



# Installing the Controller in Microsoft Hyper-V Hypervisor

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## Microsoft Hyper-V Support Information

The Catalyst 9800-CL Cloud Wireless Controller installation on Microsoft Hyper-V requires the manual creation of a VM and installation, using the .iso file.

The following Microsoft Hyper-V features are supported:

- Snapshot
- Export
- Hyper-V Replica

For more information about Microsoft Hyper-V, see the [Microsoft](#) documentation.



**Note** While running Microsoft Hyper-V VM, you may get the following traceback log continuously in the console:

```
"PLATFORM_INFRA-5-IO5_INTR_OVER_LIMIT_HIGH_STIME: IOS thread blocked due to SYSTEM LEVEL ISSUE"
```

To avoid this issue, perform the following steps:

1. Configure the controller in serial mode, using the commands given below.

```
Device# configure terminal
Device(config)# platform console serial
Device(config)# end
Device# reload
```

2. Run the following command:

```
PS C:\> Set-VMComPort TestVM 1 \\.\pipe\TestPipe
```

3. Use Putty in administrative mode to access the console.

## Installation Requirements for Microsoft Hyper-V

Before installing the controller on a Microsoft Hyper-V VM, the following must be installed on the host:

- Hyper-V Manager
- Failover Cluster Manager
- Virtual Switch



**Note** We recommended that you create the Virtual Switch prior to creating the VM.

The hardware profiles and the recommended resources are listed in the following table:

**Table 1: Hardware Requirements**

Settings	Ultra-Low	Small	Medium	Large
Minimum Number of vCPUs	2	4	6	10
Minimum Memory	6 GB	8 GB	16 GB	32 GB
Required Storage	16 GB	16 GB	16 GB	16 GB
Minimum Number of vNICs	2	2	2	2
Maximum Access Points	100	1,000	3,000	6,000

Settings	Ultra-Low	Small	Medium	Large
Maximum Clients Support	1,000	10,000	32,000	64,000

## Creating the VM

Perform the following to create the VM:



**Note** You can install the controller on Microsoft Hyper-V using Microsoft Hyper-V Manager or Microsoft System Center VMM.

**Step 1** In Hyper-V Manager, click the host.

**Step 2** Choose **New > Virtual Machine**.

**Step 3** Click **Specify Name and Location**.

- Enter the name of the VM.
- (Optional) Click the checkbox to store the VM in a different location.

**Step 4** Click **Next**.

**Step 5** In the **Specify Generation** window, specify the generation of the machine to be loaded.

**Note** The choice of Generation 1 or Generation 2 depends on your requirements. Generation 2 supports advanced features like boot from Small Computer System Interface (SCSI), secure boot, higher hardware limits, Unified Extensible Firmware Interface (UEFI) BIOS, GUID Partition Table (GPT) partitioning, and so on. If Generation 2 is selected, unselect the **Enable Secure Boot** checkbox after the deployment, as the controller does not support secure boot.

**Step 6** In the **Assign Memory** window, enter the **Startup Memory** value.

The controller requires 8196 MB for the startup memory.

**Step 7** Click **Next**.

**Step 8** In the **Configure Networking** window, select a network connection to the virtual switch that was previously created.

The network adapter selected in this step will become the first interface for the controller when the VM is launched and the router boots. The other vNICs for the VM are created in the next procedure.

**Step 9** Click **Next**.

**Step 10** In the **Connect Virtual Hard Disk Screen** window, select the following option:

- Attach a virtual hard disk later.

**Note** The New Virtual Machine Wizard only supports creating a virtual hard disk using the .vhdx format. The controller requires that the hard disk uses the .vhd format. Create the virtual hard disk after the VM has been created.

- Step 11** Click **Next**.  
The **Summary** screen is displayed.
- Step 12** Review the VM settings and click **Finish**.  
The new VM is created.
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## Configuring the VM Settings

Perform the following procedure to configure the VM settings before launching the VM:

### Before you begin

Before launching the instance, add the network adapters (as required), disk, and load the .iso image in to the disk drive.

We recommended that you create and use separate network interfaces for Management, Wireless Management and High Availability. In case of HA deployments, create 3 network interfaces and attach the VM to the appropriate networks. For non-HA deployments, create 2 network interfaces.

The creation of management, wireless management and HA networks should be done before launching VM. The IP addressing on these interfaces could be either static or DHCP and should be configured as part of the bootstrap configuration.

The order in which the networks are attached to the interface is important as the first network attached is used for Management, second for Wireless Management (unless configured explicitly) and third for the HA.

