

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

MUMBAI – 22

DEPARTMENT OF INFORMATION TECHNOLOGY

M.Sc. (I.T.) PART – I, SEMESTER – I

Practical Journal

for the subject

CLOUD COMPUTING

Submitted by

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FMSC2425174

For the academic year

2024-25



SIES College of Arts, Science and Commerce (Empowered Autonomous),

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Department of Information Technology

CERTIFICATE

This is to certify that Mr. Anurag Anil Pandey, of MSc [Information Technology] Semester - I, Seat No. FMSC2425174 has successfully completed the practical 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

Examiner

Iqra Shaikh

Course Co-Ordinator

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College Seal

Date:

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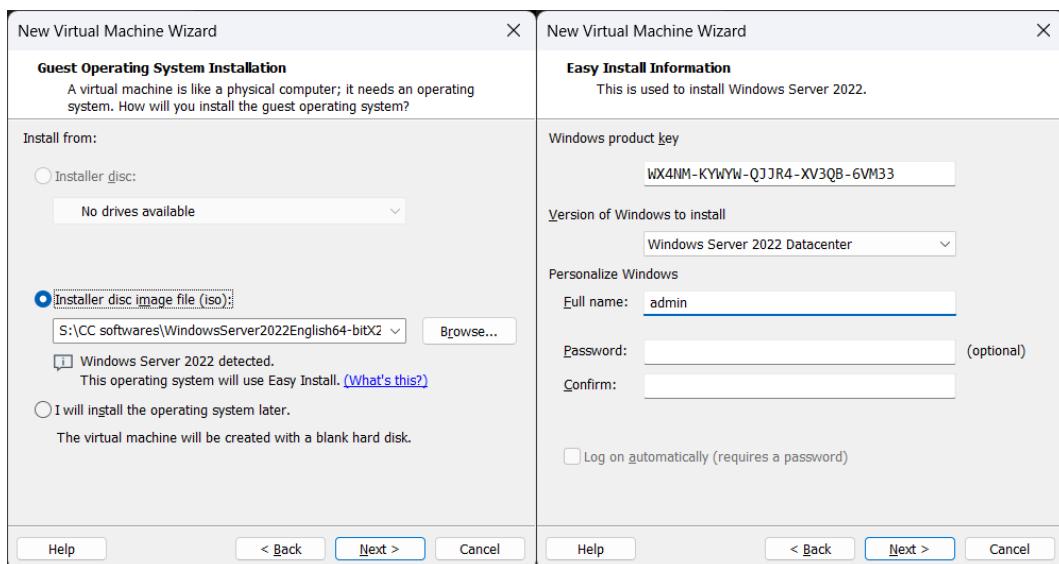
PRACTICAL 1

Aim :- Implementing Failover Cluster on Windows

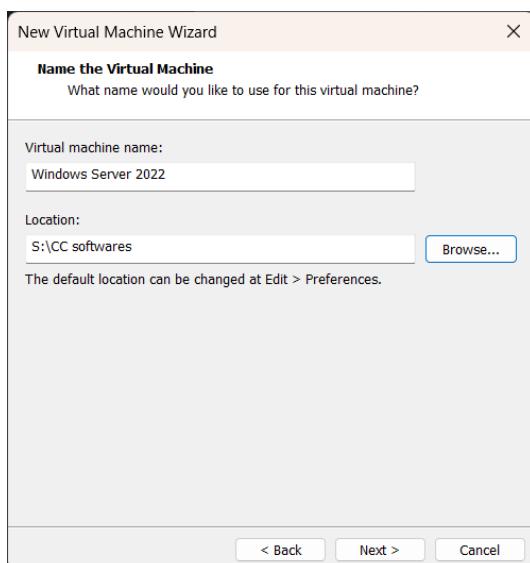
File used:- Windows Server 2022.iso file

Steps:-

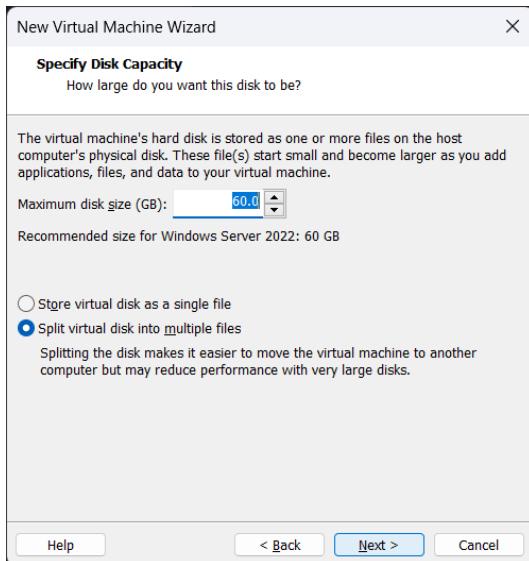
Create a new VM



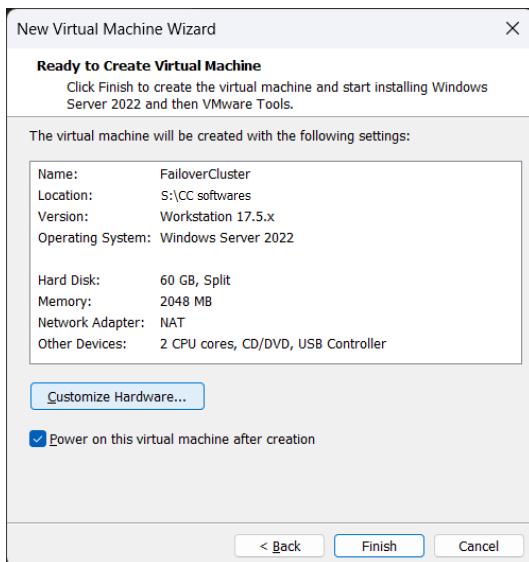
Give a Name → Next



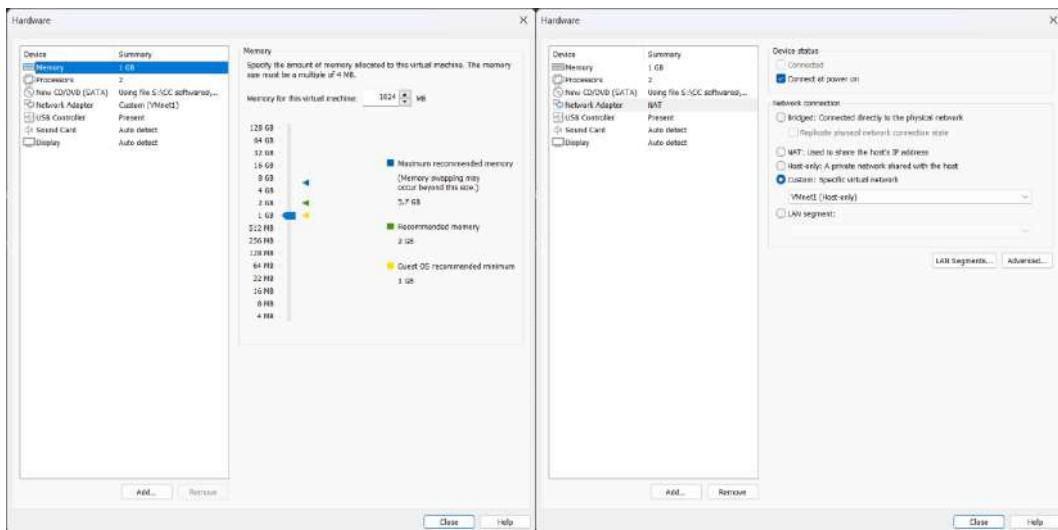
Keep default storage capacity → split virtual disk into multiple files



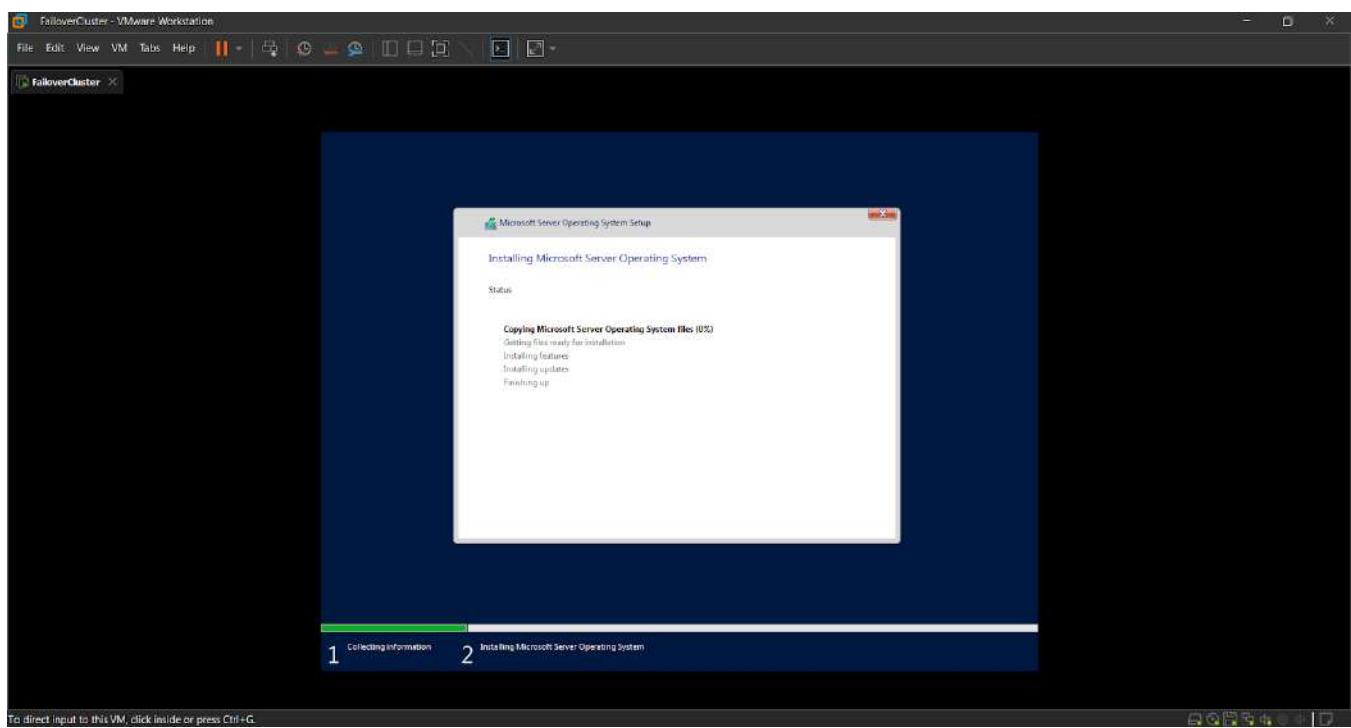
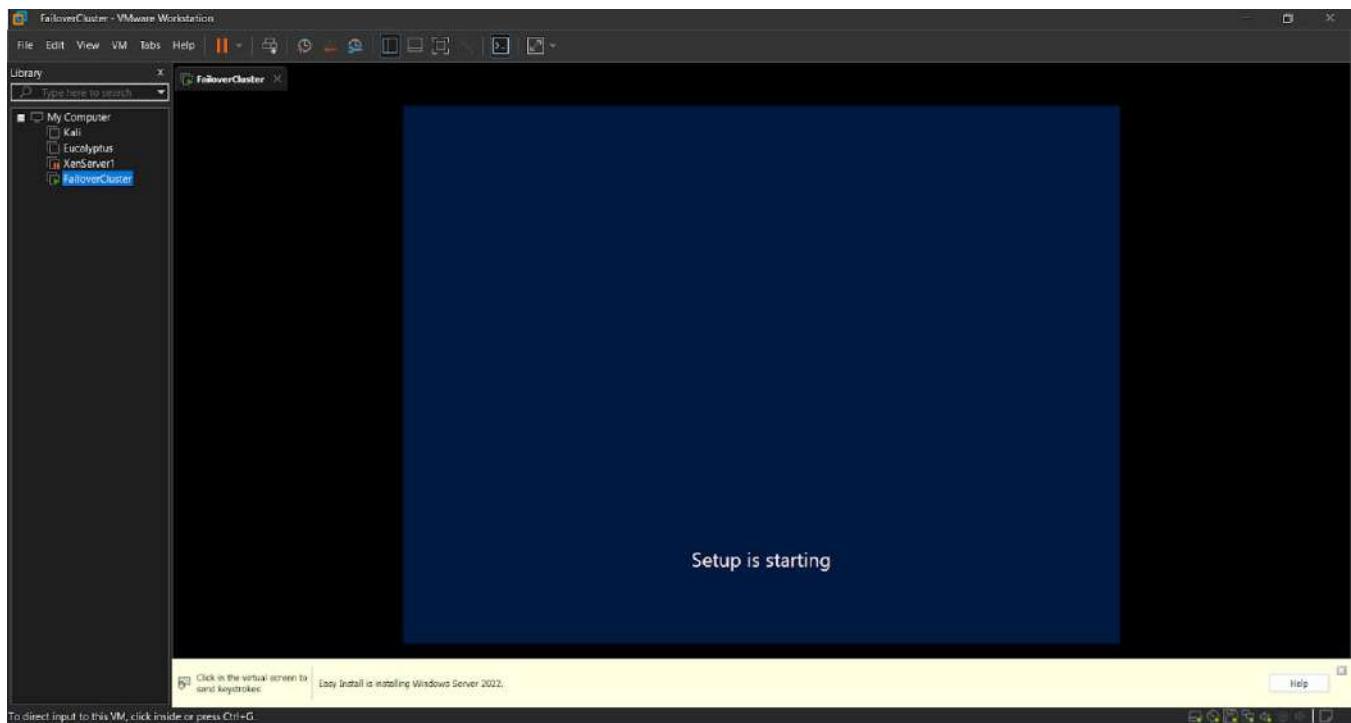
Click on Customize Hardware

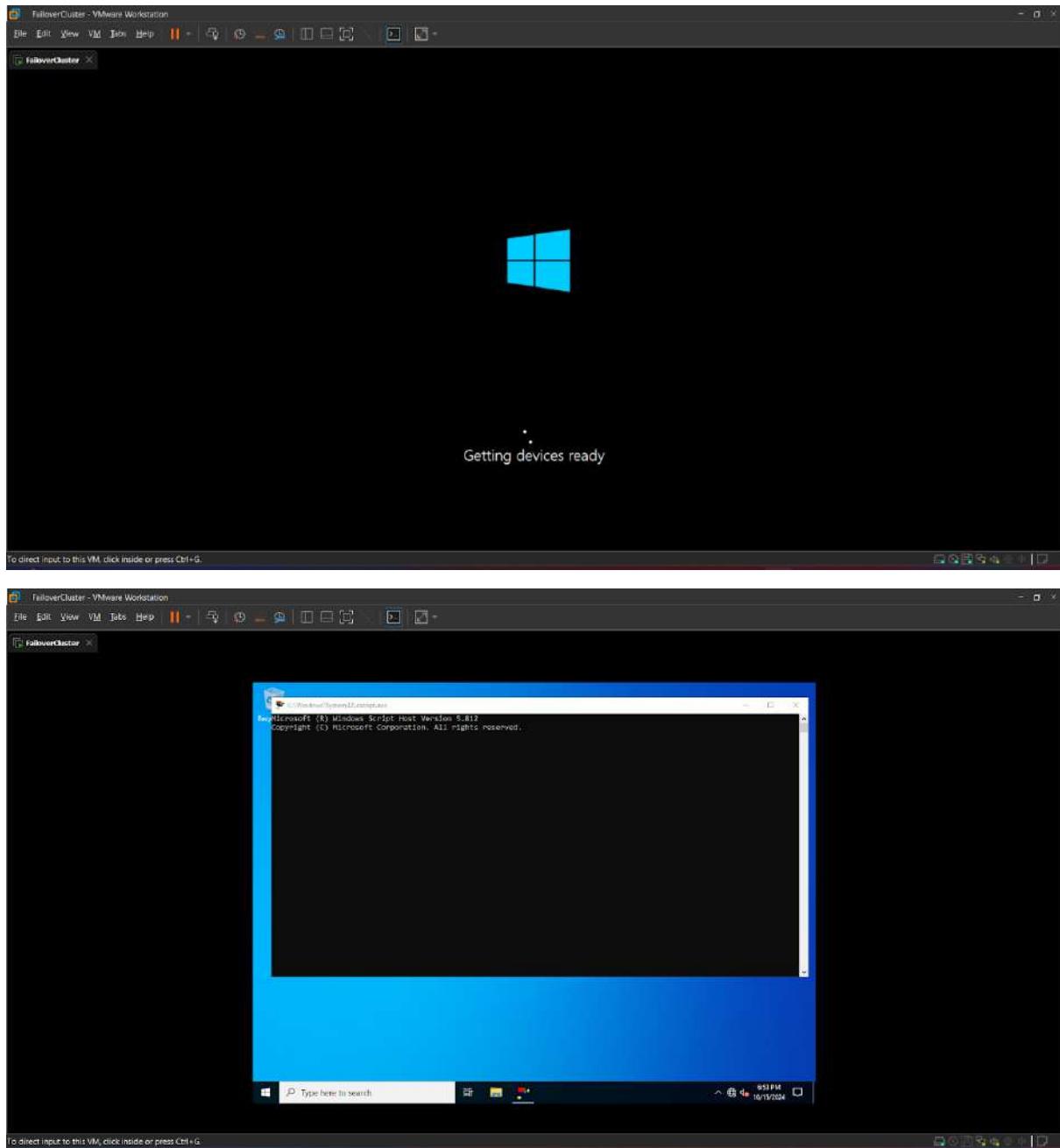


Set Memory to 1GB → Network Adapter → Custom specific Virtual network

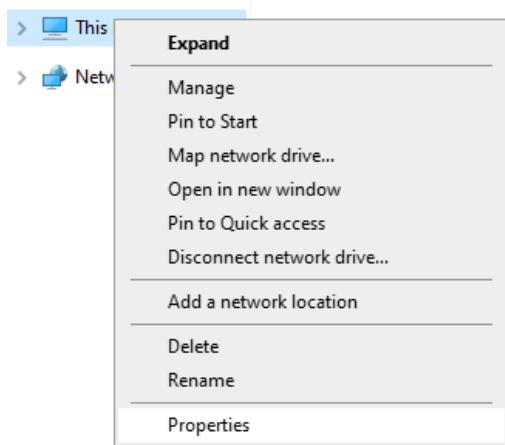


Now Power on the virtual machine





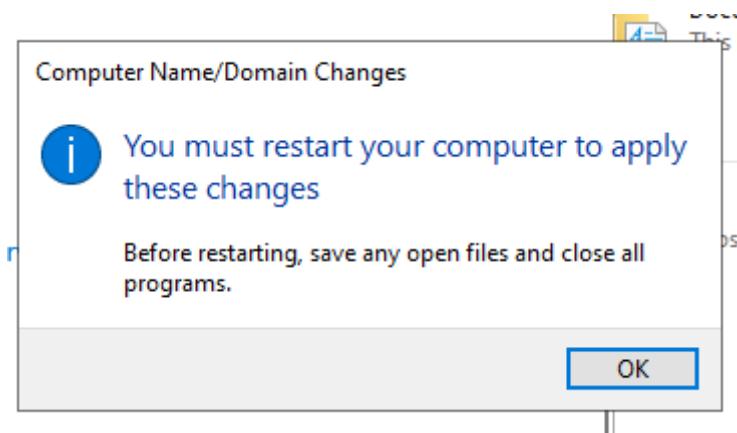
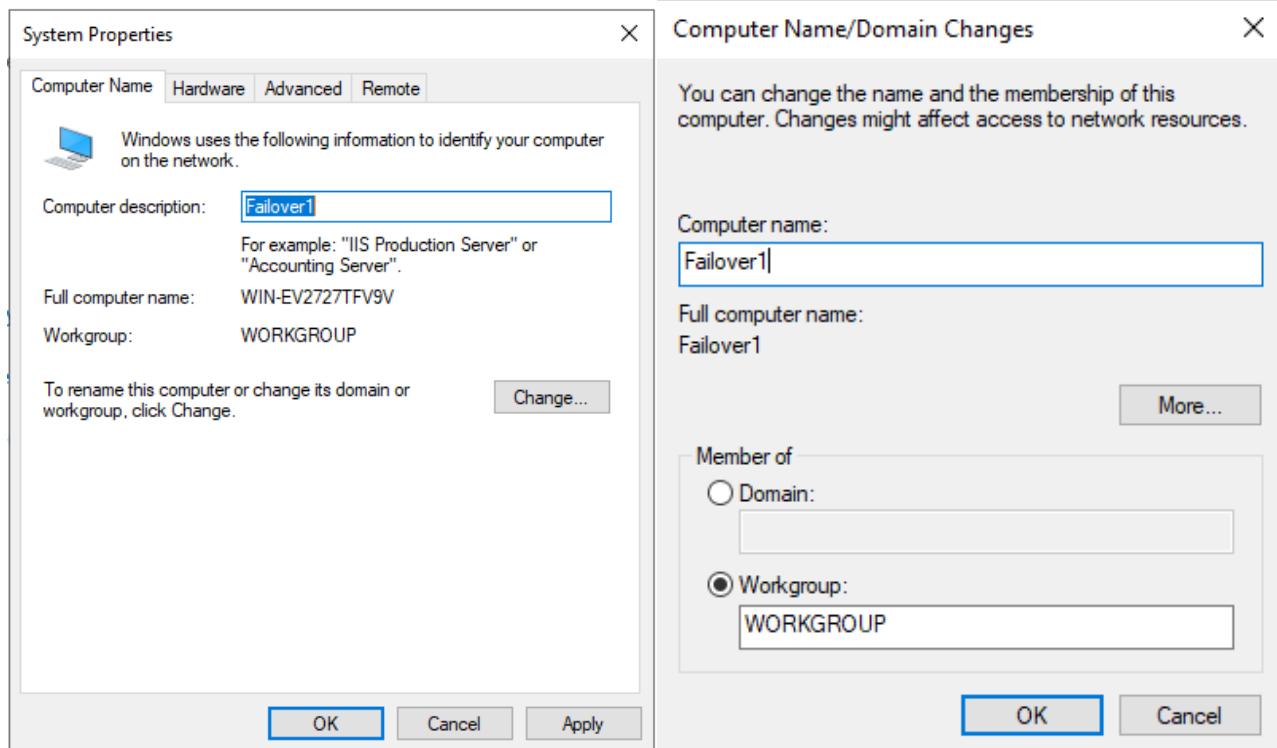
Ctrl + E → This Pc → Right Click → Properties



Related settings

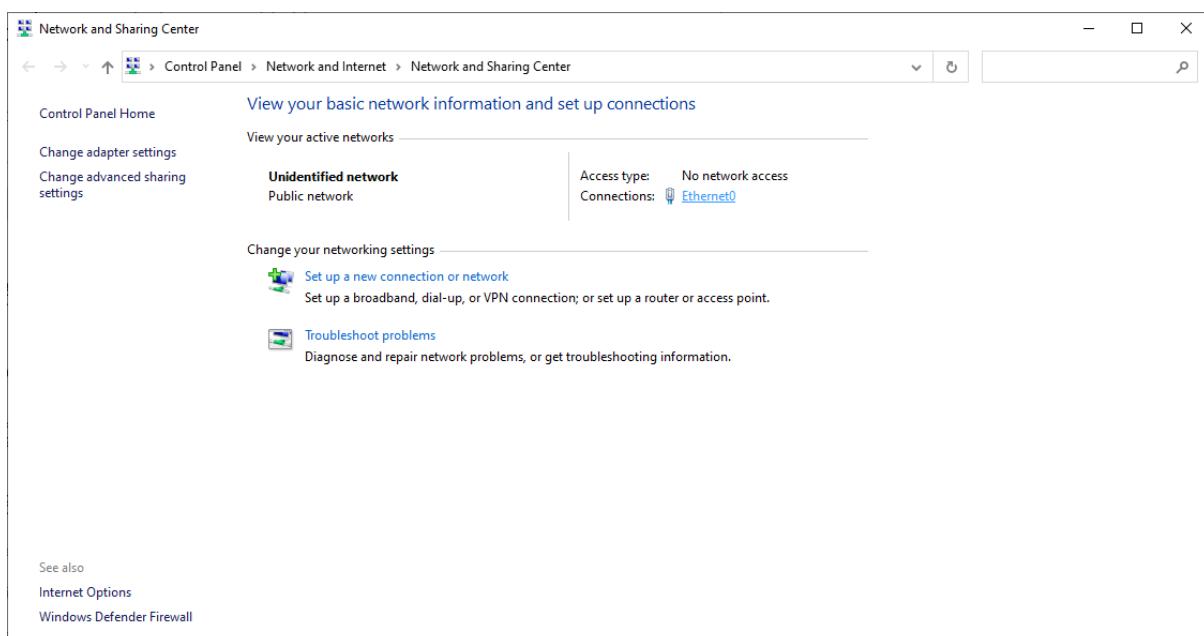
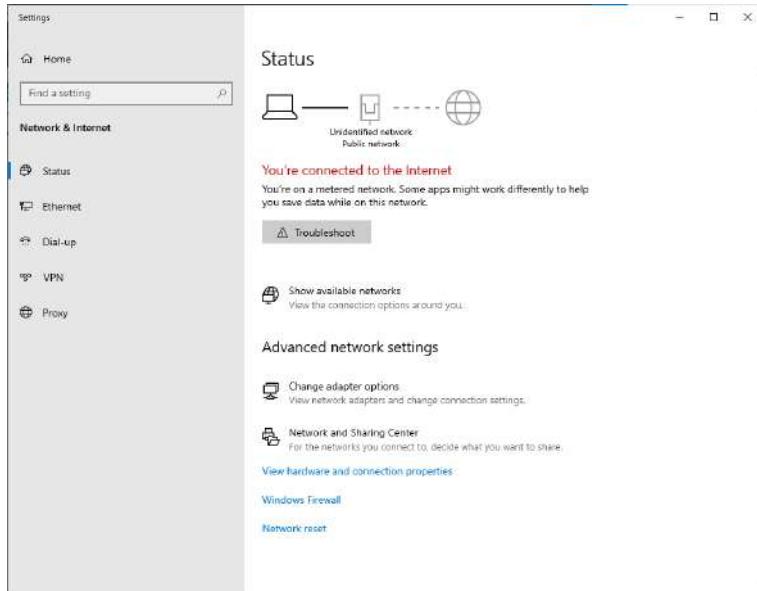
- [Device Manager](#)
- [Remote desktop](#)
- [System protection](#)
- [Advanced system settings](#)
- [Rename this PC \(advanced\)](#)
- [Graphics settings](#)

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

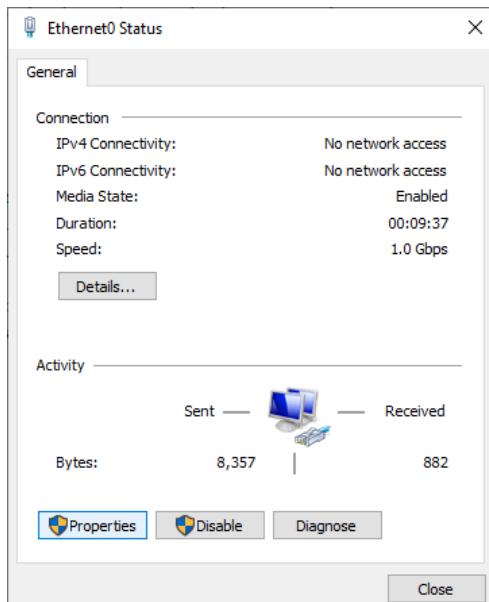


After restart

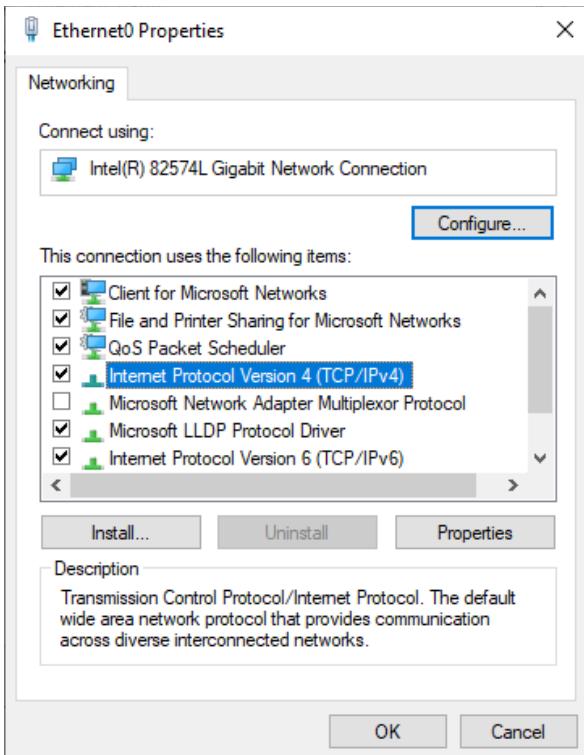
Go to setting → network and sharing centre → Click on Ethernet()



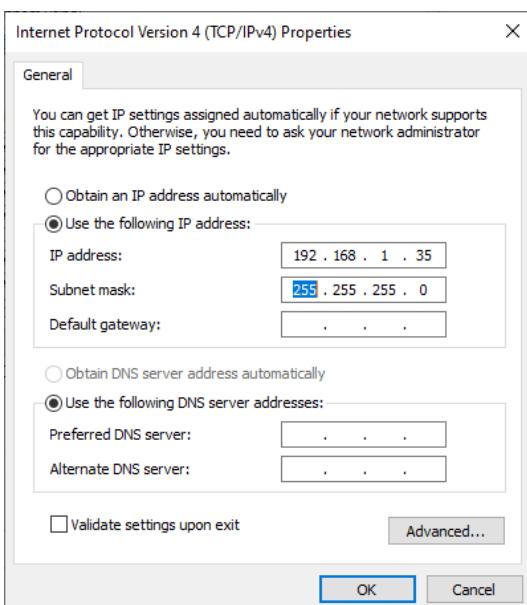
Click on properties →



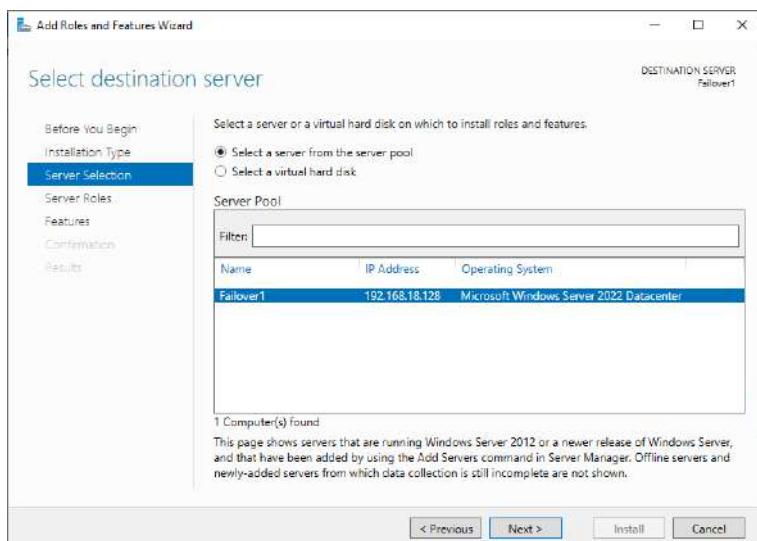
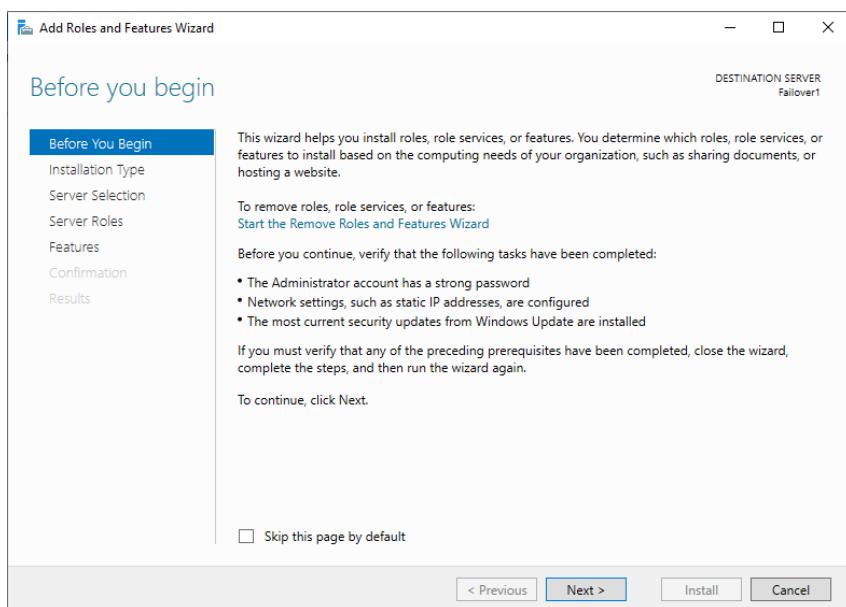
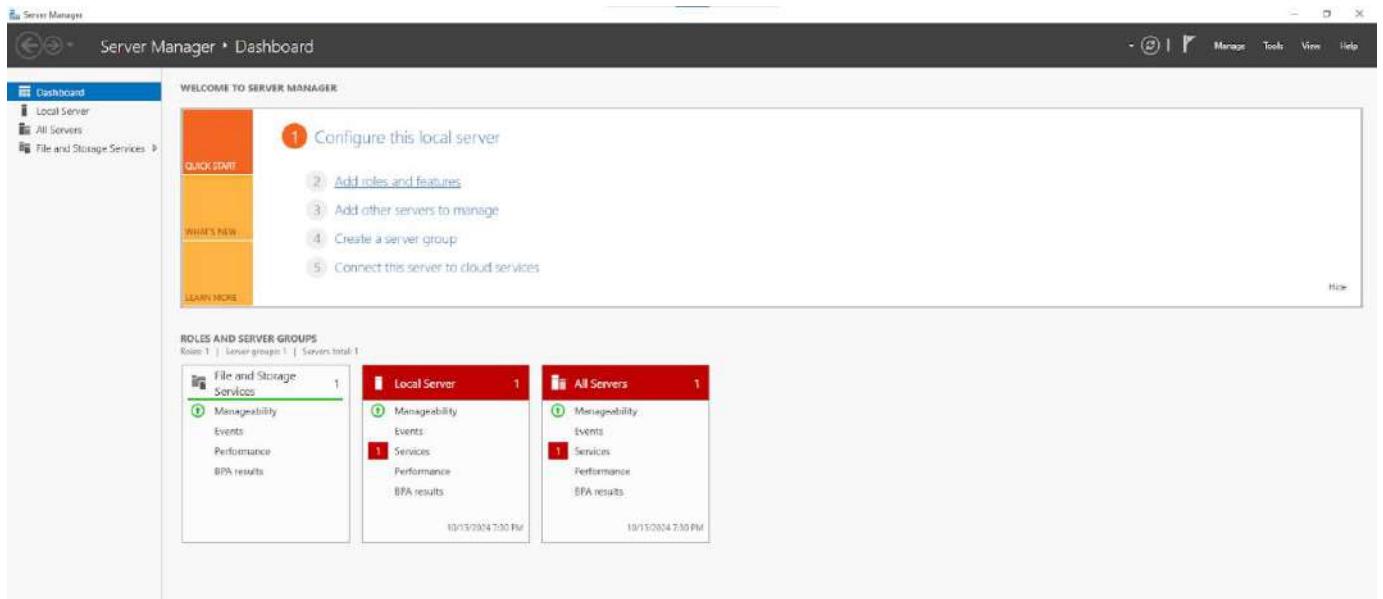
Click internet protocol version 4



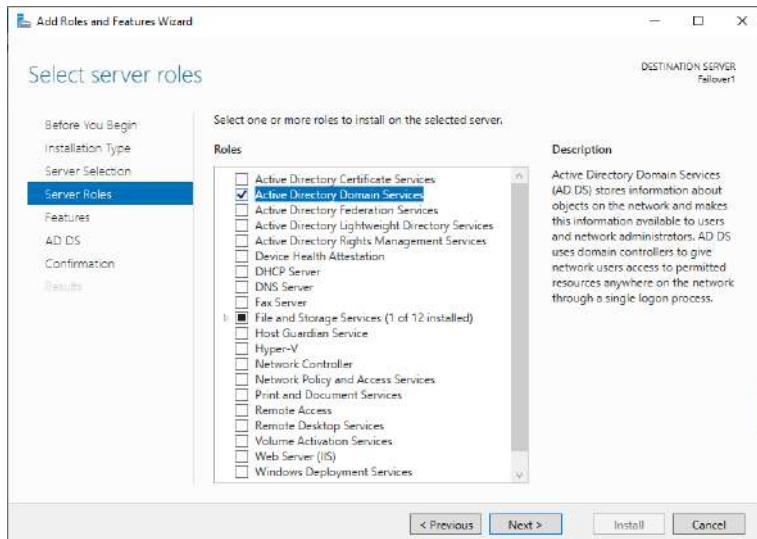
Now add ip address 192.168.1.35 , subnet mask



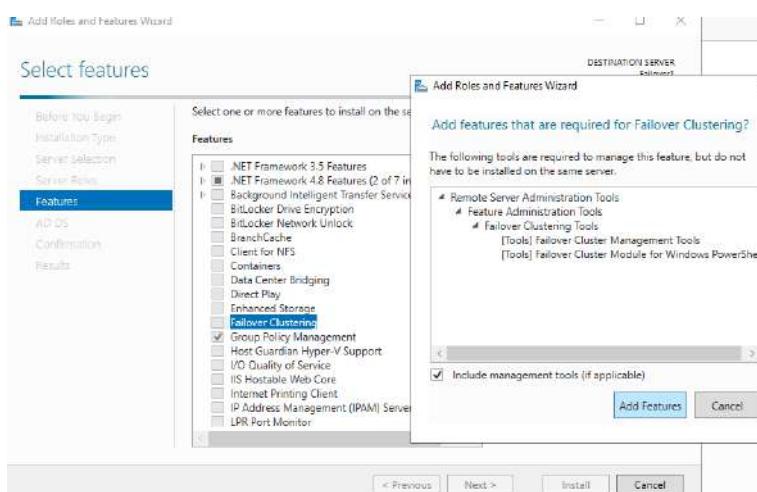
Now click on server manager → Add roles and features



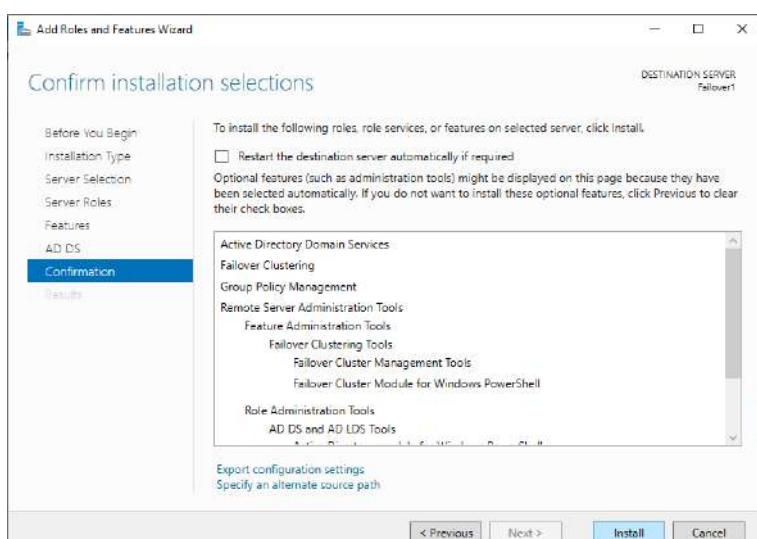
Check the Active Directory Domain Services → Add feature → next



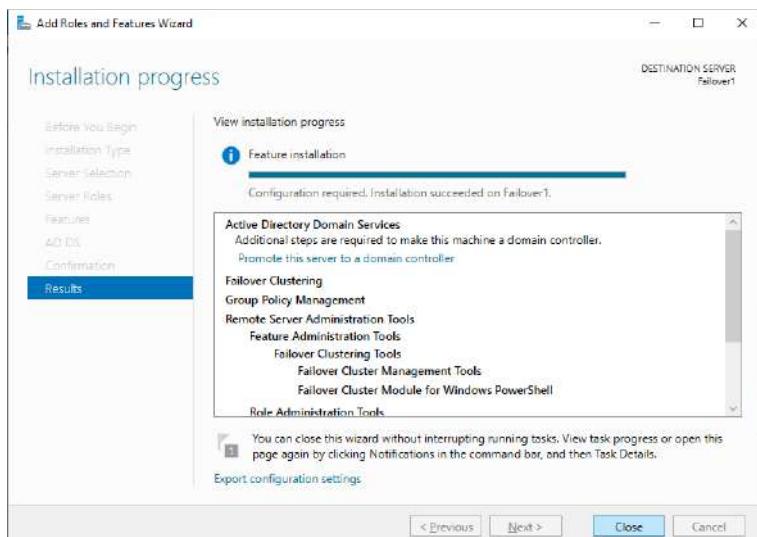
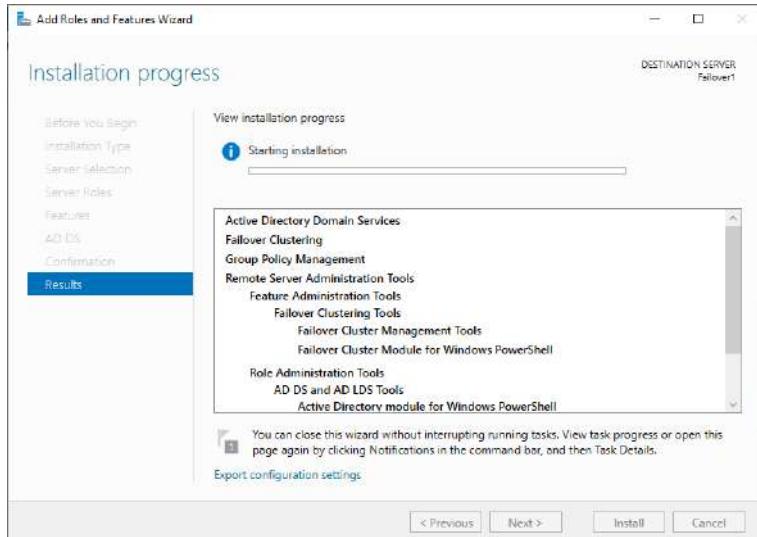
Click on failover cluster → add feature → Next



