

## **Virtualization Guide: Creating a Windows 11 Virtual Machine in Hyper-V**

### **Overview**

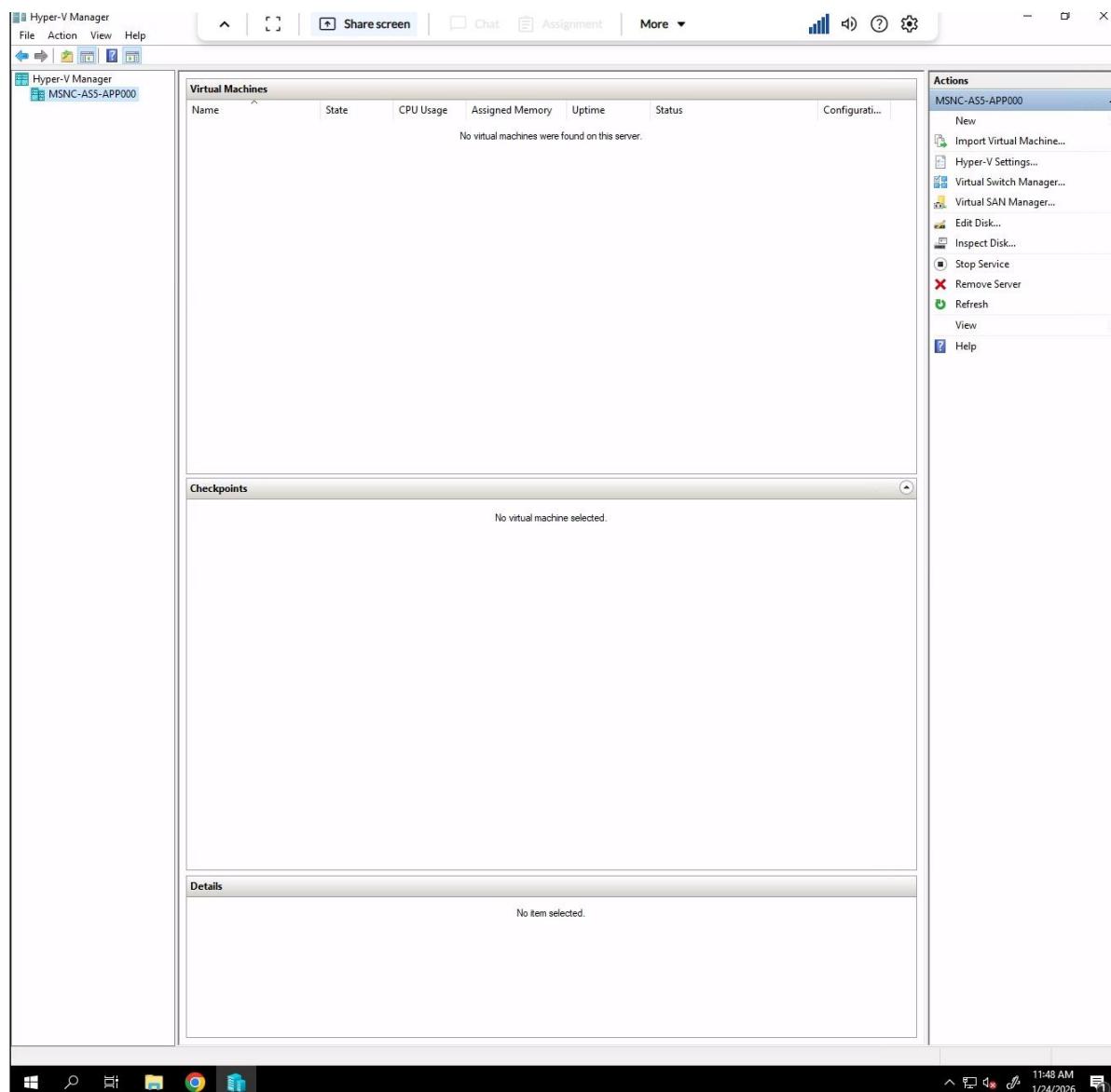
I used the Hyper-V in the ASU Apporto virtual lab to make a Windows 11 virtual computer in this lab. This guide shows you how to handle everything, from setting up an external virtual switch to connecting to the network, to constructing the VM with the right hardware specifications, and ultimately installing Windows 11 from an ISO file. The goal is to have a VM that boots correctly, gets to the Windows desktop, and can check through system information inside the VM. The last screenshot shows that the VM was made successfully and that the CPU, memory, and storage resources were all assigned correctly.

### **Hardware/Software**

For the hardware I used ASU Apporto virtual lab platform at [asu.apporto.com](http://asu.apporto.com). It gives labs a hosted Windows environment. Hyper V Manager was the hypervisor I used to construct and manage the virtual machine in that setting. The VM was set up as a Generation 2 virtual machine called “Jemmy VM” with a 4 GB of starting RAM, four virtual CPUs, and a 127 GB VHDX virtual hard disk. A Window 11 ISO file that I downloaded through Microsoft website which I included as the bootable image so that the VM could run the installer and finish setting up Windows 11 inside Hyper V.

## Step. 1 Create External Virtual Switch

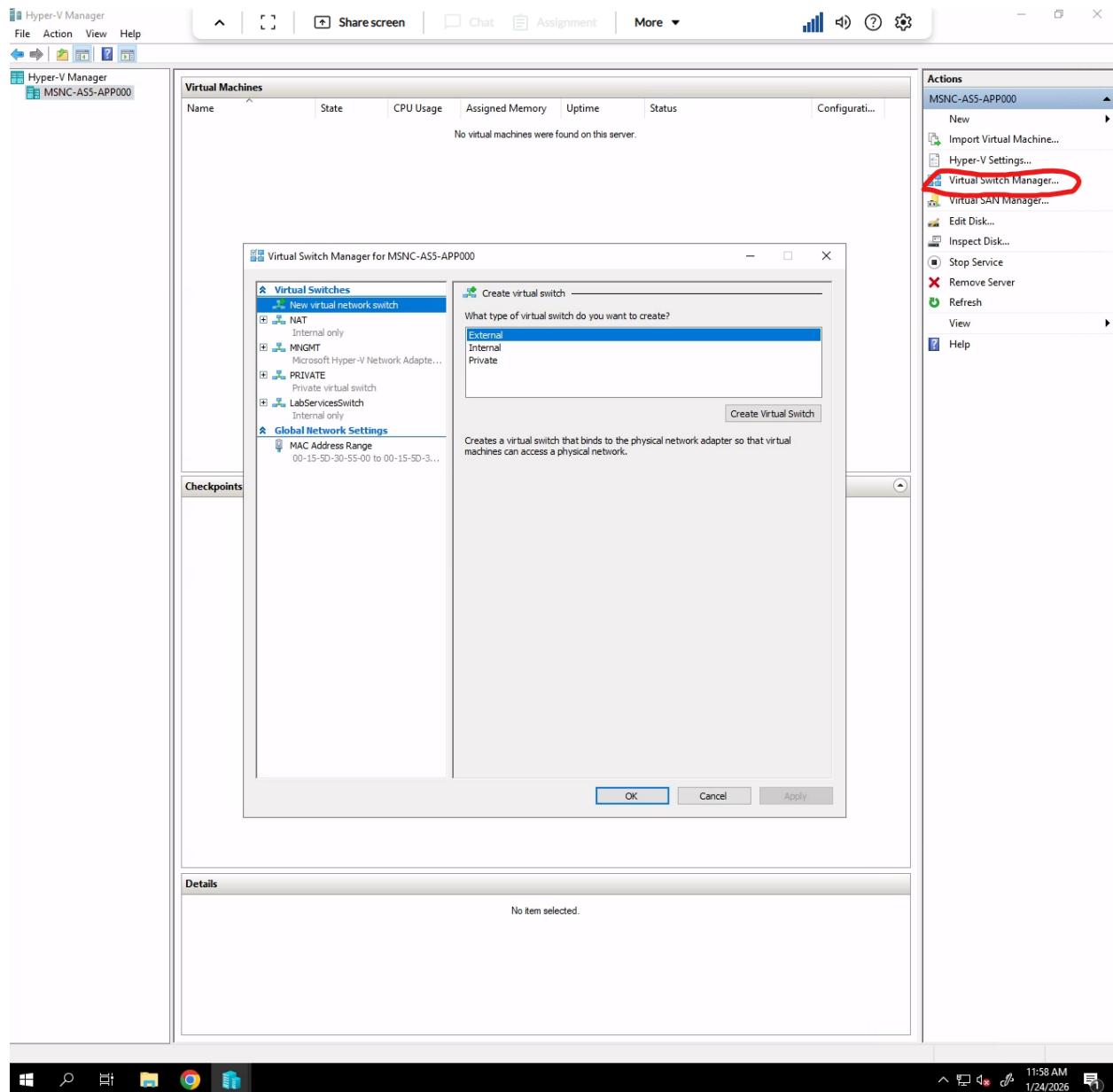
Open Hyper-V Manager.



Hyper V Manager is open, and ready to create a virtual switch.

## Step 2.

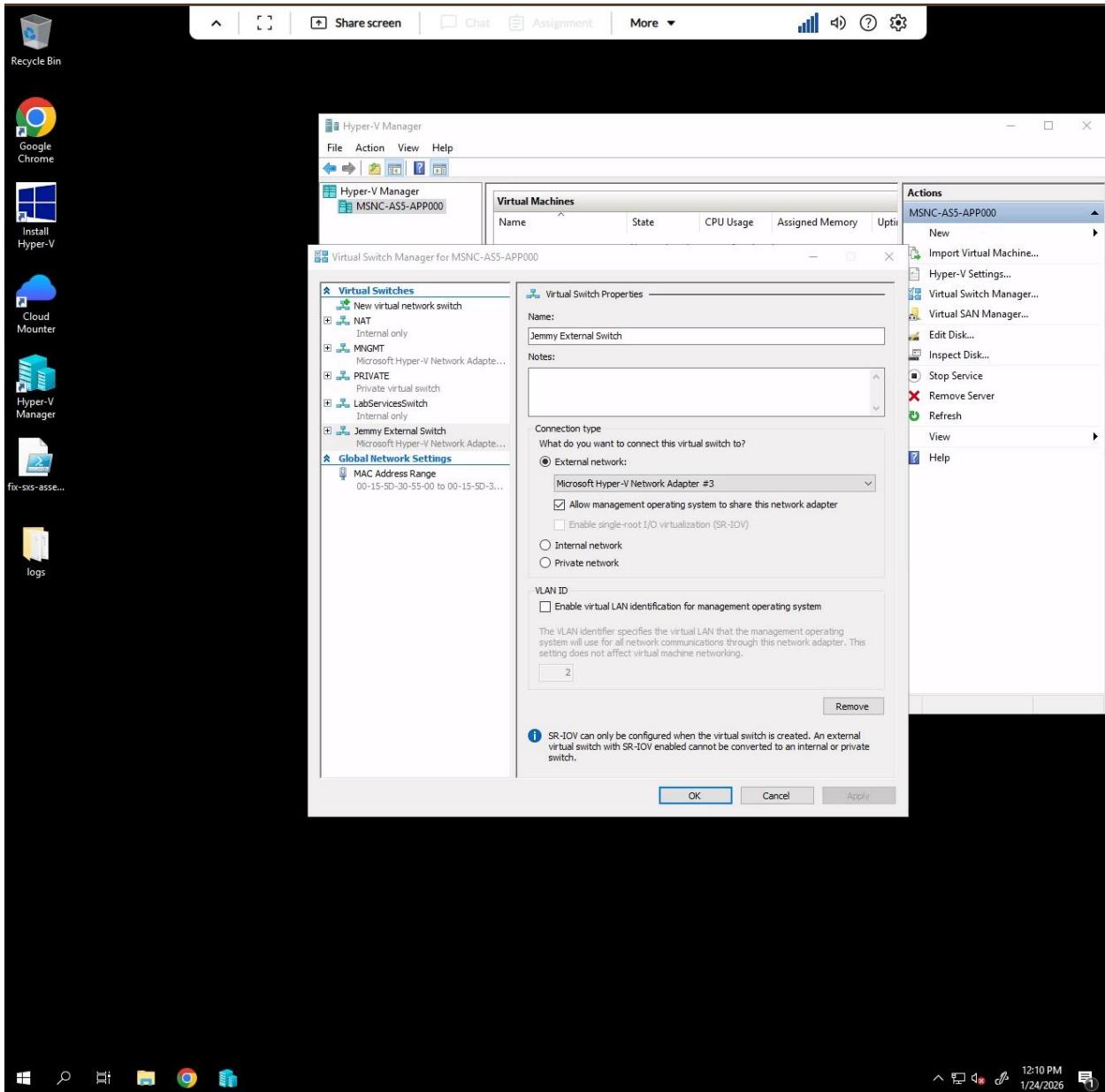
Open Virtual Switch Manager.



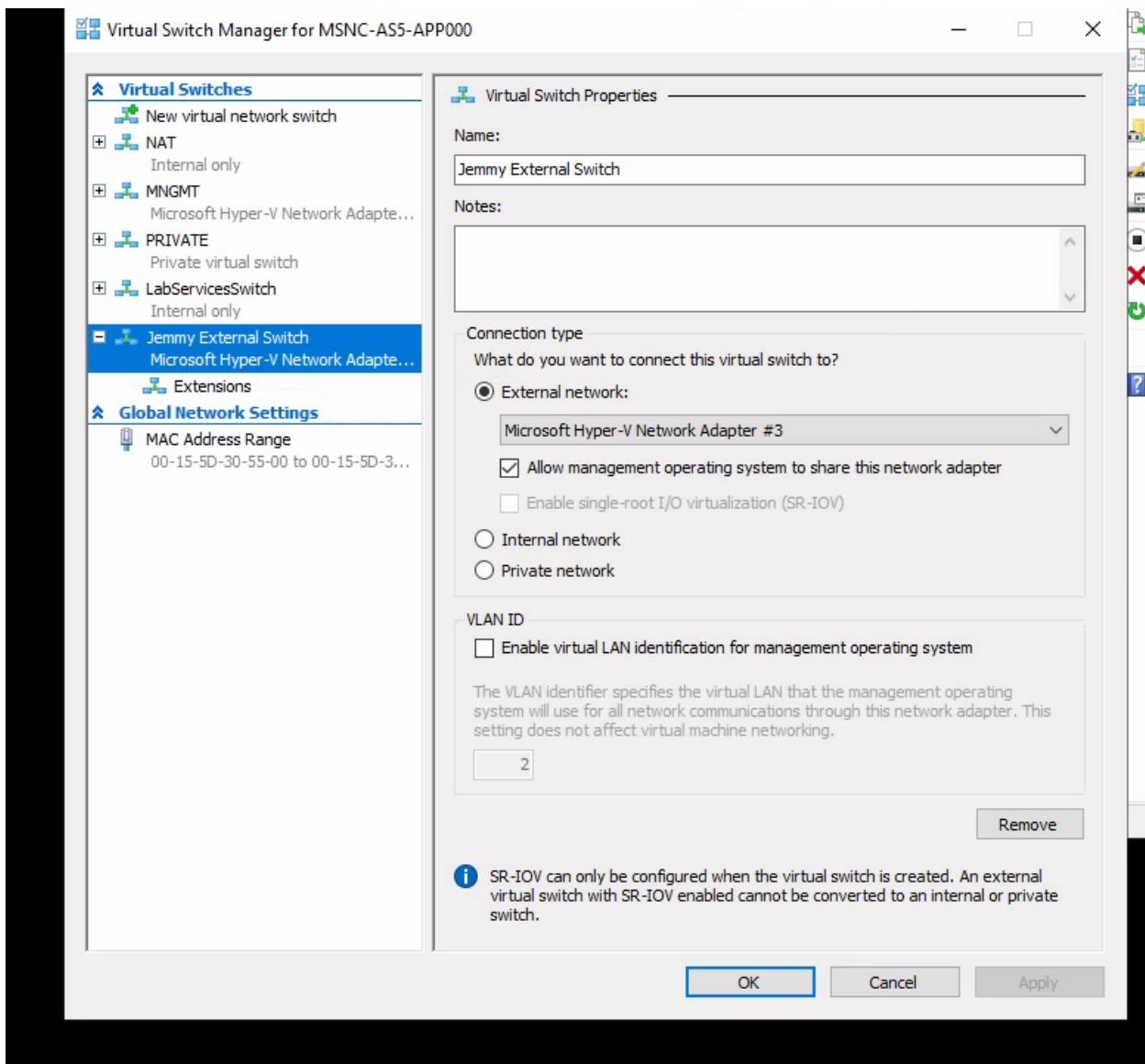
Hyper-V Manager, Virtual Switch Manager was opened and External was selected to create a new virtual network switch.

