

Nexus 1000V Switch for Microsoft Hyper-V Configuration

This section describes how to configure the Nexus 1000V Switch for Microsoft Hyper-V in a VMDC solution.

- VSM CLI Configuration
- SCVMM Configuration

Figure 3-1 compares the SCVMM and Nexus 1000V Switch for Microsoft Hyper-V terminology that will be referenced in each section.

The reader should be familiar with these terms to better understand the role of each object as it pertains to the entire configuration and how each relates to SCVMM and the Nexus 1000V Switch for Microsoft Hyper-V.

SCVMM Terminology	Cisco Nexus 1000V Terminology
Logical Networks	Logical Networks
Network Sites	Network Segment Pools
VM Network Definitions	Network Segments
IP-Pools	IP-Pools & IP-Pool Templates
Port-Classifications	Port-profiles

Figure 3-1 SCVMM and Nexus 1000V Switch for Microsoft Hyper-V Terminology

Network and Tenants Under Test

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Three private tenants and one public tenant logical networks were created.

Six **network segment pools** were created, three public (T1, T2, T3) and three private (PT1, PT2, PT3). The three public network segment pools were configured as members of the public tenant logical network; the three private network segment pools were each configured as an individual member of a the three private tenant logical networks.

Only one **network segment** per public network segment pool was created. Two network segments per private network segment pool were created.

The **IP pool templates** and **port-profiles** are described in the IP Pool templates and Port-profiles sections later in the doc.

The configuration looks like this:

```
logical network PublicTenants
   network segment pool T1
      network segment T1-NetworkSegment101
   network segment pool T2
      network segment T2-NetworkSegment102
   network segment pool T3
      network segment T3-NetworkSegment103
logical network PrivateTenant1
   network segment pool PT1
      network segment PT1-NetworkSegment2013
      network segment PT1-NetworkSegment2014
logical network PrivateTenant3
   network segment pool PT2
      network segment PT2-NetworkSegment2023
      network segment PT2-NetworkSegment2024
logical network PrivateTenant3
   network segment pool PT3
      network segment PT3-NetworkSegment2033
      network segment PT3-NetworkSegment2034
```

Refer to Cisco Nexus 1000V for Microsoft Hyper-V Network Segmentation Manager Configuration Guide for more information about Microsoft networking concepts, command details, and implementation.

Refer to Cisco Nexus 1000V for Microsoft Hyper-V Release Notes, Release 5.2(1)SM1(5.1) for new features and caveats.

Nexus 1000V Switch for Microsoft Hyper-V VSM CLI Configuration

This section describes how to configure the Nexus 1000V with Hyper-V using the Network Segmentation Manager (NSM) CLI on the VSM.

Step 1 Create Logical Networks.

A logical network (for example, internet, intranet, DMZ) is a connectivity abstraction that models separate networks managed by an enterprise. Logical network abstraction hides VLANs and IP subnets from users (VM network administrators, the tenant administrators, and the server administrators), except for the fabric administrator managing the physical fabric.

In other words, a logical network is composed of one or more network segment pools and each network segment pool is a group of VLANS, IP subnets, or VLAN/IP subnet pairs.

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The following logical networks configuration shows three private tenants and one public tenant.

nsm logical network PublicTenants nsm logical network PrivateTentant1 nsm logical network PrivateTentant2 nsm logical network PrivateTentant3

Step 2 Create Network Segments Pools.

A network segment is associated with a unique broadcast domain and facilitates the availability of the network resources to a VM. SCVMM uses the VM networks and the VM subnets to provide the isolated virtual machine networks.

When a Nexus 1000V manages the virtual network, the VMM administrator creates the VM networks that use external isolation. To create external isolation, the network administrator creates network segments on the Nexus 1000V and provisions the isolated networks using VLANs and private VLANs.

Note

In Nexus 1000V for Microsoft Hyper-V, a VLAN is not created to define a bridge domain. Instead, a network segment is created on the VSM. Creating a network segment triggers VLAN auto-creation.

The following configuration shows network segment pools.

nsm network segment pool T1 nsm network segment pool T2 nsm network segment pool T3 nsm network segment pool PT1 nsm network segment pool PT3

Step 3 Add each Network Segment Pool to the Logical Network.

The T1, T2, and T3 segment pools are members of the same public tenant logical network. The PT1, PT2, and PT3 segment pools are members of unique logical networks.

The following configuration shows mapping for network segment pools into logical networks.

```
nsm network segment pool T1
member-of logical network PublicTenants
nsm network segment pool T2
member-of logical network PublicTenants
nsm network segment pool T3
member-of logical network PublicTenants
nsm network segment pool PT1
member-of logical network PrivateTentant1
nsm network segment pool PT2
member-of logical network PrivateTentant2
nsm network segment pool PT3
member-of logical network PrivateTentant3
```

Step 4 Create IP Pool Templates.

Server administrators can manage IP addresses for the virtual environment using IP pool templates. You can use the IP pool templates to assign a range of IP addresses to hosts and VMs in the Microsoft SCVMM-managed environment. When creating an IP pool template for a VM network, you can define a range of IP addresses for VMs managed by SCVMM.

The following configurations shows IP pool templates that were created.

```
nsm ip pool template PT1-VL2013-IP-Pool
    ip address 200.1.3.2 200.1.3.250
    network 200.1.3.0 255.255.255.0
    default-router 200.1.3.253
nsm ip pool template PT1-VL2014-IP-Pool
    ip address 200.1.4.2 200.1.4.250
    network 200.1.4.0 255.255.255.0
    default-router 200.1.4.253
nsm ip pool template PT2-VL2023-IP-Pool
```

```
ip address 200.2.3.2 200.2.3.250
  network 200.2.3.0 255.255.255.0
  default-router 200.2.3.253
nsm ip pool template PT2-VL2024-IP-Pool
 ip address 200.2.4.2 200.2.4.250
  network 200.2.4.0 255.255.255.0
  default-router 200.2.4.253
nsm ip pool template PT3-VL2033-IP-Pool
  ip address 200.3.3.2 200.3.3.250
  network 200.3.3.0 255.255.255.0
  default-router 200.3.3.253
nsm ip pool template PT3-VL2034-IP-Pool
  ip address 200.3.4.2 200.3.4.250
  network 200.3.4.0 255.255.255.0
  default-router 200.3.4.253
nsm ip pool template T1-VL101-IP-Pool
 ip address 10.101.1.2 10.101.1.250
  network 10.101.1.0 255.255.255.0
  default-router 10.101.1.253
nsm ip pool template T2-VL102-IP-Pool
 ip address 10.102.1.2 10.102.1.250
 network 10.102.1.0 255.255.255.0
  default-router 10.102.1.253
nsm ip pool template T3-VL103-IP-Pool
  ip address 10.103.1.2 10.103.1.250
```

```
network 10.103.1.0 255.255.255.0
default-router 10.103.1.253
```

Step 5 Create Network Segments.

Configure each network segment to be a member of the previously configured network segment pools. Configure each network segment as an access port with an access VLAN. Import the previously configured IP pool for each network segment. Publish each network segment.

The Step 9VM Network Creation, page 3-36 commands are added automatically and appear later in this section when configuring VM networks in SCVMM.

VM networks enable the SCVMM administrator to create an isolated virtual Layer 3 (L3) network. Each VM network can have multiple VM subnets (virtual L2 domain). Microsoft SCVMM 2012 supports VLAN-backed and network virtualization (NVGRE)-backed VM networks. The Nexus 1000V supports VLAN-backed VM networks only.

The following configuration shows network segments that were created.

```
nsm network segment T1-NetworkSegment101
 member-of network segment pool T1
  switchport access vlan 101
 ip pool import template T1-VL101-IP-Pool
 publish network segment
  switchport mode access
nsm network segment T2-NetworkSegment102
 member-of network segment pool T2
 switchport access vlan 102
 ip pool import template T2-VL102-IP-Pool
 publish network segment
  switchport mode access
nsm network segment T3-NetworkSegment103
 member-of network segment pool T3
  switchport access vlan 103
  ip pool import template T3-VL103-IP-Pool
 publish network segment
```

switchport mode access

```
nsm network segment PT1-NetworkSegment2013
 member-of vmnetwork PT1-NetworkSegment2013
 member-of network segment pool PT1
  switchport access vlan 2013
  ip pool import template PT1-VL2013-IP-Pool
  publish network segment
  switchport mode access
nsm network segment PT1-NetworkSegment2014
 member-of network segment pool PT1
 switchport access vlan 2014
  ip pool import template PT1-VL2014-IP-Pool
 publish network segment
  switchport mode access
nsm network segment PT2-NetworkSegment2023
  member-of network segment pool PT2
  switchport access vlan 2023
  ip pool import template PT2-VL2023-IP-Pool
 publish network segment
  switchport mode access
nsm network segment PT2-NetworkSegment2024
 member-of network segment pool PT2
  switchport access vlan 2024
  ip pool import template PT2-VL2024-IP-Pool
  publish network segment
  switchport mode access
nsm network segment PT3-NetworkSegment2033
 member-of network segment pool PT3
  switchport access vlan 2033
  ip pool import template PT3-VL2033-IP-Pool
  publish network segment
  switchport mode access
nsm network segment PT3-NetworkSegment2034
 member-of network segment pool PT3
  switchport access vlan 2034
  ip pool import template PT3-VL2034-IP-Pool
  publish network segment
  switchport mode access
```

Step 6 Create Port profiles.