Click on install

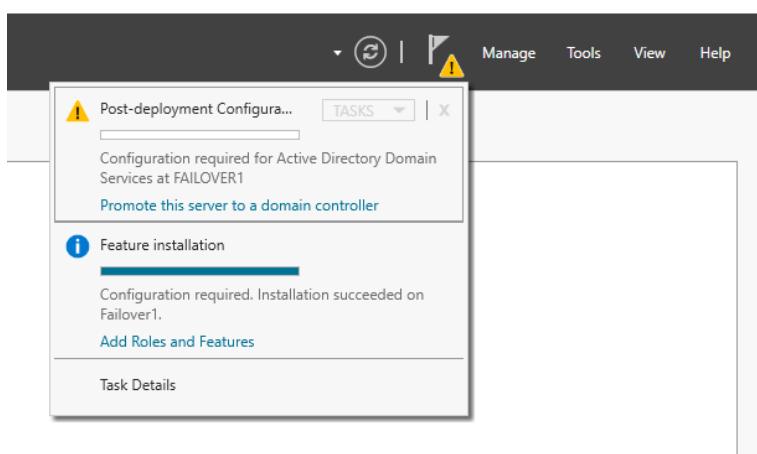


Installation started

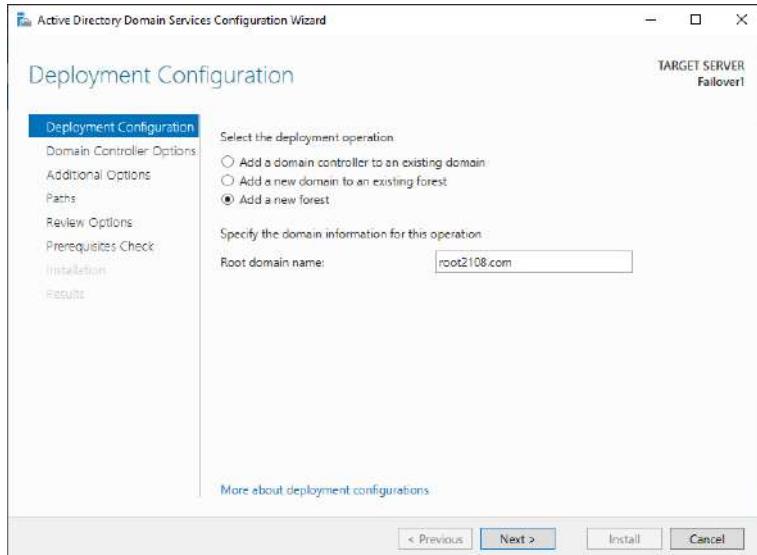


After installation click on close

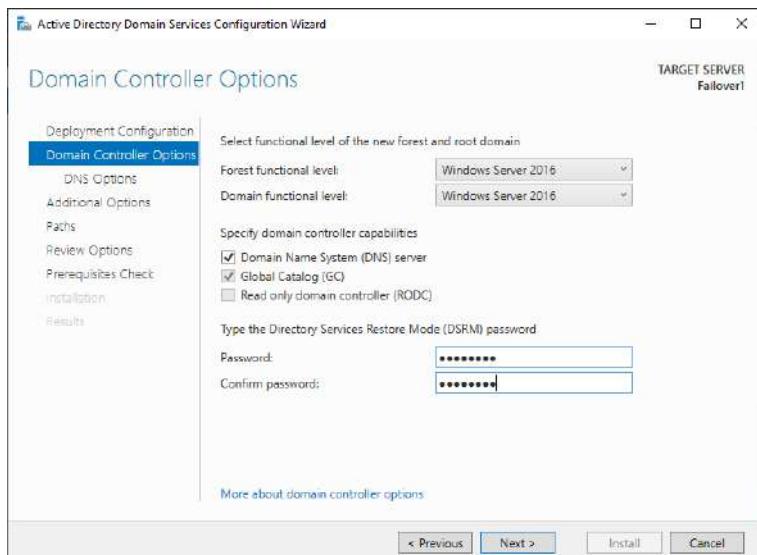
Now click on flag (notification) icon → promote this to server to a domain controller



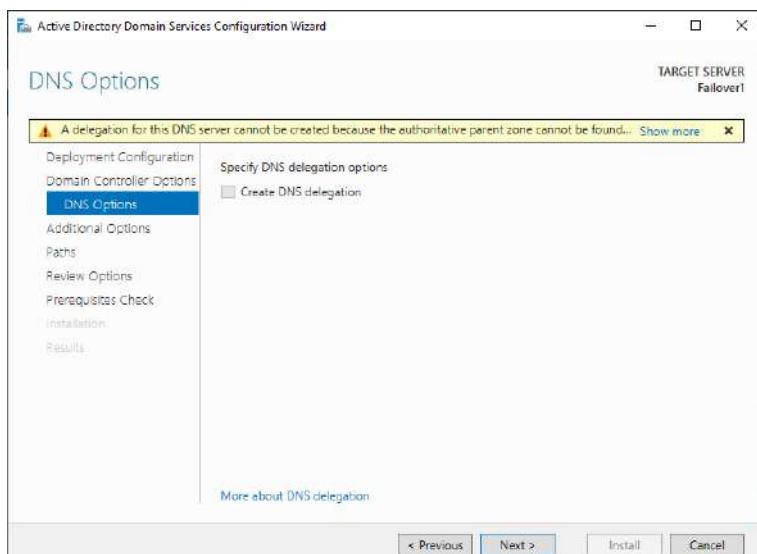
Click on Add a new forest → give root domain name (.com is necessary at the end of the name)



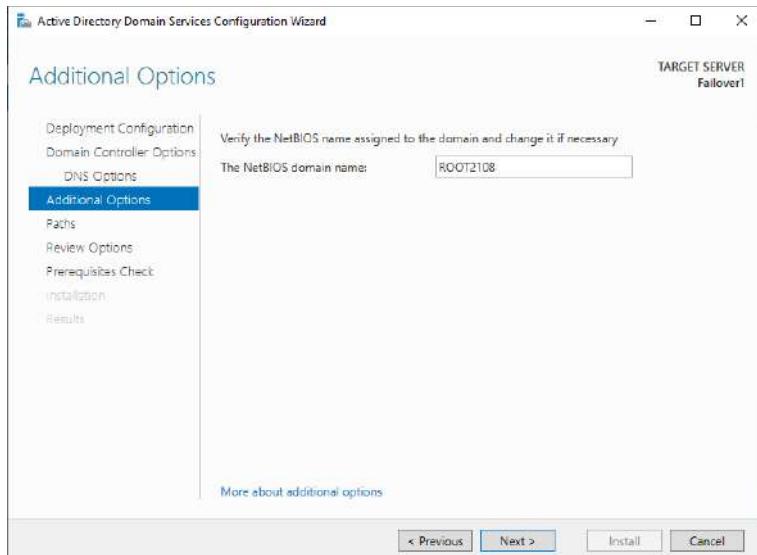
Give password : **root@2108** → next



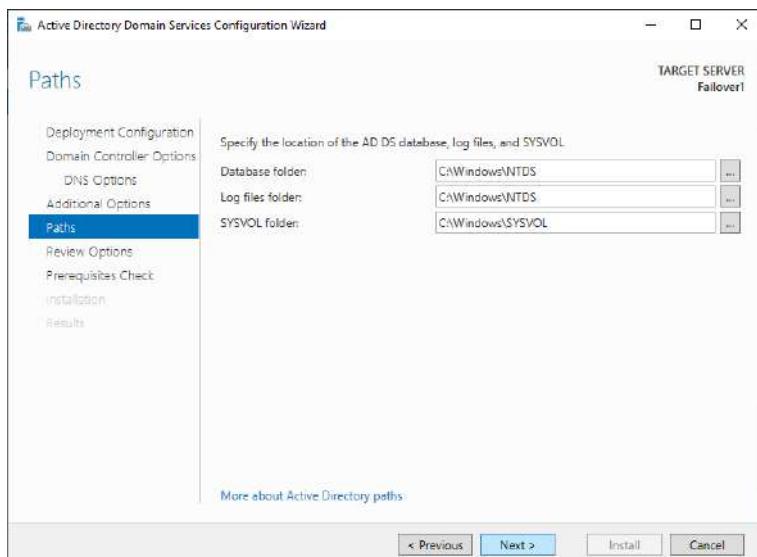
Click on next



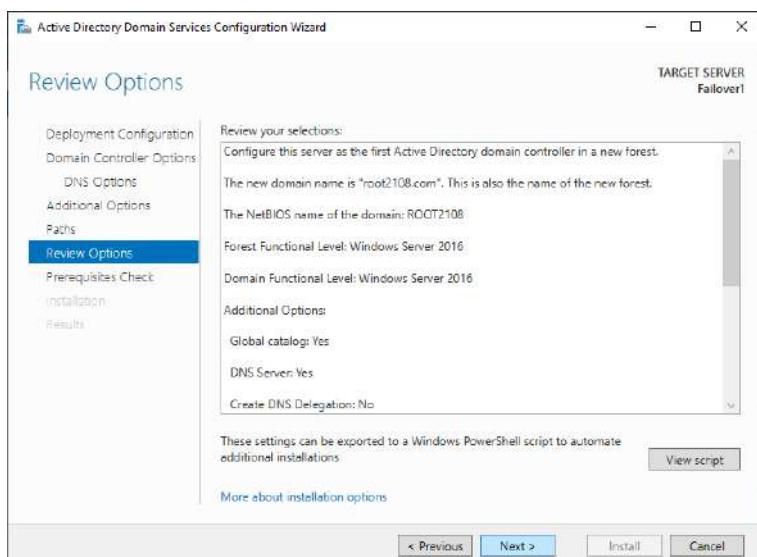
Don't do anything .. it comes automatically → next



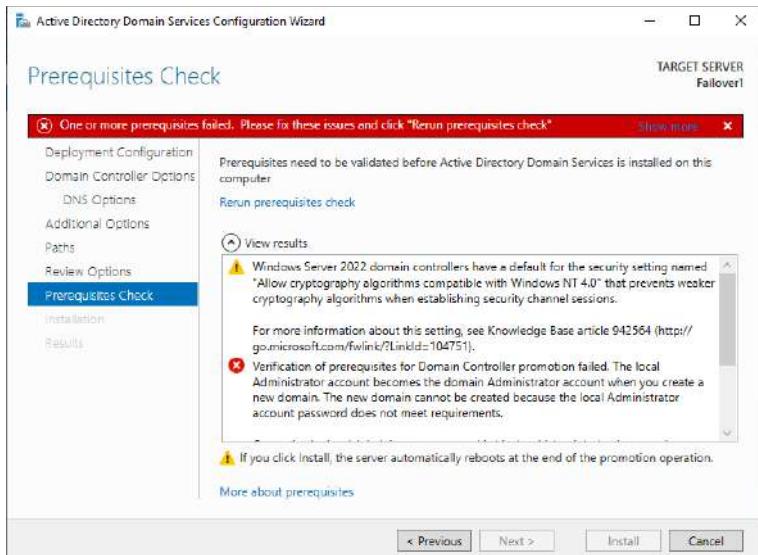
Click on Next



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

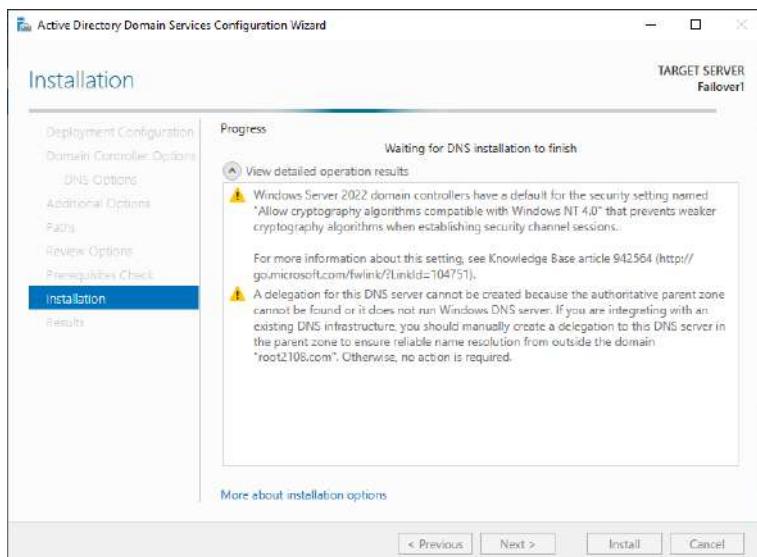
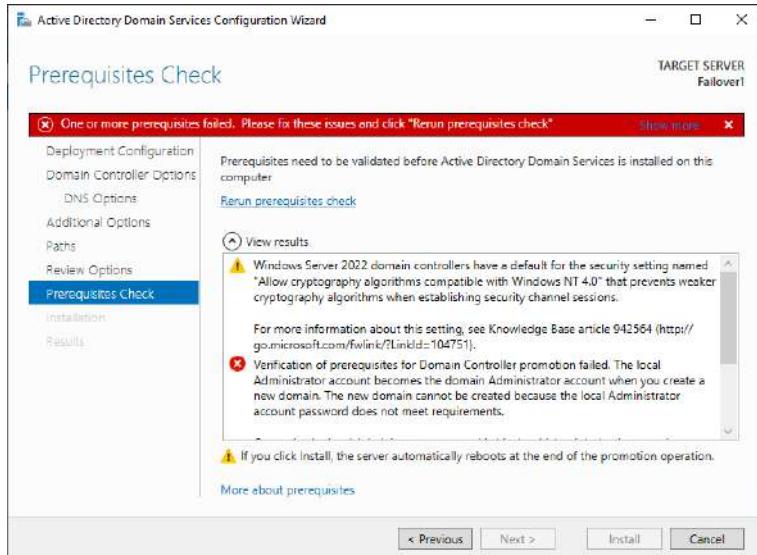
```
Administrator Command Prompt
Microsoft Windows [Version 10.0.20348.169]
(c) Microsoft Corporation. All rights reserved.

C:\Windows\system32>cd\
C:\>net user administrator "root@2108"
The command completed successfully.

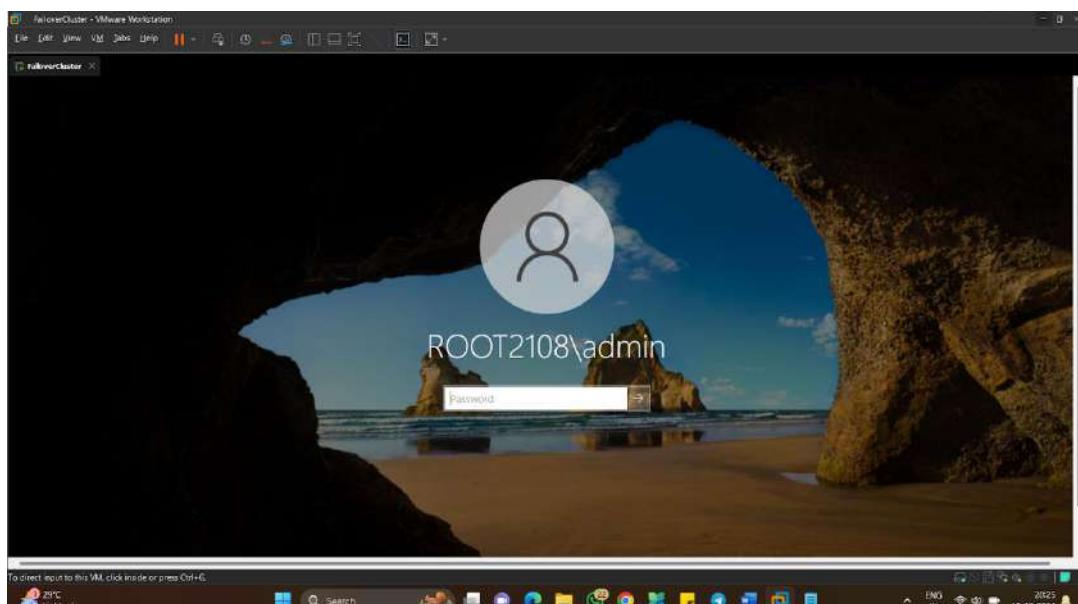
C:\>net user administrator /passwordreq:yes
The command completed successfully.

C:\>
```

Now click on rerun prerequisites check → install

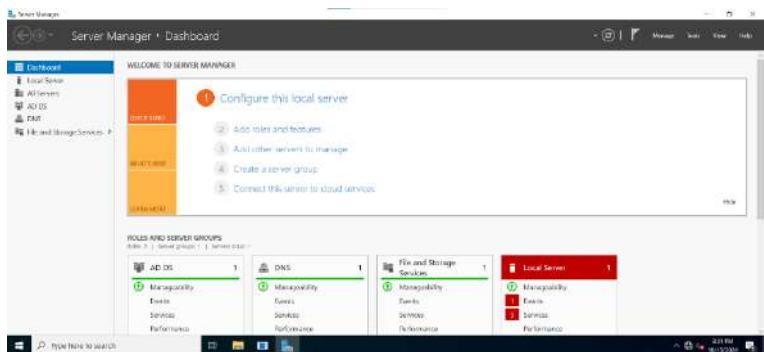


After this the PC will restart

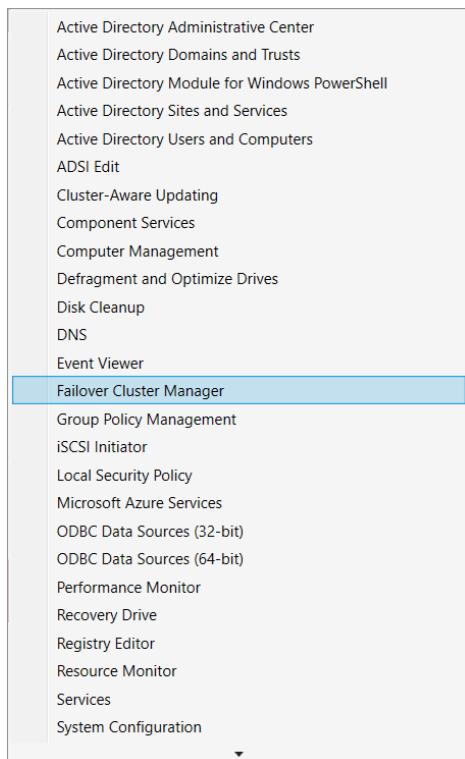


Now enter the password

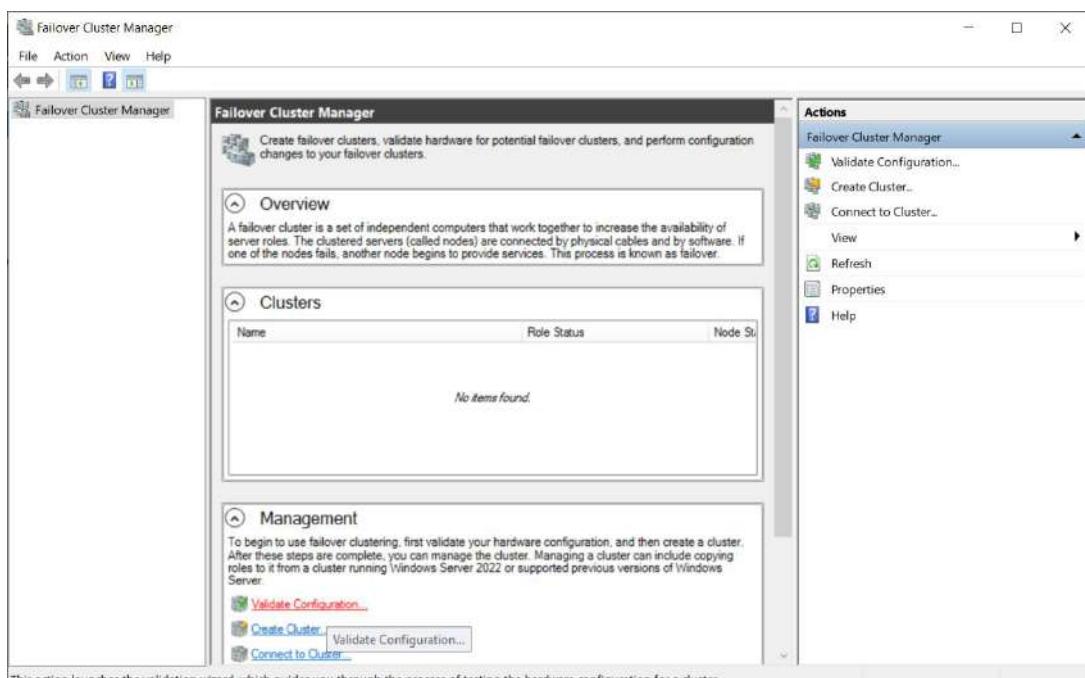
Click on tools



Now click on tools □ failover cluster manager

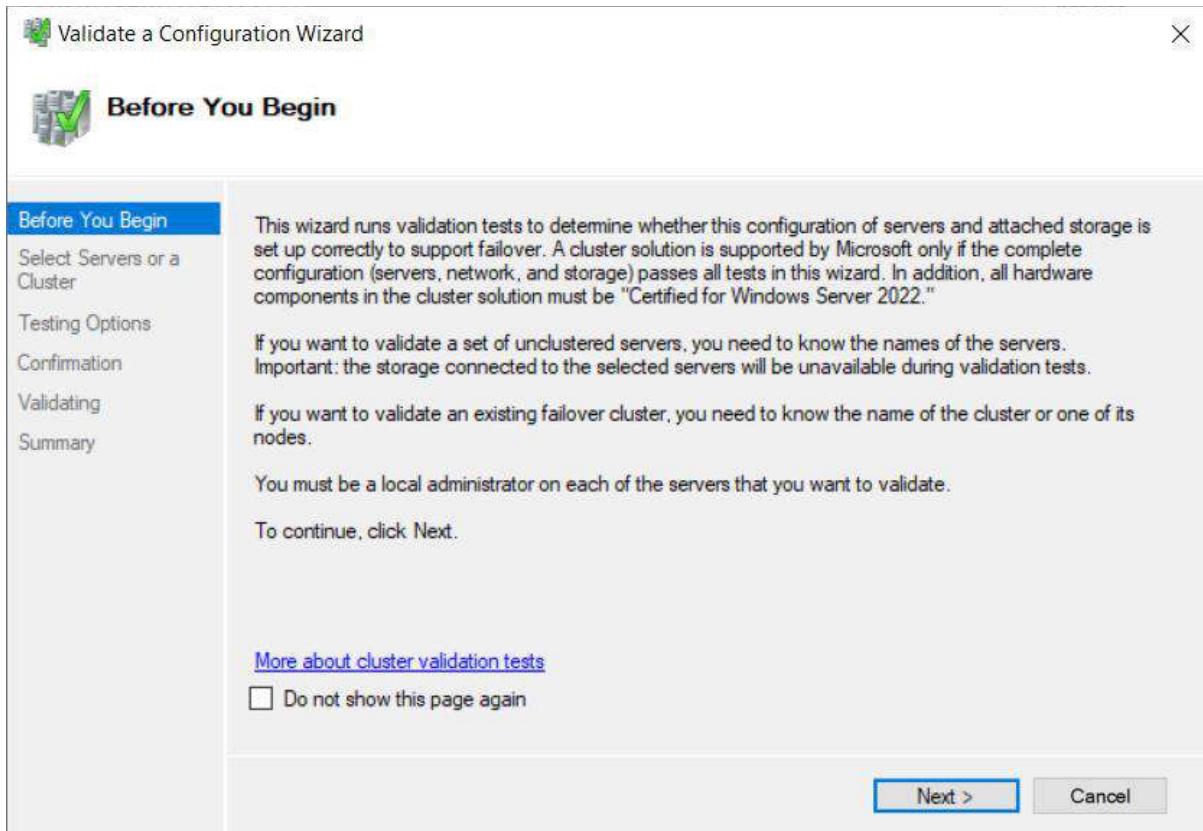


Failover Cluster manager opens → Click on validate configuration

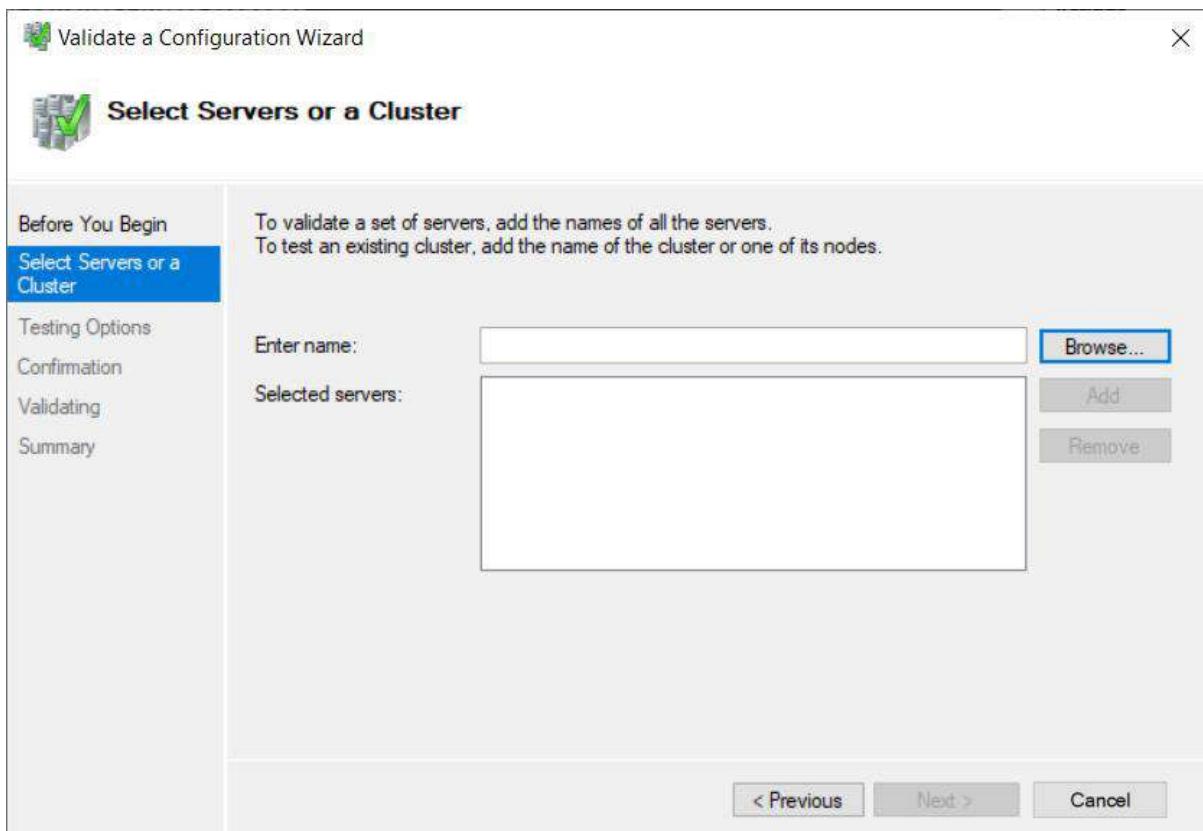


This action launches the validation wizard, which guides you through the process of testing the hardware configuration for a cluster.

Now click on next



Click on browse → Advanced → Find now → Next



Select Computers X

Select this object type:
 Object Types...

From this location:
 Locations...

Enter the object names to select ([examples](#)):
Check Names

Advanced... OK Cancel

Select Computers X

Select this object type:
 Object Types...

From this location:
 Locations...

Common Queries

Name: Starts with

Description: Starts with

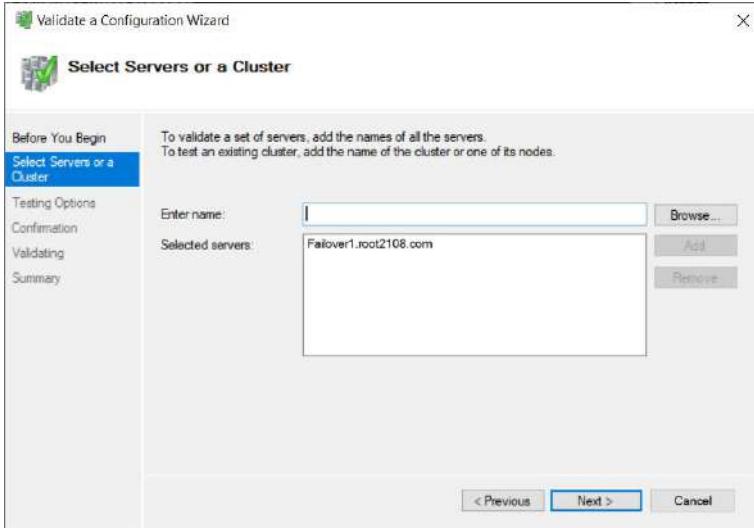
Disabled accounts
 Non expiring password

Days since last logon:

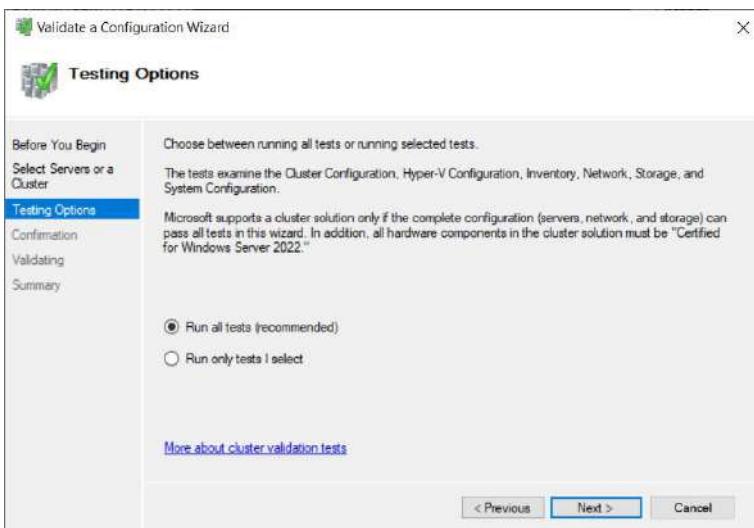
Search results:

Name	In Folder

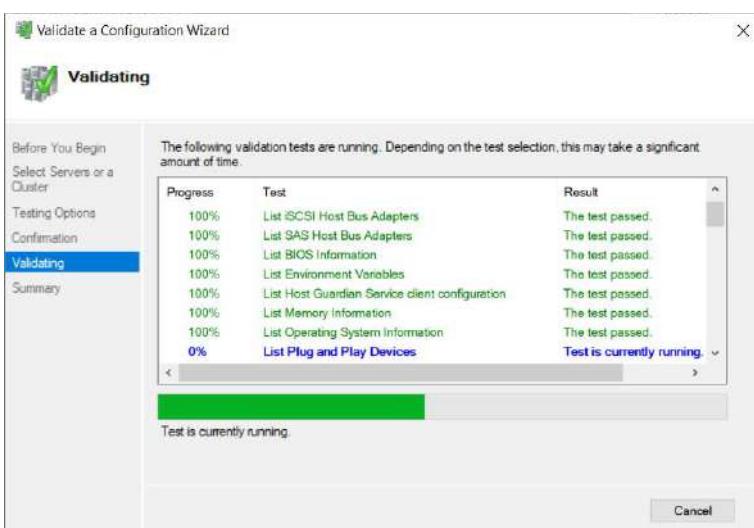
OK Cancel



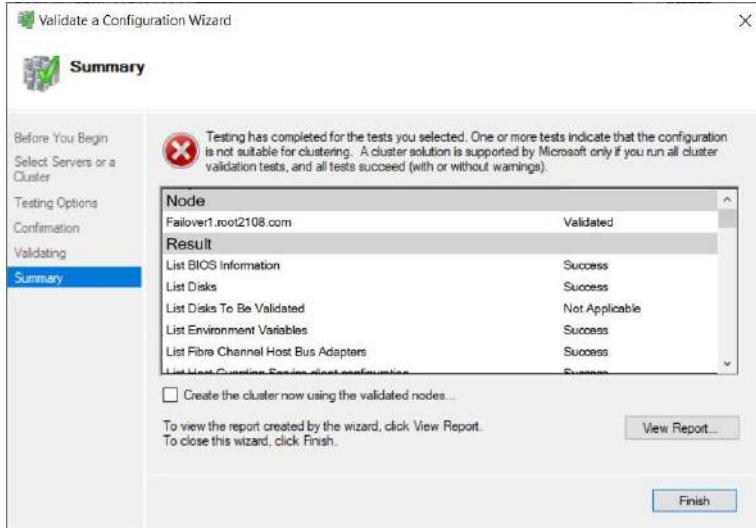
Now run all test



Now click on next



Now click on view report



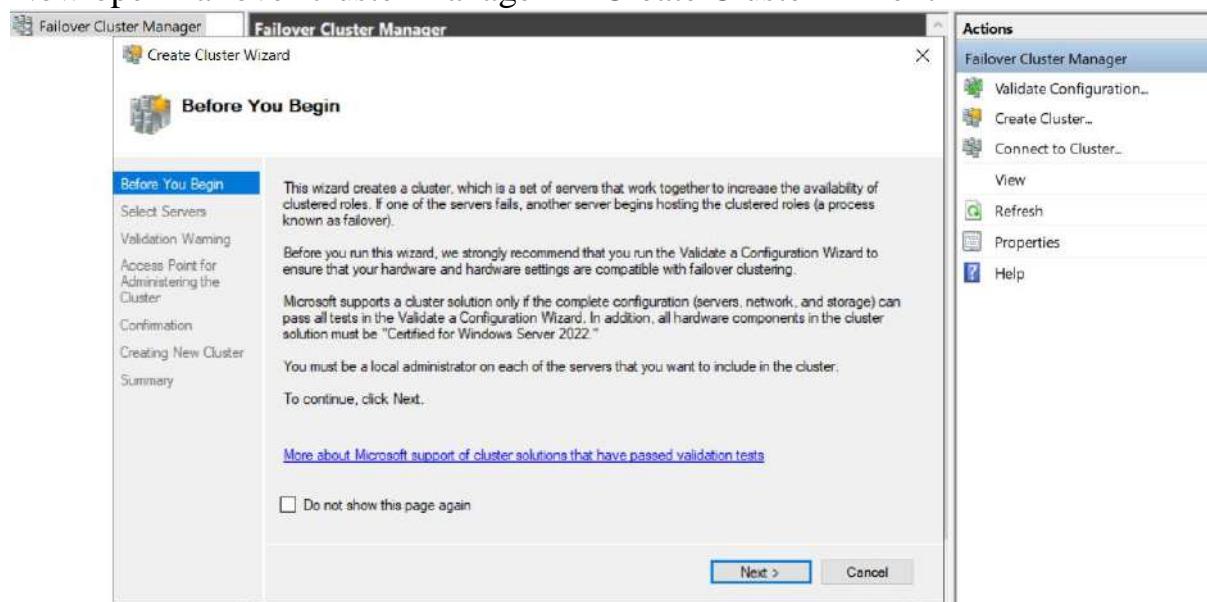
Then it will display the following page

Name	Result Summary	Description
Inventory		Success
Network		Failed
Storage		Not Applicable
System Configuration		Not Applicable

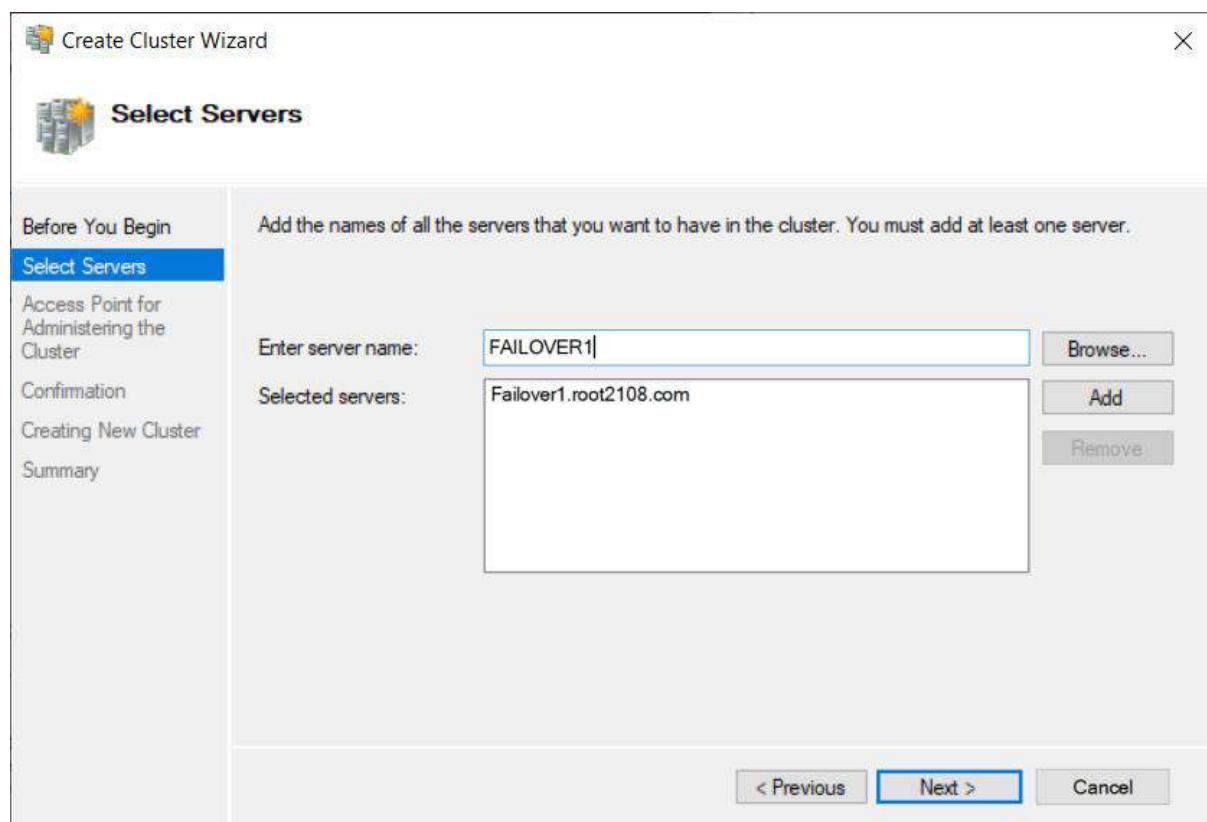
After viewing the report click on finish

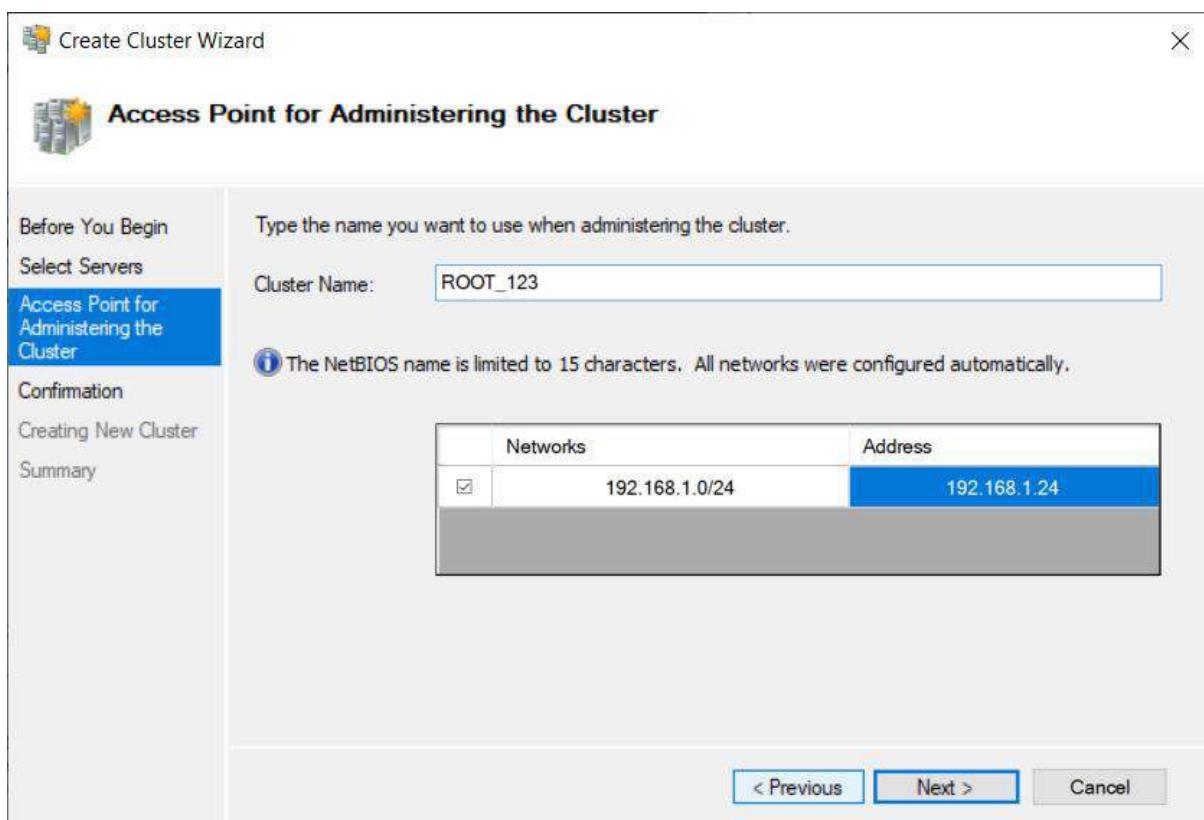
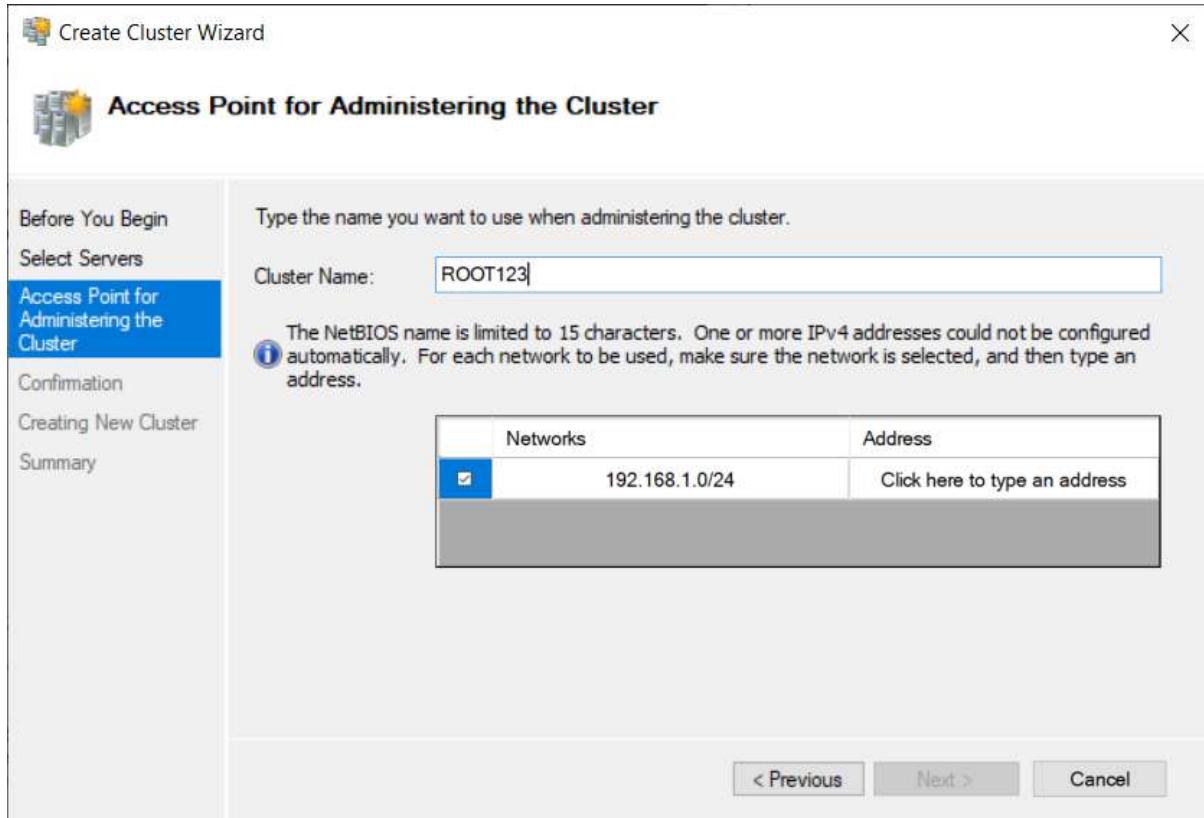
Creating Cluster

