SIES COLLEGE OF ARTS, SCIENCE & COMMERCE (EMPOWERED AUTONOMOUS)

SION(W),MUMBAI-22

DEPARTMENT OF INFORMATION TECHNOLOGY

MSc(IT), SEMESTER I

Practical Journal

For the Subject

Cloud Computing

Submitted by

Kushte Shripad Shashikant

FMSC2425170

For the Academic Year

2024-2025

College of Arts, Science & Commerce (Empowered Autonomous)

SIES

RISE WITH EDUCATION

NAAC REACCREDITED "A" GRADE

SIES College of Arts, Science and Commerce (Empowered Autonomous), Sion (W), Mumbai – 400 022.

Department of Information Technology

CERTIFICATE

This is to certify that Mr. Kushte Shripad Shashikant, of MSc [Information Technology] Semester - I, Seat No. FMSC2425170 has successfully completed the practical's for the subject of Cloud Computing as a partial fulfilment of the degree M.Sc.(I.T.) during the academic year 2024-25.

Faculty-in-Charge

Iqra Shaikh

Examiner

Course Co-Ordinator

Sudha Bhagavatheeswaran

College Seal

Date:

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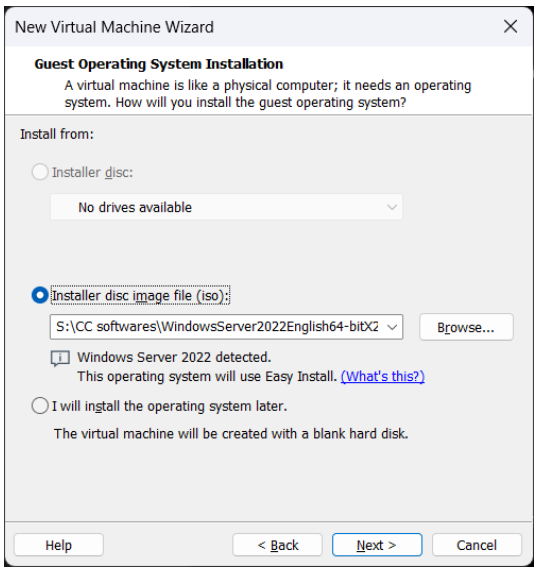
PRACTICAL 1

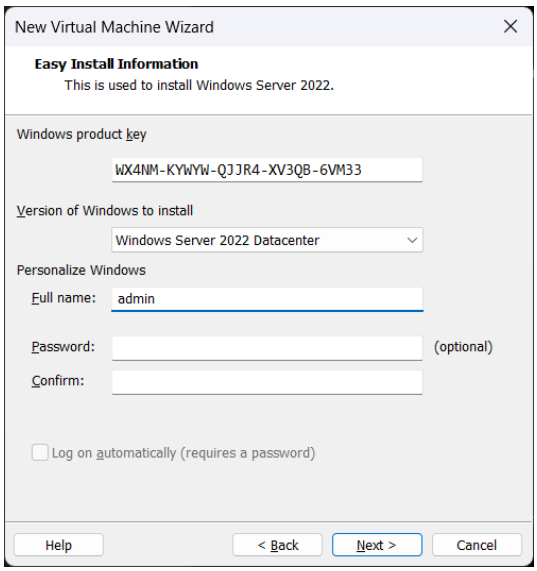
Aim :- Implementing Failover Cluster on Windows

File used:- Windows Server 2022.iso file

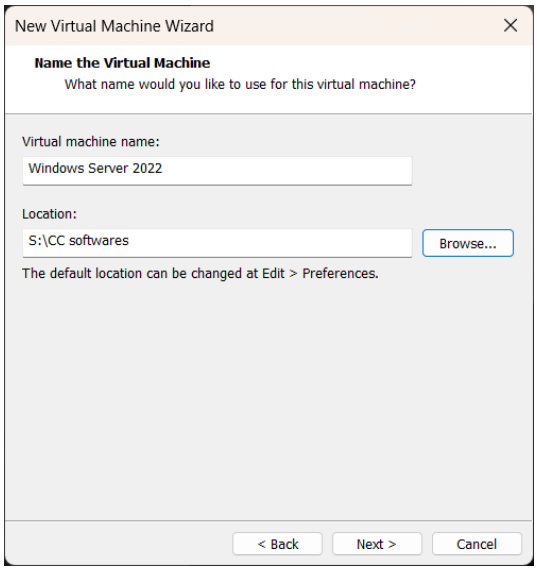
Steps:-

Create a new VM

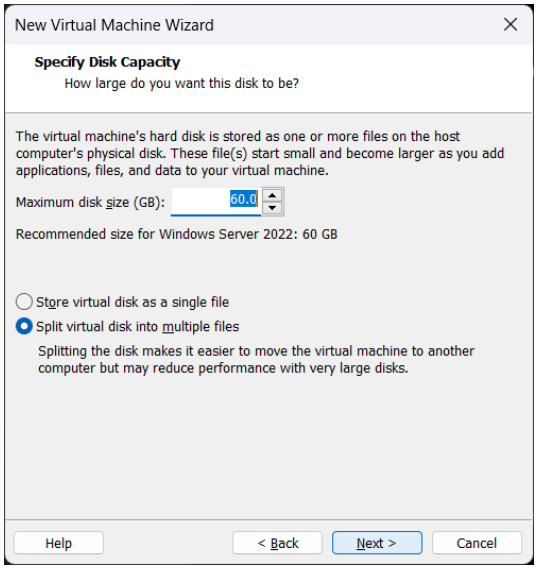




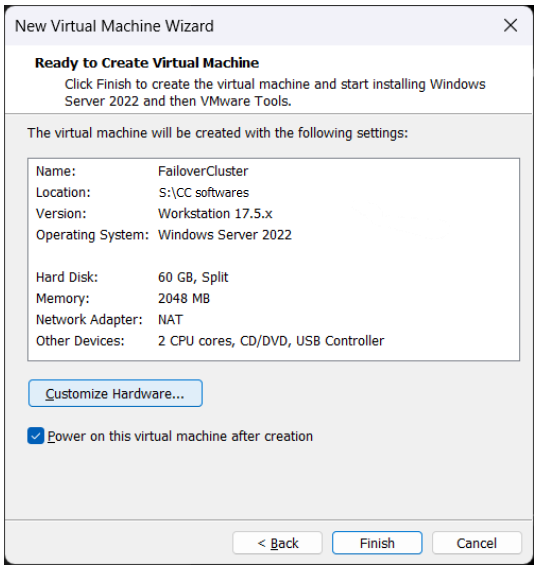
Give a Name → Next



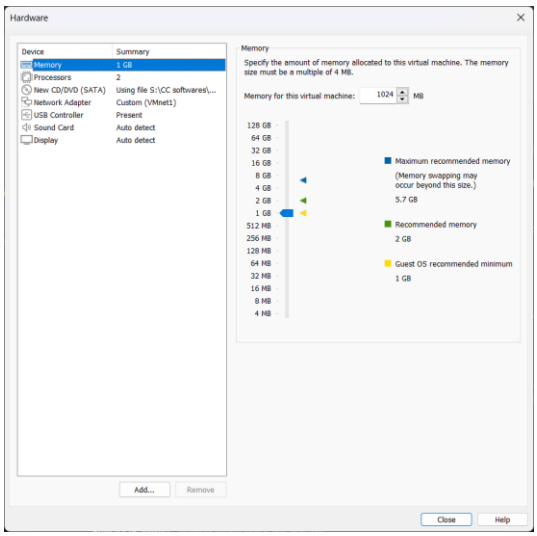
Keep default storage capacity → split virtual disk into multiple files

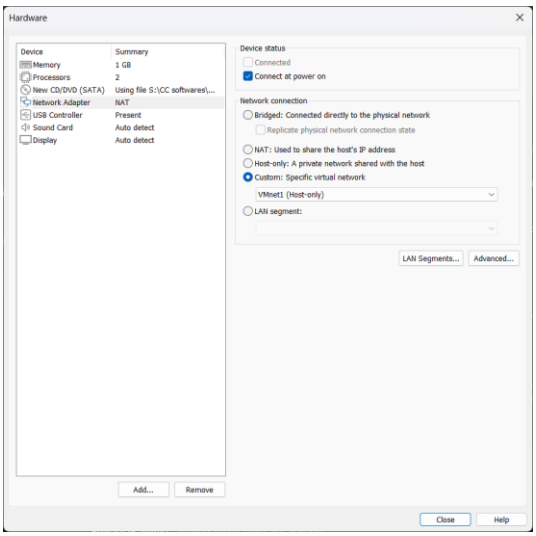


Click on Customize Hardware

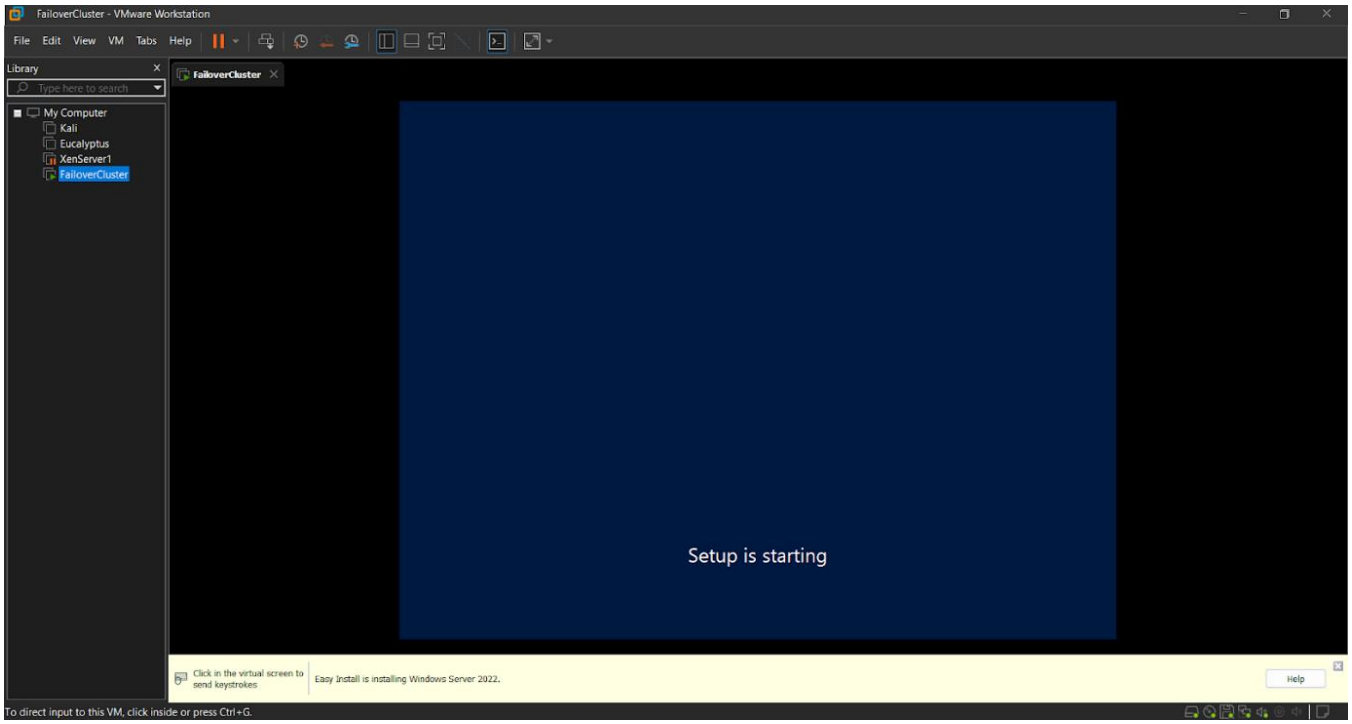


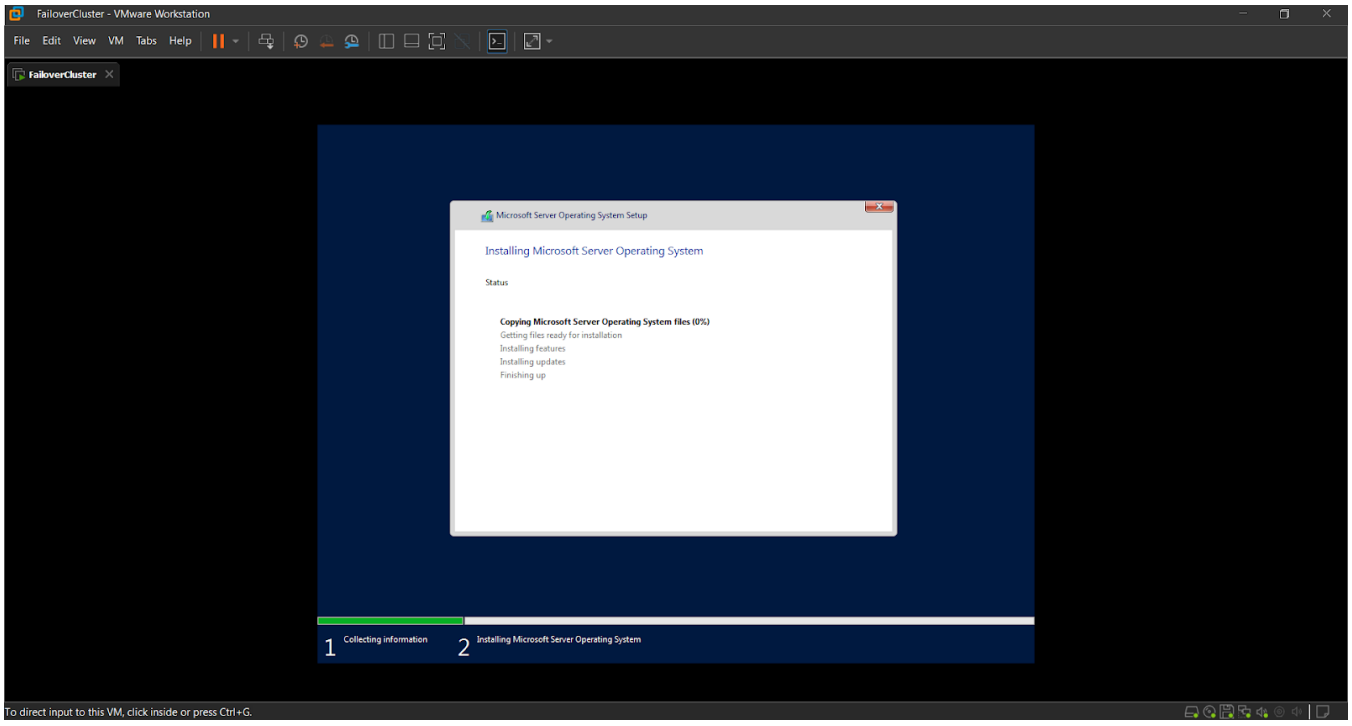
Set Memory to 1GB →Network Adapter→ Custom specific Virtual network

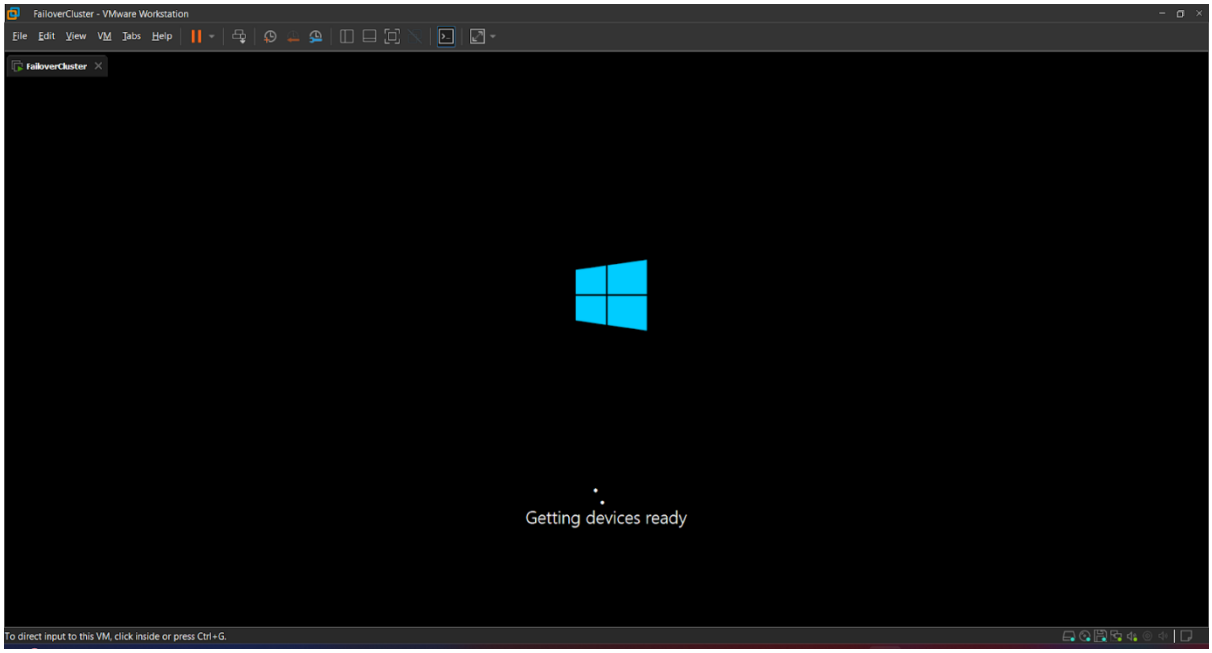


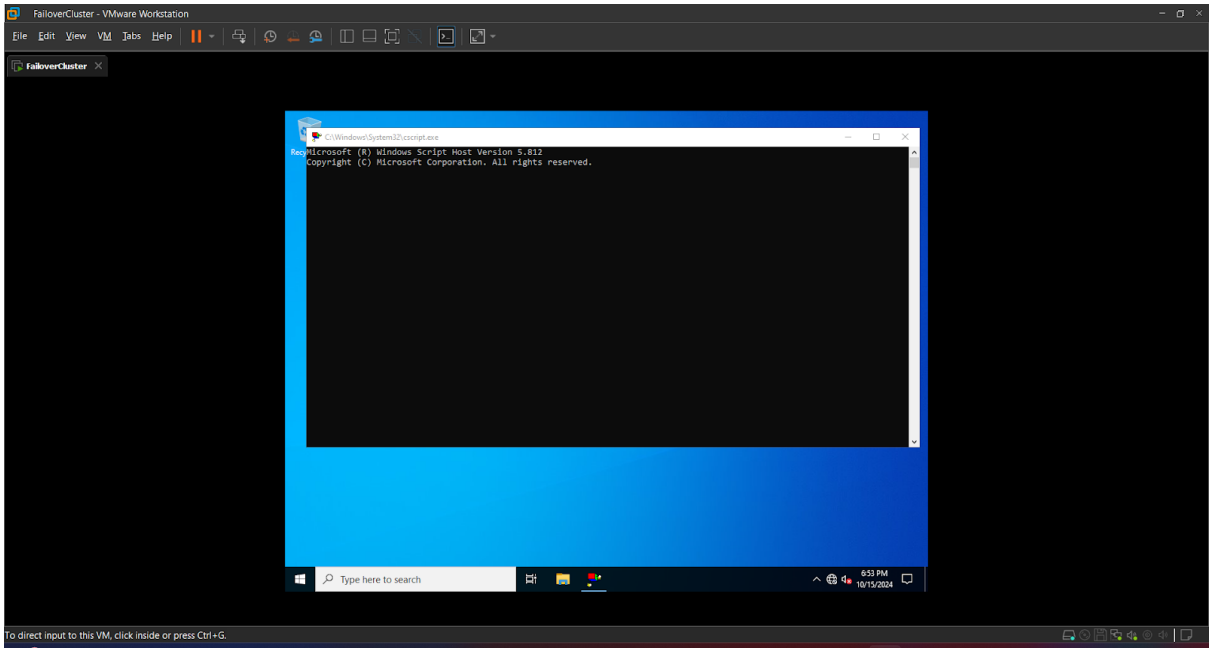


Now Power on the virtual machine

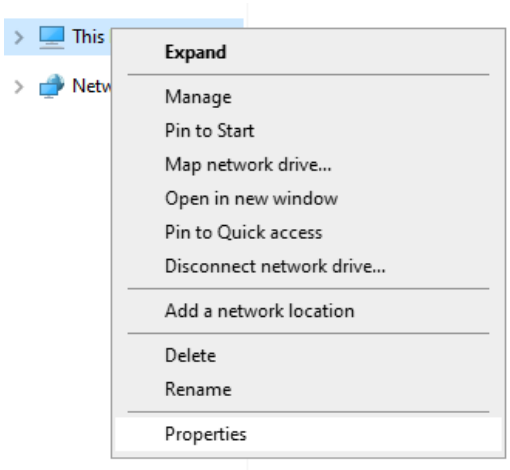


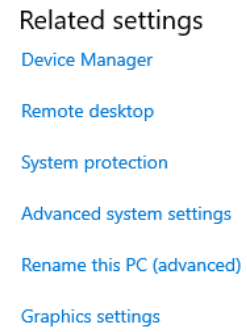




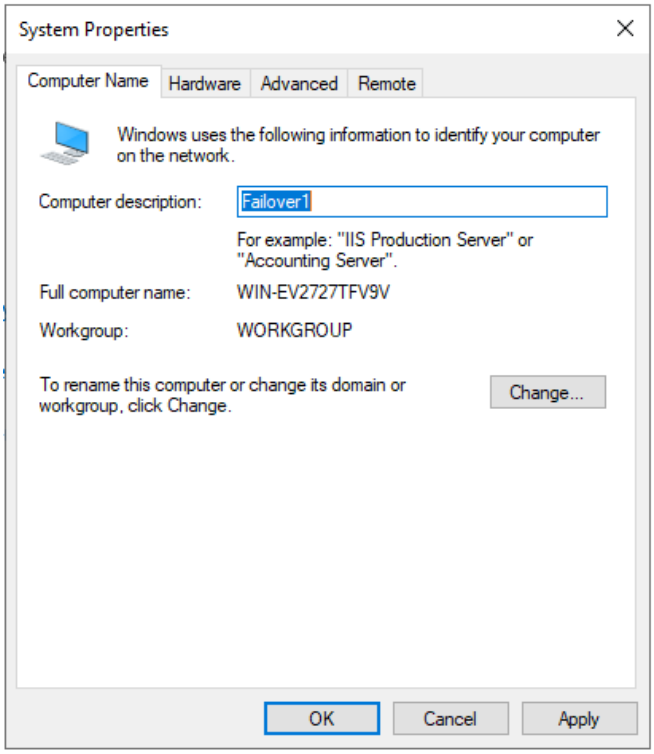


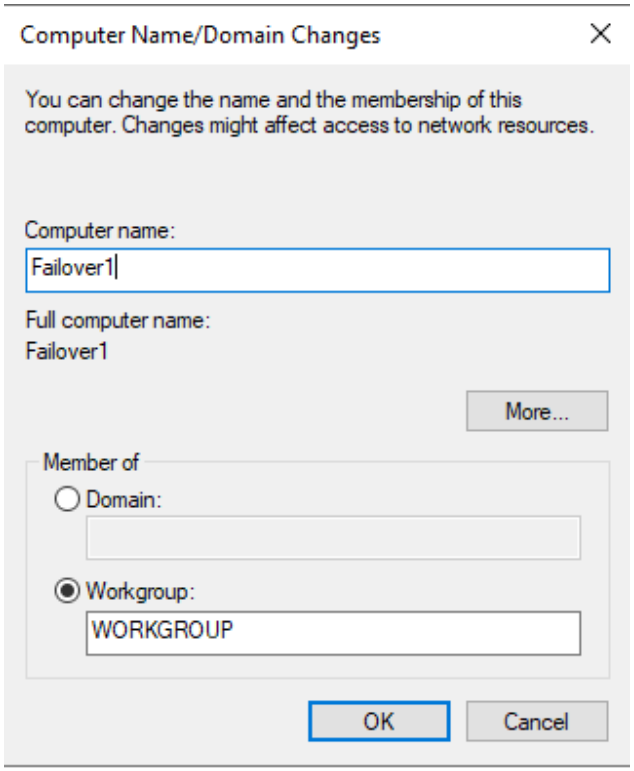
Ctrl + E → This Pc → Right Click → Properties

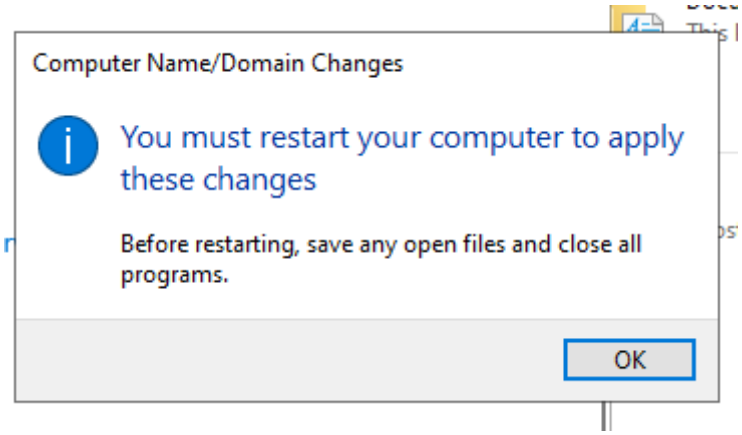




Click on Rename this Pc (advanced) → give a name →Click on change → Ok

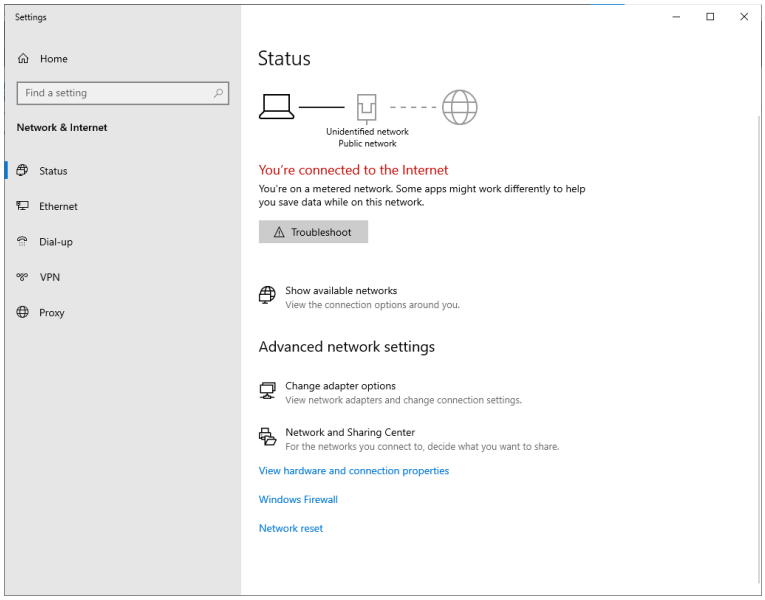


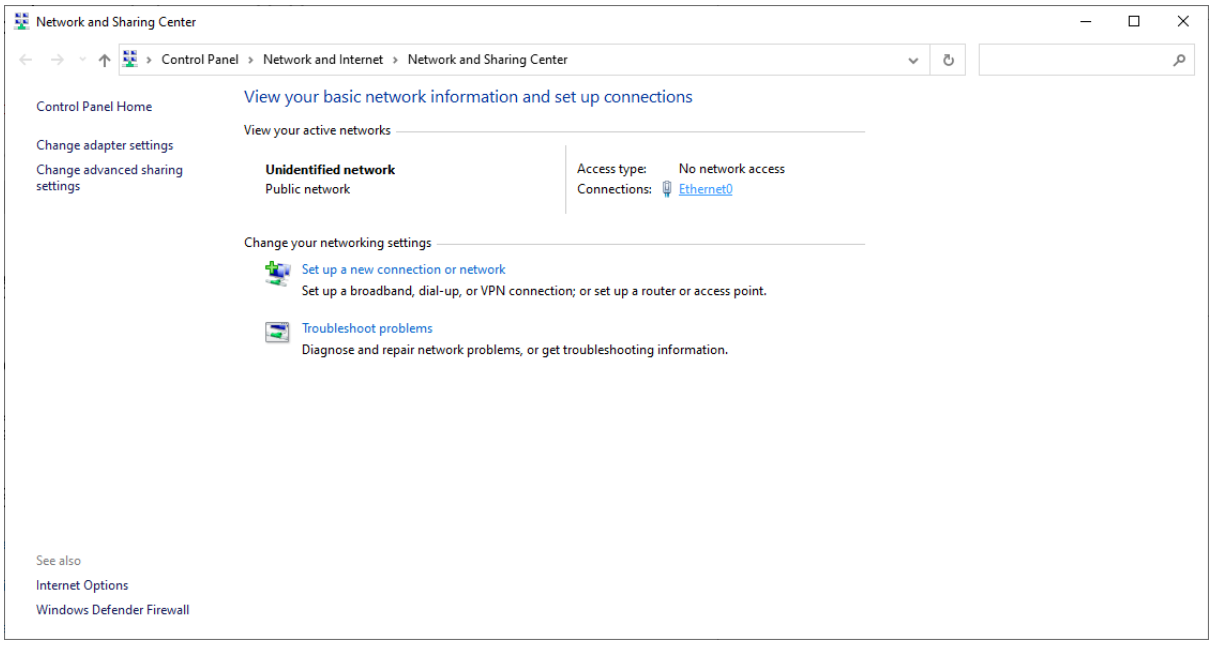




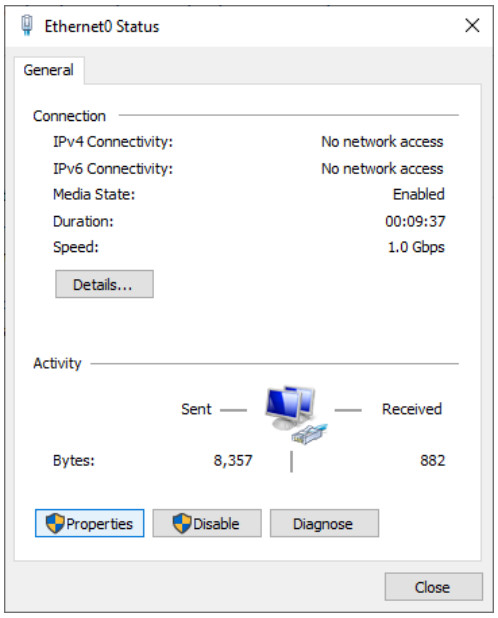
After restart

Go to setting → network and sharing centre → Click on Enternet()

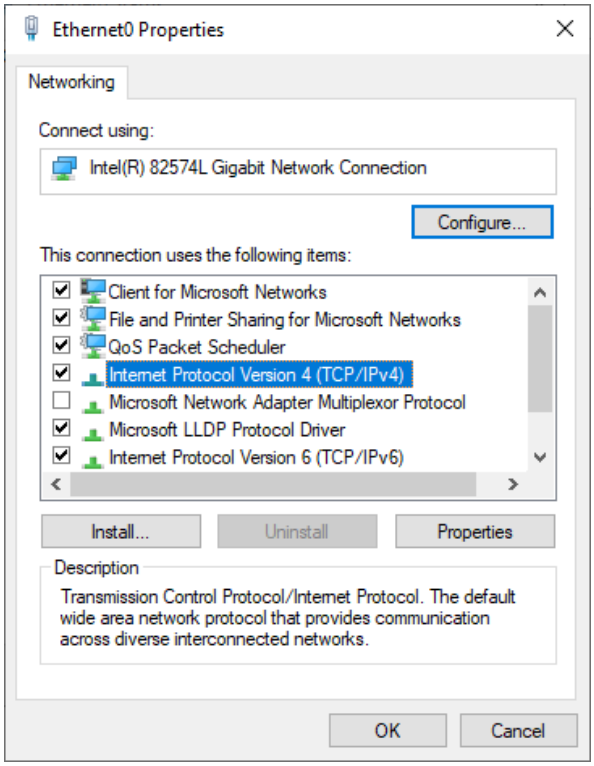




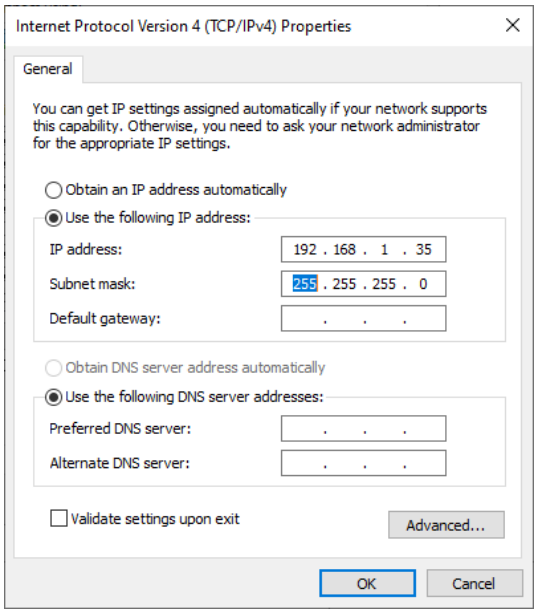
Click on properties →



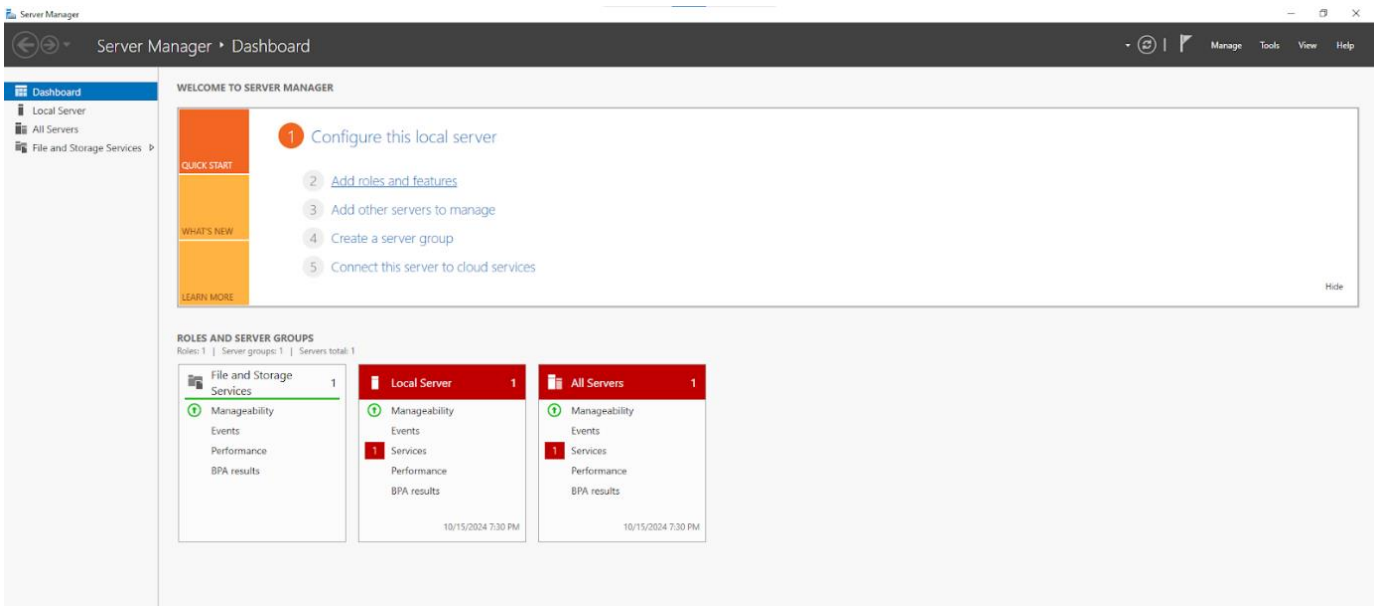
Click internet protocol version 4

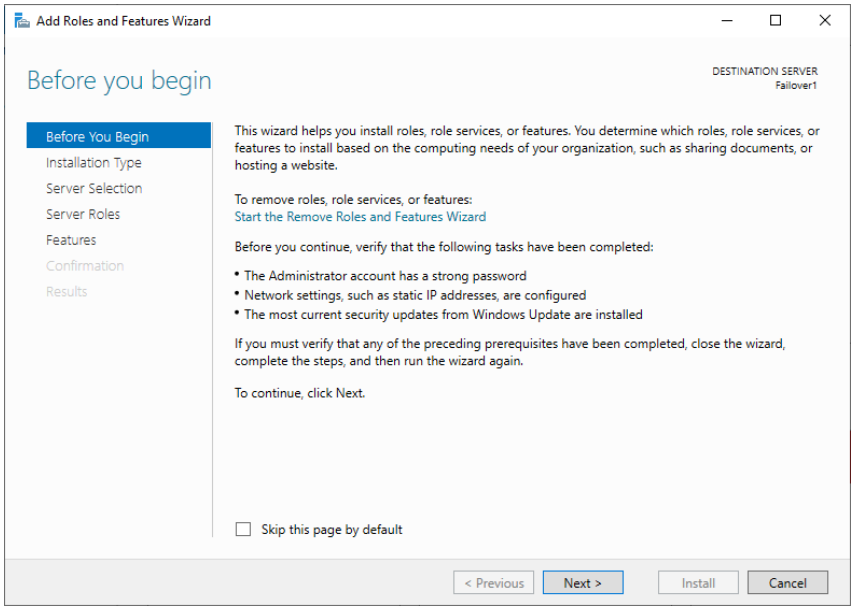


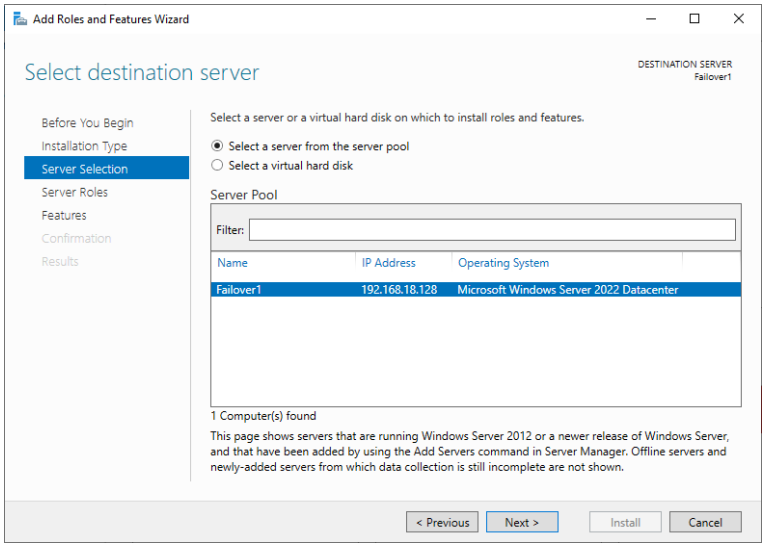
Now add ip address 192.168.1.35 , subnet mask



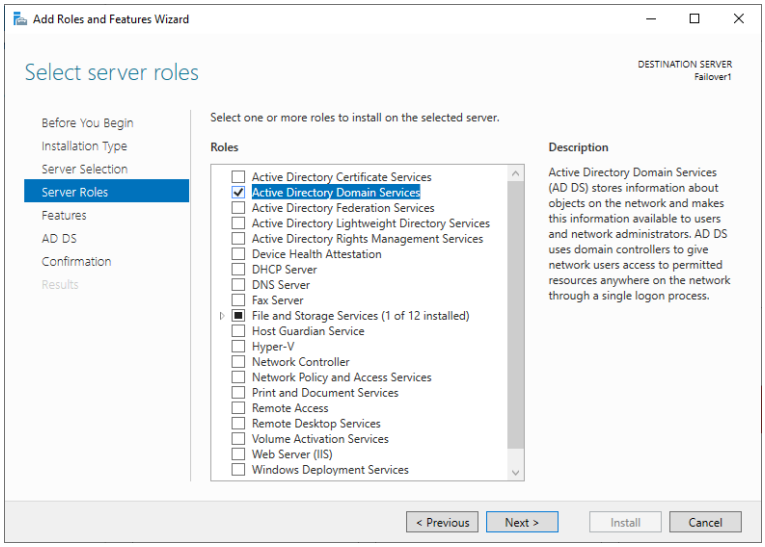
Now click on server manager → Add roles and features



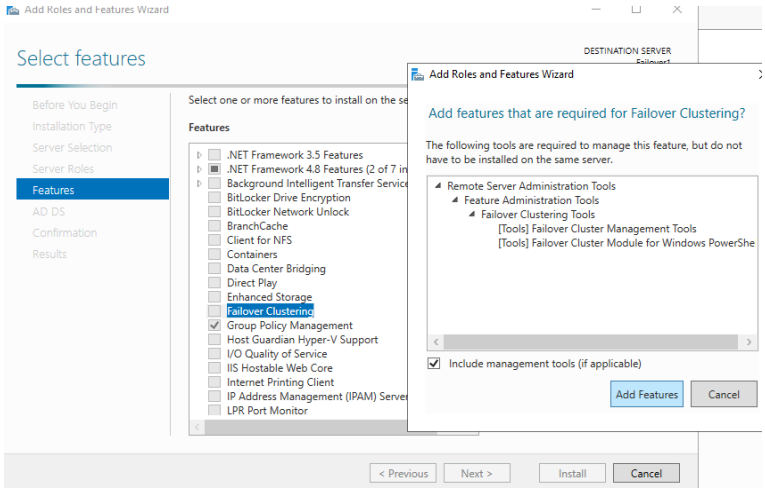




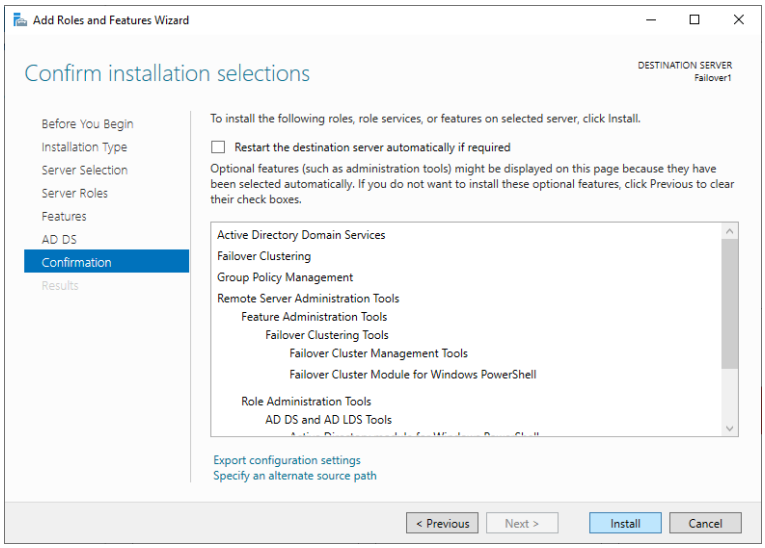
Check the Active Directory Domain Services → Add feature → next



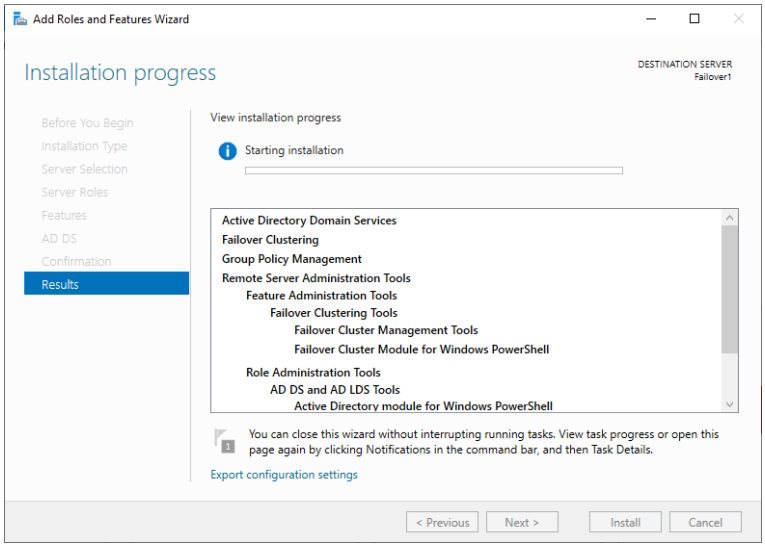
Click on failover cluster → add feature → Next

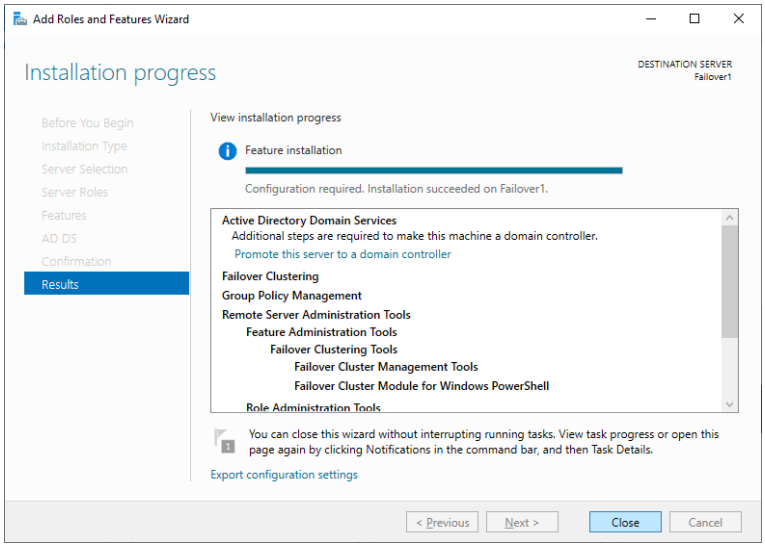


Click on install



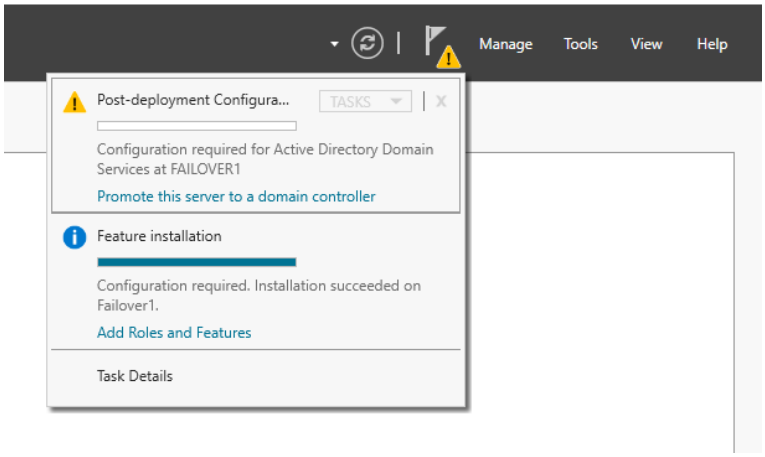
Installation started



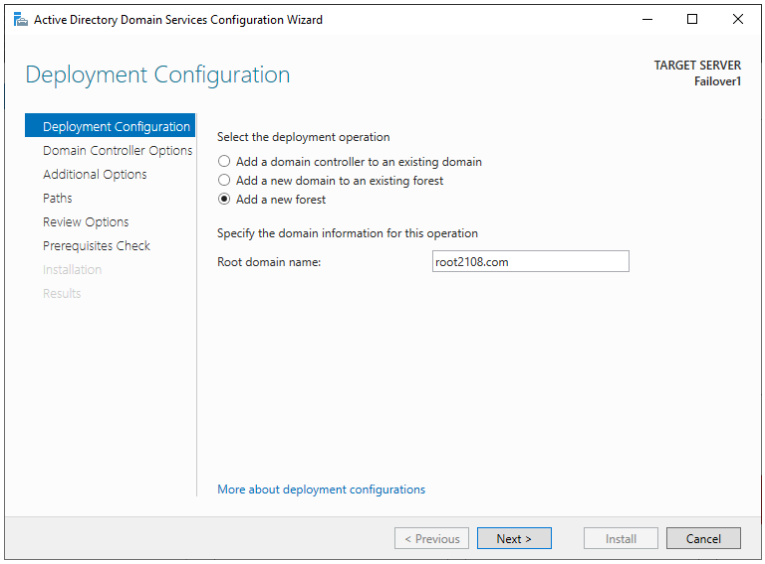


After installation click on close

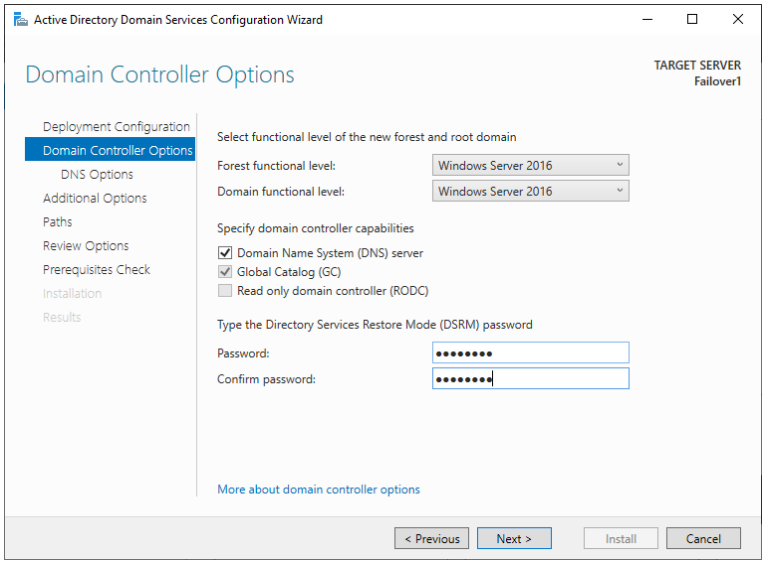
Now click on flag (notification) icon → promote this to server to a domain controller



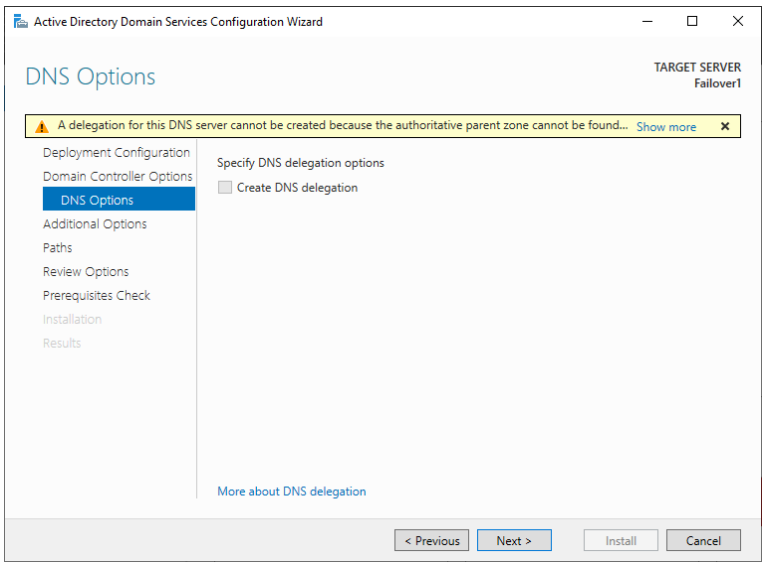
Click on Add a new forest → give root domain name (.com is necessary at the end of the name)



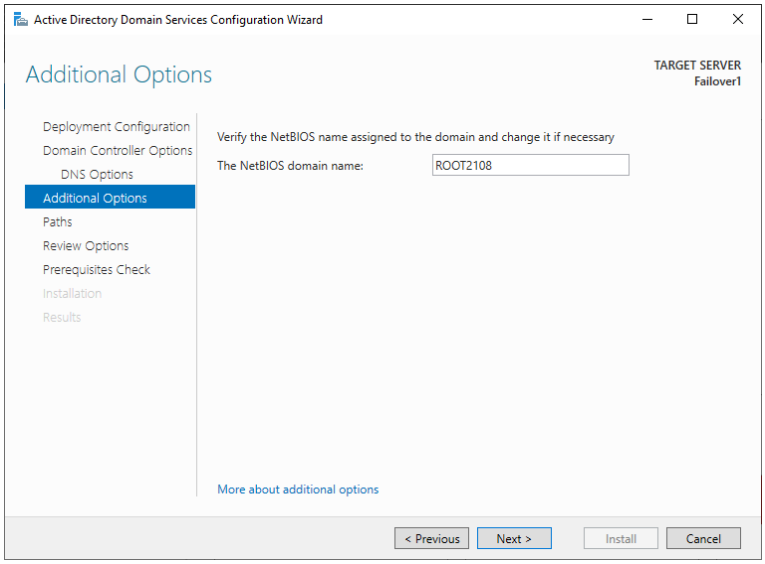
Give password : **root@2108** → next



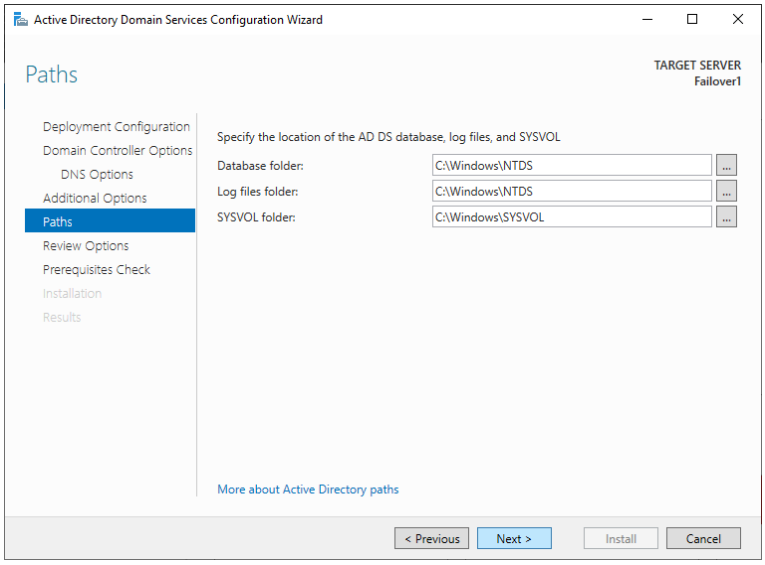
Click on next



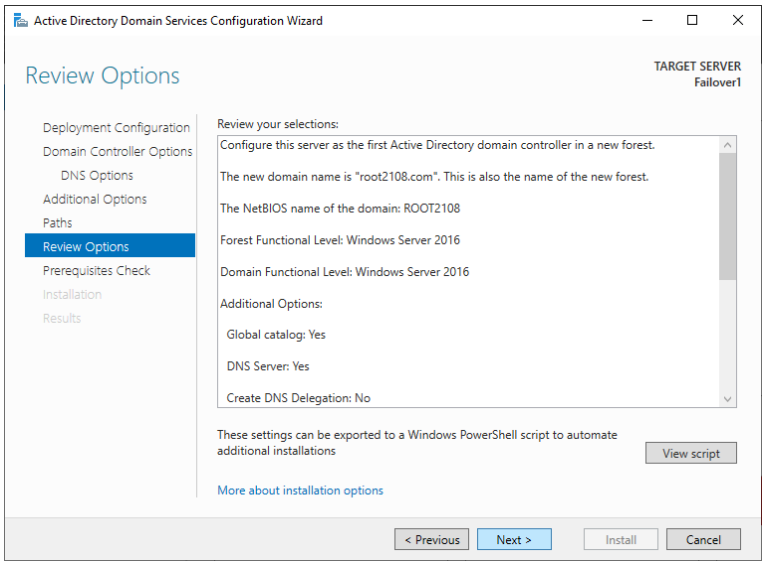
Don’t do anything .. it comes automatically → next



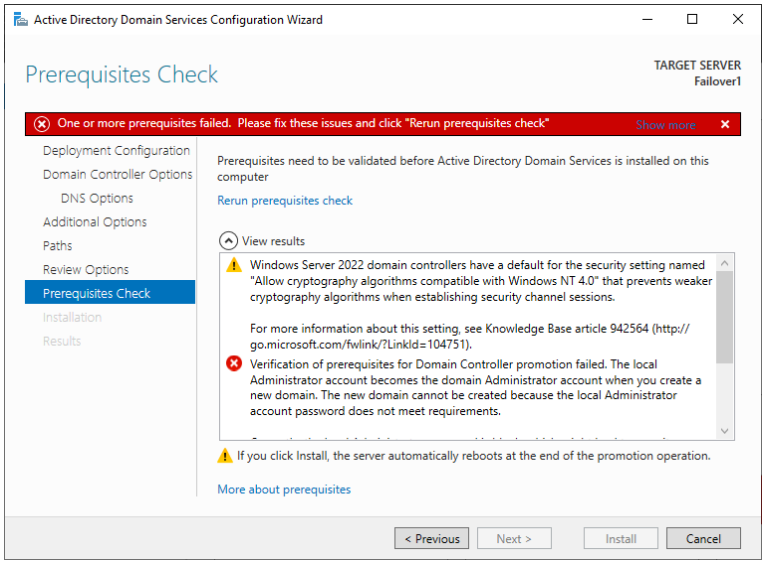
Click on Next



Click on next



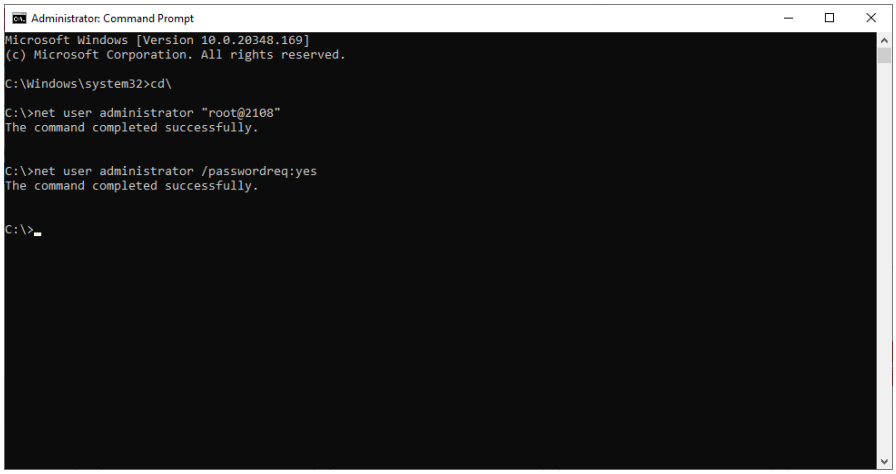
Now it will give u an error



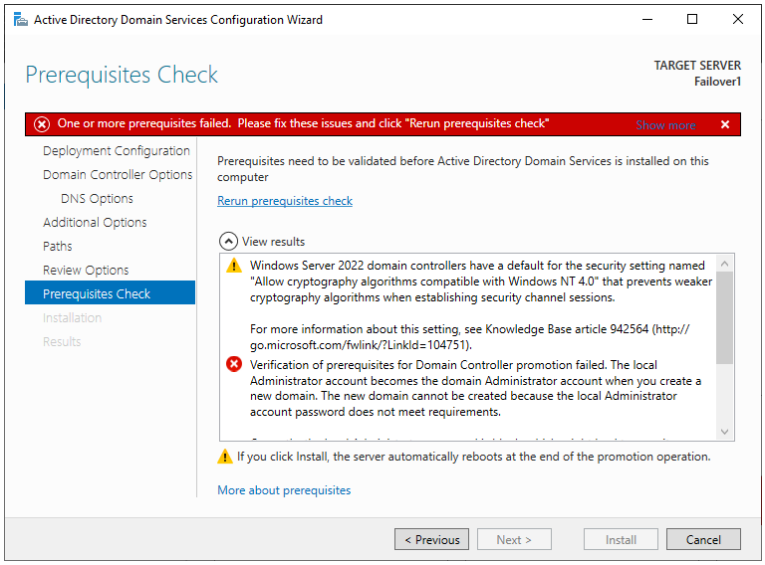
Open cmd → run as administrator → Now type the following commands:-

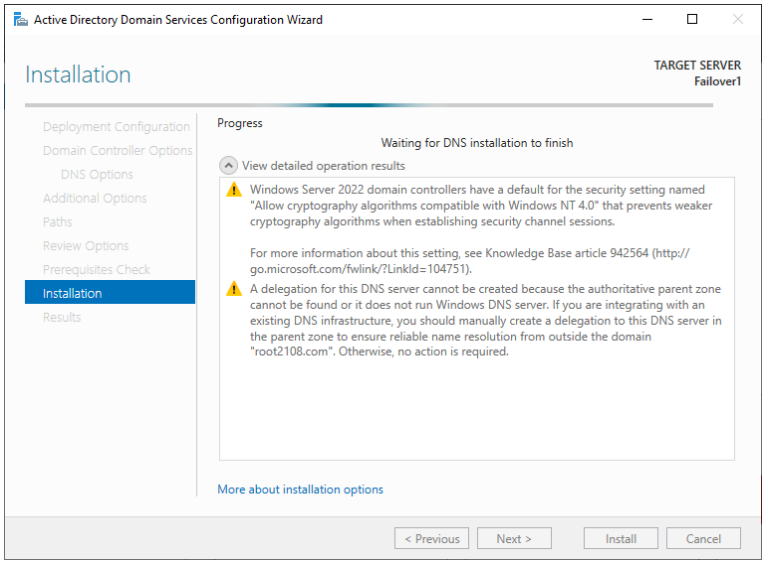
- cd\
- net user administrator "root@2108"
- net user administrator /passwordreq:yes

root@2108 – this is the password u set before

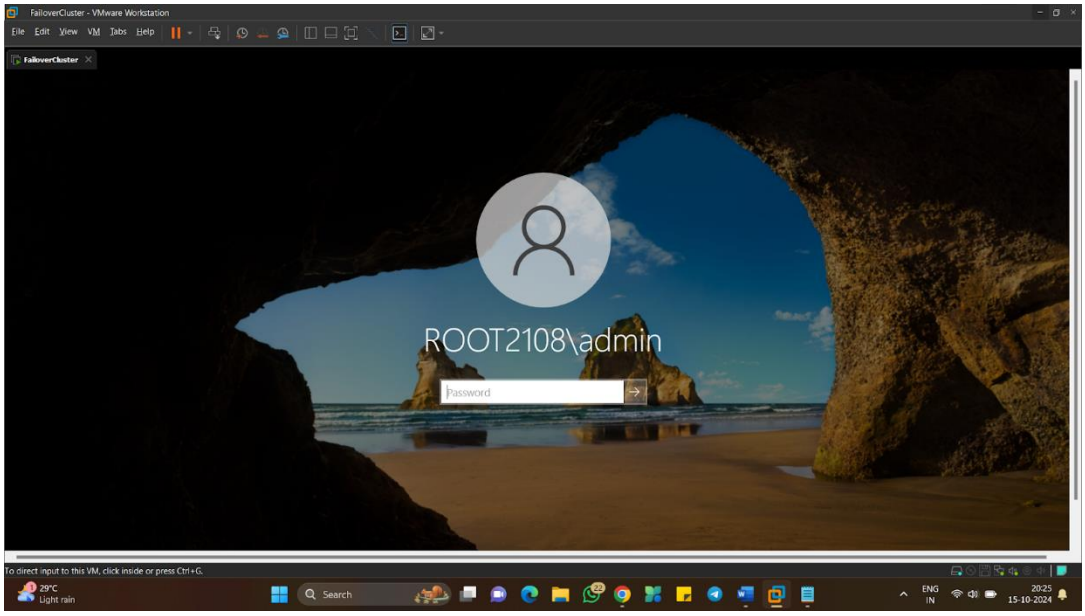


Now click on rerun prerequisites check → install



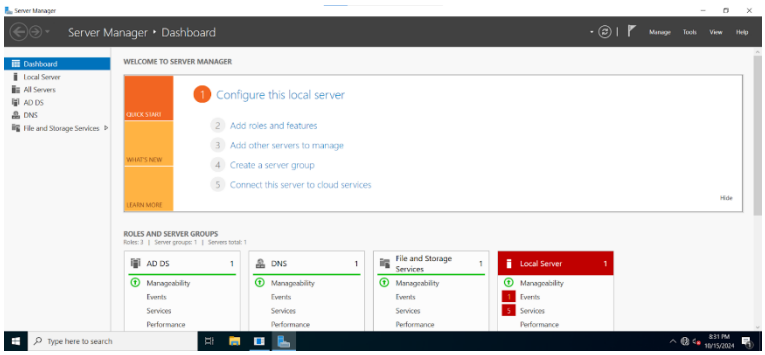


After this the PC will restart

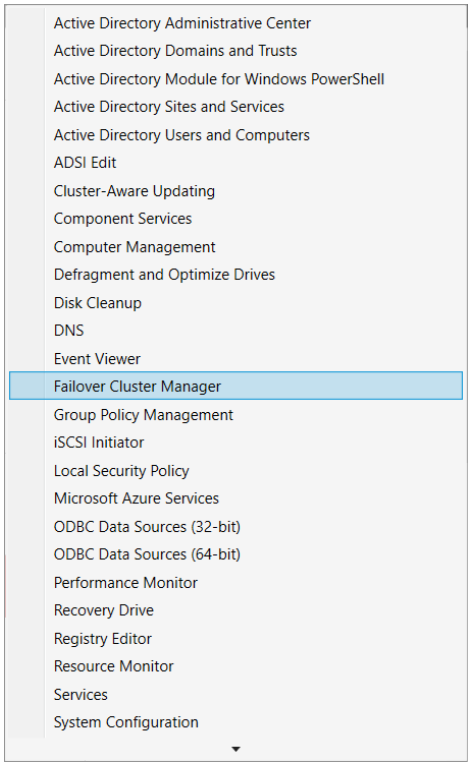


Now enter the password

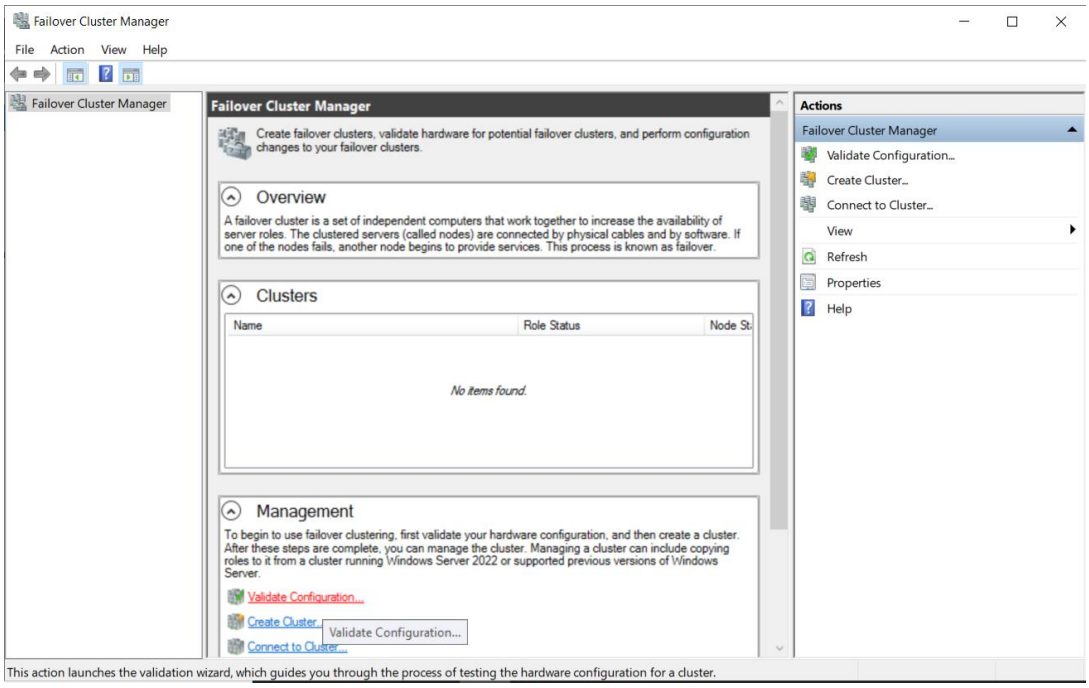
Click on tools



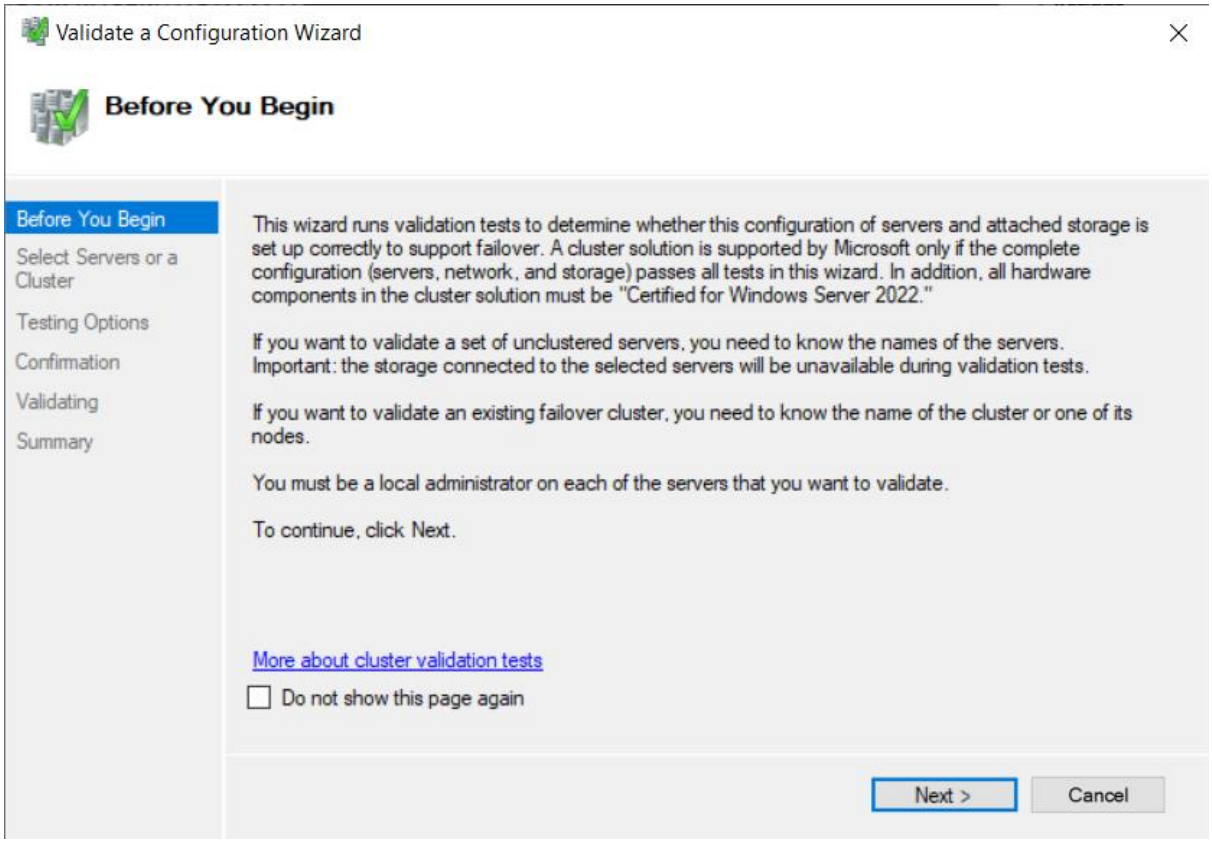
Now click on tools failover cluster manager