### Step 3.

Configure External Virtual Switch.



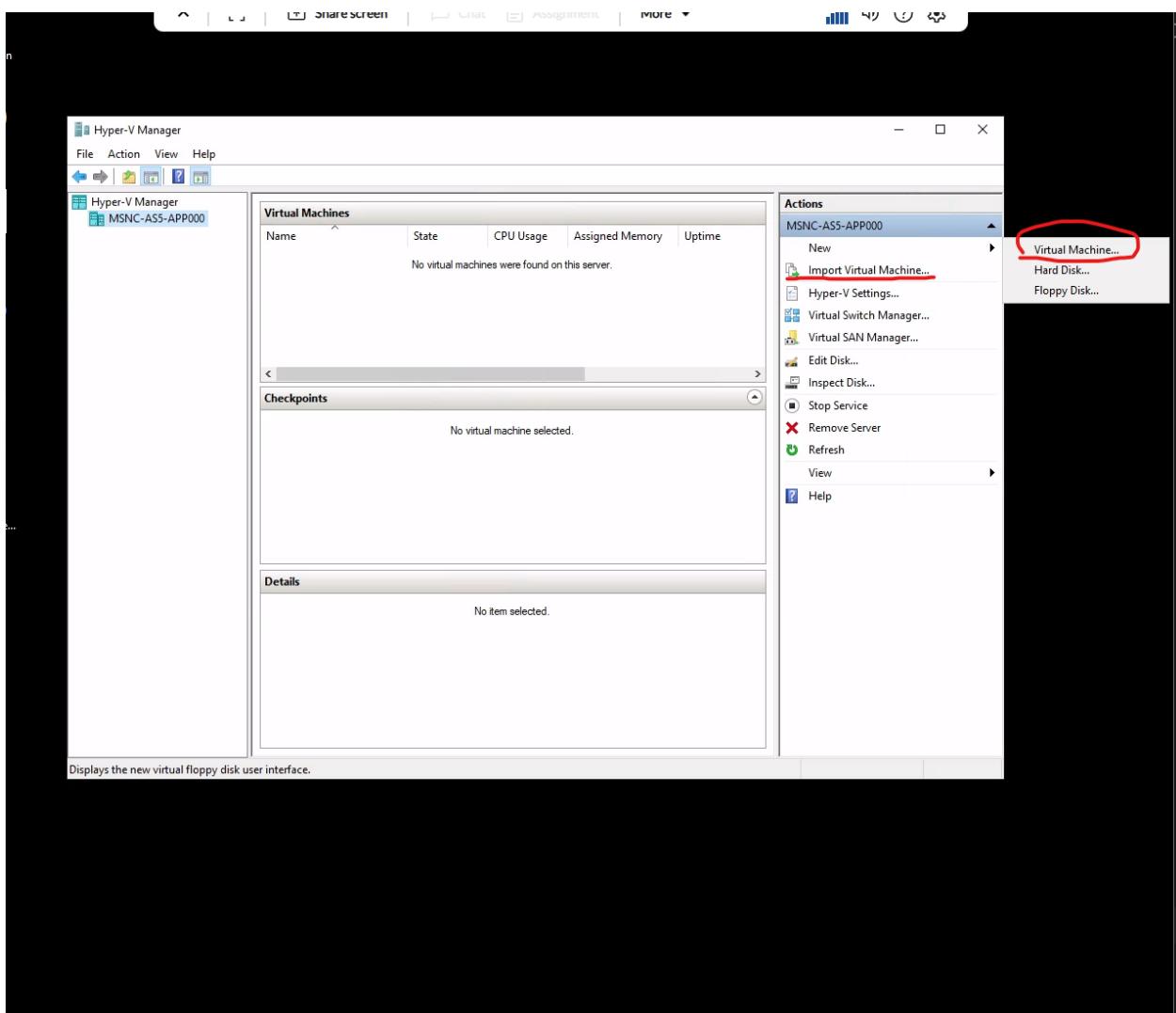
Created a new External virtual Switch name "Jemmy External Switch" and selected the Microsoft Hyper-V Network Adapter #3, with "Allow management operating system to share this network adapter" enabled.



The “Jemmy External Switch” appears in the Virtual Switch Manager, confirming the virtual switch was created successfully.

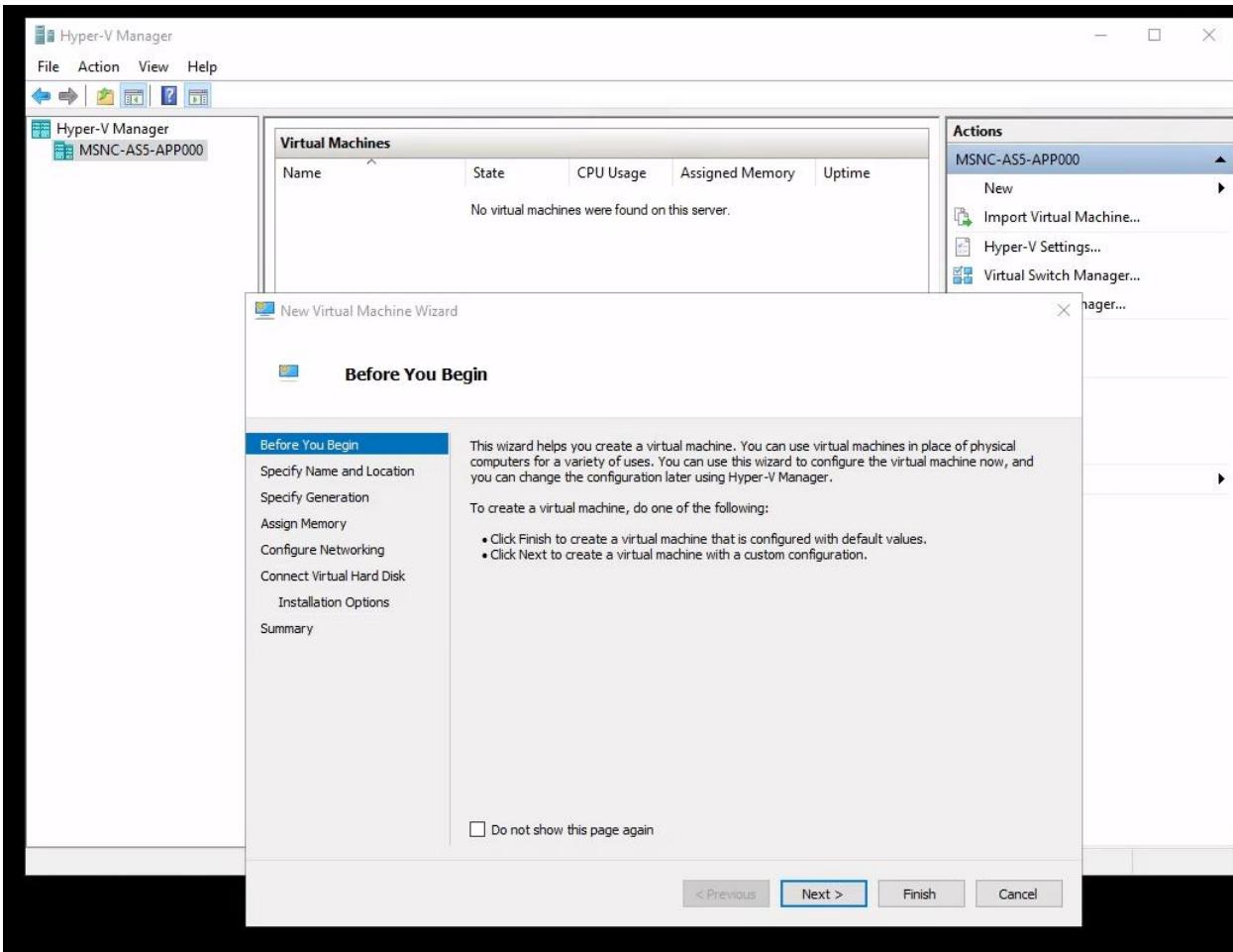
## Step 4.

Click Virtual Machine.



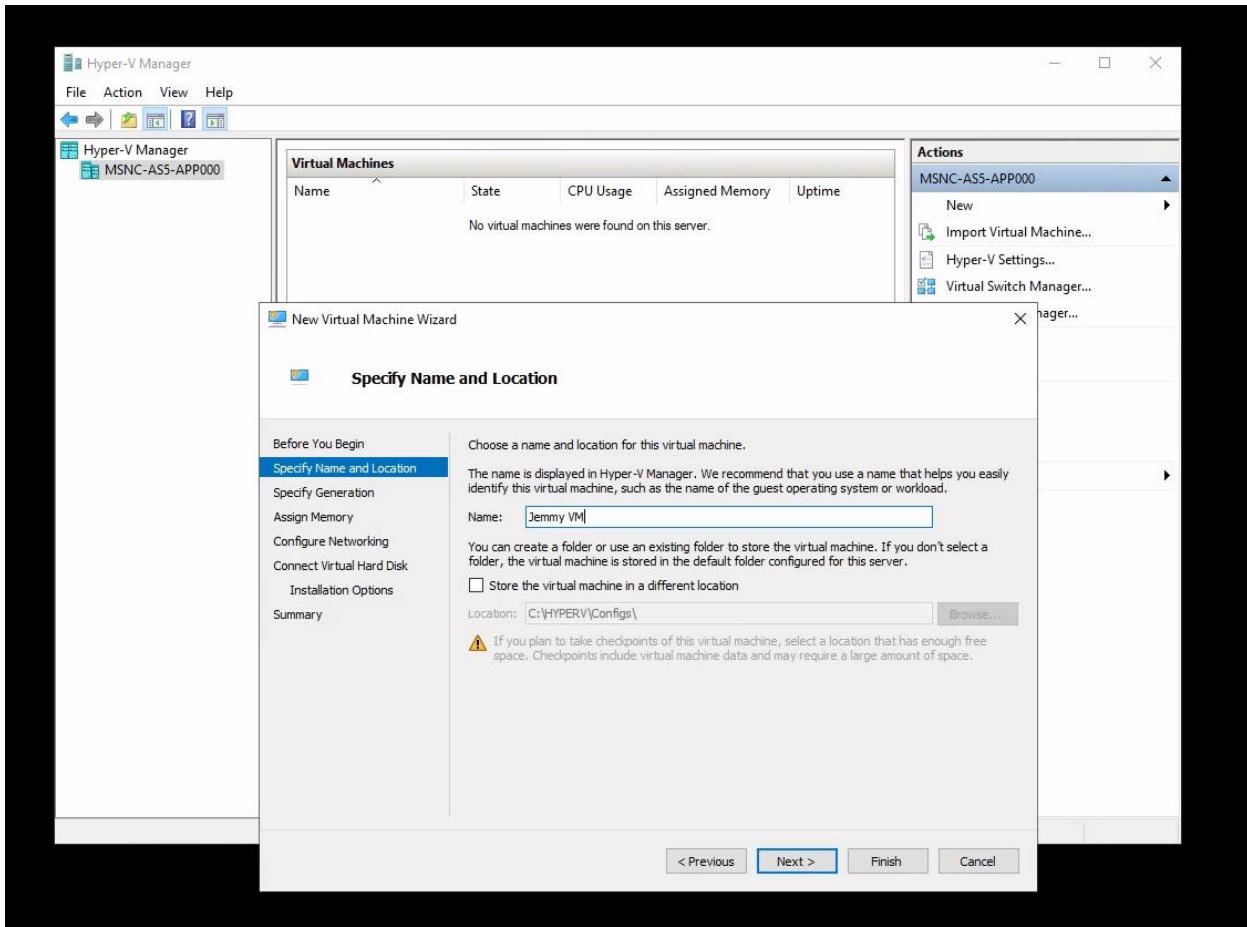
Select New, then Virtual Machine to start the wizard for creating a new virtual machine.

Step 5. New Virtual Machine Wizard has opened.



The "Before you Begin" Screen of the New Virtual Machine Wizard shows you how to make a virtual machine.

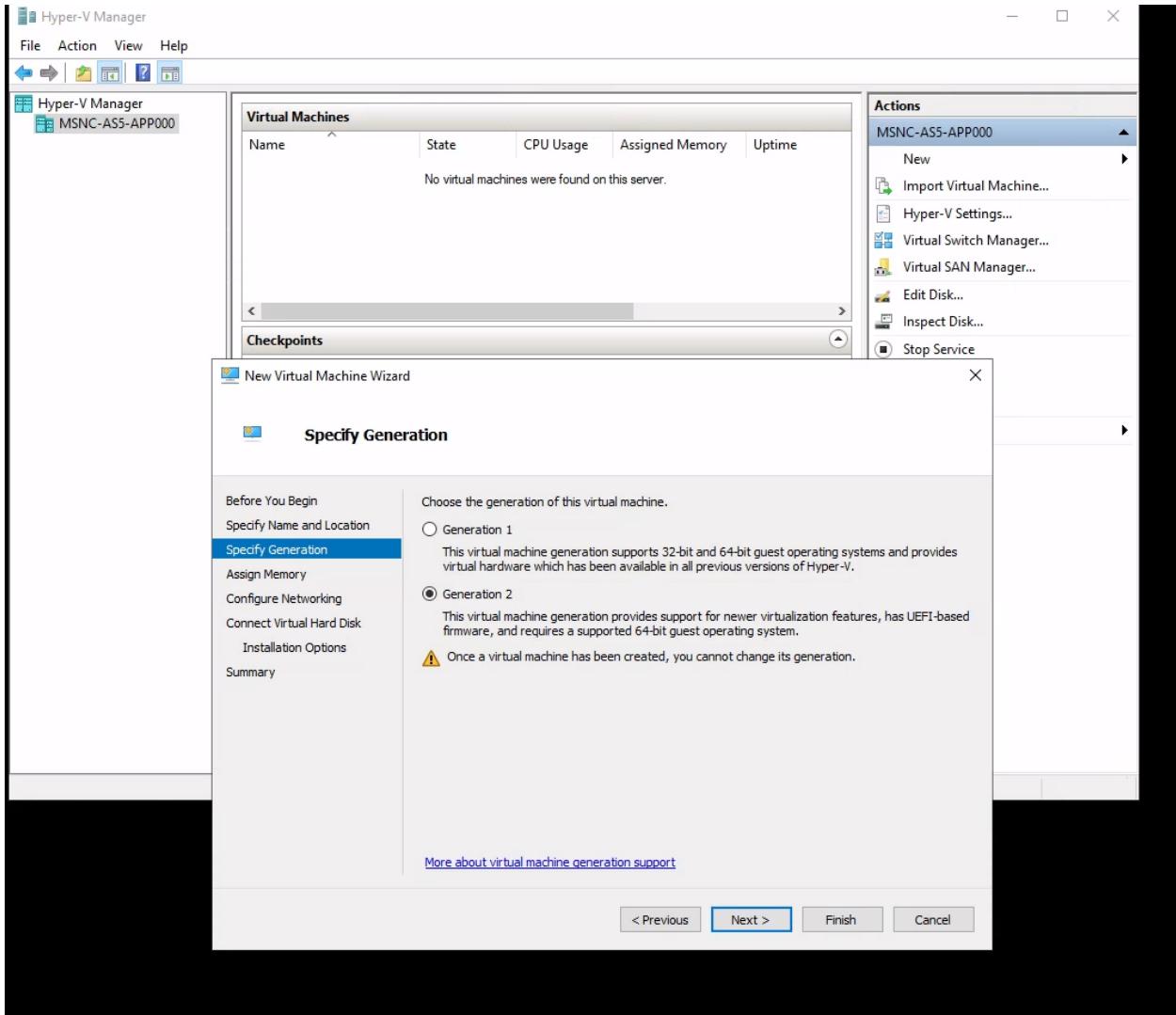
## Step 6. Name the Virtual Machine.