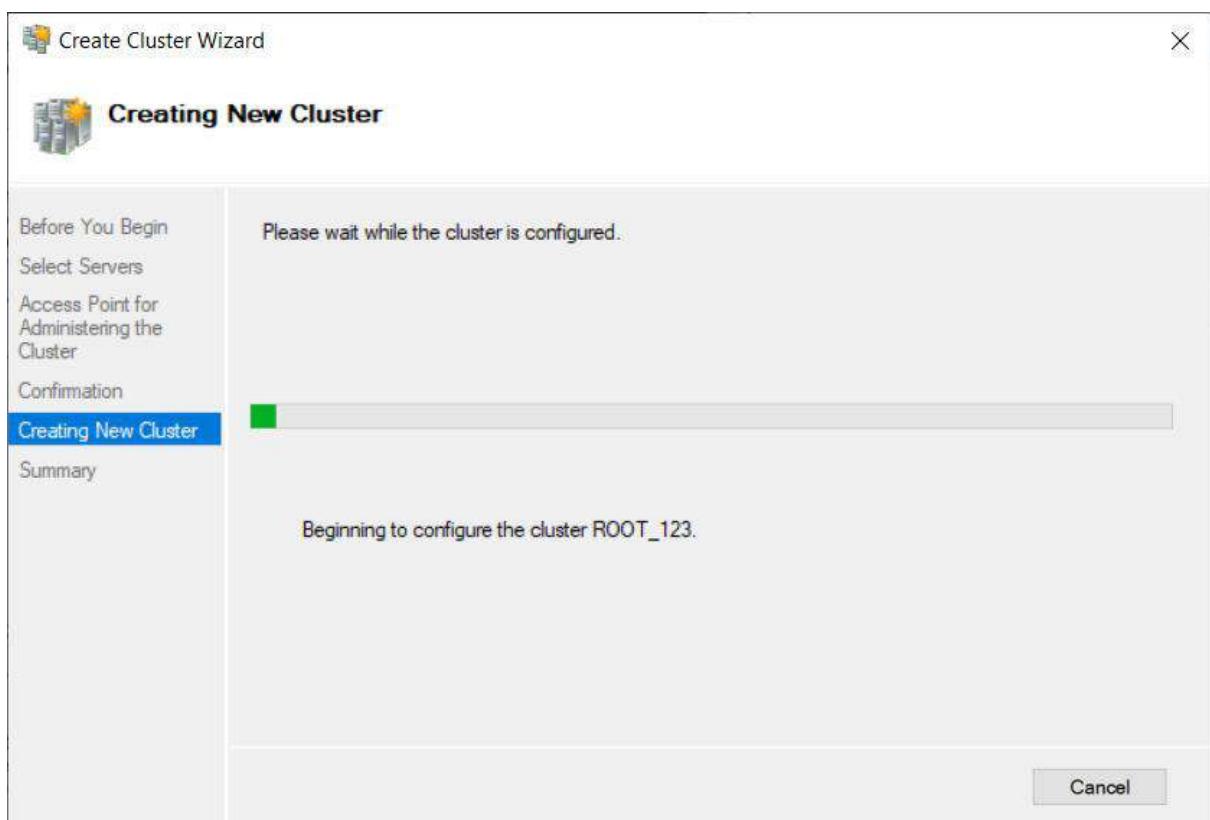
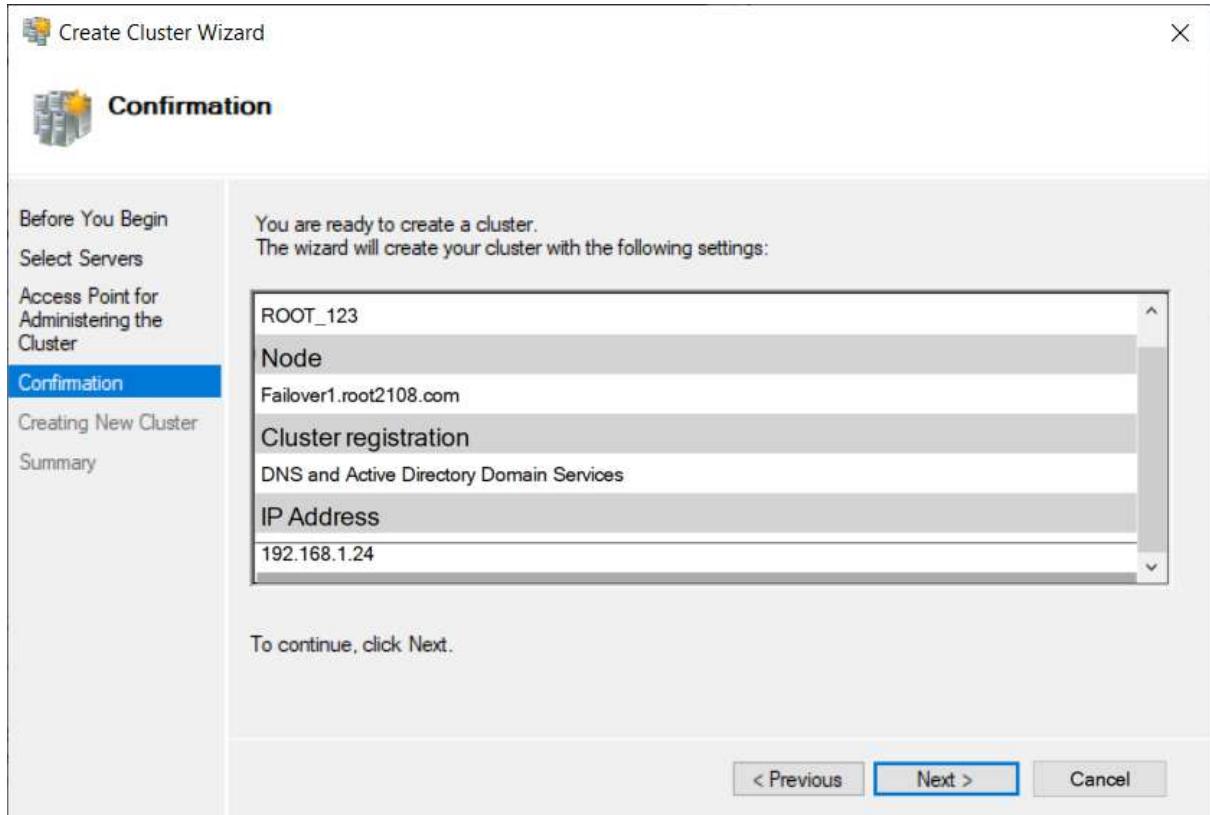
Now open failover cluster manager → Create Cluster → next

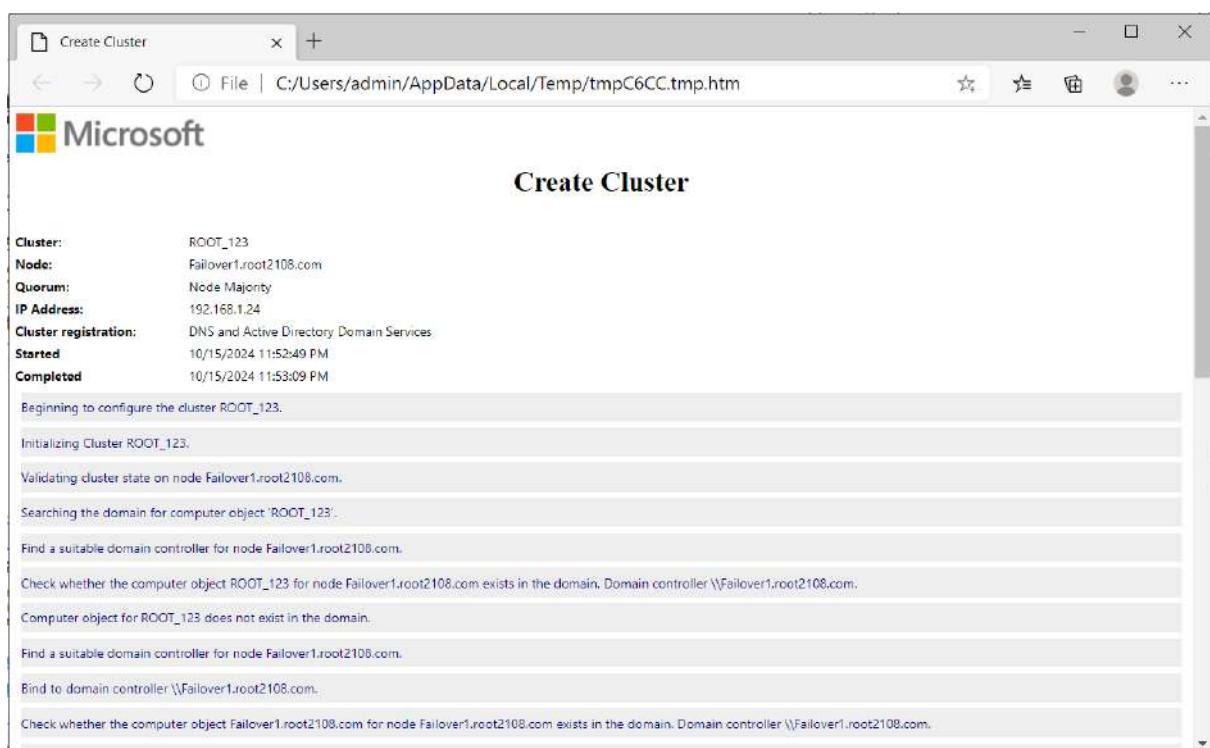
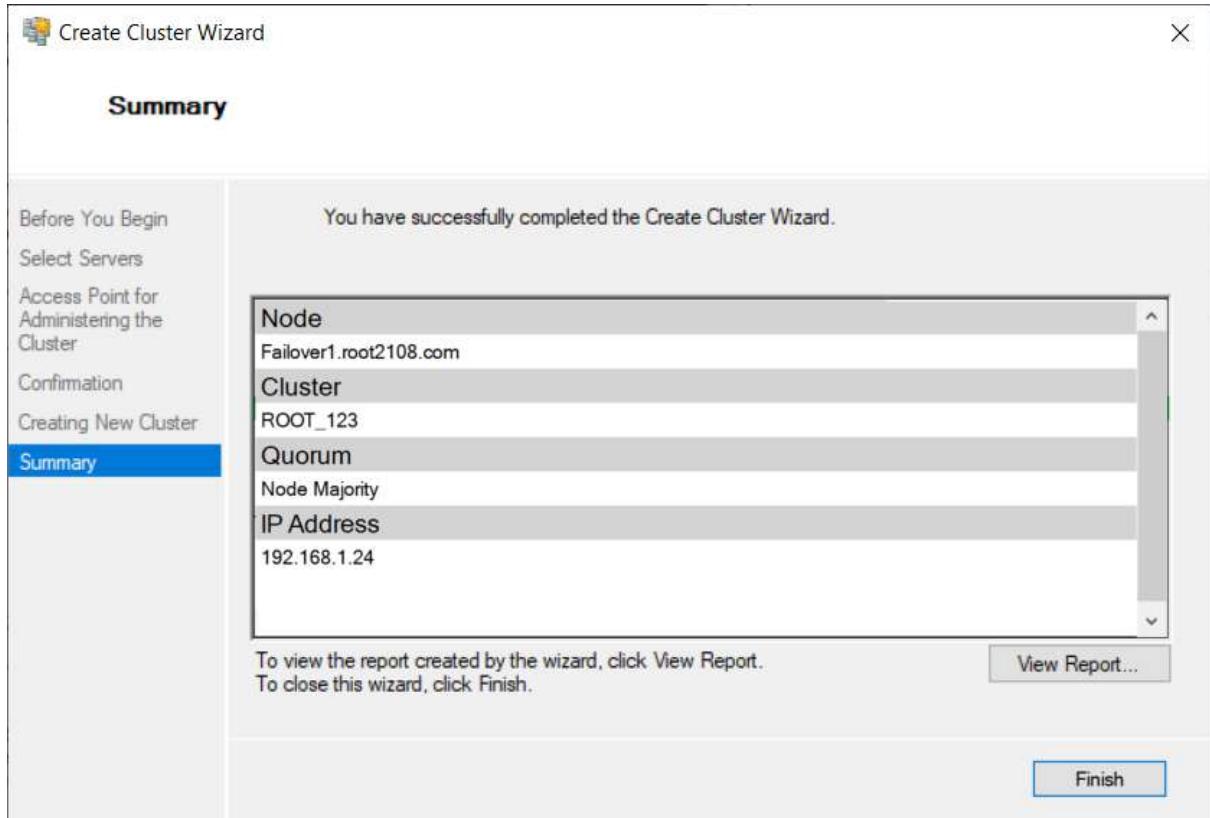


Click on browse → Advanced → Find now → Next









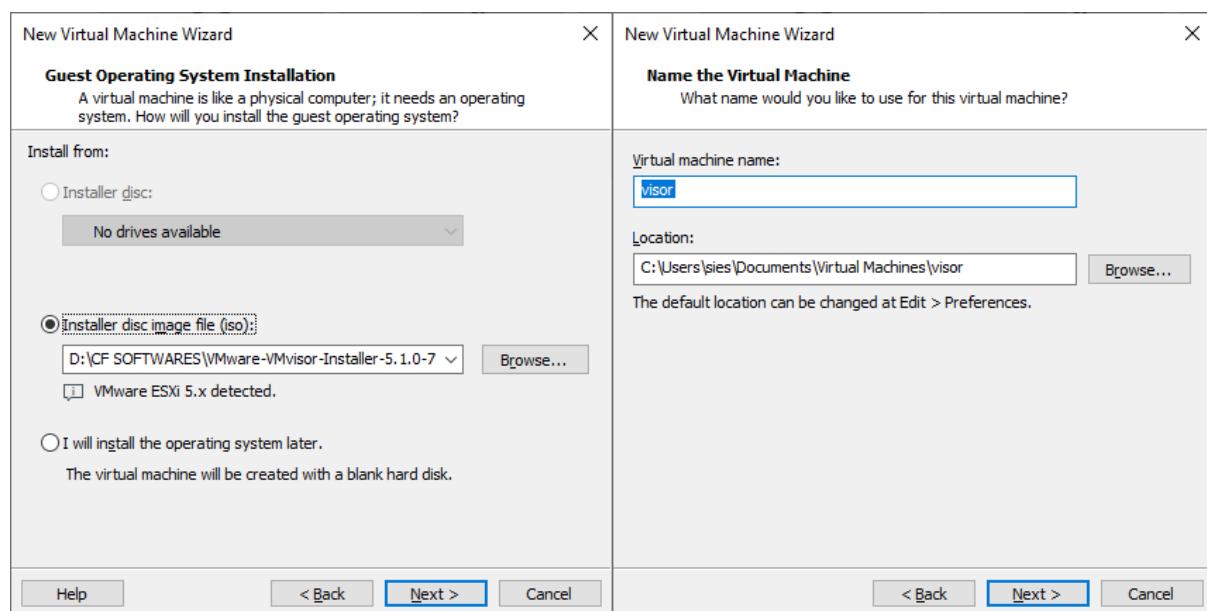
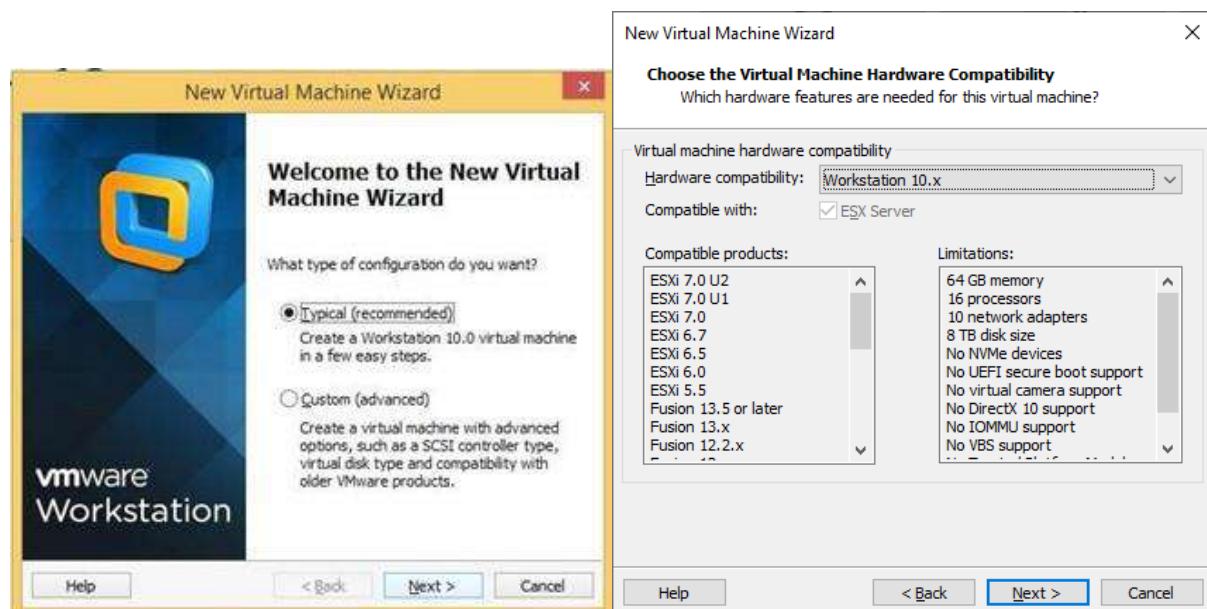
PRACTICAL 2

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:	<input type="text" value="2"/>
Number of cores per processor:	<input type="text" value="1"/>
Total processor cores:	2

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	Memory for this virtual machine: <input type="text" value="4096"/> MB
32 GB	
16 GB	
8 GB	
4 GB	Maximum recommended memory: 6.0 GB
2 GB	
1 GB	
512 MB	Recommended memory: 4 GB
256 MB	
128 MB	
64 MB	Guest OS recommended minimum: 4 GB
32 MB	
16 MB	
8 MB	
4 MB	

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

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.

Select a Disk

Which disk do you want to use?

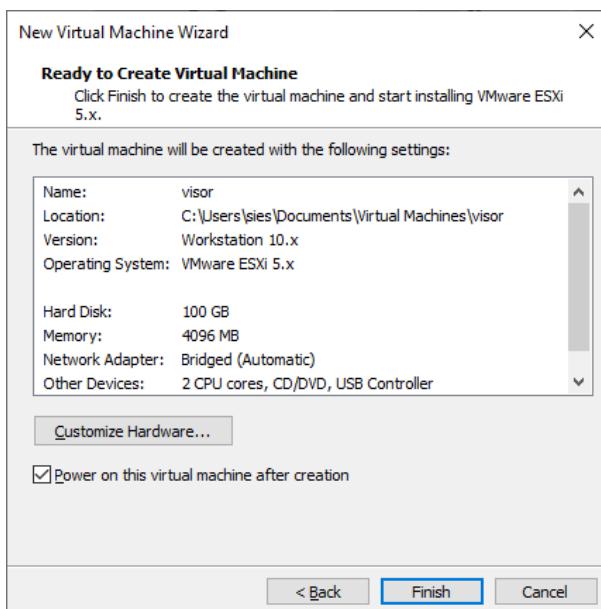
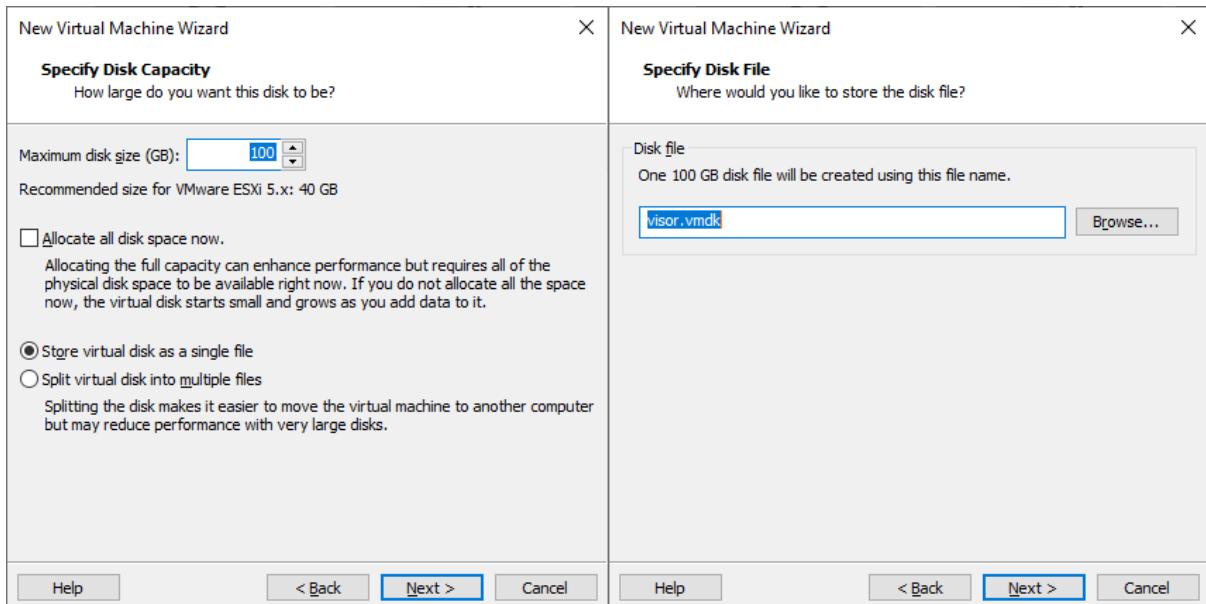
Disk

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.

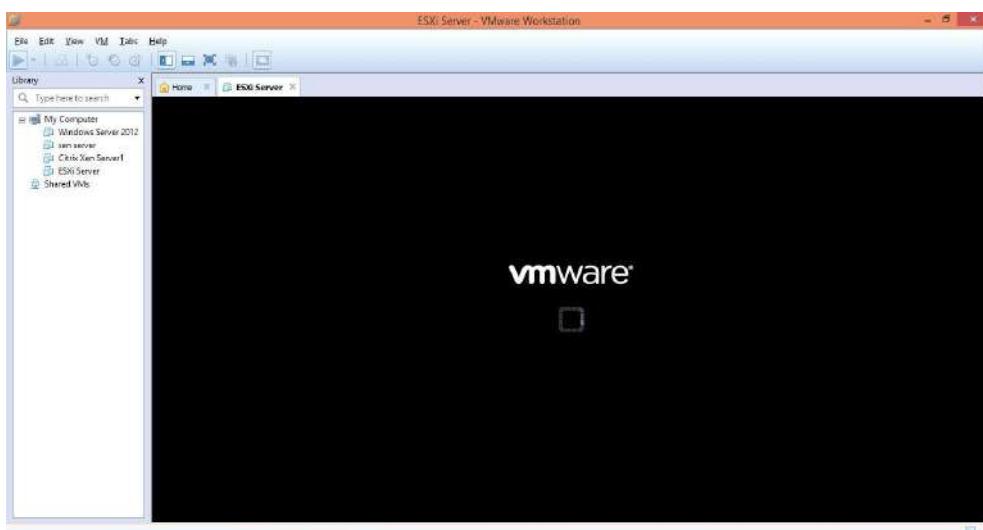
Use an existing virtual disk
Choose this option to reuse a previously configured disk.

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.

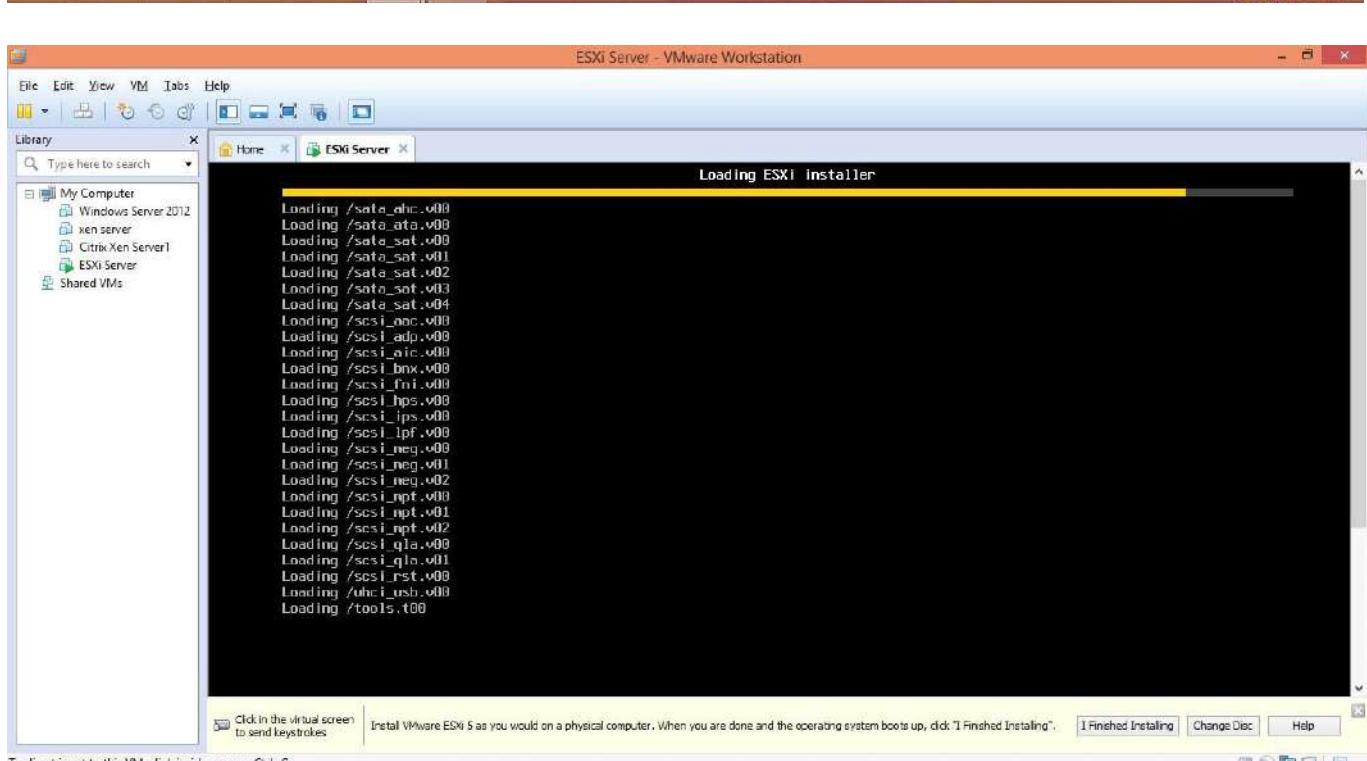
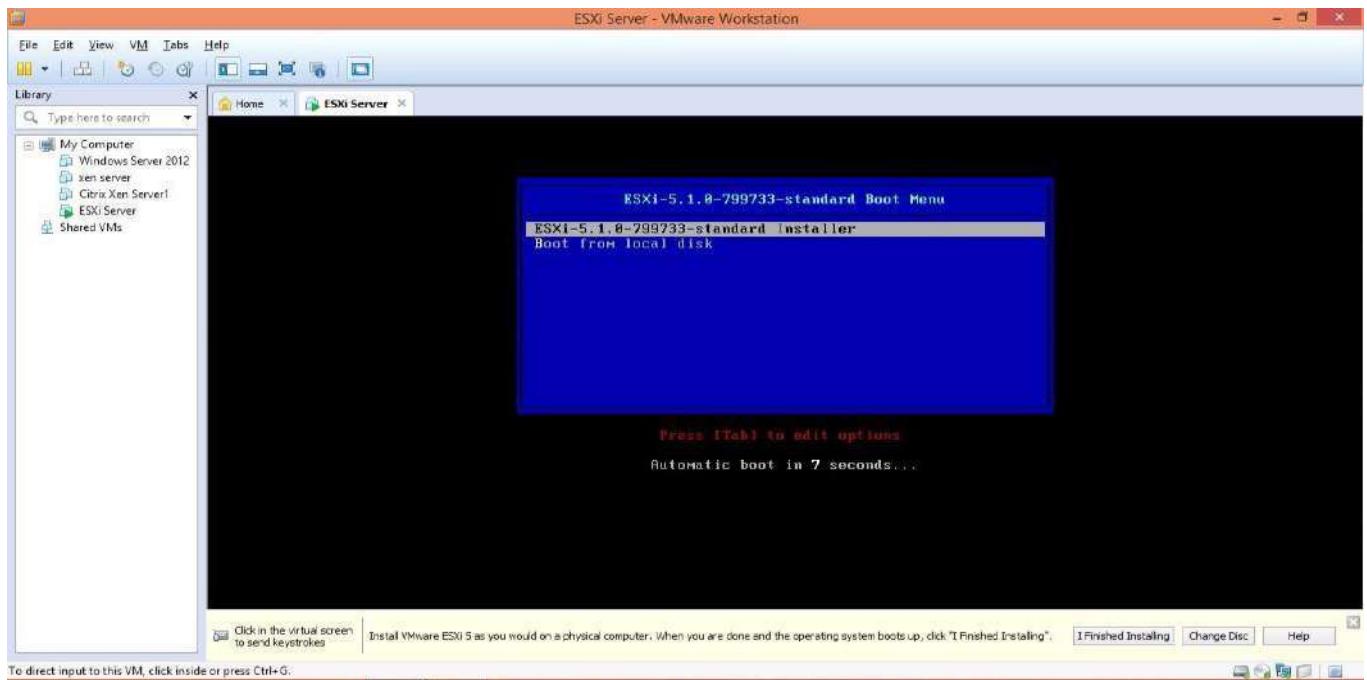
Help < Back Next > Cancel

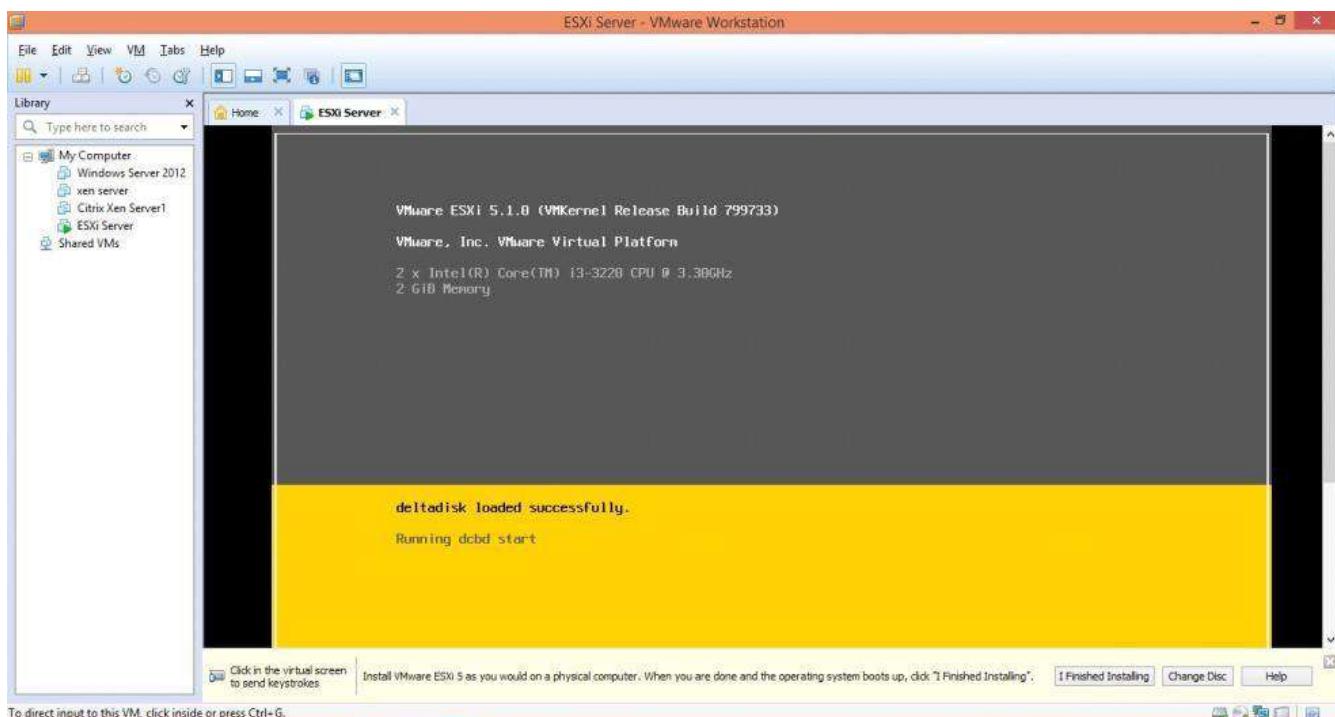
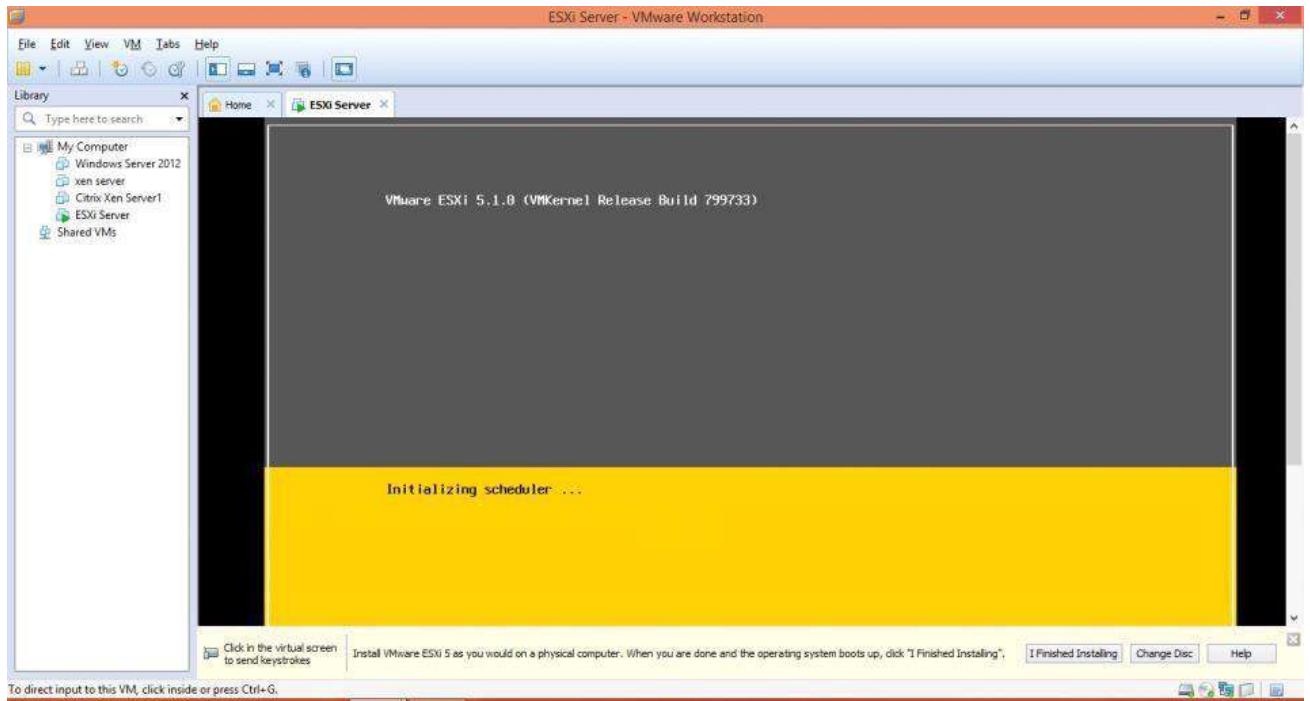


At the final window click on “Finish” button.

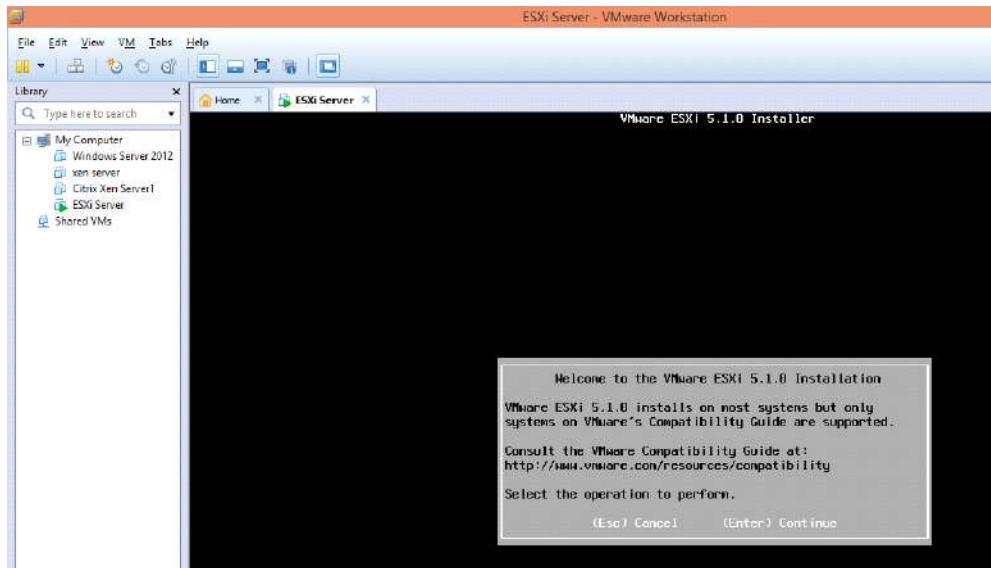


Creation of Virtual Machine is in progress...

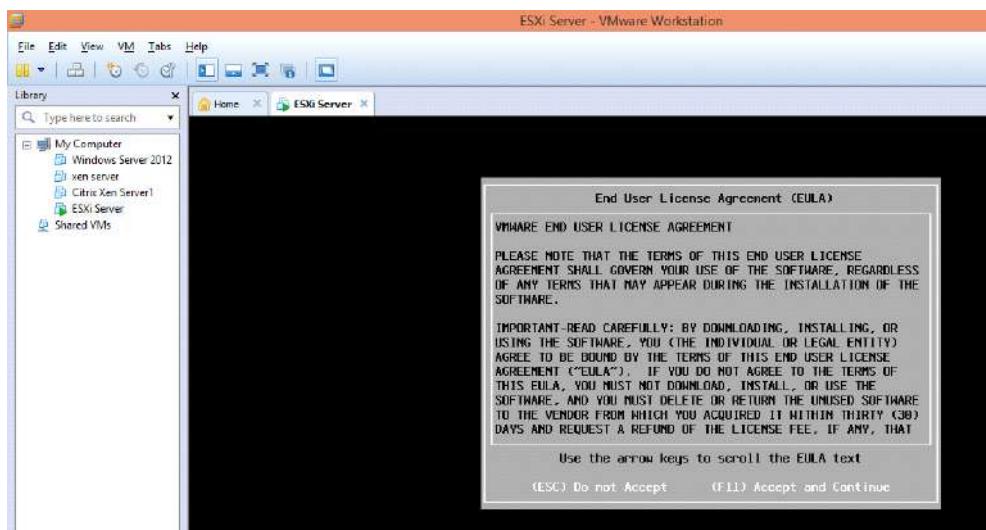




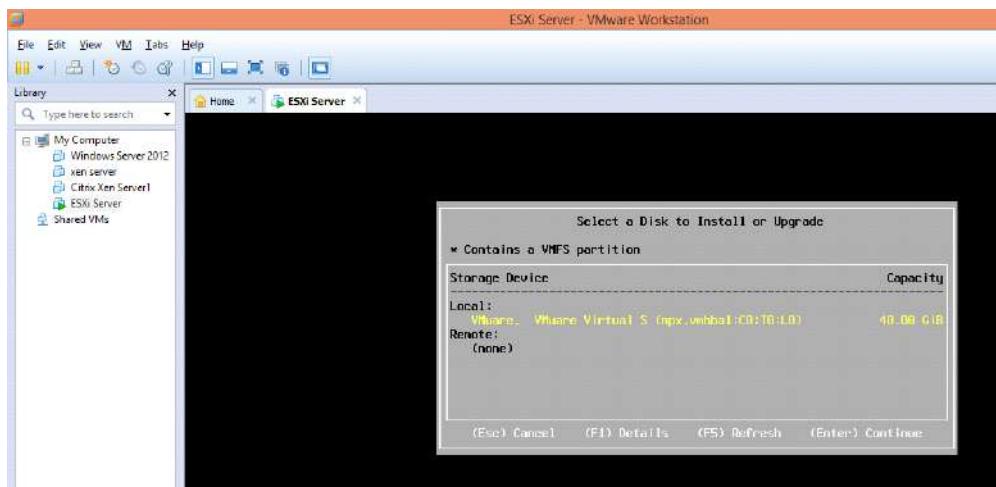
In the following screen click on Continue or press Enter key.



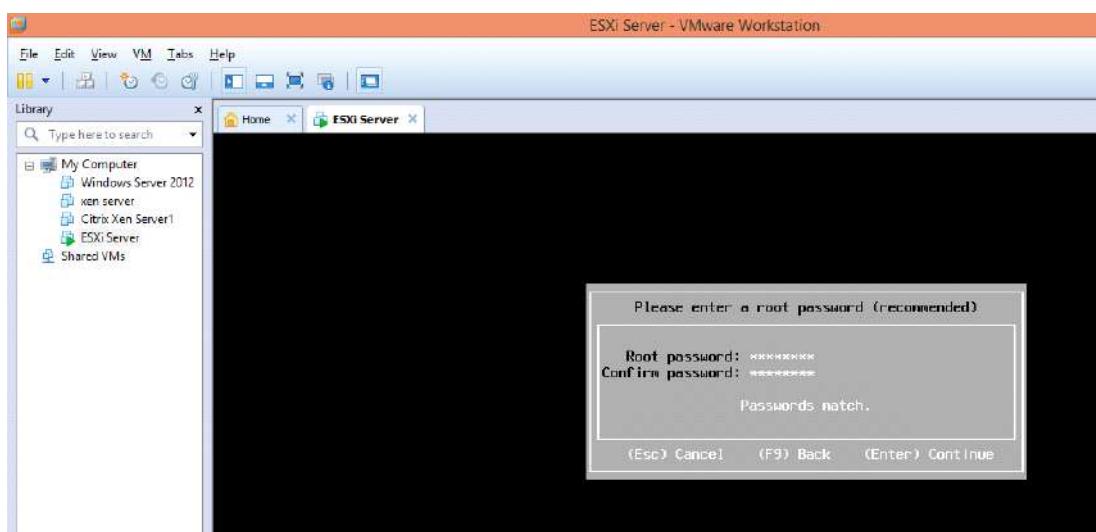
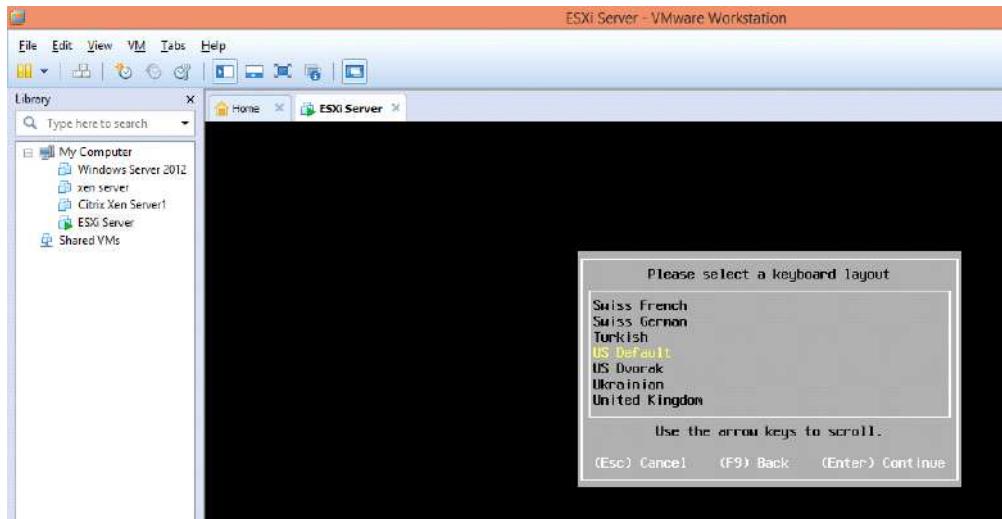
For License Agreement click on “Accept and Continue” or press F11 key.