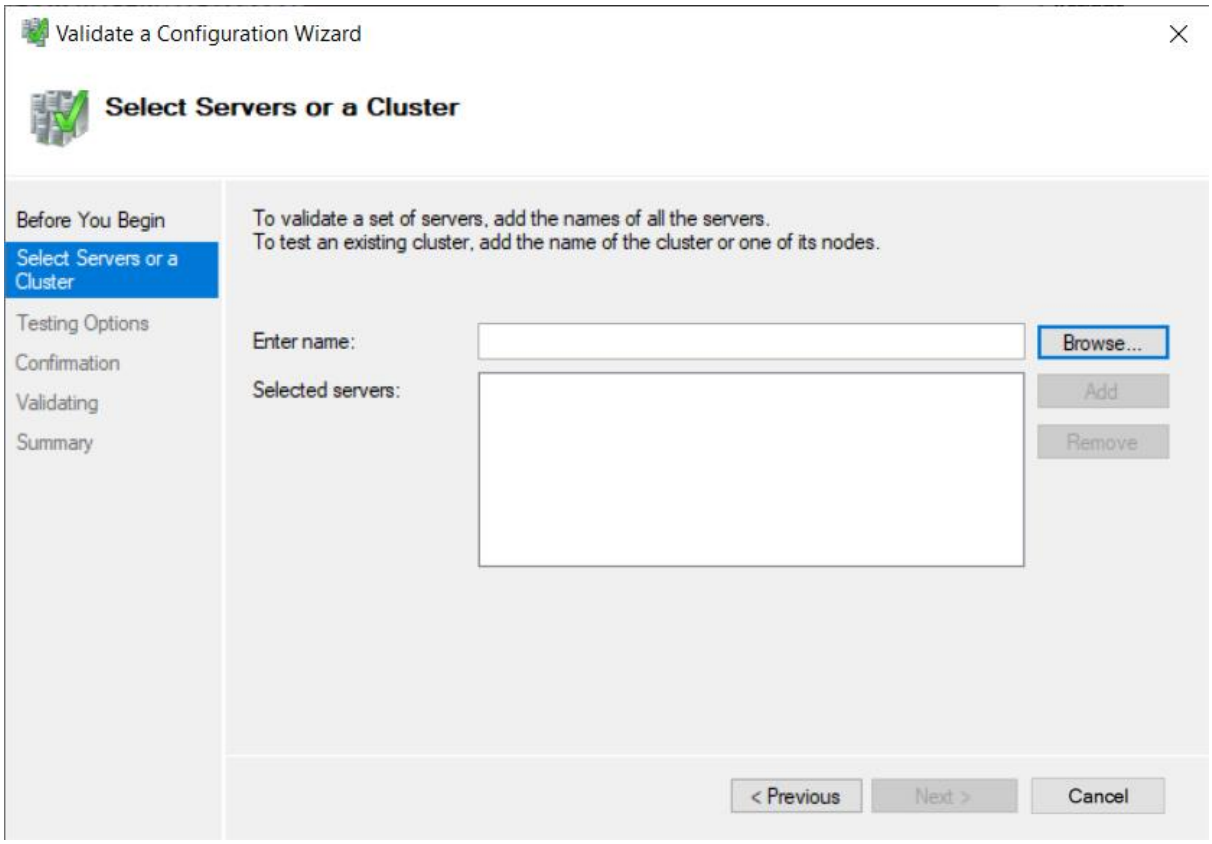
Failover Cluster manager opens → Click on validate configuration

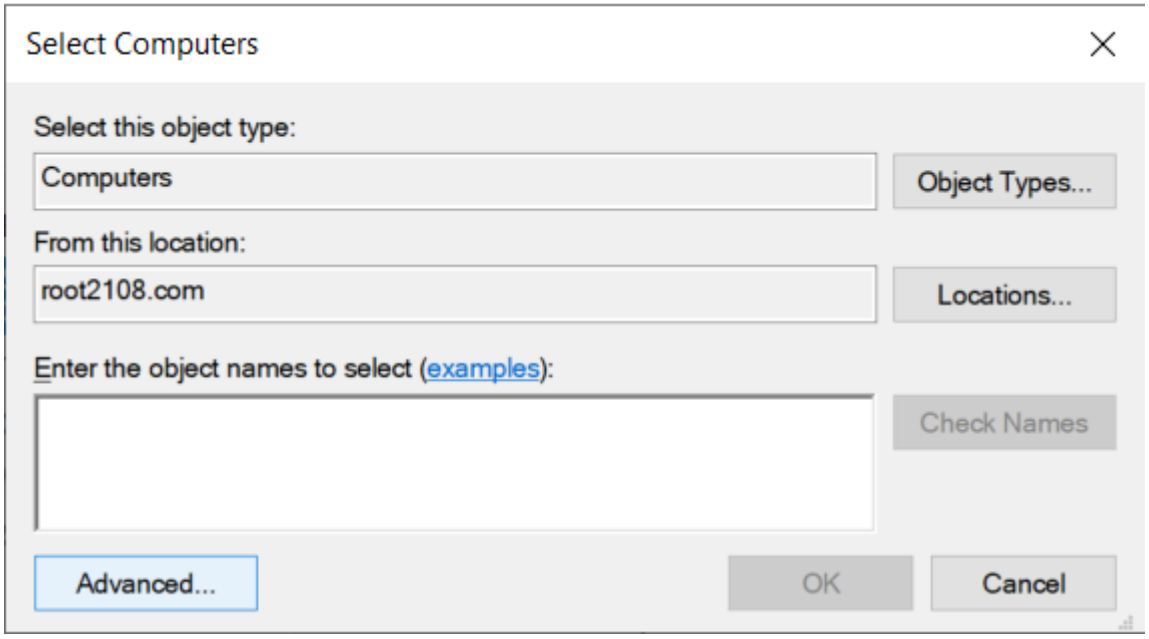


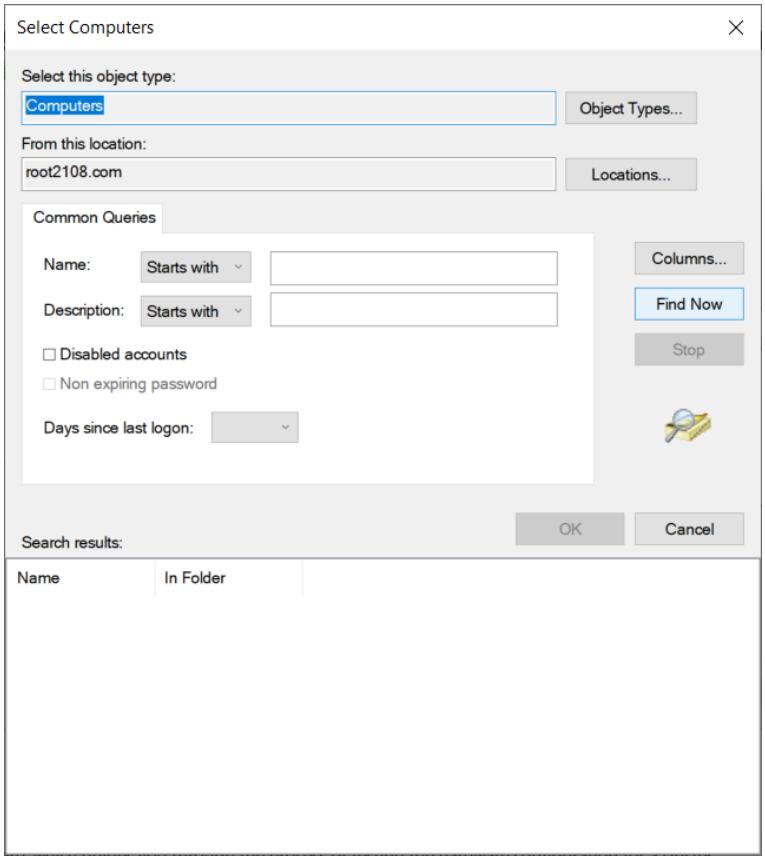
Now click on next

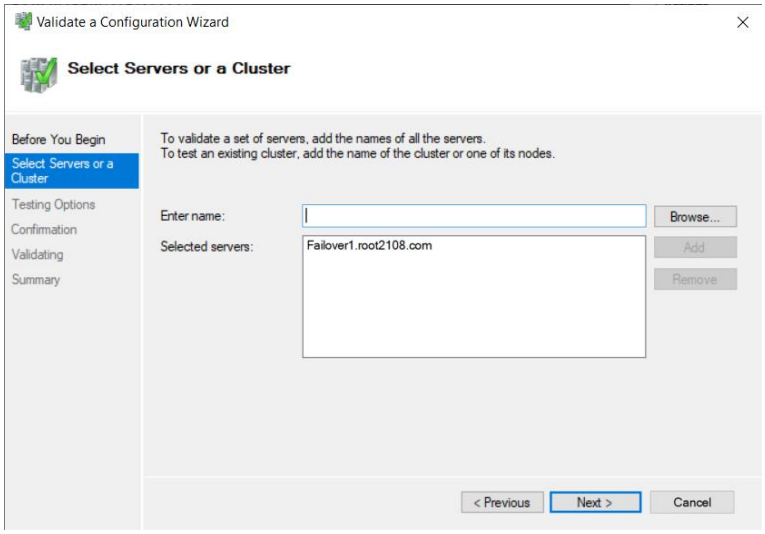


Click on browse →Advanced →Find now →Next

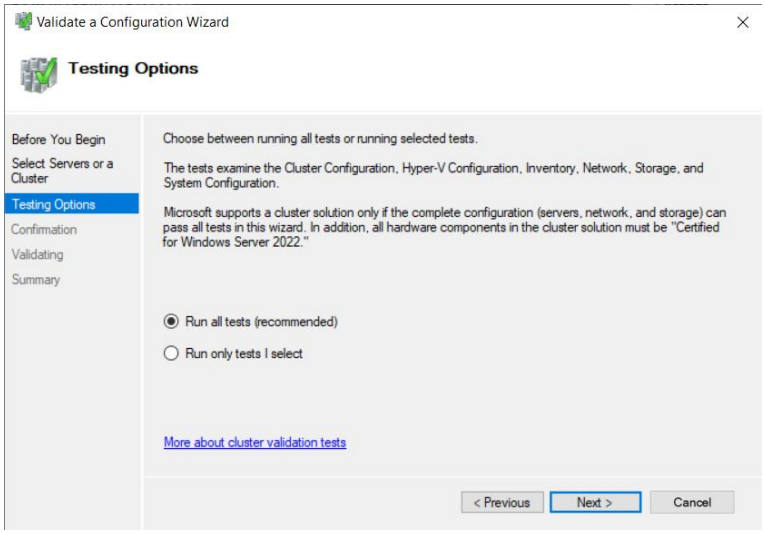



Select Computers
Select this object type:
Computers
Object Types...
From this location:
root2108.com
Locations...
Enter the object names to select (examples):
Check Names
Advanced...
OK
Cancel

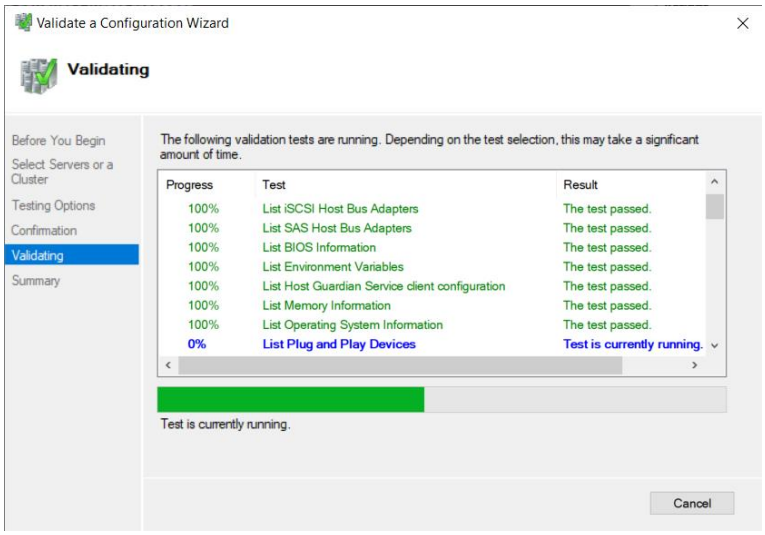

Select Computers
Select this object type:
Computers
Object Types...
From this location:
root2108.com
Locations...
Common Queries
Name:
Starts with
Description:
Starts with
Disabled accounts
Non expiring password
Days since last logon:
Columns...
Find Now
Stop
OK
Cancel
Search results:
Name
In Folder



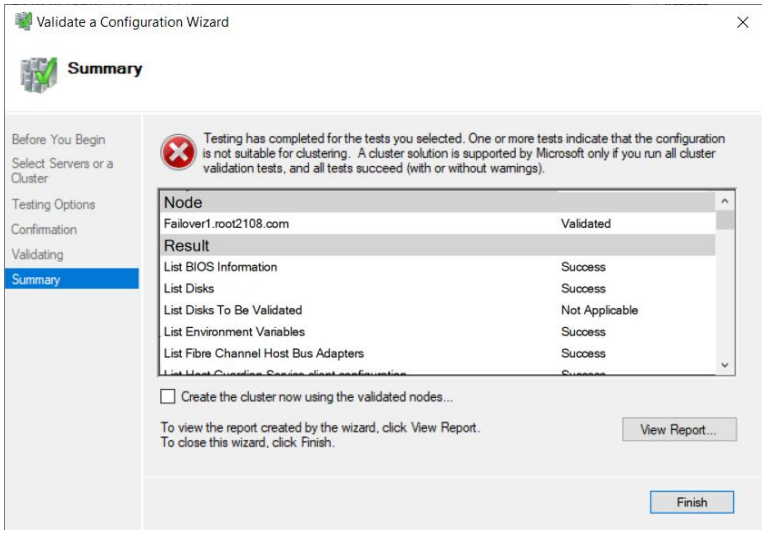
Now run all test



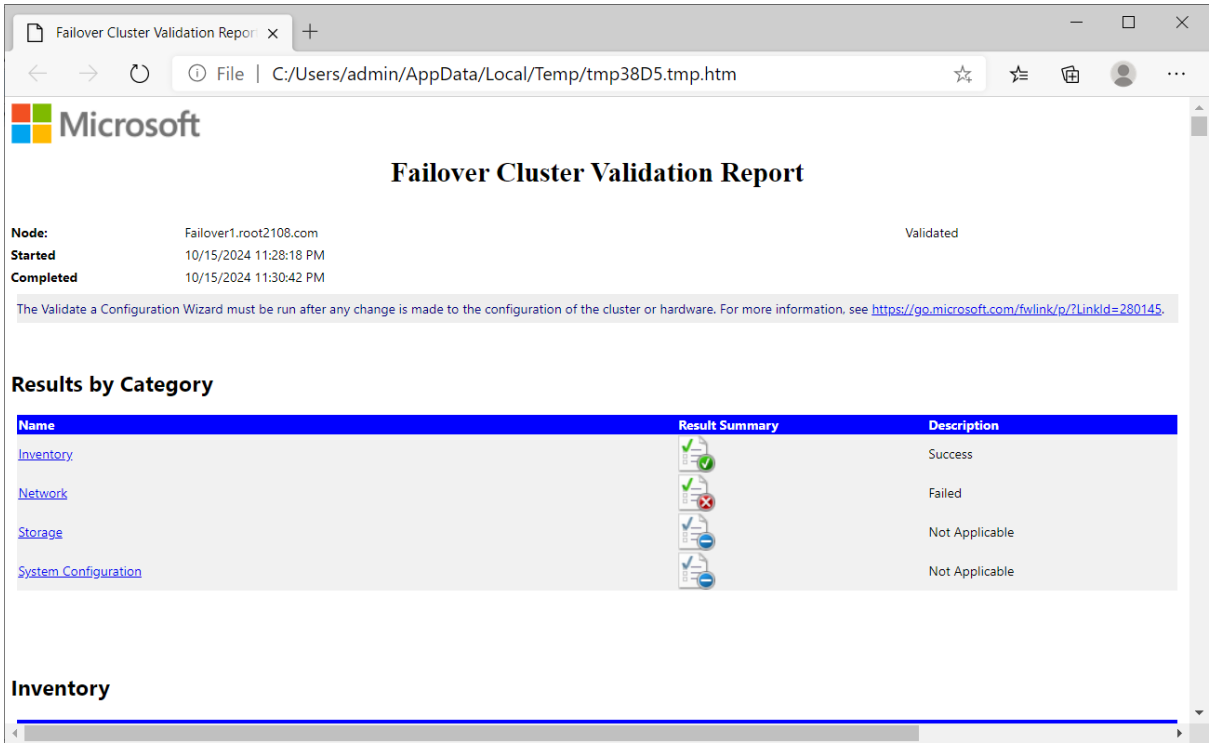
Now click on next



Now click on view report



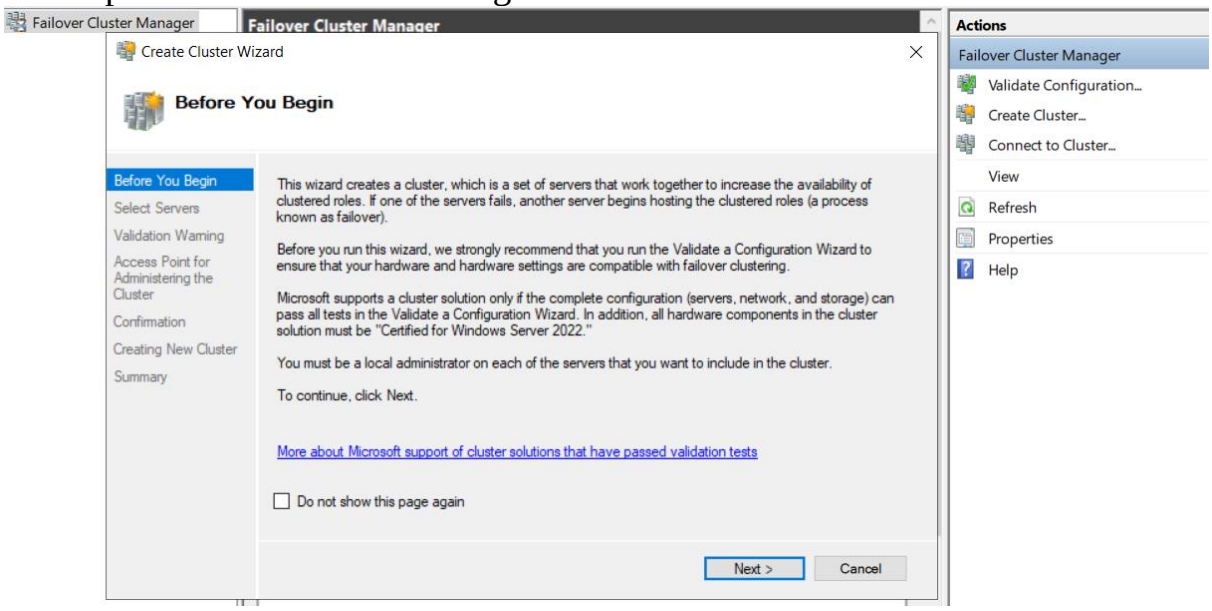
Then it will display the following page



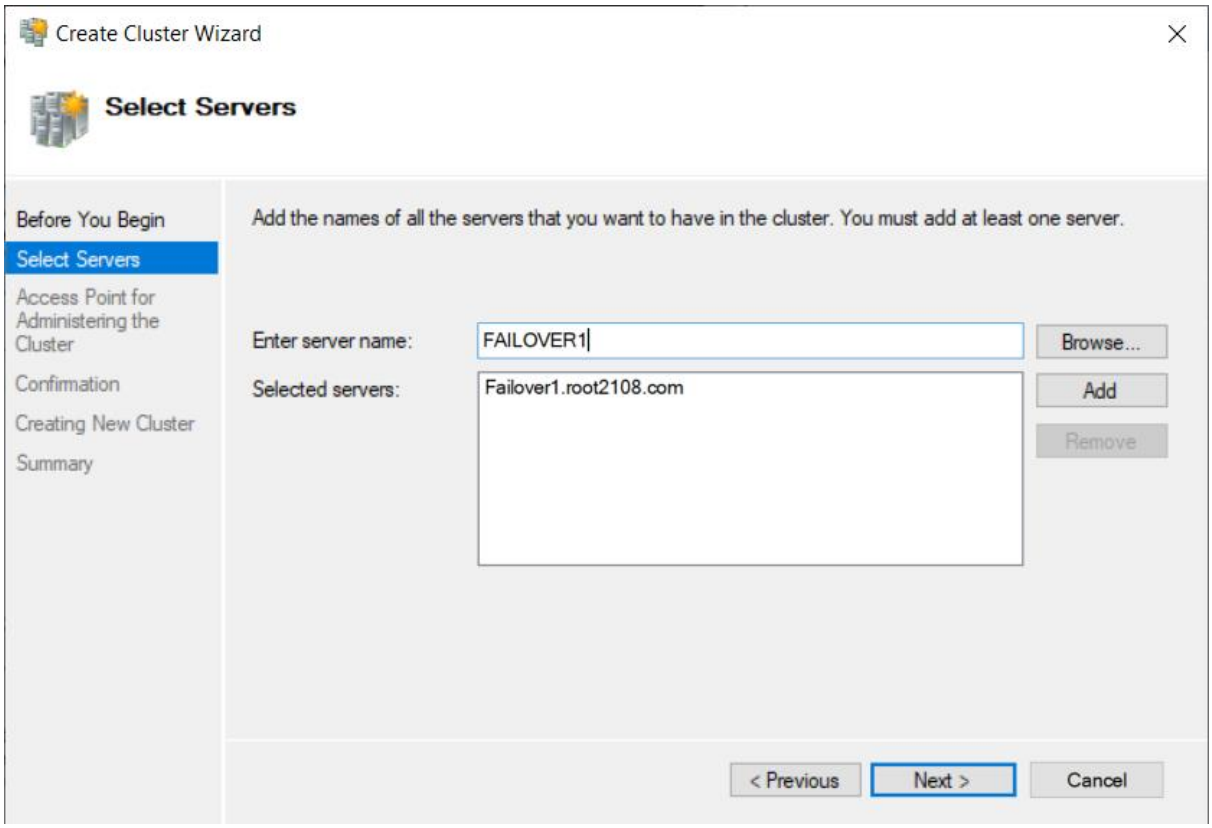
After viewing the report click on finish

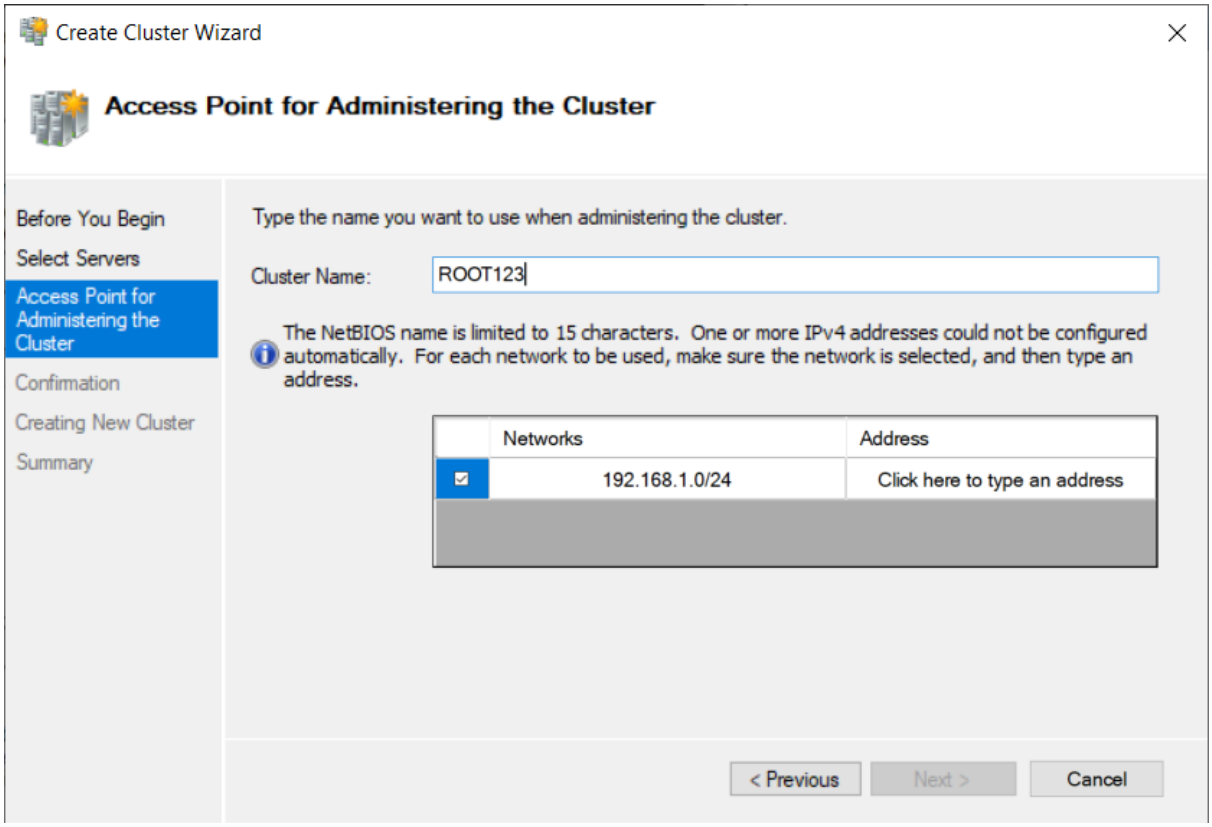
Creating Cluster

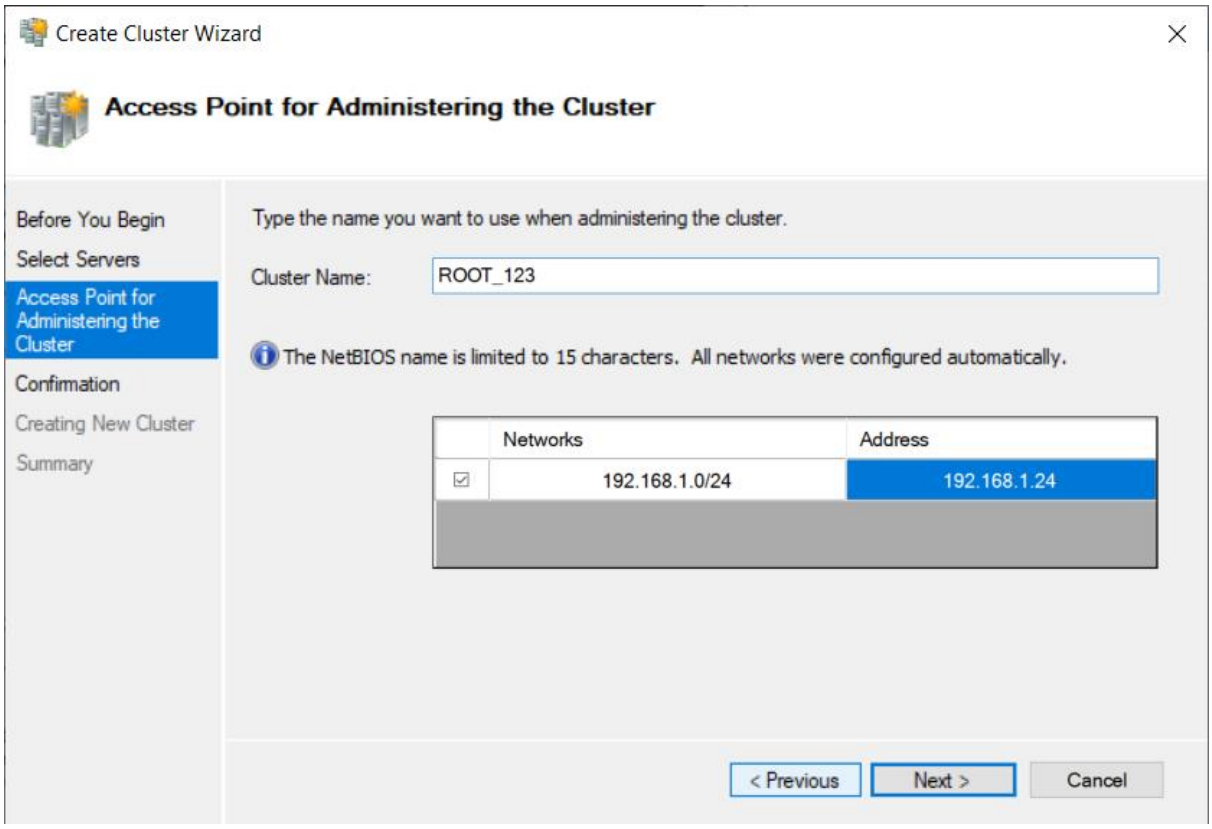
Now open failover cluster manager → Create Cluster → next

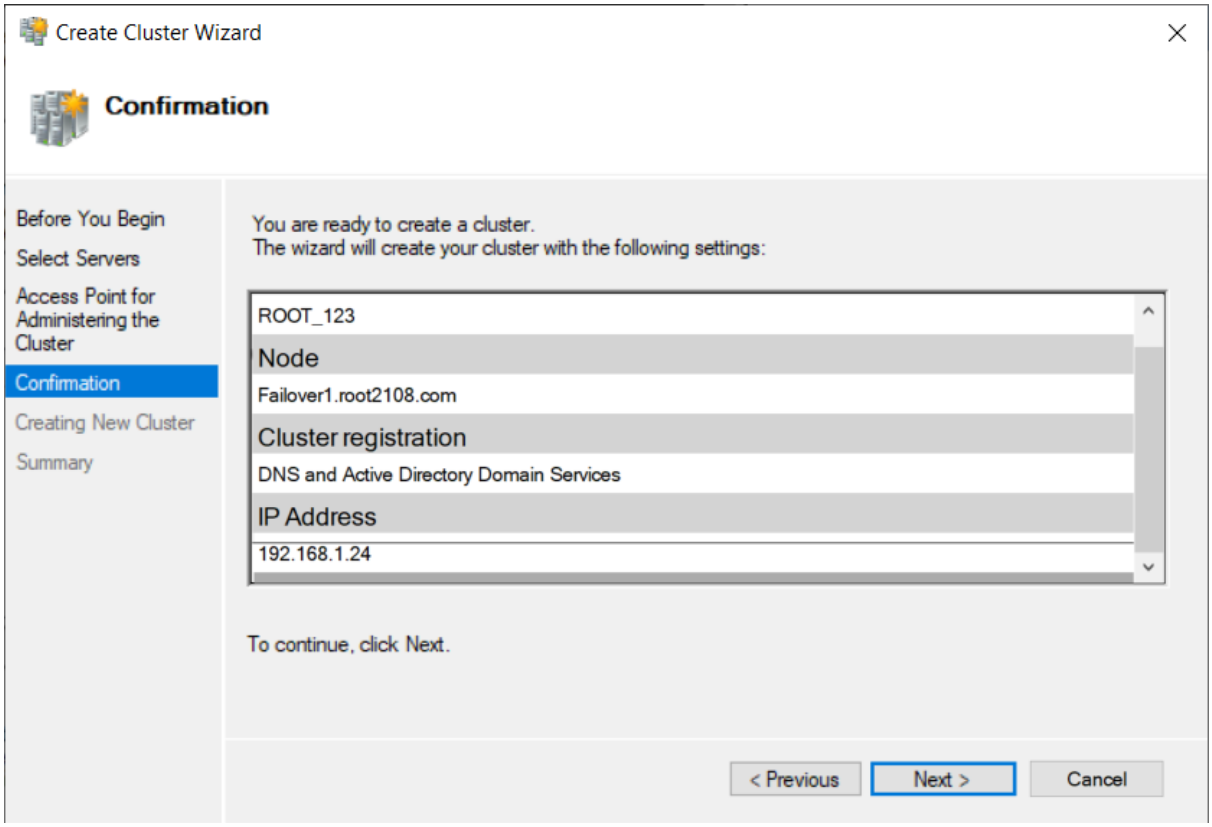


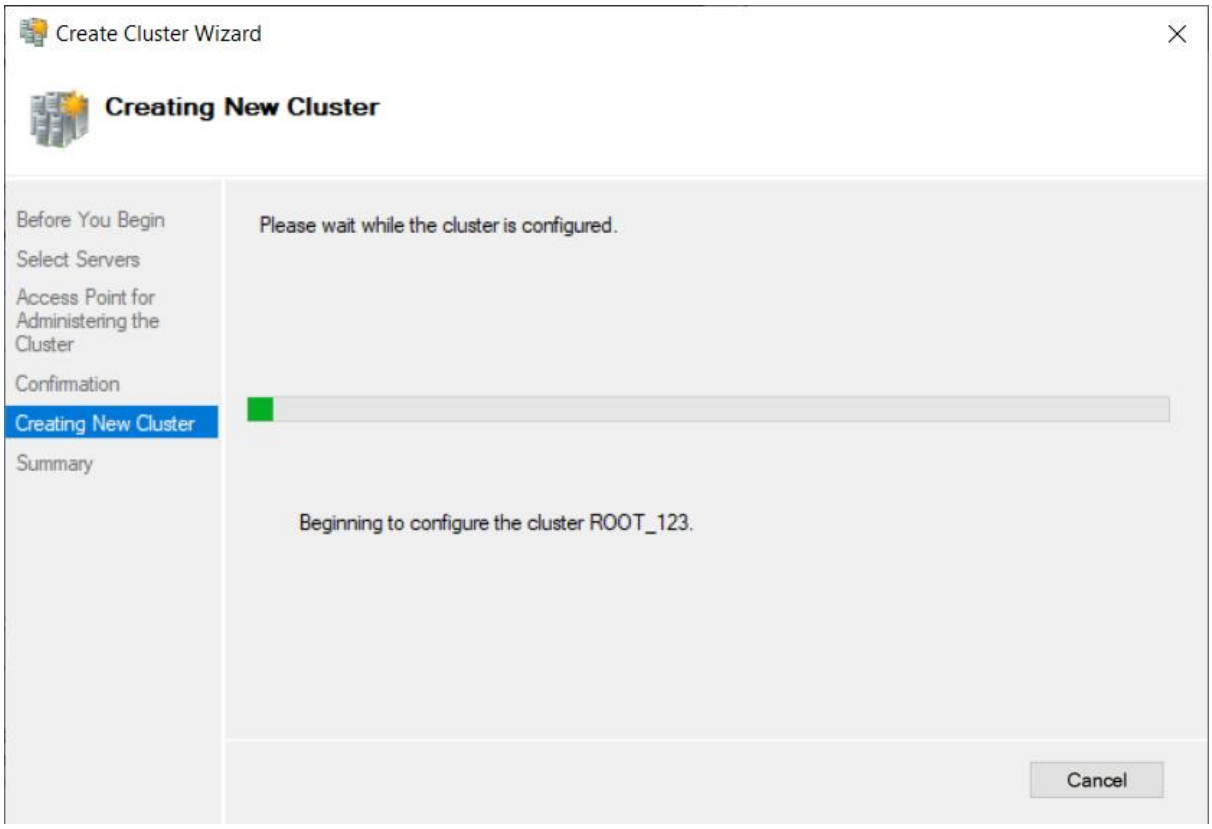
Click on browse →Advanced →Find now →Next

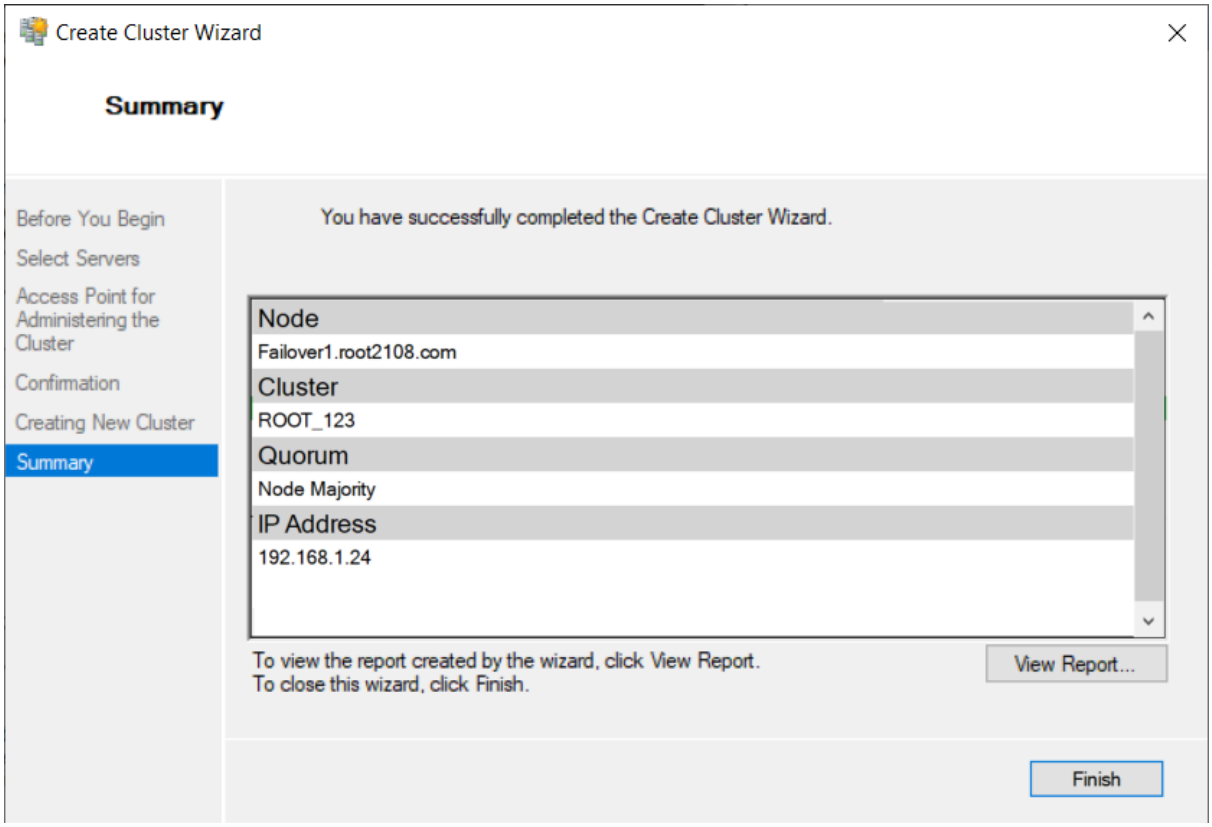


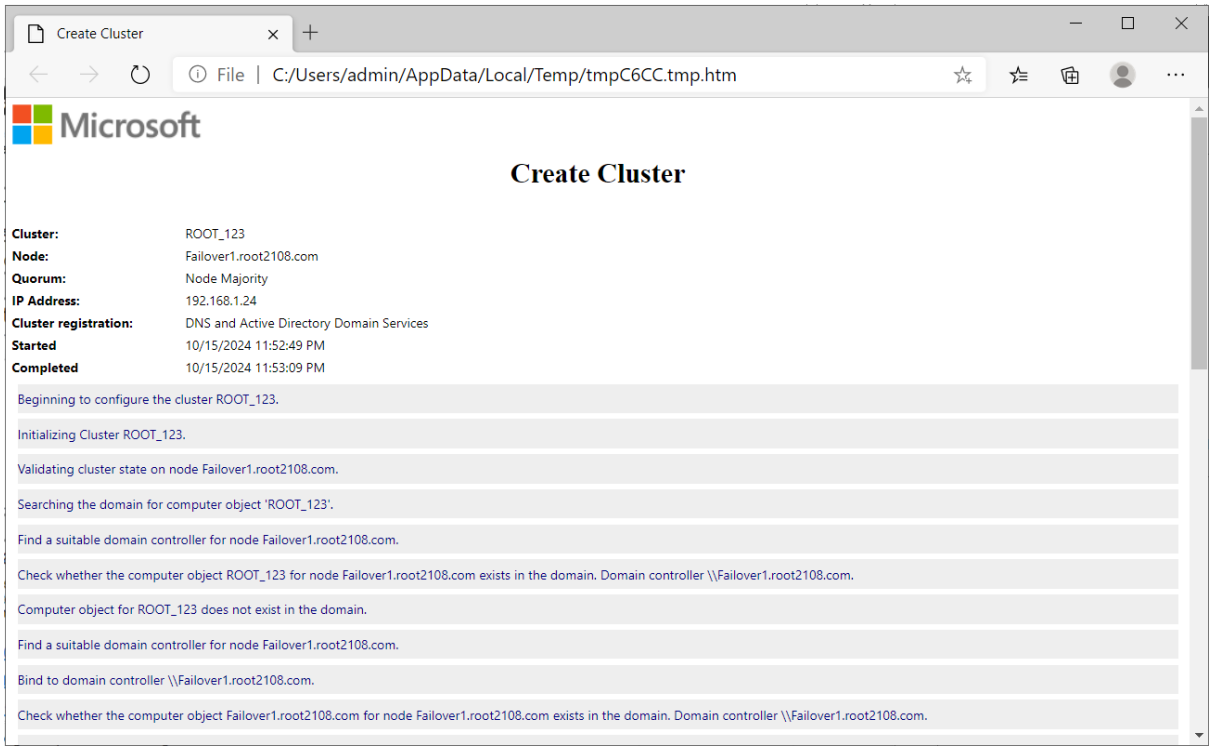

Create Cluster Wizard
Access Point for Administering the Cluster
Before You Begin
Select Servers
Access Point for Administering the Cluster
Confirmation
Creating New Cluster
Summary
Type the name you want to use when administering the cluster.
Cluster Name:
ROOT123
The NetBIOS name is limited to 15 characters. One or more IPv4 addresses could not be configured automatically. For each network to be used, make sure the network is selected, and then type an address.
Networks
Address
192.168.1.0/24
Click here to type an address
< Previous
Next >
Cancel


Create Cluster Wizard
Access Point for Administering the Cluster
Before You Begin
Select Servers
Access Point for Administering the Cluster
Confirmation
Creating New Cluster
Summary
Type the name you want to use when administering the cluster.
Cluster Name:
ROOT_123
The NetBIOS name is limited to 15 characters. All networks were configured automatically.
Networks
Address
192.168.1.0/24
192.168.1.24
< Previous
Next >
Cancel


Create Cluster Wizard
Confirmation
Before You Begin
Select Servers
Access Point for Administering the Cluster
Confirmation
Creating New Cluster
Summary
You are ready to create a cluster.
The wizard will create your cluster with the following settings:
ROOT_123
Node
Failover1.root2108.com
Cluster registration
DNS and Active Directory Domain Services
IP Address
192.168.1.24
To continue, click Next.
< Previous
Next >
Cancel


Create Cluster Wizard
Creating New Cluster
Before You Begin
Select Servers
Access Point for Administering the Cluster
Confirmation
Creating New Cluster
Summary
Please wait while the cluster is configured.
Beginning to configure the cluster ROOT_123.
Cancel


Create Cluster Wizard
Summary
Before You Begin
Select Servers
Access Point for Administering the Cluster
Confirmation
Creating New Cluster
Summary
You have successfully completed the Create Cluster Wizard.
Node
Failover1.root2108.com
Cluster
ROOT_123
Quorum
Node Majority
IP Address
192.168.1.24
To view the report created by the wizard, click View Report.
To close this wizard, click Finish.
View Report...
Finish


Create Cluster
File | C:/Users/admin/AppData/Local/Temp/tmpC6CC.tmp.htm
Microsoft
Create Cluster
Cluster: ROOT_123
Node: Failover1.root2108.com
Quorum: Node Majority
IP Address: 192.168.1.24
Cluster registration: DNS and Active Directory Domain Services
Started 10/15/2024 11:52:49 PM
Completed 10/15/2024 11:53:09 PM
Beginning to configure the cluster ROOT_123.
Initializing Cluster ROOT_123.
Validating cluster state on node Failover1.root2108.com.
Searching the domain for computer object 'ROOT_123'.
Find a suitable domain controller for node Failover1.root2108.com.
Check whether the computer object ROOT_123 for node Failover1.root2108.com exists in the domain. Domain controller \\Failover1.root2108.com.
Computer object for ROOT_123 does not exist in the domain.
Find a suitable domain controller for node Failover1.root2108.com.
Bind to domain controller \\Failover1.root2108.com.
Check whether the computer object Failover1.root2108.com for node Failover1.root2108.com exists in the domain. Domain controller \\Failover1.root2108.com.

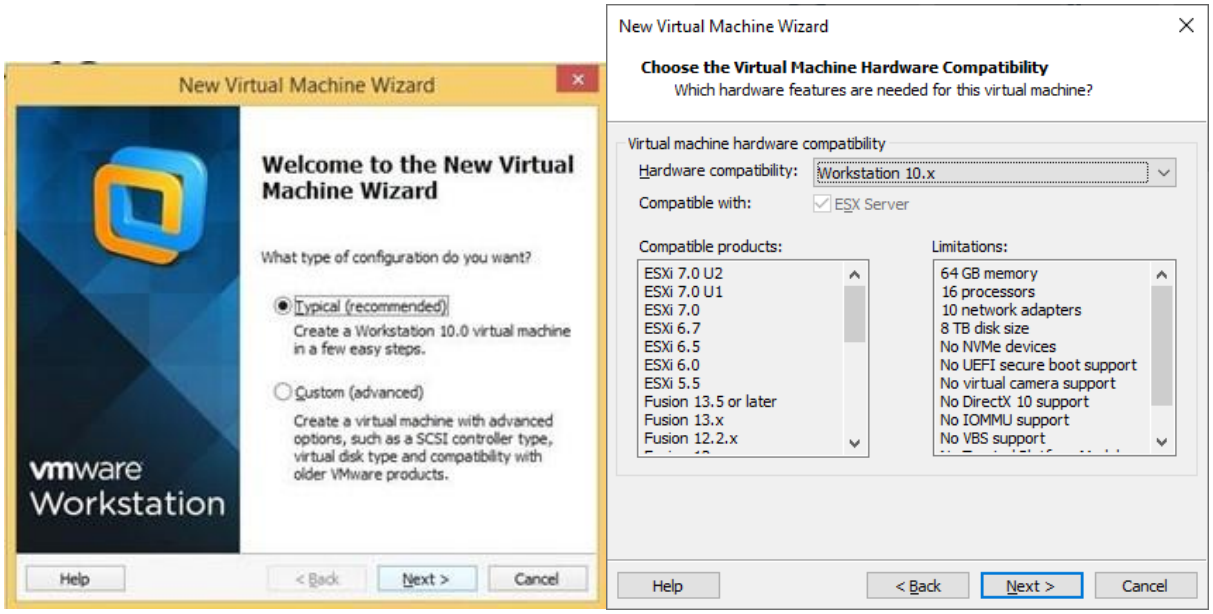
PRACTICAL 2

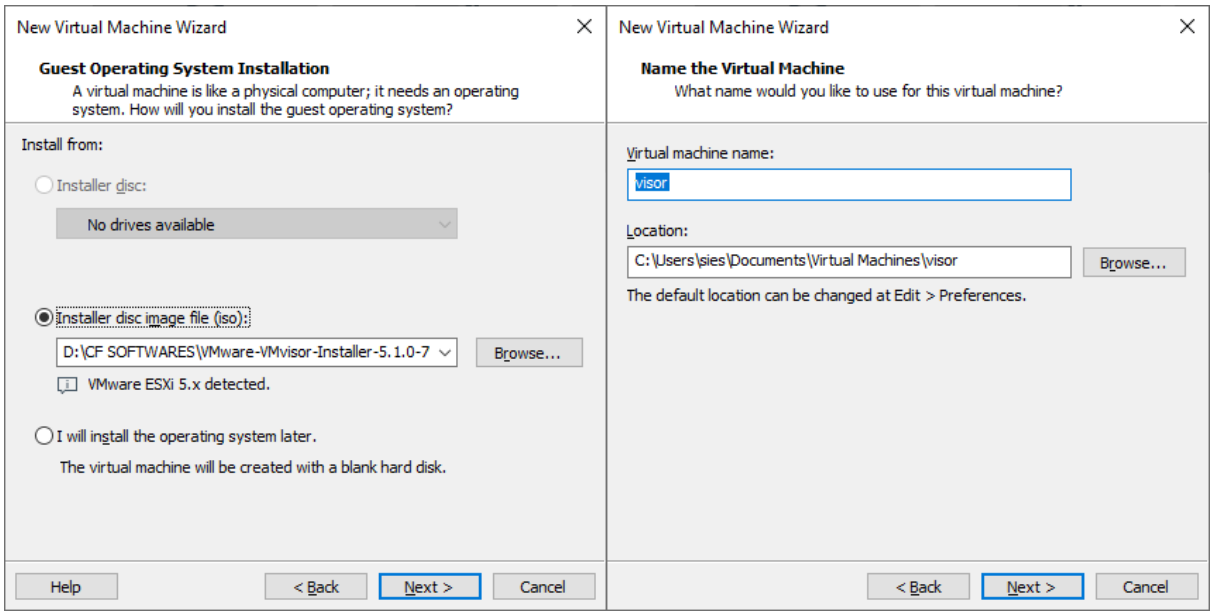
Aim :- Implement VMware ESXi Server with VSphere Client

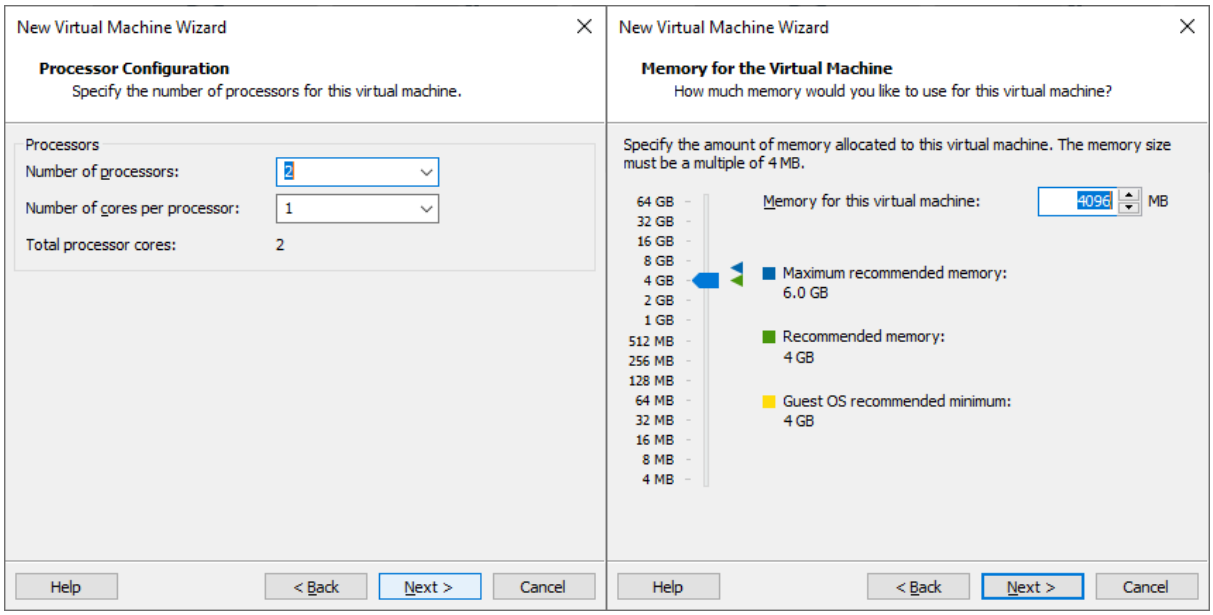
File:- VMware-VMvisor-installer-5.1.0.....iso

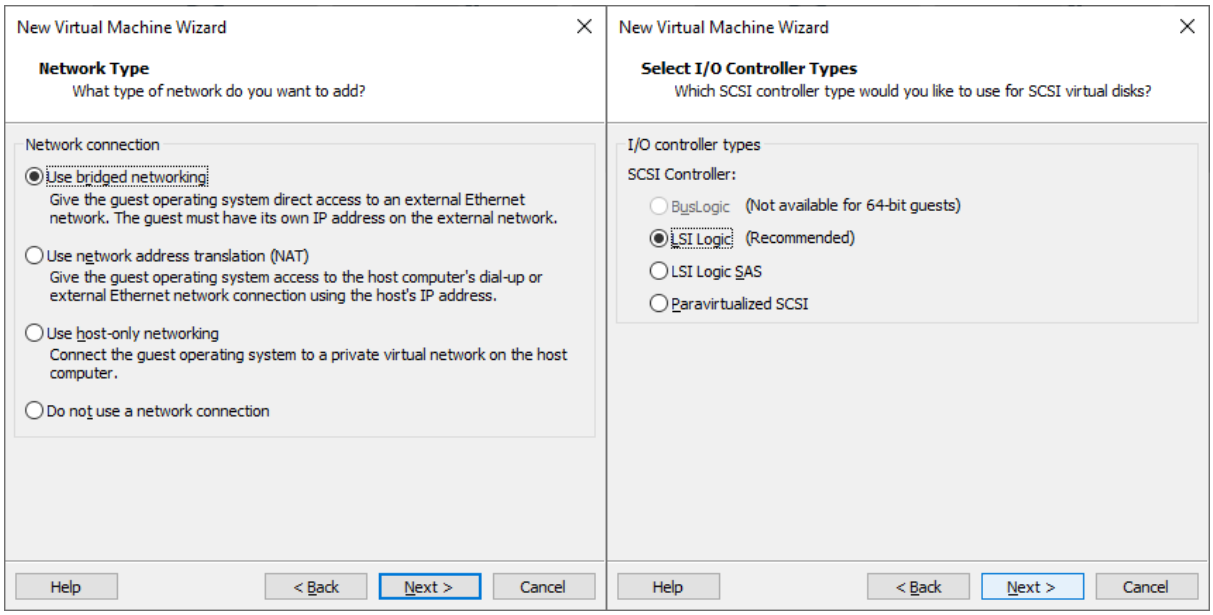
Step:-

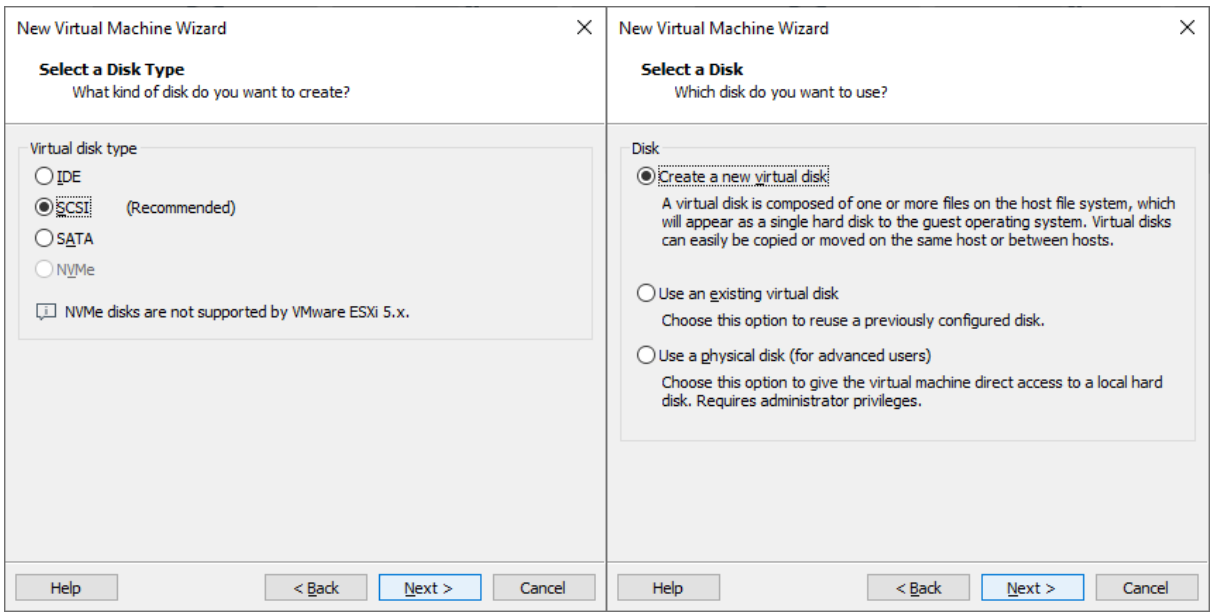
Create a new VM

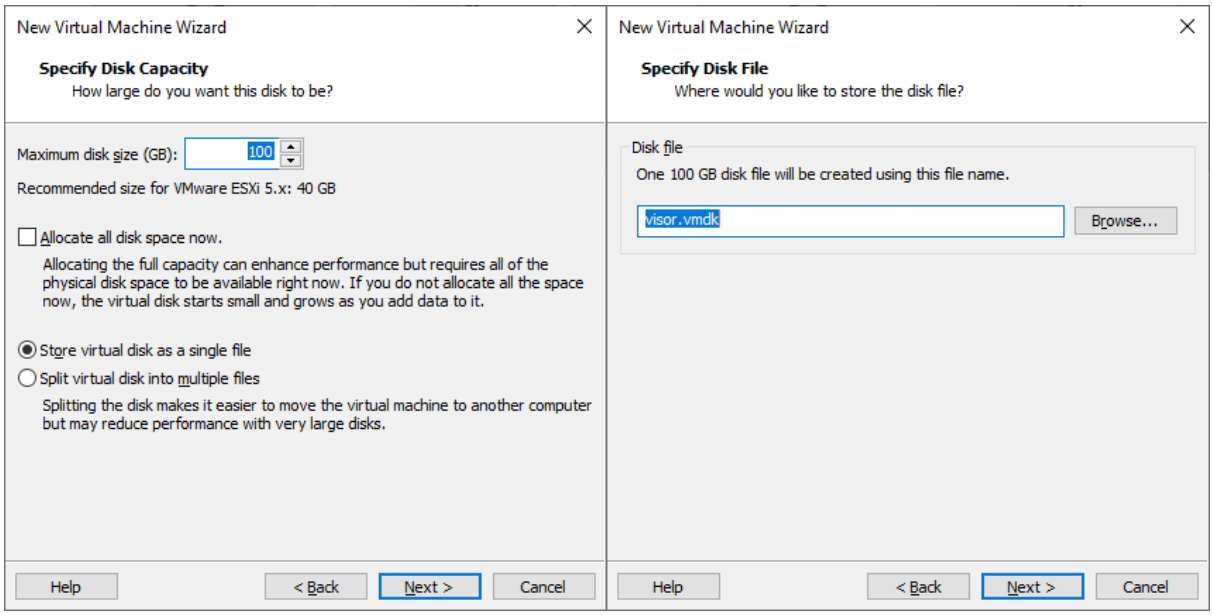


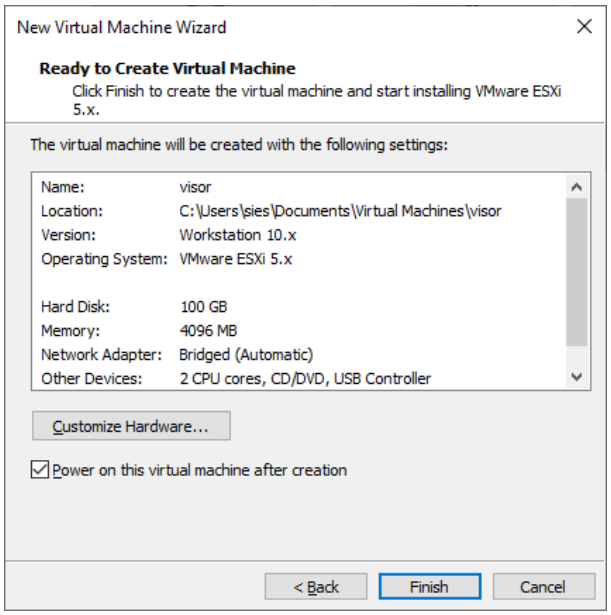



New Virtual Machine Wizard
Processor Configuration
Specify the number of processors for this virtual machine.
Processors
Number of processors: 2
Number of cores per processor: 1
Total processor cores: 2
Help
< Back
Next >
Cancel
New Virtual Machine Wizard
Memory for the Virtual Machine
How much memory would you like to use for this virtual machine?
Specify the amount of memory allocated to this virtual machine. The memory size must be a multiple of 4 MB.
64 GB
32 GB
16 GB
8 GB
4 GB
2 GB
1 GB
512 MB
256 MB
128 MB
64 MB
32 MB
16 MB
8 MB
4 MB
Memory for this virtual machine: 4096 MB
Maximum recommended memory: 6.0 GB
Recommended memory: 4 GB
Guest OS recommended minimum: 4 GB
Help
< Back
Next >
Cancel

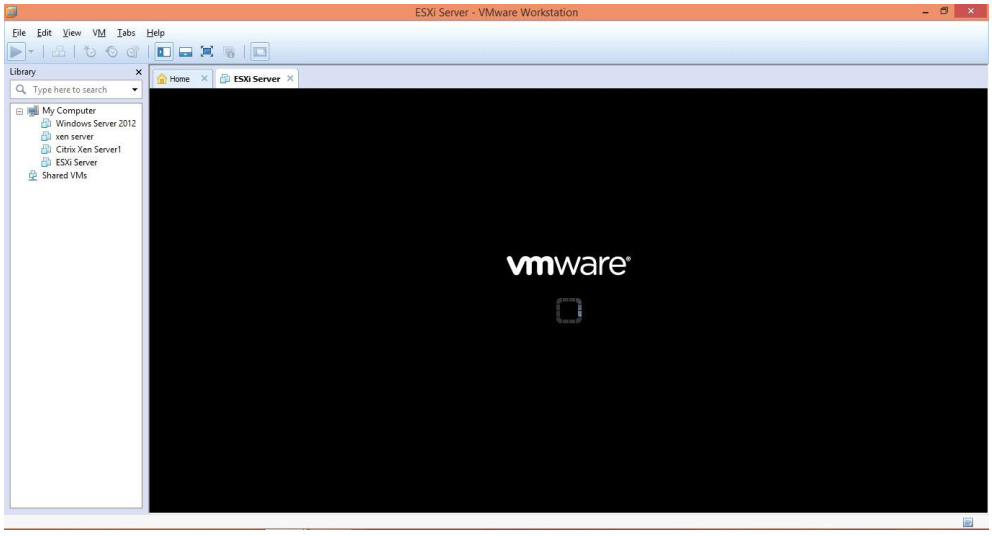

New Virtual Machine Wizard
Network Type
What type of network do you want to add?
Network connection
Use bridged networking
Give the guest operating system direct access to an external Ethernet network. The guest must have its own IP address on the external network.
Use network address translation (NAT)
Give the guest operating system access to the host computer's dial-up or external Ethernet network connection using the host's IP address.
Use host-only networking
Connect the guest operating system to a private virtual network on the host computer.
Do not use a network connection
Help
< Back
Next >
Cancel
New Virtual Machine Wizard
Select I/O Controller Types
Which SCSI controller type would you like to use for SCSI virtual disks?
I/O controller types
SCSI Controller:
BusLogic (Not available for 64-bit guests)
LSI Logic (Recommended)
LSI Logic SAS
Paravirtualized SCSI
Help
< Back
Next >
Cancel


New Virtual Machine Wizard
Select a Disk Type
What kind of disk do you want to create?
Virtual disk type
IDE
SCSI (Recommended)
SATA
NVMe
NVMe disks are not supported by VMware ESXi 5.x.
Help
< Back
Next >
Cancel
New Virtual Machine Wizard
Select a Disk
Which disk do you want to use?
Disk
Create a new virtual disk
A virtual disk is composed of one or more files on the host file system, which will appear as a single hard disk to the guest operating system. Virtual disks can easily be copied or moved on the same host or between hosts.
Use an existing virtual disk
Choose this option to reuse a previously configured disk.
Use a physical disk (for advanced users)
Choose this option to give the virtual machine direct access to a local hard disk. Requires administrator privileges.
Help
< Back
Next >
Cancel

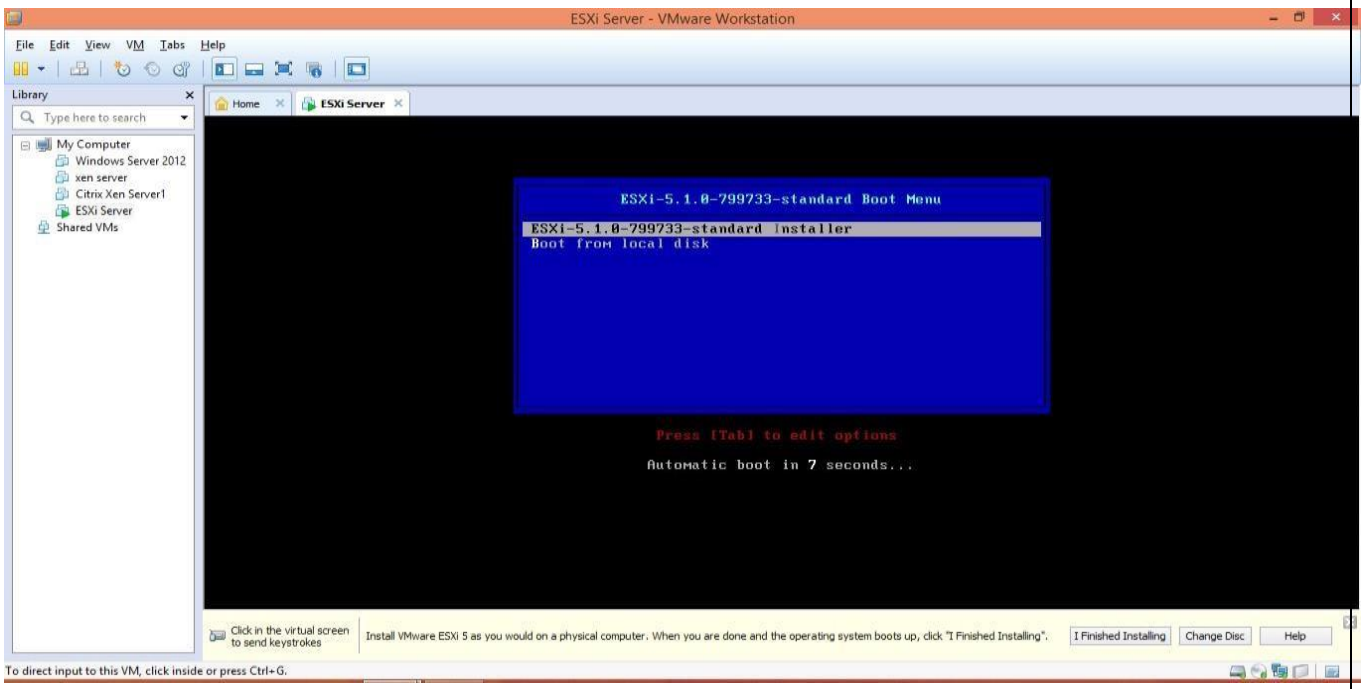


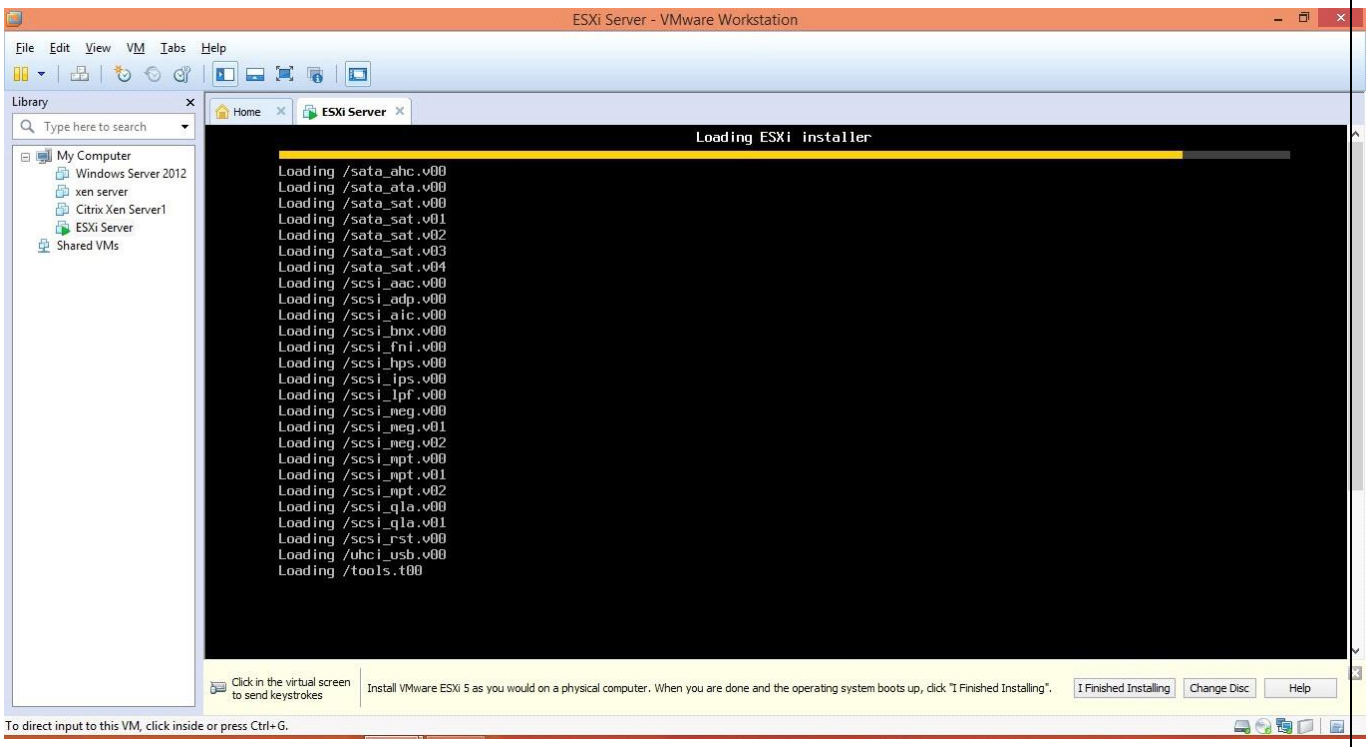


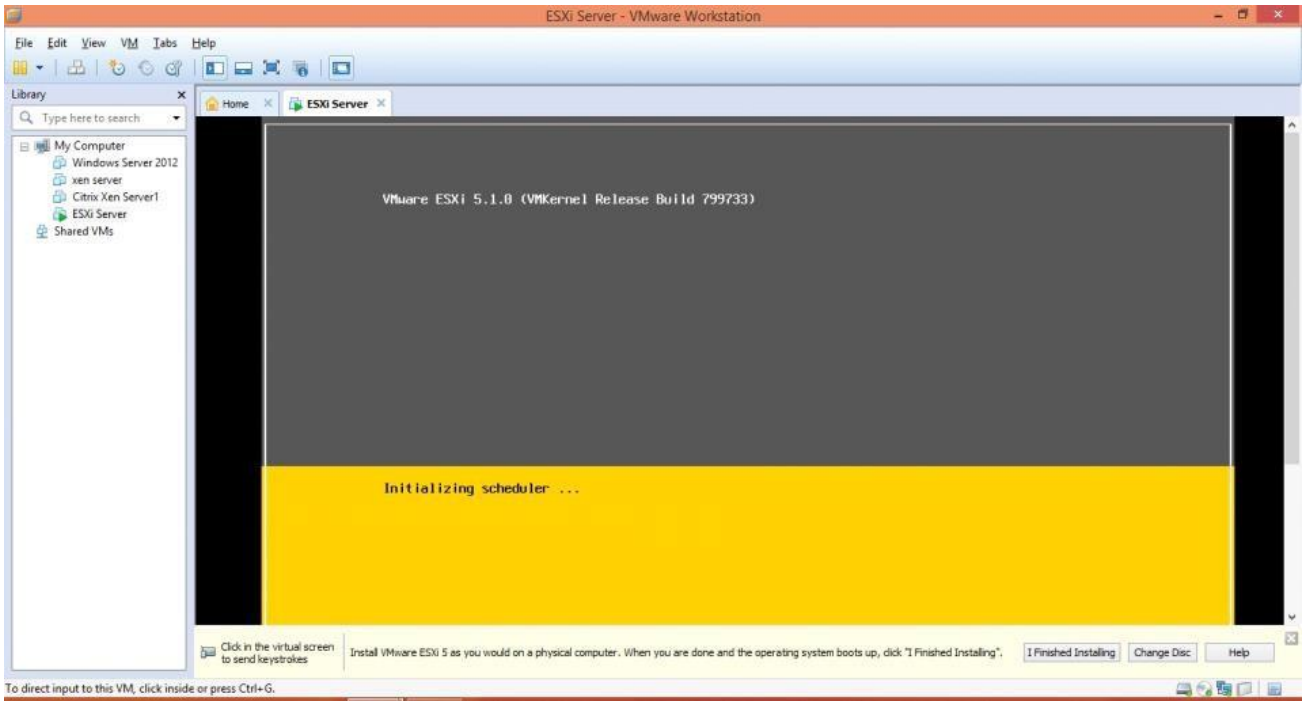
At the final window click on “Finish” button.

