

# Home Lab Active Directory Setup using VirtualBox | Adding Users w/PowerShell

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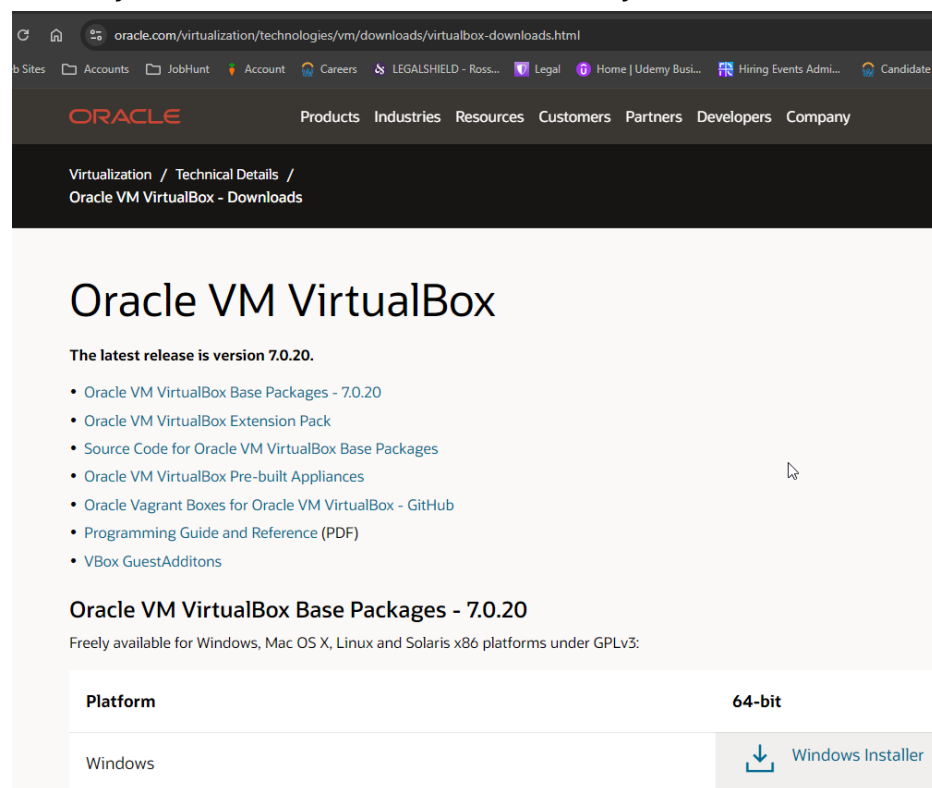
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# Introduction

In this project, we will deploy two virtual machines: a Windows Server 2019 instance and a Windows 10 client. The process includes creating a new domain, configuring Active Directory Domain Services (AD DS), Remote Access Service (RAS) with Network Address Translation (NAT), and Dynamic Host Configuration Protocol (DHCP) from the ground up. Upon completion, the configuration will be tested using the Windows 10 client.

## Download and Setup

1. First, we will download all the files we need.
2. Download Oracle VirtualBox from their website:  
<https://www.oracle.com/virtualization/technologies/vm/downloads/virtualbox-downloads.html>
  - a. Ensure you download the correct version for your PC.



oracle.com/virtualization/technologies/vm/downloads/virtualbox-downloads.html

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Virtualization / Technical Details / Oracle VM VirtualBox - Downloads

### Oracle VM VirtualBox

The latest release is version 7.0.20.

- [Oracle VM VirtualBox Base Packages - 7.0.20](#)
- [Oracle VM VirtualBox Extension Pack](#)
- [Source Code for Oracle VM VirtualBox Base Packages](#)
- [Oracle VM VirtualBox Pre-built Appliances](#)
- [Oracle Vagrant Boxes for Oracle VM VirtualBox - GitHub](#)
- [Programming Guide and Reference \(PDF\)](#)
- [VBox GuestAdditions](#)

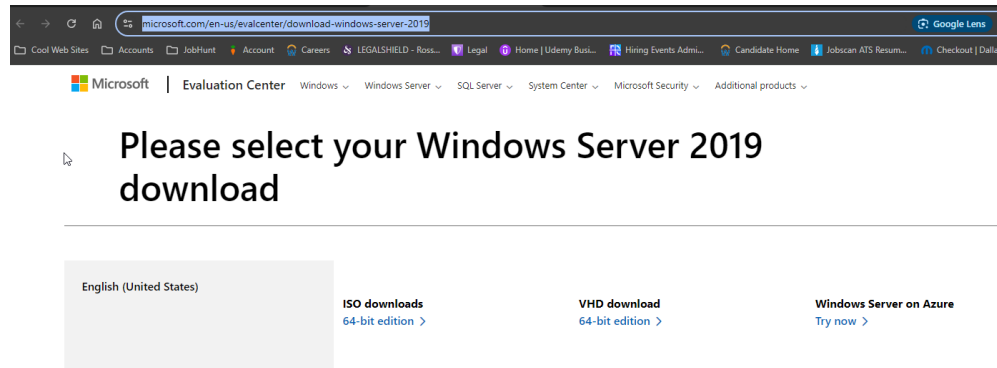
#### Oracle VM VirtualBox Base Packages - 7.0.20

Freely available for Windows, Mac OS X, Linux and Solaris x86 platforms under GPLv3:

Platform	64-bit
Windows	<a href="#">Windows Installer</a>

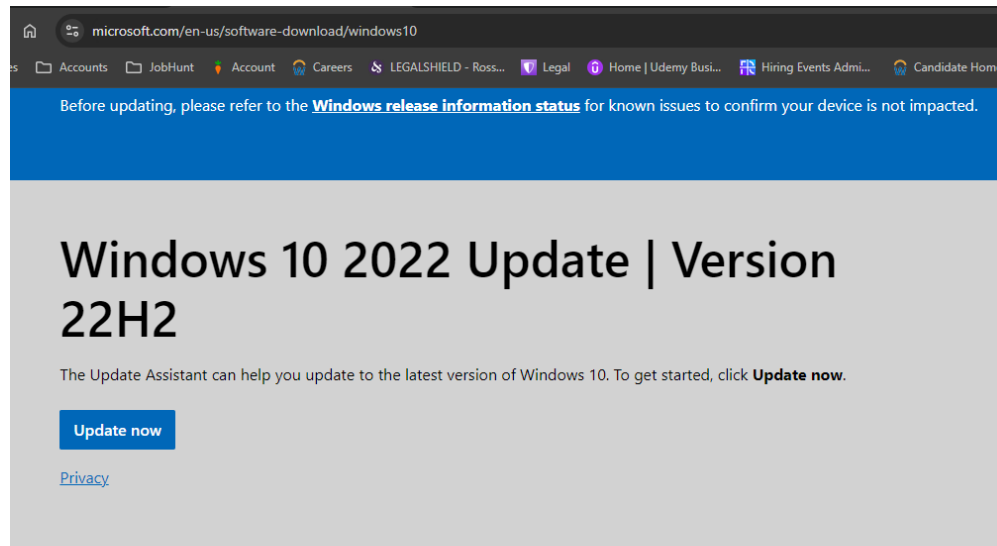
- b. Follow standard steps for installation.
3. Download the Windows Server 2019 ISO from: <https://www.microsoft.com/en-us/evalcenter/download-windows-server-2019>

- a. Ensure you select the appropriate language.



4. Download Windows 10 media creation from: <https://www.microsoft.com/en-us/software-download/windows10>.

- a. Windows 10 ISO will have to be created using the “Create Windows 10 installation media” software.



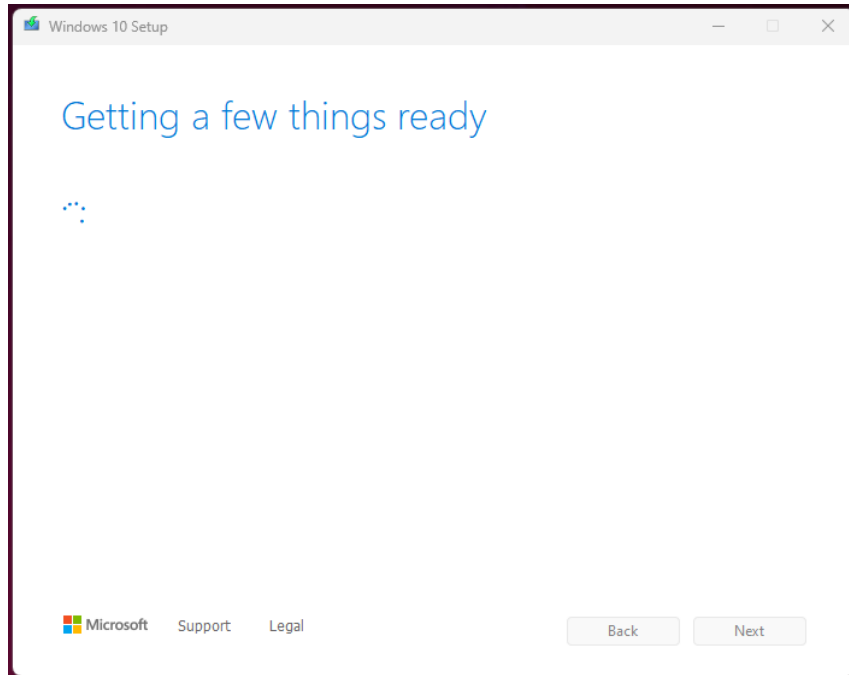
## Create Windows 10 installation media

To get started, you will first need to have a license to install Windows 10. You can then download and run the media creation tool. For more information on how to use the tool, see the instructions below.

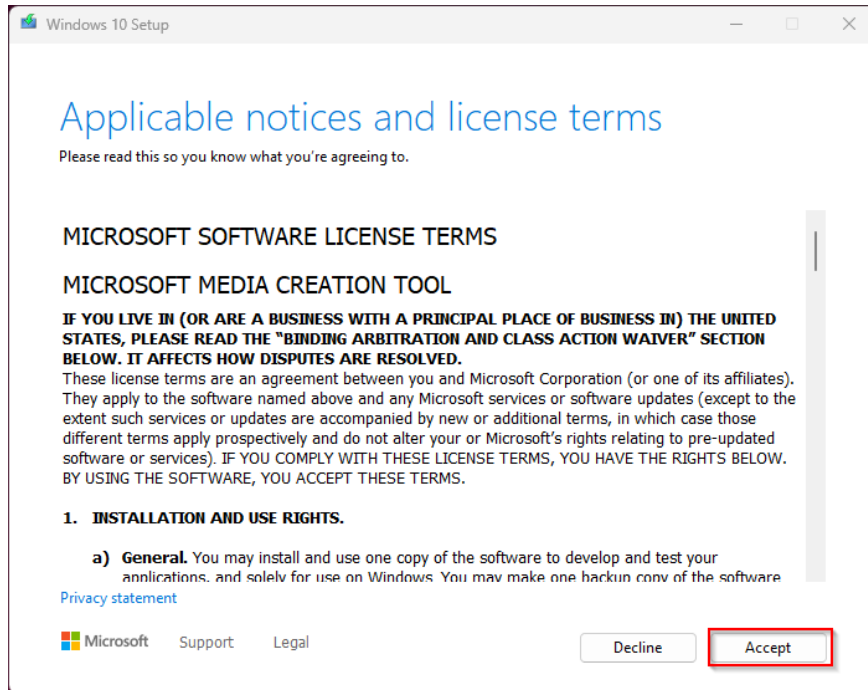


[Privacy](#)

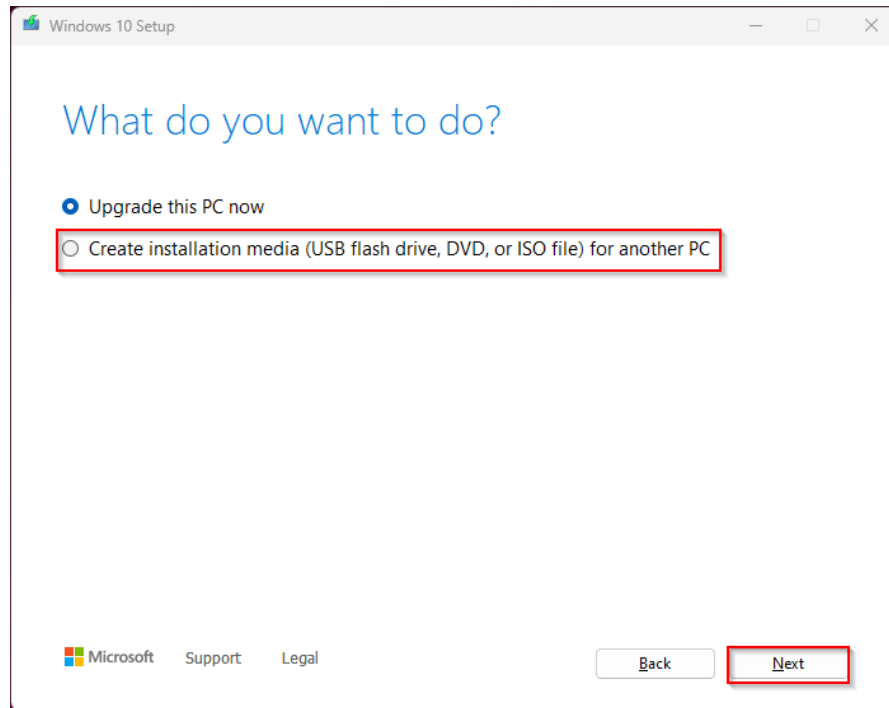
- b. When your tool is first opened, it will take a moment to pull up applicable notices and license terms.



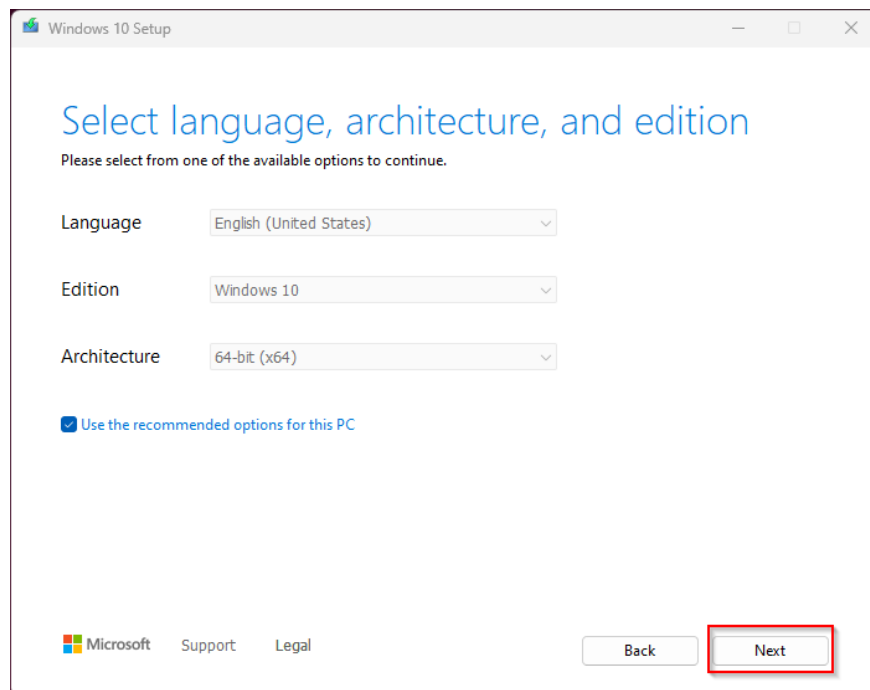
- c. Once it populates, click Accept; bringing up the options will take a moment.



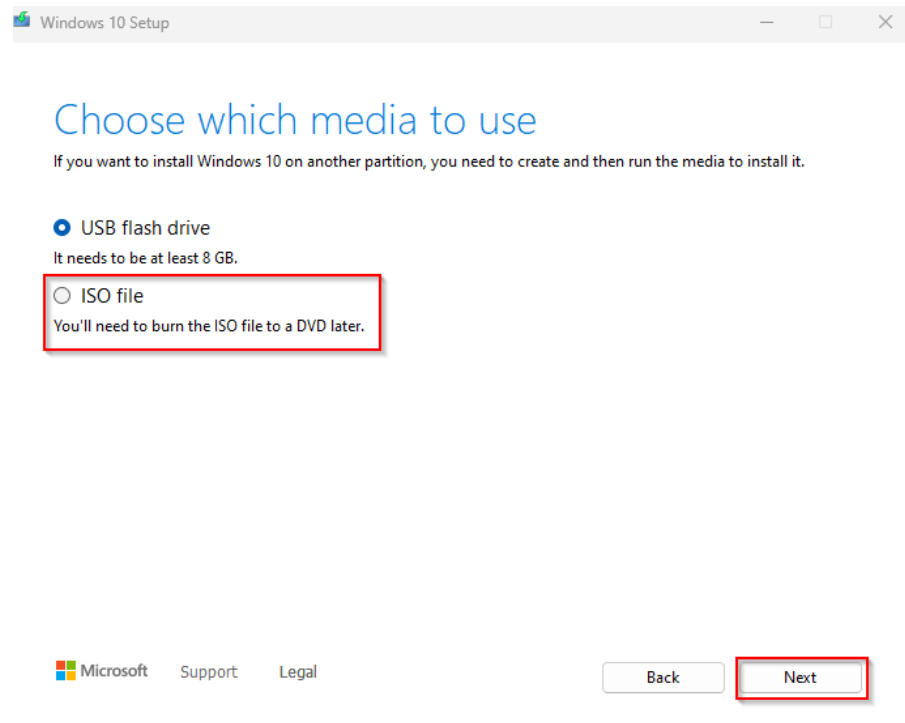
- d. Click the tick button to Create an installation on media for another PC. This will allow you to create an ISO file.



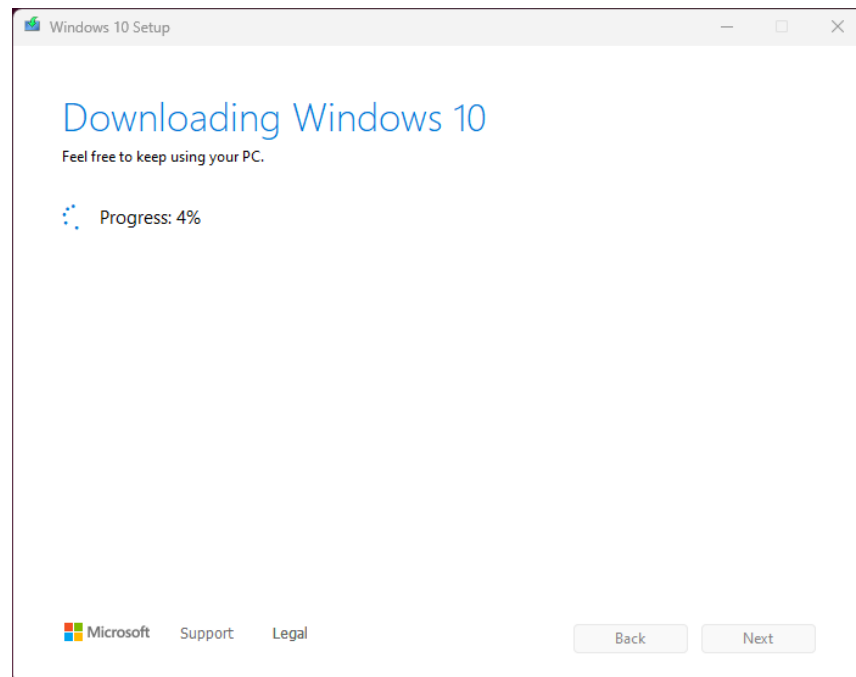
- e. On the next screen, leave defaults and select next.



