ACTIVE DIRECTORY HOME-LAB SETUP- WINDOWS SERVER 2022 & WINDOWS 10 ON VIRTUAL BOX -1

Overview

This guide outlines the steps to set up a Windows Server 2022 machine on VirtualBox to serve as an Active Directory Domain Controller and Windows 10 machine to serve as client. The project showcases my hands-on learning experience in system administration, focusing on foundational IT infrastructure concepts.

Following the guidance of Josh Madakor's Youtube video.: Josh Madakor Active Directory setup video

The environment is designed to look like this:

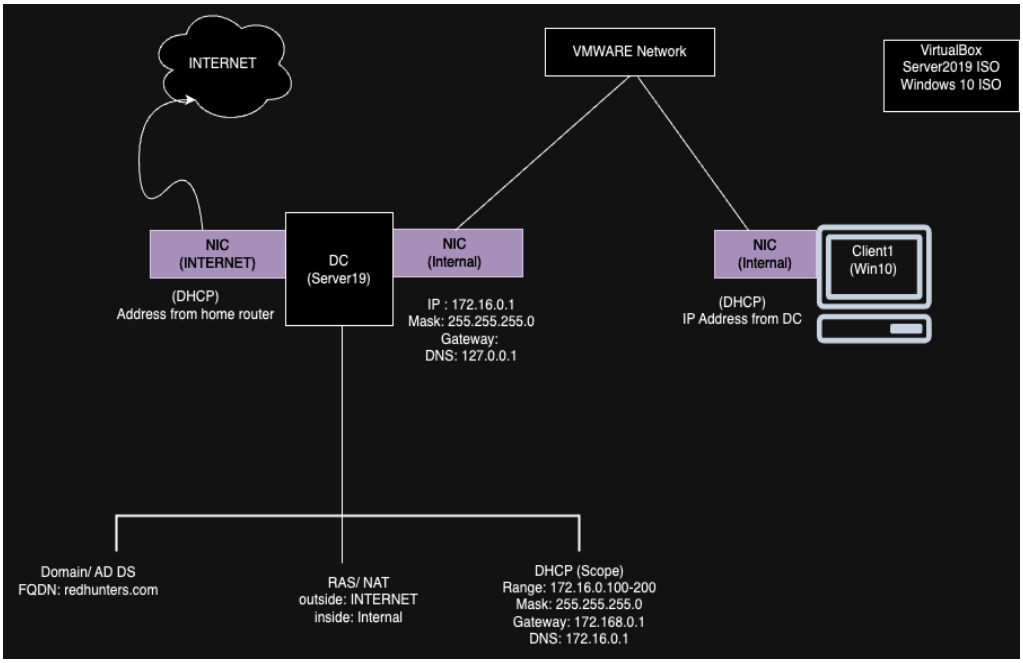


Figure 1: Homelab environment design

I have downloaded virtual box from the Oracle virtual box download link: Oracle VirtualBox. If you encounter the error in figure 2 simply browse and install the C++ dependency and try to install again. Virtual Box should now be installed and good to go after this is done.

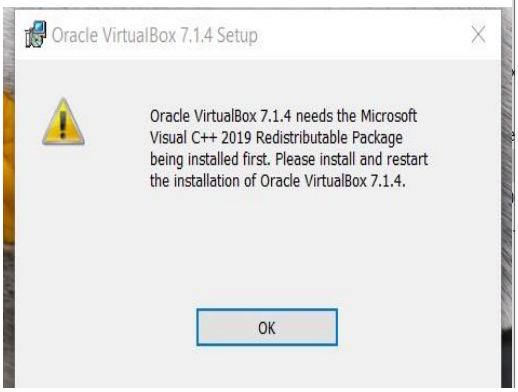


Figure 2: V-Box Installation error

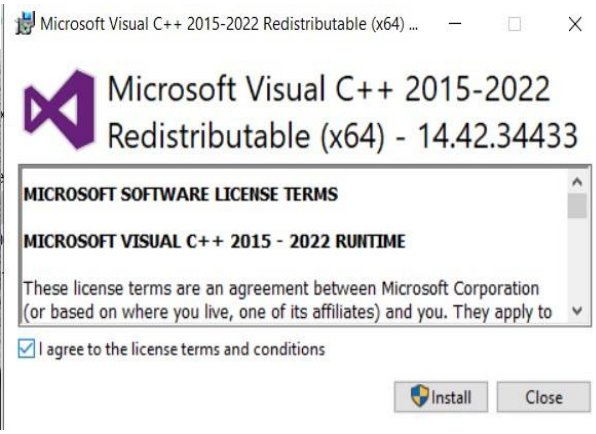


Figure 3: C++ Dependency Installation

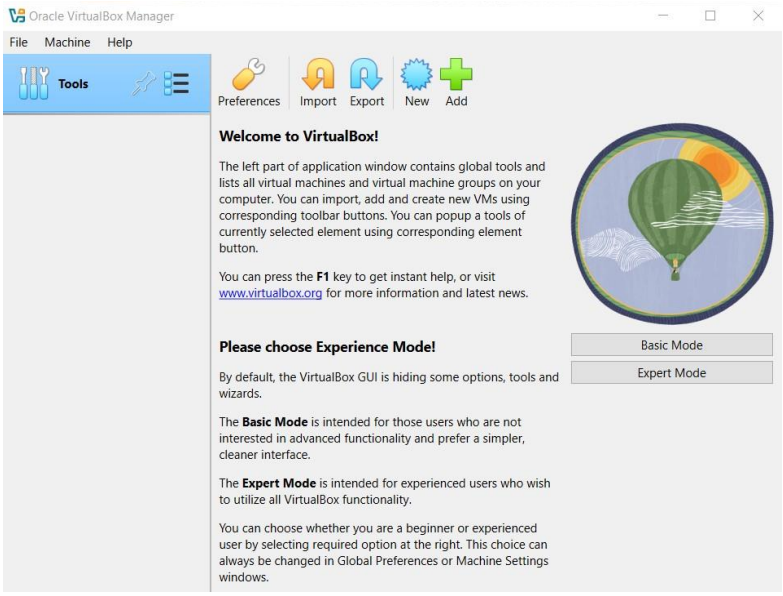


Figure 4: V-Box installed

Download and install Server 2022 from the Microsoft Evaluation center: Windows Server 2022 | Microsoft Evaluation Center

Figure 5: Windows server Download

DOWNLOAD AND INSTALL WINDOWS 10 FROM : Download Windows 10

- Select “Create Installation Media”
- Select “ISO file”
- Installation takes a whileeeeee

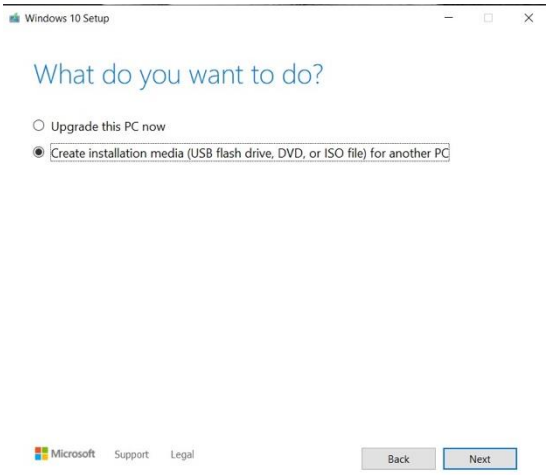


Figure 6: Win 10 install1

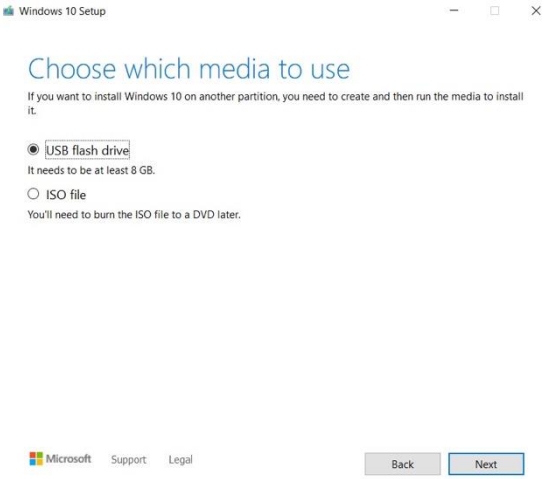


Figure 7: Win10 install2

Setup the Vm on virtual Box

- Select new and Browse for the downloaded ISO file
- Set up preferred memory and Storage options for your windows machine according to the specifications of your PC