Gave the virtual machine a name (Jemmy VM) so that it is easy to find in the Hyper V Manager.'

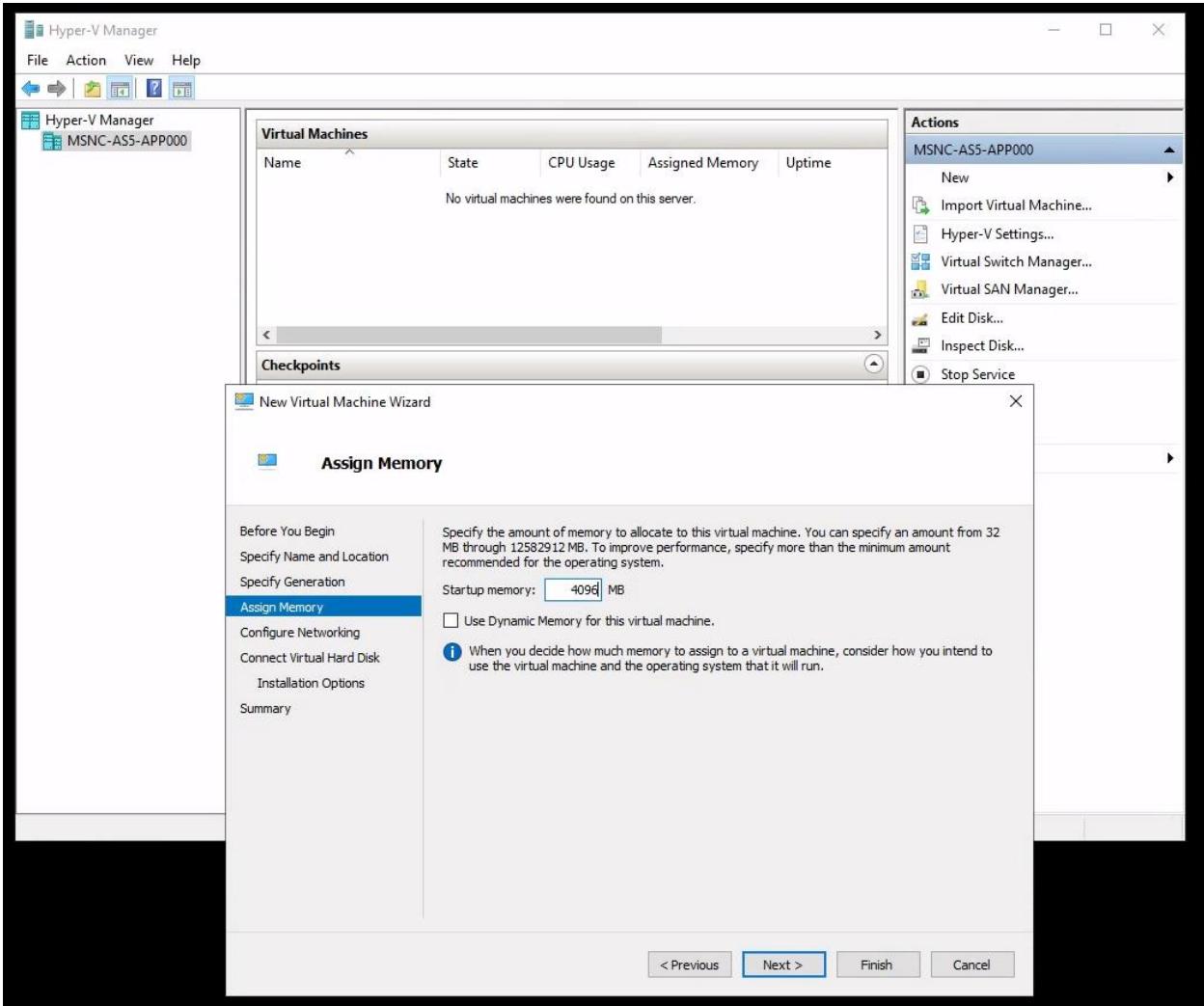
1. Leave the location as default.
2. Click Next.

## Step 7. Select Generation 2



Select Generation 2 to use modern VM features (UEFI based firmware) for the Windows virtual machine.

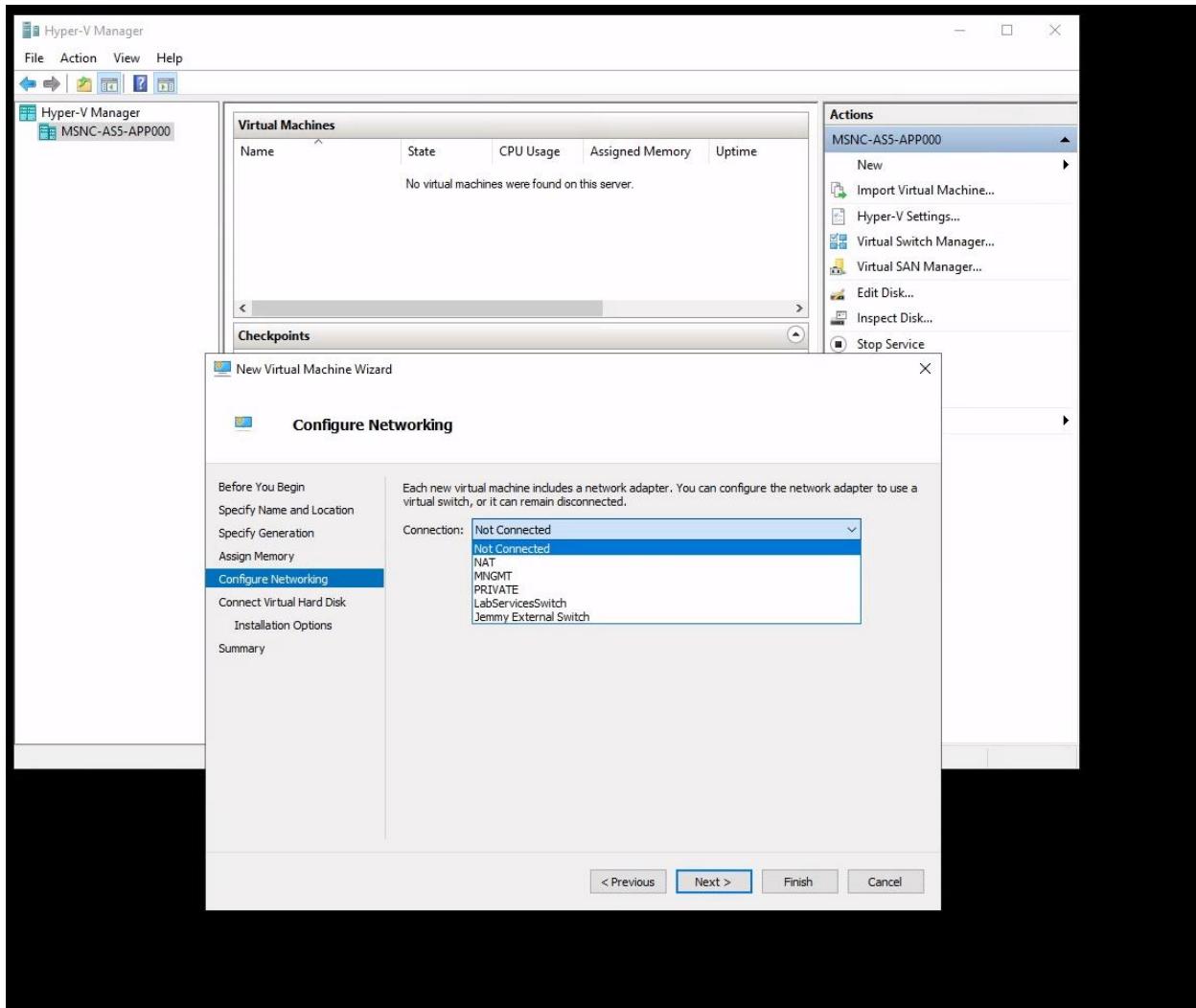
## Step 8. Assign startup memory.



Set the virtual machine to start up memory to 4096 MB (4 GB) so Windows has enough RAM to install and run smoothly.

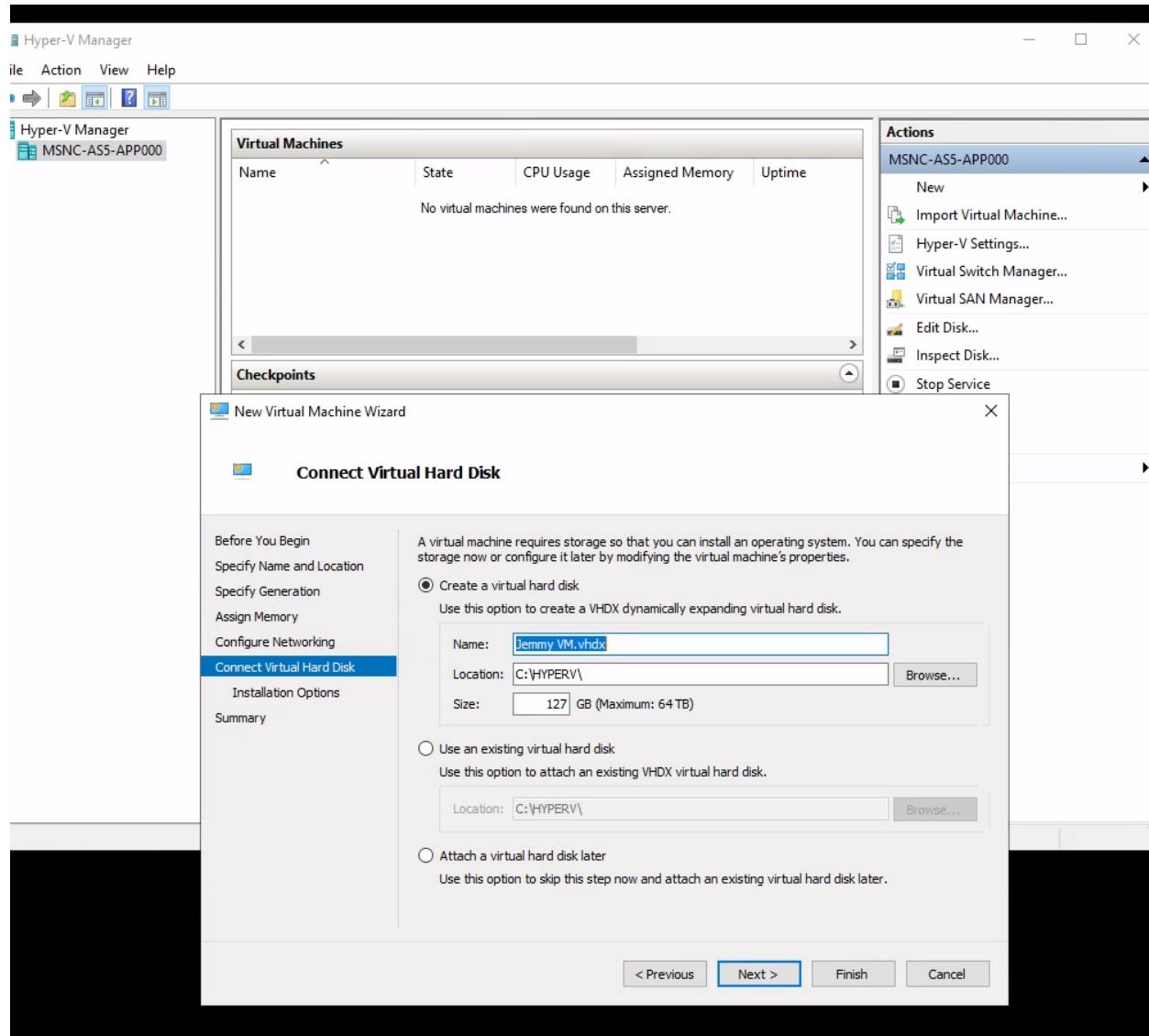
1. Leave Use Dynamic Memory unchecked.
2. Click Next.

Step 9. Drop down select Jemmy External Switch.



Select "Jemmy External Switch" to connect to the VM to the Network and internet.

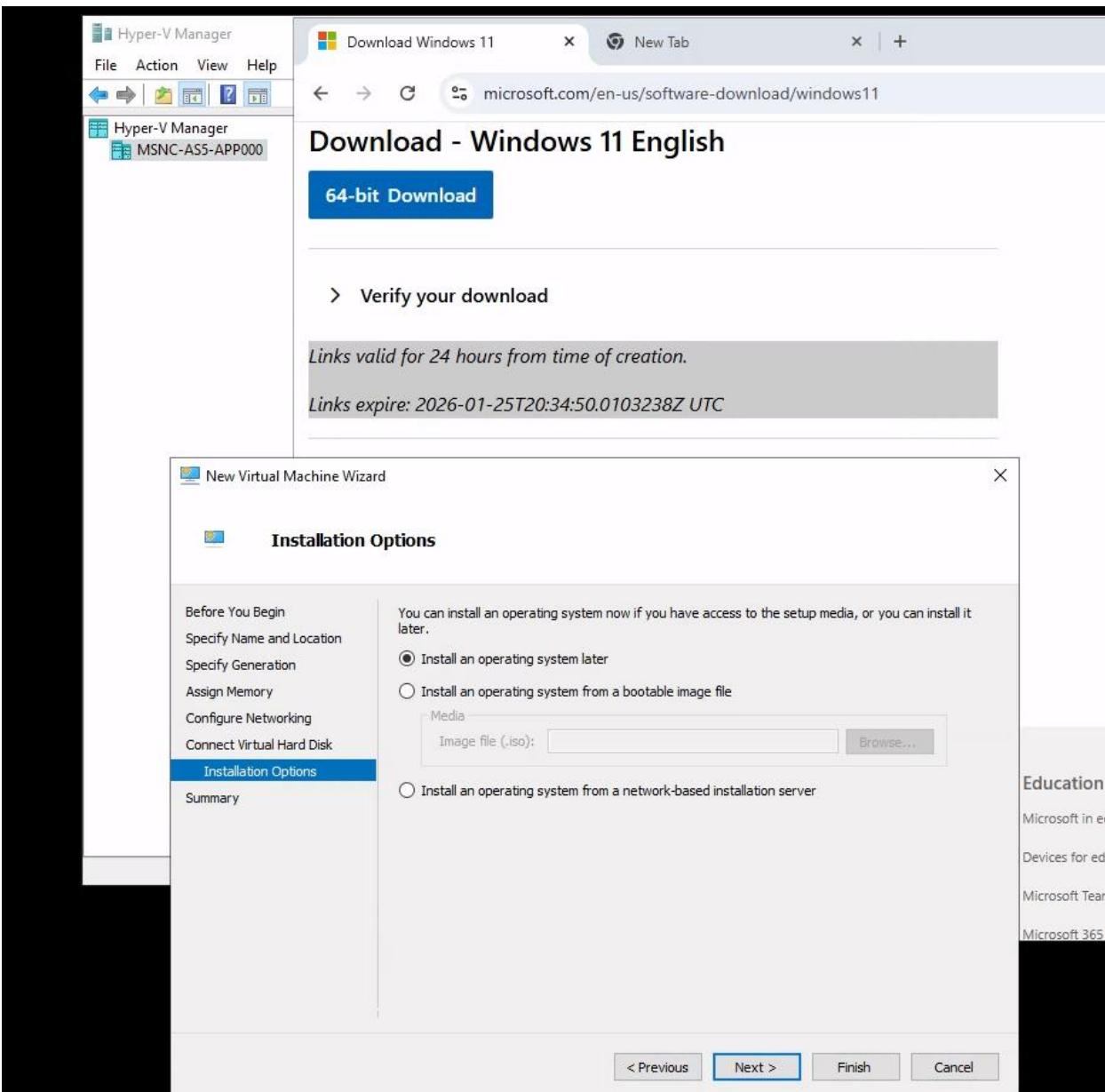
## Step 10. Create the virtual hard disk. (keep everything at default)



Created a new virtual hard disk (VHDX) name "Jemmy VM.vhdx" with a size of 127 GB to store the windows operating system and files.