For Installation press Enter key.

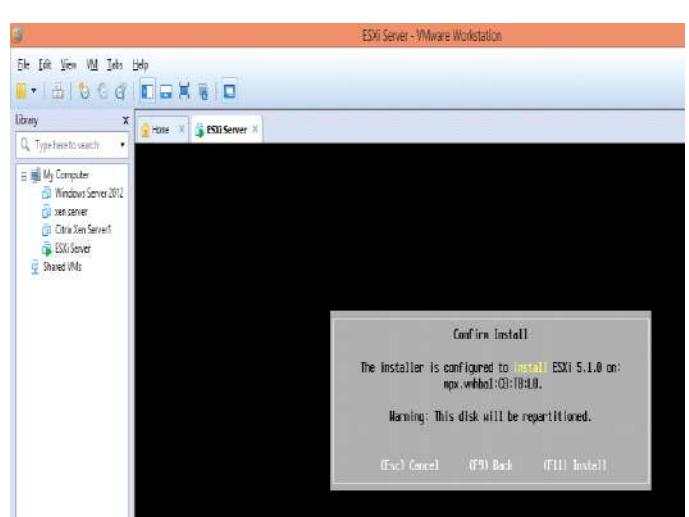
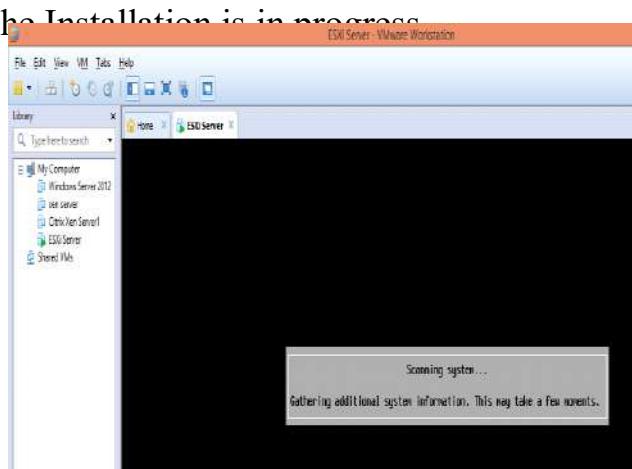


Keep the default settings for keyboard settings and press Enter key.



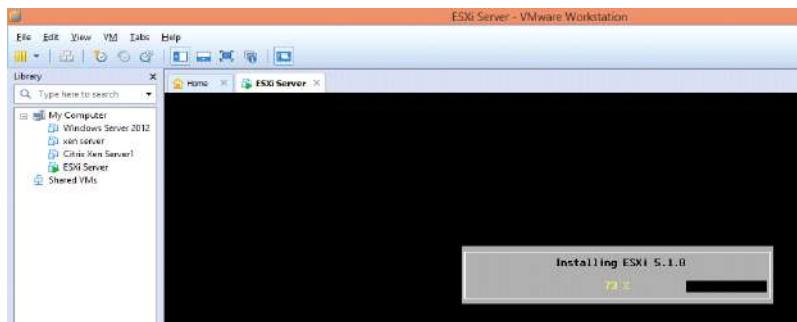
Enter the root and confirmation password and click on Continue or press Enter key.

The Installation is in progress

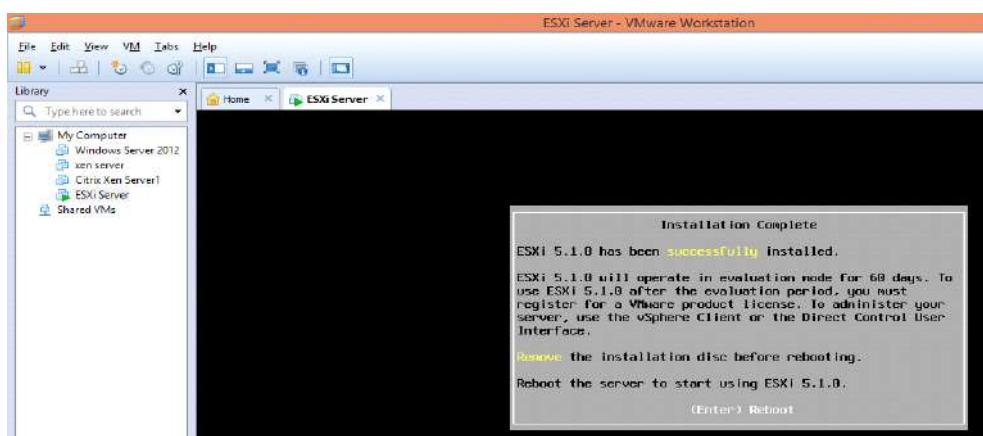
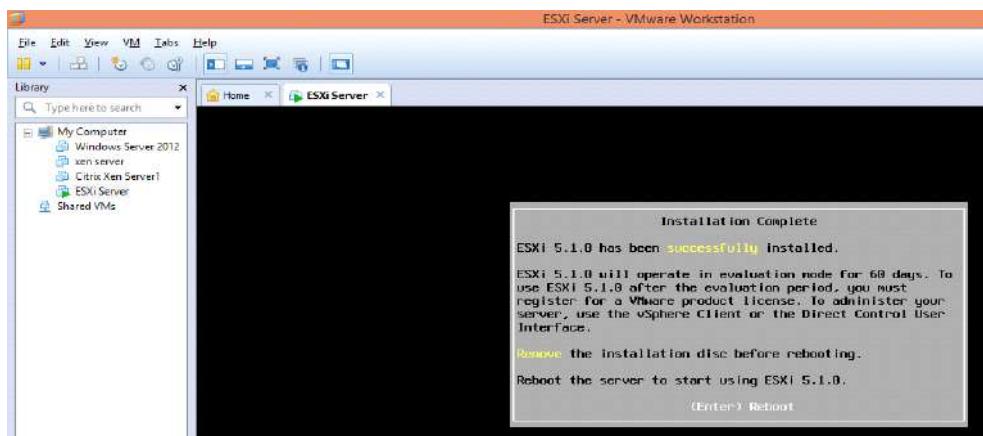


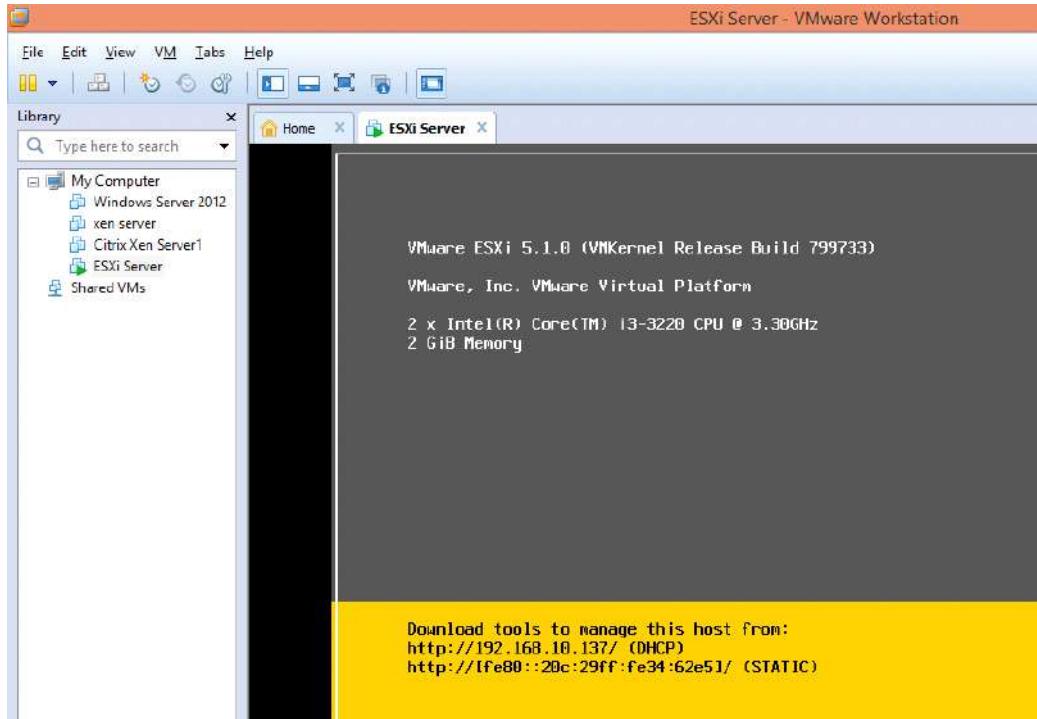
Press

F11 key to Install. Installing ESXi 5.1.0...



Press Enter key to Reboot.

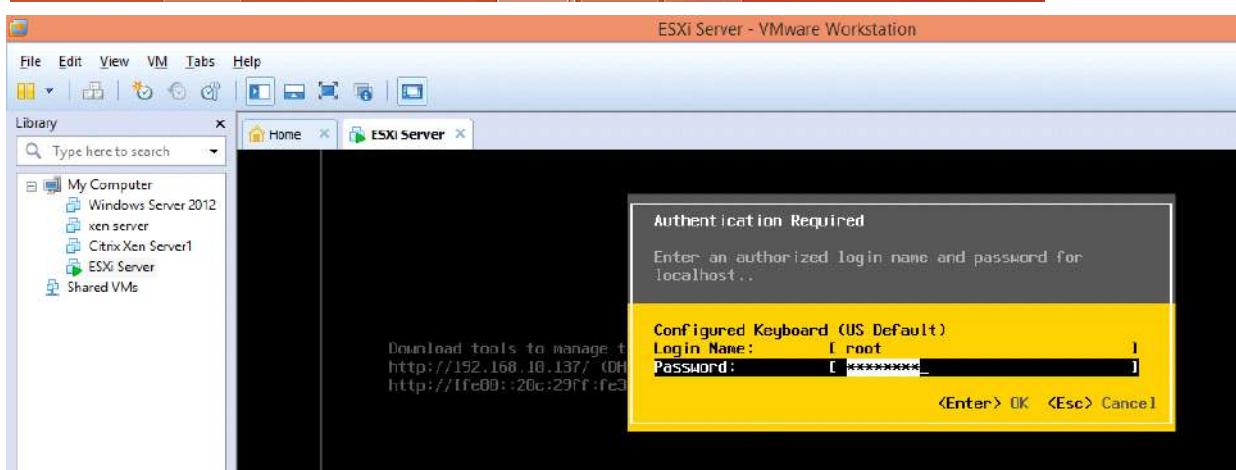
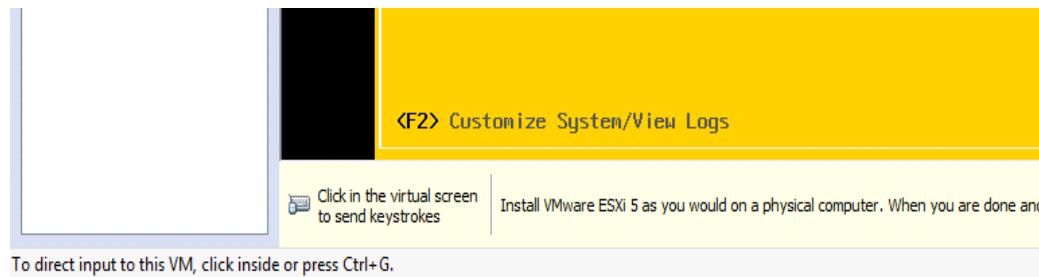




Note the

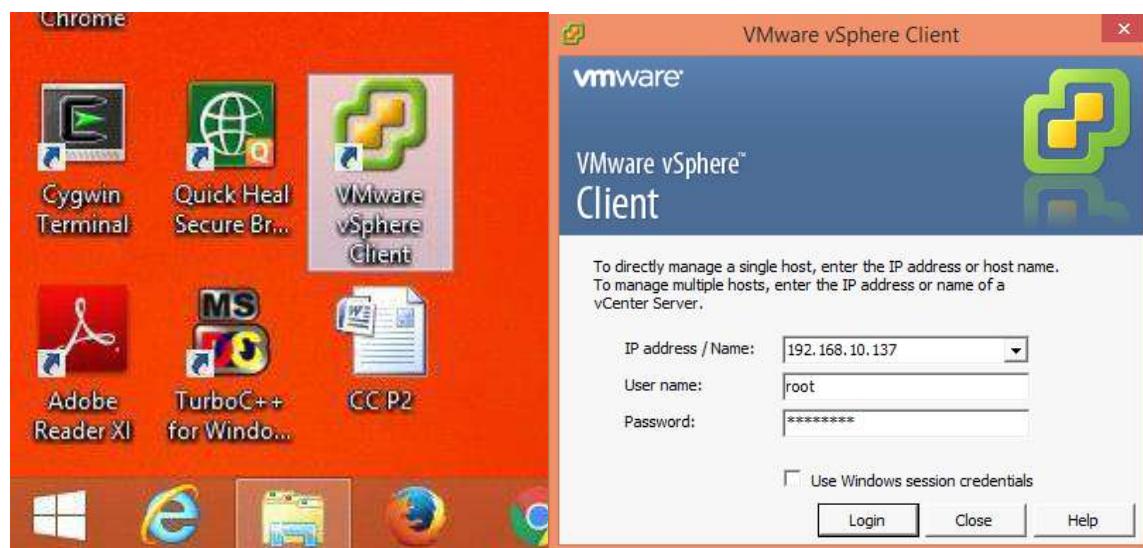
DHCPIPAddress. Here it is-192.168.10.137

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

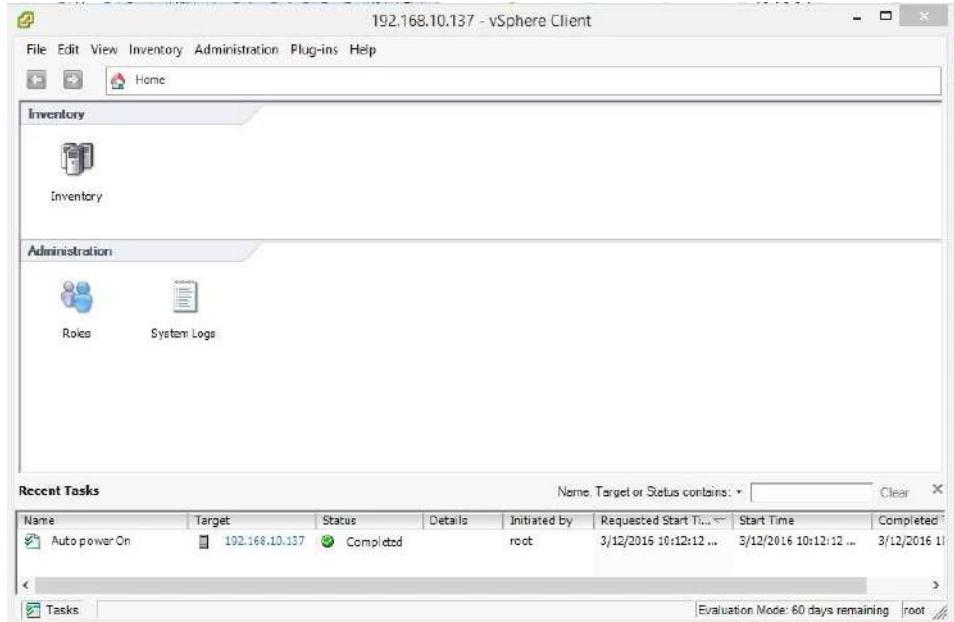


Enter the username as root and the root password (which was used earlier).

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.

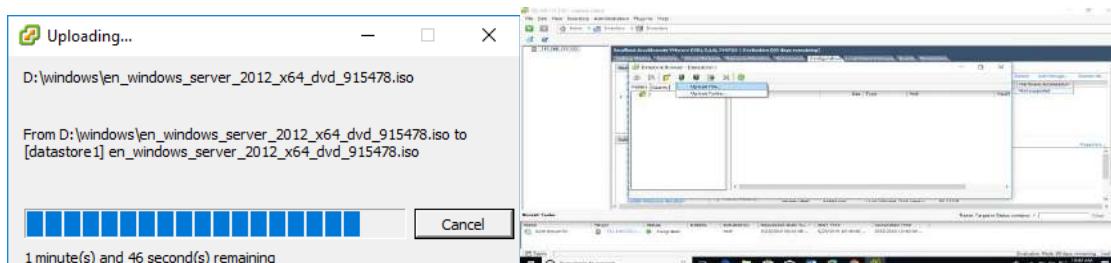
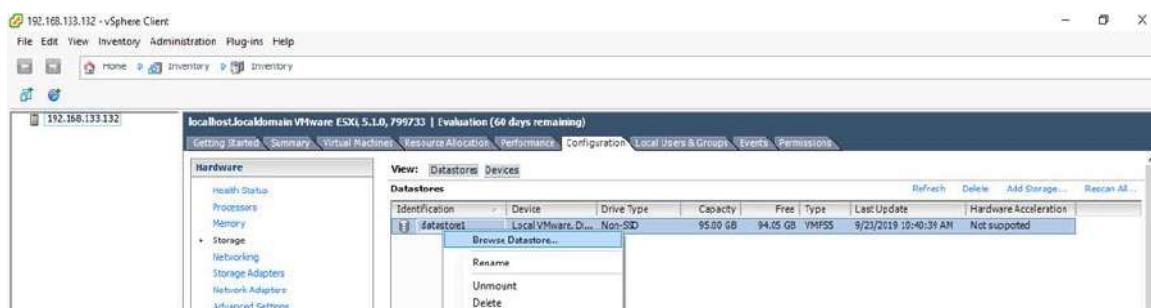


Click on the Ignore for the Security Warning.



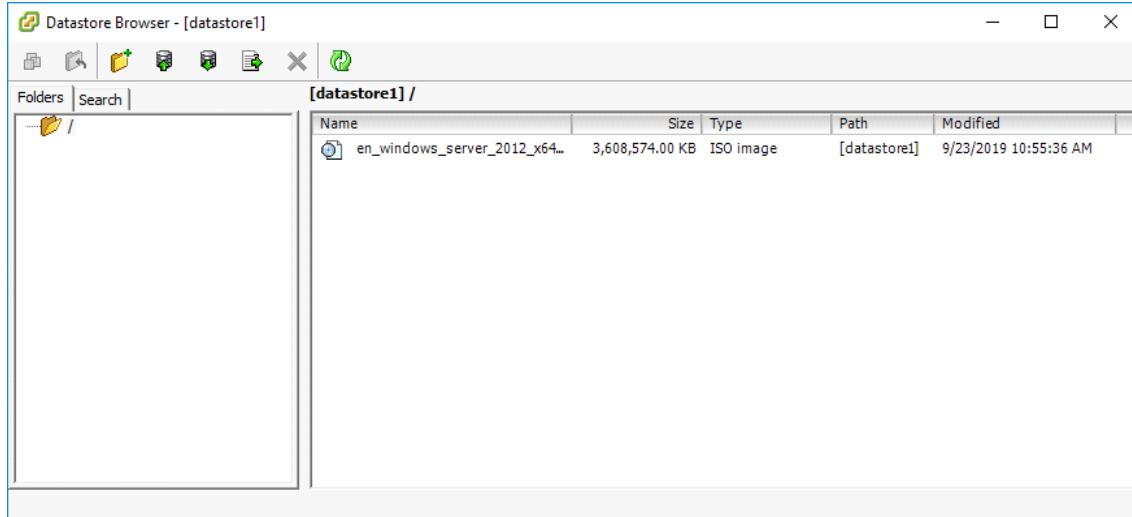
After login the VMware vSphere Client looks like the following image. At the bottom of this screen the connectivity of VMware vSphere Client where the target IP address is the ESXi Server's DHCP IP address. Click on the Inventory.

In Configuration tab click on Hardware Storage. Right click on “datastore1” and select “Browse Datastore...” .

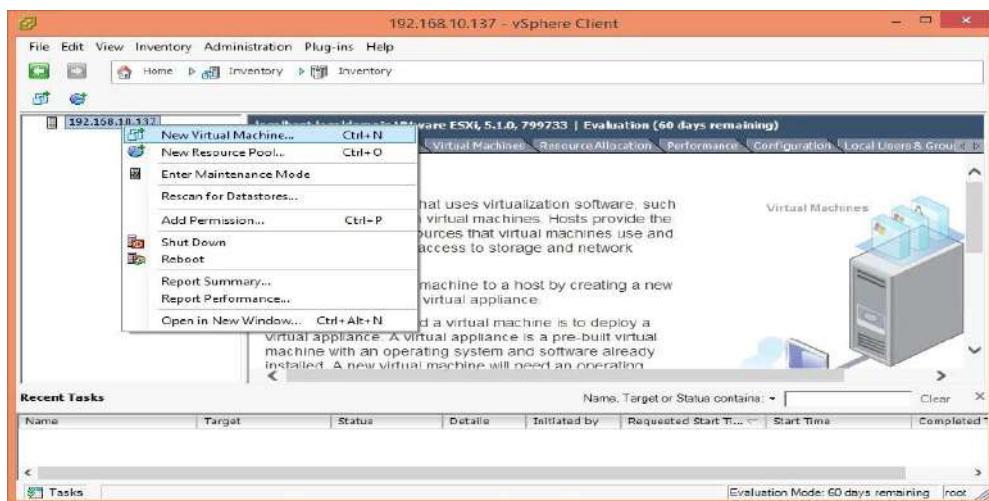


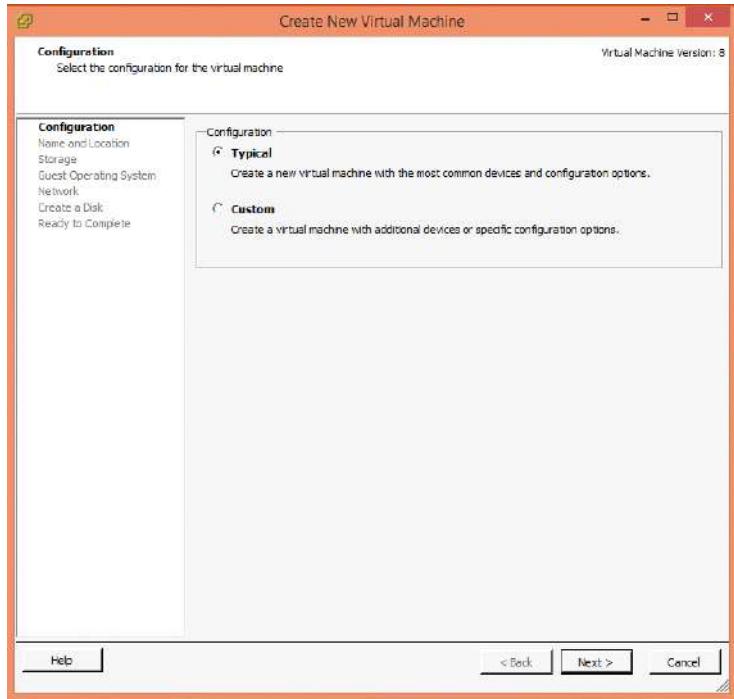
In the Datastore Browser – [datastore1] window click on Upload files to this datastore tool and select “Upload File...” option

Upload the “Microsoft Windows Server 20012”.

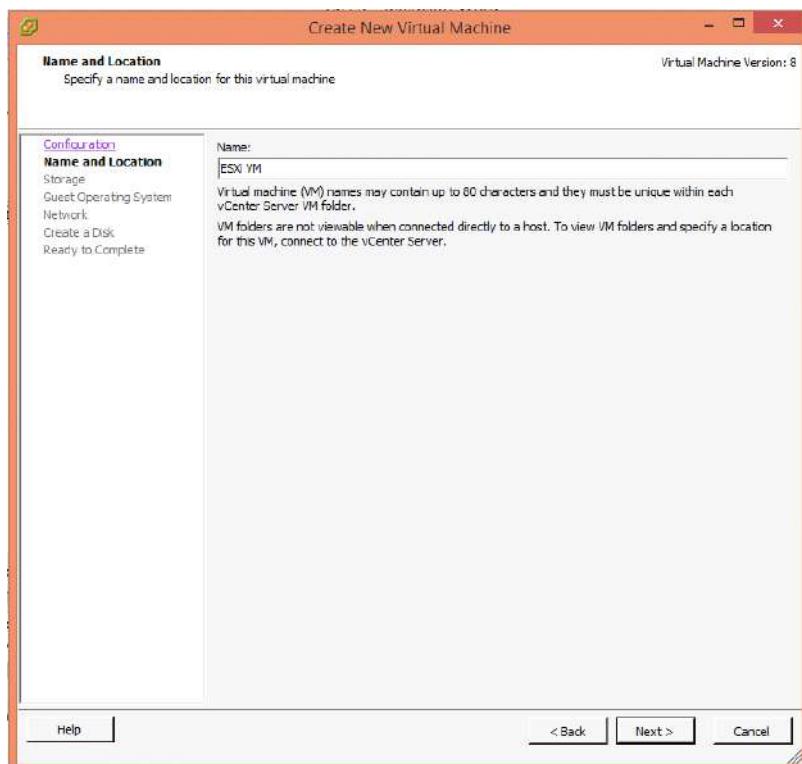


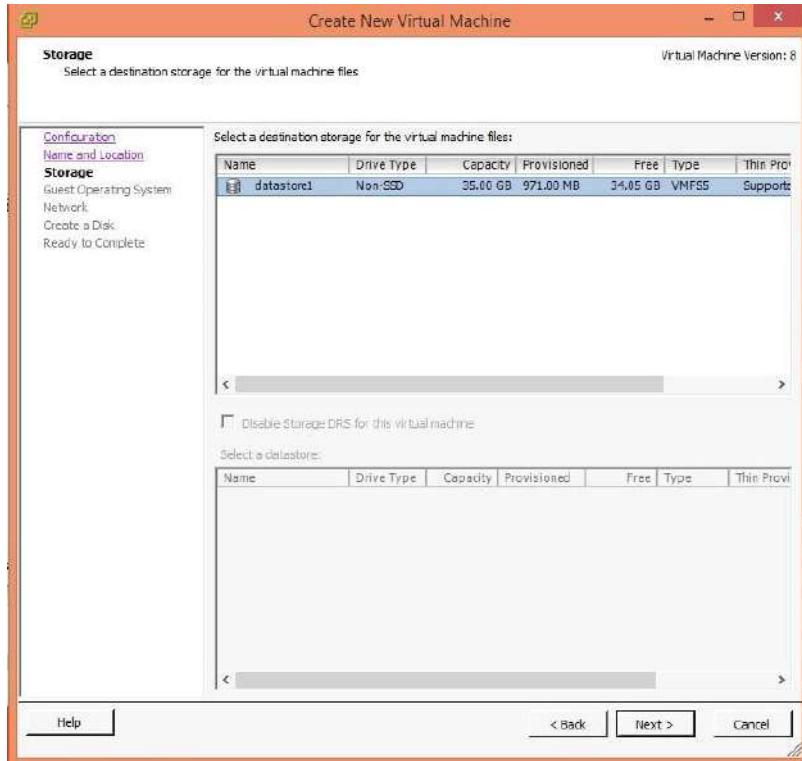
It shows the IP Address (192.168.10.137) listed on the left pane. Right click on the IP address and select the option “New Virtual Machine...”.





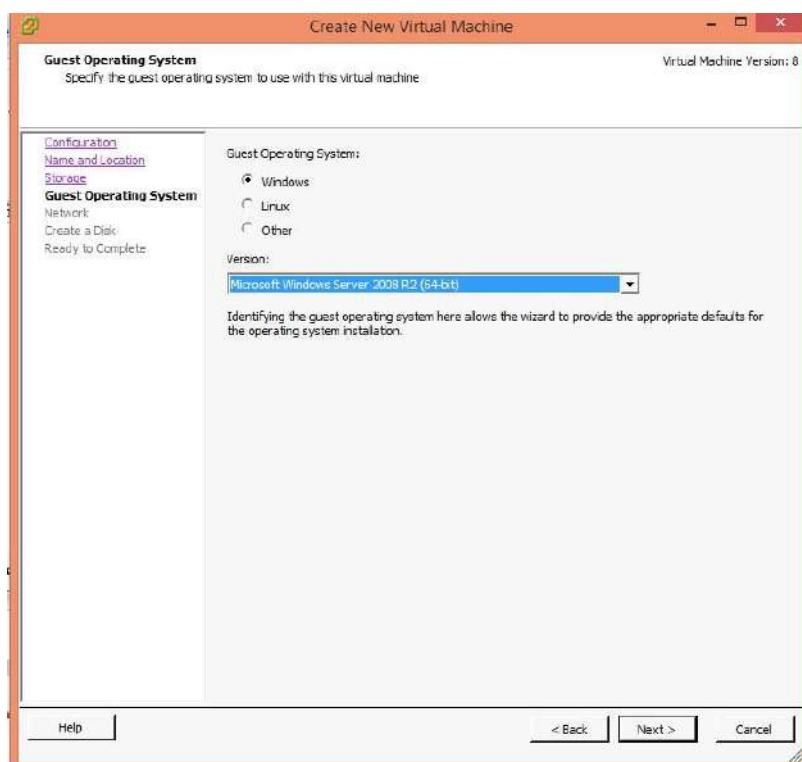
In the Create New Virtual Machine window select the Typical option and click on “Next”. Give a name to the Virtual Machine. Here it is given as ESXi VM. Click on the “Next” button.

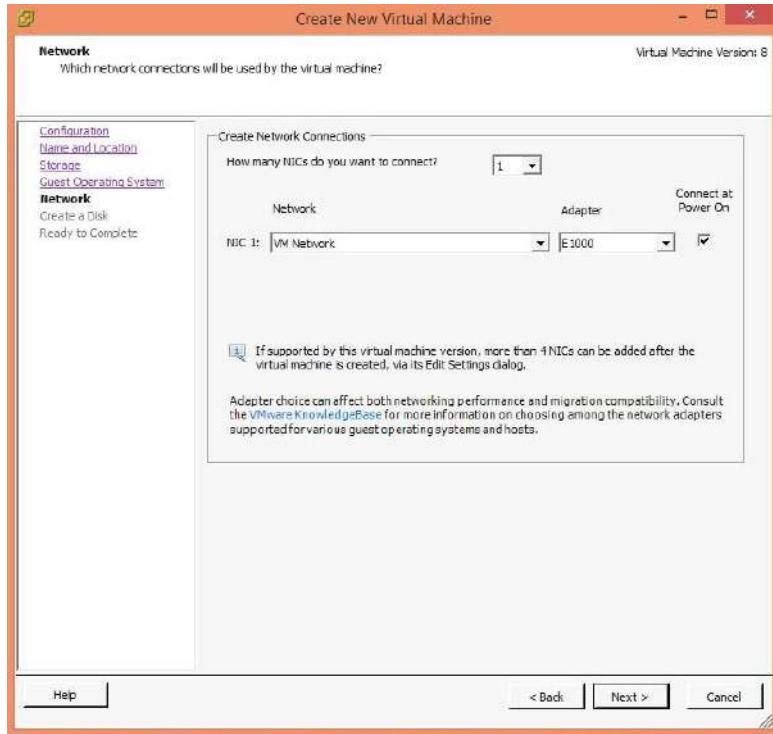




In the next screen keep the settings default for Storage and click on “Next”.

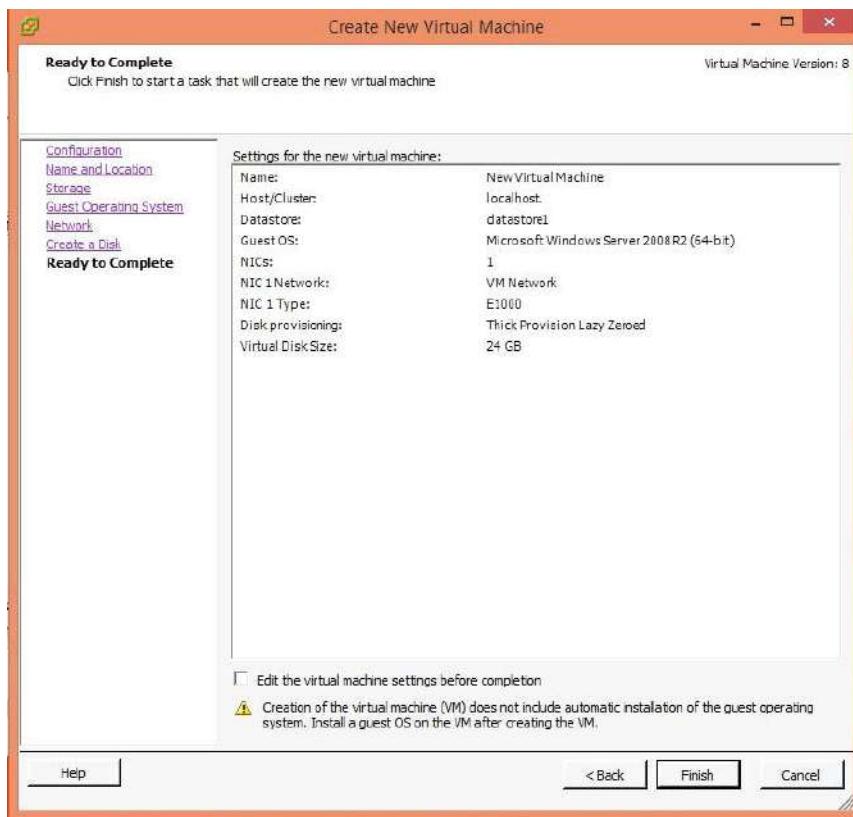
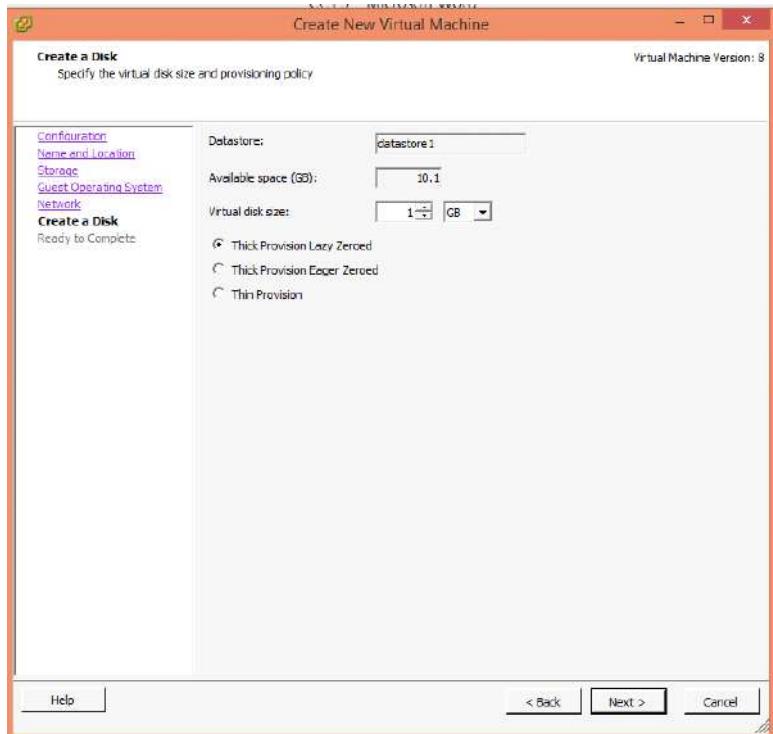
Select the Guest OS as Windows and Version as “Microsoft Windows Server 2008 R2 (32- bit)”.





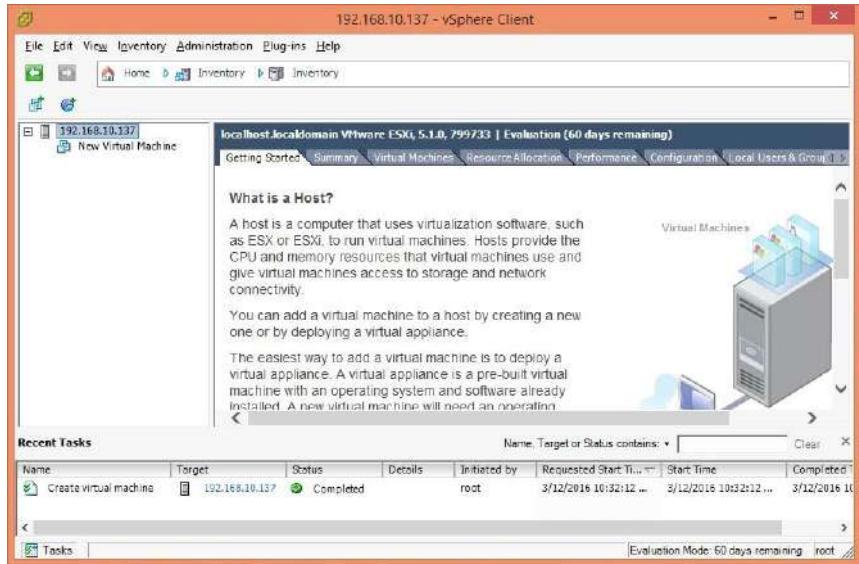
Leave the Network settings default and click on “Next”.

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.

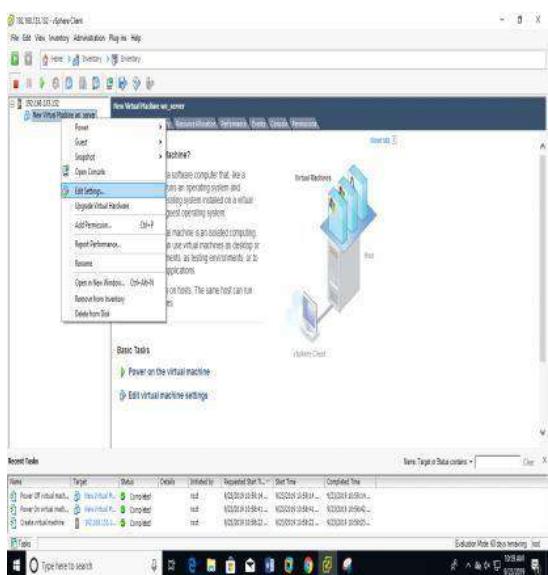


At the final screen click on “Finish” button.

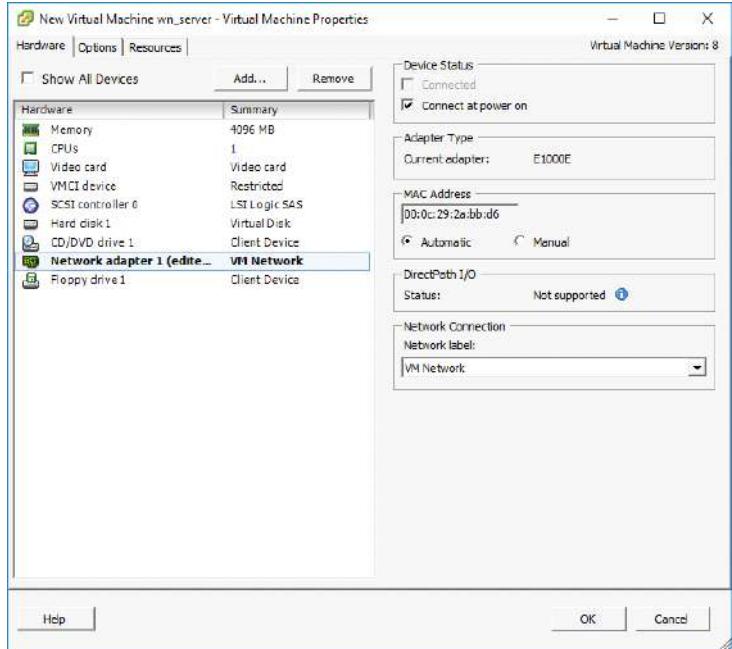
The new created Virtual Machine is listed under the IP Address.



Right click on virtual machine Edit settings Network adapter.

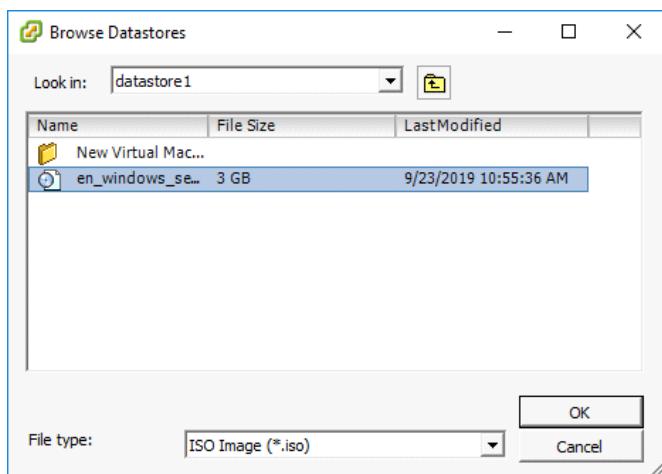
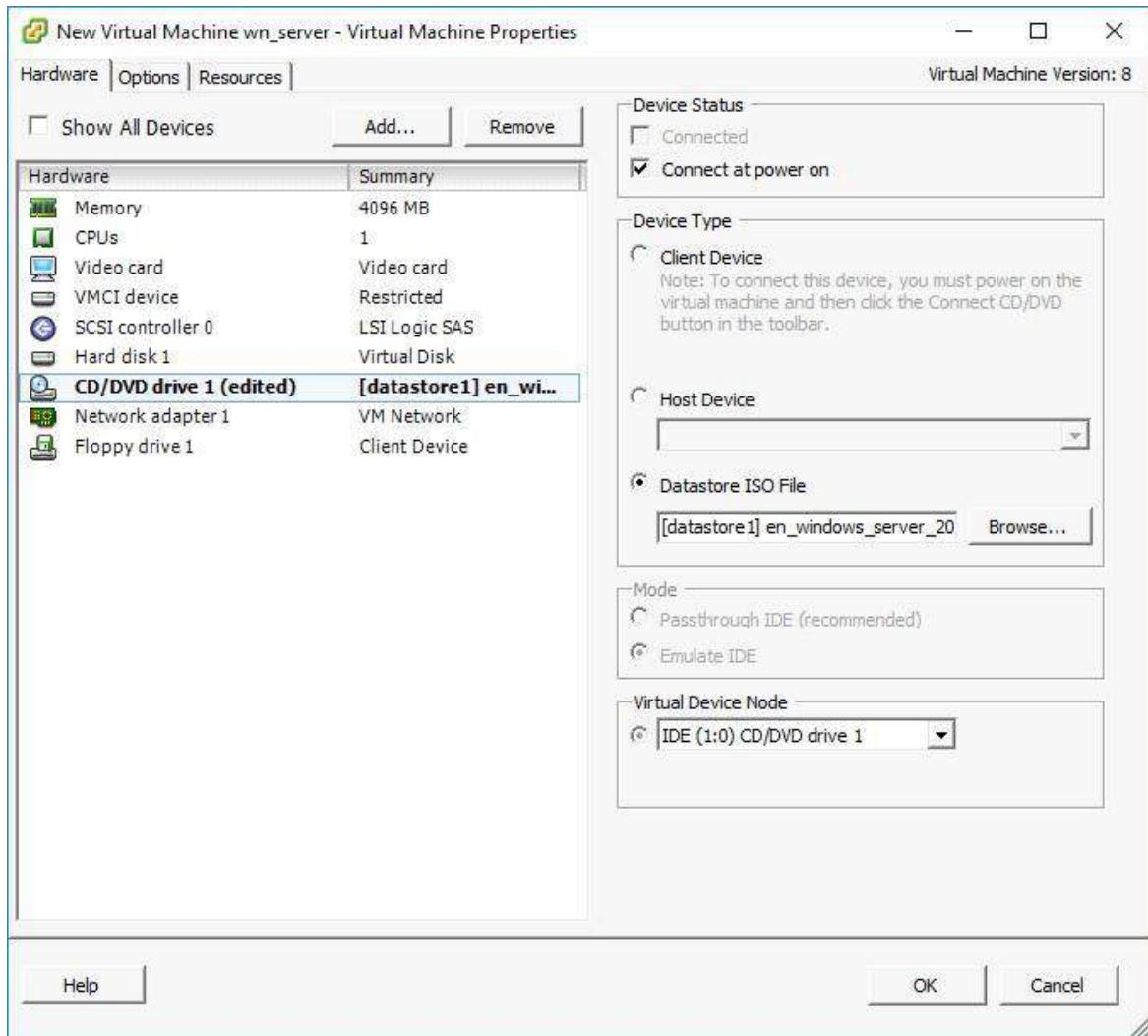


Right click on virtual machine Edit settings Network adapter "Check on Connect at power on".

