Cisco HyperFlex Systems Installation Guide for Microsoft Hyper-V, Release 3.0

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Americas Headquarters
Cisco Systems, Inc.
170 West Tasman Drive
San Jose, CA 95134-1706
USA
http://www.cisco.com
Tel: 408 526-4000
800 553-NETS (6387)
Fax: 408 527-0883

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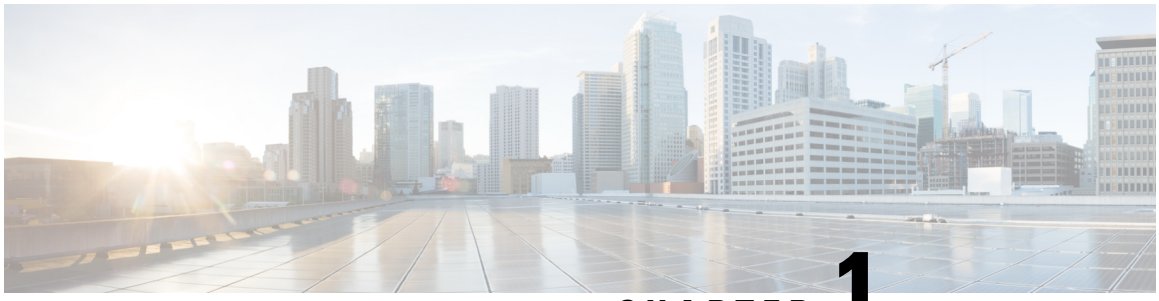


CHAPTER 1

Overview

- Introduction, on page 1
- Installation Workflow, on page 1

Introduction

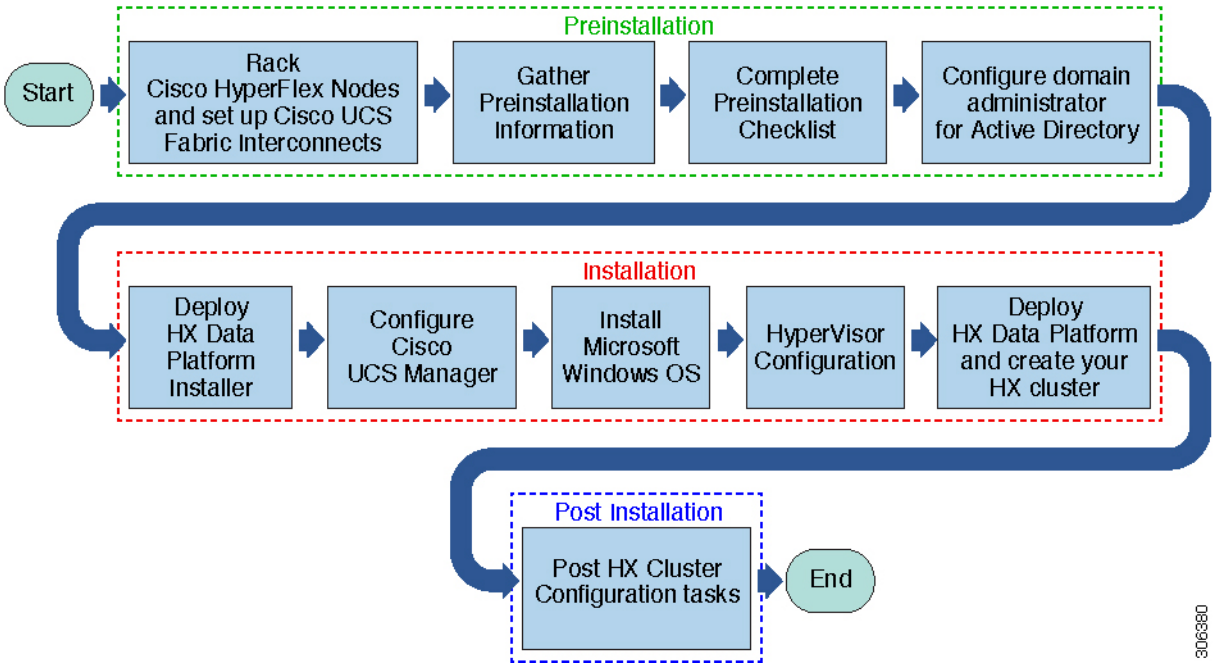
This guide provides instructions on how to install and configure *Cisco HyperFlex Systems on Microsoft Hyper-V*.

To install *Cisco HyperFlex Systems on VMware ESXi*, refer to the installation guides available at: https://www.cisco.com/c/en/us/support/hyperconverged-systems/hyperflex-hx-data-platform-software/products-installation-guides-list.html

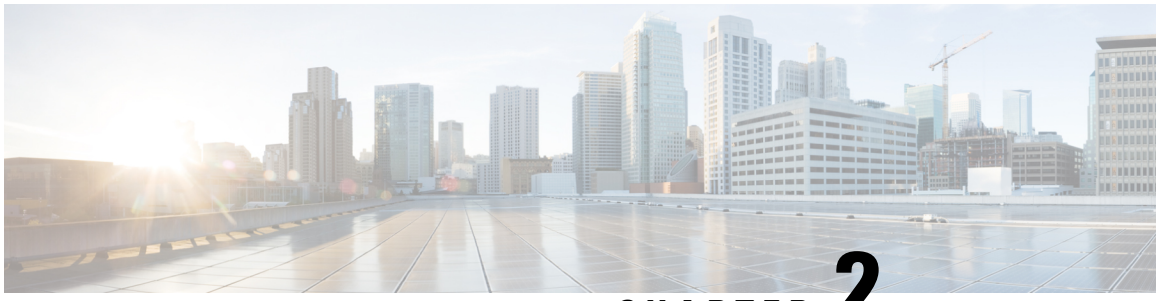
To install *Cisco HyperFlex Systems for Edge (Remote and branch offices)*, refer to the deployment guides available at: https://www.cisco.com/c/en/us/support/hyperconverged-systems/hyperflex-hx-data-platform-software/products-installation-and-configuration-guides-list.html

Installation Workflow

The following illustration and table summarize the installation workflow:



Task	Description	Reference
Preinstallation	Rack HyperFlex nodes, and set up Cisco UCS Fabric Interconnects (FIs).	See: Rack Cisco HyperFlex Nodes, on page 75
	Complete Preinstallation checklist.	Preinstallation Tasks Summary
Installation	Deploy HX Data Platform Installer using Microsoft Hyper-V Manager	See: Step 1 - Deploying HX Data Platform Installer.
	Configure Cisco UCS Manager using HX Data Platform Installer.	See: Step 2 - Cisco UCS Manager Configuration, on page 21*(using HX Data Platform Installer)*
	Install Windows Server and Hyper V, Deploy HX Data Platform and create your initial cluster.	Step 3 - Microsoft OS Installation, on page 30
	Create Domain Administrator (`hxadmin`) for Active Directory.	Enabling Constrained Delegation, on page 10
Post Installation	Post HX Cluster Configuration tasks.	Configuring a File Share Witness, on page 56



CHAPTER 2

Preinstallation Information

- Preinstallation Information, on page 3

Preinstallation Information

To ease your installation, gather the following information that you would require during installation. Download the editable preinstallation sheet PDF from the following location:

Cisco HyperFlex Systems Preinstallation Information Sheet

Global Information

Cisco UCS Manager Version		DNS Server 1	
NTP Server 1		DNS Server 2	
NTP Server 2		Domain Name (AD)	
Time Zone		SCVMM Host	
SMTP			

Fabric Interconnect Information

Component	IP Address	Hostname	Username	Password	Description
FI-VIP			admin		
FI-A			admin		
FI-B			admin		
IP-Ext-Mgmt: (range)					Must be same subnet as FI mgmt at must at least have 1 ip pr. HX Node

Preinstallation Information

Component	IP Address	Hostname	Username	Password	Description
Subnet					For EXT mgmt and FI mgmt
Default Gateway					For EXT mgmt and FI mgmt
HX Installer					
HX Installer Subnet					
HX Installer Gateway					

HX Installer Information

MAC Pools Prefix (00:25:B5)	

HX Nodes Hostnames	Hostname	Node Management IP	Management Subnet Mask	Management Default Gateway	Node Data IP	HX Controller Data IP	Data Subnet Mask	Data Default Gateway	(Optional) Live Migration IP	Live Migration Subnet	Live Migration Default Gateway
Node 1											
Node 2											
Node 3											
Node 4											
Node 5											
Node 6											
Node 7											
Node 8											
Microsoft Cluster Name											

HX Nodes Hostnames	Hostname	Node Management IP	Management Subnet Mask	Management Default Gateway	Node Data IP	HX Controller Data IP	Data Subnet Mask	Data Default Gateway	(Optional) Live Migration IP	Live Migration Subnet	Live Migration Default Gateway
HX Connect UI											
HX File Cluster Name											

VLAN Information

Usage	Name	Default VLAN ID	Chosen VLAN ID
Mgmt	hx-inband-mgmt	3091	
storage-data	hx-storage-data	3092	
Live Migration	hx-livemigrate	3093	
VM Network	vm-network	3094	

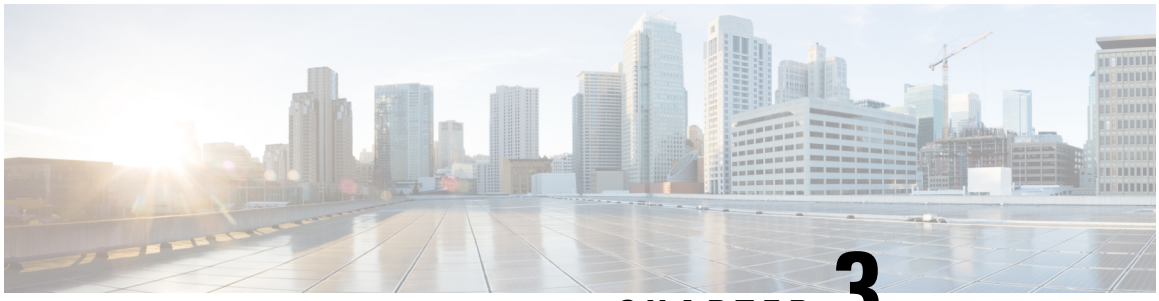
Hyper-V Information

HX Cluster Name	
Hyper-V Cluster Name	

Constrained Delegation

distinguished Name	
hxadmin password	

Preinstallation Information



CHAPTER 3

Preinstallation Checklist

- System Requirements, on page 7
- Guidelines and Limitations, on page 9
- Preinstallation Tasks Summary, on page 9

System Requirements

Hardware Requirements

Requirement	Description
Cisco HX Data Platform Servers	Cisco HyperFlex M5 Converged nodes: • All Flash—Cisco HyperFlex HXAF240c M5, HXAF220c M5 • Hybrid—Cisco HyperFlex HX240c M5, HX220c M5
Cisco UCS Fabric Interconnects (FIs)	Cisco UCS Fabric Interconnects (FIs) 6200 and 6300

Network Services

Network Service	Description
DNS	Microsoft Active Directory and Active Directory integrated DNS are required for the HX Platform. Standalone DNS server is not supported. Non-Windows DNS servers are not supported.

Network Service	Description
NTP	Ensure that the time is synchronized between the controller VMs and the hosts. For that purpose, use the Active Directory Time Synchronization Engine. **Attention** Ensure that you use the Active Directory domain name as the NTP server when prompted by HX Data Platform Installer. **Note** Do not nest all of your Active Directory servers in your Hyperflex cluster. Active Directory should reside outside of the Hyperflex cluster so that if the cluster were to encounter issues, you could still authenticate. **Note** If you are using Active Directory as an NTP server, please make sure that the NTP server is setup according to Microsoft best practices. For more information, see Windows Time Service Tools and Settings. Please note that if the NTP server is not set correctly, time sync may not work, and you may need to fix the time sync on the client-side. For more information, see Synchronizing ESXi/ESX time with a Microsoft Domain Controller.

Port Requirements

If your network is behind a firewall, in addition to the standard port requirements, Microsoft recommends ports for the Hyper-V Manager and Hyper-V cluster. Verify that the following firewall ports are open.

Port Number	Protocol	Direction	Usage
80	HTTP/TCP	Inbound	HX Data Platform Installer
443	HTTPS /TCP	Inbound	HX Data Platform Installer
2068	virtual keyboard/Video/ Mouse (vKVM) / TCP	Inbound	hx-ext-mgmt IP pool (one IP per HX node)
22	SSH/TCP	Inbound/Outbound	HX Data Platform Installer
110 (secure POP port is TCP; 995)	POP3/TCP	Inbound/Outbound	
143 (secure IMAP port is TCP; 993)	IMAP4/TCP	Inbound/Outbound	

Port Number	Protocol	Direction	Usage
25	SMTP/TCP	Outbound	Mail Server
53 (external lookups)	DNS/TCP/UDP	Outbound	DNS
123	NTP/UDP	Outbound	NTP
161	SNMP Poll	Inbound	SNMP
162	SNMP Trap	Outbound	SNMP
8089	TCP	Inbound	HX Data Platform Installer
445	SMB 2	Inbound	HX Controller VM

Guidelines and Limitations

For best experience with Microsoft Hyper-V installation, you must follow the specific guidelines listed below.

- Adding HyperFlex nodes to Microsoft System Center 2016 Virtual Machine Manager (Windows VMM 2016) evaluation version will cause errors. Refer to Microsoft help article for a resolution for this issue.
- The following features are NOT supported in the current release:
  - SED Drives
  - Native Replication
  - Cisco HyperFlex Edge
  - Stretched Clusters
  - Intersight-based deployment
  - LAZ and scale beyond 8 nodes
  - HX M4 Hardware

Preinstallation Tasks Summary

Ensure the following is installed and configured prior to installing and deploying HyperFlex.

Task	Description
Rack HyperFlex nodes including Cisco UCS Fabric Interconnects set up	See: Rack Cisco HyperFlex Nodes, on page 75,
Verify Cisco UCS Manager version	

Task	Description
Verify VLANs	Configure the upstream switches to accommodate non-native VLANs. Cisco HX Data Platform Installer sets the VLANs as non-native by default.
Add DNS Records	You must add DNS A and PTR records for your installation. See: Adding DNS Records, on page 10
Configure Domain Administrator for Active Directory	See: Enabling Constrained Delegation, on page 10

Adding DNS Records

Prior to the installation you must add DNS A and PTR records to avoid installation failures.

Device	Description
Hyper-V host	For each host, add an A and PTR record.
Controller node	Controller VM IP address for the A record. This is eth0 on the management IP network.
Windows Failover Cluster	Windows Failover Cluster Object.
HX Connect UI	Cluster management IP address.

Refer to DNS Records section in this guide for the records shown as PowerShell commands to run directly on your environment.

Enabling Constrained Delegation

The steps in this topic must be completed to enable constrained delegation.

Constrained delegation is used to join computers to the Active Directory. You provide constrained delegation information through the HX Data Platform Installer. Constrained delegation uses a service account that is created manually. For example: `hxadmin`. This service account is then used to log in to Active Directory, join the computers, and perform authentication from the HyperFlex Storage Controller VM. The Active Directory computer accounts applied to every node in the HyperFlex cluster include:

- Hyper-V host
- HyperFlex Storage Controller VM
- Hyper-V host cluster namespace
- Server Message Block (SMB) Share namespace for the HyperFlex cluster

Procedure

Step 1 Create an `hxadmin` domain user account as HX service account.

Step 2 Create an Organization Unit (OU) in Active Directory (AD), for example, HyperFlex.

a) Use the Active Directory Users and Computers management tool to create the OU. Select **View** > **Advanced Features** to enable advance features. Select the OU that you created. For example, **HyperFlex** > **Properties** > **Attribute Editor**.

b) Find the distinguished name attribute in the OU, and record the information as this will be required in the Constrained Delegation wizard of the HX Data Platform Installer wizard. The values will look like this: `OU=HyperFlex,DC=contoso,DC=com`.

Use the **Get-ADOrganizationalUnit** cmdlet to get an organizational unit (OU) object or to perform a search to get multiple OUs.

```
Get-ADOrganizationalUnit
[-AuthType <ADAuthType>]
[-Credential <PSCredential>]
-Filter <String>
[-Properties <String[]>]
[-ResultPageSize <Int32>]
[-ResultSetSize <Int32>]
[-SearchBase <String>]
[-SearchScope <ADSearchScope>]
[-Server <String>]
[<CommonParameters>]
```

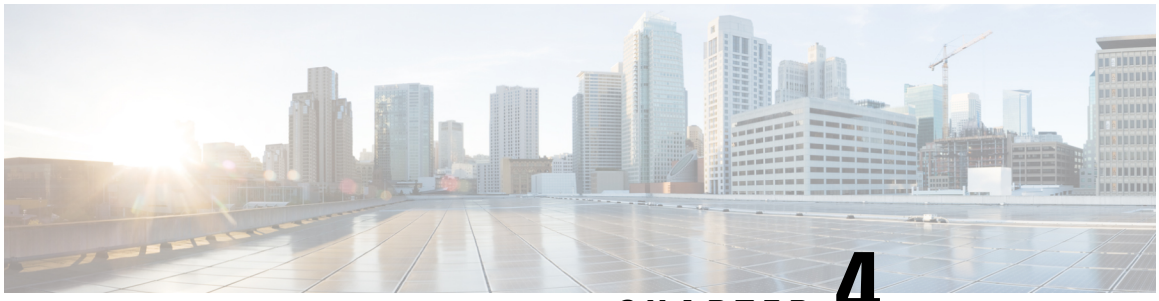
Step 3 Use Active Directory Users and Computers management tool to grant full permissions for the `hxadmin` user for the newly created OU. Ensure that Advanced features are enabled. If not, go back to Step 2.

a) Select the OU that you created. For example, **HyperFlex** > **Properties** > **Security** > **Advance**.

b) Click **Change Owner** and choose your `hxadmin` user.

c) Click **Add** in the **Advanced** view.

d) Select the principal and choose the hxadmin user. Then, choose **Full Control**, and click **OK**.



CHAPTER 4

Installation

- Installation Tasks Summary, on page 13

Installation Tasks Summary

The following table summarizes the steps to complete Microsoft Hyper-V installation.

Task	Reference
Deploy HX Data Platform Installer	Step 1 - Deploying HX Data Platform Installer, on page 13
Configure Cisco UCS Manager *(using HX Data Platform Installer)*	Step 2 - Cisco UCS Manager Configuration, on page 21
Install Microsoft Windows Server	Step 3 - Microsoft OS Installation, on page 30
Hypervisor configuration, HX Data Platform and Cluster deployment	Step 4 - Hypervisor Configuration, HX Data Platform and Cluster Deployment , on page 41

Step 1 - Deploying HX Data Platform Installer

Deploy HX Data Platform Installer using **Microsoft Hyper-V Manager** to create a HX Data Platform Installer virtual machine.

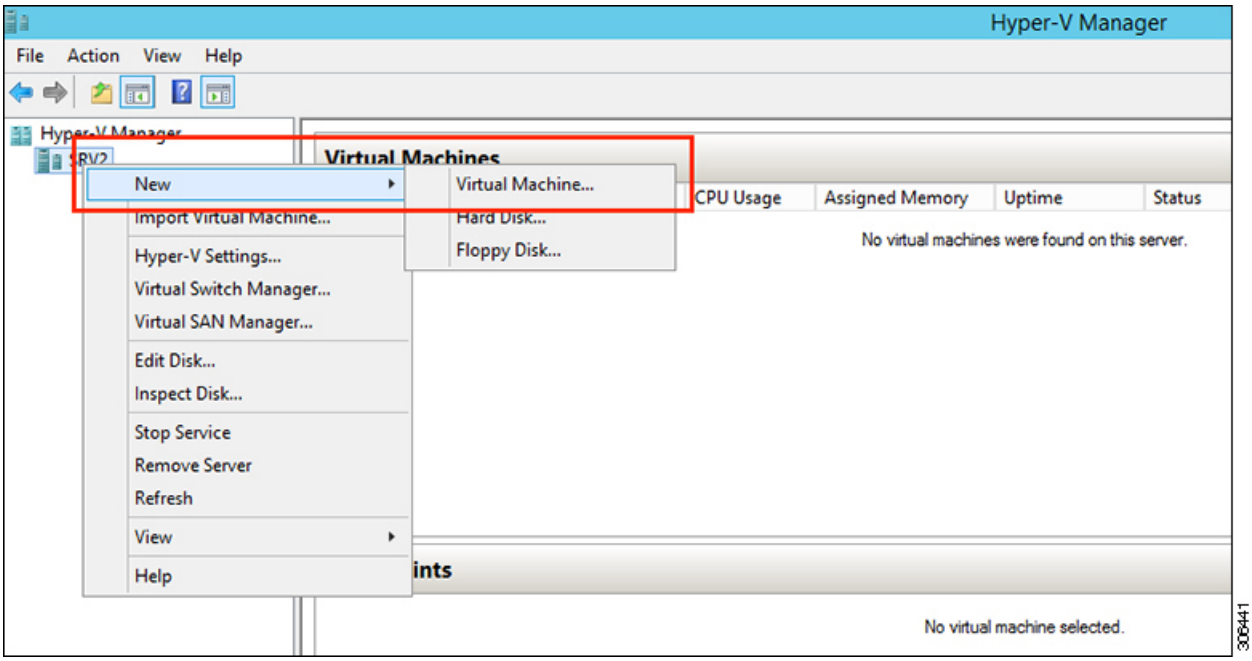
Procedure

Step 1 Locate and download the HX Data Platform Installer `.vhdx` zipped file (for example, **`Cisco-HX-Data-Platform-Installer-v3.0.1a-build-hyperv.vhdx`**) from the Cisco Software Downloads site.

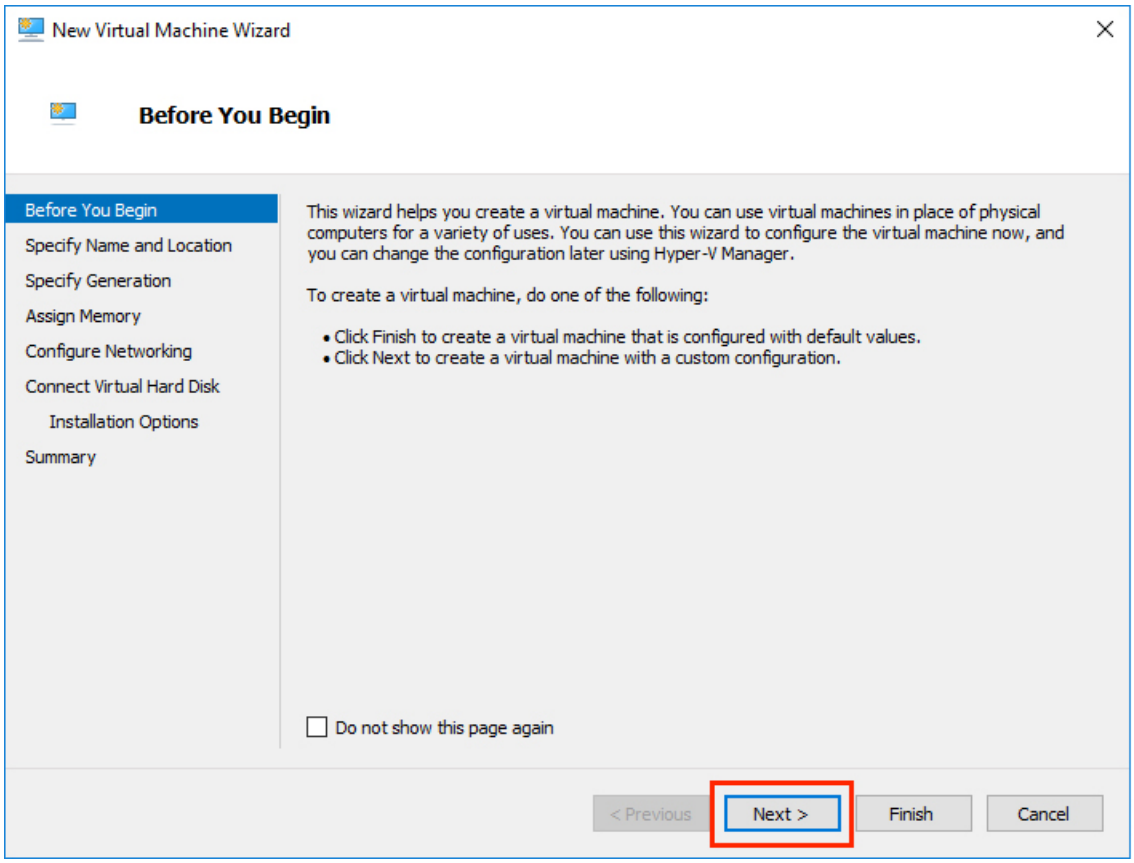
Step 2 Extract the zipped folder to your local computer and copy the `.vhdx` file to the Hyper-V host where you want to host the HX Data Platform Installer. For example, `\\hyp-v-host01\....\HX-Installer\Cisco-HX-Data-Platform-Installer-v3.0.1a-29499-hyperv.vhdx`

Step 3 In **Hyper-V Manager**, navigate to one of the Hyper-V servers.

Step 4 Select the Hyper-V server, and right click and select **New** > **Create a virtual machine**. The Hyper-V Manager New Virtual Machine Wizard displays.

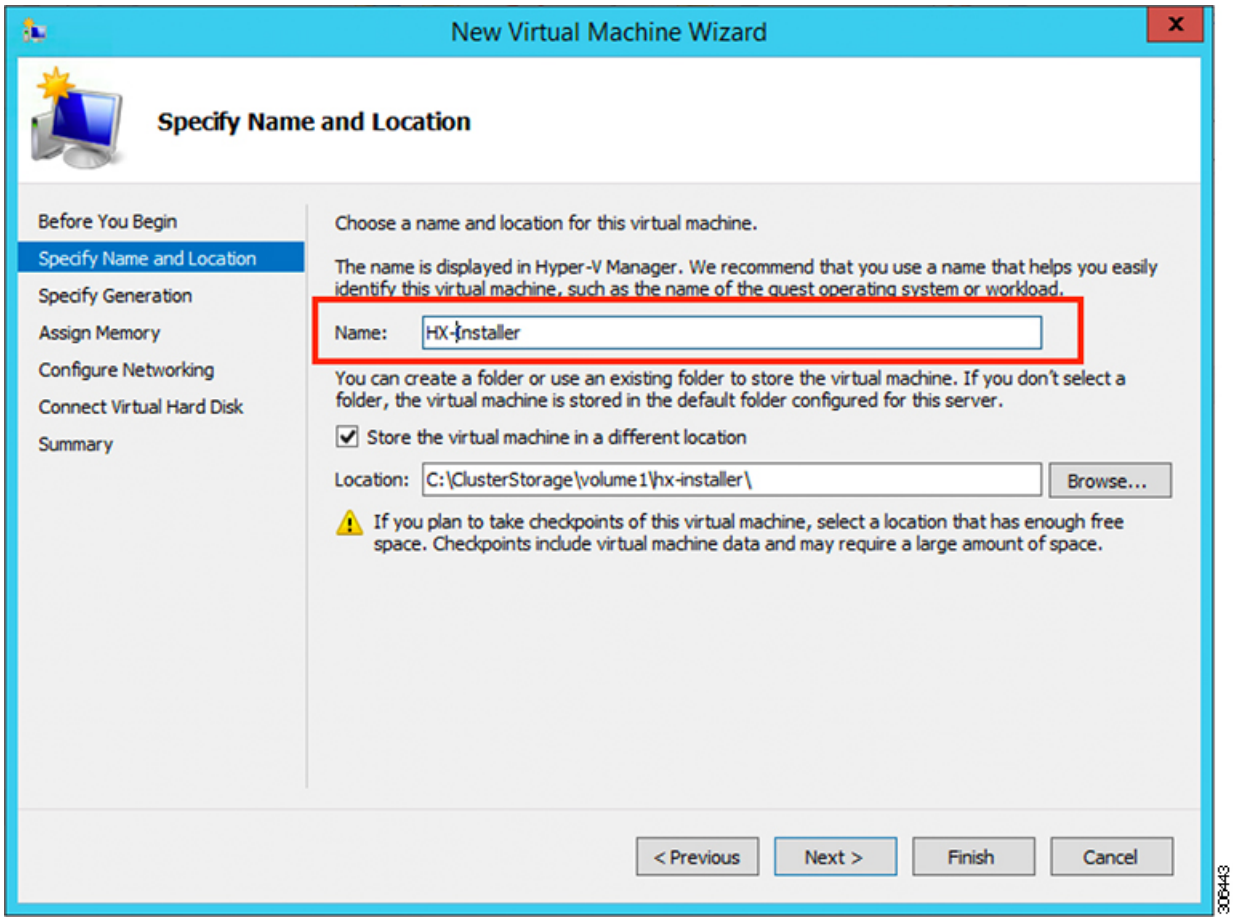


Step 5 In the **Before you Begin** page, click **Next**.

