system
UCS-A /system # scope vm-mgmt
UCS-A /system/vm-mgmt # scope vnetset
UCS-A /system/vm-mgmt/vnetset # create fabric-network blizzard
UCS-A /system/vm-mgmt/vnetset/fabric-network # create network-site blizzard-SJC
UCS-A /system/vm-mgmt/vnetset/fabric-network/network-site #
create network-segment blizzard-SJC
UCS-A /system/vm-mgmt/vnetset/fabric-network/network-site/network-segment #
set ippool-name SJC-pool
UCS-A /system/vm-mgmt/vnetset/fabric-network/network-site/network-segment #
set max-ports 250
UCS-A /system/vm-mgmt/vnetset/fabric-network/network-site/network-segment #
commit buffer
UCS-A /system/vm-mgmt/vnetset/fabric-network/network-site/network-segment #
create eth-if 1301
UCS-A /system/vm-mgmt/vnetset/fabric-network/network-site/network-segment/eth-if #
commit buffer
UCS-A /system/vm-mgmt/vnetset/fabric-network/network-site/network-segment/eth-if #
exit
```

## Configuring a VM Network

Configure a VM Network in the VM tab.

### Procedure

	Command or Action	Purpose
<b>Step 1</b>	UCS-A# <b>scope system</b>	Enters system mode.
<b>Step 2</b>	UCS-A /system # <b>scope vm-mgmt</b>	Enters system VM management mode.
<b>Step 3</b>	UCS-A /system/vm-mgmt # <b>scope vnetset</b>	Enters VM network set (vnetset) mode.

	Command or Action	Purpose
<b>Step 4</b>	UCS-A /system/vm-mgmt/vnetset # <b>create vm-network</b> <i>vm-network-name</i>	Creates a VM Network.
<b>Step 5</b>	UCS-A /system/vm-mgmt/vnetset/vm-network # <b>set fabric-network-name</b> <i>fabric-network-name</i>	Sets the Fabric Network.
<b>Step 6</b>	(Optional) UCS-A /system/vm-mgmt/vnetset/vm-network # <b>set descr</b> <i>description</i>	Sets the description for the VM Network.
<b>Step 7</b>	UCS-A /system/vm-mgmt/vnetset/vm-network # <b>commit buffer</b>	Commits the transaction.
<b>Step 8</b>	UCS-A /system/vm-mgmt/vnetset/vm-network # <b>exit</b>	Exits the configuration.

### Example

The following example shows how to create a VM Network:

```
UCS-A # scope system
UCS-A /system # scope vm-mgmt
UCS-A /system/vm-mgmt # scope vnetset
UCS-A /system/vm-mgmt/vnetset # create vm-network VMN-SJC
UCS-A /system/vm-mgmt/vnetset/vm-network # set fabric-network-name blizzard
UCS-A /system/vm-mgmt/vnetset/vm-network # set descr blizzard_fabric_network
UCS-A /system/vm-mgmt/vnetset/vm-network # commit-buffer
UCS-A /system/vm-mgmt/vnetset/vm-network # exit
```

### What to do next

Configure the Network Segment from the GUI.

## Configuring SCVMM Provider

Configure a SCVMM provider in the VM tab.

### Procedure

	Command or Action	Purpose
<b>Step 1</b>	UCS-A# <b>scope system</b>	Enters system mode.
<b>Step 2</b>	UCS-A /system # <b>scope vm-mgmt</b>	Enters system VM management mode.
<b>Step 3</b>	UCS-A /system/vm-mgmt # <b>scope microsoft</b>	Enters Microsoft mode.
<b>Step 4</b>	UCS-A /system/vm-mgmt/microsoft # <b>create vmm-provider</b> <i>scvmm-provider-name</i>	Creates SCVMM provider.

	Command or Action	Purpose
<b>Step 5</b>	Required: UCS-A /system/vm-mgmt/microsoft/vmm-provider # <b>set</b> { <i>description</i>   <i>hostname</i> }	Sets the description and the IP address of the SCVMM provider.  <b>Note</b> Enter the IP address of the server in this field. Due to a restriction, you cannot enter the DNS host name in the field.
<b>Step 6</b>	UCS-A /system/vm-mgmt/microsoft/vmm-provider # <b>commit-buffer</b>	

### Example

The following example shows how to create a SCVMM provider:

```
UCS-A # scope system
UCS-A /system # scope vm-mgmt
UCS-A /system/vm-mgmt # scope microsoft
UCS-A /system/vm-mgmt/vnetset/microsoft/ # create vmm-provider savbu-scvmm-02
UCS-A /system/vm-mgmt/vnetset/microsoft/vmm-provider # set hostname 10.0.0.10
UCS-A /system/vm-mgmt/vnetset/microsoft/vmm-provider # commit-buffer
```

## Configuring Uplink Port Profiles

Configure the uplink port profiles in the VM tab.

### Procedure

	Command or Action	Purpose
<b>Step 1</b>	UCS-A# <b>scope system</b>	Enters system mode.
<b>Step 2</b>	UCS-A /system # <b>scope vm-mgmt</b>	Enters system VM management mode.
<b>Step 3</b>	UCS-A /system/vm-mgmt # <b>scope microsoft</b>	Enters Microsoft mode.
<b>Step 4</b>	UCS-A /system/vm-mgmt/microsoft # <b>scope vmm-provider scvmm-provider-name</b>	Creates SCVMM provider.
<b>Step 5</b>	Required: UCS-A /system/vm-mgmt/microsoft/vmm-provider # <b>create distributed-virtual-switch</b> <i>logical-switch-name</i>	Creates the distributed virtual switch, that is the logical switch for the profile client.
<b>Step 6</b>	Required: UCS-A /system/vm-mgmt/microsoft/vmm-provider/distributed-virtual-switch # <b>create uplink-pp</b> <i>uplink-pp-name</i>	Creates the uplink port profile for the profile client.



	Command or Action	Purpose
<b>Step 7</b>	Required: UCS-A <pre> system mgmt microvm-prov/distributed-virtual-switch/ # <b>add network-site</b> <i>network-site-name</i> </pre>	Adds a network site for the profile client.
<b>Step 8</b>	Required: UCS-A <pre> system mgmt microvm-prov/distributed-virtual-switch/ # <b>commit buffer</b> </pre>	Commits the transaction.

### Example

The following example shows how to create an uplink port profile for the profile client:

```

UCS-A # scope system
UCS-A /system # scope vm-mgmt
UCS-A /system/vm-mgmt # scope microsoft
UCS-A /system/vm-mgmt/vnetset/microsoft/ # scope vmm-provider savbu-scvmm-02
UCS-A /system/vm-mgmt/vnetset/microsoft/vmm-provider #
create distributed-virtual-switch LS-1
UCS-A /system/vm-mgmt/vnetset/microsoft/vmm-provider/distributed-virtual-switch #
create uplink-pp UPP-1
UCS-A /system/vm-mgmt/vnetset/microsoft/vmm-provider/distributed-virtual-switch/uplink-pp#
add network-site blizzard-SJC
UCS-A /system/vm-mgmt/vnetset/microsoft/vmm-provider/distributed-virtual-switch/uplink-pp#
commit buffer

```

## Creating a Virtual Port Profile

Configure the virtual port profile in the VM tab.

### Procedure

	Command or Action	Purpose
<b>Step 1</b>	UCS-A# <b>scope system</b>	Enters system mode.
<b>Step 2</b>	UCS-A /system # <b>scope vm-mgmt</b>	Enters system VM management mode.
<b>Step 3</b>	UCS-A /system/vm-mgmt # <b>scope profile-set</b>	Enters system VM management profile set mode.
<b>Step 4</b>	UCS-A /system/vm-mgmt/profile-set # <b>create port-profile</b> <i>profile-name</i>	Creates the specified port profile and enters system VM management profile set port profile mode.  This name can be between 1 and 16 alphanumeric characters. You cannot use spaces or any special characters other than - (hyphen) and _ (underscore), and you cannot change this name after the object has been saved.

	Command or Action	Purpose
<b>Step 5</b>	(Optional) UCS-A /system/vm-mgmt/profile-set/port-profile # <b>set descr</b> <i>description</i>	Provides a description for the port profile.
<b>Step 6</b>	Required: UCS-A /system/vm-mgmt/profile-set/port-profile # <b>set max-ports</b> <i>max-ports-number</i>	Sets the number for the maximum ports.
<b>Step 7</b>	Required: UCS-A /system/vm-mgmt/profile-set/port-profile # <b>set nw-control-policy</b> <i>policy-name</i>	Sets the network control policy.
<b>Step 8</b>	Required: UCS-A /system/vm-mgmt/profile-set/port-profile # <b>set profile-type</b> <i>sla-only</i>	Configures the port profile as SLA only. <b>Note</b> Select the type of the Port Profile as <b>SLA Only</b> for Hyper-V. For VM-FEX for Hyper-V, the VLANS are pushed from the network segment and not from the port profile.
<b>Step 9</b>	UCS-A /system/vm-mgmt/profile-set/port-profile # <b>commit-buffer</b>	Commits the transaction.

### Example

The following example shows how to create and configure a port profile named SanJoseProfile and commit the transaction:

```
UCS-A# scope system
UCS-A /system # scope vm-mgmt
UCS-A /system/vm-mgmt # scope profile-set
UCS-A /system/vm-mgmt/profile-set # create port-profile SanJoseProfile
UCS-A /system/vm-mgmt/profile-set/port-profile* # set descr "Blizzard-QOS"
UCS-A /system/vm-mgmt/profile-set/port-profile* # set max-ports 58
UCS-A /system/vm-mgmt/profile-set/port-profile* # set nw-control-policy access
UCS-A /system/vm-mgmt/profile-set/port-profile/vlan* # set profile-type sla-only
UCS-A /system/vm-mgmt/profile-set/port-profile* # commit-buffer
UCS-A /system/vm-mgmt/profile-set/port-profile # exit
```

### What to do next

Create a profile client.

## Configuring a Profile Client

Configure the profile client in the VM tab.

**Procedure**

	<b>Command or Action</b>	<b>Purpose</b>
<b>Step 1</b>	UCS-A# <b>scope system</b>	Enters system mode.
<b>Step 2</b>	UCS-A /system # <b>scope vm-mgmt</b>	Enters system VM management mode.
<b>Step 3</b>	UCS-A /system/vm-mgmt # <b>scope port-profile-set</b>	Enters system VM management profile set mode.
<b>Step 4</b>	UCS-A /system/vm-mgmt/profile-set # <b>create port-profile</b> <i>virtual-port-profile-name</i>	Creates the specified port profile and enters system VM management profile set port profile mode.
<b>Step 5</b>	UCS-A /system/vm-mgmt/profile-set/port-profile # <b>create client</b> <i>client-name</i>	Creates the port profile client and enters system VM management profile set port profile mode.
<b>Step 6</b>	UCS-A /system/vm-mgmt/profile-set/port-profile/client # <b>set cluster</b> <i>logical-switch-name</i>	Sets the cluster for the Logical Switch.
<b>Step 7</b>	UCS-A /system/vm-mgmt/profile-set/port-profile/client # <b>commit-buffer</b>	Commits the transaction. <b>Note</b> The <b>Datacenter</b> and <b>Folder</b> options are not supported for the SLA port profile.

**Example**

The following example shows how to create a profile client:

```
UCS-A# scope system
UCS-A /system # scope vm-mgmt
UCS-A /system/vm-mgmt # scope port-profile-set
UCS-A /system/vm-mgmt/profile-set # create port-profile VPP1
UCS-A /system/vm-mgmt/profile-set/port-profile # create client test
UCS-A /system/vm-mgmt/profile-set/port-profile/client # set cluster ls1
UCS-A /system/vm-mgmt/profile-set/port-profile/client # commit-buffer
```