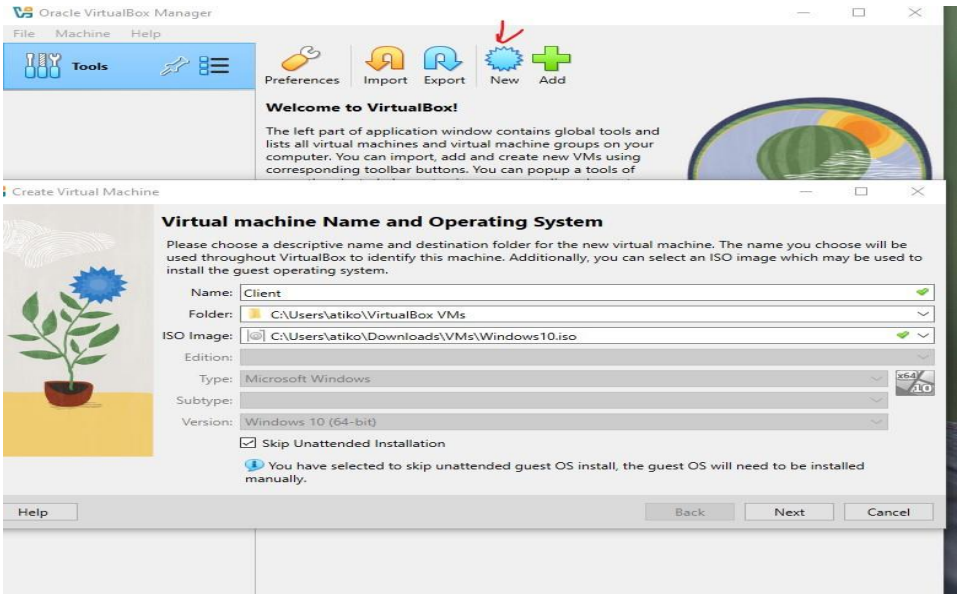


Figure 8:Win 10 VM setup

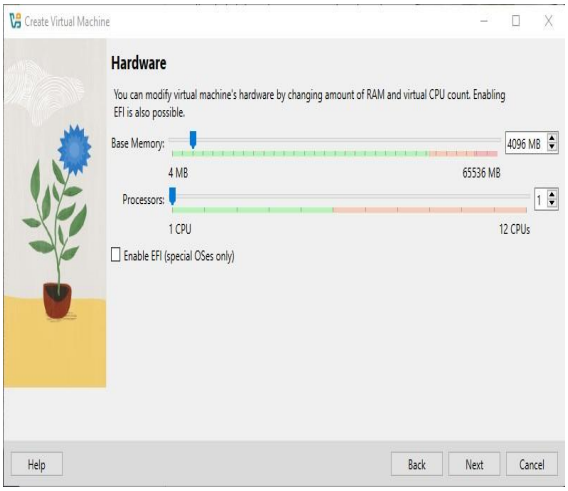


Figure 9:win10 memory

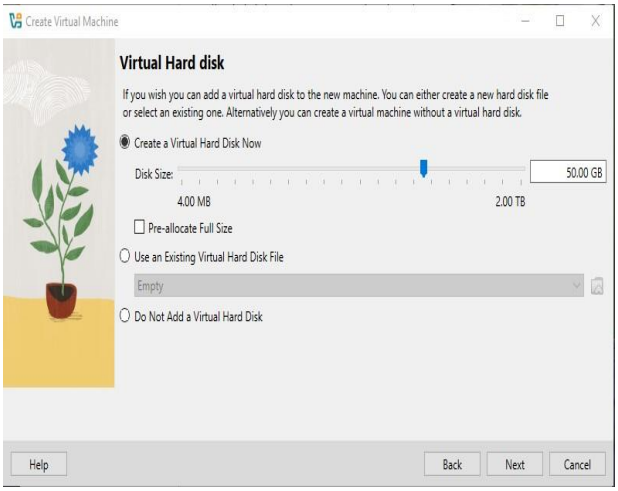


Figure 10: win10 disk storage

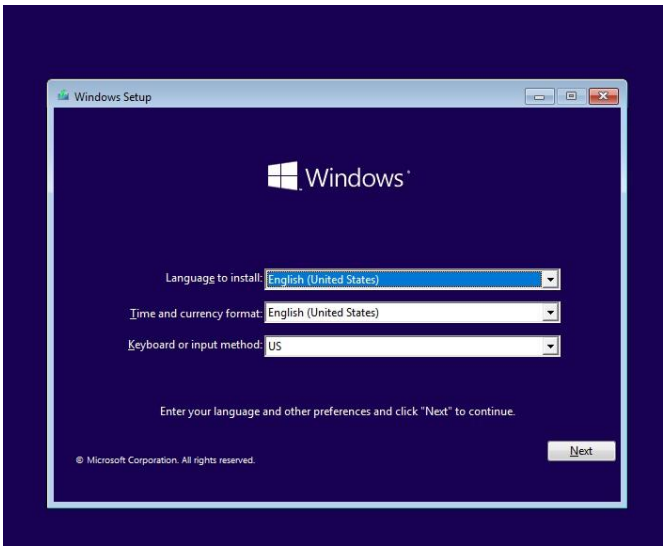


Figure 11:Win10 installation

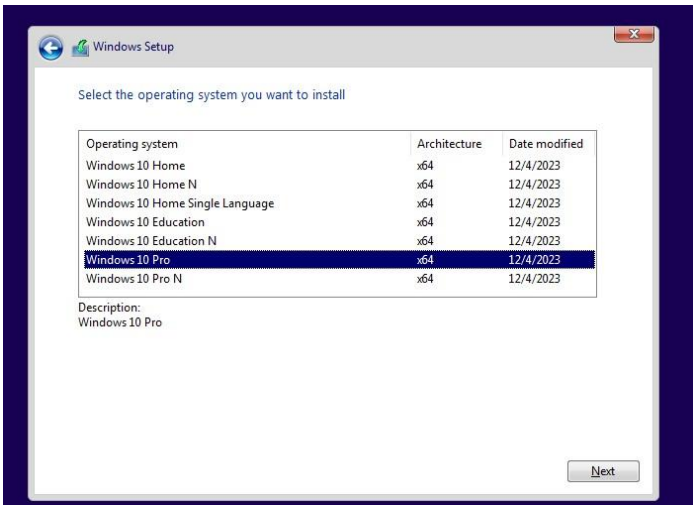


Figure 12: Win10 Installation

- Select Windows 10 pro and select “I don’t have a product key”

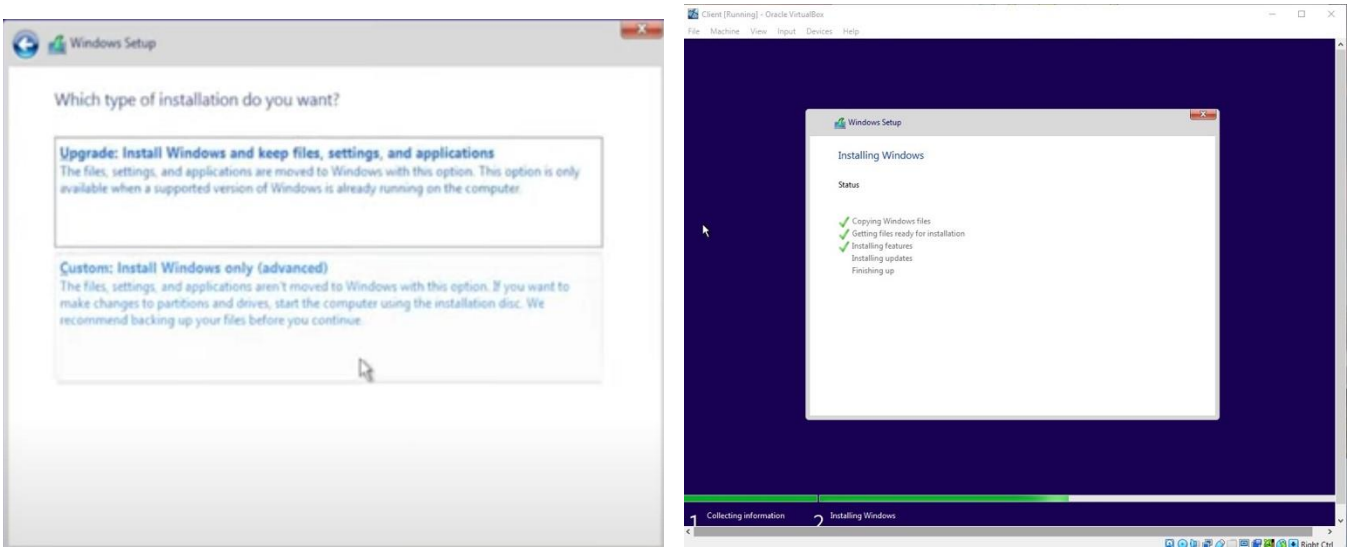


Figure 13: Win10 Installation

- Select the second option: “Custom”
- While Windows 10 is installing, I head back to windows Server to setup.