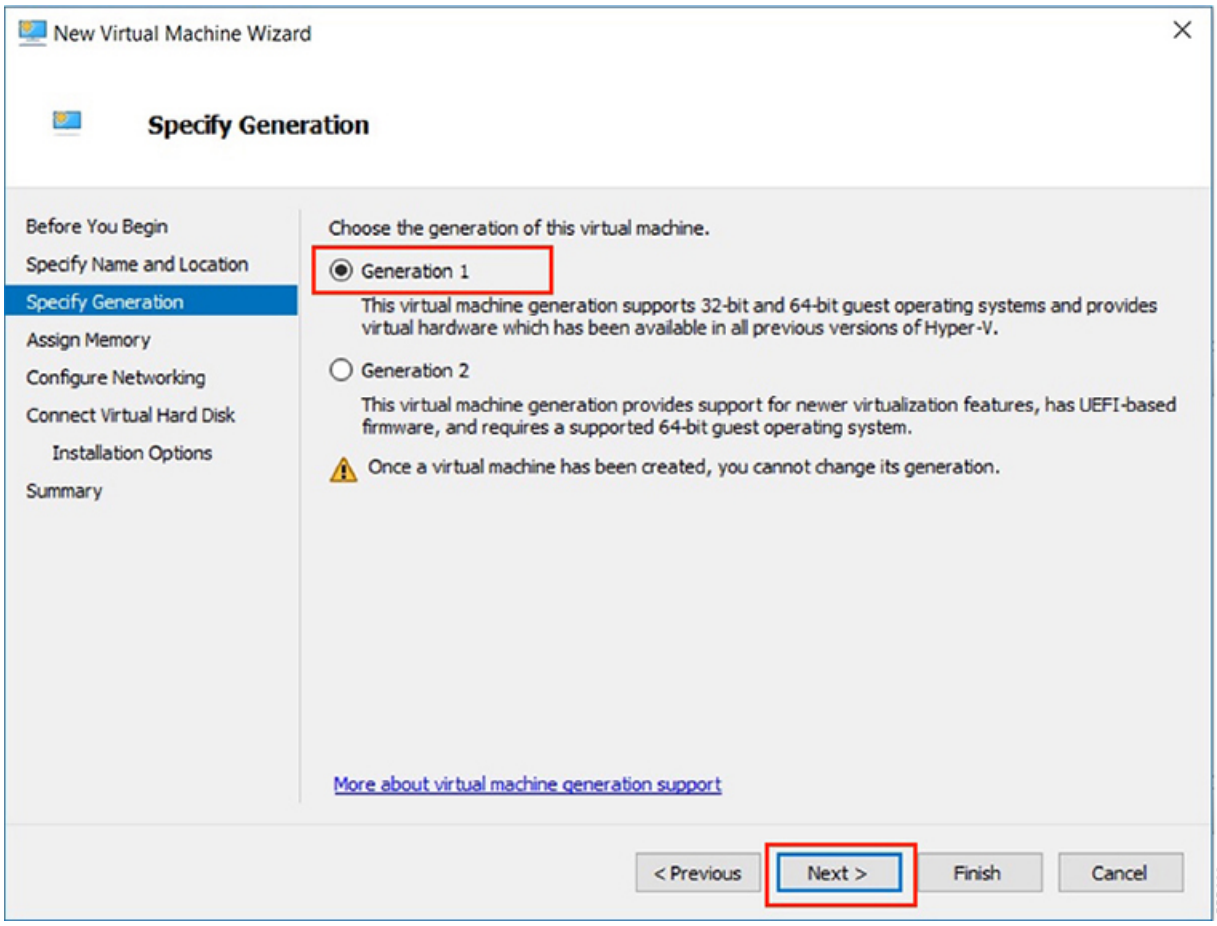


Step 6 In the **Specify Name and Location** page, enter a name and location for the virtual machine where the virtual machine configuration files will be stored. Click **Next**.

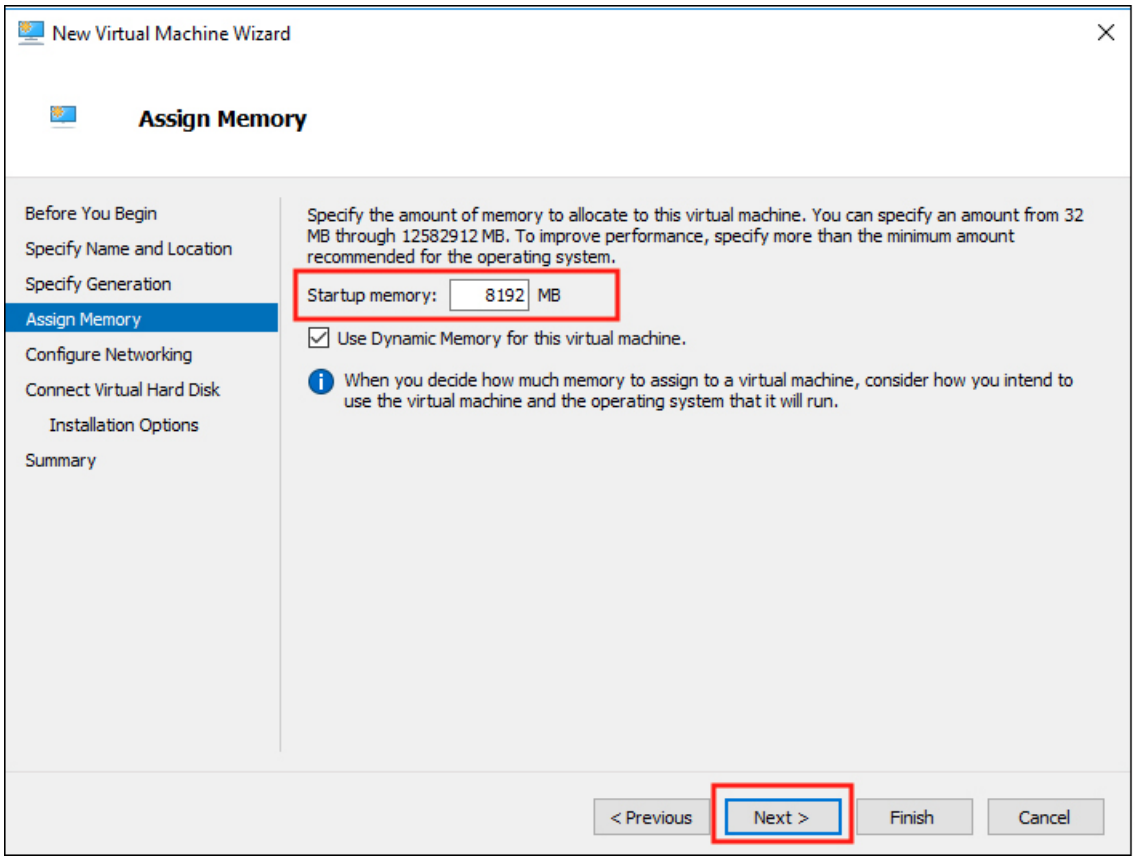
Note As a best practice, store the VM together with the `.vhdx` file.



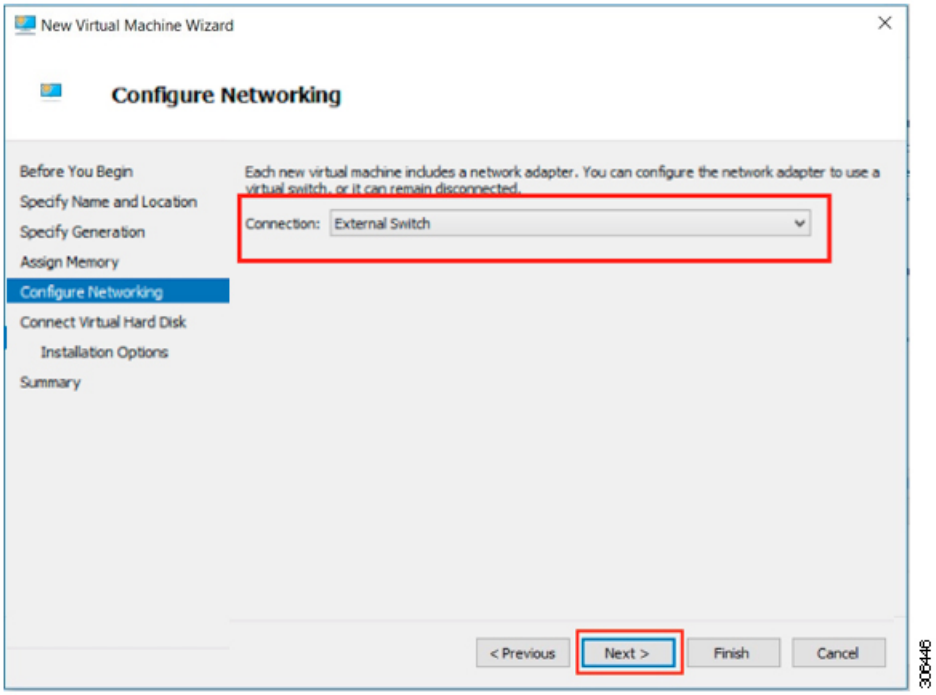
Step 7 In the **Specify Generation** page, select **Generation 1**. Click **Next**.If you select Generation 2, the VM may not boot.



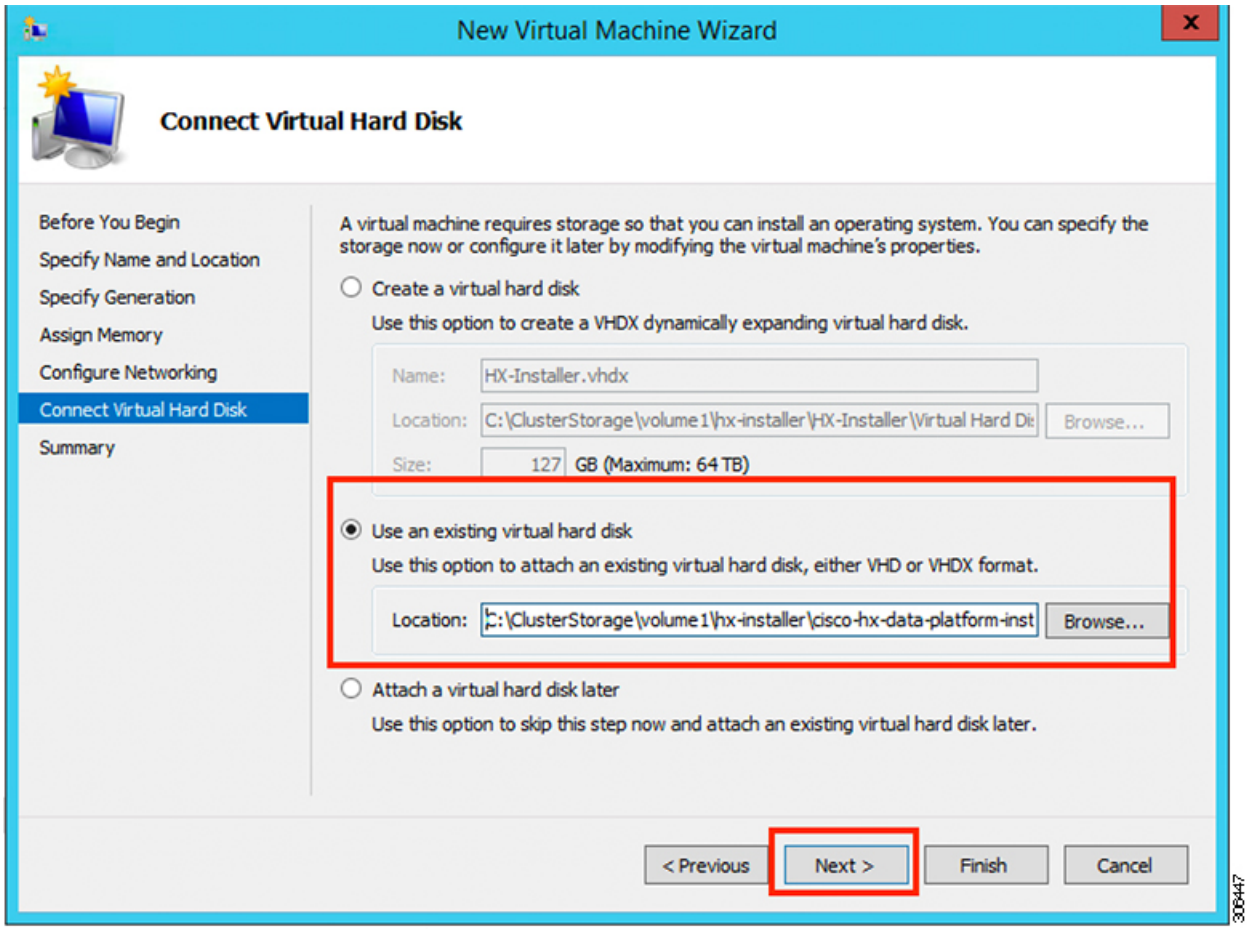
Step 8 In the **Assign Memory** page, set the start up memory value to `4096 MB`. Click **Next**.



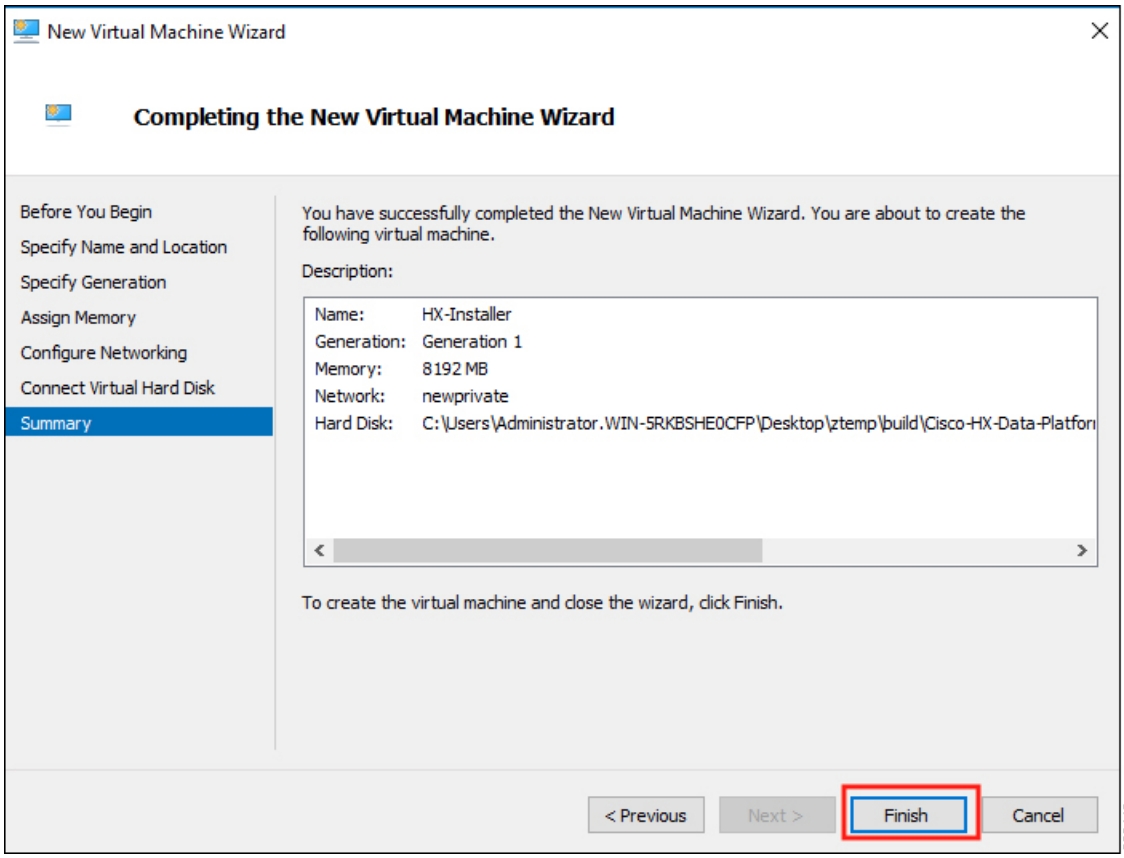
Step 9 In the **Configure Networking** page, select a network connection for the virtual machine to use from a list of existing virtual switches. Click **Next**.



Step 10 In the **Connect Virtual Hard Disk** page, select **Use an existing virtual hard disk**, and browse to the folder on your Hyper-V host that contains the `.vhdx` file. Click **Next**.



Step 11 In the **Summary** page, verify that the list of options displayed are correct. Click **Finish**.



Step 12 After the VM is created, power it ON, and launch the GUI.

a) Right-click on the VM and choose **Connect**.

b) Choose **Action** > **Start (Ctrl+S)**.

c) When the VM is booted, make a note of the URL (IP address of the VM). You will need this information in the following steps in the installation.

Step 2 - Cisco UCS Manager Configuration

The following procedure describes configuring Cisco UCS Manager using HX Installer.

Procedure

Step 1 Log into the HX Data Platform Installer using the following steps:

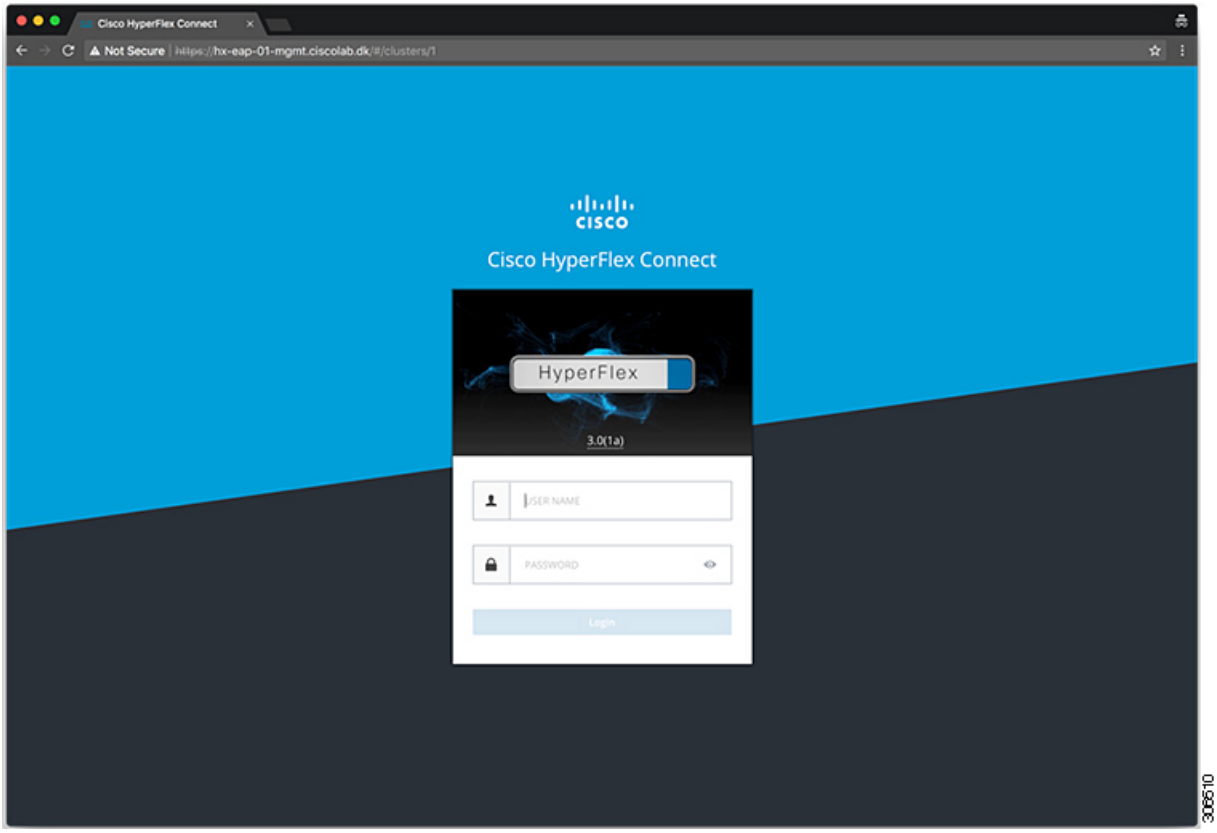
a) In a browser, enter the URL for the VM where HX Data Platform Installer was installed. If you do not have the URL, go back to Step 13 in the earlier section on Step 1 - Deploying HX Data Platform Installer.

b) Use the credentials: `username`: root, `password`: Cisco123

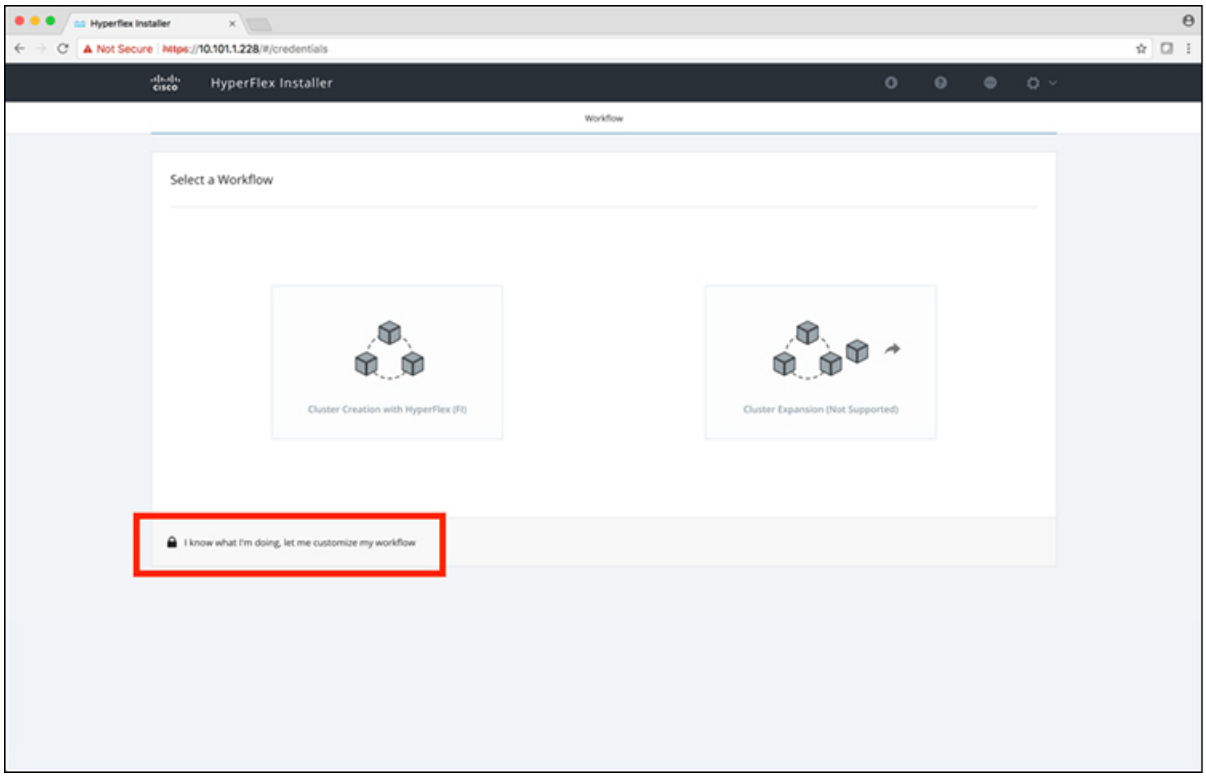
Important Systems ship with a default password of `Cisco123` that must be changed during installation. You cannot continue installation unless you specify a new user supplied password.

c) Read the EULA. Click **I accept the terms and conditions**.

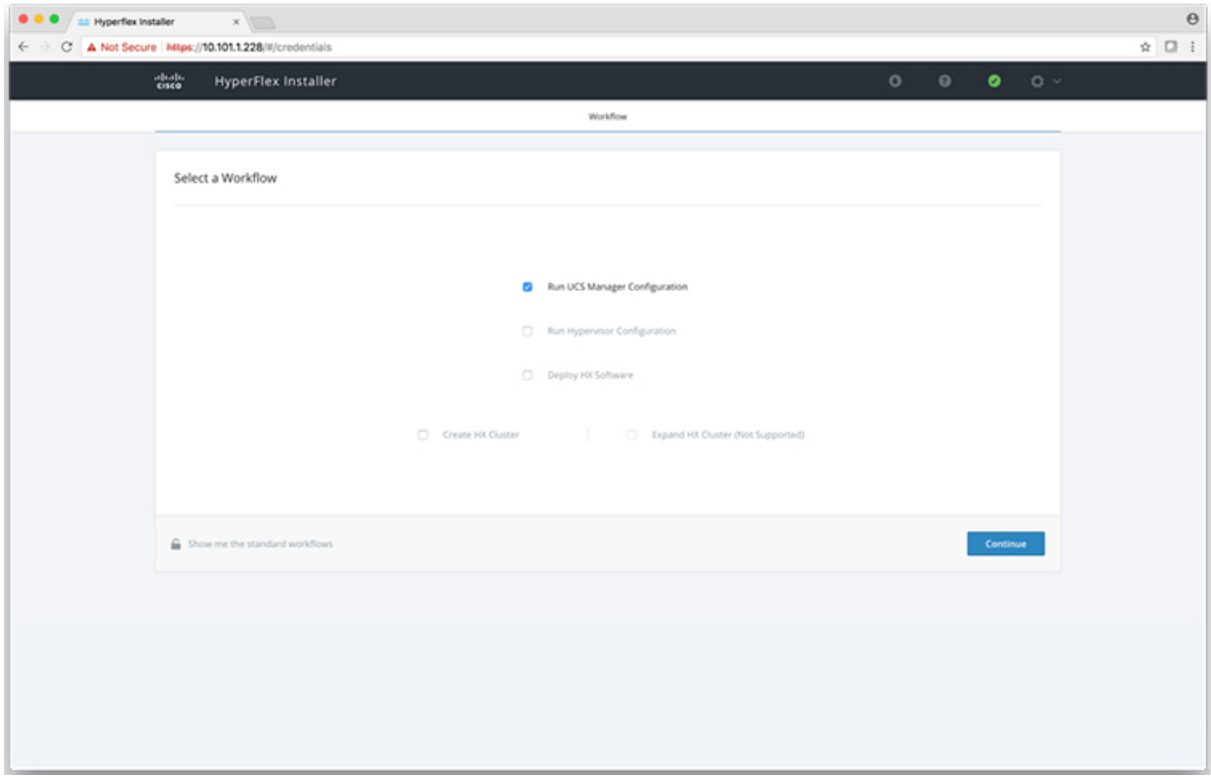
d) Verify the product version listed in the lower right corner is correct. This version must be 3.0(1a) or later. Click **Login**.