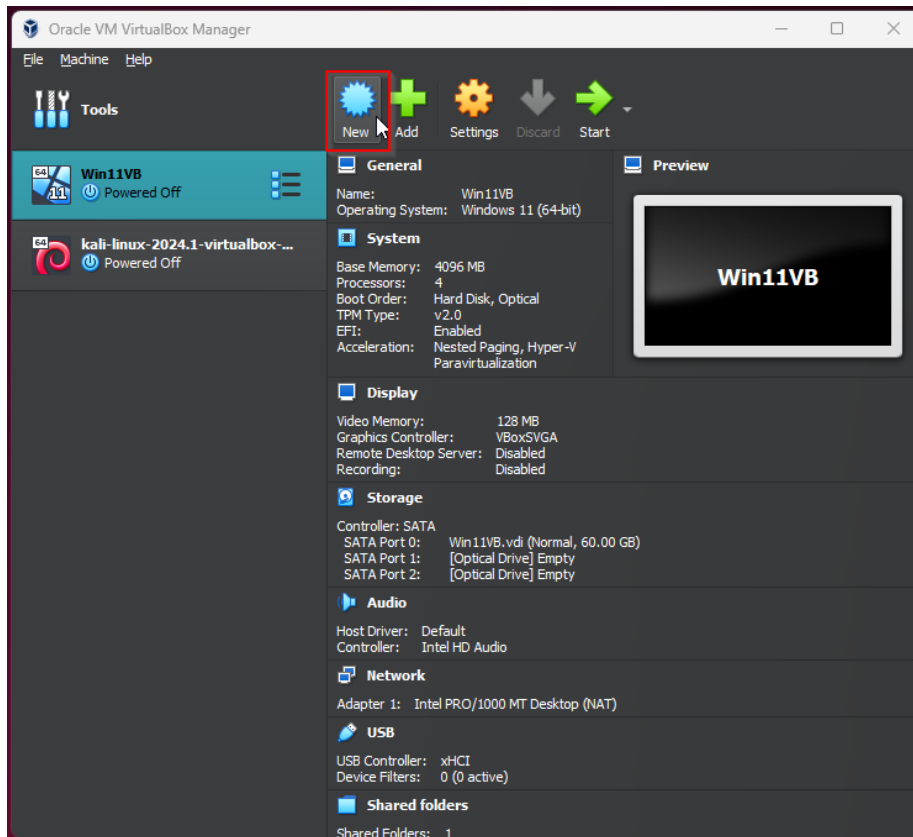
- f. On the Choose which media to use section, tick the ISO file option and select next.



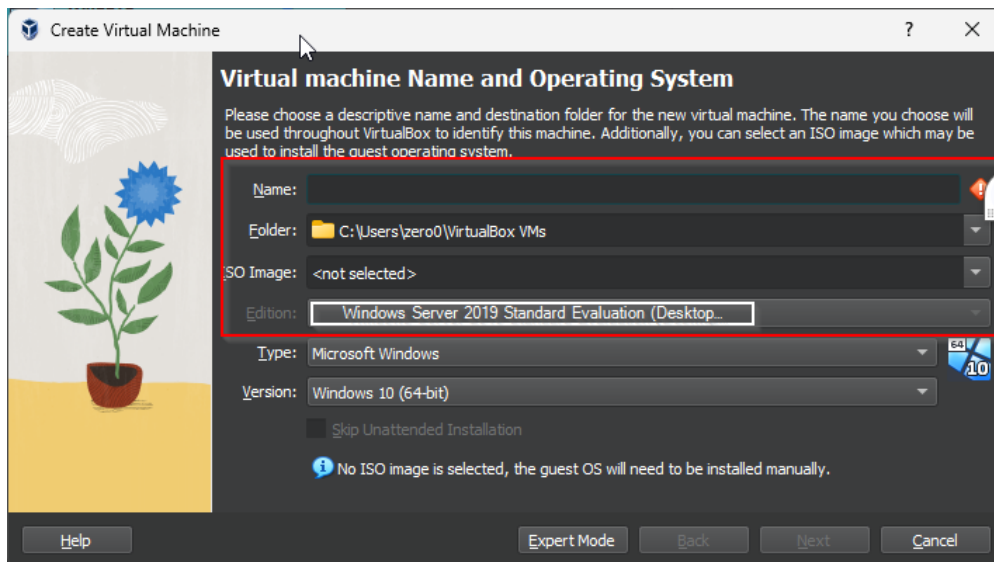
- g. You will be prompted to choose a location to create the ISO. This can be on your desktop or any other place. Just remember where you are placing the file.
- h. The creation process will start, and once that is done, you will have a Windows 10 ISO file.



- Once you have both ISO files and have installed VirtualBox, we are ready to start.
- Open VirtualBox and select New.

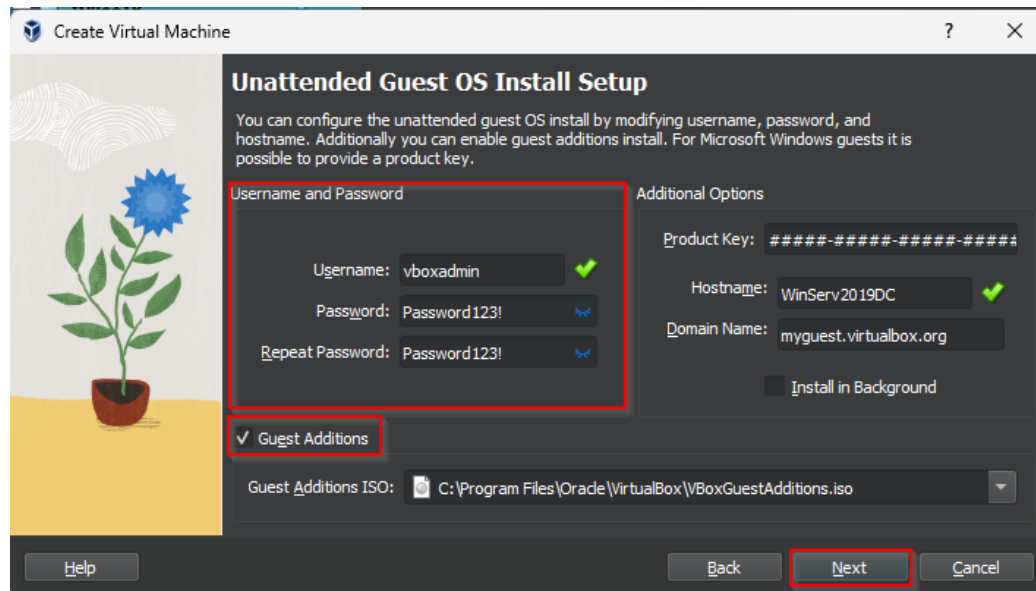


- Give the VM a Name and select the folder to store the files. The default is ok. Select the Windows Server 2019 file you downloaded for the ISO Image and ensure the edition is set to Windows Server 2019 Standard Evaluation (Desktop Experience).

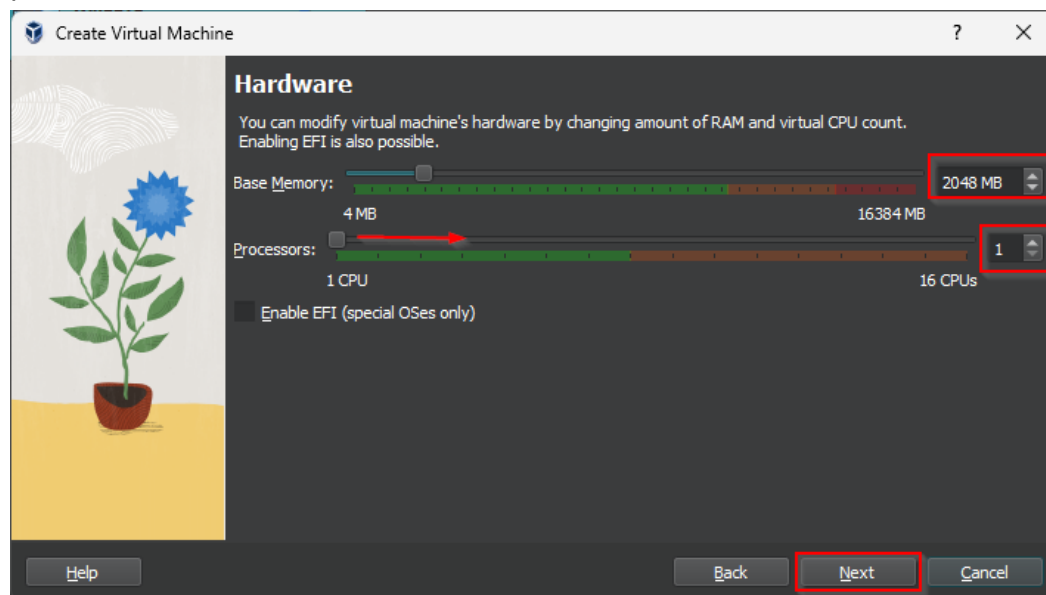


- Once you hit the next button, you will be taken to the Unattended Guest OS Install Setup, where you can enter a preconfigured username and password along with

additional options. This will help speed up installation. I recommend creating an administrator account and password and checking the Guest Addition. Below is an example, but you can change your username and password to whatever you like.



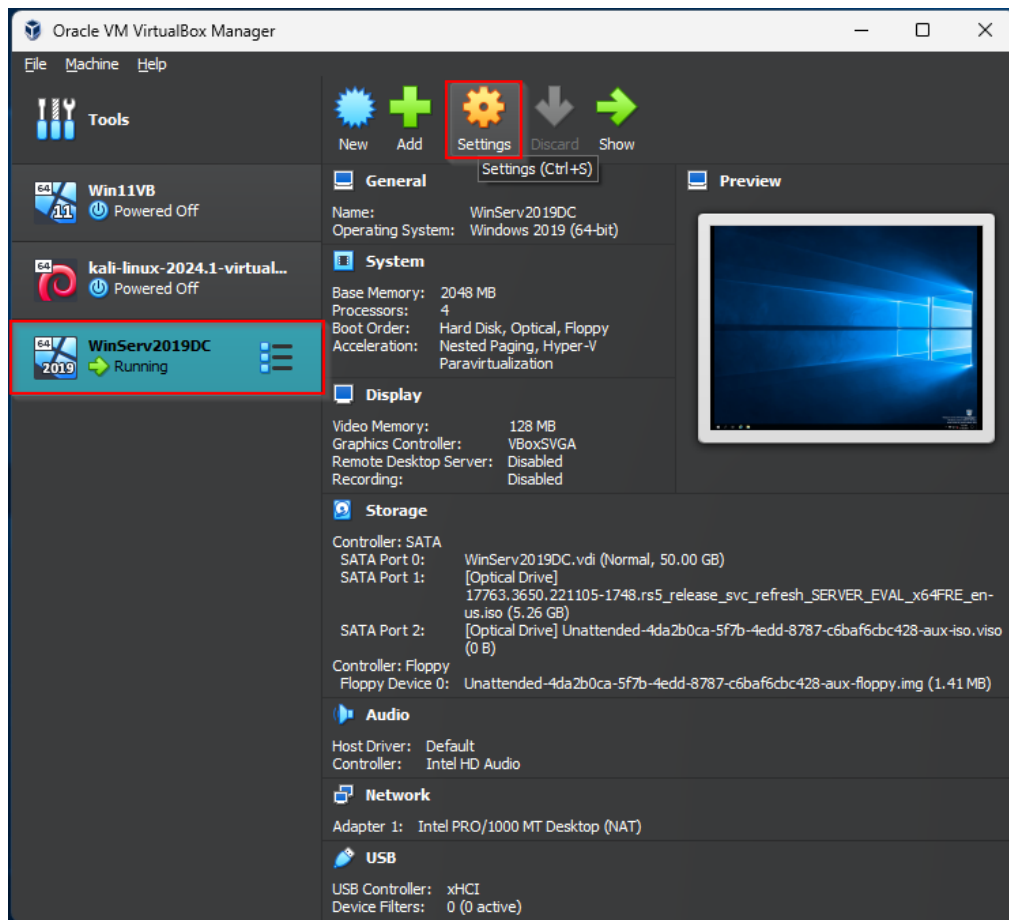
9. Next, you will be asked for hardware (RAM and Processors) amounts to be allocated to the virtual machine. I recommend at least 2GB of RAM and 4 processor cores if possible.



- a. Once you hit next, the VM might automatically boot. If this happens, shut it down, as we still need to configure our network adapter for our lab.

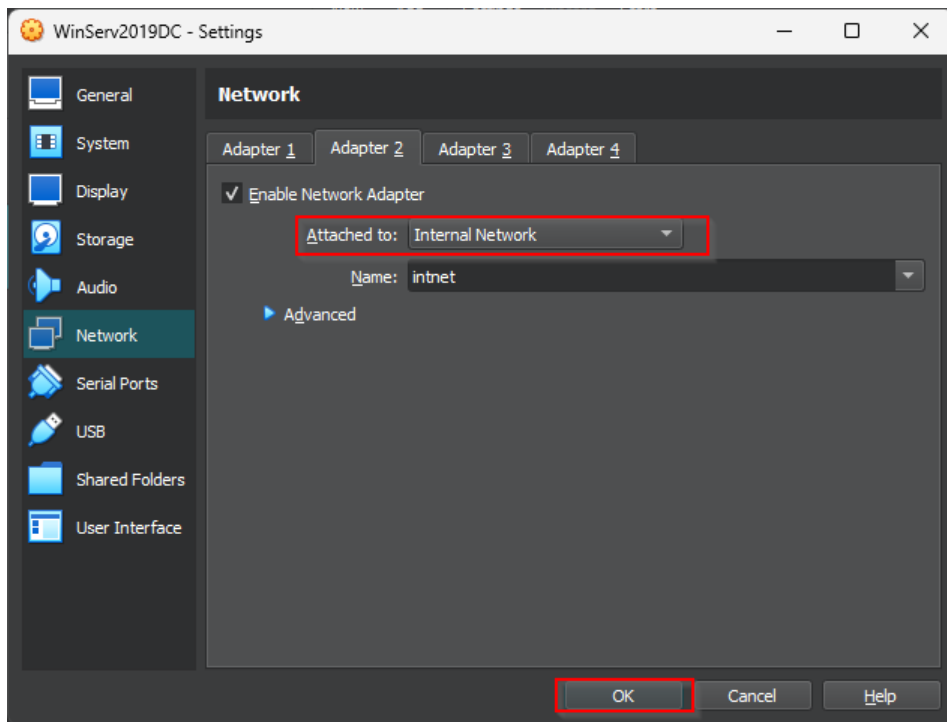


10. In VirtualBox Manager, click on Windows Server 2019 and select Settings.

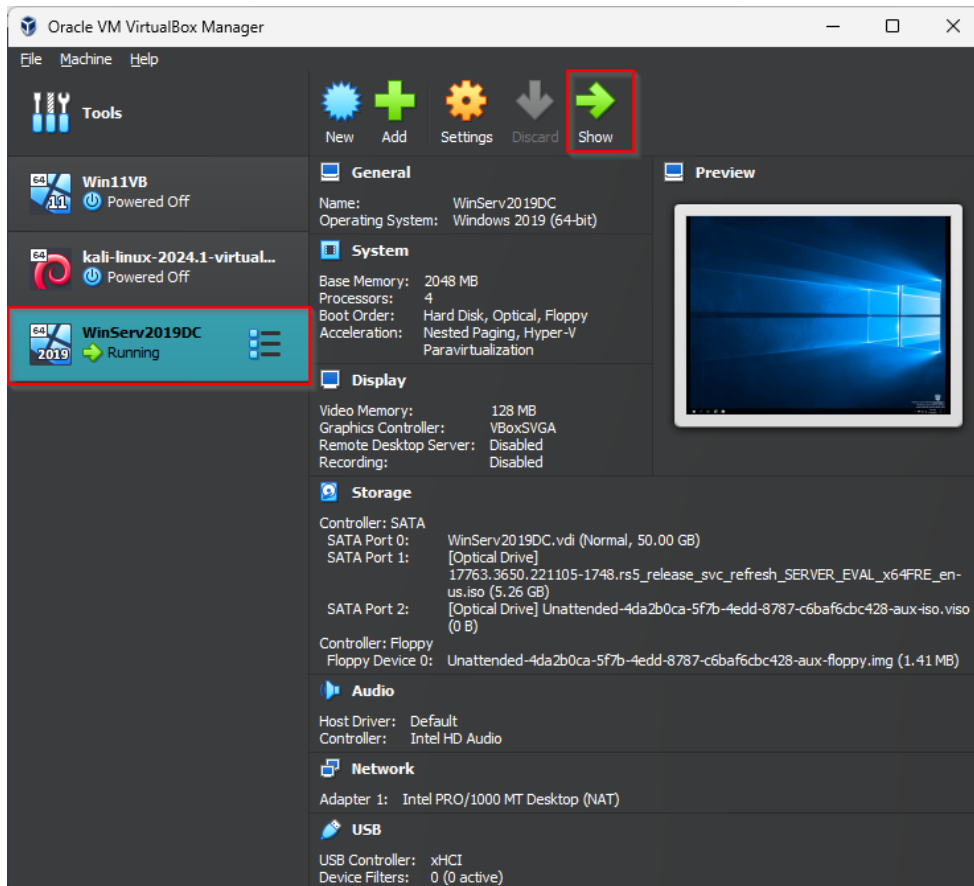


11. In the Network tab, leave the first adapter as is. This will be how the server connects to your home network. Select the second adapter and change the Attachment to the

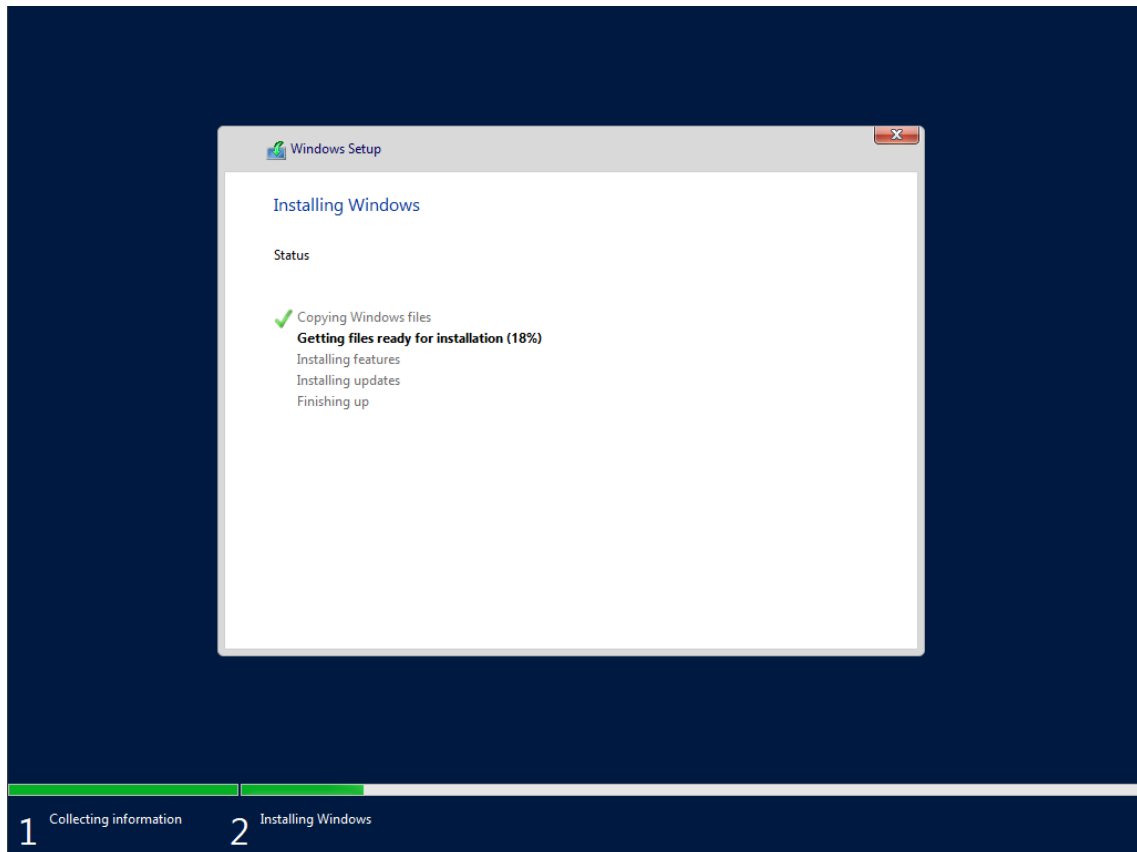
internal network. We will use this network to connect to the Windows 10 client.