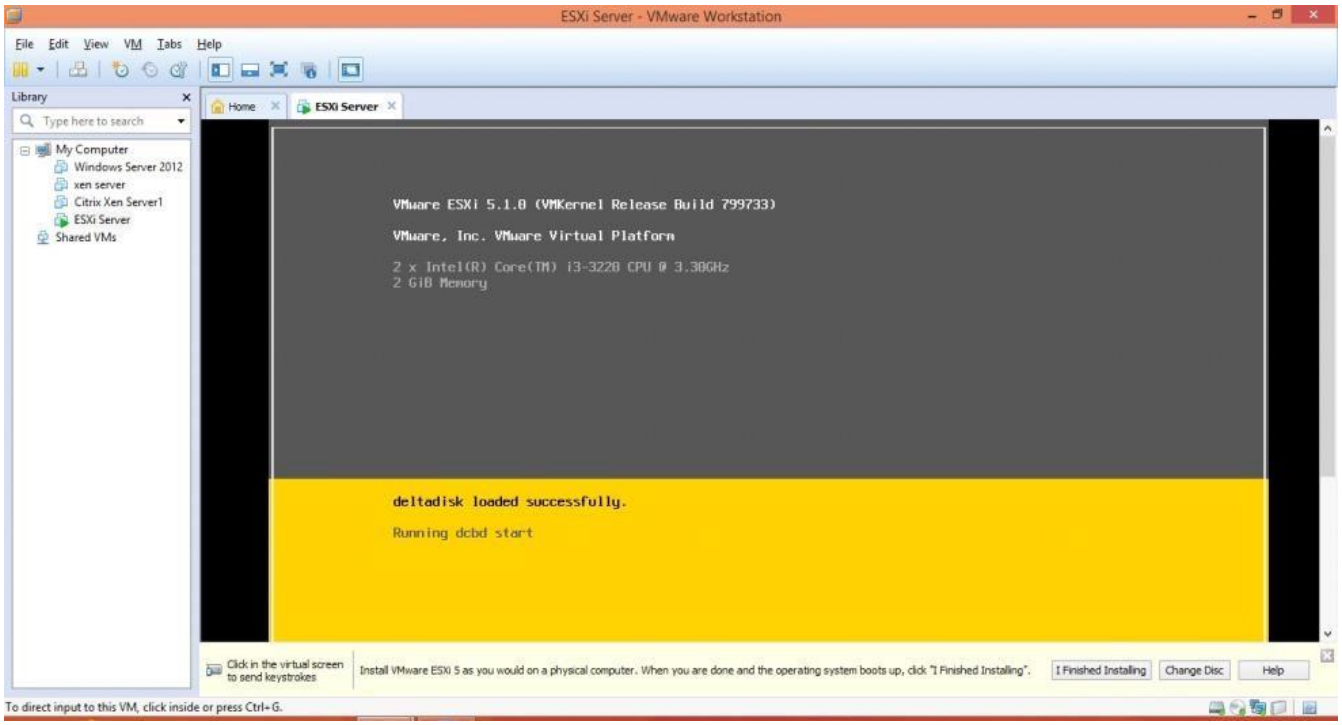


Creation of Virtual Machine is in progress…

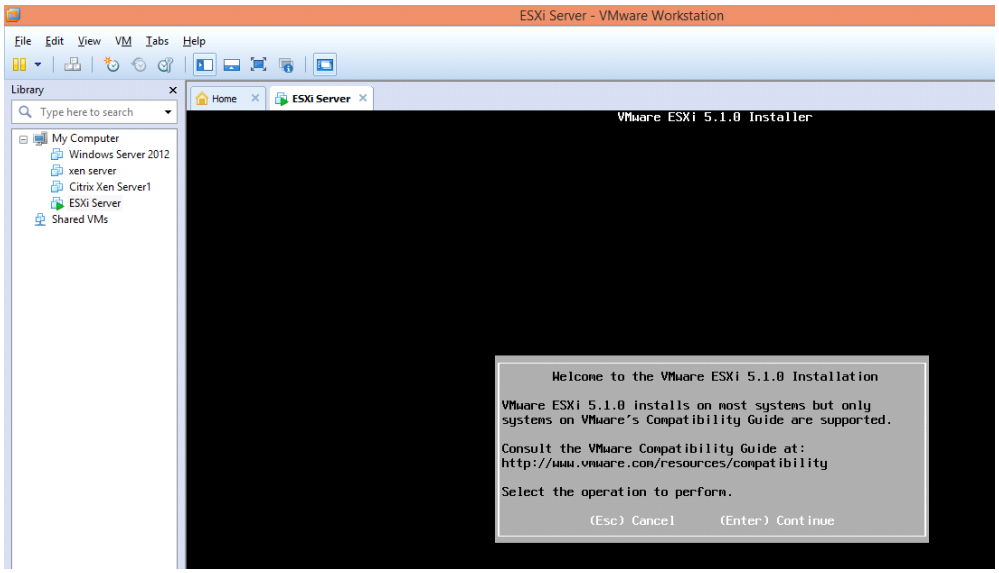




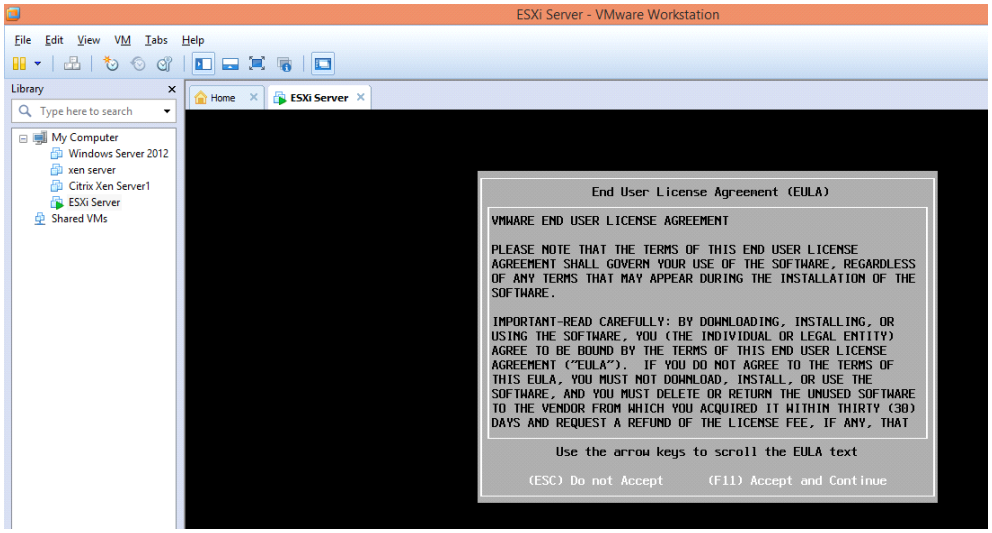




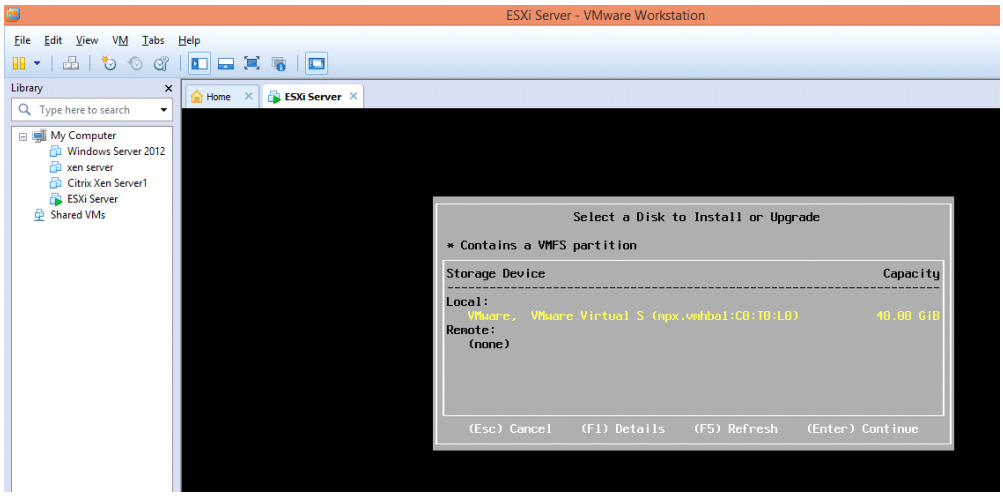
In the following screen click on Continue or press Enter key.



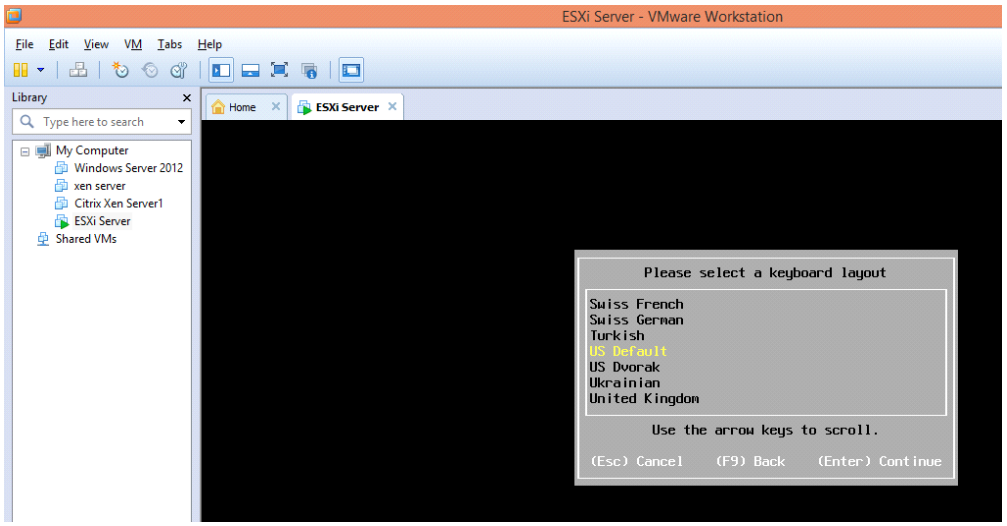
For License Agreement click on "Accept and Continue" or press F11 key.

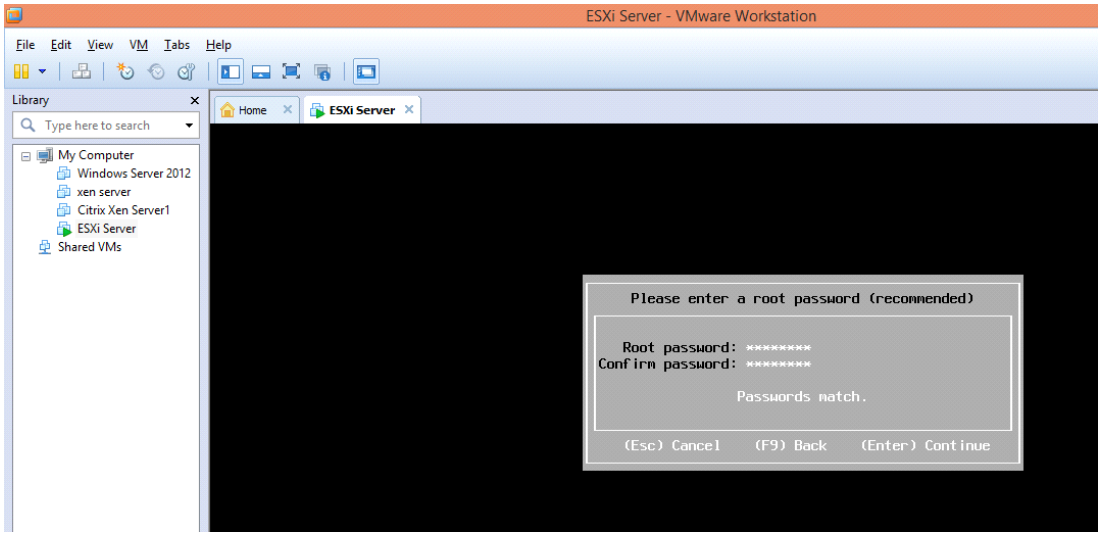


For Installation press Enter key.



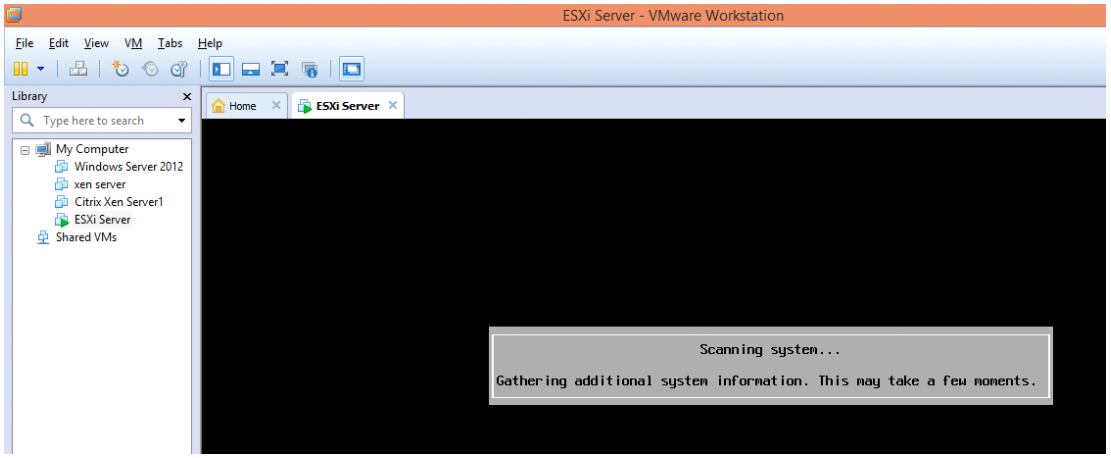
Keep the default settings for keyboard settings and press Enter key.

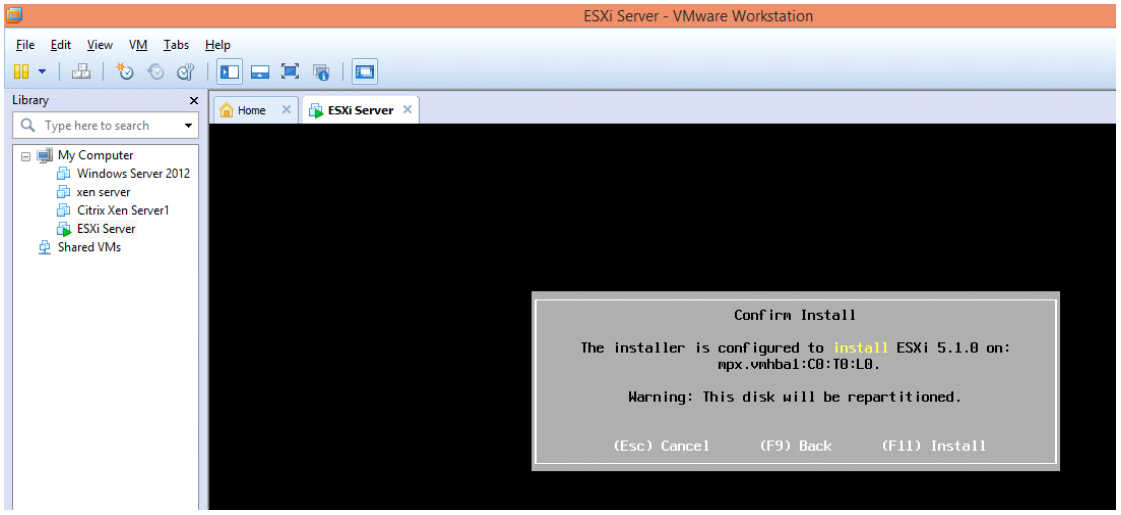




Enter the root and confirmation password and click on Continue or press Enter key.

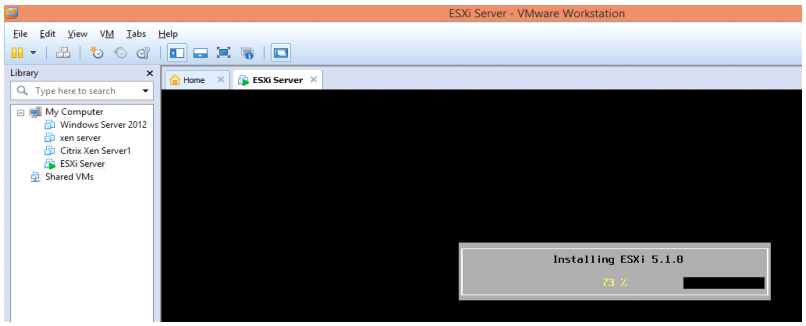
The Installation is in progress…



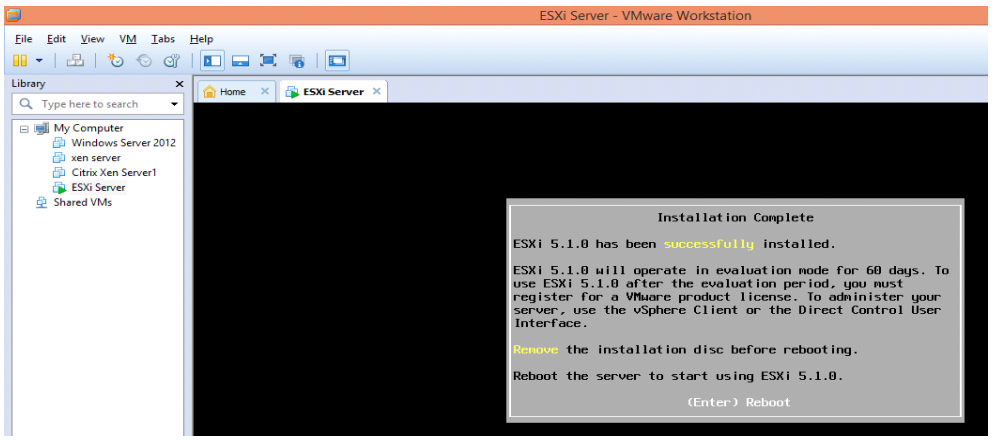


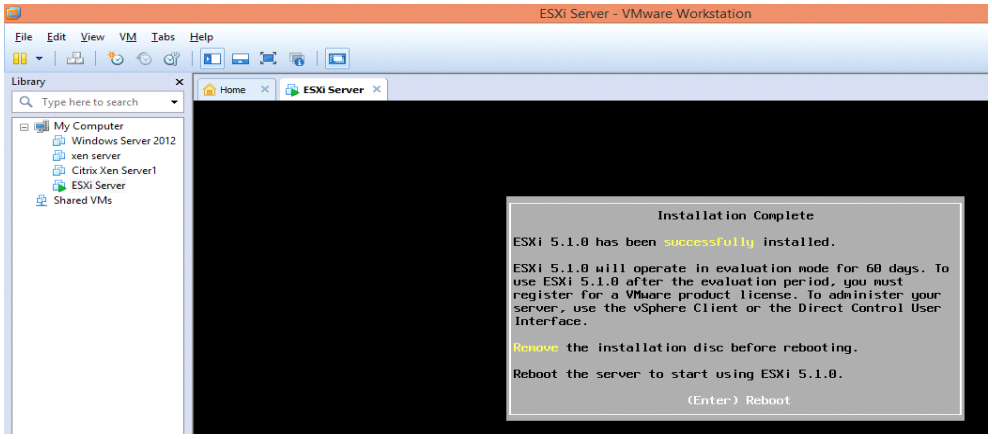
Press

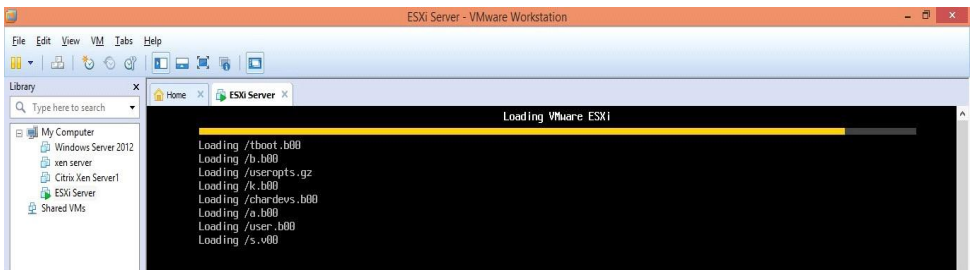
F11 key to Install. Installing ESXi 5.1.0…

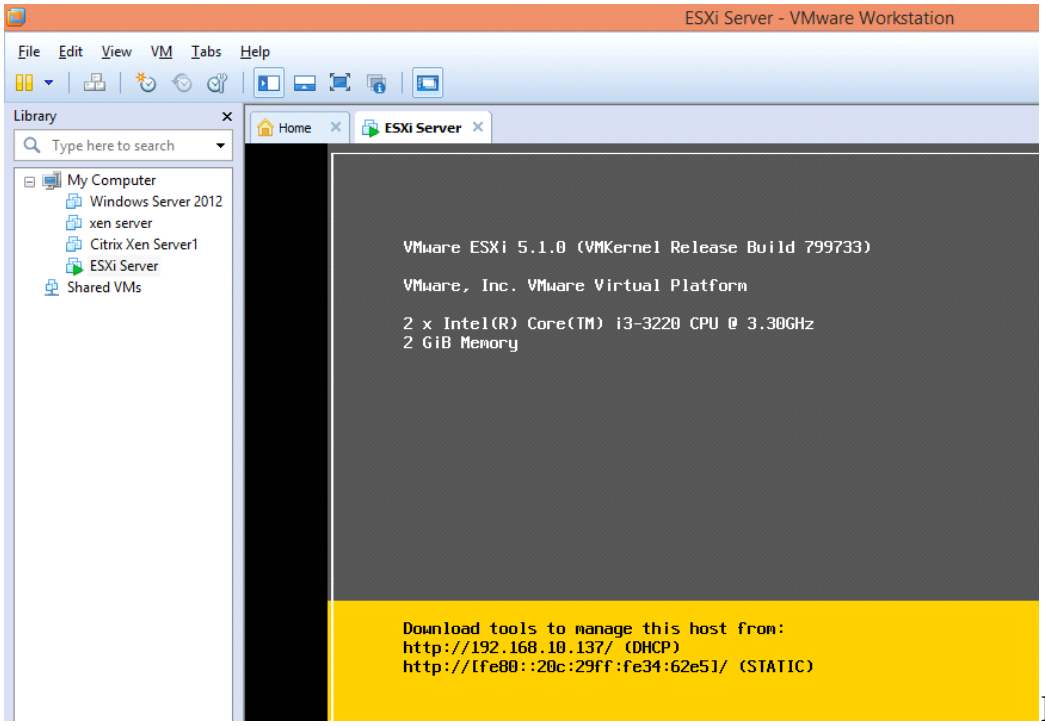


Press Enter key to Reboot.



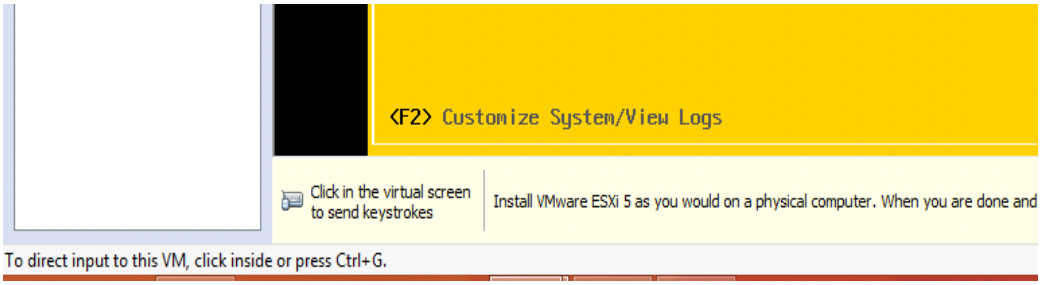


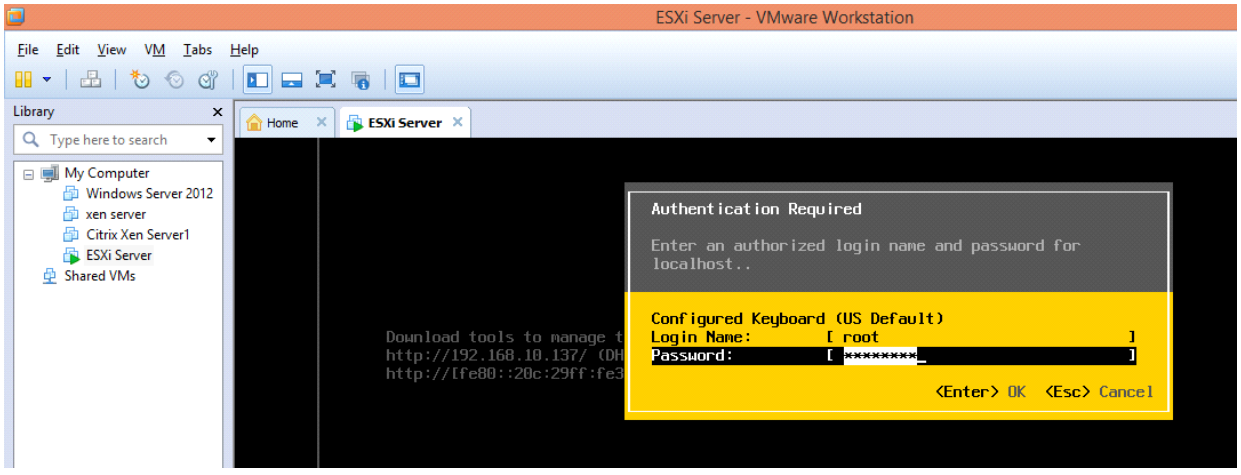




Note the DHCPIPAddress. Here it is-192.168.10.137

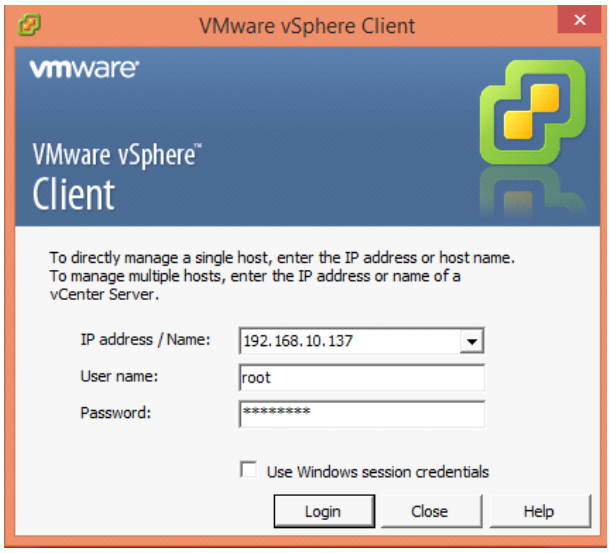
Press the F2 key for customizing system as it is shown at the bottom of the VM.

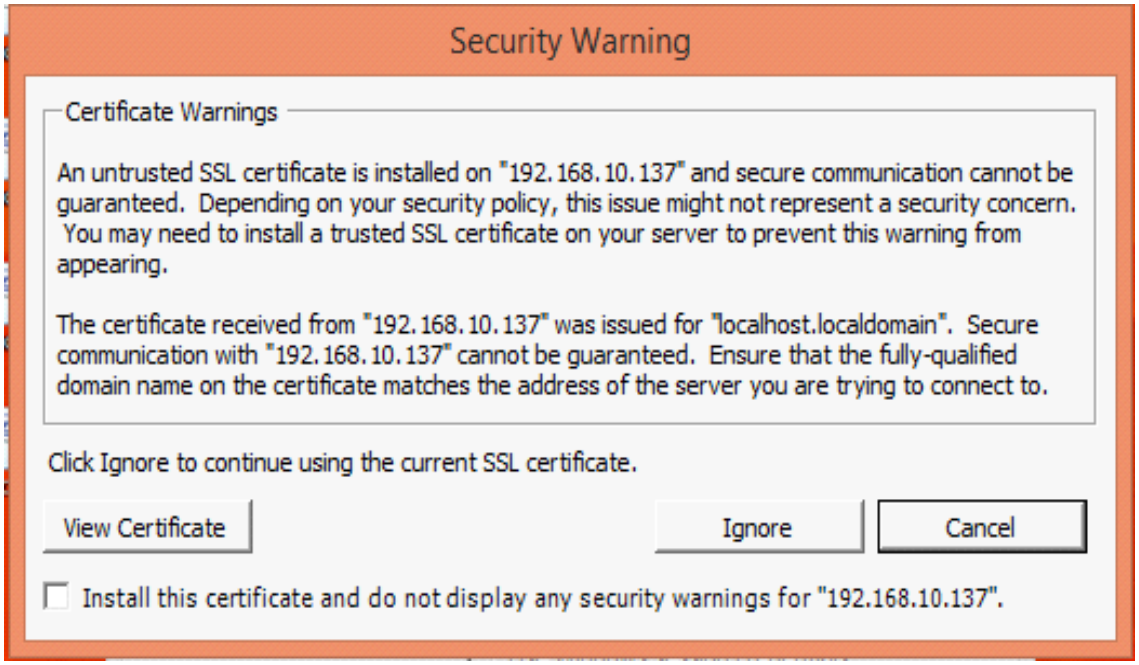




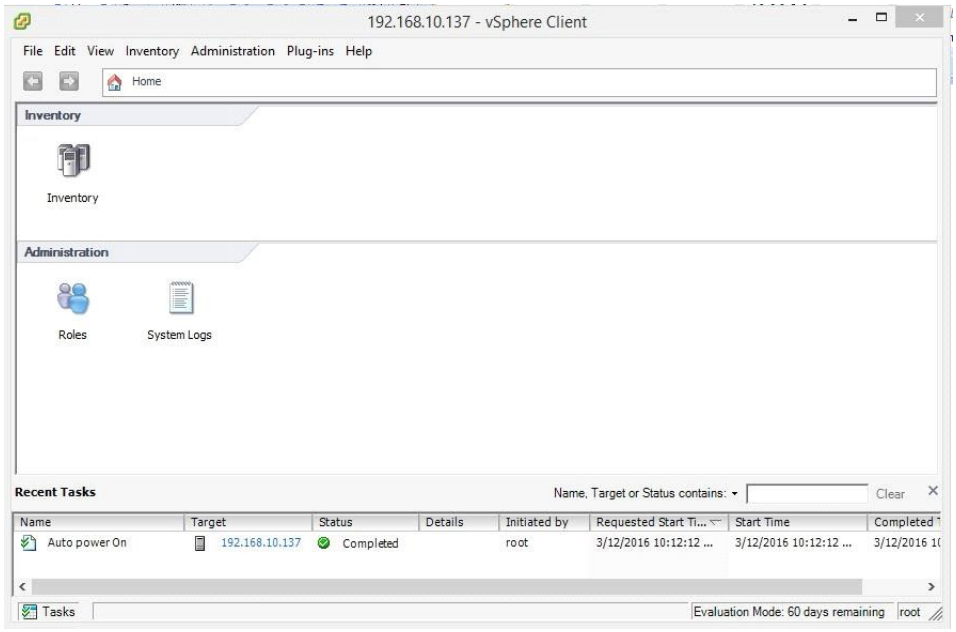
Enter the username as root and the root password (which was used earlier).

Now start the VMware vSphere Client. Enter the IP address (*DHCP IP address of ESXi Server*), user name as root and the same password as the ESXi System. Click on “Login” button.



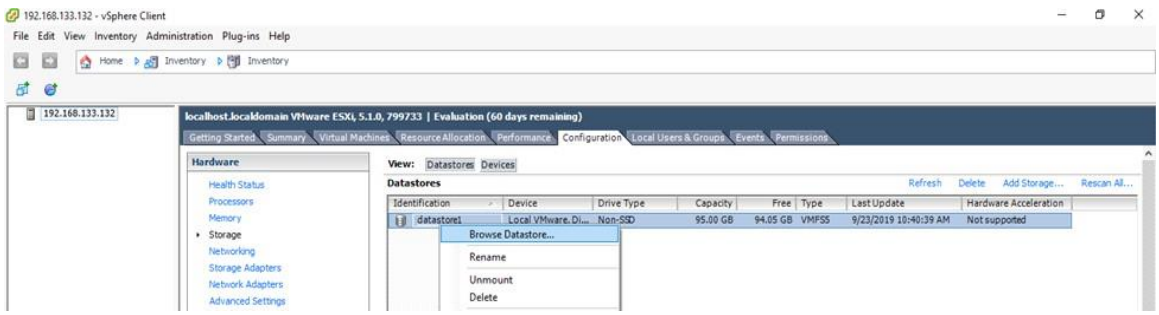


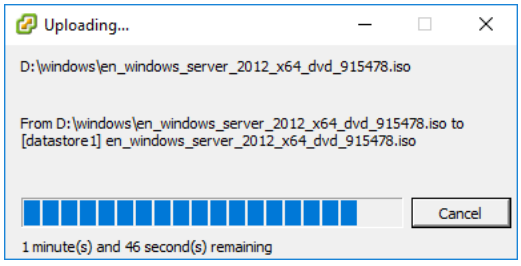
Click on the Ignore for the Security Warning.

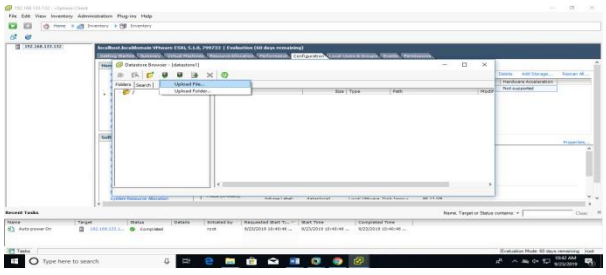


After login the VMware vSphere Client looks like the following image. At the bottom of this screen the connectivity of VMware vSphere Client where the target IP address is the ESXi Server's DHCP IP address. Click on the Inventory.

In Configuration tab click on Hardware Storage. Right click on "datastore1" and select "Browse Datastore…" .

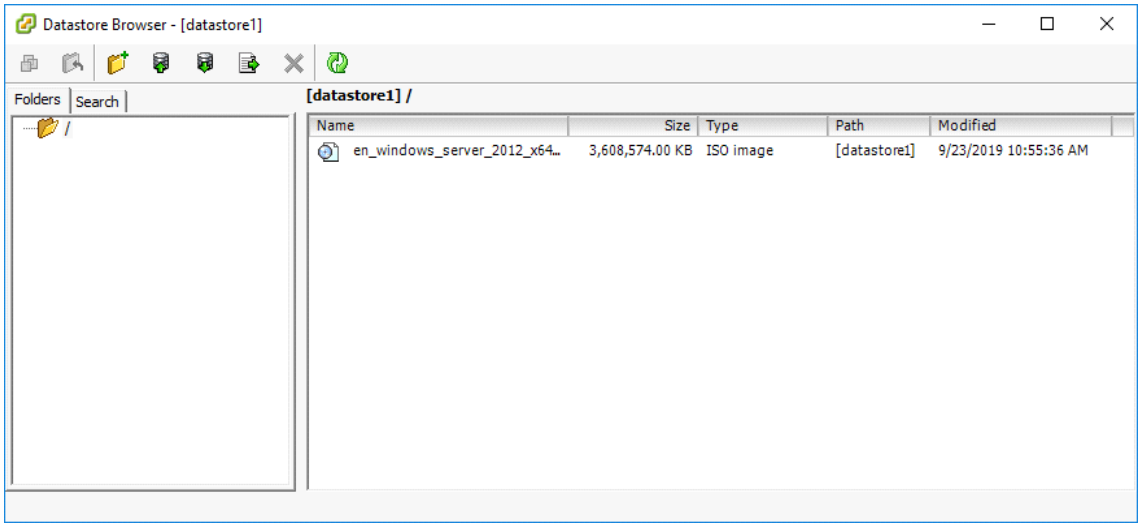




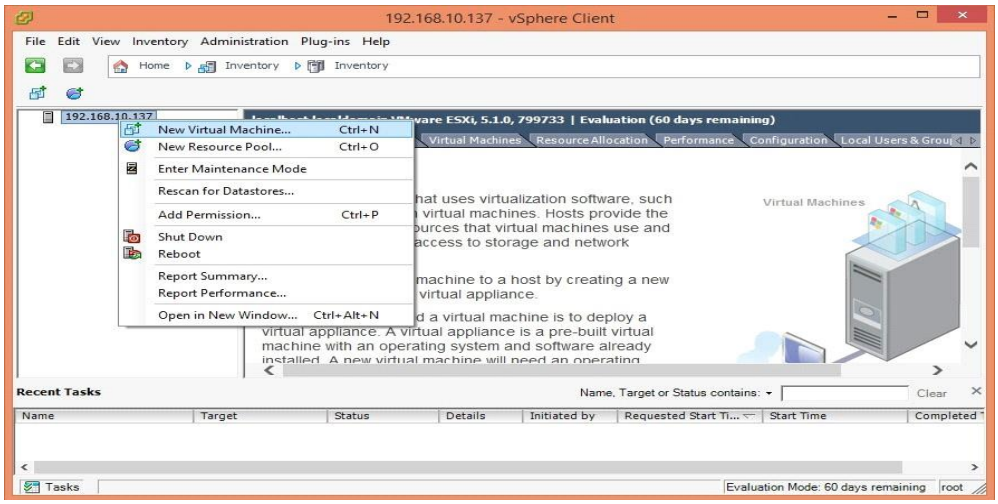


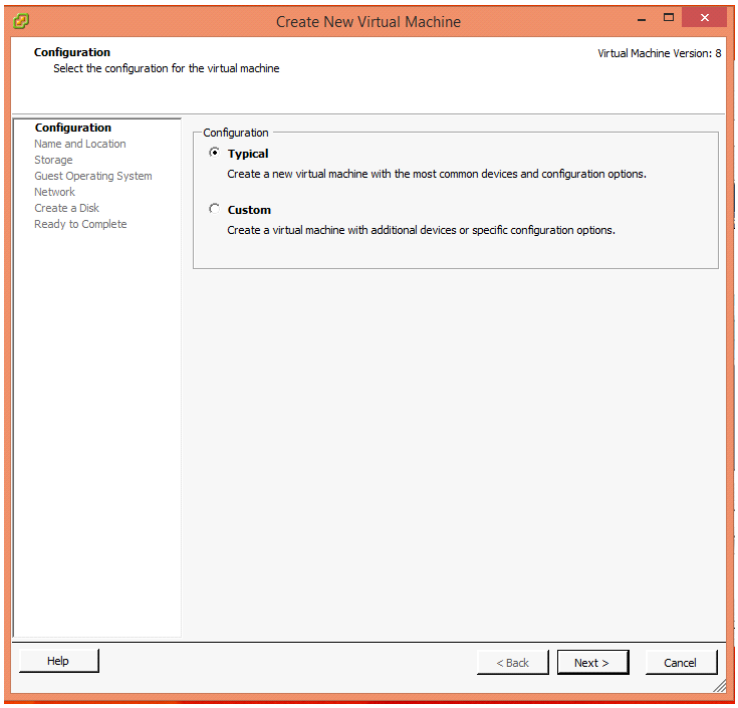
In the Datastore Browser – [datastore1] window click on Upload files to this datastore tool and select "Upload File…" option

Upload the "Microsoft Windows Server 20012".

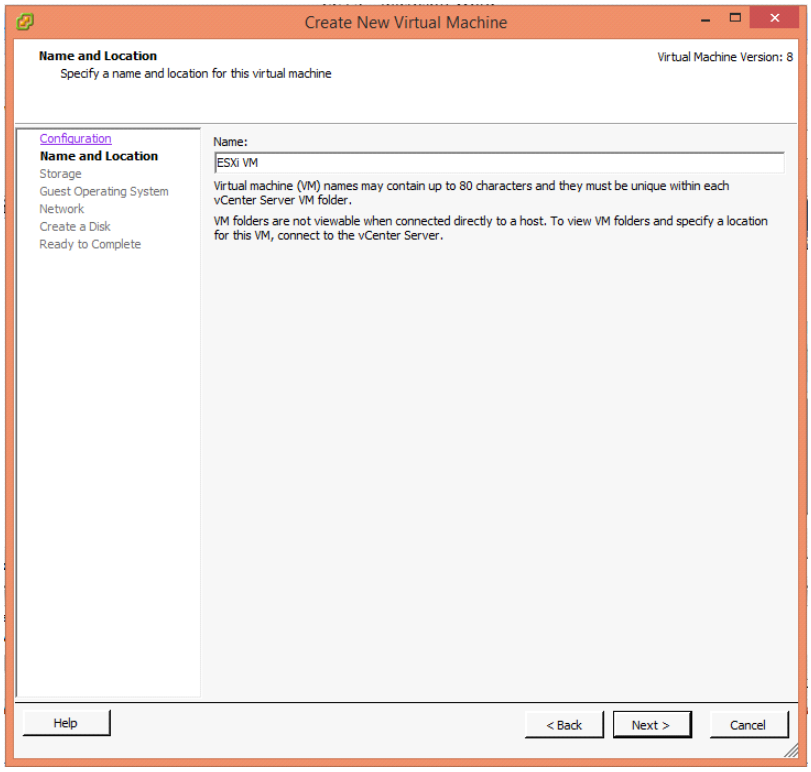


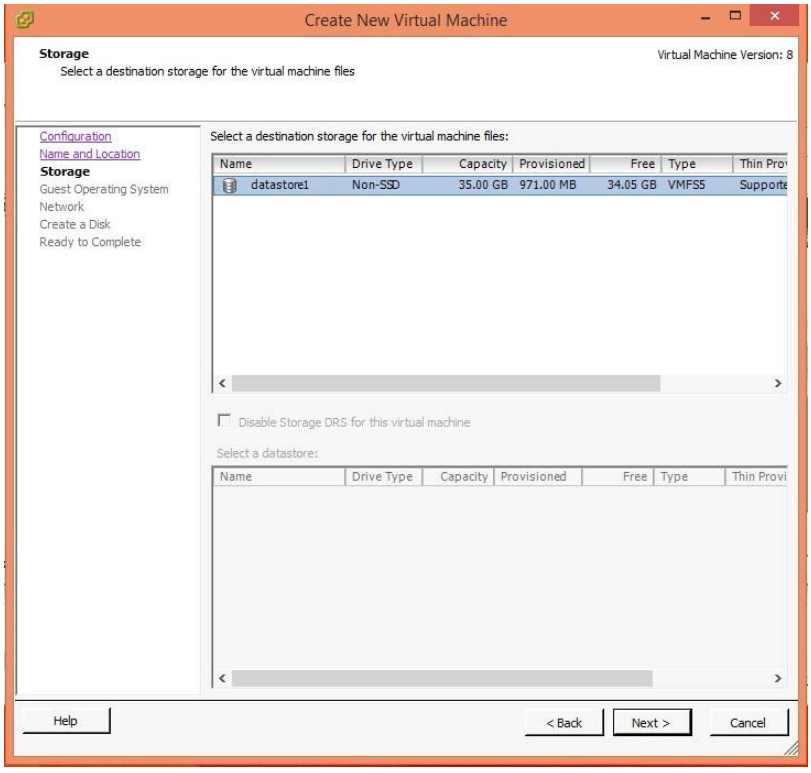
It shows the IP Address (192.168.10.137) listed on the left pane. Right click on the IP address and select the option “New Virtual Machine…”.





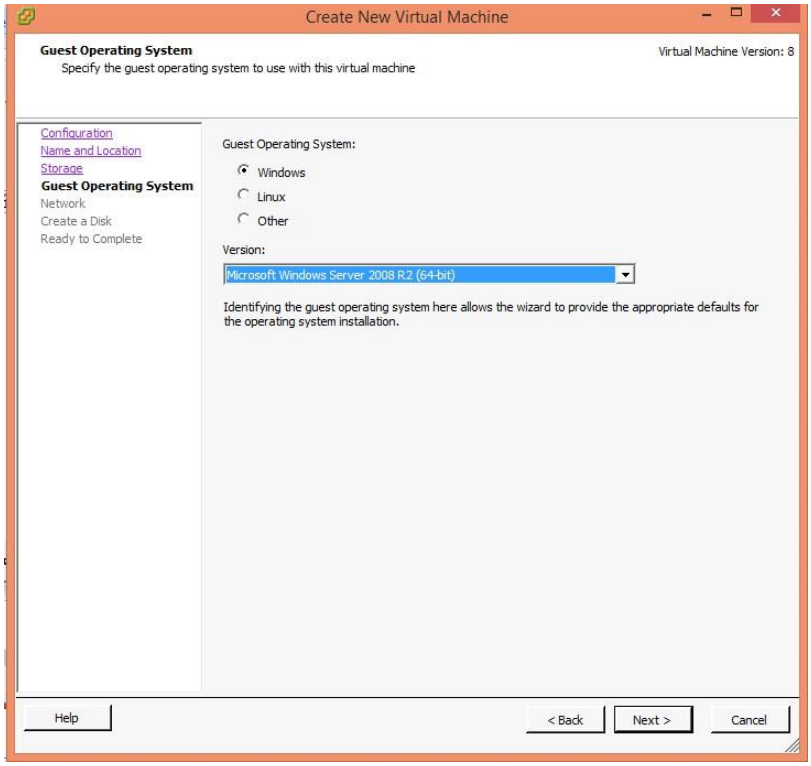
In the Create New Virtual Machine window select the Typical option and click on “Next”. Give a name to the Virtual Machine. Here it is given as ESXi VM. Click on the “Next button.

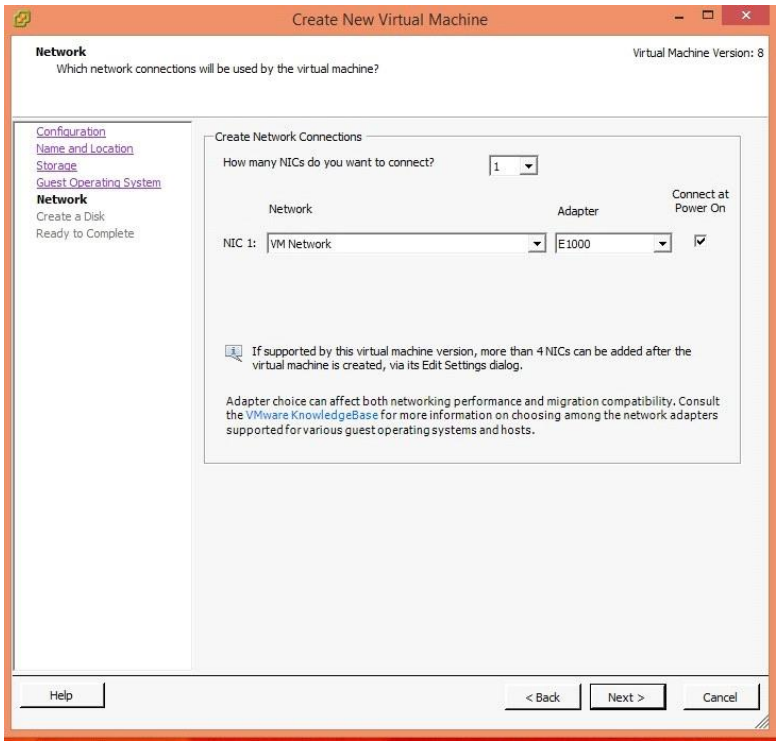




In the next screen keep the settings default for Storage and click on “Next”.

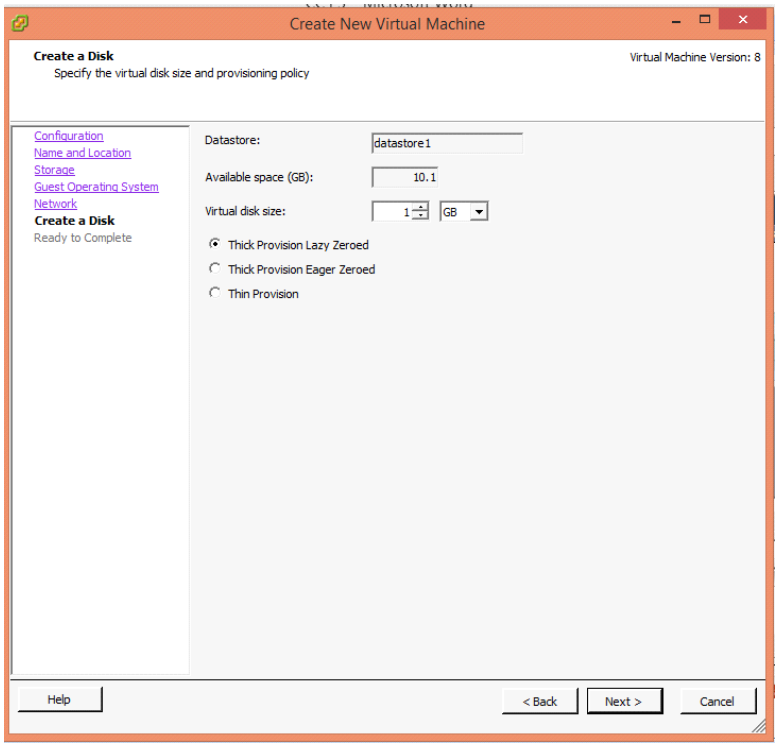
Select the Guest OS as Windows and Version as “Microsoft Windows Server 2008 R2 (32- bit)”.

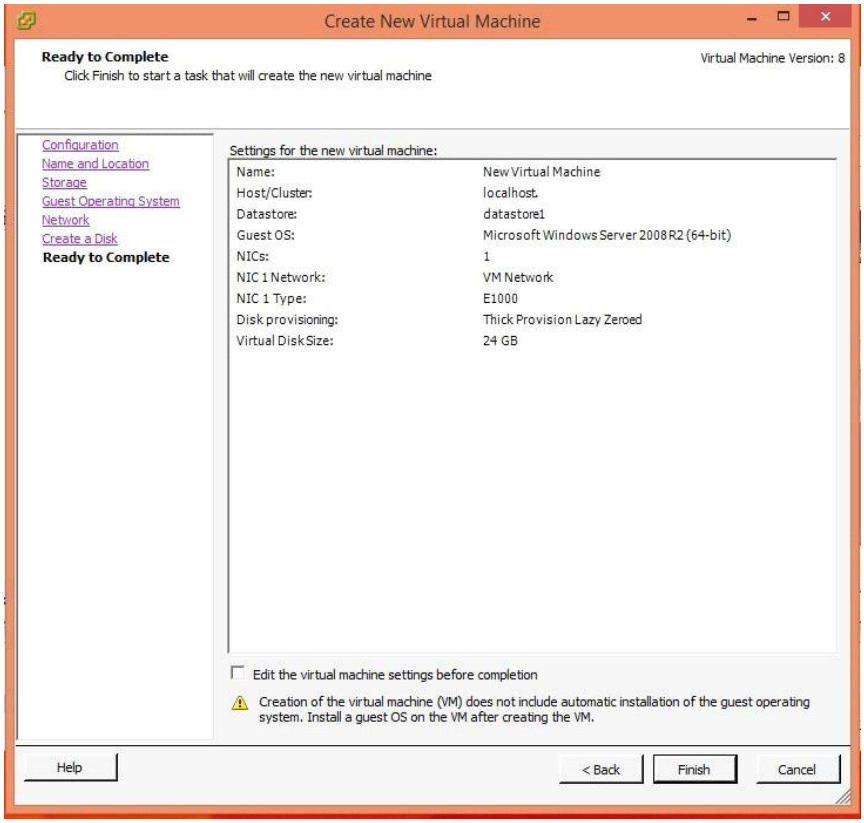




Leave the Network settings default and click on “Next”.

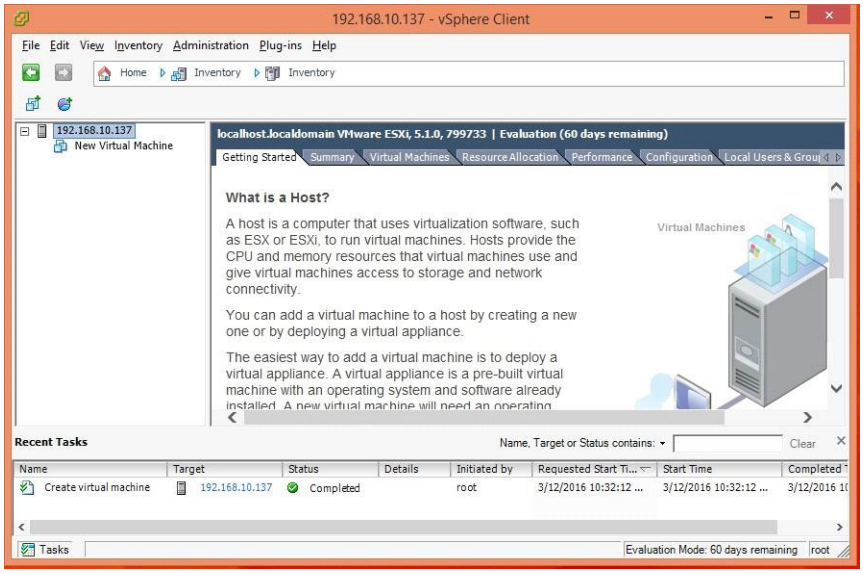
Choose the Disk space (depending on the available space of user's system. Here it is 1GB) of the VM in GB. Click on the "Next" button.



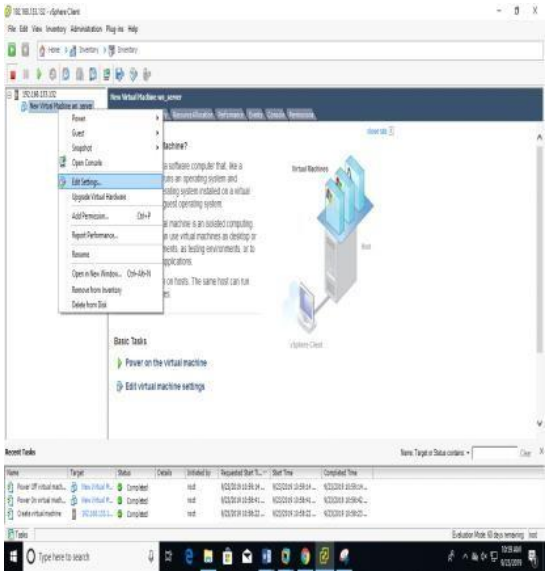


At the final screen click on "Finish" button.

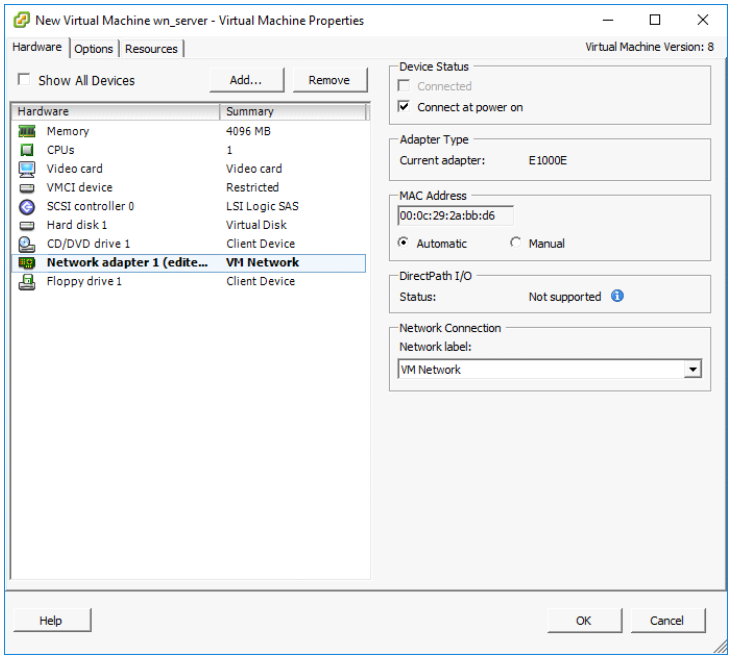
The new created Virtual Machine is listed under the IP Address.



Right click on vitual machine Edit settings Network adapter.

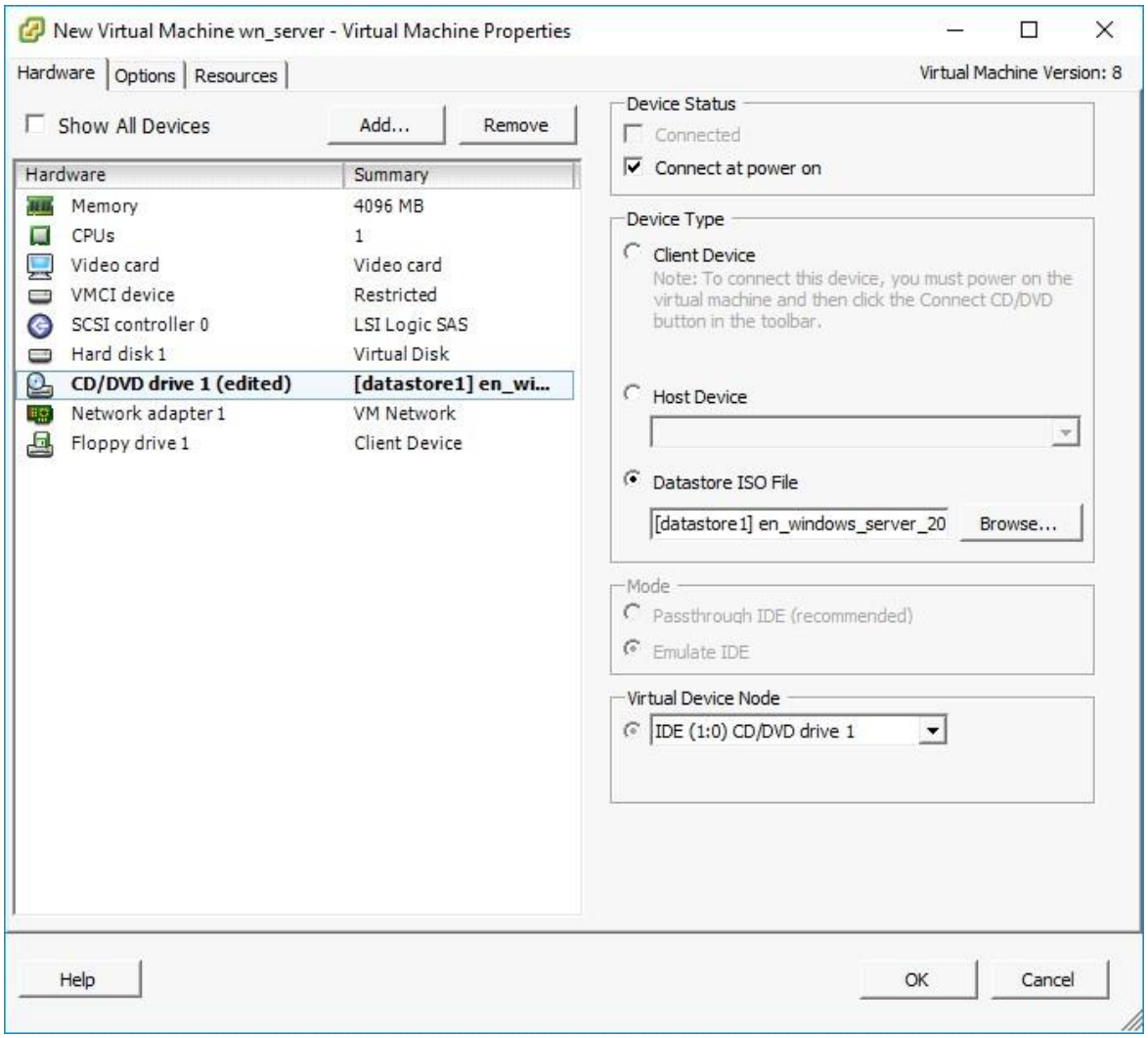


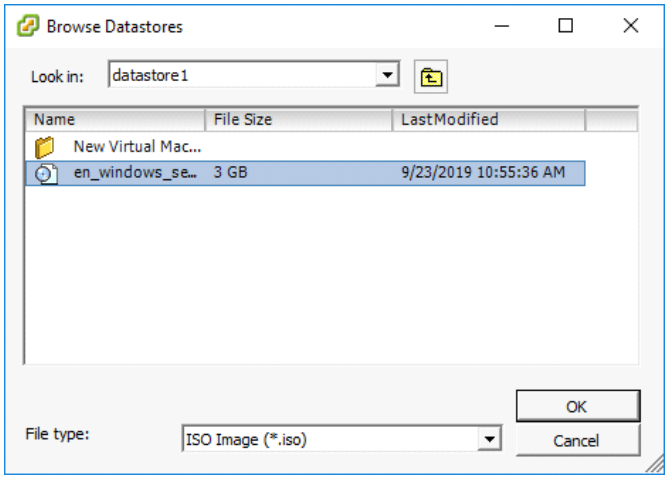
Right click on vitual machine Edit settings Network adapter ”Check on Connect at power on”.