SETUP WINDOWS SERVER ON VIRTUAL BOX

I didn’t efficiently capture all the steps of setting up the server but I'll list them out to the best of my abilities, they are also similar steps as the setup of the windows 10.

- After setting up the Server machine on virtual box, start the VM.
- Select the standard edition (Desktop Experience) when prompted.
- Follow the start up prompts.
- Set desired password for the administrator.
- After completion sign up with the Password that was just set up.

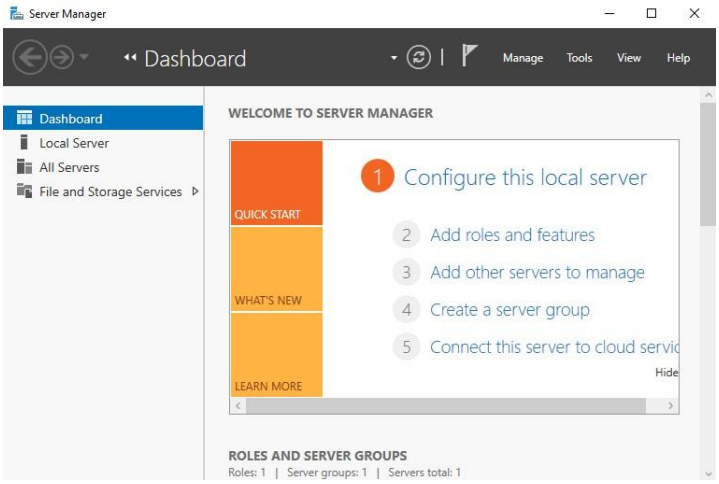


Figure 14: Server manager

- After Server setup was completed, I downloaded and installed guest additions to ensure my VM runs smoothly (Mouse movement and screen adjustment)
- I Renamed the PC to DC1 and restarted the VM

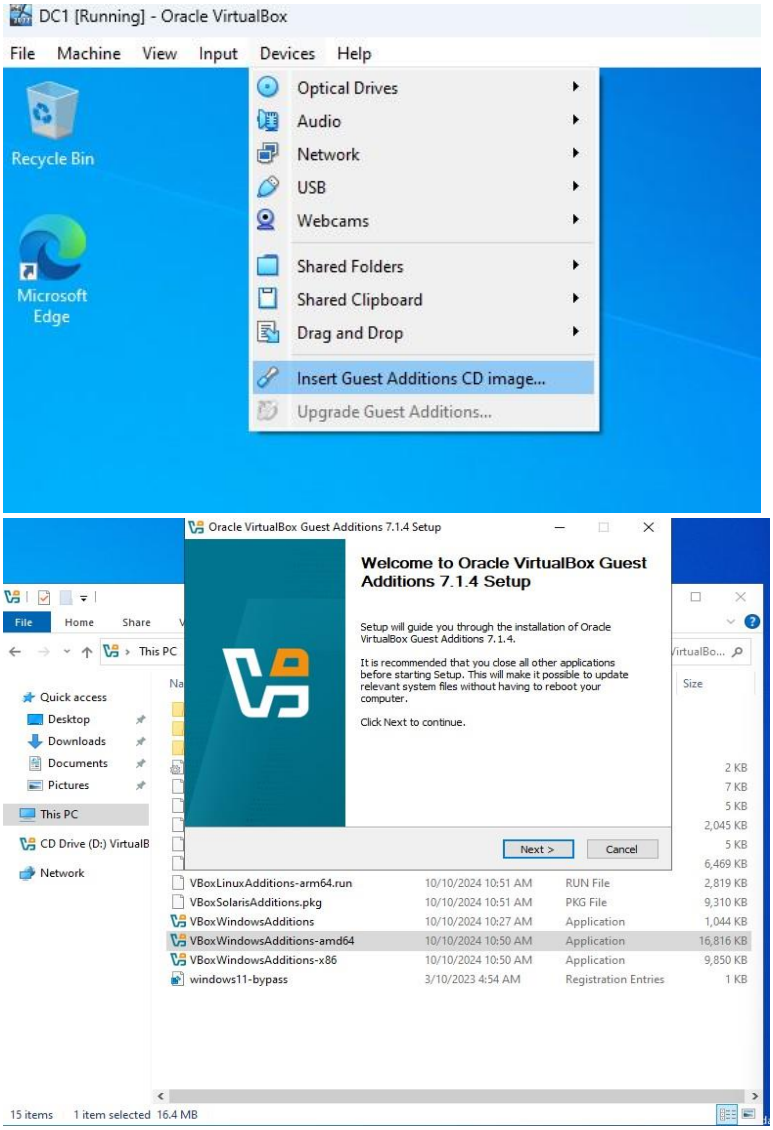


Figure 15: Guest Additions setup

DC NIC SETUP

- I have configured two networks on the Domain controller, One is the public facing network 'INTERNET' which receives its addressing from the router
- Then the internal network 'X_INTERNAL' which i have configured with the IP address as per my initial network design diagram.
- This network settings will be vital for setting up the RAS/NAT later on.

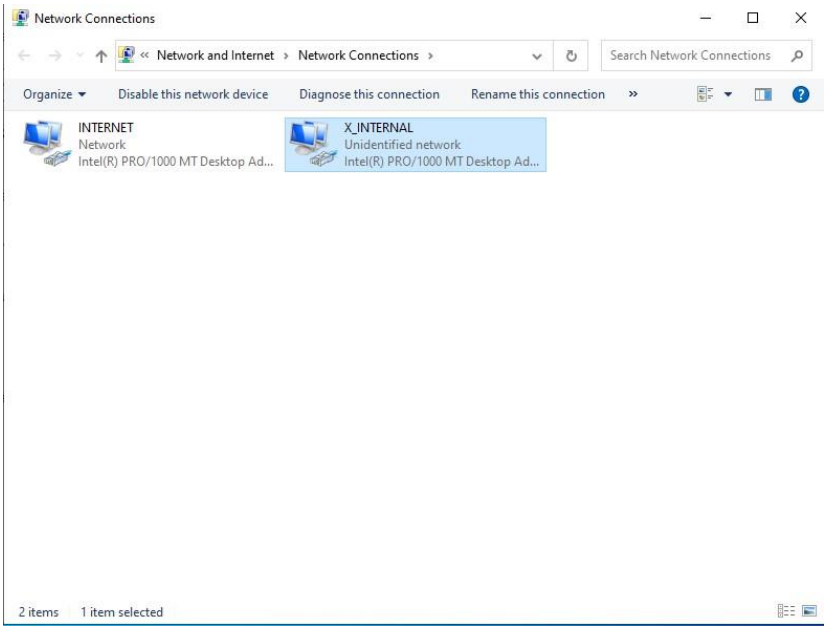


Figure 16: NIC configuration

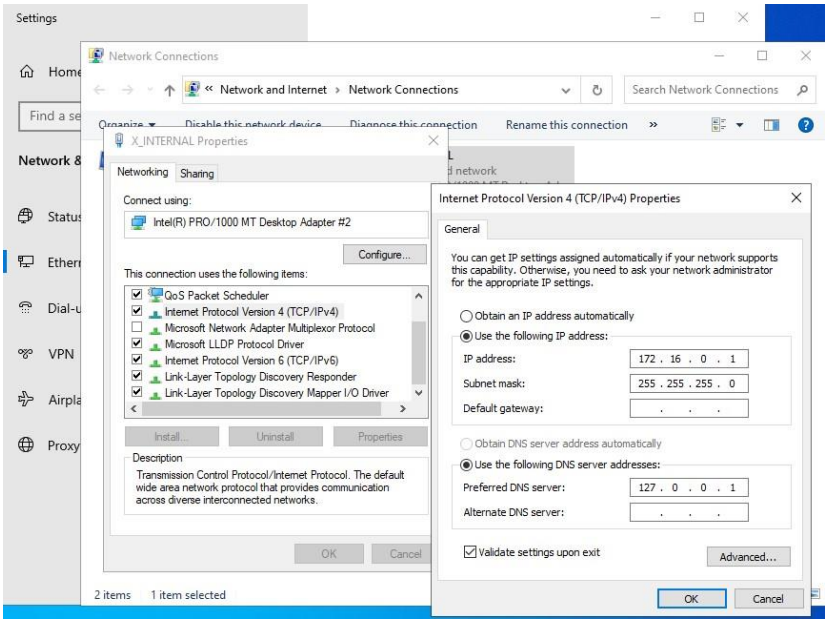


Figure 17: IP address configuration

SETTING UP ACTIVE DIRECTORY DOMAIN SERVICES (AD-DS)

