

Project - Windows Server 2022 Active Directory Lab (On-Premises)

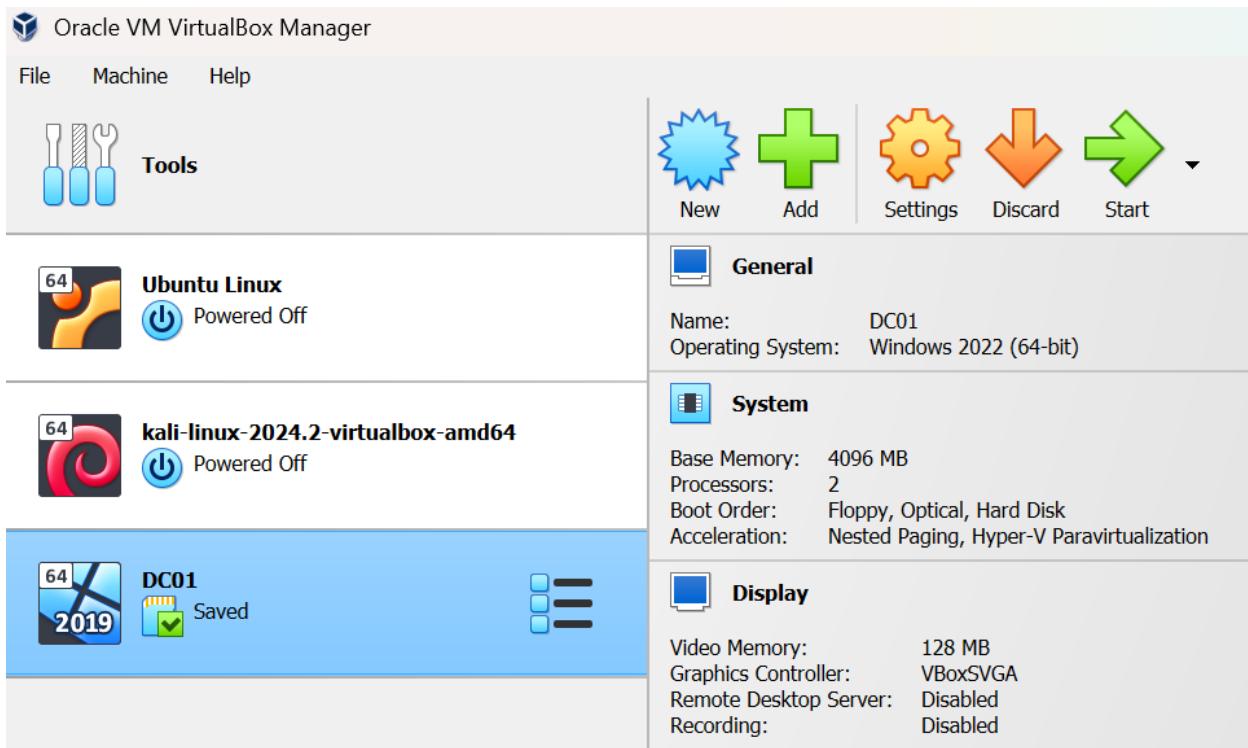
Goal:

Simulate a company network using a Domain Controller to manage users, groups, and a client PC.

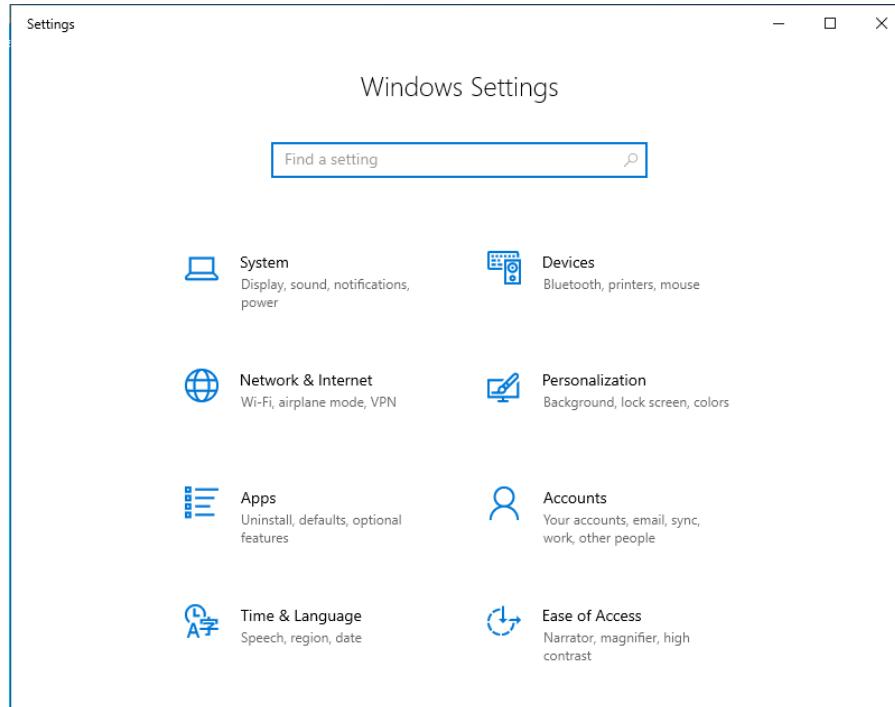
Steps Taken:

1. Set up Windows Server 2022 VM (DC01)

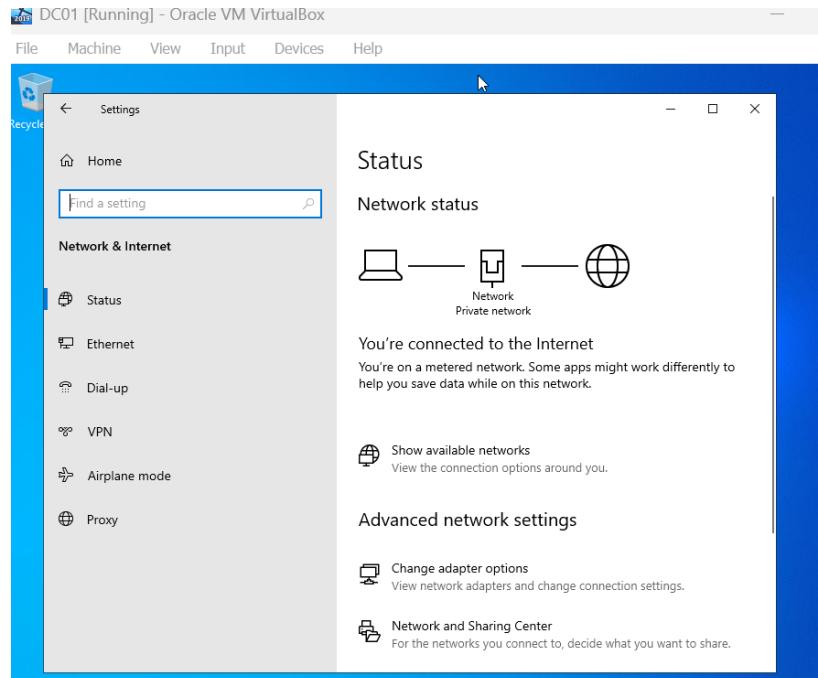
- Installed **Desktop Experience** in VirtualBox
- Configured **network adapter** to Internal Network