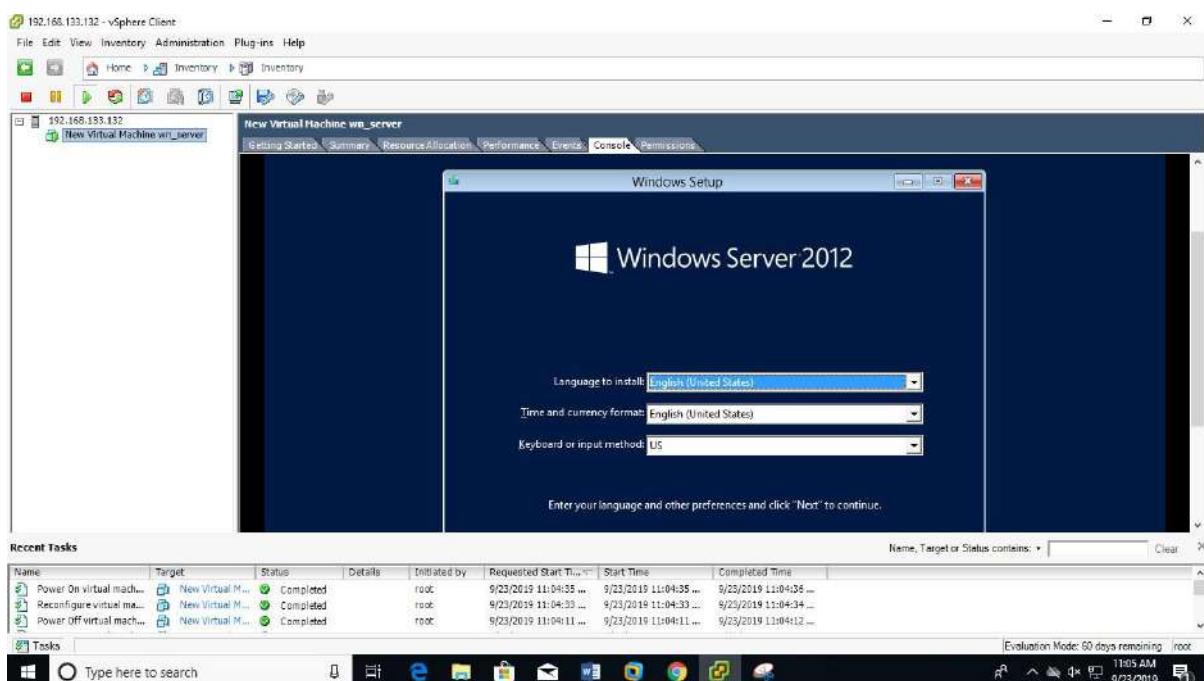
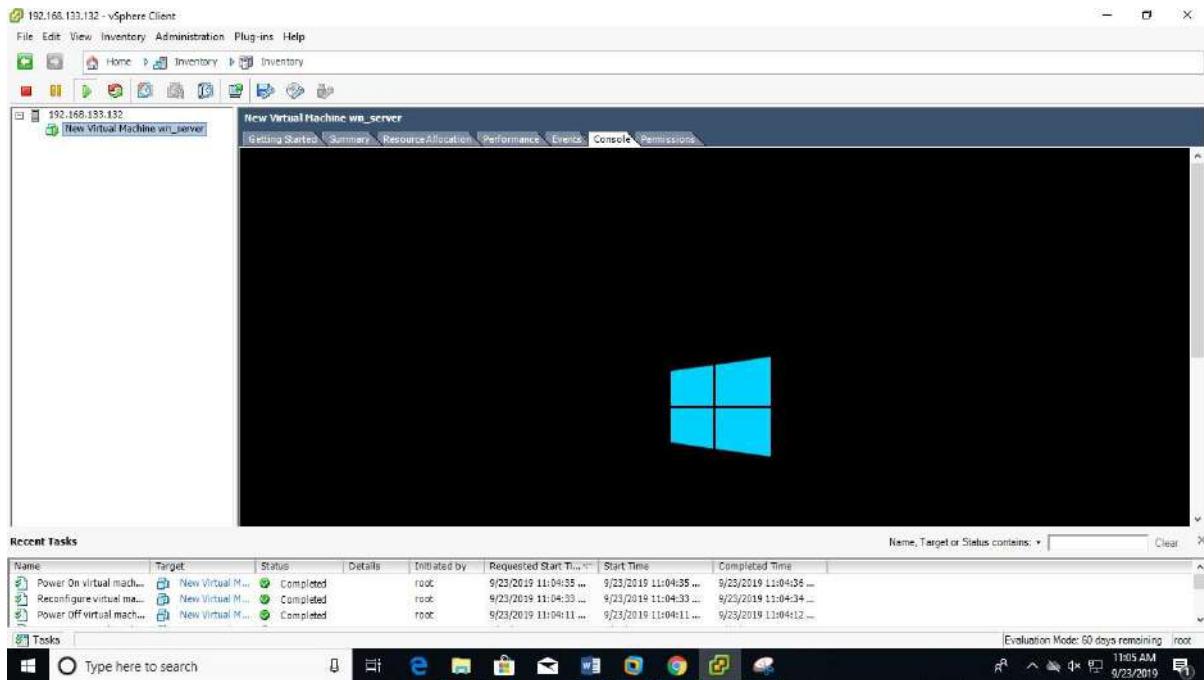


Right click on virtual machine Edit settings CD/DVD Drive Check on Datastore ISO file and browse the iso

"Check on Connect on power on".



Power on VM

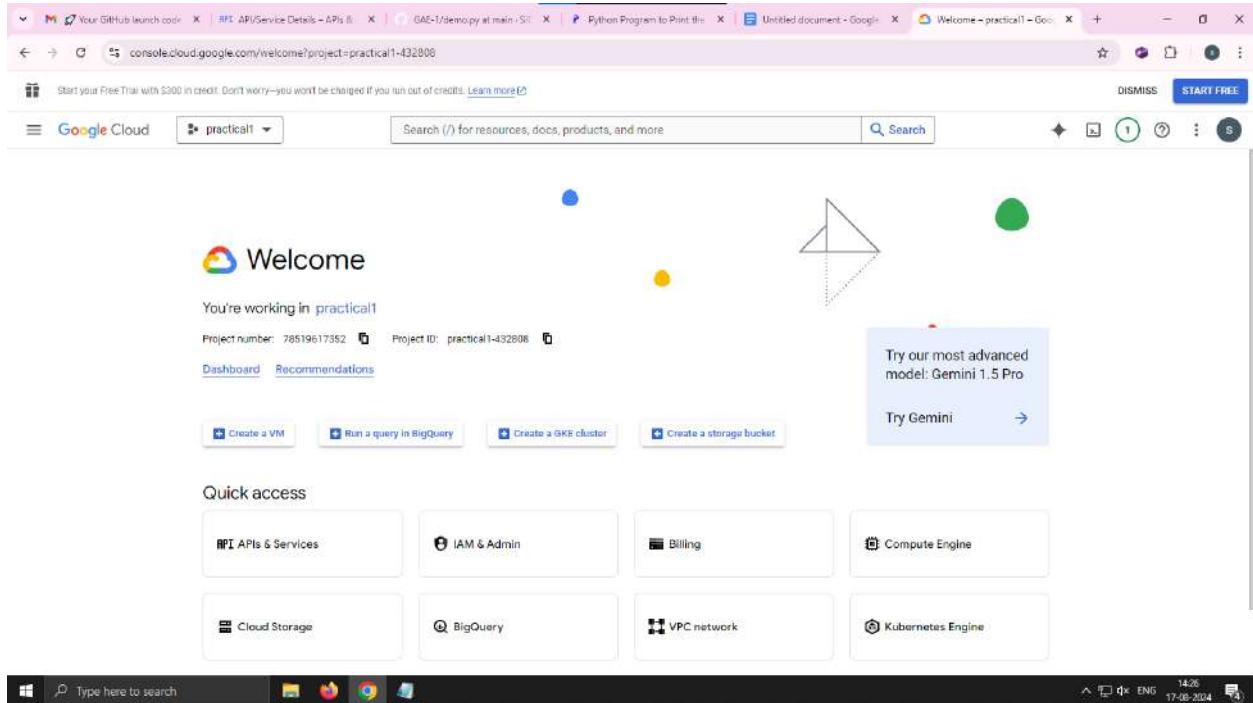


PRACTICAL 3

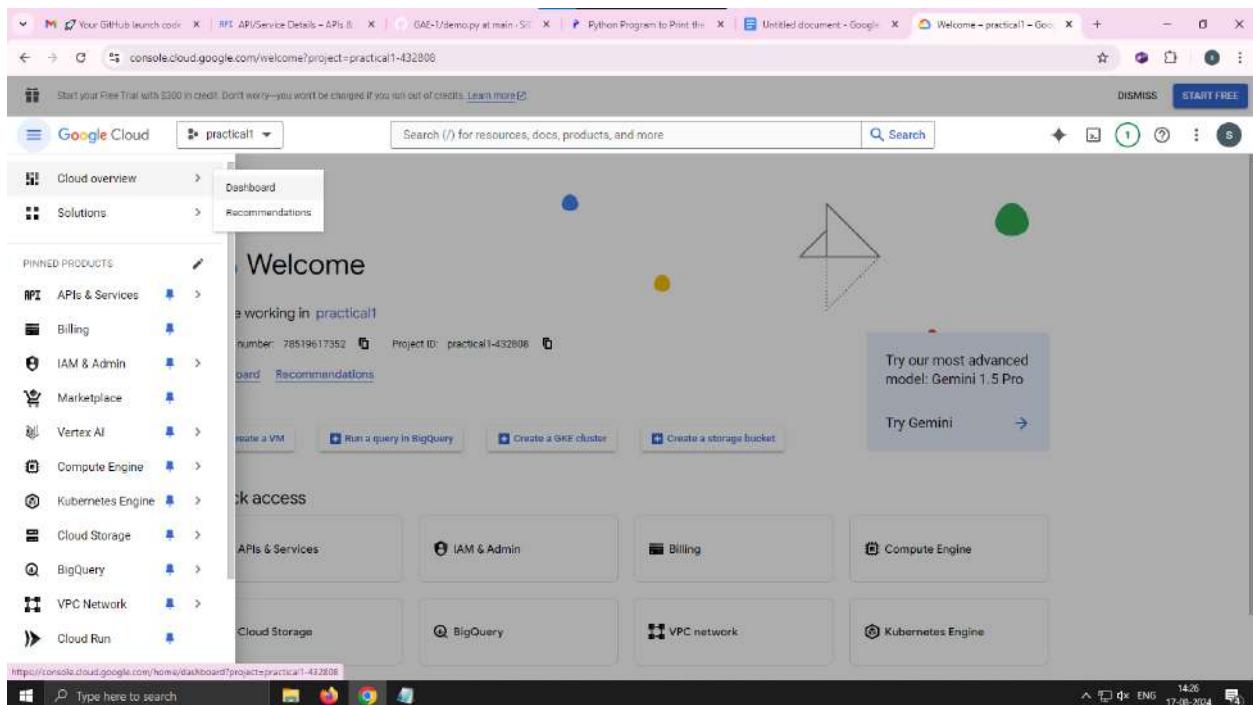
Aim:- Implementing Google App Engine

Software:- Google cloud console

Step -1 : search console cloud google in google



Step -2 : you will see the google cloud home screen , now in side bar click on cloud overview > dashboard



Step – 3 : search

Step 4 : now you are on dashboard, click on my project

The screenshot shows the Google Cloud Platform dashboard for a project named 'practical'. The left sidebar lists various services like Cloud Storage, Compute Engine, and BigQuery. The main area displays 'Project info' with details such as Project name (practical), Project number (70519617352), and Project ID (practical-432808). It also shows 'APIs & Services' with a chart for API requests over time. To the right, there are sections for 'Google Cloud Platform status' (All services normal), 'Monitoring' (with options to create a dashboard or set up alerting policies), and 'API Error Reporting' (no sign of errors). A bottom bar includes a search field and system status indicators.

Now a pop will appear , now create a project by clicking on new project

A modal dialog box titled 'Select a project' is displayed. It features a search bar at the top and tabs for 'RECENT', 'STARRED', and 'ALL'. Below the tabs is a table with columns for 'Name' and 'ID'. Three projects are listed: 'CCPRACTICAL' (ID: ccpractical-439612), 'practical1cc-439005' (ID: practical1cc-439005), and 'CarPricePrediction' (ID: carpriceprediction-c6c63). In the top right corner of the dialog, there is a 'NEW PROJECT' button. At the bottom right, there is a 'CANCEL' button.

Now name your project CCPRACTICAL and click on create

New Project

You have 8 projects remaining in your quota. Request an increase or delete projects. [Learn more](#)

[MANAGE QUOTAS](#)

Project name *
CCPRACTICAL

Project ID: ccpractical-439613. It cannot be changed later. [EDIT](#)

Location *
No organization [BROWSE](#)

Parent organization or folder

[CREATE](#) [CANCEL](#)

Step- 5 : project is been created now click on select project (CCPRACTICAL) that you have create

The screenshot shows the Google Cloud Platform dashboard for the project 'practical1'. The left sidebar lists various services like Cloud overview, Solutions, APIs & Services, Billing, IAM & Admin, Marketplace, Vertex AI, Compute Engine, Kubernetes Engine, Cloud Storage, BigQuery, VPC Network, Cloud Run, and SQL. The main dashboard area displays 'Project info' with the project name 'practical1', number '76519617352', and ID 'practical1-432808'. It also shows 'APIs' with a note that no data is available for the selected time frame. The 'Resources' section lists BigQuery, SQL, Compute Engine, Storage, and Cloud Functions. A notification sidebar on the right shows three recent events: 'Create Project: My Project 90475' (SELECT PROJECT), 'Enable service: appengine.googleapis.com (practical1)' (22 minutes ago), and 'Create Project: practical1-432808' (SELECT PROJECT). A message at the bottom of the dashboard says 'Now viewing project "practical1" in organization "No organization"'. The status bar at the bottom right shows the date as 17.08.2014 and the time as 14:28.

Step - 6 : now in drop down you can see the selected project , search “admin api “ click on App engine admin pain

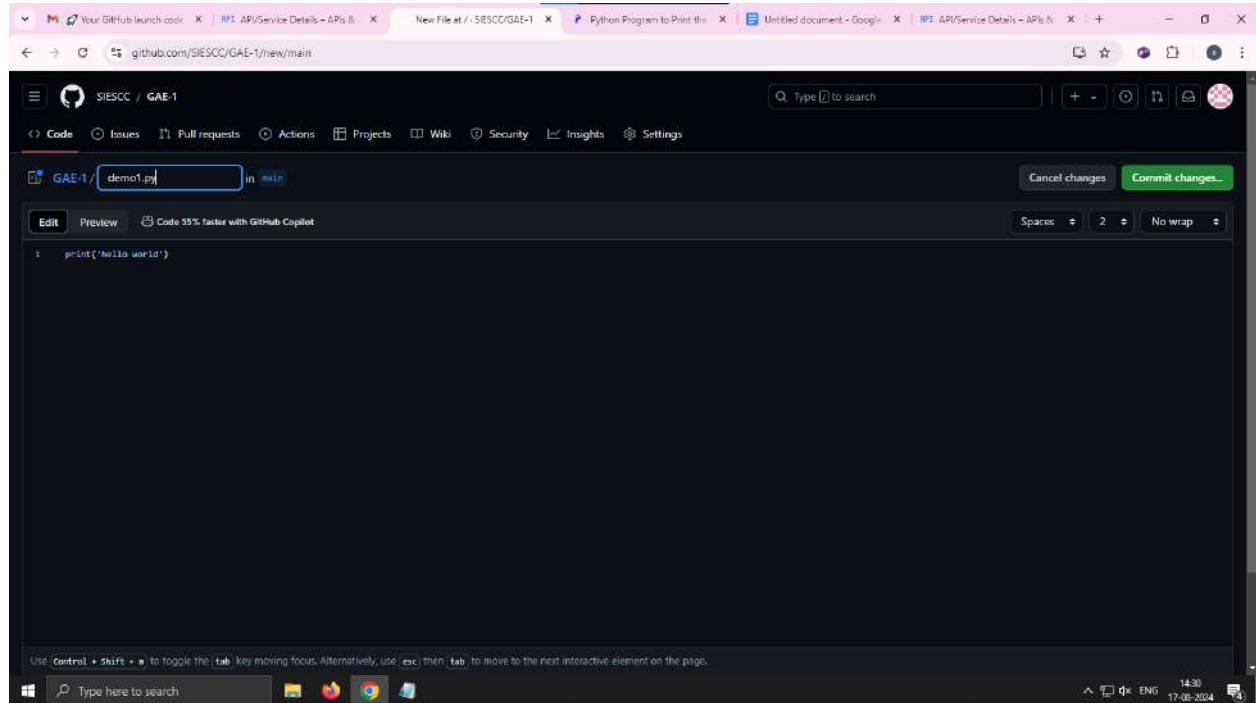
Now enable the option

The screenshot shows the 'App Engine Admin API' page in the Google Cloud Platform. At the top, there's a 'Google Cloud' logo and a dropdown menu. Below that, a 'Product details' section has a back arrow and a 'Product details' link. The main title is 'App Engine Admin API' with a 'Google Enterprise API' badge. A brief description says 'Provisions and manages developers' App Engine applications.' Below it are two buttons: 'ENABLE' (in blue) and 'TRY THIS API'. Underneath, there's a 'API/Service Details' section with a back arrow and a 'DISABLE API' button. It contains a note: 'To use this API, you may need credentials.' with a 'CREATE CREDENTIALS' button. The 'App Engine Admin API' section includes a circular icon, a brief description, and a 'By Google Enterprise API' link. It lists service details: 'Service name: appengine.googleapis.com', 'Type: Public API', 'Status: Enabled', 'Documentation: LEARN MORE', and 'Explore: TRY IN API EXPLORER'.

This page will appear .

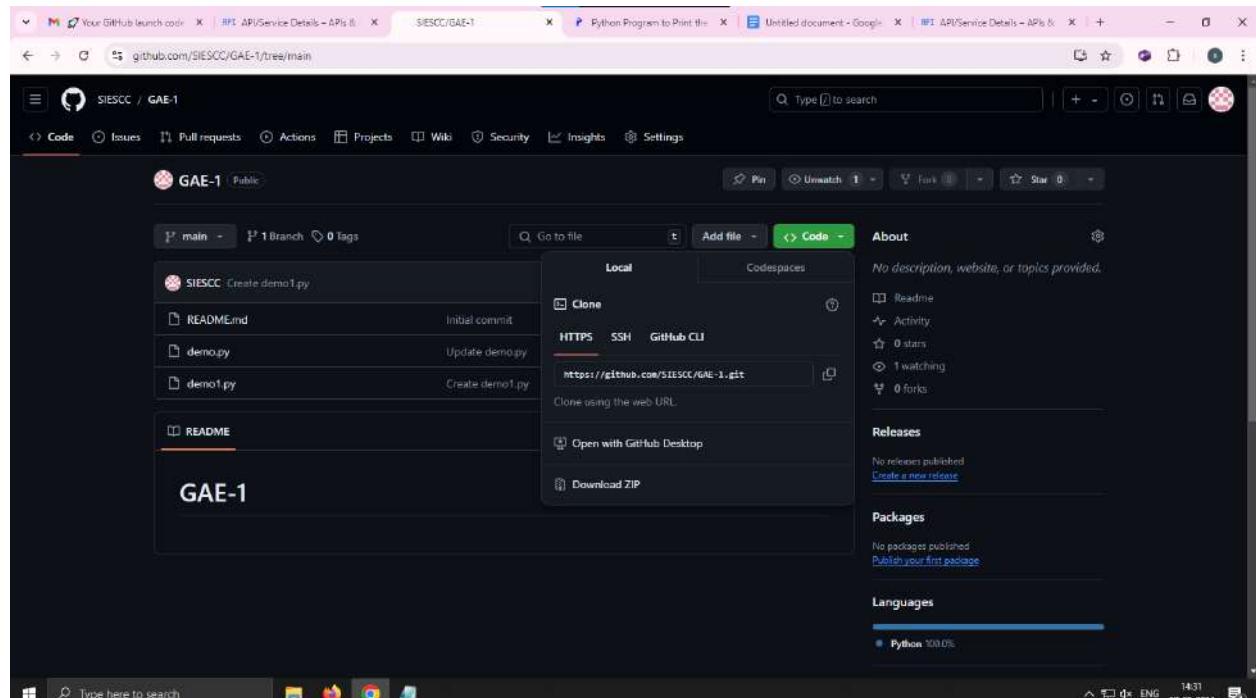
The screenshot shows a GitHub repository named 'SIESCC / GAE-1'. The repository is public and has 1 branch and 0 tags. The 'Code' tab is selected. The repository contains three files: 'README.md', 'demo.py', and 'Update demo.py'. The 'README.md' file is shown with its content: 'GAE-1'. The repository has 7 commits, with the most recent being 'Initial commit' by 'SIESCC' 22 minutes ago. On the right side, there's an 'About' section with a note: 'No description, website, or topics provided.', and sections for 'Activity', 'Releases', 'Packages', and 'Languages' (Python 100.0%). The bottom of the screen shows a Windows taskbar with various icons and a system tray.

Step – 7 : now login into your github account and create a new repository and create a new file and write a simple python code and search for your file “



```
print('Hello world')
```

Step - 8 : click on code and copy the https link ()



Step – 9 :

Now go to google cloud and on the top right click on “ activate cloud shell “

Step – 10 : Type the code in terminal in
google cloud

Code :

1. git clone (copy the file path and paste here)
2. ls (list the files)
3. python (file name) .py

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

1. cd\ (it will take you to the root folder)
2. rm -rf file name
3. ls

```
Welcome to Cloud Shell! Type "help" to get started.  
Your Cloud Platform project in this session is set to ccpractical-439612.  
Use "gcloud config set project [PROJECT_ID]" to change to a different project.  
vishnuramjiyani09@cloudshell:~ (ccpractical-439612)$ git clone https://github.com/Vishnu-Ramjiyani/GAE-1.git  
Cloning into 'GAE-1'...  
remote: Enumerating objects: 6, done.  
remote: Counting objects: 100% (6/6), done.  
remote: Compressing objects: 100% (5/5), done.  
remote: Total 6 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)  
Receiving objects: 100% (6/6), done.  
vishnuramjiyani09@cloudshell:~ (ccpractical-439612)$ ls  
GAE-1 README.cloudshell.txt  
vishnuramjiyani09@cloudshell:~ (ccpractical-439612)$ cd GAE-1  
vishnuramjiyani09@cloudshell:~/GAE-1 (ccpractical-439612)$ python demo.py  
This is cc practical  
vishnuramjiyani09@cloudshell:~/GAE-1 (ccpractical-439612)$ cd/  
-bash: cd/: No such file or directory  
vishnuramjiyani09@cloudshell:~/GAE-1 (ccpractical-439612)$ rm -rf GAE-1  
vishnuramjiyani09@cloudshell:~/GAE-1 (ccpractical-439612)$ ls  
demo.py README.md  
vishnuramjiyani09@cloudshell:~/GAE-1 (ccpractical-439612)$ cd/  
-bash: cd/: No such file or directory  
vishnuramjiyani09@cloudshell:~ (ccpractical-439612)$ rm -rf GAE-1  
vishnuramjiyani09@cloudshell:~ (ccpractical-439612)$ ls  
README.cloudshell.txt  
vishnuramjiyani09@cloudshell:~ (ccpractical-439612)$ ■
```

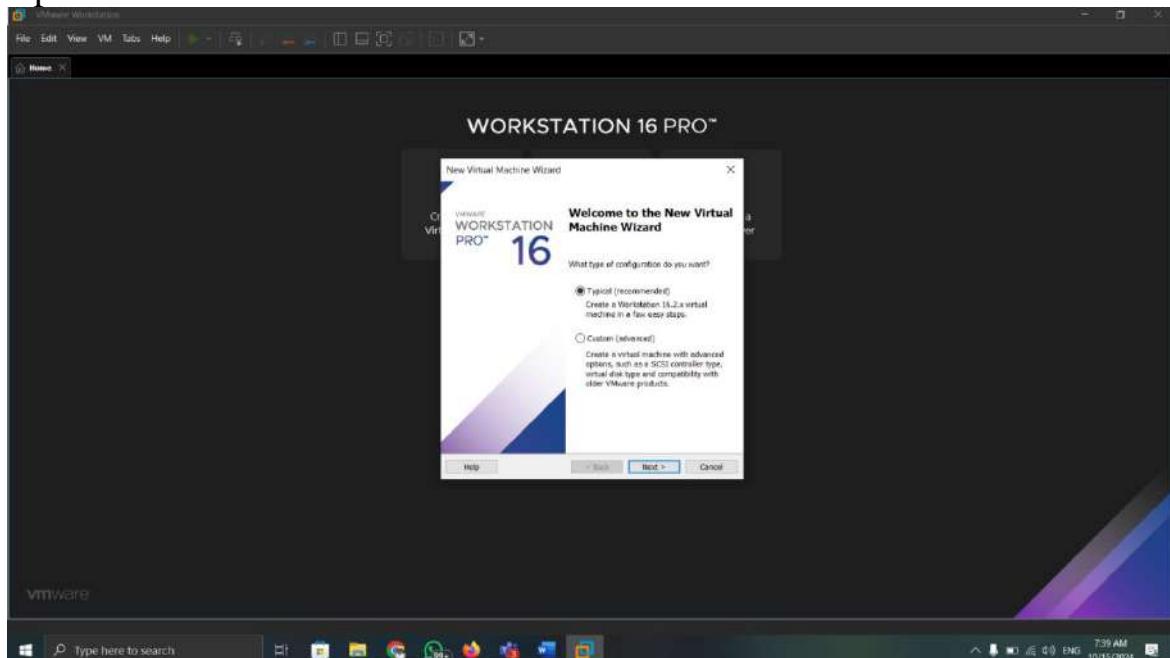
PRACTICAL 4

Aim :-Implementing IaaS using Eucalyptus

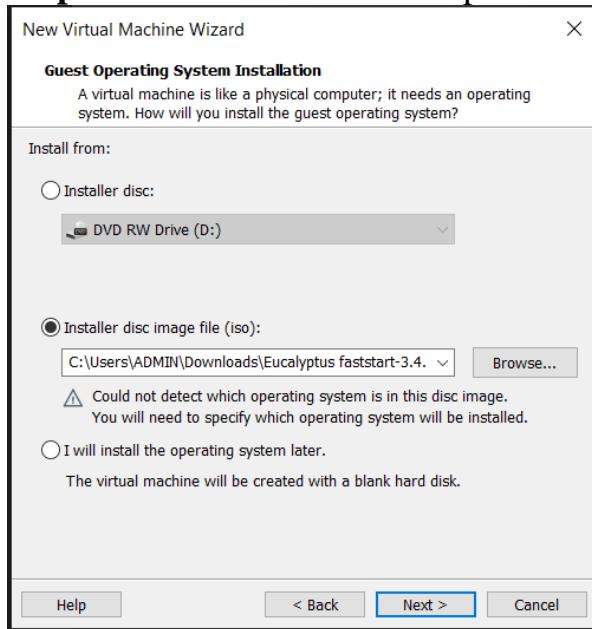
Requirements:- VMware Workstation 17x , Eucalyptus faststart 3.4.1.iso file

Steps:-

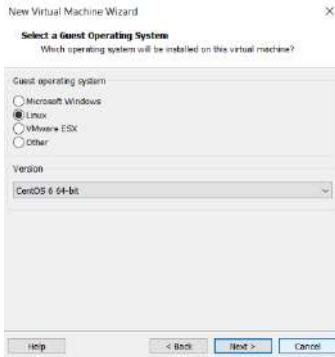
Open VMware workstation click on next



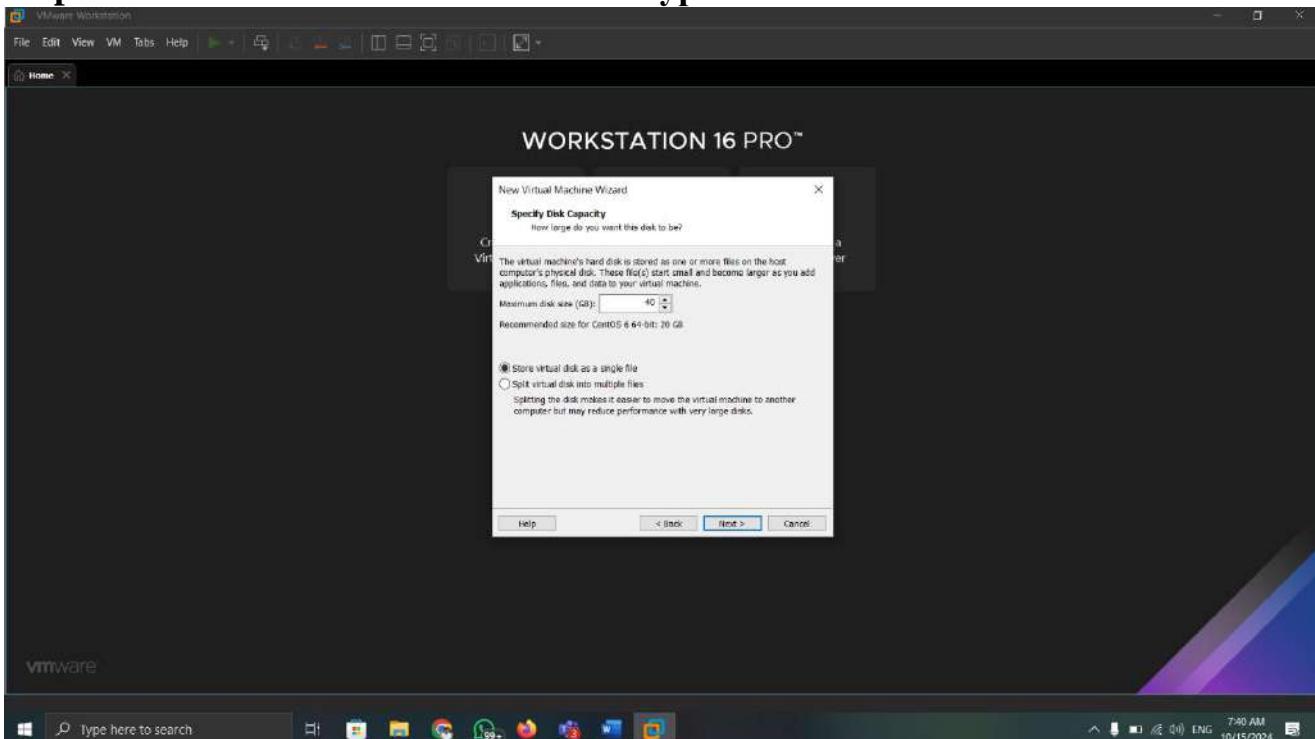
Step1:-Click on Browse and upload the Eucalyptusfaststsrt-3.4.1



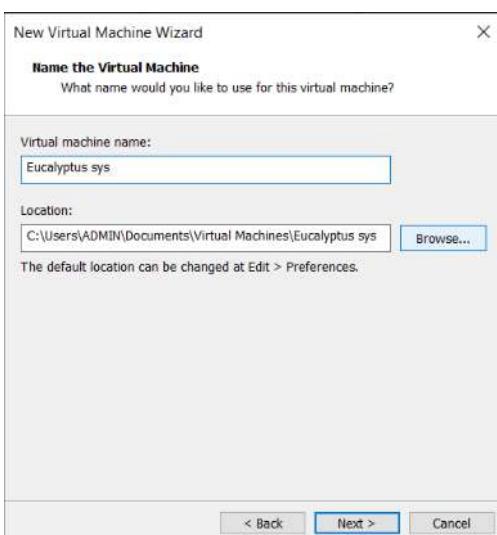
Step2: Click on Linux and version is CentOS 6 64-bit



Step3: Name for virtual machine as “Eucalyptus”

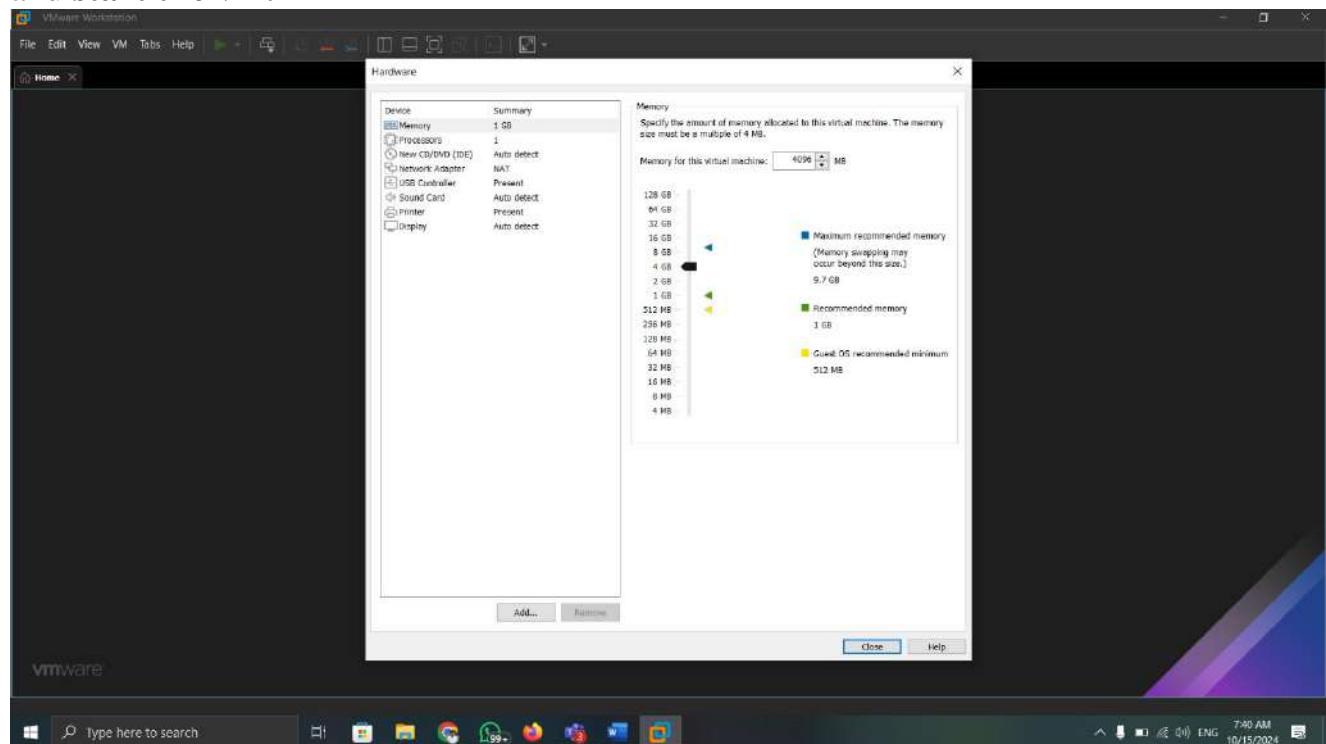


Step4: Manual disk :40.0

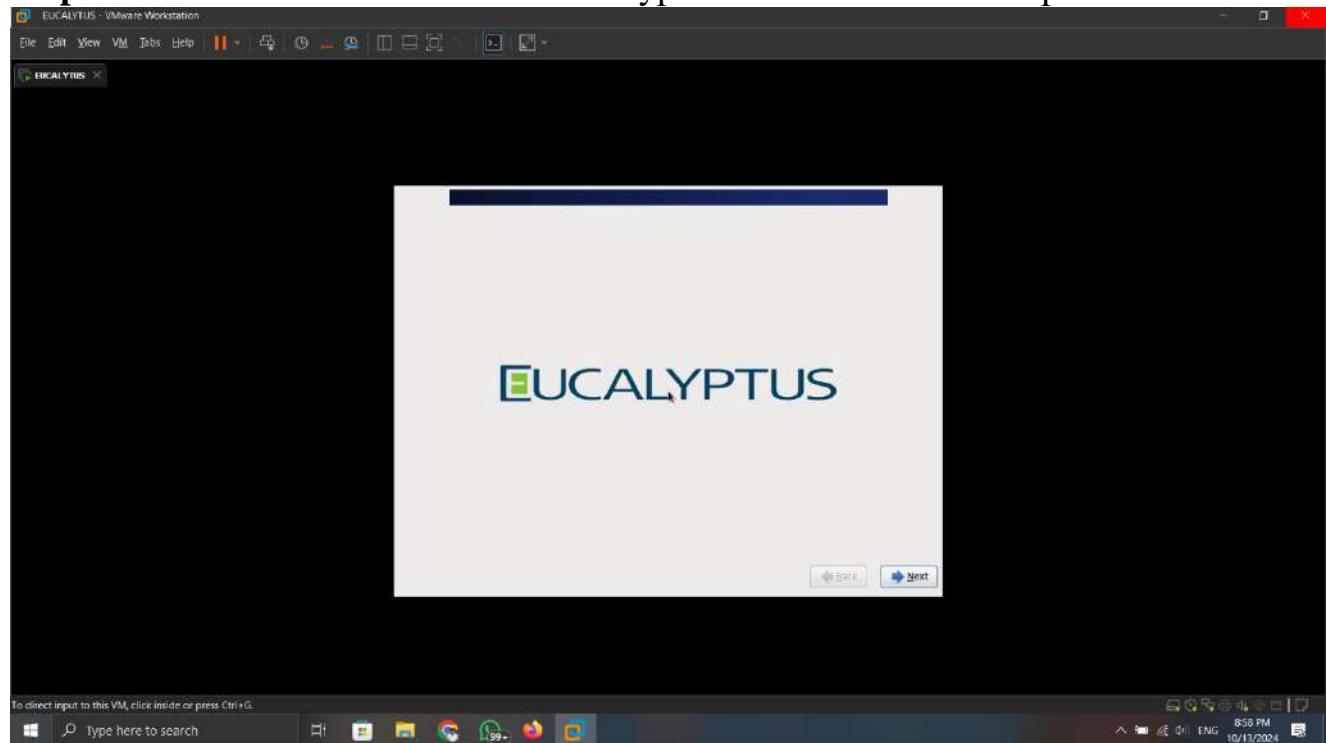


Step5: Click on Custom Hardware & Give the memory storage as 4GB and then click on next & also Change the number of cores per processor as 2 and select virtualize intel VT-x/EPT and then in Network Adapters select bridge network connection and close

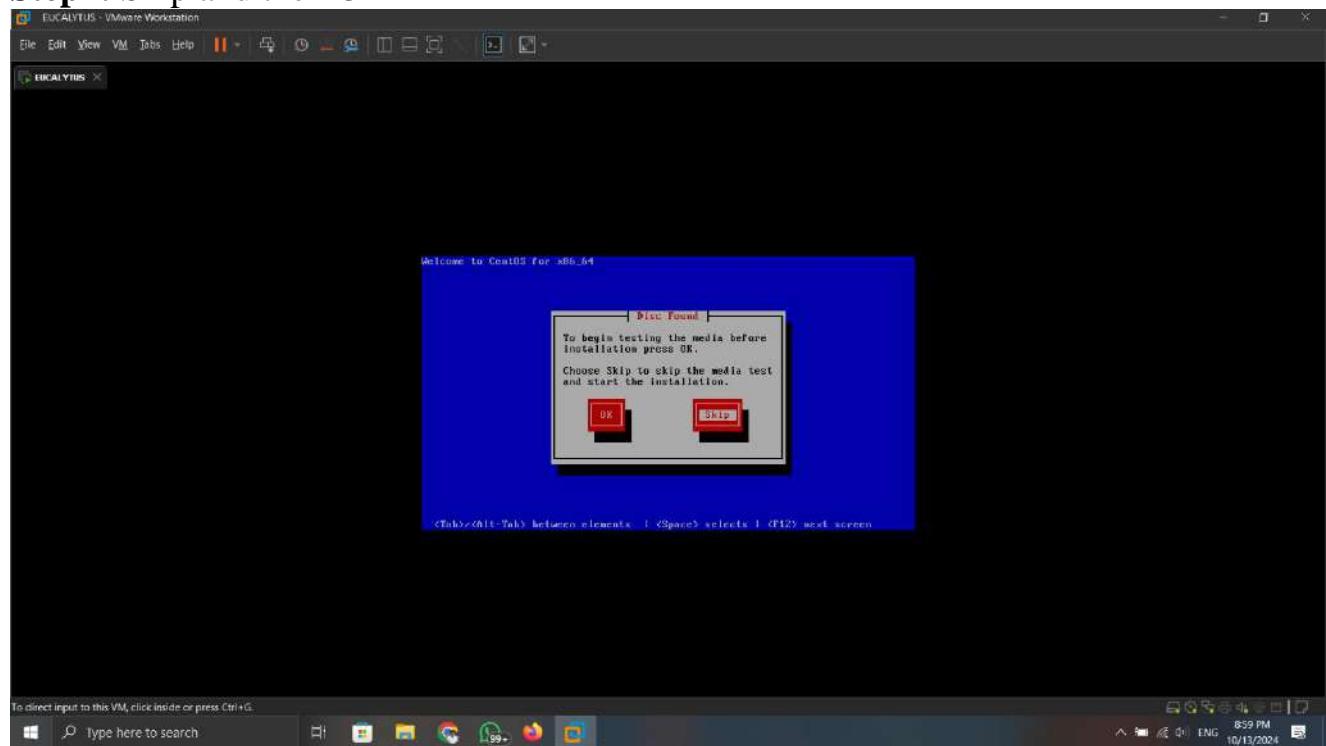
and start the vm.