12. Start the VM by double-clicking on the VM name or the green start arrow.



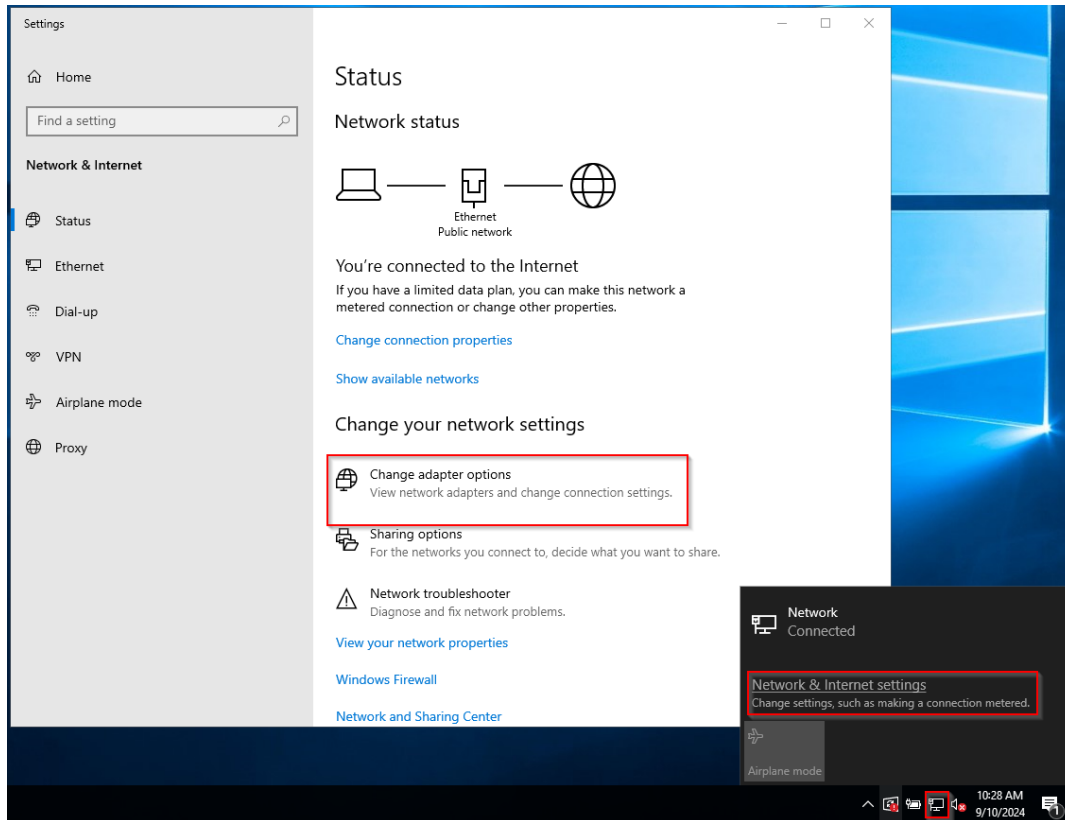
13. The installation process will take a few minutes, but once it is complete, you should be on the desktop screen of your Windows Server 2019.



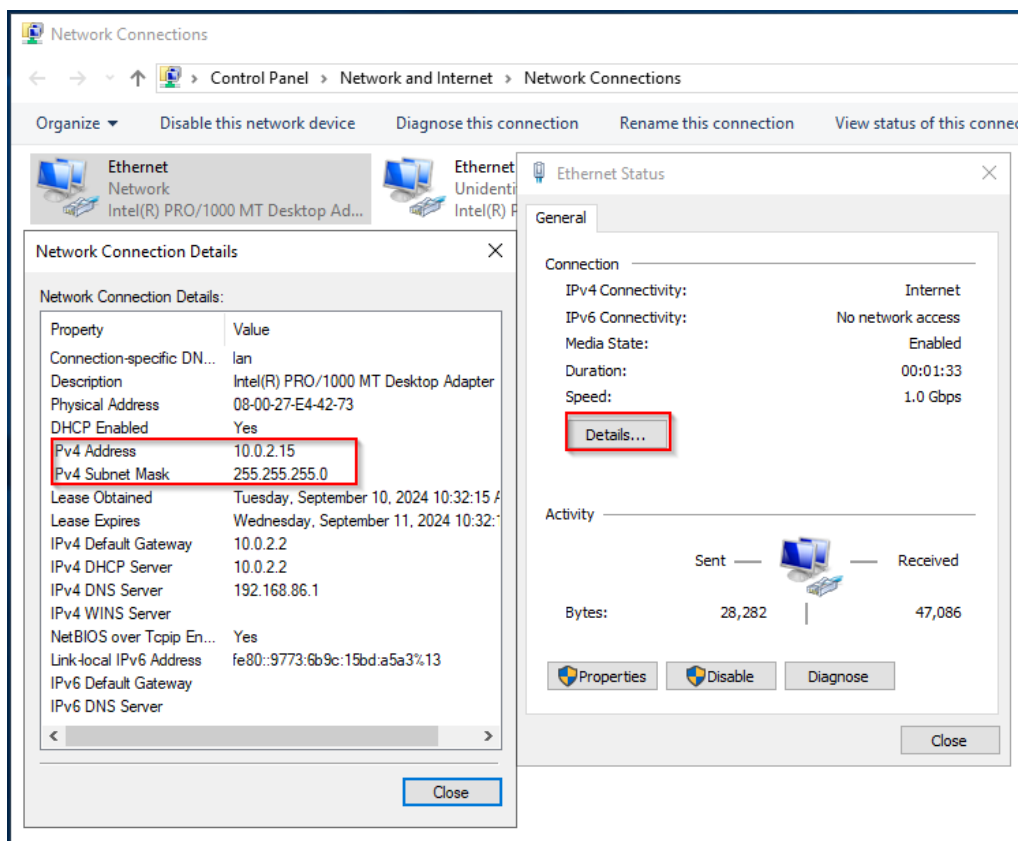
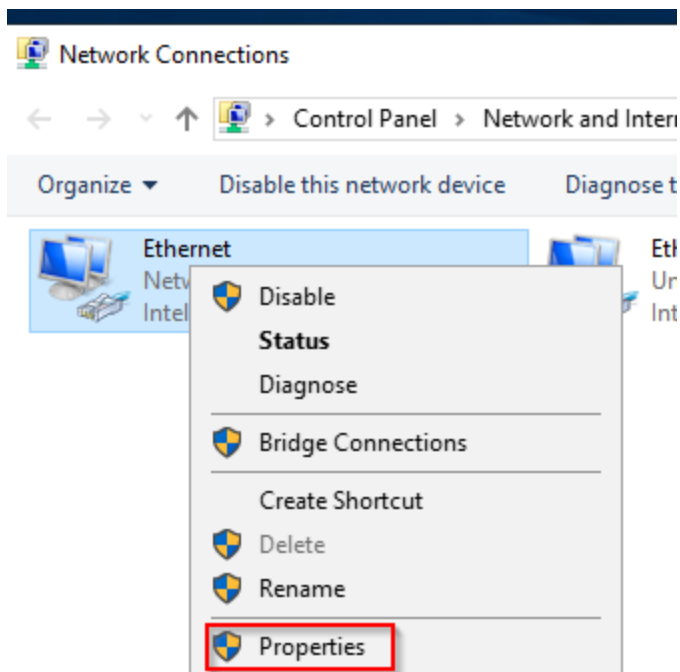
14. Repeat the install process for Windows 10 ISO ensuring to .

# Windows Server 2019 Network Configuration

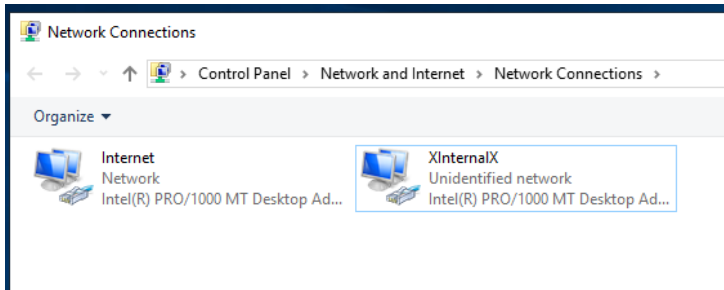
1. On the Windows Server, click the network icon at the bottom right of the window, select Network & Internet settings, and then select Change adapter options.



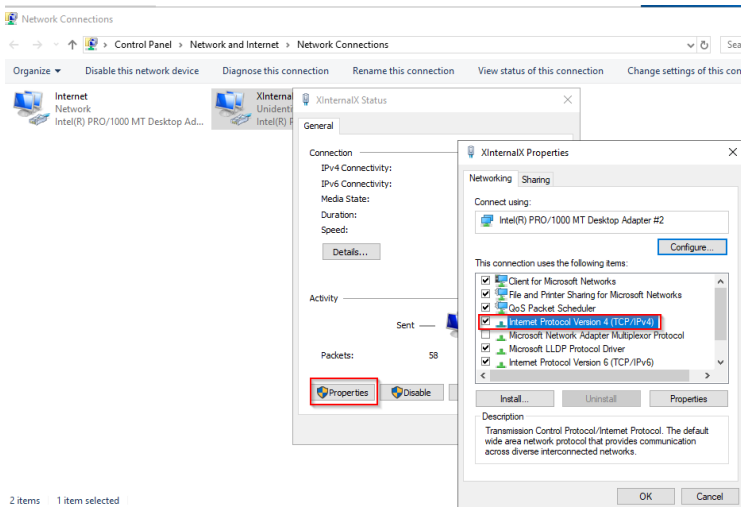
2. For verification, you can right-click on the network adapter, select properties, and then select details to see the IP address of the network connection. If it starts with your local IP, as shown in the image below, then you know that it is an external NIC.



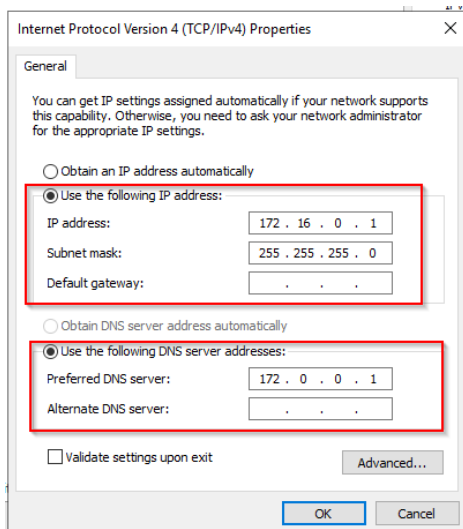
3. Now that you have identified each network adapter, make sure to name them so that you can distinguish between them.



4. Now, we will change the IP address of the internal network adapter to match the diagram above. Again, right-click on the internal network adapter and select properties. Then double-click on IPv4.

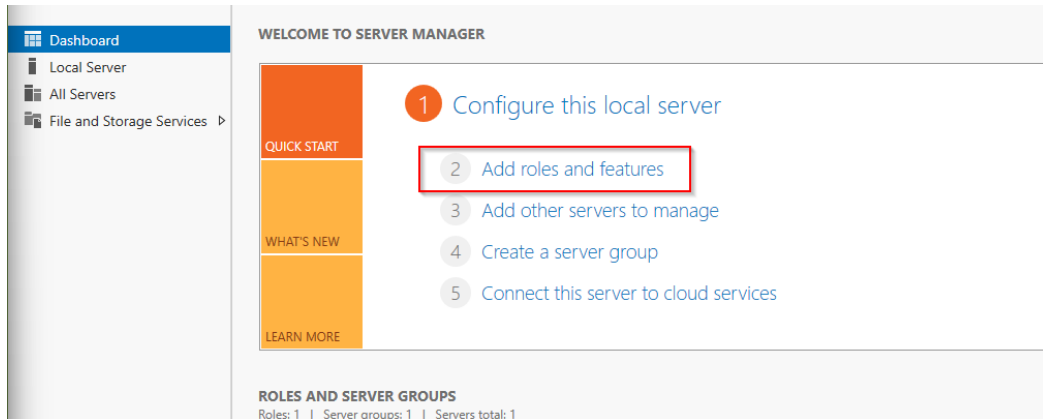


5. Enter the IP address, Subnet mask, and DNS entry below. Don't worry about the default gateway; that will be itself, so no IP is needed. The loopback address will be used as the preferred DNS. This could also be left blank.

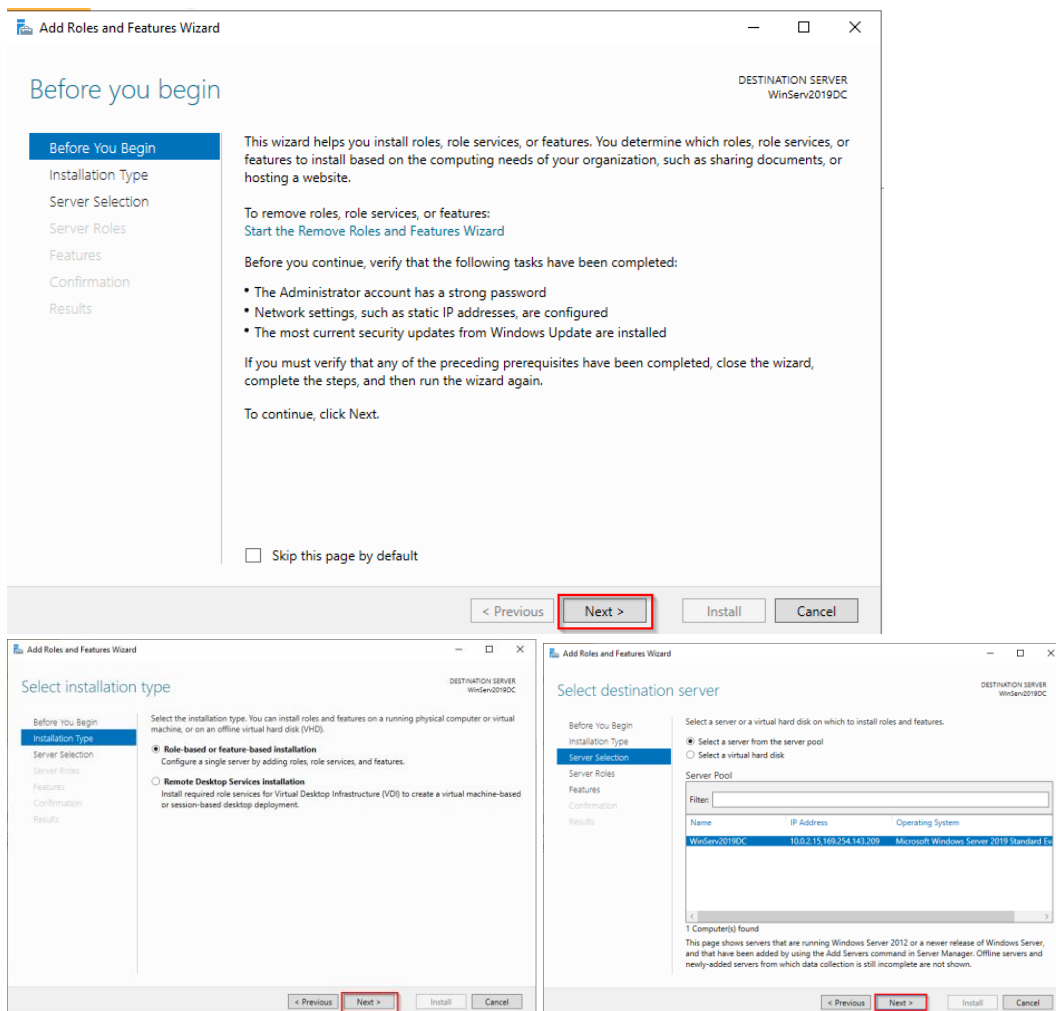


# Active Directory Install

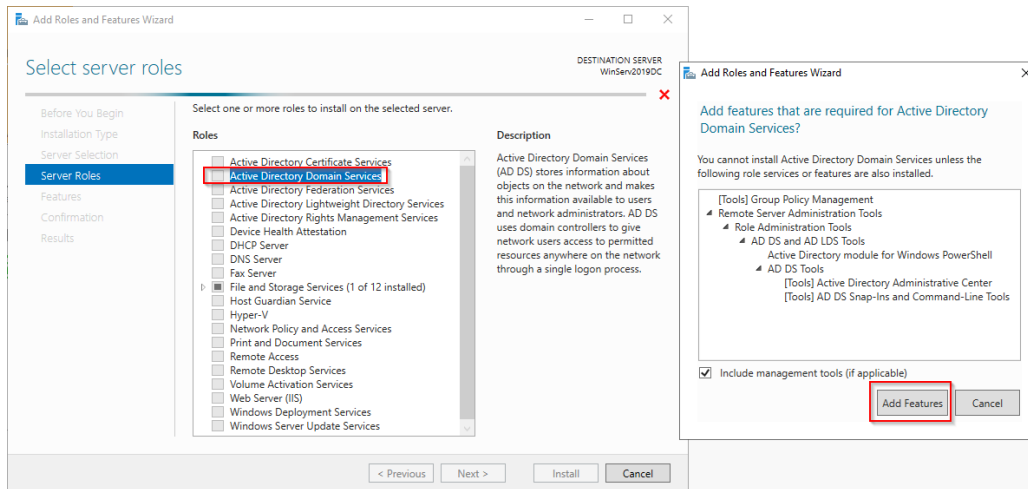
1. Now, we are going to install Active Directory Domain Services. From the Welcome to Server Manager, select Add Roles and Features.



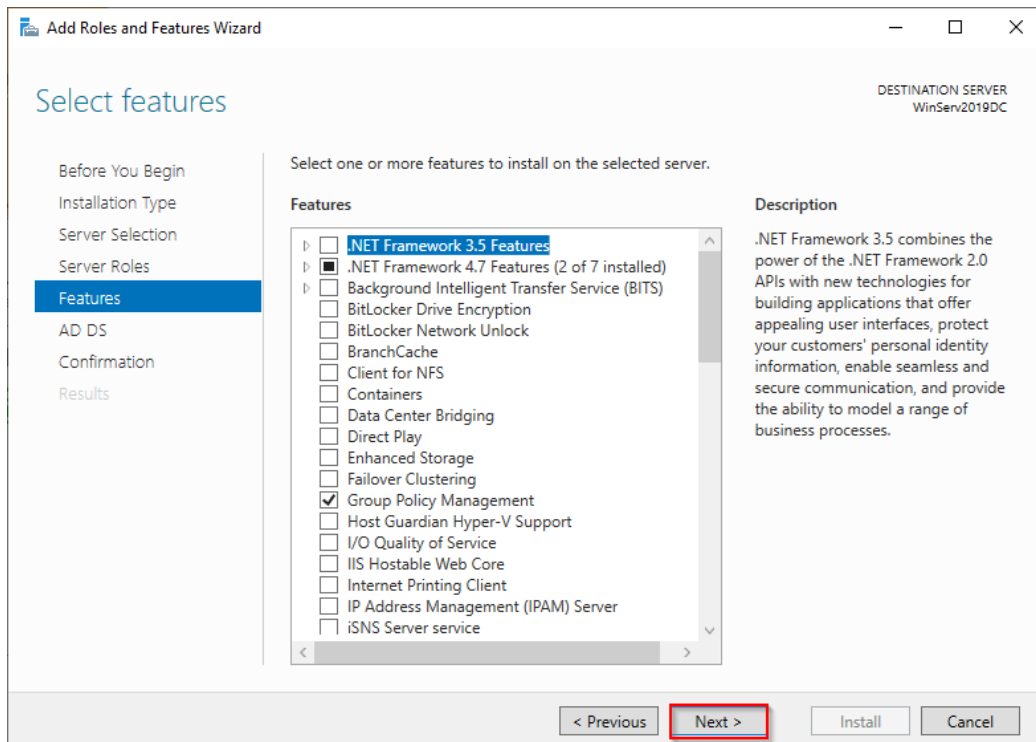
2. Click the Next button three times to get past the screens below. You may leave all the settings with the default selection.



3. In the Server Roles section, select the Active Directory check box and select Add Features. Note you must be logged in as Admin for this to complete.