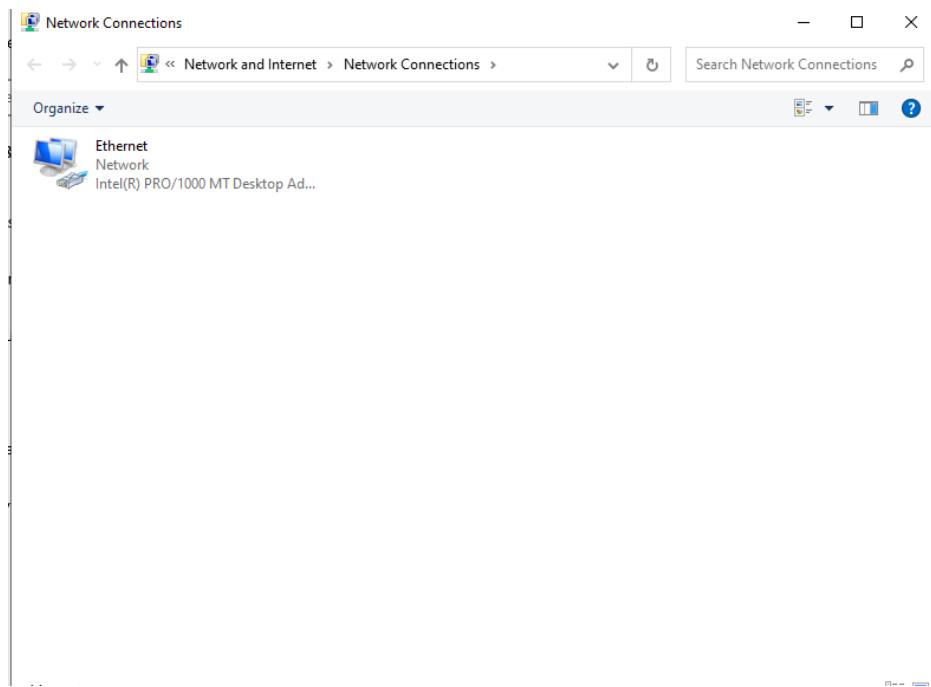
Pic 1: Create Virtual Box, DC01



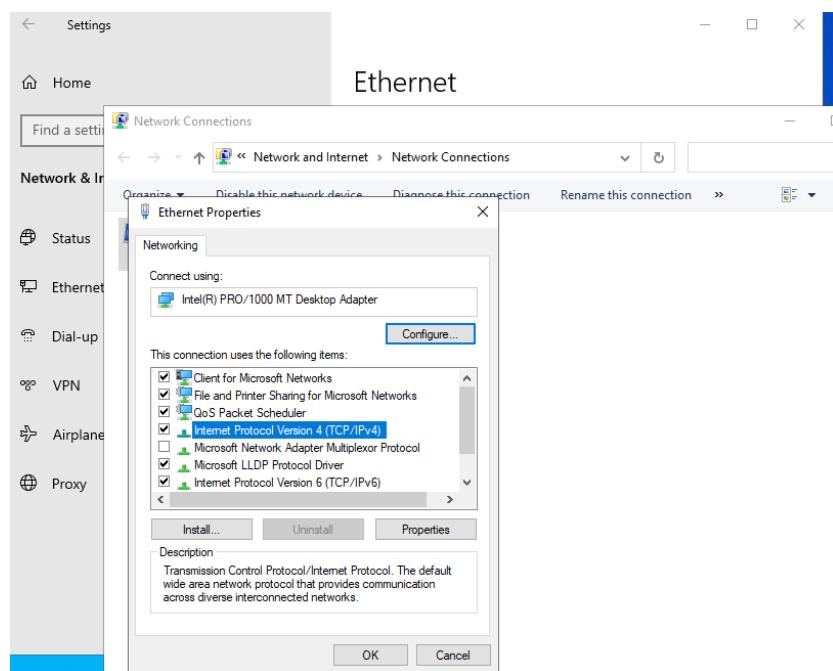
Pic 2: In setting go to Network & Internet



Pic 3: Inside, go to change adapter option



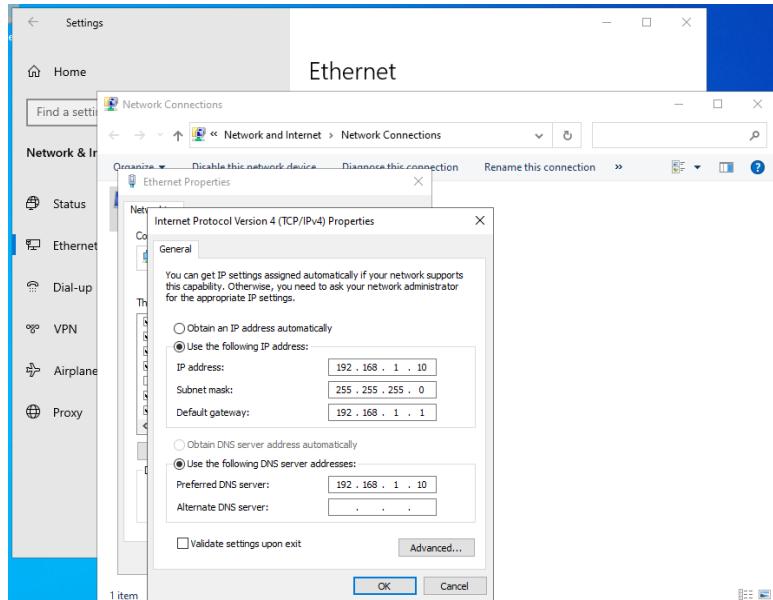
Pic 4: Right-click Ethernet and choose properties



Pic 5: Choose the TCP/Pv4

2. Assigned static IP to DC01

- Example: 192.168.1.10
- Set DNS to itself (DC01)



Pic 6: Setting the TCP/Pv4 properties

② **IP address:** 192.168.1.10

② **Subnet mask:** 255.255.255.0

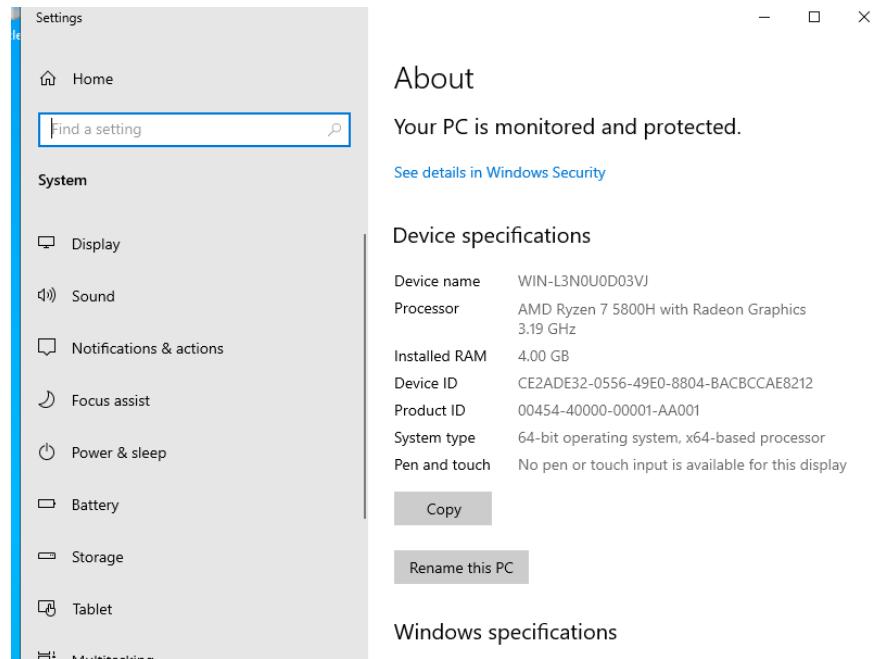
② **Default gateway:** 192.168.1.1 (can be your router IP)

② **Preferred DNS server:** 192.168.1.10 (points to itself)

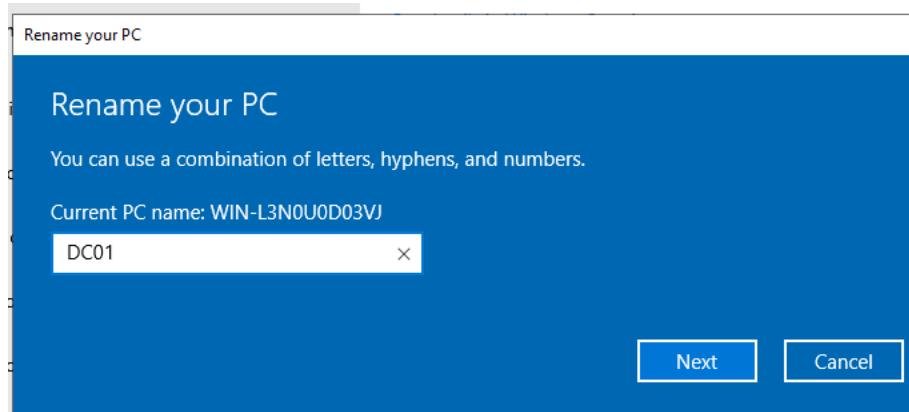
After that, we have finished step 1 here.

