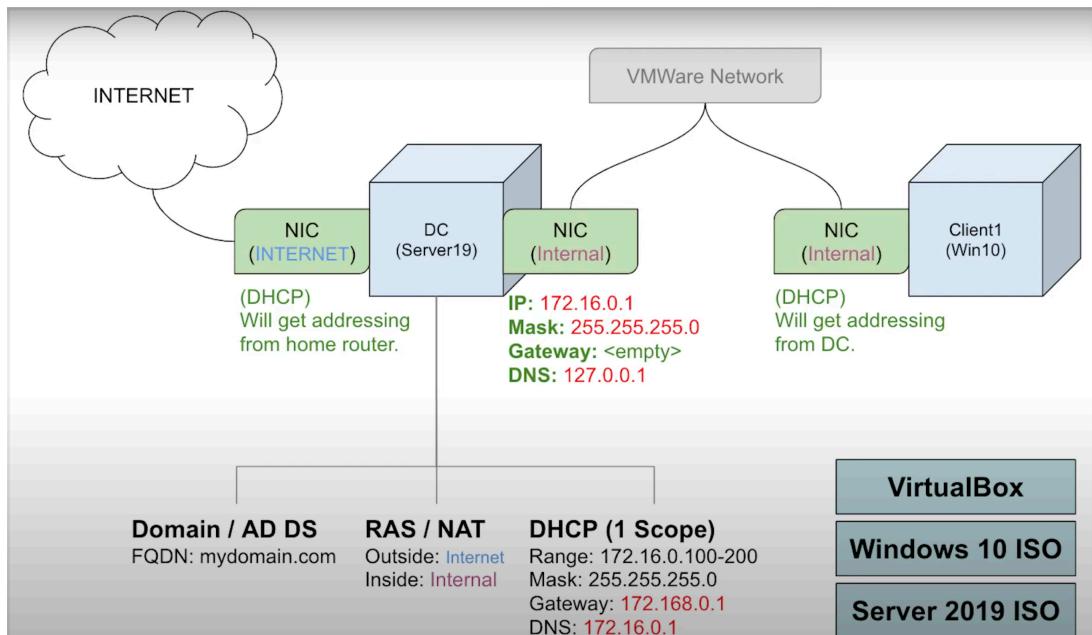


How to set up a basic Home Lab Running Active Directory :



The tool used to establish a fundamental home laboratory for operating Active Directory is as follows:

Initial step: it's necessary to download Oracle VirtualBox.

<https://www.virtualbox.org/wiki/Downloads>

Considering your operating system, which is running on your computer, please follow these steps:

- **First Step:** Download Oracle VirtualBox suitable for your OS from the following link: <https://www.virtualbox.org/wiki/Downloads>
- **Second Step:** Obtain the extended file download to proceed with the installation.
- **Third Step:** Download the 64-bit version of Windows 10. Ensure that you select the appropriate architecture.

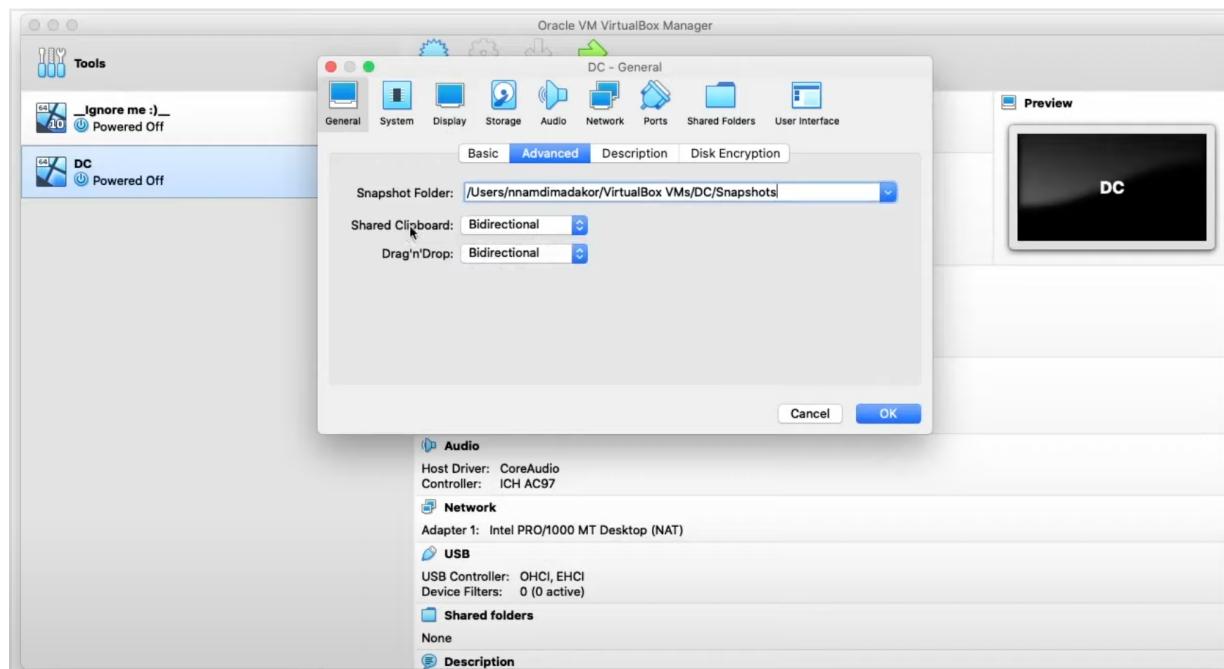
Step Four: To move forward, select the appropriate version of Windows. If you're opting for Windows Server, ensure that you choose the ISO download option from the following link: <https://www.microsoft.com/en-us/evalcenter/download->