Unlike the Nexus 1000V for ESX, in which a port profile identifies both network policy and network isolation (VLAN), SCVMM networking decouples this information into a VM network and the port classification. When the Nexus 1000V is used with Hyper-V, the network administrator creates network segments to isolate networks. The SCVMM server administrator uses network segments in the resulting VM networks. The network administrator defines creates port profiles to define port policy. The server administrator uses port profiles to create a port classification.

To deploy a VM to the virtual access layer, choose the port classification, VM network, and the VM subnet. When a VM is deployed, a port profile is dynamically created on the Nexus 1000V for each unique combination of port classification, VM network, and VM subnet. All other VMs deployed with the same policy to this network reuse the dynamic port profile, which is a combination of network isolation and network policy.

Note The generated profile should be neither modified nor inherited in other port profiles.

When a port-attach notification is received, the port profile globally unique identifier (GUID) and network segment GUID are generated. A GUID provides a unique reference for the port profile and the network segment.

When a GUID is generated, a new port profile, combining the port profile and the VLAN, is created on the VSM. This auto-created port-profile is inherited on the interface. If more than one port uses the same combination of port profile and network segment, the port profile is shared. Port profiles are dynamically created during the interface attach process.

The following configuration shows port-profiles that were created.

```
port-profile type vethernet T1-PortProfile
 no shutdown
  state enabled
 publish port-profile
port-profile type vethernet T2-PortProfile
 no shutdown
 state enabled
 publish port-profile
port-profile type vethernet T3-PortProfile
 no shutdown
 state enabled
 publish port-profile
port-profile type vethernet PT1-PortProfile
 no shutdown
 state enabled
 publish port-profile
port-profile type vethernet PT2-PortProfile
 no shutdown
 state enabled
 publish port-profile
port-profile type vethernet PT3-PortProfile
 no shutdown
  state enabled
 publish port-profile
```

Step 7 Create Uplink Port Profile and Network Uplink.

An uplink port profile is essentially a template that defines a list of network segment pools to be associated with any (physical) network adapters to which the uplink port profile is applied. An uplink port profile enables you to specify protocols and port policy for the uplink adapter, using an Ethernet port profile to be specified.

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The following configuration shows uplink port-profiles.

```
port-profile type ethernet UplinkPortProfile
channel-group auto mode on mac-pinning
no shutdown
max-ports 512
state enabled
nsm network uplink UCS-Uplink
import port-profile UplinkPortProfile
allow network segment pool T1
allow network segment pool T2
allow network segment pool T3
allow network segment pool PT1
allow network segment pool PT2
allow network segment pool PT2
allow network segment pool PT3
publish network uplink
```

<u>Note</u>

When a new segment is created and tied to an existing network segment pool in the list under the network uplink, VLANs are inherited in the NSM created profile as shown.

The following configuration shows an Ethernet UCS-Uplink port-profile.

```
port-profile type ethernet UCS-Uplink
inherit port-profile UplinkPortProfile
switchport mode trunk
switchport trunk allowed vlan 101-103,2013-2014,2023-2024,2033-2034
no shutdown
max-ports 512
description NSM created profile. Do not delete.
state enabled
```

```
<u>Note</u>
```

The Switchport allow vlan add command is not needed.

Nexus 1000V Part 2: SCVMM Configuration

This section provides guidance on how to create the N1000V logical switch (VSM and VEMs) in Hyper-V through SCVMM.

Step 1 Download Cisco Nexus 1000V Package.

The Nexus 1000V for Hyper-V package (zip file) is available at the download URL location provided with the software. Complete the following steps to download the package.

Download the Cisco Nexus 1000V for Microsoft Hyper-V package for Microsoft System Center Virtual Machine Manager (SCVMM) 2012. The package contains the following files:

- Virtual Supervisor Module (VSM) ISO (n1000vh-dk9.5.2.1.SM1.5.1.iso)
- Virtual Ethernet Module (VEM) MSI package (Nexus1000V-VEM-5.2.1.SM1.5.1.msi)
- Cisco VSEM Provider MSI package (Nexus1000V-VSEMProvider-5.2.1.SM1.5.1.msi)
- Cisco SCVMM VM Template (Cisco Nexus1000V VSM Template)
- Cisco Installer App (Cisco.Nexus1000VInstaller.UI.exe)
- **Step 2** Install the Virtual Switch Extension Manager Provider.

To establish communication between SCVMM and the Nexus 1000V VSM, the Virtual Switch Extension Manager (VSEM) provider must be installed on the SCVMM server.

a. Run the Cisco VSEM Provider MSI package (Nexus1000V-VSEMProvider-5.2.1.SM1.5.1.msi) that comes with the Nexus 1000V Package.

Follow the link to where the MSI was downloaded and double-click MSI to run it.

b. Follow the prompts as shown in Figure 3-2, Figure 3-3, and Figure 3-4 until the install is complete.

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Figure 3-2 Run the MSI Installer

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Figure 3-3 Read and Accept the License Agreement



Figure 3-4 Select Finish when the Installer completes

Step 3 Verify that VSEM Provider is installed properly.

Go to Settings > Configuration Providers. Confirm that Cisco Systems Nexus 1000V is listed as a Configuration Provider.

Home							~ 😢
Create Console Add-in Backup	PowerShell Jobs F RO						
Import Backup	p Window						
Settings <	Configuration Providers (2)						
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A 🕄 Security	Name	Status	Туре 👻	Version	Publisher	Manufacturer	Model
User Roles	Cisco Systems Nexus 1000V	Active	Virtual Switc	1.0	Cisco Syste	Cisco Syste	Nexus 1000V
Run As Accounts	Ø Microsoft Network Load Balancing (NLB)	Active	Load balancer	3.1.6011.0	System Cent	Microsoft	Network Loa
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www.console Add-ins							
	Cisco Systems Nexus 1000V						*
	Description: Provider for Cisco Systems Nexus 1000V	Virtual Switch Ex	xtension Manager				
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w VMs and Services							
🕎 Fabric							
🧮 Library							
🖹 Jobs							
Settings							
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Figure 3-5 Cisco VSEM Provider installed

Step 4 Copy VEM MSI to SCVMM repository.

The VEM is an MSI file that must be placed in the following location on the SCVMM server: ALLUSERSPROFILE%\Switch Extension Drivers, for example, C:\ProgramData\Switch Extension Drivers. SCVMM uses the MSI file during the Add host operation to install VEM code on the host.



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Do not install VEM code on the SCVMM server; only copy the file to the specified location.

Step 5 Add VSEM (Connect SCVMM to VSM).

The following procedures add the VSEM that was just installed. This step is required to connect SCVMM to the VSM in Hyper-V.

In these steps, the login account and the MGMT IP address configured in the VSM are needed to establish the communication between SCVMM and the VSM. Once the VSEM is added, the configuration that was created in the CLI of the VSM can be pulled in the SCVMM.

a. Right-click Switch Extension Manager and select Virtual Switch Extension Manager...

Add Overview Fabric Resources	Services						
- Resources	Virtual Machines	Window	View Dependent	() Refresh	Remove	Propertie	25
Add Shr	ow	·	Dependencies	Refresh	Remove	Propertie	25
aric (Virtual Switch Extensio	on Manage	ers (0)				
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PXE Servers				nere are no	items to sno	w en ents vie	ew
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VMM Server							
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why Logical Networks							
MAC Address Pools							
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ST VIP Templates							
Switch Extension M			-				
R Logical Switches	Switch Extension Mana	ger					
Mative Port Profiles							
Port Classifications							
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Pabric							
Library							
Jobs							
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Figure 3-6 Add VSEM

b. Add the Connection string and select Run As Account.