- In the Server Manager, Click on “Add roles and features”.
- Click Next.
- Select “Role-based or Feature-based installation”.
- Select server (DC1).
- Select Active Directory Domain Services.
- Select Add Features.
- Click next until install

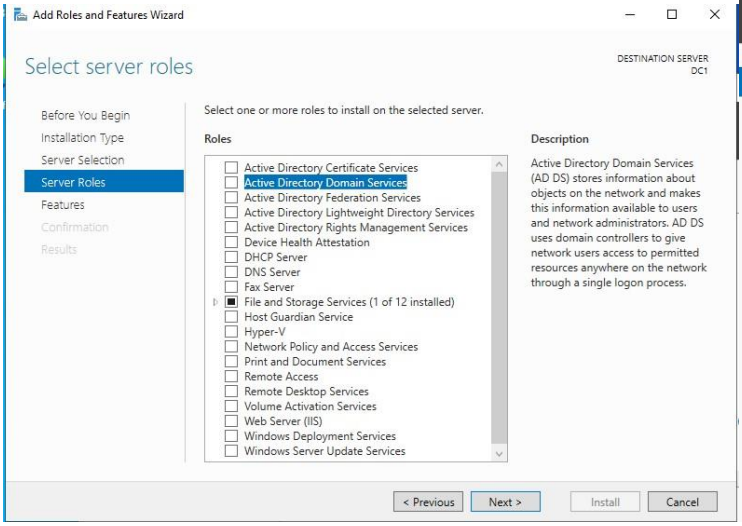


Figure 18: AD-DS setup

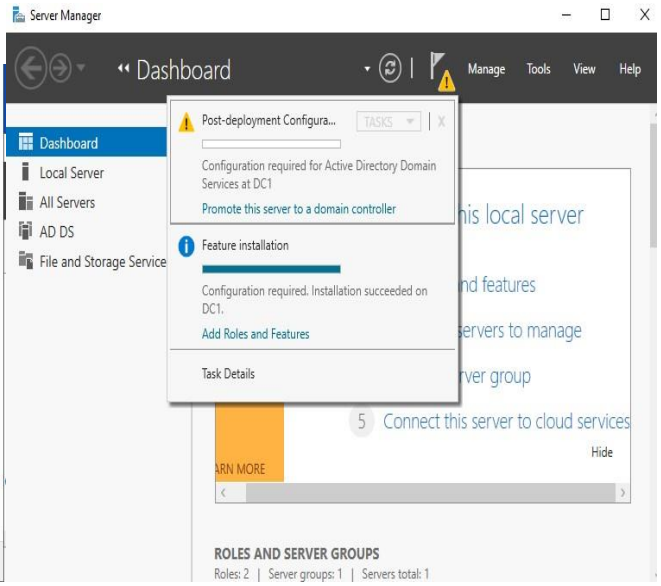


Figure 19: Post-deployment Configuration

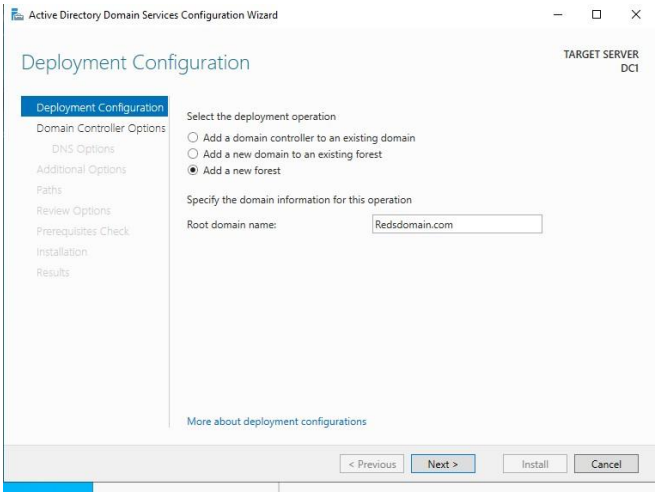


Figure 20: Adding new forest

- After Installation, click on the flag at the top of the server manager to carry out post-deployment configuration.
- Select “Promote server to a domain controller” to create the domain.
- Select “add new forest” and set a domain name.
- Set a password for the domain controller.
- Click next until install.

After the install, the new Domain is setup after restart.

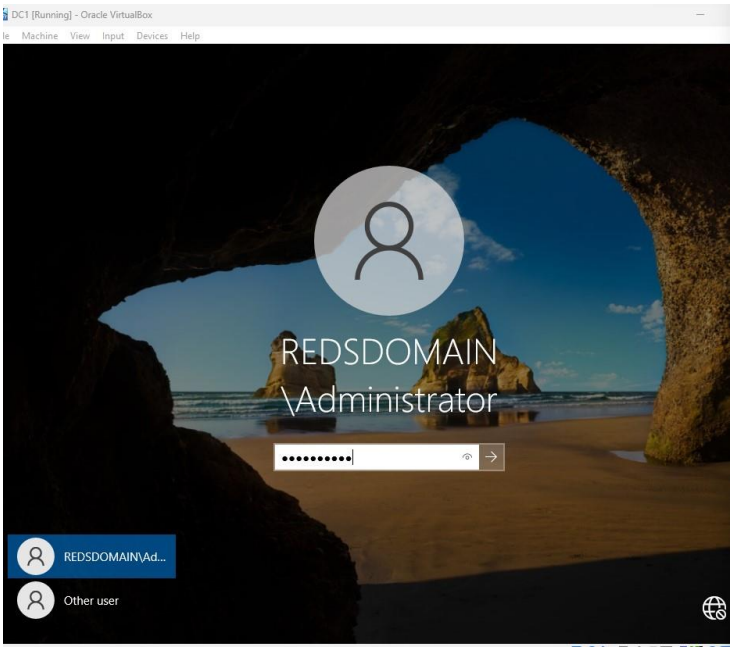


Figure 21: New Domain (REDSDOMAIN)

SETTING UP PERSONAL DOMAIN ADMIN ACCOUNT.