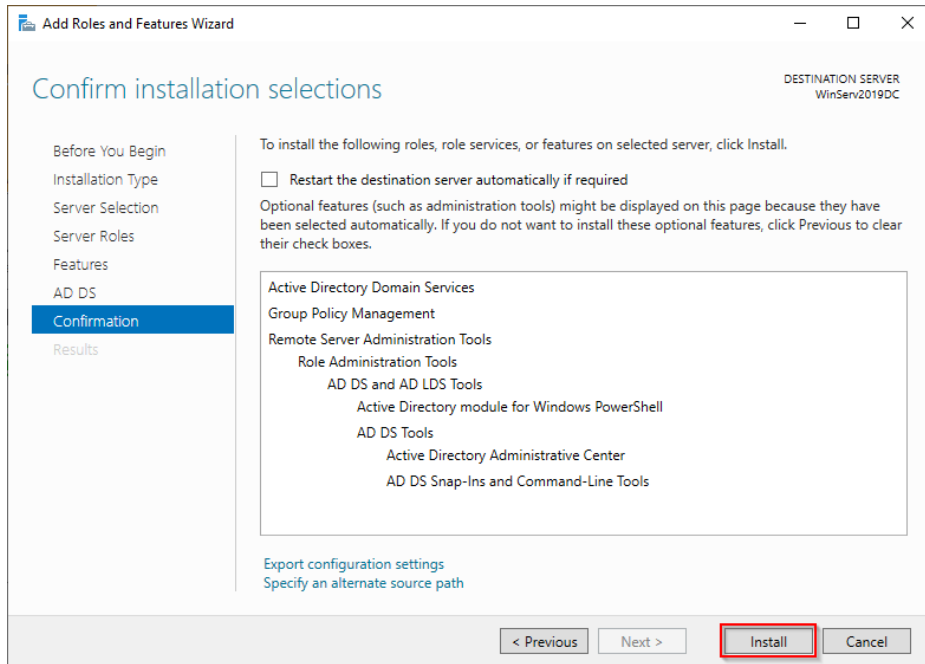


4. Click Next on Features, leaving everything as default.

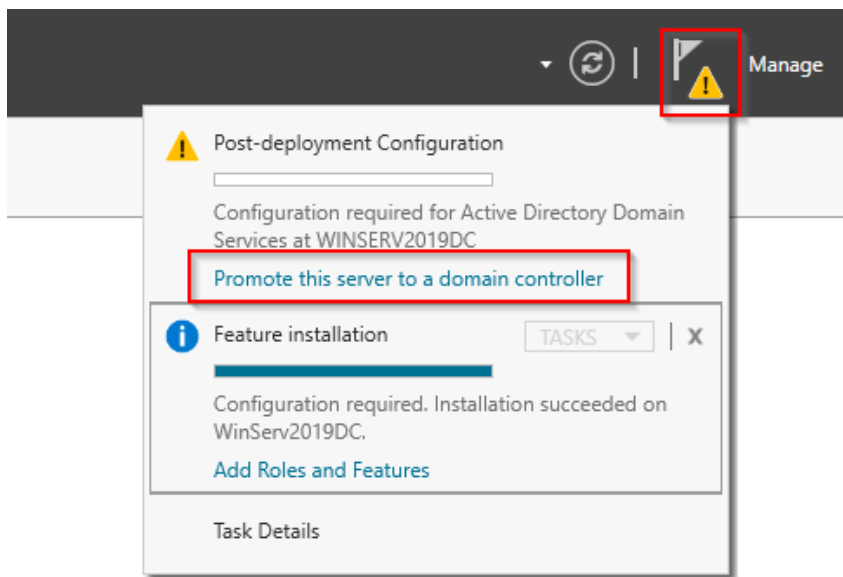




5. Finally, click Install.



6. Once this is done and you are returned to the Welcome to Server Manager window, you will notice a yellow exclamation point by the flag in the upper right corner. Click on it and select Promote this server to a domain controller.



7. Select Add a new forest and give it a domain name. For this example, I will use mydoamin.com.

The screenshot shows the 'Active Directory Domain Services Configuration Wizard' window. The title bar says 'Active Directory Domain Services Configuration Wizard'. The main title is 'Deployment Configuration'. On the right, it says 'TARGET SERVER WinServ2019DC'. On the left, there is a navigation pane with the following items: 'Deployment Configuration' (selected), 'Domain Controller Options', 'Additional Options', 'Paths', 'Review Options', 'Prerequisites Check', 'Installation', and 'Results'. The main area has the heading 'Select the deployment operation' and three radio buttons: 'Add a domain controller to an existing domain', 'Add a new domain to an existing forest', and 'Add a new forest' (which is selected and highlighted with a red box). Below this, it says 'Specify the domain information for this operation' and has a text box for 'Root domain name:' with the value 'mydomain.com' entered (this text box is also highlighted with a red box). At the bottom, there are buttons for '< Previous', 'Next >', 'Install', and 'Cancel'. A link 'More about deployment configurations' is also present.

8. Next, you will need to create a restore password even though we won't use it.

The screenshot shows the 'Active Directory Domain Services Configuration Wizard' window. The title bar says 'Active Directory Domain Services Configuration Wizard'. The main title is 'Domain Controller Options'. On the right, it says 'TARGET SERVER WinServ2019DC'. On the left, there is a navigation pane with the following items: 'Deployment Configuration', 'Domain Controller Options' (selected), 'DNS Options', 'Additional Options', 'Paths', 'Review Options', 'Prerequisites Check', 'Installation', and 'Results'. The main area has the heading 'Select functional level of the new forest and root domain' and two dropdown menus: 'Forest functional level:' and 'Domain functional level:', both set to 'Windows Server 2016'. Below this, it says 'Specify domain controller capabilities' and has three checkboxes: 'Domain Name System (DNS) server' (checked), 'Global Catalog (GC)' (checked), and 'Read only domain controller (RODC)' (unchecked). At the bottom, there is a section 'Type the Directory Services Restore Mode (DSRM) password' with two text boxes: 'Password:' and 'Confirm password:', both containing masked characters (this section is highlighted with a red box). At the bottom, there are buttons for '< Previous', 'Next >' (highlighted with a red box), 'Install', and 'Cancel'. A link 'More about domain controller options' is also present.

9. Ensure Create DNS delegation is unselected and select next. Also, if you are not logged in as an administrator, you will not be able to process it without creating an account. Do not do this, or you will receive an error. Instead, ensure you are logged

in with the administrator account before doing this.

The image displays two screenshots of the Active Directory Domain Services Configuration Wizard.

**Top Screenshot: DNS Options**

- Deployment Configuration**
- Domain Controller Options**
- DNS Options** (Selected)
- Additional Options
- Paths
- Review Options
- Prerequisites Check
- Installation
- Results

**Specify DNS delegation options**

- ☒ Create DNS delegation
- Credentials for delegation creation
- <No credentials provided>

[Change...](#)

[More about DNS delegation](#)

[< Previous](#) [Next >](#) [Install](#) [Cancel](#)

**Bottom Screenshot: Prerequisites Check**

- Deployment Configuration**
- Domain Controller Options**
- DNS Options**
- Additional Options
- Paths
- Review Options
- Prerequisites Check** (Selected)
- Installation
- Results

**One or more prerequisites failed. Please fix these issues and click "Rerun prerequisites check"** [Show more](#)

Prerequisites need to be validated before Active Directory Domain Services is installed on this computer

[Rerun prerequisites check](#)

[View results](#)

with an existing DNS infrastructure, you should manually create a delegation to this DNS server in the parent zone to ensure reliable name resolution from outside the domain "mydomain.com". Otherwise, no action is required.

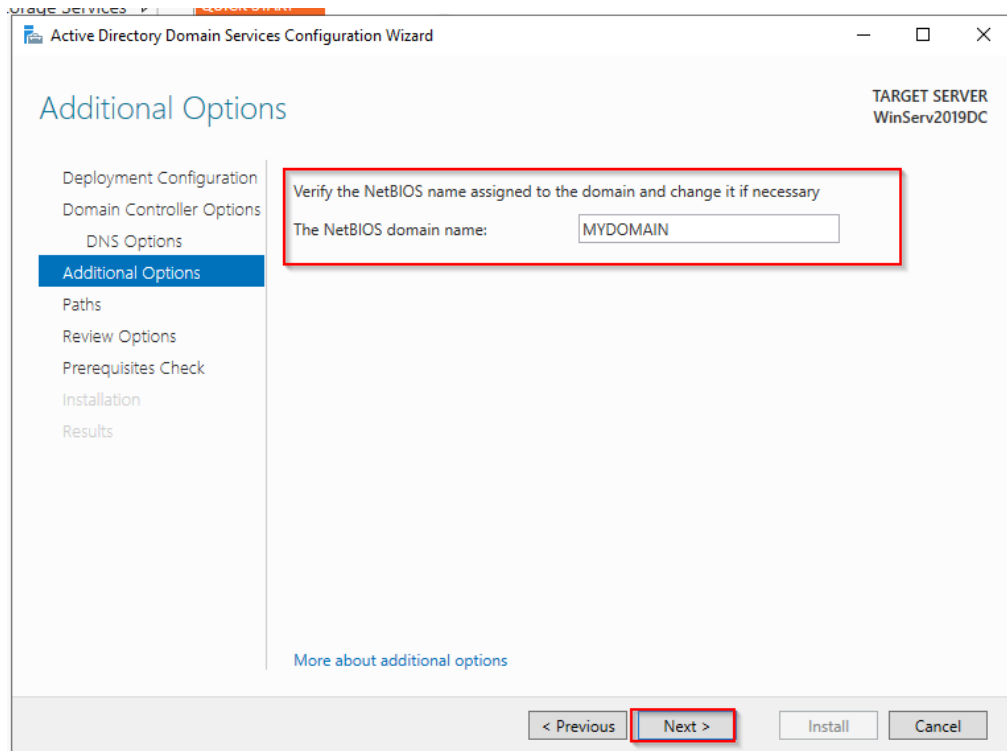
**Verification of prerequisites for Domain Controller promotion failed. You specified that you would like to create a DNS delegation in the parent zone but attempts to create the delegation failed. This could be because you do not have permissions to do so, or because the DNS Zone/Dns delegation record already exists, or because the zone is hosted by a server that does not run Windows. To ensure that this domain controller can be found by other computers on the network, you must create a DNS delegation in the parent zone for this domain. To do so, contact an administrator who is responsible for the parent DNS zone.**

**If you click Install, the server automatically reboots at the end of the promotion operation.**

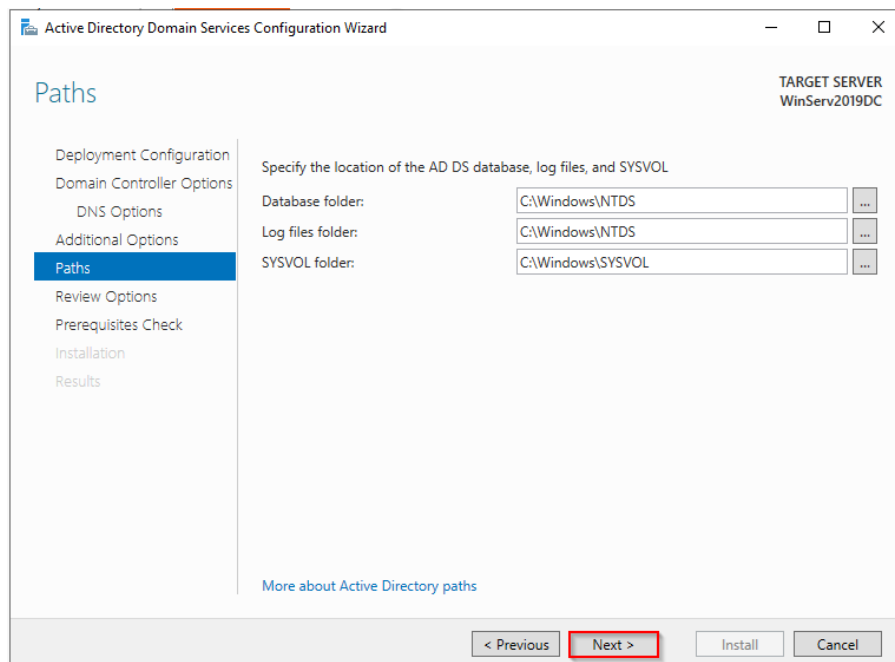
[More about prerequisites](#)

[< Previous](#) [Next >](#) [Install](#) [Cancel](#)

10. Next, it will verify the domain name. Just click Next.

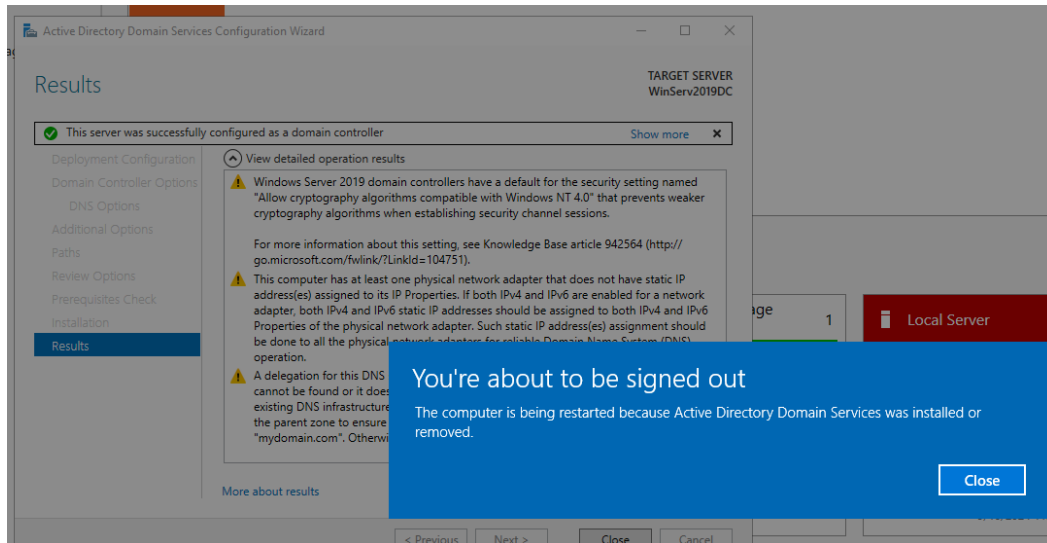


11. This will show you where database files will be stored. The defaults for this home lab setup are fine. Make a note and click Next.



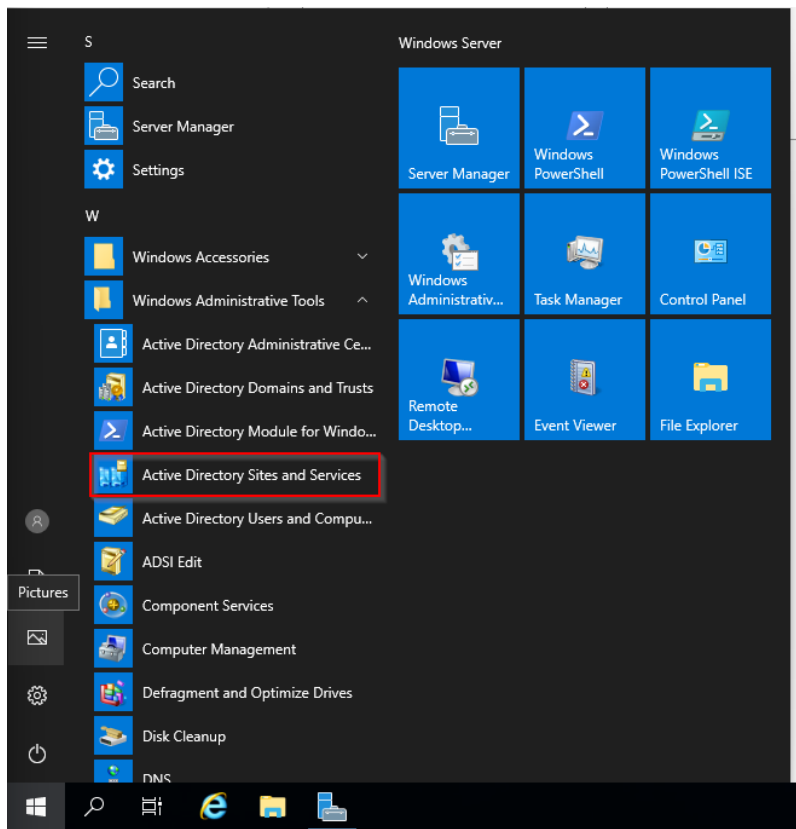
12. Next, you will review your choices, click Next again, and be taken to the Prerequisite Check. Once this is done, click Install. Once the installation is done, you will need to

restart for changes to take effect.

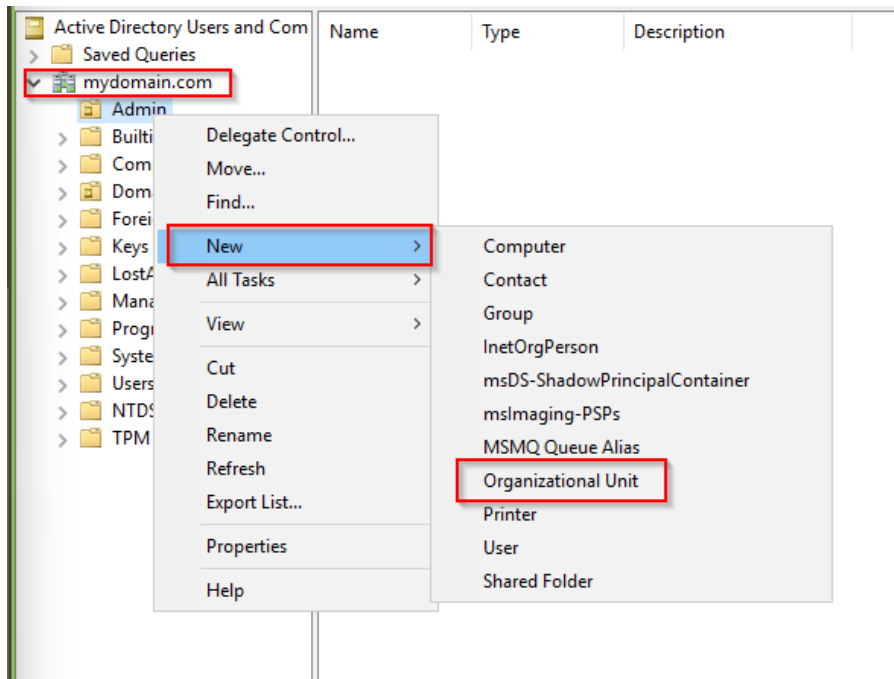


## Creating Administrator Account

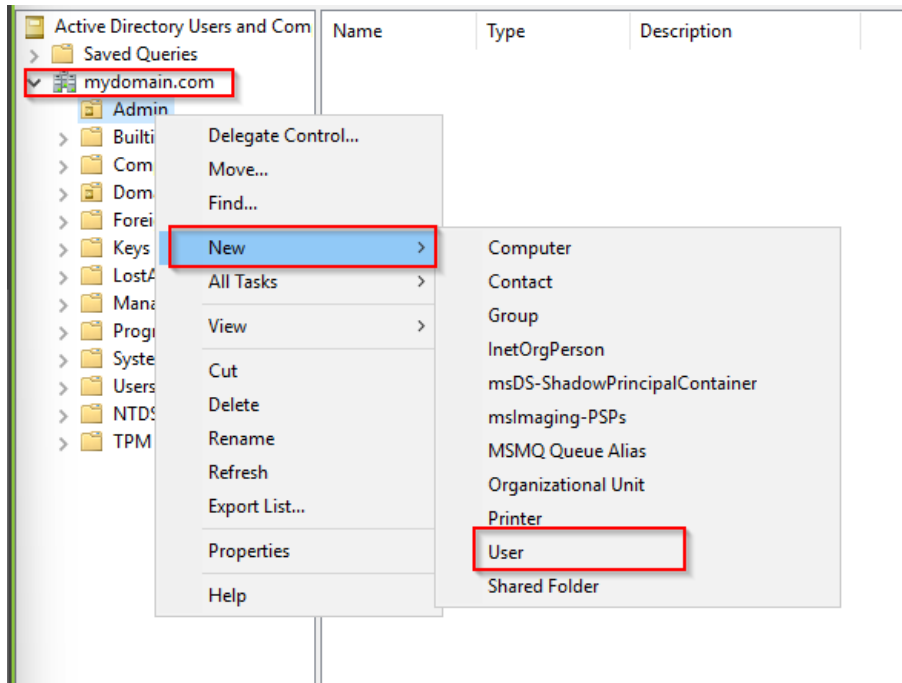
1. Now, we will create our admin user account. Click on Start and open the Windows admin tools. Select Active Directory Sites and Services.



2. Right-click on your domain and select New and Organizational unit. I named my OU Admin, but you can name it any way you like if you know this group is for admins.



3. Next, Right-click on the Admin OU and select New and User.



4. Fill in the required information. In this case, I used my name and added a to signify that his will be an admin account. When creating a password, make sure to deselect, The User must change the password at the next logon and select Password never expires.