Step 2 — Rename the Server

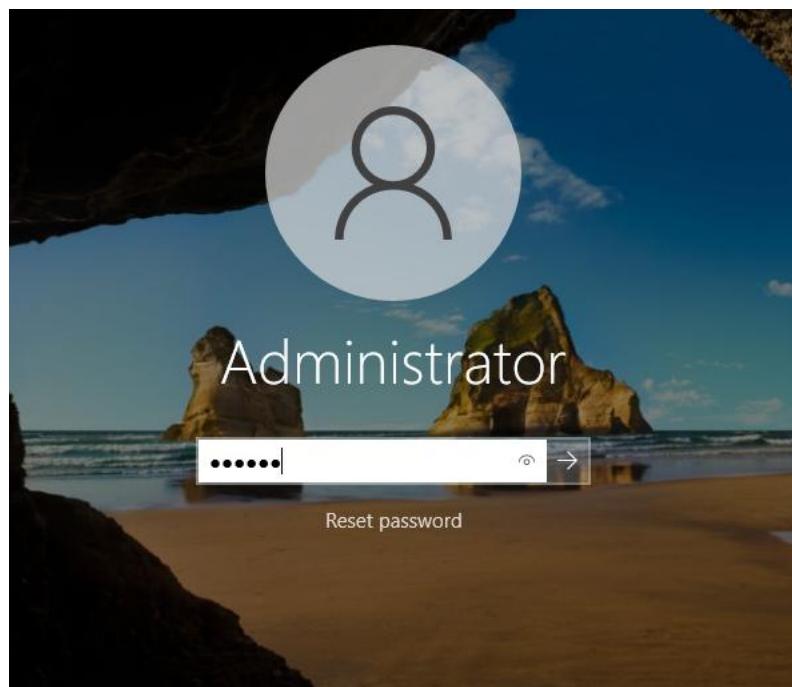
1. Right-click **This PC** → **Properties** → **Rename this PC**
2. Name: DC01
3. Restart when prompted



Pic 7:Right-click This PC → Properties → Rename this PC



Pic 8 :Rename to DC01 and it will restart automatically.

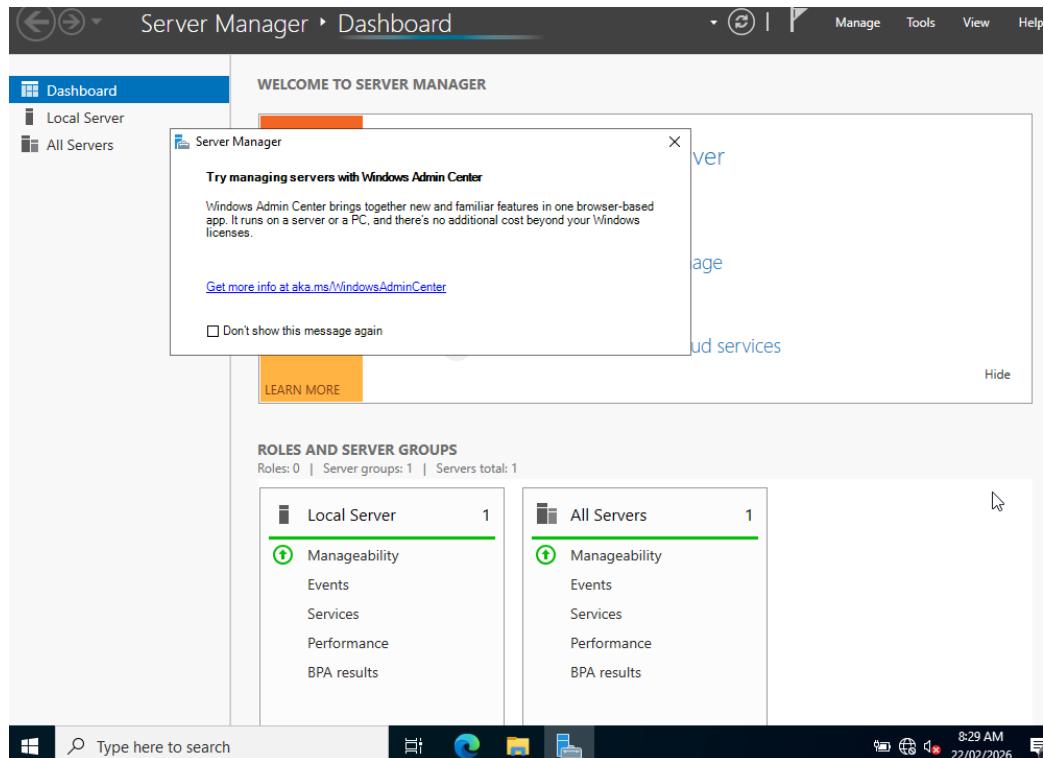


Pic9: Now ewe can login as Admin.

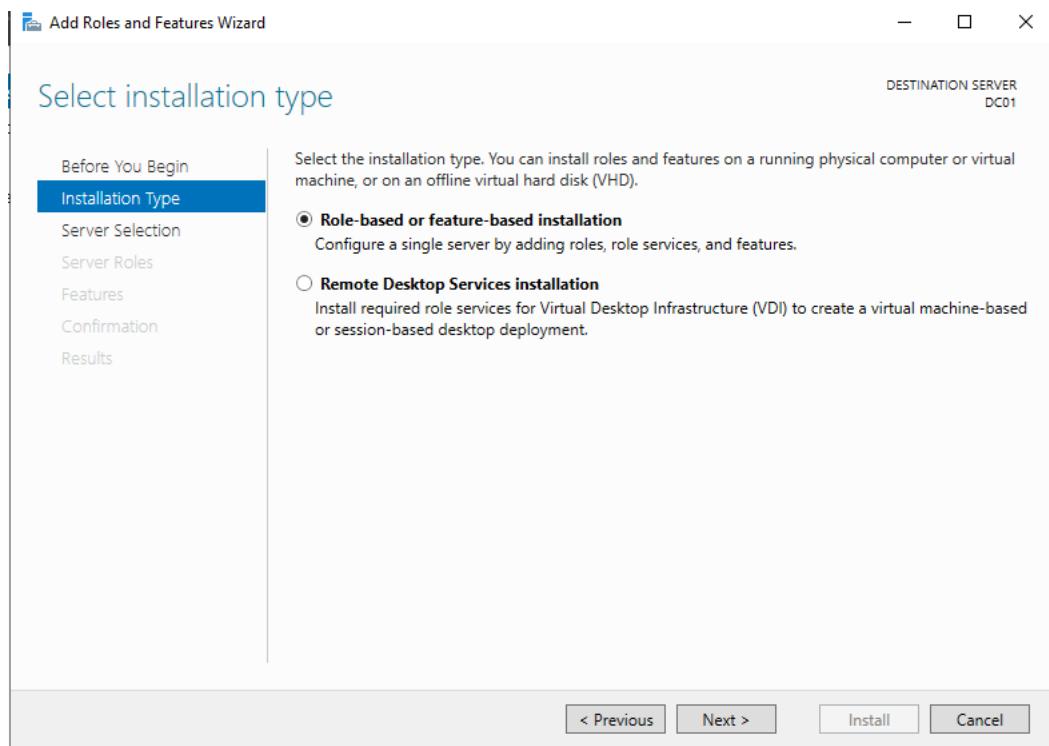
3. Install Active Directory Domain Services (AD DS)

1. Open **Server Manager** (should be open automatically)
2. Click **Add roles and features**
3. Click **Next** → **Next** → **Next** → **Next** until you reach **Server Roles**
4. Check **Active Directory Domain Services**
5. Click **Add Features** when prompted
6. Click **Next** → **Next** → **Install**

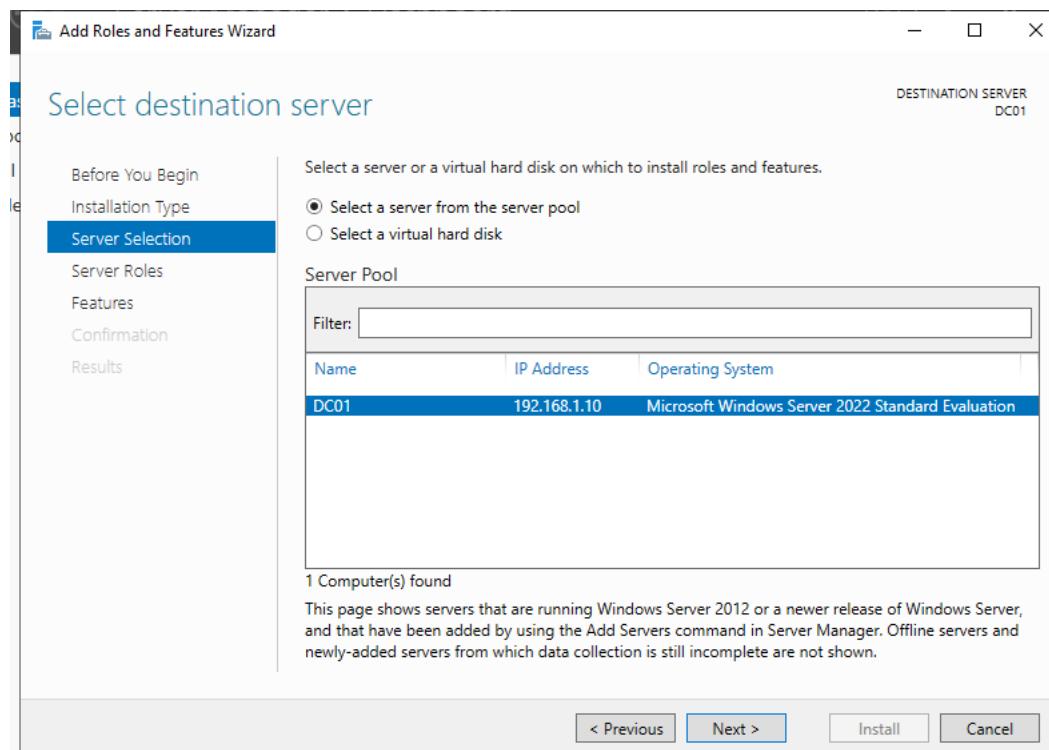
Installation will complete in a few minutes.