10.0.72.101 is the IP address of the VSM created on the Nexus 1110x. The created account uses the login credentials required to log in to VSM.

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1	Add Virt	ual Switch Extension Manager Wizard	x
👫 General		A A A	
General Host Groups Summary	Enter connection Select a manufactur connection string a Manufacturer: Model: Provider: Connection string: RunAs account:	on settings for the extension manager to add rer, model, and configuration provider for the extension manager. Enter the nd credentials to be used. Cisco Systems, Inc. Nexus 1000V Cisco Systems Nexus 1000V http://10.0.72.101 VSM-Admin Browse	• •
		Previous Next Canc	el

Figure 3-7 Add VSEM Wizard

Refer to Installing Cisco Nexus 1000v for Microsoft Hyper-V for more information about creating a **Run As Account**.

c. Verify that no additional configuration, such as proxy, is required.

Open a browser and test the connection to the VSM. Browse to http://<VSM IP Address>. Output similar to Figure 3-5 should be seen:



Figure 3-8 Browse to VSM

d. Select the host group to which the VSEM is available.

3	Add Virtual Switch Extension Manager Wizard
💐 Host Grou	ps
General	Host groups that can use this virtual switch extension manager
Host Groups	The virtual switch extension manager will be available to the following host groups.
Summary	All Hosts
	Previous Next Cancel

Figure 3-9 Add VSEM Wizard All Hosts

e. Confirm the VSEM settings and click Finish.

Figure 3-10	Add VSEM	Wizard	Confirm	Settings
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3	Add Virtual	Switch Extension Manager \	Wizard	X
💐 Summary				ATH.
General Host Groups	Confirm the settin	gs		View Script
Summary	Manufacturer: Model: Configuration provide Connection string: RunAs Account: Host groups:	Cisco Systems, Inc. Nexus 1000V er: Cisco Systems Nexus 1000V http://10.0.72.101 VSM-Admin All Hosts		
			Previous	Cancel

f. Verify that Virtual Switch Extension Manager is installed.

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Create	Add Resources •	Overview	Fabric Resource	Hosts	Window	View Dependent Resources	Refresh	Remove	Properti	25	
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	All Hosts			Name					0	Connection string	
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Figure 3-11 Verify VSEM is installed

Step 6 Create Logical Switch in SCVMM.

After VSEM is added (Step 5), do the following:

- 1. Create a logical switch on VMM using VSEM.
- 2. Define extensions and port profiles for the logical switch.
- 3. Create classifications containing the native port profile and a port profile for each extension.
 - a. Right-click Logical Switch and select Create Logical Switch.

Home								^ 🔞
Create IP Pool Create Logical Network	Create gical Switch	Add Resources •	Overview Fabric Resources	傘 Services 裔 Virtual Machines 현 Hosts	Window	View Dependent Resources	Remove	Properties
Create		Add	Sh	DW.		Dependencies	Remove	Properties
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Figure 3-12 Create Logical Switch

b. Read the text and click **Next**.

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Figure 3-13 Create Logical Switch Getting Started

c. Name the logical switch.

In this case, the hostname of the VSM was used. Use defaults for SR-IOV.

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Figure 3-14 Create Logical Switch Name

 d. Check the previously configured VSEM (V2-HyperV-VSM-P1) and click Next. The VSEM has the following attributes: Extension type: Forwarding Extension Manager: Cisco Nexus 1000V Chassis Only one virtual switch extension can be selected.



Figure 3-15 Create Logical Switch Select VSEM

e. Select Team in the uplink mode field and click Add to add the uplink port profile.

Note The mode should always be **Team**, whether using a single uplink or multiple uplinks.

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H SECre	ate IP Pool	🔆 🕂 🎯 🔝 Services 😰
Create Logical Network SCr	*	Create Logical Switch Wizard Properties
Fabric	🐂 Uplink	
 Mervers All Hosts 	Getting Started	Specify the uplink port profiles that are part of this logical switch
🐞 Library Servers 🍺 PXE Servers	General Extensions	The uplink port profiles configured here are available for use on hosts where an instance of this switch is created.
Update Server VCenter Server	Uplink	Uplink mode: Team
VMM Server	Virtual Port Summary	Uplink Port Profile Host Groups Network Sites Marked For Deleti Add
MAC Address		Remove
VIP Templates		
Logical Switch		
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📋 Jobs		
Settings		
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Figure 3-16 Create Logical Switch Select Add Uplink

f. Select the uplink port profile and click OK.

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Create Logical Network		Create Logical Switch Wizard	ve Properties
Fabric		Add Uplink Port Profile	
Servers All Hosts Library Servers Dydate Server VKMS Server VKMS Server VMM Server Mac Address Kadalancer VIP Templates Switch Extensis Switch Extensis Suitch Extensis	Getting Started General Extensions Uplink Virtual Port Summary	Select a port profile tch The port profile selected here will be available for use by the host physical adapter that connect to this logical switch. stance of this switch is Port profile: UCS-Uplink • Summary • Host groups: All Hosts Network sites: PT1, PT2, PT3, T1, T2, T3	
 Port Classificat VMs and Servic Fabric Library Jobs Settings 		OK Cancel	

Figure 3-17 Add Uplink Port Profile

g. Confirm the uplink port profile settings and click Next.

By default, the host group **All Hosts** is created in Hyper-V. The network sites PT1, PT2, PT3, T1, T2 and T3 were created during Nexus 1000V CLI configuration.

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Create Logical Network	este IP Pool 🐲	Create Logical Switch Wizard	ve Properties
Yervers All Hosts Library Servers Library Servers Update Server VCE Servers Voldate Server Vol	Getting Started General Extensions Uplink Virtual Port Summary	Specify the uplink port profiles that are part of this logical switch The uplink port profiles configured here are available for use on hosts where an instance of this switch is created. Uplink mode: Team Uplink port profile: Uplink Port Profile Host Groups Network Sites M UCS-Uplink All Hosts PT1, PT2, PT3, T1, T2, T3 False Edit Remove	ρ
Fabric Fabric Fabric Jobs Settings		Previous Next Cancel	

Figure 3-18 Create Logical Switch Note Host Groups and the Network site

h. Specify the Port Classifications and click Next.

Port Classifications must be created in SCVMM and linked to port-profiles created in the VSM. The port-profiles were created previously in the "Nexus 1000V Switch for Microsoft Hyper-V VSM CLI Configuration" section on page 3-2; one port classification per port profile was created. When adding VMs to the logical switch, the port classification and VM network are selected when configuring network adapters (see VM Deployment).

Refer to Creating Logical Switch in SCVMM in Installing Cisco Nexus 1000V for Microsoft Hyper-V for additional guidance for creating port classifications.

	eate IP Pool	* 🔶 🎯	Services		0
Create Logical	2	Create Logical Sv	witch Wizard	×	ive Properties
Network	-32			1 the second	ive Properties
Fabric	🐂 Virtual Port			ETAL HAL	
All Hosts	Getting Started	Specify the port classifications	for virtual ports part of this logica	l switch	م
k Library Servers	General Extensions	The port classifications configured here virtual machines.	will be available for use by virtual network ada	pters in a host or	
Update Server Vcenter Server	Uplink	Virtual ports:			
VMM Server	Virtual Port	Port Classification PT1-PortProfile	Default Marked For Deletion False False	Add	
 Networking 	Summary	PT2-PortProfile	False False		
The Logical Netwo		PT3-PortProfile	False False	Kemove	
MAC Address		T1-PortProfile	False False	Cas Dafa de	
VID Templates		T2-PortProfile	False False	Set Default	
Suitch Extensi		T3-PortProfile	False False	Clear Default	~
Logical Switch					
💶 Native Port Pr					
Port Classificat					
WMs and Servic					
Pabric				_	
🧮 Library			Previous	Cancel	
🖾 Jobs					1
Settings					

Figure 3-19 Create Logical Switch Specify the Port Classifications

i. In the Summary panel, confirm the settings and click Finish to create the logical switch.