Step 2 From the HX Data Platform Installer **Workflow** page, select **I know what I'm doing, let me customize my workflow**.

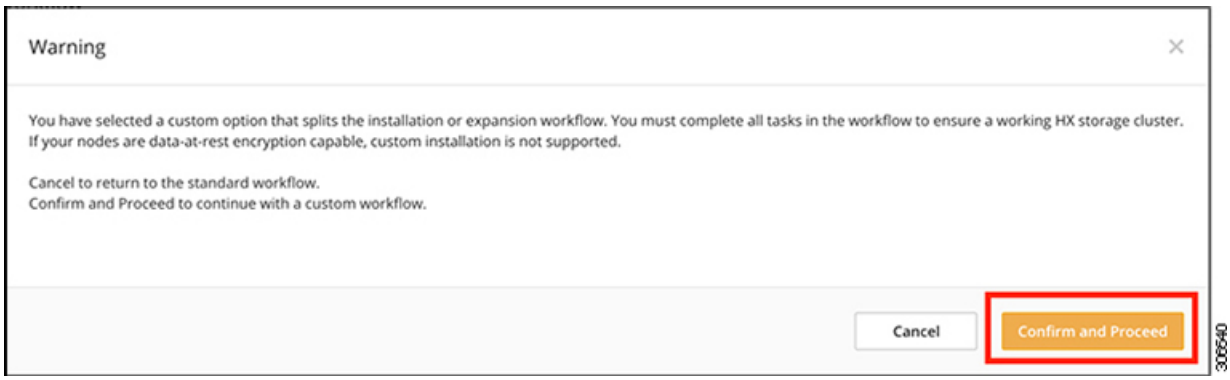


Step 3 On the next screen, click **Run UCS Manager Configuration** and then **Continue**.



Caution Do not choose any other workflow option at this point.

Step 4 Click **Confirm** in the pop-up that displays.

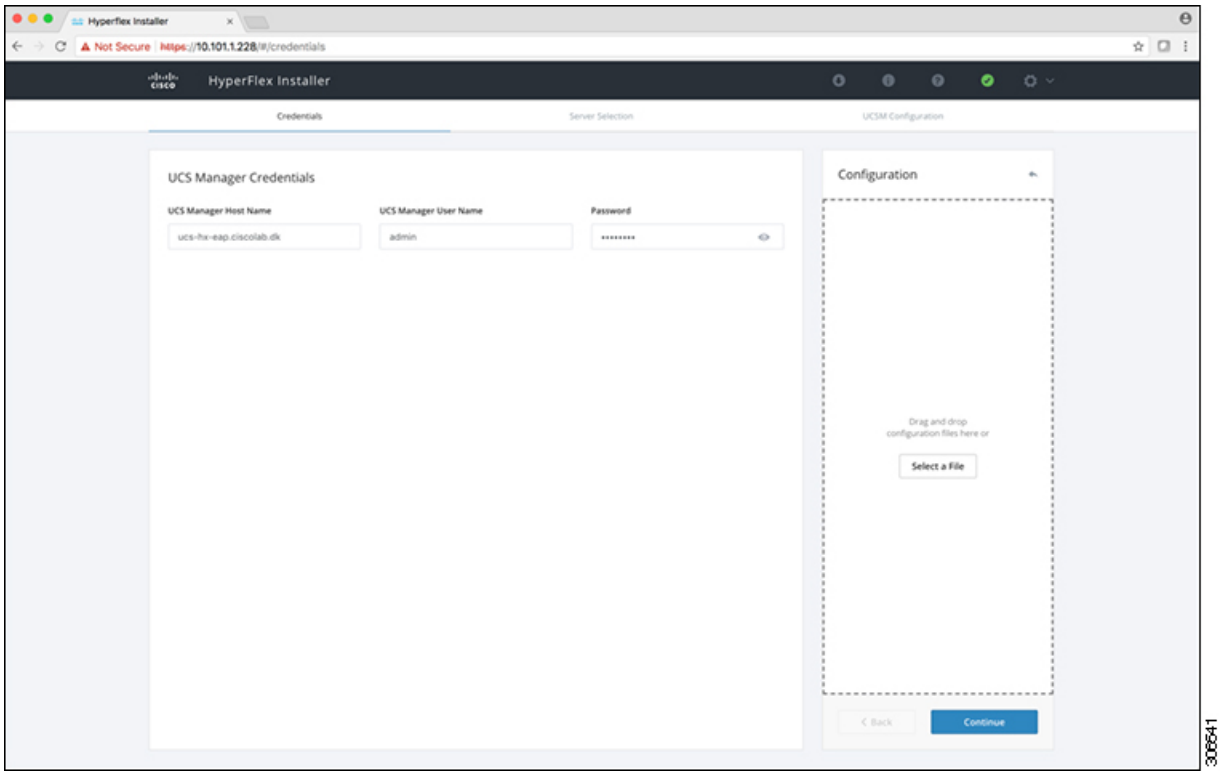


Step 5 **UCS Manager Credentials**

At this point the right side of the page is unused. Further in the setup process a configuration JSON is saved, so in subsequent installations the JSON file can be imported to add the data quickly.

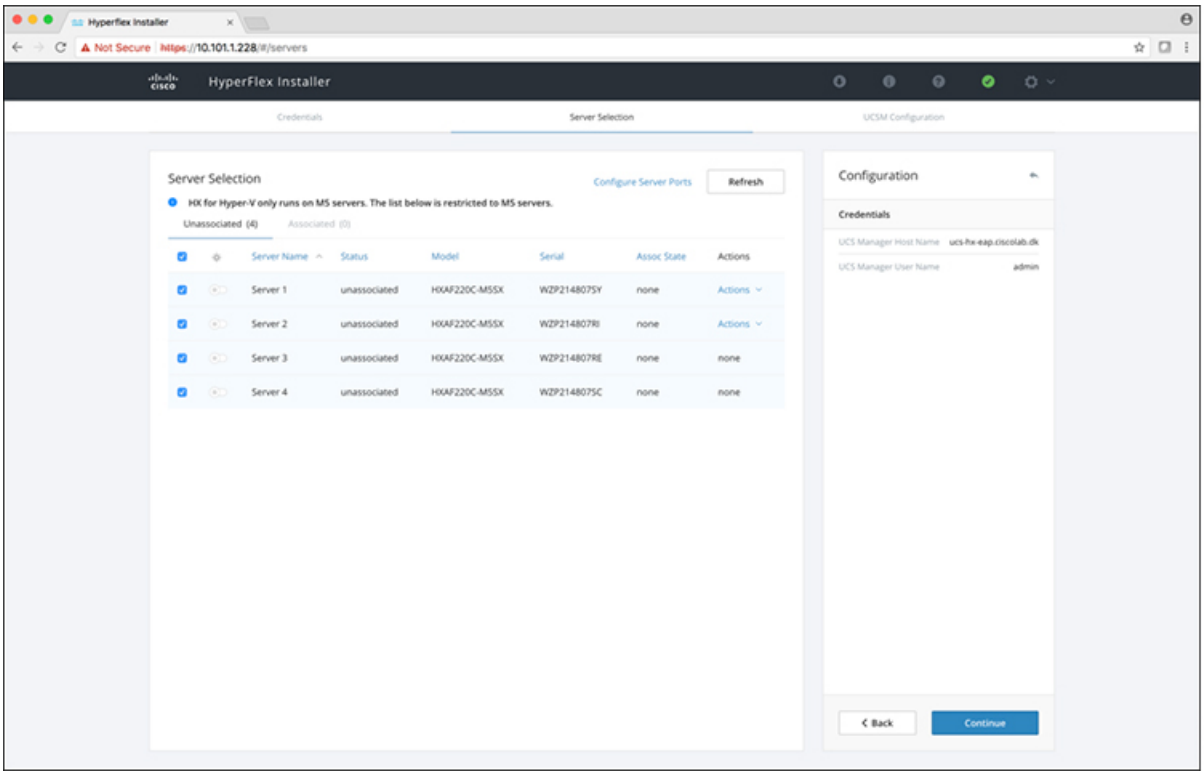
Complete the following fields for UCS Manager.

Field	Description
UCS Manager Host Name	FQDN or the VIP address of the UCSM.
UCS Manager User Name and Password	Administrator user and password or an user with UCSM admin rights.



Click **Continue** to proceed. The installer will now try to connect to the UCSM and query for available servers. The configuration pane will be populated as the installer progresses. You can at any time save the JSON file so you can re-use it for subsequent installations. This feature works on all the different workflows in the installer. After the query finishes then you will get a screen with the available servers

Choose all the servers that you want to install in the cluster and click **Continue**.



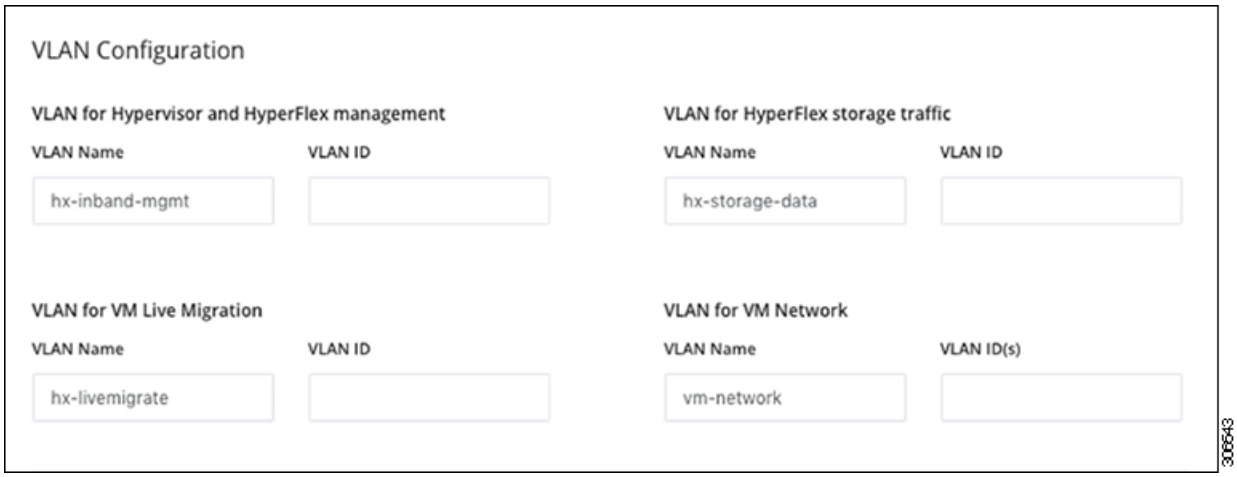
Note HyperFlex for Hyper-V does only support M5 Servers.

Step 6 VLAN Configuration

HyperFlex needs to have at least 4 VLANs to function, each needs to be on different IP subnets and extended from the fabric interconnects to the connecting uplink switches, to ensure that traffic can flow from the Primary Fabric Interconnect (Fabric A) to the Subordinate Fabric Interconnect (Fabric B).

Name	Usage	ID
hx-inband-mgmt	Hyper-V and Hyperflex VM mgmt..	10
hx-storage-data	HyperFlex storage traffic	20
hx-livemigrate	Hyper-V Live Migration network	30
vm-network	VM guest network	100,101

Use the following illustration as a reference for entering values in this screen.



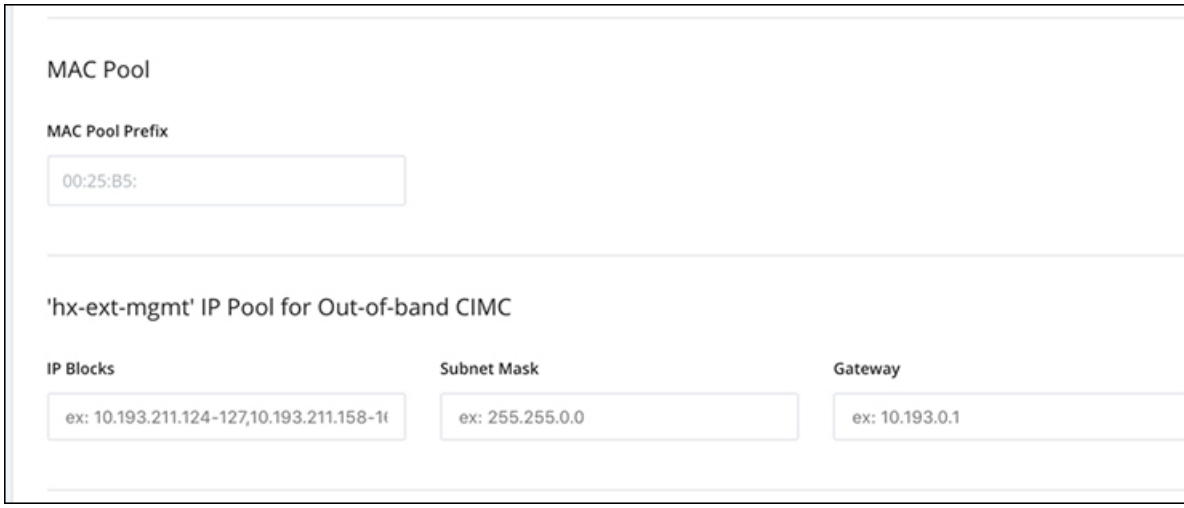
Note
- Do not use VLAN 1 as it is not best practice and can cause issues with disjoint layer 2.
- vm-network can be multiple VLANs added as a comma separated list.

Caution Renaming the 4 core networks is not supported.

Step 7 Enter the remaining network configuration.

Field	Description	Value
MAC pool prefix	MAC address pool for the HX cluster, to be configured in UCSM by the installer. Ensure that the mac address pool isn't used anywhere else in your layer 2 environment.	00:25:b5:***xx***
IP blocks	The range of IP addresses that are used for Out-Of-Band management of the hyperflex nodes.	10.193.211.124-.127
Subnet Mask	The subnet mask for the Out-Of-Band network	255.255.0.0
Gateway	The gateway address for the Out-Of-Band network	10.193.0.1

Note
- The Out-Of-Band network needs to be on the same subnet as UCS Manager.
- You can add multiple blocks of addresses as a comma separated line.

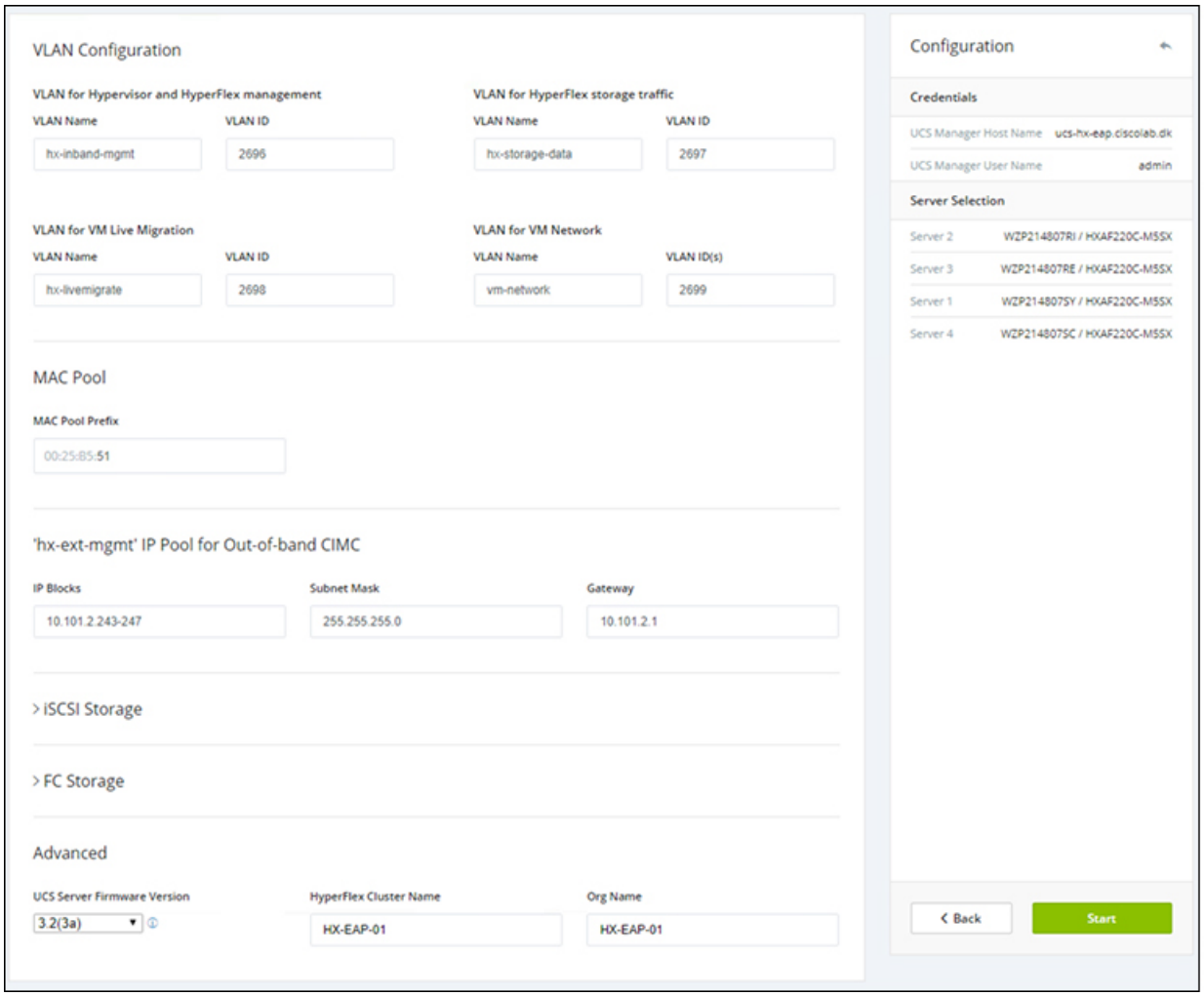


iSCSI Storage and FC Storage are used for adding external storage to the HyperFlex cluster. This is currently n
supported for the Hyper-V Edition.

Step 8 **Advanced Section**

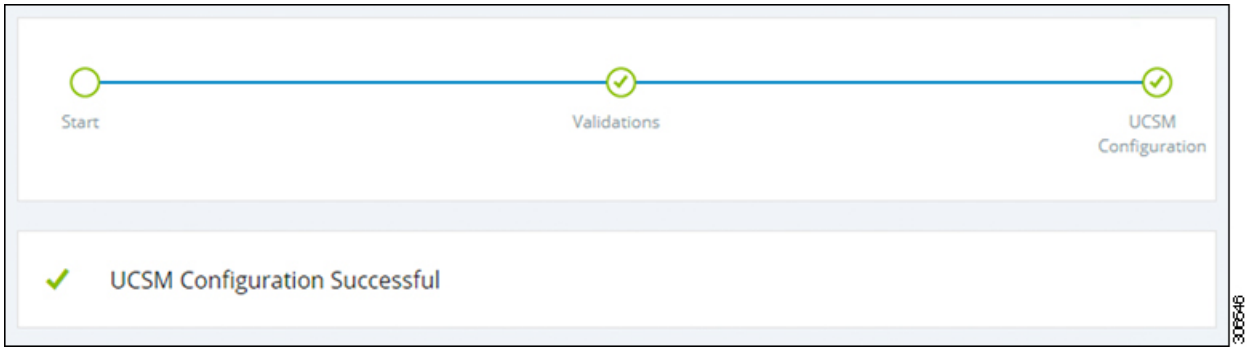
Field	Description	Example Value
UCS Firmware Server Version	Choose the appropriate UCS Server Firmware version.	3.2(3a)
HyperFlex Cluster Name	This user defined name will be used as part of the service profile naming In UCSM for easier identification.	
Org Name	The org. name is used for isolating the HX environment from the rest of the UCS platform to ensure consistency.	HX-Cluster1
		HX-Cluster1

Note
- The UCS C and B bundles must exist on the Fabric interconnect otherwise the installation will fail. If the right version is not available in the drop-down list, then upload it to UCSM before proceeding with this procedure.
- Currently supported version for HyperFlex Hyper-V is 3.2(3a).



Step 9 When you click **Start**, the installer validates your input and then begins configuring the UCS Manager.

Step 10 When the HX Data Platform Installer is finished, then you are ready to proceed to next step, Step 3 - Microsoft OS Installation, on page 30.



Step 3 - Microsoft OS Installation

For Microsoft OS installation, you will need to first configure a vMedia policy in Cisco UCS Manager to map the following two image files:

- Customer provided **Windows 2016 Datacenter edition ISO**, and
- Cisco provided **Cisco HyperFlex Driver image**.

These image files must be placed on a share that is reachable from Cisco UCS Manager and the Out-of-band subnet that was used in the previous installation step. If you do not have a location to serve the files from, then you can use the installer to host the files. Please see the section: How to upload the iso and img file to the installer VM using WinSCP.

Note Ensure network connectivity exists between the fileshare and all server management IP addresses.

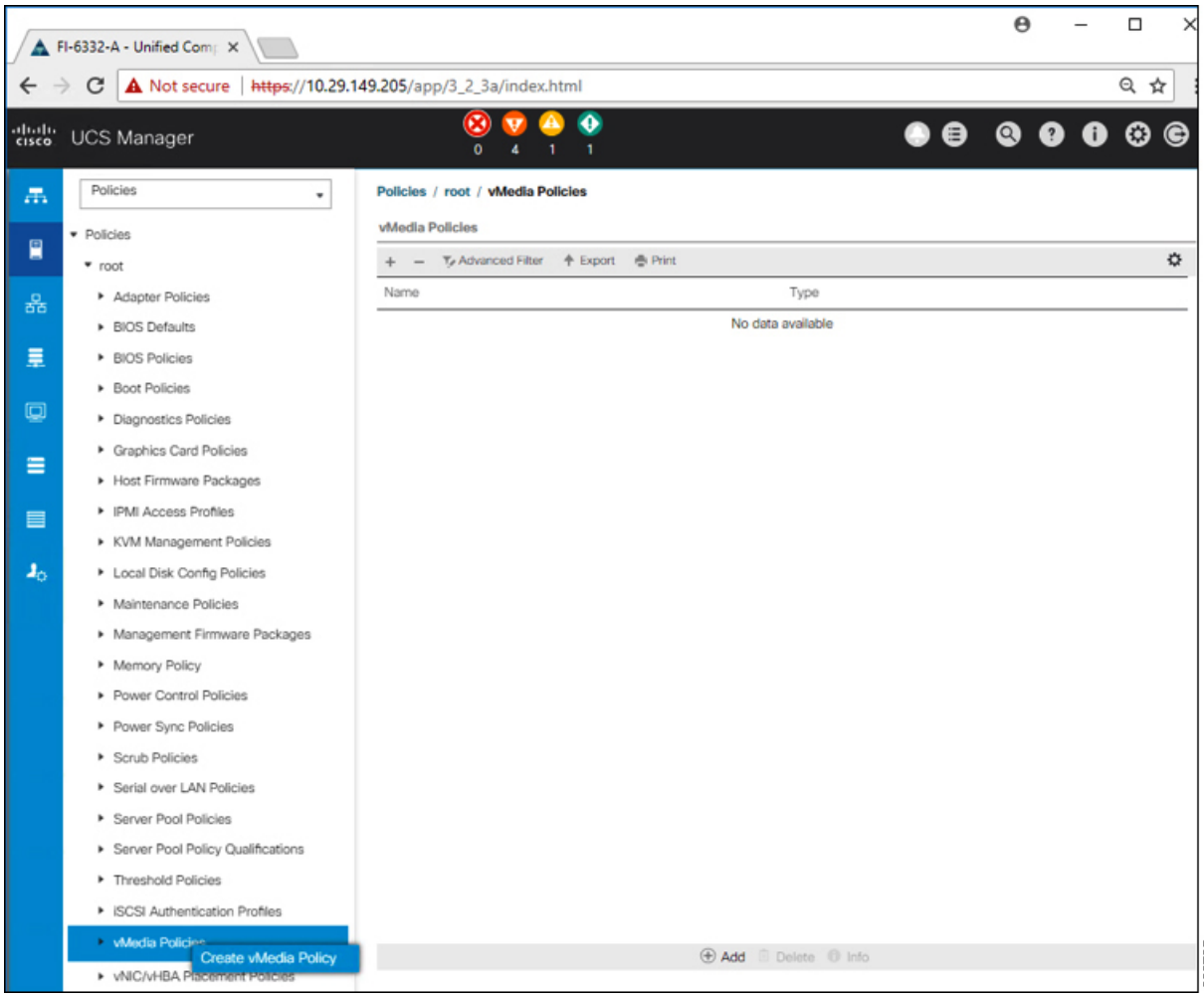
Procedure

Step 1 **Launch Cisco UCS Manager:**:

a) In your web browser, type the **Cisco UCS Manager** IP address.
b) Click **Launch UCS Manager**.
c) In the login screen, enter the with the username as **admin** and the password set in the beginning of the installation. Click **Log in**.

Step 2 **Create a vMedia policy for the Windows OS and Cisco driver images:**

a) In the Navigation pane, click **Servers**.
b) Expand **Servers** > **Policies** > **root** > **Sub-Organizations** > ***hx-cluster_name*** > **vMedia Policies**
c) Right-click **vMedia Policies** and select **Create vMedia Policy HyperFlex**.

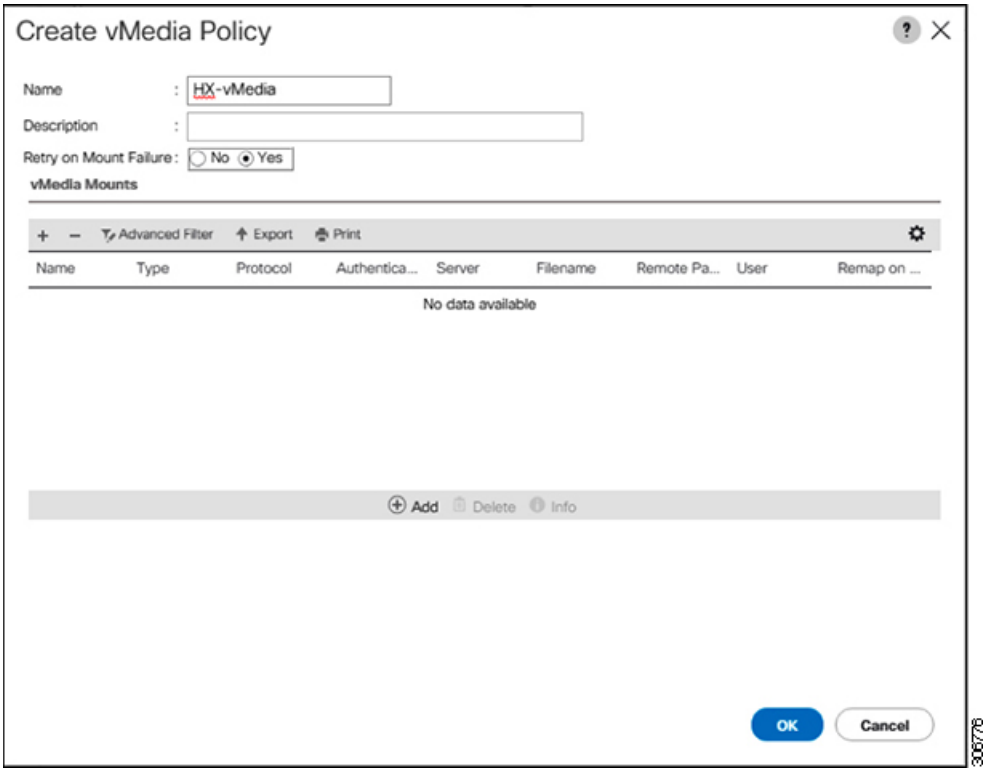


d) In the **Create vMedia Policy** dialog box, complete the following fields:

Field Name	Description
Name	The name of the vMedia policy. For example, *HX-vMedia*. This name can be between 1 and 16 alphanumeric characters. You cannot use spaces or any special characters other than - (hyphen), _ (underscore), : (colon), and . (period), and you cannot change this name after the object is saved.
Description	A description of the policy. We recommend including information about where and when the policy should be used. Maximum 115 characters.