New Object - User

Create in: mydomain.com/Admin

First name: Alex Initials:

Last name: Alvarado

Full name: Alex Alvarado

User logon name: a-alvarado @mydomain.com

User logon name (pre-Windows 2000): MYDOMAIN\ a-aalvarado

< Back Next > Cancel

New Object - User

Create in: mydomain.com/Admin

Password:

Confirm password:

☒ User must change password at next logon

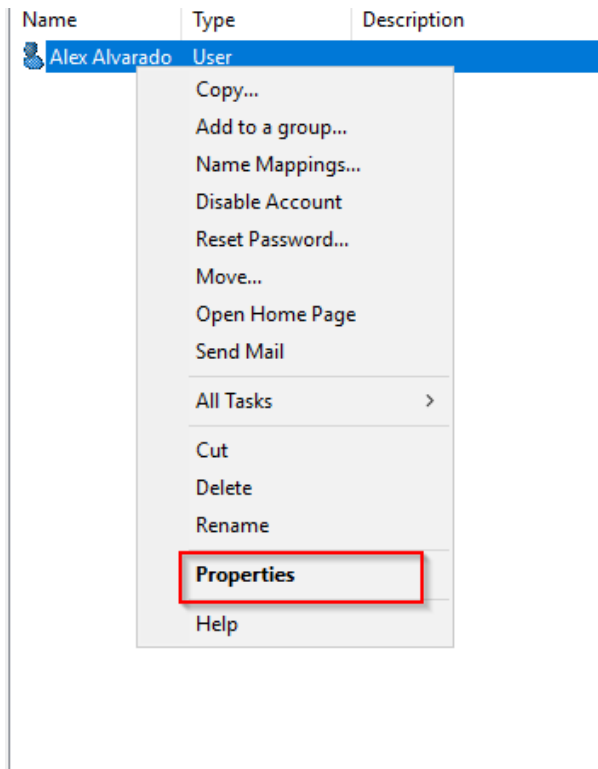
☐ User cannot change password

☐ Password never expires

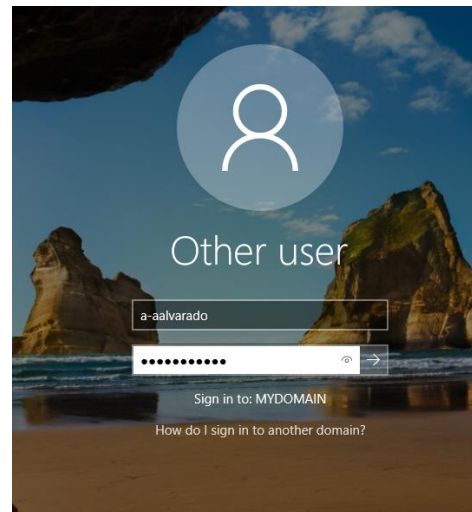
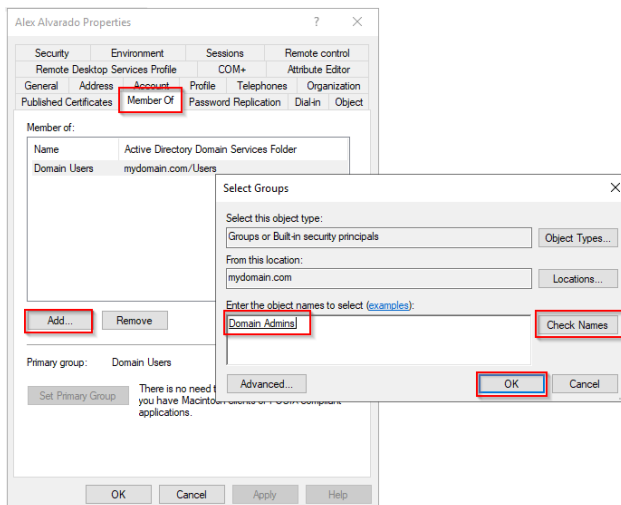
☐ Account is disabled

< Back Next > Cancel

5. Now that the account is created, we must give it admin privileges. Right-click on the username and select properties.



6. Go to the Member Of tab and select Add. In the object names box, enter Domain Admins and click Check Names; it should now be underlined. Click the OK button, and the user will have admin rights. We can log out of the Local Administrator account and log in with our new user account.

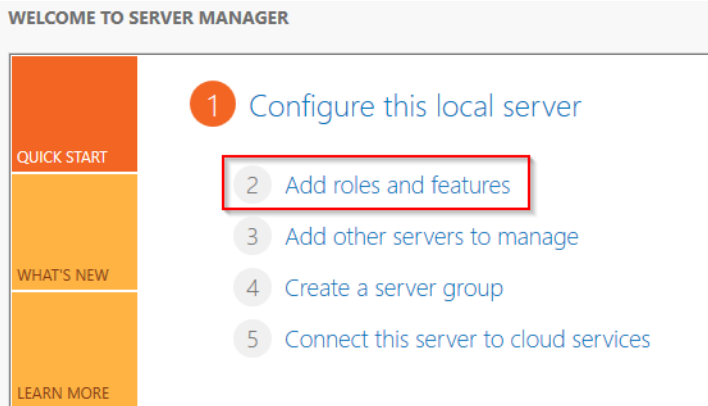




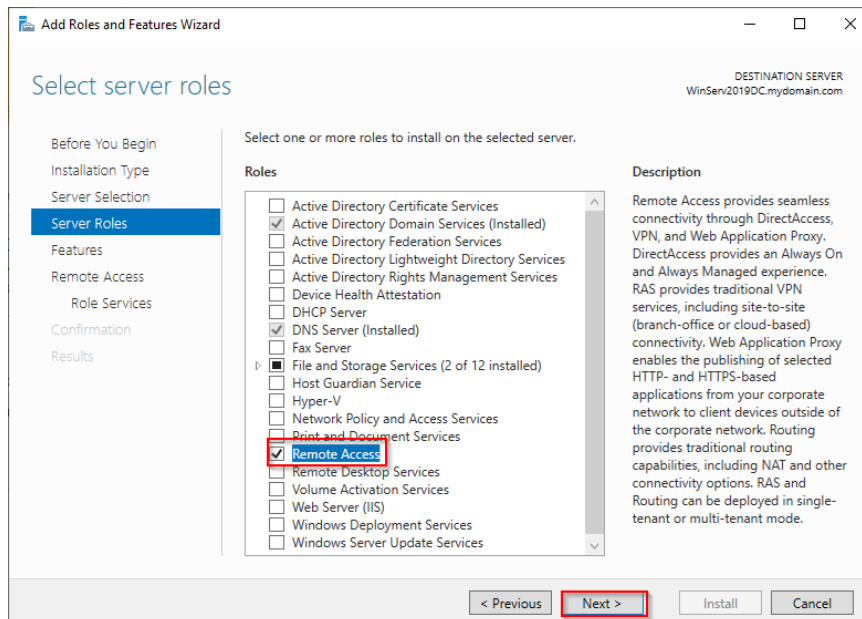
# RAS/NAT Install

This will allow our Windows 10 client to reach the internet via our Domain Controller.

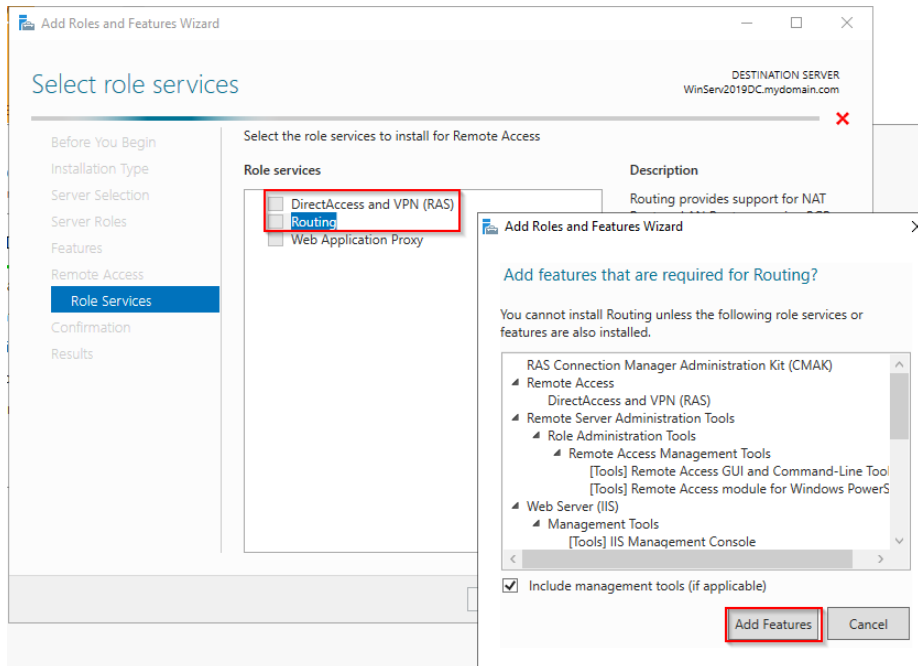
1. From the Server Manager screen, select Add Roles and Features. This process will be very similar to when we configured Active Directory.



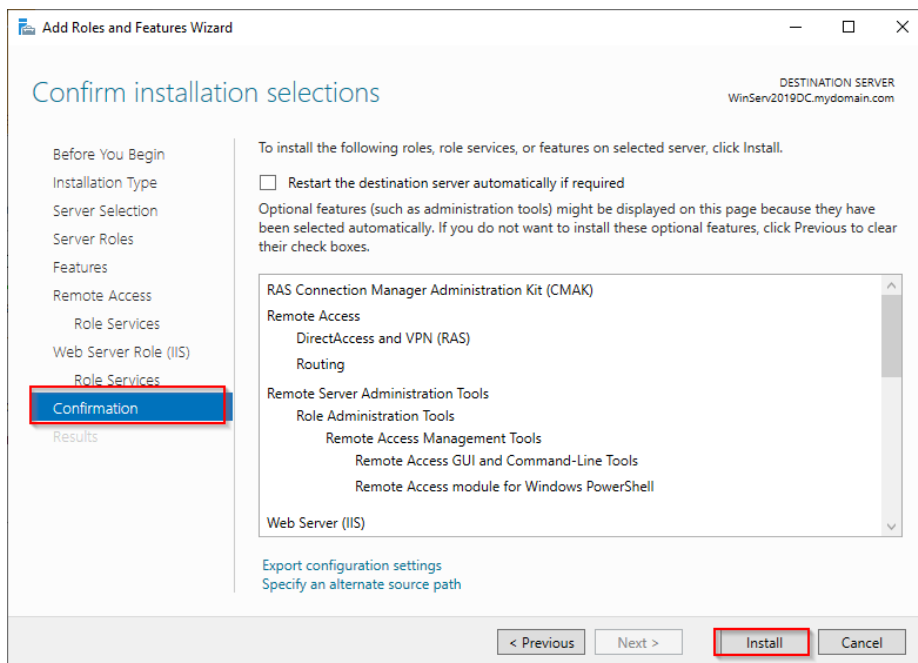
2. Click next until you get to the Server Roles section. Select Remote Access.



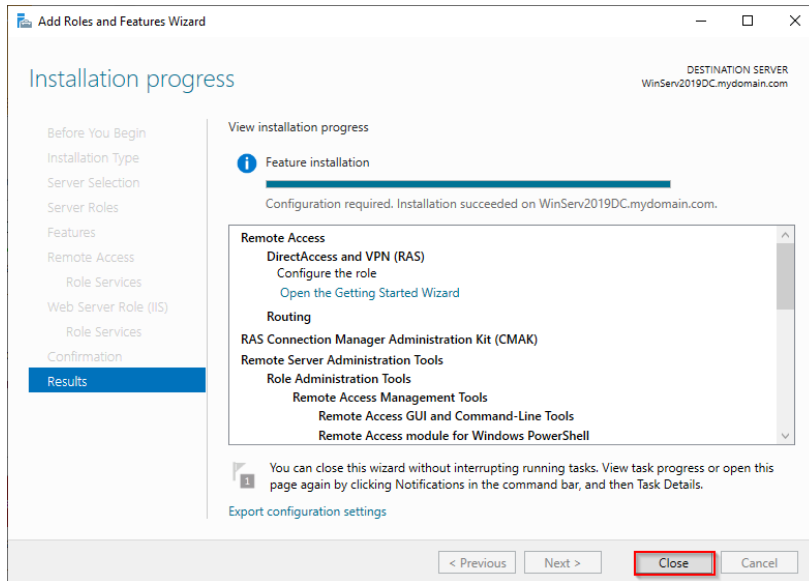
3. Again, click next until you get to Role Services. Check the Routing option and select Add Features. This will automatically enable DirectAccess and VPN (RAS).



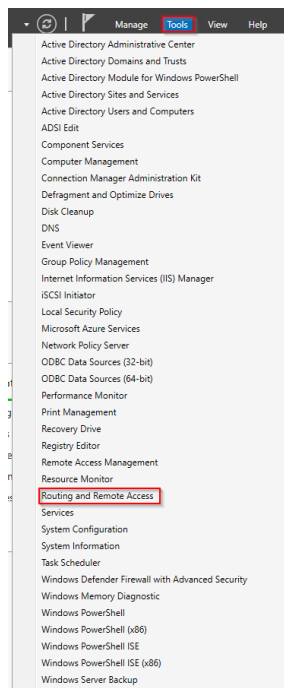
4. Click next until you get to Confirmation, and then select Install.



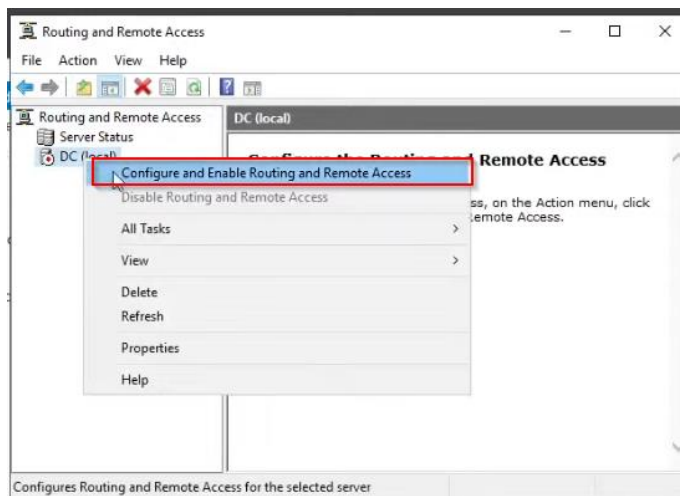
5. Once the installation is done, select Close.



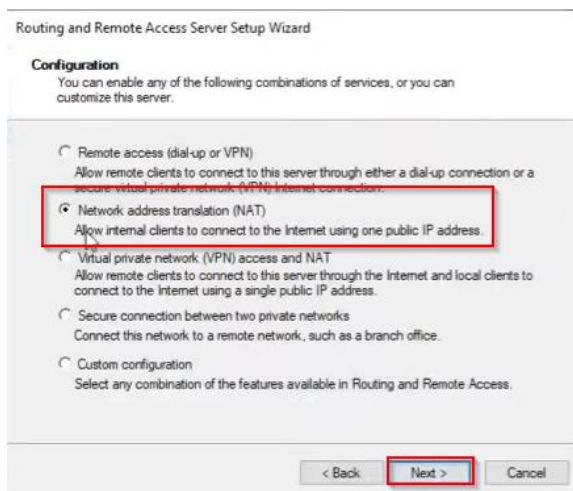
6. At the top right of the welcome to server manager screen, select Tools, Routing, and Remote Access.



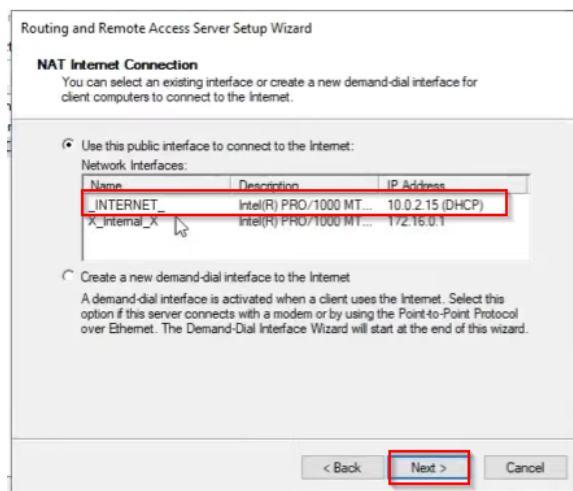
7. Right-click on DC, select Configure, and enable Routing and Remote Access.



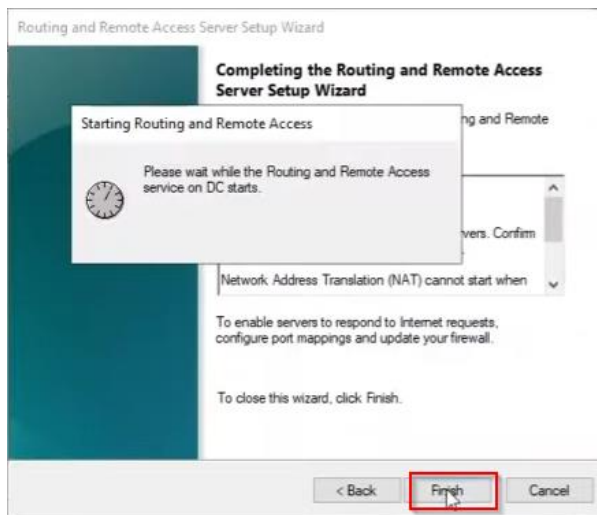
8. Click next, then select Network address translation (NAT).



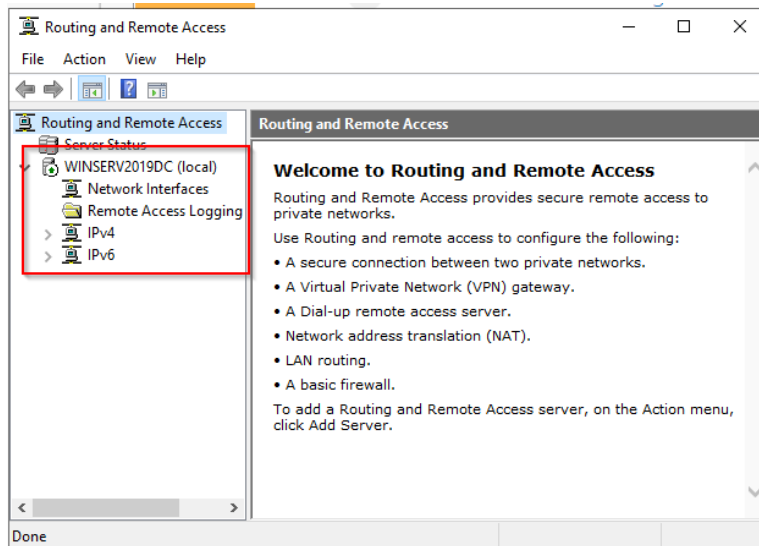
9. Next, we select our external (Internet) network interface. This is why, in earlier steps, we labeled each network interface. Select your Internet interface and click Next.



10. This should take a few minutes then select Finished.



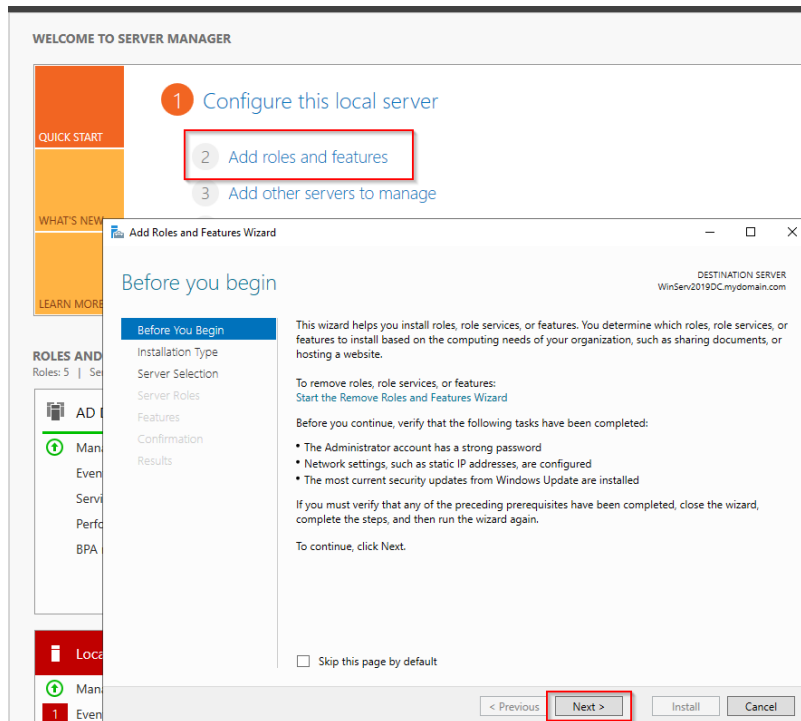
11. Now, you can see that your server has a green arrow.