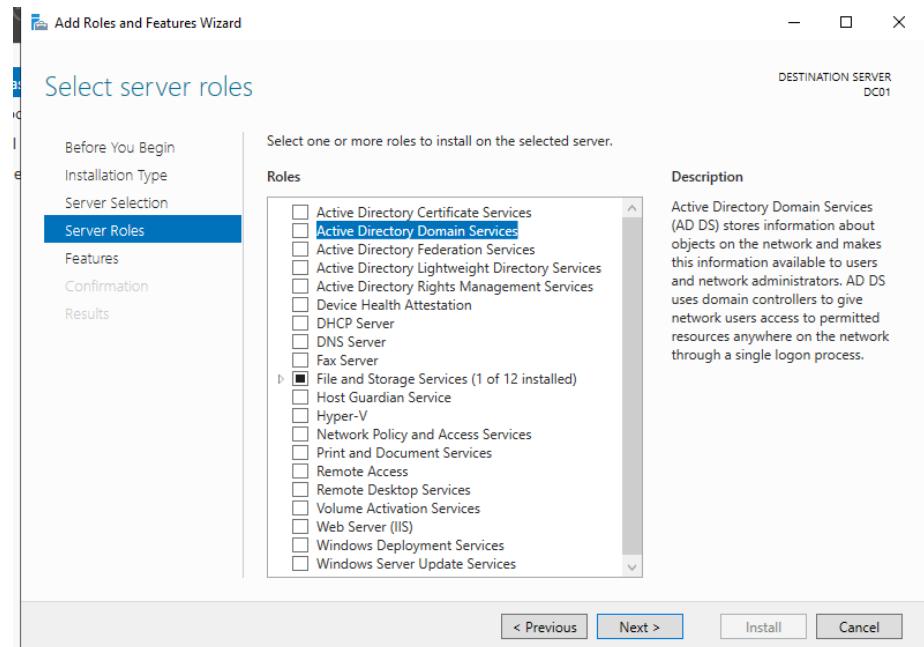
Pic 10: Server Manager Dashboard



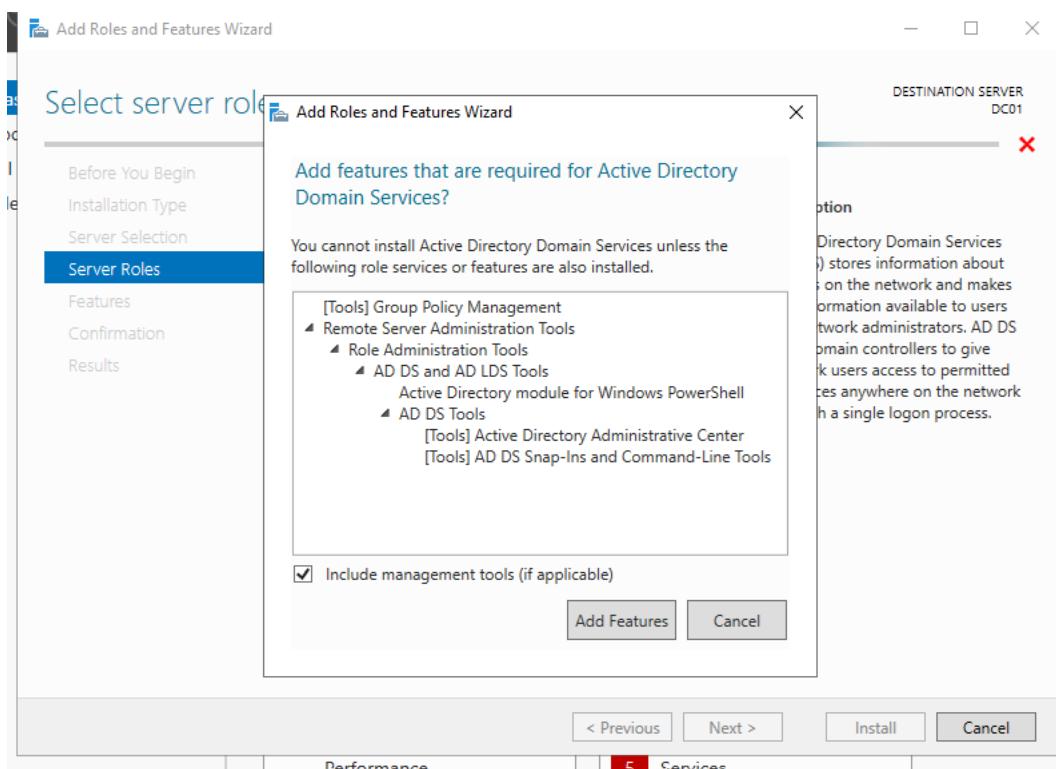
Pic 11: Select Role-Based



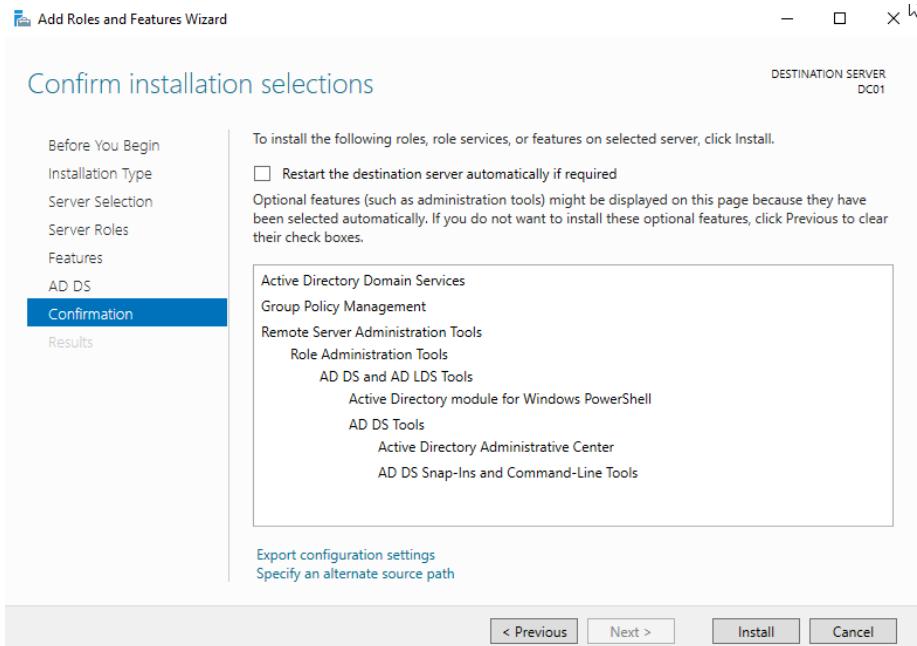
Pic 12: Select DC01 as Server



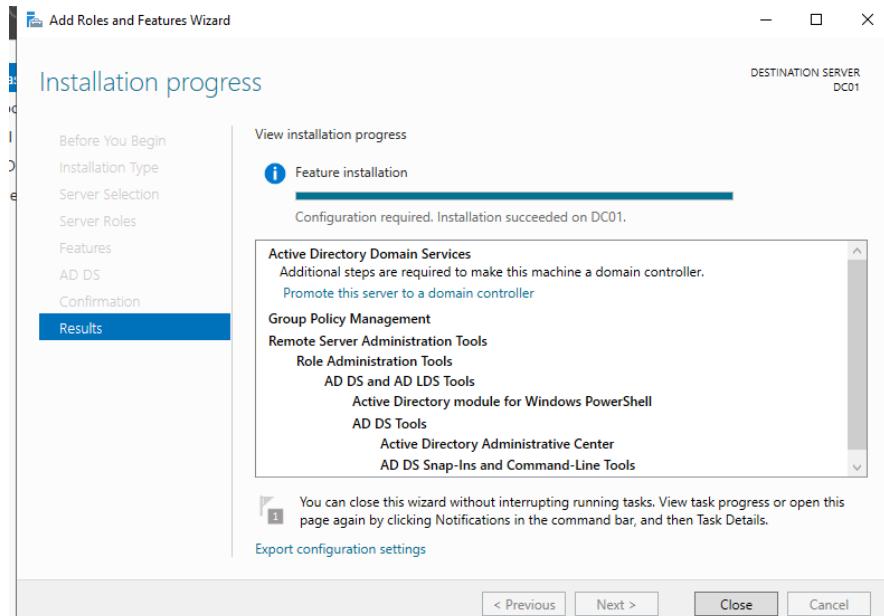
Pic 13: Choose ADDS



Pic 13: Add feature



Pic 13: Install and wait until it is completed

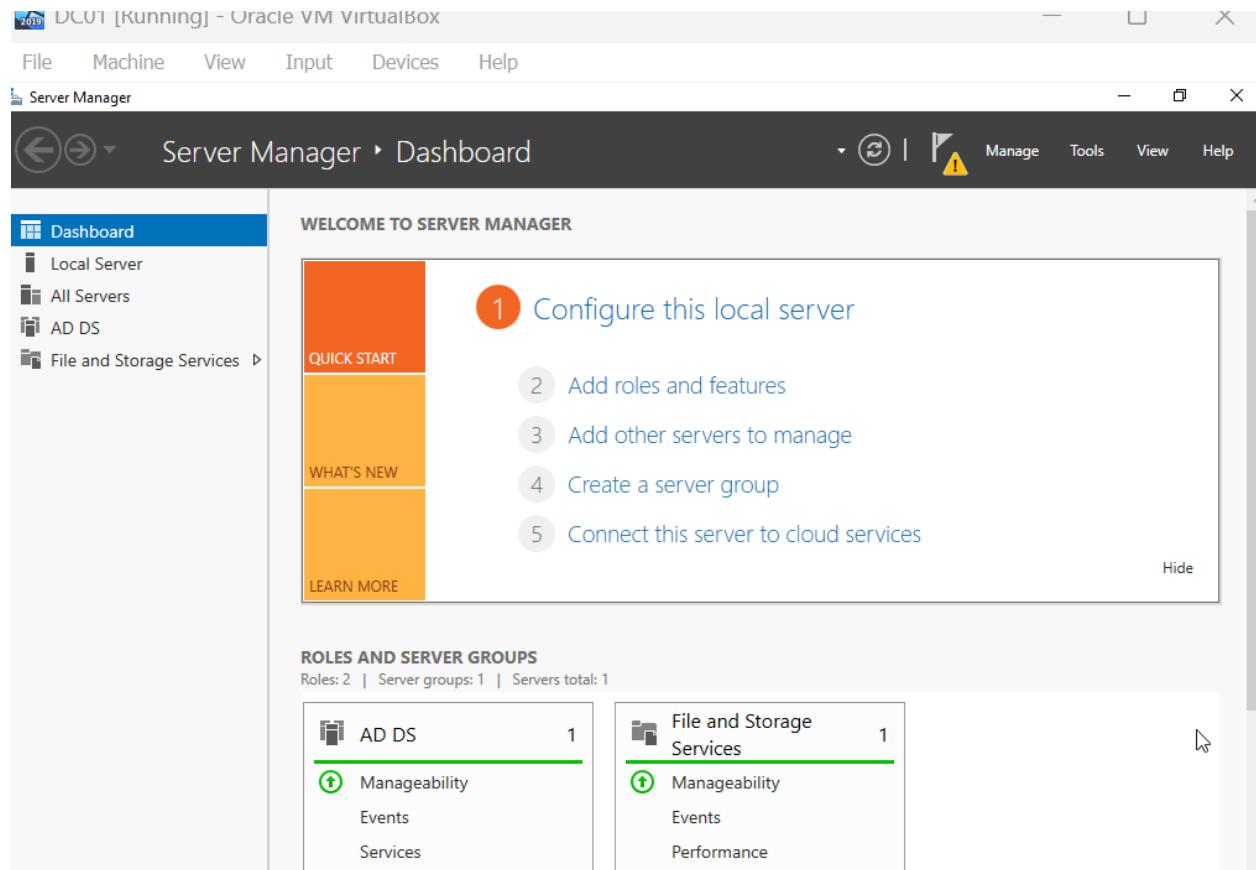


Pic 14: Completed

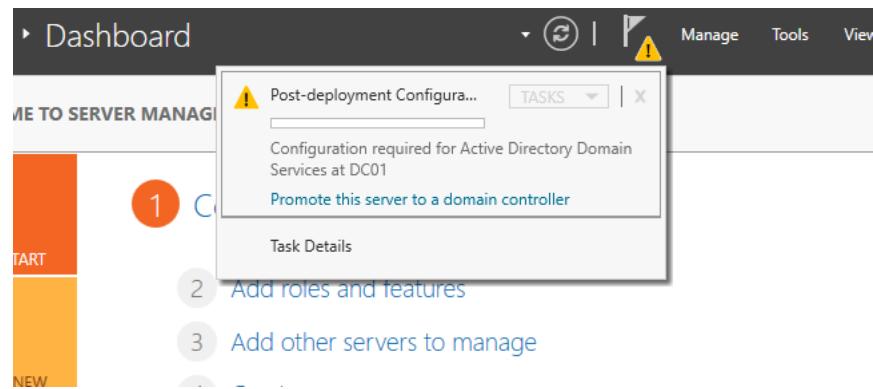