1. Click Next.

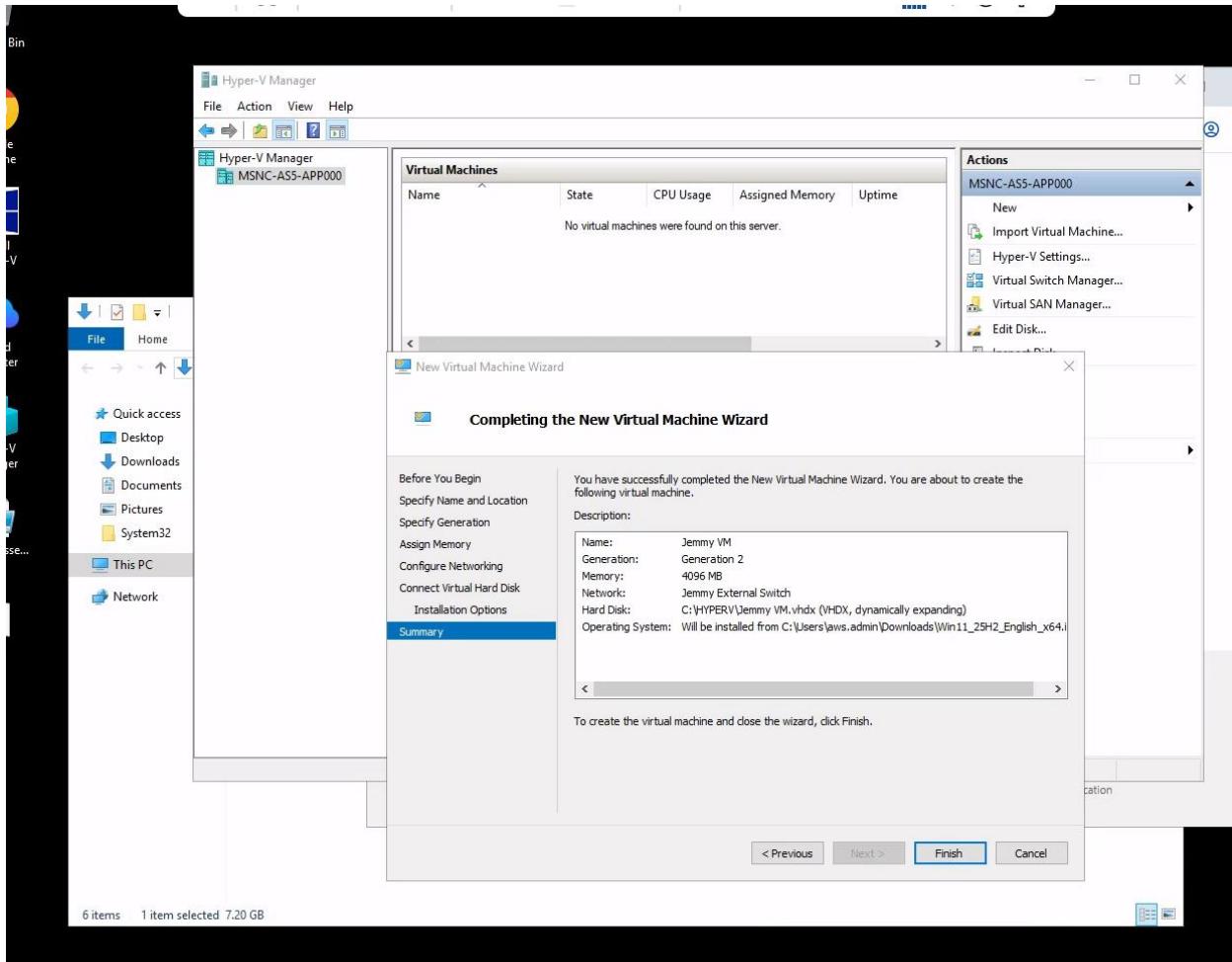
Step 10. Select "install an operating system from a bootable image file"



Select "Install an operating system from a bootable image file" and browse to the Windows 11 ISO so the VM can boot and install Windows.

1. Click Next to get to Summary.

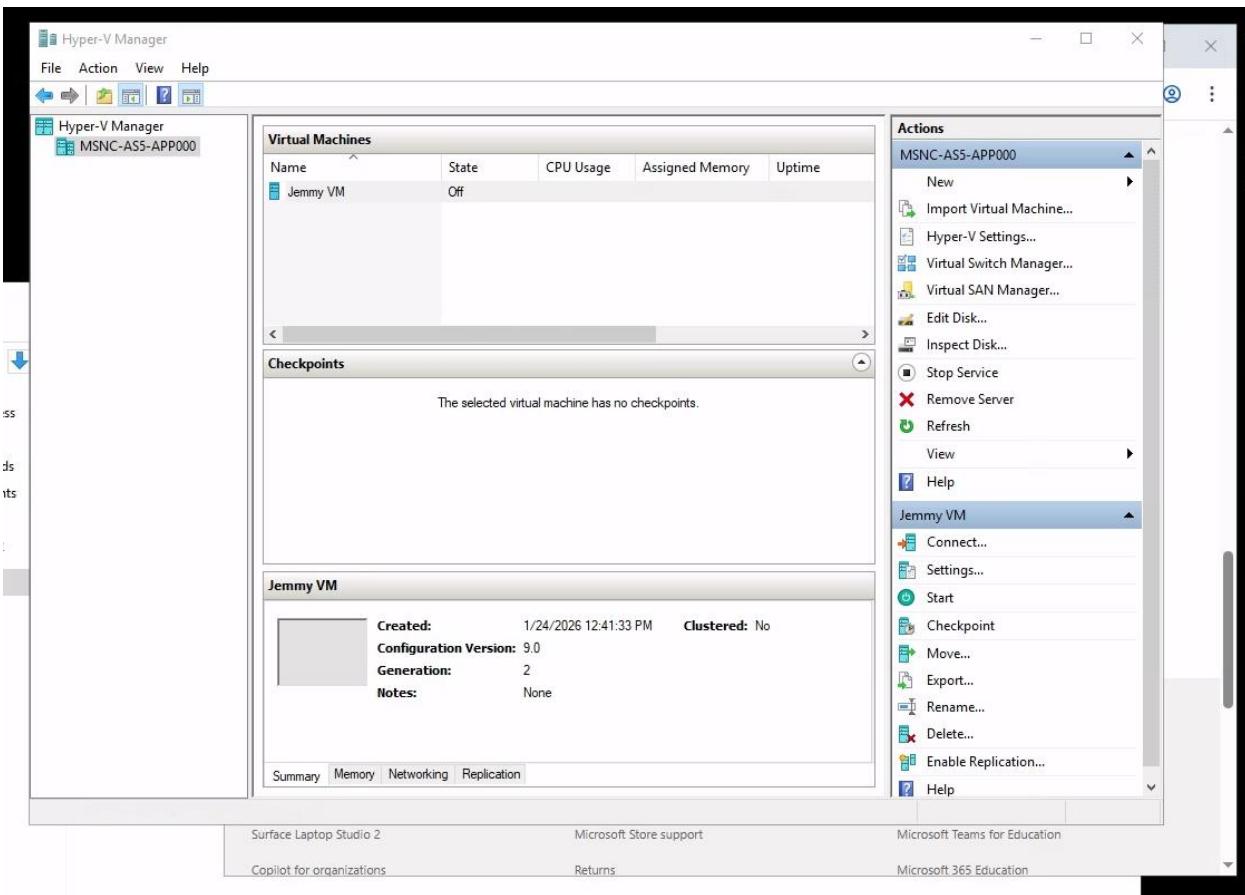
## Step 11. Review setting and create VM.



Review the VM configuration summary showing the VM name Generation 2, 4096 MB memory, "Jemmy External Switch" network, 127 GB VHDX, and the Windows 11 ISO selected for installation.

1. Click Finish.

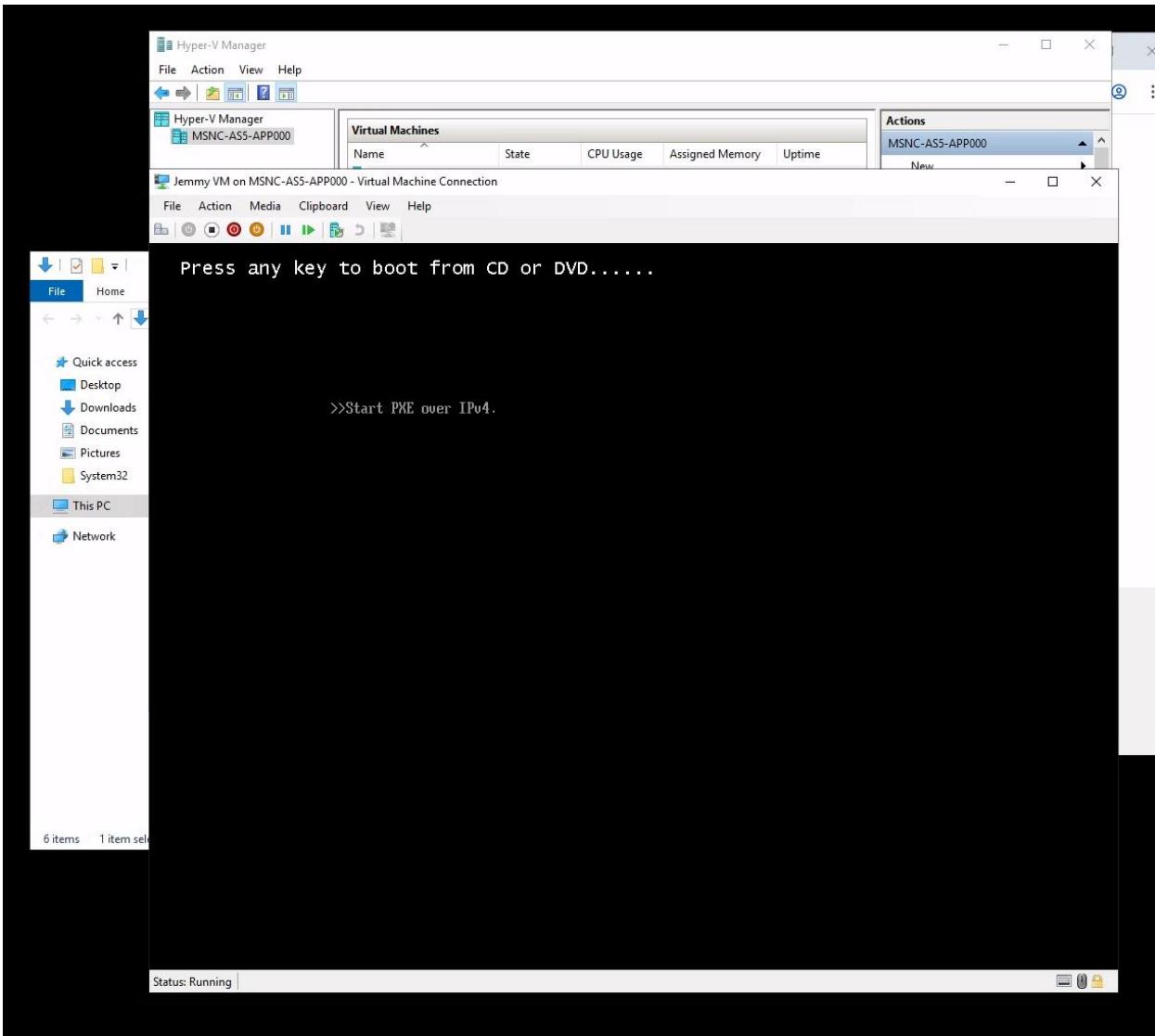
Step 12. Confirm VM was created.



The new virtual machine (Jemmy VM) appears in the Hyper-V Manager with the state off, confirming it was created successfully.

1. Select Jemmy VM
2. Right Click Start
3. Then Right Click Connect.

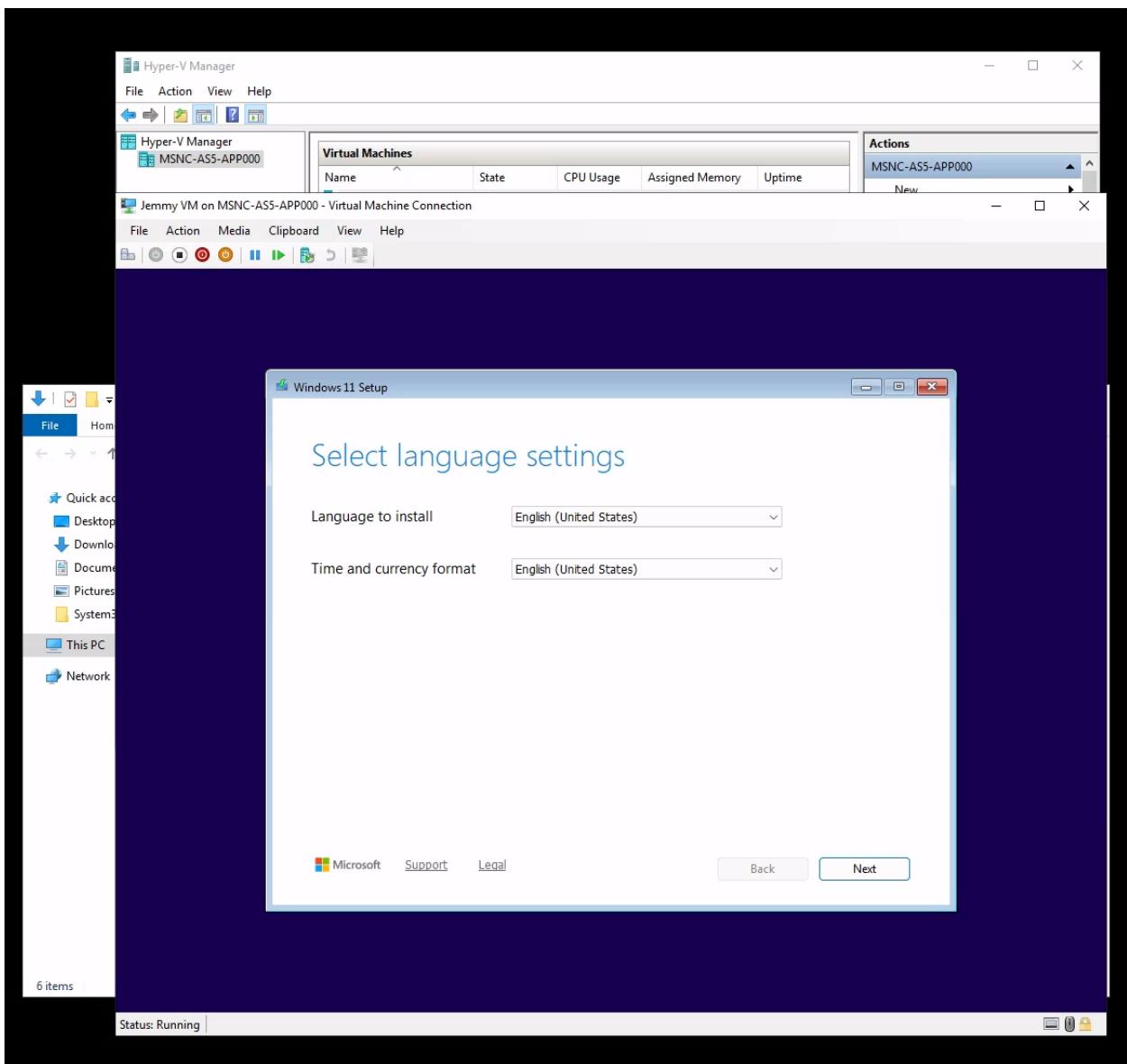
**Step 13. Boot the VM from the ISO.**



Started the VM and the screen prompts “Press any key to boot from CD or DVD,” which boots the VM from the Windows ISO to begin installation.

1. Click inside the VM window.
2. Press any key to boot from the CD or DVD in our case its already been selected from our set up.