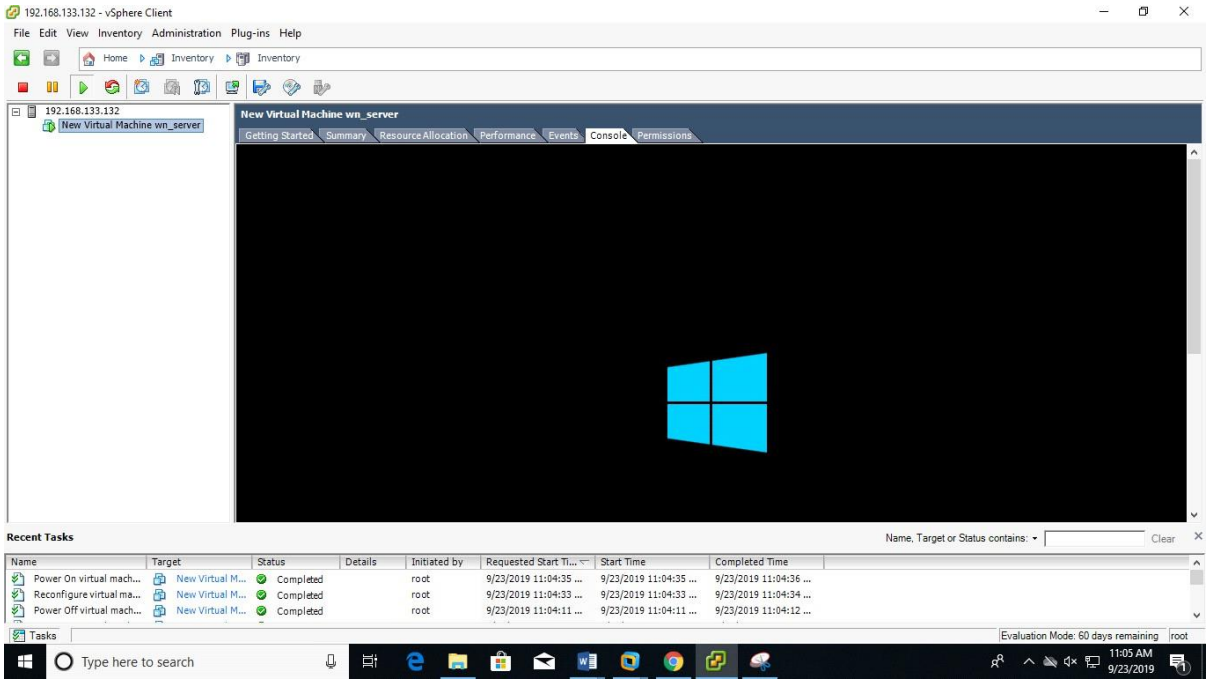
Right click on vitual machine Edit settings CD/DVD Drive Check on Datastore ISO file and browse the iso

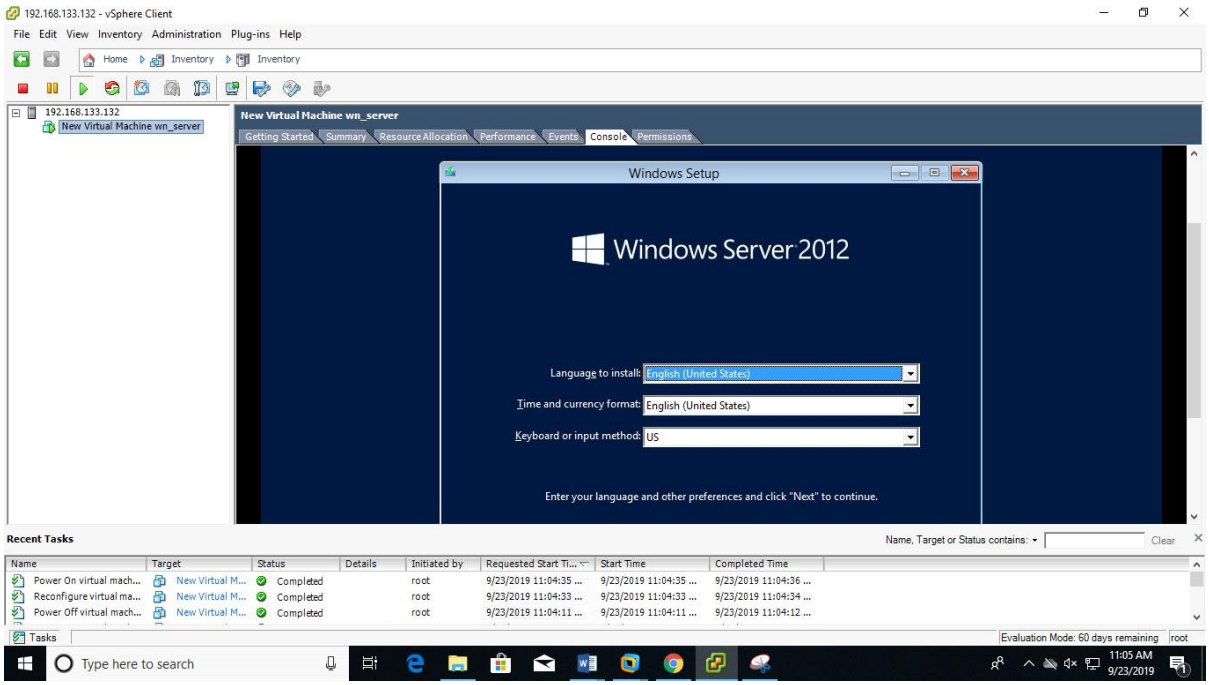
”Check on Connect at power on”.




Browse Datastores
Look in:
datastore1
Name
File Size
LastModified
New Virtual Mac...
en_windows_se...
3 GB
9/23/2019 10:55:36 AM
OK
Cancel
File type:
ISO Image (*.iso)

Power on VM


192.168.133.132 - vSphere Client
File Edit View Inventory Administration Plug-ins Help
Home Inventory Inventory
192.168.133.132
New Virtual Machine wn_server
New Virtual Machine wn_server
Getting Started Summary Resource Allocation Performance Events Console Permissions
Recent Tasks
Name Target Status Details Initiated by Requested Start Ti... Start Time Completed Time
Power On virtual mach... New Virtual M... Completed root 9/23/2019 11:04:35 ... 9/23/2019 11:04:35 ... 9/23/2019 11:04:36 ...
Reconfigure virtual ma... New Virtual M... Completed root 9/23/2019 11:04:33 ... 9/23/2019 11:04:33 ... 9/23/2019 11:04:34 ...
Power Off virtual mach... New Virtual M... Completed root 9/23/2019 11:04:11 ... 9/23/2019 11:04:11 ... 9/23/2019 11:04:12 ...
Tasks
Evaluation Mode: 60 days remaining
root
Type here to search
11:05 AM
9/23/2019


192.168.133.132 - vSphere Client
File Edit View Inventory Administration Plug-ins Help
Home Inventory Inventory
192.168.133.132
New Virtual Machine wn_server
New Virtual Machine wn_server
Getting Started Summary Resource Allocation Performance Events Console Permissions
Windows Setup
Windows Server 2012
Language to install: English (United States)
Time and currency format: English (United States)
Keyboard or input method: US
Enter your language and other preferences and click "Next" to continue.
Recent Tasks
Name Target Status Details Initiated by Requested Start Ti... Start Time Completed Time
Power On virtual mach... New Virtual M... Completed root 9/23/2019 11:04:35 ... 9/23/2019 11:04:35 ... 9/23/2019 11:04:36 ...
Reconfigure virtual ma... New Virtual M... Completed root 9/23/2019 11:04:33 ... 9/23/2019 11:04:33 ... 9/23/2019 11:04:34 ...
Power Off virtual mach... New Virtual M... Completed root 9/23/2019 11:04:11 ... 9/23/2019 11:04:11 ... 9/23/2019 11:04:12 ...
Tasks
Evaluation Mode: 60 days remaining
root
Type here to search
11:05 AM
9/23/2019

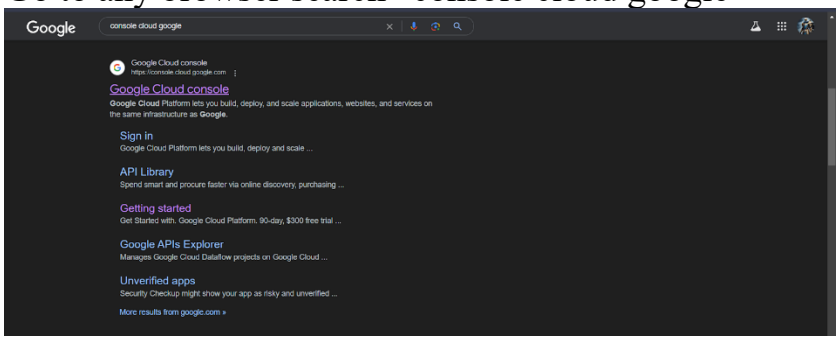
PRACTICAL 3

Aim:- Implementing Google App Engine

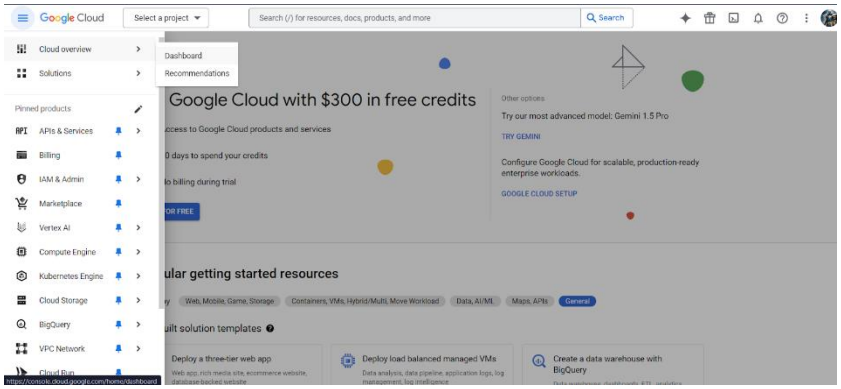
Software:- Google cloud console

Steps:-

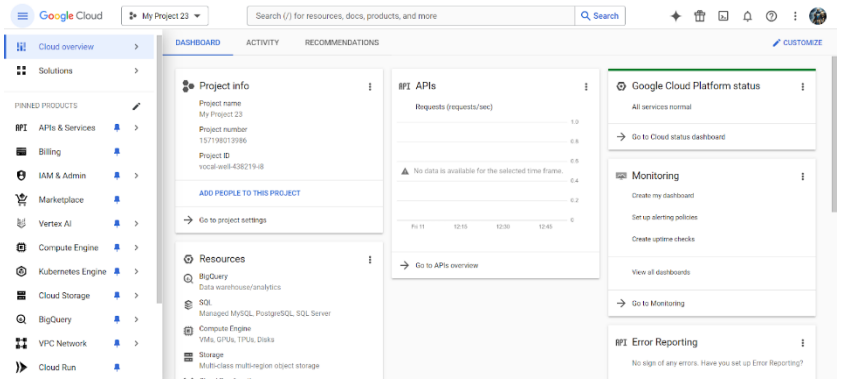
Go to any browser search “console cloud google”



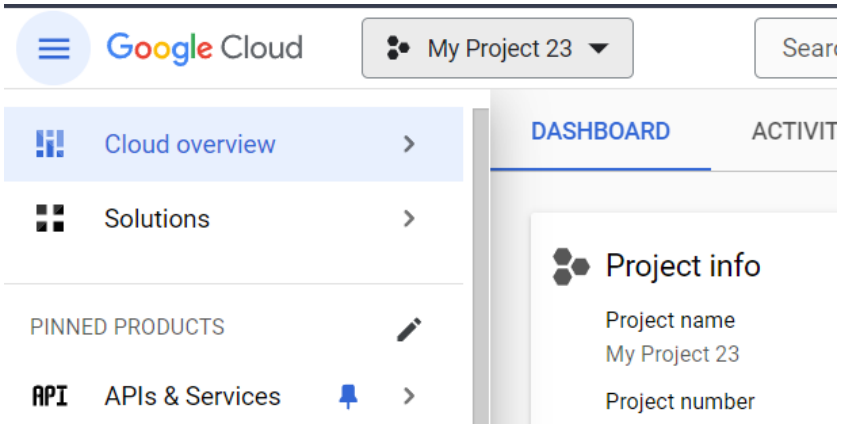
Now click on cloud overview→dashboard



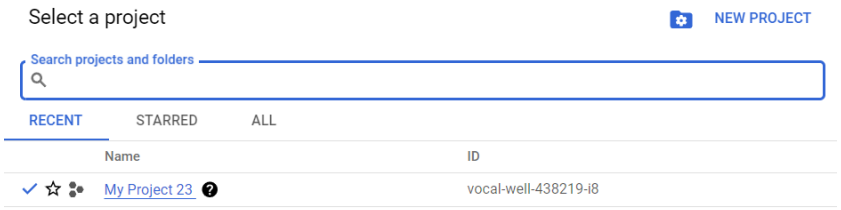
Now u can see this interface

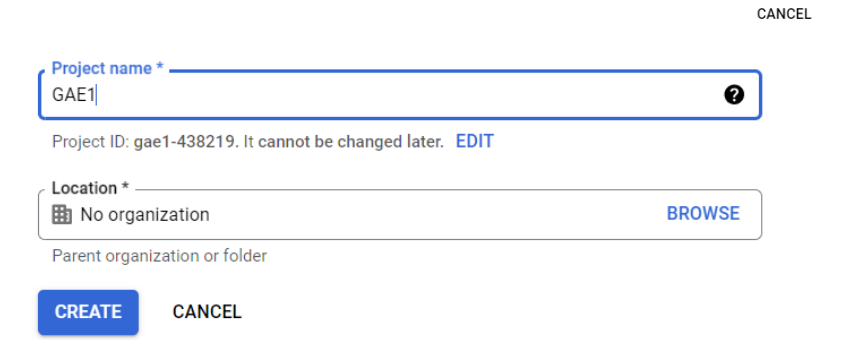


Now click on My project 23

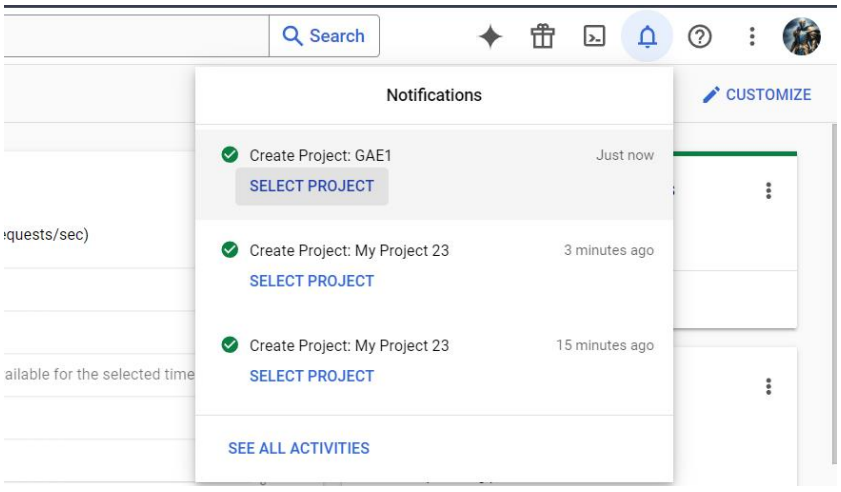


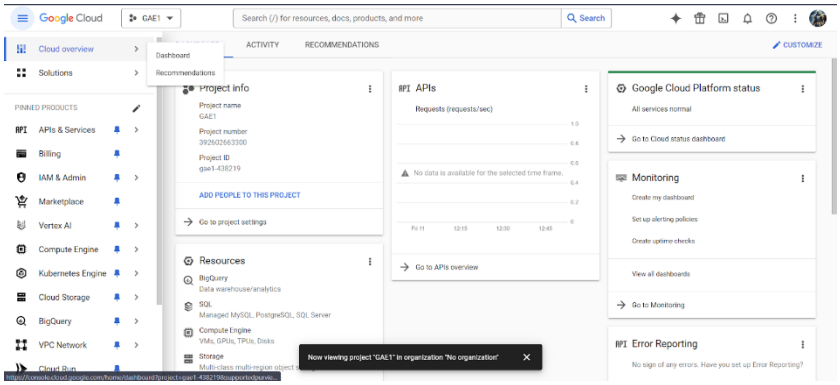
Now create a project by clicking on new project



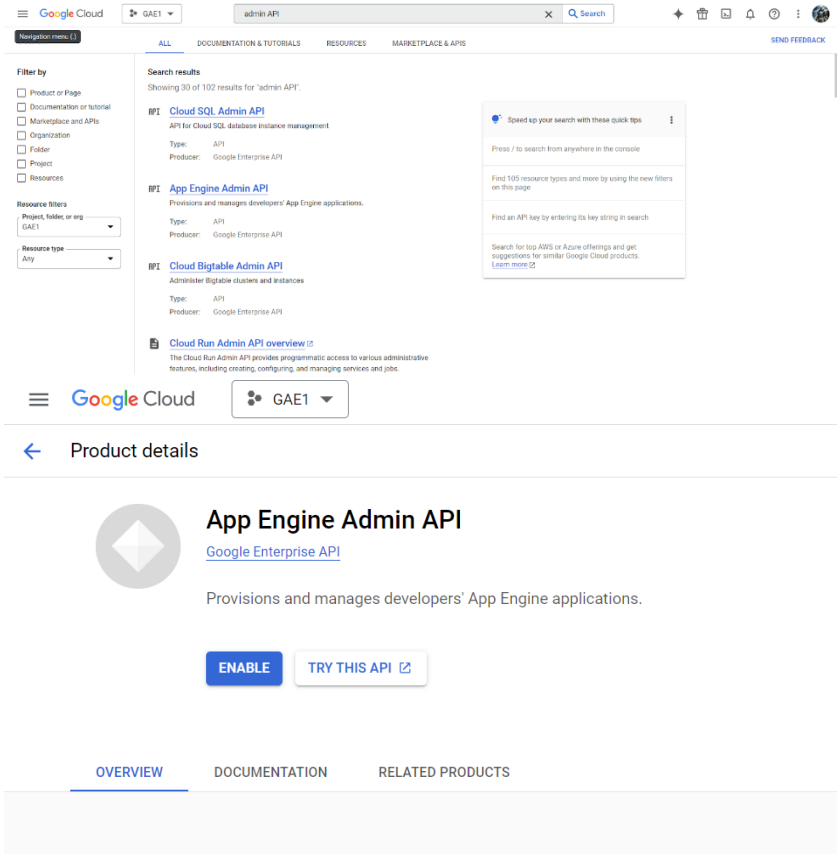


Now click on project that you created

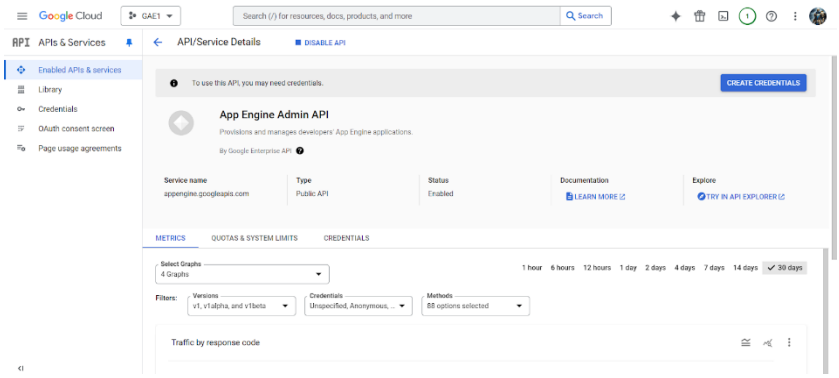




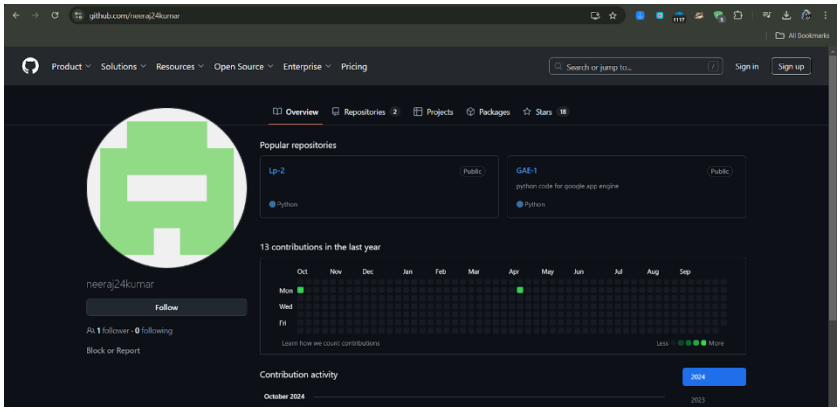
Now search “Admin API”



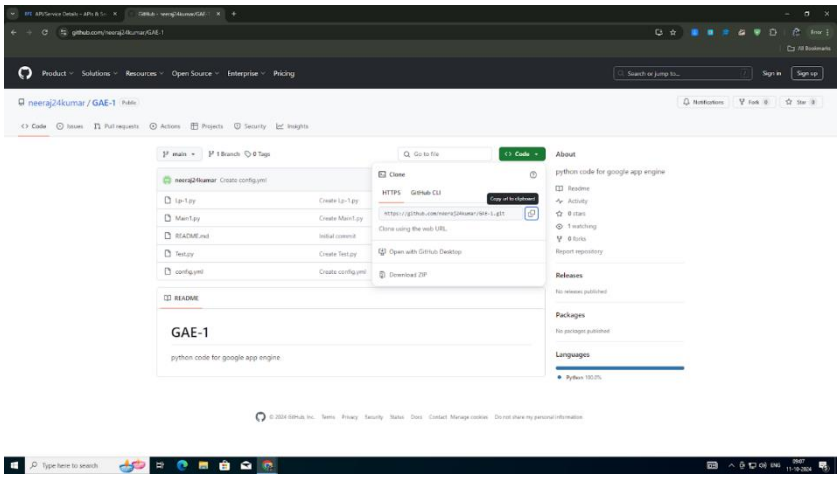
Click on enable



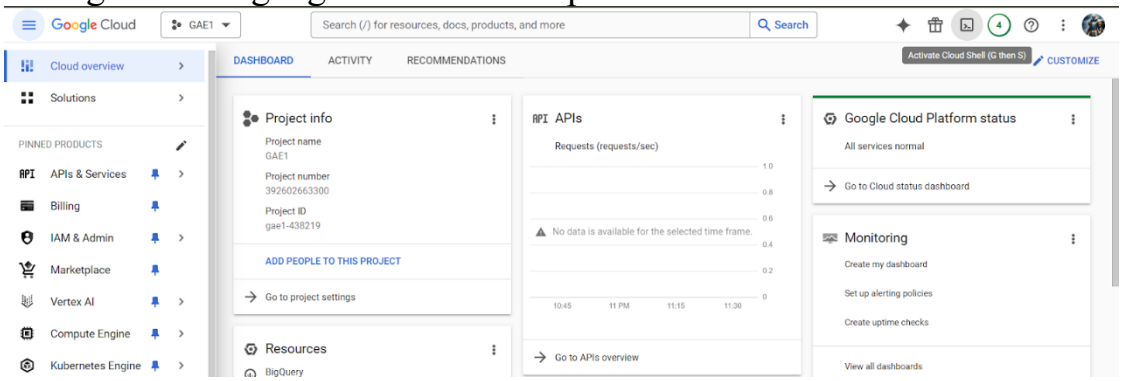
Now open chrome an type neeraj24kumar in GitHub
https://github.com/neeraj24kumar



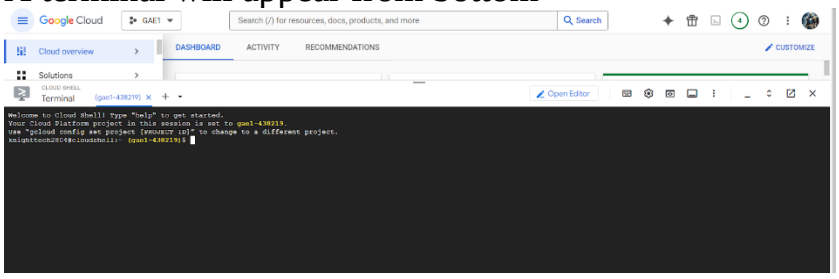
Now click on GAE1 and then copy the link→ https://github.com/neeraj24kumar/GAE-1.git



Now go back to google console and open “Activate Cloud Shell”



A terminal will appear from bottom



Now type the following cmd

- **git clone https://github.com/neeraj24kumar/GAE-1.git**

```
Welcome to Cloud Shell! Type "help" to get started.
Your Cloud Platform project in this session is set to gae1-438219.
Use "gcloud config set project [PROJECT_ID]" to change to a different project.
knighttech2804@cloudshell:~ (gae1-438219)$ git clone https://github.com/neeraj24kumar/GAE-1.git
Cloning into 'GAE-1'...
remote: Enumerating objects: 19, done.
remote: Counting objects: 100% (19/19), done.
remote: Compressing objects: 100% (15/15), done.
remote: Total 19 (delta 2), reused 0 (delta 0), pack-reused 0 (from 0)
Receiving objects: 100% (19/19), 5.46 KiB | 1.37 MiB/s, done.
Resolving deltas: 100% (2/2), done.
knighttech2804@cloudshell:~ (gae1-438219)$
```

- **ls** (To view all the list of folders in the repository)
- **cd GAE-1** (to change the directory in order to access the GAE-1 folder files)
- **ls**

```
knighttech2804@cloudshell:~ (gae1-438219)$ ls
GAE-1  README-cloudshell.txt
knighttech2804@cloudshell:~ (gae1-438219)$ cd GAE-1
knighttech2804@cloudshell:~/GAE-1 (gae1-438219)$ ls
config.yml  Lp-1.py  Main1.py  README.md  Test.py
knighttech2804@cloudshell:~/GAE-1 (gae1-438219)$
```

You will see the “Lp-1.py” file that we need to execute

- **python Lp-1.py**

```
knighttech2804@cloudshell:~/GAE-1 (gae1-438219)$ python Lp-1.py
hello
```

hello is seen which means the print statement inside code is been executed successfully.

Now to remove all the above read folder and file do the following steps:-

- **cd ..**
- **rm -rf GAE-1** (Remove the folder)
- **ls**

Now you will not see any files in it

```
knighttech2804@cloudshell:~/GAE-1 (gae1-438219)$ cd ..
knighttech2804@cloudshell:~ (gae1-438219)$ rm -rf GAE-1
knighttech2804@cloudshell:~ (gae1-438219)$ ls
README-cloudshell.txt
```

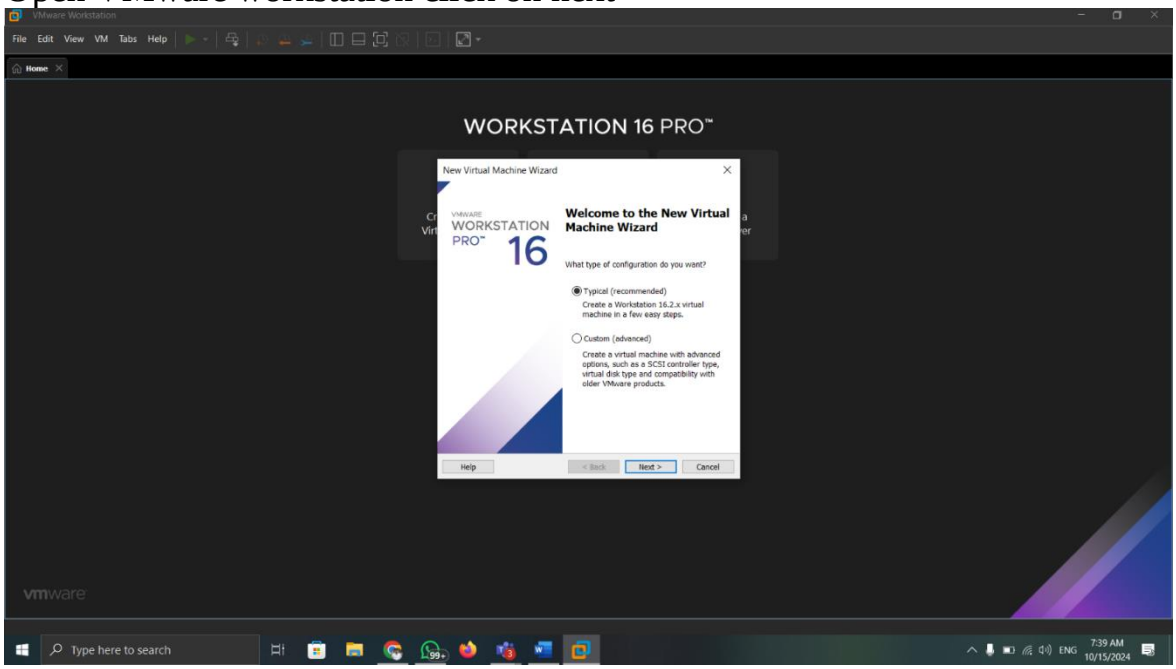
PRACTICAL 4

Aim :-Implementing IaaS using Eucalyptus

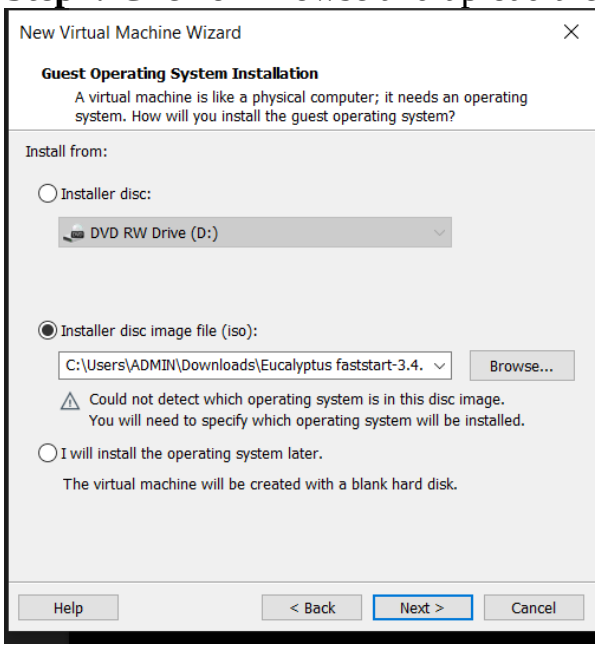
Requirements:- VMware Workstation 17x , Eucalyptus faststart 3.4.1.iso file

Steps:-

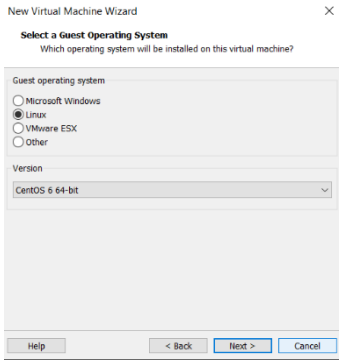
Open VMware workstation click on next



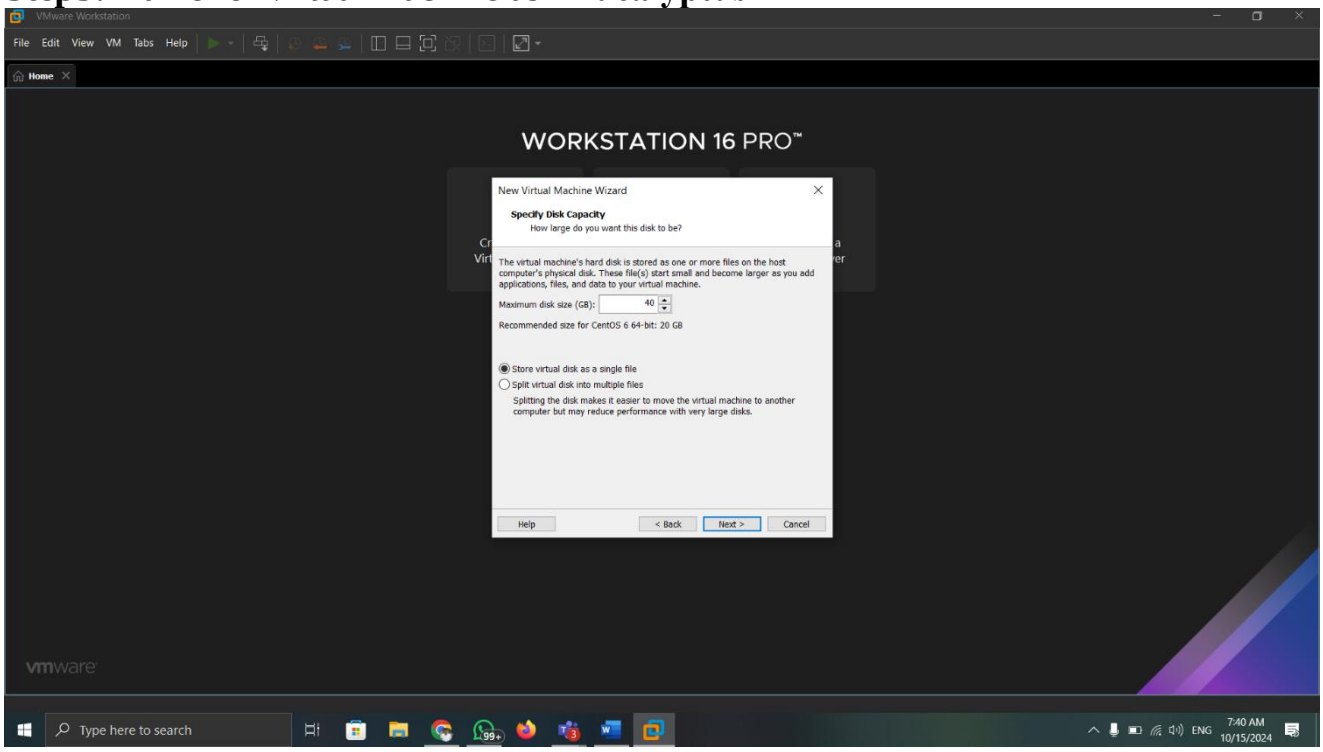
Step1:-Click on Browse and upload the Eucalyptusfaststsrt-3.4.1



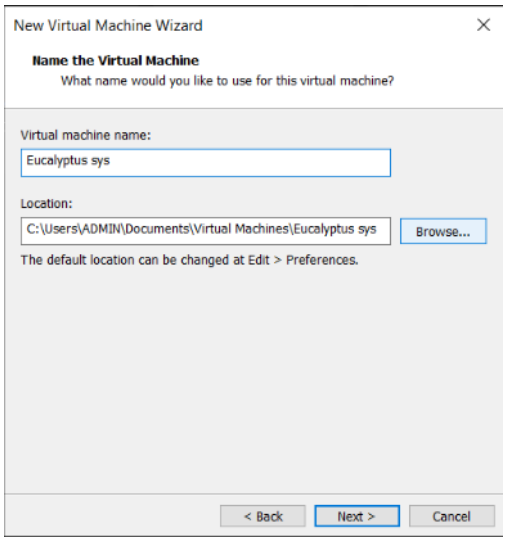
Step2: Click on Linux and version is CentOS 6 64-bit



Step3: Name for virtual machine as **"Eucalyptus"**

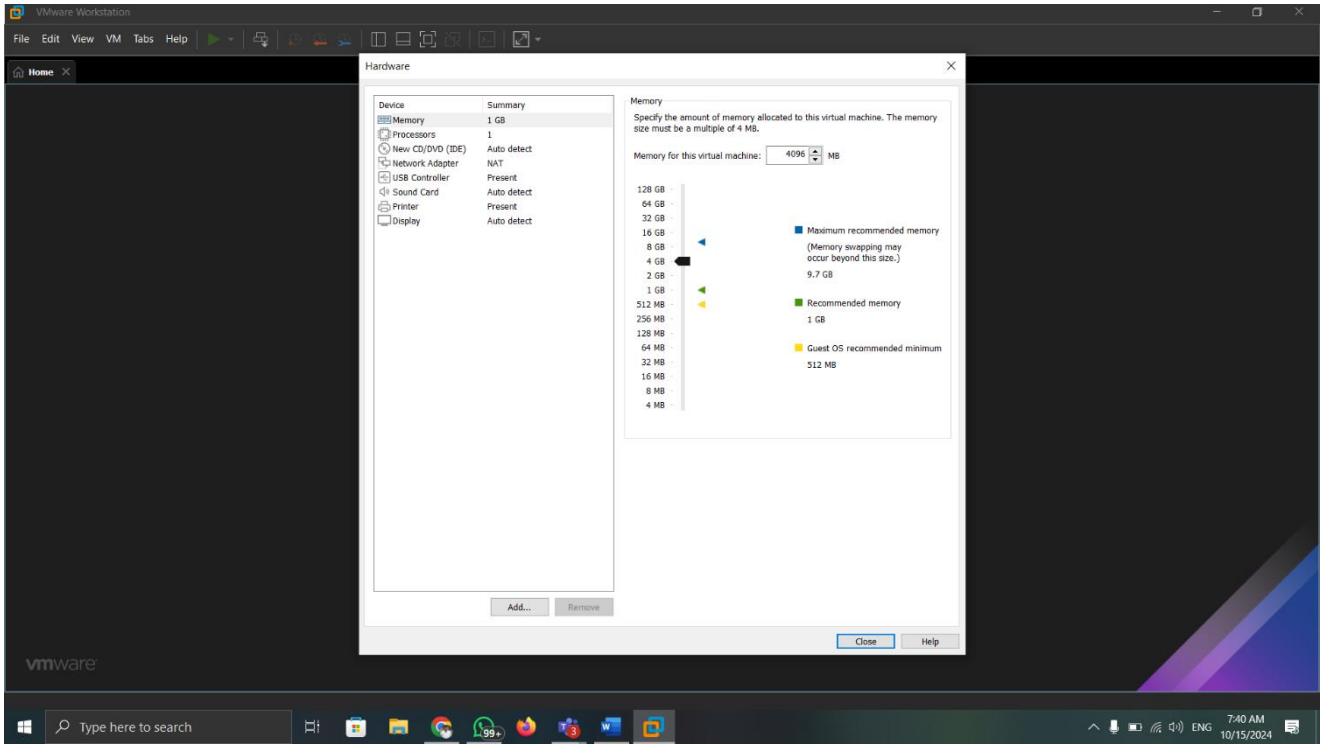


Step4: Manual disk :40.0

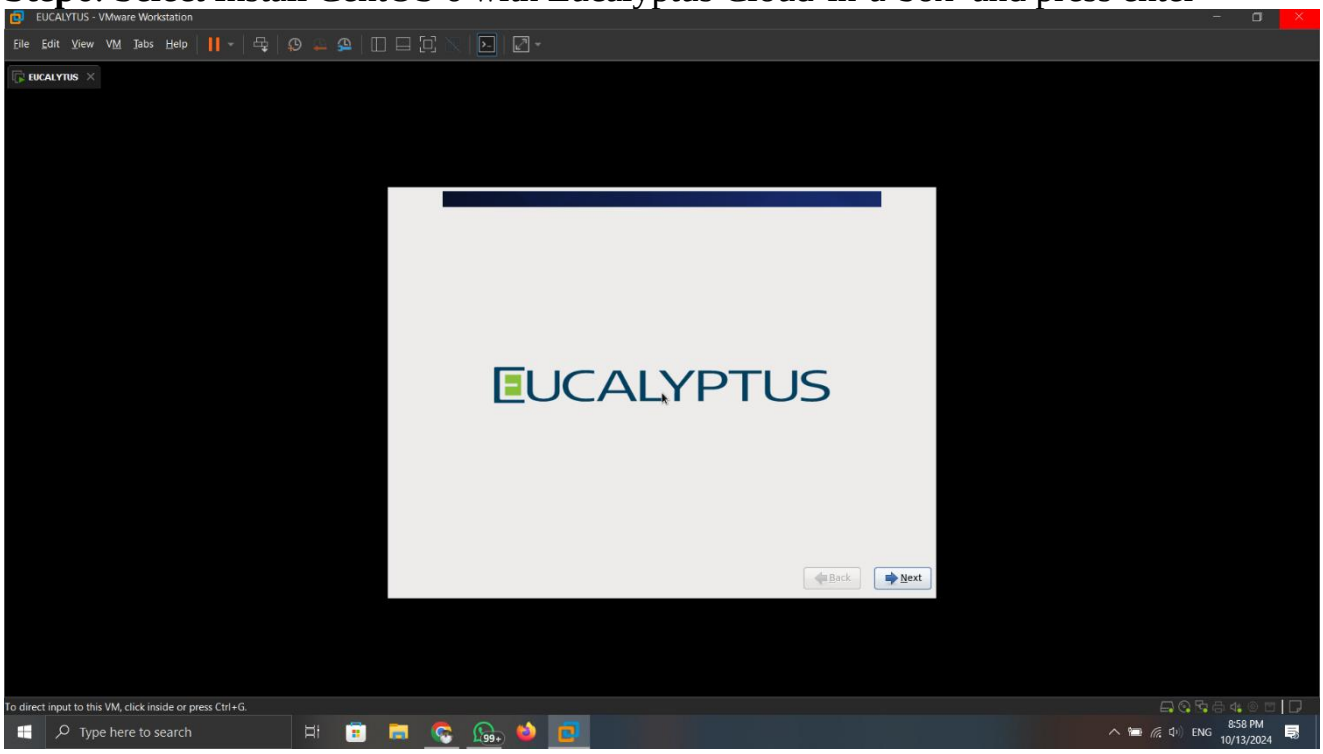


Step5: Click on Custom Hardware & Give **the memory storage as 4GB** and then click on next & also Change **the number of cores per processor as 2 and select virtualize intel VT-x/EPT** and then in Network Adapters **select bridge network connection** and close

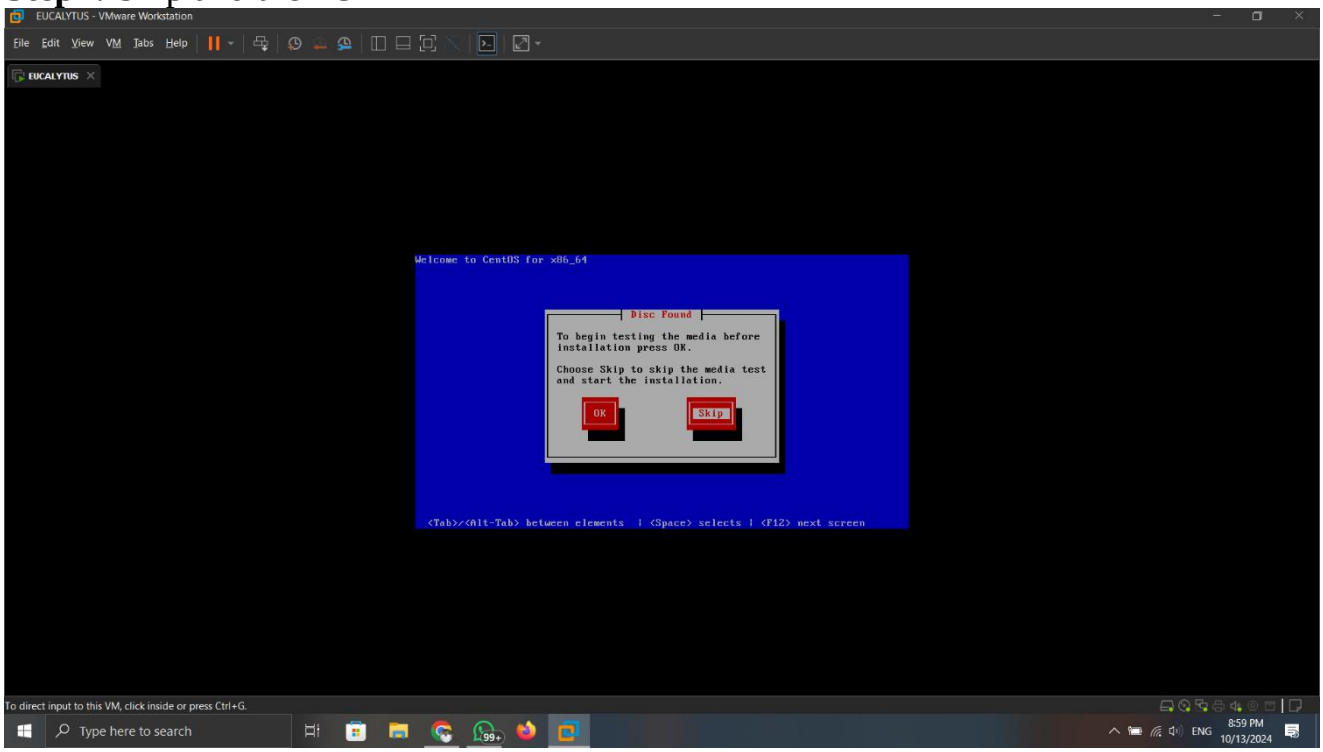
and **start the vm.**



Step6: Select Install CentOS 6 with Eucalyptus Cloud-in-a-box and press enter

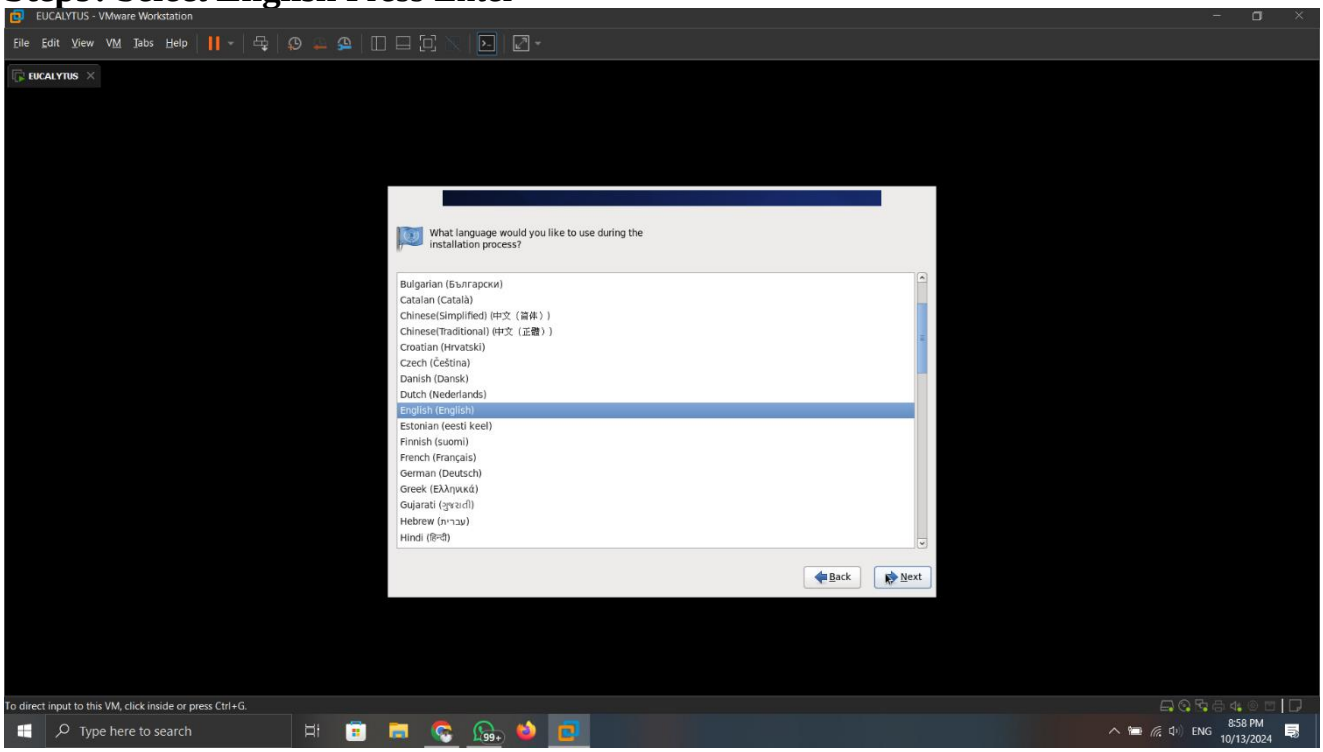


Step7: Skip and then OK

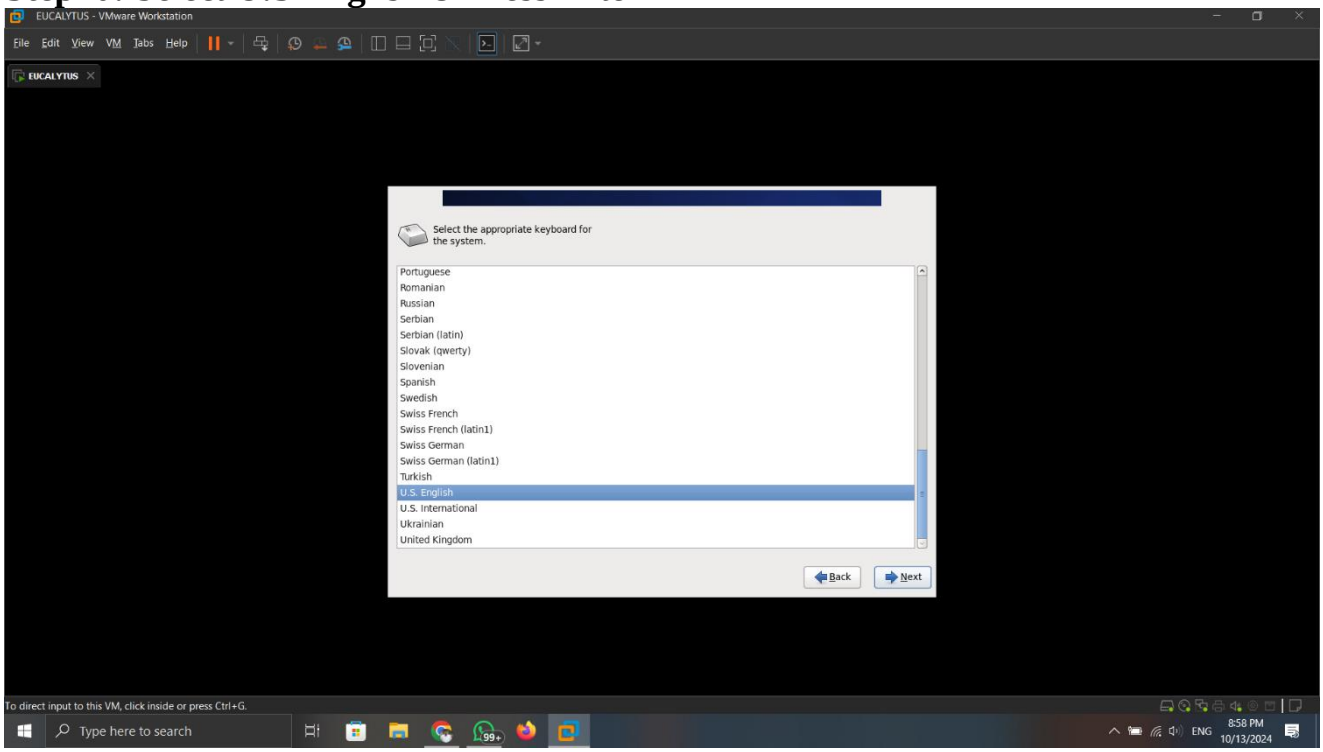


Step8: When the installation screen pops up **Click on Next**

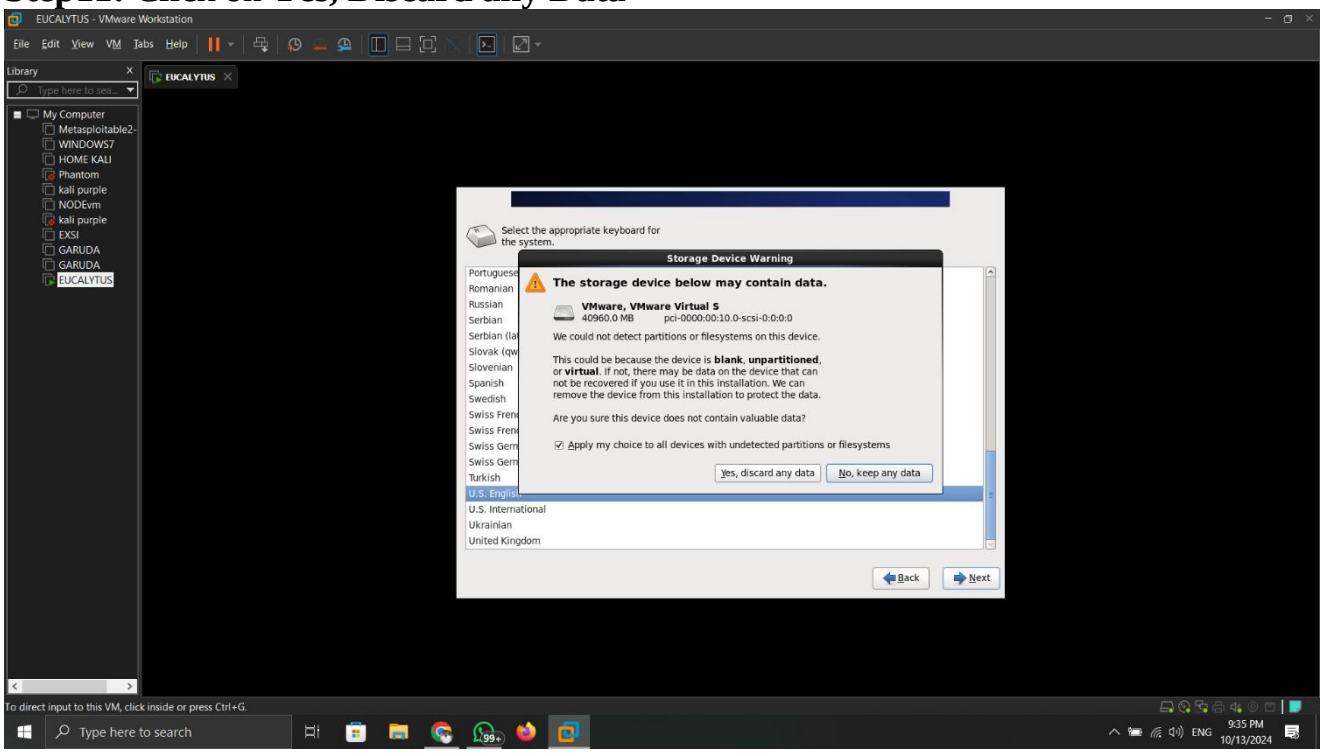
Step9: Select **English** Press Enter



Step10: Select **U.S English** & Press Enter

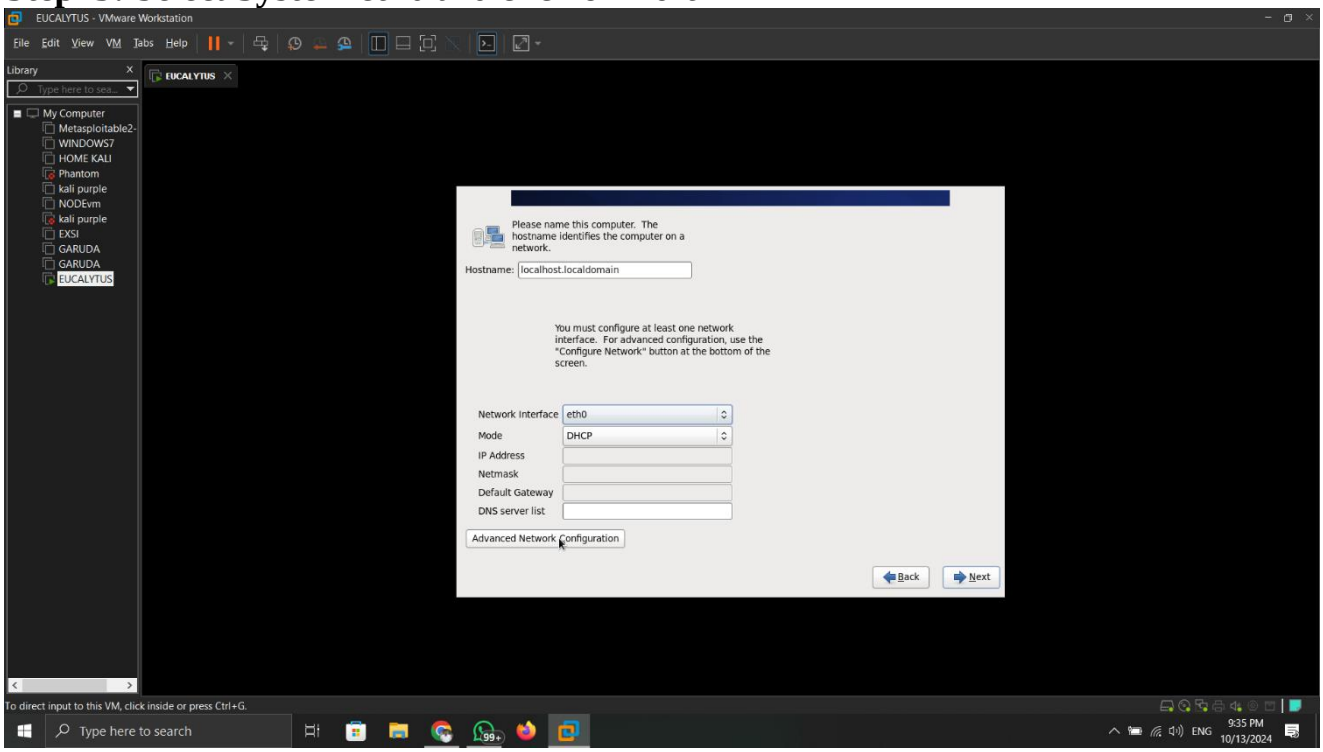


Step11: Click on **Yes, Discard any Data**

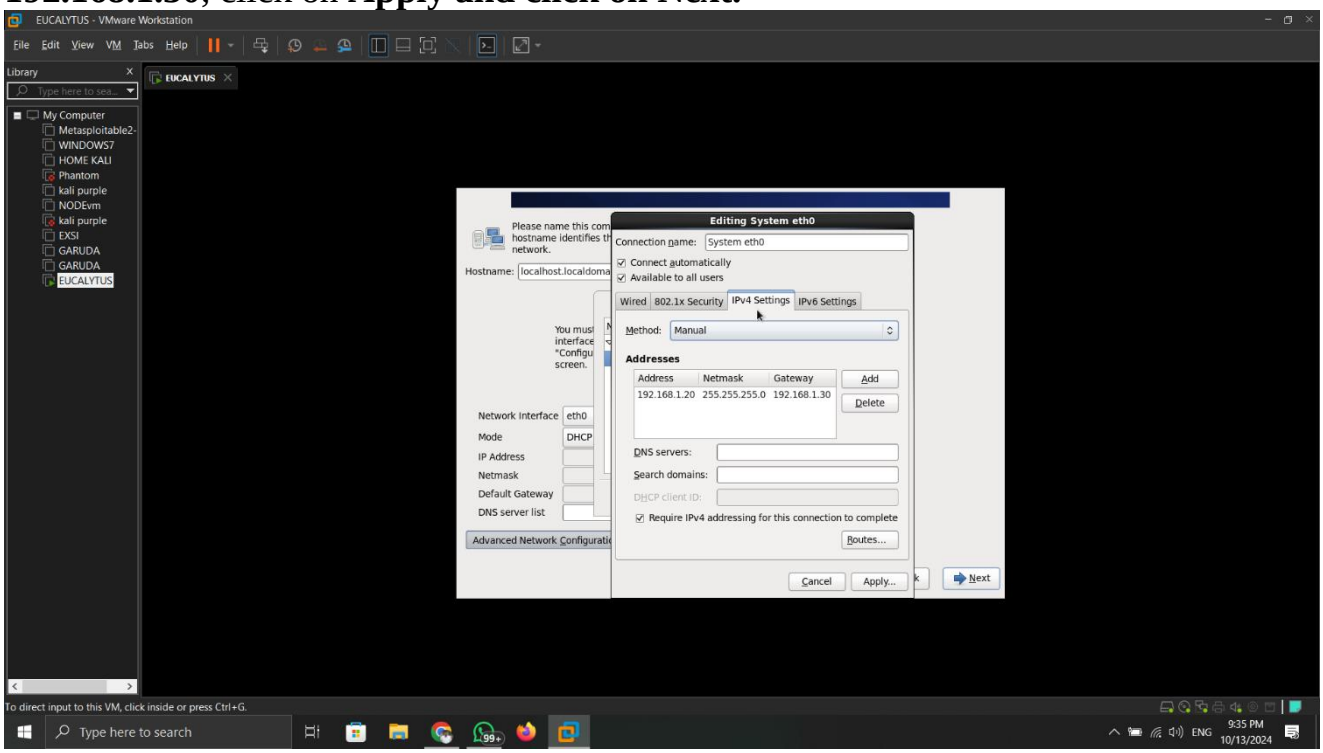


Step12: Click on **Advance Network Configuration**

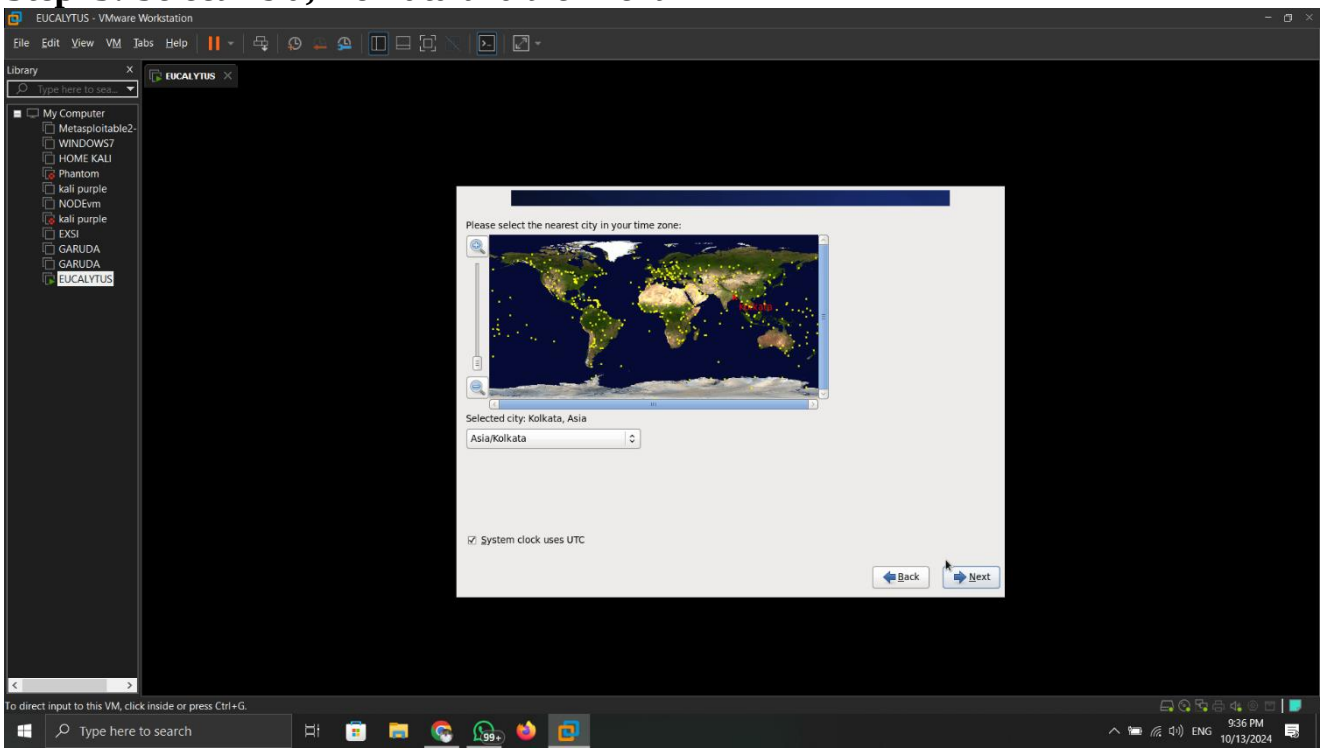
Step13: Select **System eth0** and click on **Edit**



Step14: Click on Add **Address as 192.168.1.20**, **Netmasks 255.255.255.0, Gateway as 192.168.1.30**, click on **Apply and click on Next.**

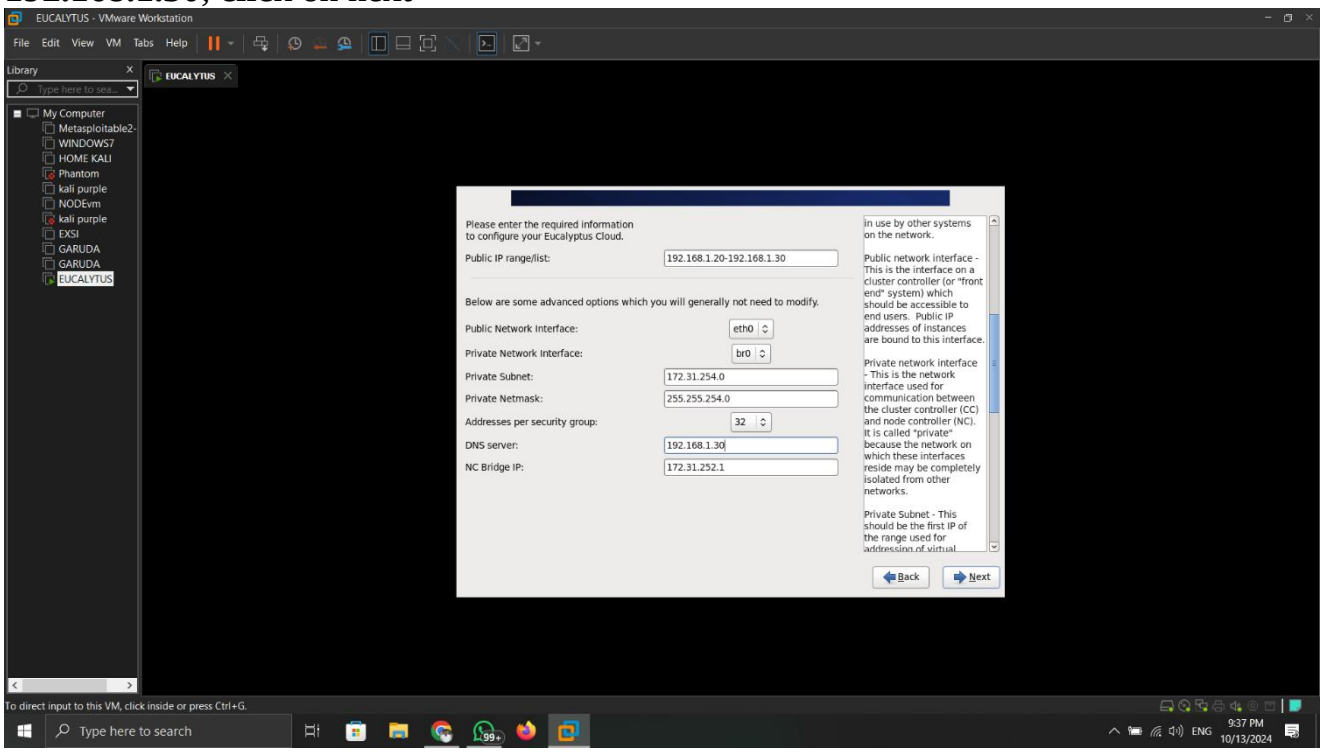


Step15: Select **Asia, Kolkata** and then next

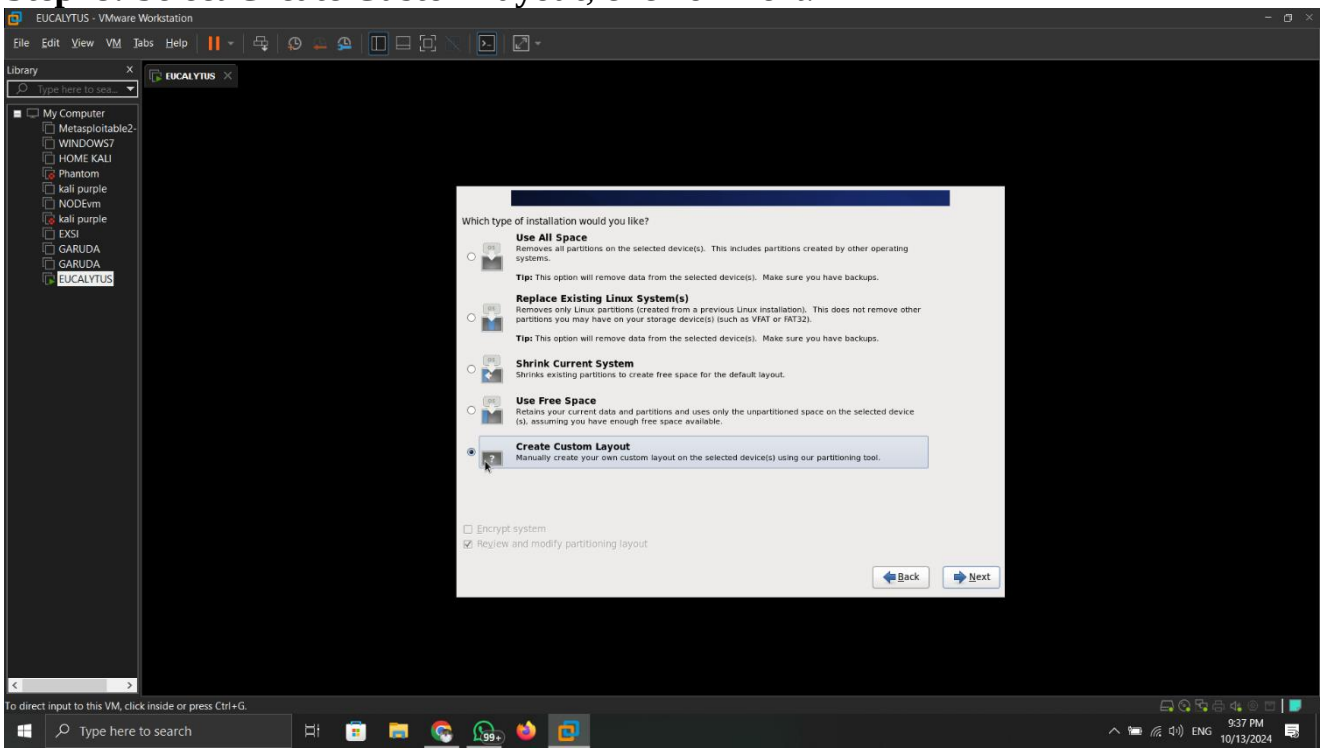


Step16: Create password and next

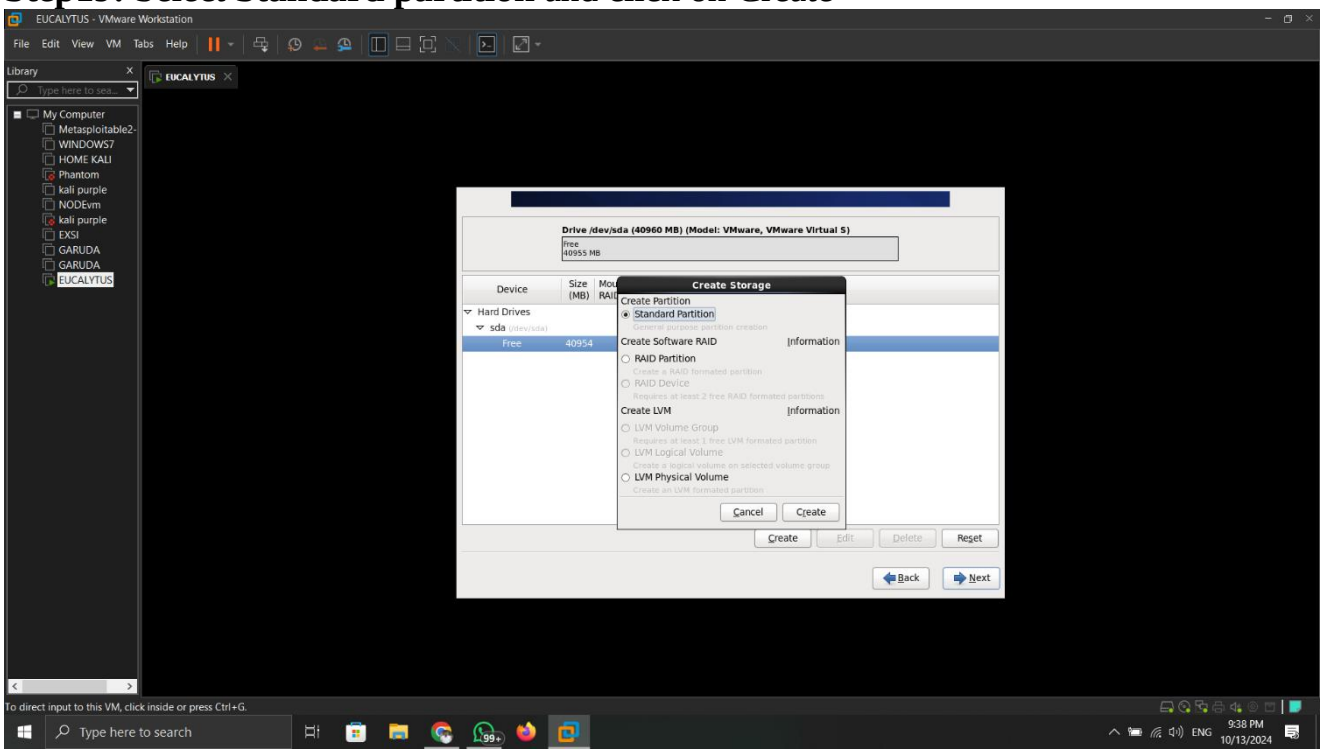
Step17: Place *public IP range* **192.168.1.20-192.168.1.30** and *DNS server* as **192.168.1.30**, click on next



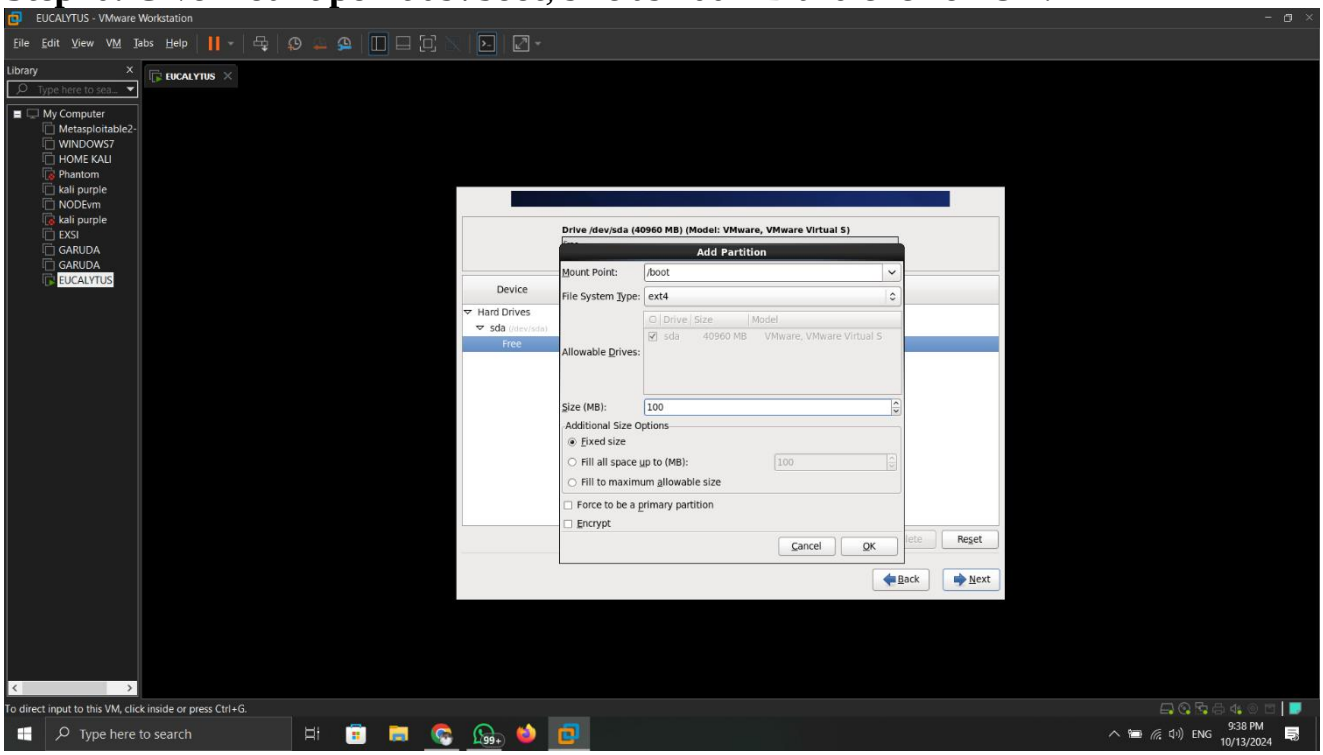
Step18: Select **Create Custom layout**, click on Next.