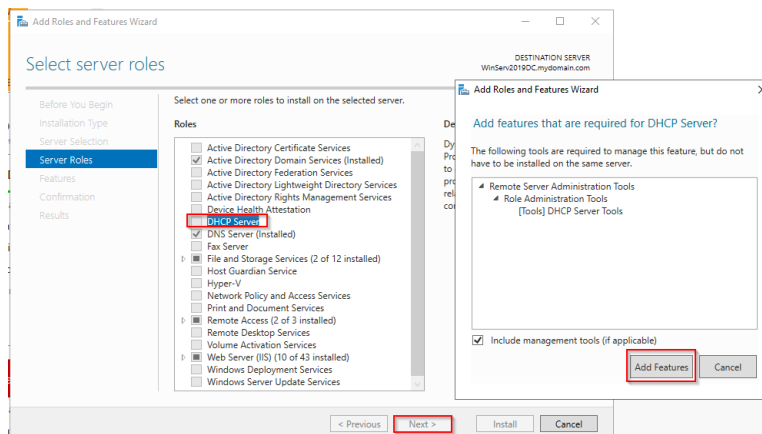
## Configure DHCP

This will be done so that when we configure the Windows 10 client, it will gain internet access via the DHCP server.

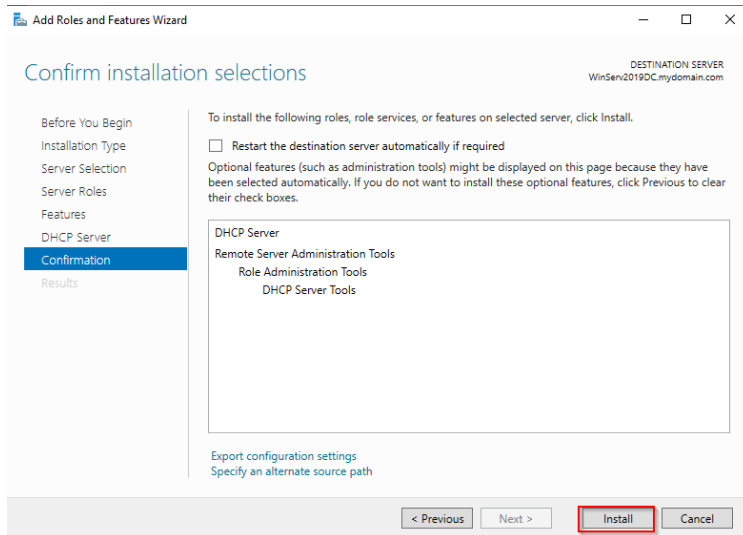
1. Once again, from the Welcome to Server Manager screen, select Add Roles and Features. Click next until you get to the Server Roles.



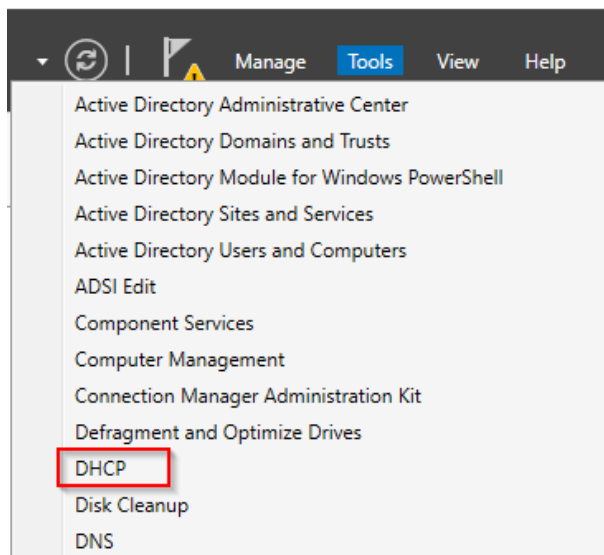
2. Click on DHCP Server and Add Features in the Server Roles section. Then click Next until you get to the Confirmation page.



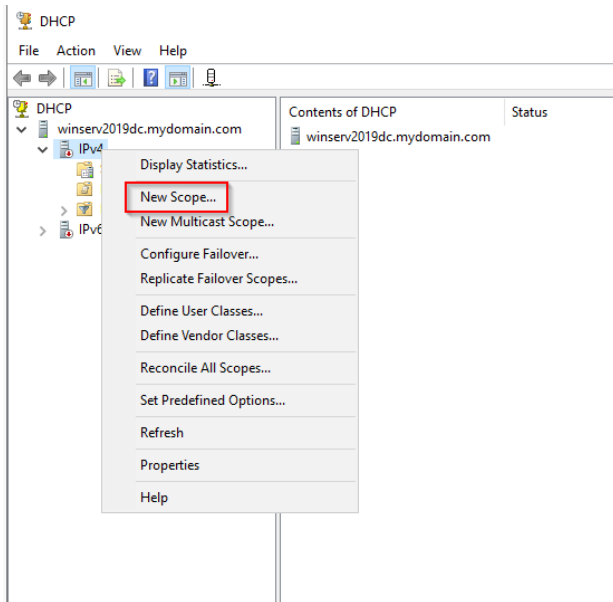
3. Click Install, and once it is done, you can click the Close button.



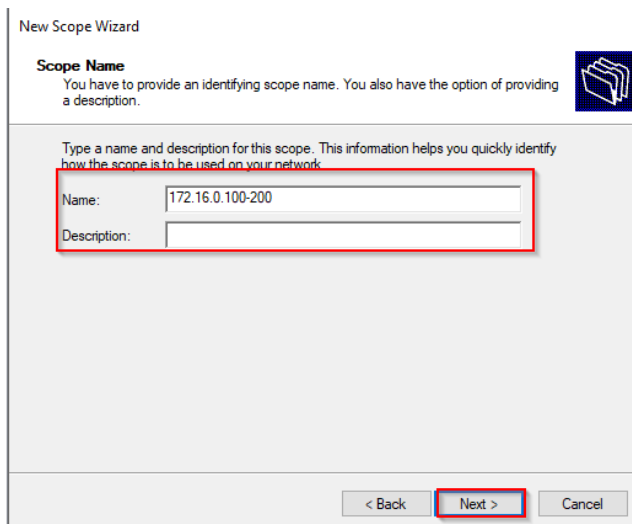
4. Select Tools on the top right corner of the Welcome to Server Manager page and select DHCP. It's time to configure our IP range.



5. Expand your domain and right click on IPv4 and select New Scope.

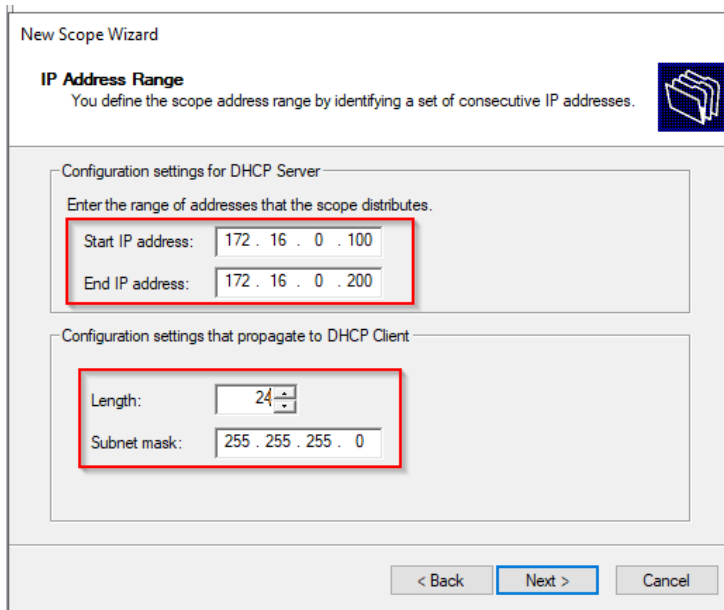


6. Click next and give it a Name. For this lab, I will name it the IP range we will use.



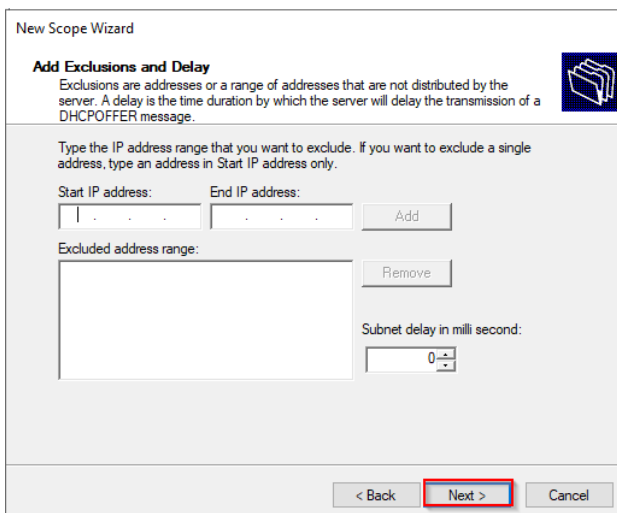


7. Next, we enter the IP range and subnet mask identified in our diagram.



The screenshot shows the 'New Scope Wizard' window, specifically the 'IP Address Range' step. The title bar says 'New Scope Wizard'. Below the title, it says 'IP Address Range' and 'You define the scope address range by identifying a set of consecutive IP addresses.' There is a blue icon of a folder with a document. The main area is divided into two sections. The first section is 'Configuration settings for DHCP Server' and contains the text 'Enter the range of addresses that the scope distributes.' Below this, there are two input fields: 'Start IP address:' with the value '172 . 16 . 0 . 100' and 'End IP address:' with the value '172 . 16 . 0 . 200'. The second section is 'Configuration settings that propagate to DHCP Client' and contains two input fields: 'Length:' with the value '24' and 'Subnet mask:' with the value '255 . 255 . 255 . 0'. At the bottom, there are three buttons: '< Back', 'Next >', and 'Cancel'. The 'Next >' button is highlighted with a blue border.

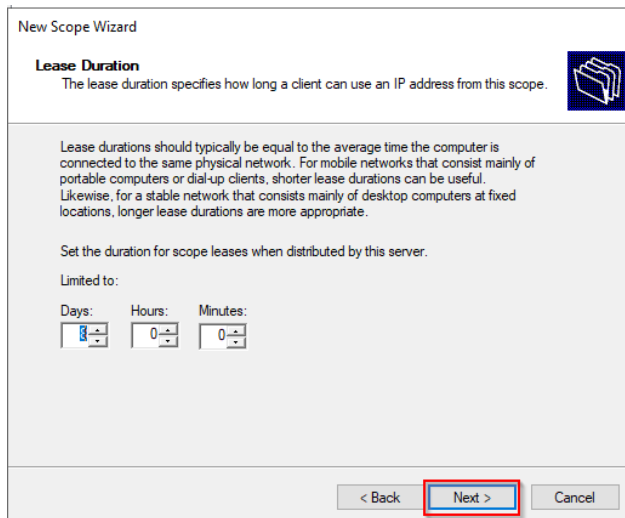
8. Next, it will ask for any IP exclusions. We do not have any for this lab. Still, a larger organization will most likely exclude specific devices that should maintain a particular IP address and not be assigned one randomly. Click Next.



The screenshot shows the 'New Scope Wizard' window, specifically the 'Add Exclusions and Delay' step. The title bar says 'New Scope Wizard'. Below the title, it says 'Add Exclusions and Delay' and 'Exclusions are addresses or a range of addresses that are not distributed by the server. A delay is the time duration by which the server will delay the transmission of a DHCP OFFER message.' There is a blue icon of a folder with a document. The main area contains the text 'Type the IP address range that you want to exclude. If you want to exclude a single address, type an address in Start IP address only.' Below this, there are two input fields: 'Start IP address:' and 'End IP address:'. To the right of these fields is an 'Add' button. Below these fields is an 'Excluded address range:' label and a large empty text box. To the right of this text box is a 'Remove' button. Below the text box is a 'Subnet delay in milli second:' label and a spinner box with the value '0'. At the bottom, there are three buttons: '< Back', 'Next >', and 'Cancel'. The 'Next >' button is highlighted with a red border.

9. The Lease Duration is how long a device can have the same IP address before it is assigned to another device. Again, we will leave the default for our lab environment, but if your business constantly had people connecting and disconnecting, you

would want to change this to maybe only a few hours. Click Next.



New Scope Wizard

**Lease Duration**  
The lease duration specifies how long a client can use an IP address from this scope.

Lease durations should typically be equal to the average time the computer is connected to the same physical network. For mobile networks that consist mainly of portable computers or dial-up clients, shorter lease durations can be useful. Likewise, for a stable network that consists mainly of desktop computers at fixed locations, longer lease durations are more appropriate.

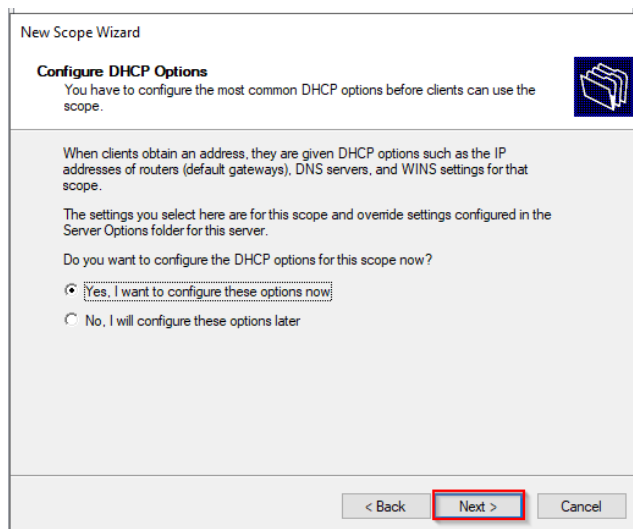
Set the duration for scope leases when distributed by this server.

Limited to:

Days:  Hours:  Minutes:

< Back **Next >** Cancel

10. To finish the configuration, click Next.



New Scope Wizard

**Configure DHCP Options**  
You have to configure the most common DHCP options before clients can use the scope.

When clients obtain an address, they are given DHCP options such as the IP addresses of routers (default gateways), DNS servers, and WINS settings for that scope.

The settings you select here are for this scope and override settings configured in the Server Options folder for this server.

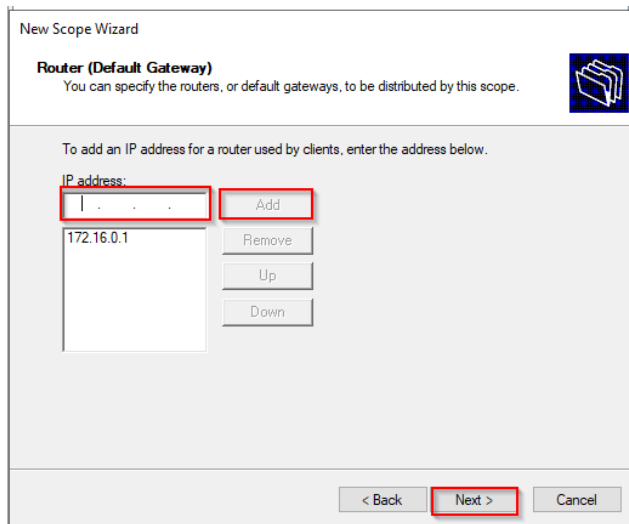
Do you want to configure the DHCP options for this scope now?

☒ Yes, I want to configure these options now

☐ No, I will configure these options later

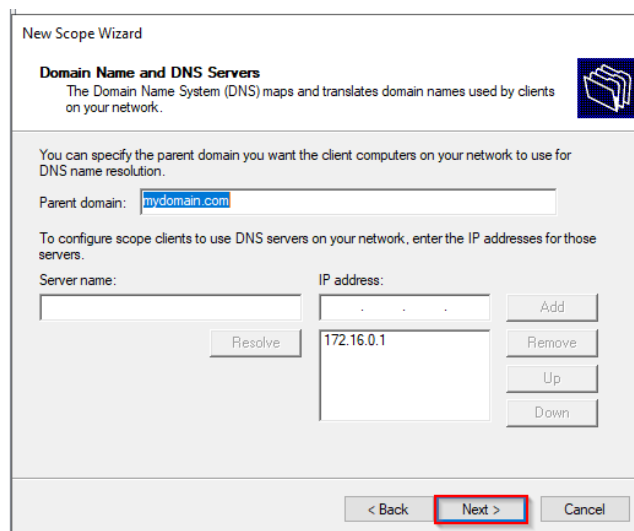
< Back **Next >** Cancel

11. Now, to set up the Default Gateway, this will be our Windows 2019 Server. Enter the IP address of your server and select Add. Click Next.



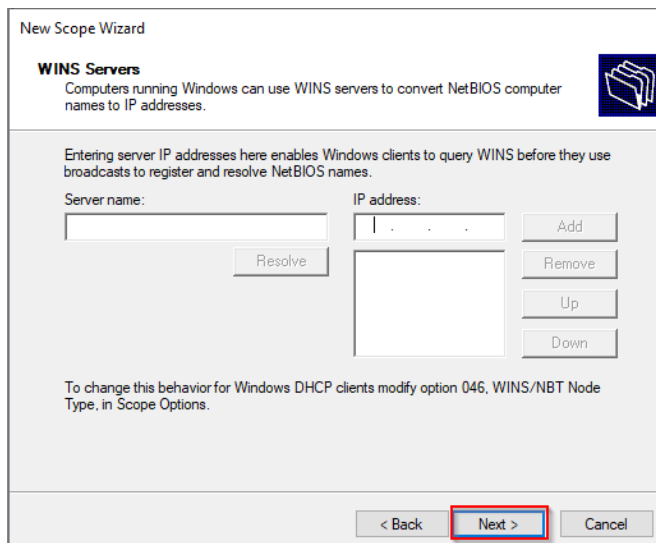
The screenshot shows the 'New Scope Wizard' window, specifically the 'Router (Default Gateway)' step. The title bar says 'New Scope Wizard'. Below the title, it says 'Router (Default Gateway)' and 'You can specify the routers, or default gateways, to be distributed by this scope.' There is a blue folder icon on the right. The main area contains the text 'To add an IP address for a router used by clients, enter the address below.' Below this, there is an 'IP address:' label followed by a text box containing '172.16.0.1'. To the right of the text box are buttons for 'Add', 'Remove', 'Up', and 'Down'. The 'Add' button is highlighted with a red box. At the bottom of the window, there are three buttons: '< Back', 'Next >', and 'Cancel'. The 'Next >' button is highlighted with a red box.

12. Your domain should automatically appear, click Next.



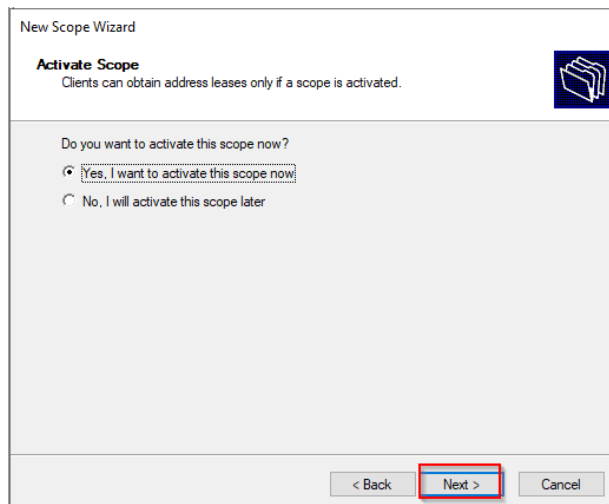
The screenshot shows the 'New Scope Wizard' window, specifically the 'Domain Name and DNS Servers' step. The title bar says 'New Scope Wizard'. Below the title, it says 'Domain Name and DNS Servers' and 'The Domain Name System (DNS) maps and translates domain names used by clients on your network.' There is a blue folder icon on the right. The main area contains the text 'You can specify the parent domain you want the client computers on your network to use for DNS name resolution.' Below this, there is a 'Parent domain:' label followed by a text box containing 'mydomain.com'. Below the text box is a 'Resolve' button. Further down, there is a section for 'To configure scope clients to use DNS servers on your network, enter the IP addresses for those servers.' This section has two columns: 'Server name:' and 'IP address:'. The 'IP address:' column has a text box containing '172.16.0.1'. To the right of the text box are buttons for 'Add', 'Remove', 'Up', and 'Down'. The 'Add' button is highlighted with a red box. At the bottom of the window, there are three buttons: '< Back', 'Next >', and 'Cancel'. The 'Next >' button is highlighted with a red box.