4. Promote to Domain Controller

1. After installation, in Server Manager, there will be a **flag icon** with a notification
2. Click it → **Promote this server to a domain controller**
3. Select **Add a new forest**
4. Root domain name: lab.local
5. Set Directory Services Restore Mode (DSRM) password → remember it
6. Click **Next** → **Next** → **Next** → **Install**

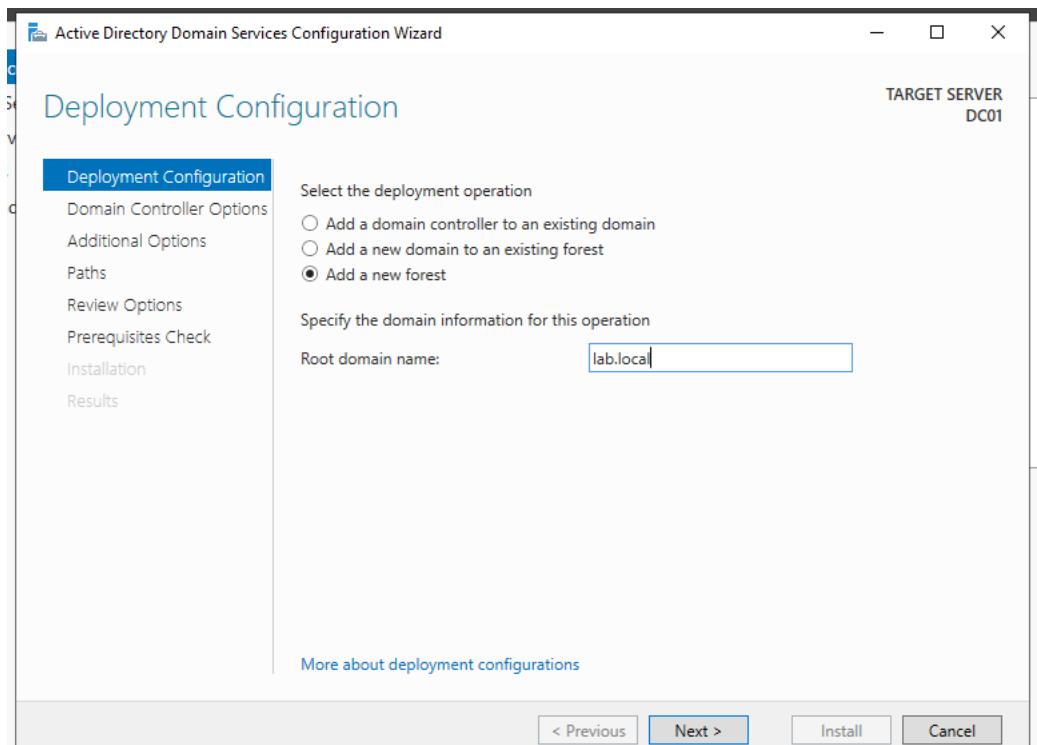
Server will restart automatically.