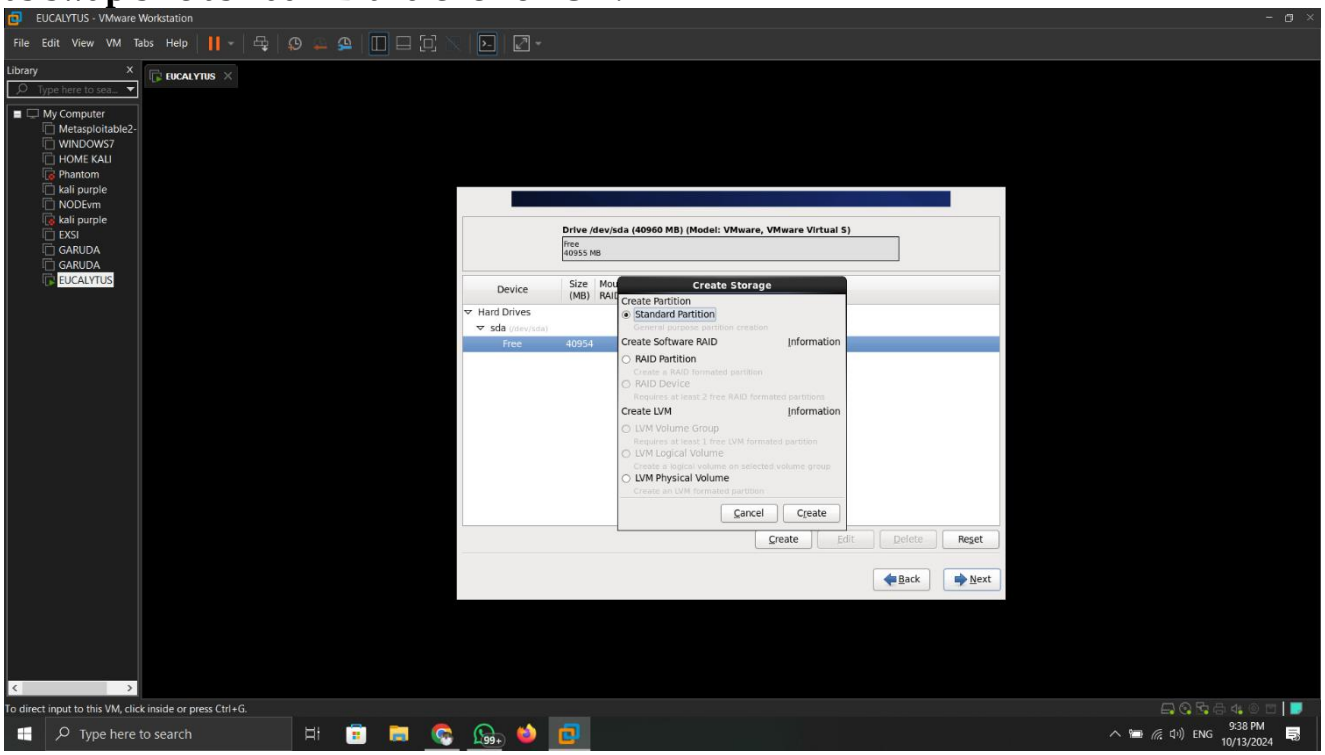
Step19: Select **Standard partition** and click on Create

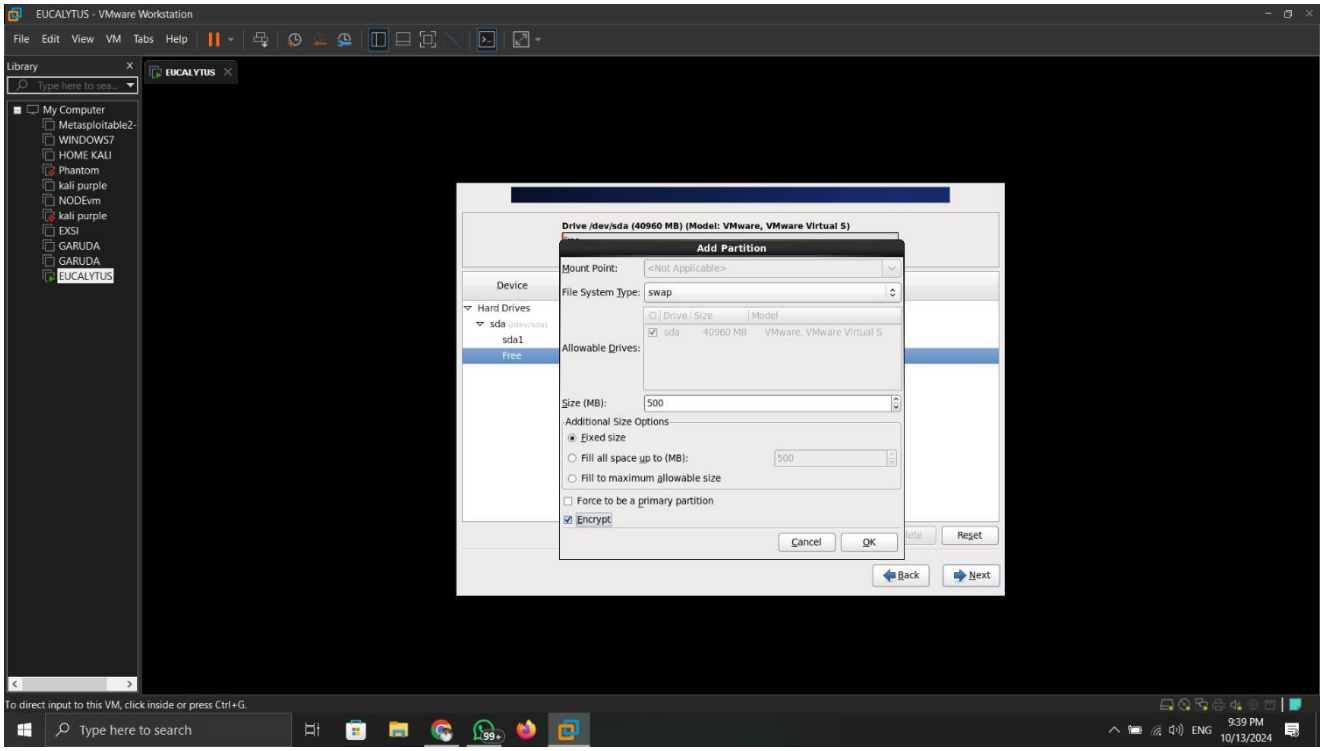


Step20: Give **mount point as /boot**, size as **100MB** and click on OK.

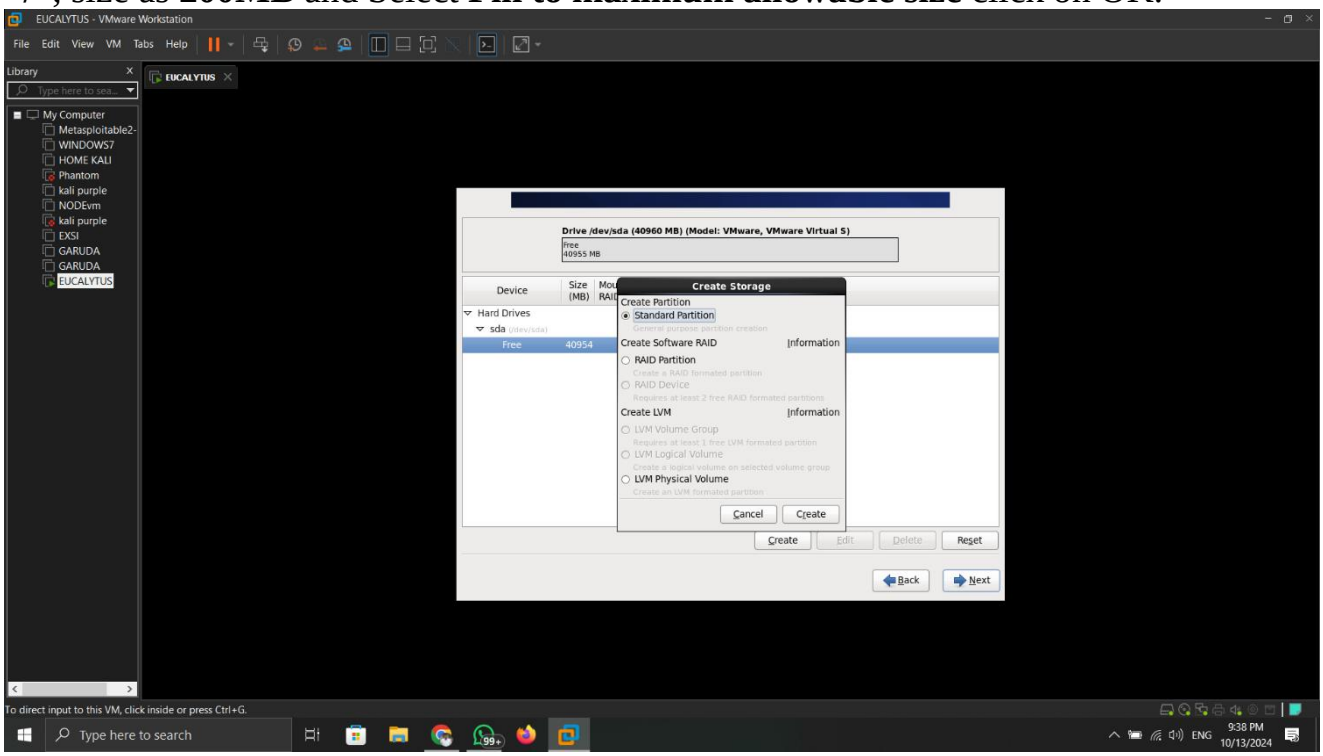


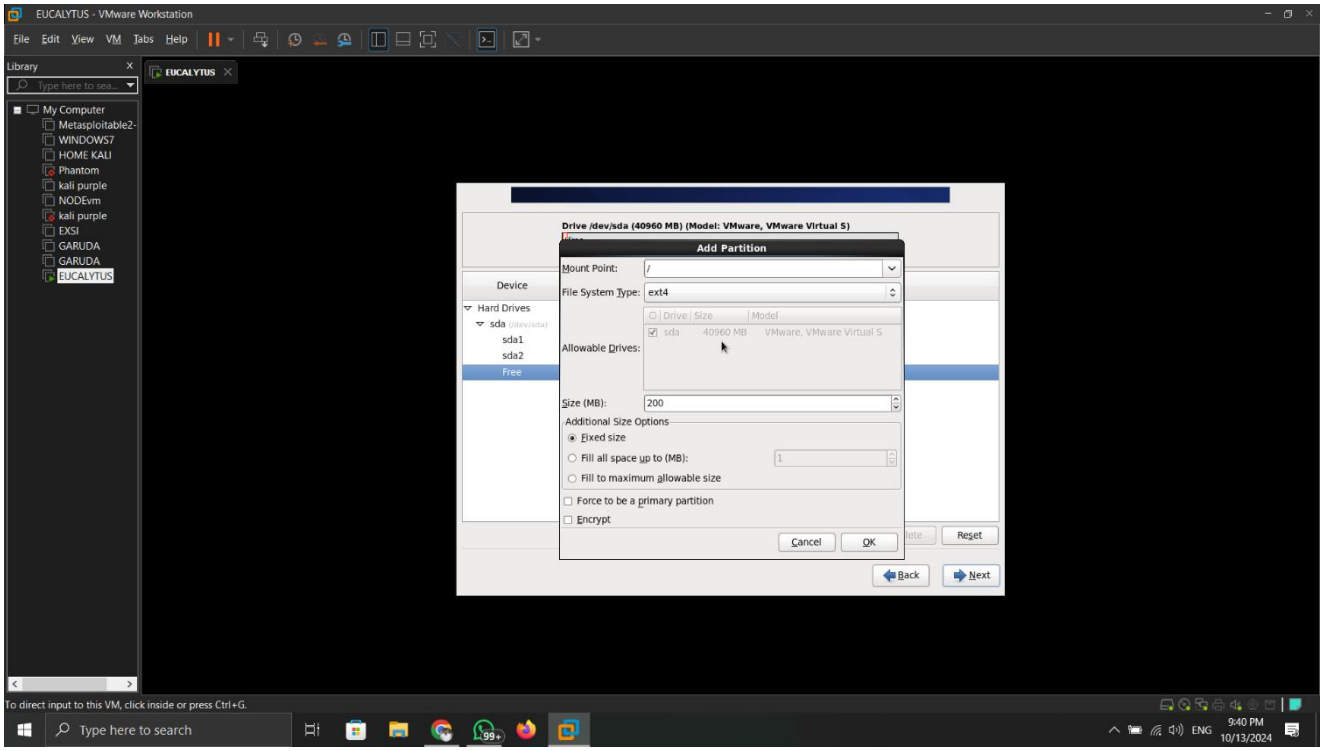
Step21: Again, Select **Standard partition** and click on Create & Select File System Type as **swap** size as 2**00MB** and click on OK.





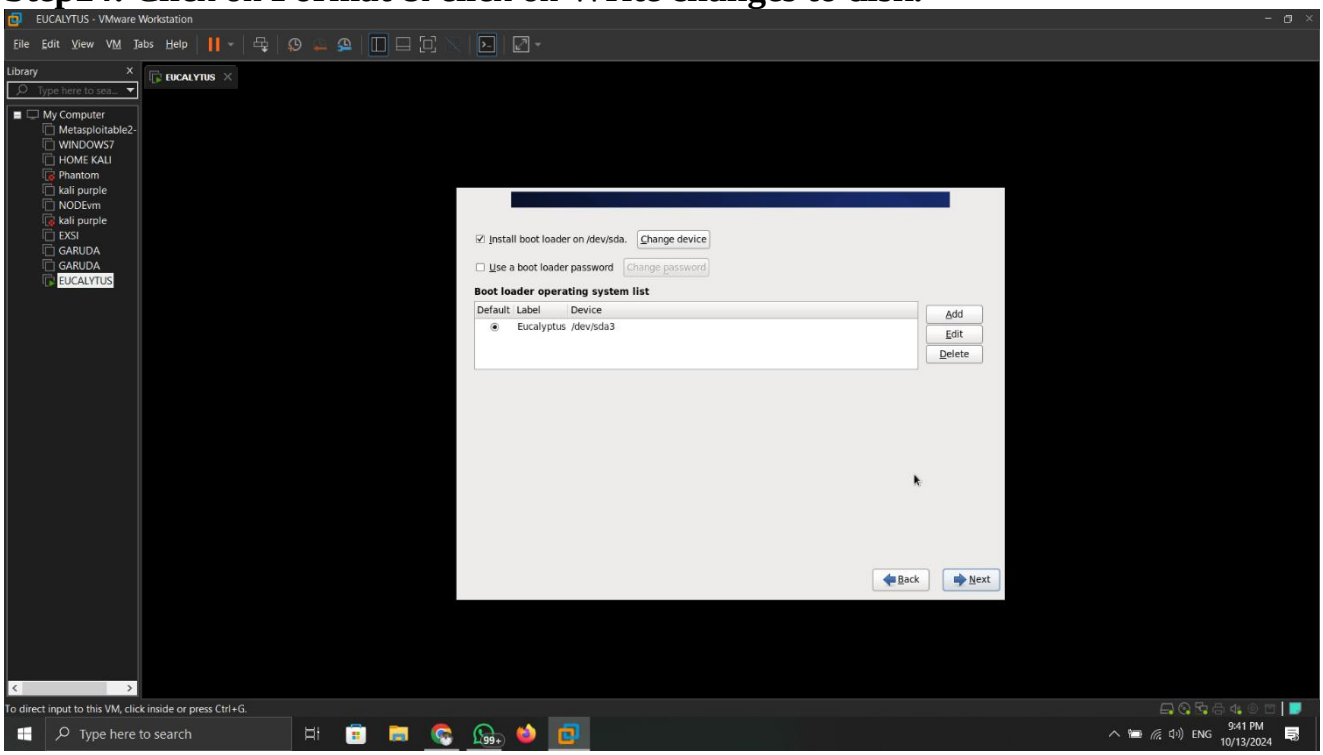
Step22: Again, Select **Standard partition** and click on Create & Give **mount point as "/",** size as **200MB** and Select **Fill to maximum allowable size** click on OK.



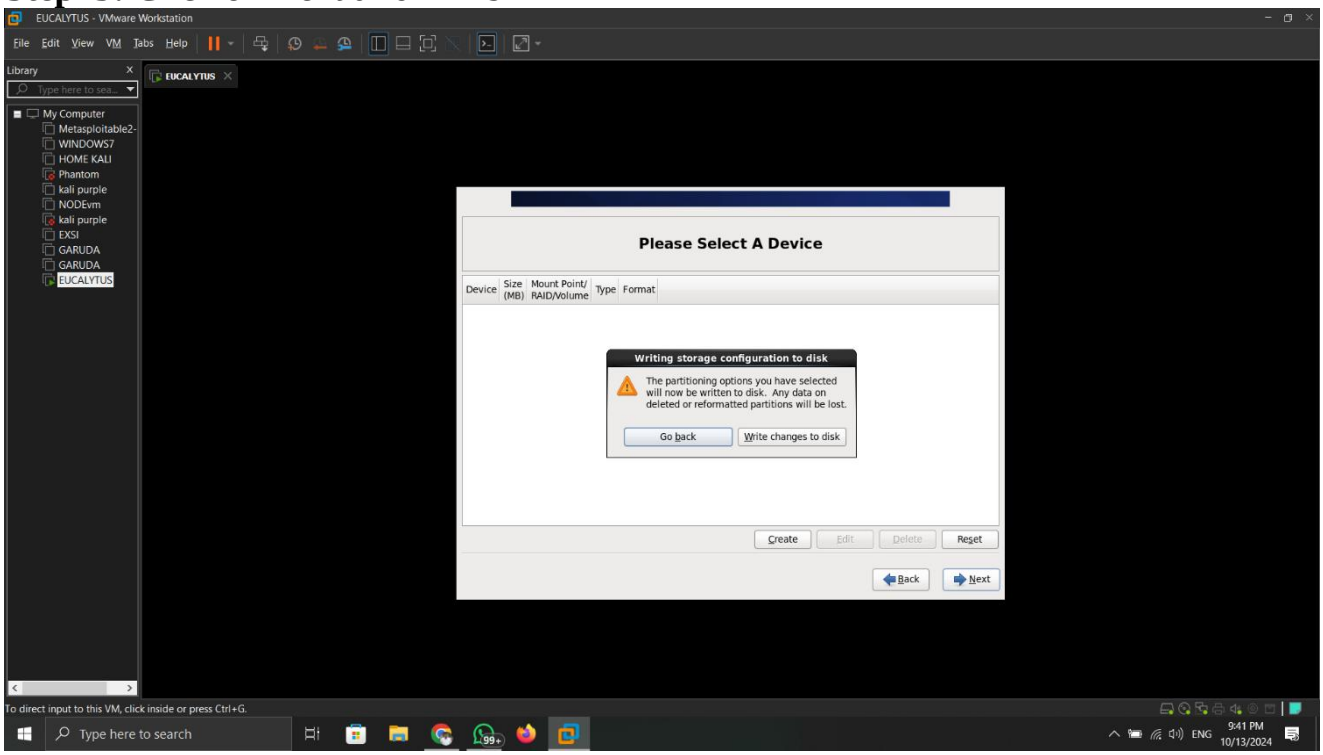


Step23: Click on Next

Step24: Click on **Format** & click on **Write changes to disk.**

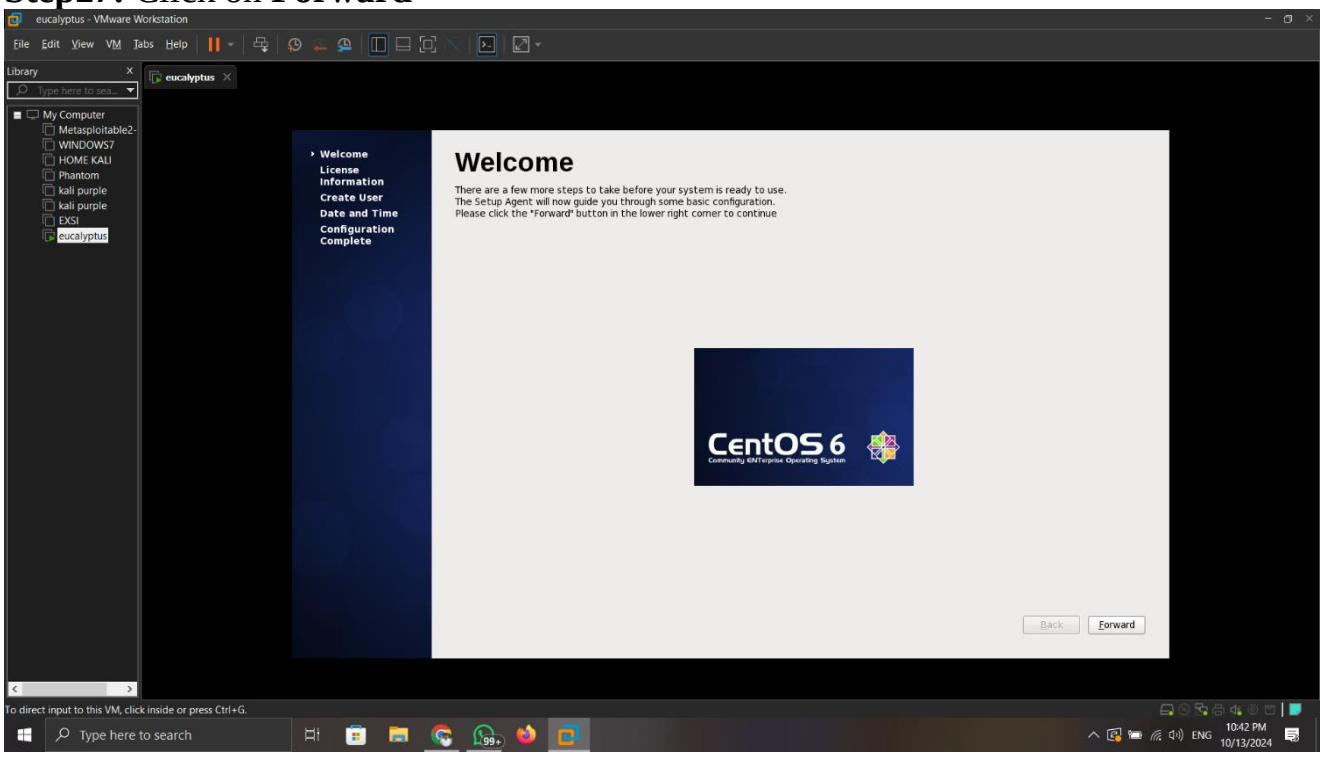


Step25: Click on Next **and Finish**

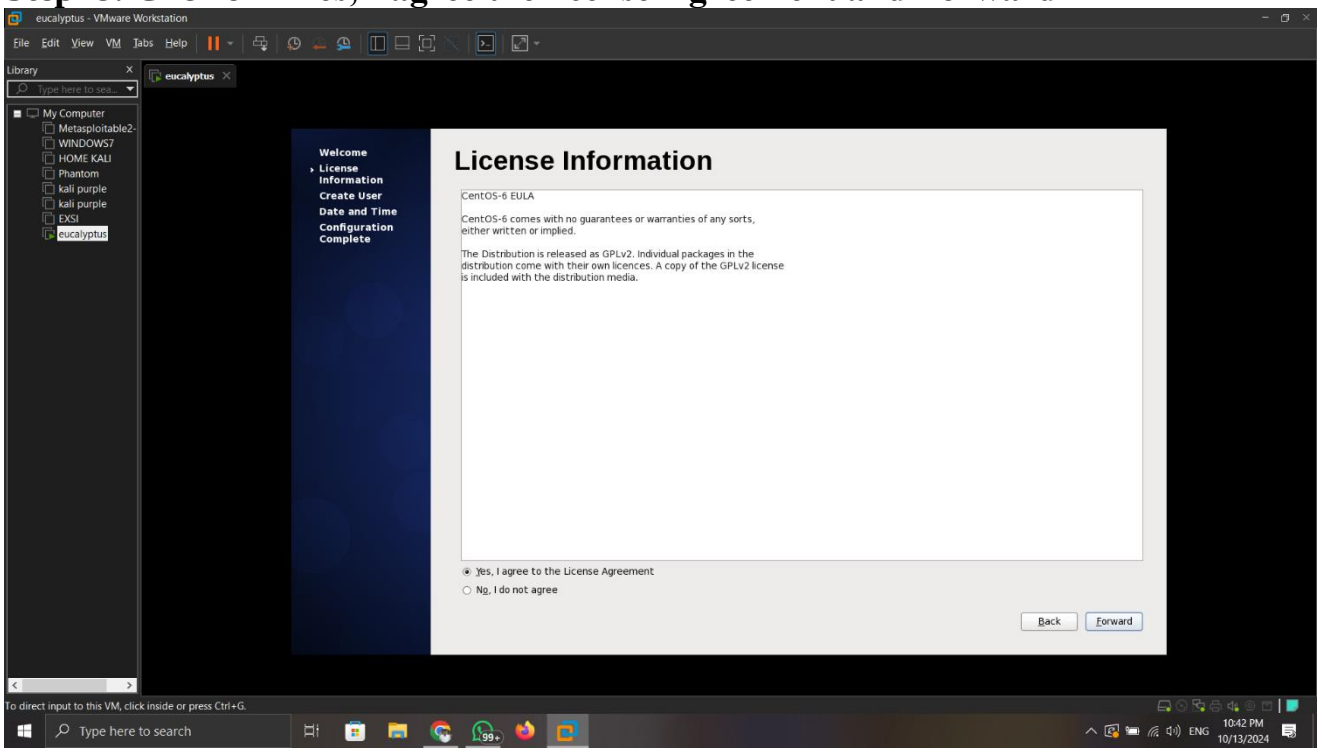


Step26: Click on **Reboot**

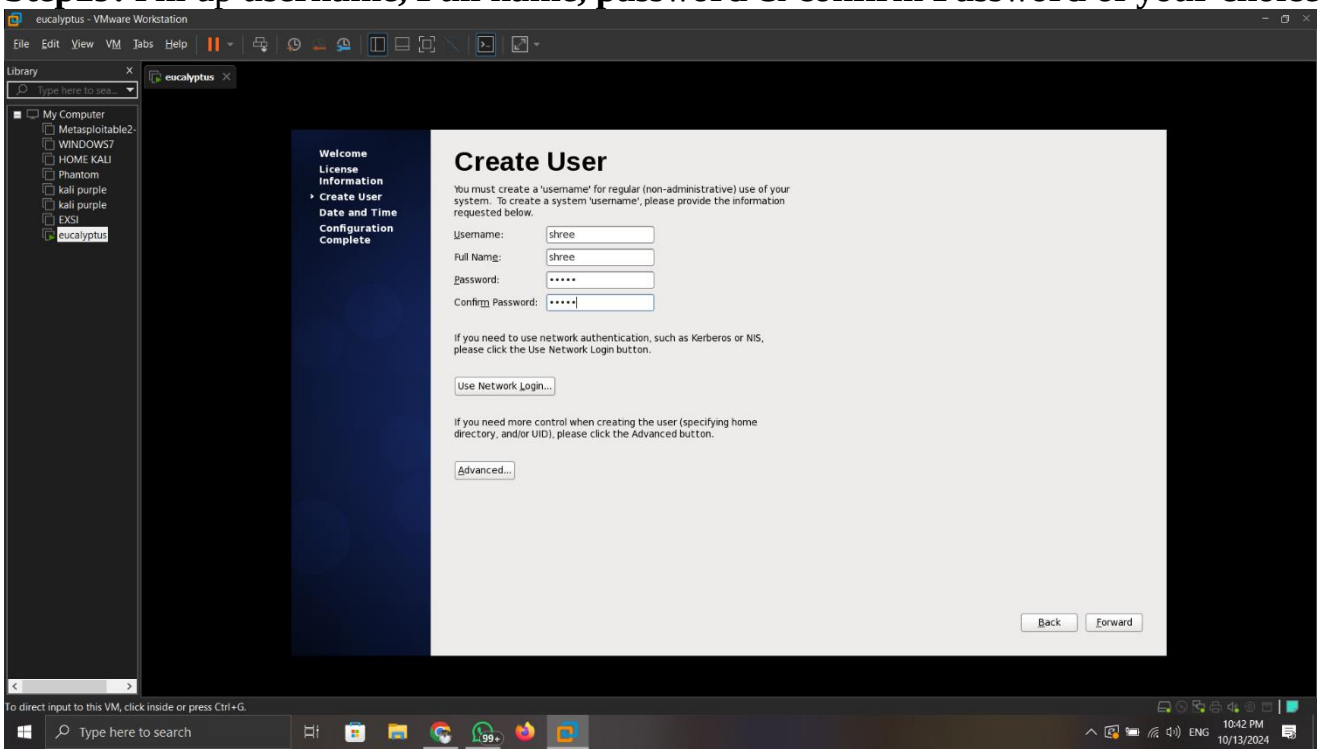
Step27: Click on **Forward**



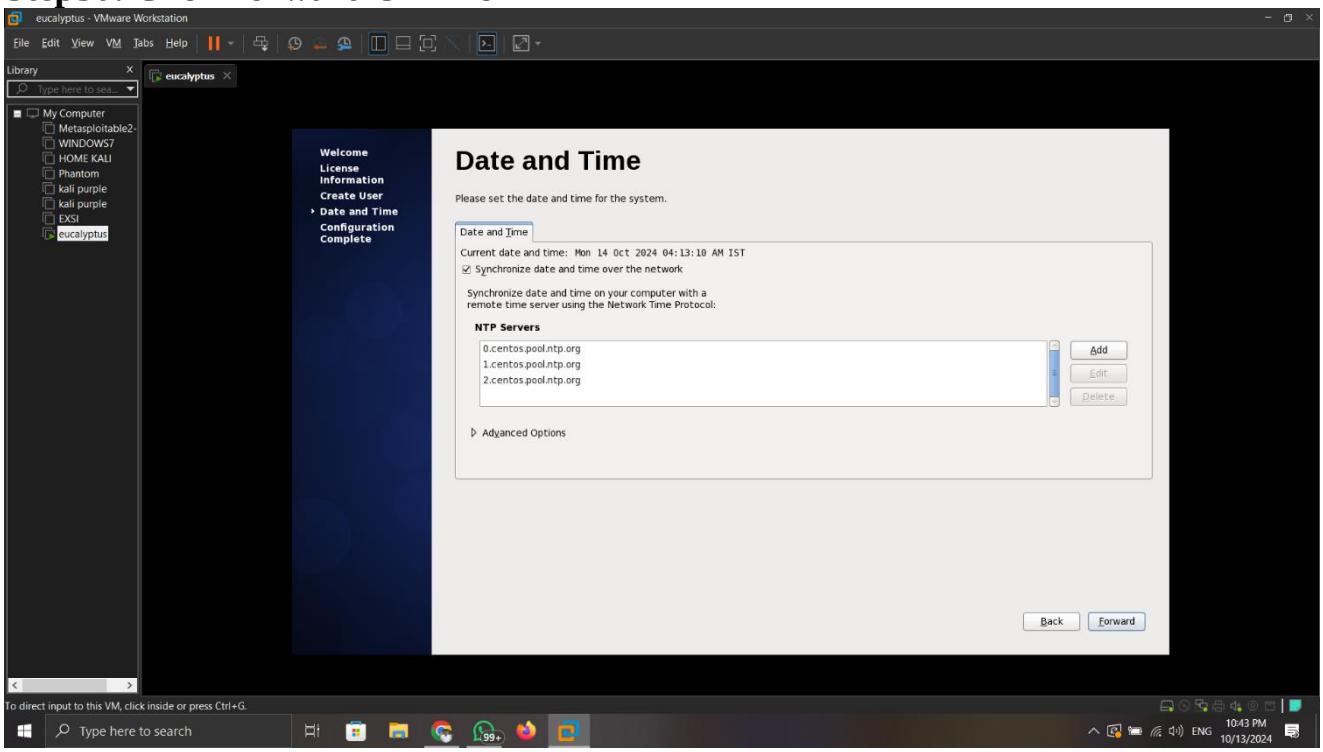
Step28: Click on **"Yes, I agree the license Agreement and Forward**



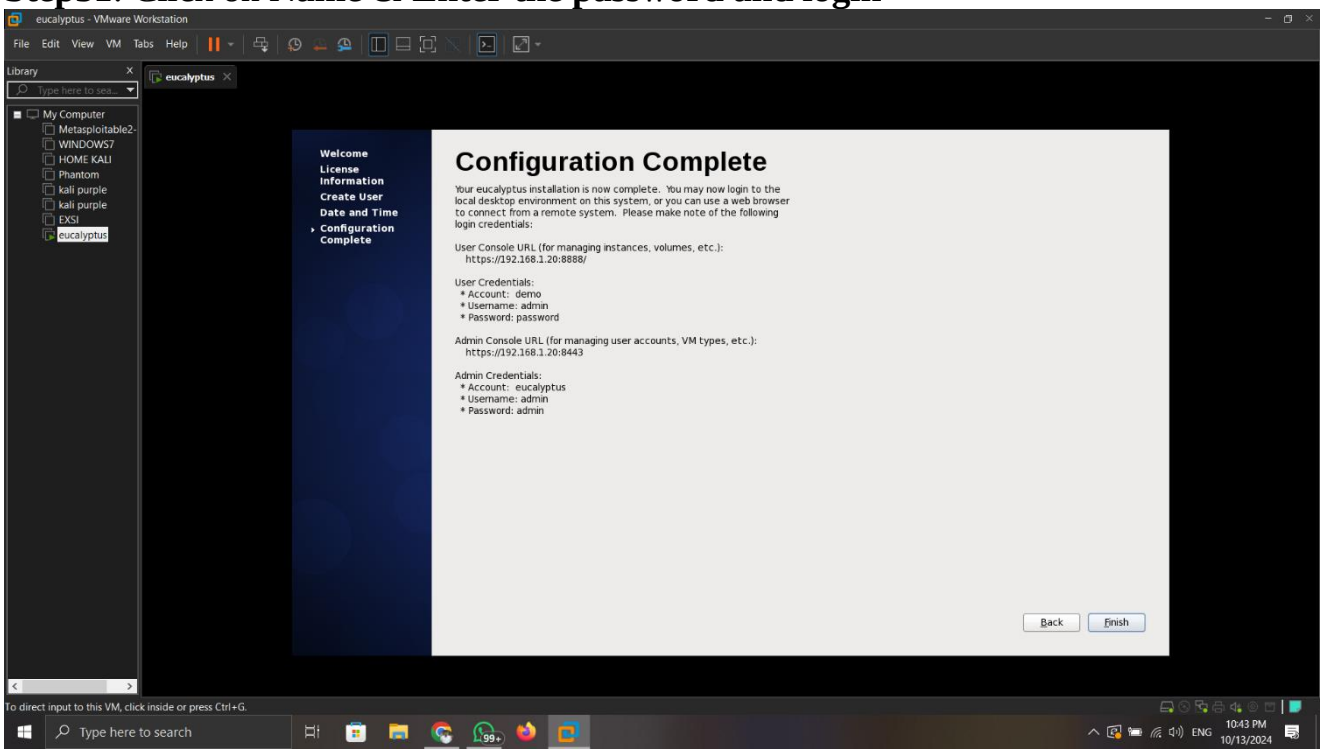
Step29: Fill up **username, Full name, password & confirm Password of your choice**



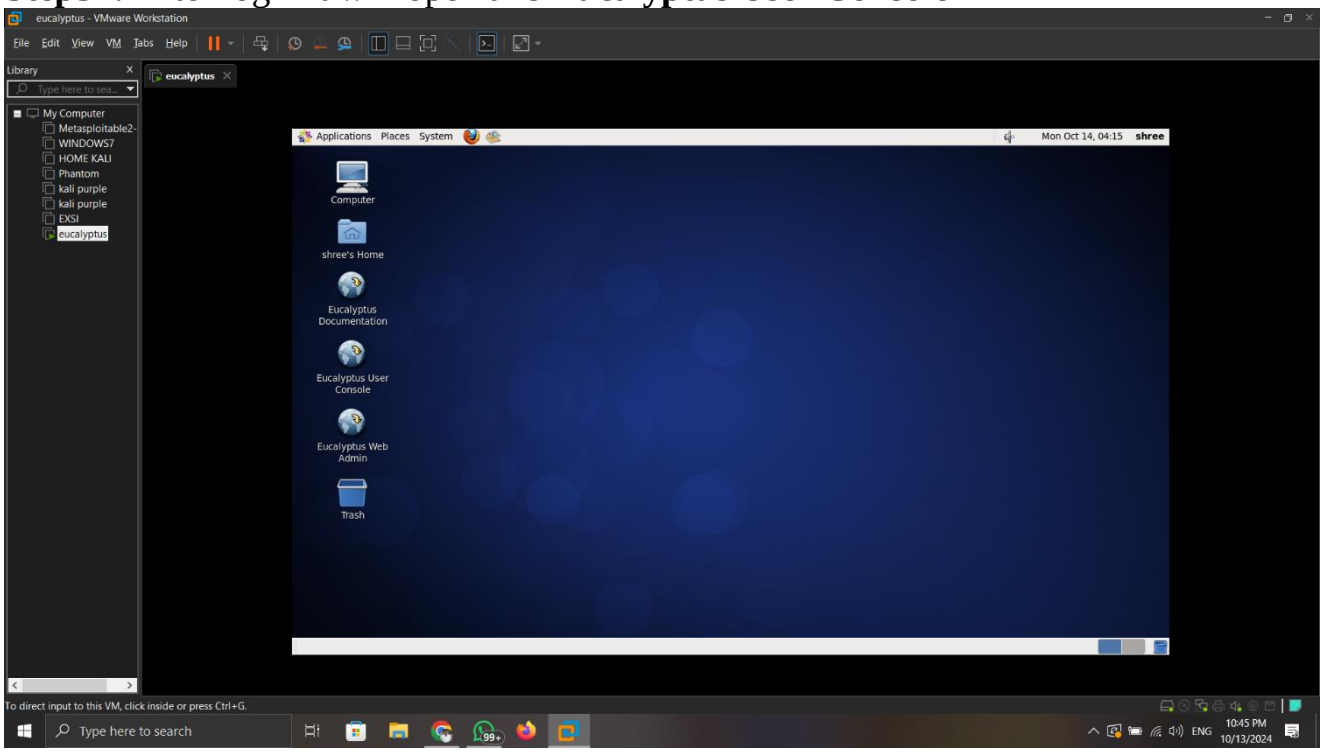
Step30: Click **Forward & Finish**



Step31: Click on **Name & Enter the password and login**

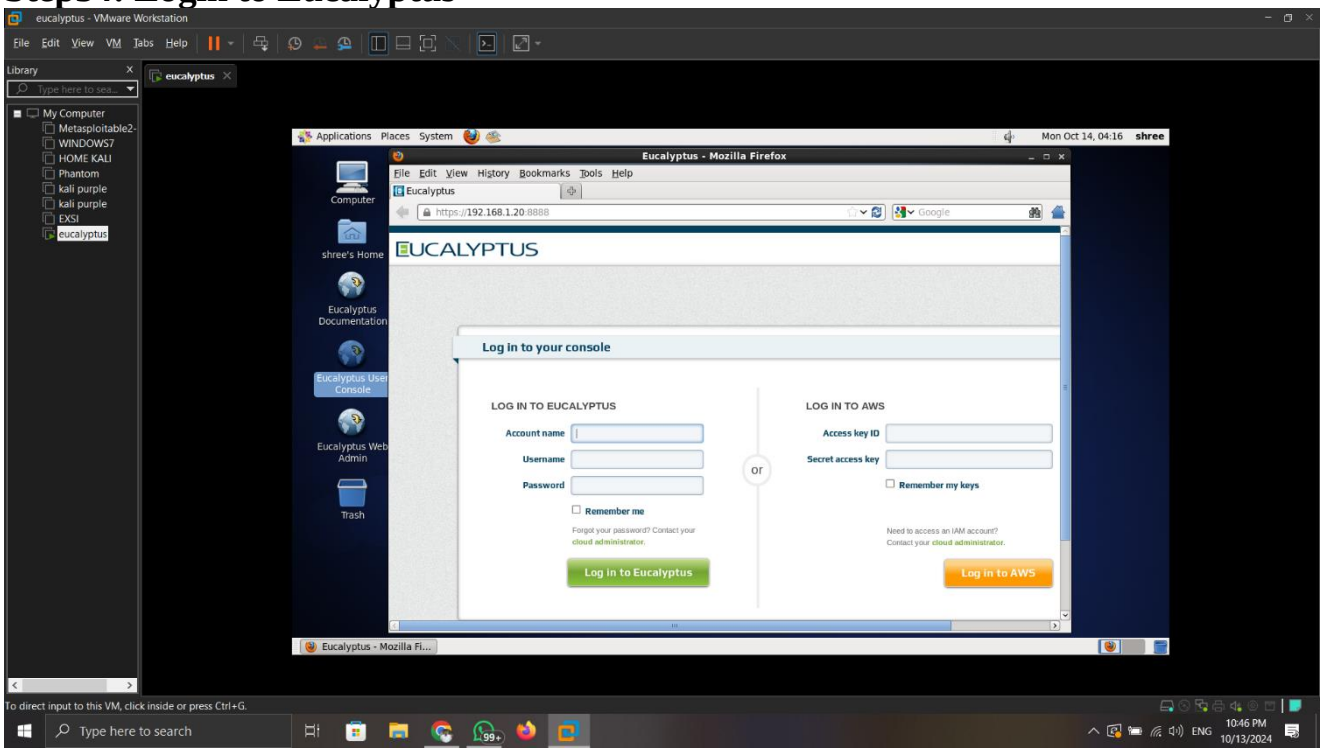


Step32: After login it will open this **Eucalyptus User Console**

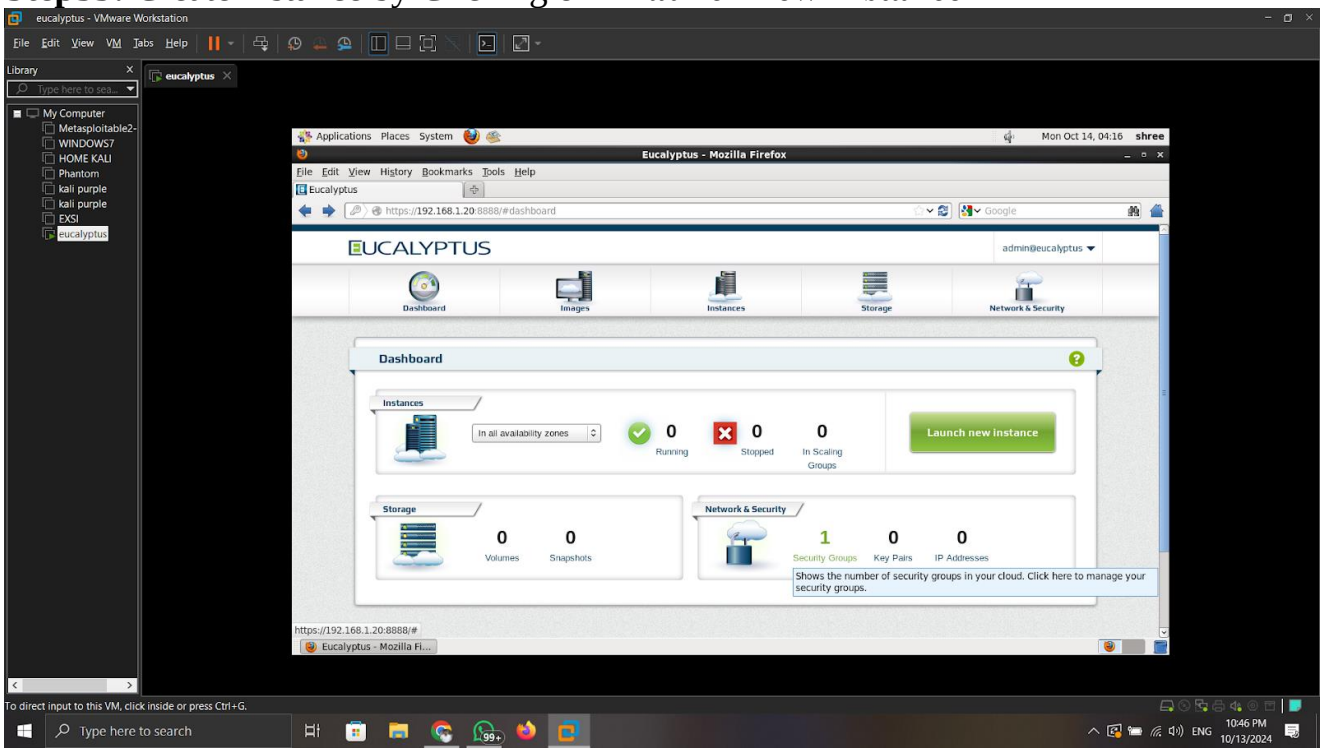


Step33: Now First Click on **Understand the risk and then add exception**

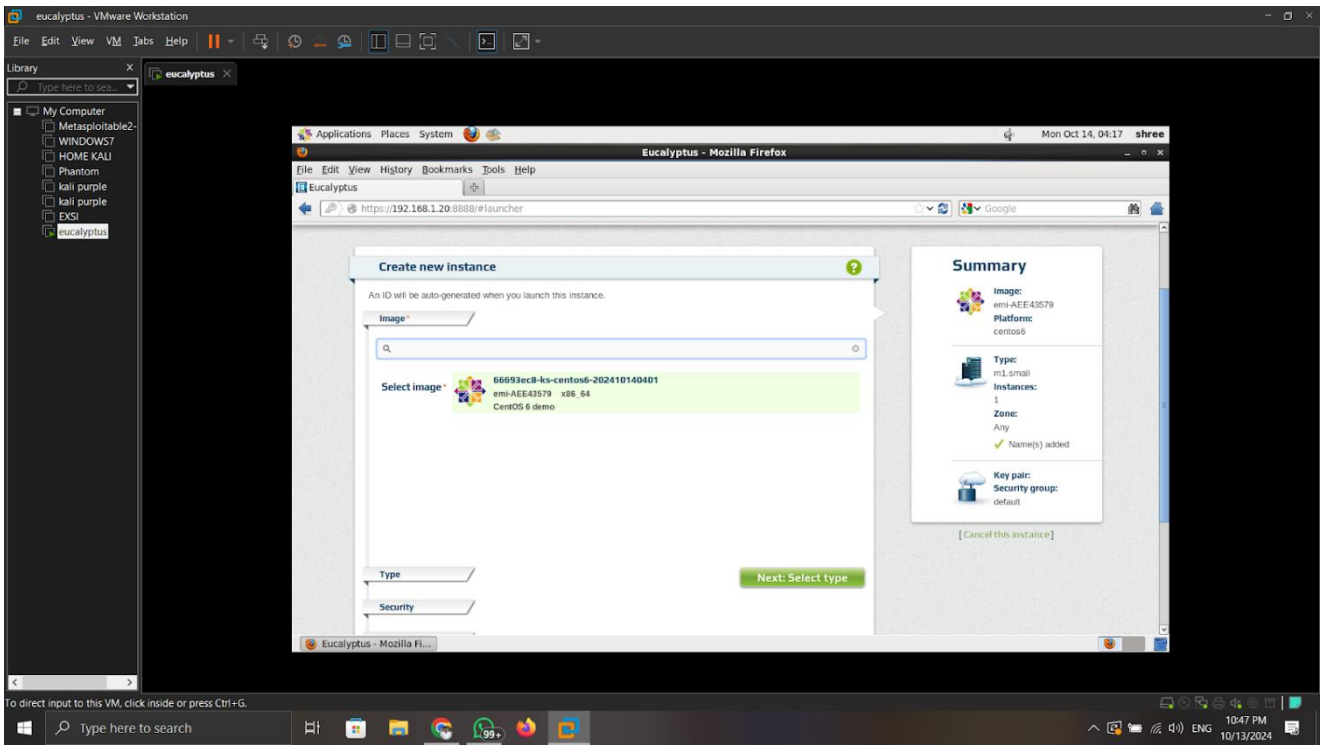
Step34: Login to Eucalyptus



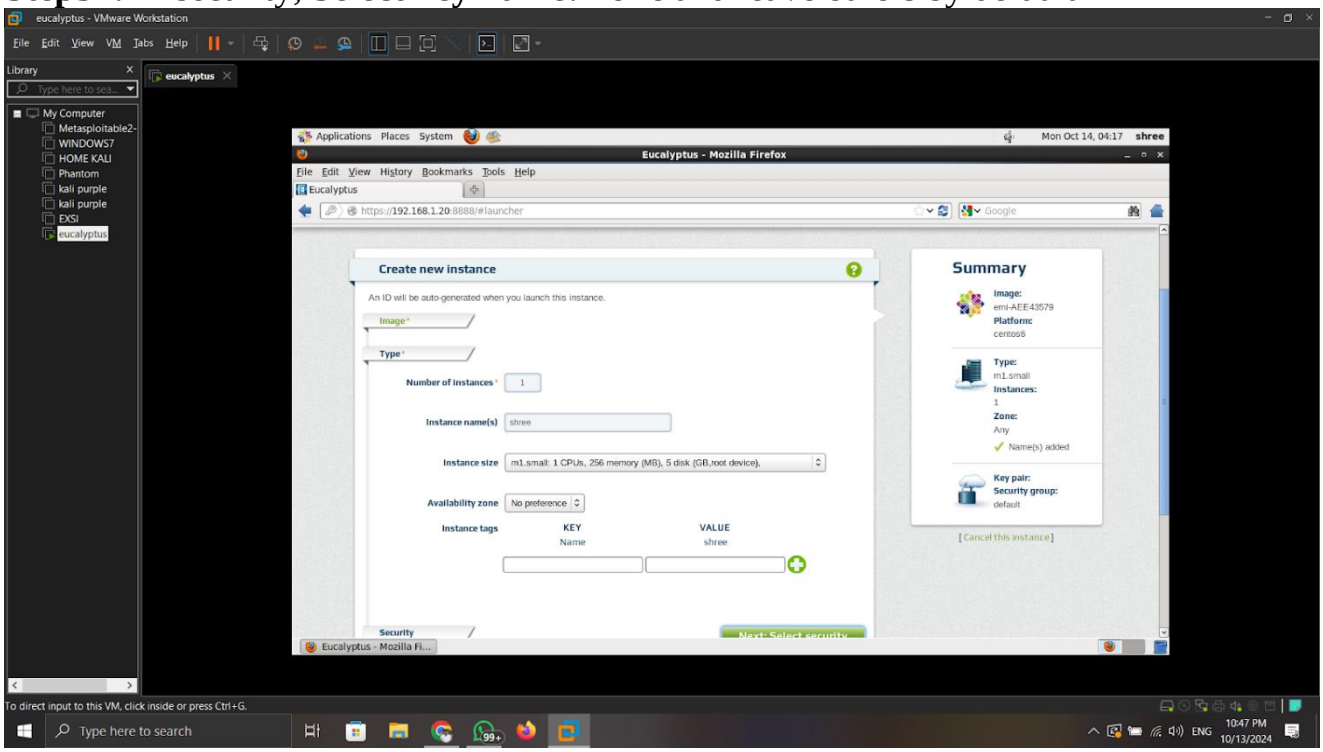
Step35: Create instance by Clicking on **"Launch new Instance"**



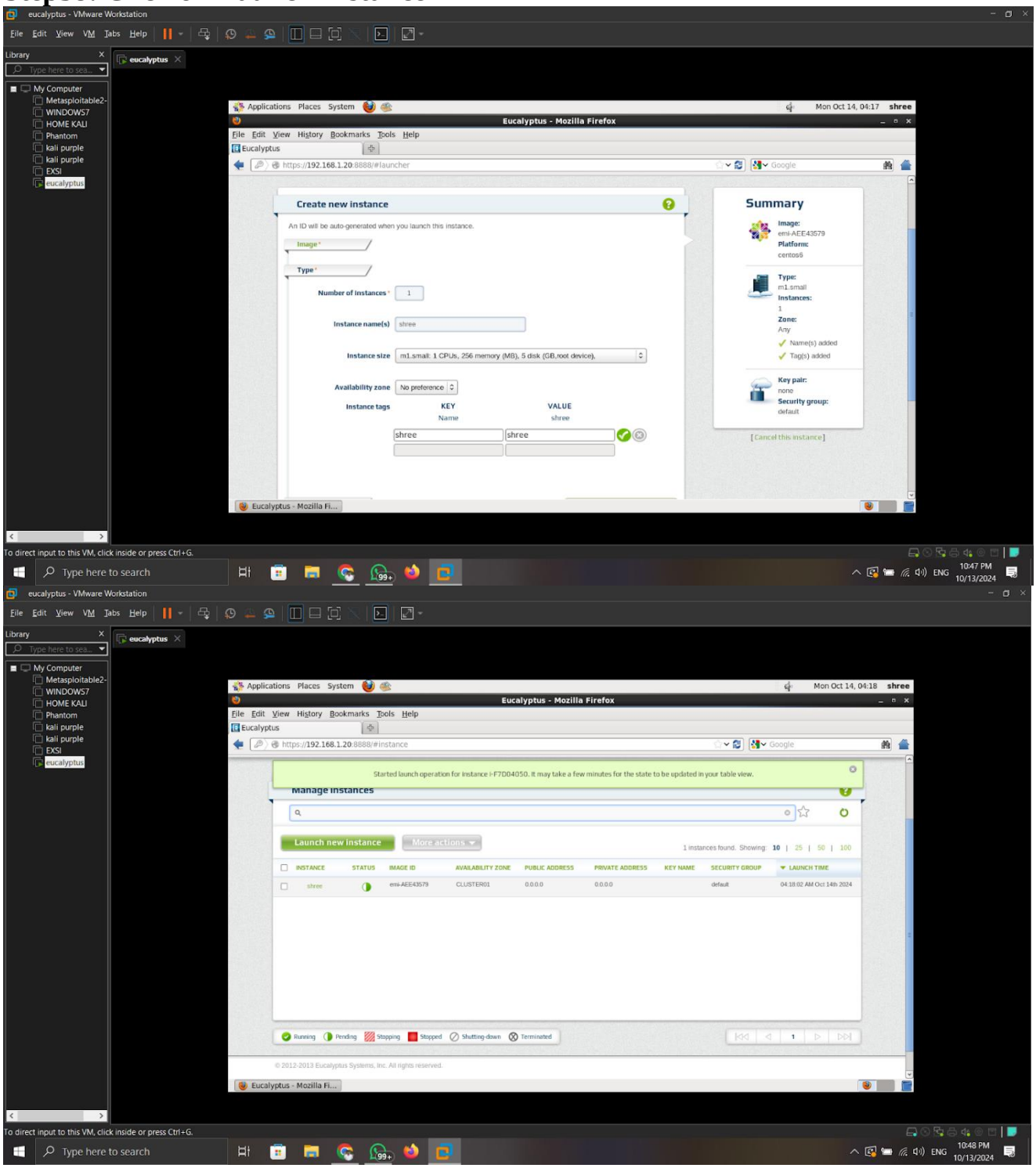
Step36: Click on **Next: Select Type** and give the **instance name** as **Eucalyptus** and **key name is Shree**



Step37: In security, **Select key name: none** and leave others by default



Step38: Click on Launch Instance



Step39: After clicking on launch instance, it will display this window

PRACTICAL 5

Aim: Manage XenServer with XenCenter

Requirements:- 1.VM Ware

2. Xen Center

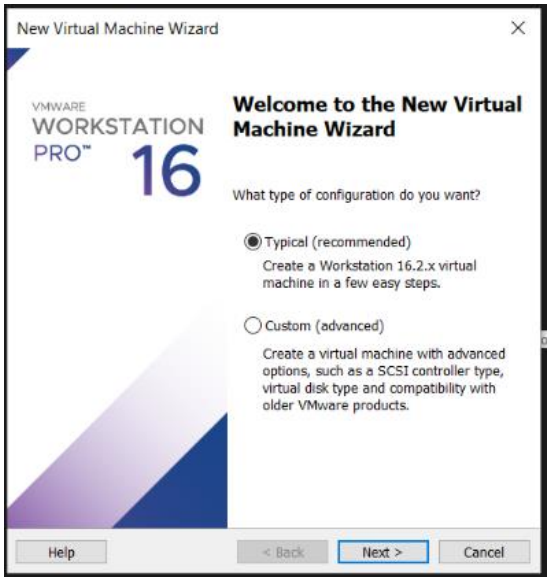
3.Xen Server 8

Steps:

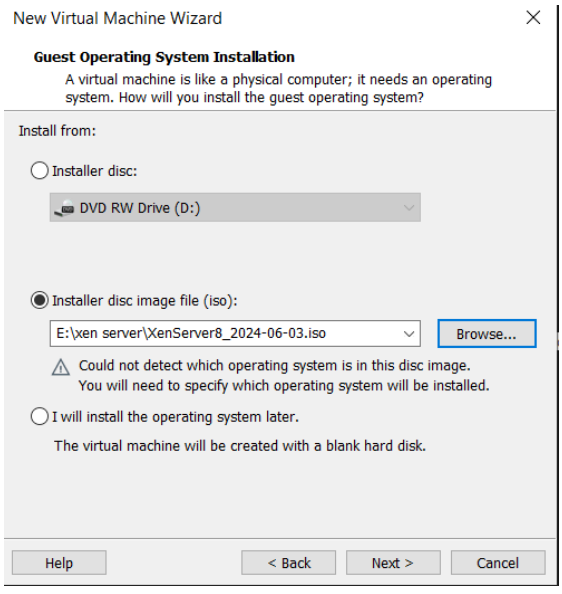
Step1:- Create a new Virtual Machine in VMware Workstation

File → New Virtual Machine

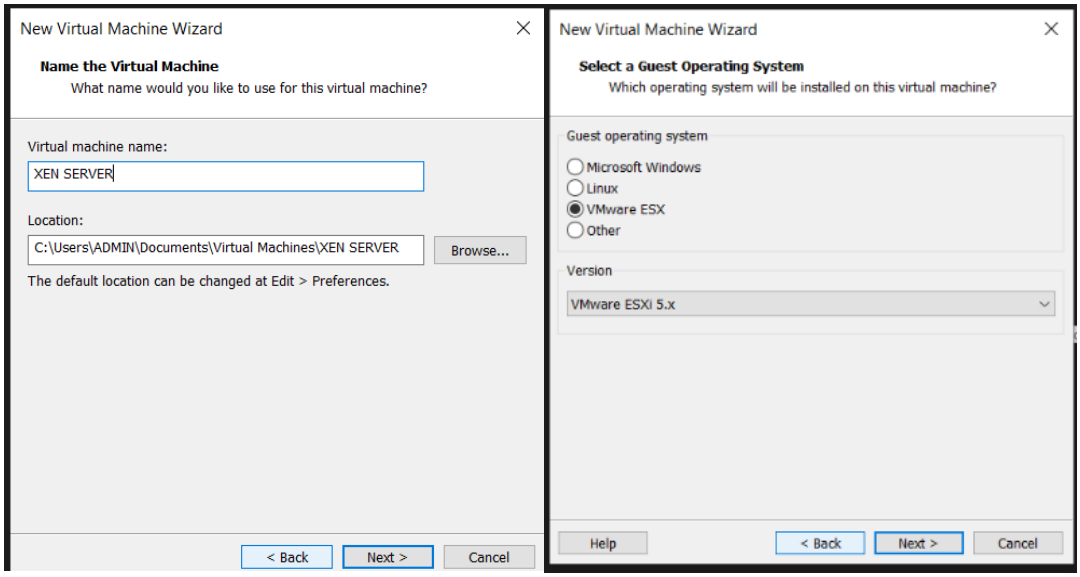
Step2: Select Typical (recommended) and click on “Next” button.



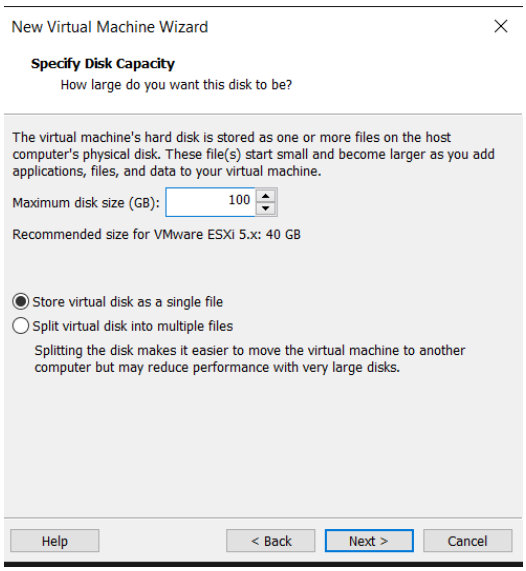
Step3: Select the iso file click on the Browse & select “XenServer-8.2.0- install-cd” file. Then click on the “Next” button.