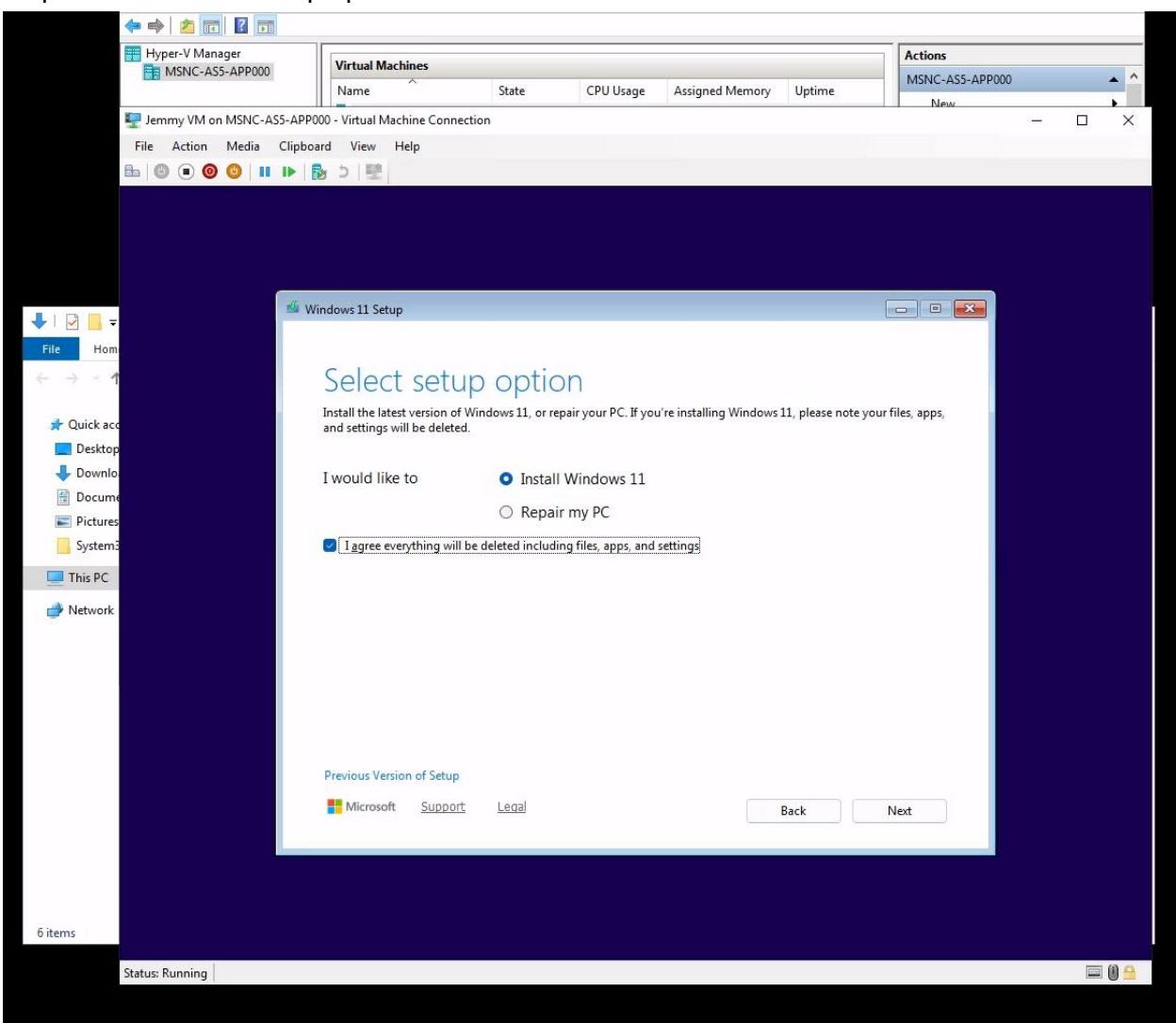
## Step 14. Start Windows Setup.



Windows 11 Setup opened to the language settings screen, confirming the VM successfully booted from the Windows ISO.

1. Leave the defaults (English United States).
2. Click Next.

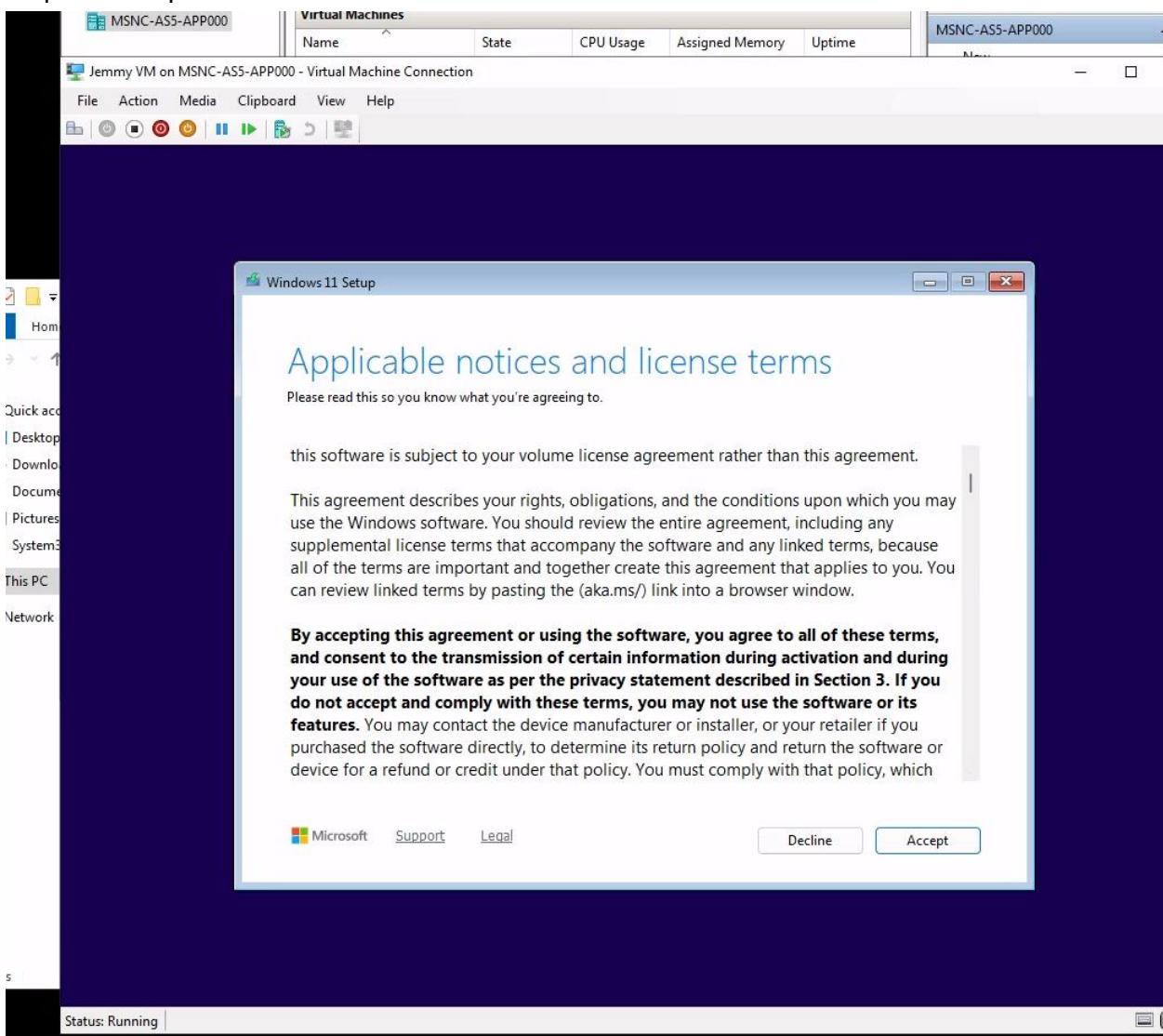
Step 15. Choose the setup option.



Selected “Install Windows 11” to begin installing the operating system inside the virtual machine.

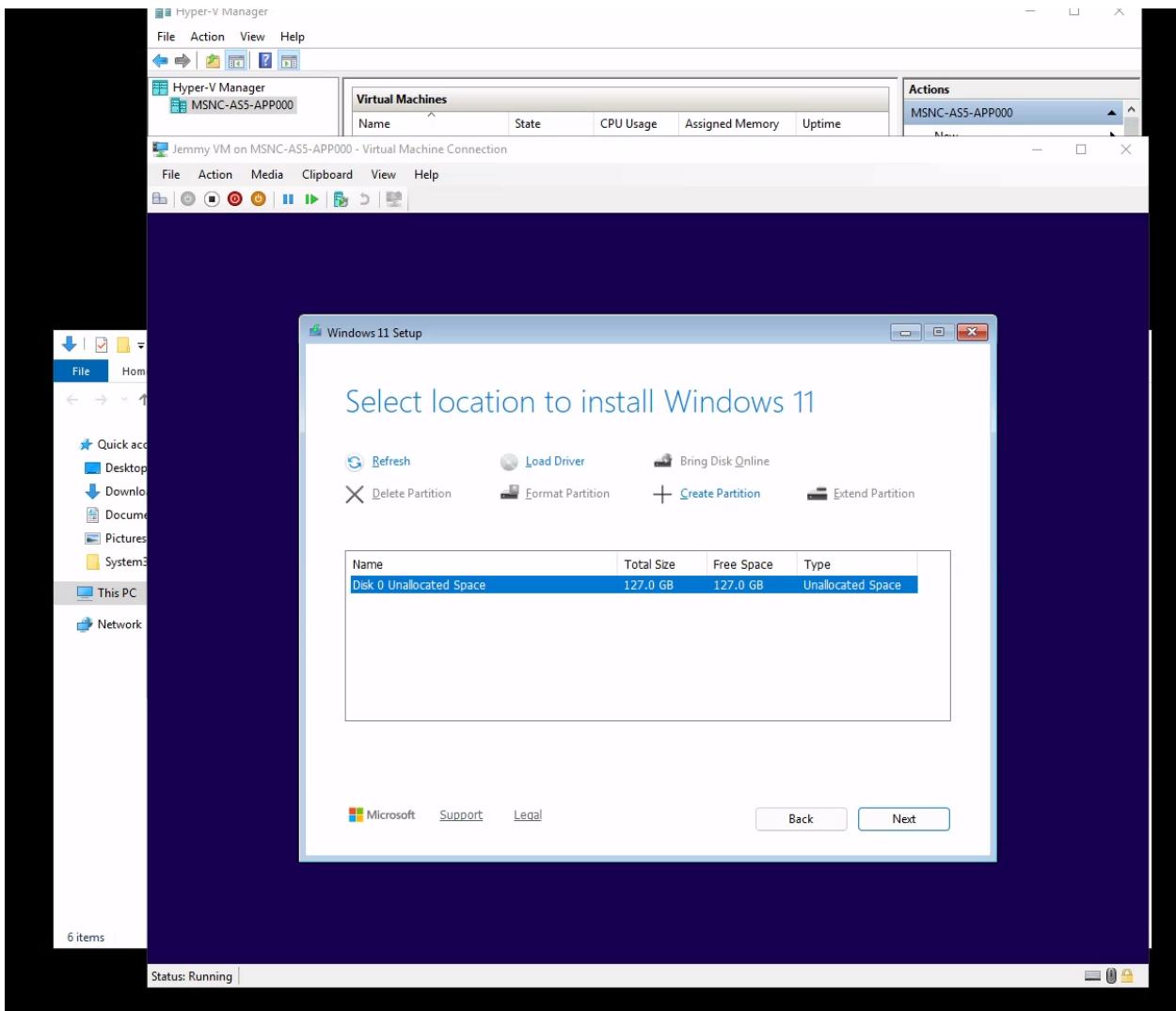
1. Keep “install Windows 11”
2. Check the box. I agree everything will be deleted including files, apps, and settings.
3. Click next.
4. Click I don’t have product Key if you don’t have a Windows Key

## Step 16. Accept Terms.



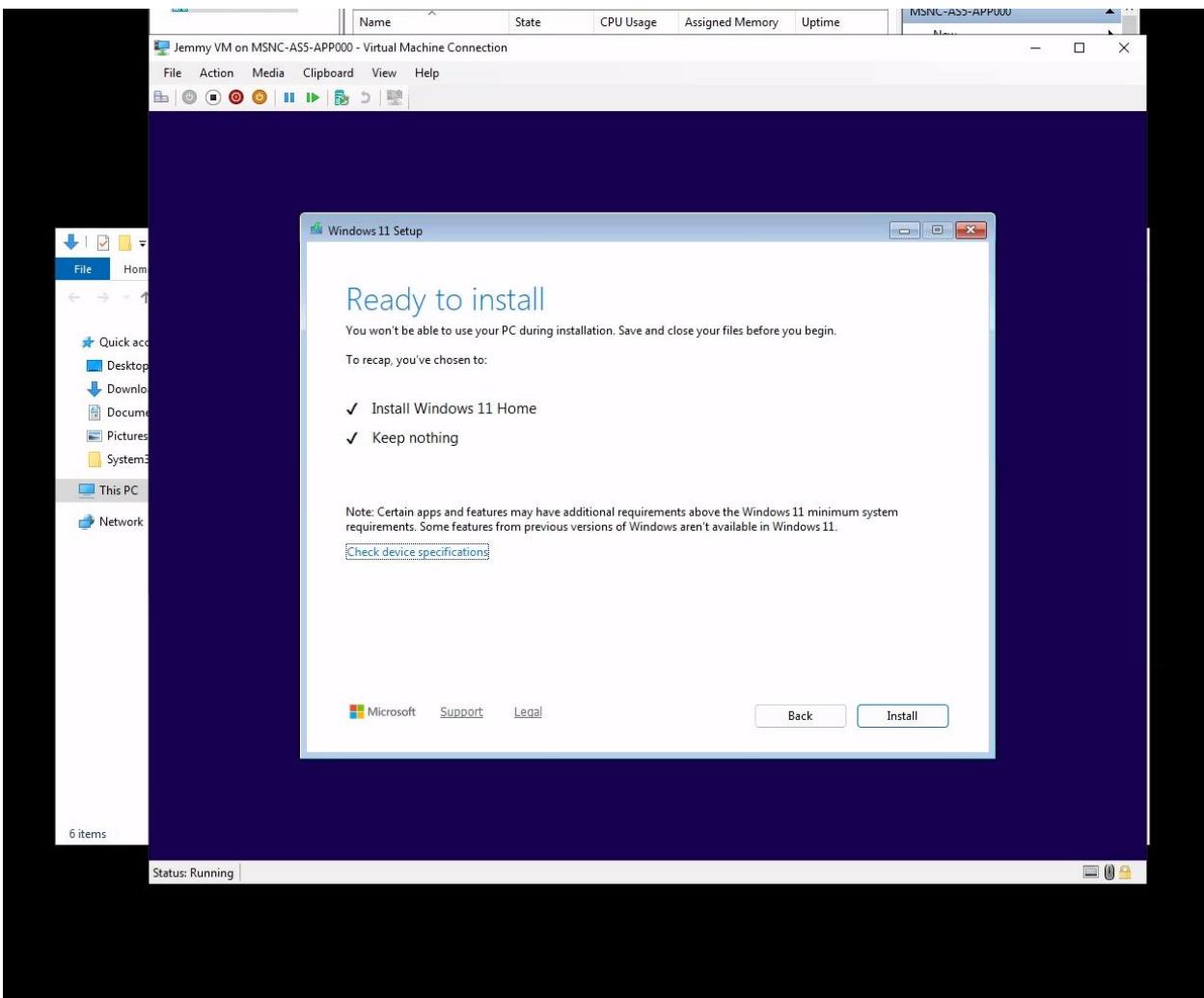
Accepted the Windows 11 license terms and *continued* the installation.