Figure 3-20 Create Logical Switch Specify Confirm Settings

	eate IP Pool	🔆 🖣 🚱 🏬 🌣 Services 🕢		0
Create Logical	2	Create Logical Switch Wizard	×	e Properties
Network	37		No.	e Properties
Fabric	Summary			
A PP Servers				٩
All Hosts	Getting Started	Confirm the settings	View Script	
💦 Library Servers	General			
PXE Servers	Extensions	Name: V2-HyperV-VSM-P1		
Dpdate Server	Uplink	Description:		
VMM Server	Victoria Dent	Single Root I/O Virtualization: Disabled		
d à Naturation	Virtual Port	Switch uplink mode: Leam Virtual switch extensions: V2-HyperV-VSM-P1		
 Networking I onical Netwo 	Summary	Uplink port profile sets: 1		
MAC Address		Virtual port profile sets: 6		
Load Balancer				
VIP Templates				
Kan Switch Extensi				~
Logical Switch				
Native Port Pri Port Classificat				
Port classificat				
🔯 VMs and Servic				
Pabric				
🧮 Library		Previous Filysh	Cancel	
📋 Jobs				
Settings				
	-			

ſ

j. Manually refresh the VSEM.

After the Nexus 1000V logical switch is created, manually refresh VSEM to force the updates to appear in SCVMM.

III ▼	Home								^ (2
* Create	Add Resources •	Overview	Services	 PowerShell Jobs PRO 	View Dependent Resources	Refresh	Remove	Properties		
Eabric	Add		Virtual Switch Extension Manag	window	Dependencies	Ketresh	Kemove	Properties		-
	PAE Servers									ຸ
1	Update Server						0		,	4
	vCenter Servers		Name	version 5 2/1\SM1/9	5 1) - V2-HuperV-VSM	_D1	Conr	v//10.0.72.101		-
	VMM Server			ersion J.2(1)Sivi 1(J	5.1) - V2-HyperV-V3W	- 1	nup	// 10.0.72.101		
4 📥 Ne	etworking									
uite -	Logical Network	ks								
<u> </u>	MAC Address Po	ools								
	Load Balancers									
	Switch Extension	n Mana								
	Logical Switches	s E	E							
•	Native Port Prof	files								_
	Port Classificatio	ons	Cisco Nexus 1000V Chassis ver	sion 5.2(1)SM1(5.1)) - V2-HyperV-VSM-P	1				~
1	Gateways		Extension manager information	n						
🕨 🥫 St	orage		Name: Circo Novus	1000V Chargie vore	ion 5 2/1)SM1/5 1)					
			V2-HyperV-V	SM-P1	101 3.2(1)3141(3.1) -					
🔯 VI	Ms and Services	s								
🔮 Fa	abric									
📕 li	brary									
ja 🗄	obs									
🗹 Se	ettings									
	Step 7	Ad	d VEMs (Hosts) to the	e Nexus 100)0V.					

Figure 3-21 Manual Refresh of the VSEM

a. Right-click All Hosts and select Add Hyper-V Hosts and Clusters..

*	+	C 11	0	1		0	0	8			
Create	Resources *	Resources Comp	liance Scan	Kemediate	Properties	Agent	Reassociate	Window			
Create	Add	Show		Complia	nce	1	Agent		<u>.</u>		
Fabric		< Hosts (0)									
🔺 👥 Ser	vers	<u> </u>									٩
🚞 A	ll Hosts 😽	Create Senice		15	- Role	J	ob Status	- CPU A	verage	Available Me	 Operating System
🎼 L	ibrary Serve	Create Virtual Machine				There are n	o items to shoi	w in this vie	W		
P P	XE Servers	Add Hyper-V Hosts and Clus	ters								
inge U 目	Contor Sonn	Add Citrix XenServer Hosts a	nd Clusters	_							
i v	MM Server	Add VMware ESX Hosts and	Clusters								
A 📥 Ne	tworking	Create Host Group									
1 the	ogical Netw 👛	Move									
🧱 N	IAC Addres:	View Networking									
🔛 L	oad Balance 🗙	Delete									
🗷 V	IP Template	Properties									
E S	witch Extension r	nanagers									
	lative Port Profile	<									
на н	ort Classifications	5 .									
in the second	As and Services										
🛃 Fal	pric										
🚟 Lib	orary										
📋 Jol	bs										
🖌 Se	ttings										
	-										

Figure 3-22 Add Hyper-V Hosts

b. Select the appropriate computer location and click Next.

All hosts in the test bed were in a trusted Active Directory domain.

Figure 3-23 Add Hyper-V Hosts Windows Computer Location



c. Click Browse to see a list of Run As Accounts.

I



Figure 3-24 Add Hyper-V Hosts Specify Credentials

d. Select the Run As account created during the Hyper-V install.

The account is different than the **Run As account** used to install VSEM. The scymmadmin account was created in Active Directory and is a domain administrator account for the local domain.

See the "Microsoft Windows Server 2012 Installation" section on page 2-6 for more information about the scymmadmin account.

* -	e 11	👘 O 🛉	8	0 0 0		
Create Add	*		Add Resource W	lizard	x	
Create Add	6 -					
Fabric	🗧 Credenti	S S	elect a Run As A	ccount	A BA	
Servers All Hosts	Resource location	Select a Run As acco	ount			P Coperating System
🎄 Library Servers	Credentials			٩	II the Hyper-V role and	
PXE Servers	Discovery scope	Name	Description	User Role		
Update Server	Target resources	NT AUTHORITY\System				
VMM Server	Host settings	NT AUTHORITY\LocalS NT AUTHORITY\Netwo			Browse	
🔺 📥 Networking	Summary	VSM-Admin		Administrator		
🖬 Logical Netwo		Administrator		Administrator		
🗯 MAC Address		scvmmadmin		Administrator		
🔛 Load Balancer						
VIP Templates					ator on the host e host as well as for	
Switch Extensi					d manually, then they	
- Logical Switch					dded, the VMM service	
Port Classificat				Create Run As Account	any rature access to it.	
WMs and Servic				Oks Cancel		
Pabric				· · · · · · · · · · · · · · · · · · ·		
🧮 Library				Previous	Next Cancel	
📋 Jobs					110	
C Settings						

Figure 3-25 Add Hyper-V Hosts Select Run As Account

e. Enter the hostname of each host to add as a VEM and click Next.

* +		
Create Add Resources	Add Kesource Wizard	
Create Add		
Fabric		
 Servers All Hosts Library Servers PXE Servers Update Server vCenter Server 	Resource location Specify the search scope for virtual machine host candidates Credentials Search for computers by whole or partial names, FQDNs, and IP addresses. Alternatively, you may generate an Active Directory query to discover the desired computers. Discovery scope © Specify Windows Server computers by names Target resources © Specify an Active Directory query to search for Windows Server computers	م Operating System
 VMM Server Metworking Mr Logical Netwo MAC Address 	Host settings Enter the computer names of the hosts or host candidates that you want VMM to manage. Each computer name must be on a separate line. Computer names:	
법 Load Balancer 교 VIP Templates 태 Switch Extensi 腂 Logical Switch	v2-c1b4-p1 v2-c2b1-p1 v2-c2b2-p1	~
Native Port Pro Port Classificat WMs and Servic Fabric	Skip AD verification Examples: server1 server1.contoso.com 10.0.1.1 2a01:110:1e13:#8ffcfe44:23	
📕 Library	Previous Next Cancel	
🖾 Jobs		1
Settings		

Figure 3-26 Add Hyper-V Hosts Enter Hostnames

f. After hosts are discovered, select each host to add and click Next.

* -	e 🚺	🖗 🖸 🔶 📻	0.0		
Create Ad	d 😭	Add Resou	rce Wizard	x	
Create Ad	id 🔶				
Fabric	🗧 Target res	sources			
A M Servers	Resource location	Select the computers that ye	ou want to add as hosts		P • Operating System
PXE Server	Discovery scope	Discovered computers:	Occuration Scatter	thursday	
🍺 Update Se	nver	Computer Name	Windows Server 2012 Datacenter	Hypervisor	
📓 vCenter Se	arver larget resources	v2-c2b1-p1.vmdc.net	Windows Server 2012 Datacenter	Hyper-V	
🚏 VMM Serv	er Host settings	v2-c1b4-p1.vmdc.net	Windows Server 2012 Datacenter	Hyper-V	
🔺 📥 Networking	Summary	v2-c2b2-p1.vmdc.net	Windows Server 2012 Datacenter	Hyper-V	
nn Logical Ne	two				
MAC Addr	ress				
🔛 Load Balar	ncen				
IP Templ	ates				
Switch Ext	ensi				
The Logical Sw	ntch + Do				
Port Classi	ficat				
🔯 VMs and Se	rvic				
Pabric		Select all Refresh S	top		
🧮 Library			Previous	Next Cancel	
📋 Jobs					
Settings					
	-				

Figure 3-27 Add Hyper-V Hosts Select the Hosts

g. Assign hosts to a host groups.

Leave Reassociate this host with the VMM environment unchecked and click Next.

