# Exercise 1 - Performing Remote Installation of Windows

You'll validate the WDS client's connection to the WDS server and install a new operating system after setting up the system prerequisites for effectively implementing remote OS installation using Windows Deployment Services.

In this exercise,

1. We will use WDS to perform a remote installation of Windows 10.

Topology
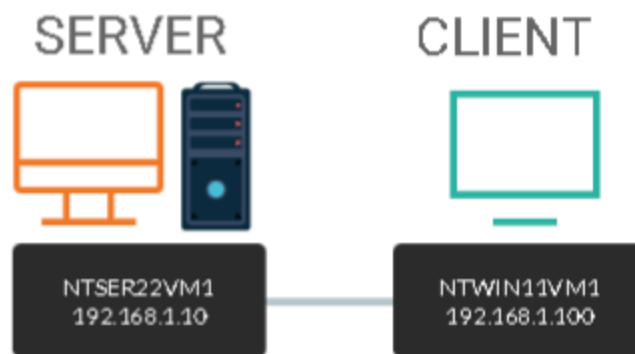
DOMAIN = networktute.com

NTSER22VM1 = Windows Server 2022 – Domain Controller

NTWIN11VM1 = Windows 11 – Domain Member

NTWIN10HV2 = Windows 10 (WDS Client Inside **NTWIN11VM1**)

Prerequisite

- *VMware Workstation 16 Pro*
    - When making this tutorial, we used the "Windows Server 2019" VM Template and "Windows 10 & later" VM Template. Since VMware didn't have the updated templates.
- *Microsoft Windows Server 2022*
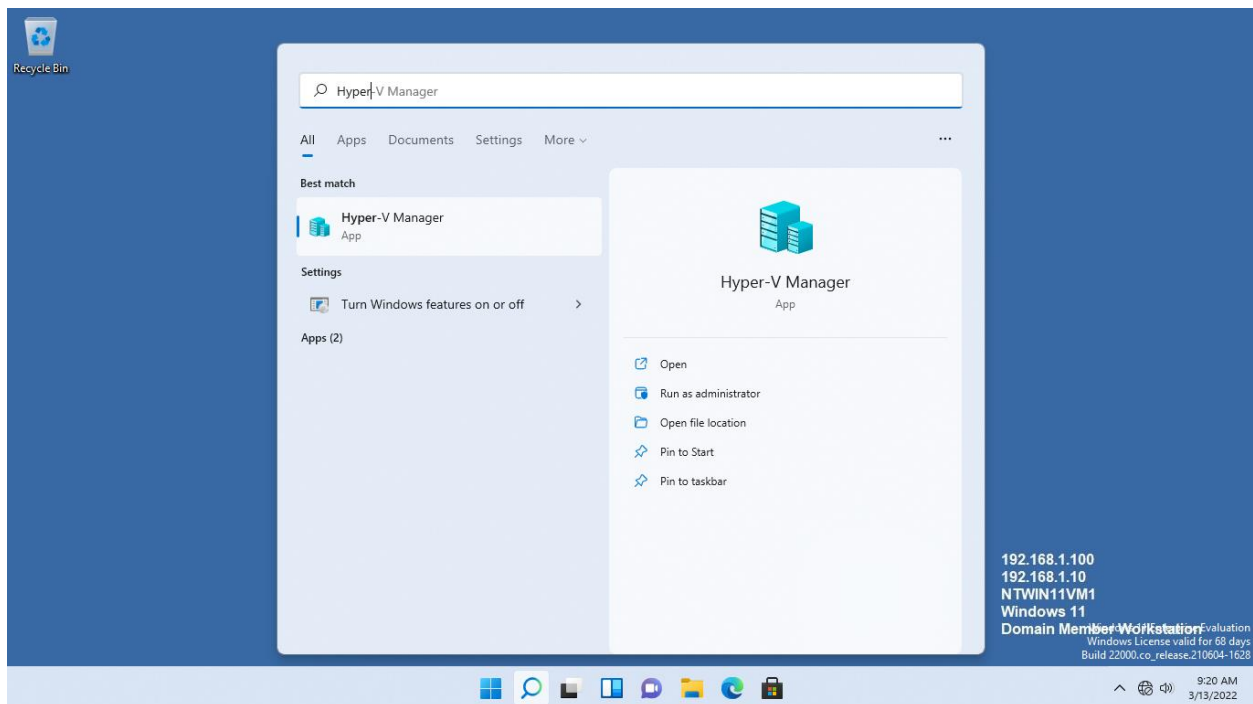- *Microsoft Windows 11*

Task 1:

Let's now set up the **NTWIN10HV2** (WDS client) virtual machine properties and enable it to successfully connect to the WDS server.

Step 1:

Connect to **NTWIN11VM1**.

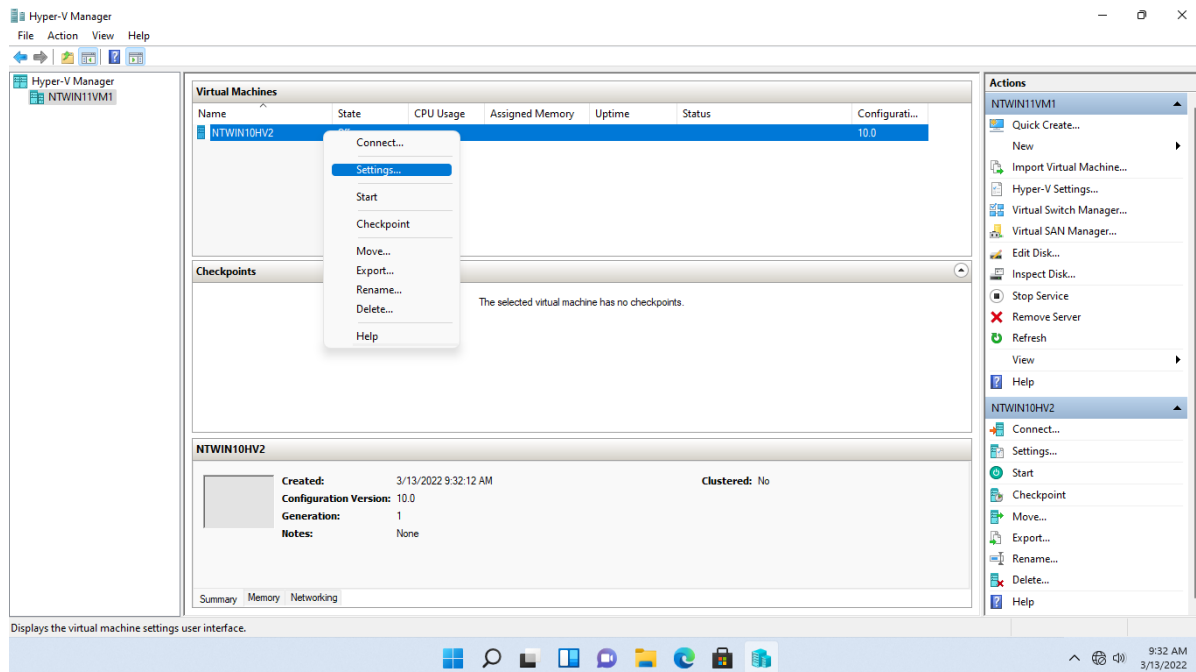Click in the **Type here to search** box and type: *hyper-v manager*

Press **Enter**.

Step 2:

The **Hyper-V Manager** is displayed.

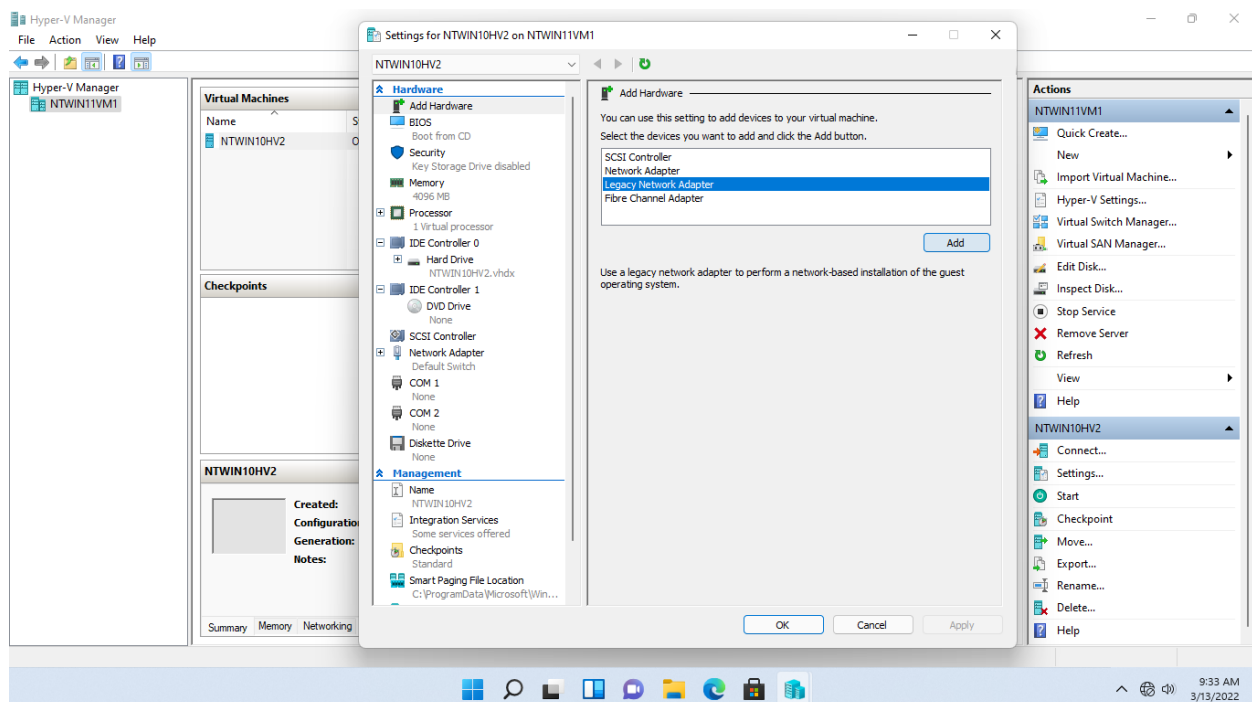On the **Virtual Machines** pane in the middle, right-click **NTWIN10HV2** and select **Settings**.

Step 3:

On the **Settings for NTWIN10HV2** on **NTWIN11VM1** window, access the navigation pane at the left.

Under the **Hardware** section, select **Add Hardware**, if not already selected.

On the **Add Hardware** details pane at the right, select **Legacy Network Adapter.**
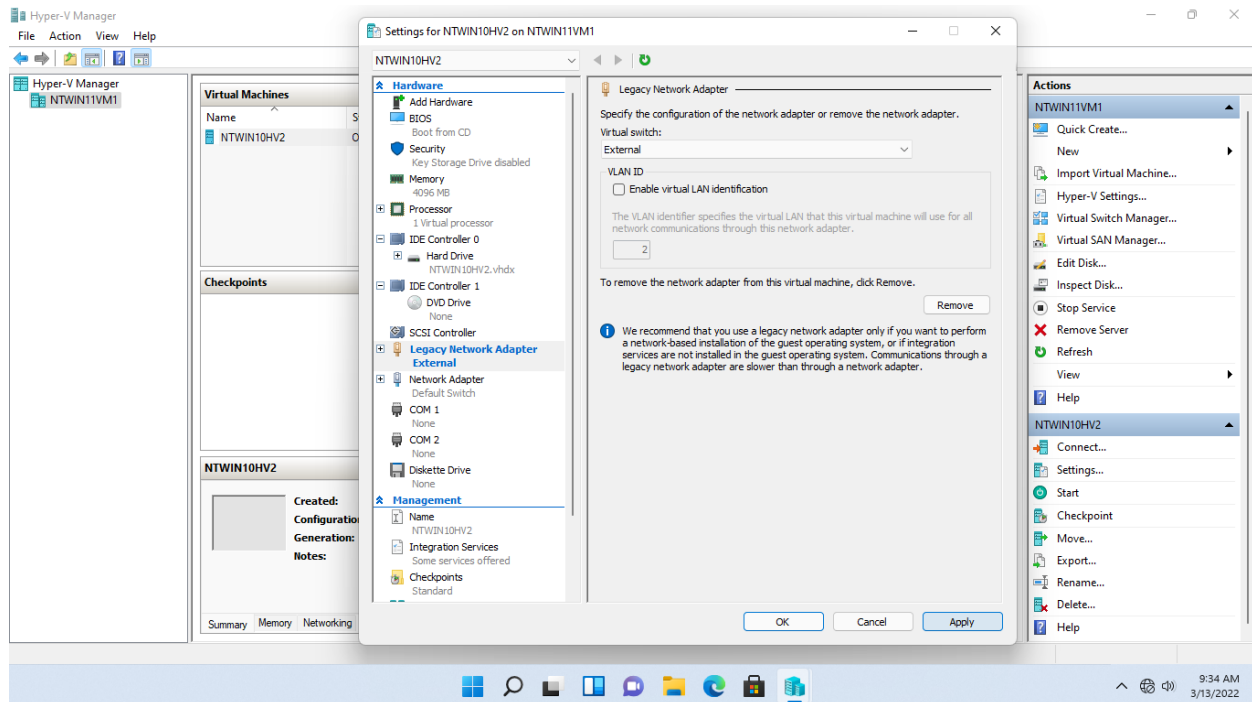
Click **Add**.

Step 4:

Notice that the newly added **Legacy Network Adapter** is now listed on the left pane.

On the **Legacy Network Adapter** details pane, under the **Virtual switch** section, click the drop-down list and select **External**.

Click **Apply**.

Step 5:

You will remove the other network adapter to prevent network connection issues on the **WDS** client when connecting to the **WDS** server.

On the **Settings for NTWIN10HV2** on **NTWIN11VM1** window, access the navigation pane at the left and select **Network Adapter** - **External**. Go to the right pane and click **Remove**
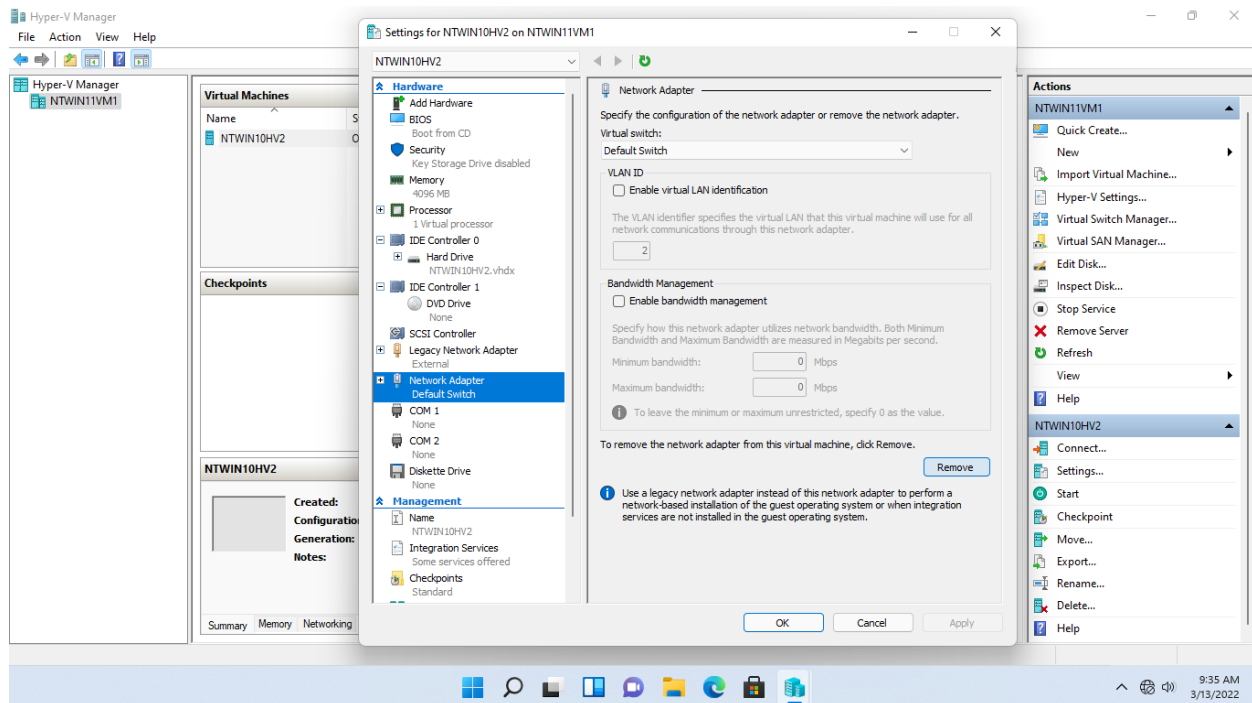
Step 6:

Notice the **Network Adapter** - **External** is now struck out.