Field Name	Description
Retry on Mount Failure	Designates if the vMedia will continue mounting when a mount failure occurs. This can be: • **Yes** • **No** **Note** The default setting is **Yes**. When **Yes** is selected the remote server will continue to try to mount the vMedia mount process until it is successful or you disable this option. If you select No, a warning message will appear indicating retry on mount failure will not work in case of mount failure.

Refer to the following screeshot as an example:

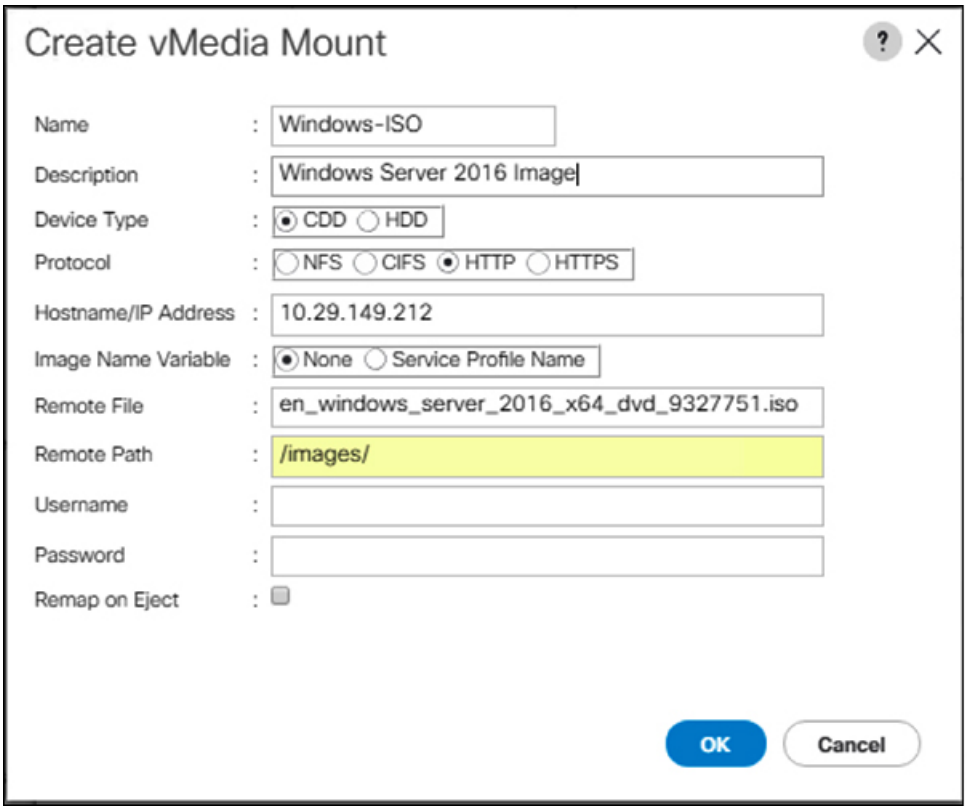


e) On the icon bar under the **vMedia Mounts** pane, click **+ Add**. In the **Create vMedia Mount** dialog box, complete the following fields:

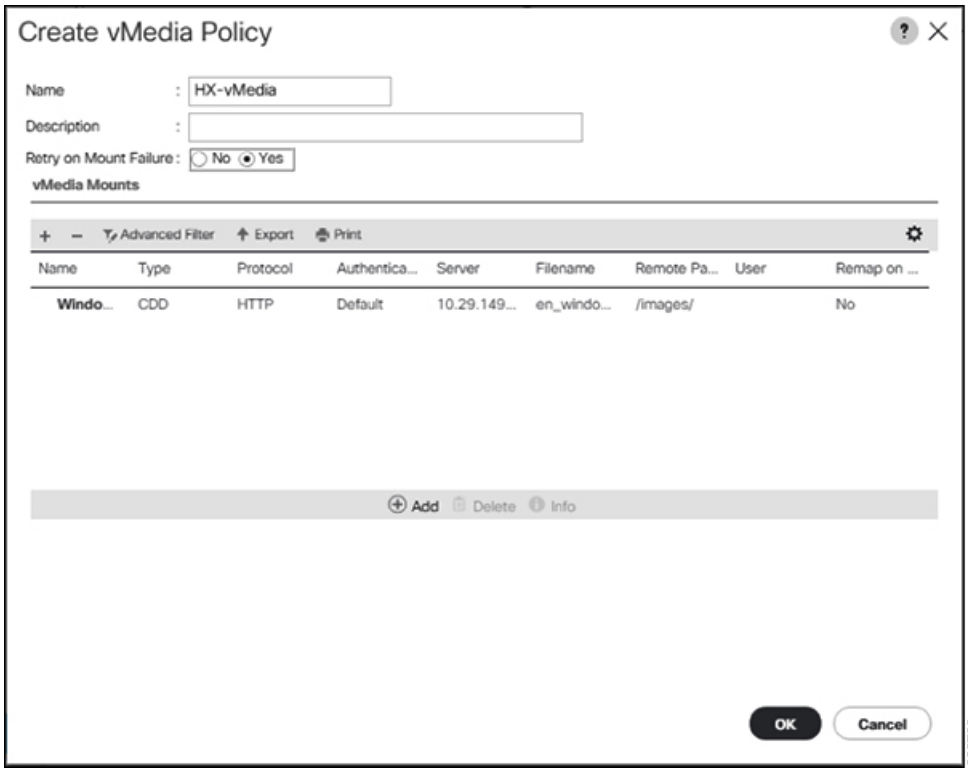
Field Name	Description	Example Value
Name	Name for the mount point.	Windows-ISO
Description	Can be used for more information.	Windows Server 2016 image

Field Name	Description	Example Value
Device Type	Type of image that you want to mount. This can be: • **CDD**—Scriptable vMedia CD. • **HDD**—Scriptable vMedia HDD.	CDD
Protocol	The protocol used for accessing the share where the ISO files are located.	HTTP
Hostname/IP Address	IP address or FQDN of the server hosting the images.	10.101.1.92
Image Name Variable	This value is not used in HyperFlex installation.	None
Remote File	The filename of the ISO file that you want to mount.	
Remote Path	The path on the remote server to where the file resides	
Username	If you use CIFS or NFS a username might be necessary	
Password	If you use CIFS or NFS a password might be necessary	

Refer to the screenshot below as an example:

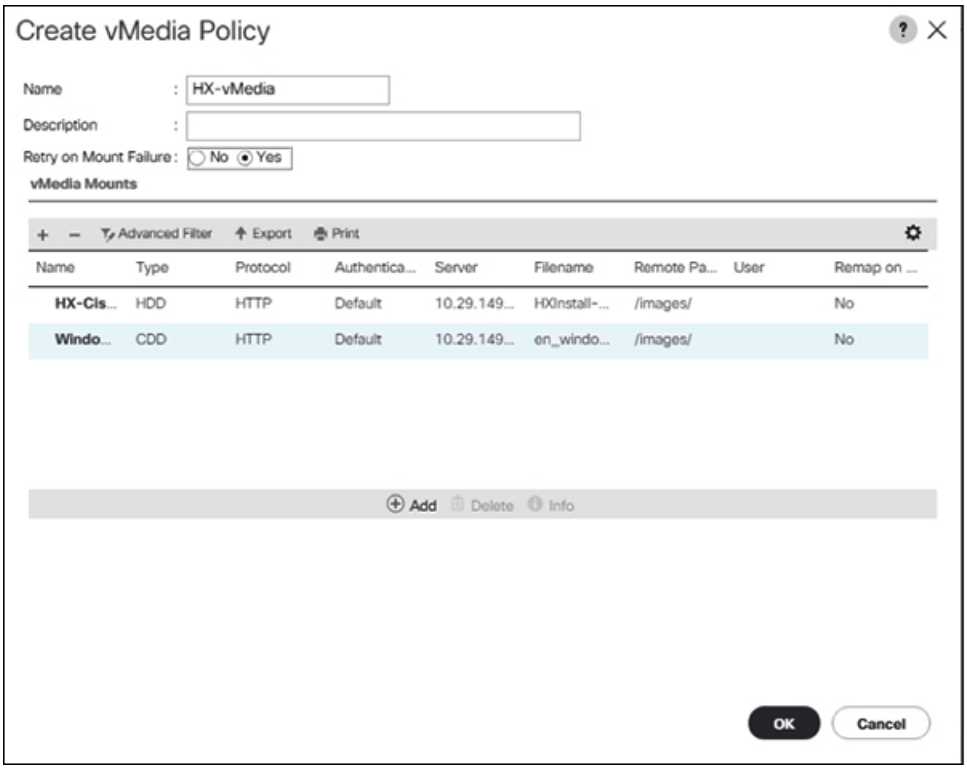


f) Click **OK**. When you click **OK**, you will now be returned to the **vMedia Policies** screen, and you should see the information that you just submitted.



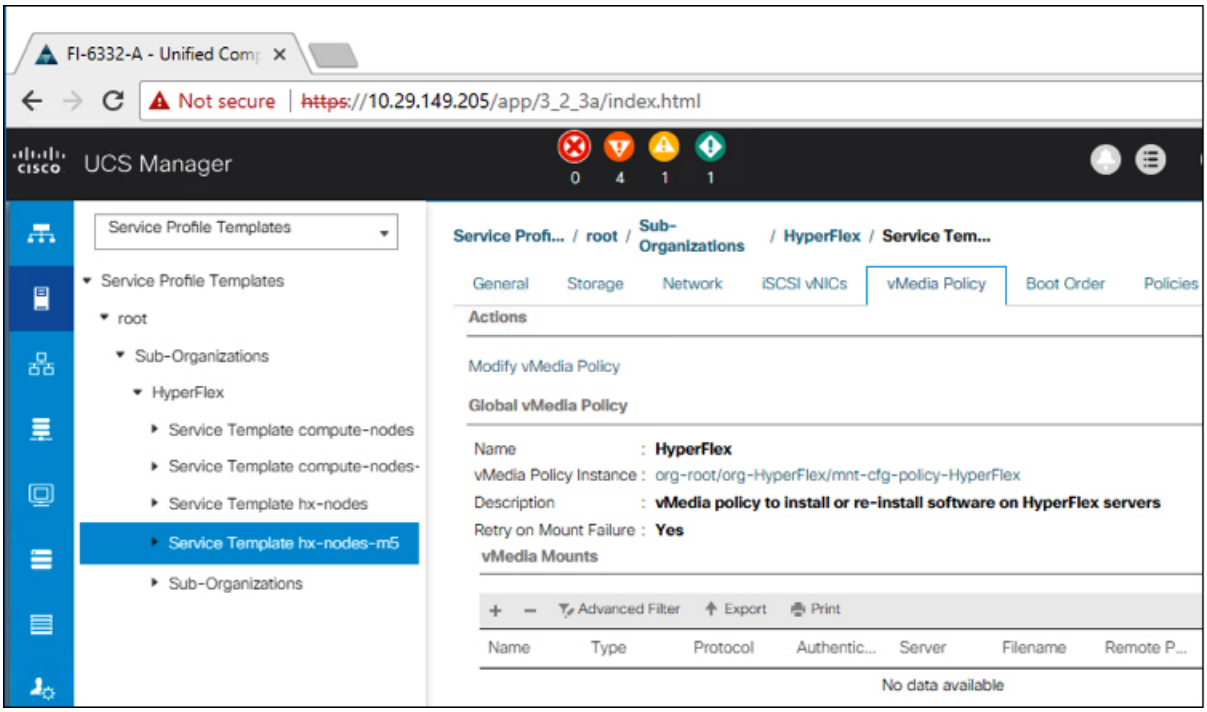
g) Repeat **Steps 2e and 2f**, however, change the type to **HDD** and the remote file name to the **Cisco HyperFlex driver image**.

h) At the end of this step, the two vMedia mounts will be listed in the Create vMedia Policy screen as shown in the following screenshot:



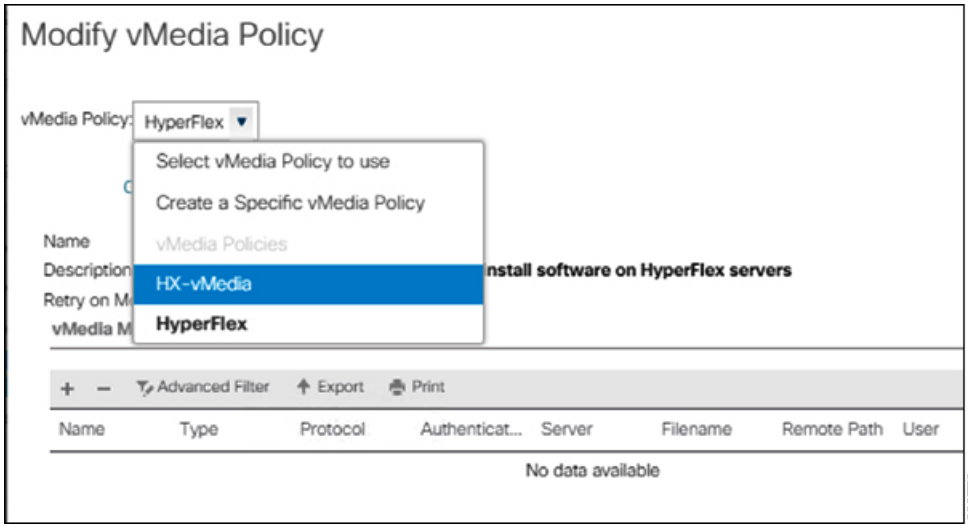
Step 3 **Associate the vMedia Policy to a Service Profile**:

a) In the Navigation pane, select **Servers** > **Service Profile Templates** > **root** > **Sub-Organizations** > ***hx-cluster_name*** > **Service Template *hx-nodes_name (example:hx-nodes-m5)***

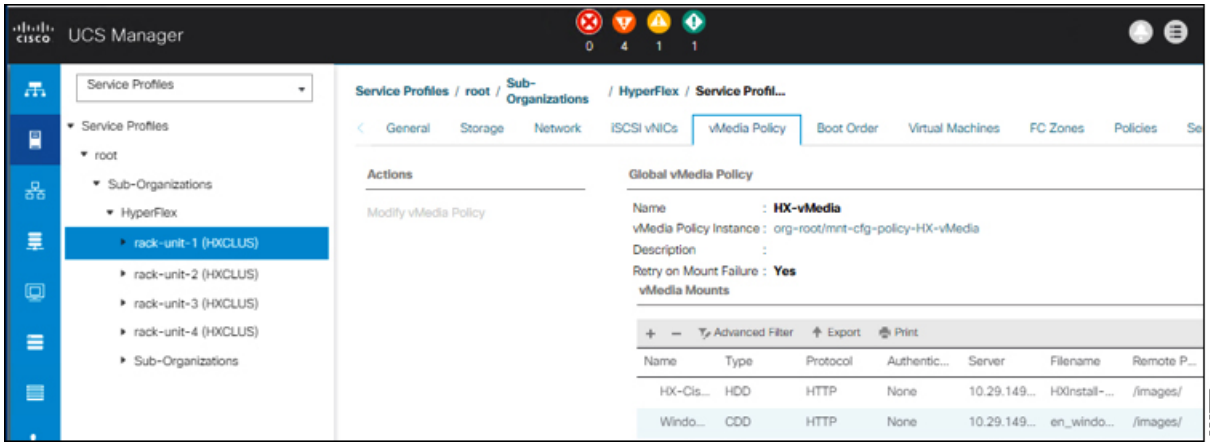


b) Click the **vMedia Policy** tab. Then, click **Modify vMedia Policy**

c) Choose the **vMedia Policy** that you created earlier from the drop-down selection, and click **OK** twice.



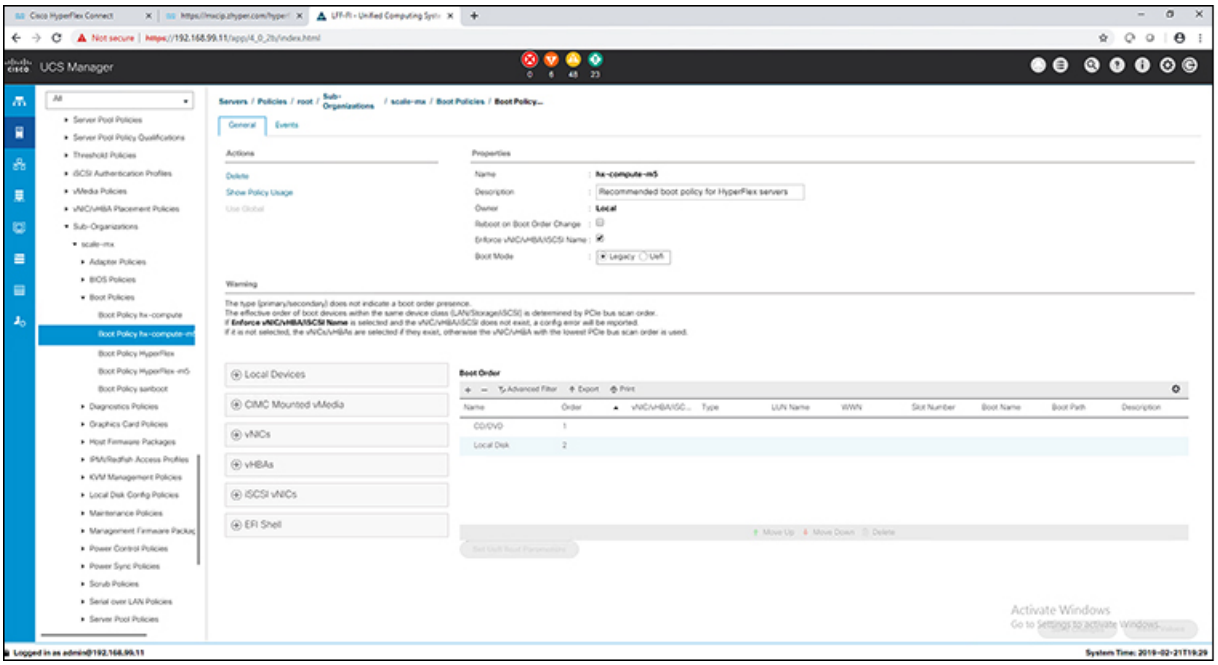
d) Under the **General** tab, verify that the vMedia policy is added to the Service Profile.



Step 4 **Modify Boot Policy and set the boot order to have CIMC CD/DVD to the list:**

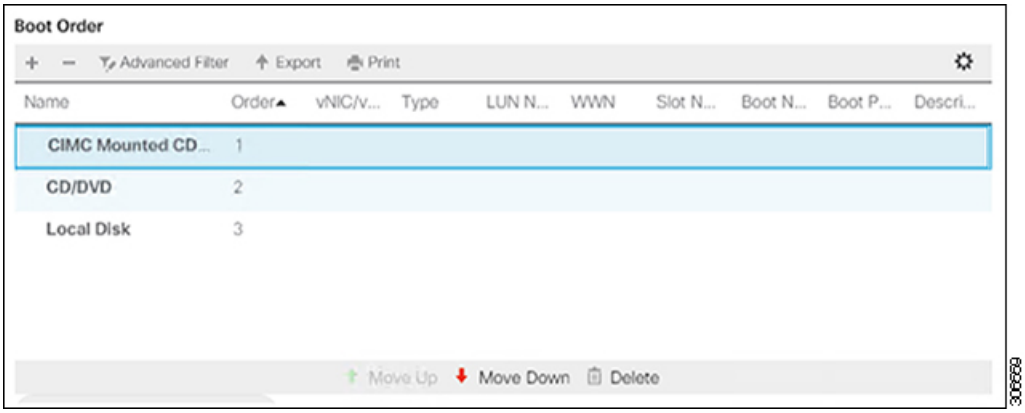
a) In the Navigation pane, click the **Servers** tab.

b) Expand **Servers** > **Policies** > **root** > > **Boot Policies** > ***Boot Policy HyperFlex-m5***



c) In the **Boot Order** configuration pane, click **CIMC Mounted CD/DVD** . Then, click **Add CIMC Mounted CD/DVD** to add this to the boot order. Move it to the top of the boot order using the **Move up** button.

Important As shown in the screenshot below, the **CIMC Mounted CD/DVD** option must be highest in the boot order preceding the other options, **Embedded Local Disk** and **CD/DVD**.

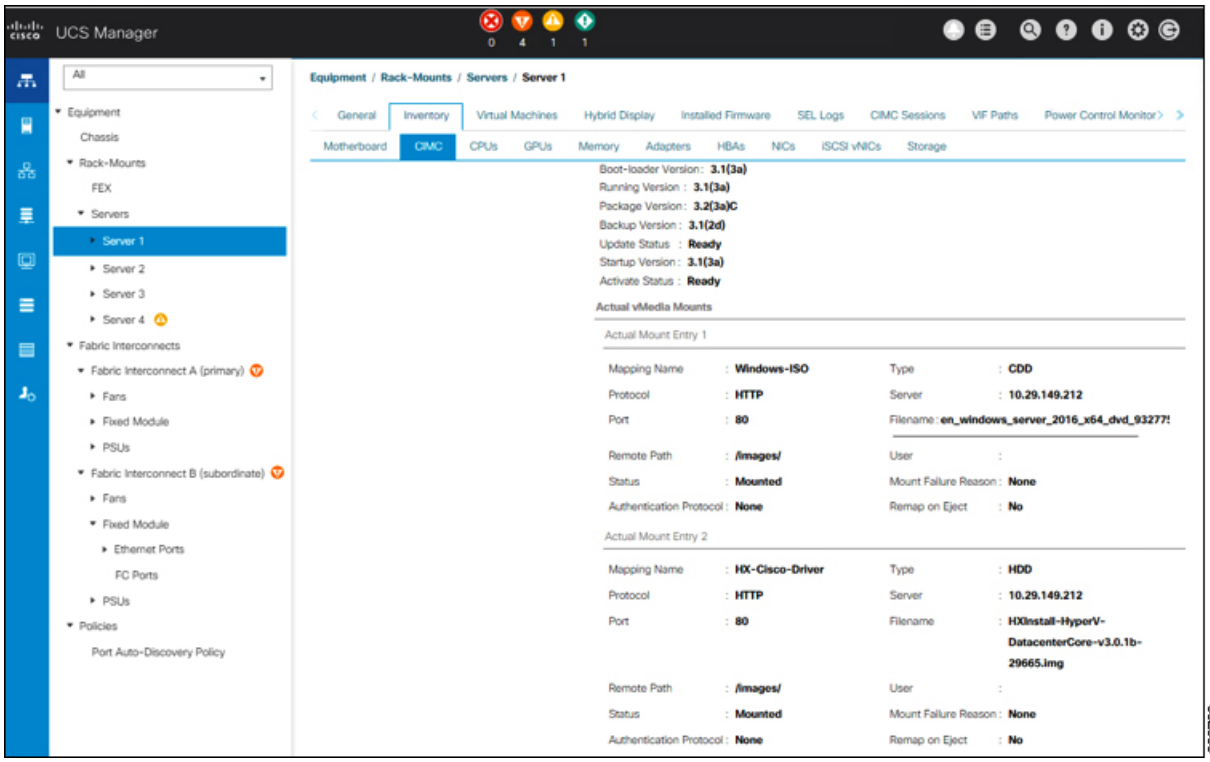


d) Click **Save Changes**, and click **OK** in the **Success** dialog box. The modified boot policy is saved.

Step 5 **Verify successful vMedia mounting:**

a) On the **Equipment** tab, select one of the servers.

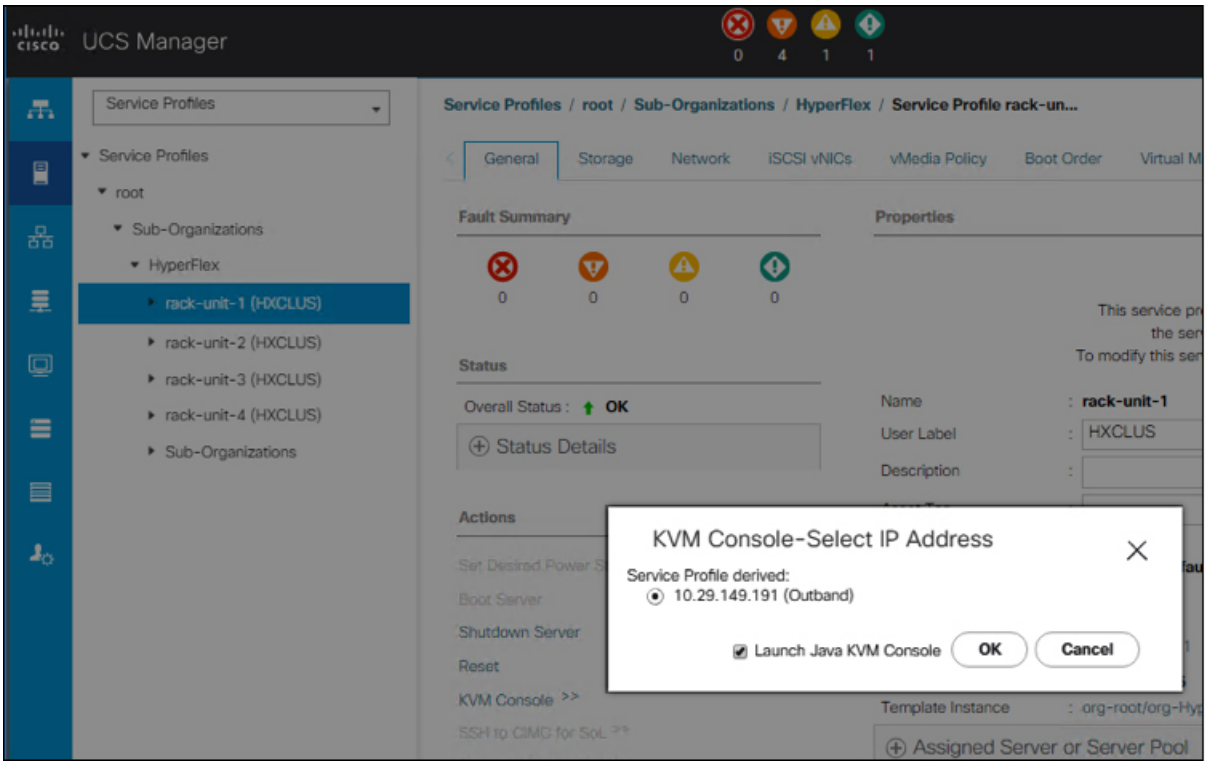
b) Click **Inventory** > **CIMC**, scroll down and ensure for mount entry #1(OS image) and mount entry #2 (Cisco HyperFlex driver image) you see status as **Mounted** and there are no failures.



c) In the menu bar, click **Servers** and choose the first HyperFlex service profile.

d) Click the **General tab** and choose **Actions** > **KVM Console>>**.