- From the 'Tools' tab, select 'Active Directory Users and Computers'
- Right click on the domain to create new Organizational Unit 'Admins'

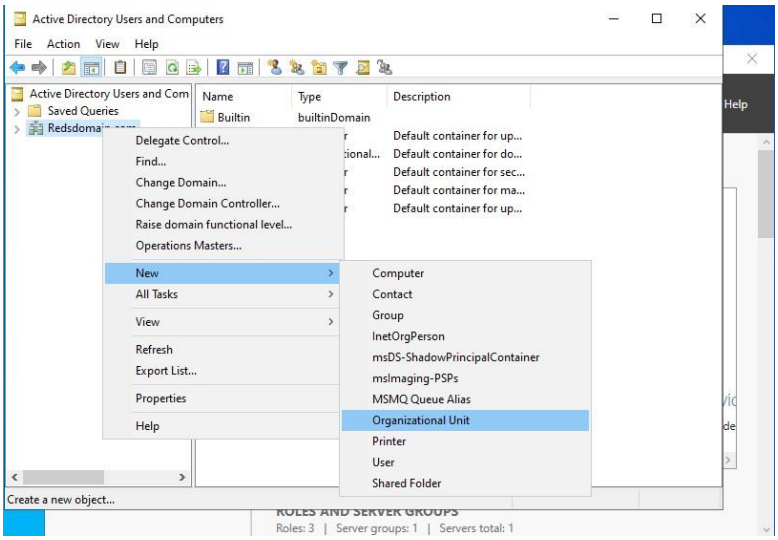


Figure 22: Creating New Organizational Unit

- Input new admin name and username
- Create password and select password option(s)

Figure 23: Create new user

- Add newly created user as member of 'Domain Admins'
- Done
- Now Restart

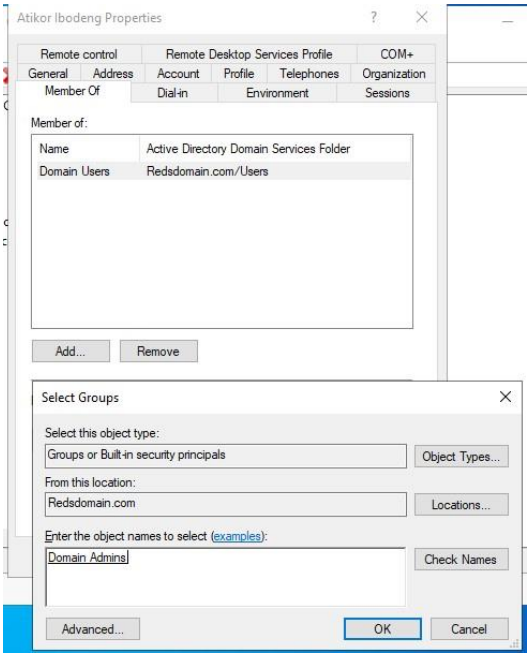


Figure 24: Add new user to Domain Admins Group

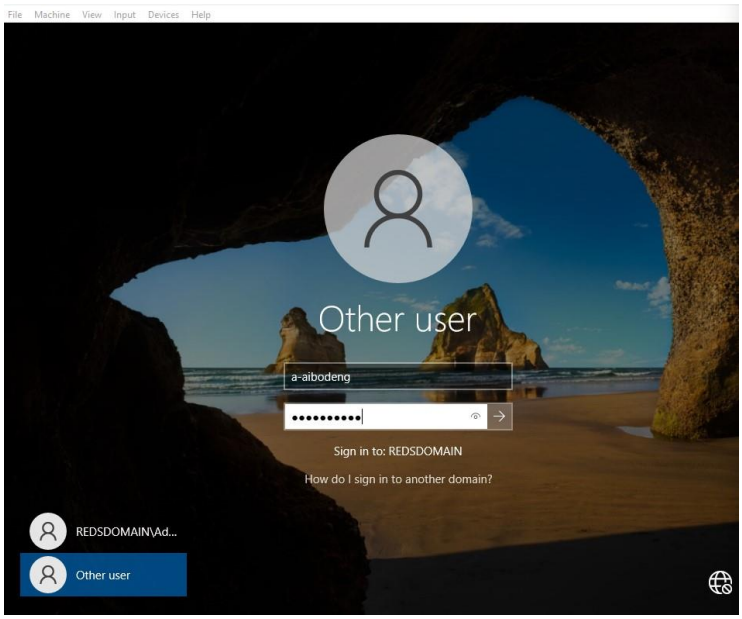


Figure 25: New Admin User Created

- New Domain Admin Created as seen.

SETTING UP RAS/NAT

The function of setting up and configuring the Remote Access Server(RAS) and Network Address Translation(NAT) is to allow the windows 10 client to be on a private virtual network but still able to access the internet through the domain controller (DC1)

- Add Roles and Features
- Add 'Remote Access'
- Select 'routing' in Role services
- Click next until install

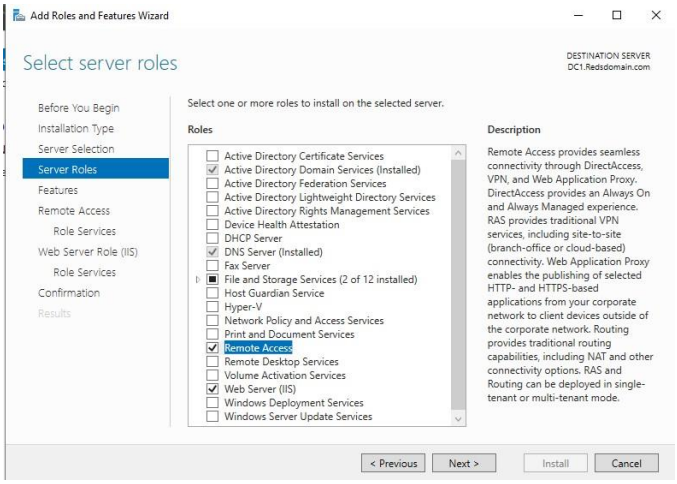
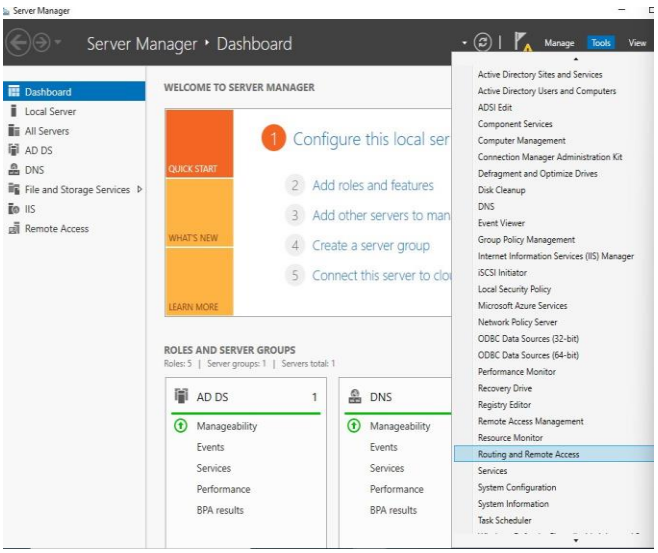


Figure 26: RAS setup

- Go to 'Tools', Select 'Routing and Remote services
- Right click on the Domain controller
- Configure and enable Routing and Remote access



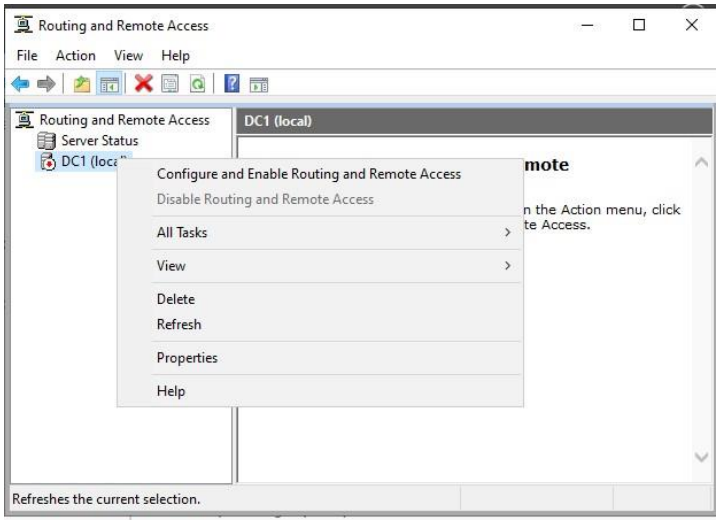


Figure 27: RAS/NAT setup

- Select NAT: to allow internal clients connect to the internet using one public IP address
- Select the public-facing internet
- Note: if the option to use the public internet is greyed out and unable to be selected, Cancel amd start the configuration process again.