Under the **Hardware** section on the left-hand navigation pane, select **IDE Controller 0**.

Go to the right-hand pane, select **Hard Drive** if not selected already, and click **Add.**
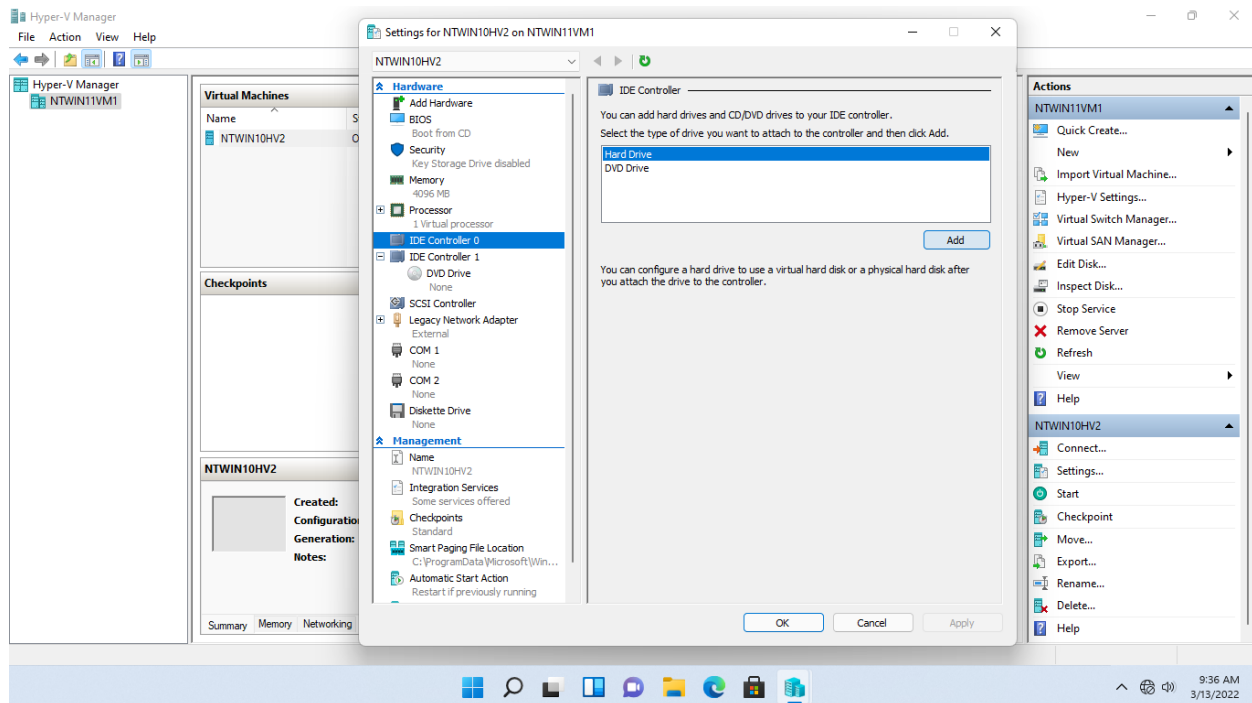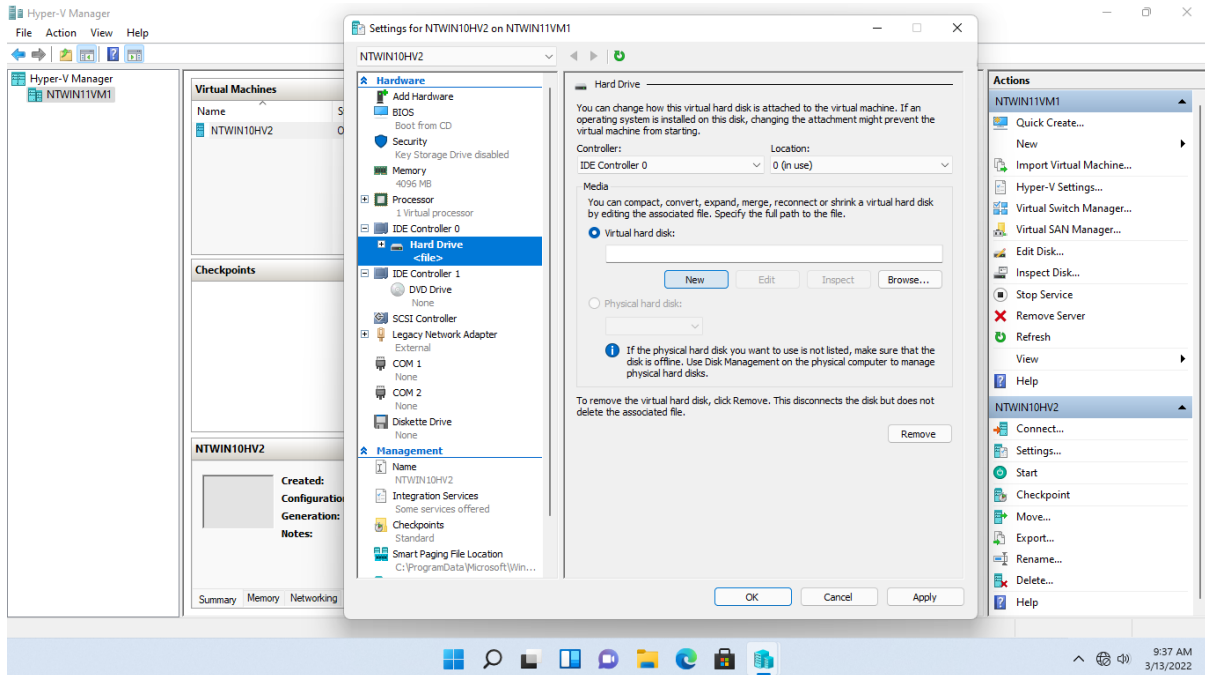
Step 7:

On the navigation pane at the left, notice that the **Hard Drive** is listed under the **IDE Controller 0.**
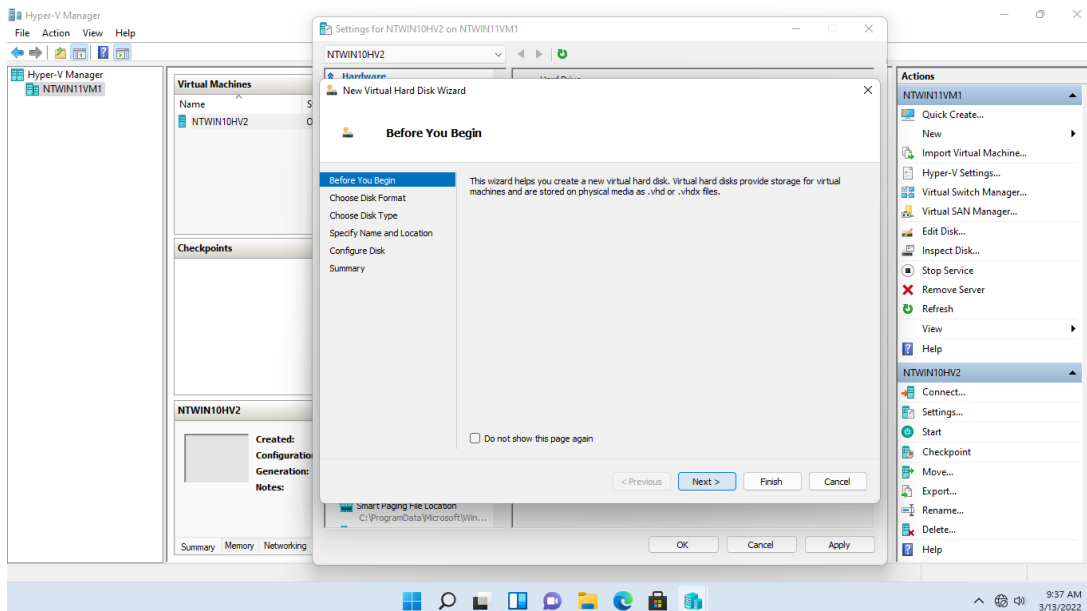
You will now create a virtual hard disk where the Windows operating system files will be saved.

Ensure the **Hard Drive** under the **IDE Controller 0** on the left-hand navigation pane is selected, go to the right-hand details pane and click **New**.

Step 8:

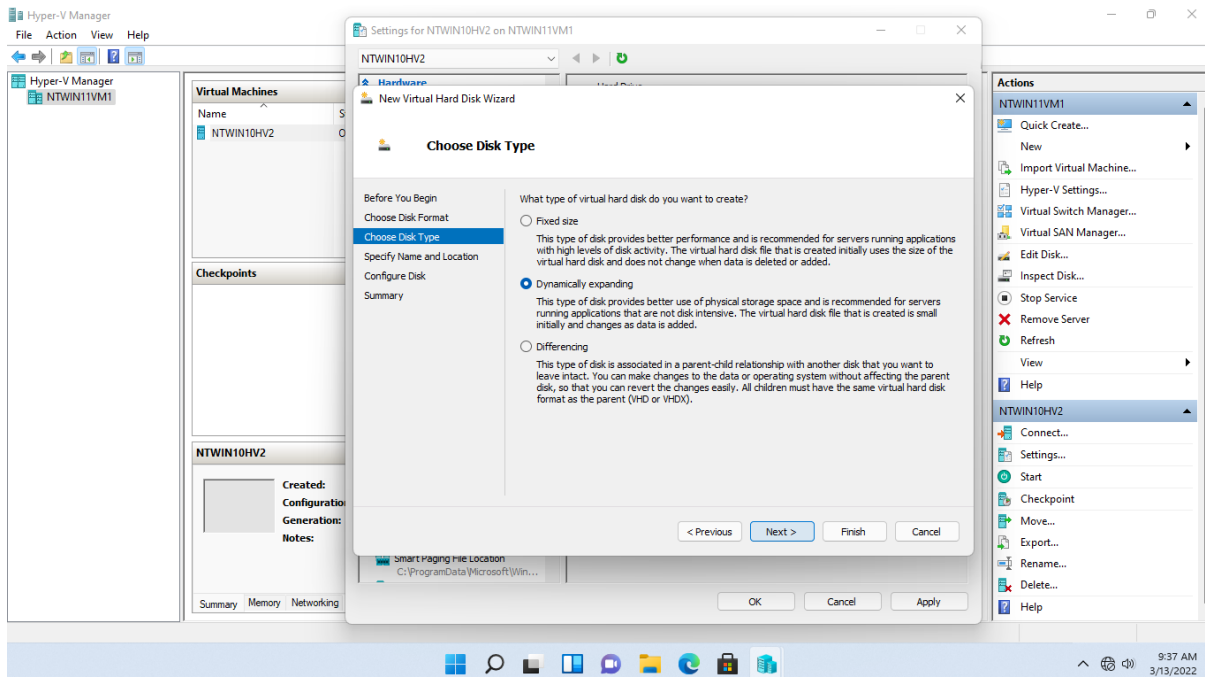On the **New Virtual Hard Disk Wizard** - **Before You Begin** page, click **Next**.

Step 9:

On the **Choose Disk Format** page, ensure that **VHDX** is selected.

Click **New**.
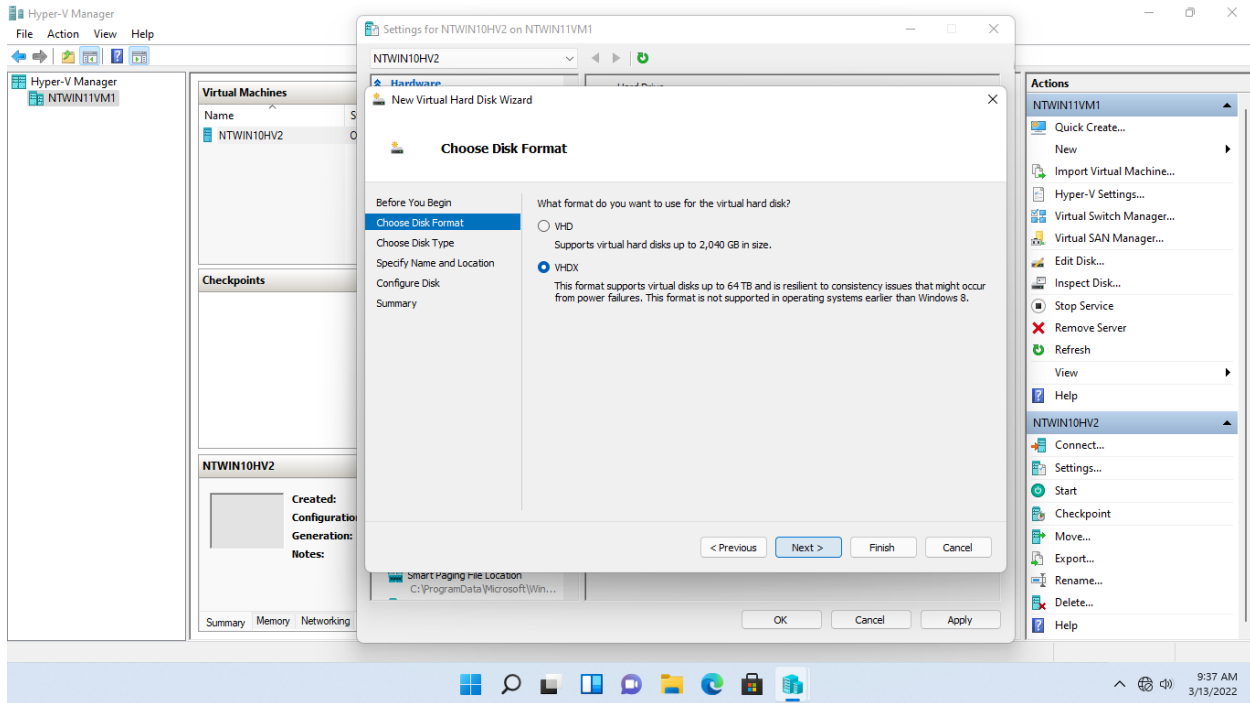
Step 10:

On the **Choose Disk Type** page, verify that the **Dynamically expanding** option is selected. Click **New**
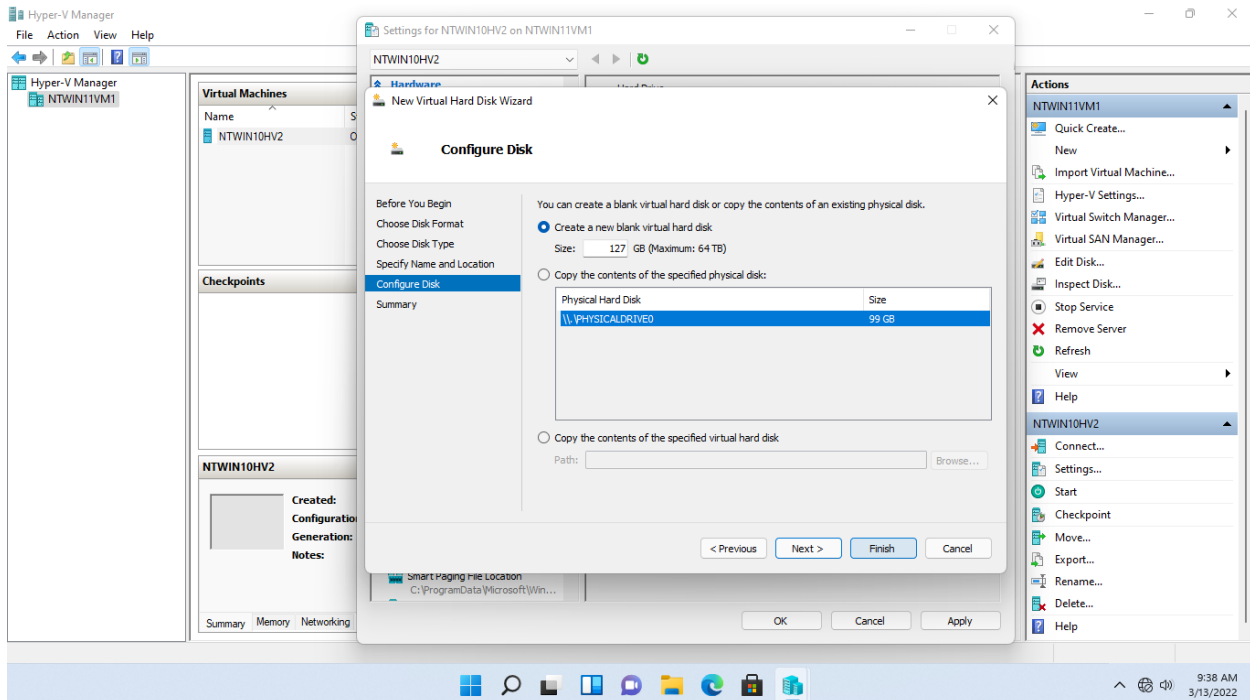
Step 11:

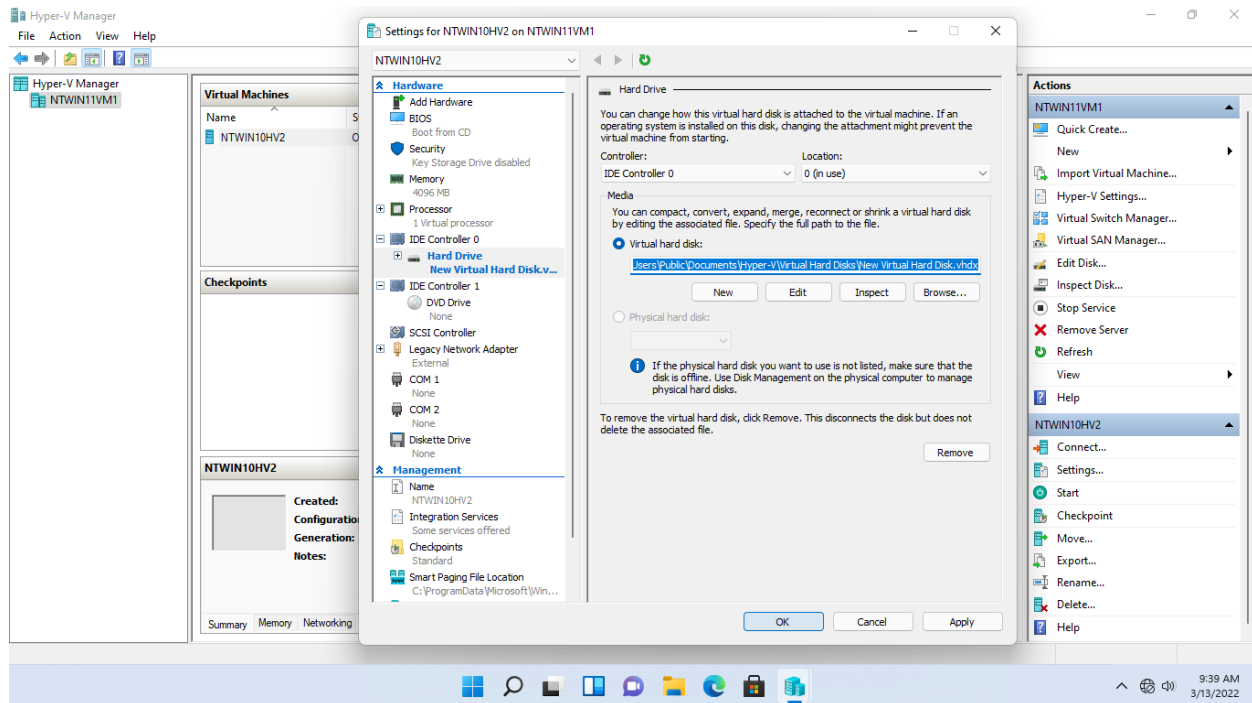On the **Specify Name and Location** page, keep the default settings. Click **New**
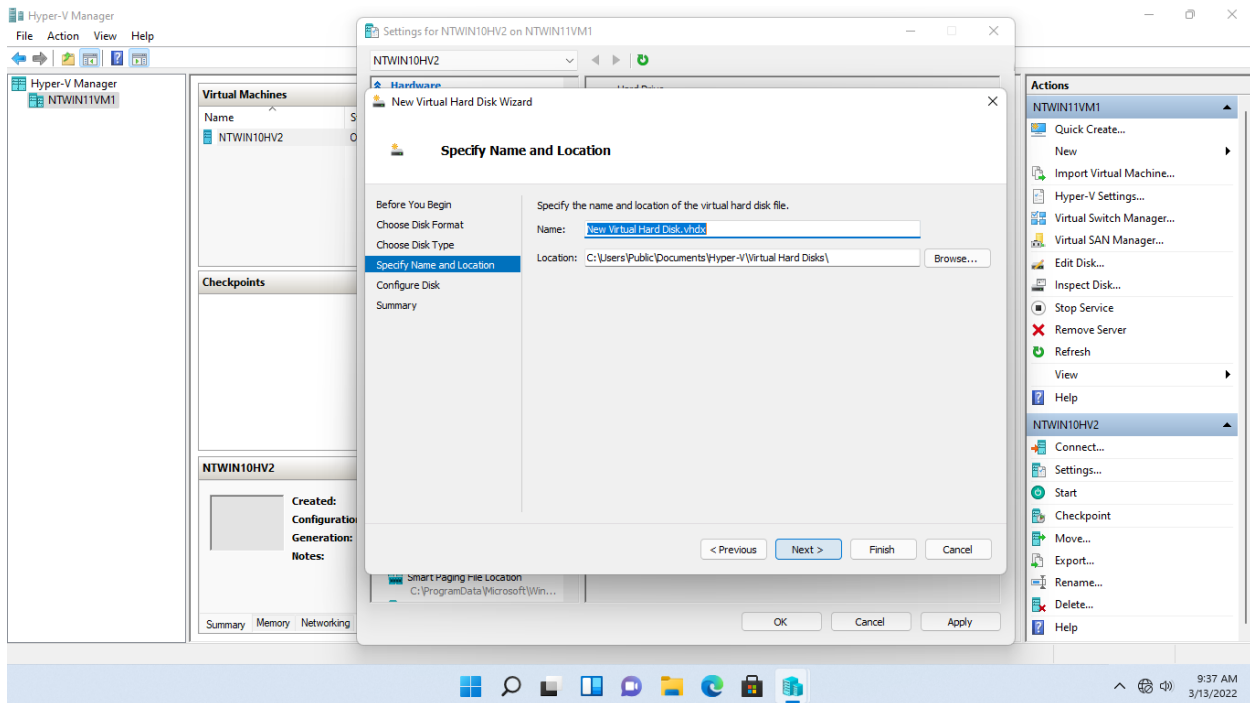
Step 12:

On the **Configure Disk** page, keep the default specifications and click **Finish**.

Step 13:

Click **OK** to close **Settings for NTWIN10HV2** on **NTWIN11VM1**

Task 2: Install Windows 10 using WDS

You can now proceed with the remote and unattended OS installation on a new computer after completing the different WDS settings outlined above. You will do a remote Windows 10 installation on **NTWIN10HV2** in this operation.

Step 1:

You are signed in to **NTWIN11VM1**and Hyper-V Manager is open.

On the Virtual Machines pane in the middle, right-click **NTWIN10HV2** and select **Connect**
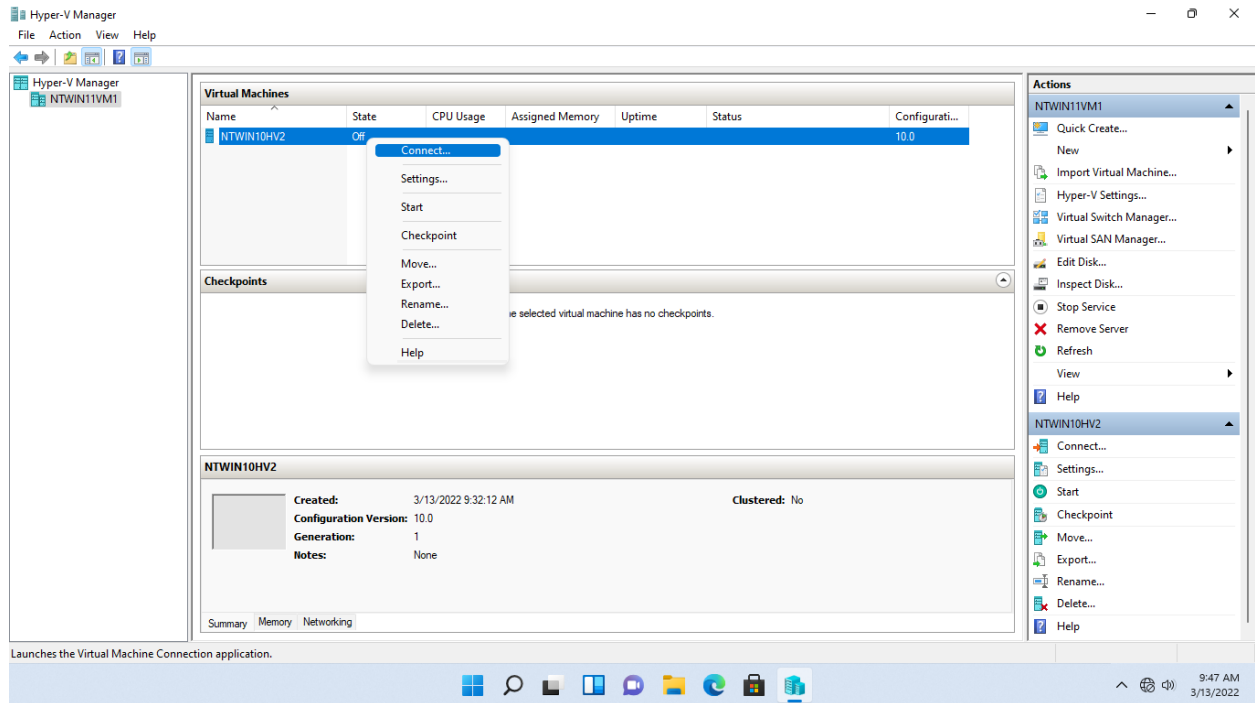
Step 2:

The **NTWIN10HV2** on **NTWIN11VM1**- **Virtual Machine Connection** window is displayed

Click the **Start** button
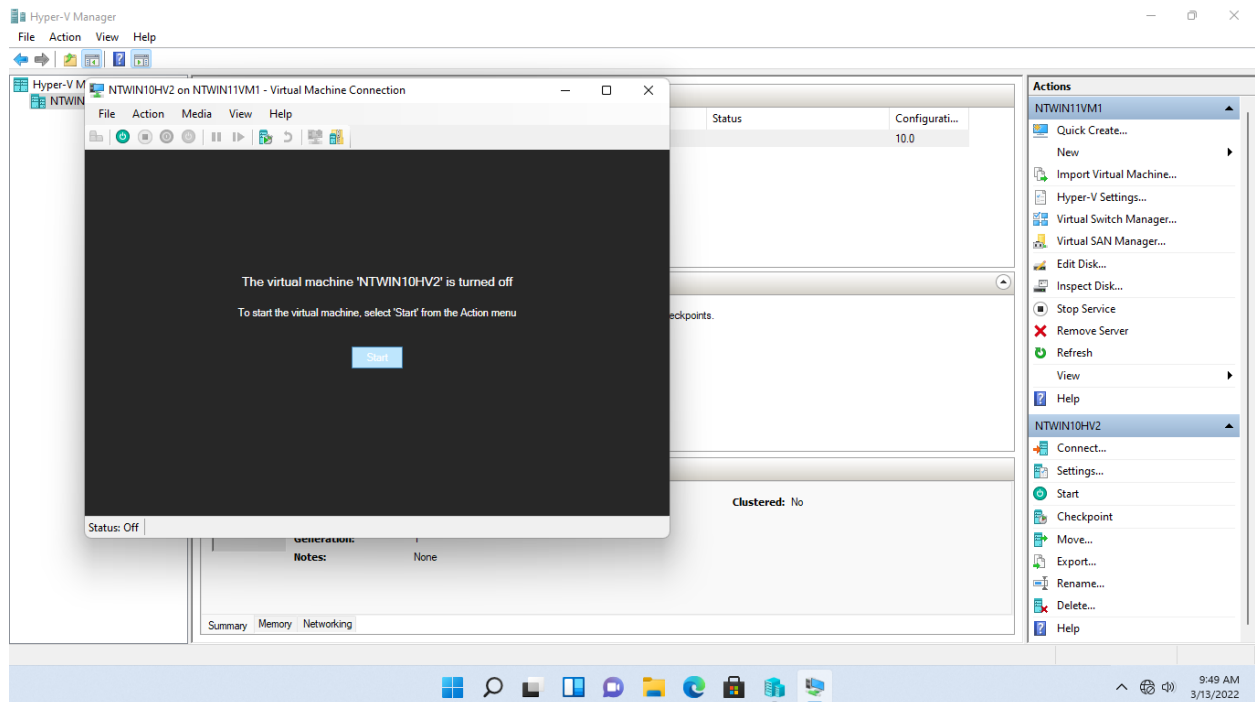
Step 3:

Please wait while **NTWIN10HV2** is being powered on.