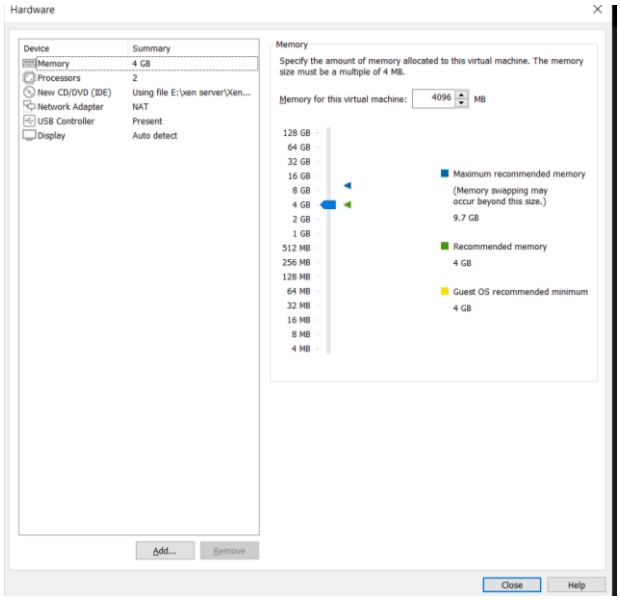
Step4: Select Guest OS as “VMware ESXi” and Version as “VMware ESXi 5”. Give a name to the Virtual Machine as Xen Server



Step5: Select Maximum disk size 100 GB . Store virtual disk as a single file" and click on "Next". Click on "Customize Hardware"

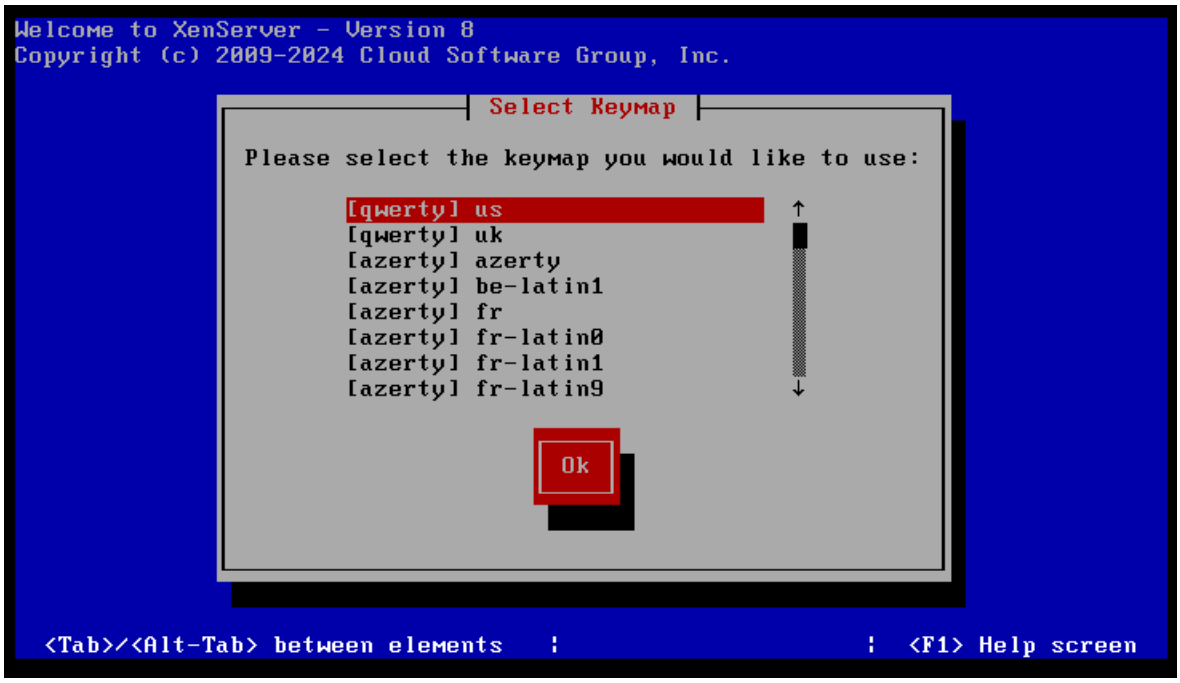


Step6: At the Hardware window select Memory size as 2GB, Close and Click on "Finish"

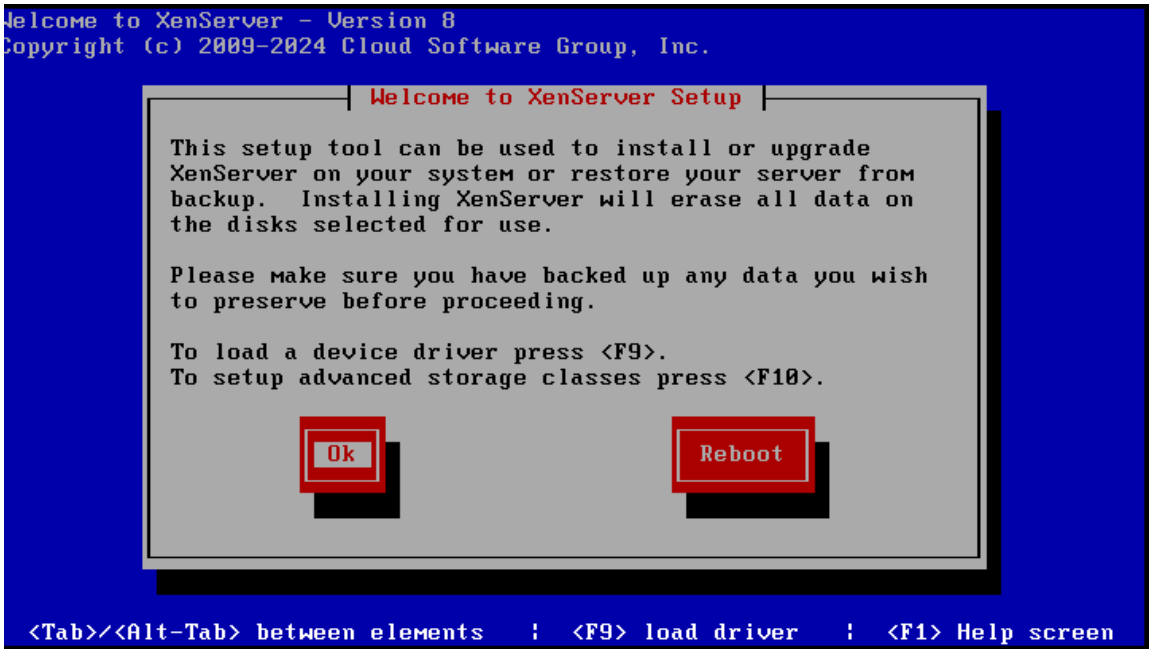


Step7: Power ON the Xen Server

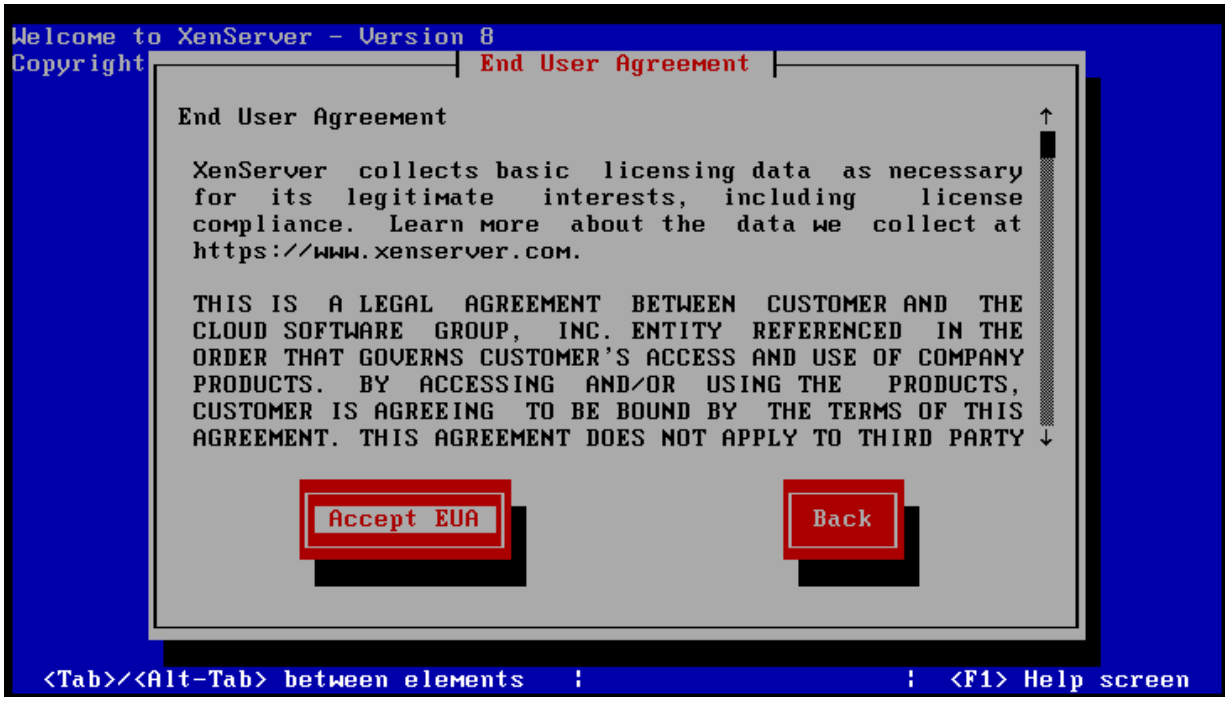
Step8: Select Keymap as [qwerty] us and press Enter.



Step9: In the Welcome to XenServer Setup screen press Enter to choose Ok.

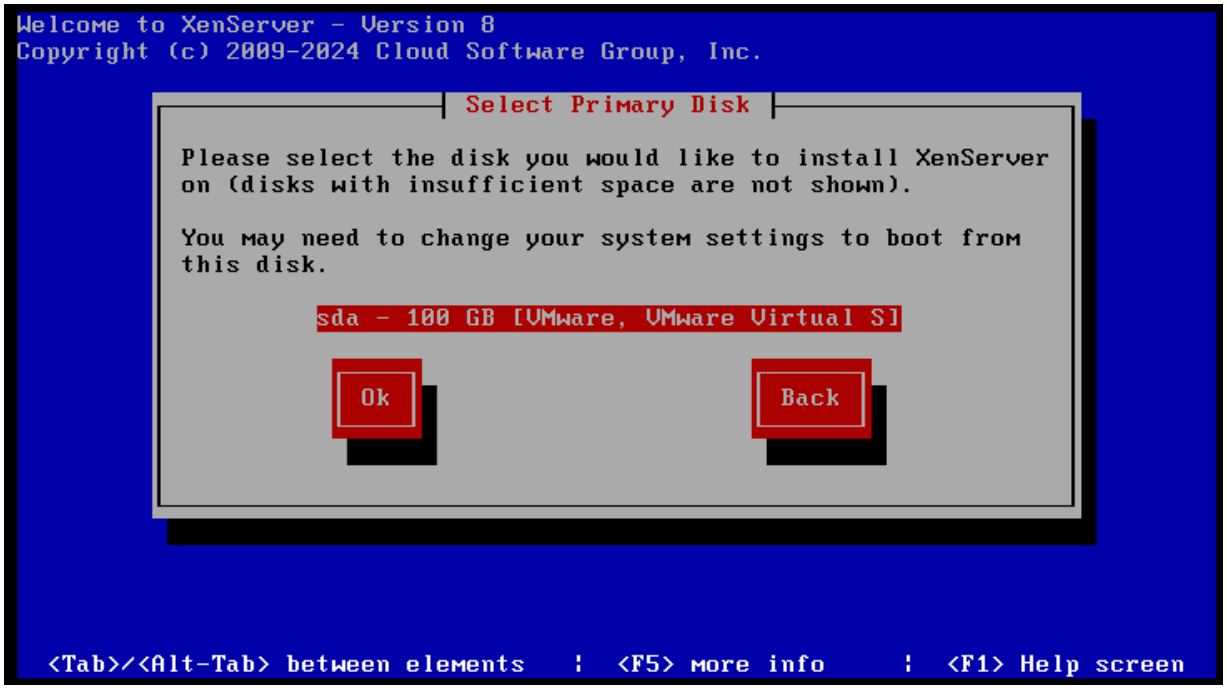


Step10:In End User Agreement Select Accept EUA

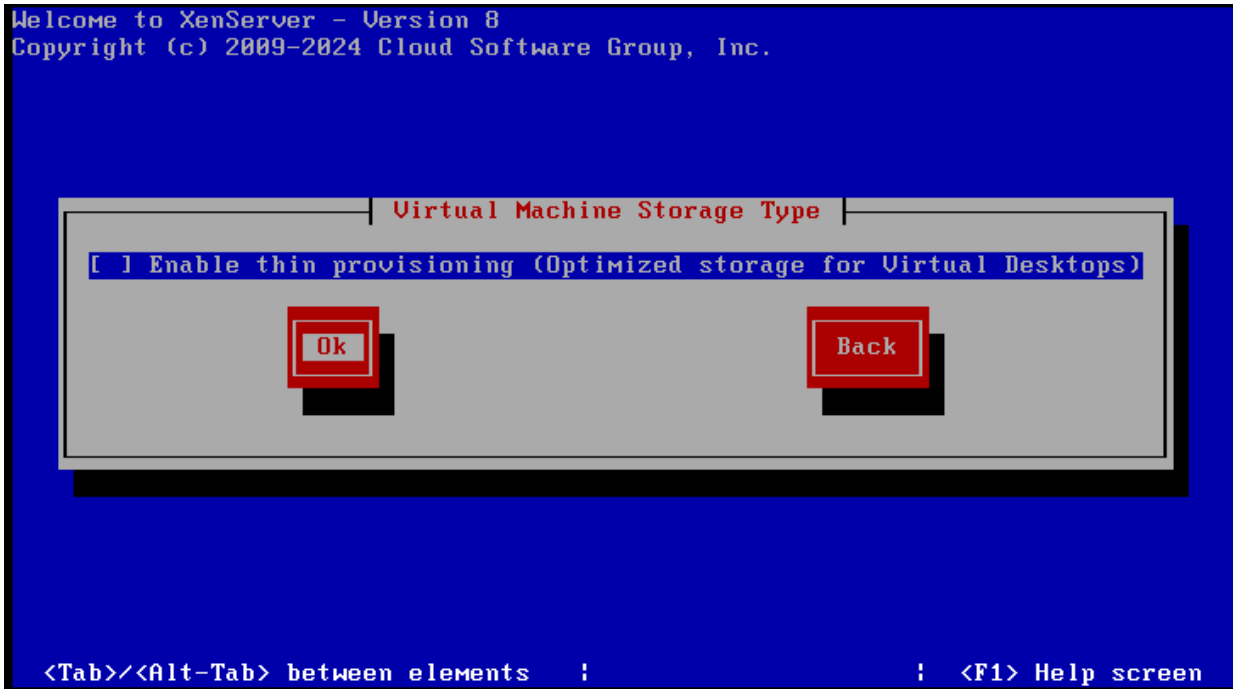


Step11:In system Firmware Select OK

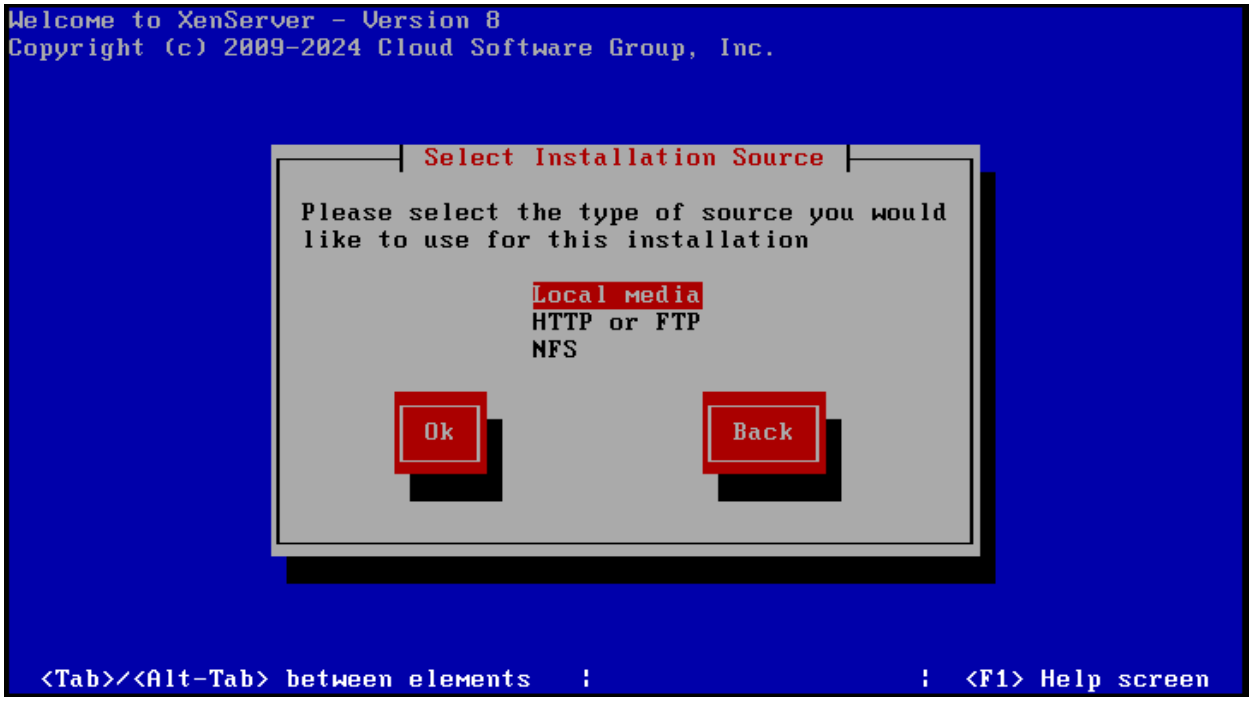
Step12:Select Primary Disk and press OK



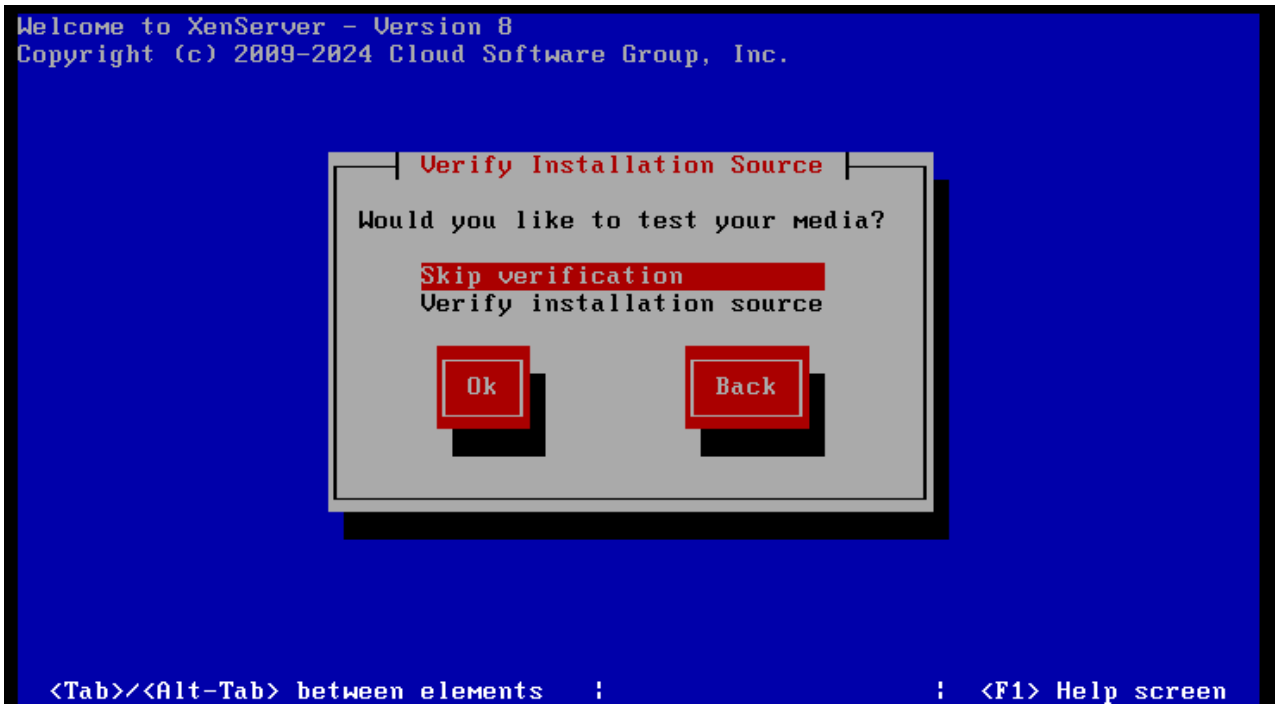
Step13: In Virtual Machine Storage Type Select and press OK



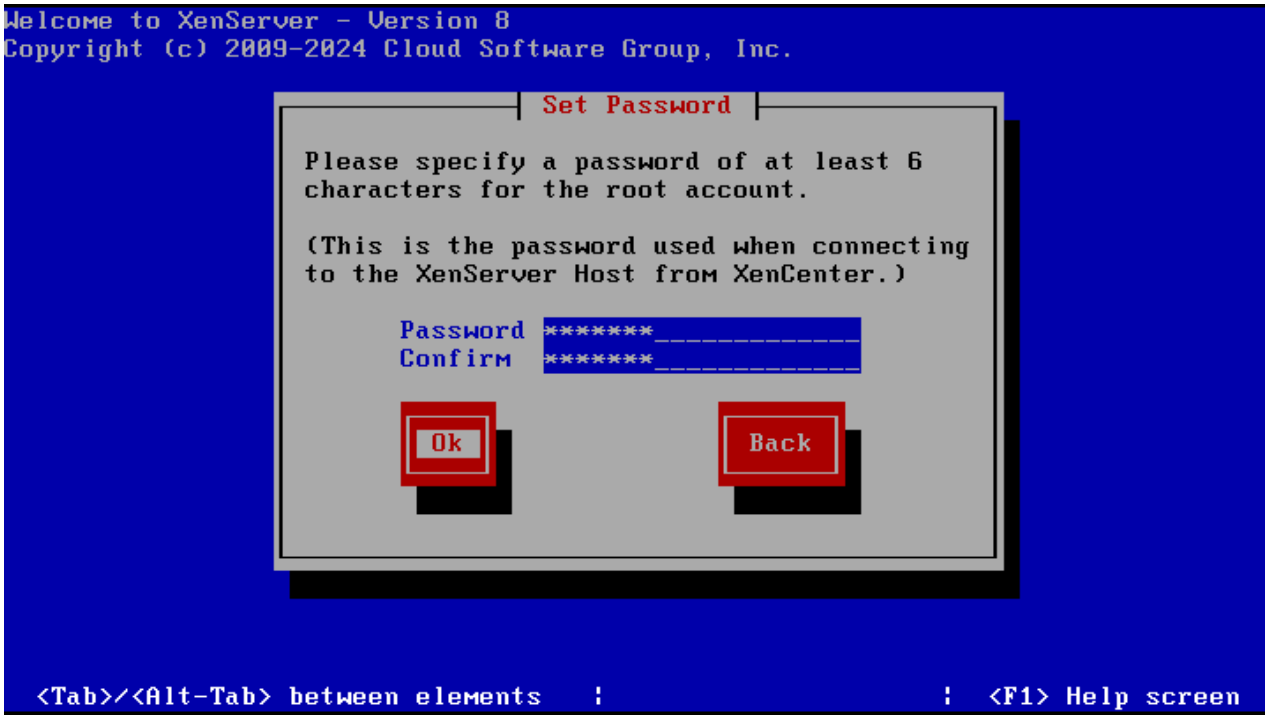
Step14: Select Installation Source as Local Media



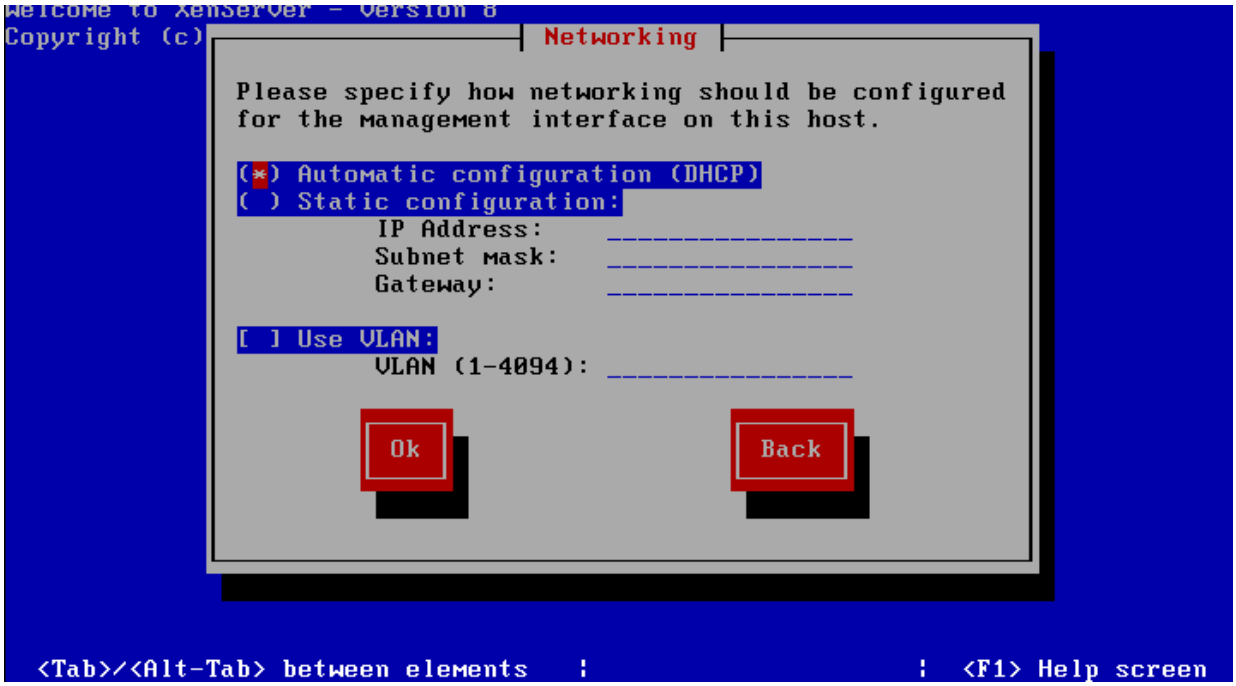
Step15: Choose skip verification and click on ok



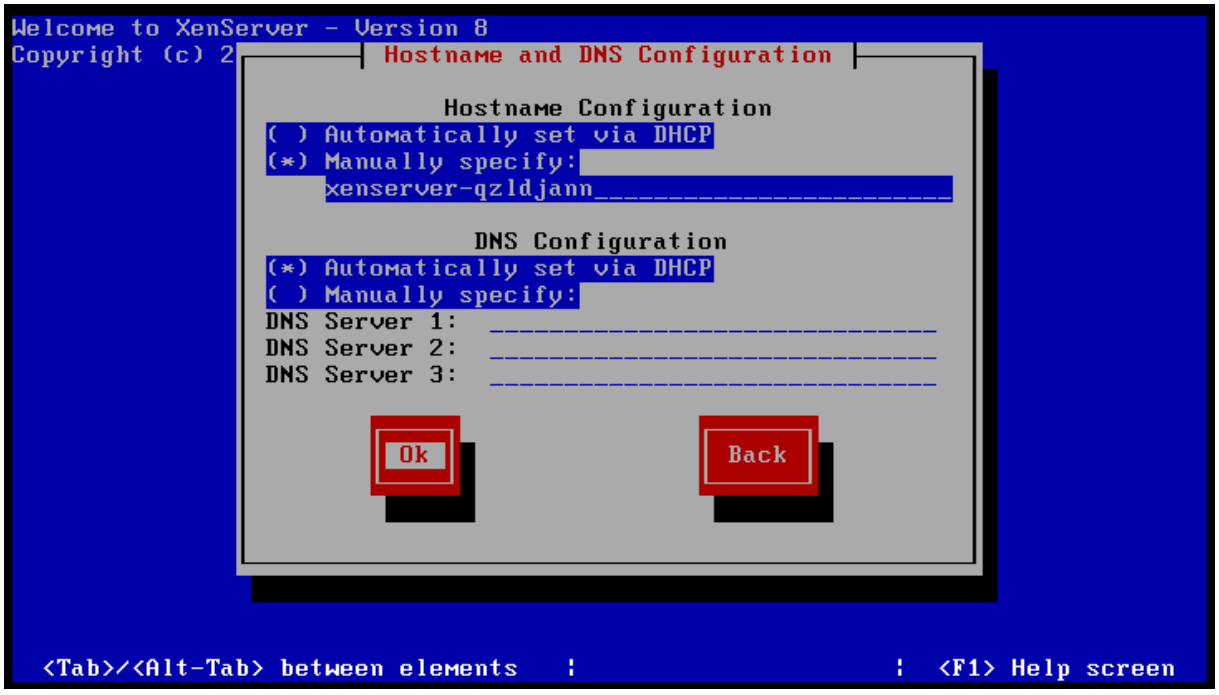
Step16: Set a 6 digit password and click OK



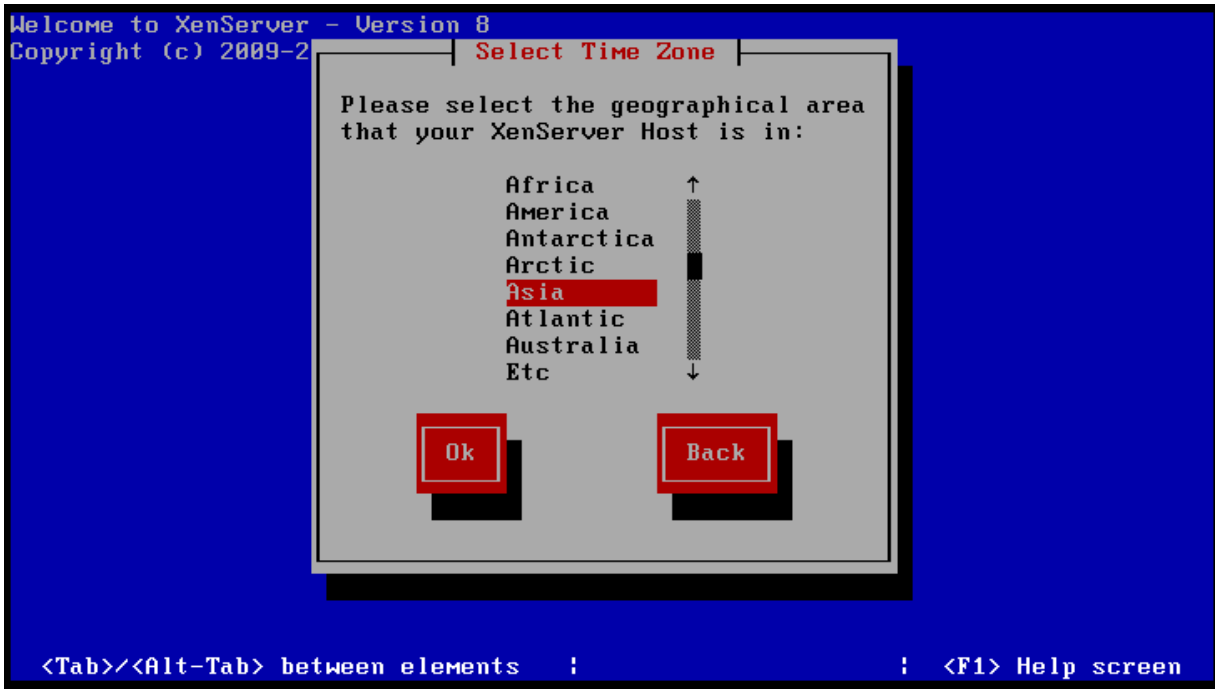
Step17: Keep the setting default and navigate to OK Button



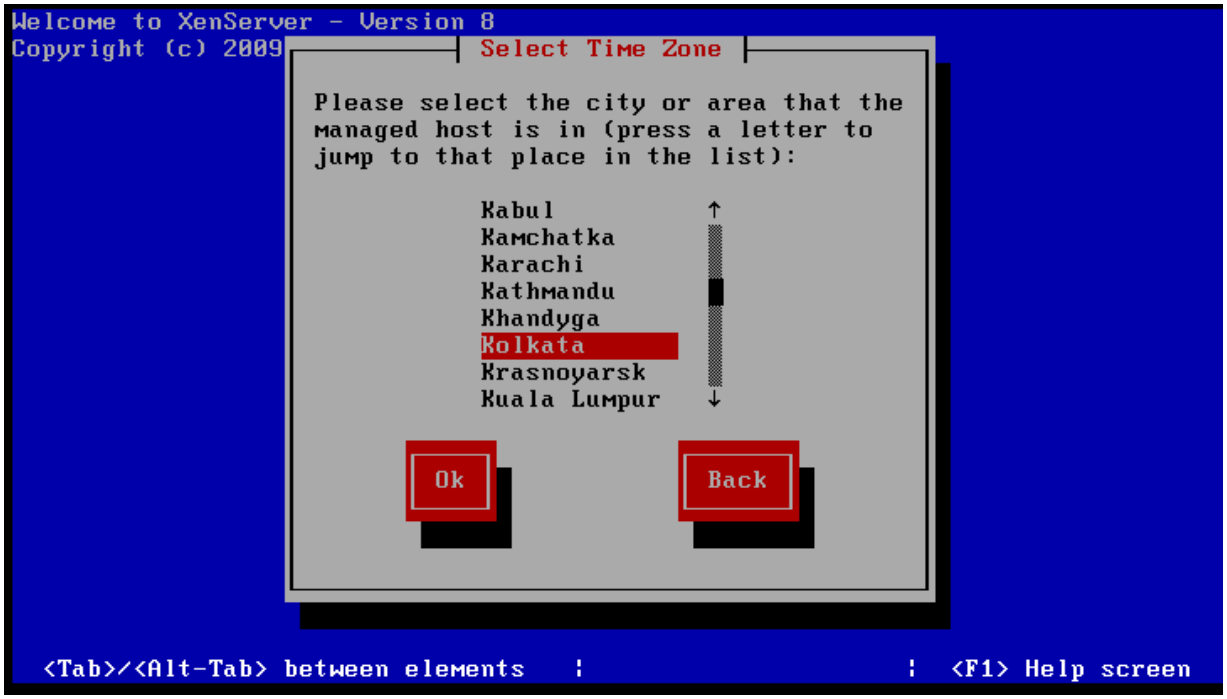
Step18: Keep the setting default and navigate to OK Button



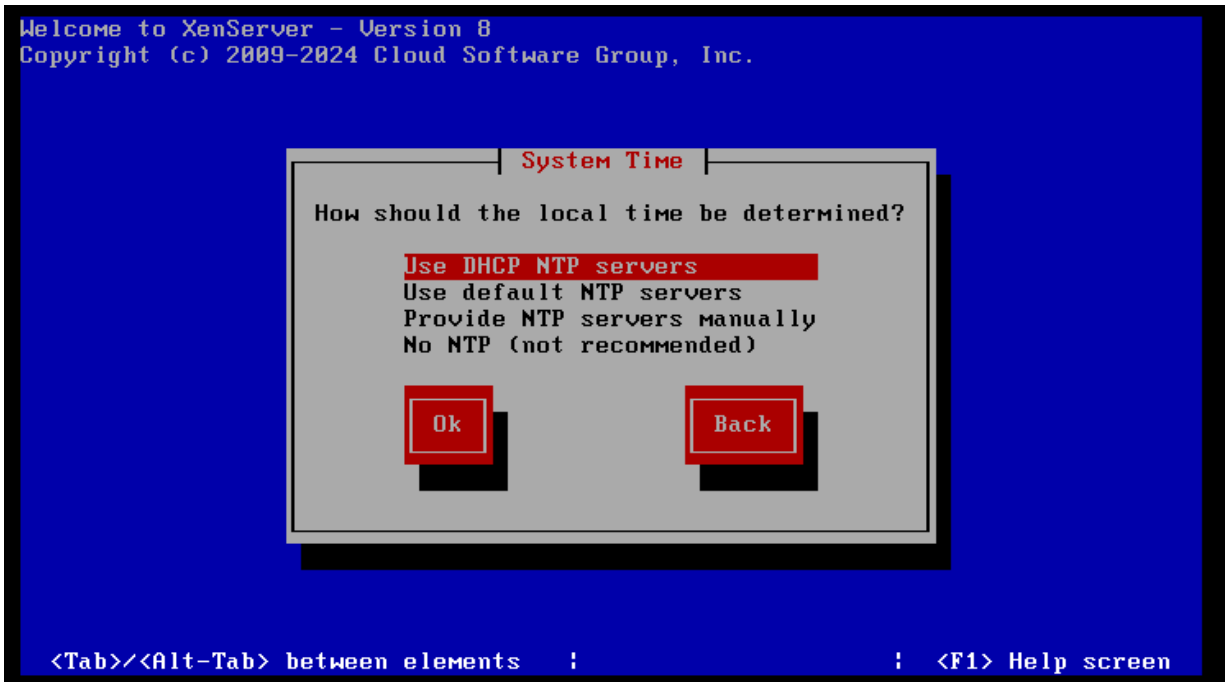
Step19: In the dropdown find Asia and press Enter



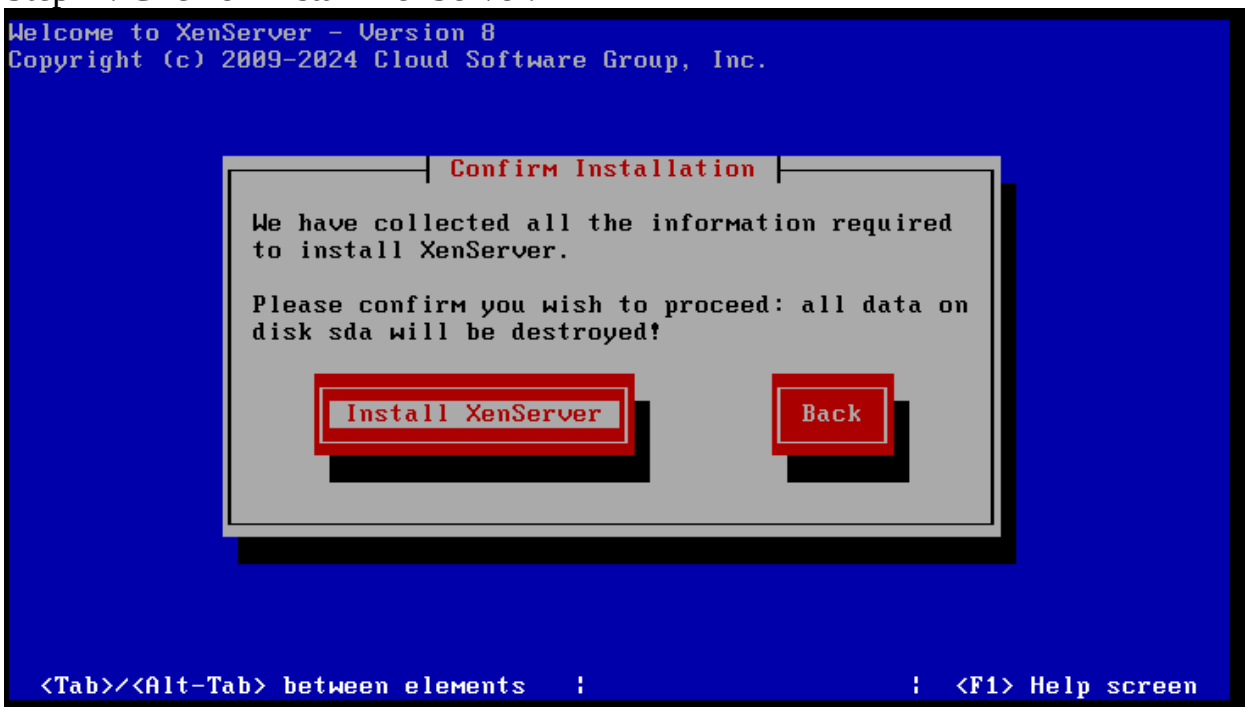
Step20: In the dropdown find Kolkata and press Enter



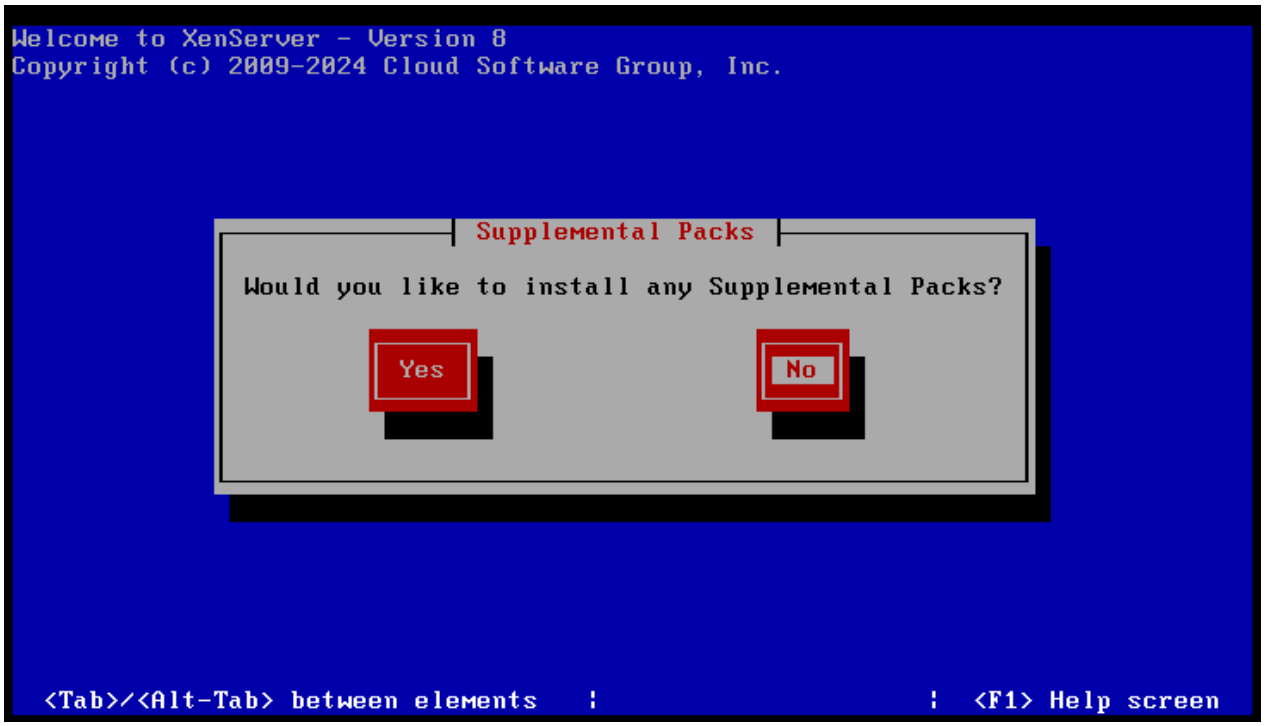
Step21: Keep the setting default & click on OK



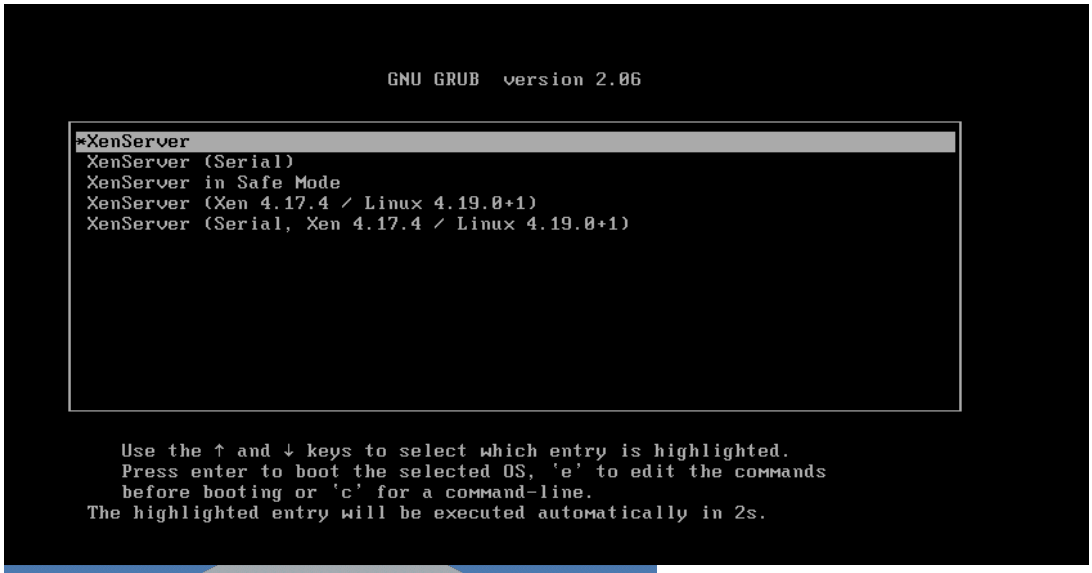
Step22: Click on Install XenServer.



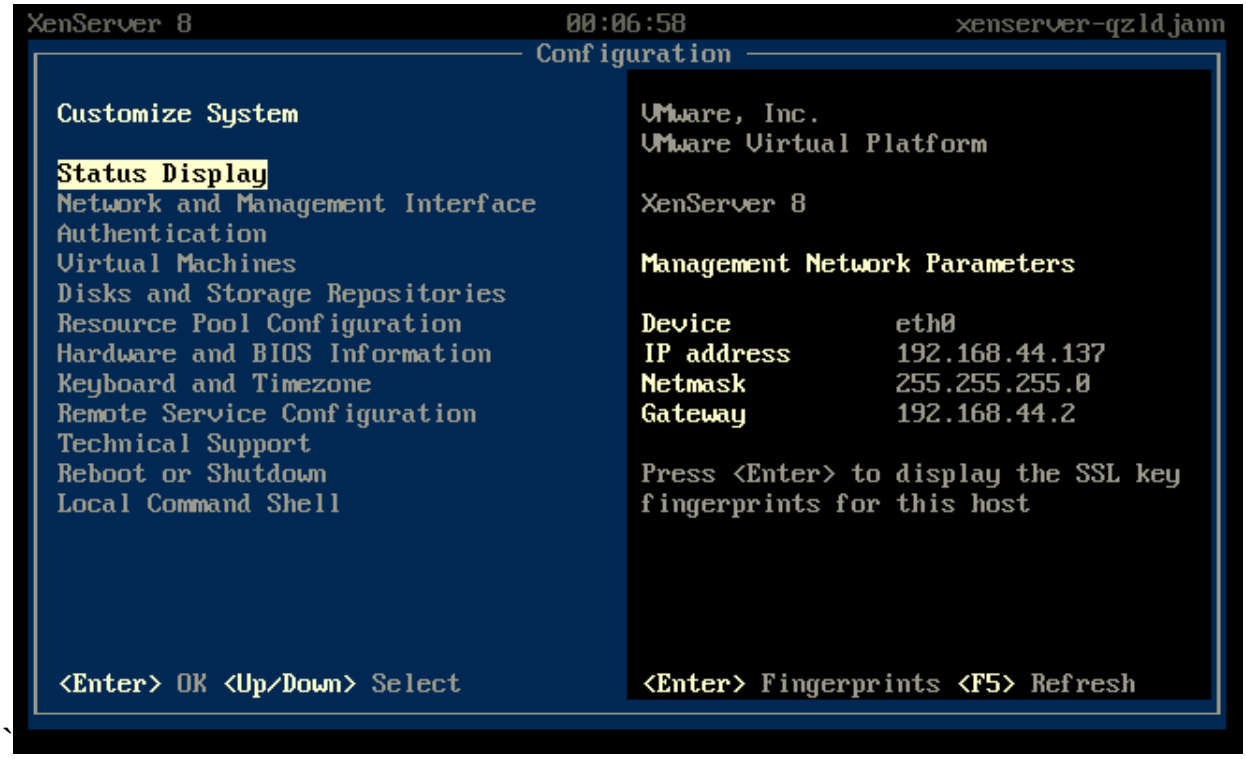
Step23: Select No and the vm will reboot



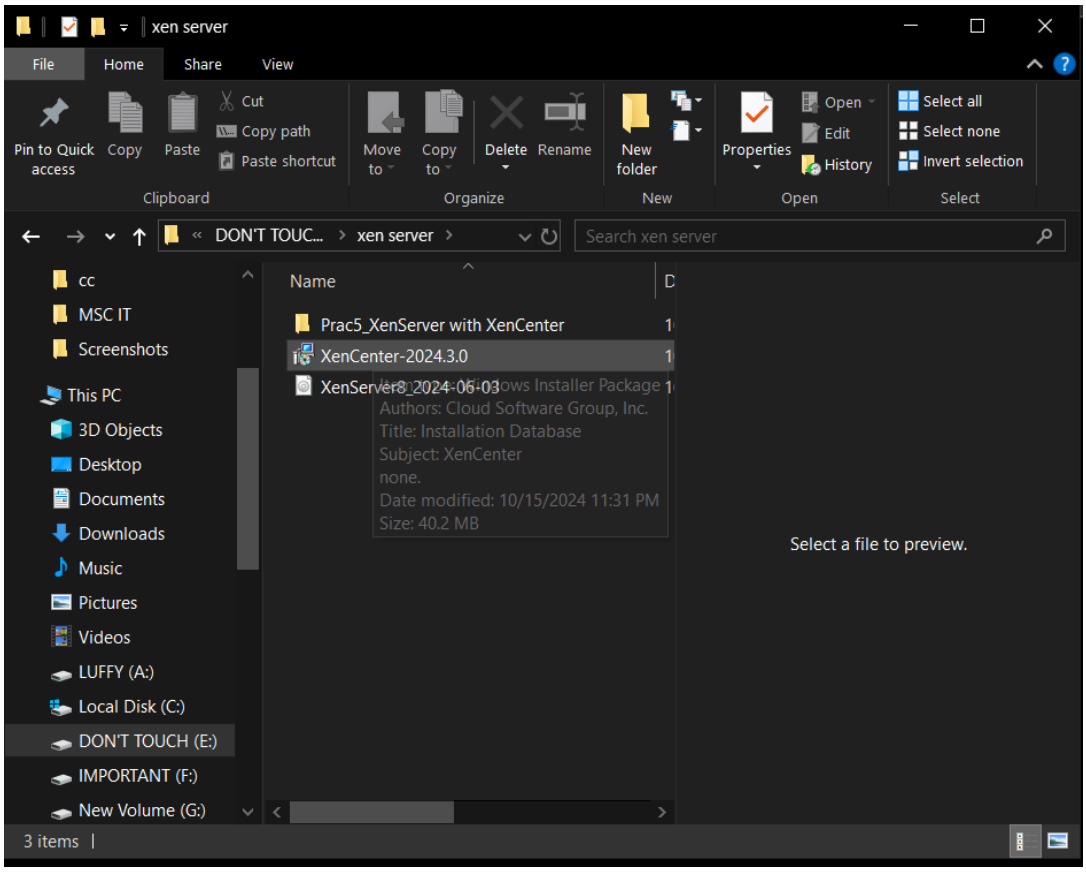
Step24: Press Enter



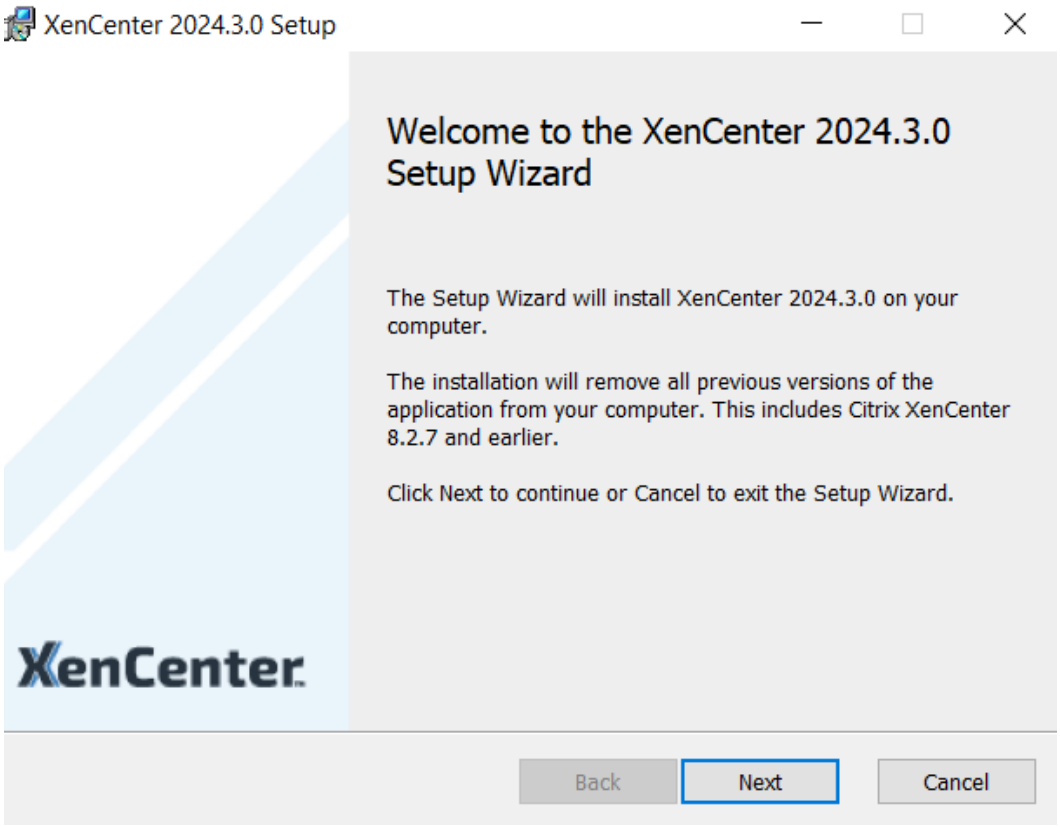
Step25:A panel will appear with bunch of imformation



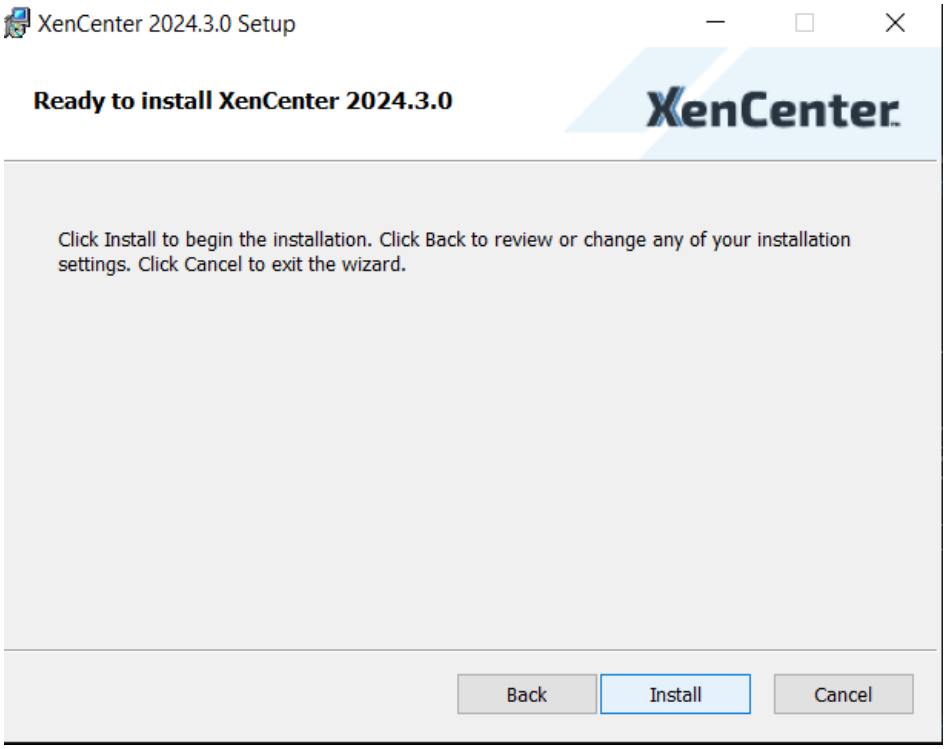
Step26: Now Install the Xen center application

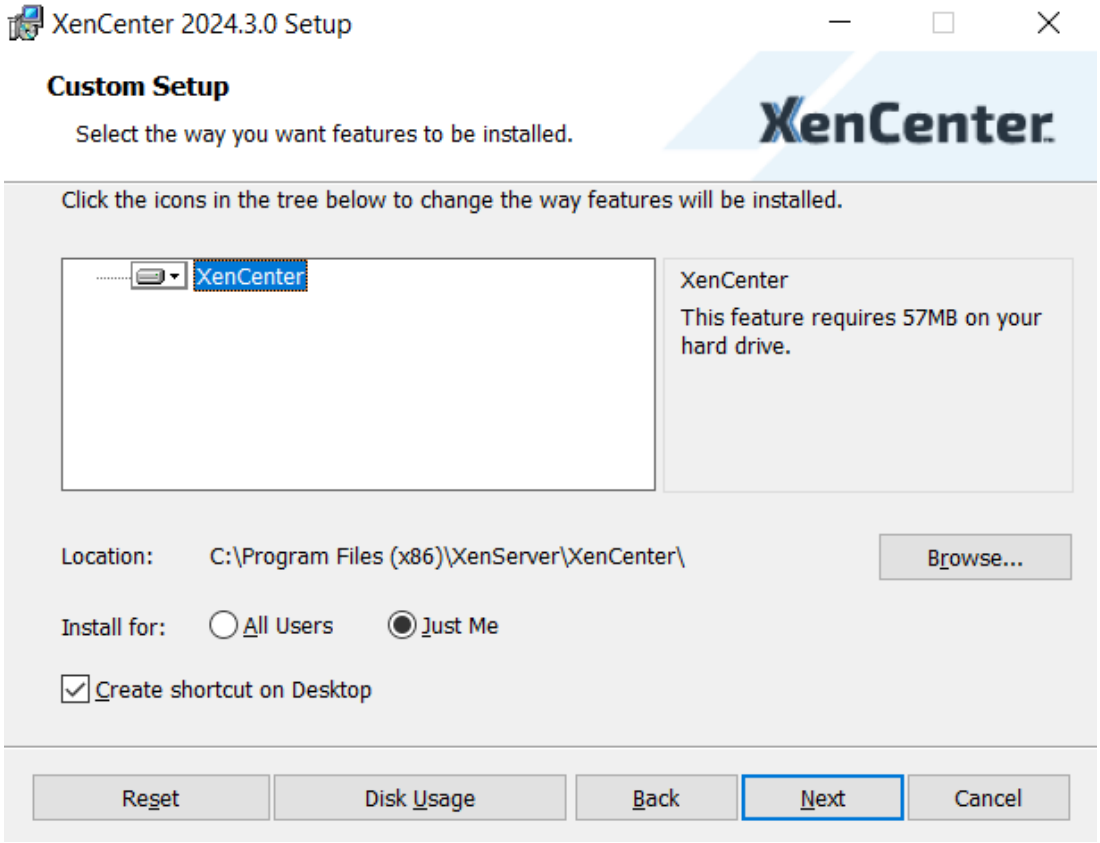


Step27: Click on Next

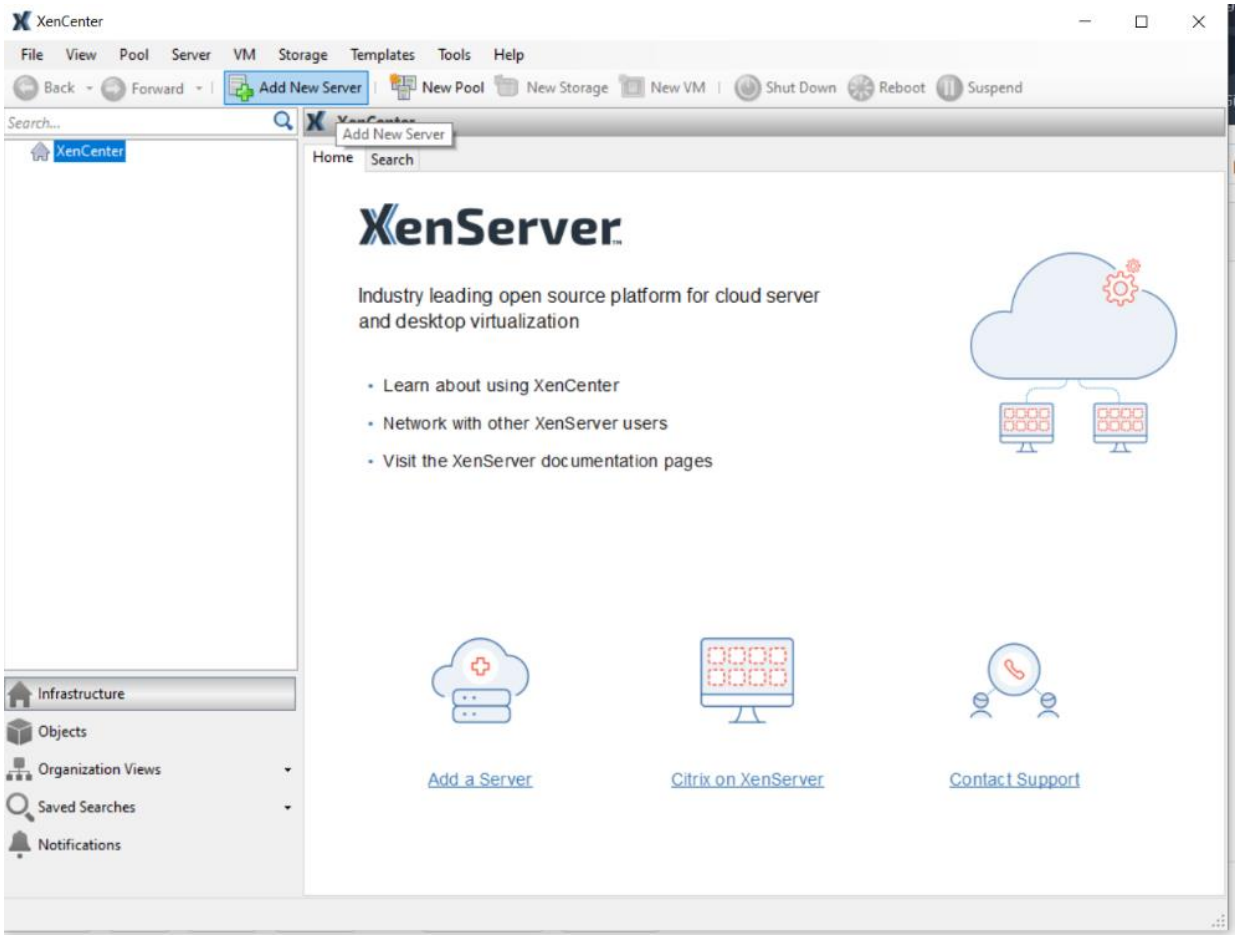


Step28: Click on Install & then Next

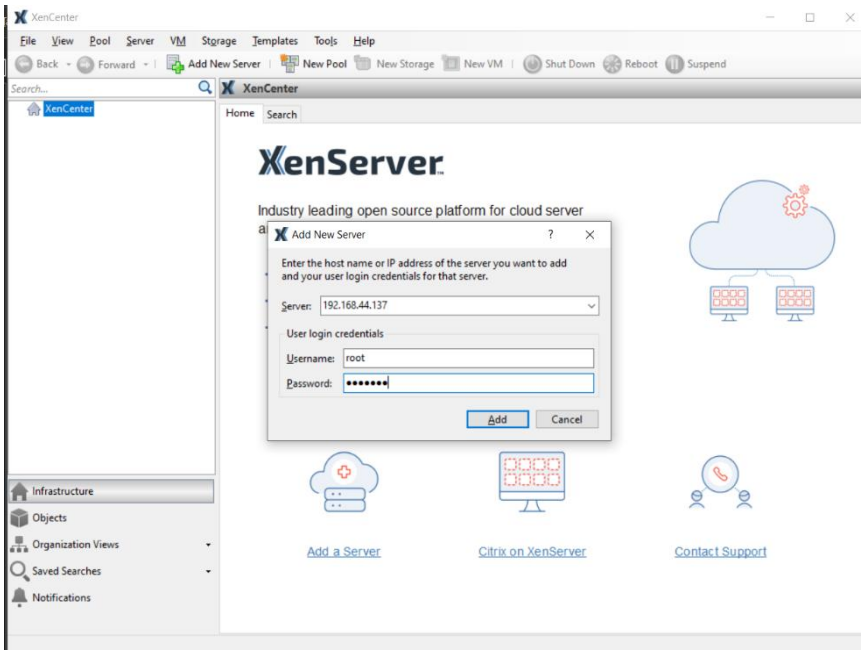




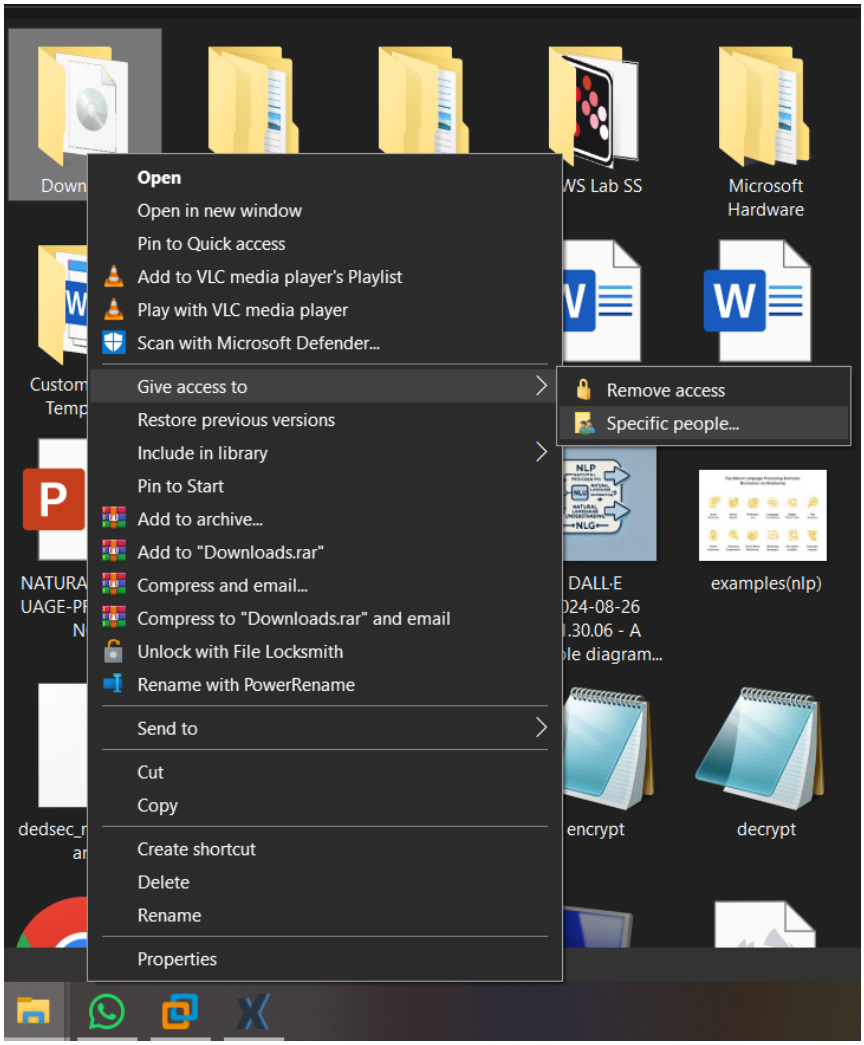
Step29: Open the Xen Center app and Click on Add New Server



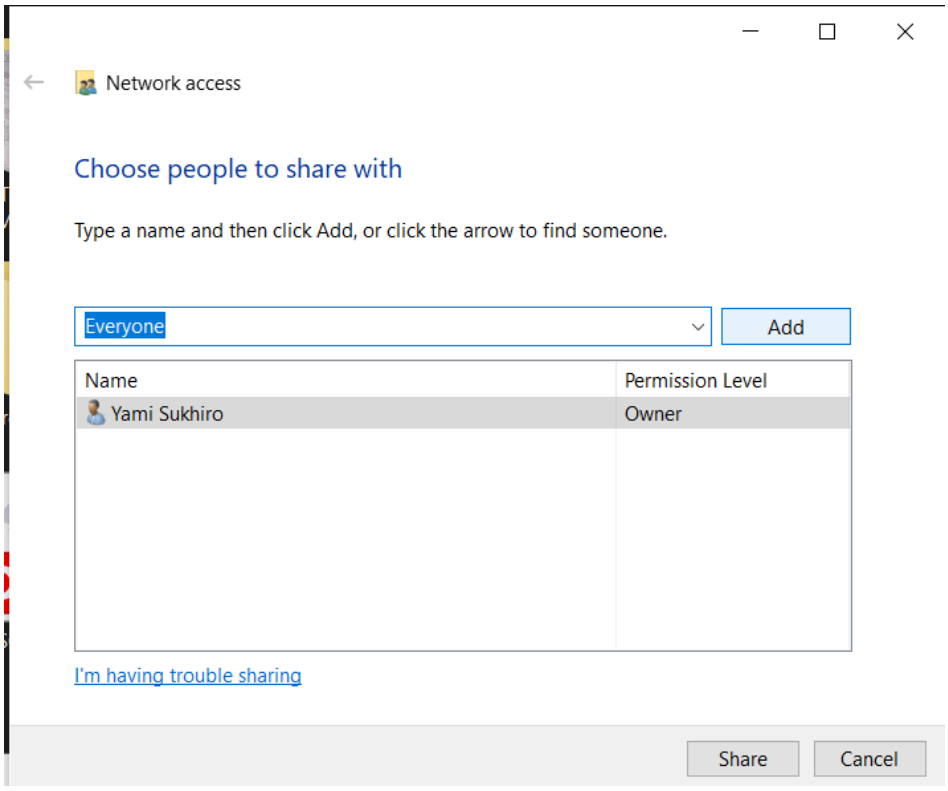
Step30: Copy the Ip Address from the VMWare panel and put 6 digit password which was set previously.