Note The KVM console will try to open in a new browser. Be aware of any pop-up blockers. Allow the pop-ups and re-open the KVM



e) Reboot the host, launch the KVM Console, and power on the server to monitor the progress of the Windows installation. You should see the **Loading Files** screen appear. Windows should install automatically without user intervention. You should see a blue screen and within a few moments you should see the **Setup is starting** message. If automated installation does not begin, double-check that both images are mounted to the server.

f) Once Windows installation completes, a command prompt will show up. Wait for the installation to complete. The host will then reboot a few times. The installation is complete when you get a clear command prompt at `c:\users\administrator>`

Note Ignore the prompt with the **The system cannot find the file specified** message.

Important Ensure that you have completed **Steps e and f,** on ALL servers that will be part of the HX cluster.

g) Login to each server, enter the command `C>Users>Administrator>Get-ScheduledTask` and verify that the HX Install Bootstrap Launcher task is running.

Step 6 **Remove the vMedia policy from the service profile:**

a) To un-map the vMedia policy from the service profile, go to **Servers** > **Service Profile Templates** > **root** > **Sub-Organizations** > ***hx-cluster_name*** > **Service Template *hx-nodes_name (example:hx-nodes-m5)***. Then, click on **Modify vMedia Policy**.

b) Under the vMedia Policy drop-down selection, deselect the vMedia policy (*HX-vMedia*) previously used to map the two images.

Step 7 **Restore the boot order to the one before installation:**

a) In the Navigation pane, click the **Servers** tab.

b) Expand **Servers** > **Policies** > **root** > > **Boot Policies** > ***Boot Policy HyperFlex-m5***

c) In the **Boot Order** configuration pane, use the **Move Down** button to move **CIMC Mounted CD/DVD** option to the bottom of the list.

Step 4 - Hypervisor Configuration, HX Data Platform and Cluster Deployment

After the installation of the OS is completed, perform the following steps to configure the hypervisor, install the HX Data Platform Software and configure the cluster.

Procedure

Step 1 **Hypervisor configuration**

a) Re-open the HX Data Platform Installer and log in.
b) You might need to "start over" because the previous workflow was finished. Click on the gear icon in the top right corner and select **Start Over**.
c) In the main menu, select **I know what I'm doing, let me customize my workflow**. In the **Warning** dialog box, click **Confirm and Proceed**.
d) Complete information for the UCS Manager, Domain Information and Hypervisor Credentials.

Field	Description	Default Value
UCS Manager Host Name	FQDN or the VIP address of the UCSM	
UCS Manager User Name	Admin user or an user with UCSM admin rights	Admin
Password	Password for the UCS Manager User Name	
Domain Name	Active Directory domain name that the HyperFlex cluster is going to be a member off.	
Local Administrator User Name	Local Administrative username on the Hyper-V Hosts	Administrator
Local Administrator Password	Password for the local administrative user on the Hyper-V hosts	Cisco 123

Note If you haven't changed the Administrator password for the Windows Hyper-V in the previous step the default value is as shown above.

The HX Data Platform Installer now connects to UCS Managaer and lists the relevant servers for the HX Cluster. The HX Data Platform Installer now validates UCS Firmware etc.

e) Validate the selected servers and click **Continue**.
f) Complete the network information as you have done in the chapter: **Cisco UCS Manager Configuration using HX Data Platform Installer** and ensure the data is the same. Click **Continue** to proceed to next screen.
g) Configure Hypervisor Settings. Input the values for the Hypervisor configuration as show below

Field	Description	Example Value
Configure common Hypervisor Settings		
Subnet Mask	Subnet mask for the hypervisor hosts management network	255.255.255.0
Gateway	Default gateway for the hypervisor hosts management network	10.101.251.1
DNS Servers	Comma separated list for the DNS Servers in the AD that the hypervisor hosts are going to be member of.	10.99.2.200,10.992.201
Hypervisor Settings		
Static IP address	Management IP address for each host	10.101.251.41
Hostname	Hostname for each host	HX-Hypv-01

Note If you leave the checkbox **Make IP Addresses and Hostnames Sequential** as checked then the installer will automatically fill the rest of the servers sequential from the first.

Click **Start** to begin the Hypervisor Configuration.

The installation now continues and configures the Hypervisor hosts.

Important Be aware that even if the steps are completed as shown above, the Hypervisor configuration is not completed. The servers are working in the background until the installer reports an overall completion.

Step 2 **HX Data Platform Deployment**

a) You may need to start over because the previous workflow was completed. In the top right corner of the install, select **Start Over**, confirm that you wish to start over.
b) In the HX Data Platform Installer **Workflow** page, select **I know what I'm doing, let me customize my workflow**.
c) Check the **Deploy HX Software** and **Create HX Cluster** and click **Continue**.
d) In the warning message, click **Confirm and Proceed**.
e) **Domain information, Constrained Delegation, Hypervisor Credentials**. Use the following table to complete the fields in this page.

Field	Description	Example Value
Domain Information		
Domain Name	Active Directory Domain that the cluster will be a part of.	contoso.com

Field	Description	Example Value
HX Service Account	The HX service account that was created in the preinstallation phase. **Important** Verify that the Active Directory policies allow HX service account to have effective permissions to "**Write servicePrincipalName**" on the computer object created for **smb** namespace.	hxadmin
Password	Password for the HX service account.	
Constrained Delegation		
HX Service Account and Password	Required for Constrained Delegation.	
Use HX Service Account	Uses the HX service account for Constrained Delegation. The user must be a domain administrator.	Click checkbox if HX service account is provided.
Configure Constrained Delegation now (recommended) or Configure Constrained Delegation later	Select one of the checkboxes. Constrained Delegation is required for VM Live Migration. To configure Contrained Delegation later, use the procedure described in Configuring a Static IP Address for Live Migration and VM Network, on page 53.	
Advanced Attributes (optional)		
Domain Controller	FQDN for the Domain Controller that you want to use specifically for the installation.	dc.contoso.com
Organization Unit	The OU created during the preinstallation phase can be used here Then, the OU will be the home for the HX nodes in the Active Directory.	OU=HyperFlex, DC=contoso, DC=com
Hypervisor Credentials		

Field	Description	Example Value
Hypervisor Local Administrator User Name	Local administrator username on the Hyper-V hosts	Default username/password: administrator/Cisco123 **Important** Systems ship with a default password of `Cisco123` that must be changed during installation. You cannot continue installation unless you specify a new user supplied password.

Click **Continue**.

f) **IP Addresses**. Click **Add Server** to add the servers you need for the cluster.

Complete the hostnames for the Hyper-V hosts and the Storage Controllers running on the Hyper-V hosts. These hostnames must be added to forward and reverse look up prior to this step. Remember that only Windows AD Integrated DNS is supported.

Complete the data IP addresses for both the Hyper-V hosts and controller VMs.

Note The management VLAN uses the addresses and Data VLAN does not.

Use the following table to complete the fields in this page.

Field	Description	Example Value
Management		
Cluster Address	Hostname for the HX Connect UI	HX-EAP-01-MGMT
Subnet Mask	Subnet mask for the management VLAN	255.255.255.0
Gateway	Gateway address for the Management VLAN	10.101.251.1
Data		
Cluster Address	IP address for the HX cluster on the Data VLAN	10.101.252.50
Subnet Mask	Subnet mask for the management VLAN	255.255.255.0
Gateway	Gateway address for the management VLAN.	10.101.252.1

Click **Continue**.

Step 3 **Cluster Configuration**

a) **Cisco HX Cluster Configuration**.

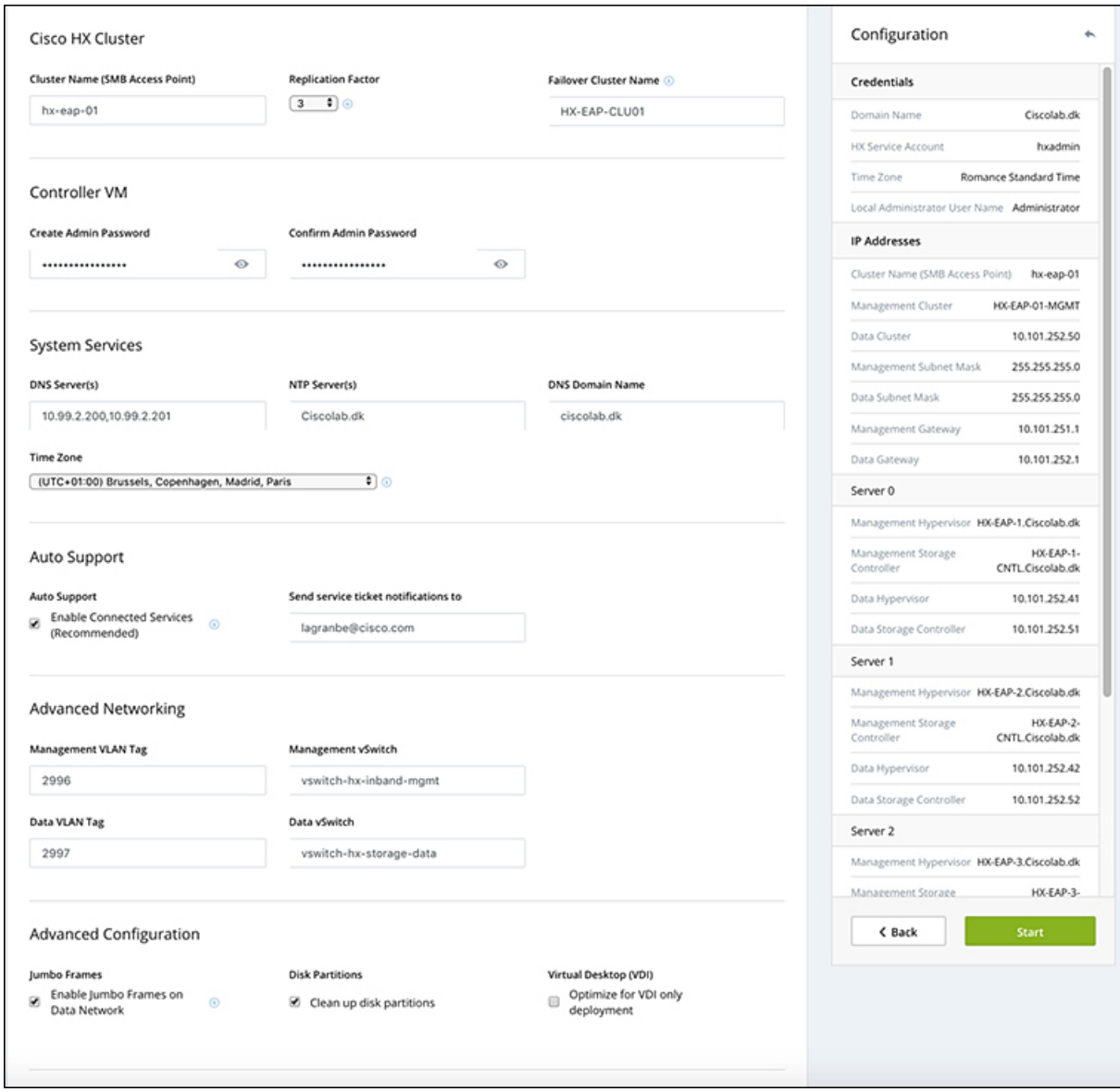
Use the table below to complete the fields in this page.

Field	Description	Example Value
Cisco HX Cluster		
Cluster Name (SMB Access Point)	The cluster name to be used as the FQDN for the datastores.	HX-EAP-01
Replication Factor	Select the number of redundant data replicas across the HX storage cluster. Options are 2 or 3. This cannot be changed after the cluster is created. 3 is recommended for production workloads.	3 (Default Value)
Failover Cluster Name	The name used for the Windows Failover Cluster.	
Controller VM		
Create Admin Password		
Confirm Administrator Password		
System Services		
DNS Servers	Comma separated lists of DNS Servers.	10.99.2.200, 10.99.2.201
NTP Servers	The controller VMs needs must be in sync with Windows Active Directory, therefore you must point to your AD domain controllers for time synchronization.	dc1.contoso.com, dc2.contoso.com
DNS Domain Name	The domain name for the Active Directory.	contoso.com
Timezone	The timezone that you want the HX controllers to report in.	
Auto Support		
Enable Connected Services	Auto Support to ship telemetry data of the HX cluster to Cisco Support.	
Send Service ticket to	Email address or alias to receive a copy of the ticket sent to Cisco.	*email_address*

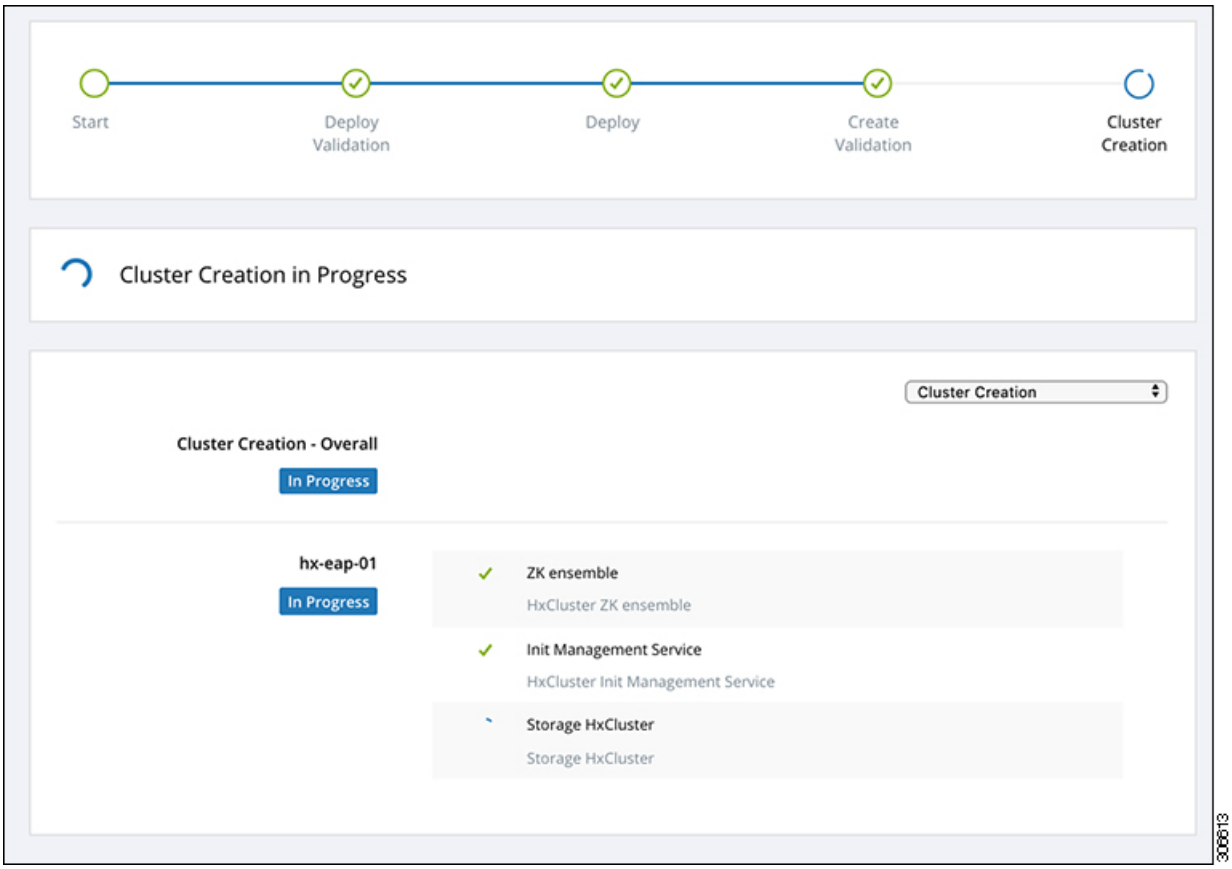
Field	Description	Example Value
Advance Networking		
Management VLAN tag	VLAN used for the Management Network. This must be the same as used earlier in the installation process for the management network.	
Data VLAN tag	VLAN used for the Management network. This must be the same as used earlier in the installation process for the data network.	
Advanced Configuration		
Enable Jumbo Frames on Data network	Sets the MTU size for the storage data network on the host vSwitches and vNICs, and each storage controller VM. The default value is 9000. To set your MTU size to a value other than 9000, contact Cisco TAC. Ensure that jumbo frames run on the links connected to the storage VMs.	
Disk Partitions	Removes all existing data and partitions from all nodes added to the storage cluster. You must backup any data that should be retained. Select this option to delete existing data and partitions. This is for manually prepared servers. Do not select this option for factory prepared systems. The disk partitions on factory prepared systems are properly configured.	
VDI	Configures for VDI only environments. To change the VDI settings after the storage cluster is created, shutdown or move the resources, make changes, and restart the cluster.	
Hypervisor Settings		
Primary DNS suffix	Completed in earlier steps in the installation.	

Field	Description	Example Value
Additional DNS suffixes	Complete this field if you need more suffices appended on your Hyper-V hosts.	

Refer to the illustration below as a sample entries for the various fields in this page.



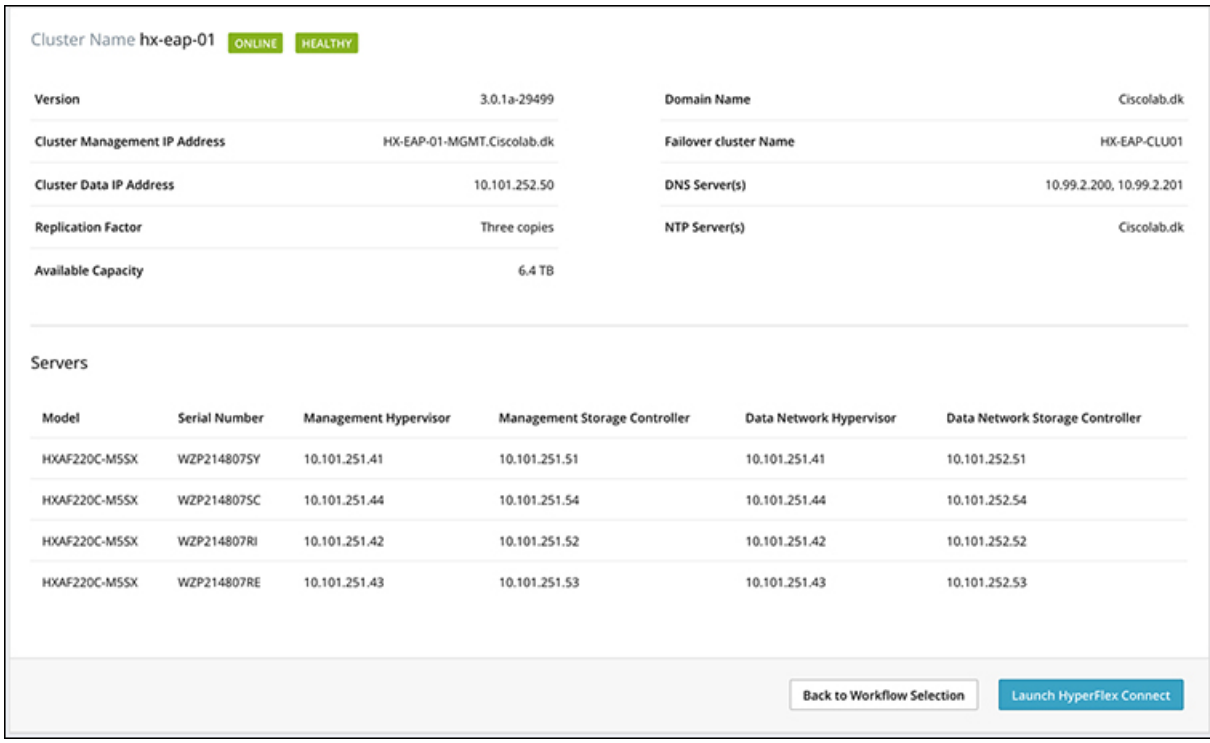
b) Click **Start** to begin the deployment. The **Progress** page displays the progress of the configuration tasks: Start, Deploy Validation, Deploy, Create Validation, Cluster Creation.



Caution Do not skip validation warnings.

See the **Warnings** section for more details.

c) When the following screen is displayed, the installation process is completed.



Configuring a Static IP Address on HX Data Platform Installer

During a default installation of the VM, the HX Installer will try and automatically obtain an IP address using DHCP. To ensure that you have the same IP address at every boot, you can assign a static IP address on the VM

Use the following commands to configure your network interface (/etc/network/interfaces) with a static IP address. Make sure you change the relevant settings to suit your network.

Procedure

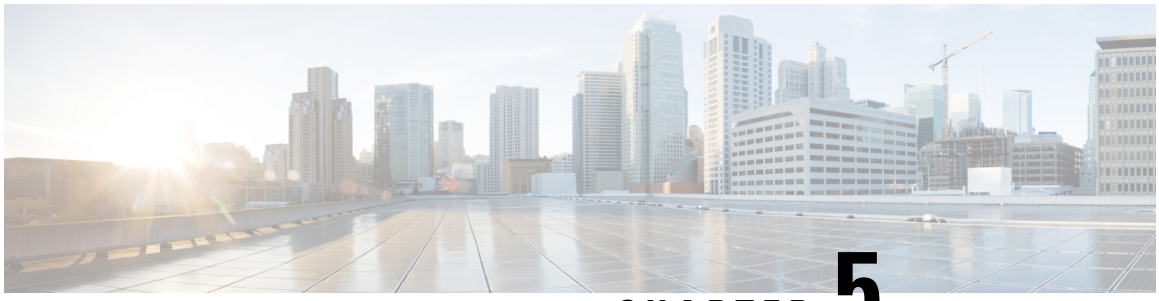
	Command or Action	Purpose
Step 1	Run the following command: **ifdown eth0**.	**Warning** This step ensures that the interface is down before performing the static IP configuration. Failure to do so could lead to issues during the installation process that may require TAC support.

Step 2	Using your favorite editor, edit the `/etc/network/eth0.interface` file to match your environment. For example, add the following lines in the file:	`auto eth0 # eth0 interface`
		`iface eth0 inet static # configures static IP for the eth0 interface`
		`metric 100`
		`address XX.XX.XX.XX # Static IP address fr the installer VM`
		`netmask 255.255.0.0 # netmask for the`

	Command or Action	Purpose

		`Static IP addresss`
		`gateway XX.XX.X.X # gateway for the Static IP addresss`
		`dns-nameservers XX.XX.X.XXX #DNS name servers used by the HX installer`
		`dns-search <DNS_Search_Name>.local # DNS search domain name used by the installer`

Step 3	Save the file so that the changes take effect.	
Step 4	Run the following command: **ifup eth0**	
Step 5	Reboot the installer VM.	



CHAPTER 5

Post Installation

- Post Installation Tasks Summary, on page 51

Post Installation Tasks Summary

After successful cluster configuration, perform the following addition post installation tasks to ensure that the cluster is ready to serve VMs.

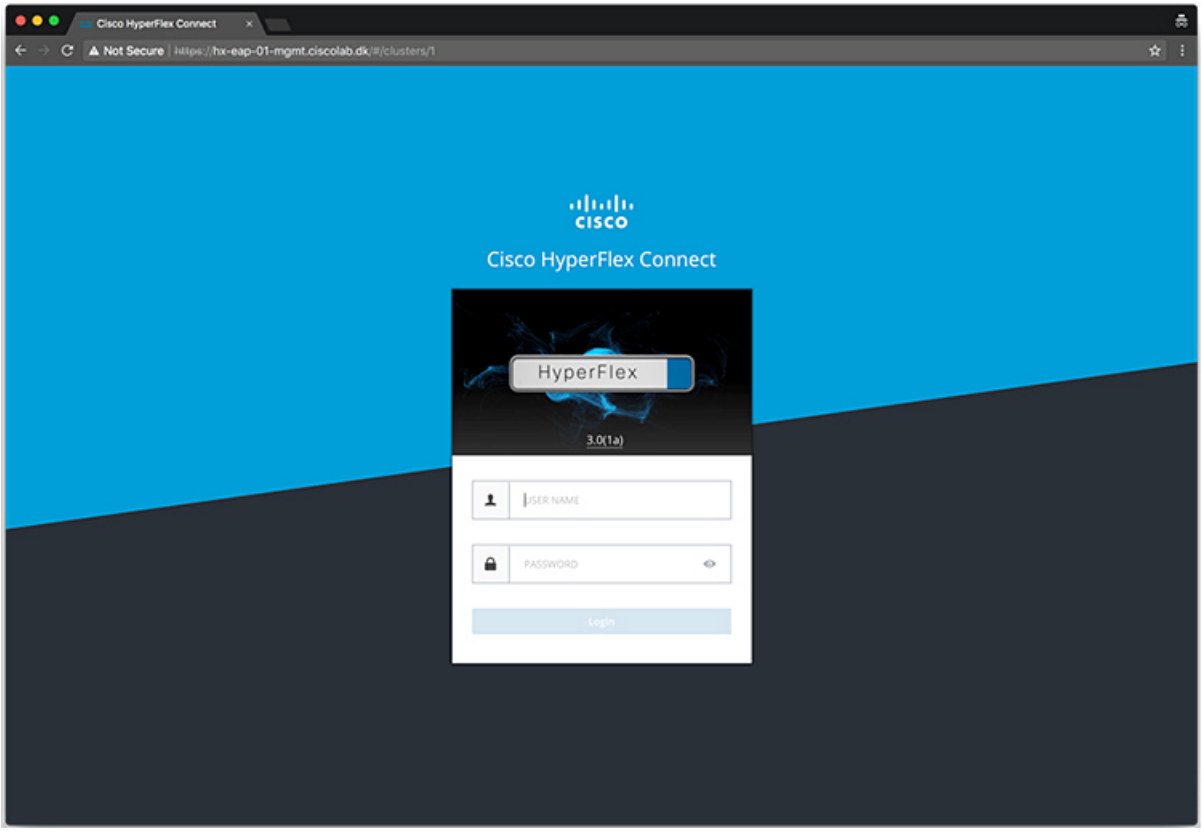
Task	Reference
Create the First Datastore	Create the First Datastore, on page 51
Assign a static IP address for Live Migration and VM Network	Configuring a Static IP Address for Live Migration and VM Network, on page 53
(Optional) Constrained Delegation	(Optional) Post Installation Constrained Delegation, on page 54
Configure Local Default Paths	Configure Local Default Paths, on page 55
Configure File Share Witness	Configuring a File Share Witness, on page 56
Checking the Windows Version on the Hyper-V Host	Checking the Windows Version on the Hyper-V Host, on page 61
Validate Failover Cluster Manager	Validate Failover Cluster Manager, on page 61
Deploying VMs on a Hyper-V cluster	Deploying VMs on a Hyper-V cluster, on page 63
Configuring HyperFlex Share to SCVMM	Configuring HyperFlex Share to SCVMM, on page 69
Re-enabling Windows Defender	Re-enabling Windows Defender, on page 71

Create the First Datastore

Before you begin using the cluster, you must create a datastore. The datastore can be created in HX Connect UI.