On the menu bar at the top, click **View** and select **Full Screen Mode.**

When **NTWIN10HV2** starts, the **DHCP** client will attempt to request for an IP address.
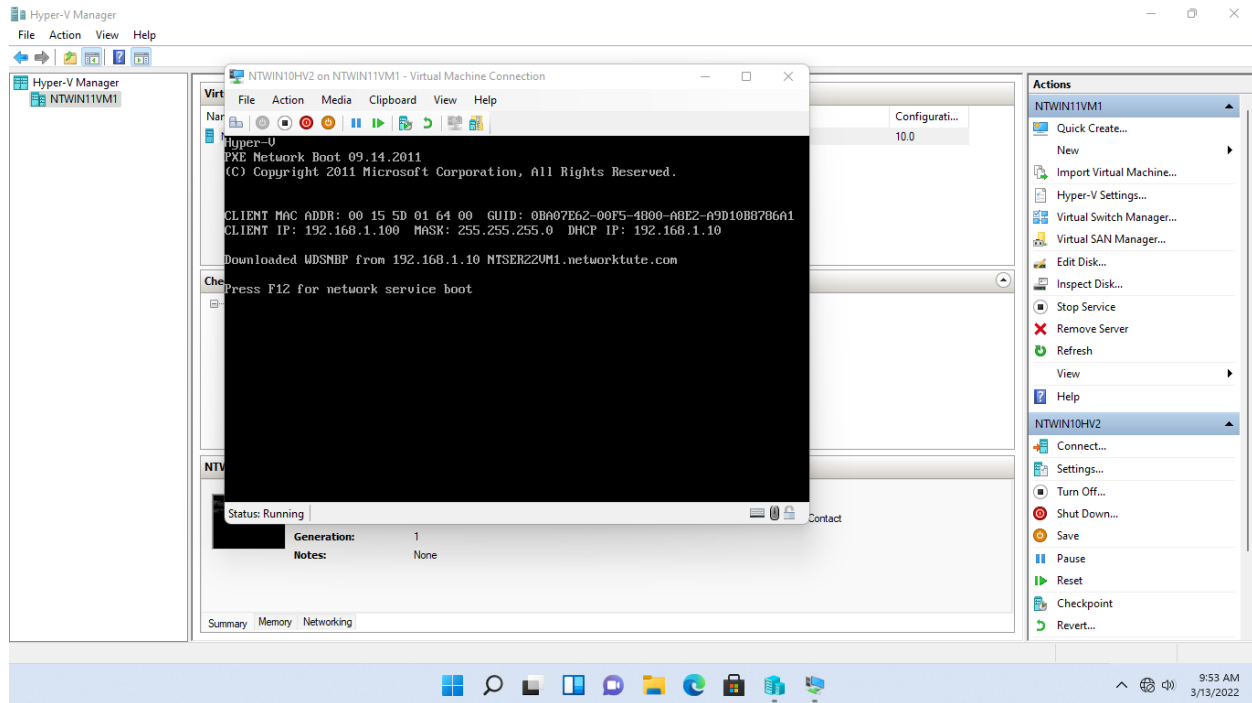
This process may take a few minutes.
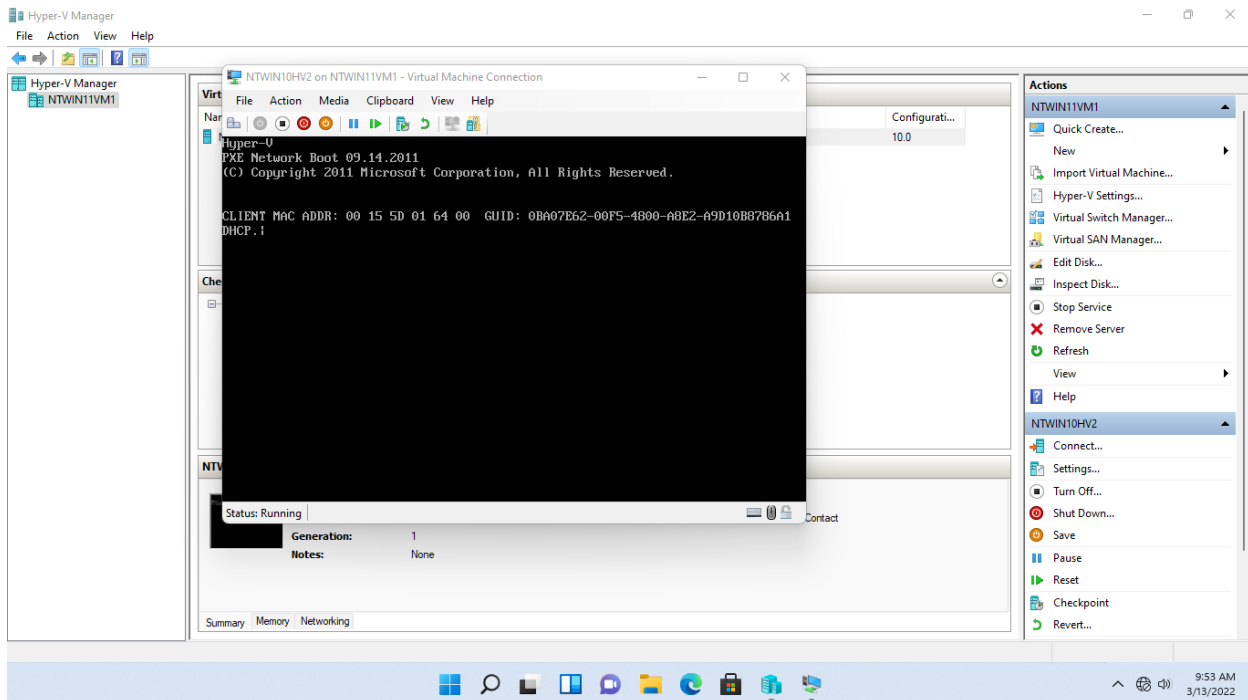
Step 4:

Press **F12** when asked to boot **NTWIN10HV2** from the network.

Note: If you miss the instruction to press F12, you'll have to turn off the system and start the process anew. To reset, go to the menu bar and pick Action, then Reset. After that, close the window and restart the task from Step 1.

Step 5:

This will fail due to the **DHCP** server not being in sync with the external connection. To resolve this, click back to **NTSER22VM1** and open **Server Manager**
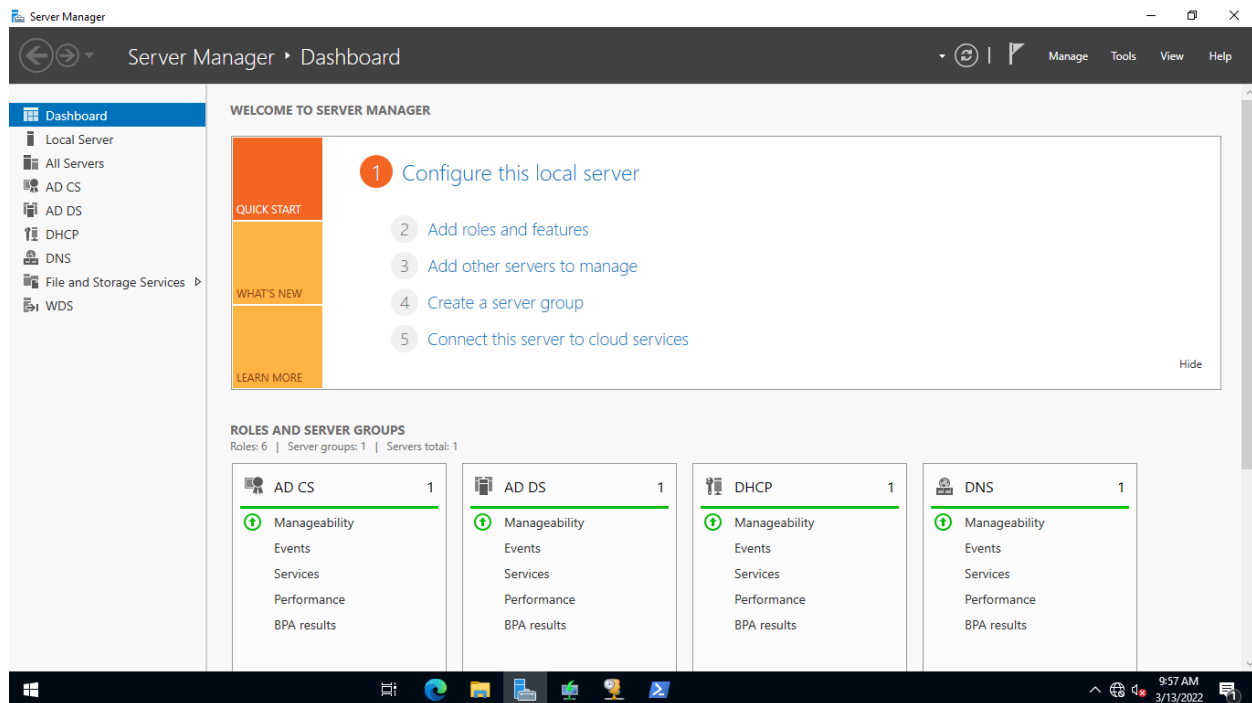
Step 6:

Click on **Tools** > **DHCP**.
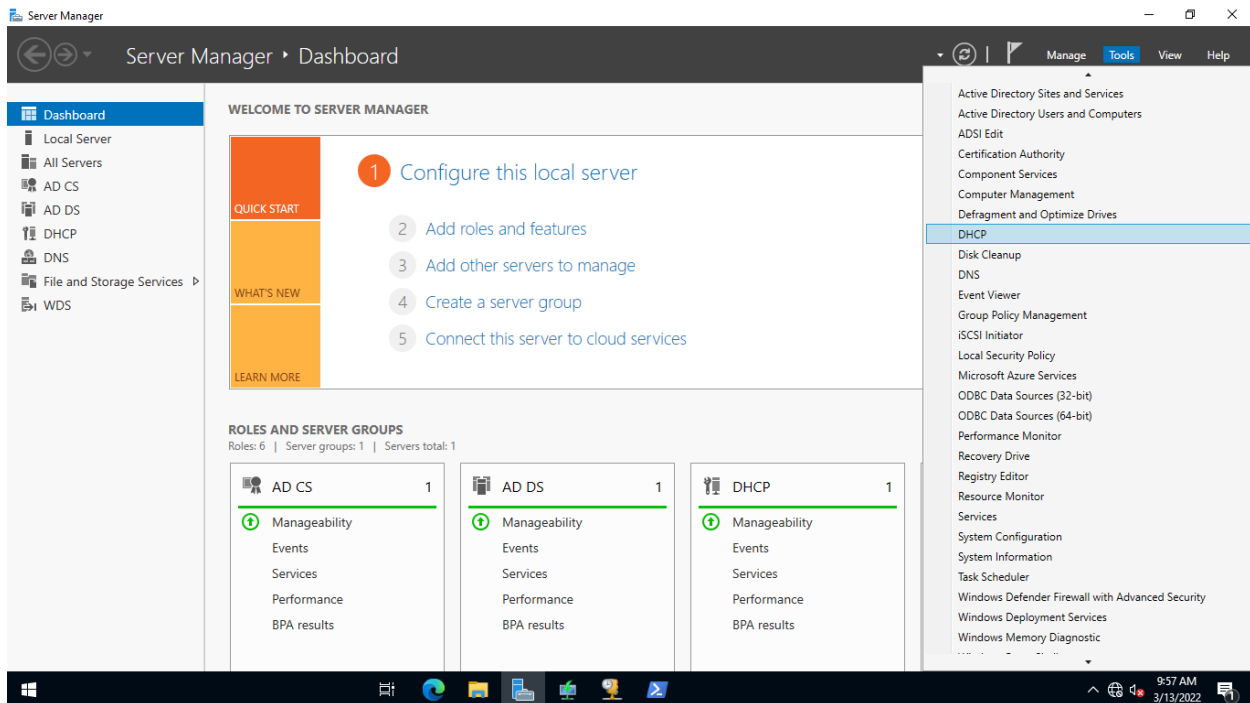
Step 7:

Connect to **NTSER22VM1**. Expand and right-click on **ntser22vm1** and click on **All Tasks** > **Stop**.
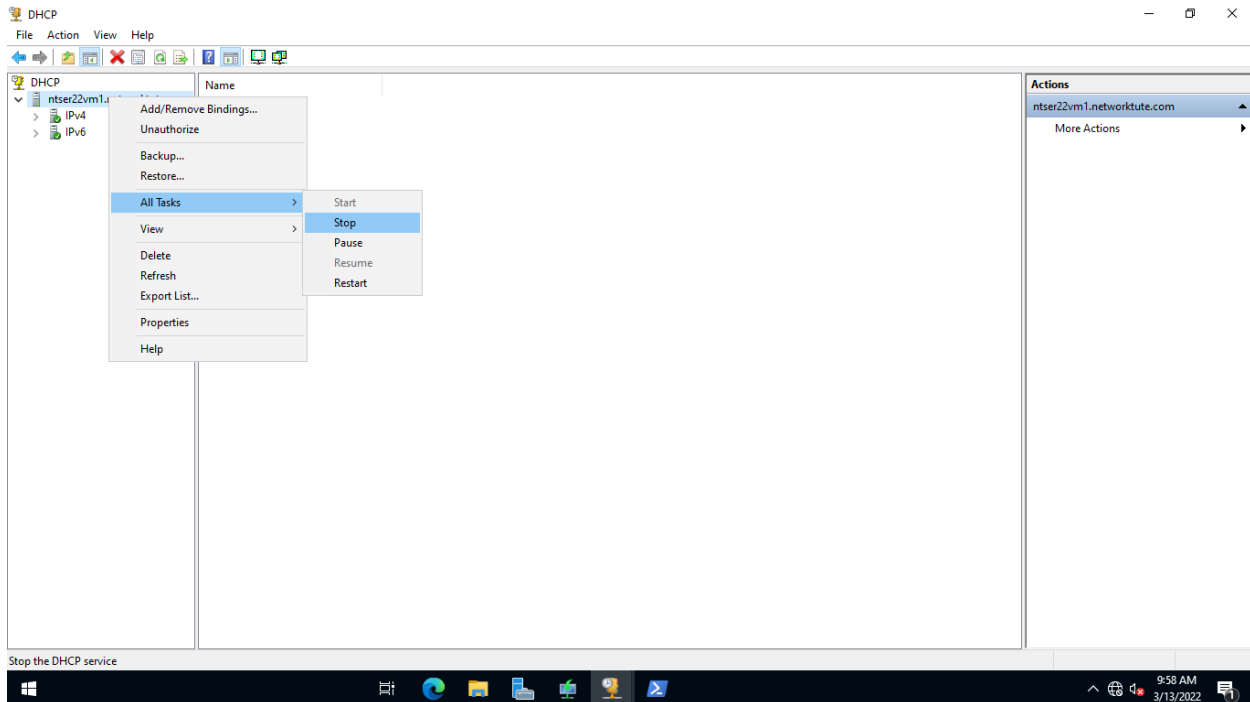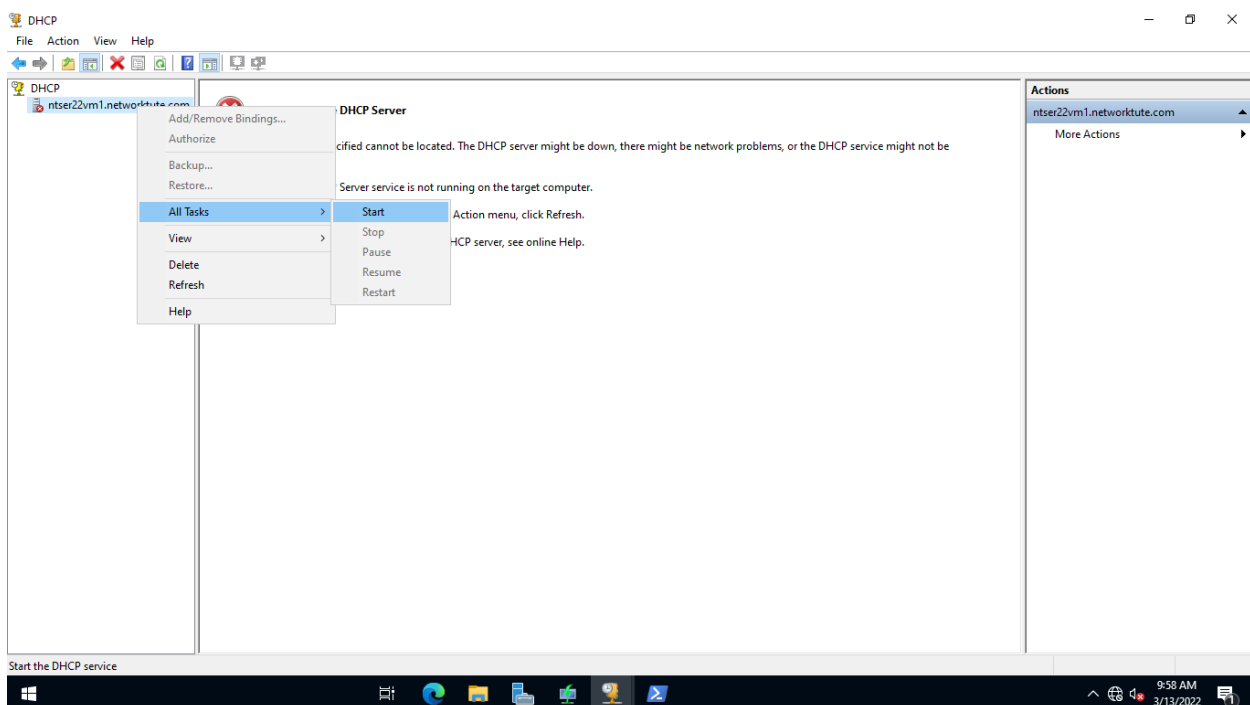
Step 8:

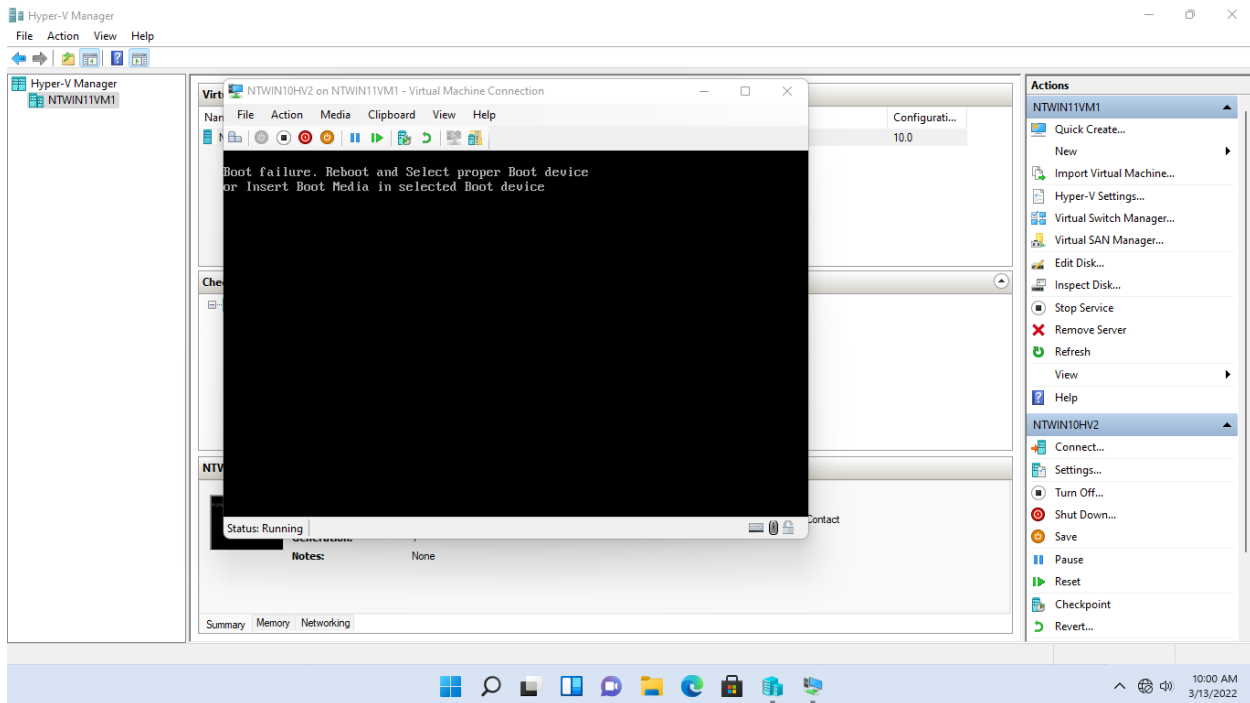Once this has been done, click on **ntser22vm1**. Notice there you will see an **Cannot find the DHCP Server** error screen
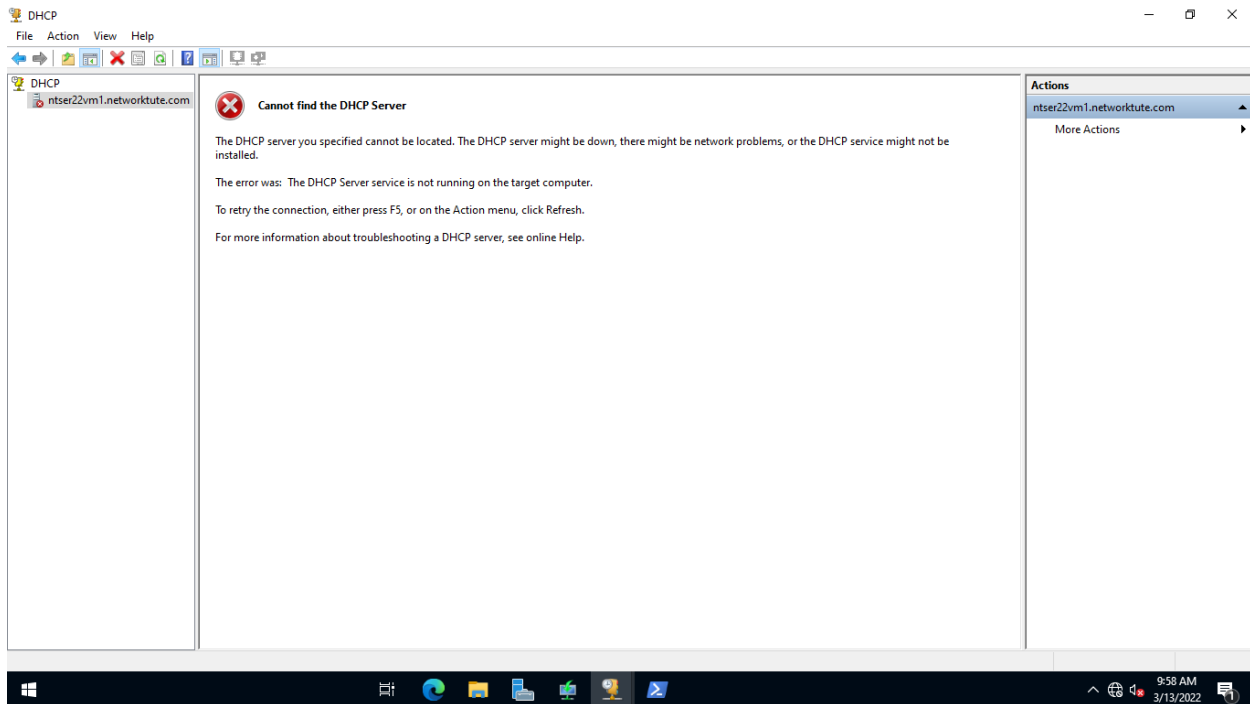
Step 9:

Right click **ntser22vm1**and go to **All Tasks** > **Start**.

Step 10:

Click back to **NTWIN11VM1**, then back to Hyper-V with **NTWIN10HV2** connected.

Step 11:

Press **F12** when asked to boot **NTWIN10HV2** from the network. **TFTP** starts to download the boot files. The boot process will take some minutes.
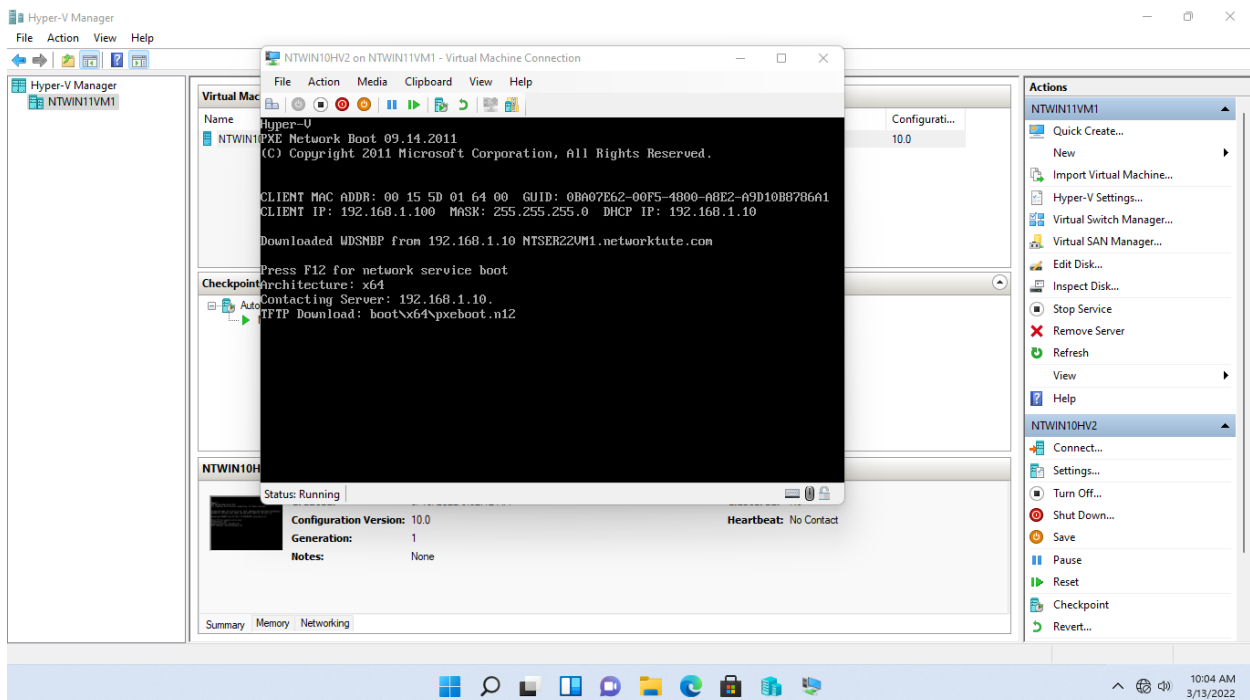
You will need to maximize the window, to see the boot progress bar at the bottom of the screen.
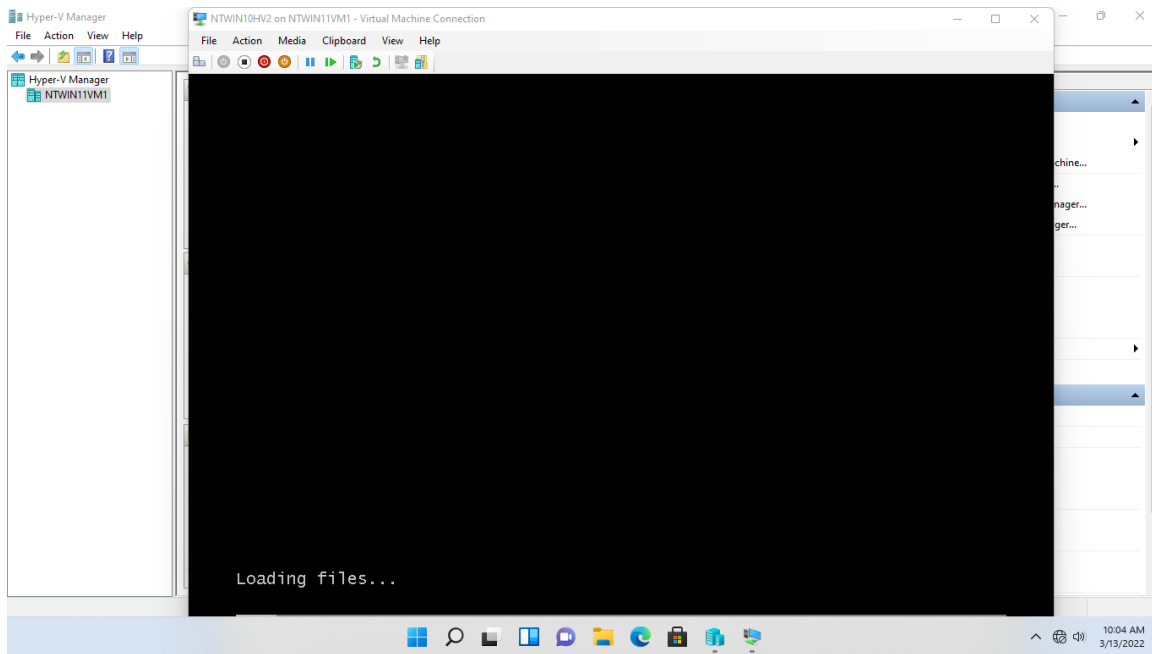
Step 12:

The **NTWIN10HV2** on **NTWIN11VM1** connection bar is displayed at the top of the window. This indicates that you are now connected to the **NTWIN11VM1** virtual desktop.

Please wait while the system is loading files. This will take a few minutes.