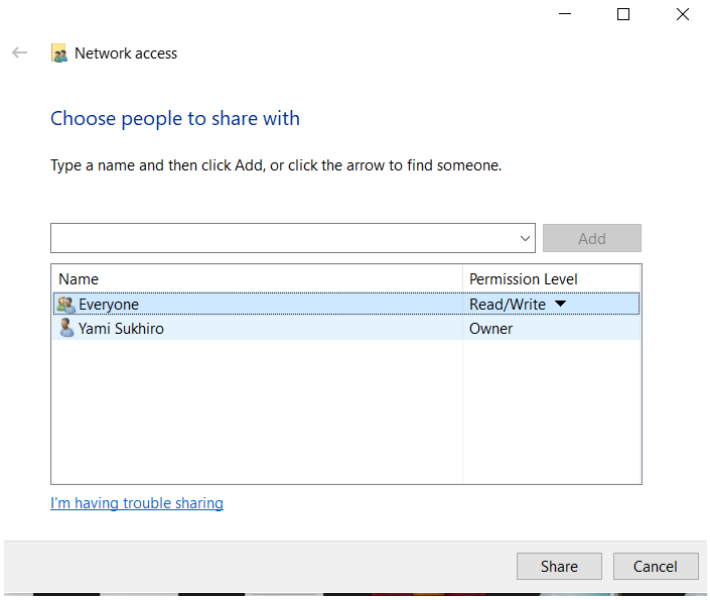
Step31: In the Base Machine Share a Iso file of Windows server 2022 over network .



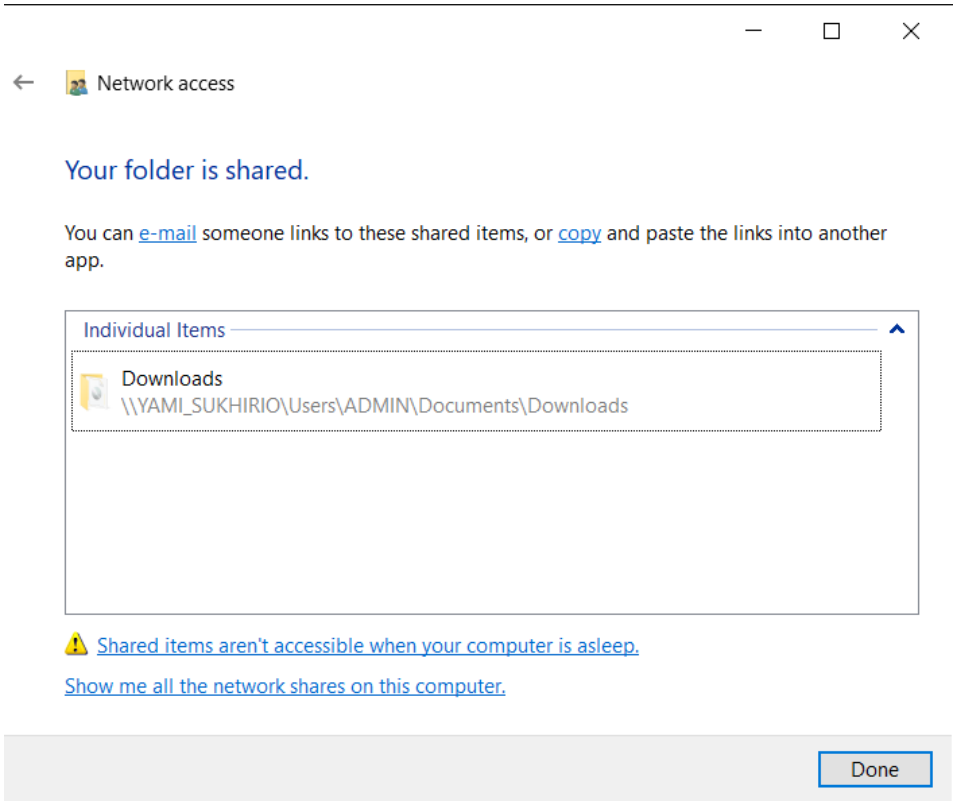
Step32: Select Everyone and Click on add.



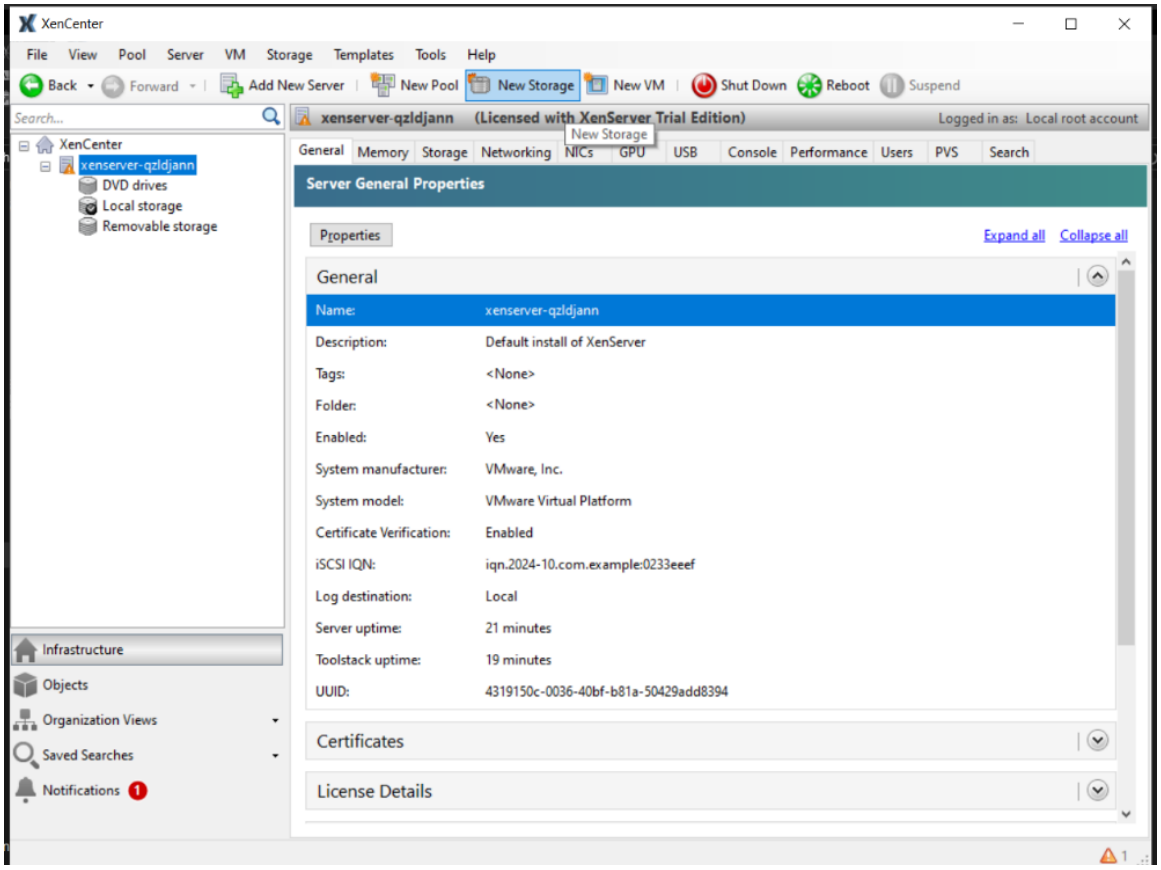
Step33: Change the permission level to Read/Write and click on Share.



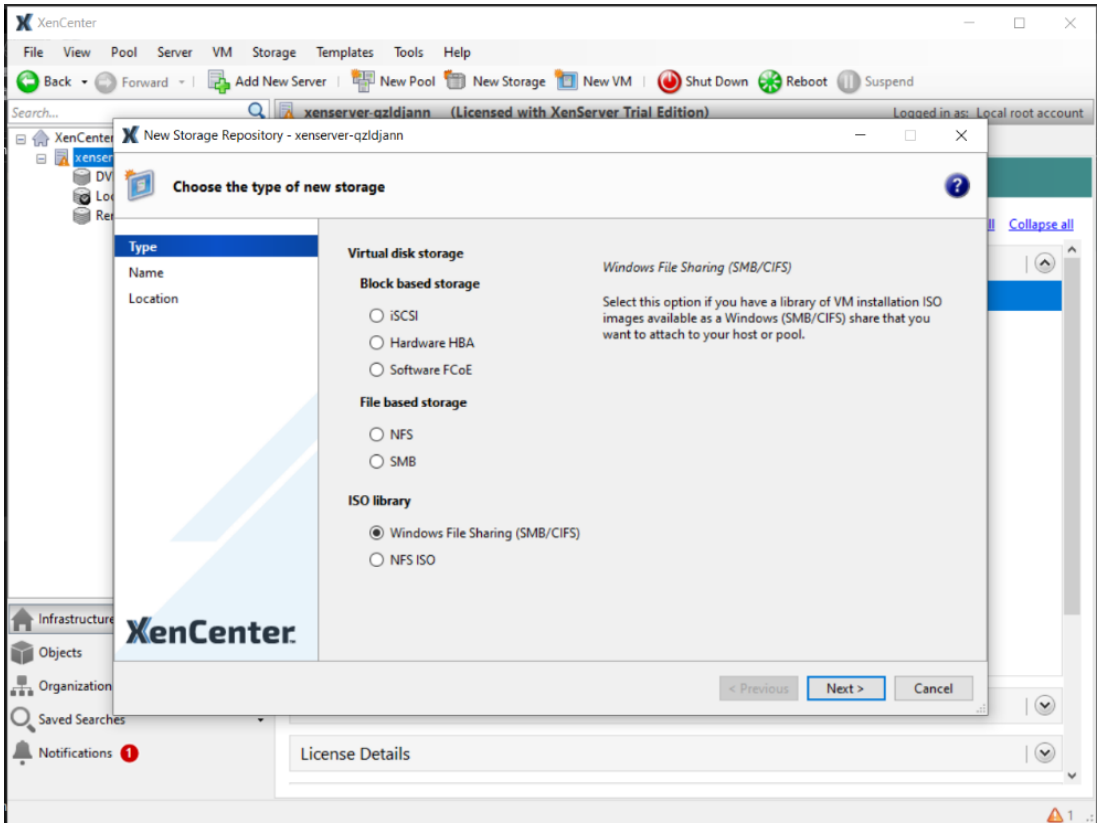
Step34:Copy the path.



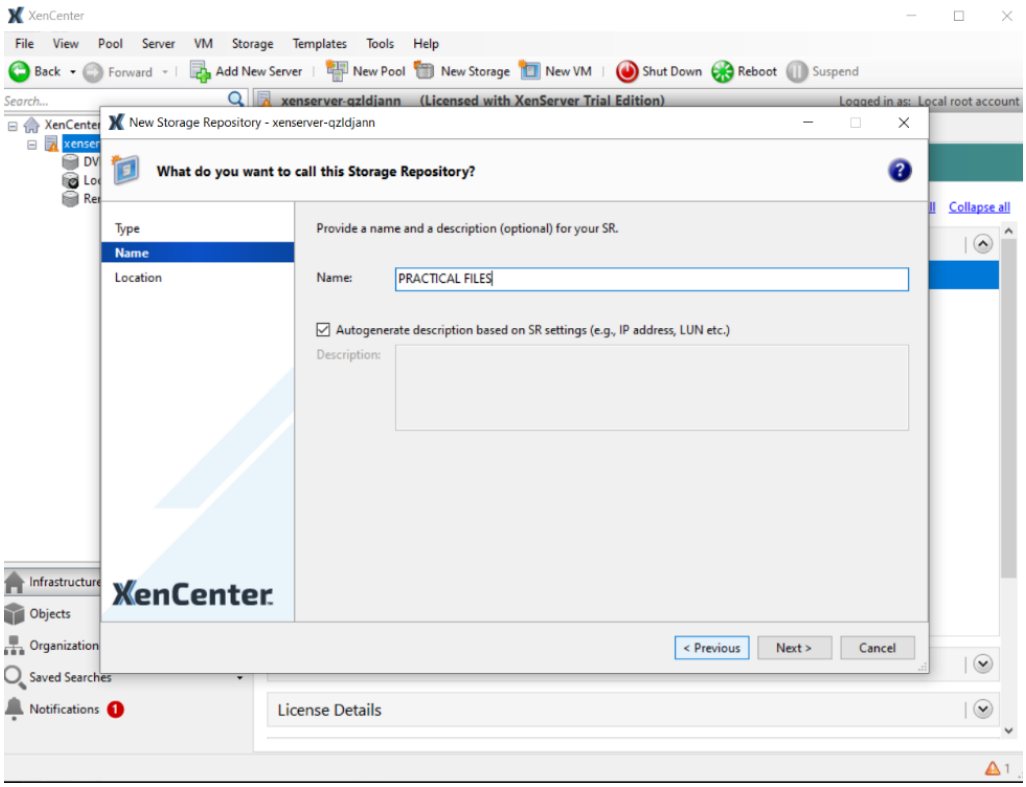
Step35: After Add the server Click on New Storage



Step36: Select Winows File Sharing(SMB/CIFS)



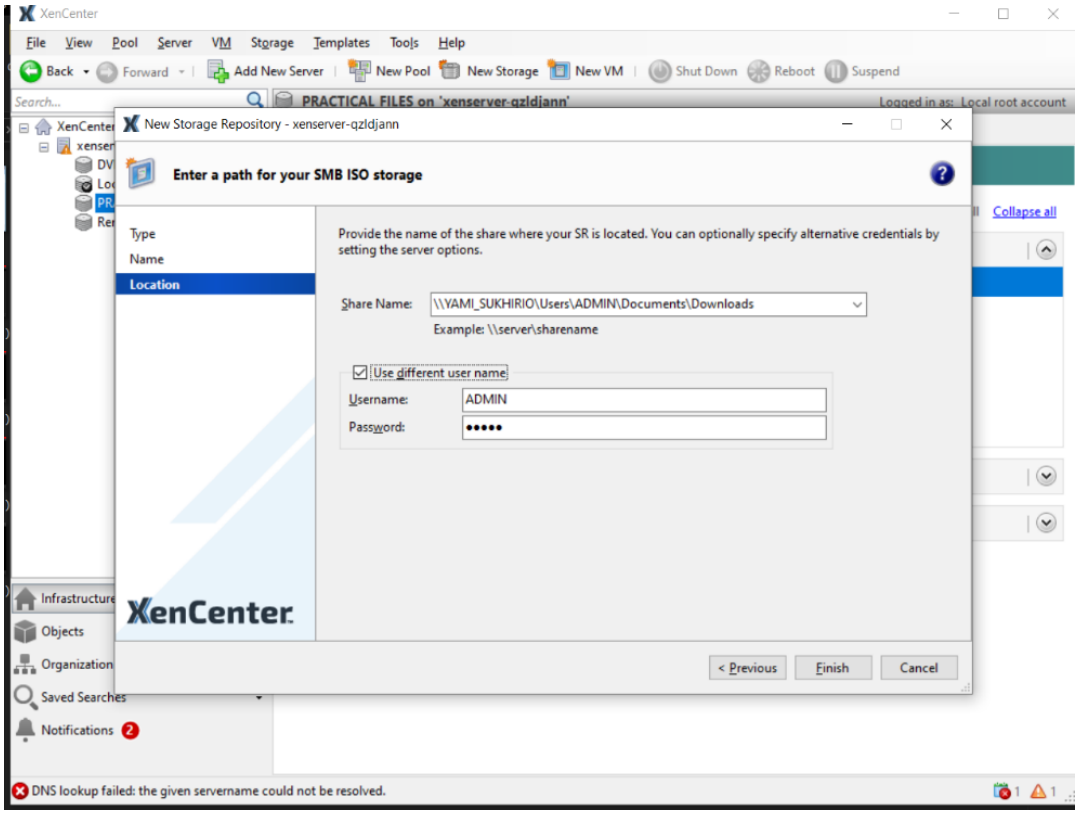
Step37: Change name to “PRACTICAL FILES”



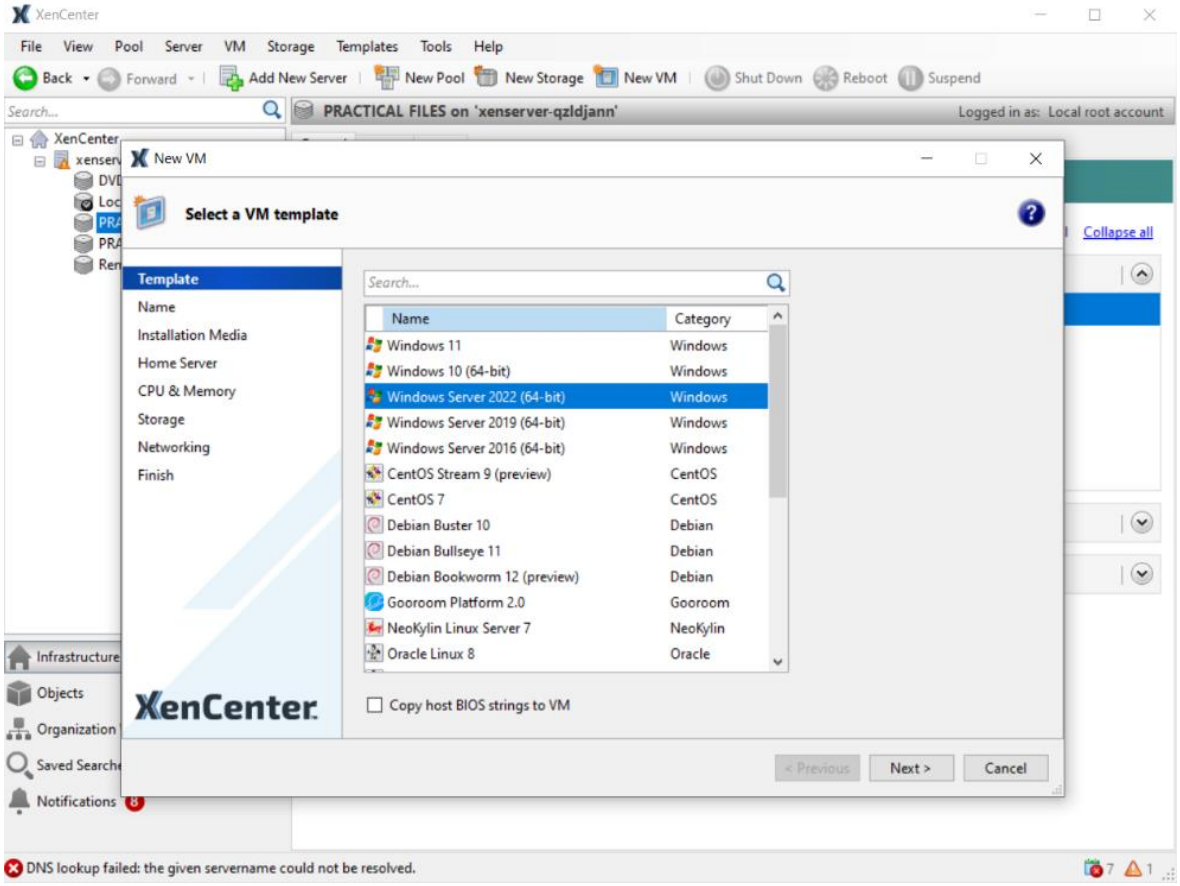
Step38: Paste the path of the file shared over the network

(remember file name should be written by \\Username\foldername\..)

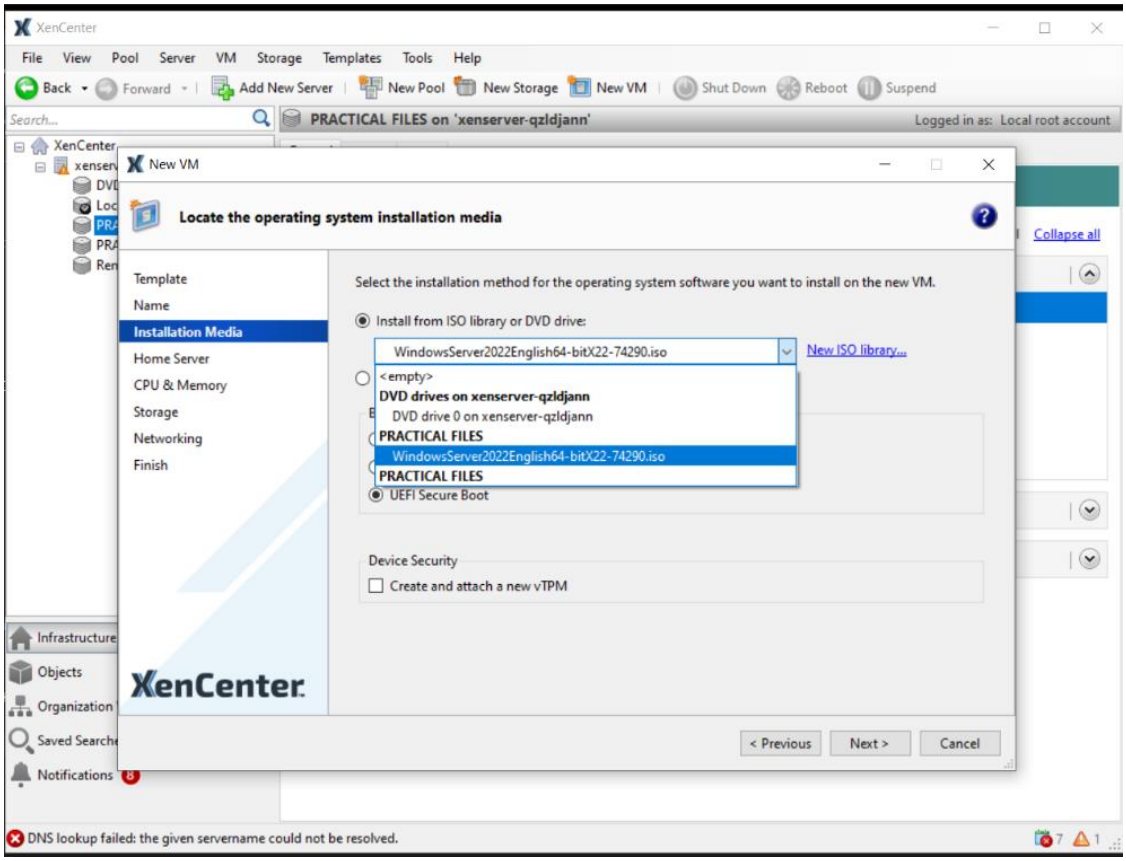
eg: "\\Downloads\Windows_server2022"



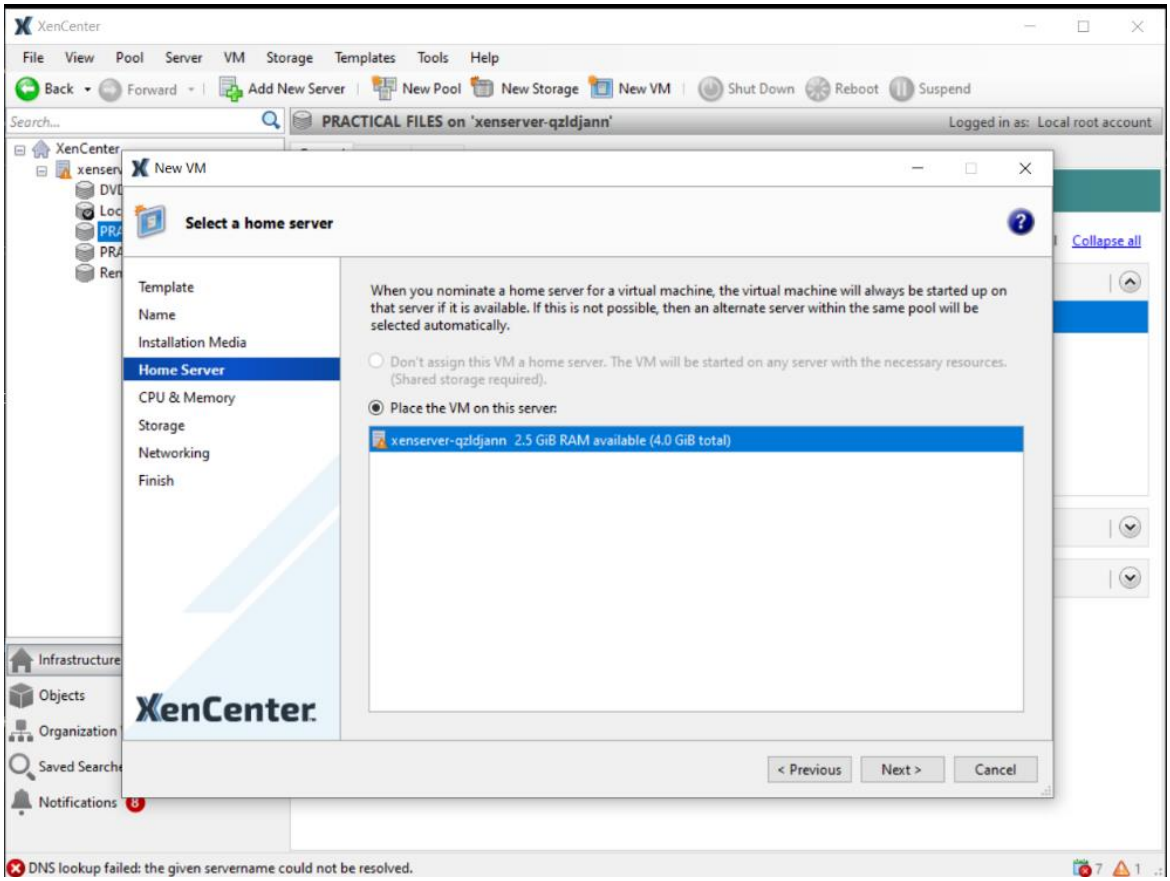
Step39:After adding a New Storage Click on New VM And Select Windows Server 2022(64-bit)



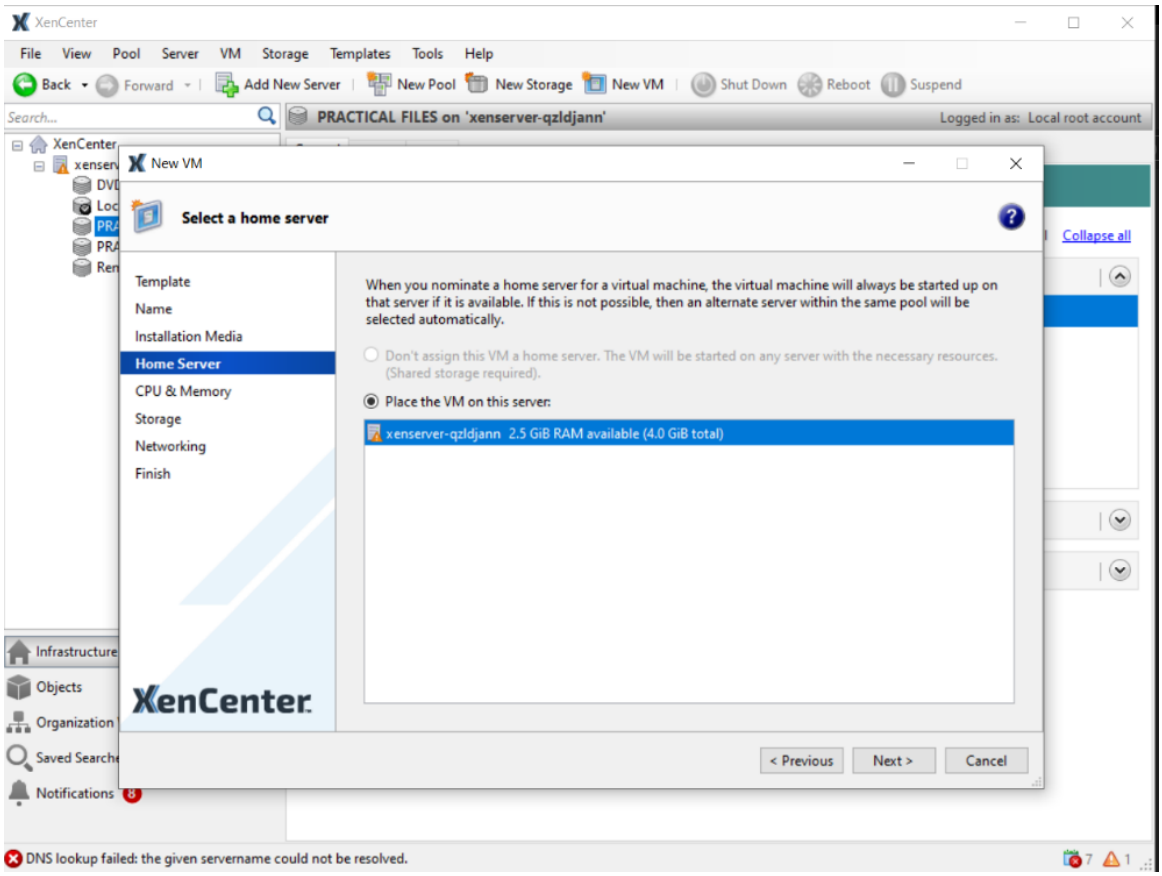
Step40:Select the ISO image which was shared over the network.



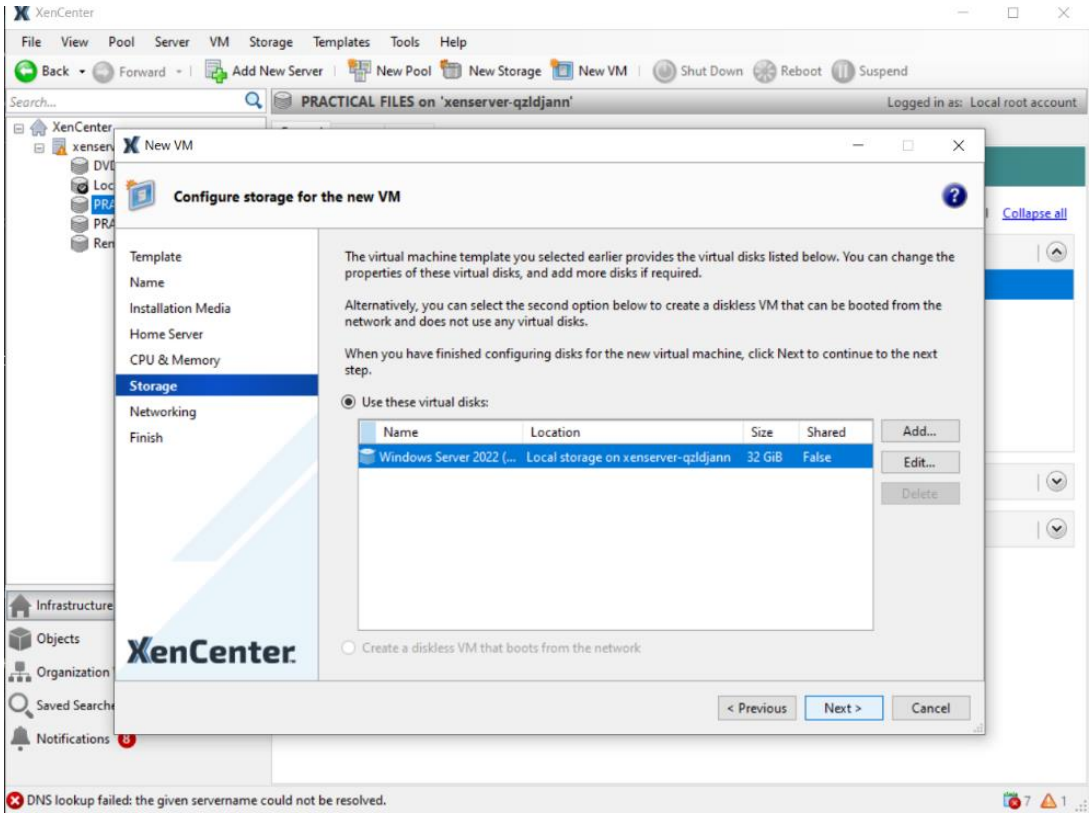
Step41: Click on Next



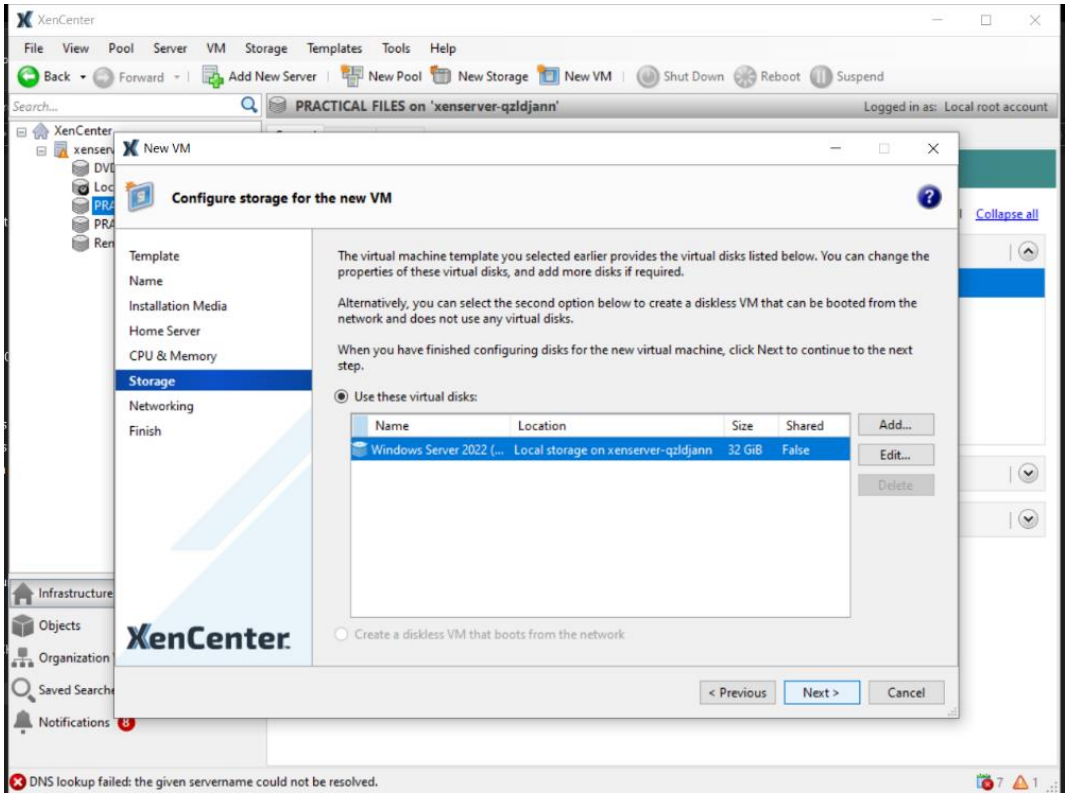
Step42: Click on Next



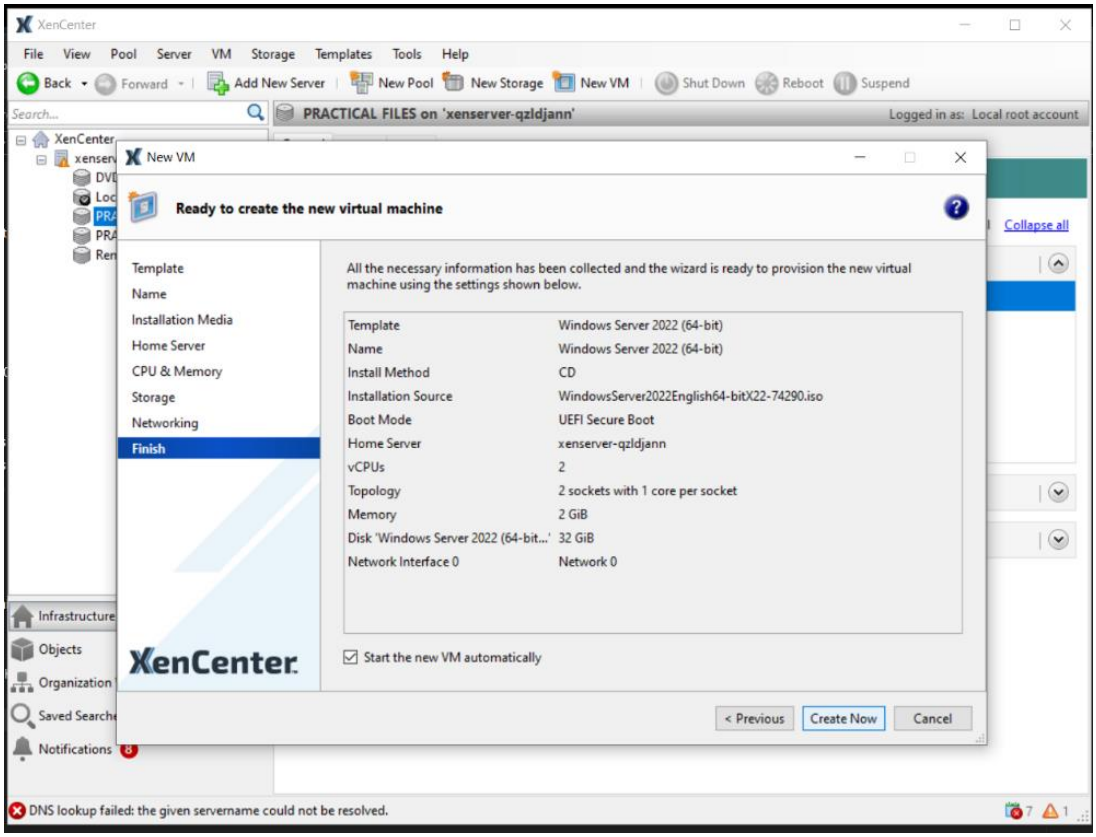
Step43: Click on Next



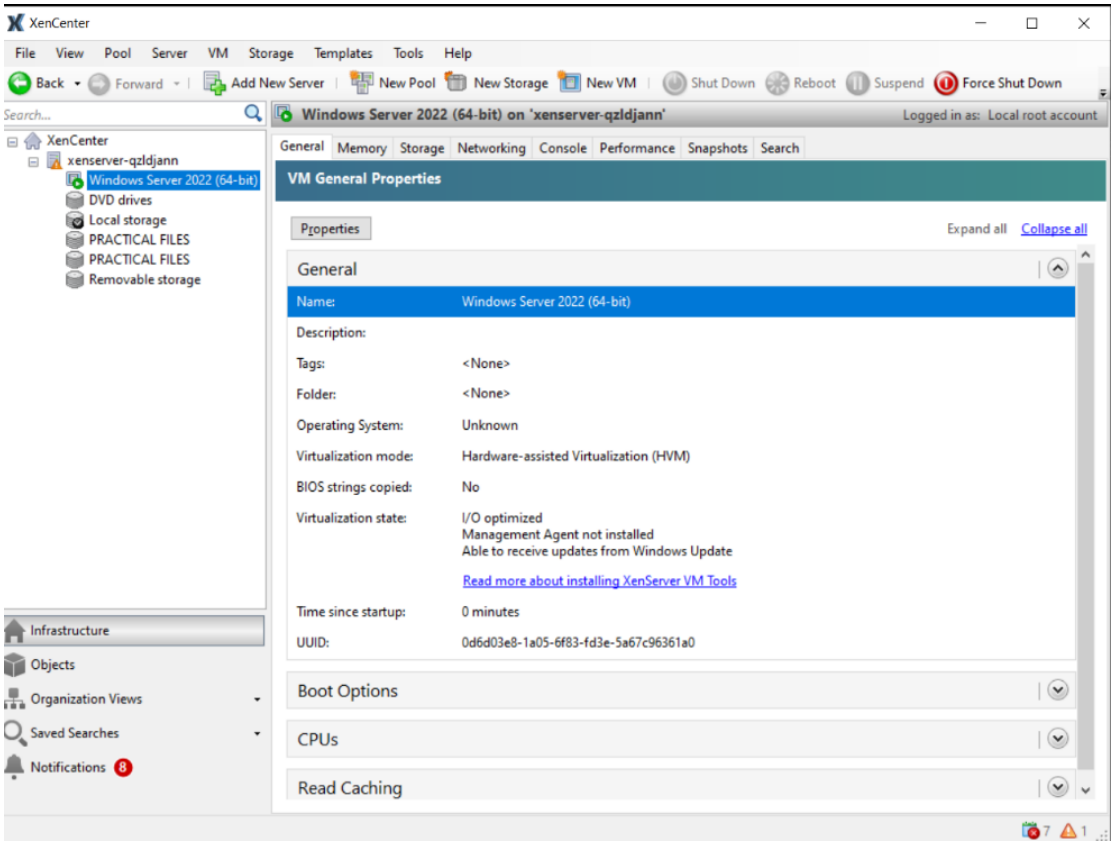
Step44: Click on Next



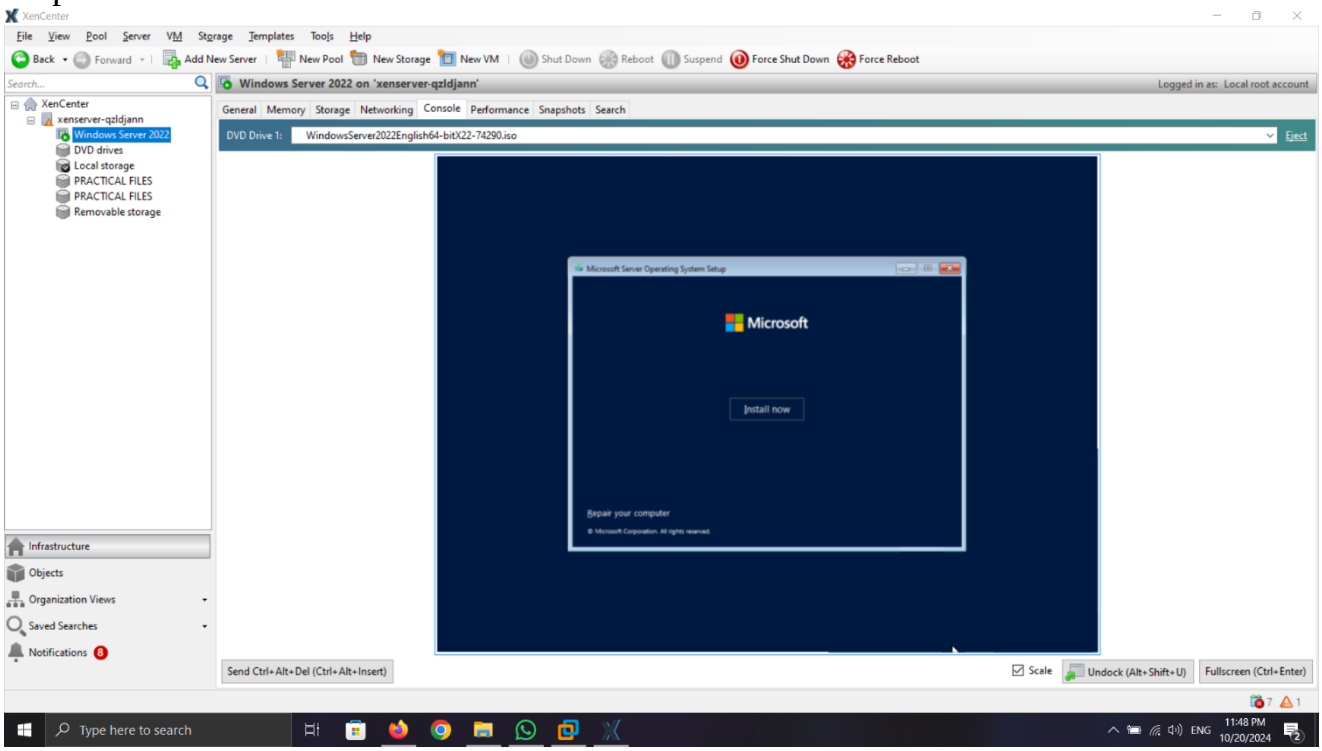
Step45: Click on Create Now



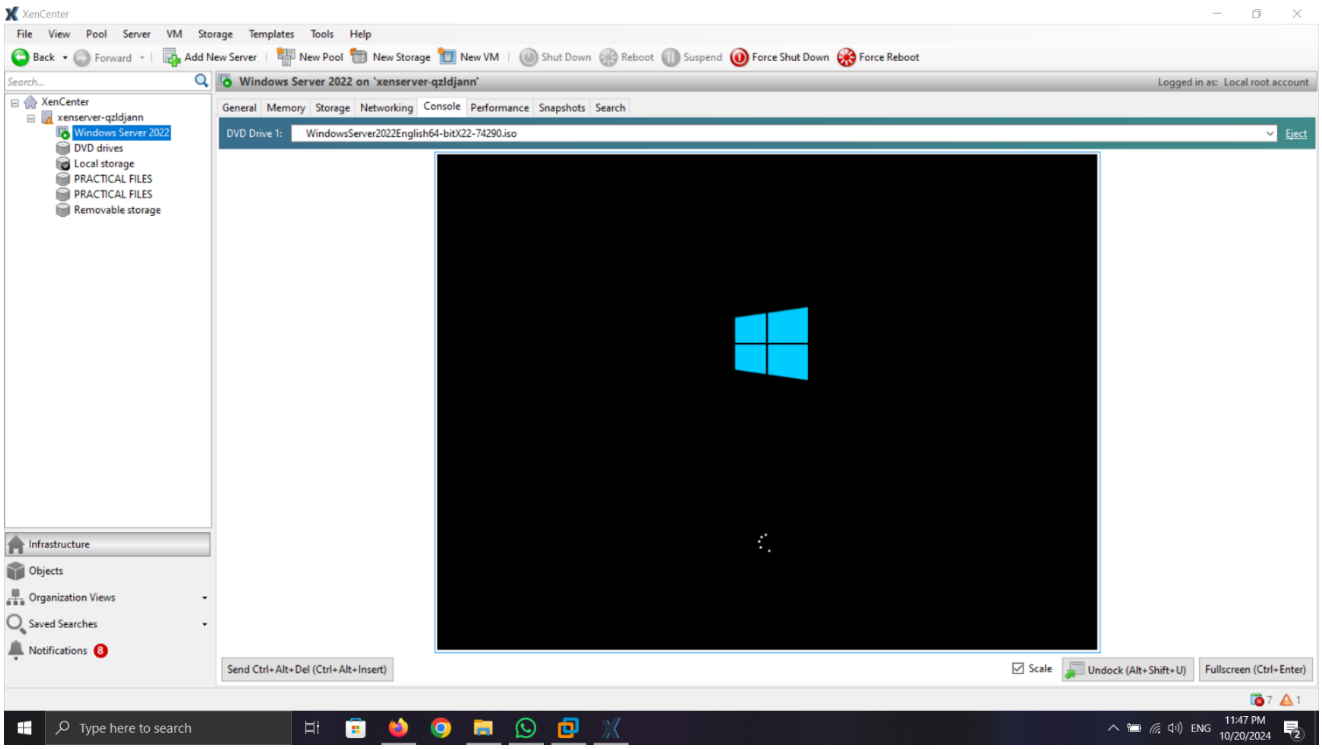
Step46: Click on Windows Server 2022(64-bit) & Navigate to Console tab



Step47: Click on Install



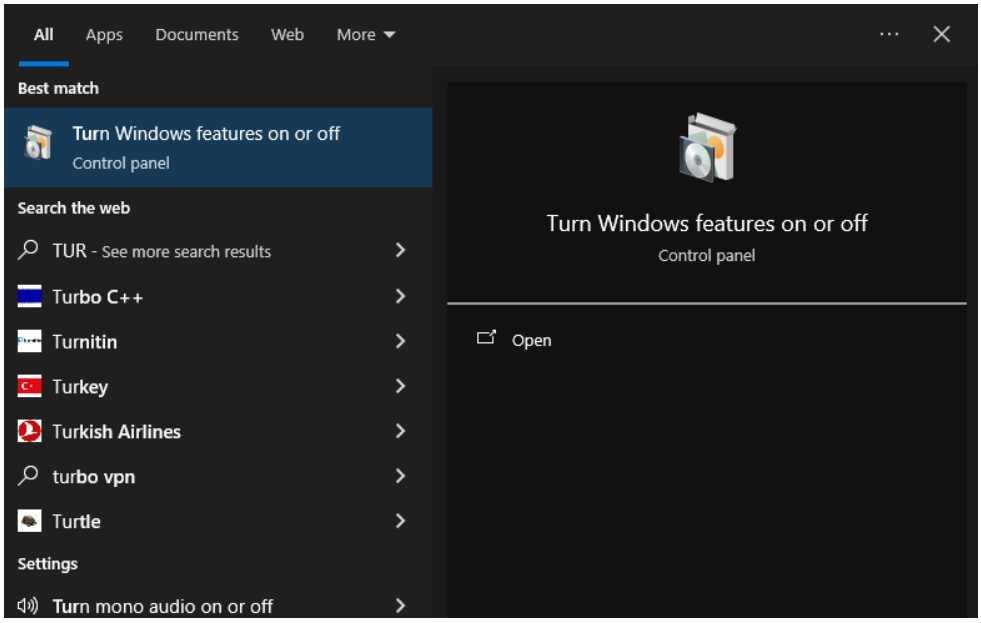
Step48: And Install Windows Server in Xen-Server



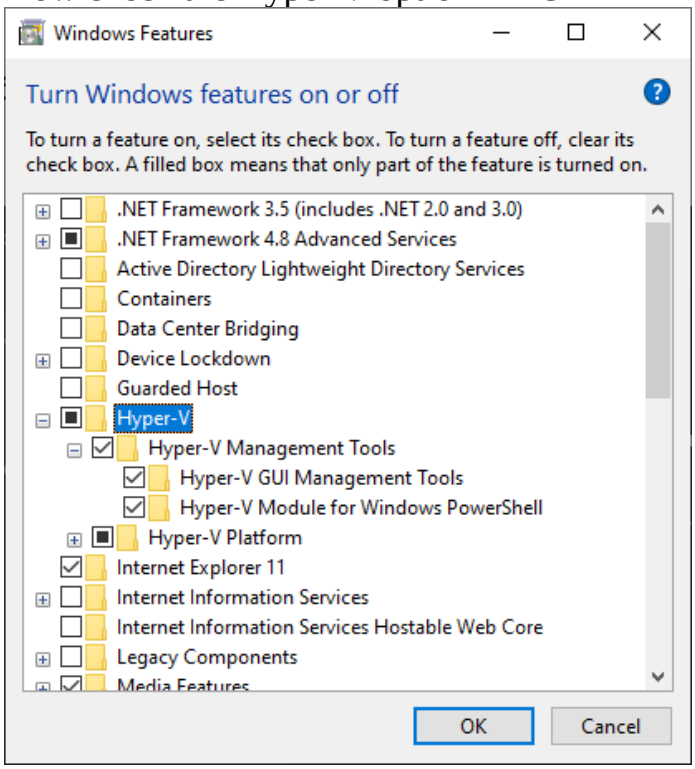
PRACTICAL 6

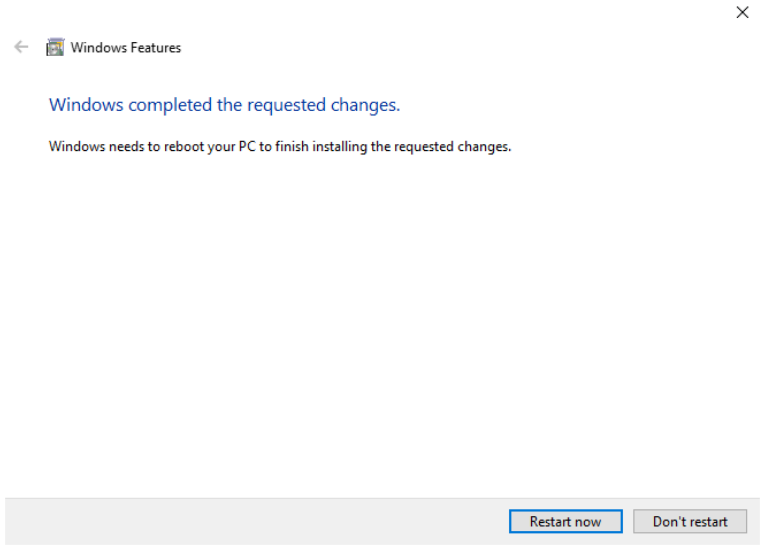
Aim:- Implementing Hypervisor
Requirements :- Hyper V manager
Steps:-

Search for Turn Windows feature on or off

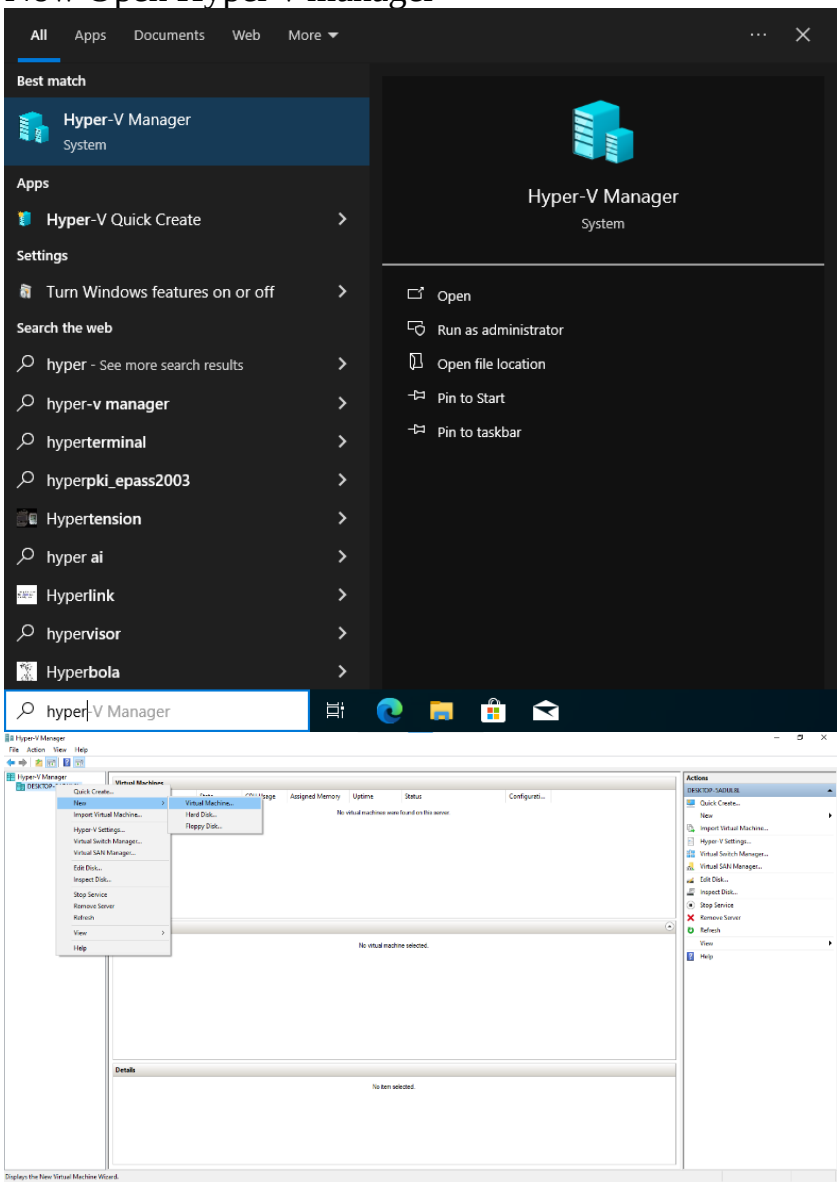


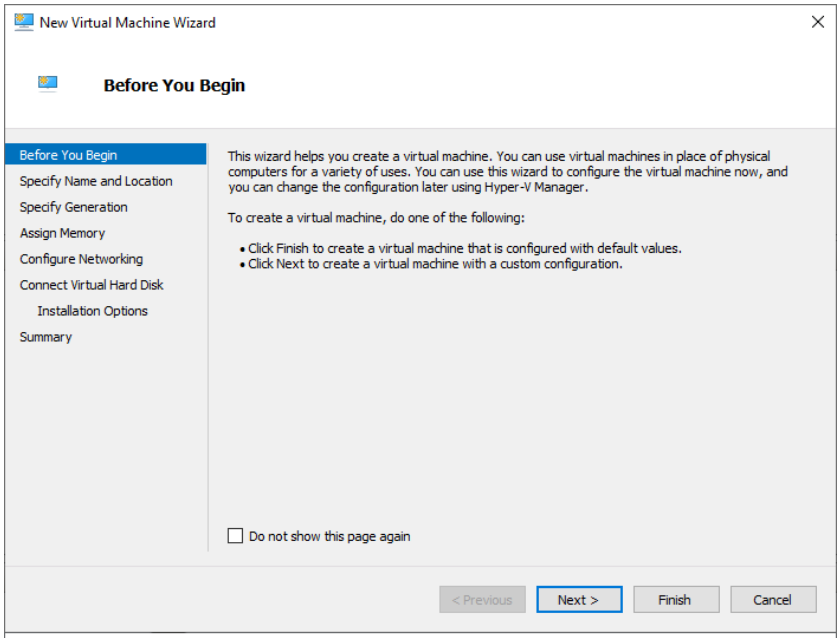
Now check the Hyper V option → Ok

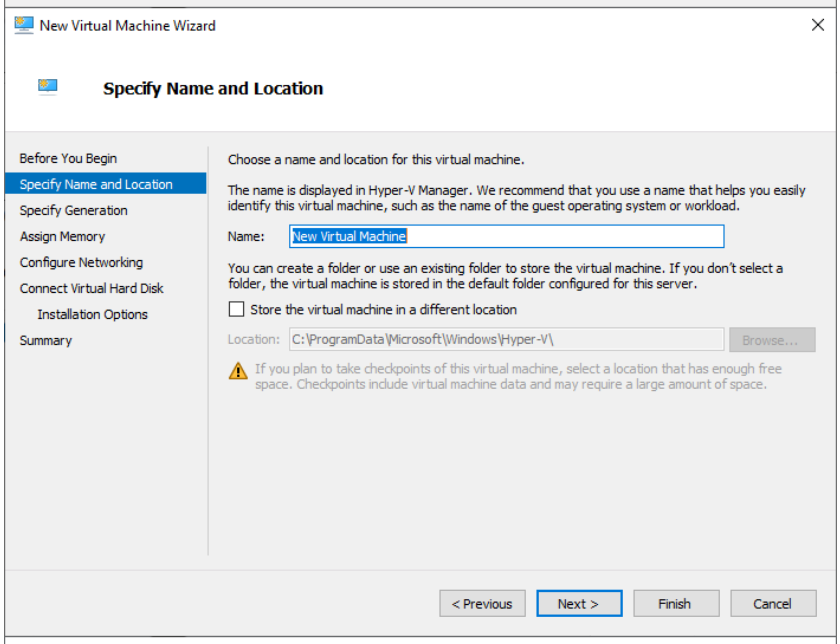


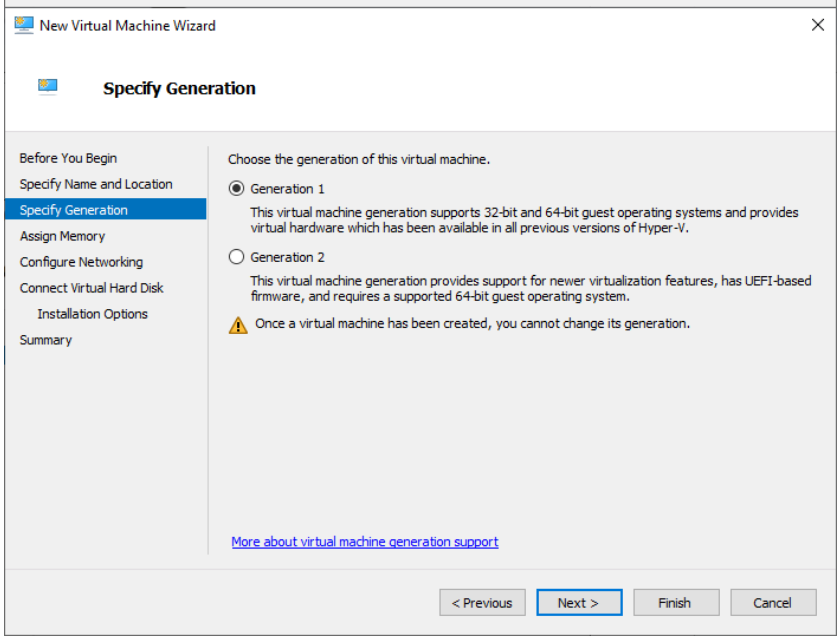


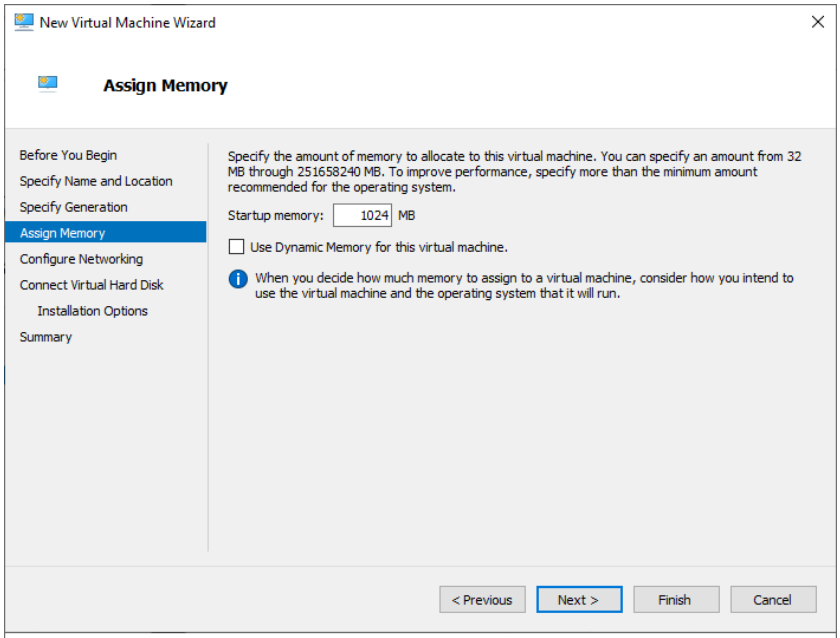
Now Open Hyper v manager

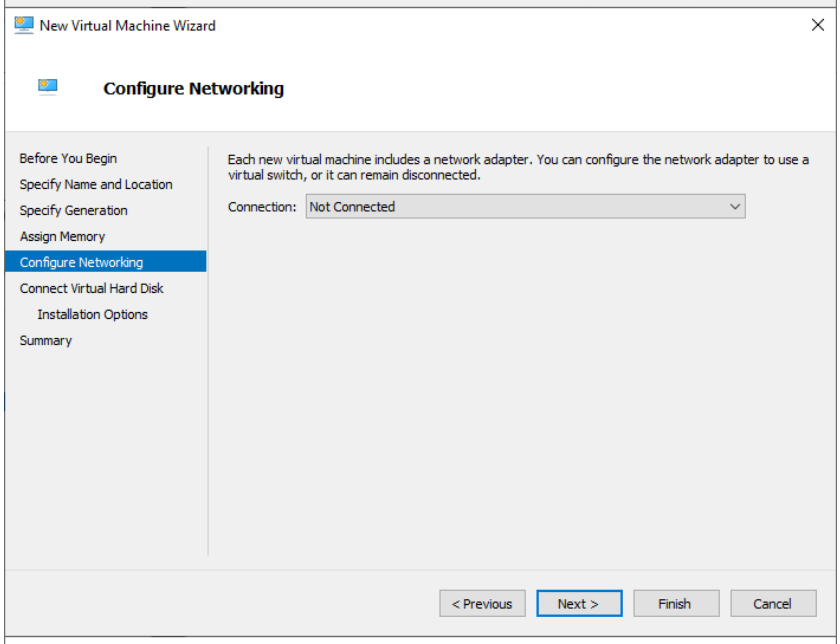


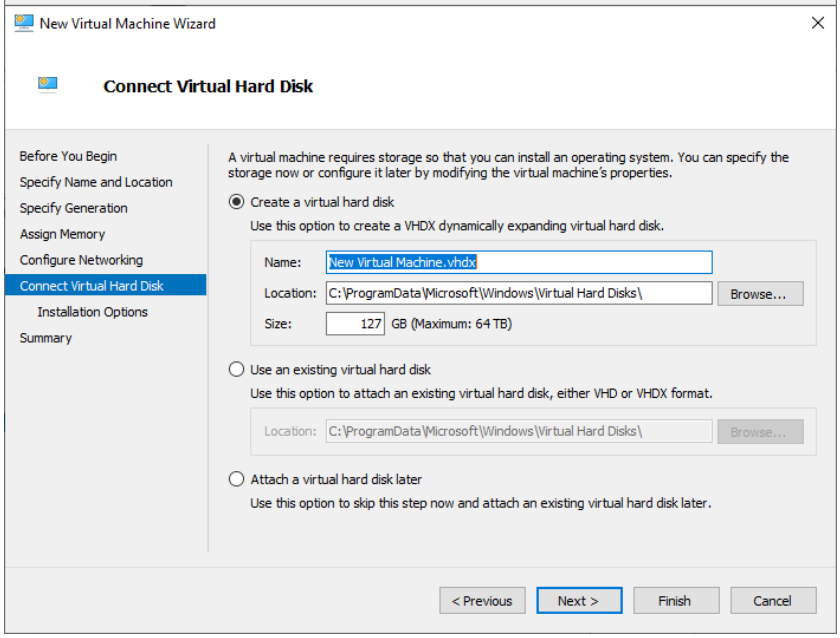

New Virtual Machine Wizard
Before You Begin
Before You Begin
Specify Name and Location
Specify Generation
Assign Memory
Configure Networking
Connect Virtual Hard Disk
Installation Options
Summary
This wizard helps you create a virtual machine. You can use virtual machines in place of physical computers for a variety of uses. You can use this wizard to configure the virtual machine now, and you can change the configuration later using Hyper-V Manager.
To create a virtual machine, do one of the following:
• Click Finish to create a virtual machine that is configured with default values.
• Click Next to create a virtual machine with a custom configuration.
Do not show this page again
< Previous
Next >
Finish
Cancel

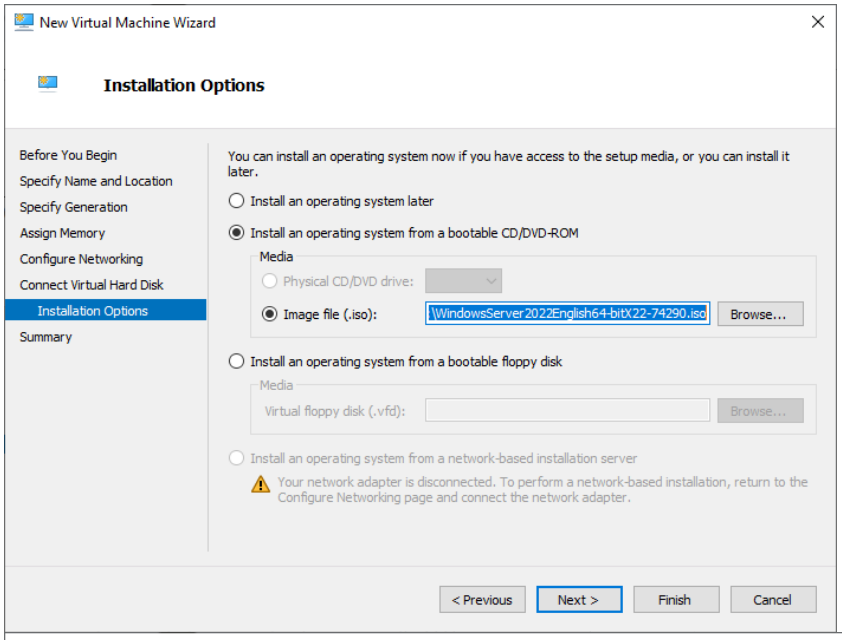

New Virtual Machine Wizard
Specify Name and Location
Before You Begin
Specify Name and Location
Specify Generation
Assign Memory
Configure Networking
Connect Virtual Hard Disk
Installation Options
Summary
Choose a name and location for this virtual machine.
The name is displayed in Hyper-V Manager. We recommend that you use a name that helps you easily identify this virtual machine, such as the name of the guest operating system or workload.
Name:
New Virtual Machine
You can create a folder or use an existing folder to store the virtual machine. If you don't select a folder, the virtual machine is stored in the default folder configured for this server.
Store the virtual machine in a different location
Location:
C:\ProgramData\Microsoft\Windows\Hyper-V\
Browse...
If you plan to take checkpoints of this virtual machine, select a location that has enough free space. Checkpoints include virtual machine data and may require a large amount of space.
< Previous
Next >
Finish
Cancel