Procedure

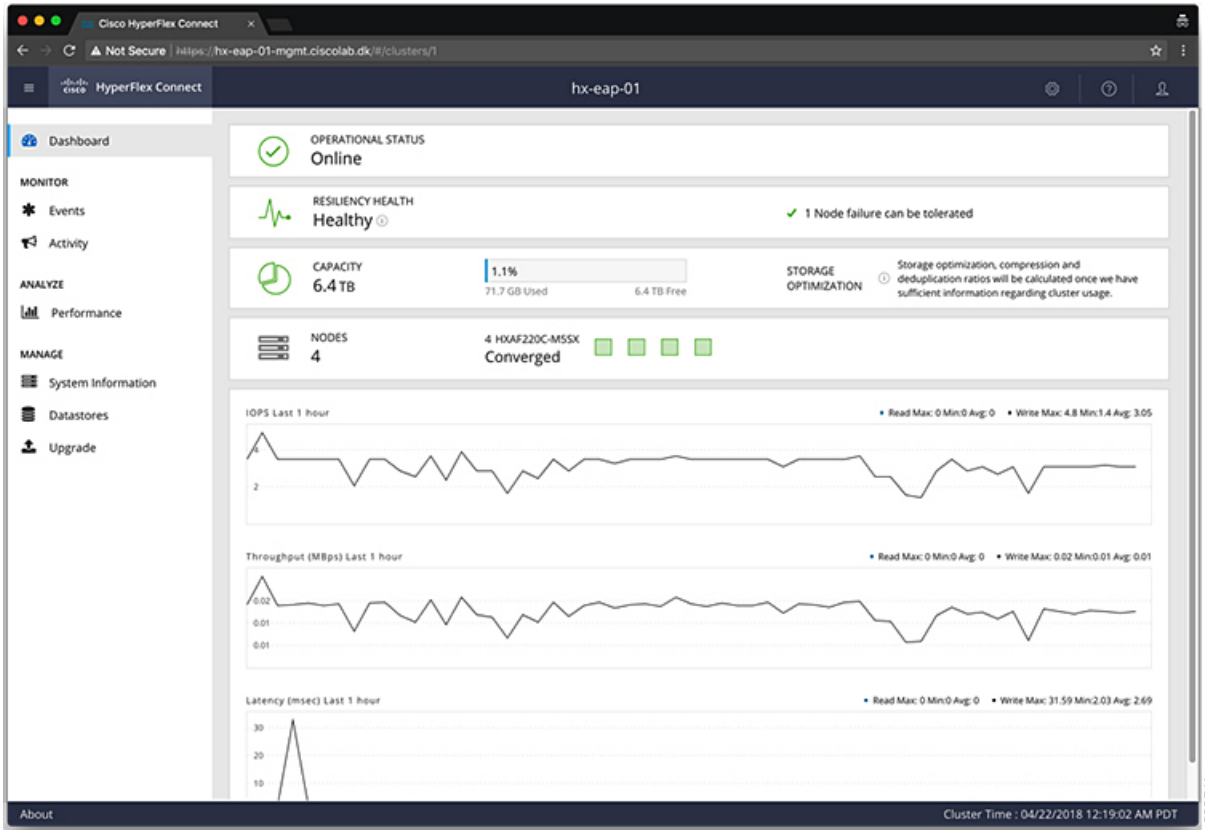
Step 1 Launch HX Connect UI from a browser of your choice from *https://Cluster_IP/* or *https://FQDN*.



Step 2 Log in with the following credentials:

- **Username—hxadmin**
- **Password**—Use the password set during cluster installation.

Step 3 In the Navigation pane, select **Datastores**.



Step 4 In the Work pane, click **Create Datastore**.

Step 5 In the **Create Datastore** dialog box, complete the following fields:

Field	Description
Datastore Name	Enter a name for the datastore. Cisco recommends that you use all lower case characters for the datastore name.
Size	Select the size for the datastore.
Block Size	Select the block size for the datastore.

Note Cisco recommends 8K block size and as few datastores as possible to ensure the best performance.

Configuring a Static IP Address for Live Migration and VM Network

Log in to each Hyper-V node and execute the following commands in Power Shell to assign a static IP address for Live Migration and VM Network.

#	Command	Purpose
1	`New-NetIPAddress -ifAlias "vSwitch-hx-livemigration" -IPAddress 192.168.73.21 -PrefixLength 24`	Assigns a static IP address to the Live Migration network.
2	`New-NetIPAddress -ifAlias "vswitch-hx-vm-network" -IPAddress 192.168.74.21 -PrefixLength 24`	Assigns a static IP address to the VM network.

(Optional) Post Installation Constrained Delegation

Attention This step must be performed only if Constrained Delegation was not configured during initial installation. It is recommended that you perform this procedure using the HX Installer and not as part of post-installation.

Constrained Delegation gives granular control over inpersonation. When the remote management requests are made to the Hyper-V hosts, it needs to make those requests to the storage on behalf of the caller. This is allowed if that host is trusted for delegation for the CIFS service principal of HX Storage.

Constrained Delegation requires that the option for the security setting **User Account Control: Behavior of the elevation prompt for Administrators in Admin Approval Mode** is set to **Elevate without Prompting**. This will prevent the global AD policy from overriding policy on HX OU.

Perform the following procedure *on each Hyper-V host in the HX Cluster* to configure using **Windows Active Directory Users and Computers**.

Procedure

Step 1 Click **Start**, click **Administrative Tools**, and then click **Active Directory Users and Computers**.

Step 2 Expand domain, and then expand the Computers folder.

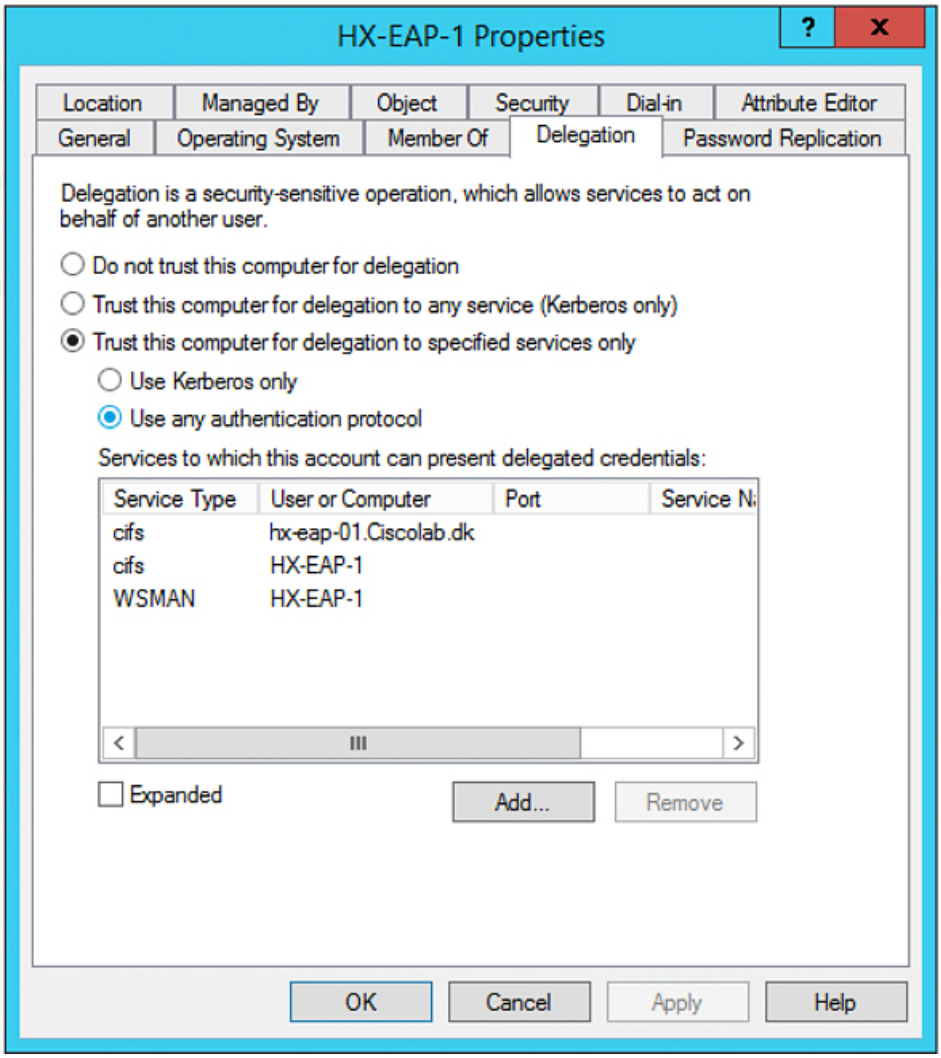
Step 3 In the right pane, right-click on the computer name (for example, HX-Properties), and then click **Properties**.

Step 4 Click on the **Delegation** tab.

Step 5 Select **Trust this computer for delegation to specified services only**.

Step 6 Ensure that **Use any authentication protocol** is selected.

Step 7 Click **Add**. In the **Add Services** dialog box, click **Users or Computers**, and then browse or type the name of the Service Type (such as CIFS). Click OK. The following illustration can be used as an example.



Step 8 Repeat these steps for all nodes.

Configure Local Default Paths

Configure the default local path for the VMs to ensure that they will be on the HX cluster datastore.

Run the following commands in PowerShell:

```
$Creds = Get-Credential -Message "User Credentials" -UserName <<current logon username>>
$hosts = ("hostname1","hostname2","hostname3","hostname4")
Invoke-Command -ComputerName $hosts -Credential $Creds -ScriptBlock {Set-VMHost
-VirtualHardDiskPath
"\\HX-EAP-01.ciscolab.dk\DS1_8K" -VirtualMachinePath "\\HX-EAP-01.ciscolab.dk\DS1_8K"}
```

Note Remember to change the variables to suit your environment.

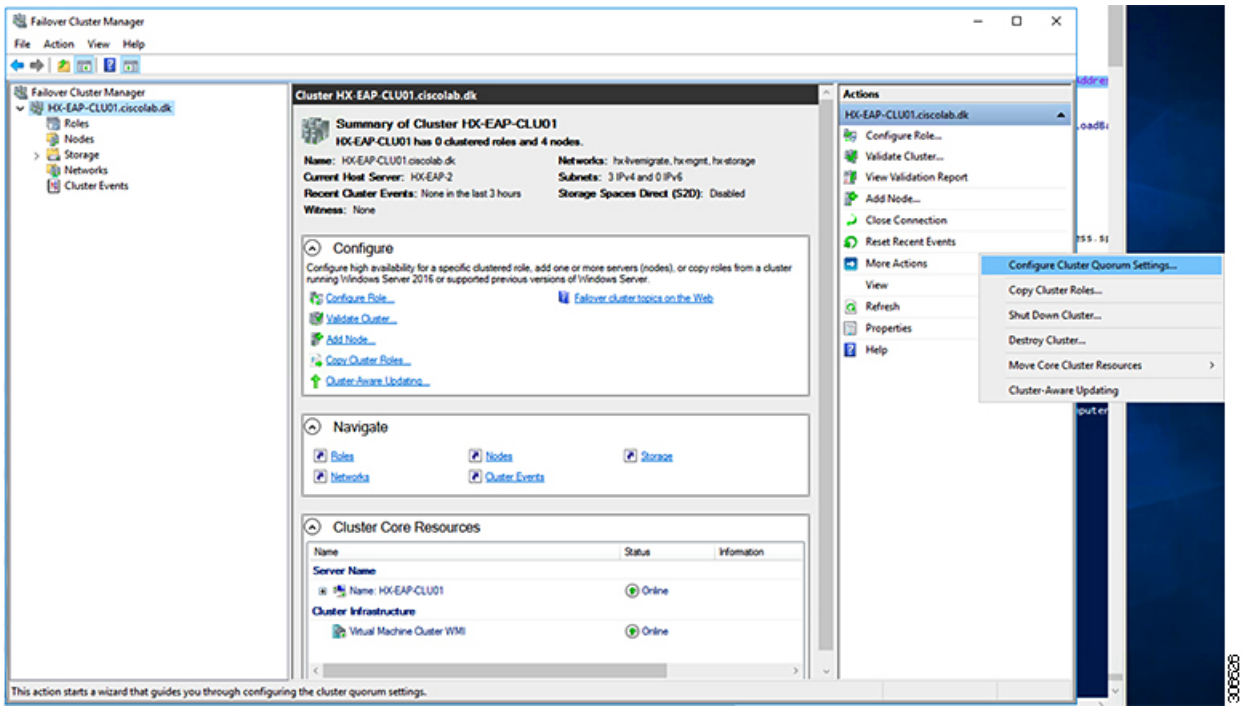
Configuring a File Share Witness

As a Microsoft best practice, ensure that you configure a Quorum witness datastore. Use the following procedure to configure a File Share Witness using **Failover Cluster Manager** (FCM).

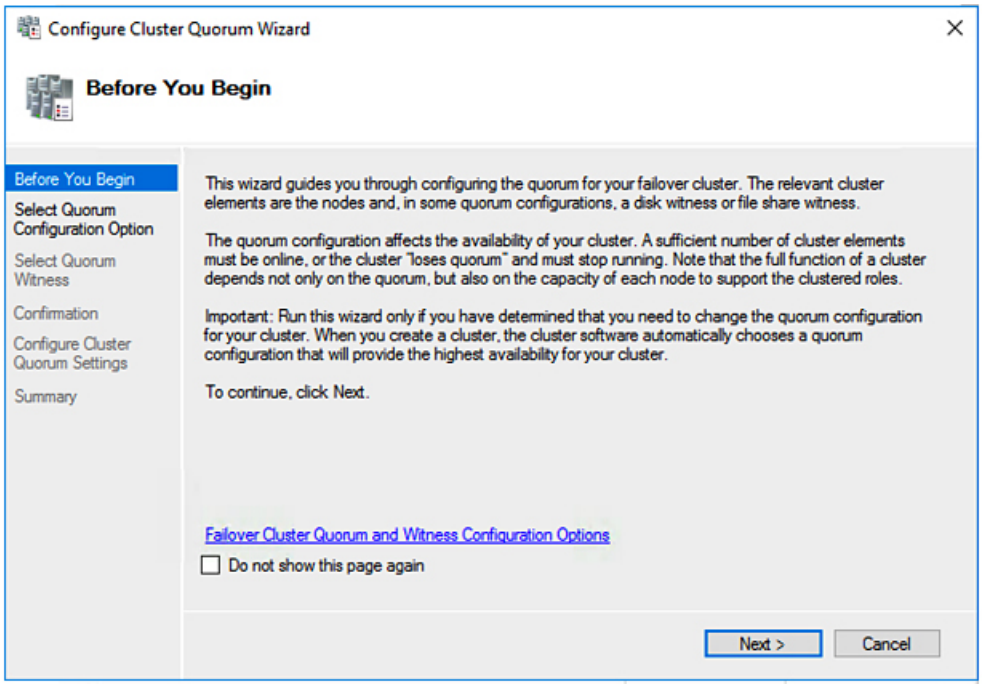
Procedure

Step 1 Launch FCM.

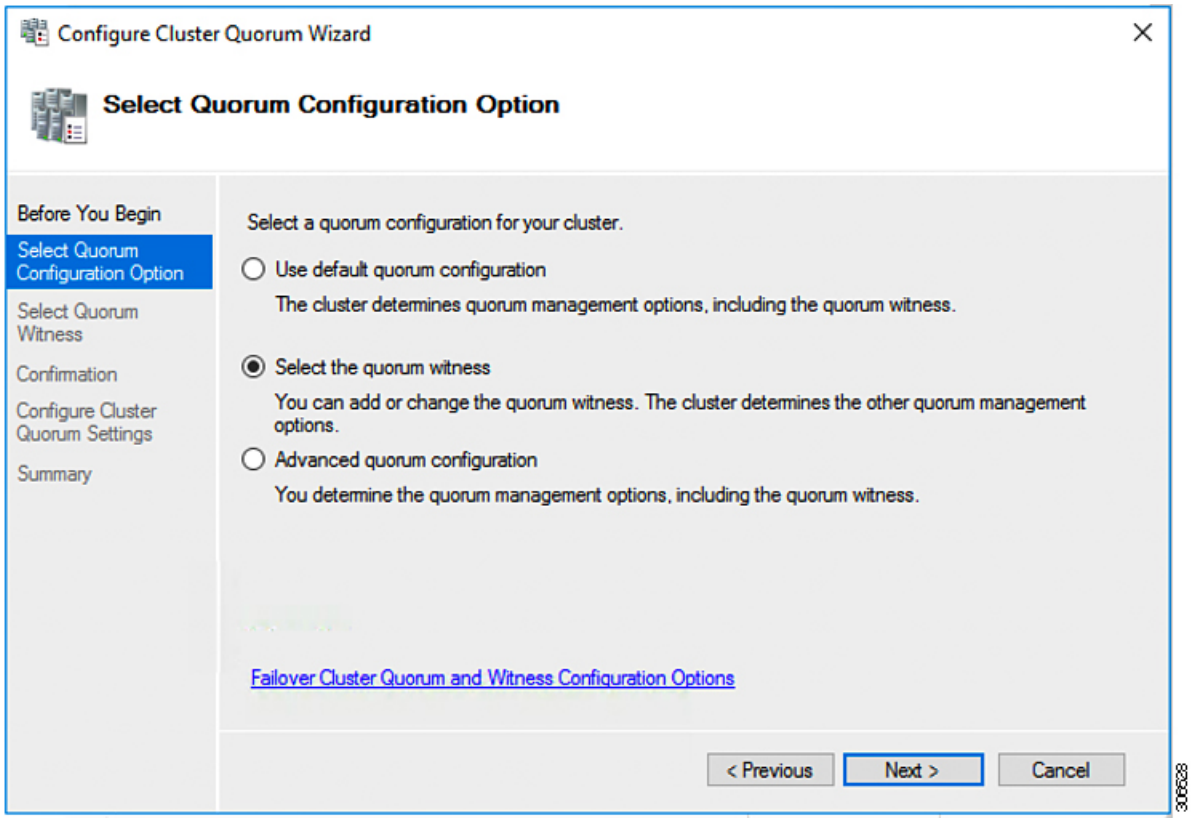
Step 2 In the navigation pane, select your cluster. Then, in the **Actions** pane, select **More Actions** > **Configure Cluster Quorum Settings...**.



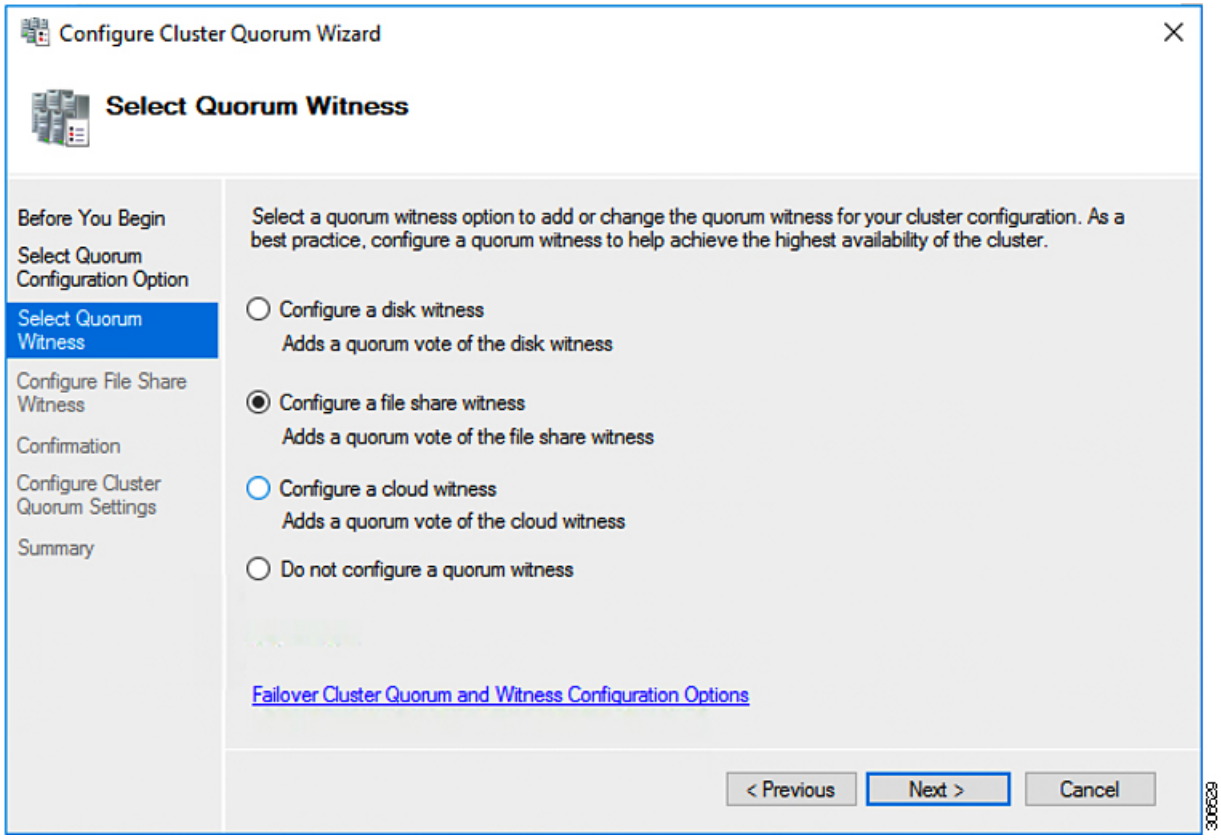
Step 3 The **Configure Cluster Quorum** wizard is launched. Click **Next**.



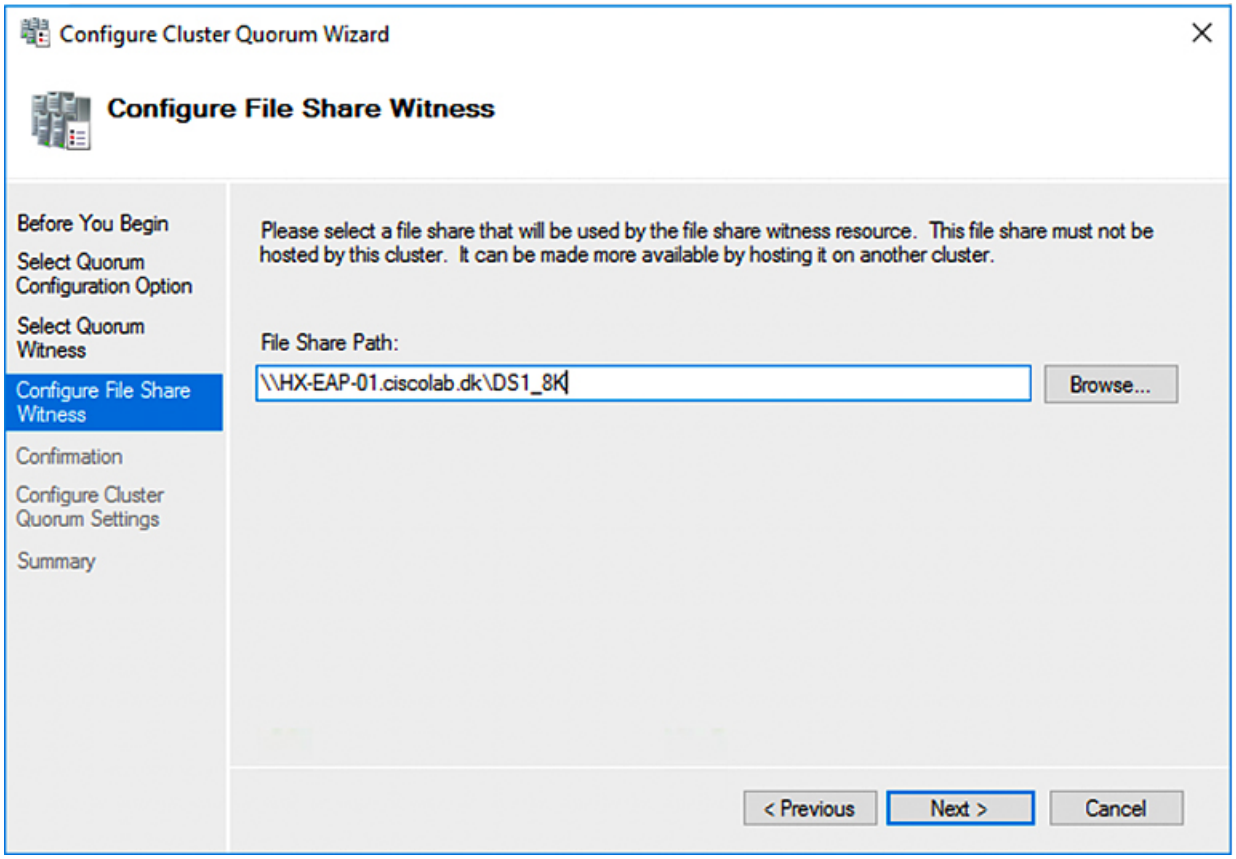
Step 4 In the **Select Quorum Configuration Option** screen, choose **Select the quorum witness**. Click **Next**.



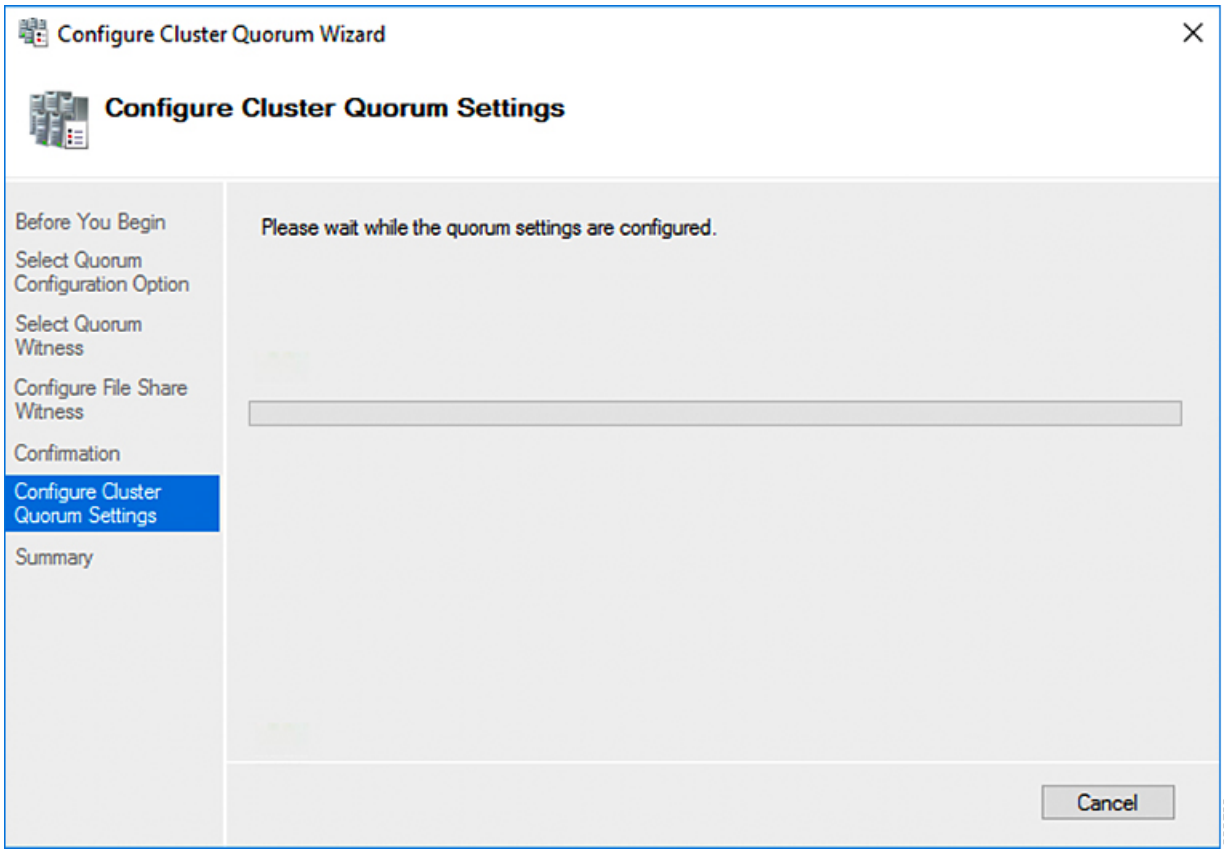
Step 5 In the **Select Quorum Witness** screen, choose **Configure a file share witness**. Click **Next**.



Step 6 In the **Configure File Share Witness** screen, specify the path to the File Share. Click **Next**.



Step 7 In the **Confirmation** screen, click **Next**.