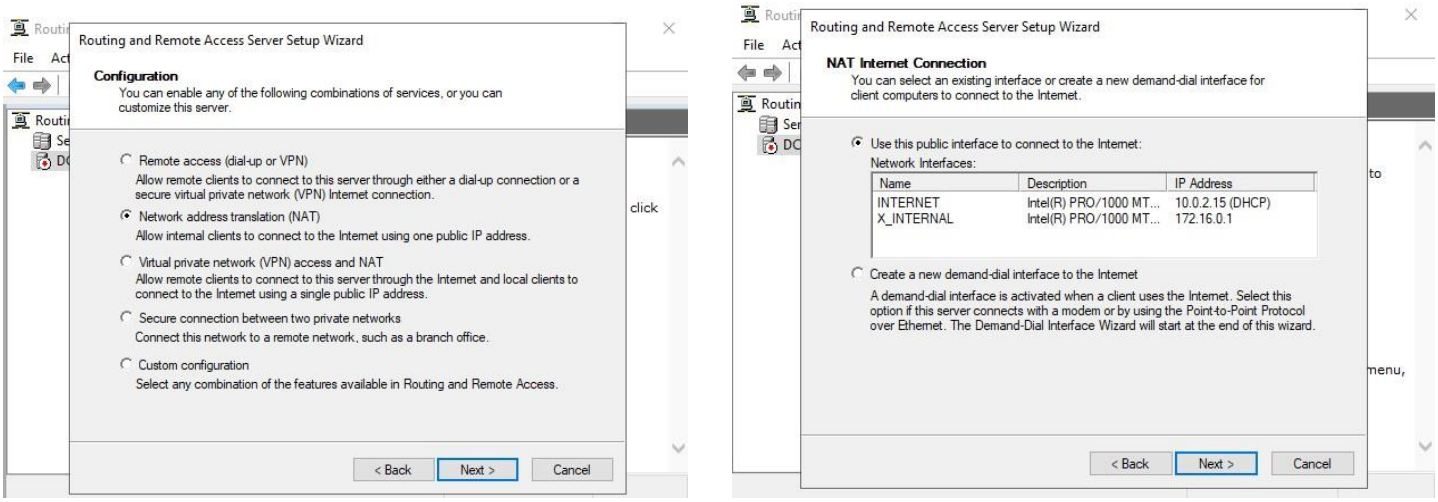


Figure 28: RAS/NAT Configuration

CONFIGURING DHCP SCOPE ON THE SERVER (DC1)

- Add Roles and Features
- Select 'DHCP server'

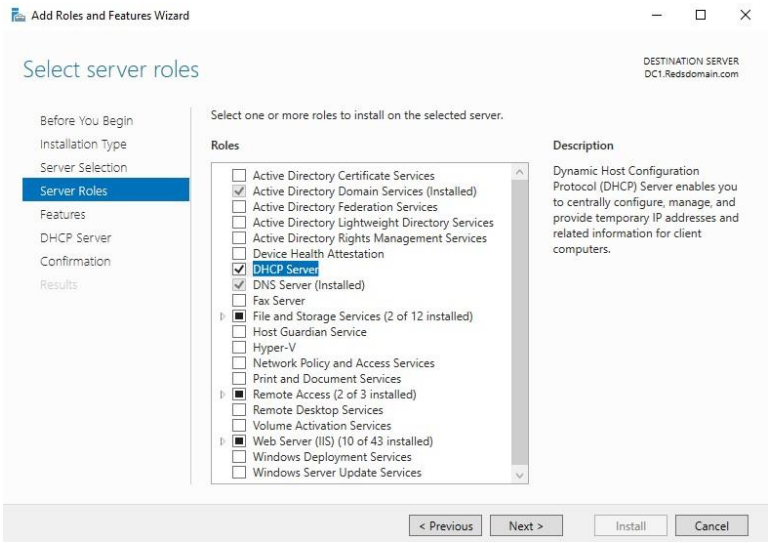


Figure 29:DHCP Setup

- In the DHCP control Panel, Right click on IPv4 to setup new scope
- Set scope name, range and lease time.

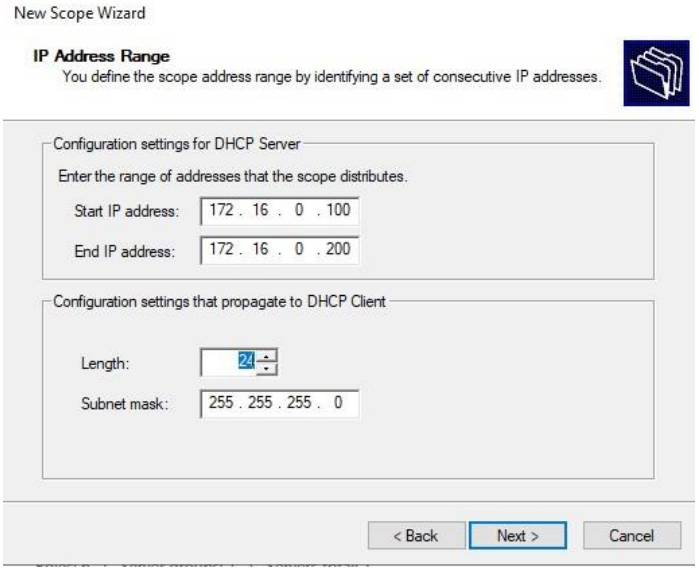


Figure 30:DHCP Configuration

- Add the IP of the 'X_INTERNAL' network that will be used by clients.

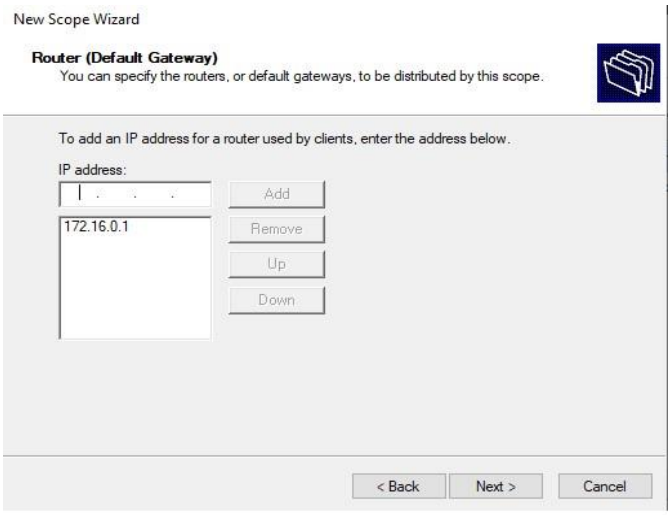


Figure 31:DHCP Server Configuration

- Go to 'server options'
- Select 'Router'
- Right click on the DC , Authorize then refresh the IPv4
- Done.

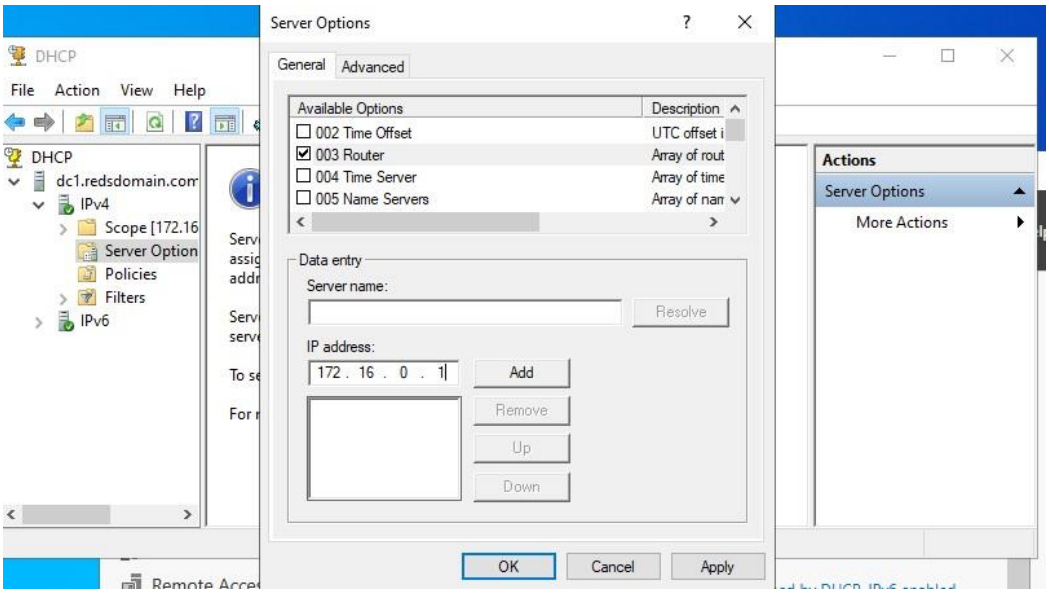


Figure 32:DHCP Server Configuration

CREATING NEW USERS WITH POWERSHELL SCRIPT

- The script utilizes first and last names in a text file to create new users. It creates an Organizational unit if the one in the script does not exist.
- It uses the first and lastname to create a username according the structure indicated in the script
- It also stores the indicated passwords as a secured string for each of the user.