windows-server-2019

Once you've established a new project within the Oracle VM VirtualBox Manager and configured your account, a few adjustments should be carried out before initiating the project. Follow these outlined steps:

- Click on the "Settings" option.
- Proceed to the "Advanced" tab.
- Once you've accessed the "Advanced" settings, make the necessary selections based on your requirements.

Please note that the provided instructions are bidirectional, allowing seamless navigation both forward and backward in the process.



A point to note: If you wish to modify your computer's processing capabilities, you can do so by accessing the "System" section. There, adjustments can be made to both the motherboard and processor settings.

To establish an internal network, follow these steps:

- Begin by clicking on the "Network" section within the settings.
- Leave "Adapter 1" as NAT.
- Proceed to change "Adapter 2" to an internal network configuration.

After completing the above steps, patiently await the installation of Windows.

Once the installation is finalized, proceed to open our virtual machine.

Upon accessing the virtual machine, follow these steps:

- Click on "Virtual Box Machine."

Feel free to navigate through the provided instructions in both directions as needed.

Next, select "amd64."

After installing the software, proceed to shut down the system.

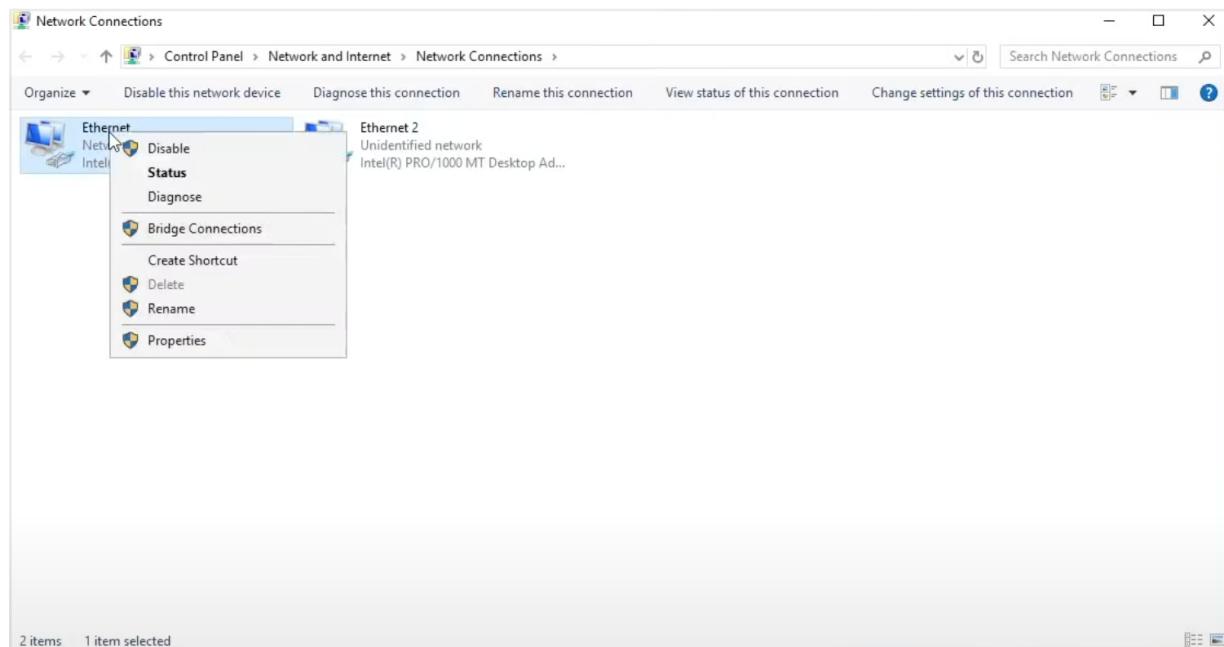
Moving on to setting up the networking connection, follow these steps:

- Navigate to your network connection settings.