## Step 17. Select Installation Drive



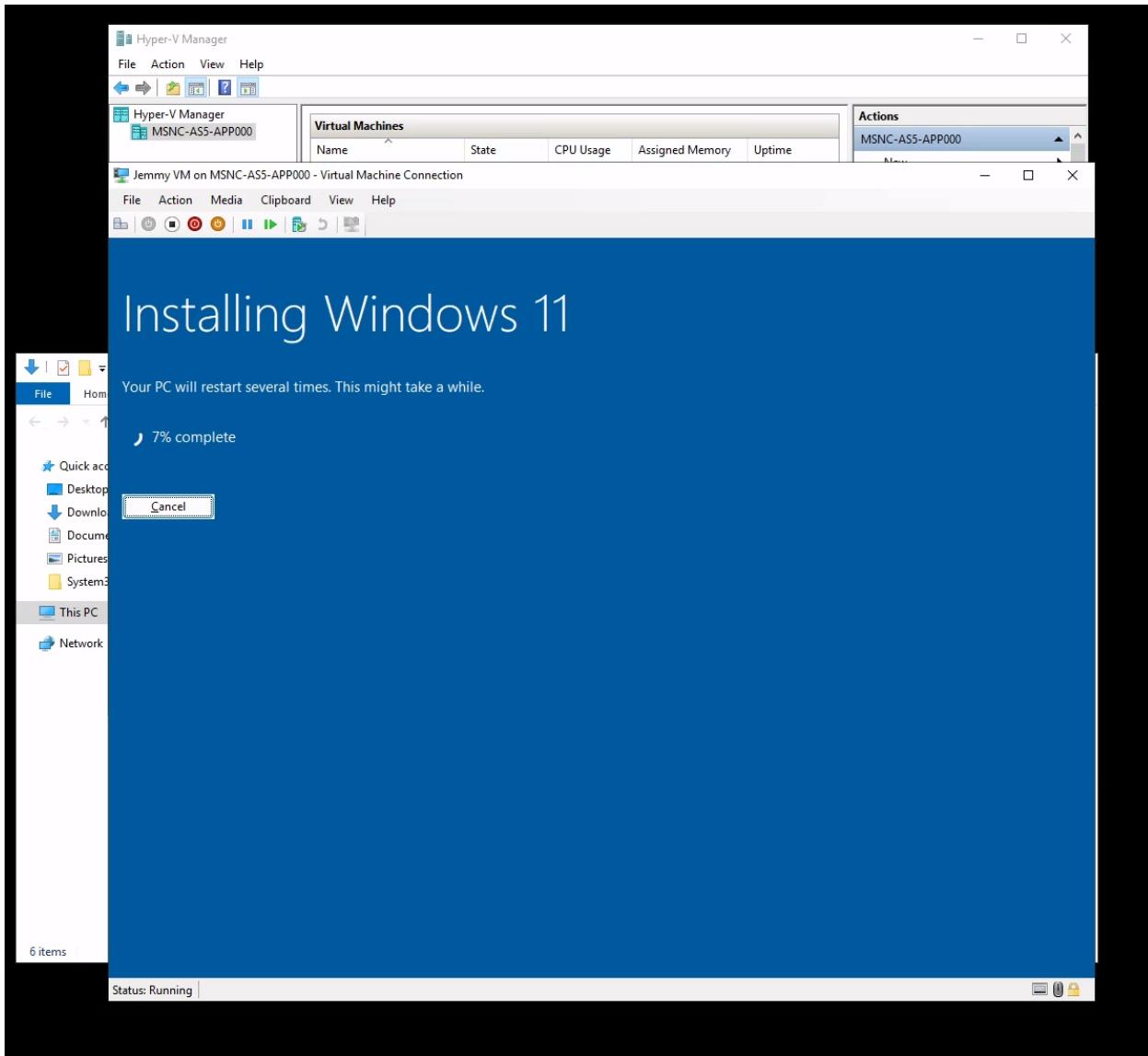
Select Disk 0 Unallocated Space (127.0 GB) as the installation destination for Windows 11.

## Step 18. Click Install



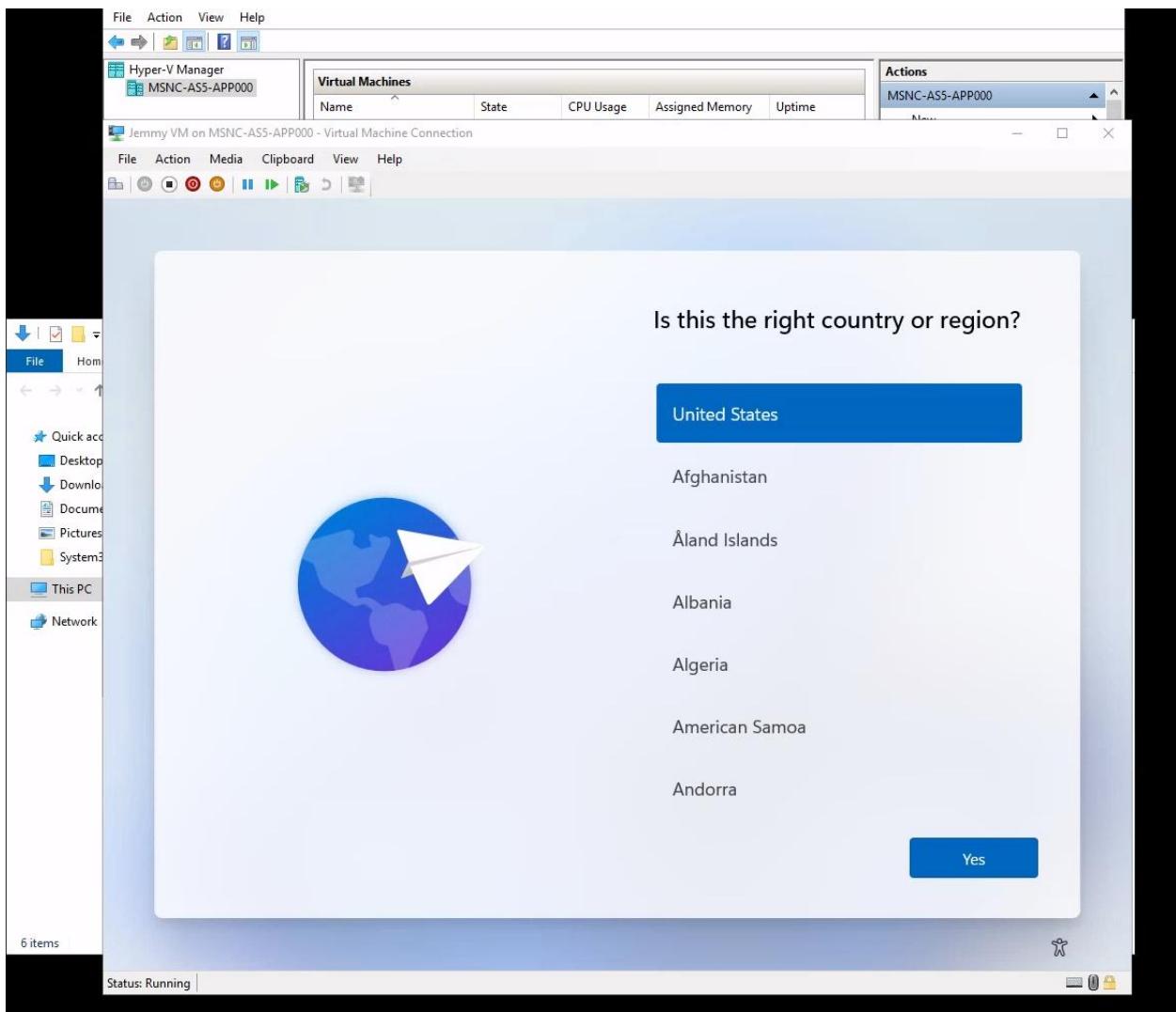
Confirmed installation settings and selected Install to begin installing Windows 11 Home on the virtual machine.

## Step 19. Installing Windows 11 Progress.



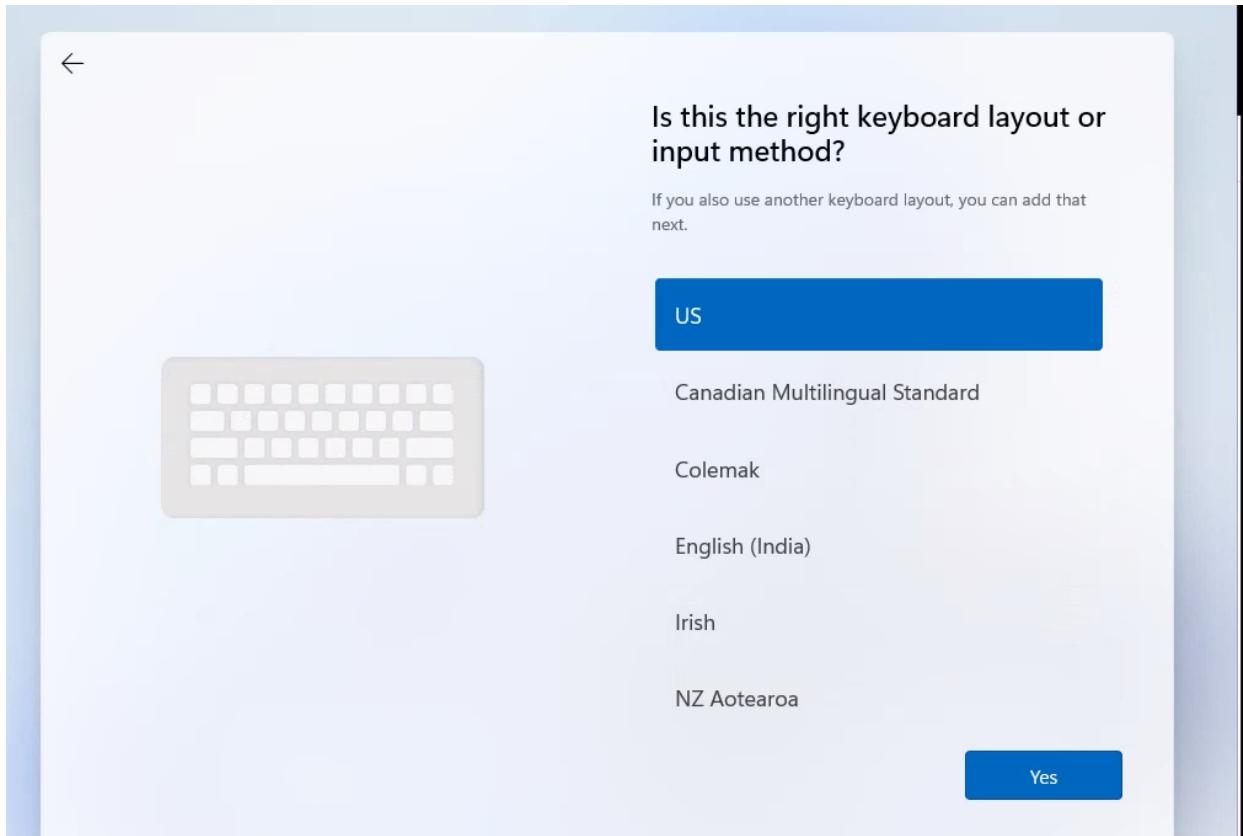
Windows 11 installation started and is in progress (7% complete) in the Hyper V virtual machine.

## Step 20. Windows 11 Region Selections



Windows 11 Setup is prompting to confirm the country or region, with United States selected.

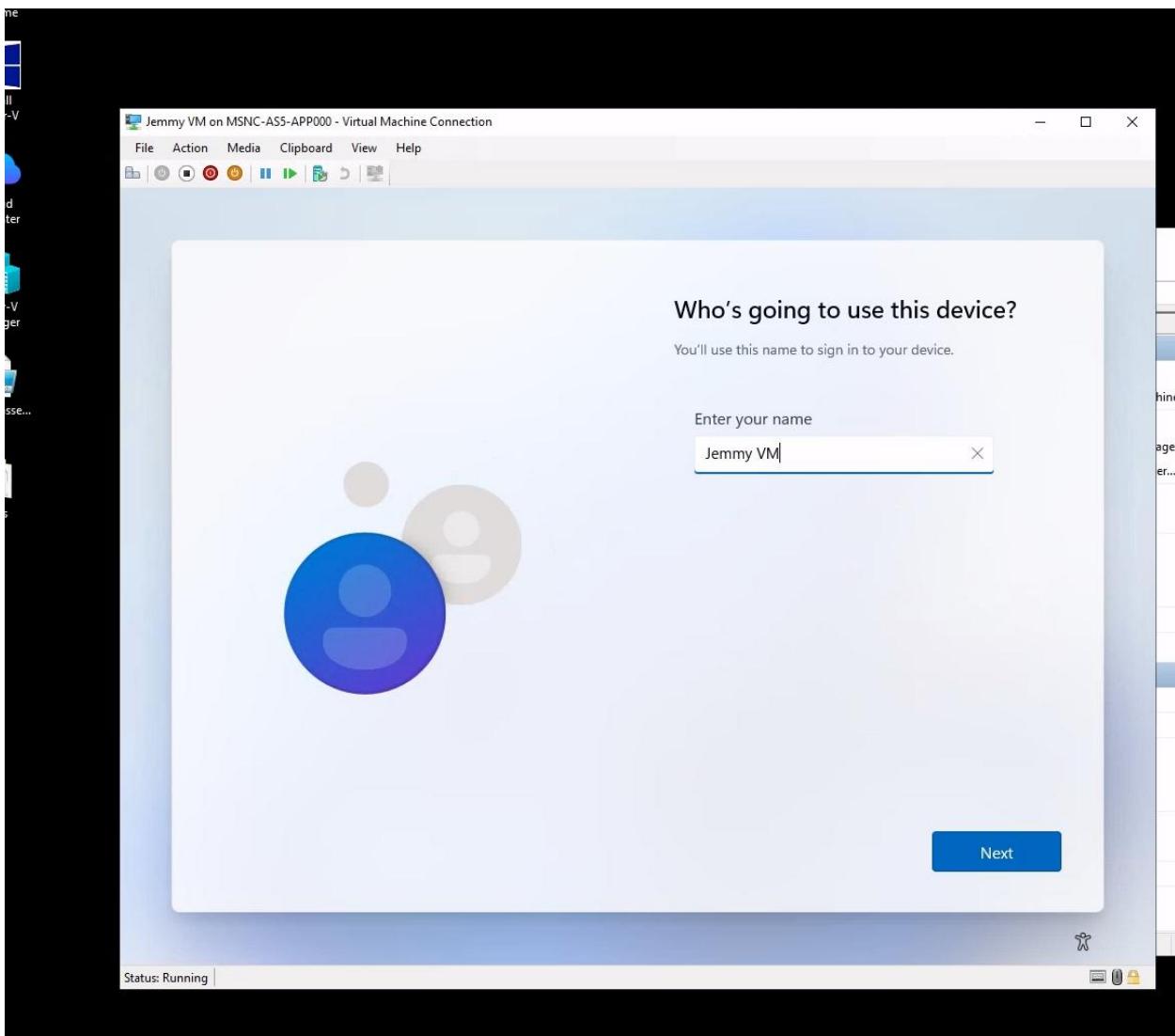
## Step 21. Windows 11 Keyboard Layout



Windows 11 setup is prompting to confirm the keyboard layout, with US selected.