13. You can skip WINS Servers. It's an outdated technology. Click Next.



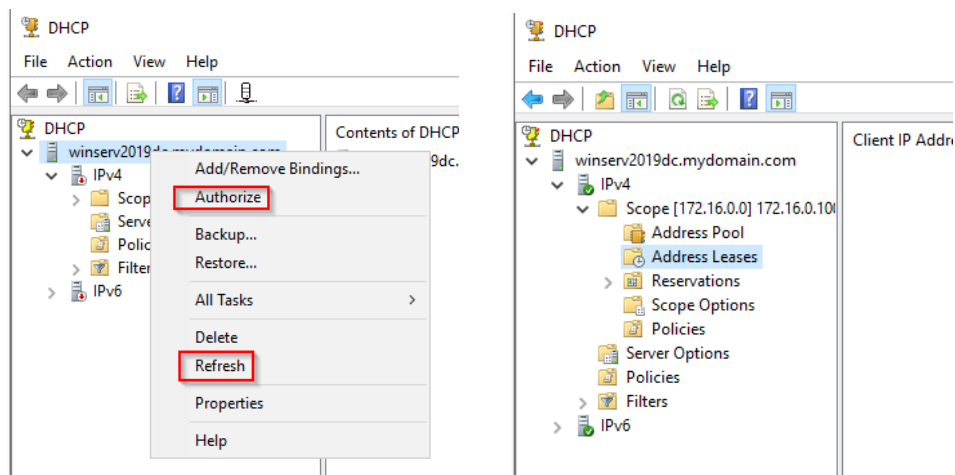
The screenshot shows the 'New Scope Wizard' window, specifically the 'WINS Servers' step. The title bar reads 'New Scope Wizard'. Below the title, there's a section for 'WINS Servers' with a brief explanation: 'Computers running Windows can use WINS servers to convert NetBIOS computer names to IP addresses.' To the right of this text is a small icon of a folder with a document. Below the explanation, there's a text box stating: 'Entering server IP addresses here enables Windows clients to query WINS before they use broadcasts to register and resolve NetBIOS names.' The main area contains two input fields: 'Server name:' and 'IP address:'. The 'IP address:' field has a dropdown menu showing '1 . . .'. To the right of these fields are buttons: 'Add', 'Remove', 'Up', and 'Down'. Below the input fields is a 'Resolve' button. At the bottom of the window, there are three buttons: '< Back', 'Next >', and 'Cancel'. The 'Next >' button is highlighted with a red rectangle.

14. Click Next and Finish to activate the new IP Scope.



The screenshot shows the 'New Scope Wizard' window, specifically the 'Activate Scope' step. The title bar reads 'New Scope Wizard'. Below the title, there's a section for 'Activate Scope' with a brief explanation: 'Clients can obtain address leases only if a scope is activated.' To the right of this text is a small icon of a folder with a document. Below the explanation, there's a text box stating: 'Do you want to activate this scope now?'. There are two radio buttons: 'Yes, I want to activate this scope now' (which is selected) and 'No, I will activate this scope later'. At the bottom of the window, there are three buttons: '< Back', 'Next >', and 'Cancel'. The 'Next >' button is highlighted with a red rectangle.

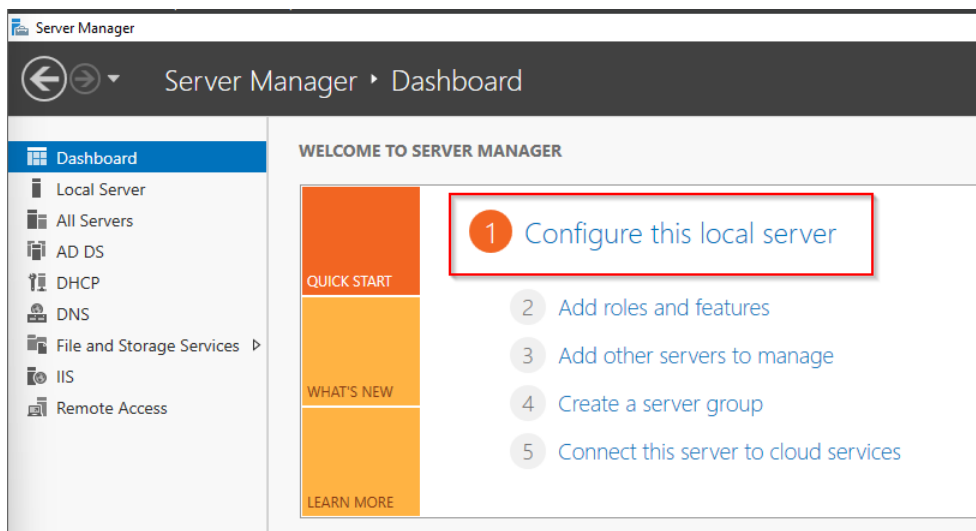
15. Next, right-click on the domain and select Authorize. Then right-click again and choose Refresh. You should get a green check under IPv4 and IPv6.



## Use PowerShell script to create multiple users.

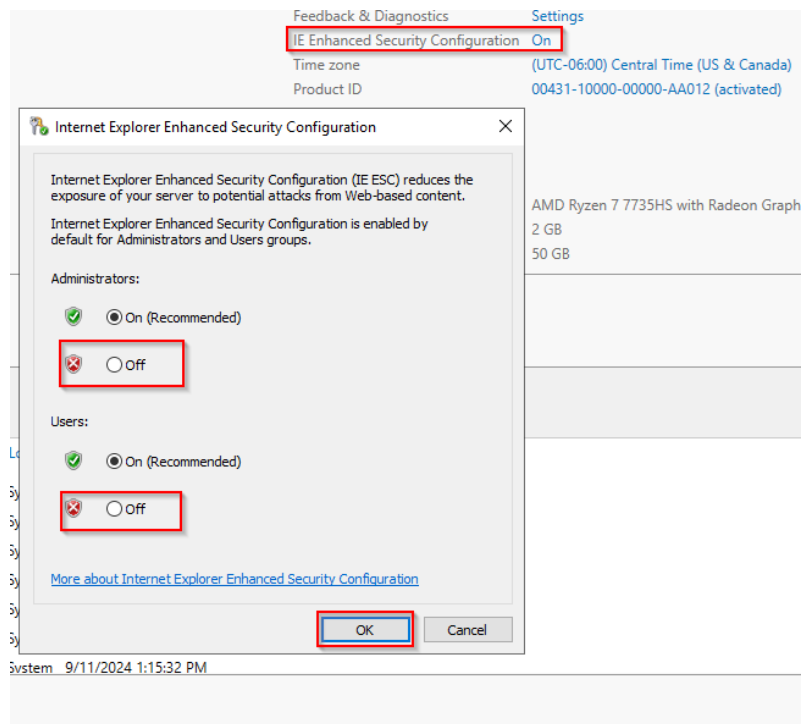
I will have the script I used in my GitHub folder, but I will briefly explain what it will do. Lines 2 and 3 will create two variables: one that will hold our password for the new accounts we create, and the second will have the list of users we will add. The users were generated from a random name generator and saved to the names text file. Lines 6 and 7 will create a secure string for the password to be passed to AD and create a new OU named NEWUSERS while removing the protect container from the accidental deletion option. Lines 9 through 23 create a loop that takes each username and splits the first and last name by the space between them. Then, a user is created using only the first letter of their name and their last name. It also adds the password from line 2 and ensures the user password does not expire, and then repeats for each name on the text file. Next I will walk you through running the script.

1. From the Welcome to server manager screen, select Configure this local server.

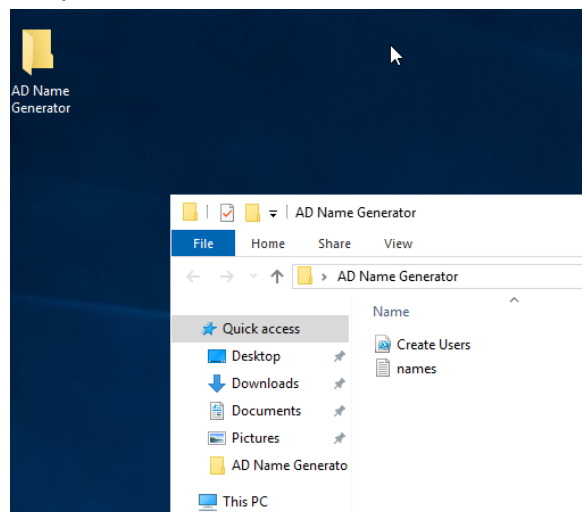


2. Select IE Enhanced Security Configuration and disable Admin and User protection. Note that in the real world, this is not recommended, but for this home lab example, it's okay. This will allow you to download the PowerShell script from the web

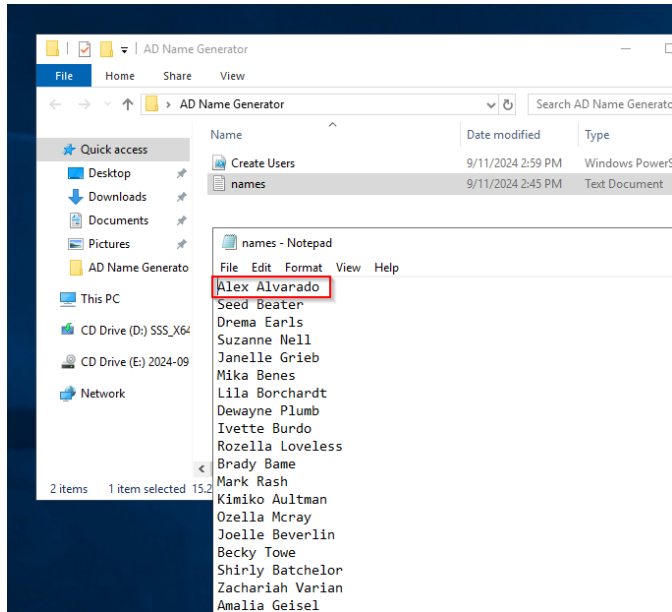
browser.



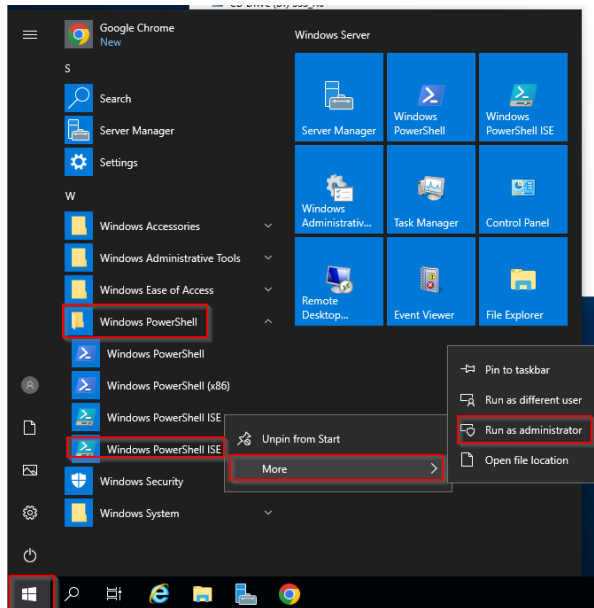
3. Place the files on your desktop and unzip them. You should see the Create Users script and names text file.



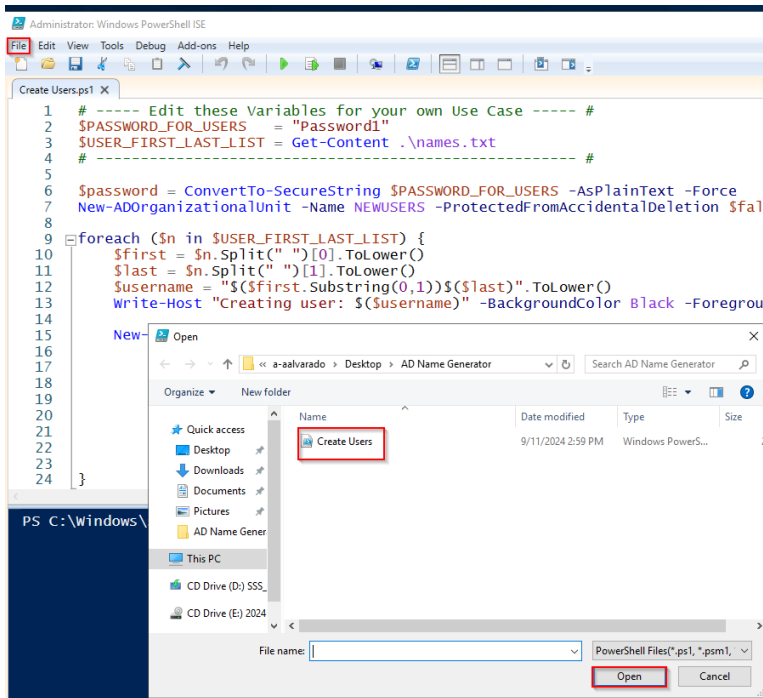
4. Open the names text file and add your name to the top to have the script create an account for you.



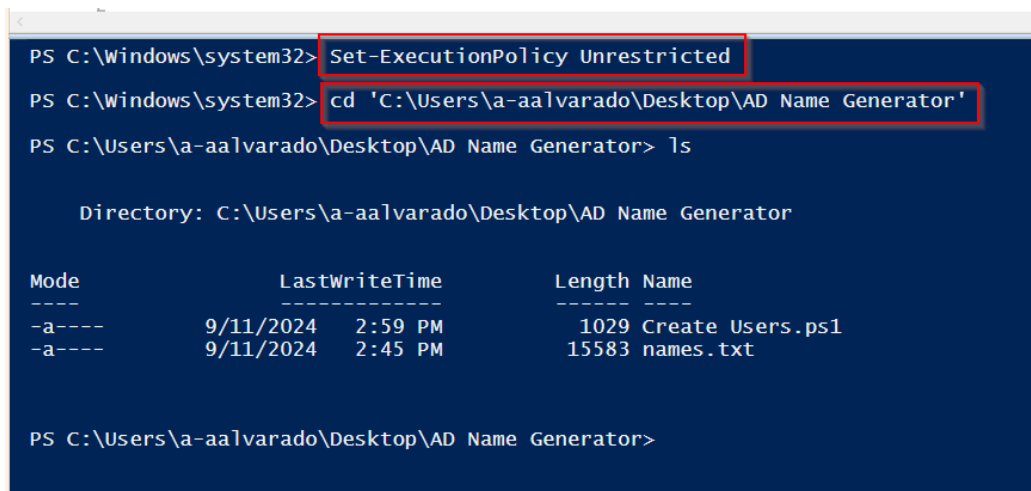
5. Click on Start, Windows PowerShell, right-click on the ISE version, select More, and then Run as administrator.



6. Click File, Open, and select the Create Users PowerShell script.



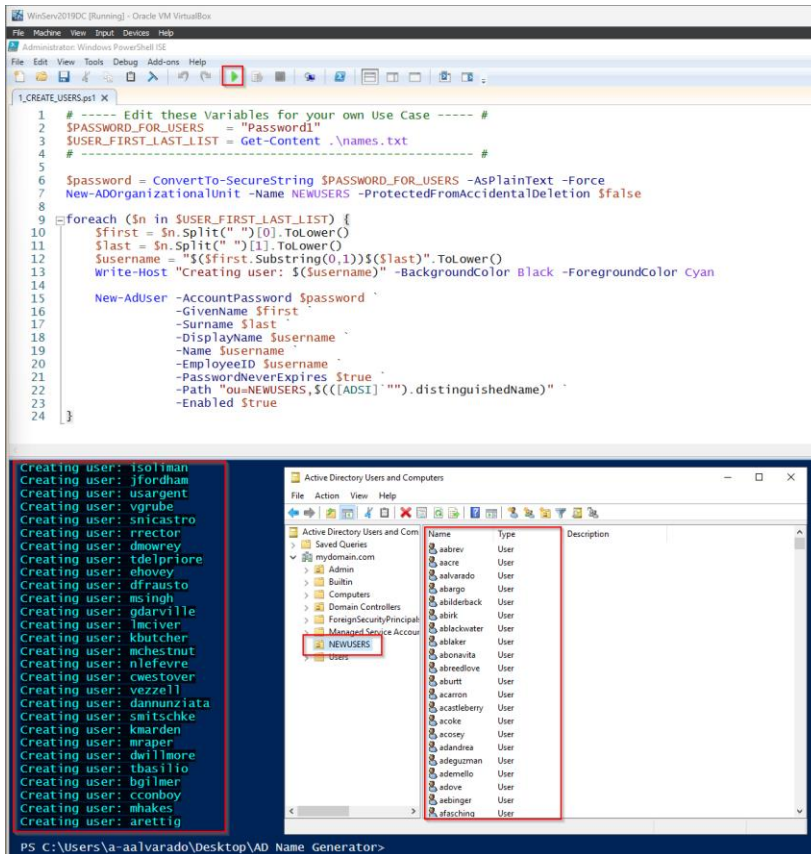
7. To run the script, you must do two things. First, disable the execution policy by running the Set-ExecutionPolicy Unrestricted command in PowerShell, and second, navigate to the path where the name text file is. You will be prompted to confirm changes once you execute the unrestricted option just select Yes to All.



8. Hit the green play button, and the script will create new users in the NEWUSERS OU. You can verify this by opening Active Directory User and Computers and clicking on



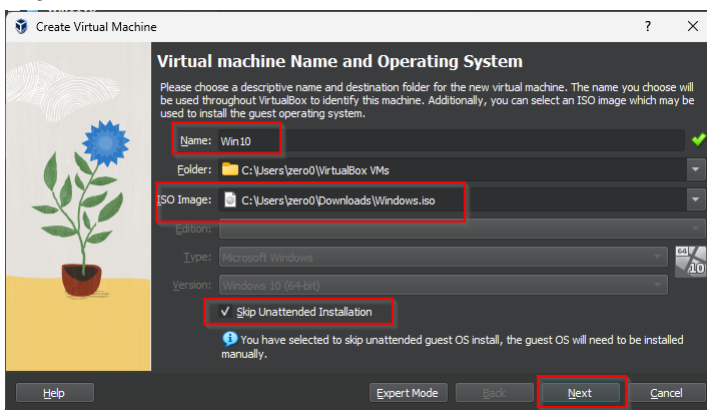
the folder.



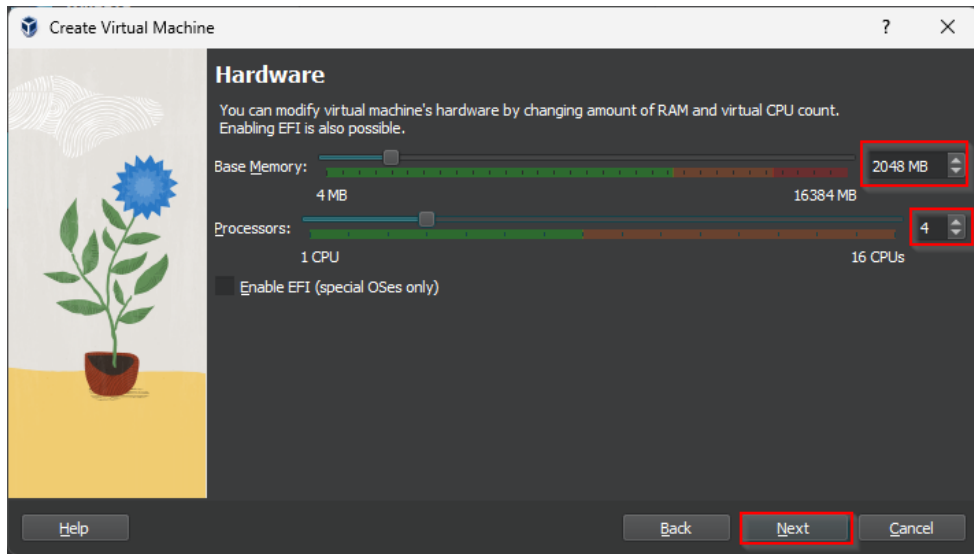
## Configure Windows 10 Virtual Machine

This will be very similar to how we created the Windows Server 2019 virtual machine.