Figure 3-28 Add Hyper-V Hosts Assign the Host Group



h. Enable Live Migration and click Next.

ſ



Figure 3-29 Add Hyper-V Hosts Enable Live Migration

i. Confirm the Settings and click Finish.

* 🔶	🗑 🚺 🍦 🔾 🛧 📻 🔯 🕼	
Create Add Resources	Add Resource Wizard	×
Create Add Fabric	😤 Summary	
Arress Arress	Resource location Confirm the settings View Scrip Credentials Discovery scope Resource type: Hyper-V capable Windows Servers Target resources Resource tocation: Trusted Windows computer Host settings Discovery credentials: scommadmin Migration Settings Discovery scope: Computer name based discovery Summary All Hosts	t Operating System
🗮 Library	Previous Finish Cancel	
📋 Jobs		ALTO
Settings		
-		

Figure 3-30 Add Hyper-V Hosts Confirm Settings

j. Verify All Hosts are seen in the All Hosts group.

*	-		111	-	0		0	0 0			
Create	Add Recourses 7	Overview	Fabric	Compliance	Scan F	Remediate	Compliance	Update Reassociate	Window		
Create	Add		Show			Complia	nce	Agent			
Fabric			< He	osts (4)							
4 00 Set	rvers		-								٩
A 📑 A	All Hosts		N	ame	Host St	atus	* Role	Job Status	· CPU Average	e Available Me	· Operating System
1	v2-c1b3-p1			v2-c1b4-p1.v	m OK	(Host	Completed	2 %	182.28 GB	Microsoft Windo
1	v2-c1b4-p1		1	v2-c2b1-p1.v	m OK	¢	Host	Completed	2 %	182.52 GB	Microsoft Windo
1	v2-c2b1-p1		1	v2-c1b3-p1.v	m OK	c	Host	Completed	0 %	0 KB	Microsoft Windo
1	v2-c2b2-p1		= 7	v2-c2b2-p1.v	m OK	c	Host	Completed	4 %	182.58 GB	Microsoft Windo
1 1 L	ibrary Servers.										
E F	XE Servers										
100 E	Jpdate Server										
	Center Servers										
	AMINI SERVER										
⊿ .▲ Ne	tworking										
vitir L	ogical Networks		_								*
<u>100</u>	MAC Address Poo	(s									
🔤 L	.oad Balancers										
v	/IP Templates		-								
🔯 VN	As and Services										
😥 Fai	bric										
🚟 Lik	orary										
jol	bs										
🔽 Se	ttings										
			-								

Figure 3-31 Add Hyper-V Hosts Verify All Hosts

Step 8 Add Each Host to Logical switch.

a. Right-click the host to be added and select Properties.

Figure 3-32	Host Properties
-------------	-----------------

Create	Add Resources •	Cverview Fabric Resources Compliance	Scan Remediate Compliance Properties	Update Reassociate	Window		
Create	Add	Show	Compliance	Agent			
Fabric		< Hosts (1)					
4 👰 Sen	vers	*					٩
4 🚞 A	II Hosts	Name	Host Status TRole	Job Status	CPU Average	Available Me	* Operating System
1	v2-c1b3-p1		h OK Host	Completed	0 %	0 KB	Microsoft Windo
1	v2-c1b4-p1	Create Service					
1	v2-c2b1-p1	Create Virtual Machine	-				
1	v2-c2b2-p1	Refresh					
🎥 Li	brary Servers	Refresh Virtual Machines					
P)	XE Servers	Shut Down					
🔤 U	pdate Server	Restart					
🗎 v(Center Servers	Keset					
i v 🖷	MM Server	Power On					
🔺 📥 Net	working	Power Off					
τ ή τ Lo	ogical Network	View Status					~
👅 M	IAC Address Po	Start Maintenance Mode					
🔛 La	bad Balancers	Stop Maintenance Mode					
🗷 V	IP Templates	Maria to Hart Group					
in VM	Is and Services	Remove Cluster Node	-				
		Connect via RDP					
Hab	oric	View Networking					
📕 Lib	rary	- Remains	-				
📋 Job	05	Propertie	1				
Set	tings	• • <u>B</u>	2				

b. Add New Logical Switch.

Γ

In the Host Properties > Virtual Switches window, select New Virtual Switch and New Logical Switch to add the host to the Nexus 1000V.

As seen in Figure 3-33, a standard External switch was already created for management. In Hyper-V, multiple switches can exist on the host.

* 🔶	e	👘 🔿 🔶 🗑	0	of 🛛	
Create Add Resources	8	v2-c1b3-p1.v	mdc.net Properties	×	
Create Add Fabric ▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲ ↓ ↓	General General Status Hardware Host Access Virtual Machine Paths Reserves Storage Virtual Switches Virtual Switches Placement Senvicing Windows Custom Properties	New Virtual Switch New Logical Switch New Logical Switch New StardSard Switch Cisco VIC Ethernet Interfa External	w Virtual Network Adap me: Scription: External Network adapter: Logical network: Allow host access Private	Cisco VIC Ethernet Interface - Virtual Switcl Cisco VIC Ethernet Interface Cisco VIC Ethernet Interface Cisco VIC Ethernet Interface Cisco VIC Ethernet Interface Using VLAN: U Using VLAN: U U U U U U U U U U U U U U U U U U U	P Operating System Microsoft Windo
Library	View Script	1		OK Cancel	
📋 Jobs					16 28
✓ Settings					

Figure 3-33 Host Properties New Logical Switch

c. Add physical adapters to the logical switch team.

There are two adapters, VIC Ethernet interface 3 and VIC Ethernet interface 4 that will be used on each host. Add these to the logical switch.

1

Resources		v2-c105-p1.v	nuc.net Properties		
eate Add	General	🖕 New Virtual Switch 👅 Ne	w Virtual Network Adapter 🏋 Delete		
Servers	Status	Cisco VIC Ethernet Interfa External	Logical switch: V2-HyperV-VSM-P1	•	
All Hosts	Hardware	Cisco VIC Ethernet Interfa External	The logical switch supports teaming whic more than one physical adapter they will single uplink.	h means if you connect work together as a	 Operating Microsoft
v2-c1b4-p1	Host Access	💐 V2-HyperV-VSM-P1	Physical adapters:		
🛛 v2-c2b1-p1	100 - 100 - 10 - 10 - 10 - 10 - 10 - 10	Logical Switch	Adapter Uplink	k Port Proi Add	
🛛 v2-c2b2-p1	Virtual Machine Paths		Cisco VIC Ethernet Interfa 💌 UCS-	-Uplink Remove	
Library Servers	Reserves		Cisco VIC Ethernet Interface		
PXE Servers			Cisco VIC Ethernet Interface #2		
Dpdate Server	Storage		Cisco VIC Ethernet Interface #3		
VCenter Server	Victory Controller		cisco vic ethemet intenace #4		
VMM Server	Virtual Switches				
 Networking 	Migration Settings				
why Logical Netwo					
🗯 MAC Address	Placement				
Coad Balancer	Servicing Windows				
VIP Templates	servicing trandows				
VMs and Servic	Custom Properties		4	÷	
) False					
_ rabric					_
Library	View Script			OK Cancel	
lobs					

Figure 3-34 Host Properties Add Physical Adapter 1

Add the second physical adapter 2 and hit OK.

* +	T III (
Create Add Resources		v2-c1b3-p1.v	mdc.net Properties X	
Create Add	General	👍 New Virtual Switch 👅 Ne	ew Virtual Network Adapter 🗙 Delete	
▲ 1 Servers	Status	Cisco VIC Ethernet Interfa External	Logical switch: V2-HyperV-VSM-P1	[م
All Hosts	Hardware	Cisco VIC Ethernet Interfa External	The logical switch supports teaming which means if you connect more than one physical adapter they will work together as a single uplink.	 Operating System Microsoft Windo
🖉 v2-c1b4-p1	Host Access	V2-HyperV-VSM-P1	Physical adapters:	
₽ v2-c2b1-p1	Virtual Machine Paths	Logical Switch	Adapter Uplink Port Prof Add	
Library Servers	Reserves		Cisco VIC Ethernet Interfa V UCS-Uplink V Remove	
Update Server	Storage		Cisco VIC Ethernet Interface #2 Cisco VIC Ethernet Interface #3	
VMM Server	Virtual Switches		Cisco VIC Ethernet Interface #4	
 Networking Mr Logical Netwo 	Migration Settings			v
🗯 MAC Address	Placement			
E Load Balancen	Servicing Windows			
WMs and Servic	Custom Properties		4	
Pabric	all	L		
🧮 Library	View Script		OK Cancel	
🖺 Jobs				1
Settings				
-	· · · · · · · · · · · · · · · · · · ·			

Figure 3-35 Host Properties Add Physical Adapter 2

d. Click OK to continue to add host to the logical switch.