1. Click Skip when it prompts you for Keyboard Layout.

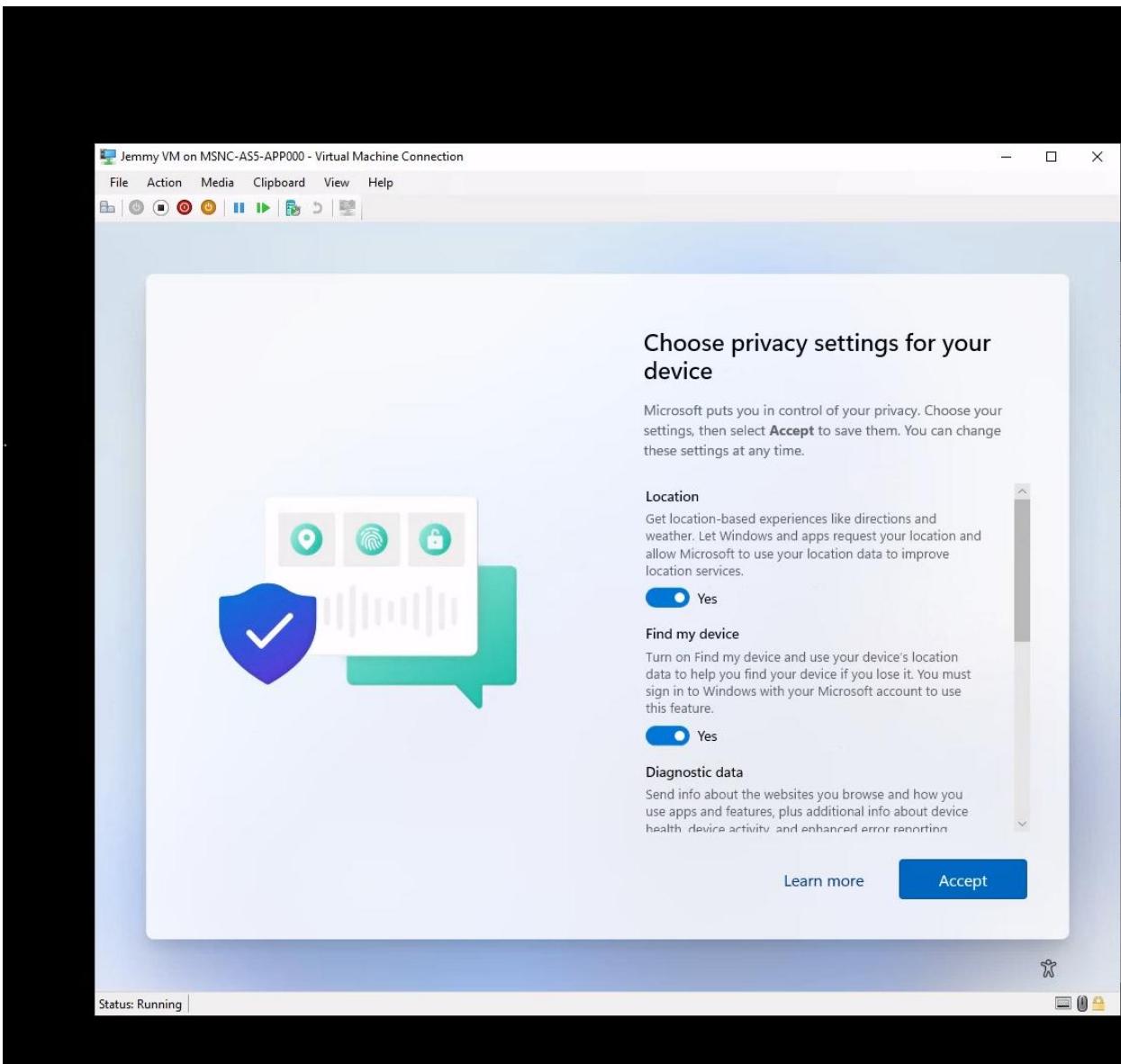
Step 22. This Screen Prompts “Who going to use this device?”



Windows 11 setup asks, “Who’s going to use this device?” and I entered Jemmy VM as the local account name, then selected Next to continue

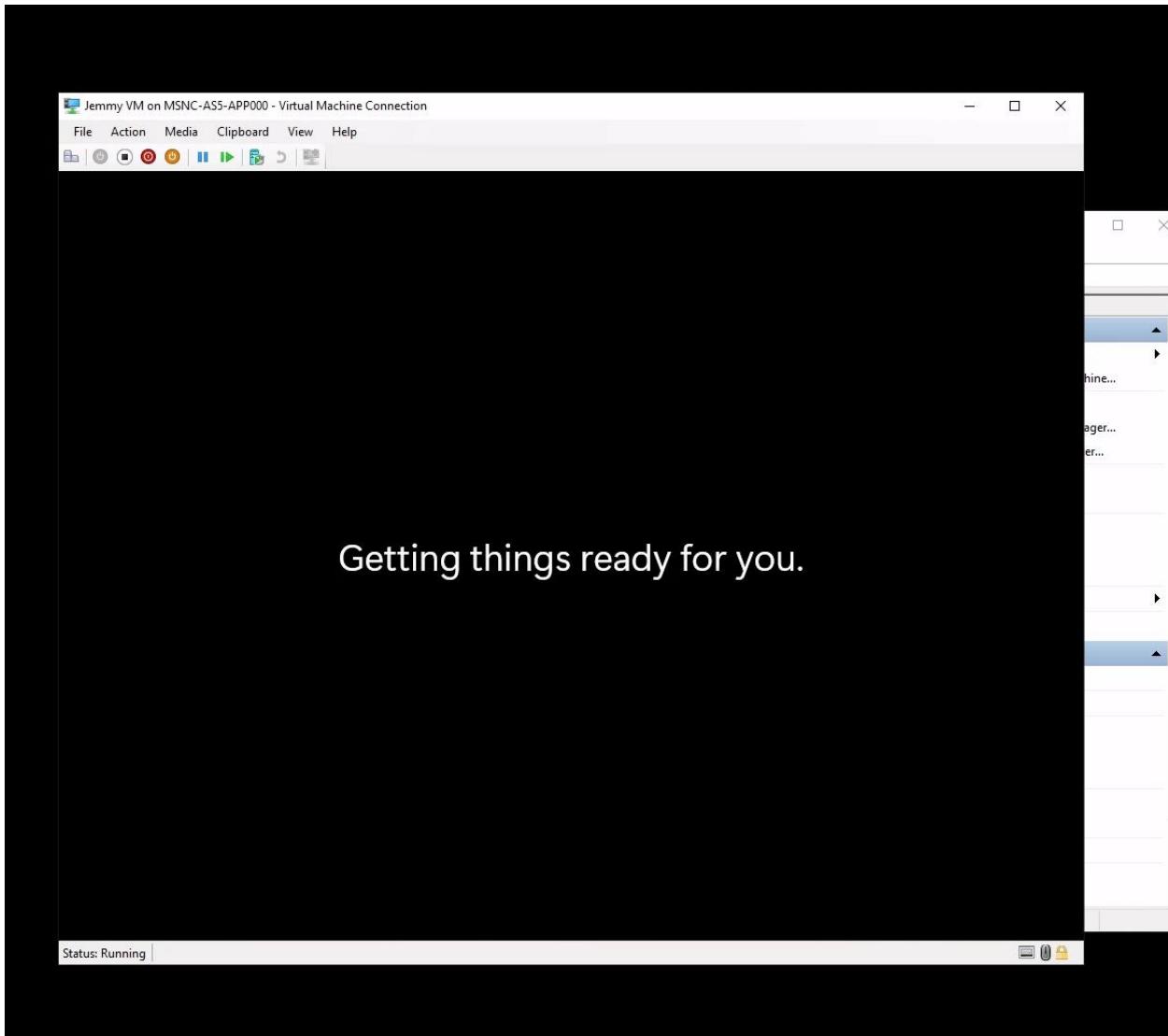
1. For the next screen when prompted for password: I suggest putting a password.

Step 23. Choose Privacy settings for your device.



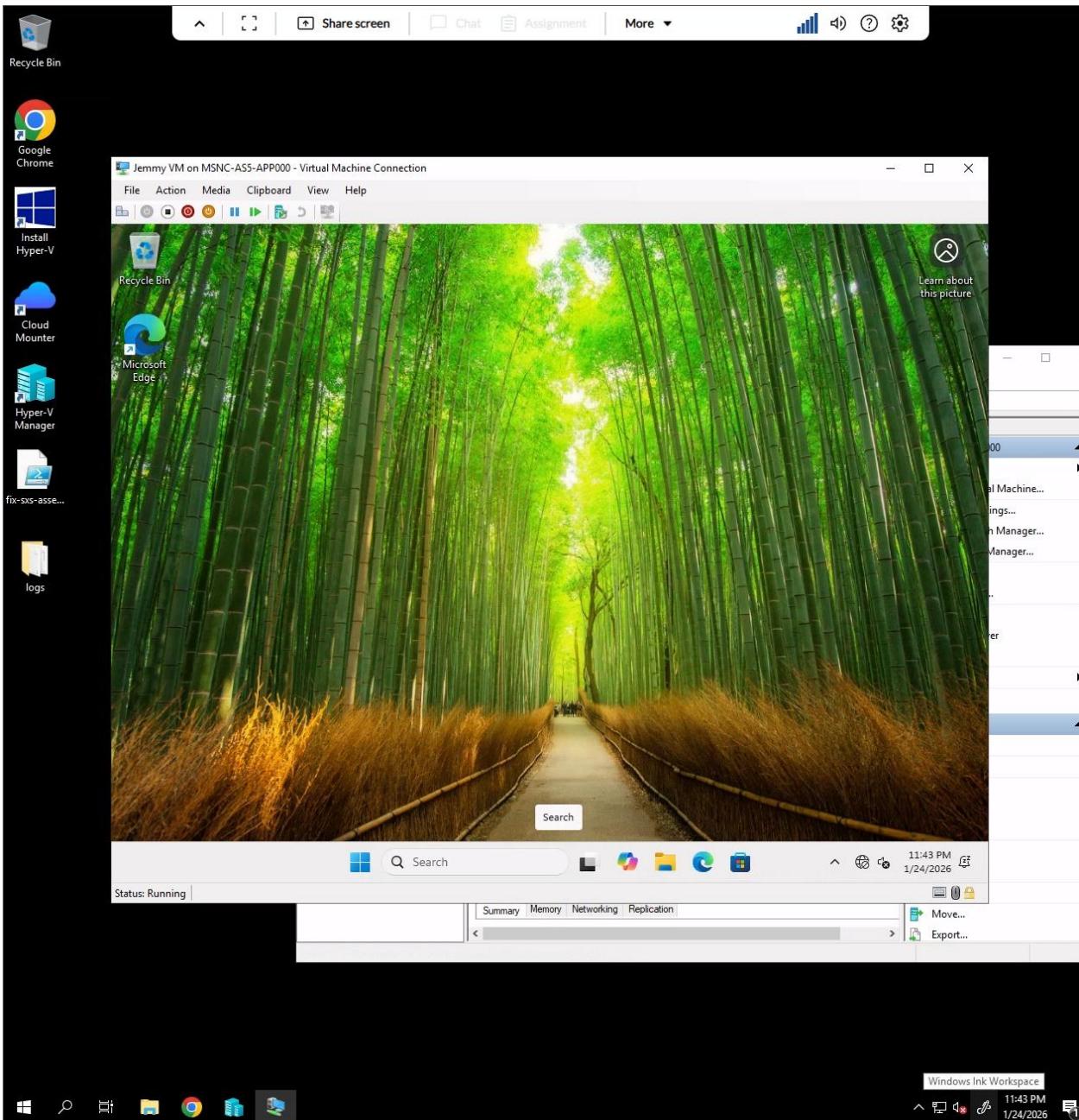
The "Choose privacy settings for your device" prompt came up during the Windows 11 setup. I looked over the privacy options (such Location and Find my device) and then clicked Accept to get on with the setup.

Step 24. After accepting the Privacy settings.



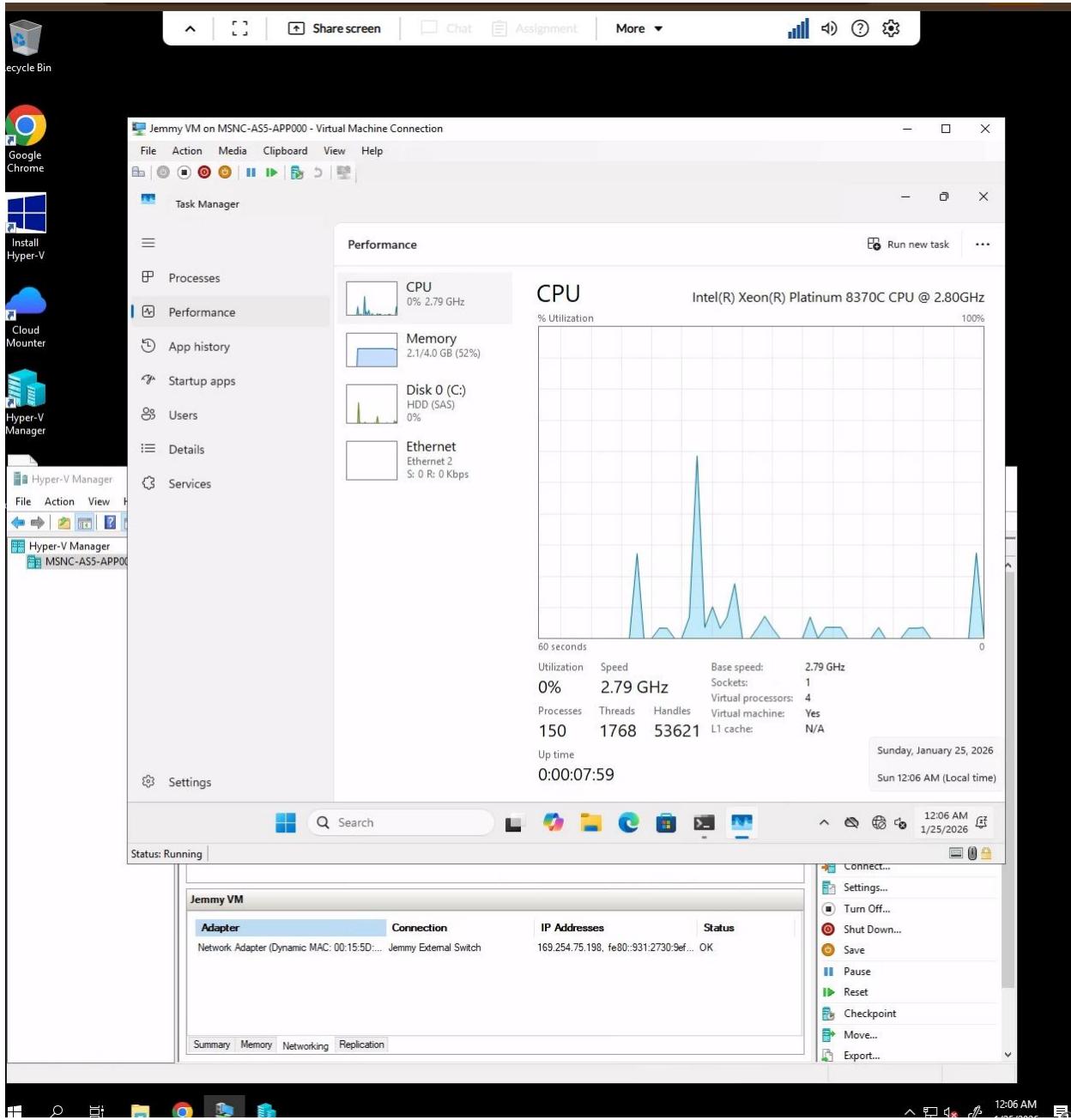
After you confirmed the Windows 11 setup options, the computer said "Getting things ready for you" as it finished installing and setting up the new user profile.

Step 25. Windows 11 finished set up and booted to the desktop inside the Hyper-V Virtual Machine.