To identify each connection, follow these steps:

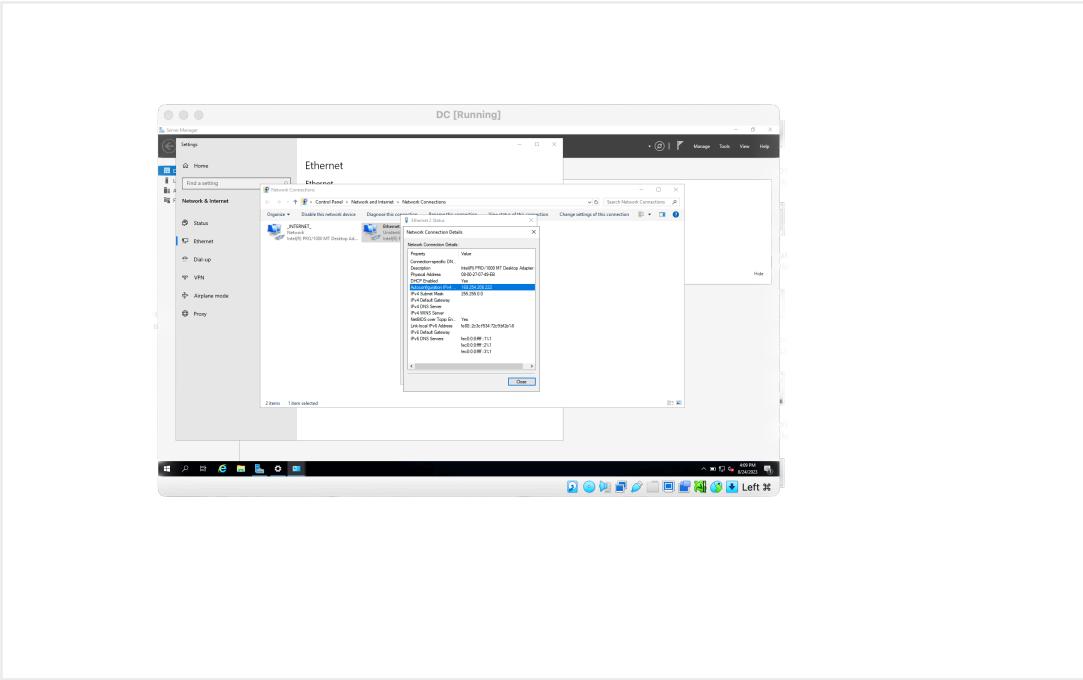
- Click on "Ethernet."
- Right-click and select "Status."
- Choose "Details."

This will provide you with the necessary information to differentiate between the connections.



The IPv4 address resembles that of a home internet connection. Consequently, rename it to "INTERNET."