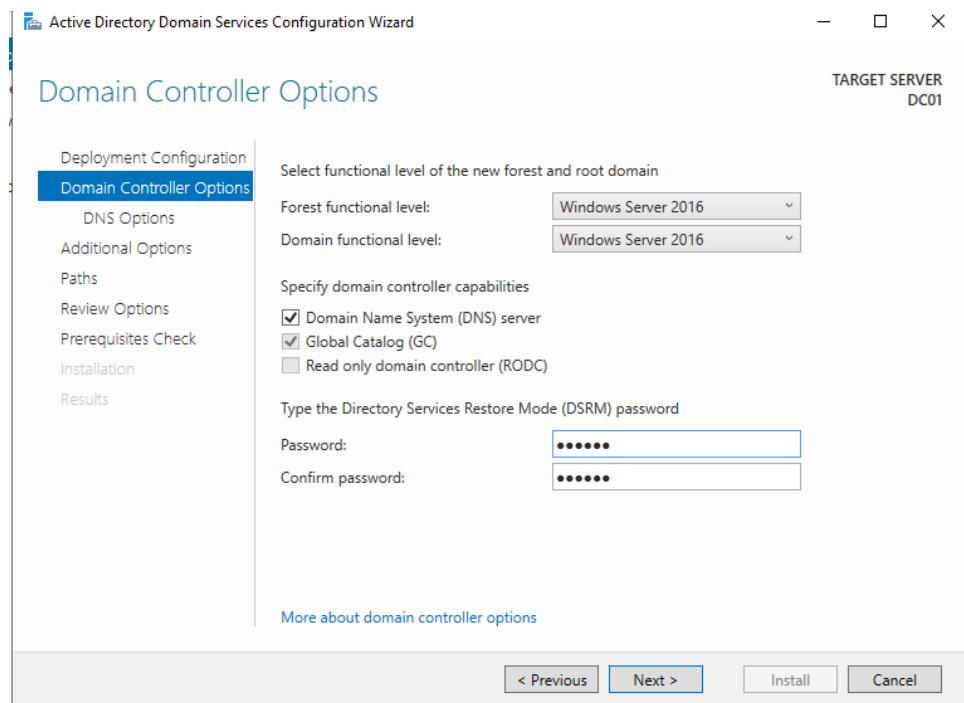
Pic 15: Flag Icon on top



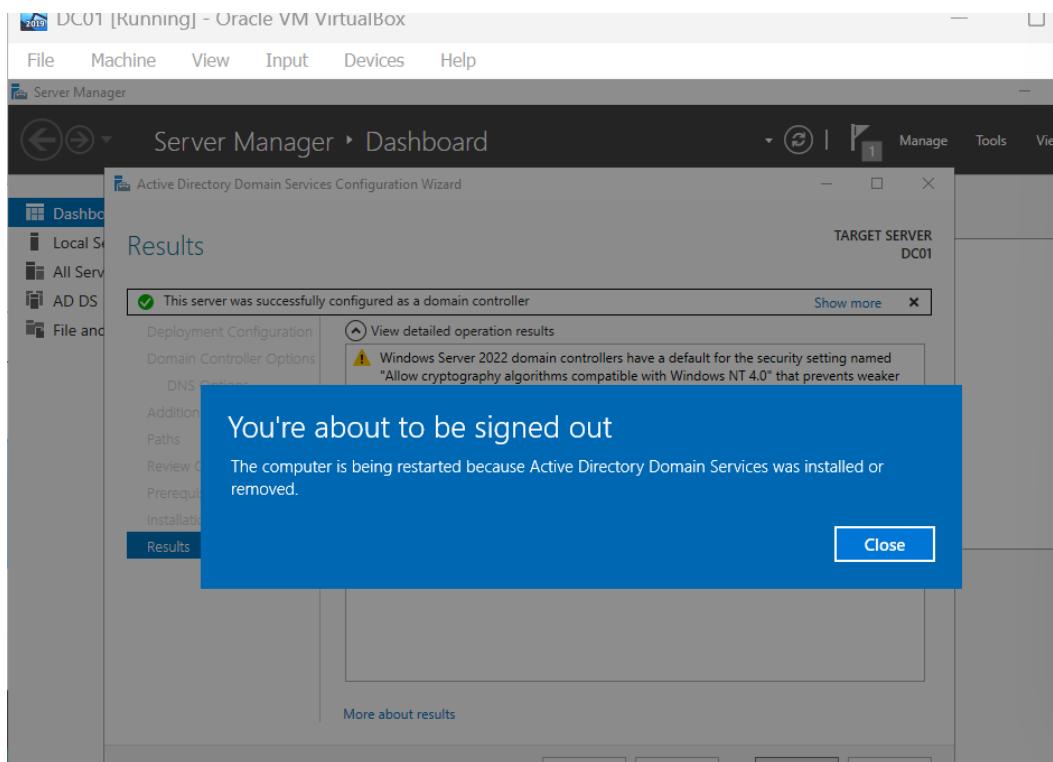
Pic 16: Click Promote this server to a domain controller



Pic 17: Create domain lab.local



Pic 17: Set a password and press next until install

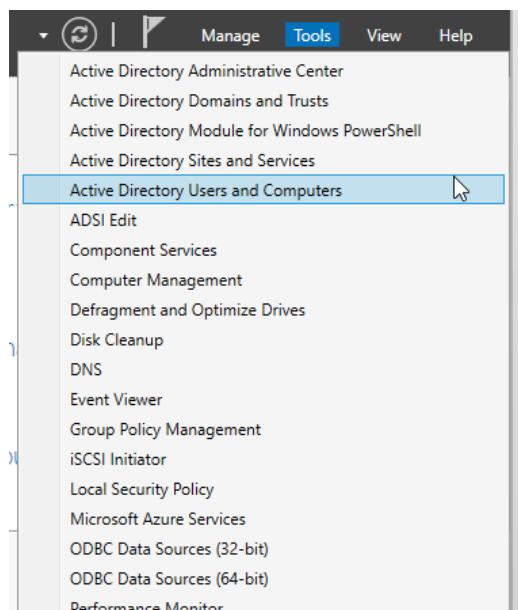


Pic 18: Restart after install

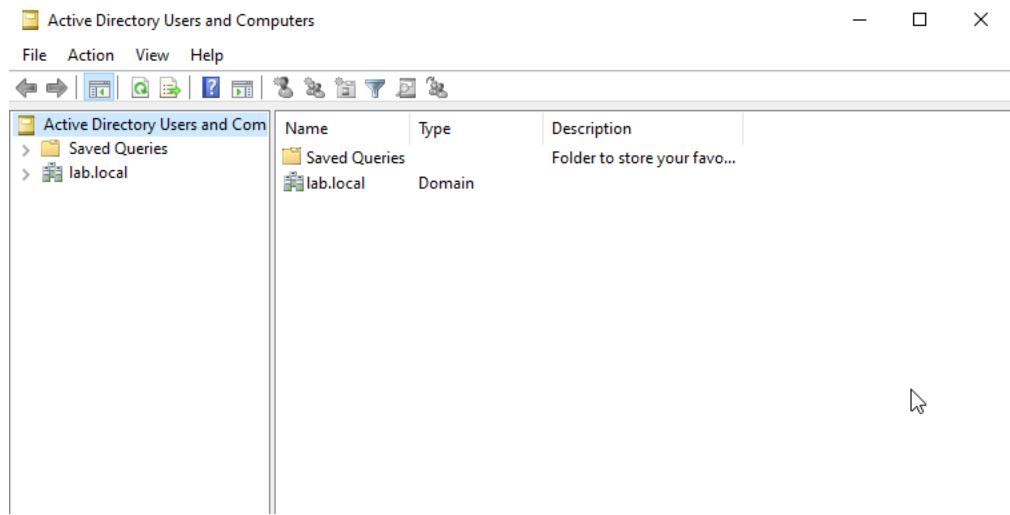
5. Verify Domain Controller

After reboot:

1. Login as lab\Administrator
2. Open **Active Directory Users and Computers** (Server Manager → Tools → ADUC)
3. You can see your domain and server listed