Γ

reate Add Resources	8	v2-c1b3-p1.v	mdc.net Proper	ties		L	x	
ireate Add	General	new Virtual Switch 💓 New	ew Virtual Network	Adapter 🏋 D	elete			
Servers	Status Hardware	 Cisco VIC Ethernet Interfa External Cisco VIC Ethernet Interfa 	Logical switch: The logical switc more than one p	V2-HyperV-V h supports team hysical adapter	5M-P1 ing which means if y they will work toget!	you connect her as a	-	Operatir
v2-c1b3-p1 v2-c1b4-p1 v2-c2b1-p1	Host Access	External V2-HyperV-VSM-P1 Logical Switch	single uplink. Physical adapter Adapter	5:	Uplink Port Prot	Add		Microsof
📲 v2-c2b2-p1	Virtual Machine Paths	Virtual M	achine Manager		× ·	Remove		
Library Servers PXE Servers Update Server	Reserves Storage	While Virtual Machine Manage temporarily lose network con	ger is applying the c nectivity. This may	hanges, the host have an adverse	i may effect			
VCenter Server								
VMM Server	Virtual Switches	on other network operations Do you want to continue?	in progress.					
VMM Server	Virtual Switches Migration Settings Placement	on other network operations Do you want to continue?	in progress.	ok	Cancel			
VMM Server Networking Cogical Netwo MAC Address Load Balancer VIP Templates VIM and Service	Virtual Switches Migration Settings Placement Servicing Windows Custom Properties	on other network operations Do you want to continue?	in progress.	ок	Cancel			
VIMM Server VIMM Server VIMM Server VIM Logical Networking MAC Address VID Templates VIP Templates VIMs and Servic Patric	Virtual Switches Migration Settings Placement Servicing Windows Custom Properties	on other network operations Do you want to continue?	e	ok	Cancel			
VMM Server VMM Server Networking Networking MAC Address VIP Templates VIP Templates VIP Sand Servic Fobric Library	Virtual Switches Migration Settings Placement Servicing Windows Custom Properties View Script	on other network operations Do you want to continue?	e e e e e e e e e e e e e e e e e e e	m.	Cance	Cancel		
VMM Server Networking A Logical Netwo MAC Address VIP Templates VIP Templates VIP Servic Fabric Library Jobs	Virtual Switches Migration Settings Placement Servicing Windows Custom Properties View Script	on other network operations Do you want to continue?	*	m.	Cance	Cancel	lit.	

Figure 3-36 Host Properties Continue to Add Host to Logical Switch

e. Verify that the VEM is installed on the VSM.

Figure 3-37 shows the output seen on the VSM when the VEM is added to the Logical switch.



V2-H Mod	yper9-V Ports	SM-P1(conf Module-Ty	îg-net-seg≀# sho`mod ∦pe	Model		Status						
1 2 4 5 6	0 0 288 288 288 288	Virtual Virtual Virtual Virtual Virtual	Supervisor Module Supervisor Module Ethernet Module Ethernet Module Ethernet Module	Nexus1000V Nexus1000V NA NA NA		active * ha-standby ok ok ok						
Mod	Su		Ны									
1 2 4 5 6	5,2(1) 5,2(1) 5,2(1) 5,2(1) 5,2(1) 5,2(1)	SM1(5.1) SM1(5.1) SM1(5.1) SM1(5.1) SM1(5.1) SM1(5.1)	0.0 0.0 Windows Server 2012 Windows Server 2012 Windows Server 2012	- Datacenter () - Datacenter () - Datacenter ()	6.2.920 6.2.920 6.2.920	0, 6,30) 0, 6,30) 0, 6,30)						
Mod	MAC-Ad	dress(es)		Serial-Num								
1 2 4 5 6	00-19-0 00-19-0 02-00-0 02-00-0 02-00-0	07-6c-5a- 07-6c-5a- 0c-00-04-(0c-00-05-(0c-00-06-(a8 to 00-19-07-6c-62-a8 a8 to 00-19-07-6c-62-a8 00 to 02-00-0c-00-04-80 00 to 02-00-0c-00-05-80 00 to 02-00-0c-00-06-80	NA NA NA NA								
Mod	Server	-IP	Server-UUID		Server	-Name						
1 2 4 5 6	10.0.7 10.0.7 10.0.6 10.0.6 10.0.6	2,101 2,101 5,4 5,1 5,2	NA NA 627C87AB-FABE-E211-0025 627C87AB-FABE-E211-0025 627C87AB-FABE-E211-0025	-859102200004 -859102200001 -859102200002	NA NA V2-C1E V2-C2E V2-C2E	4-P1 1-P1 2-P1						
* th V2-H V2-H V2-H 2013	is term: yperV-V: yperV-V: yperV-V: Jun 10	inal sess: SM-P1(cont SM-P1(cont SM-P1(cont 16:00:33	lon Pig-net-seg)# Pig-net-seg)# 2013 Jun 10 V2-HyperV-VSM-P1 %VEM_MG	16:00:33 V2-H R-2-MOD_ONLINE	lyperV-V : Modul	SM-P1 %VEM_MGR e 3 is online	R-2-VEM_MGR_	DETECTED:	Host V2-	C1B3-P1	detected	as ≋odule 3
V2-H V2-H	yperV-V yperV-V	SM-P1(cont SM-P1(cont	îig-net-seg)# Îig-net-seg)# ▋									

f. After all hosts were added to the logical switch, they are seen as VEMs in the VSM. Execute **show module** on the VSM to verify these hosts are seen as VEMs.

1

Mod	Ports	Module-	lype	Model	Status
1 2 3 4 5 6	0 0 288 288 288 288	Virtual Virtual Virtual Virtual Virtual Virtual	Supervisor Module Supervisor Module Ethernet Module Ethernet Module Ethernet Module Ethernet Module	Nexus1000V Nexus1000V NA NA NA NA	active * ha-standby ok ok ok ok
Mod	S⊌		Hu		
123456 Mod	5.2(1) 5.2(1) 5.2(1) 5.2(1) 5.2(1) 5.2(1) 5.2(1) 00-19- 00-19- 00-19- 02-00- 02-00- 02-00- 02-00-	SM1(5.1) SM1(5.1) SM1(5.1) SM1(5.1) SM1(5.1) SM1(5.1) SM1(5.1) SM1(5.1) Concert SM1(5.1) SM1(5.1	0.0 0.0 Windows Server 20 Windows Server 20 Windows Server 20 Windows Server 20 Windows Server 20 A 2000-19-07-6c-62-a a8 to 00-19-07-6c-62-a a8 to 00-19-07-6c-62-a 00 to 02-00-0c-00-03-8 00 to 02-00-0c-00-03-8 00 to 02-00-0c-00-06-8 00 to 02-00-0c-00-06-8	12 - Datacenter (12 - Datacenter (12 - Datacenter (12 - Datacenter (Serial-Num 	6.2,9200, 6.30) 6.2,9200, 6.30) 6.2,9200, 6.30) 6.2,9200, 6.30)
Mod	Server	-IP	Server-UUID		Server-Name
1 2 3 4 5	10.0.7 10.0.7 10.0.6 10.0.6 10.0.6	2.101 2.101 5.3 5.4 5.1 5.2	NA NA 627C87AB-FABE-E211-0 627C87AB-FABE-E211-0 627C87AB-FABE-E211-0 627C87AB-FABE-E211-0	025-859102200003 025-859102200004 025-859102200004 025-859102200002	NA NA V2-C1B3-P1 V2-C1B4-P1 V2-C2B1-P1 V2-C2B1-P1 V2-C2B1-P1

Figure 3-38 All Host Added as a VEM

g. Verify interfaces are added to Logical Switch.

Because each host has two Cisco VIC Ethernet interfaces, two Ethernet interfaces per host are seen, along the port-channel interfaces.