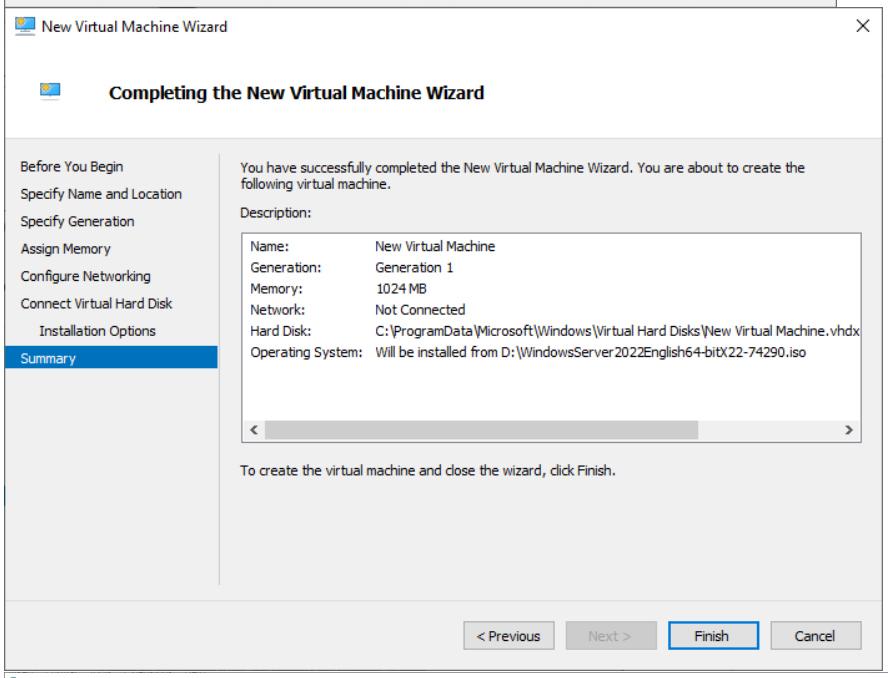

New Virtual Machine Wizard
Specify Generation
Before You Begin
Specify Name and Location
Specify Generation
Assign Memory
Configure Networking
Connect Virtual Hard Disk
Installation Options
Summary
Choose the generation of this virtual machine.
Generation 1
This virtual machine generation supports 32-bit and 64-bit guest operating systems and provides virtual hardware which has been available in all previous versions of Hyper-V.
Generation 2
This virtual machine generation provides support for newer virtualization features, has UEFI-based firmware, and requires a supported 64-bit guest operating system.
Once a virtual machine has been created, you cannot change its generation.
More about virtual machine generation support
< Previous
Next >
Finish
Cancel

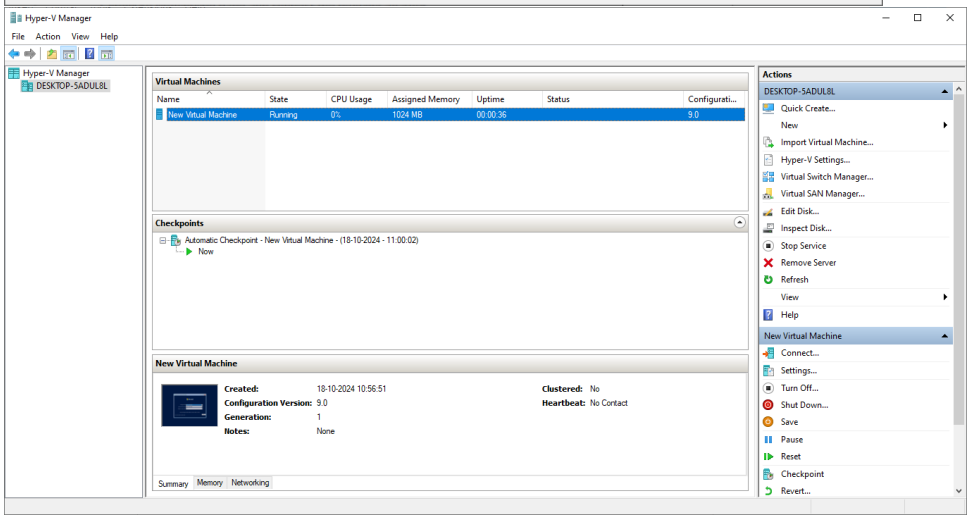

New Virtual Machine Wizard
Assign Memory
Before You Begin
Specify Name and Location
Specify Generation
Assign Memory
Configure Networking
Connect Virtual Hard Disk
Installation Options
Summary
Specify the amount of memory to allocate to this virtual machine. You can specify an amount from 32 MB through 251658240 MB. To improve performance, specify more than the minimum amount recommended for the operating system.
Startup memory: 1024 MB
Use Dynamic Memory for this virtual machine.
When you decide how much memory to assign to a virtual machine, consider how you intend to use the virtual machine and the operating system that it will run.
< Previous
Next >
Finish
Cancel


New Virtual Machine Wizard
Configure Networking
Before You Begin
Specify Name and Location
Specify Generation
Assign Memory
Configure Networking
Connect Virtual Hard Disk
Installation Options
Summary
Each new virtual machine includes a network adapter. You can configure the network adapter to use a virtual switch, or it can remain disconnected.
Connection: Not Connected
< Previous
Next >
Finish
Cancel


New Virtual Machine Wizard
Connect Virtual Hard Disk
Before You Begin
Specify Name and Location
Specify Generation
Assign Memory
Configure Networking
Connect Virtual Hard Disk
Installation Options
Summary
A virtual machine requires storage so that you can install an operating system. You can specify the storage now or configure it later by modifying the virtual machine's properties.
Create a virtual hard disk
Use this option to create a VHDX dynamically expanding virtual hard disk.
Name: New Virtual Machine.vhdx
Location: C:\ProgramData\Microsoft\Windows\Virtual Hard Disks\
Browse...
Size: 127 GB (Maximum: 64 TB)
Use an existing virtual hard disk
Use this option to attach an existing virtual hard disk, either VHD or VHDX format.
Location: C:\ProgramData\Microsoft\Windows\Virtual Hard Disks\
Browse...
Attach a virtual hard disk later
Use this option to skip this step now and attach an existing virtual hard disk later.
< Previous
Next >
Finish
Cancel


New Virtual Machine Wizard
Installation Options
Before You Begin
Specify Name and Location
Specify Generation
Assign Memory
Configure Networking
Connect Virtual Hard Disk
Installation Options
Summary
You can install an operating system now if you have access to the setup media, or you can install it later.
Install an operating system later
Install an operating system from a bootable CD/DVD-ROM
Media
Physical CD/DVD drive:
Image file (.iso):
\WindowsServer2022English64-bitX22-74290.iso
Browse...
Install an operating system from a bootable floppy disk
Media
Virtual floppy disk (.vfd):
Browse...
Install an operating system from a network-based installation server
Your network adapter is disconnected. To perform a network-based installation, return to the Configure Networking page and connect the network adapter.
< Previous
Next >
Finish
Cancel

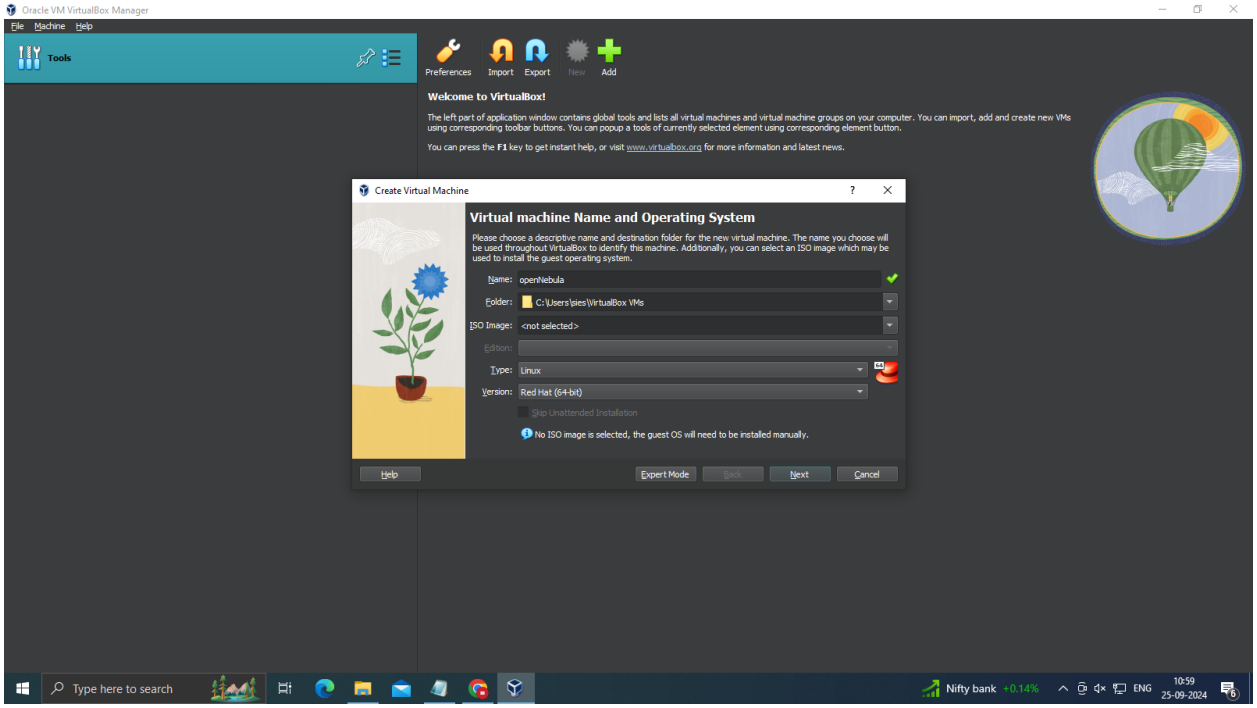

New Virtual Machine Wizard
Completing the New Virtual Machine Wizard
Before You Begin
Specify Name and Location
Specify Generation
Assign Memory
Configure Networking
Connect Virtual Hard Disk
Installation Options
Summary
You have successfully completed the New Virtual Machine Wizard. You are about to create the following virtual machine.
Description:
Name: New Virtual Machine
Generation: Generation 1
Memory: 1024 MB
Network: Not Connected
Hard Disk: C:\ProgramData\Microsoft\Windows\Virtual Hard Disks\New Virtual Machine.vhdx
Operating System: Will be installed from D:\WindowsServer2022English64-bitX22-74290.iso
To create the virtual machine and close the wizard, click Finish.
< Previous
Next >
Finish
Cancel

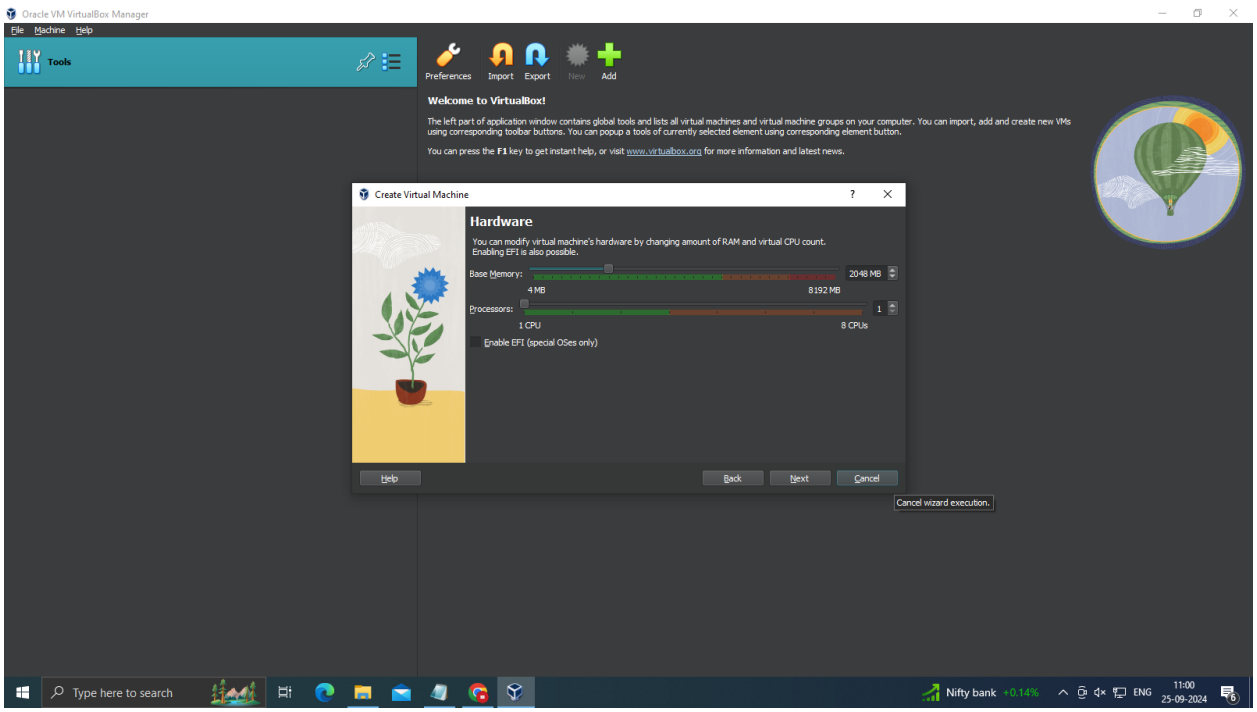

Hyper-V Manager
File Action View Help
Hyper-V Manager
DESKTOP-5ADUL8L
Virtual Machines
Name State CPU Usage Assigned Memory Uptime Status Configurati...
New Virtual Machine Running 0% 1024 MB 00:00:36 9.0
Checkpoints
Automatic Checkpoint - New Virtual Machine - (18-10-2024 - 11:00:02)
Now
New Virtual Machine
Created: 18-10-2024 10:56:51
Configuration Version: 9.0
Generation: 1
Notes: None
Clustered: No
Heartbeat: No Contact
Summary Memory Networking
Actions
DESKTOP-5ADUL8L
Quick Create...
New
Import Virtual Machine...
Hyper-V Settings...
Virtual Switch Manager...
Virtual SAN Manager...
Edit Disk...
Inspect Disk...
Stop Service
Remove Server
Refresh
View
Help
New Virtual Machine
Connect...
Settings...
Turn Off...
Shut Down...
Save
Pause
Reset
Checkpoint
Revert...

PRACTICAL 7

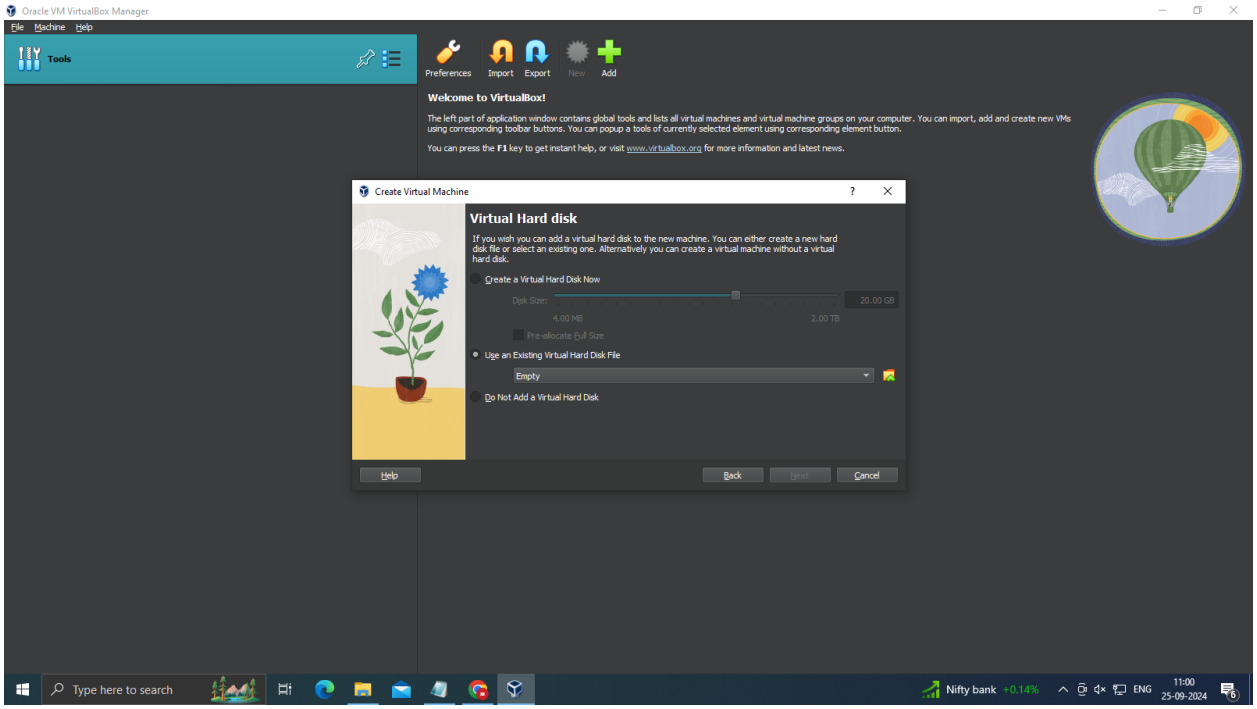
Aim - Implementing open Nebula
Requirements :- oracle vm virtual box , open nebula sandbox
Steps:-

Open oracle Vm VirtualBox → Click on New → Give name, Type - Linux, Version - Red Hat(64-bit) → Next

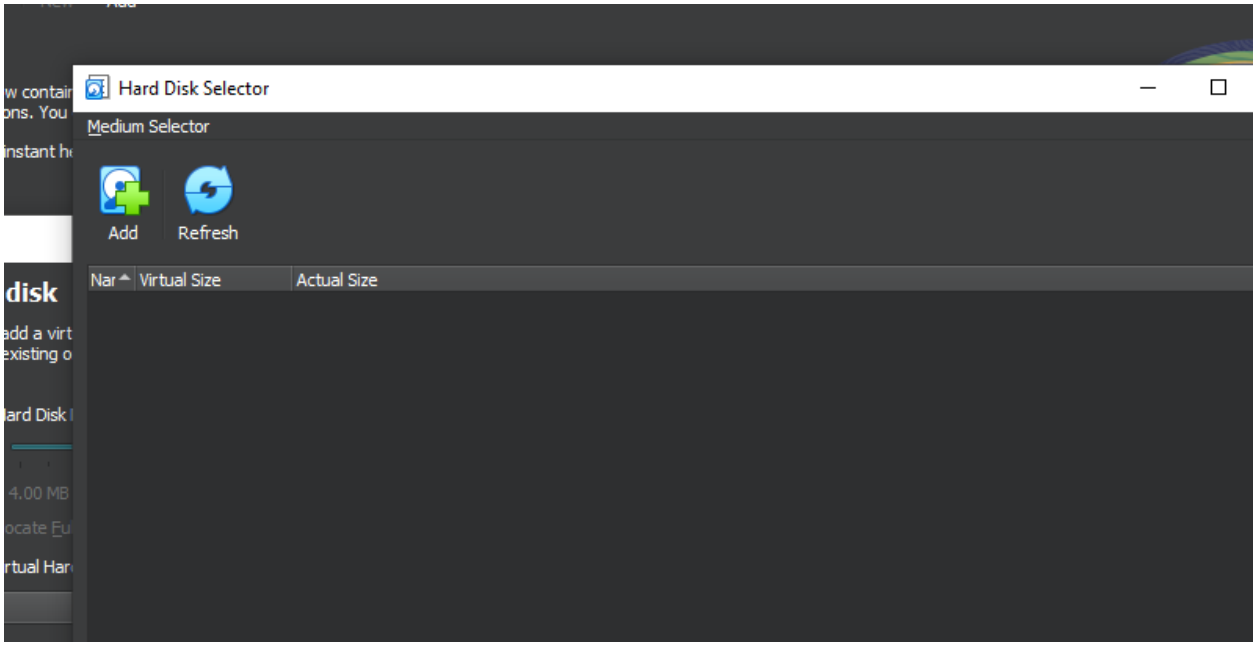




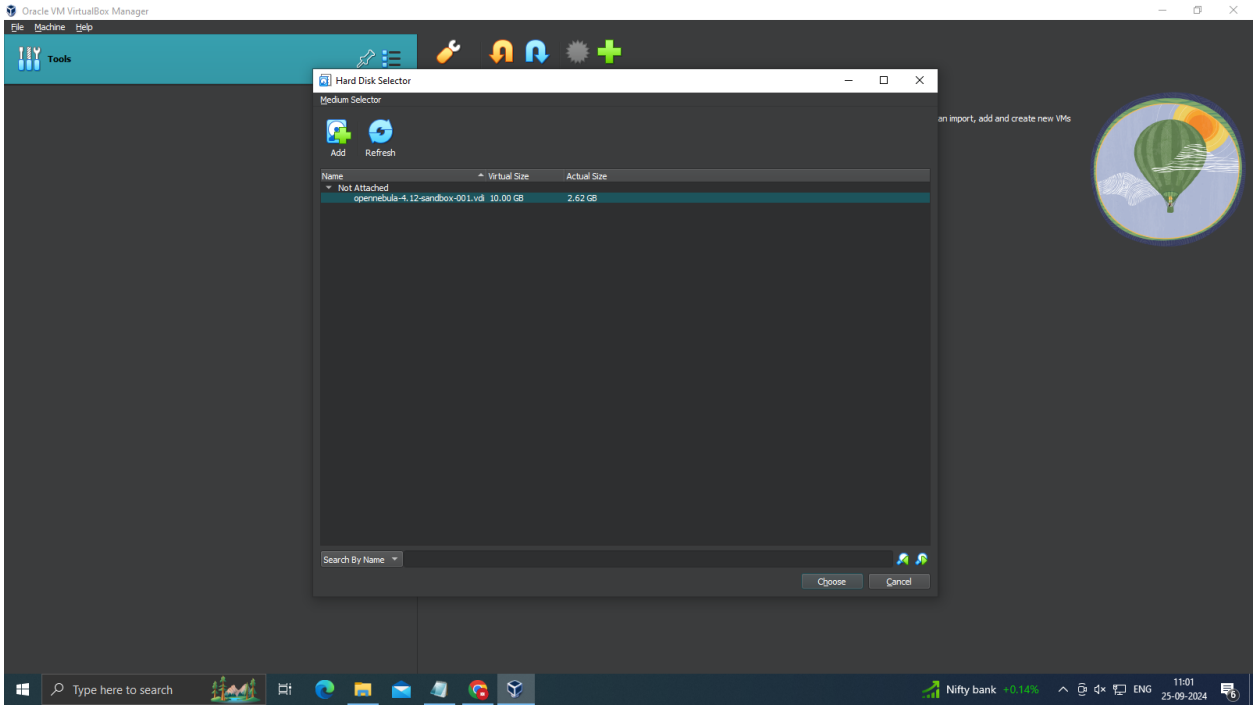
Click on a “use **existing virtual hard disk file**”



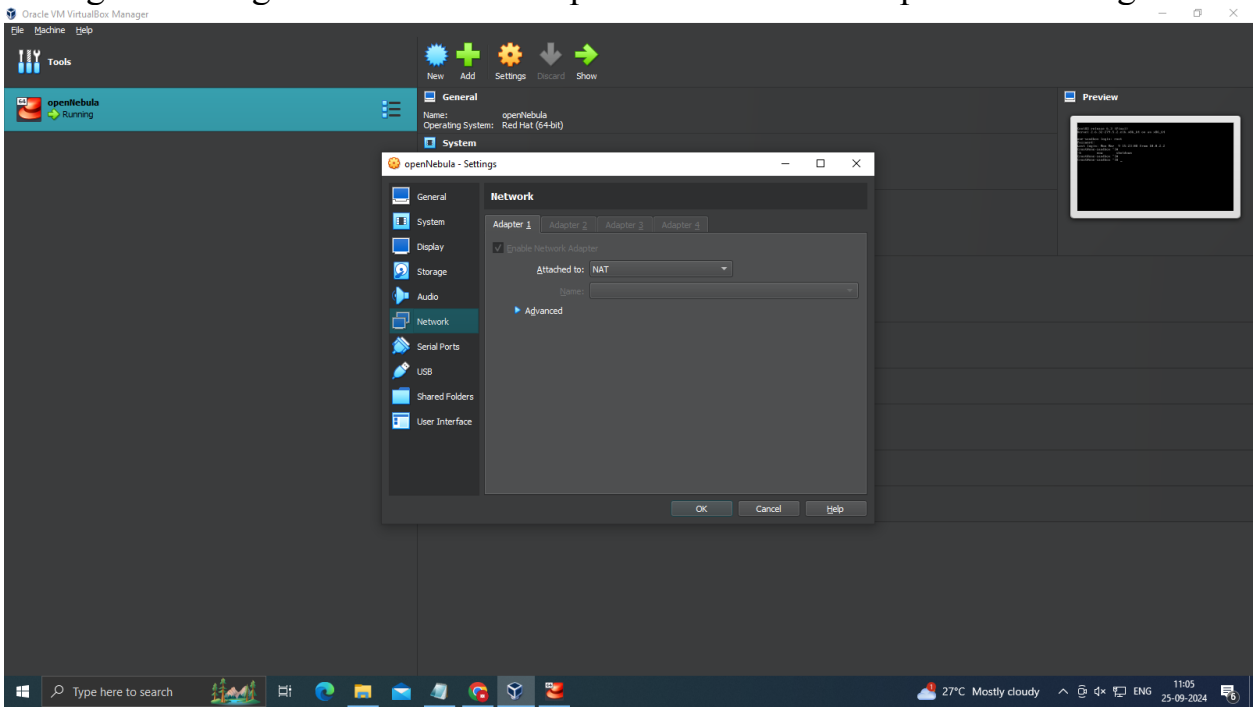
Click on add



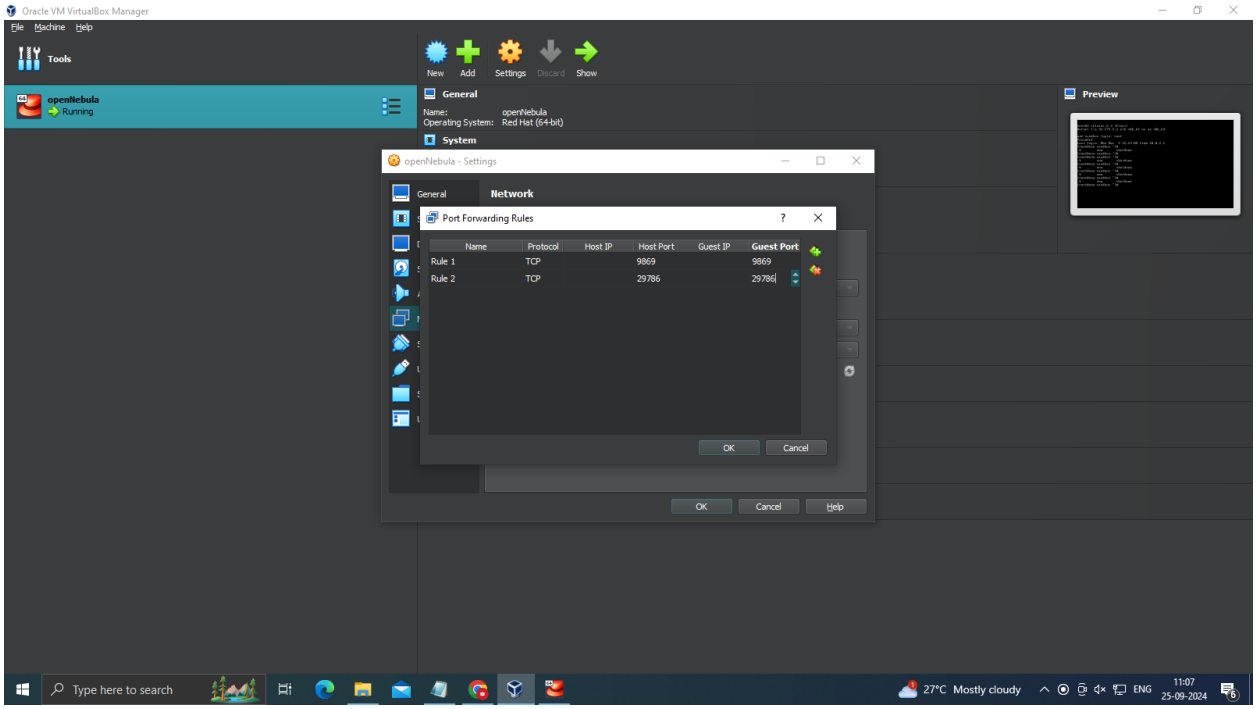
Add open nebula sandbox → Choose → finish



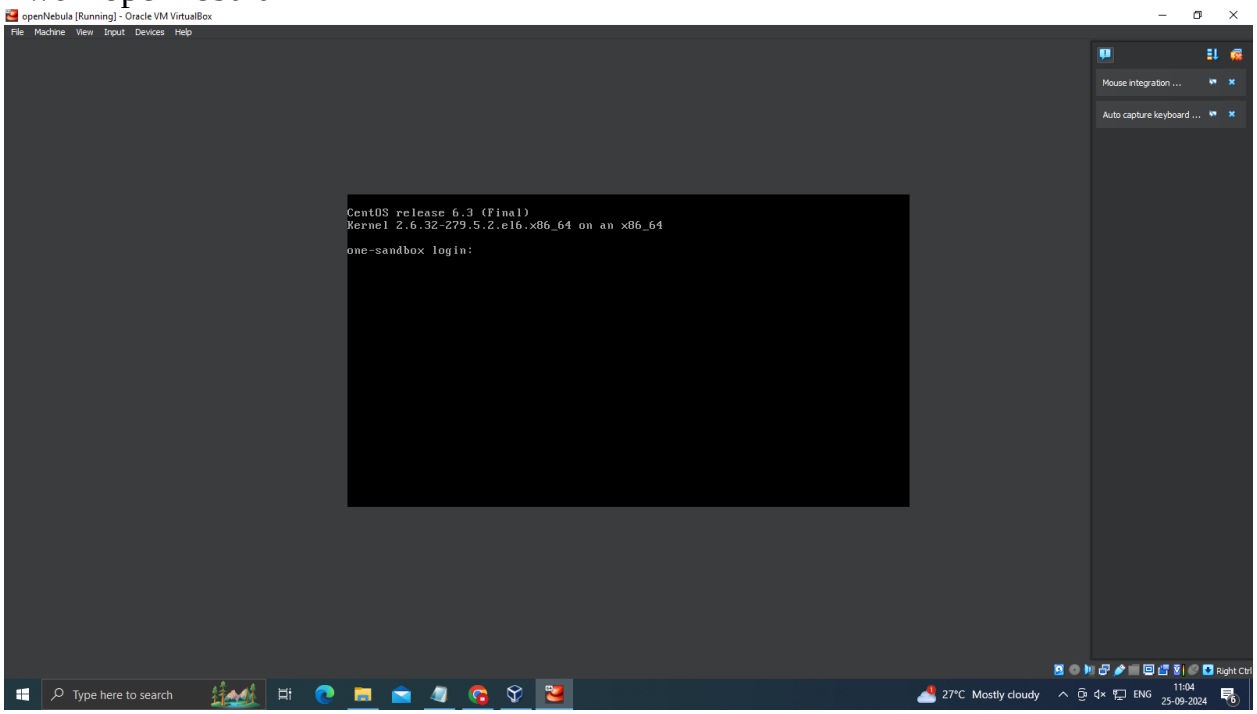
Now go to settings →Network → adapter1 →Advanced → port forwarding



Now add host port and guest port number then add one more
(Remember the port numbers)

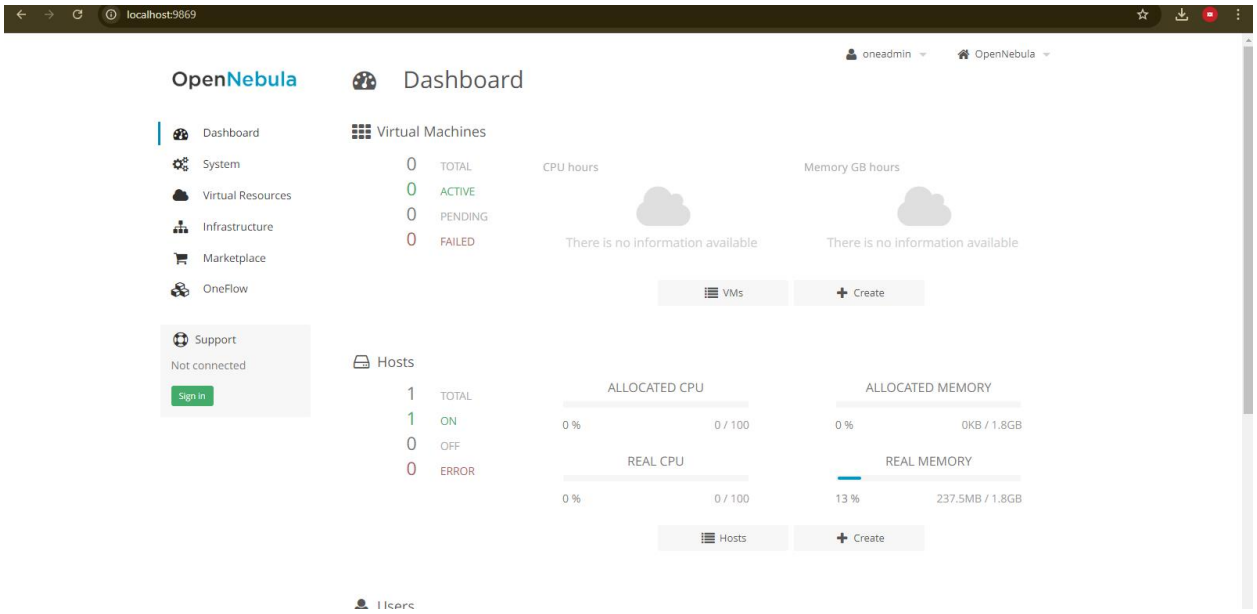


Click Ok → ok → click on start
Login - root
Pwd - opennebula

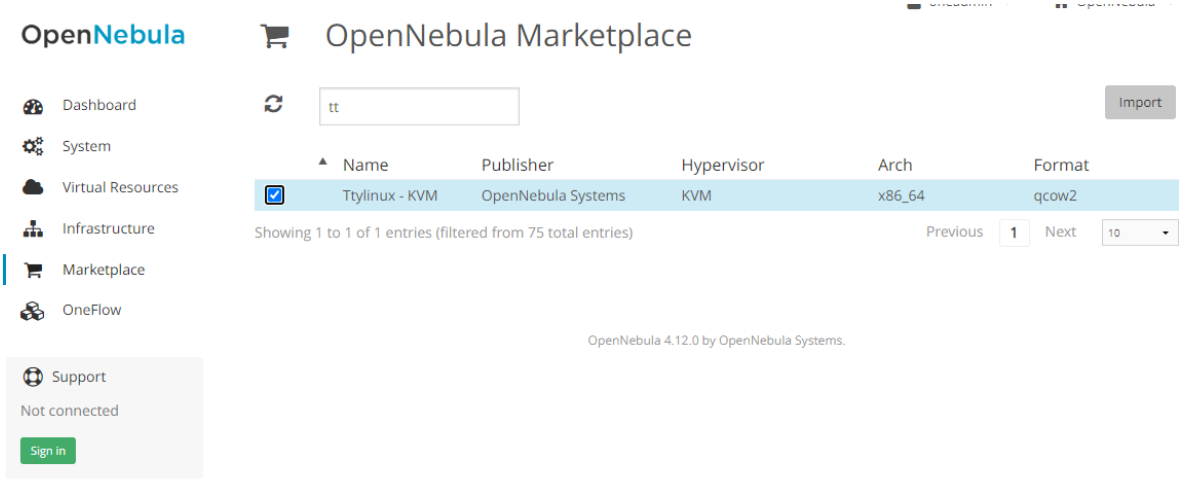


Now minimize and open browser(chrome) → localhost:9869 → username - oneadmin, pwd - opennebula → login

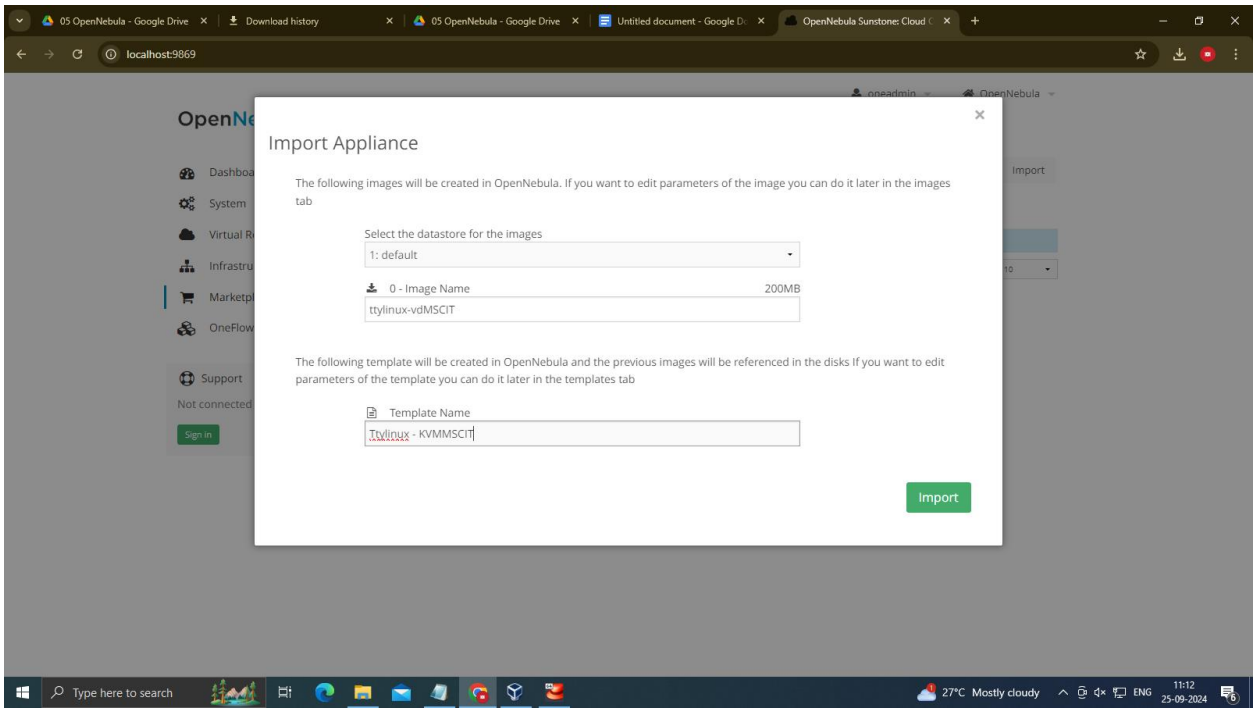
Now u can see this interface



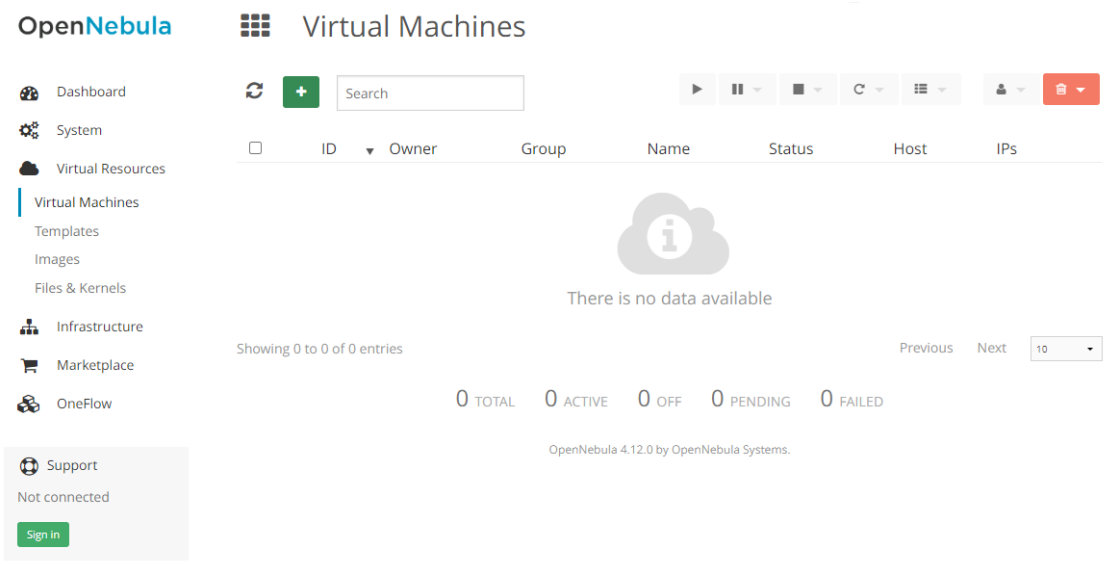
Click Marketplace → search “tty” → TtyLinux KVM → Click on checkbox and then refresh → once the status is “running” → click **import**



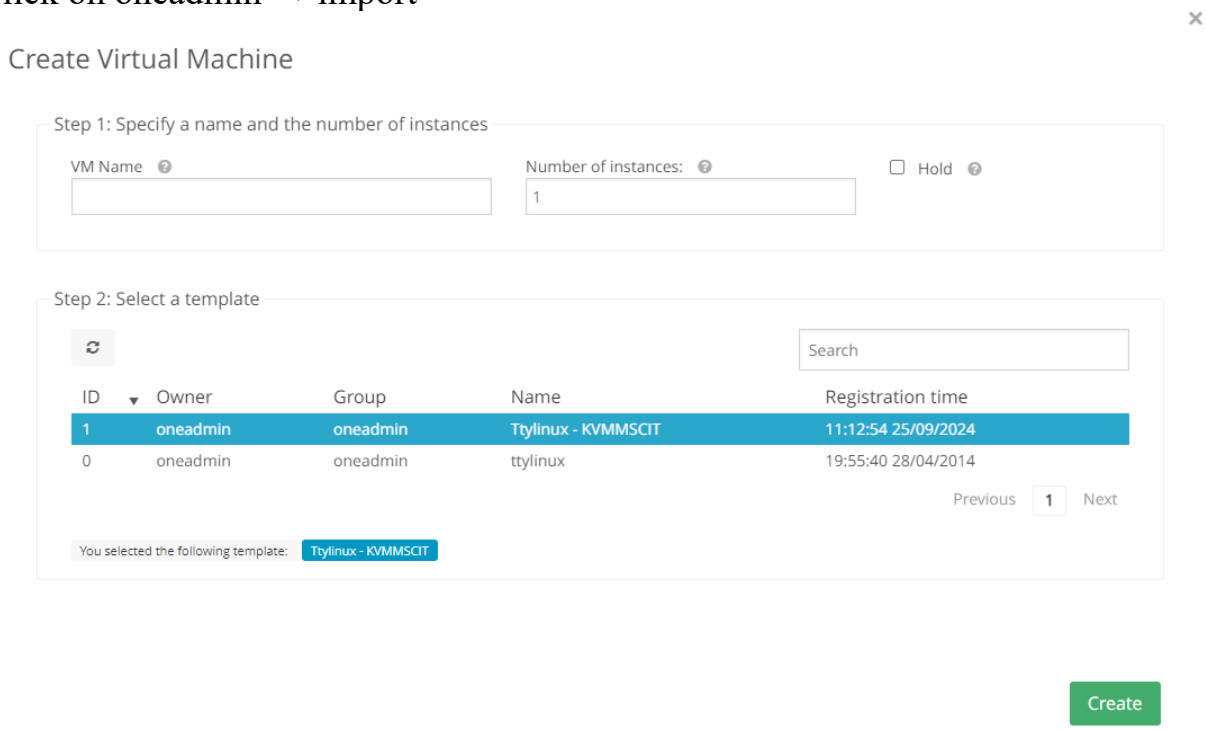
Change Image & template name → just add **MSCIT** at the end → import

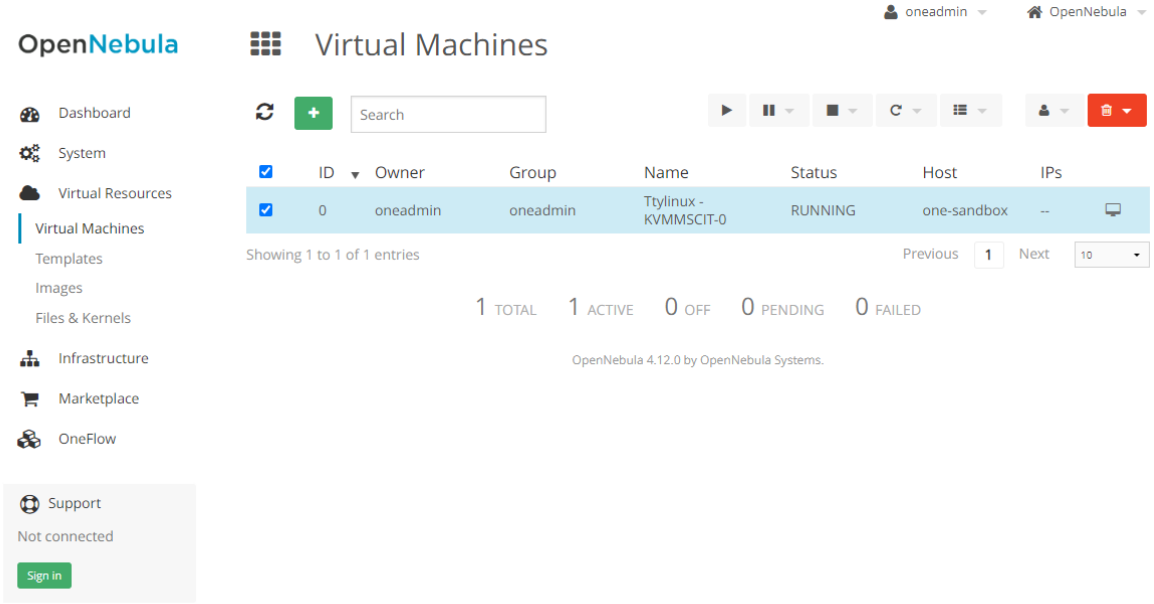


Click Virtual Resources → Virtual Machines → Click on "+" button



Click on oneadmin → import




oneadmin
OpenNebula
OpenNebula
Virtual Machines
Dashboard
System
Virtual Resources
Virtual Machines
Templates
Images
Files & Kernels
Infrastructure
Marketplace
OneFlow
Support
Not connected
Sign in
Search
ID
Owner
Group
Name
Status
Host
IPs
0
oneadmin
oneadmin
Ttylinux - KVMMSCIT-0
RUNNING
one-sandbox
--
Showing 1 to 1 of 1 entries
Previous
1
Next
10
1 TOTAL
1 ACTIVE
0 OFF
0 PENDING
0 FAILED
OpenNebula 4.12.0 by OpenNebula Systems.

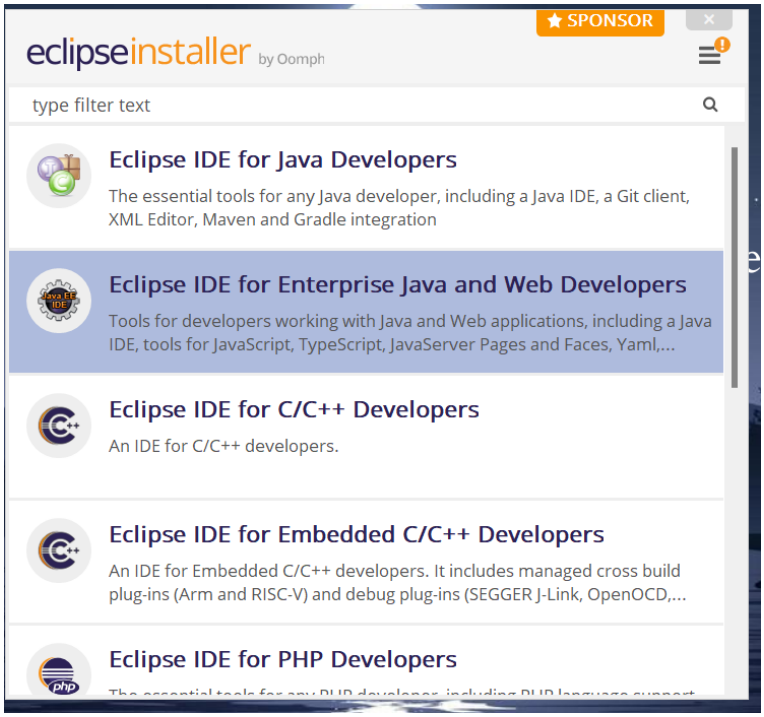
PRACTICAL 8

Aim - Implementing Amazon Web Service AWS

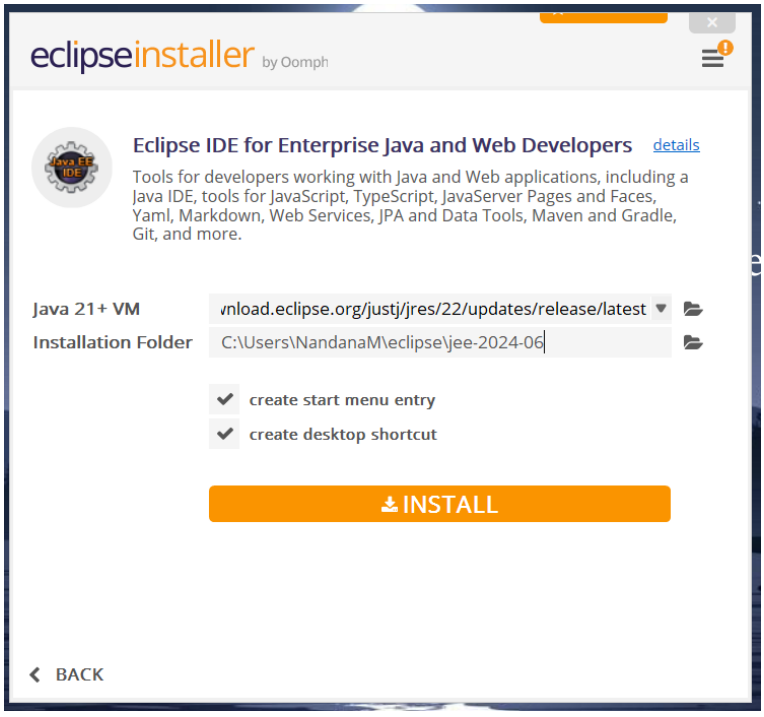
Requirements:- Eclipse installer , tomcat Apache 10.1 v

Steps:-

Install tomcat Apache in ur pc .install 10.1 version and then execute it
Install eclipse from its official website
Click on



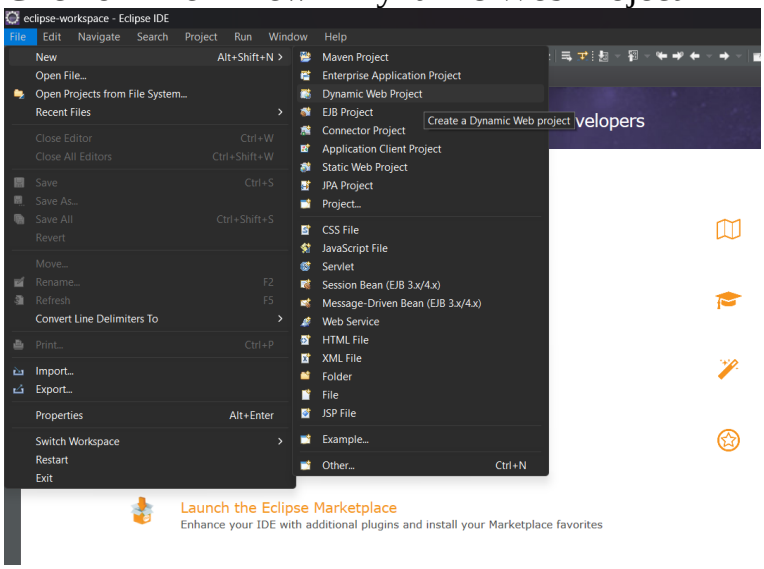
Click on Install



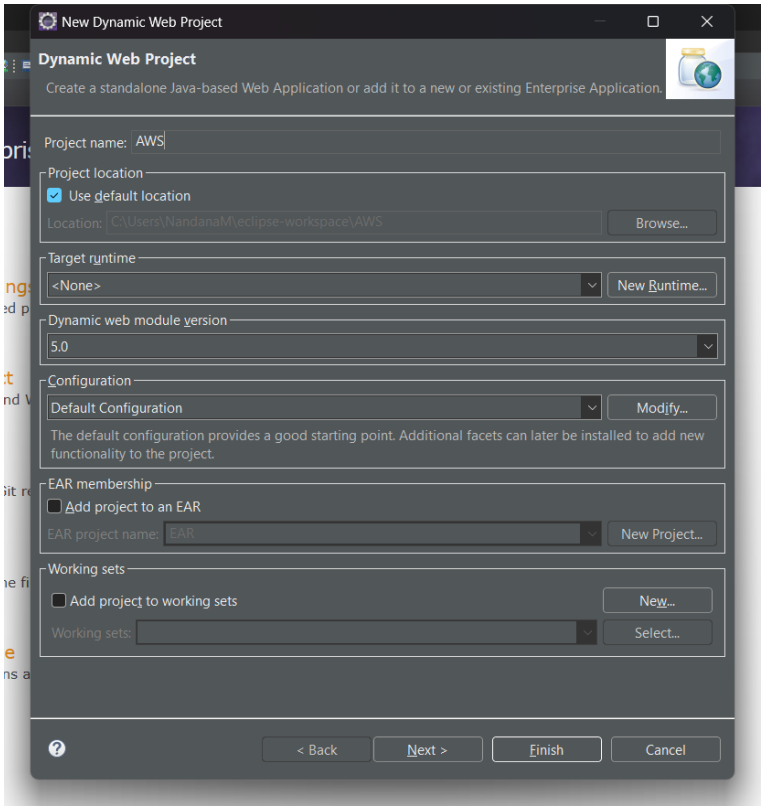
Wait until the installation is completed

Click on Launch

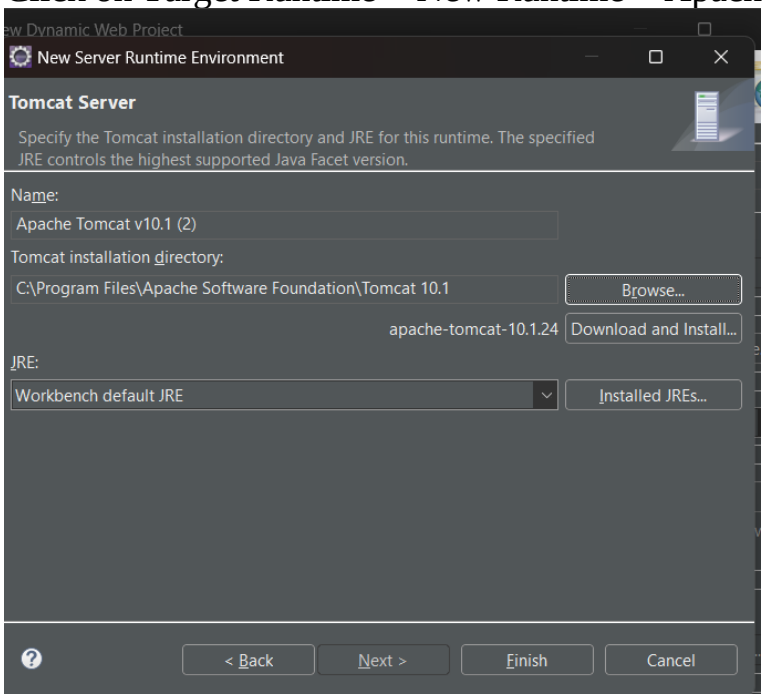
Click on File > New > Dynamic Web Project



Give project name as “AWS” and then click on “Next”

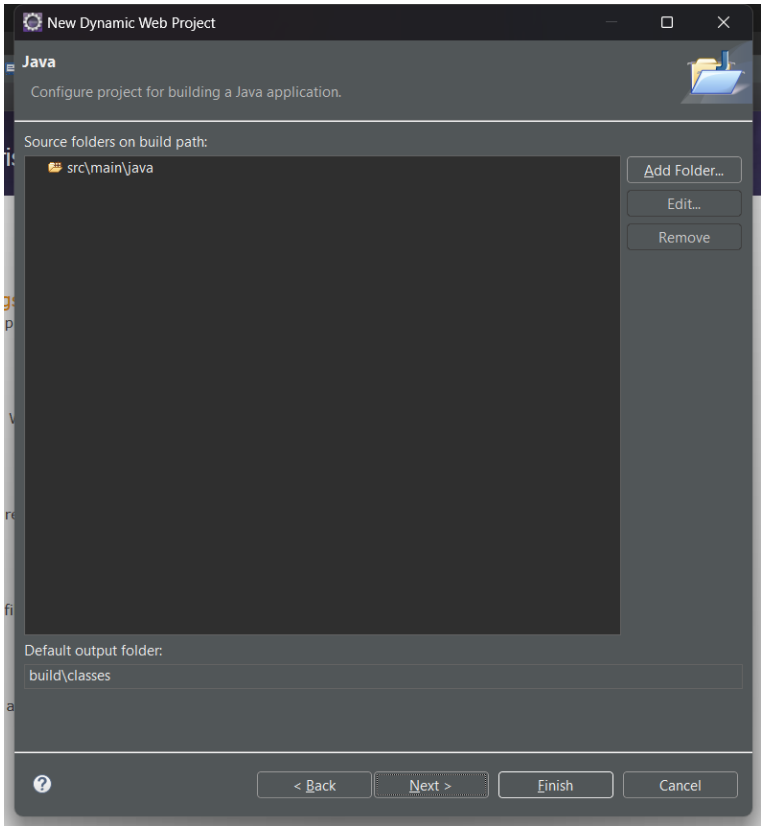


Click on Target Runtime > New Runtime > Apache > Apache tomcat v10.1 > Next

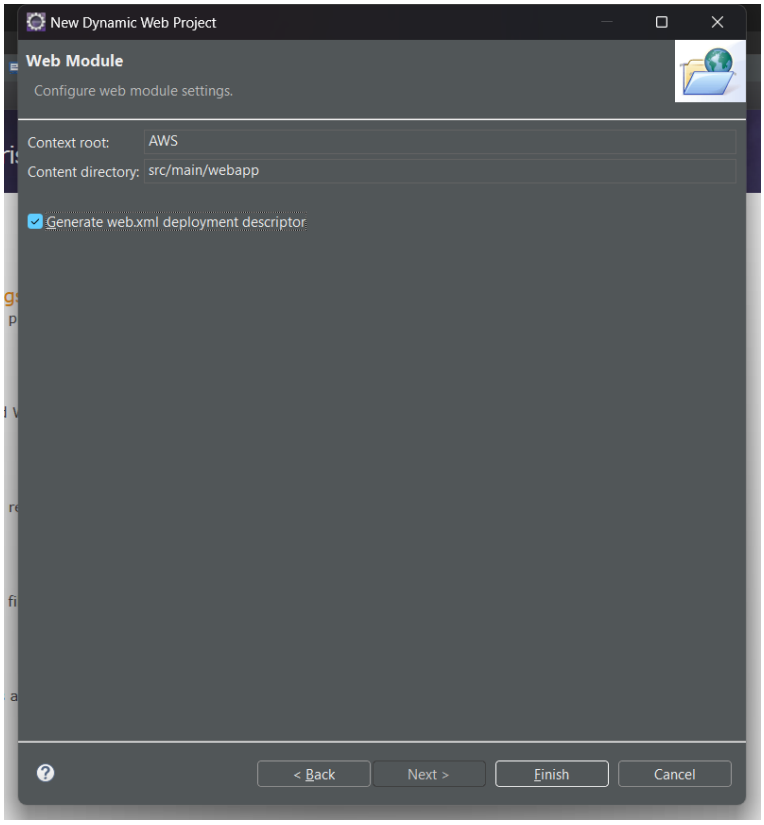


Click Browse > C drive > program files > Apache Software foundation > Tomcat 10.1 >Click on Continue > give access

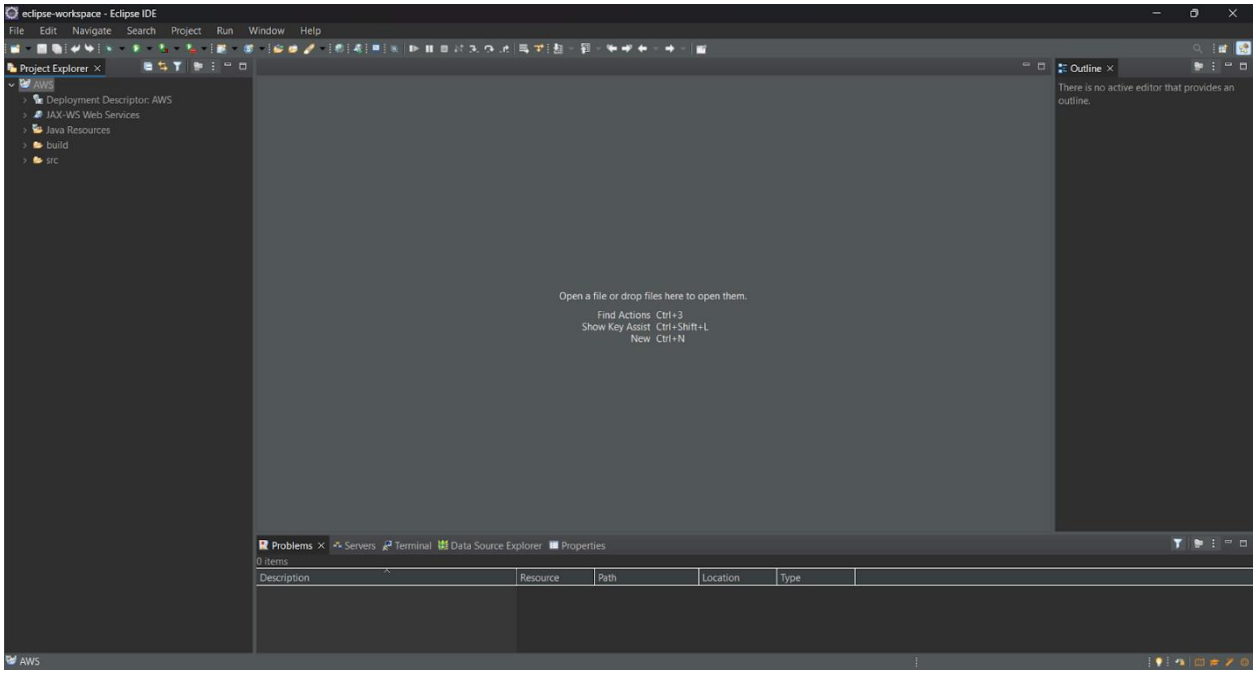
Select that and then click “Next”



Make sure u tick the checkbox and then click “Finish”

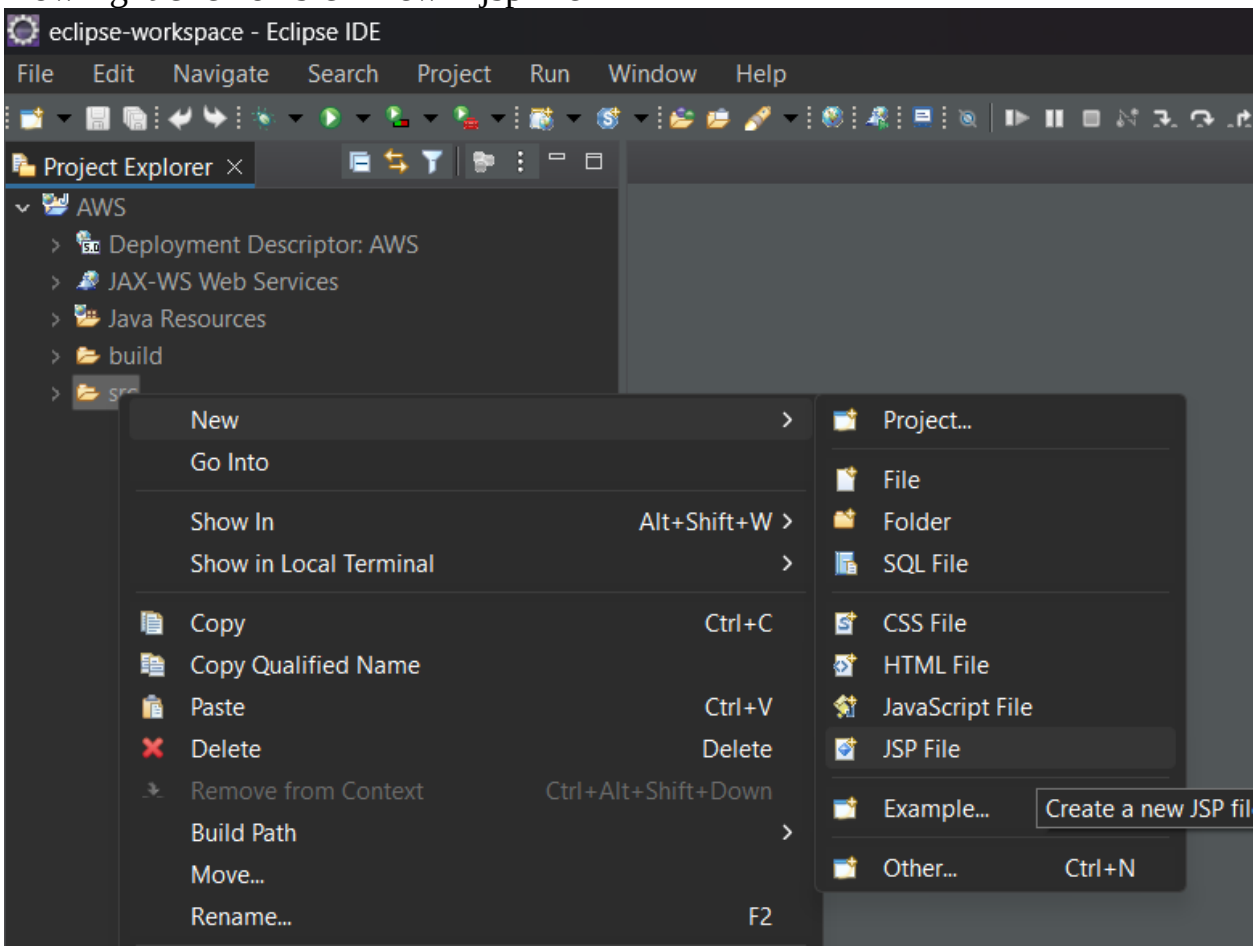


U will be navigated to this page



If u don't see "project explorer" which is on the lhs ..then click on "windows > show view > project explorer

Now right click on src > new > jsp file



Create 2 jsp files ..one as newfile.jsp and the other as fibonacci.jsp

To create jsp file
Click on jsp file and then name ur jsp file if u want then click next and then finish
Write the code

NewFile.jsp | Fibonacci.jsp | Tomcat v10.1 Server at localhost

```jsp
<%@ page language="java" contentType="text/html; charset=UTF-8"
    pageEncoding="UTF-8"%>
<!DOCTYPE html>
<html>
<head>
<meta charset="UTF-8">
<title>Insert title here</title>
</head>
<body>
<form action="Fibonacci.jsp">
    Enter a value for n: <input type="text" name="val">
    <input type="submit" value="Submit">
</form>
</body>
</html>
```

NewFile.jsp | Fibonacci.jsp | Tomcat v10.1 Server at localhost

```jsp
<%@ page language="java" contentType="text/html; charset=UTF-8"
    pageEncoding="UTF-8"%>
<!DOCTYPE html>
<html>
<head>
<meta charset="UTF-8">
<title>Insert title here</title>
</head>
<body>
<%!
    int n;
    String str;

    int fibo(int n) {
       if(n<2)
          return n;
       else
          return fibo(n-1) + fibo(n-2);
    }
%>
<b>Fibonacci series: </b><br>
<%
    str = request.getParameter("val");
    n = Integer.parseInt(str);

    for(int i=0; i<=n; i++) {
       out.print(fibo(i) + " ");
    }
%>
</body>
</html>
```

Now run the code

Enter a value for n: 5 Submit

Fibonacci series:
0 1 1 2 3 5