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- Step 1** In Hyper-V Manager, select the host, and right-click the VM created earlier.
- Step 2** Choose **Settings**.
- Step 3** Specify the number of virtual processors, also known as virtual CPUs (vCPUs) for the VM.
- Step 4** Under IDE Controller 0, select the Hard Drive.  
Click the **Virtual Hard Disk** check box and click **New** to create a new virtual hard disk.  
The New Virtual Hard Disk Wizard opens. Click **Next**.
- On the **Choose Disk Format** page, click the VHD check box to create the virtual hard disk using the .vhd format. Click **Next**.
  - On the **Choose Disk Type** page, click **Fixed Size** and **Next**.
  - Specify the Name and Location for the virtual hard disk. Click **Next**.
  - On the **Configure Disk** page, click the option to create a new blank virtual hard disk. For the size, specify 16 GB.
  - Click **Next** to view the Summary of the virtual hard disk settings.
  - Click **Finish** to create the new virtual hard disk.
- When the new hard disk has been created, continue configuring the VM settings with the next step.
- Step 5** Under IDE Controller1, choose **DVD Drive**.  
The DVD Drive screen is displayed.

For the **Media** setting, check the **Image File** check box, and browse the **.iso** file downloaded from Cisco.com.

**Step 6** Click **Ok**.

**Step 7** Choose **Network Adapter** to verify that the network connection to the virtual switch is configured.

**Step 8** Choose **Com 1** to configure the serial port.

This port provides access to the controller console.

**Step 9** Choose **Hardware > Add Hardware** to add the network interfaces (vNICs) to the VM.

a) Choose **Network Adapter** and click **Add**.

Microsoft Hyper-V adds the network adapter and highlights that hardware with the status Virtual Switch “Not Connected”.

b) Select a virtual switch in the drop-down menu to place the network adapter into it.

Repeat the steps for each vNIC. The controller supports only the HV NETVSC vNIC type. The maximum number of vNICs supported is 8.

**Note** The hot-add of vNICs is not supported with Microsoft Hyper-V, so the network interfaces need to be added before launching the VM.

After the controller boots, you can verify vNICs and map them to the interfaces using the **show platform software vnic-if interface-mapping** command.

**Step 10** Click **BIOS** to verify the boot sequence for the VM.

The VM should be set to boot from the CD.

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## Launching the VM to Boot the Controller

Perform the following procedure to launch the VM:

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**Step 1** Select the virtual switch.

**Step 2** Select the VM and click **Start**.

The Hyper-V Manager connects to the VM, and starts the launch process. Once the VM is launched, the controller starts the boot process

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## Configuring Tagged Ports

The tagged port configuration is done on the host OS. By default, the VLAN tagged packets are dropped at the host OS at the vNIC. To allow these packets through to the controller, set the specific vNIC on the controller as tagged.



**Note** If you use Web UI to create network interfaces, you cannot specify interface names and all the interfaces will be named as Network Adapter. So, using these commands, all the network adapters in the controller can be converted to tagged.

These commands are to be entered in a Power Shell.

**Step 1** To see the list of adapters and assignment, use the following script:

```
Get-VMNetworkAdapter -VMName <C9800-name>
```

**Note** To rename the adapter name, use the following command:

```
Rename-VMNetworkAdapter -VMName <C9800-name> -Name '<C9800-adapter-name>' -NewName 'Eth1'
```

Here, **Eth1** is the adapter name.

**Step 2** To configure Ethernet1 (data port/management) as Trunk, with Native VLAN id as 0, use the following script:

```
Set-VMNetworkAdapterVlan -VMName "C9800" -VMNetworkAdapterName Eth1 -Trunk -AllowedVlanIdList "1-4000" -NativeVlanId 0
```

**Step 3** To configure Ethernet0 (serial port) as access or untagged, use the following script:

```
Set-VMNetworkAdapterVlan -VMName "C9800" -VMNetworkAdapterName Eth0 -Untagged
```

**Step 4** Enable MAC address spoofing to allow the trunk port to pass the tagged traffic.

To enable MAC address spoofing, perform the following:

- a. Select the virtual machine and choose **Actions > Settings**.
- b. Expand **Network Adapter** and choose **Advanced Features**.
- c. Select **Enable MAC Address spoofing**.

## Creating a Bootstrap Day0 Configuration

Perform the following to create a bootstrap Day 0 configuration in the Linux server:

**Step 1** Create **iosxe\_config.txt** or **ovf-env.xml** file.

**Step 2** Create a disk image from this file using the following command:

```
mkisofs -l -o ./c9800_config.iso <configuration_filename>
```

**Step 3** Mount the **c9800\_config.iso** as an additional disk during creation of the virtual machine and power on the VM.