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

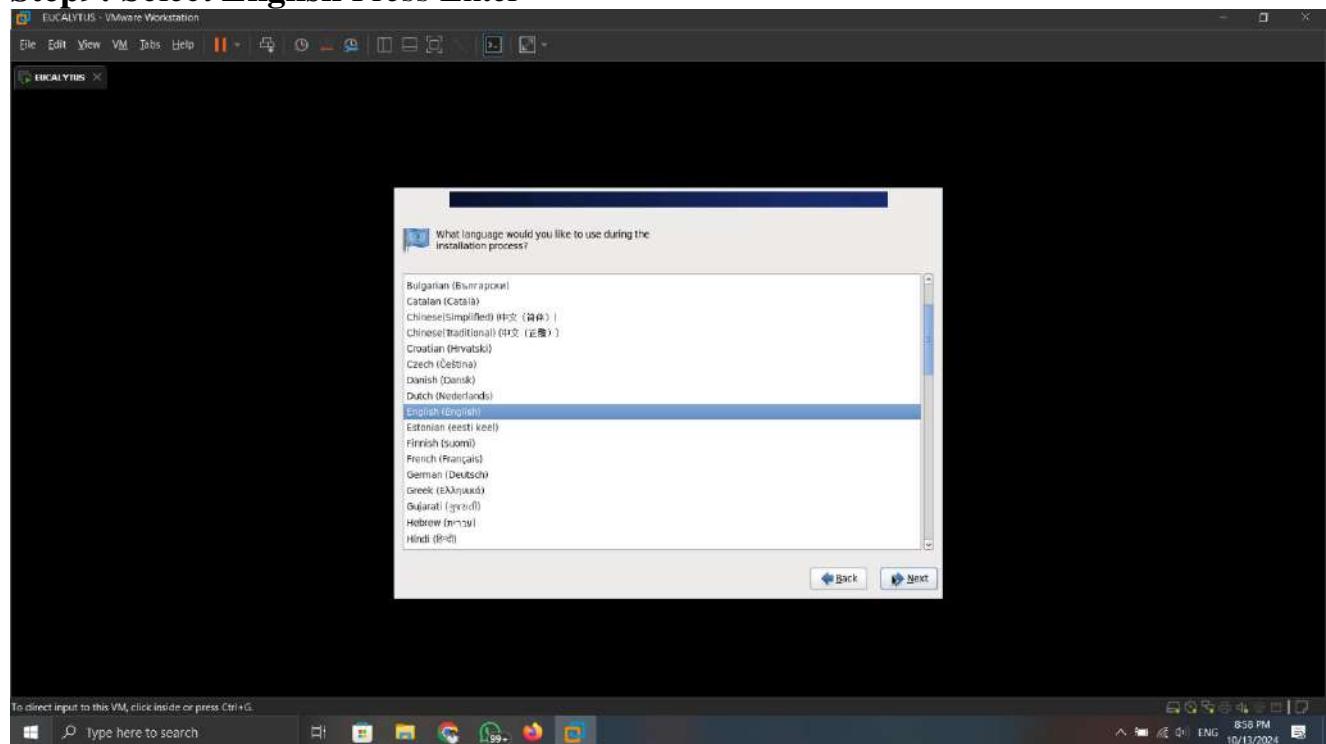


Step7: Skip and then OK

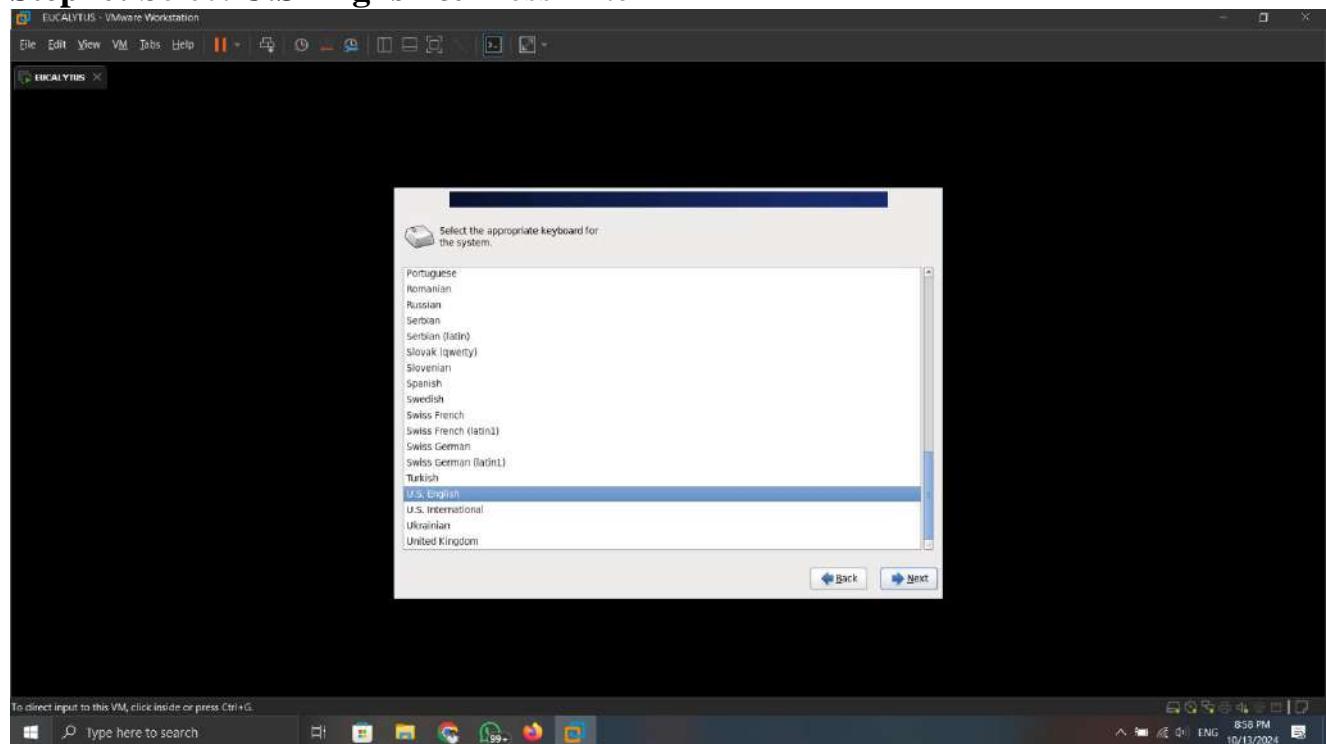


Step8: When the installation screen pops up **Click on Next**

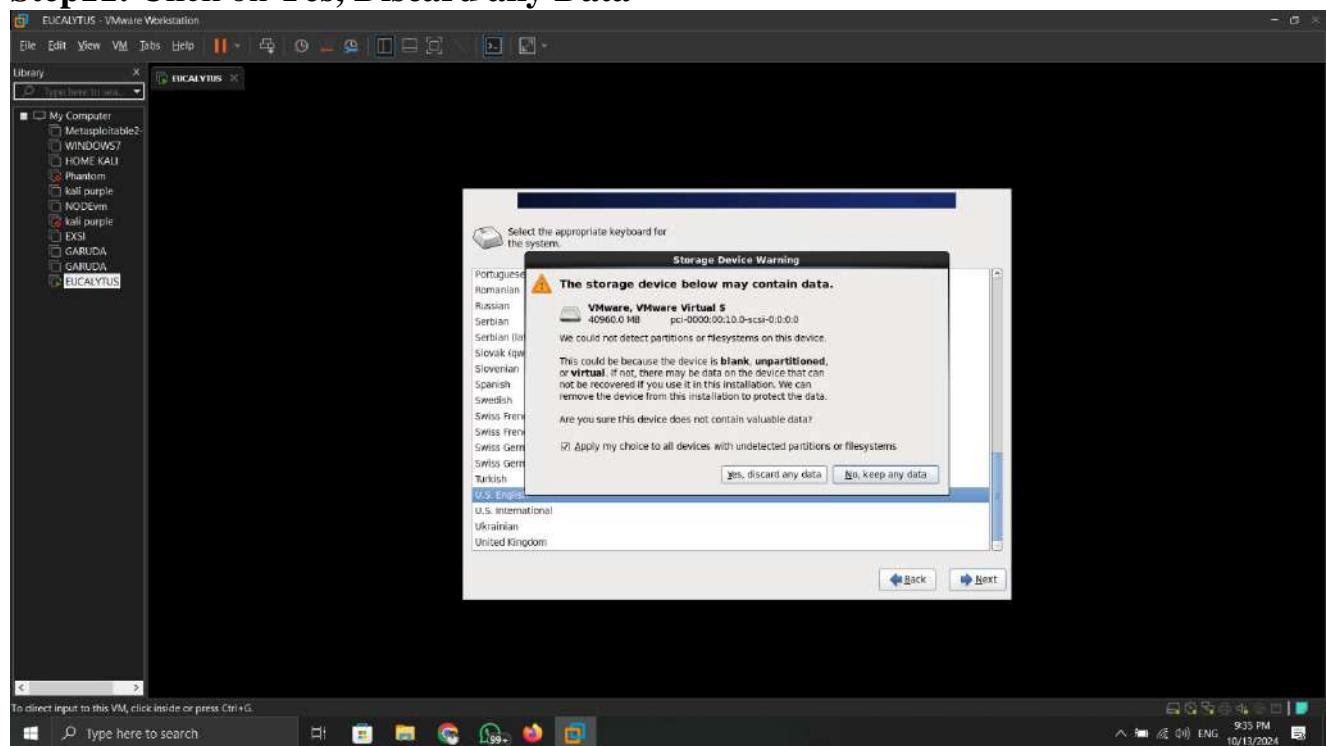
Step9: Select English Press Enter



Step10: Select U.S English & Press Enter

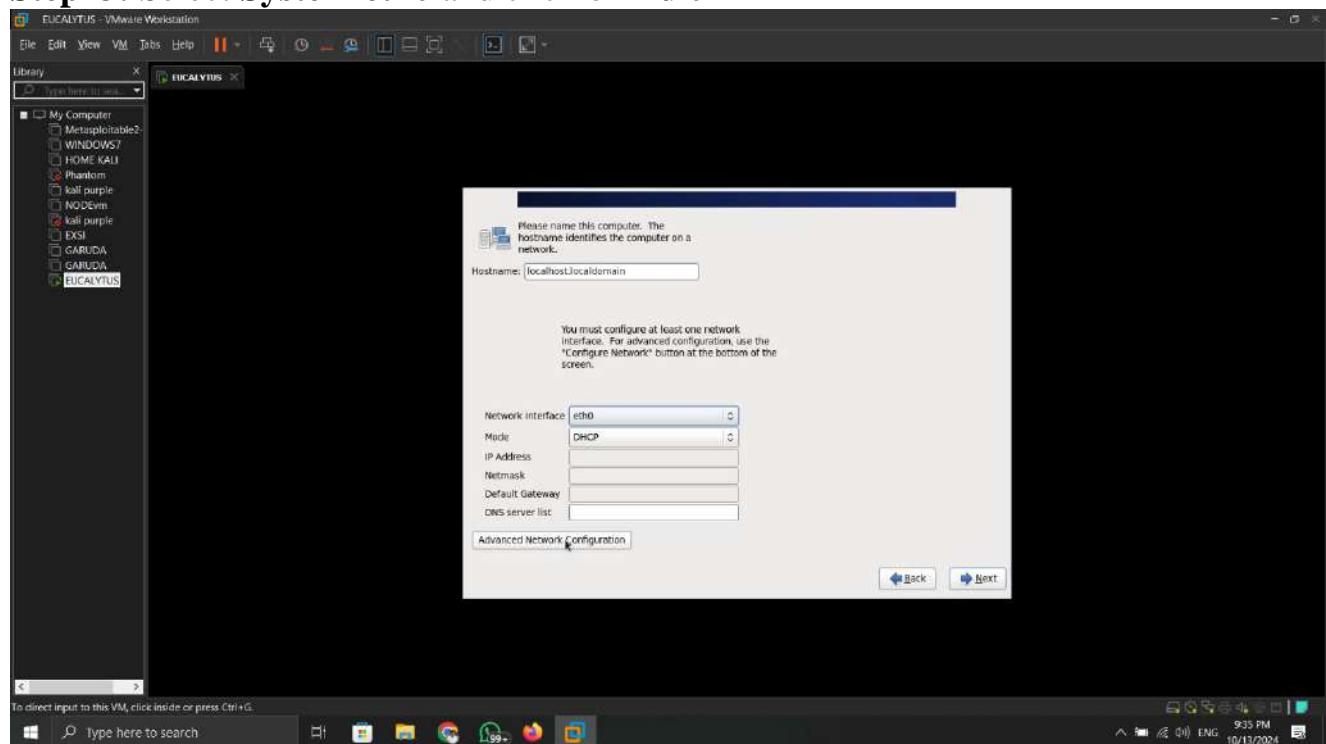


Step11: Click on Yes, Discard any Data

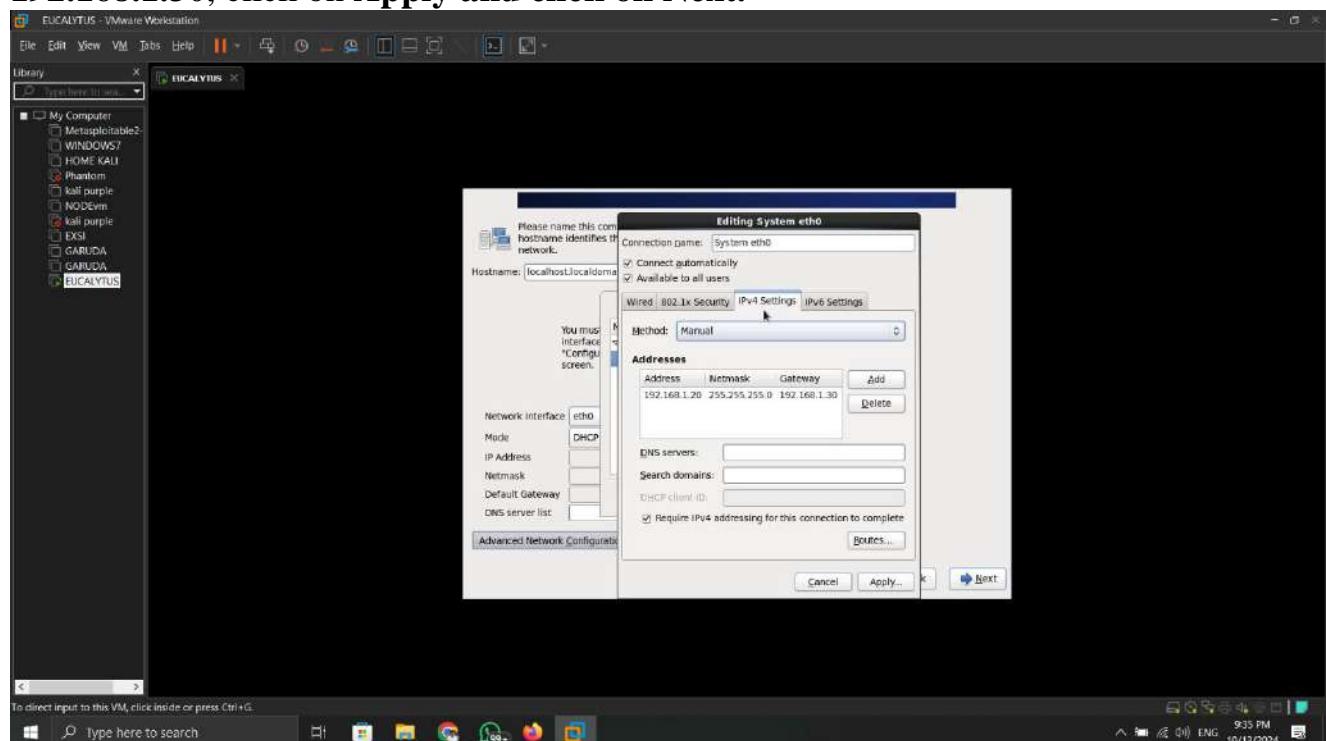


Step12: Click on Advance Network Configuration

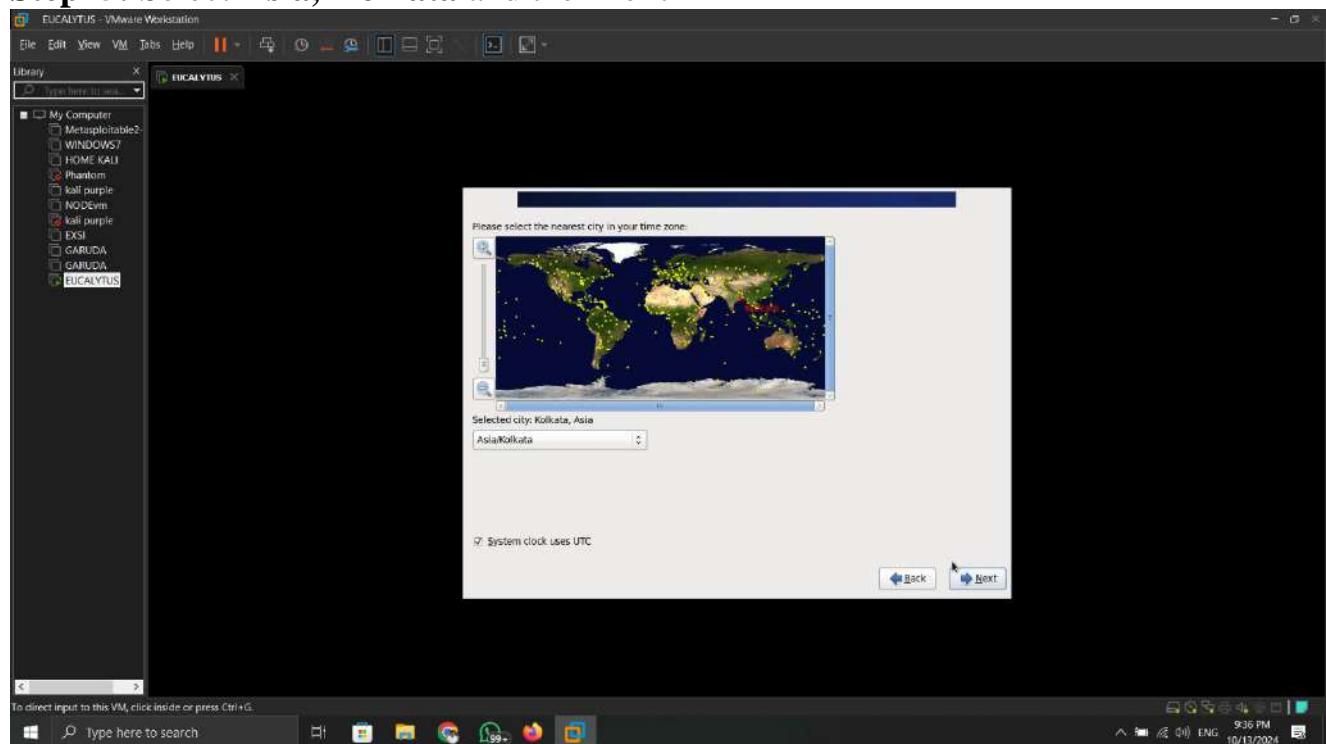
Step13: Select System eth0 and click on Edit



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.

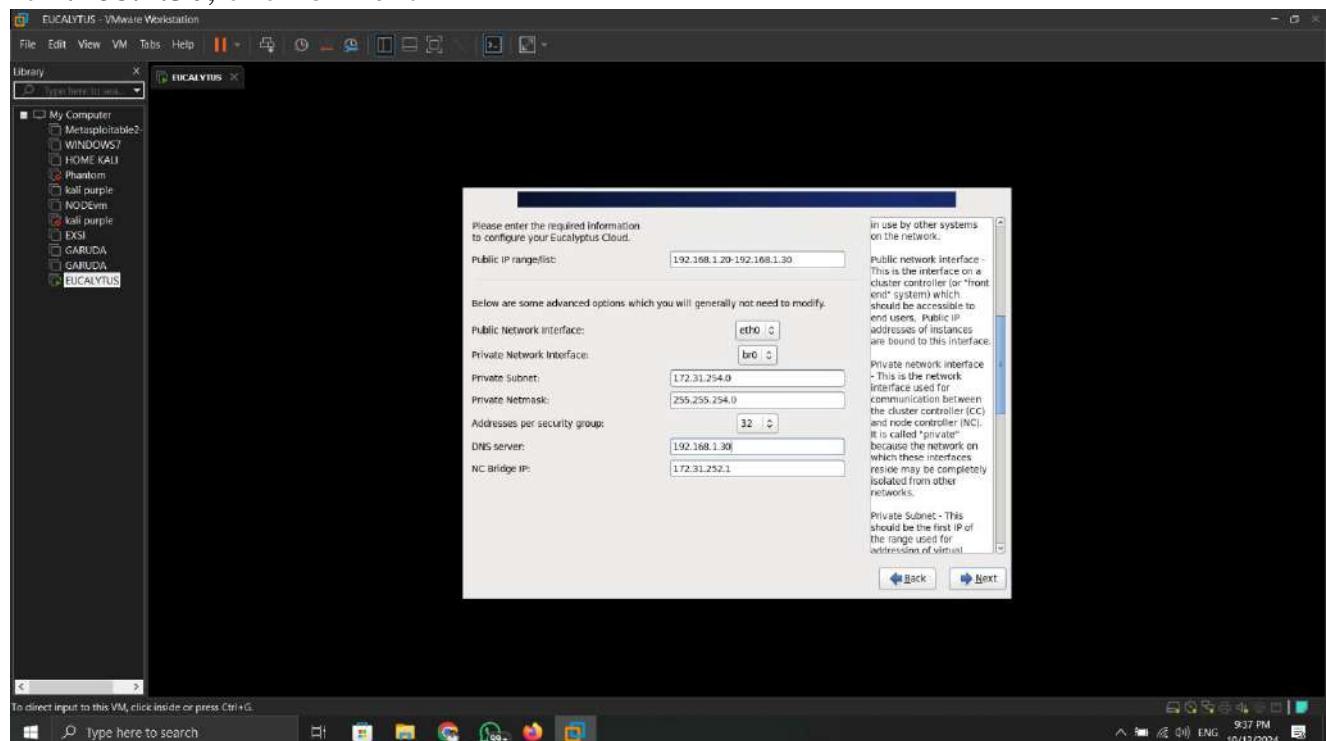


Step15: Select Asia, Kolkata and then next

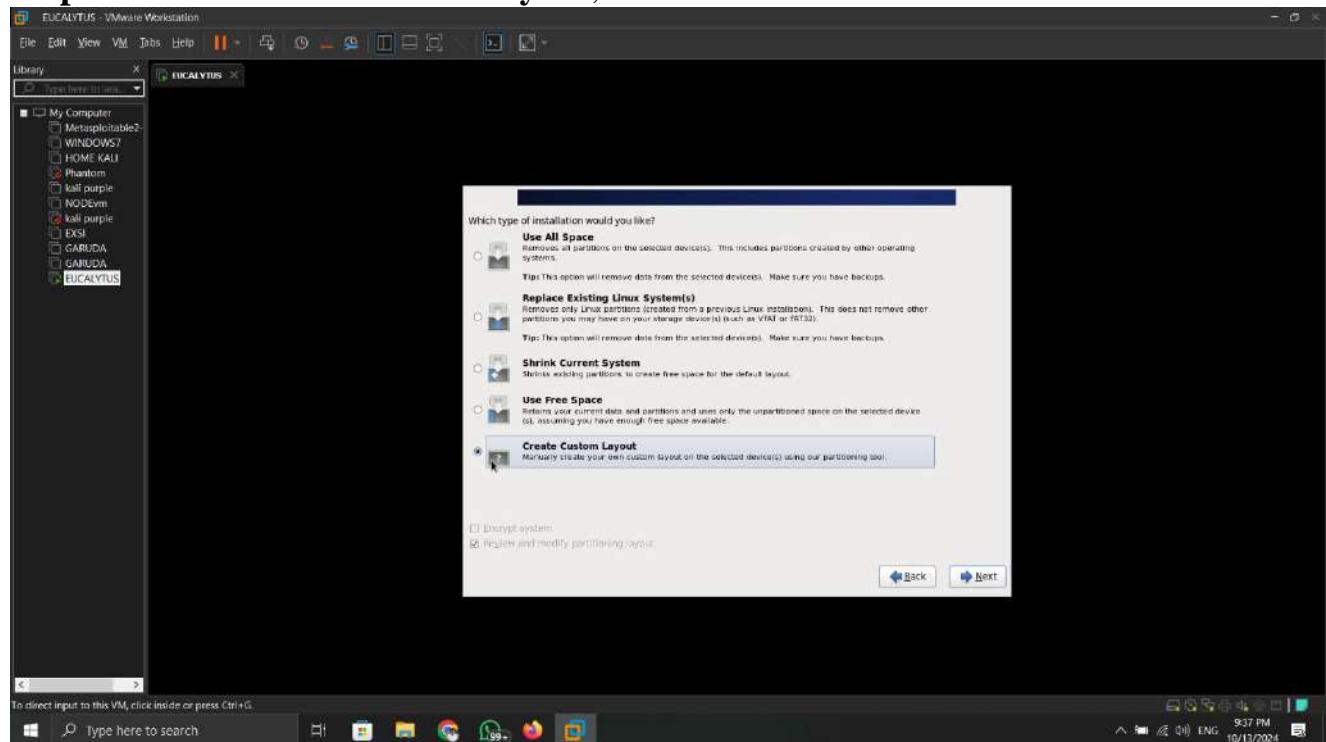


Step16: Create password and next

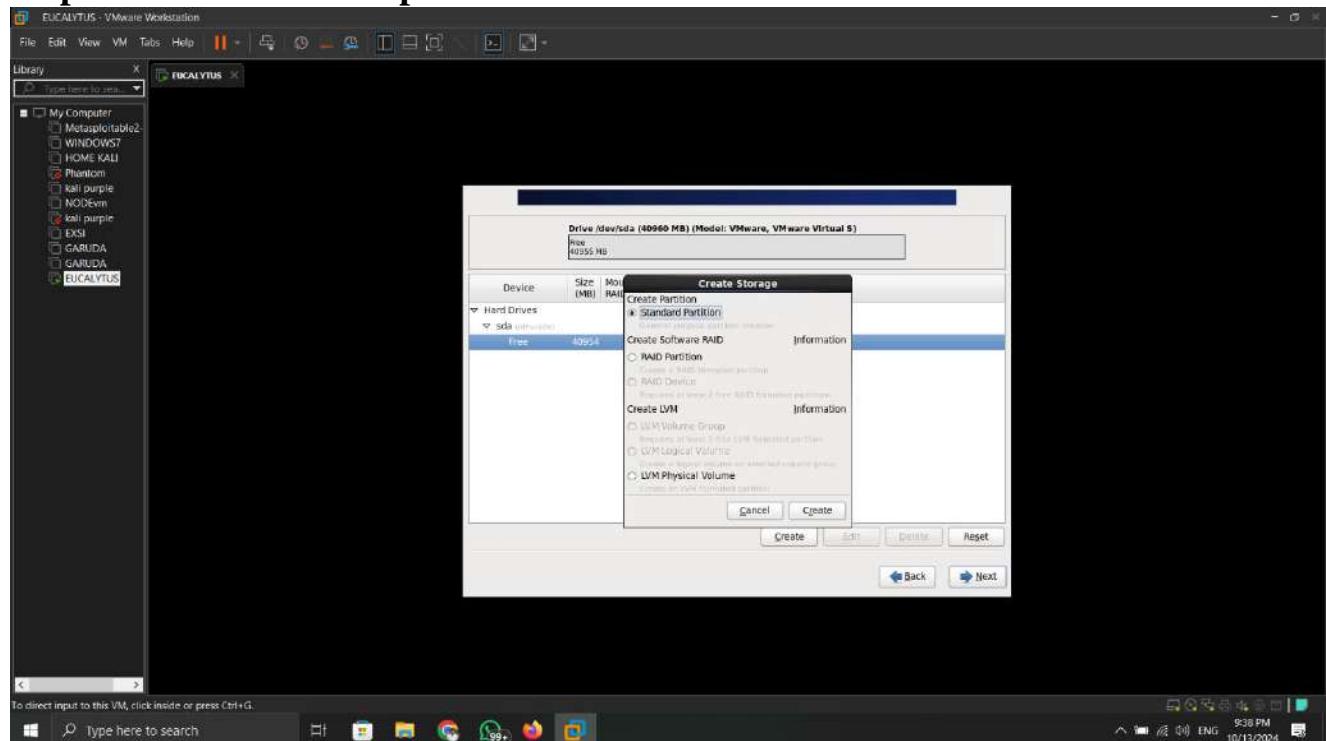
Step17: Place *public IP range 192.168.1.20-192.168.1.30* and *DNS server as 192.168.1.30*, click on next



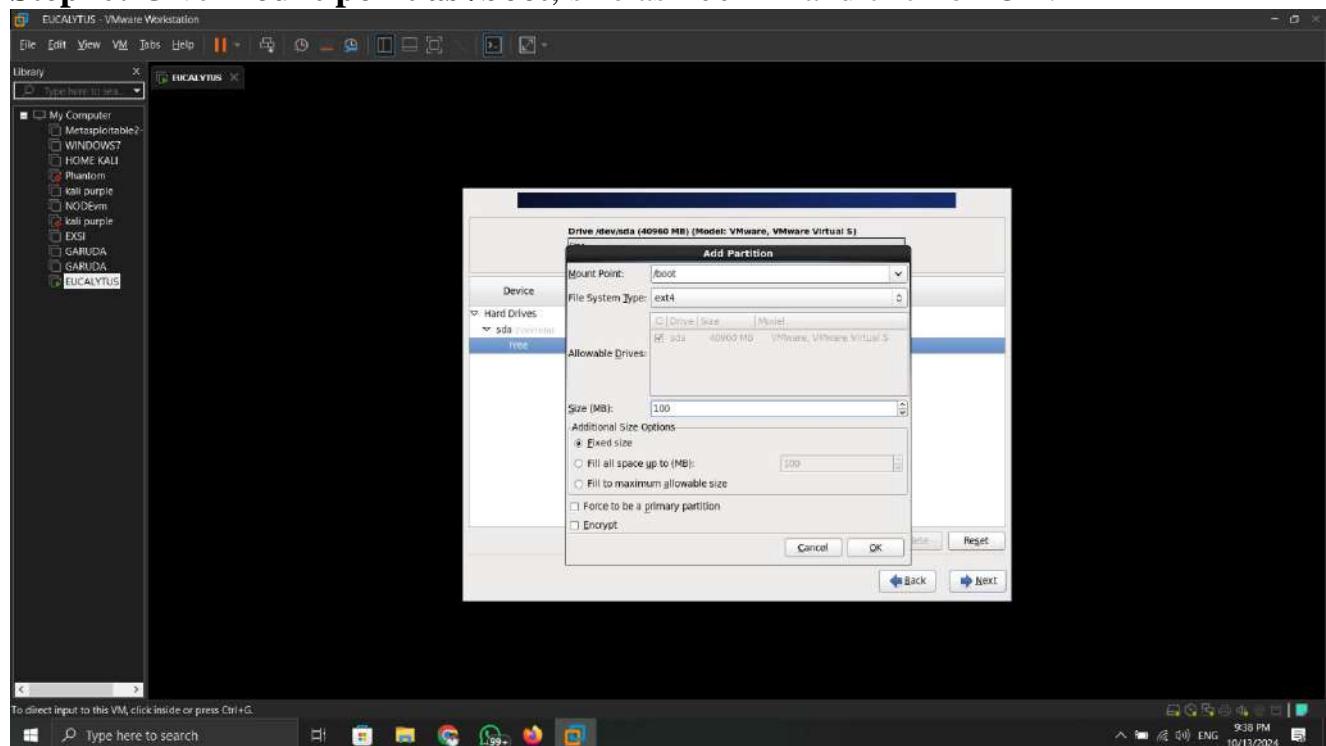
Step18: Select Create Custom layout, click on Next.



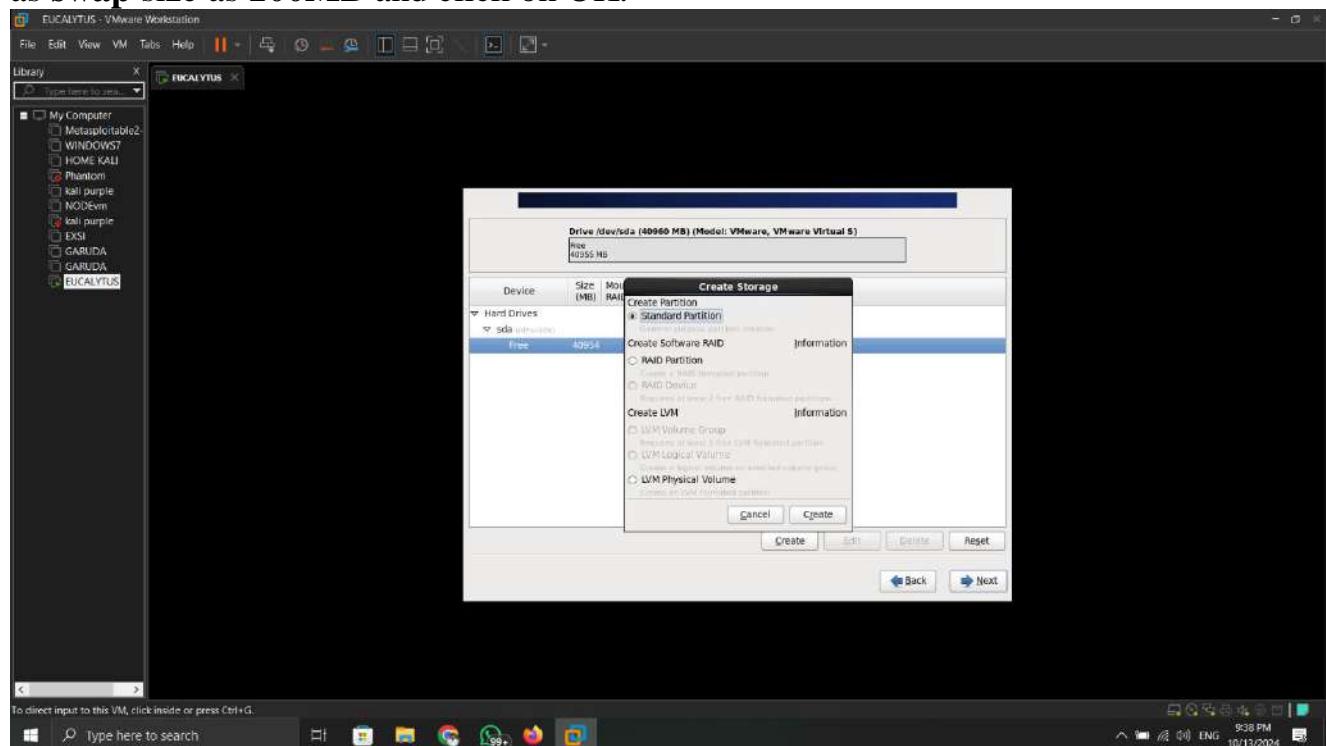
Step19: Select Standard partition and click on Create

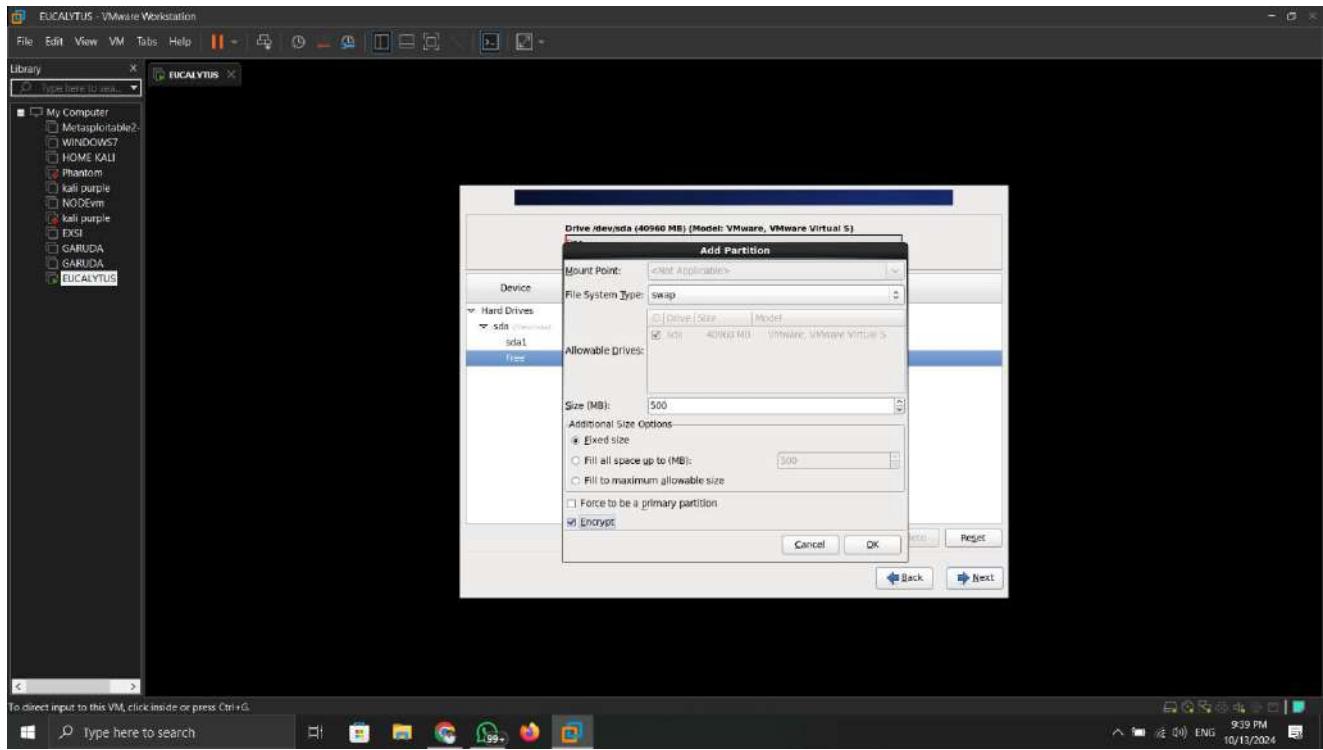


Step20: Give mount point as /boot, size as 100MB and click on OK.

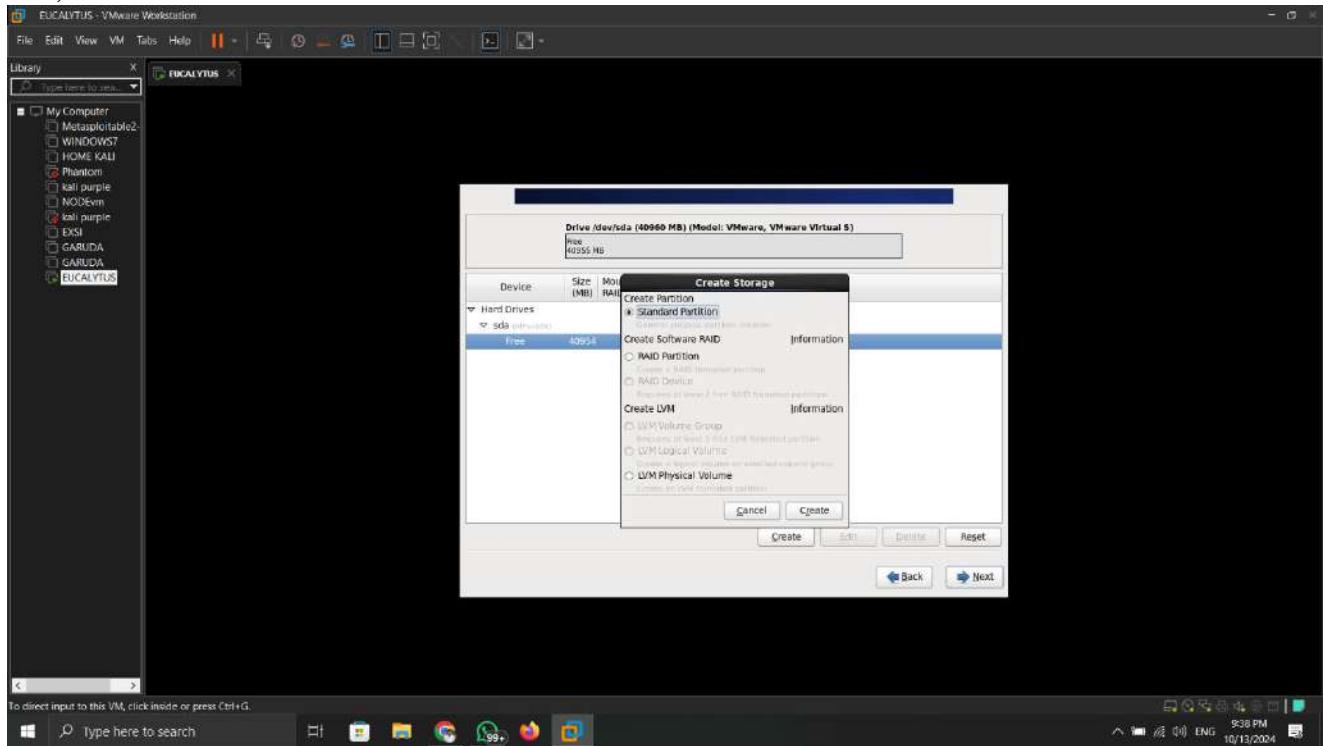


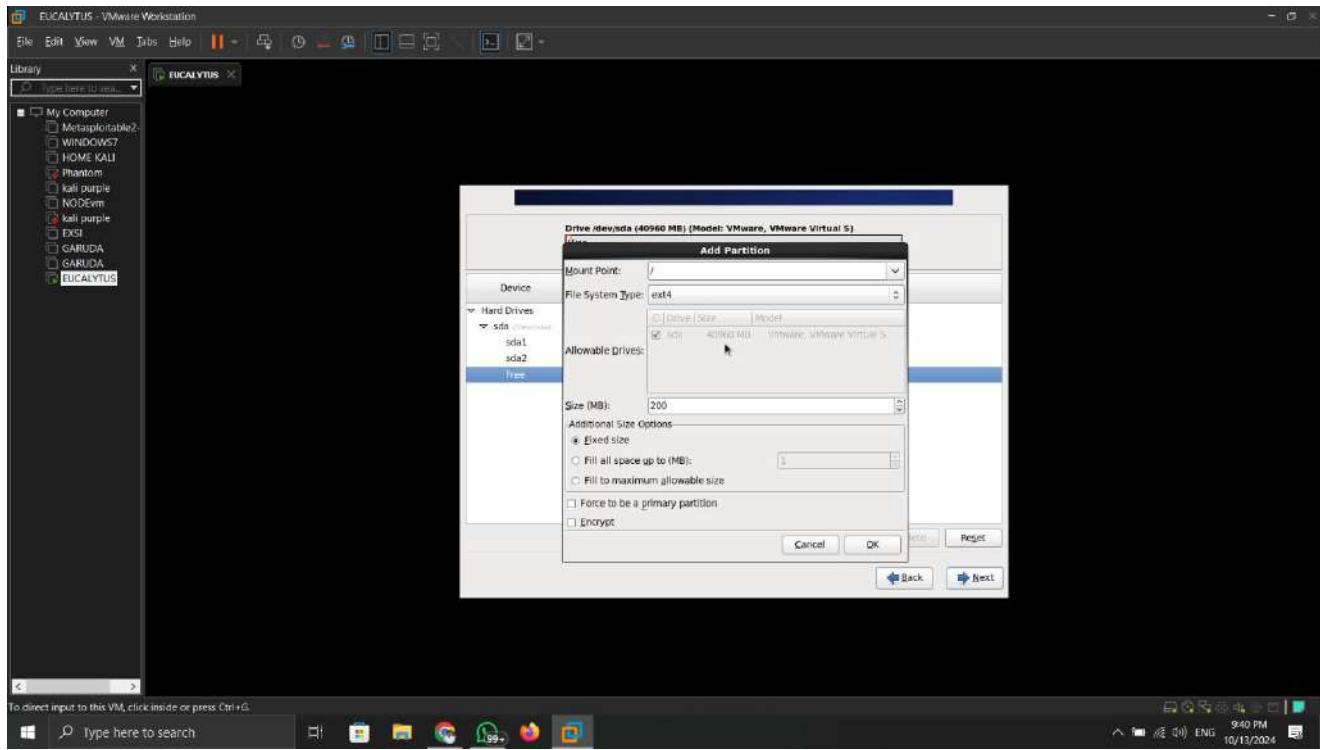
Step21: Again, Select Standard partition and click on Create & Select File System Type as swap size as 200MB and click on OK.