These are:

```
Eth3/1
Eth3/2
Eth4/1
Eth4/2
Eth5/1
Eth5/2
Eth6/1
Eth6/2
```

Po1 Po2 Po3

Po4

ſ

These interfaces and port-channels can get verified by executing **show interface brief** on the VSM:

mgmt0 up 10.0,72,101	1000 1500
Ethernet VLAN Type Mode Status Reason Interface	n Speed Port. Ch #
Eth3/1 1 eth trunk up none	10G 1
Eth3/2 1 eth trunk up none	10G 1
Eth4/1 1 eth trunk up none	10G 2
Eth4/2 1 eth trunk up none	10G 2
Eth5/1 1 eth trunk up none	10G 3
Eth5/2 1 eth trunk up none	10G 3
Eth6/1 1 eth trunk up none	10G 4
Eth6/2 1 eth trunk up none	10G 4
Port-channel VLAN Type Mode Status Reason Interface	Speed Protoco
Po1 1 eth trunk up none	a-10G(D) none
Po2 1 eth trunk up none	a-10G(D) none
Po3 1 eth trunk up none	a-10G(D) none
Po4 1 eth trunk up none	a-10G(D) none

Figure 3-39 Show Interface Brief

Step 9 VM Network Creation.

After the Nexus 1000V Switch for Microsoft Hyper-V Logical switch has been installed, the VM Networks can get created.

a. Verify the Logical Networks created on the N1000V are seen in Hyper-V.

Fabric Logical Networks and IP Pools (6) Image: Servers Image: Subnet Begin Address Available Add Available Ad	Create Logical Network	Create Ogical Switch	Add Resources + Add	Overview Res	abric ources M Hosts Show	s Machines	Window	View Dependence Resource Dependence	dent Remove s ies Remove	Properties
Fabric Library Jobs	Create Fabric I Hosts I Hosts I V2-c1b3-p1 I v2-c1b4-p1 I v2-c2b1-p1 I v2-c2b1-p1 I v2-c2b2-p1 I Update Servers I Update Servers VCenter Servers VMM Server MAC Address Pools MAC Address Pools VIP Templates VIP Templates I Library I Jobs	Clogical Networks at Clogical Networks at Clogical Networks at Clogical Networks at The Close VIC Eth The Close VIC Eth The PrivateTentar The PrivateTentar The PrivateTentar The PrivateTentar The Public Tenant	Add IP Pools (6) ernet ernet tt1 tt2 tt3 s	Subnet	Show Begin Address	End Addr	ress	Asolitice Dependenc	Available Add	Properties

Figure 3-40 Logical Networks

b. Right-click VM Network and select Create VM Network.

s 🗰 🍬 🧀	* 6		A	a				
ate Create Virtual Create Create Host	Create VM Assi	n Overview	VMs Services	VM	2			
vice Machine - Cloud Group	Network Clou	id	ci ci	Networks	Window			
and Services 4	VM Networks and	P Pools (2)	Show					
Tenantr		1 1 0015 (2)						
Cloude	Name		•		Subne	t	Available Addresses	
	Lisco VIC Et	ernet Interface -	Virtual Switch				1	
VM Networks	Network ti	ernet Interface #	≠2 - Virtual Switch	ı				
Storage 62								
All Hosts								
I								
# v2-c1b3-p1								
v2-c1b4-p1								
v2-c1b3-p1 v2-c1b4-p1 v2-c2b1-p1								
 vz-c1b3-p1 v2-c1b4-p1 v2-c2b1-p1 v2-c2b2-p1 								
 v2-c1b3-p1 v2-c1b4-p1 v2-c2b1-p1 v2-c2b2-p1 								
v2-c1b3-p1 v2-c1b4-p1 v2-c2b1-p1 v2-c2b2-p1								
v2-c103-p1 v2-c104-p1 v2-c2b1-p1 v2-c2b2-p1								
v2-c103-p1 v2-c104-p1 v2-c2b1-p1 v2-c2b1-p1								
 v2-c103-p1 v2-c104-p1 v2-c2b1-p1 v2-c2b2-p1 								
 v2-c1b3-p1 v2-c1b4-p1 v2-c2b1-p1 v2-c2b2-p1 								
v2-c1b3-p1 v2-c1b4-p1 v2-c2b1-p1 v2-c2b2-p1								
v 2-c1b3-p1 v 2-c1b4-p1 v 2-c2b1-p1 v 2-c2b2-p1 v 2-c2b2-p1								
v 2-c1b3-p1 v 2-c1b4-p1 v 2-c2b1-p1 v 2-c2b2-p1 v 2-c2b2-p1 v 2-c2b2-p1 v 2-c2b2-p1								
v2-c1b3-p1 v2-c1b4-p1 v2-c2b1-p1 v2-c2b2-p1 V4-c2b2-p1 V4-c2b2-p1 V4-c2b2-p1 Fabric Library								
v2-c1b3-p1 v2-c1b4-p1 v2-c2b1-p1 v2-c2b2-p1 V4-c2b2-p1 V4-c2b2-p1 Fabric Library Jobs								

Figure 3-41 Create VM Network

c. Create the VM network name and select the logical network.

Administrator - vmi-scvm	m2.vmdc.net - Virtual Machine N	/anager	_ 0 ×
Home Folder			^ 🔞
🏡 🏬 🚵	1 1	🕑 🏥 🏡 🔔 🕡	
Create Create Virtua		Create VM Network Wizard	
Service Machine -			
VMs and Services	Name	and the	
😻 Tenants			٩
Clouds	Specify a nar	me and description for the VM network	dresses
W Networks	Name:	T1-VL101	
G Storage	y Description:		
🔺 🚞 All Hosts	Logical network:	PublicTenants 🔹	
🕴 v2-c1b3-p1			
# v2-c1b4-p1 # v2-c2b1-p1			
v2-c2b2-p1			
w VMs and Servic			
🗓 Fabric			
🗮 Library		Previous Next Cancel	~
Jobs			1
Settings			

Figure 3-42 Create VM Network Name

d. Select the network segment.

Γ

Administrator -	vmi-scvmm2.vmdc.net - V	'irtual Machine Manager	_	ō	x
Home	Folder				~ 🕜
*	🍐 📑 🏦				
Create Create Virtua	<u>a.</u>	Create VM Network Wizard			
Service Machine *					
VMs and Services	solation				
📬 Tenants					٩
Clouds	Name	Configure the isolation for this VM network, or select automatic to have it	ddresses		
	Isolation	configured for you			
alla VIVI Networks	Summary	O Automatic			
Storage		Specify an externally supplied VM network			
All Hosts		External VM network			
v2-c1b4-p1		User defined T2-NetworkSegment101 T2-NetworkSegment102			
v2-c2b1-p1		T3-NetworkSegment103			
🕷 v2-c2b2-p1					
-					
WMs and Service					
🗓 Fabric					
🚟 Library		Previous Next Cancel			~
jobs					
Settings					
			e de	12-11	DM
			er 10	12-111	141
e . Co	onfirm the VM	network settings.			

Figure 3-43 Select Network Segment



f. Follow the same steps to create the remaining VM Networks.

Home Folder			^ @				
	A 2 PowerShell						
	Jobs						
Create Assign Overview VM	Is Services VM Networks R PRO						
Cloud	Show Window						
VMs and Services VM Networks and IP Pools (12)							
🥵 Tenants	٩						
Clouds	Name	Subnet	Available Addresses				
Ciouds	Lisco VIC Ethernet Interface #2 - Virtual Switch						
🚣 VM Networks	Lew Virtual Switch0						
길 Storage	🗆 🚢 PT1-VL2013						
🔺 🧮 All Hosts	PT1-VL2013-IP-Pool	200.1.3.0/24	247				
▲ BV2-Cluster	🗆 🚢 PT1-VL2014						
v2-c1b3-p1	PT1-VL2014-IP-Pool	200.1.4.0/24	249				
v2-c1b4-p1	E 🔟 PT2-VL2023						
v2-c2b1-p1	T2-VL2023-IP-Pool	200.2.3.0/24	249				
v2-c2b2-p1	E 🚽 PT2-VL2024						
🖉 v2-c2b3-p1	PT2-VL2024-IP-Pool	200.2.4.0/24	249				
	E						
	W PT3-VL2033-IP-Pool	200.3.3.0/24	249				
	🖃 🚢 PT3-VL2034						
-	T3-VL2034-IP-Pool	200.3.4.0/24	249				
Whs and Services	🗉 🚢 T1-VL101						
길 Fabric	T1-VL101-IP-Pool	10.101.1.0/24	249				
🧮 Library	🗉 🚢 T2-VL102						
	T2-VL102-IP-Pool	10.102.1.0/24	249				
🗉 Jobs	🖂 🚢 T3-VL103						
Settings	T3-VL103-IP-Pool	10.103.1.0/24	249 👻				
-			ž				

Figure 3-45 All VM Networks

g. Verify the network segment are now a "member-of" the correct VM Networks. This line of the configuration is automatically added to the CLI as noted Step 5Create Network Segments., page 3-4.

```
nsm network segment T1-NetworkSegment101
member-of vmnetwork T1-NetworkSegment101
member-of network segment pool T1
switchport access vlan 101
ip pool import template T1-VL101-IP-Pool
publish network segment
switchport mode access
```

At this point, the logical switch, including VSM and VEMs, is installed. VMs can now be added to the logical switch.