Notice that the system is accessing the files from the IP address **192.168.1.10**. This is the IP address of **NTSER22VM1** - the specified source of the boot files.
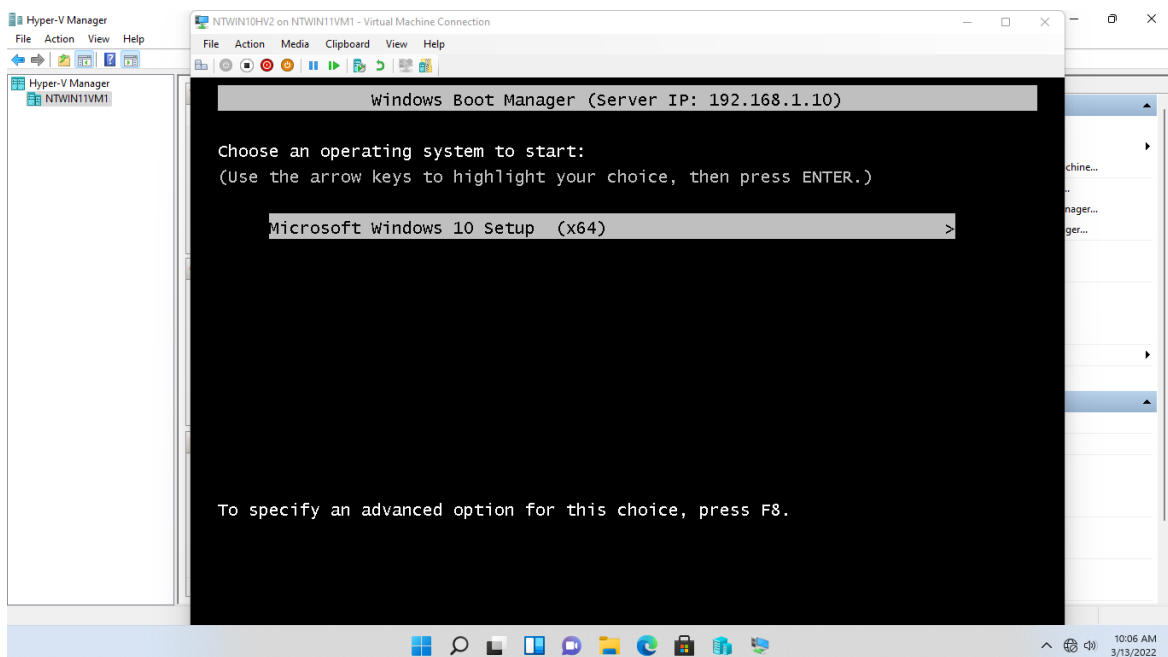
Step 13:

After the downloading process is complete, the **Windows Setup** wizard appears.

On the **Windows Deployment Services** screen, keep the default specifications and click **Next** to continue.
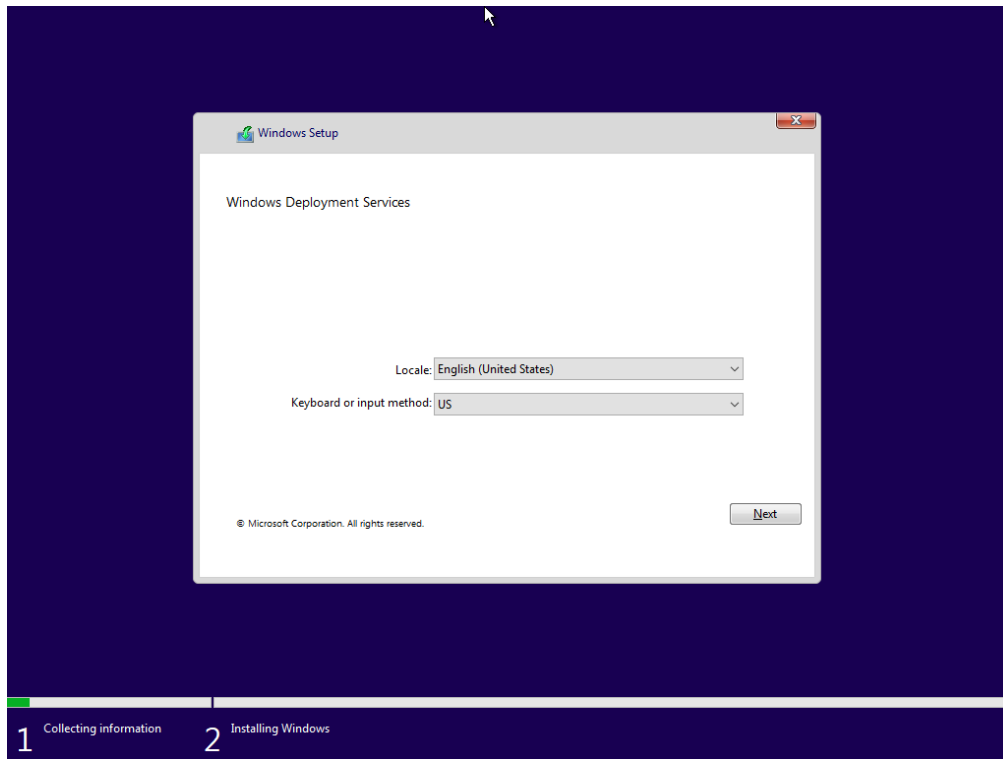
Step 14:

When asked for credentials to connect to **NTSER22VM1.NETWORKTUTE.com**, type the following:

User name: *networktute\administrator*

Password: *Networktute@1*

Click **OK**.
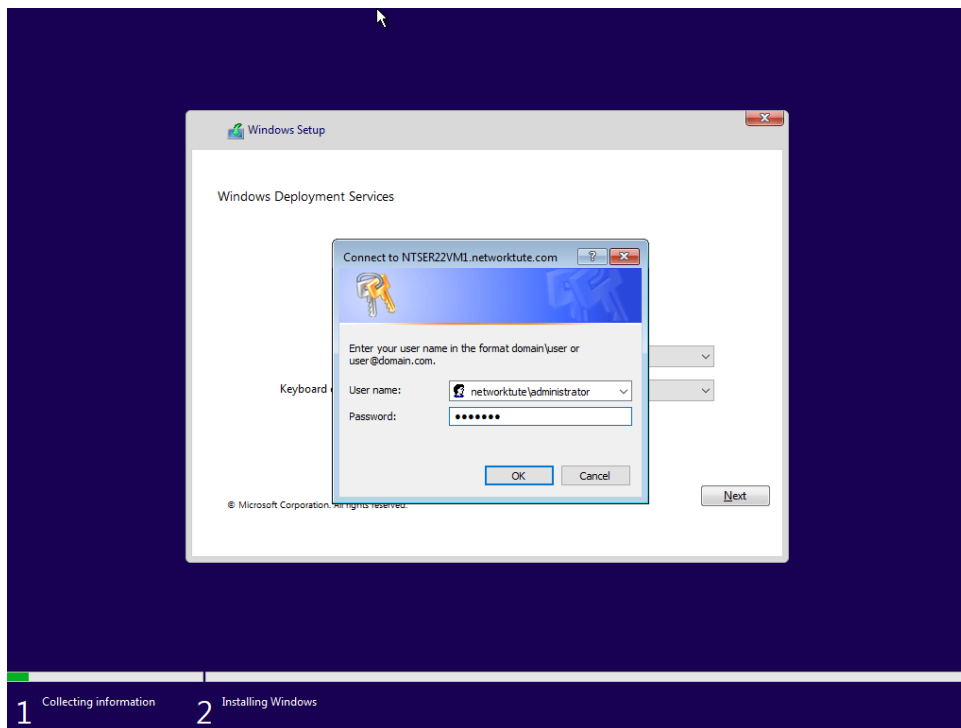
Step 15:

On the **Select the operating system you want to install** page; **Windows 10 Enterprise** image is listed. Selected this image to install, if not already selected.

This is the pre-installed image added to the **NTSER22VM1** server for this lab. Click **Next**.
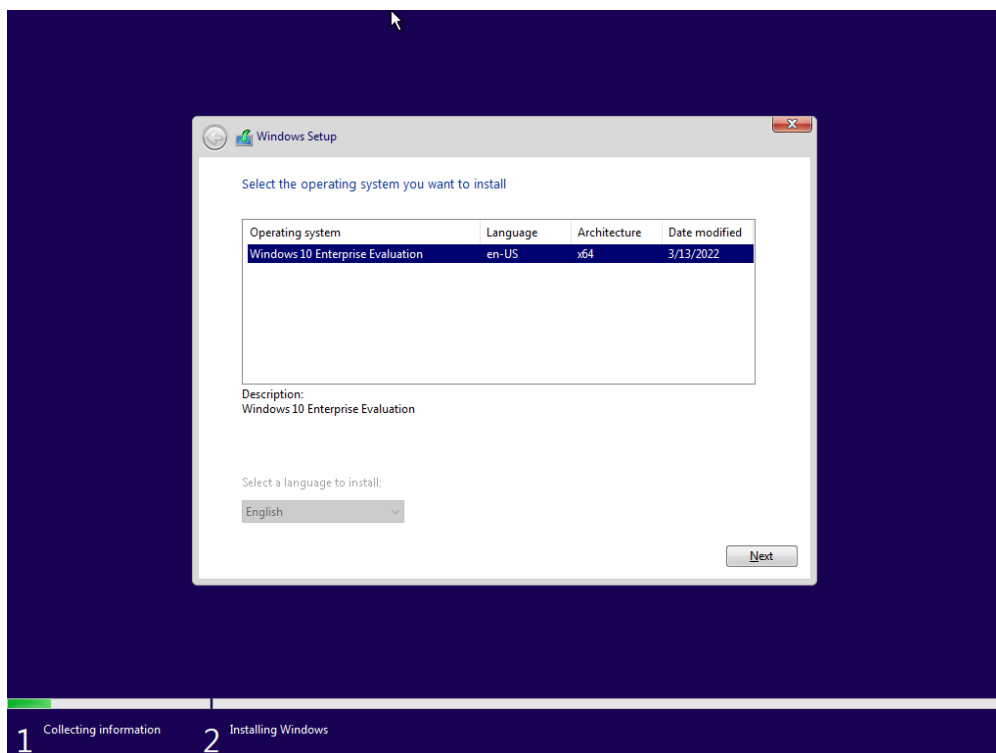
Step 16:

On the **Where do you want to install Windows** page, select **Drive 0 Unallocated Space**, if not already selected. Click **Next**.
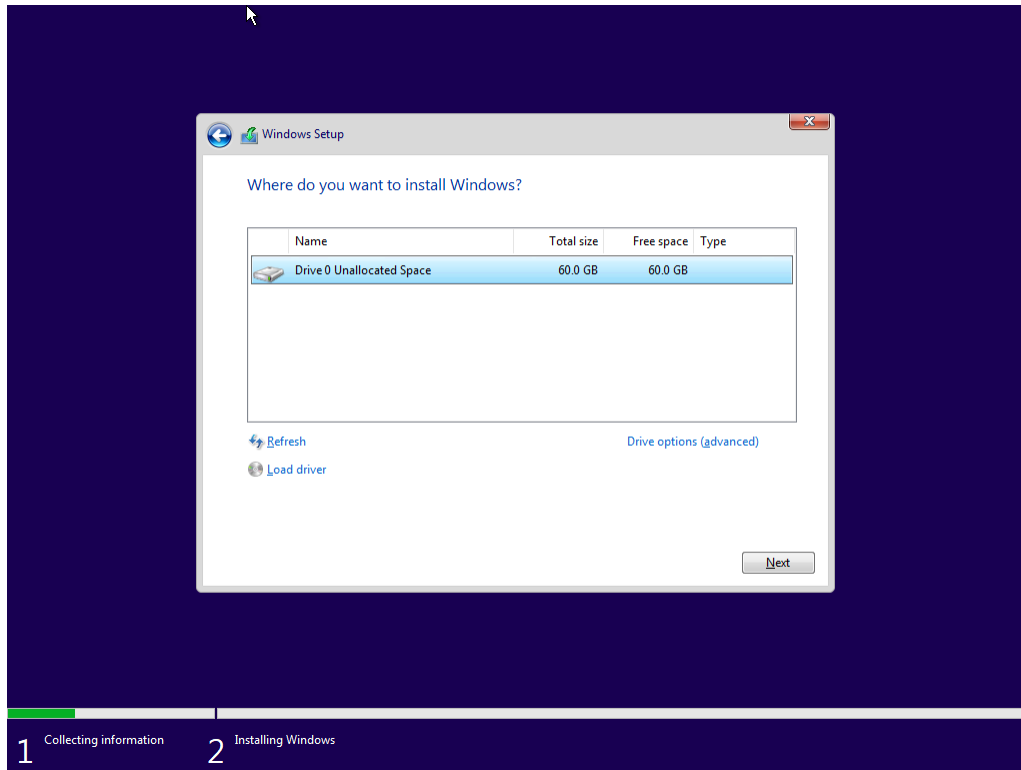
Step 17:

The **Waiting for server** page is displayed.
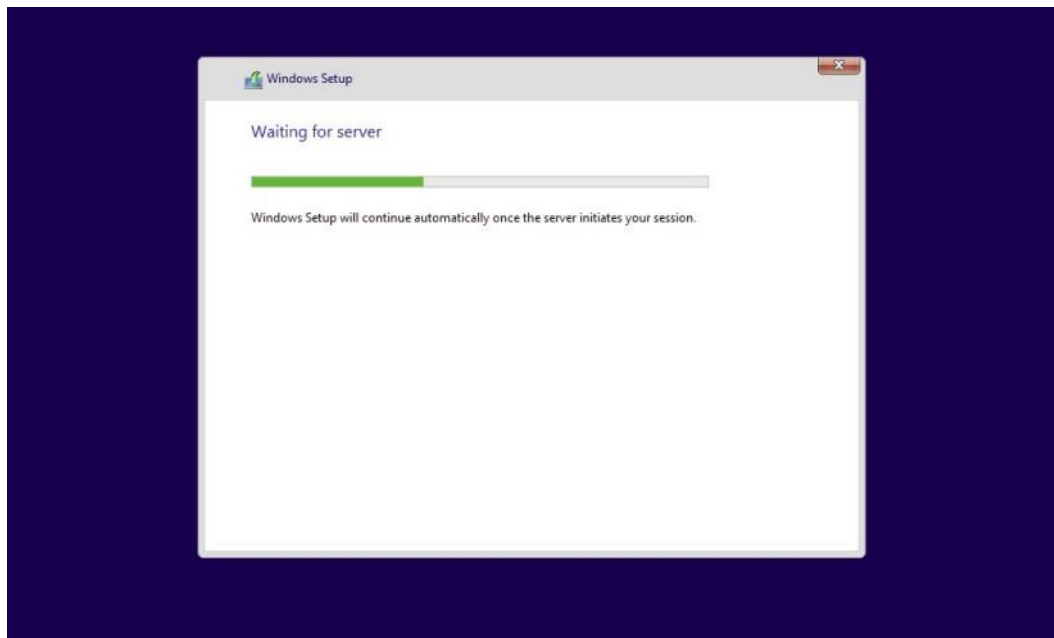
Step 18:

The **Installing Windows** page appears.

It displays the progress of the installation process. It also indicates that the computer will restart on its own, without user intervention.