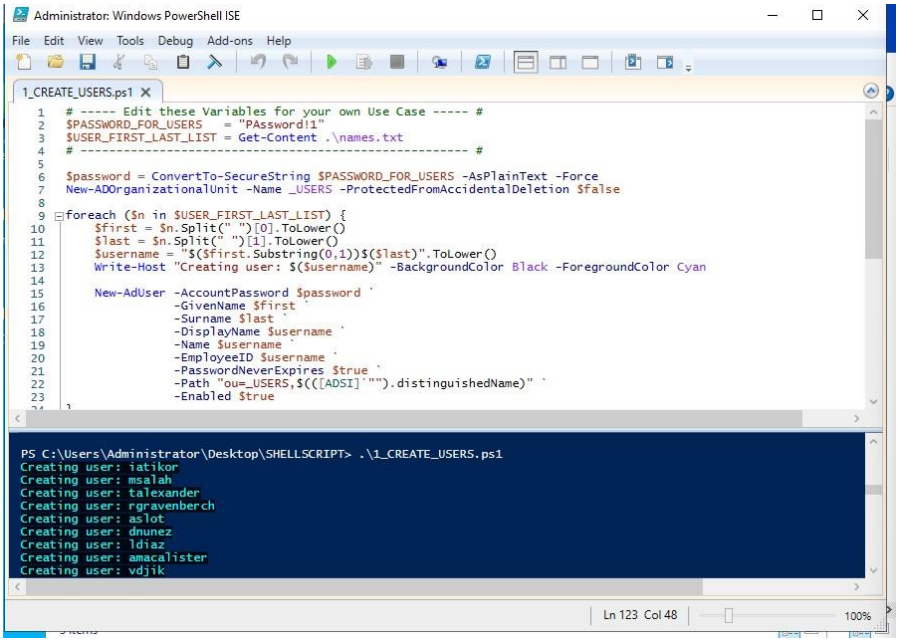


Figure 33: Powershell user generation

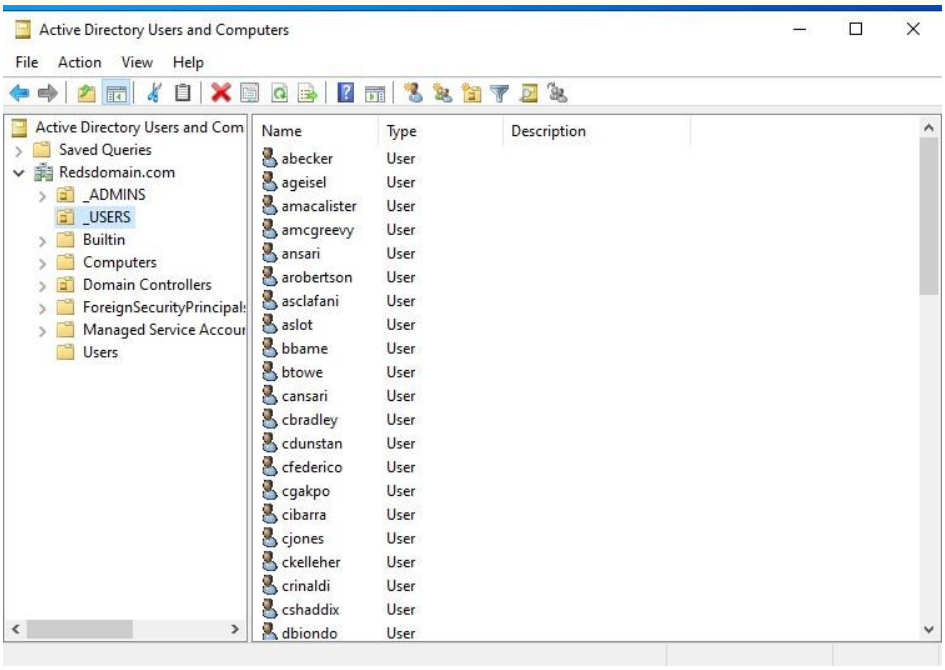


Figure 34: New generated users

Finally,

SETTING UP THE WINDOWS CLIENT TO JOIN THE DOMAIN

- Ensure the internal network adapter is configured properly and enabled
- On the client machine (Windows 10), change network settings to 'Internal Network'

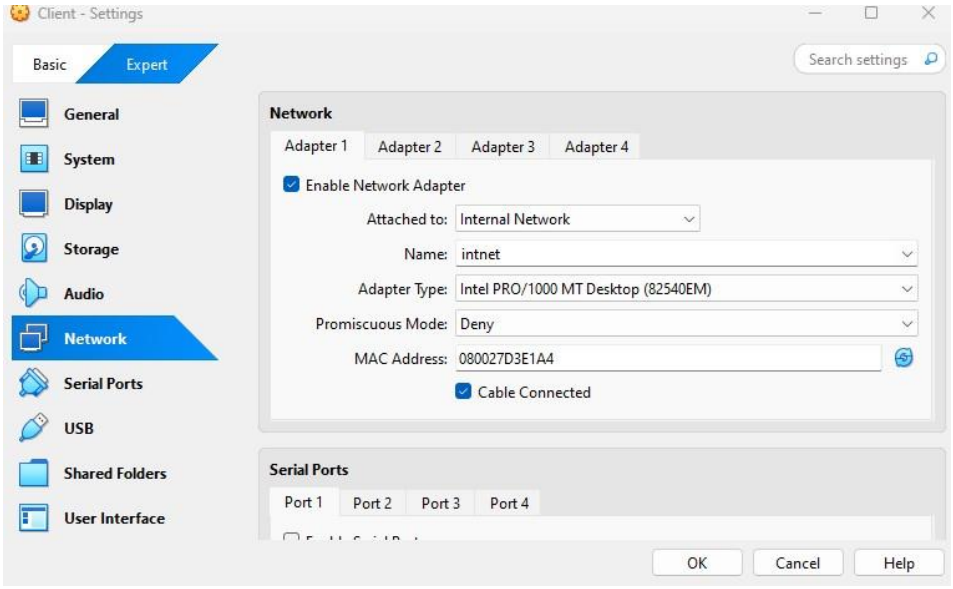


Figure 35:Client Network configuration

- Go to system, click on ‘Rename this PC (advanced)

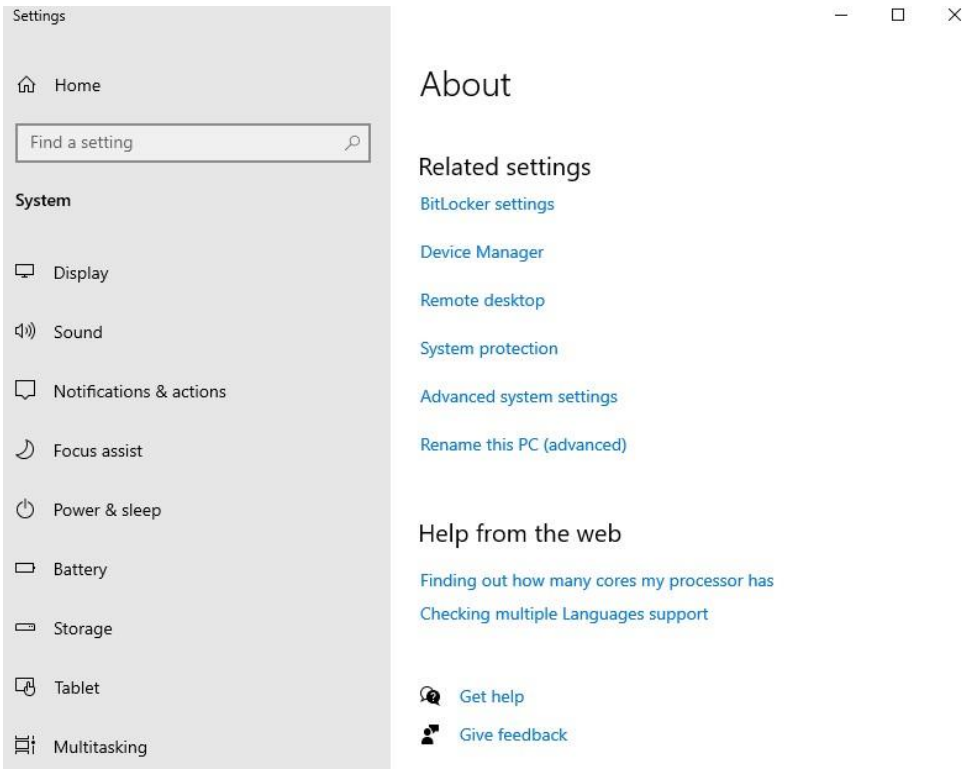


Figure 36: Joining Domain

- Just click on ‘Change’
- Select ‘Domain’ option and write the name of your Domain
- Apply, The restart the machine.