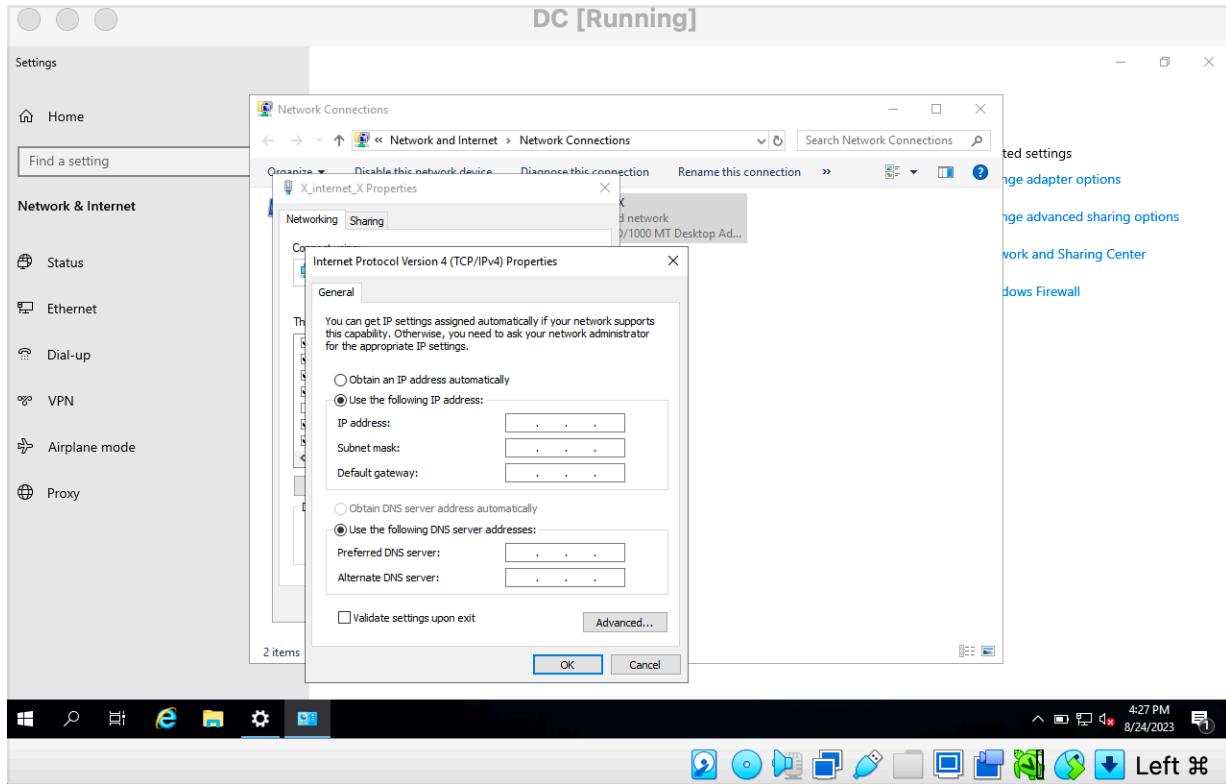
Once the renaming is completed for the first connection, proceed to the second Ethernet connection and apply the same modification.



The "Autoconfiguration" signifies the internal network. Rename it to "*X_internal_X*." Now, to allocate an IP address for our internal network, follow these steps:

- Right-click and select "Properties."
- Navigate to the IPv4 section.
- Opt for "Use the following IP Address."

Remember to input the desired IP address details as necessary.



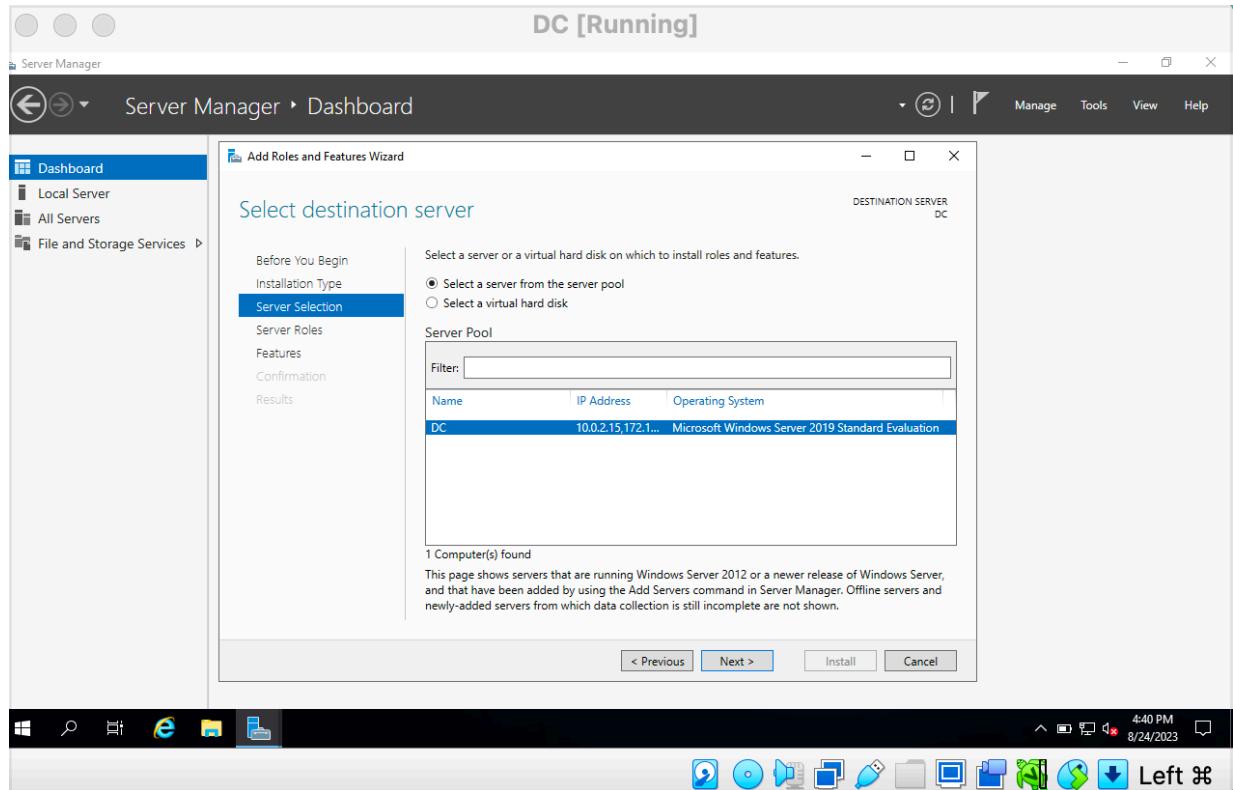
At this point, you can input the mask and IP address into the designated fields as follows:

- IP: 172.16.0.1
- Subnet Mask: 255.255.255.0
- DNS: 127.0.0.1

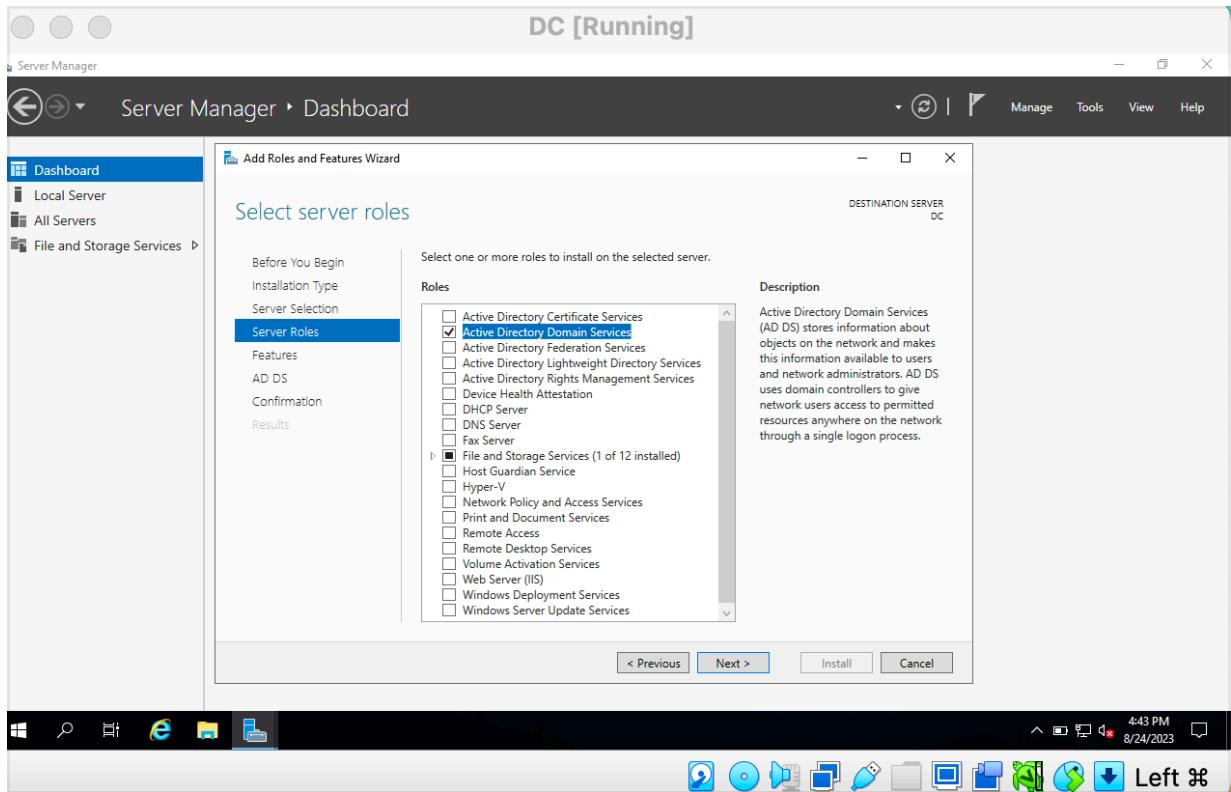
Please note that the Gateway isn't necessary as the Domain Controller (DC) will function as the gateway.

The subsequent step involves creating our Domain/AD DS:

- Access the Server Manager.
- Click on the "Add rules and features" wizard.
- Proceed by clicking "Next" twice.