Please wait while this process takes a few minutes to finish.
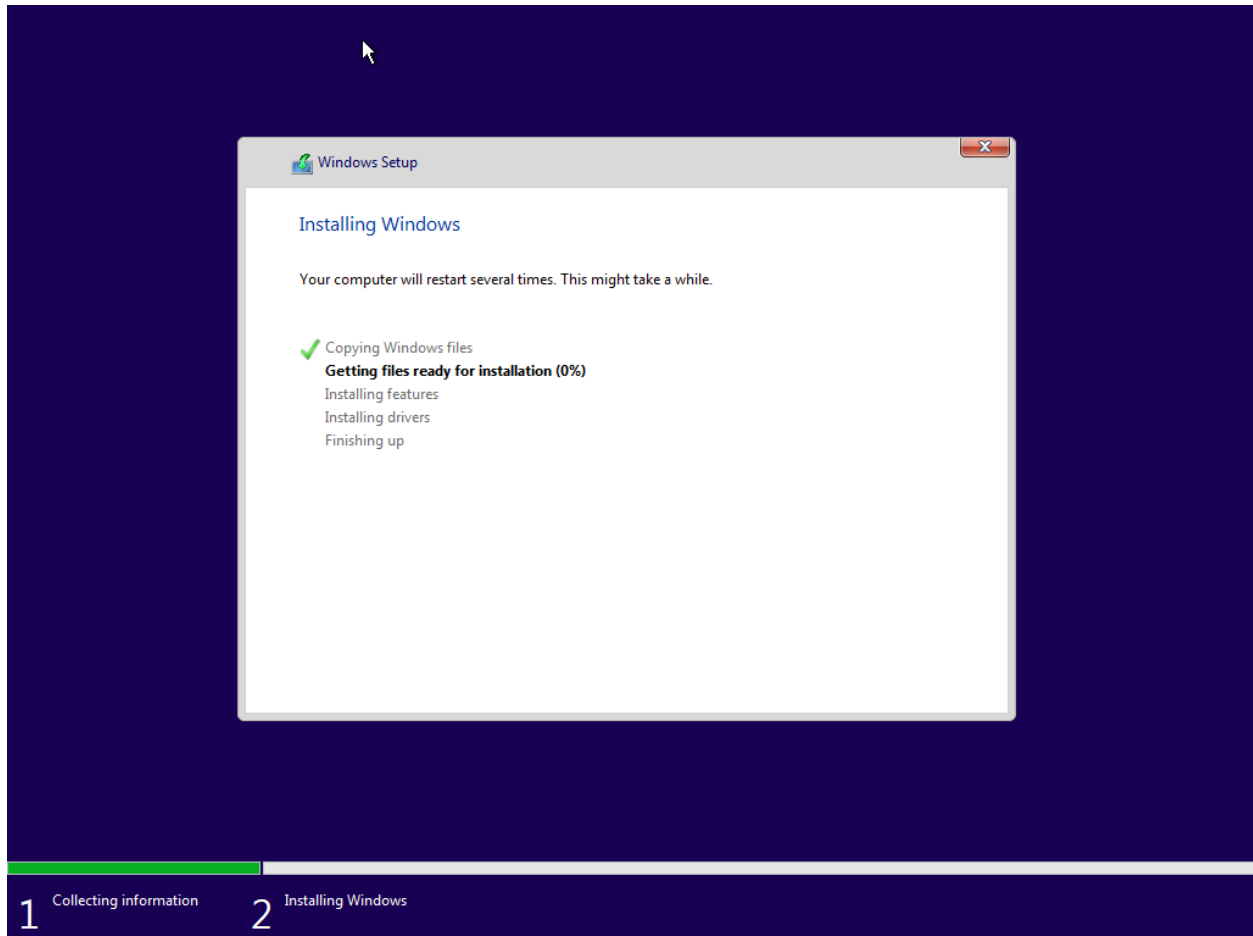
Step 19:

Windows will restart by itself when the copying of the files is completed.

You may click on **Restart Now** to force a restart.

As already indicated, the computer restarts a few times while the operating system is being configured. This will take a few minutes to finish.

Windows will restart the computer after this process.
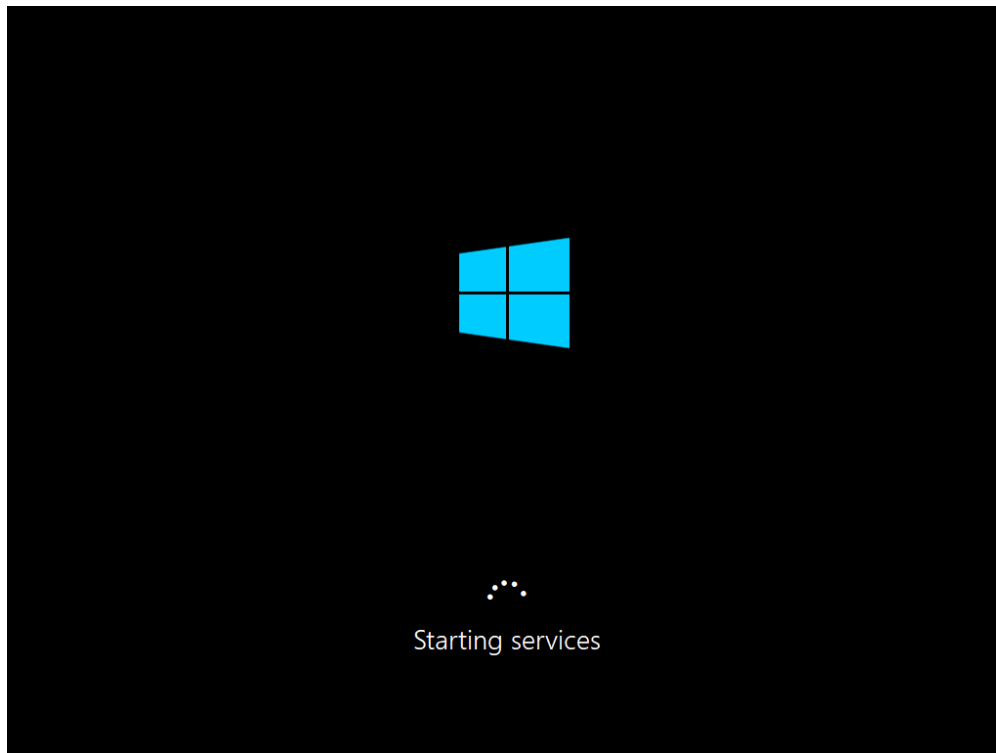
Step 20:

The **Let's start with region. Is this right**? page appears.

Keep the default settings and click **Yes**.
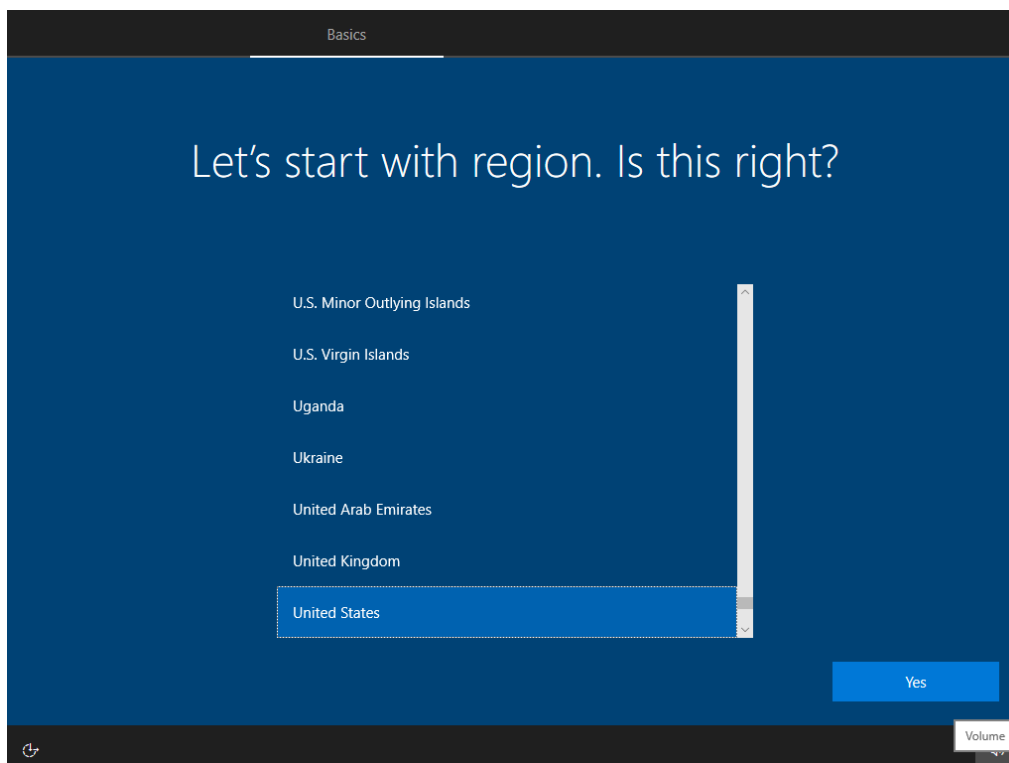
Step 21:

On the **Is this the right keyboard layout**? page, click **Yes**.
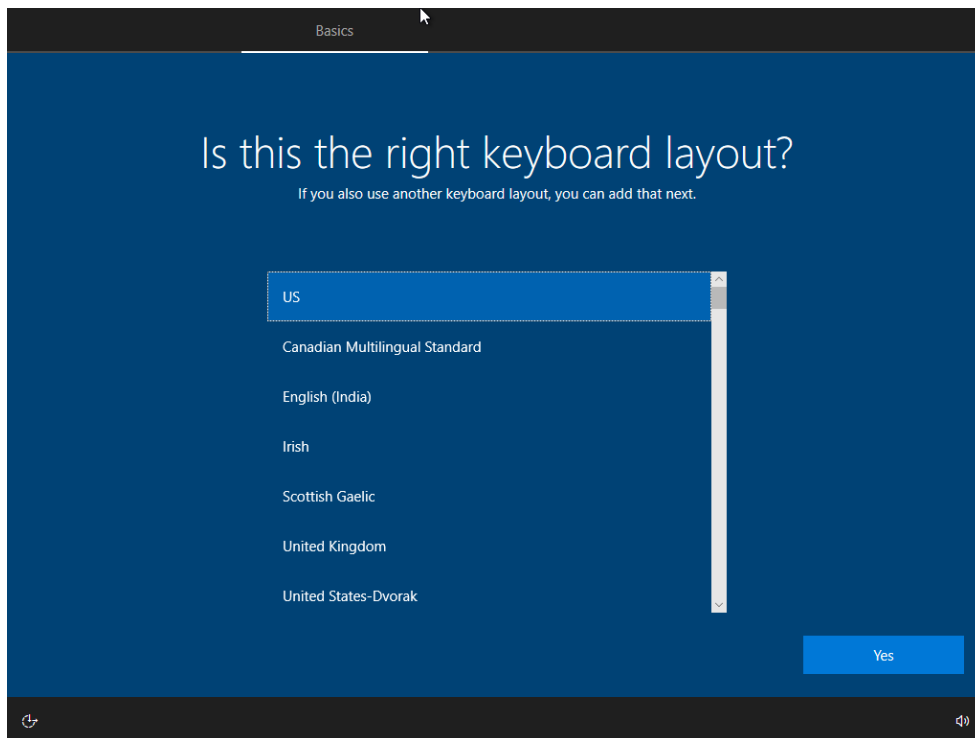
Step 22:

On the **Want to add a second keyboard layout**? page, click **Skip**.
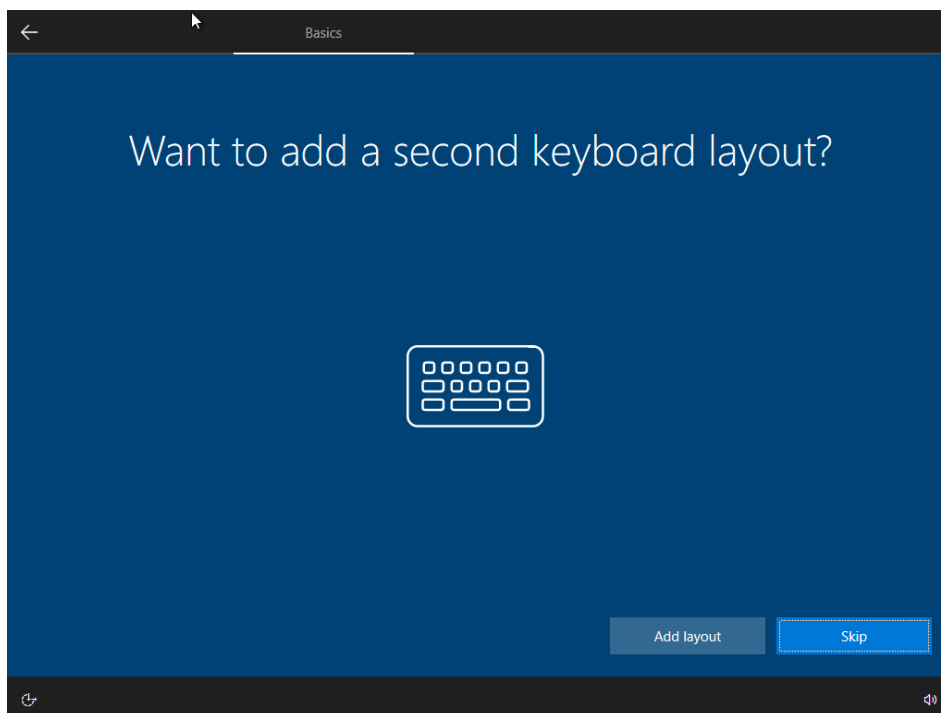
Step 23:

On the **Windows 10 License Agreement** page, click **Accept**.
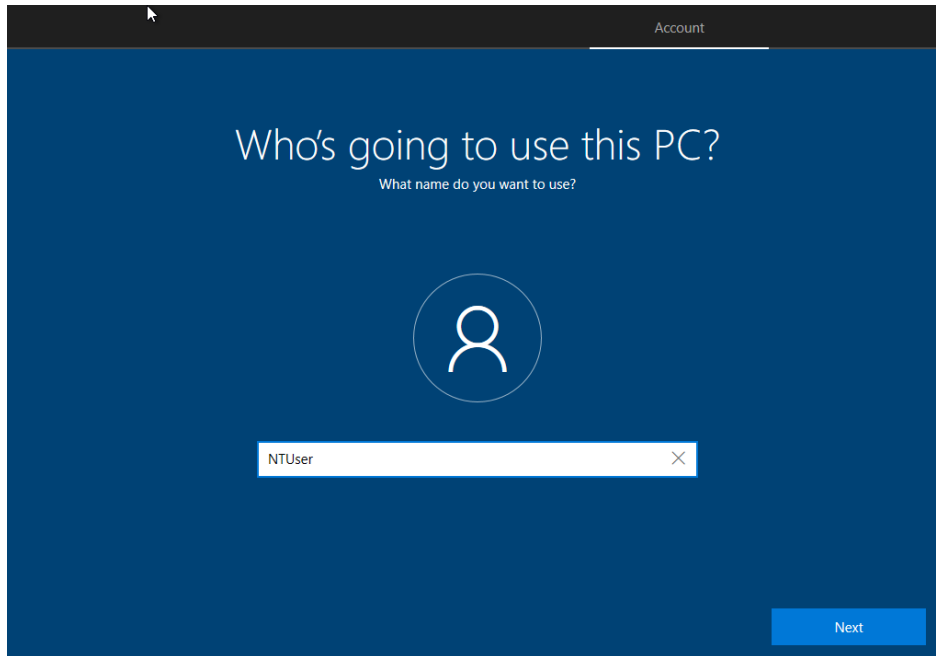
Step 24:

On the **Let's connect you to a network** page, click the **Skip for now** link on the lower-left.
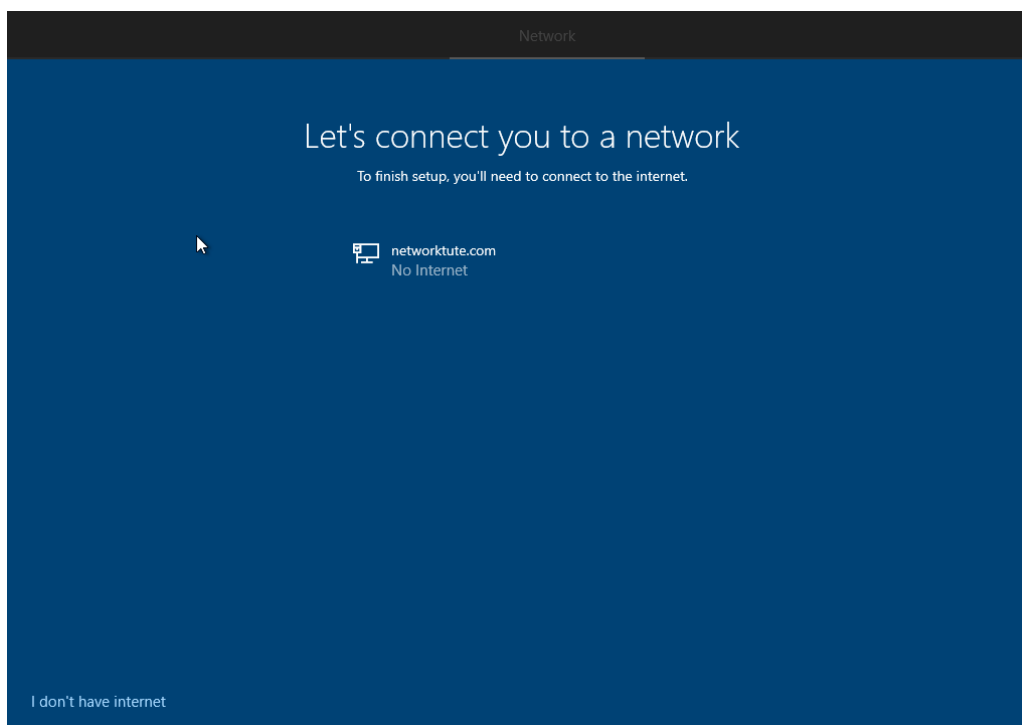
Step 25:

On the **Who's going to use this PC**? page, type: *NTUser.* Click **Next**.