Pic 19: Go to Active Directory Users and Computers



Pic 20: Can see lab.local there

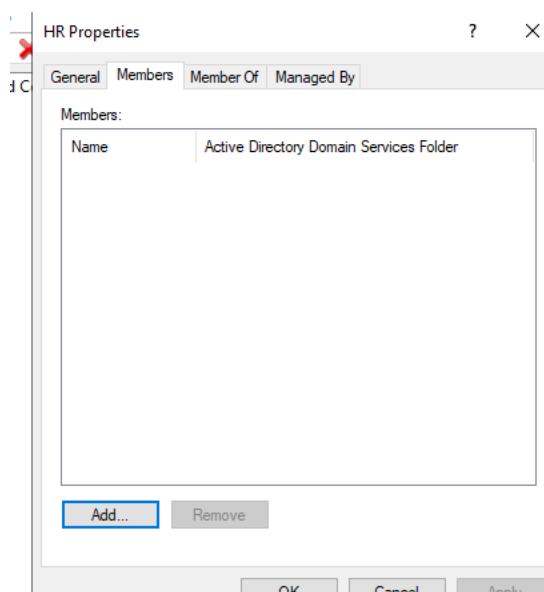
6. Create Users and Groups

1. In ADUC → Right-click your domain → **New** → **Organizational Unit** (optional)
2. Create a few users:
 - john.hr
 - anna.hr
 - mike.it
3. Create groups:
 - HR
 - IT
4. Add users to groups

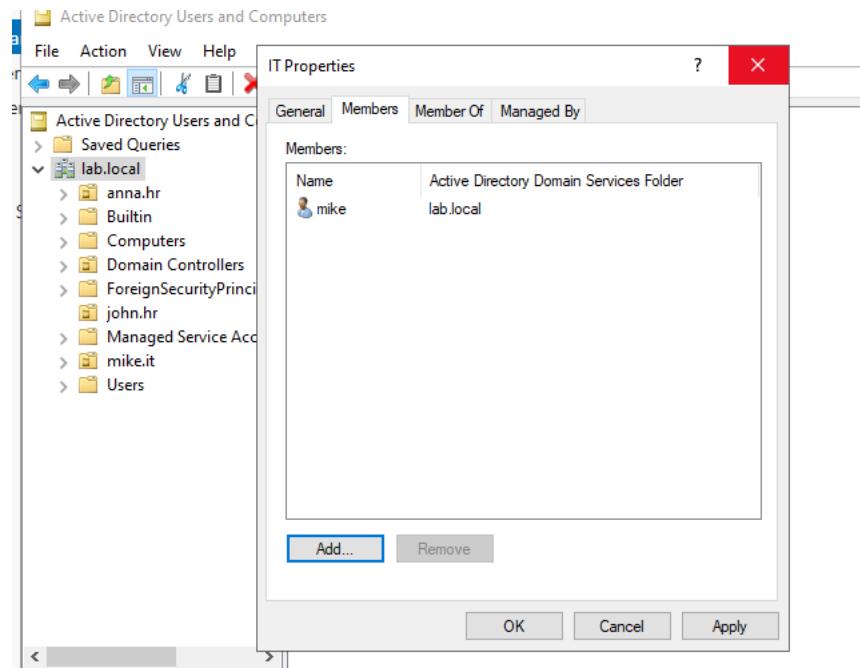
The screenshot shows the Active Directory Users and Computers (ADUC) interface. On the left, the navigation pane displays the domain structure under 'lab.local', including 'Saved Queries', 'Computers', 'Domain Controllers', 'ForeignSecurityPrincipals', 'Managed Service Accounts', and 'Users'. The 'Users' folder is expanded, showing objects like 'anna.hr', 'Builtin', 'Computers', 'Domain Con...', 'ForeignSecu...', 'HR', 'IT', 'john', 'john.hr', 'mike', 'mike.it', and 'Users'. On the right, a detailed list of objects is shown in a table:

| Name | Type | Description |
|----------------|-------------------|------------------------------|
| anna.hr | Organizational... | |
| Builtin | builtinDomain | |
| Computers | Container | Default container for up... |
| Domain Con... | Organizational... | Default container for do... |
| ForeignSecu... | Container | Default container for sec... |
| HR | Security Group... | |
| IT | Security Group... | |
| john | User | |
| john.hr | Organizational... | |
| Managed Se... | Container | Default container for ma... |
| mike | User | |
| mike.it | Organizational... | |
| Users | Container | Default container for up... |

Pic 21: Create member and group inside the lab.local



Pic 22: Add member to the group

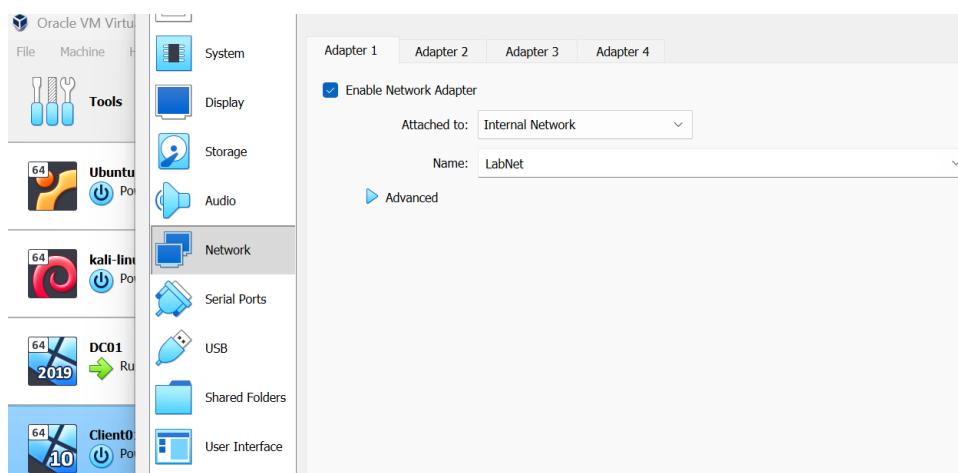


Pic 22: Mike has been added to IT group

7. Join a Client PC to Domain

Step 1 — Create Client VM

- DC01 and Client01 must be on the **same virtual network** to join domain. I name LabNet

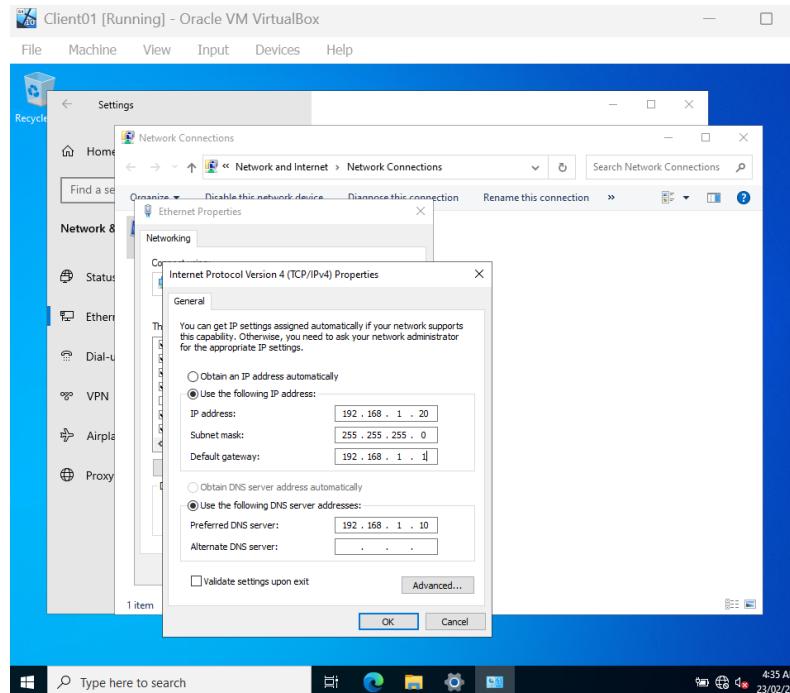


Pic 23: Create another VIM and make name of Internal Network same as DC01

8. Set DNS on Client

1. Open **Network Connections** → **Ethernet** → **Properties** → **IPv4**
2. Set static IP like:
 - IP: 192.168.1.20 (any in same subnet as DC)
 - Subnet mask: 255.255.255.0
 - Default gateway: 192.168.1.1 (can be anything if you don't need internet)
 - **Preferred DNS server:** 192.168.1.10 (**point to DC01 IP**)