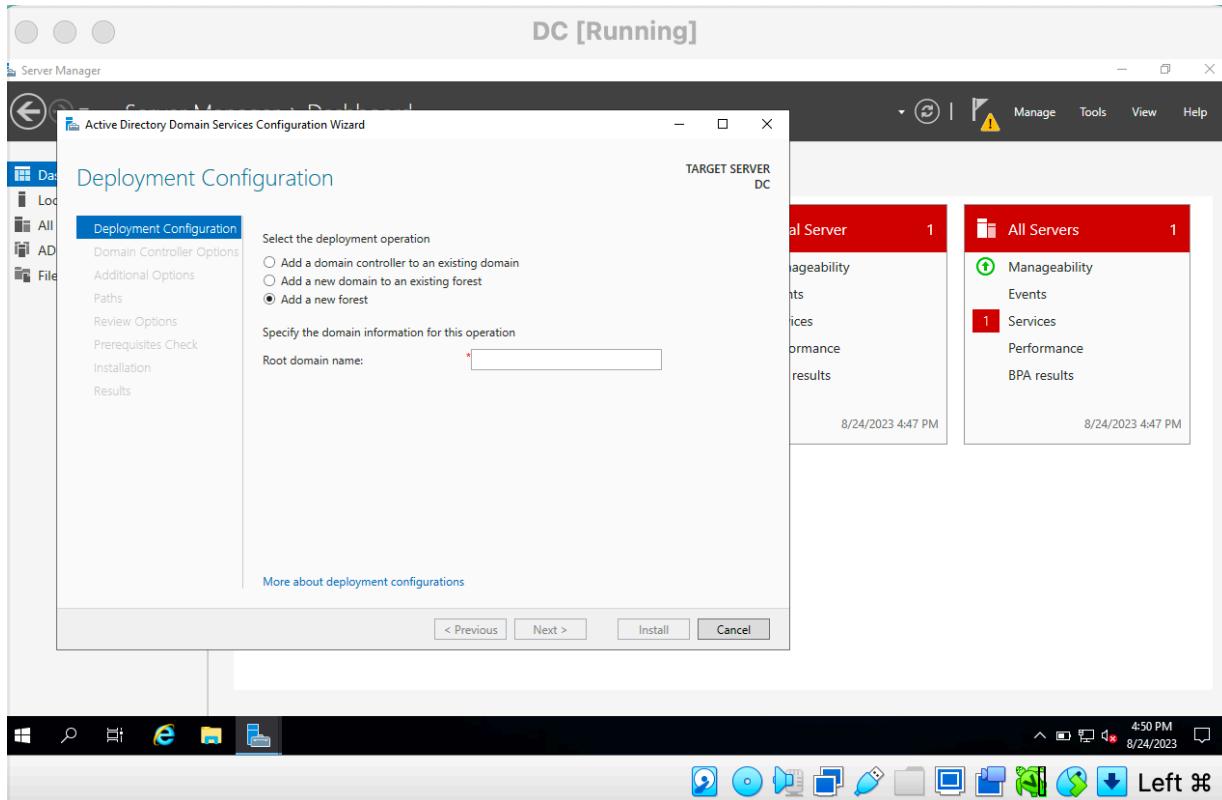


Begin by selecting your server, then proceed by clicking "Next." From the available options, opt for "Active Directory Domain Services" and add the feature.



Proceed by clicking "Next" and then "Next" again. Once you've done that, initiate the installation.

The next step involves promoting this server to a domain controller.