Step 26:

In the **Create a super memorable password** textbox type: *Networktute@1*

In the **Confirm your password** textbox, enter the same password as above. Click **Next**.
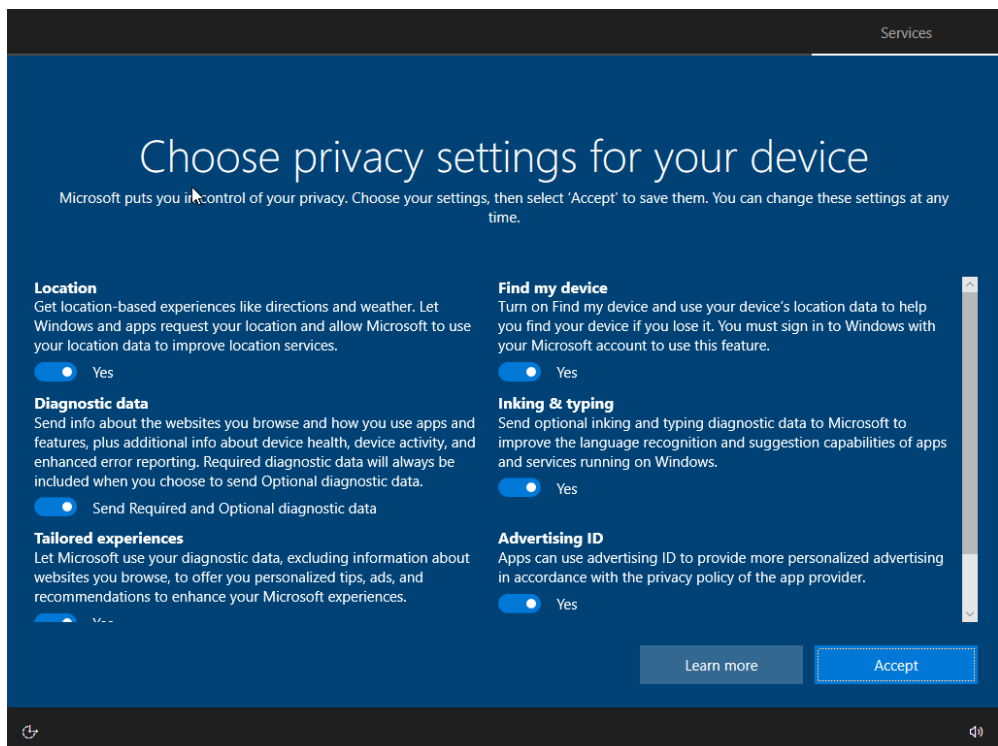
Step 27:

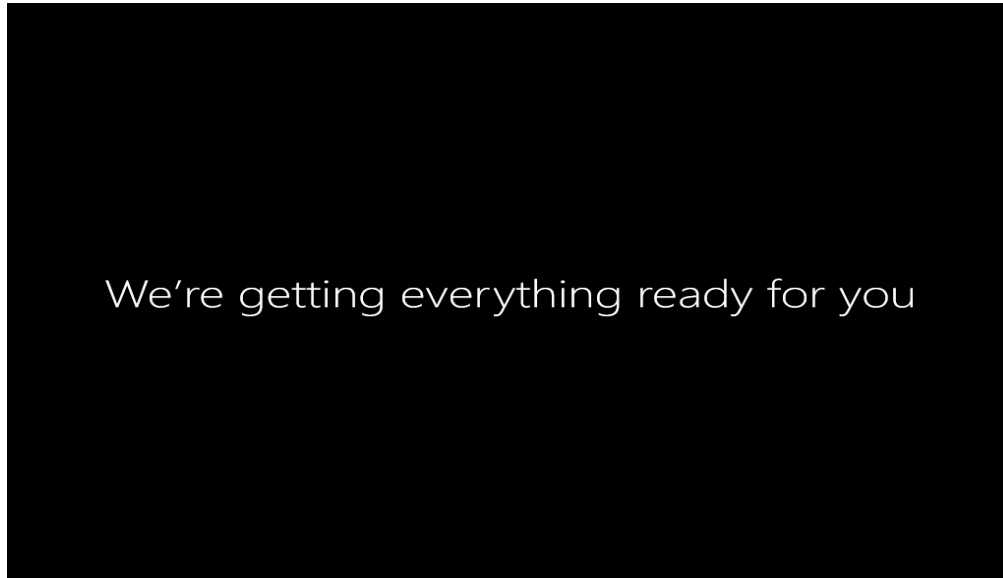On the **Make Cortana your personal assistant?** page, click **No.**
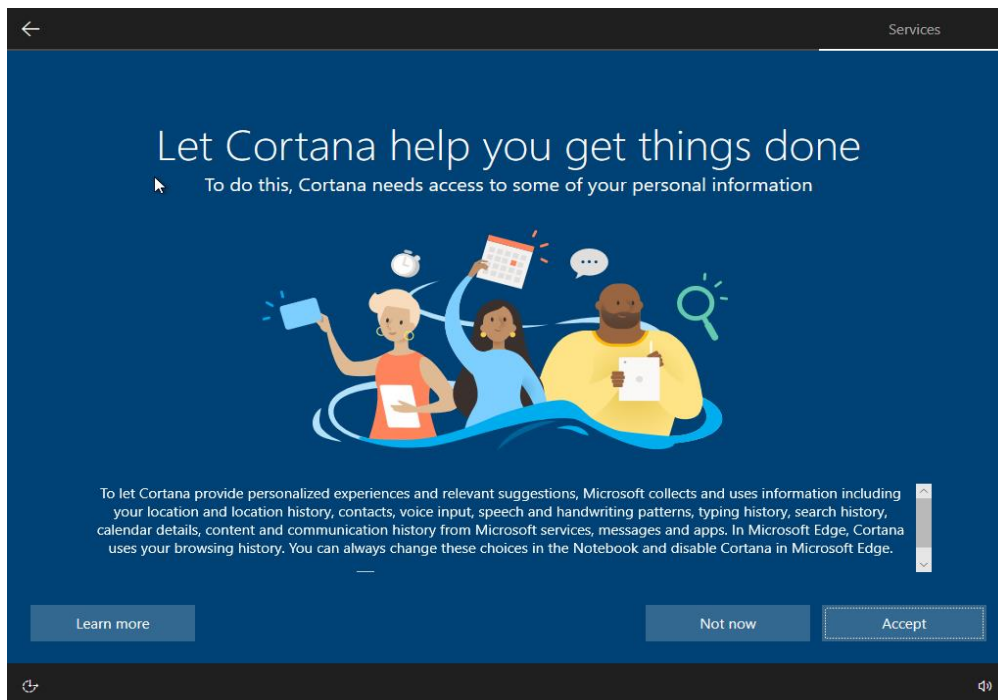
Step 28:

On the **Choose privacy settings for your device** page, click **Accept.**

Step 29:

Windows will now prepare your computer and set up the apps.

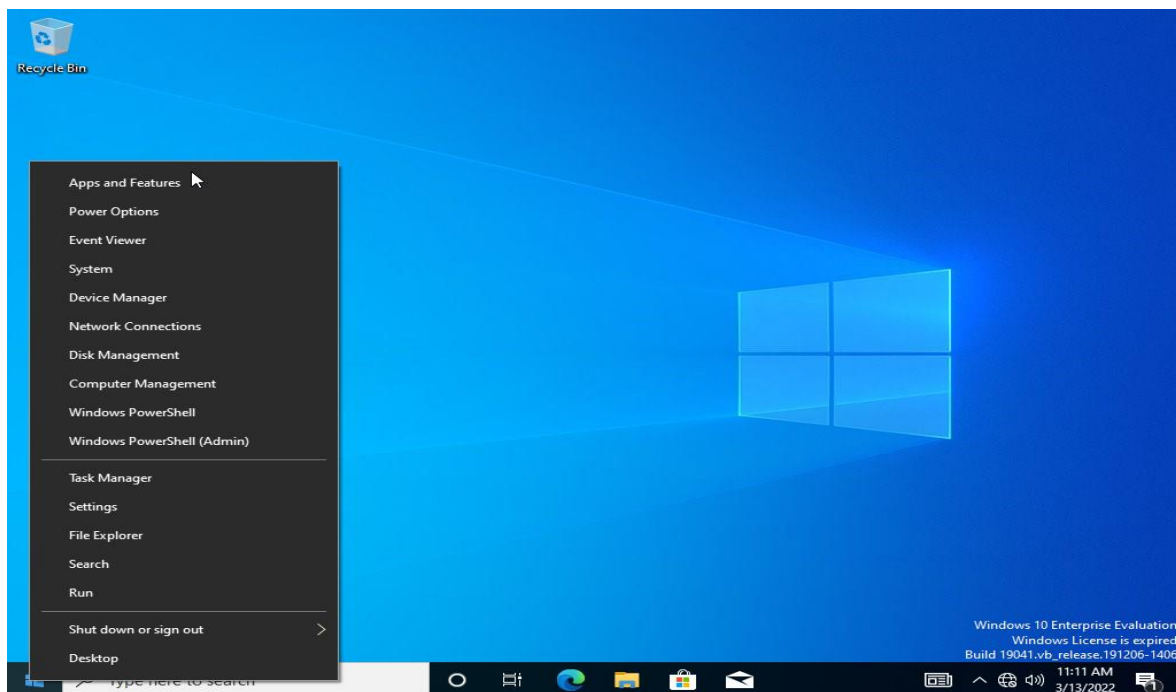This will take a few moments.

Step 30:

The desktop is now displayed.

Windows is now operational on **NTWIN10HV2**

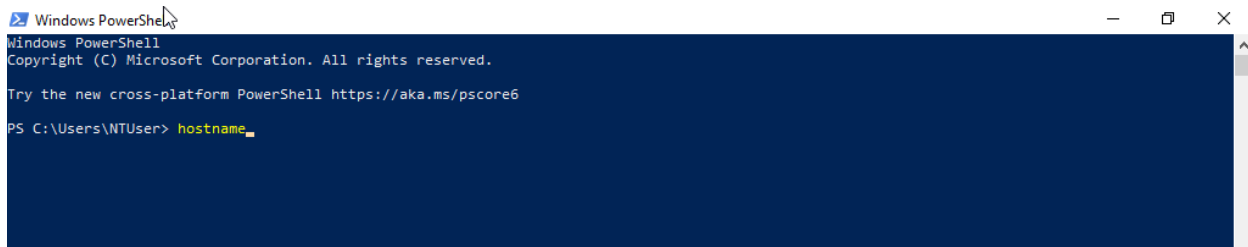Right-click **Start** and select Windows **PowerShell.**

Step 31:

On the Windows PowerShell window, type the following to know the name of this computer:

hostname

Press **Enter**.
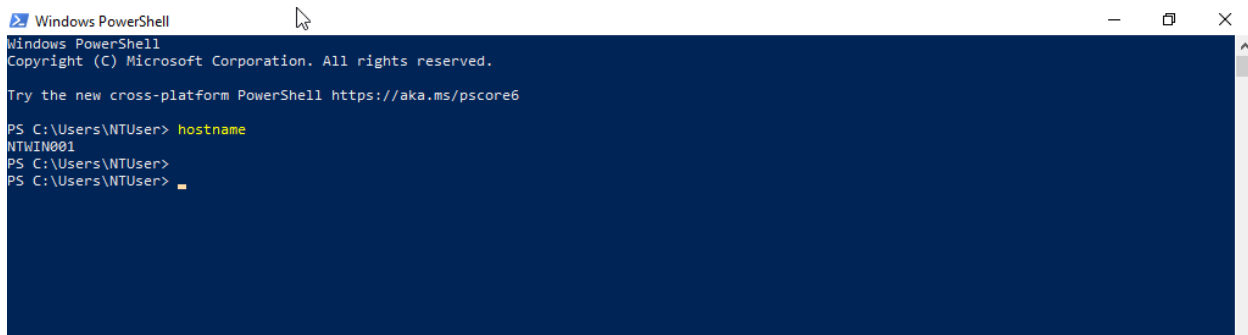
Step 32:

The name of the computer is **NTWIN001**.

This is because of the system variable - **NTWIN%03#** - added to be assigned to the WDS client. (Exercise Preparing System for Windows Deployment Services (WDS). Task 5 - Configure WDS (Windows Deployment Services) System Settings).
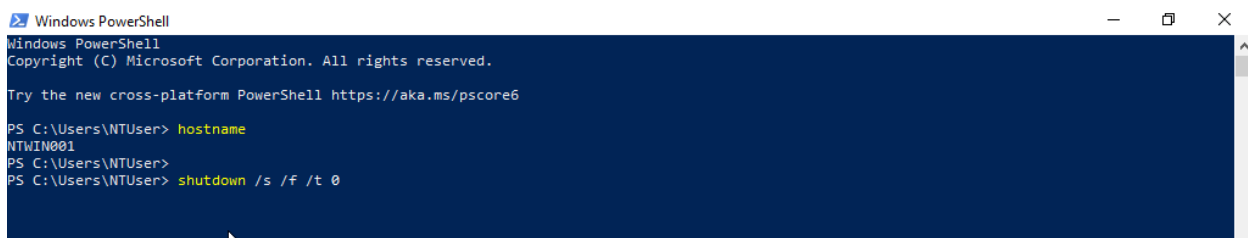
Step 33:

Now Shutdown the guest virtual machine. Type:

shutdown /s /f /t 0

And press **Enter**.