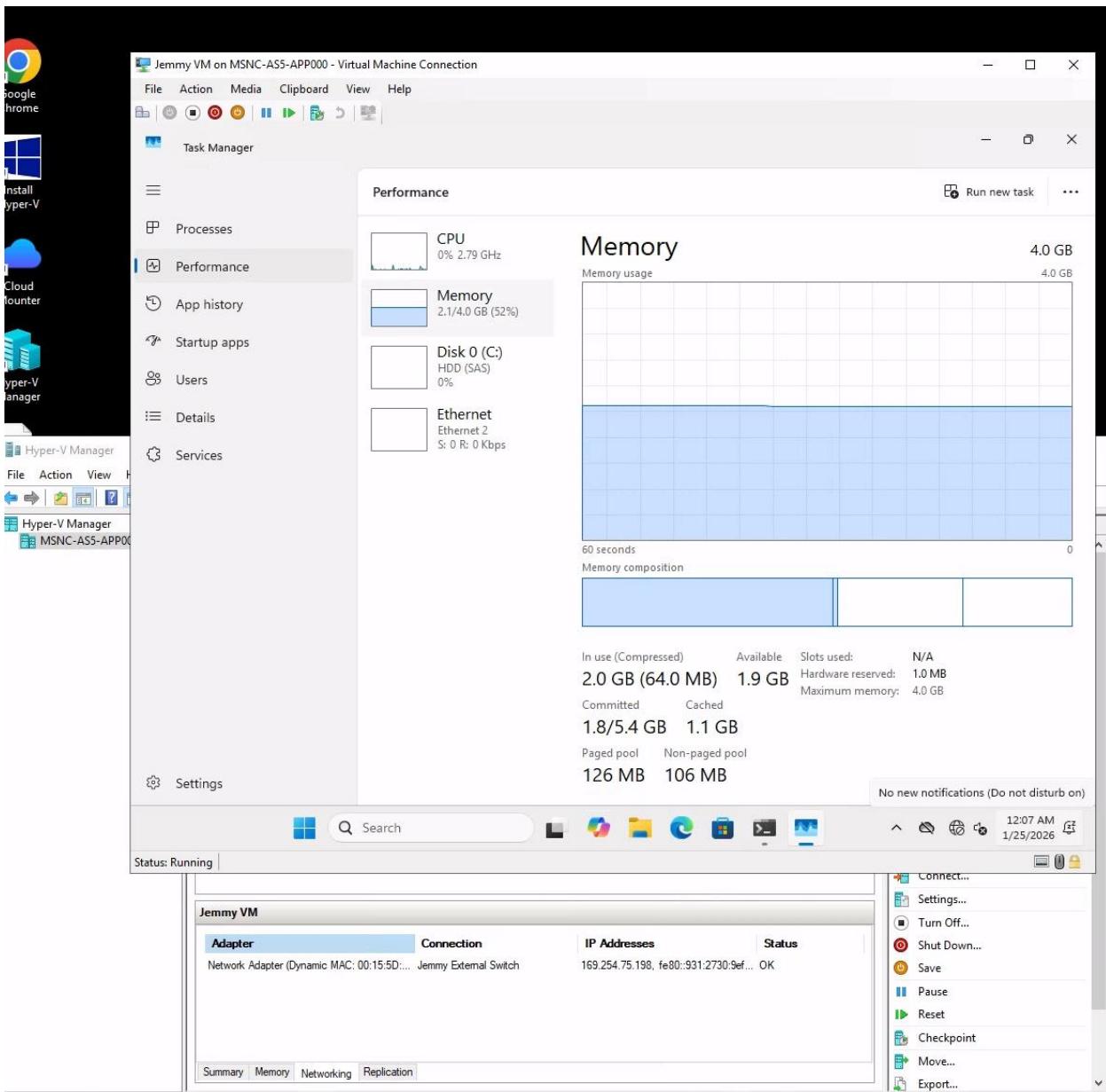
Windows 11 finished setting up and booted to the desktop in Hyper V Virtual Machine Connection (Jemmy VM). This means that the VM is working correctly and is ready for post-install configuration, which includes updates, drivers, and network settings.

## Step 26. CPU configuration



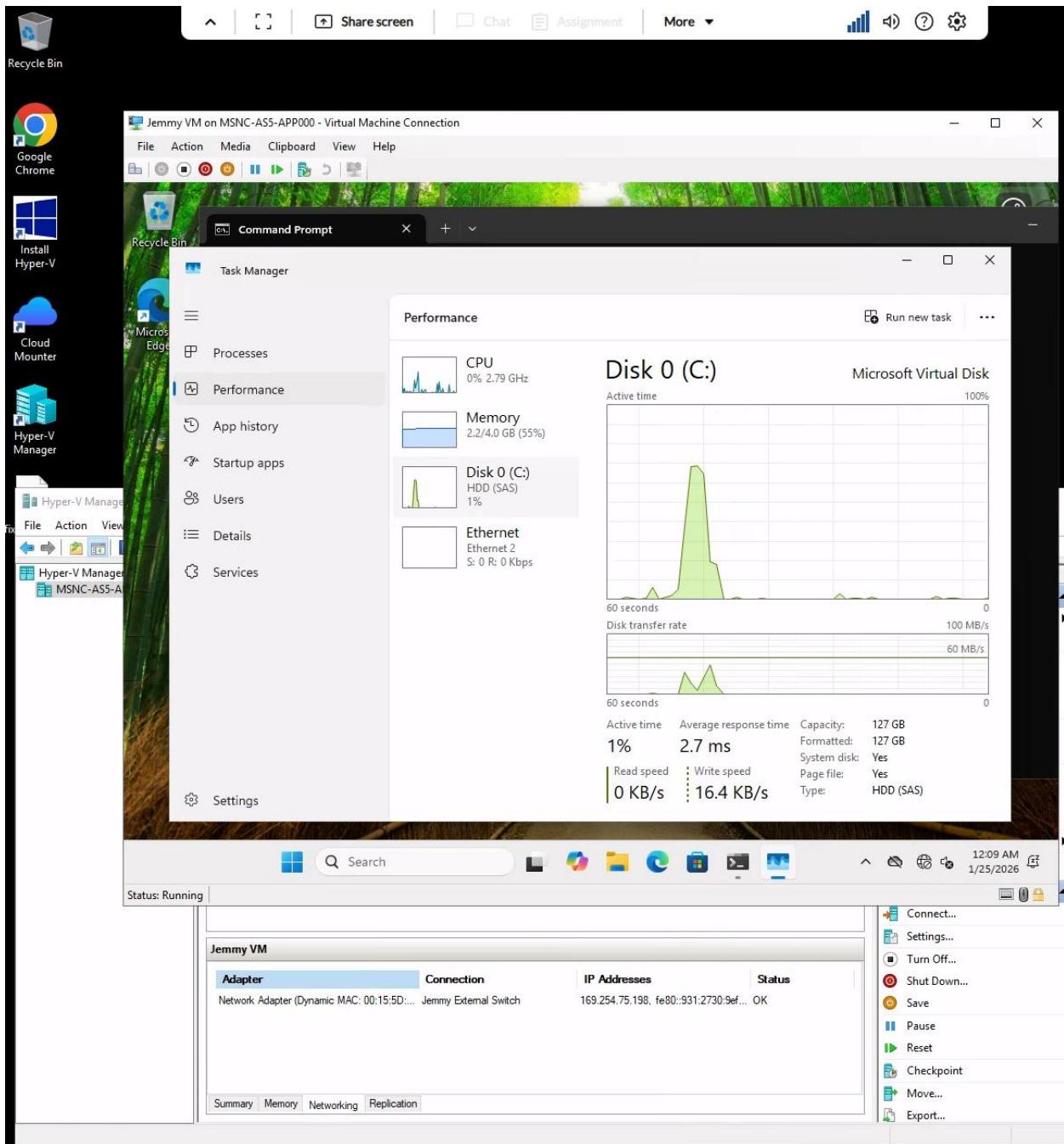
This screenshot confirms that the Windows 11 virtual machine is running with four virtual processors assigned through Hyper-V, validating successful CPU allocation and virtualization support.

## Step 27. Memory



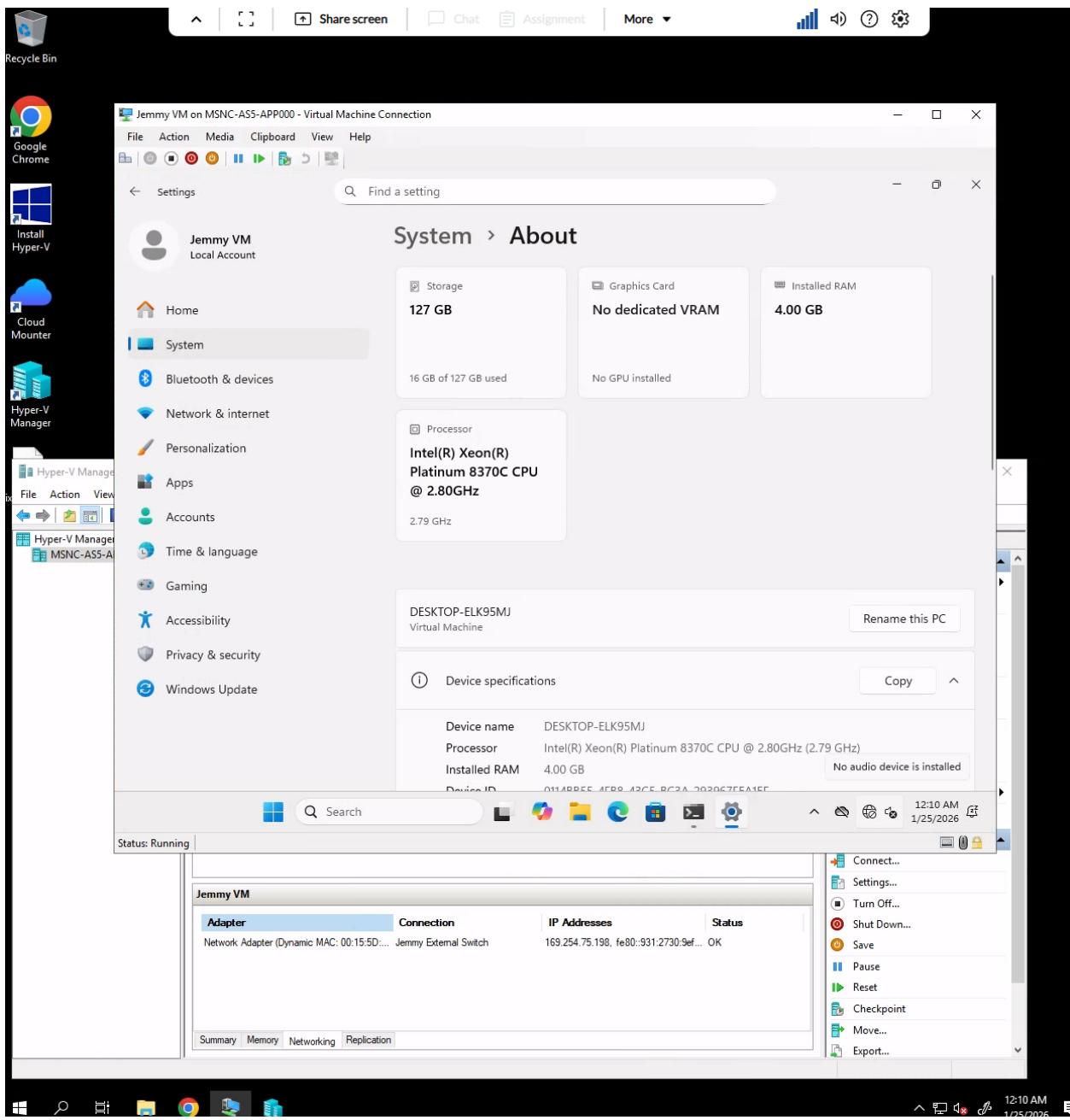
This shows that the VM has 4.0 GB of RAM allotted to it, with about 2.1 GB in use and 1.9 GB available. This proves that Windows 11 was able to successfully assign and recognize memory resources.

## Step. 28. Disk



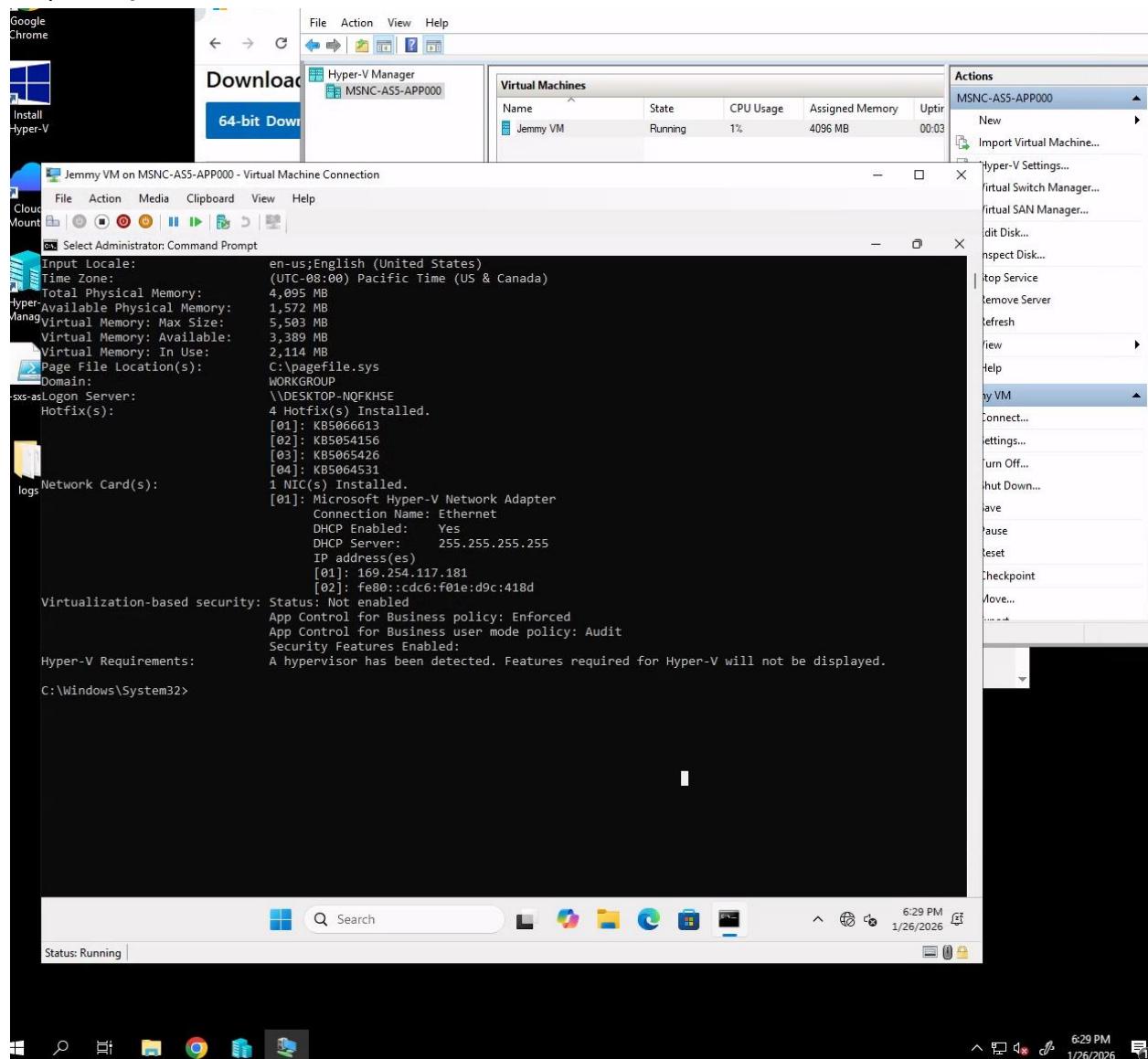
This screenshot shows that Disk 0 (C:) is set up as a Microsoft Virtual Disk (HDD, SAS) with a total size of 127 GB. The drive is working OK and not being used much. It is the system disk for the Windows 11 virtual machine.

## Step 29. Settings -> System -> About



The virtual machine's system information and hardware specs. This shows the system information for the Windows 11 virtual machine. It has an Intel Xeon Platinum 8370C CPU running at 2.80 GHz, 4.00 GB of RAM, and 127 GB of virtual storage. The system is recognized as a virtual machine, and it shows that the CPU, memory, and storage resources have been successfully allocated.

## Step 30: System Information



This final screenshot shows the Hyper-V Manager running the virtual machine (Jemmy VM). The Command Prompt is open and showing the results of the `systeminfo` command, which shows the virtual machine's system set up. The report shows the VM has 4096 MB of physical memory, is using the Microsoft Hyper-V Network Adapter, and is running in a virtualized Hyper-V environment. The Hyper-V Manager Panel also shows that the VM is running, which means that the virtual machine was successfully created, turned on, and set up appropriately inside the hypervisor.

## **Appendix**

### **Settings That Are Not Standard.**

- As a Generation 2 virtual machine, the virtual machine was made to work with UEFI-based firmware that Windows 11 needs.
- Uncheck The box for Dynamic Memory so that the virtual machine would always have 4 GB of RAM available throughout installation and while it was running.
- To let the virtual machine connect to the internet and the network, an External Virtual Switch called “Jemmy External Switch” was made.
- To keep the host connected while the VM used the same adapter, the option “Allow the management operating system to share this network adapter” was turned on.
- A 127GB VHDX virtual hard disk was used to provide enough space for Windows 11 operating systems and for future updates.
- Instead of using a Microsoft account to sign in, a local user account was made during the setup of Windows.

### **Notes and Troubleshooting**

- If the virtual machine doesn't start the Windows installer, check that the Windows 11 ISO is set as the bootable image file in the VM settings and rapidly press a key when asked.
- If the VM can't connect to the internet, make sure that the External Virtual Switch is chosen in the settings for the VM network adapter.
- Check that the startup memory is set to 4096 MB and that the VM is off before modifying any hardware parameters if the VM is sluggish to install.
- Screenshots throughout this tutorial show that each key step is correct so that users can see how their set up compares to what they should expect.