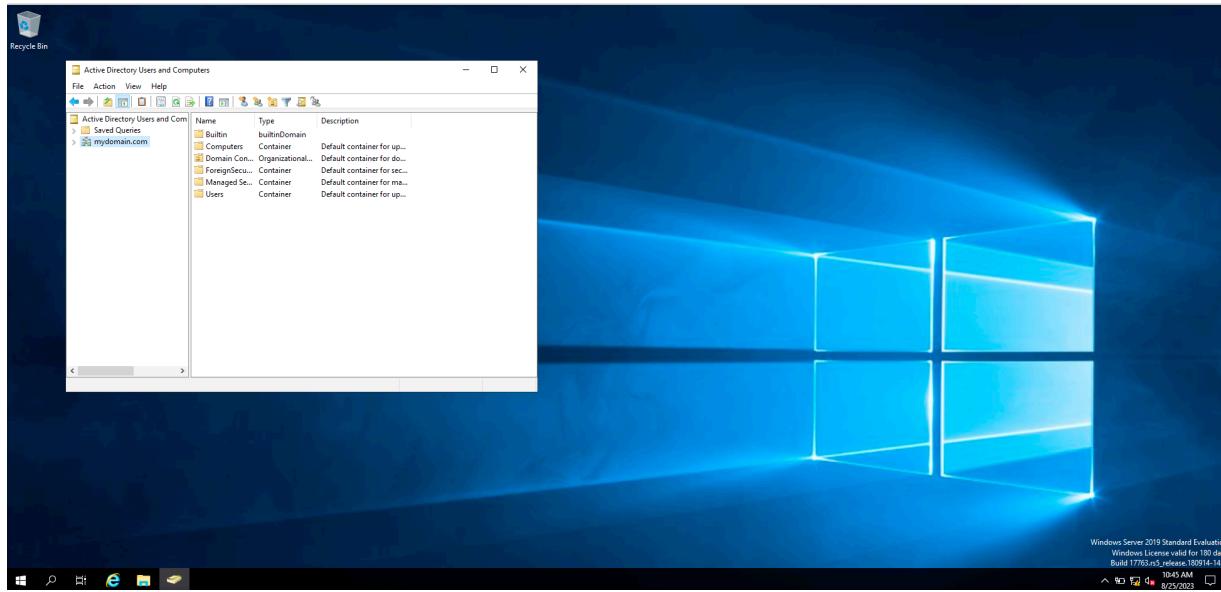


Now, let's move through the following steps:

- Enter the domain name, which I'll call "mydomain.com." Click "Next."
- Proceed to set up a password. Click "Next," then "Next" again.
- Followed by "Next," proceed with the installation.

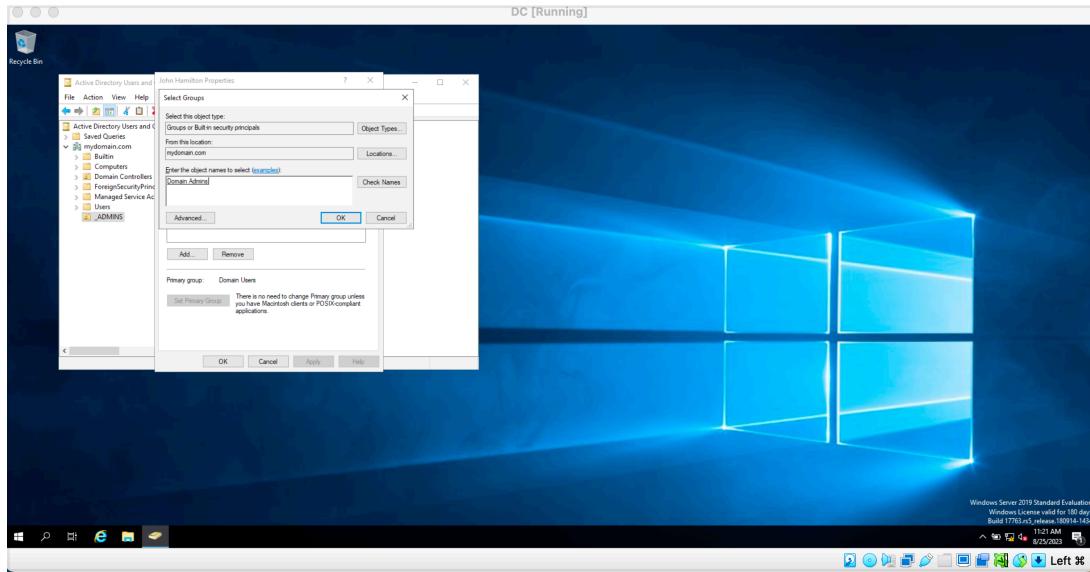
Now, we'll establish our custom admin account, replacing the default admin account:

- Click on "Start," navigate to "Windows Administration Tools," and select "Active Directory Users and Computers."
- Within "mydomain.com," right-click and choose "New," then "Organization Unit." Name this new unit "_ADMINS."
- Inside "_ADMINS," right-click again, select "New," and then "User."
- Assign the name "John Hamilton" to the user.
- Set the user login name as "a-jhamilton." Proceed with "Next."
- Establish the user password and feel free to tailor the settings according to your organization's needs.
- Complete the process by clicking "Finish."