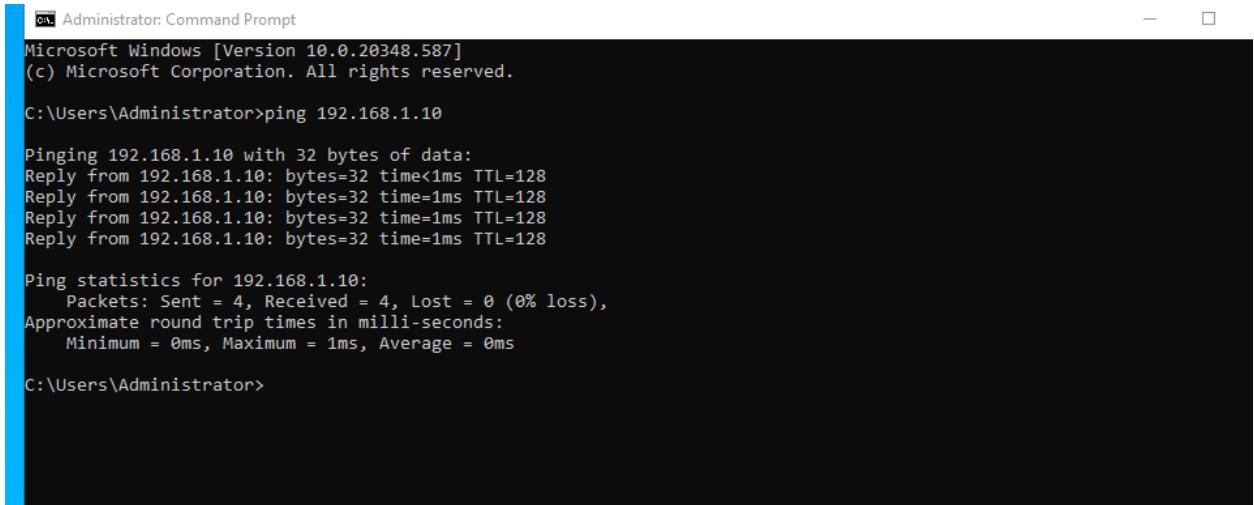
This is critical — the client **must use DC01 as DNS** to find the domain.



Pic 24: set up Internet properties

9. Test Connectivity

1. Open **Command Prompt** on Client01
2. Ping the DC:



```
Administrator: Command Prompt
Microsoft Windows [Version 10.0.20348.587]
(c) Microsoft Corporation. All rights reserved.

C:\Users\Administrator>ping 192.168.1.10

Pinging 192.168.1.10 with 32 bytes of data:
Reply from 192.168.1.10: bytes=32 time<1ms TTL=128
Reply from 192.168.1.10: bytes=32 time=1ms TTL=128
Reply from 192.168.1.10: bytes=32 time=1ms TTL=128
Reply from 192.168.1.10: bytes=32 time=1ms TTL=128

Ping statistics for 192.168.1.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms

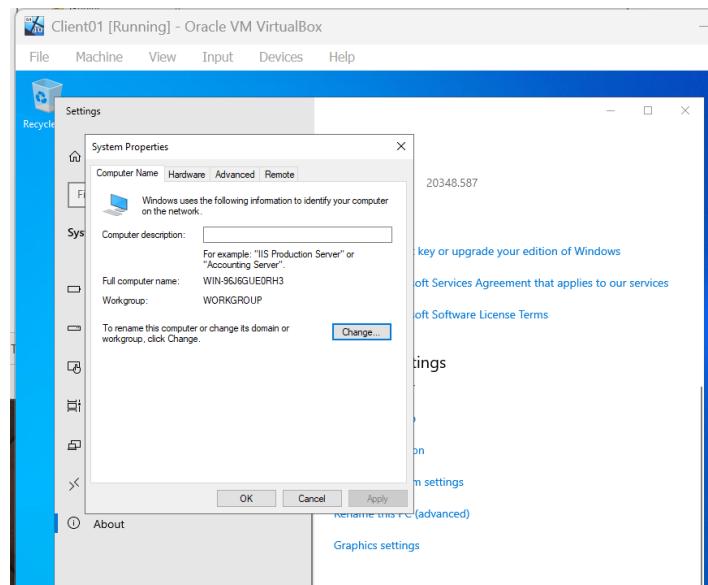
C:\Users\Administrator>
```

Pic 25: Ping to test connectivity

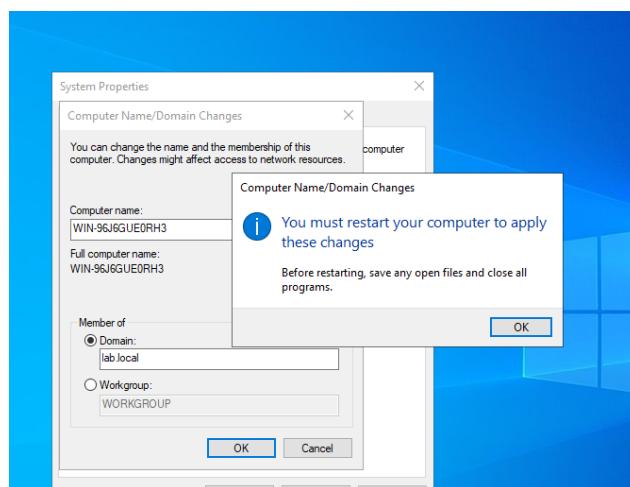
10. Try Domain Join Again

- Right-click **This PC** → **Properties** → **Advanced system settings** → **Computer Name** → **Change** → **Domain**
- Enter lab.local
- Credentials: lab\Administrator

And it will restart Windows 10 VM



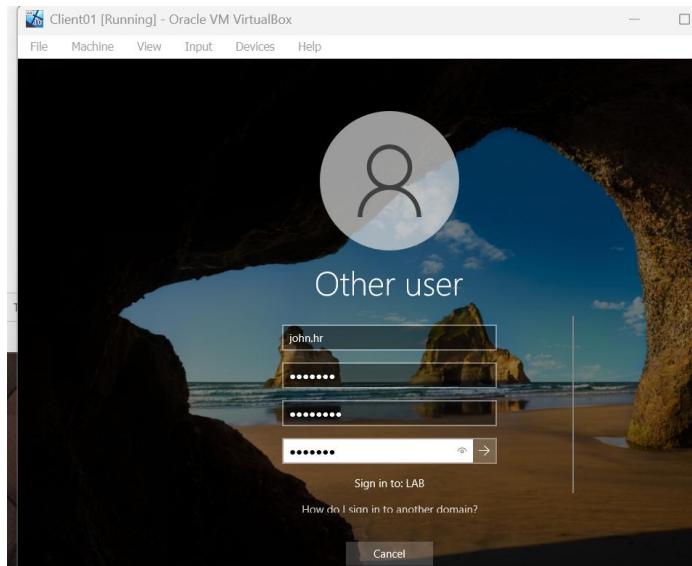
Pic 26: Press Change



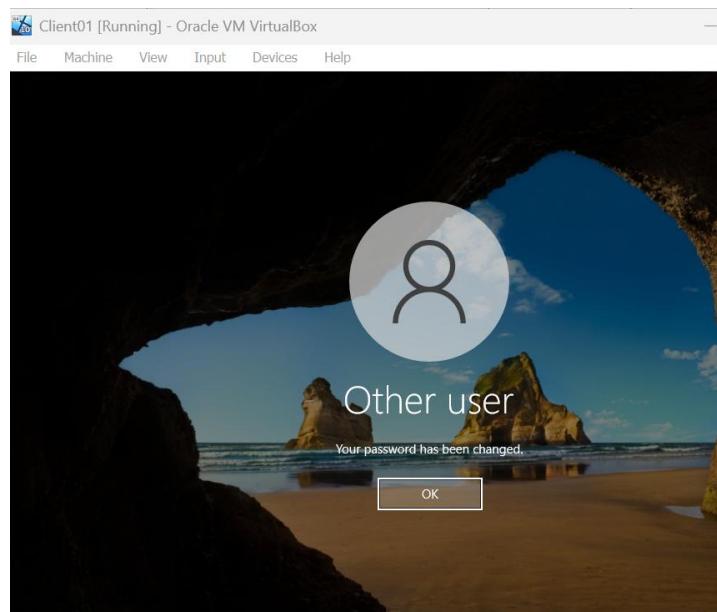
Pic 26: and choose to be a member of lab.local domain

11. Verify

- Log in as one of the users you created (e.g., john.hr)
- Check you can log in successfully → confirms domain join works



Pic 27: Try to login as John.hr and asked to change password



Pic 28: Login Successful.