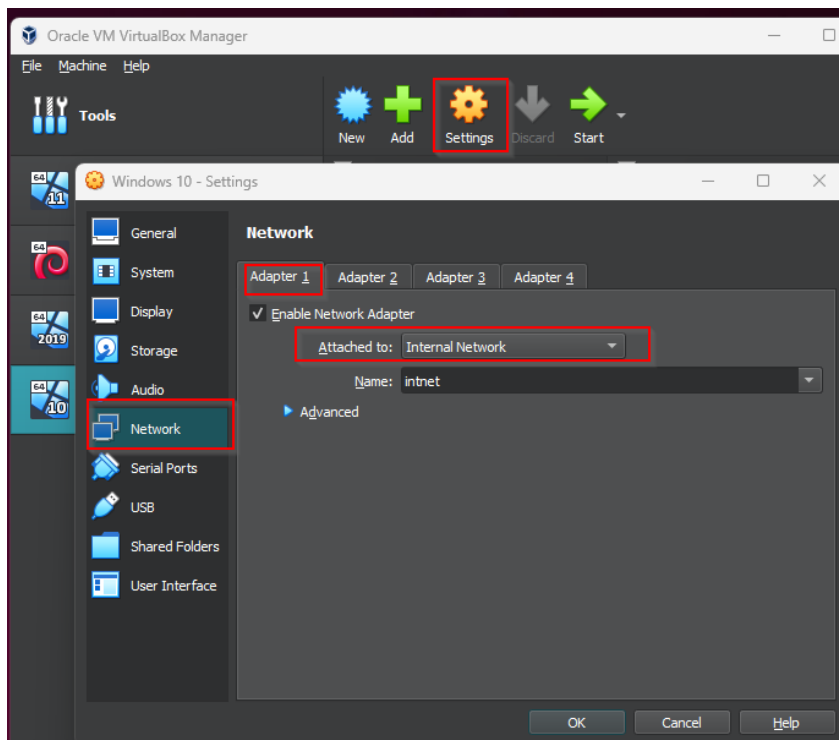
1. Open Oracle VM Virtual Box, select New, give the VM a name, and select the ISO image we created at the beginning of the document. Ensure to check Skip Unattended Installation or it will force you to create an account and enter a product key. Click Next.



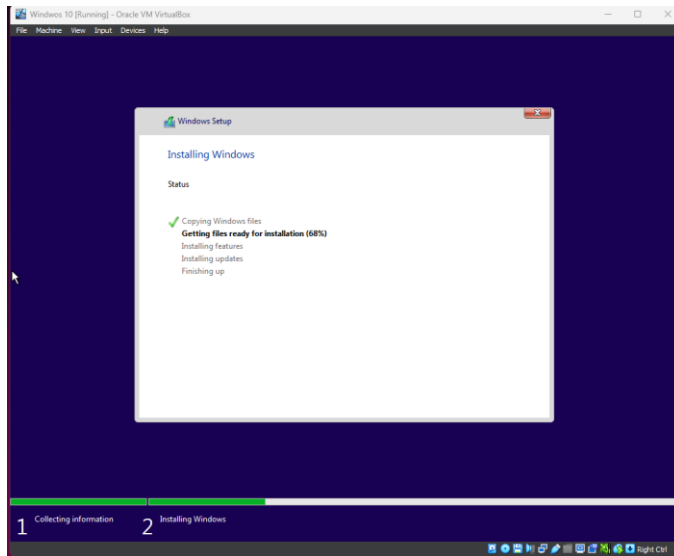
2. Like the server, give the VM 2 GB of RAM and about four processing cores if you have the resources. Click Next.



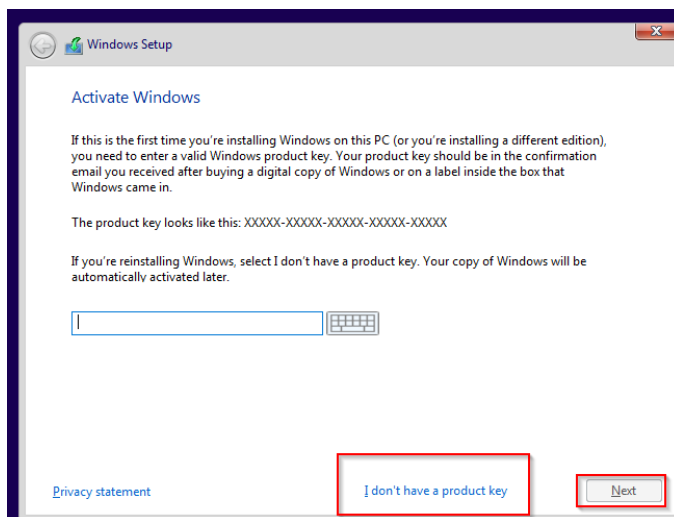
3. Click next on the default storage setting and finish. Next, we will open Settings, click on Network, and change Adapter 1 to Internal Network. This will allow our VM to connect to your Windows 2019 server and receive an IP from the DHCP services we configured.



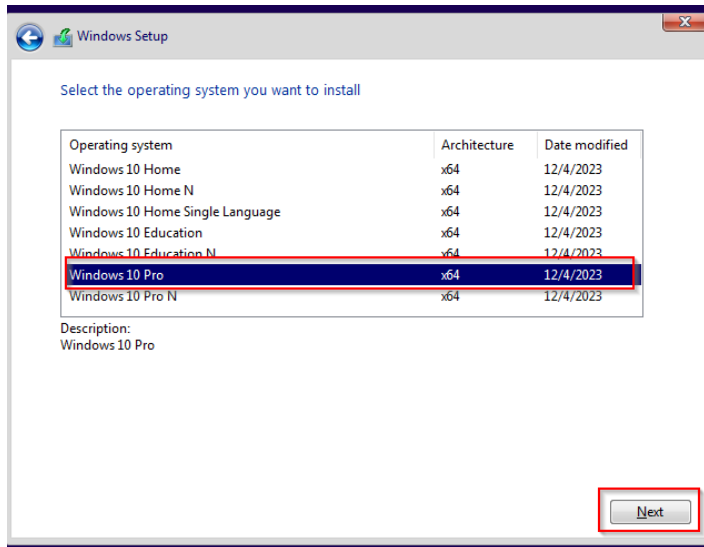
- Now, we can double-click or click the start arrow on the Windows 10 VM and run through the installation process.



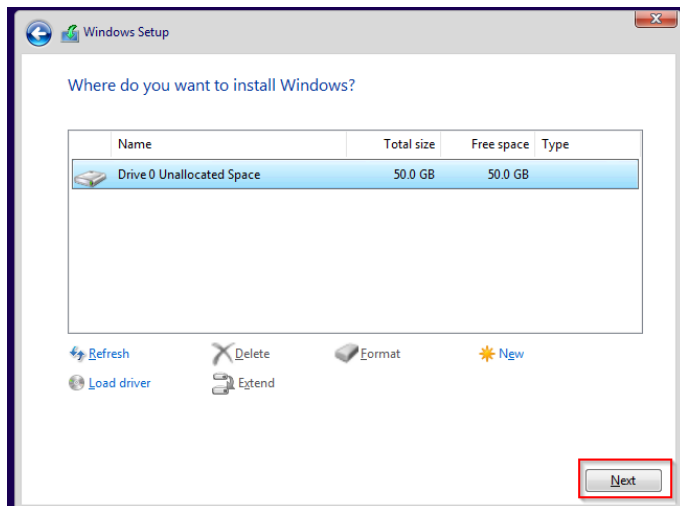
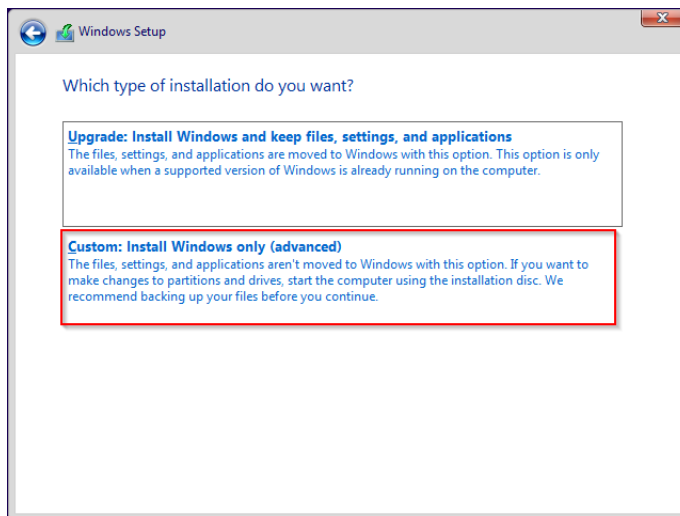
- Select I don't have a product key and Next.



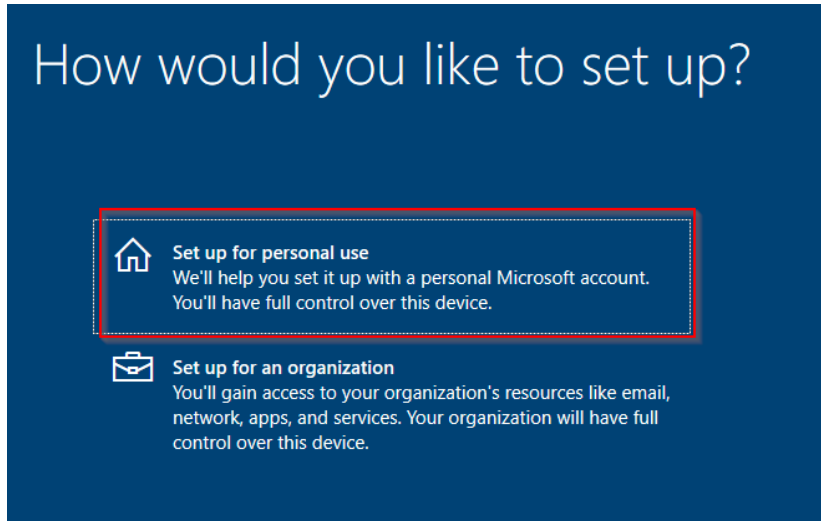
6. Ensure to install Windows 10 Pro so that we can join this client to the Domain.



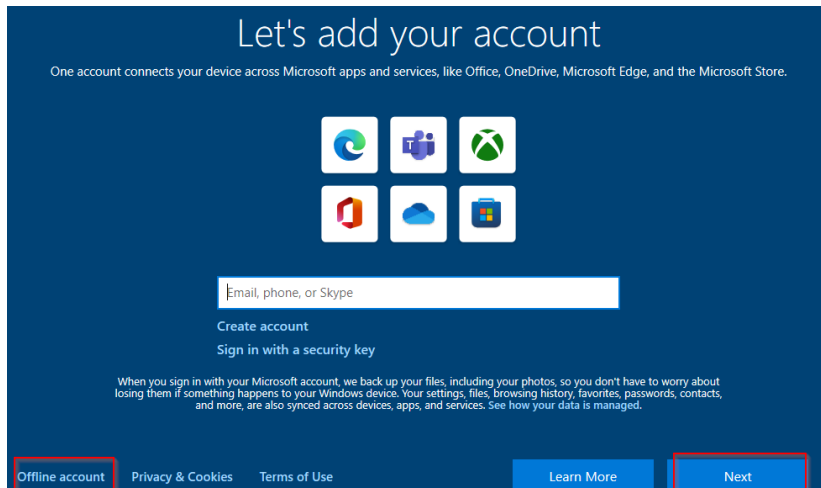
7. Select Custom Installation and click Next on the Where do you want to install Windows screen.



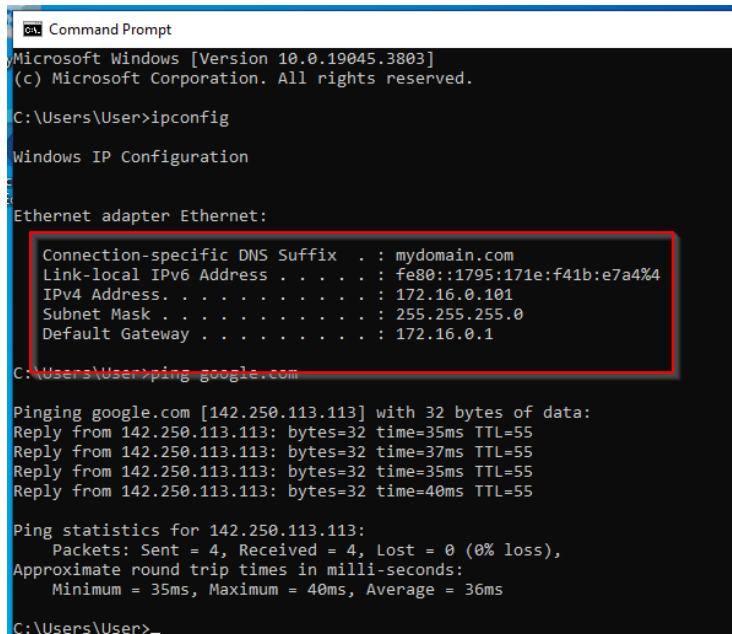
8. Once Windows is installed, follow standard setup steps and create a regular user account with no password. This will not matter as we will be joining it in the domain. During the setup process ensure to select the options below so you don't have to create a Microsoft account.



9.



10. Open the command prompt on the desktop and run the command `ipconfig` to see your network settings. Ensure you have IP, Subnet Mask, and Default Gateway. This lets us know our network configuration on the server is working.



```
Microsoft Windows [Version 10.0.19045.3803]
(c) Microsoft Corporation. All rights reserved.

C:\Users\User>ipconfig

Windows IP Configuration

Ethernet adapter Ethernet:

    Connection-specific DNS Suffix  . : mydomain.com
    Link-local IPv6 Address . . . . . : fe80::1795:171e:f41b:e7a4%4
    IPv4 Address. . . . . : 172.16.0.101
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : 172.16.0.1

C:\Users\User>ping google.com

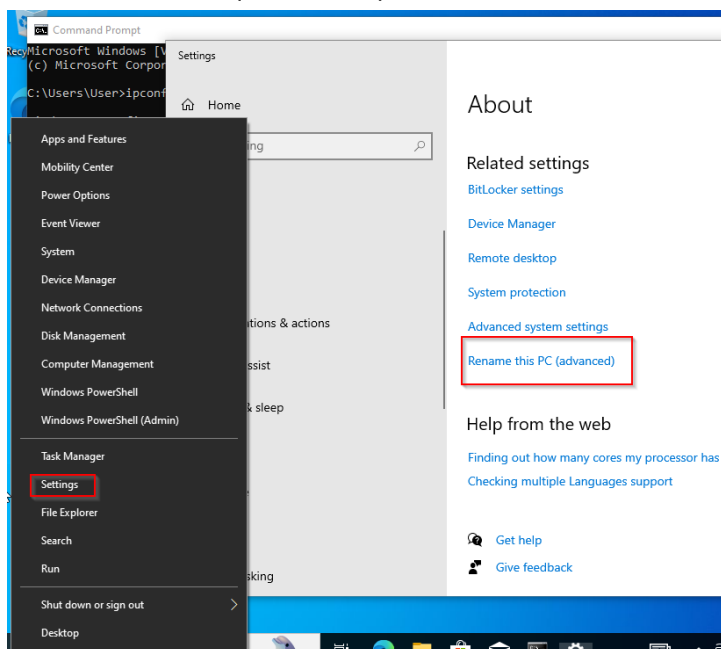
Pinging google.com [142.250.113.113] with 32 bytes of data:
Reply from 142.250.113.113: bytes=32 time=35ms TTL=55
Reply from 142.250.113.113: bytes=32 time=37ms TTL=55
Reply from 142.250.113.113: bytes=32 time=35ms TTL=55
Reply from 142.250.113.113: bytes=32 time=40ms TTL=55

Ping statistics for 142.250.113.113:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 35ms, Maximum = 40ms, Average = 36ms

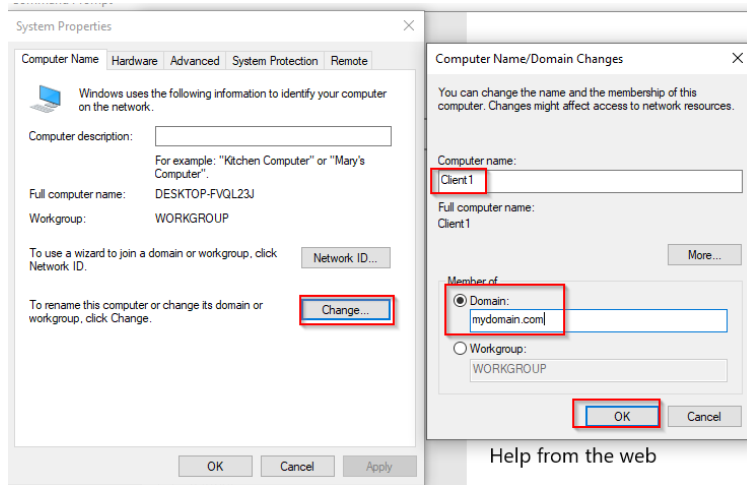
C:\Users\User>
```

## Join VM to the Domain

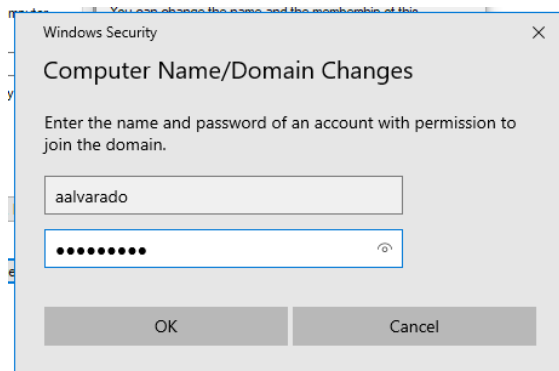
1. Now, we will rename our Windows 10 VM and join it to the domain at the same time. Right-click on the Start button and select Settings. Scroll down until you see Rename this PC (advanced).



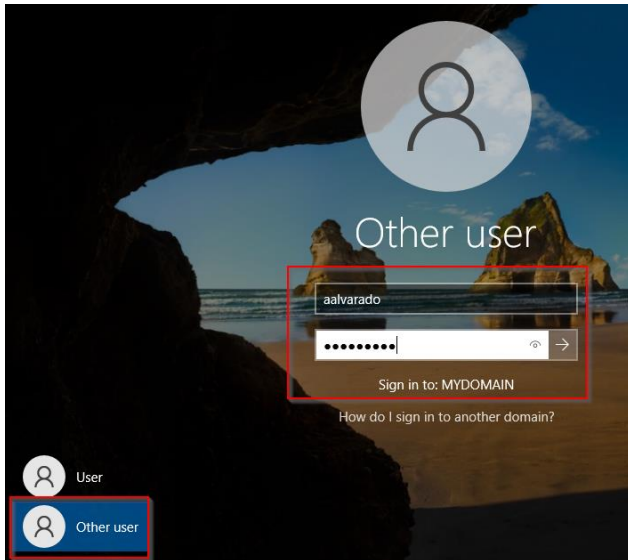
2. Under the Computer Name tab, click Change, and name the computer Client1 as shown in our diagram. Also, we will select the Domain radio button and enter our domain name (mydomain.com).



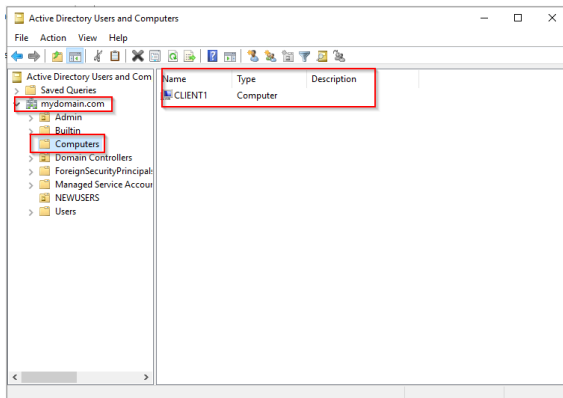
3. You will be prompted to an account with permission to join the domain. Both your admin and user accounts should work for this.



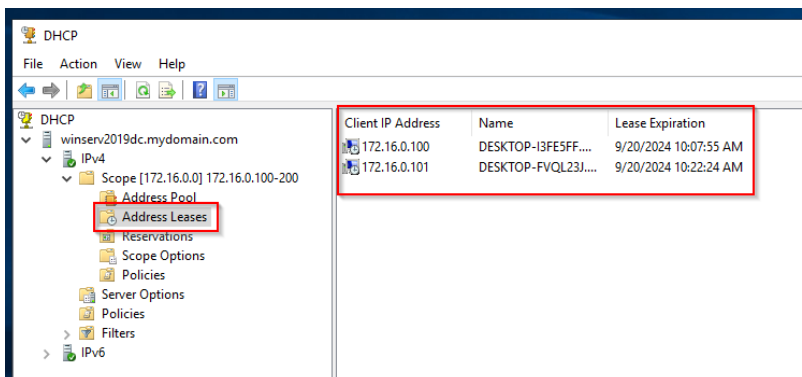
- Finally, the computer will reboot to apply changes, and you can log in with your normal user account that we created when running the PowerShell script.



- You can confirm by logging into your server, opening Active Directory User and Computer, clicking on the drop-down menu for your domain, and selecting the computers folder. You should now see Client1 in the computer folder.



- You should also be able to open DHCP and click on the Address Lease folder to see the lease that was created when you butted up the Windows 10 VM. I have two because I did it twice, haha.





I hope you have found this tutorial helpful. If you have any questions, get stuck, or want me to cover something else, please contact [alex@alvaradoonline.com](mailto:alex@alvaradoonline.com) Thank you.