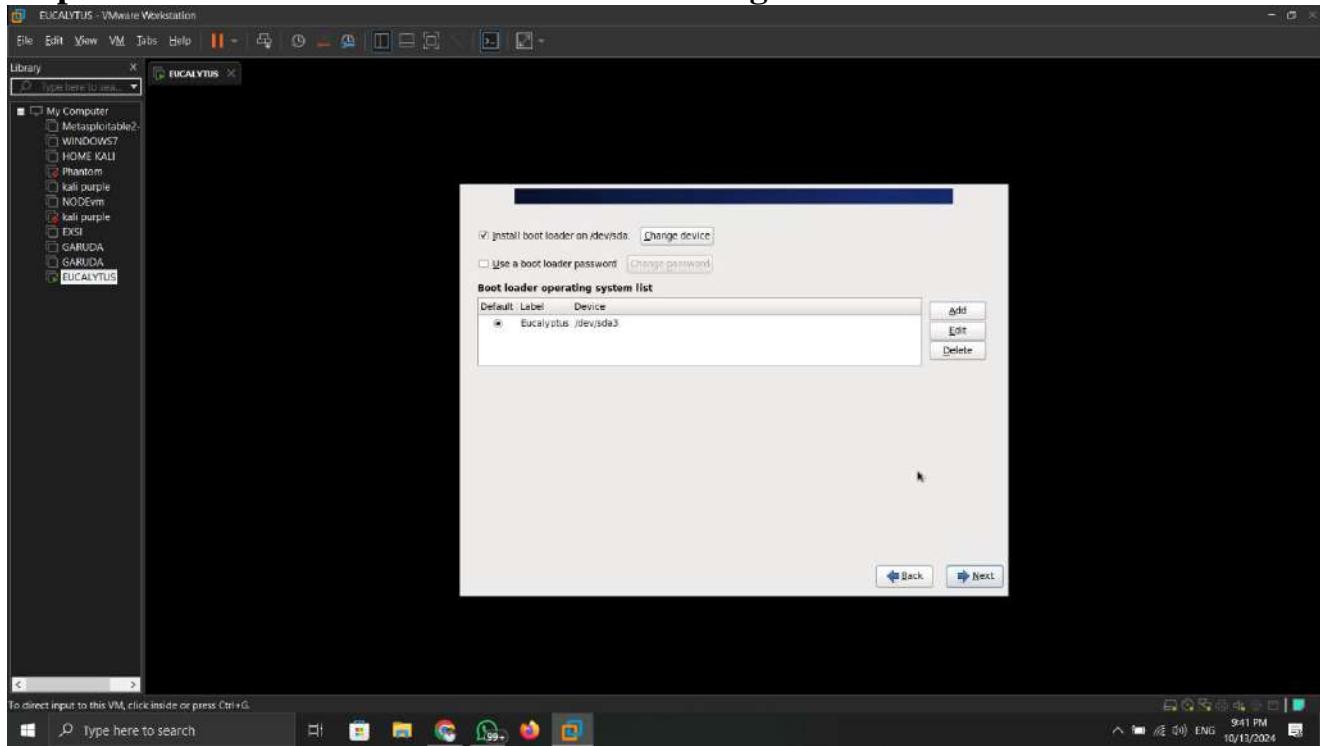
Step22: Again, Select **Standard partition** and click on **Create** & Give **mount point as “/”**, size as **200MB** and Select **Fill to maximum allowable size** click on **OK**.



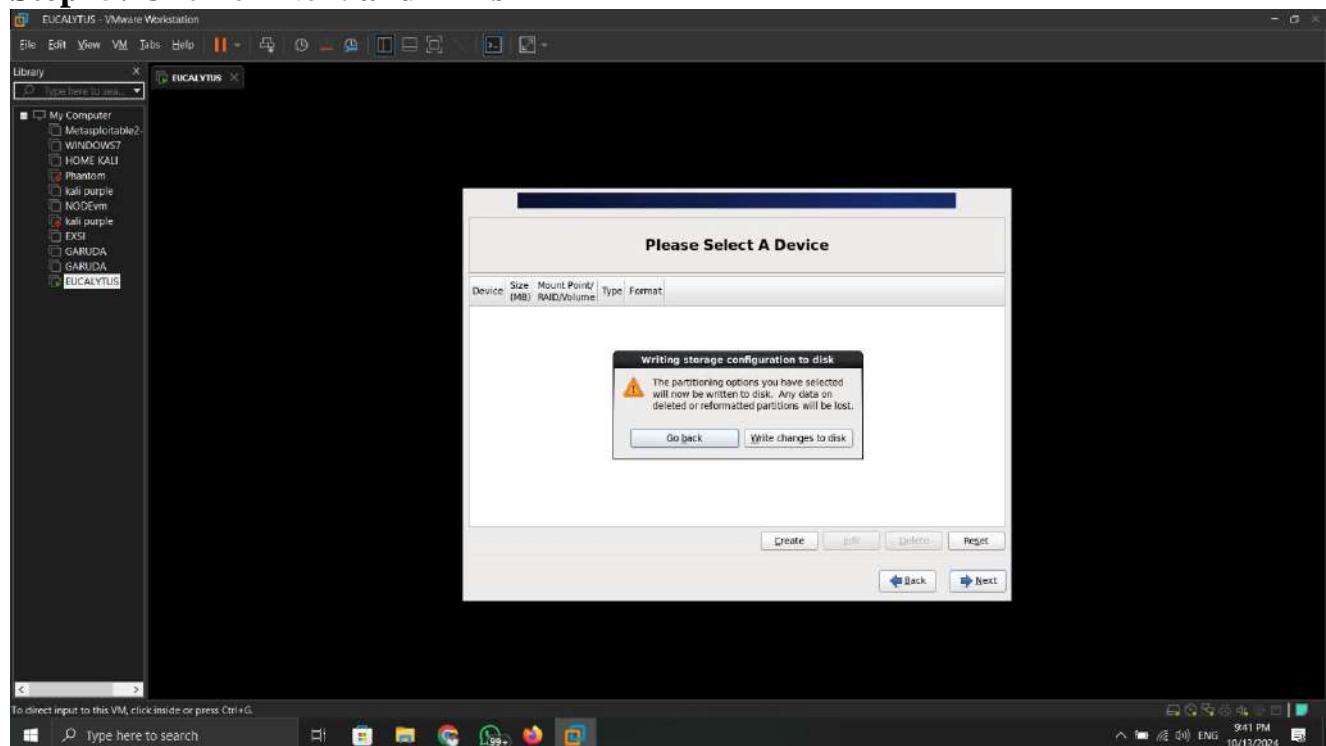


Step23: Click on Next

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

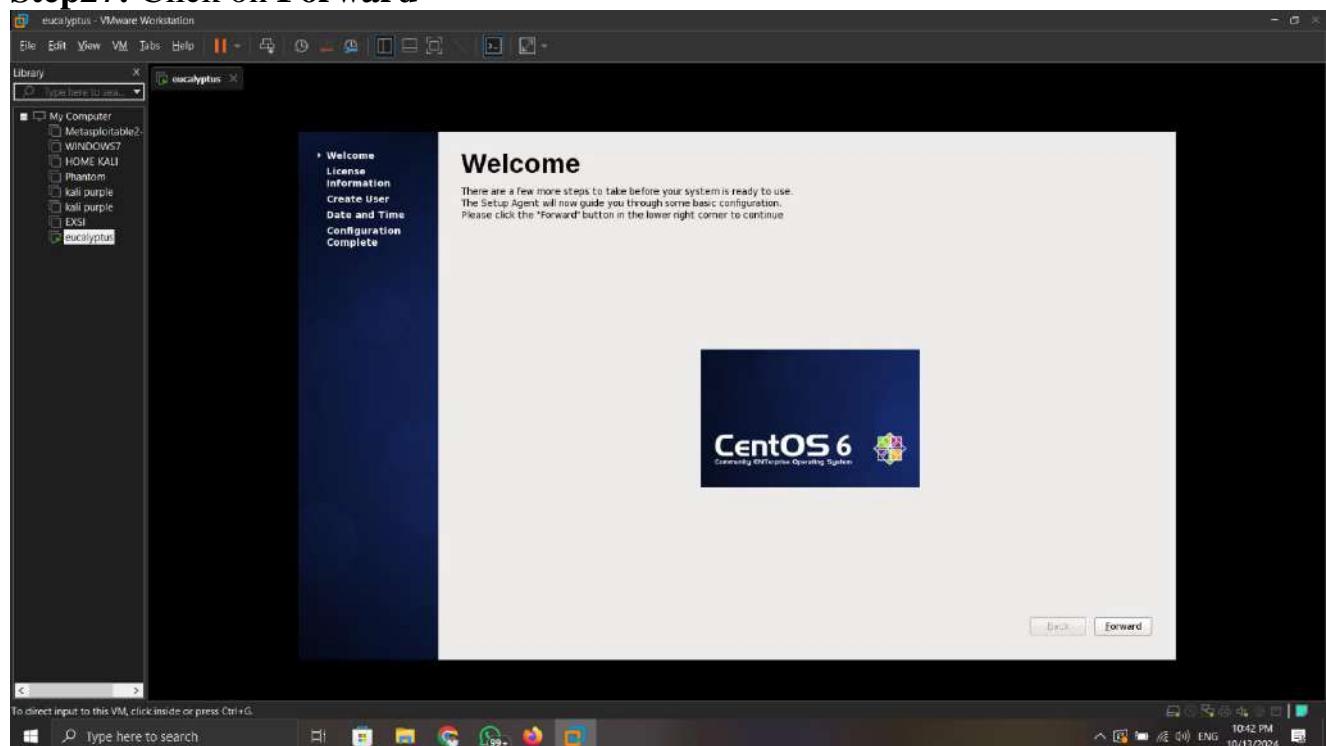


Step25: Click on Next and Finish

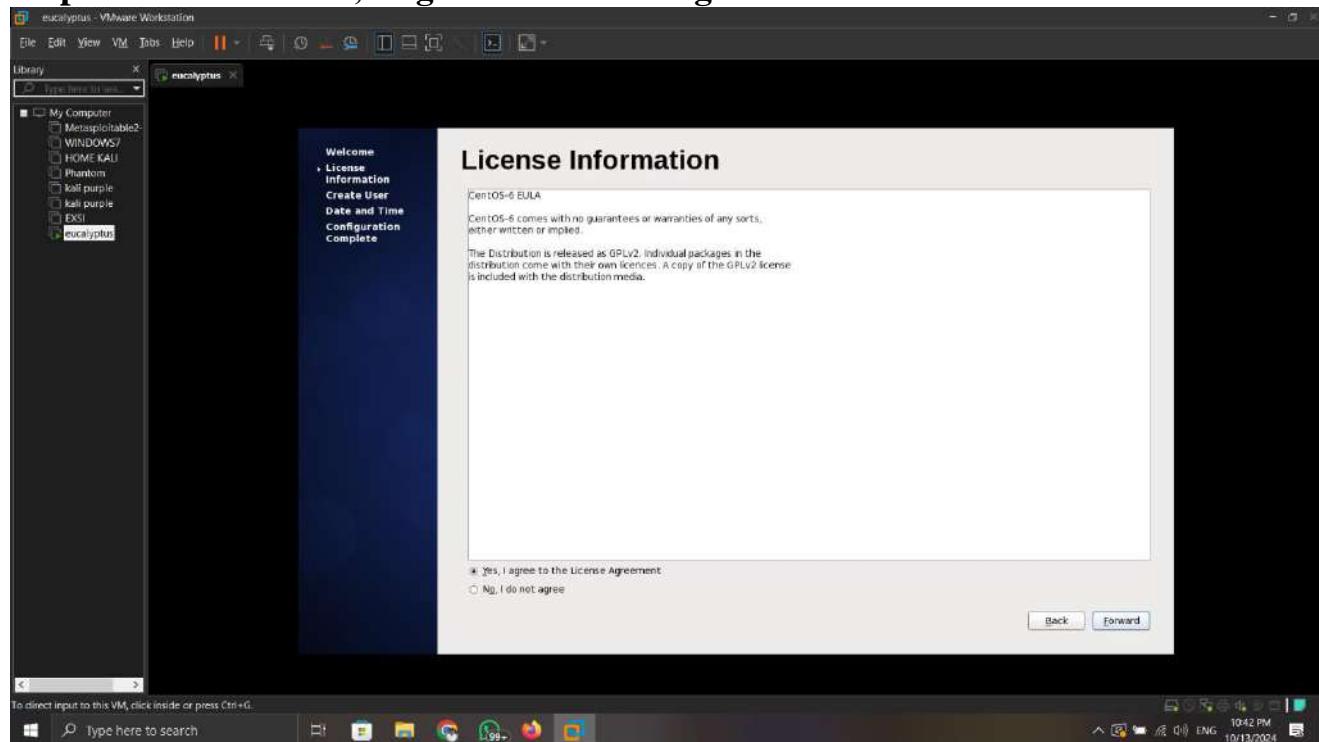


Step26: Click on Reboot

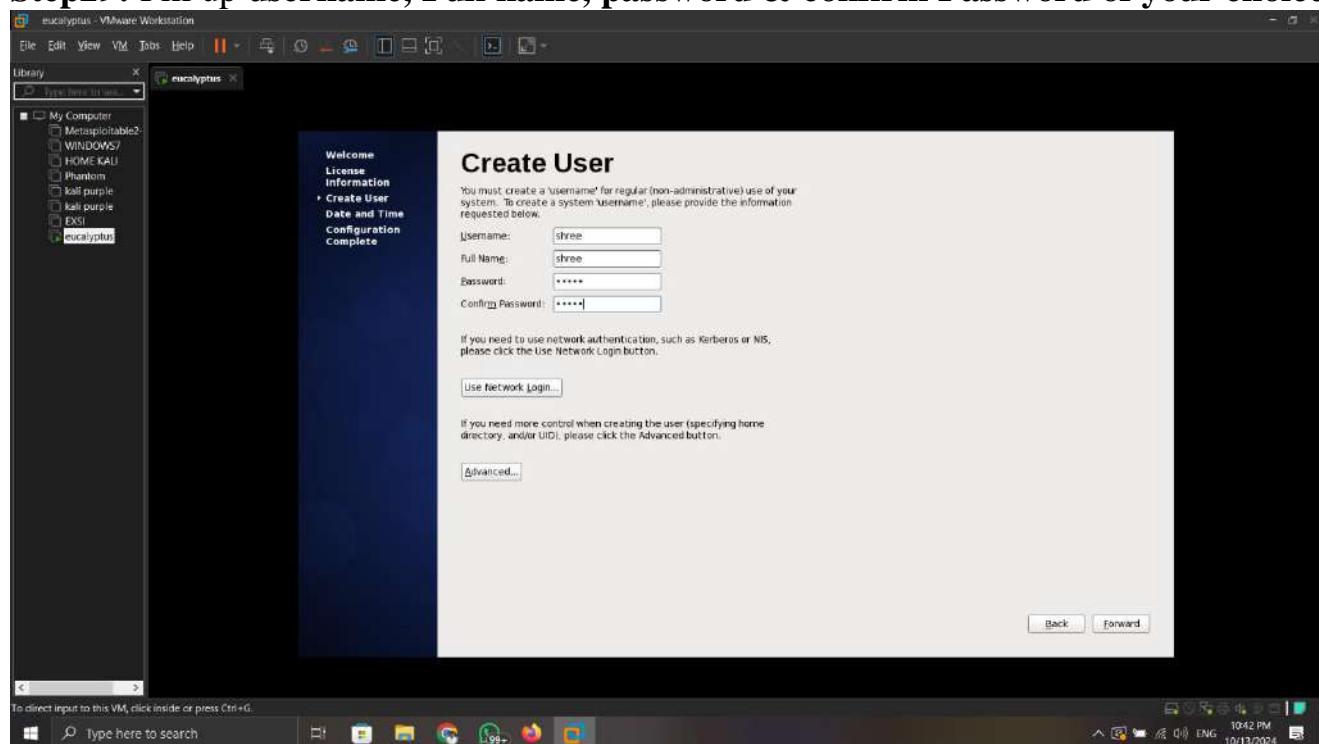
Step27: Click on Forward



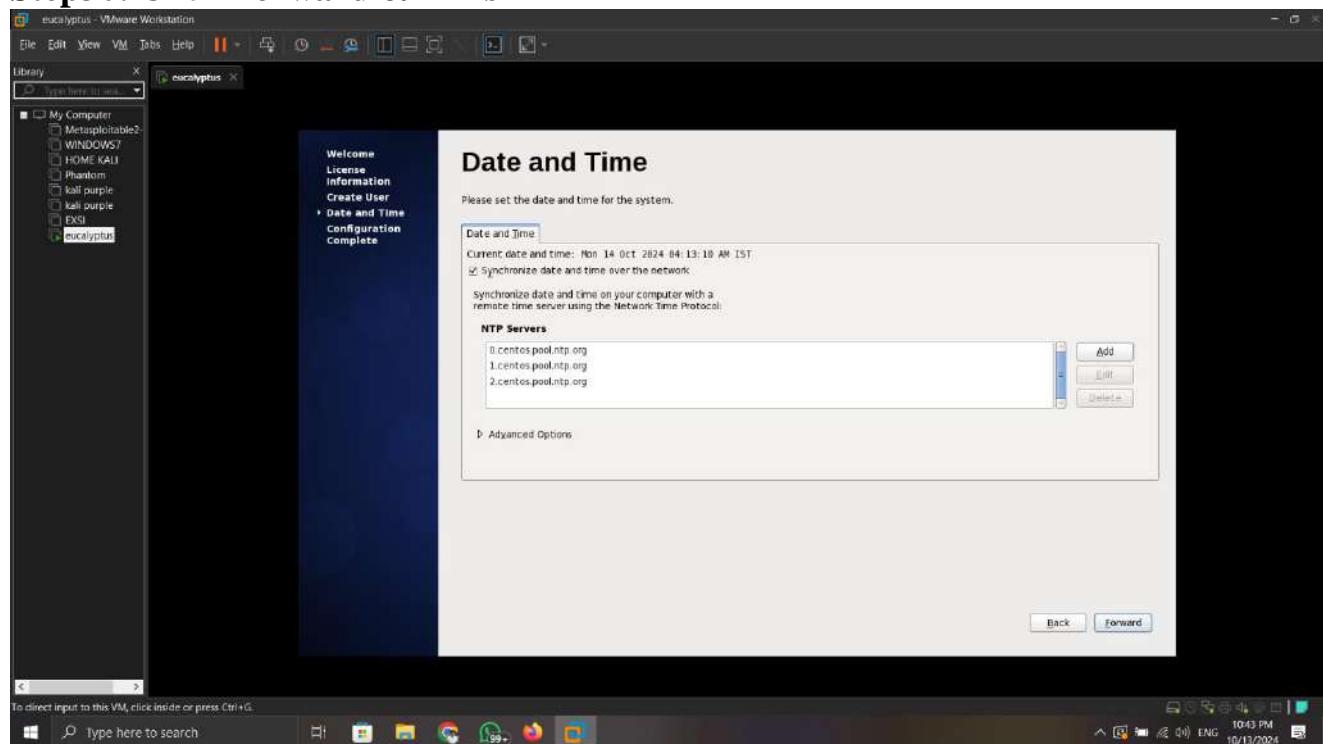
Step28: Click on “Yes, I agree the license Agreement and Forward



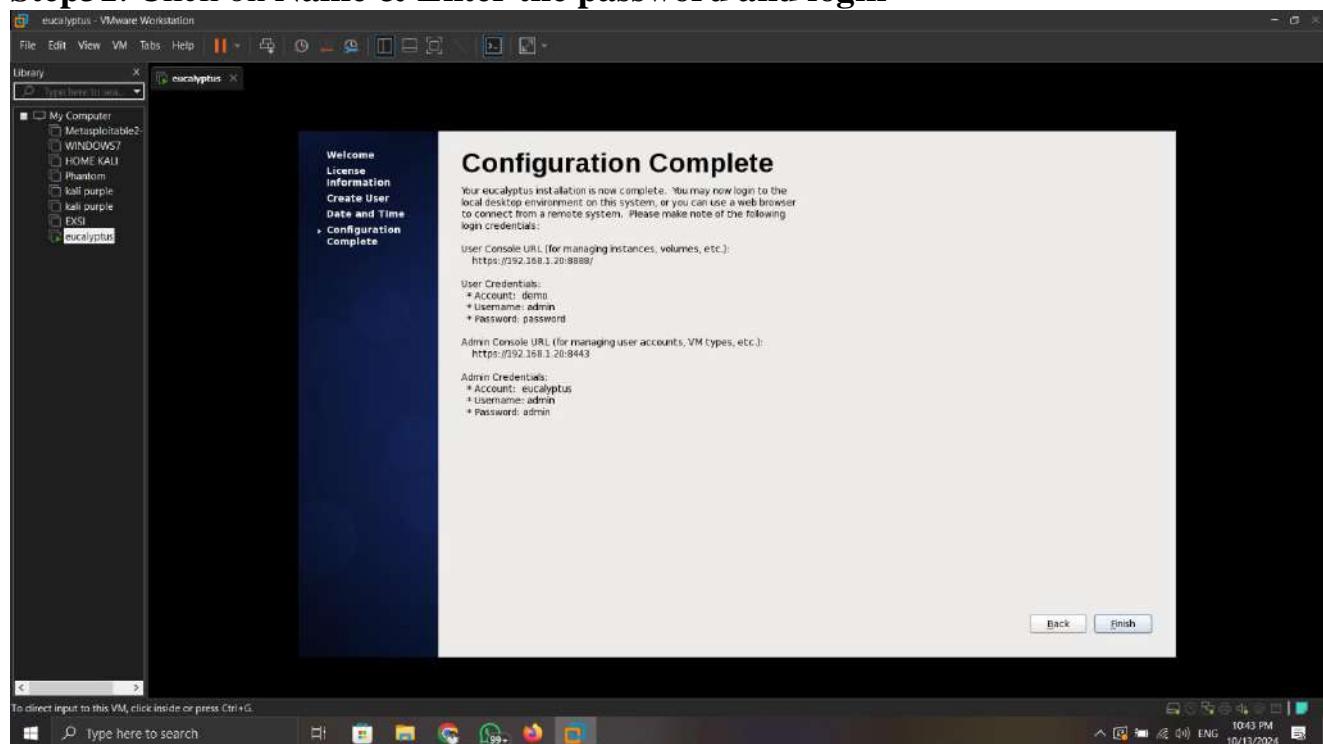
Step29: Fill up username, Full name, password & confirm Password of your choice



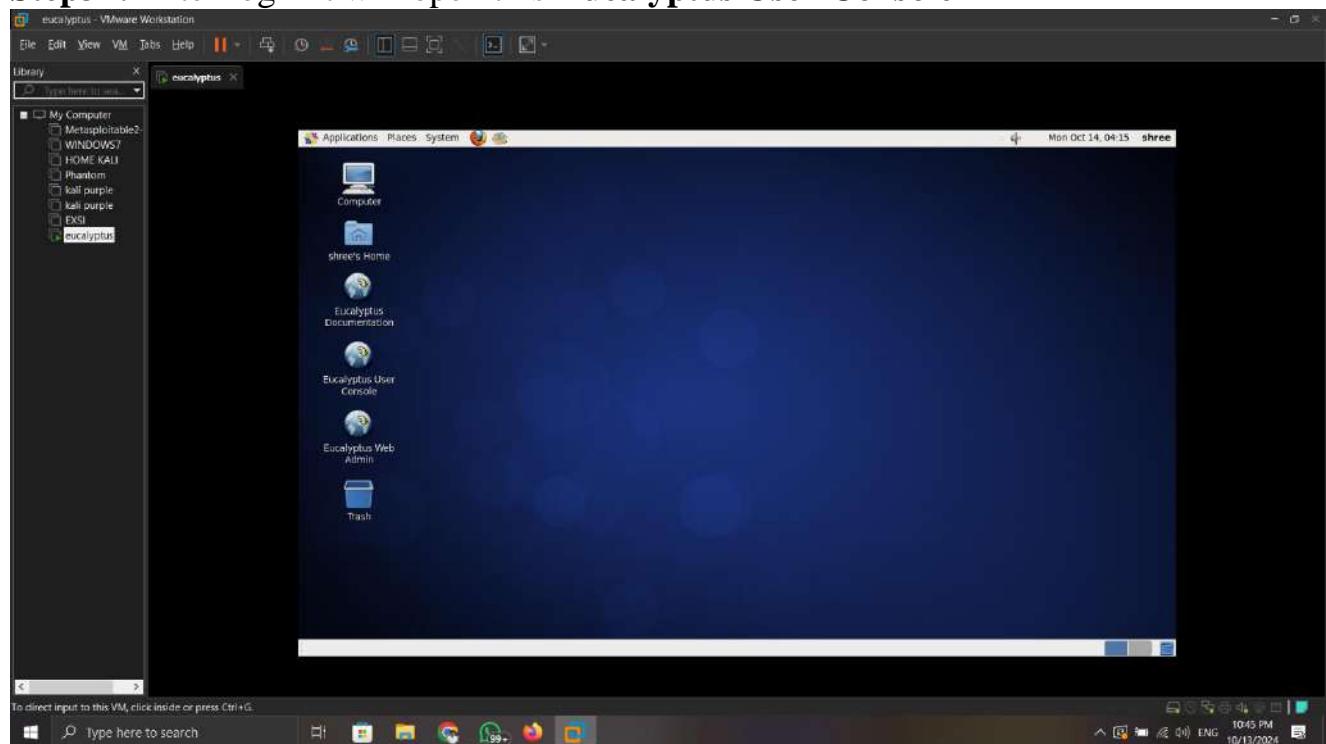
Step30: Click Forward & Finish



Step31: Click on Name & Enter the password and login

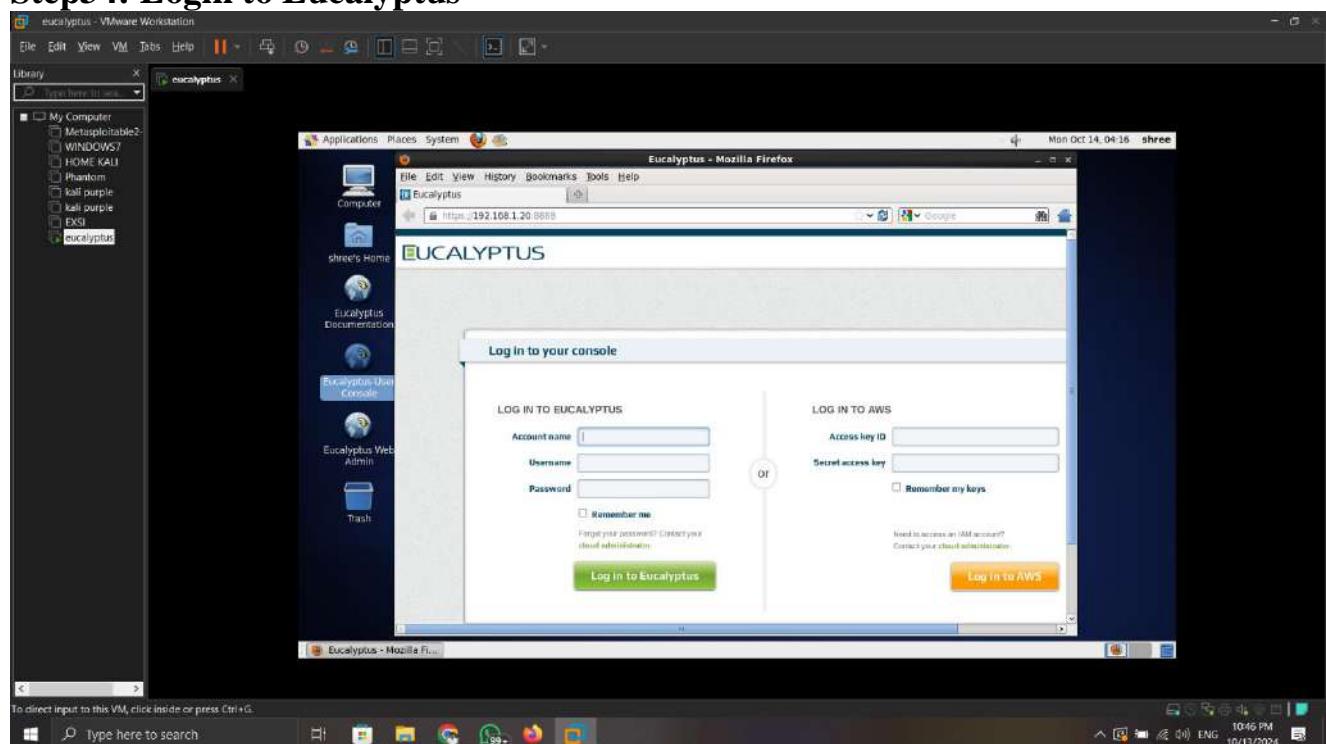


Step32: After login it will open this Eucalyptus User Console

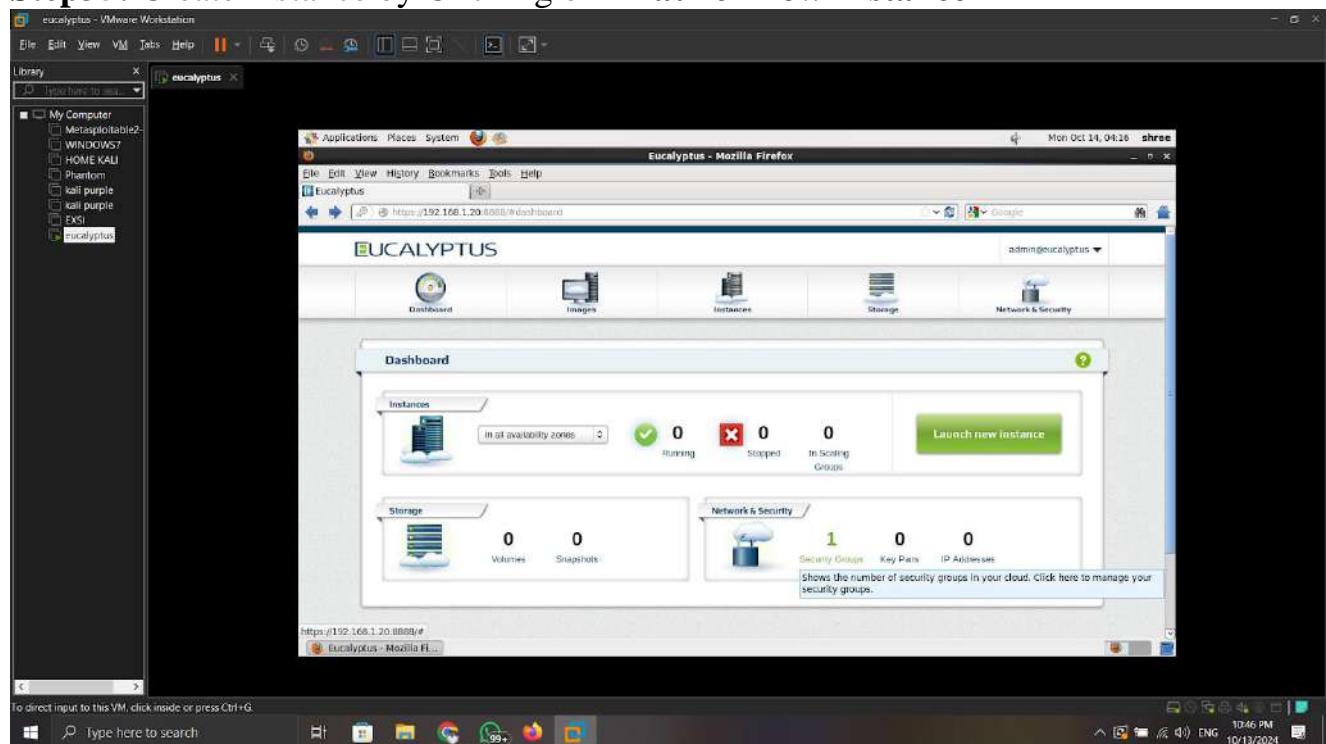


Step33: Now First Click on Understand the risk and then add exception

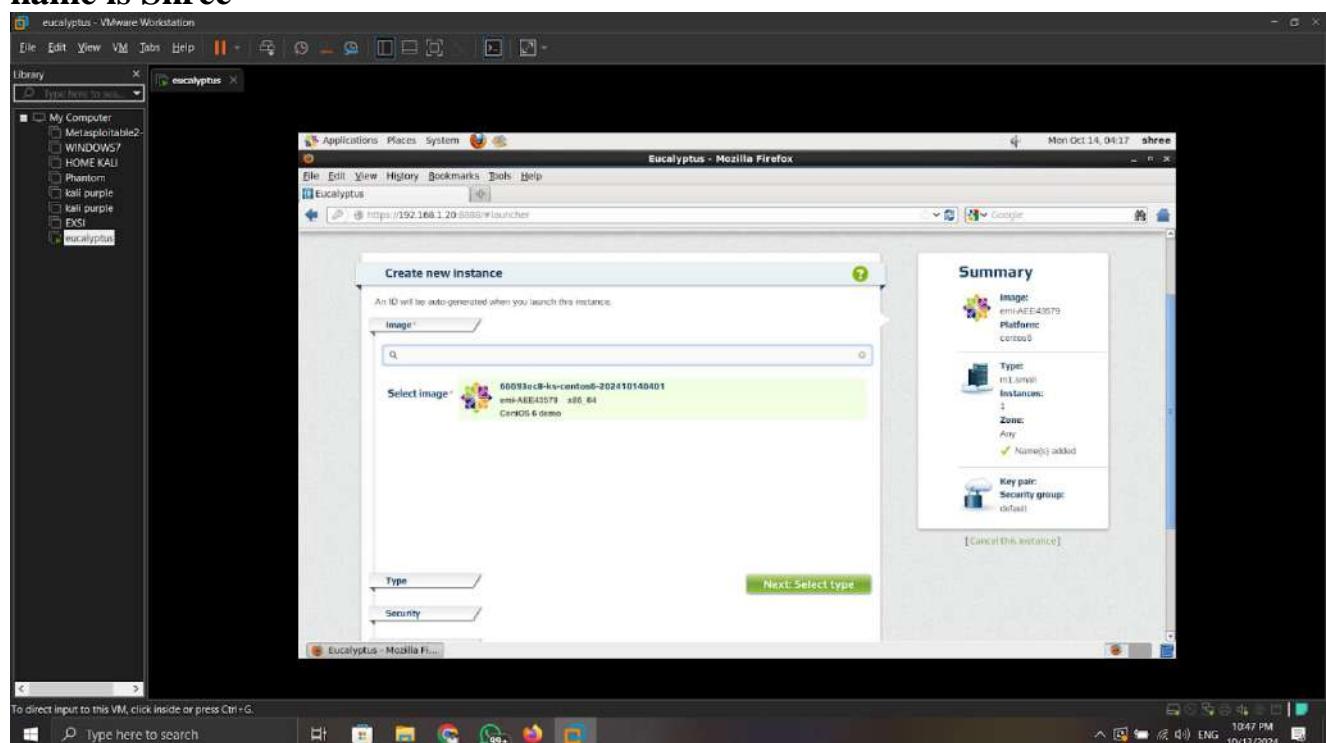
Step34: Login to Eucalyptus



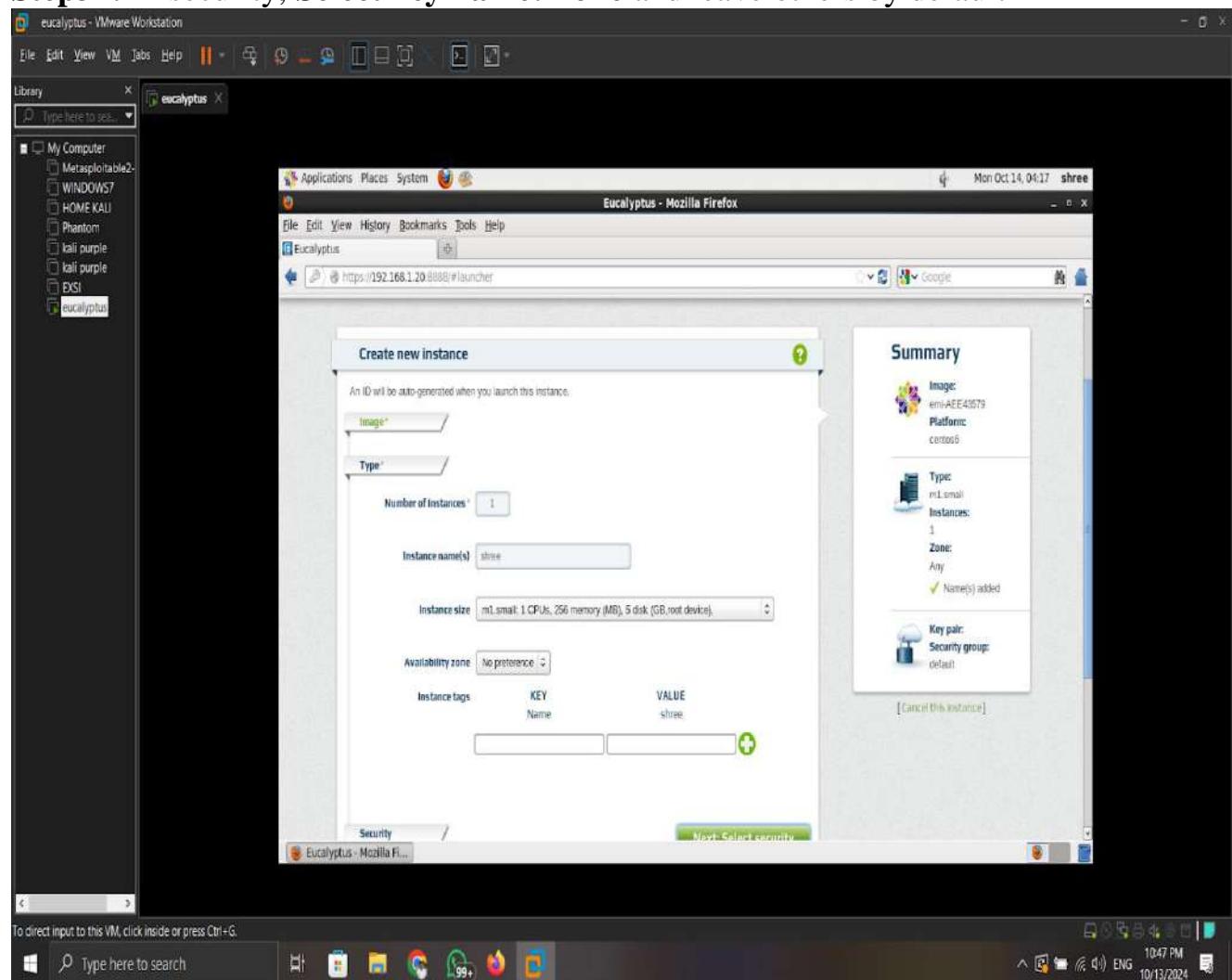
Step35: Create instance by Clicking on “Launch new Instance”



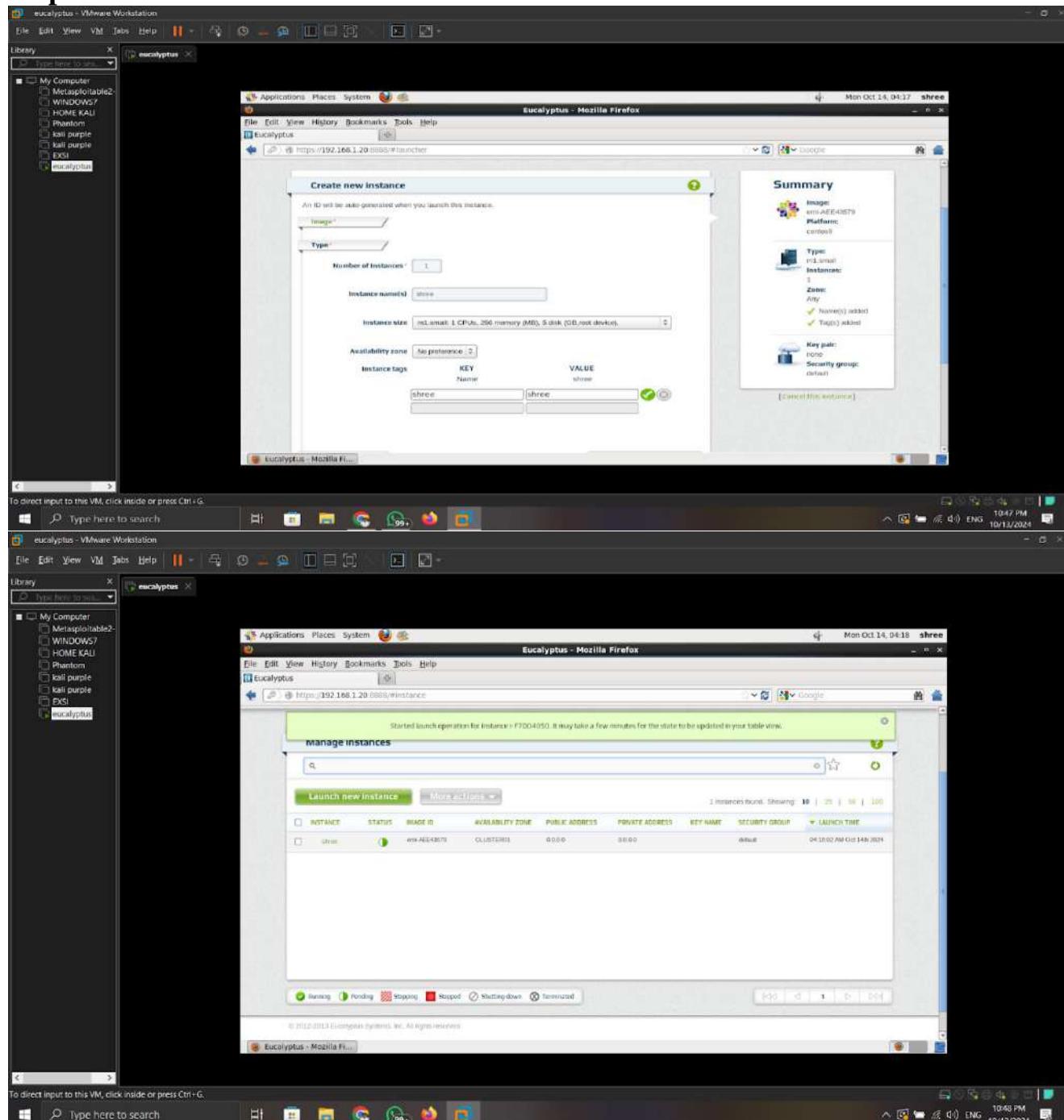
Step36: Click on Next: Select Type and give the instance name as Eucalyptus and key name is Shree



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:

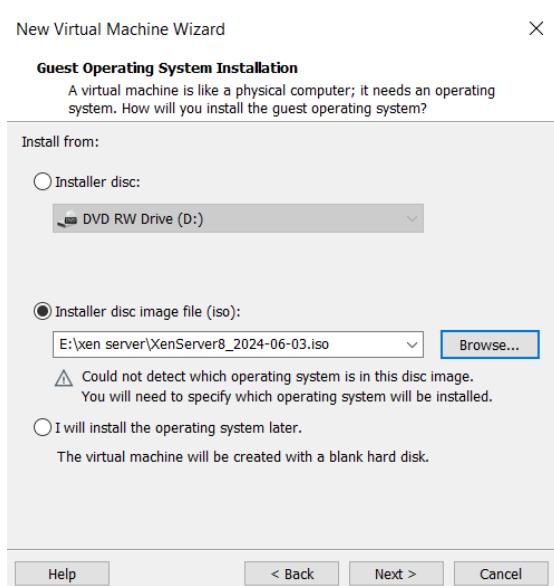
Step1:- Create a new Virtual Machine in VMware Workstation

File → New Virtual Machine

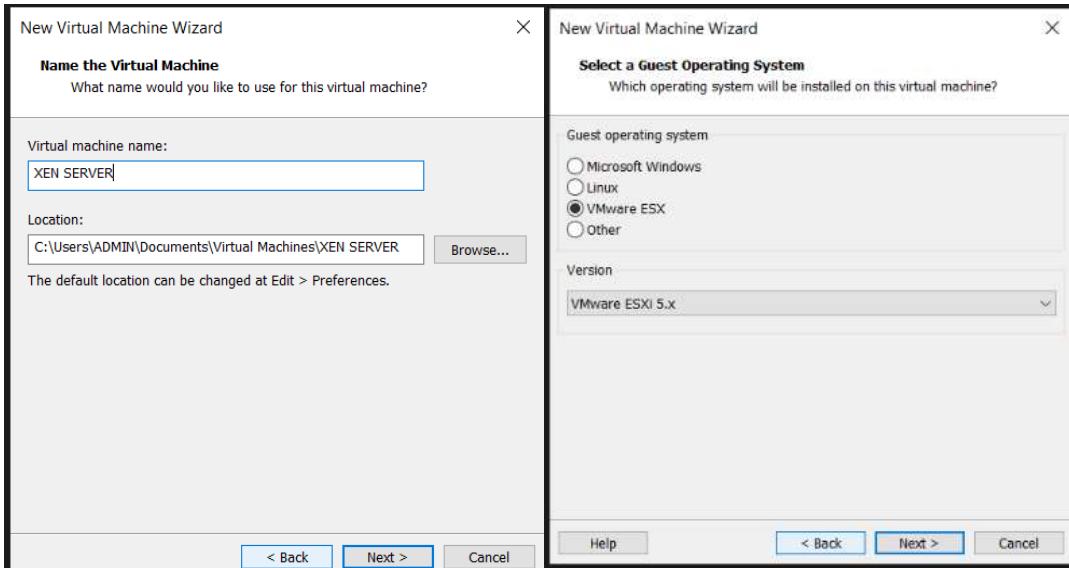
Step2: Select Typical (recommended) and click on “Next” button.