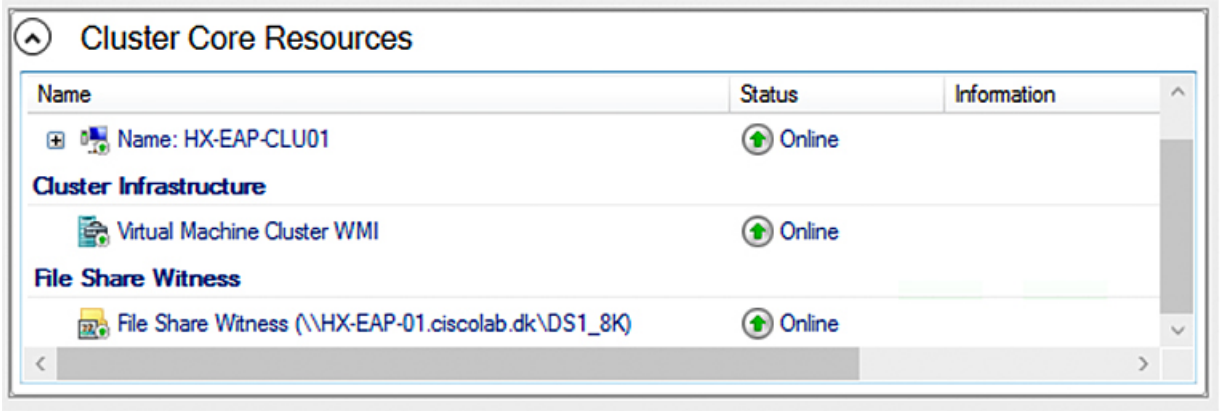
Step 8 In the **Summary** screen, click **Finish** to close the wizard.

Step 9 Alternatively, you can configure a file share witness using Windows PowerShell.

a) Open a Windows PowerShell console as an administrator.

b) Type **Set-ClusterQuorum -FileShareWitness <File Share Witness Path>**

c) You should now see the File Share Witness configured for your cluster. When you navigate to your File Share Witness share you will see a folder created for your cluster.



Checking the Windows Version on the Hyper-V Host

Follow the steps below to check the version of Windows installed.

Procedure

Step 1 Login to the Hyper-V server as an administrator or HX Service Administrator account.

Step 2 In Powershell, run the following command:

C:\Users\adminhyperflex> Get-ItemProperty 'HKLM:\SOFTWARE\Microsoft\Windows NT\CurrentVersion'

Step 3 Verify the installed Windows version in the result of the command output.

Following is a sample output if you have installed Windows Server 2016.

```
ProductName : Windows Server 2016 Datacenter
ReleaseId : 1607
SoftwareType : System
UBR : 447
```

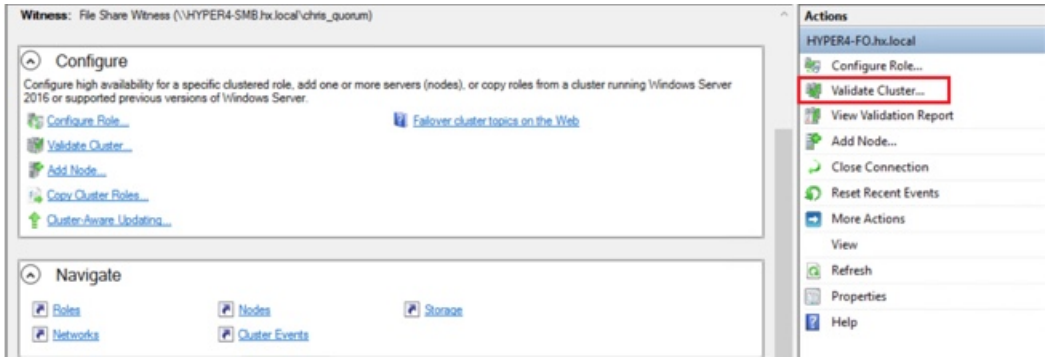
Step 4 In addition, verify the following:

- The UBR # should be greater than 1884. If not, upgrade the HyperV servers to the latest update. Refer to the *Microsoft Knowledge Base article: KB4467691*.
- If you are using a standalone HyperV manager outside HX nodes then, the Hyper-V management server should have a version UBR # greater than 1884. You must upgrade the Hyper-V management server if the version is 1884 or lower.

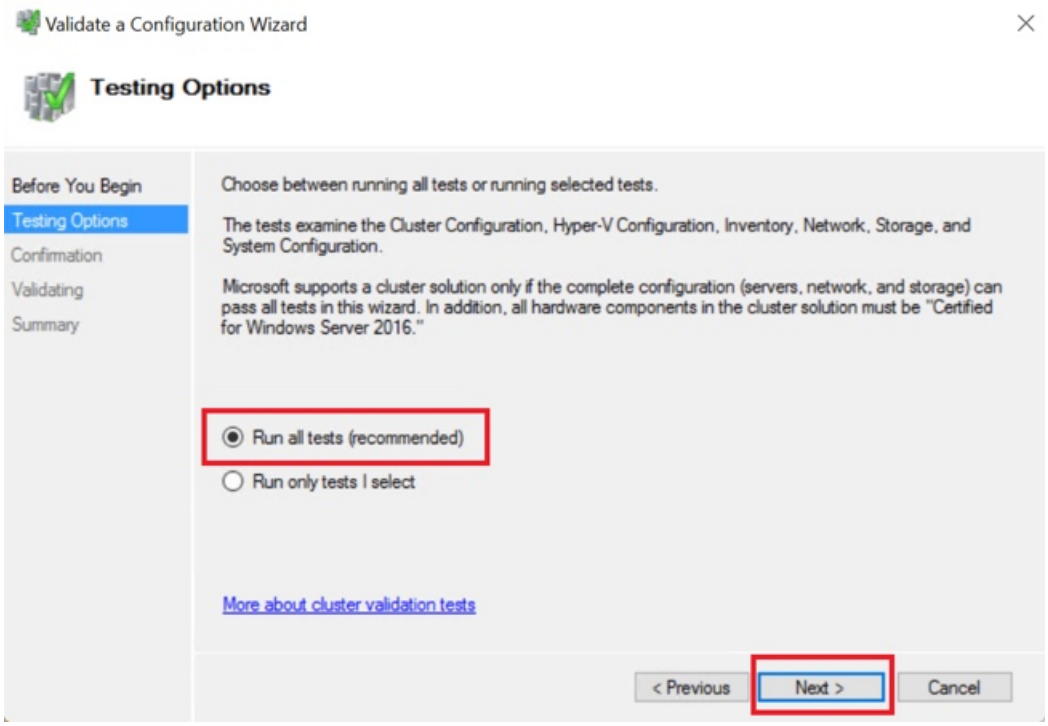
Validate Failover Cluster Manager

Procedure

Step 1 Open the Failover Cluster Manager Manager and click **Validate Cluster** and then click **Next**.

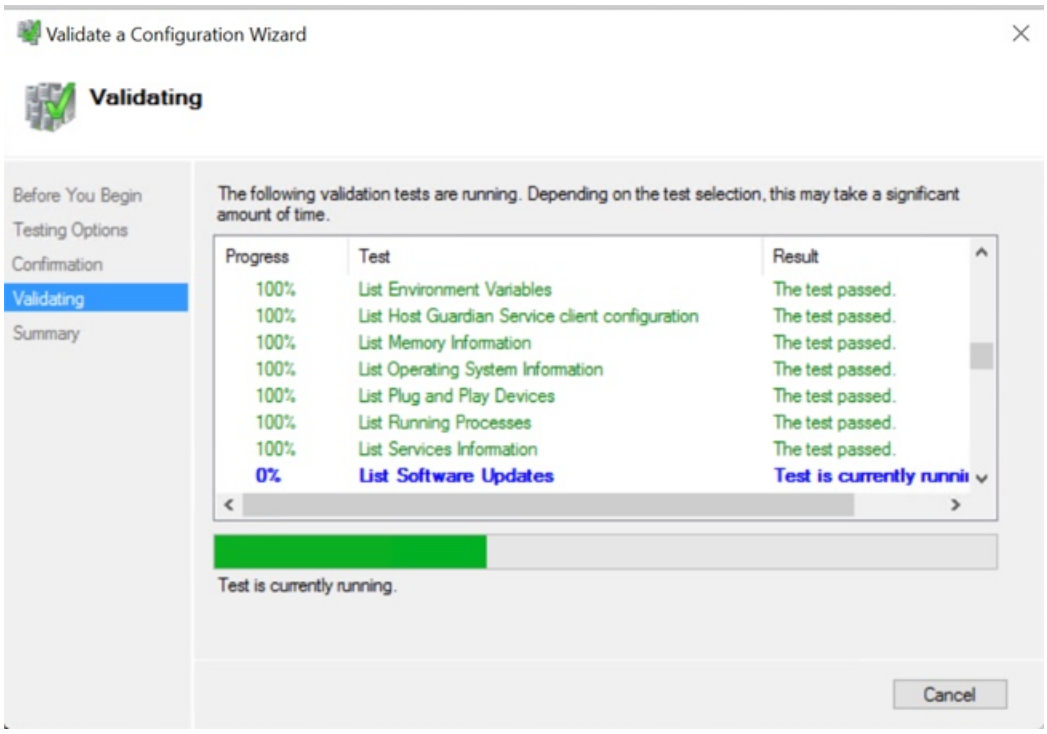


Step 2 Select **Run all tests (recommended)** and then click **Next**.



After clicking **Next**, the validation procedure starts running.

Step 3 Verify that there are no validation failures. If there are any validation failures, click **View Report** and address any results that show **Failed**.



Deploying VMs on a Hyper-V cluster

Deploying VMs on a Hyper-V cluster is a multi-step process as described below:

- **Install Remote Server Administration Tools (RSAT) on the management station/host**—You must install administrator tools such as Hyper-V Manager and Failover Cluster Manager as features Server Manager. For more information see, Install RSAT tools on the Management Station or Host, on page 63.
- **Manage VMs**—Connecting to all the Hyper-V nodes in the HX cluster and creating new VMs can be accomplished using either Hyper-V Manager or Failover Cluster Manager. For more information see, Creating VMs using Hyper-V Manager, on page 68, Creating VMs using Failover Cluster Manager, on page 68, or Creating ReadyClone VMs.

Install RSAT tools on the Management Station or Host

To install RSAT, complete the following steps:

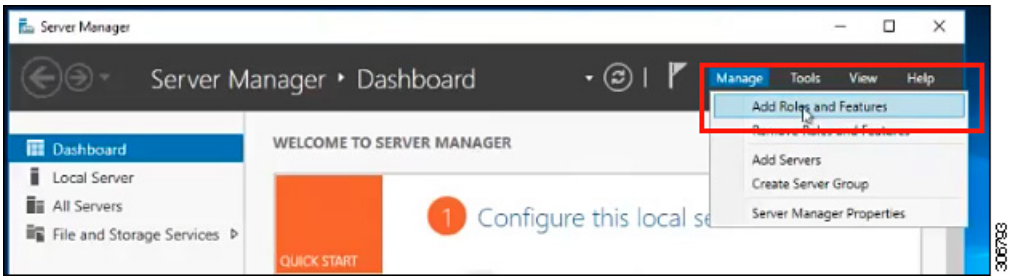
Before you begin

RSAT tool installation requires the following:

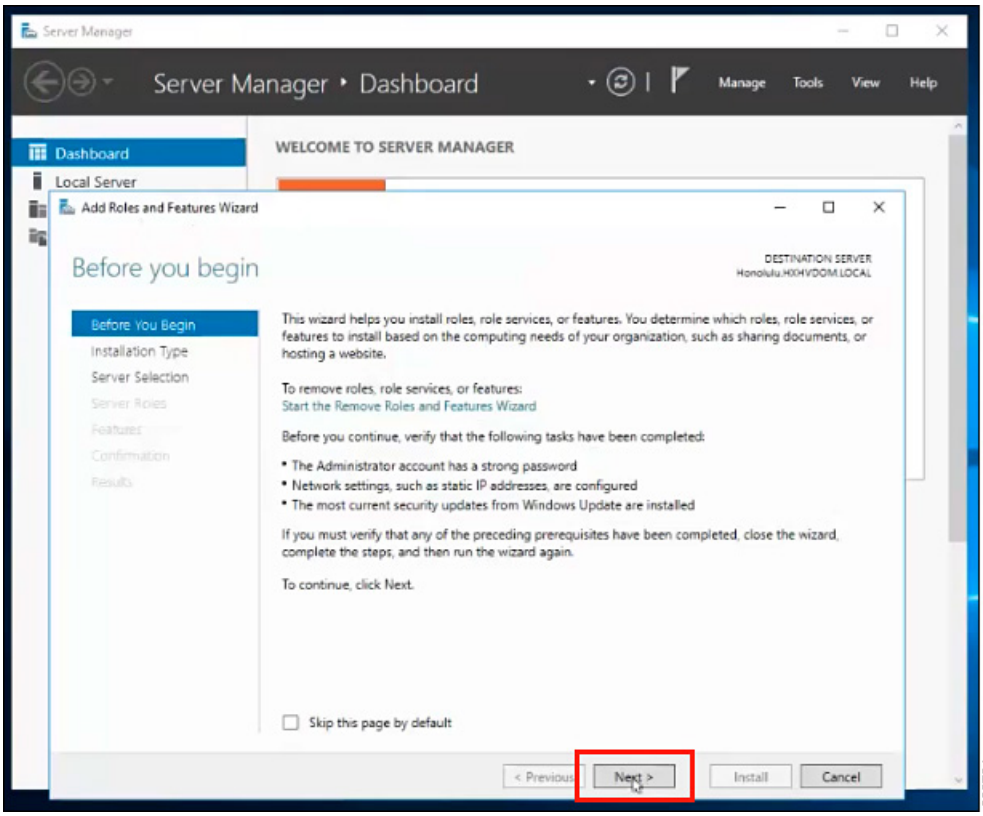
- A server from which you can install, manage, monitor the VMs on the Hyper-V HX cluster.
- Administrator tools such as Hyper-V Manager, FCM, PowerShell, SCVMM.

Procedure

Step 1 In Server Manager, click **Manage** and then select **Add Roles and Features**. The **Add Roles and Features** wizard appears.

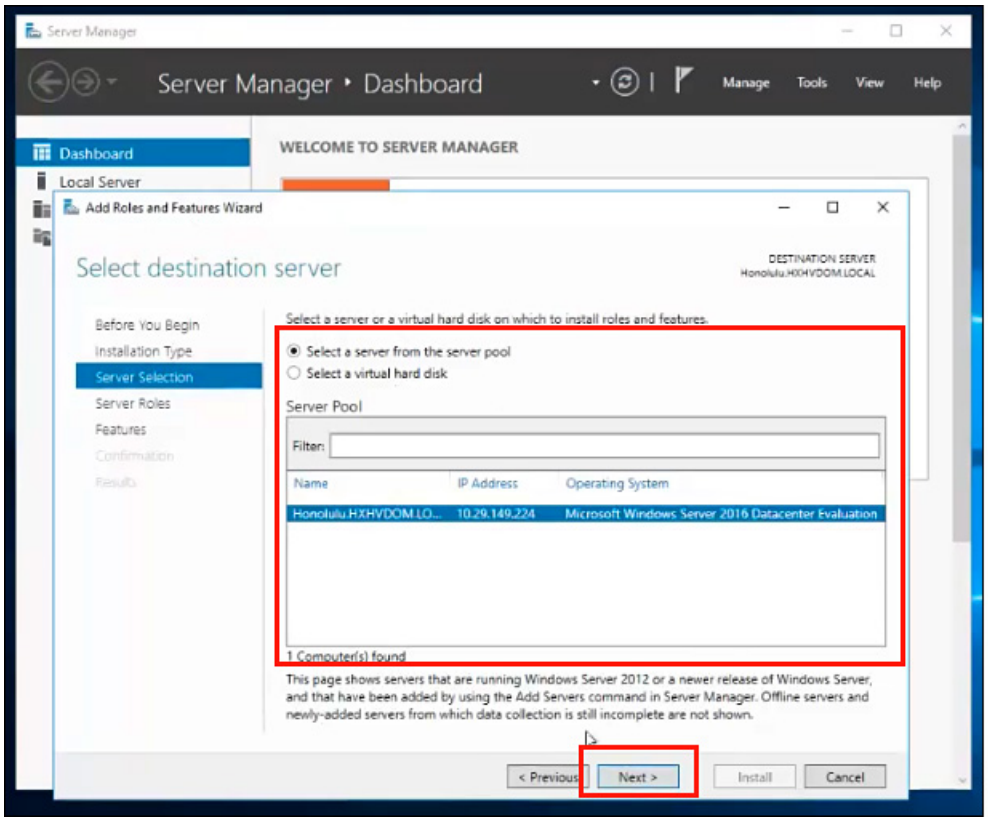


Step 2 In the **Before you begin** page, click **Next**.



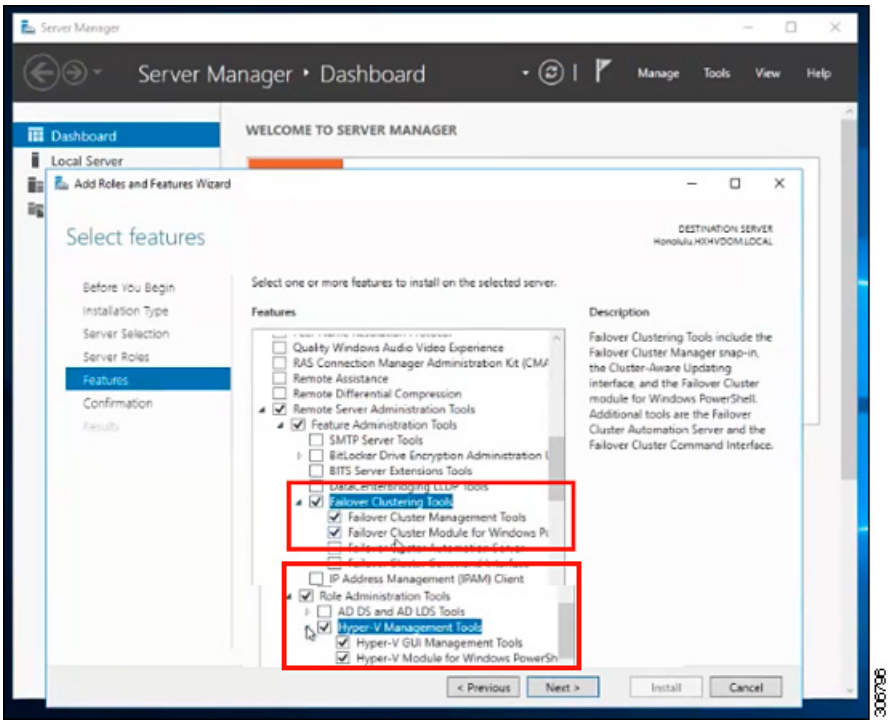
Step 3 In the **Select installation type** page, select **Role-based or feature-based installation**. Click **Next**.

Step 4 In the **Server Selection** page, select your server from the list. This server belongs to the same domain as the HX cluster. Click **Next**.



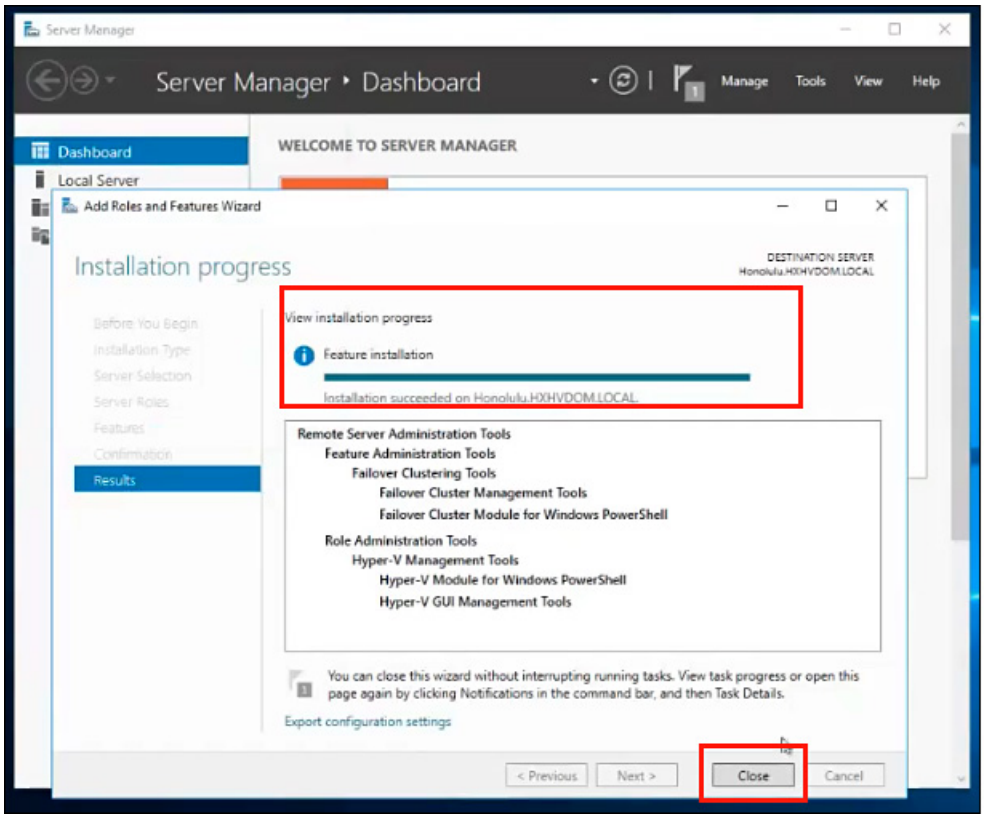
Step 5 In the **Select Roles** page, click **Next**.

Step 6 In the **Features** page, select **Remote Server Administration Tools** > **Feature Administration Tools** > **Failover Clustering Tools**, and **Role Administration Tools** > **Hyper-V Management Tools** > **Failover Clustering Tools**. Click **Next**.



Step 7 In the **Confirmation** page, click **Install**. Leave the **Restart the destination server if required** checkbox unchecked.

Step 8 The **Installation Progress** page displays installation progress. When installation completes, click **Close** to exit the wizard.



Managing VMs using Hyper-V Manager

Connecting to Hyper-V Nodes

Complete the following steps to connect to all the Hyper-V nodes in the Hyper-V HX Cluster.

Procedure

Step 1 Open the **Server Manager** dashboard and click **Tools**. Then, click **Hyper-V Manager**. The **Hyper-V Manager** console appears.

Step 2 In the left pane, select **Hyper-V Manager** and click **Connect to Server...**.

Step 3 In the **Select Computer** dialog box, select **Another computer** and type in the name of the Hyper-V node (for example, `HXHV1`) that belongs to the Hyper-V cluster. Click **OK**.

Step 4 Repeat all of the above steps for each node in the Hyper-V HX cluster.

Note For a fresh installation, the storage controller virtual machine (`StCtlVM`) in the only virtual machine that appears in **Virtual Machines** pane in the **Hyper-V Manager** console. Virtual machines appear in the list under this pane as they are added in each node. For more information on how to create VMs using Hyper-V Manager, see: Creating VMs using Hyper-V Manager, on page 68

Creating VMs using Hyper-V Manager

Complete the following steps to create VMs using Hyper-V Manager.

Procedure

Step 1 Open **Hyper-V Manager**.

Step 2 Select the Hyper-V server, and right click and select **New** > **Create a virtual machine**. The **Hyper-V Manager New Virtual Machine** wizard displays.

Step 3 In the **Before you Begin** page, click **Next**.

Step 4 In the **Specify Name and Location** page, enter a name for the virtual machine configuration file. The location for the virtual machine click **Next**.

Step 5 In the **Specify Generation** page, choose either **Generation 1** or **Generation 2**.

Step 6 In the **Assign Memory** page, set the start memory value 2048 MB. Click **Next**.

Step 7 In the **Configure Networking** page, select a network connection for the virtual machine to use from a list of existing virtual switches.

Step 8 In the **Connect Virtual Hard Disk** page, select **Create a Virtual Hard Disk** page, and enter the name, location and size for the virtual hard disk. Click **Next**.

Step 9 In the **Installation Options**, you can leave the default option **Install an operating system later** selected. Click **Next**.

Step 10 In the Summary page, verify that the list of options displayed are correct. Click **Finish**.

Step 11 In Hyper-V Manager, right-click the virtual machine and click **Connect**.

Step 12 In the **Virtual Machine Connection** window, select **Action** > **Start**.

Managing VMs using Failover Cluster Manager

Creating VMs using Failover Cluster Manager

Complete the following steps to connect to the Windows Failover cluster (installed along with the Hyper-V HX cluster) and create new VMs using Failover Cluster Manager.

Procedure

Step 1 In the **Failover Cluster Manager** console, under the **Actions** pane, click **Connect to Server...**

Step 2 In the **Select Cluster** dialog box, click **Browse** to navigate to the Hyper-V HX cluster. Click **OK**.

Step 3 In the left pane, click **Roles** > **Virtual Machines...** > **New Virtual Machines...**.

Step 4 In the **New Virtual Machine** dialog box, search and select the Hyper-V node where you wish to create new VMs. Click **OK**. The **New Virtual Machine** wizard appears.

Step 5 In the **Before You Begin** page, click **Next**.

Step 6 In the **Specify Name and Location** page, choose a name for the VM, and specify the location or drive where the VM will be stored. Click **Next**.

Step 7 In the **Specify Generation** page, select the generation of virtual machine you want to use (Generation 1 or Generation 2) and click **Next**.

Step 8 In the **Assign Memory** page, enter the amount of memory that you want for the VM. Click **Next**.

Step 9 In the **Connect Virtual Hard Disk** page, enter the name, location and hard drive size. Click **Next**.

Step 10 In the **Installation Options** page, select the install location for the OS. Click **Next**.

Step 11 In the **Summary** page, review the options selected and click **Finish**.

Step 12 Right-click on the newly created VM, and click **Connect...**. In the **Virtual Machine Connection** window, click **Start**.

Note By default, the Failover Cluster Manager will assign a default name for the 4 networks created. It is recommended to rename these network names.

What to do next

To enable redirection of datastore access requests from outside the HX cluster boundary through the management path, add the following entry to the hosts file on the (remote) machine running Hyper-V manager, Failover Cluster Manager, or SCVMM Console. For example, edit `C:\Windows\System32\drivers\etc\hosts` and add:

```
cluster_mgmt_ip \\smb_namespace_name\datastore_name
```

```
10.10.10.100 \\hxcluster.company.com\ds1
```

Configuring HyperFlex Share to SCVMM

Before you begin

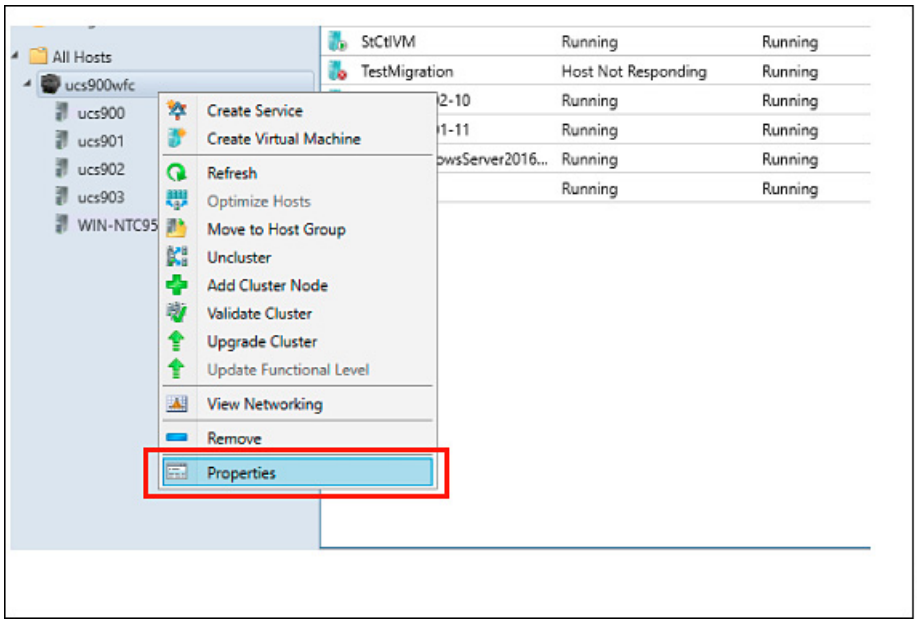
Edit the `/etc/hosts` file on the host running the VMM admin console to resolve the **smb** access point to the cluster management IP address of HyperFlex cluster. This IP address is typically used to launch Cisco HX Connect.