Deployment Guidelines

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1. Manually refresh the VSEM. Hyper-V performs a periodic refresh every 30 minutes; changes in the Nexus 1000V are not automatically updated in Hyper-V. Manually refresh the VSEM to force updates to show up in SCVMM.

2. Manually remove NetSwitchTeam. If a host is deleted from SCVMM, NetSwitchTeam is not removed from the host.

If hosts are removed and added again, the hosts is not added to the logical switch because NetSwitchTeam still exists on the hosts.

This error is seen in the Jobs section:

Error (25238)

Creating the adapter team failed with error An internal error has occurred trying to contact the v2-c1b4-p1.vmdc.net server.

WinRM: URL: [http://v2-c1b4-p1.vmdc.net:5985], Verb: [GET], Resource: [http://schemas.microsoft.com/wbem/wsman/1/wmi/root/scvmm/ErrorInfo?ID=1001]

Check that WS-Management service is installed and running on server v2-c1b4-p1.vmdc.net. For more information use the command "winrm helpmsg hresult". If v2-c1b4-p1.vmdc.net is a host/library/update server or a PXE server role then ensure that VMM agent is installed and running. Recommended Action

ensure the team is functioning correctly and retry the operation

To clear this condition, open Windows PowerShell and do the following:

```
PS C:\Users\Administrator.VMDC> Get-NetSwitchTeam *
Name : V2-HyperV-VSM-P12b352411-1eff-4e95-bc84-9f0fb5a339a4
Members : {Ethernet 5, Ethernet 4}
```

PS C:\Users\Administrator.VMDC> Get-NetSwitchTeam | Remove-NetSwitchTeam

After the obsolete NetSwitchTeam is removed, the host can be added to the Logical switch.

3. Verify that hosts ports show up in VSM. In UCSM, each host had two MGMT and two DATA vNICs. The DATA vNICs were used for NetSwitchTeam. On one or two occasions, when a host was added to the Nexus 1000V logical switch, only one interface showed up in the VSM for that VEM, even though both interfaces were selected. The procedure to add the host to the Nexus 1000V had to be repeated, and the interface that did not show up had to be added to the newly created Nexus 1000V connection.

This can be verified by logging into the VSM and looking at the output **from show interface brief**. Look for the VEM and the ports. A **show port-channel summary** should shows those ports added to the port-channel.

- 4. Close and reopen SCVMM. On occasion, odd behavior was seen, such as hosts not responding to messages. Connecting to hosts using Remote Desktop Protocol (RDP) showed that the hosts were in the correct state. Closing and reopening the SCVMM app cleared this state. This is most likely a winrm issue that needs further investigation when it happens again.
- 5. Create a Gold Template for SCVMM. After three to four weeks, SCVMM became unstable. A new SCVMM was created, and a Gold Template was generated from that VM, in case the instability recurs.
- **6.** Refer to Cisco Nexus 1000V for Microsoft Hyper-V Installation Guide, Release 5.2(1)SM1(5.1) for information about creating the Nexus 1000V logical switch in Hyper-V SCVMM.

Adding VMs to Nexus V Switch for Hyper-V Logical Switch

This section shows the process for adding Virtual Machines to the Nexus 1000V Switch for Microsoft Hyper-V Logical switch.

1

Step 1 Go to the **VM Properties** page.

Right-click the VM and select Properties.

Step 2 Select Hardware Configuration and select the adapter to add to the logical switch.

There are two adapters in the test VMs. One connects to the Microsoft external switch for Management and the other connects to the Nexus 1000V.

Step 3 Select the VM network.

On the network adapter properties page, click **Browse** to see a list of available VM networks.

Home	Folder Host	Virtual Machine				^ 🔞
<u>M</u> . D .	🚛 🚺 Power Off 🎧 Re	set 🔒 Migrate Sto	orage 🛛 👬	x 🖄 🔾	🔶 🖌 📼	
Create Shut		PT1-vS	STC1-VL2013 Prop	erties	x	5
Down Create	General	Save As New; Di:	sk 👍 SCSI Adapter	🖉 DVD 🛛 🏾 Network Adapte	r 🗙 Remove	-
VMs and Services		E Se	elect a VM Networ	k 2		
🥵 Tenants	Status	Select a VM Network			^	P
a Clouds	Hardware Configuration	Change the network that is used for deploying this service.			C. S. O	
📥 VM Networks	Checkpoints			٩	Browse	V A C
📔 Storage	Custom Properties	Name De	escription	Owner		V., A., C.,
🔺 🚞 All Hosts	Cattings	Cisco VIC Ethernet Int		VMDC\Administrator		V A C
▲ 🖤 V2-Cluster	settings	PT1-VL2014		VMDC\Administrator	=	V A C
v2-c1b3-p	Actions	PT2-VL2023		VMDC\Administrator		
v2-c2b1-p1	Servicing Windows	PT2-VL2024		VMDC\Administrator		
v2-c2b2-p		PT3-VL2033		VMDC\Administrator		
v2-c2b3-p1	Dependencies	PT3-VL2034		VMDC\Administrator		
	81111	T1-VL101		VMDC\Administrator		
	Validation Errors	T2-VL102		VMDC\Administrator *		~
	Access		Create VM	Network Clear selection		^
🔯 VMs and Serv				OK Cancel		of virtual
10 Fabric					·	=
🗮 Library	View Script				OK Cancel	
jobs	view script				Cancel	
Settings	Go to rela	ted object	Storage (1 disks)	Daily performance (CPU)	
	▼ Host: v2	2-c1b3-p1.vmdc.net	Total storage (20.0	00 GB):	2	Average

Figure 3-46 Select a VM Network

Step 4 Select the classification.

I

After selecting the VM network, click the Classification drop-down and select the classification profile.



Figure 3-47 Select Classification

Step 5 After selecting the classification, click **OK**.

Step 6 Verify the Virtual Machine has been deployed by issuing a "show interface virtual" from the CLI of the VSM:

V2-HyperV-VSM-P1# show interface virtual

Port	Adapter	Owner	Mod	Host
Veth1	Net Adapter	PT1-vSTC1-VL2013	3	V2-C1B3-P1
Veth2	Net Adapter	PT1-vSTC1-VL2014	3	V2-C1B3-P1
Veth3	Net Adapter	PT3-vSTC1-VL2033	3	V2-C1B3-P1
Veth4	Net Adapter	T1-VSTC1-VL101	3	V2-C1B3-P1
Veth5	Net Adapter	PT2-vSTC1-VL2023	4	V2-C1B4-P1
Veth6	Net Adapter	PT2-vSTC1-VL2024	4	V2-C1B4-P1
Veth7	Net Adapter	PT3-vSTC1-VL2034	4	V2-C1B4-P1
Veth8	Net Adapter	T2-vSTC1-VL102	4	V2-C1B4-P1
Veth9	Net Adapter	PT1-vSTC2-VL2013	5	V2-C2B1-P1
Veth10	Net Adapter	PT1-vSTC2-VL2014	5	V2-C2B1-P1
Veth11	Net Adapter	PT3-vSTC2-VL2033	5	V2-C2B1-P1
Veth12	Net Adapter	T3-vSTC1-VL103	5	V2-C2B1-P1
Veth13	Net Adapter	PT2-vSTC2-VL2023	6	V2-C2B2-P1
Veth14	Net Adapter	PT2-vSTC2-VL2024	6	V2-C2B2-P1
Veth15	Net Adapter	PT3-vSTC2-VL2034	6	V2-C2B2-P1
Veth16	Net Adapter	LM-Windows Server 2012 -01		4 V2-C1B4-P1
Veth17	Net Adapter	LM-Win2008-02	4	V2-C1B4-P1

Deployment Guidelines

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- 1. Select the correct interfaces when adding network adapters. In UCSM, each host has two MGMT and two DATA vNICs. From the Windows OS perspective, four VIC interfaces are presented. Ensure that the correct interfaces are selected when adding the hosts to virtual switches. Check the MAC addresses.
- **2.** Refer to **Connecting VMs to Logical Switch** in Cisco Nexus 1000v for Microsoft Hyper-V Installation Guide, Release 5.2(1)SM1(5.1) for more information.

1