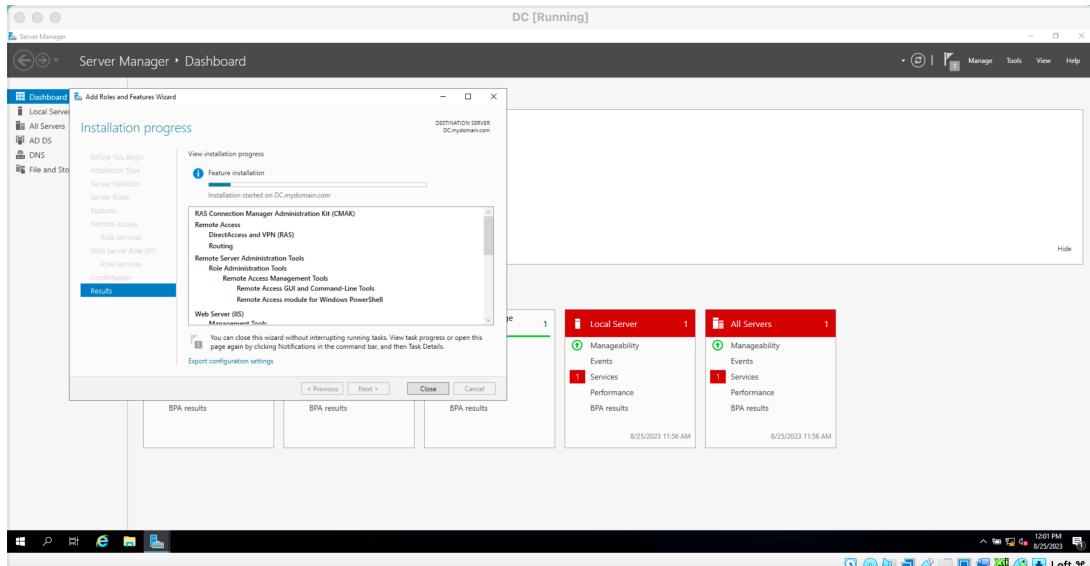
To grant administrative privileges to the user, follow these steps:

- Right-click on the user, select "Properties."
- Navigate to the "Member Of" tab.
- Click "Add," then type in "Domain Admins." Click "Check Names," then "OK."
- Confirm changes by clicking "Apply" and then "OK."
- Ensure that you log out and subsequently sign in using the new user account you have created.



Let's proceed with implementing RAS/NAT:

- Open your Server Manager dashboard.
- Click on "Add roles and features," then click "Next" through the initial screens.
- In the "Server Roles" section, choose "Remote Access," and then click "Next."
- Follow with "Next," then click on "Routing" and select "Add."
- Proceed by clicking "Next" repeatedly until you reach the "Install" button.
- Finally, click "Install" to initiate the process.



Implementing RAS/NAT:

- Open Server Manager and choose "Route and Remote Access."
- Right-click on your DC, select "Configure and Enable Routing and Remote Access," then click "Next."
- Choose "Network Address Translation (NAT)," and select "/INTERNET." Proceed with "Next" and then "Finish."

Setting Up DHCP Server:

- Access Server Manager, go to "Roles," and click through "Next" until you reach "DHCP Server." Add the role and proceed.
- Continue with "Next," then "Install."

Configuring DHCP Scope:

- In Server Manager, select "Tools," then "DHCP."
- Right-click on "dc.mydomain.com" and create a new scope named "172.16.0.100-200."
- Set the start IP as 172.16.0.100 and the end IP as 172.16.0.200, subnet mask 255.255.255.0, and length 24.
- Proceed with the lease duration settings, then finish the configuration.

Adjusting Local Server Configuration:

- Click on "Configure This Local Server."
- Turn off Enhanced Security Configuration for IE.

Using PowerShell Script:

- Download the provided file and open Windows PowerShell.
- Open Windows PowerShell ISE as an administrator.
- Run the command: **set-ExecutionPolicy Unrestricted** (Confirm with "Yes to All").

- Navigate to the downloaded file location using the command:
cd C:\user\l-a-jhamilton\Desktop\AD_PS-master.
- Execute any PowerShell scripts as required.

Active Directory User Search:

- To find a user in Active Directory, right-click on the user and use the "Find" option.

Creating a Virtual Machine in Oracle VM VirtualBox Manager:

- Create a new project named "client 1" in Oracle VM VirtualBox Manager.
- Select "Windows 10 (64-bit)" and adjust system settings based on your computer's capacity.
- Enable bidirectional clipboard and drag'n drop in "Settings" under "General."
- In "Settings," navigate to "Network," attach to an internal network, and confirm.
- Configure the VM with your Windows ISO file and proceed with the Windows setup as usual.

Please ensure that you have backup and system restore points before making significant changes to your system.

An attached file is available for download and use. It offers an opportunity to gain experience and knowledge, and you can import it into your Windows directory.