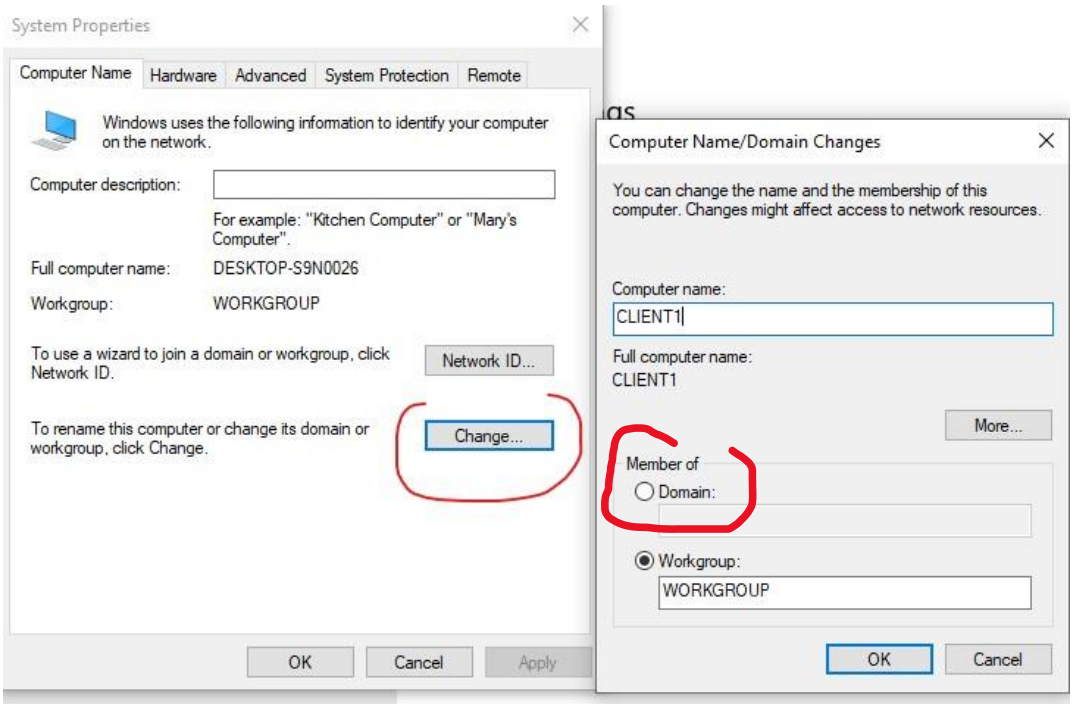


Figure 37: Joining Domain(WIN10)

- The client machine is now part of the REDSDOMAIN
- I can now sign in with any of the users that I had previously created

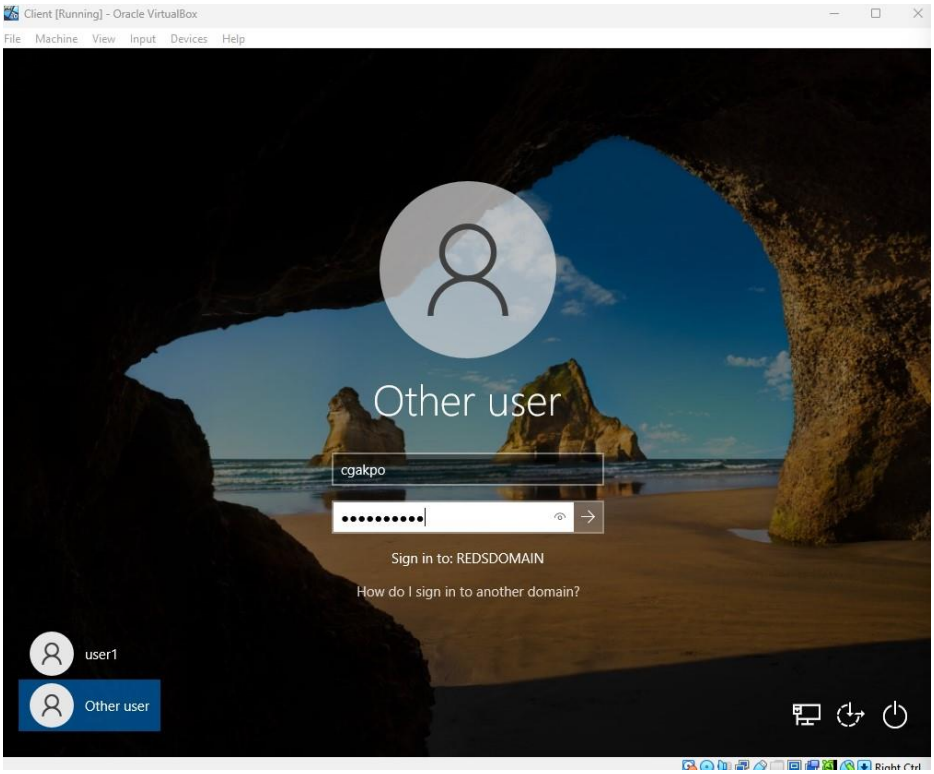


Figure 38: Client joined to Domain

- Client machine with the predetermined IP address and part of the network domain controlled by the DC.

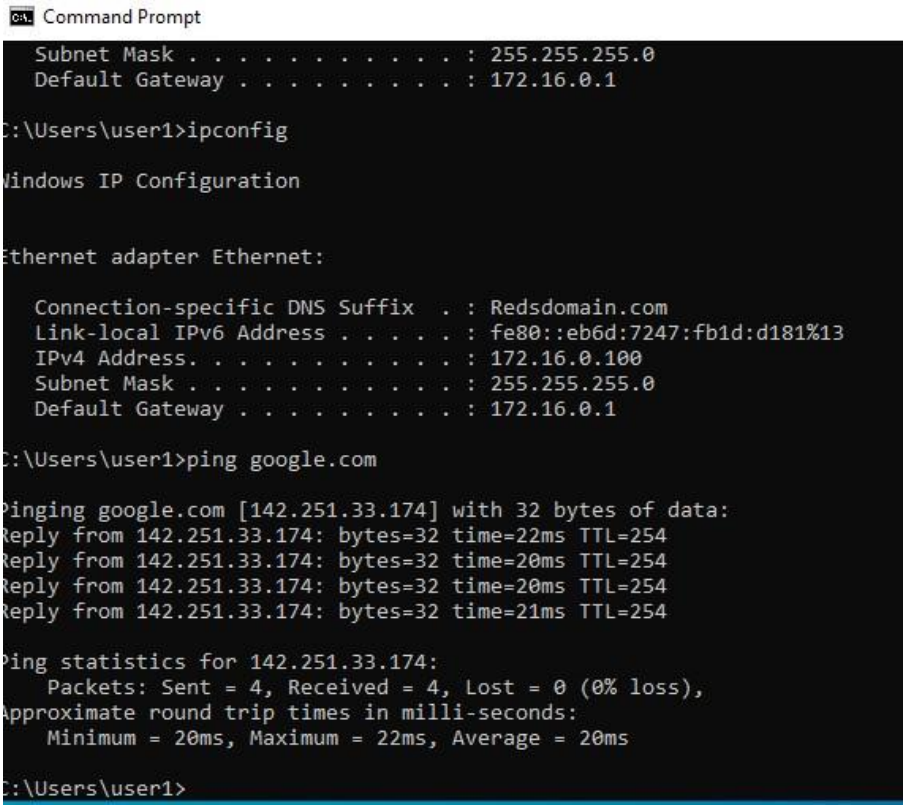


Figure 39:Client Network Parameters