Procedure

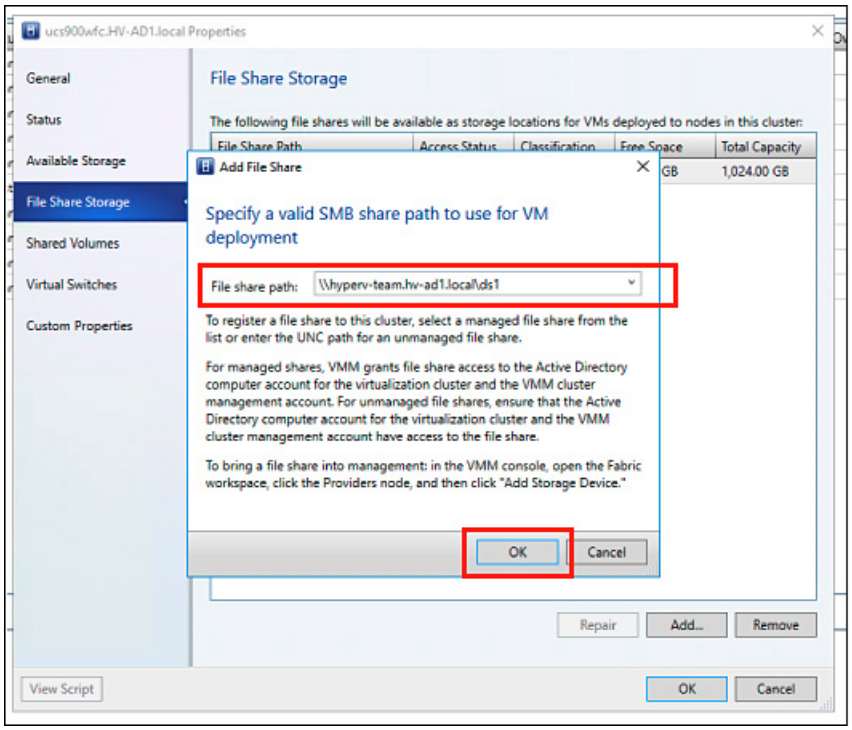
Step 1 Add the cluster to **System Center - Virtual Machine Manager (VMM)**.

Step 2 In the VMM console, go to **Fabric** > **Servers** > **All Hosts**.

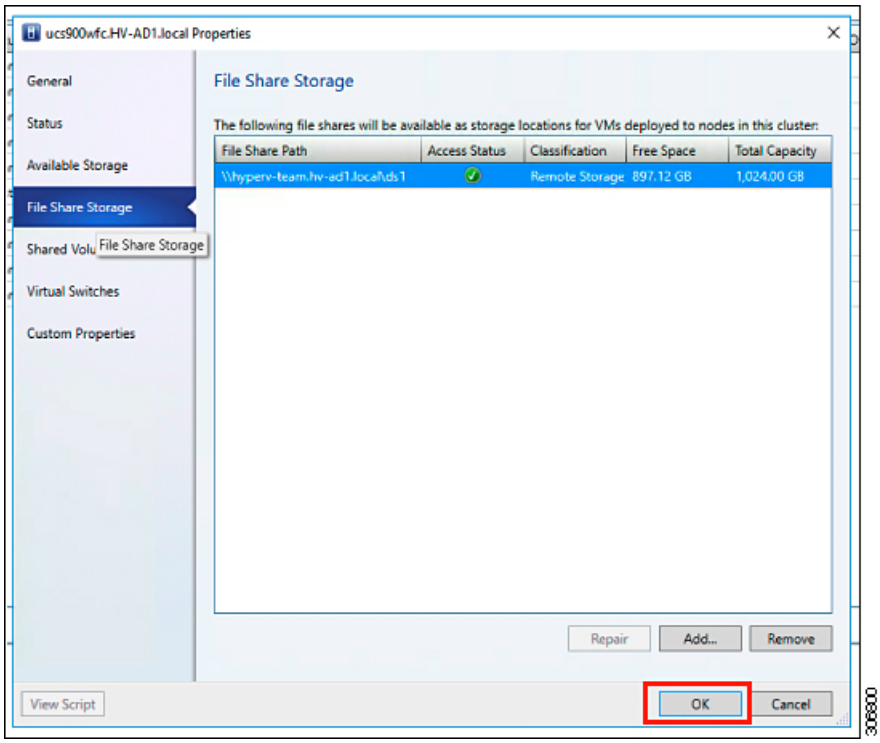
Step 3 Right-click on the cluster and select **Properties**.



Step 4 In the **Properties** window, right-click **File Share Storage** > **Add File Storage**.



Step 5 When mapping completes, the share is added as shown in the screenshot below.



Step 6 Click **OK** and exit VMM. The HyperFlex Share is now mapped and VMs can be created on this share using SCVMM.

Re-enabling Windows Defender

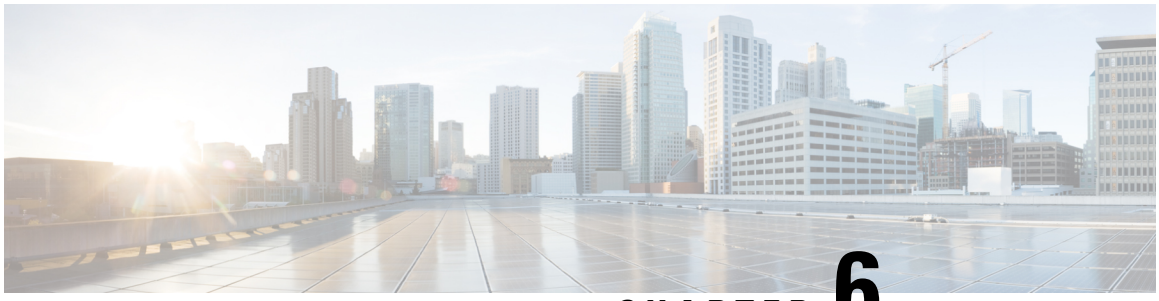
Run the following commands to re-enable Windows Defender.

Install Defender from PowerShell

```
Install-WindowsFeature -Name Windows-Defender
```

(Optional) Install Defender GUI from PowerShell

```
Install-WindowsFeature -Name Windows-Defender-GUI
```



CHAPTER 6

Troubleshooting Information

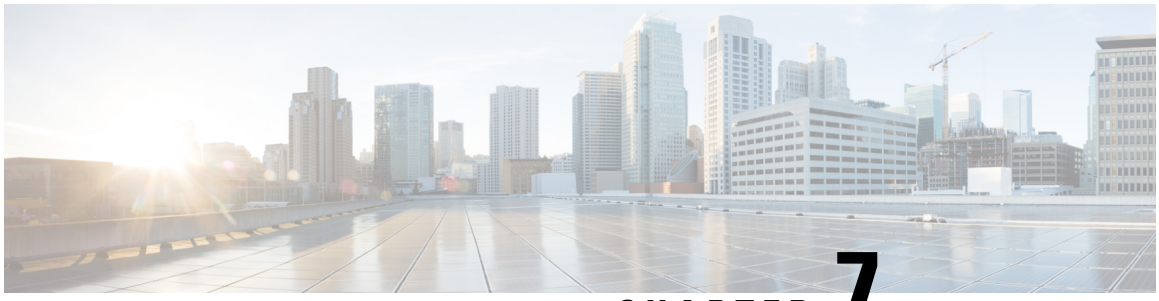
- Troubleshooting, on page 73

Troubleshooting

This section contains troubleshooting information for issues seen during Hyper-V deployment.

Symptom or Scenario	Workaround or Recommendation
File Witness Share is not configured.	Create a File Witness Share and configure it as a Witness Share in Failover Cluster Manager (FCM). It is recommended not use the Witness Share created for anything else.
Waiting for Storage Controller VM (SCVM) times out.	• Set the VLAN ID manually and retry, or, • Delete the controller VM and retry.
HX Installer fails to join computers to the domain due to incorrect Active Directory credentials to HX Installer.	Restart HX Installer in the "Deploying HX Data Platform Installer and Cluster Configuration" phase in installation, and provide correct credentials.
Unreliable per node statistics displayed for a node in the duration when any of controller VMs are down in the cluster.	Use Windows side counters in the time when any of the controller VMs are down.

Symptom or Scenario	Workaround or Recommendation
The FQDN address for HX Connect may be inaccessible after successful cluster installation.	The default Internet Explorer security setting on Windows 2008 prevents HX Connect accessibility with the FQDN name. As a workaround, try one of the following: • Modify the Internet Explorer setting. • Use an IP address. • Use other supported browsers such as Chrome or Firefox.
For compute-only nodes, performance charts are unavailable in the HX Connect Dashboard page.	This is a l nly nodes.
Windows installation failed with the following error: `Could not detect system partition.` In addition, `setupact.log` shows that the setup could not detect any available disk as a valid boot device.	1. Switch the boot policy to Embedded Disk (Any). 2. For the Service Profile or Service Profile Template use boot policy that mirrors `hx-nodes-m5` than `compute-nodes-m5`.
Migration failed due to incompatible processors.	A cluster may not have a combination of different CPU types.



CHAPTER 7

Appendix

- Rack Cisco HyperFlex Nodes, on page 75
- Setting Up the Fabric Interconnects, on page 75
- How to upload the iso and img file to the installer VM using WinSCP, on page 79
- DNS Records, on page 81
- Updating HX Service Account Password, on page 82

Rack Cisco HyperFlex Nodes

For details on the HyperFlex cluster and node limits, see **Cisco HX Data Platform Storage Cluster Specifications** in the latest version of the Release Notes for Cisco HX Data Platform.

For details on the installation of Cisco HyperFlex nodes, refer to respective links from the following table:

Type of Node To Be Installed	Reference
Converged Nodes	
HyperFlex HX220c M5 Nodes	Cisco HyperFlex HX220c M5 Node Installation Guides
HyperFlex HX240c M5 Nodes	Cisco HyperFlex HX240c M5 Node Installation Guides

Important Compute-only nodes are not supported with Hyper-V in 3.0(1a)

Setting Up the Fabric Interconnects

Configure a redundant pair of fabric interconnects for high availability. Connect the two fabric interconnects directly using Ethernet cables between the L1 and L2 high availability ports. Connect Port L1 on fabric interconnect A to port L1 on fabric interconnect B, and Port L2 on fabric interconnect A to port L2 on fabric interconnect B. This allows both the fabric interconnects to continuously monitor the status of each other.

Verify and obtain the following information before connecting the fabric interconnects.

Item	Description
Verify the physical connections of the fabric interconnects.	• Console port for the first fabric interconnect must be physically connected to a computer or console server. • Management Ethernet port (mgmt0) must be connected to an external hub, switch, or router. • L1 ports on both the fabric interconnects must be directly connected to each other. • L2 ports on both the fabric interconnects must be directly connected to each other.
Verify console port parameters on the computer terminal.	• 9600 baud • 8 data bits • No parity • 1 stop bit
Obtain information for initial setup.	Collect the following information for initial setup: • System name • Password for admin account • Three static IP addresses • Subnet mask for three static IP addresses • Default gateway IP address • DNS server IP address • Domain name for the system

Both fabric interconnects must go through the same setup process. Set up the primary fabric interconnect and enable for cluster configuration. When you use the same process to set up the secondary fabric interconnect, it detects the first fabric interconnect as a peer.

Configure the Primary Fabric Interconnect Using GUI

You can either follow the procedure below for configuring the primary fabric interconnect or watch Cisco UCS Manager Initial Setup part 1.

Attention IPv4 addressing is required for HyperFlex.

Procedure

Step 1 Power up the fabric interconnect.
You will see the power on self-test messages as the fabric interconnect boots.

Step 2 If the system obtains a lease, go to step 6, otherwise, continue to the next step.

Step 3 Connect to the console port.

Step 4 At the installation method prompt, enter **gui**.

Step 5 If the system cannot access a DHCP server, you are prompted to enter the following information:

- IPv4 address for the management port on the fabric interconnect.
- IPv4 subnet mask for the management port on the fabric interconnect.
- IPv4 address for the default gateway assigned to the fabric interconnect.

Step 6 Copy the web link from the prompt into a web browser and go to the Cisco UCS Manager GUI launch page.

Step 7 On the Cisco UCS Manager GUI launch page, select **Express Setup**.

Step 8 On the **Express Setup** page, select **Initial Setup** and click **Submit**.

Step 9 In the **Cluster and Fabric Setup** area:

a) Click the **Enable Clustering** option.
b) For the **Fabric Setup** option, select **Fabric A**.
c) In the **Cluster IP Address** field, enter the IPv4 address that Cisco UCS Manager will use.

Step 10 In the **System Setup** area, complete the following fields:

Field	Description
System Name field	The name assigned to the Cisco UCS domain. In a standalone configuration, the system adds "-A" to the system name. In a cluster configuration, the system adds "-A" to the fabric interconnect assigned to fabric A, and "-B" to the fabric interconnect assigned to fabric B.
Admin Password field	The password used for the Admin account on the fabric interconnect. Choose a strong password that meets the guidelines for Cisco UCS Manager passwords. This password cannot be blank.
Confirm Admin Password field	The password used for the Admin account on the fabric interconnect.
Mgmt IP Address field	The static IPv4 address for the management port on the fabric interconnect.

Field	Description
Mgmt IP Netmask field or **Mgmt IP Prefix** field	The IPv4 subnet mask prefix for the management port on the fabric interconnect. **Note** The system prompts for a **Mgmt IP Netmask** or a **Mgmt IP Prefix** based on what address type you entered in the **Mgmt IP Address** field.
Default Gateway field	The IPv4 address for the default gateway assigned to the management port on the fabric interconnect. **Note** The system prompts for a **Default Gateway** address type based on what type you entered in the **Mgmt IP Address** field.
DNS Server IP field	The IPv4 address for the DNS Server assigned to the fabric interconnect.
Domain Name field	The name of the domain in which the fabric interconnect resides.

Step 11 Click **Submit**.
A page displays the results of your setup operation.

Configure the Subordinate Fabric Interconnect Using GUI

You can either follow the procedure below for configuring the subordinate fabric interconnect or watch Cisco UCS Manager Initial Setup part 2.

Procedure

Step 1 Power up the fabric interconnect.
You will see the power-up self-test message as the fabric interconnect boots.

Step 2 It the system obtains a lease, go to step 6, otherwise, continue to the next step.

Step 3 Connect to the console port.

Step 4 At the installation method prompt, enter **`gui`**.

Step 5 If the system cannot access a DHCP server, you are prompted to enter the following information:

- IPv4 address for the management port on the fabric interconnect
- IPv4 subnet mask for the management port on the fabric interconnect
- IPv4 address for the default gateway assigned to the fabric interconnect

Step 6 Copy the web link from the prompt into a web browser and go to the Cisco UCS Manager GUI launch page.

Step 7 On the Cisco UCS Manager GUI launch page, select **Express Setup**.

Step 8 On the **Express Setup** page, select **Initial Setup** and click **Submit**.

The fabric interconnect should detect the configuration information for the first fabric interconnect.

Step 9 In the **Cluster and Fabric Setup** Area:

a) Select the **Enable Clustering** option.

b) For the **Fabric Setup** option, make sure **Fabric B** is selected.

Step 10 In the **System Setup** Area, enter the password for the Admin account into the **Admin Password of Master** field.

The **Manager Initial Setup** Area is displayed.

Step 11 In the **Manager Initial Setup** Area, complete the following:

Field	Description
Peer FI is IPv4 Cluster enabled. Please Provide Local Fabric Interconnect Mgmt0 IPv4 Address field	Enter an IPv4 address for the Mgmt0 interface on the local fabric interconnect.

Step 12 Click **Submit**.

A page displays the results of your setup operation.

How to upload the iso and img file to the installer VM using WinSCP

You may choose to use the Installer VM as host for the ISO and IMG files to install Hyper-V. To accomplish that you need to upload the Windows ISO and the Cisco HyperFlex driver image to the installer.

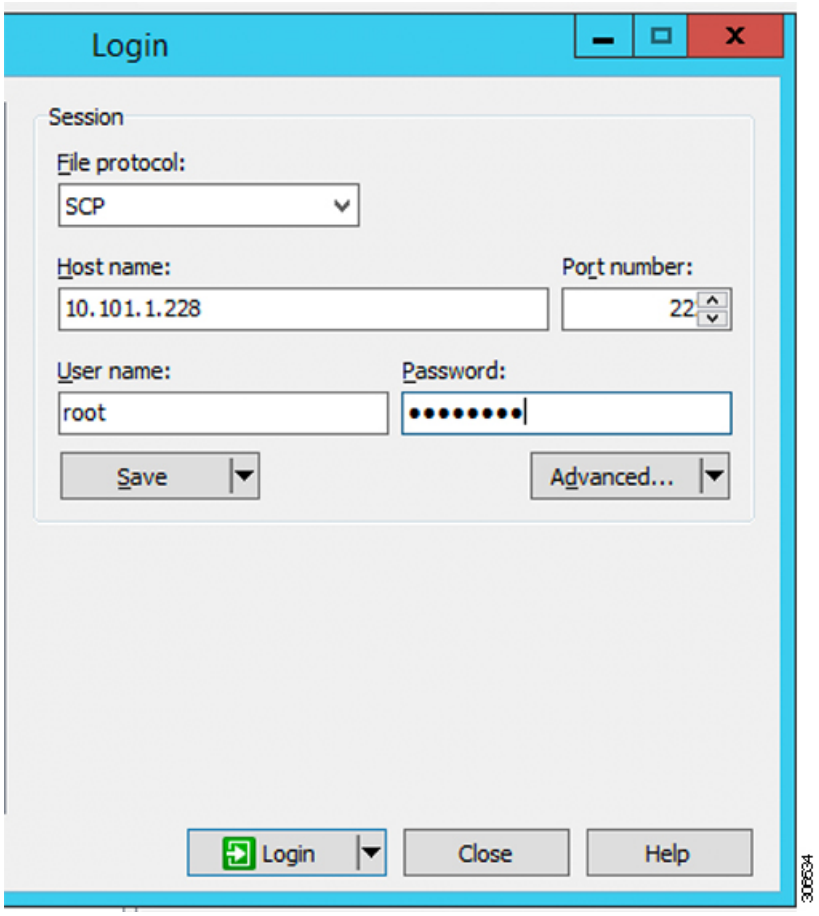
For the pupose of this guide we will use WinSCP, you can use whatever SCP client you have available.

Procedure

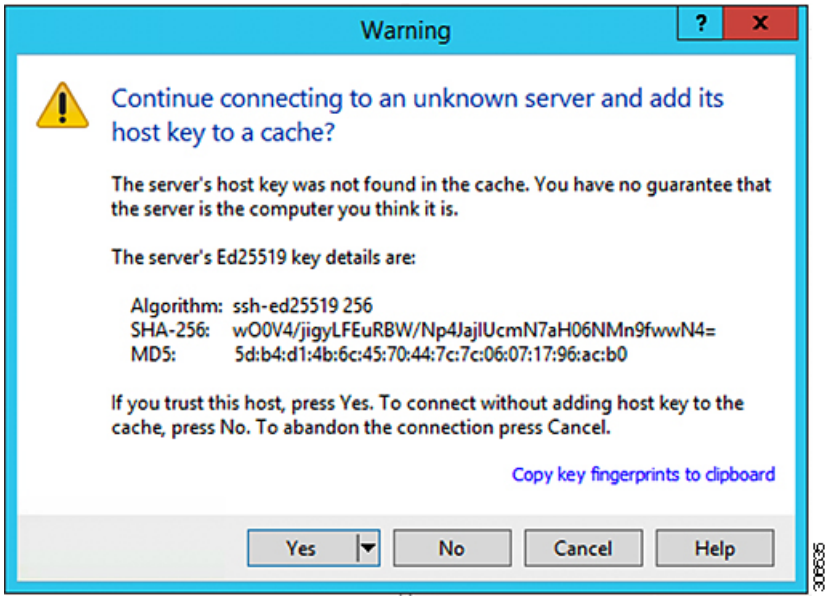
Step 1 Download a SCP client for Windows. It could be WinSCP (https://winscp.net/eng/download.php) and install it on your workstation.

Step 2 Connect to your installer VM from WinSCP. Username **root** and password **Cisco123**

Important Systems ship with a default password of Cisco123 that must be changed during installation. You cannot continue installation unless you specify a new user supplied password.

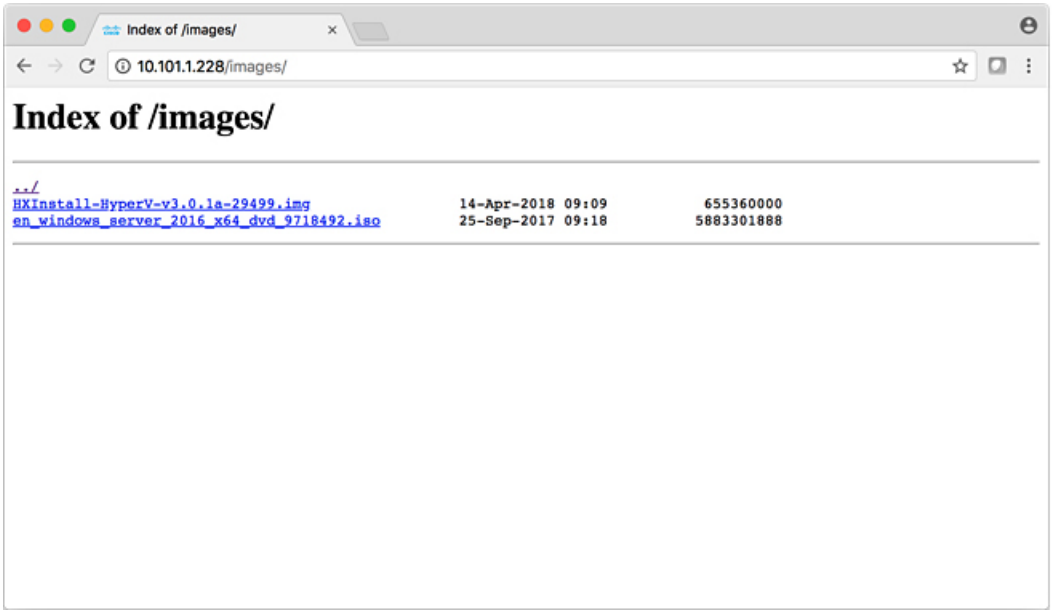


Step 3 Accept the key and add to the cache.



Step 4 Once connected browse to the folder **/var/www/localhost/images/** on the installer. Browse to where to local files are located on your machine.

Step 5 Transfer the files. Filenames can be copied if you access the URL in a browser: *http://<controller_IP>/images/*



DNS Records

Refer to the list below for the DNS records that must be added to your environment.

Add-DnsServerResourceRecordA -Name "" -ZoneName "Ciscolab.dk" -AllowUpdateAny -IPv4Address "" -TimeToLive 01:00:00 -CreatePtr -computername
Add-DnsServerResourceRecordA -Name "" -ZoneName "Ciscolab.dk" -AllowUpdateAny -IPv4Address "" -TimeToLive 01:00:00 -CreatePtr -computername
Add-DnsServerResourceRecordA -Name "" -ZoneName "Ciscolab.dk" -AllowUpdateAny -IPv4Address "" -TimeToLive 01:00:00 -CreatePtr -computername
Add-DnsServerResourceRecordA -Name "" -ZoneName "Ciscolab.dk" -AllowUpdateAny -IPv4Address "" -TimeToLive 01:00:00 -CreatePtr -computername
Add-DnsServerResourceRecordA -Name "" -ZoneName "Ciscolab.dk" -AllowUpdateAny -IPv4Address "" -TimeToLive 01:00:00 -CreatePtr -computername
Add-DnsServerResourceRecordA -Name "" -ZoneName "Ciscolab.dk" -AllowUpdateAny -IPv4Address "" -TimeToLive 01:00:00 -CreatePtr -computername
Add-DnsServerResourceRecordA -Name "" -ZoneName "Ciscolab.dk" -AllowUpdateAny -IPv4Address "" -TimeToLive 01:00:00 -CreatePtr -computername
Add-DnsServerResourceRecordA -Name "" -ZoneName "Ciscolab.dk" -AllowUpdateAny -IPv4Address "" -TimeToLive 01:00:00 -CreatePtr -computername

Add-DnsServerResourceRecordA -Name "" -ZoneName "Ciscolab.dk" -AllowUpdateAny -IPv4Address "" -TimeToLive 01:00:00 -CreatePtr -computername
Add-DnsServerResourceRecordA -Name "" -ZoneName "Ciscolab.dk" -AllowUpdateAny -IPv4Address "" -TimeToLive 01:00:00 -CreatePtr -computername
Add-DnsServerResourceRecordA -Name "" -ZoneName "Ciscolab.dk" -AllowUpdateAny -IPv4Address "" -TimeToLive 01:00:00 -CreatePtr -computername
Add-DnsServerResourceRecordA -Name "-CNTL" -ZoneName "Ciscolab.dk" -AllowUpdateAny -IPv4Address "" -TimeToLive 01:00:00 -CreatePtr -computername
Add-DnsServerResourceRecordA -Name "-CNTL" -ZoneName "Ciscolab.dk" -AllowUpdateAny -IPv4Address "" -TimeToLive 01:00:00 -CreatePtr -computername
Add-DnsServerResourceRecordA -Name "-CNTL" -ZoneName "Ciscolab.dk" -AllowUpdateAny -IPv4Address "" -TimeToLive 01:00:00 -CreatePtr -computername
Add-DnsServerResourceRecordA -Name "-CNTL" -ZoneName "Ciscolab.dk" -AllowUpdateAny -IPv4Address "" -TimeToLive 01:00:00 -CreatePtr -computername

Updating HX Service Account Password

A new password must be updated within an HX Cluster if the password expired or was changed voluntarily. Perform the following step to update the Cisco HX Service Account Password.

Note The access to VMs and datastores will still continue to work without the new password. However, the cluster will experience some issues with the Alert, Systems Status, Support Bundle and Datastore Access reporting.

Before you begin

Ensure that the Cisco HX Service Account User Name is in the following format:

```
username@domain.com
```

Procedure

Run the `resethypervcred -u` command from one of the Storage Controller node within the cluster.

Example:

The following is an example of the command with sample output:

```
root@cvmhv1:~# resethypervcred -u
Enter service admin name:administrator@domain.com
Enter service admin passwd:
Enter local admin name:administrator
Enter local admin passwd:
Hyperv creds updated successfully
```

Login to each controller vm as the root user and run **`restart hxHyperVSvcMgr`**.

After you have completed the reset and service restarts, then login to **HX Connect** as the HX Service Account User to verify your login works and HX Connect is displaying the cluster information.