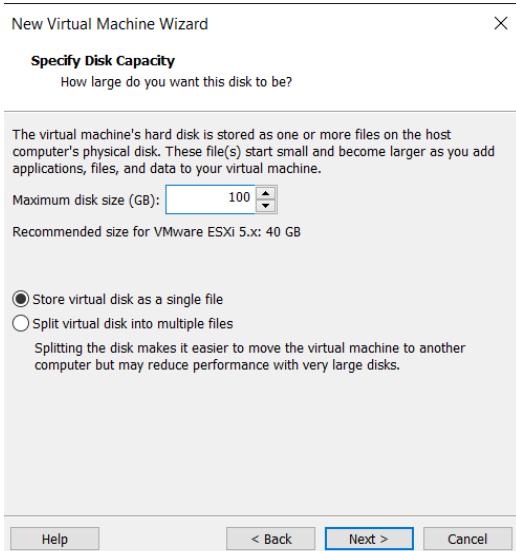
Step3: Select the iso file click on the Browse & select “XenServer-8.2.0- install-cd” file. Then click on the “Next” button.



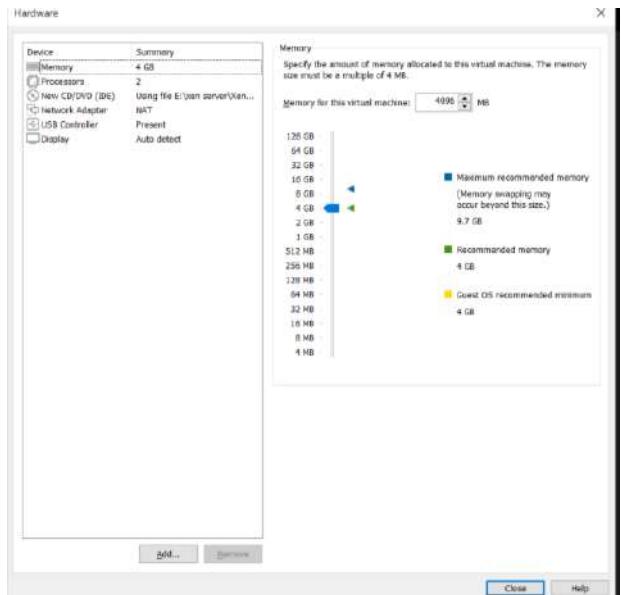
Step4: Select Guest OS as “VMware ESXi” and Version as “VMware ESXi 5”. Give a name to the Virtual Machine as Xen Server



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

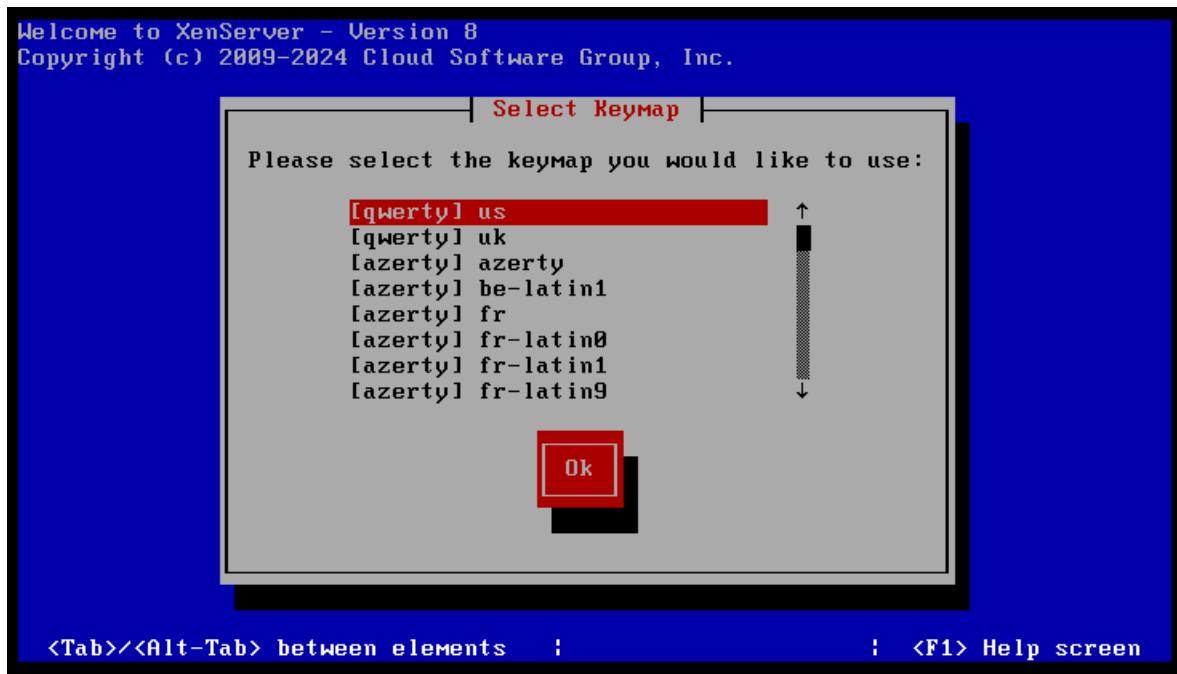


Step6: At the Hardware window select Memory size as 2GB, Close and Click on “Finish”



Step7: Power ON the Xen Server

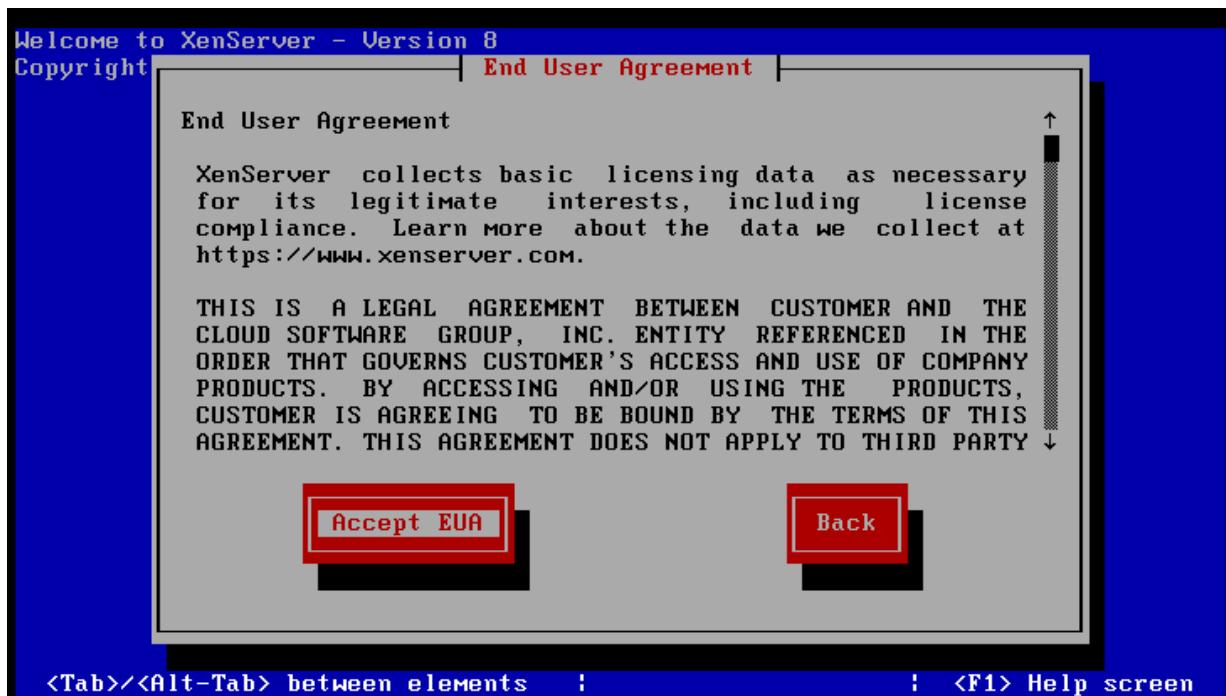
Step8: Select Keypad as [qwerty] us and press Enter.



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

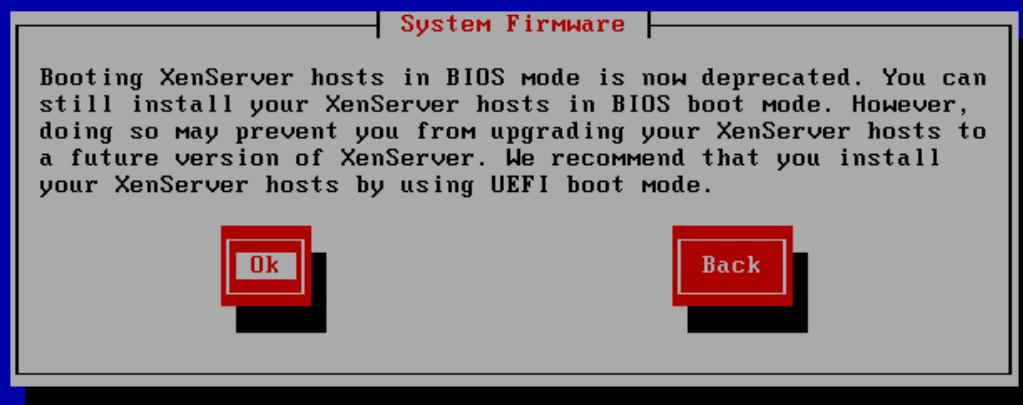


Step10: In End User Agreement Select Accept EUA



Step11: In system Firmware Select OK

Welcome to XenServer - Version 8
Copyright (c) 2009-2024 Cloud Software Group, Inc.



<Tab>/<Alt-Tab> between elements : <F1> Help screen

Step12:Select Primary Disk and press OK

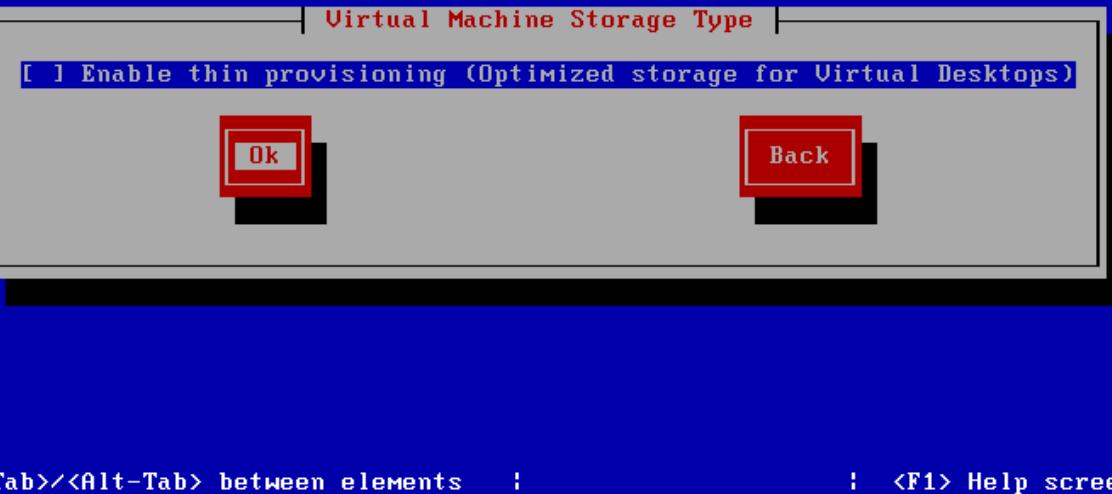
Welcome to XenServer - Version 8
Copyright (c) 2009-2024 Cloud Software Group, Inc.



<Tab>/<Alt-Tab> between elements : <F5> more info : <F1> Help screen

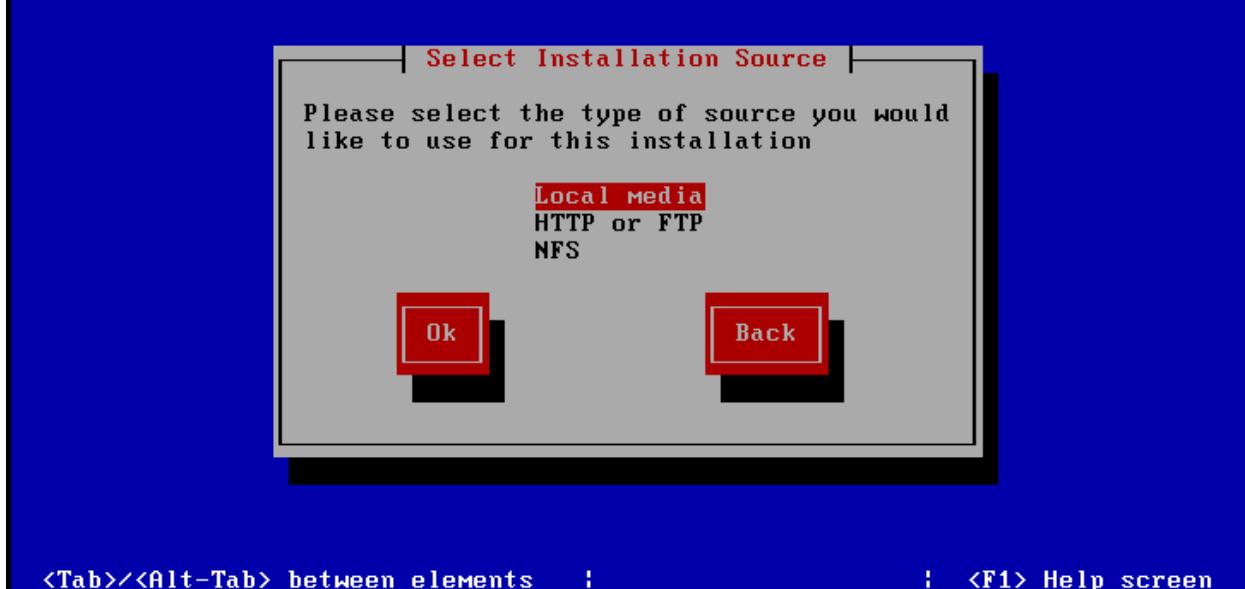
Step13: In Virtual Machine Storage Type Select and press OK

Welcome to XenServer - Version 8
Copyright (c) 2009-2024 Cloud Software Group, Inc.



Step14: Select Installation Source as Local Media

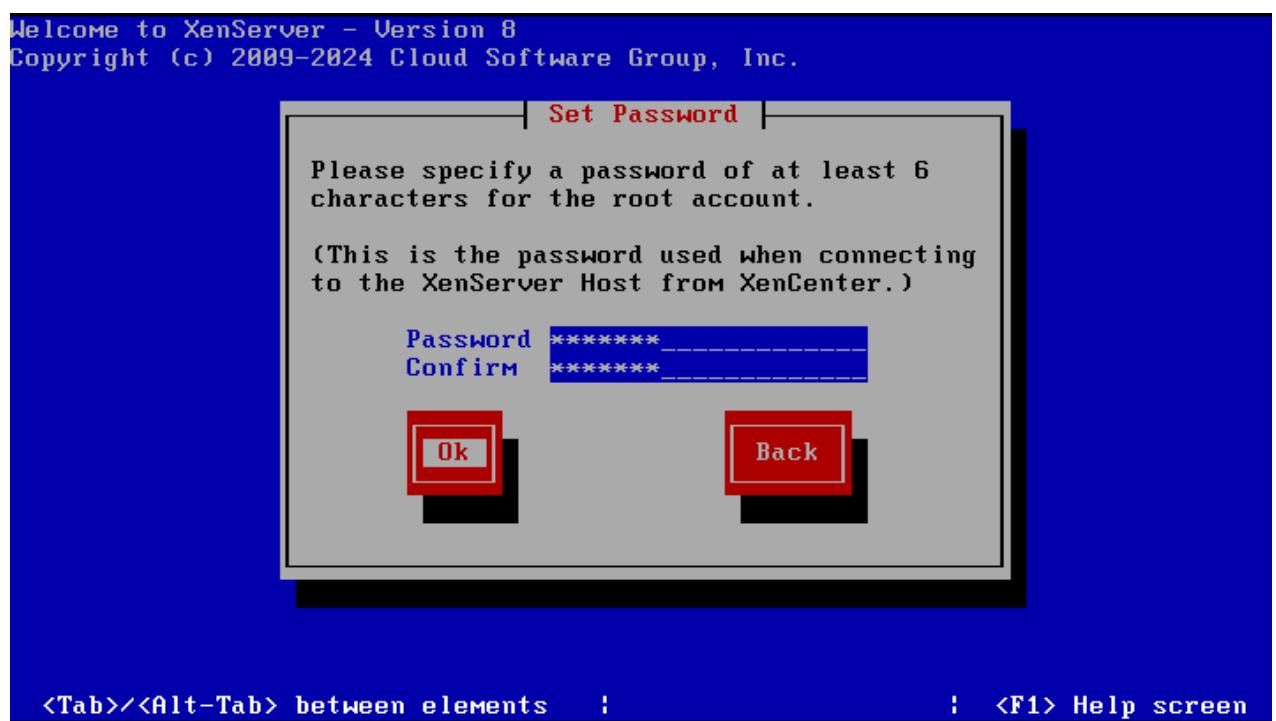
Welcome to XenServer - Version 8
Copyright (c) 2009-2024 Cloud Software Group, Inc.



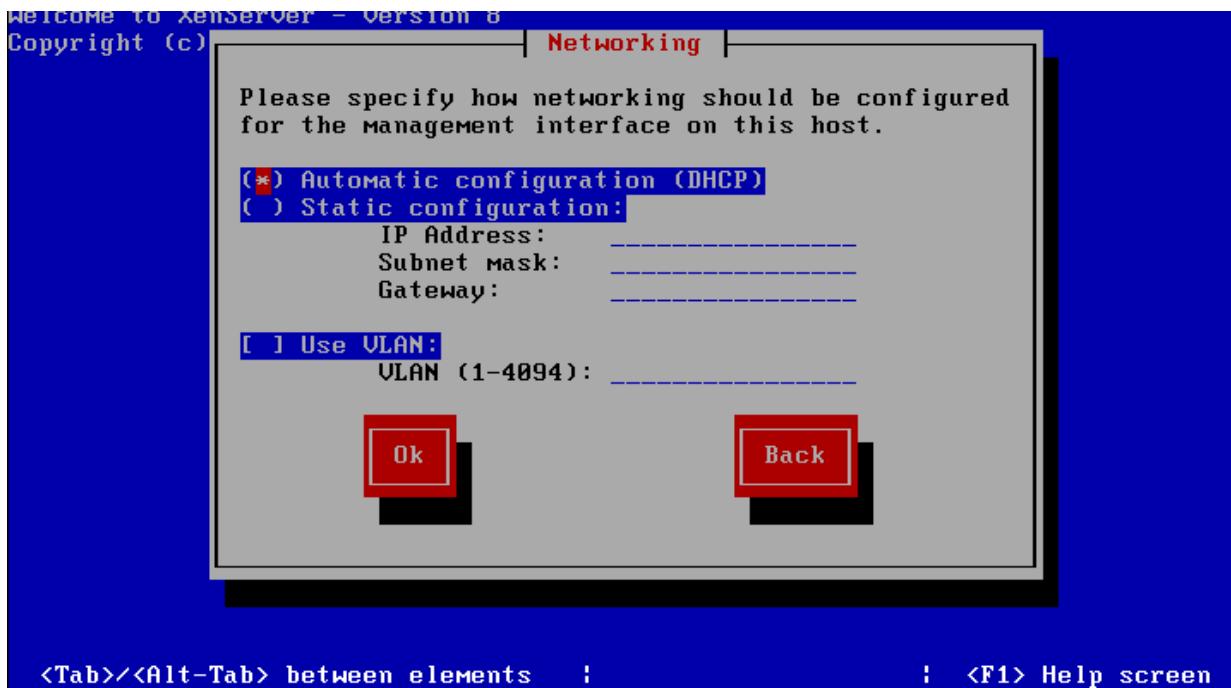
Step15: Choose skip verification and click on ok



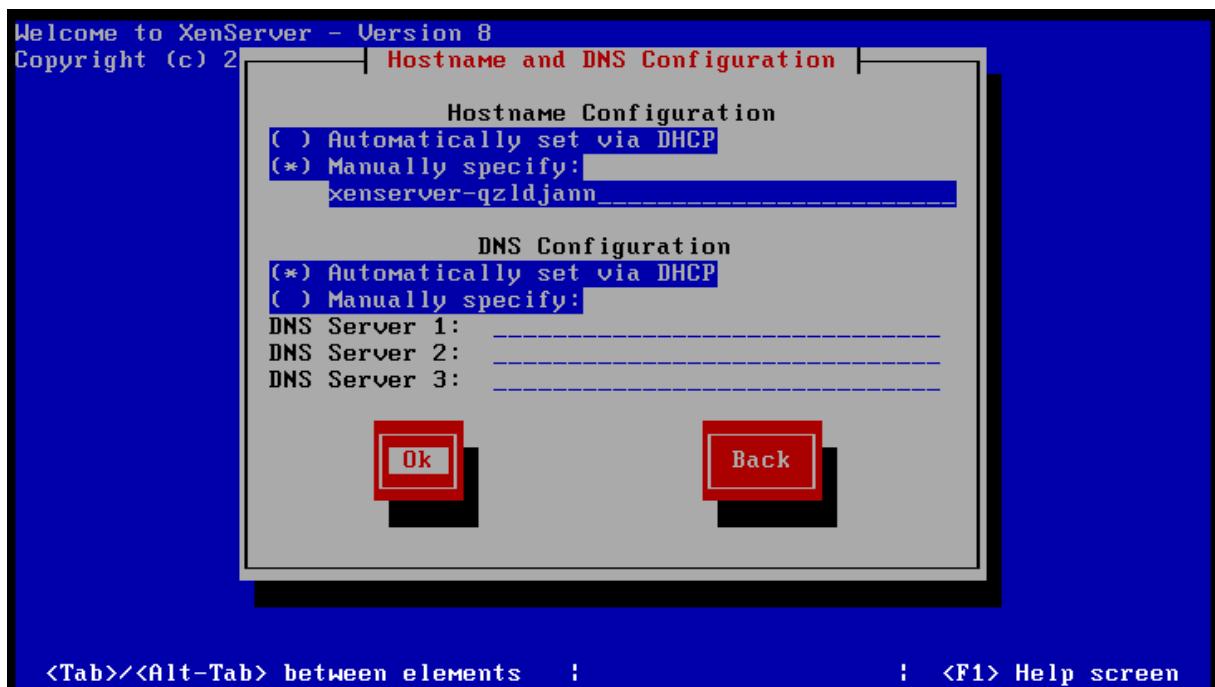
Step16: Set a 6 digit password and click OK



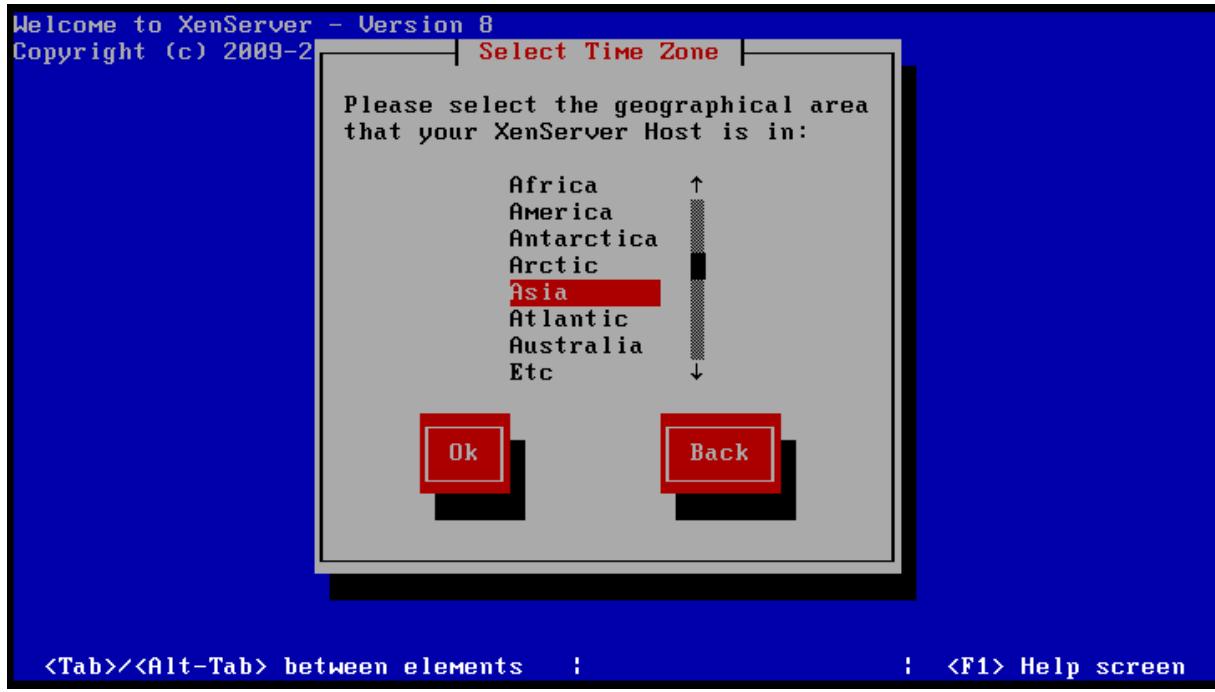
Step17: Keep the setting default and navigate to OK Button



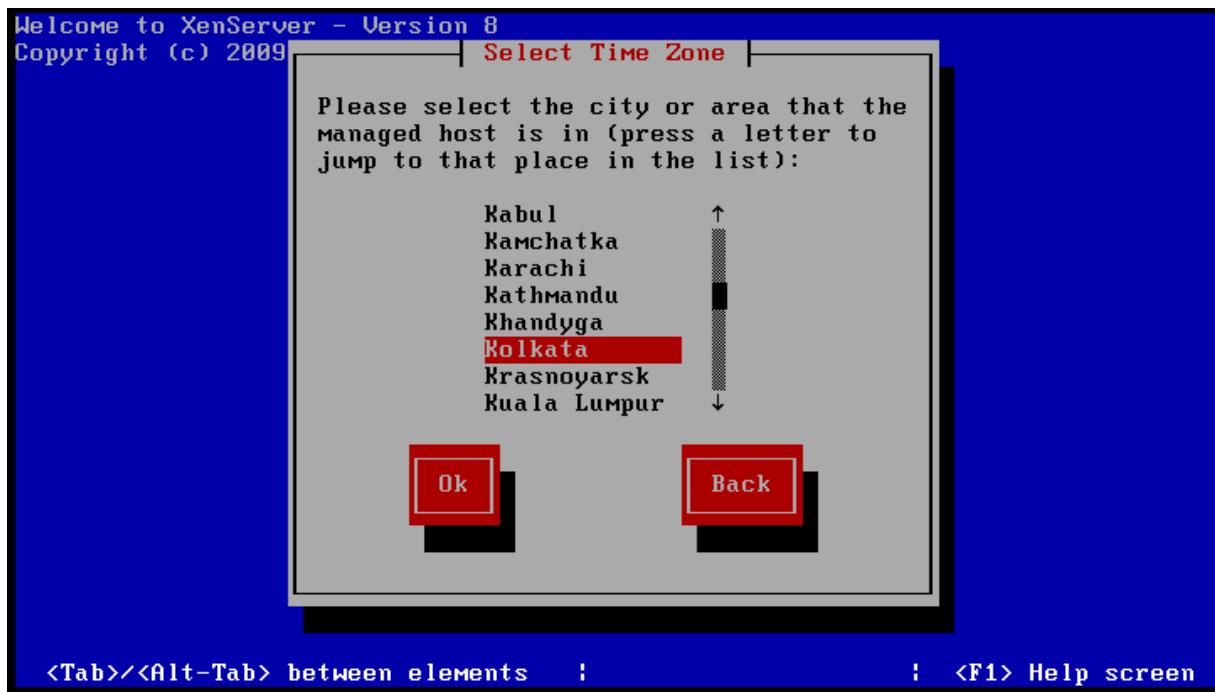
Step18: Keep the setting default and navigate to OK Button



Step19: In the dropdown find Asia and press Enter



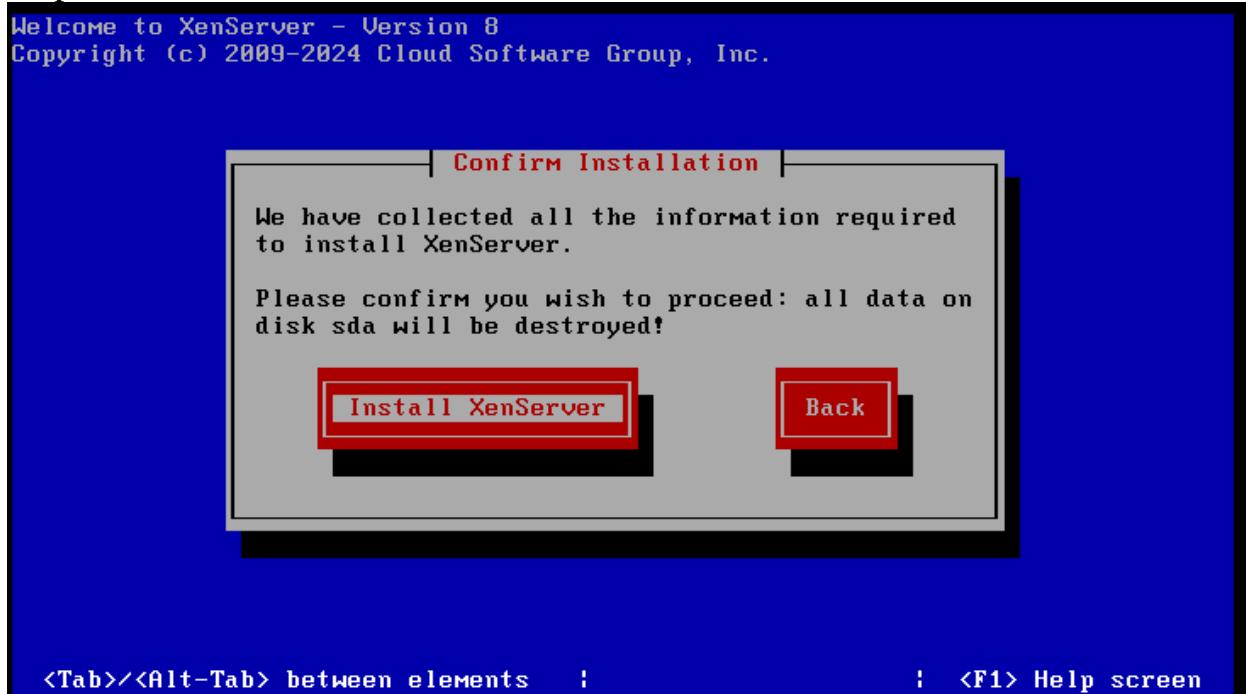
Step20: In the dropdown find Kolkata and press Enter



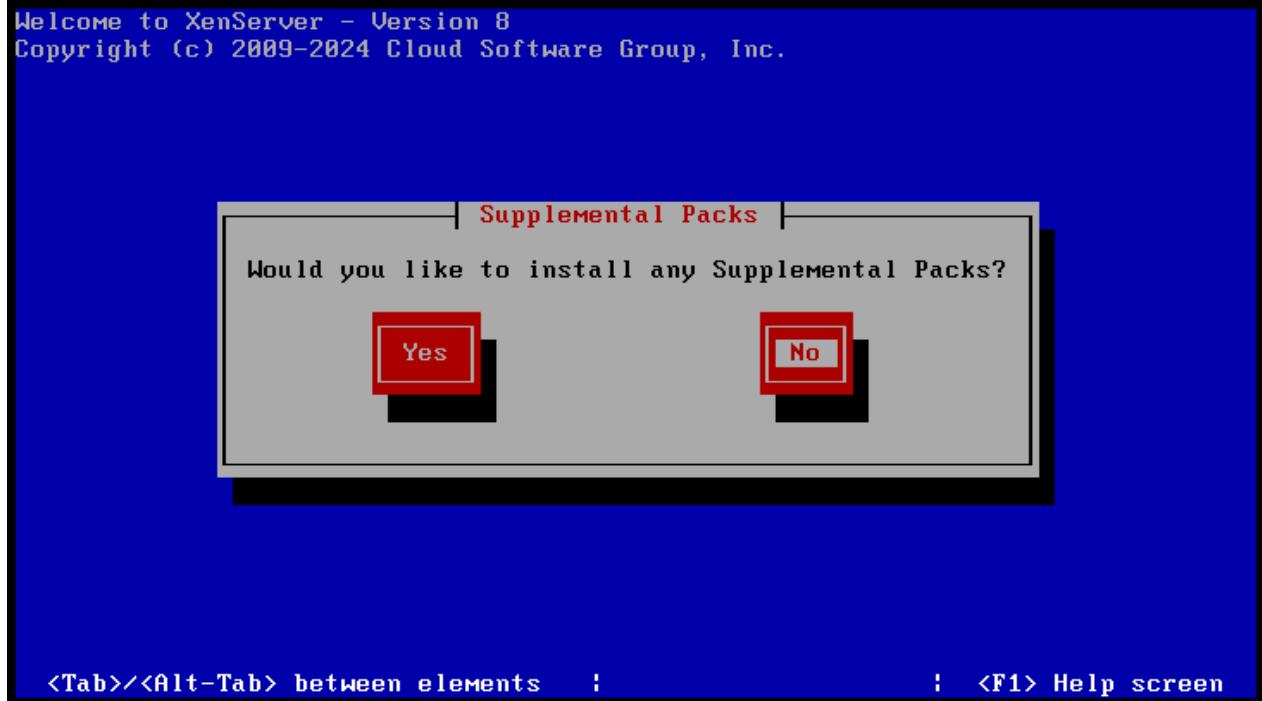
Step21: Keep the setting default & click on OK



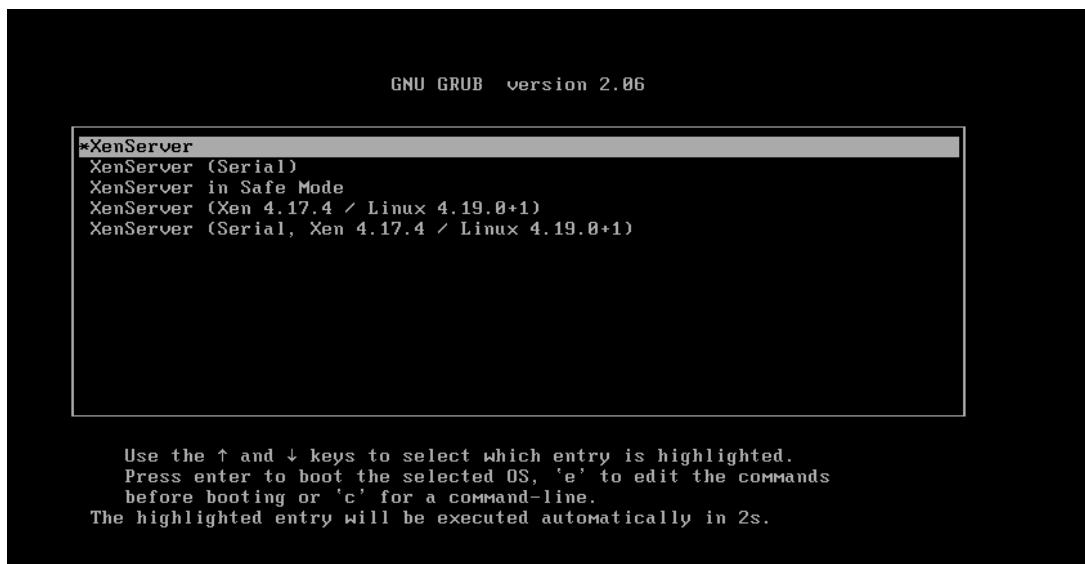
Step22: Click on Install XenServer.



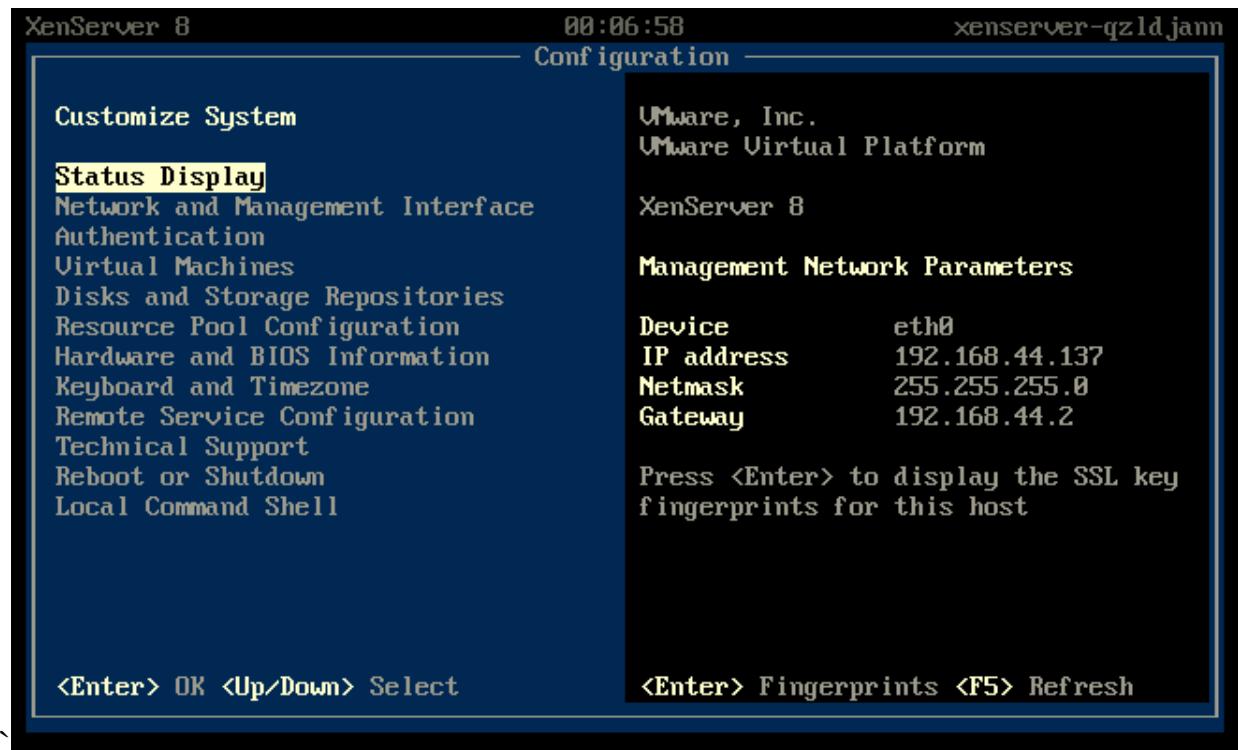
Step23: Select No and the vm will reboot



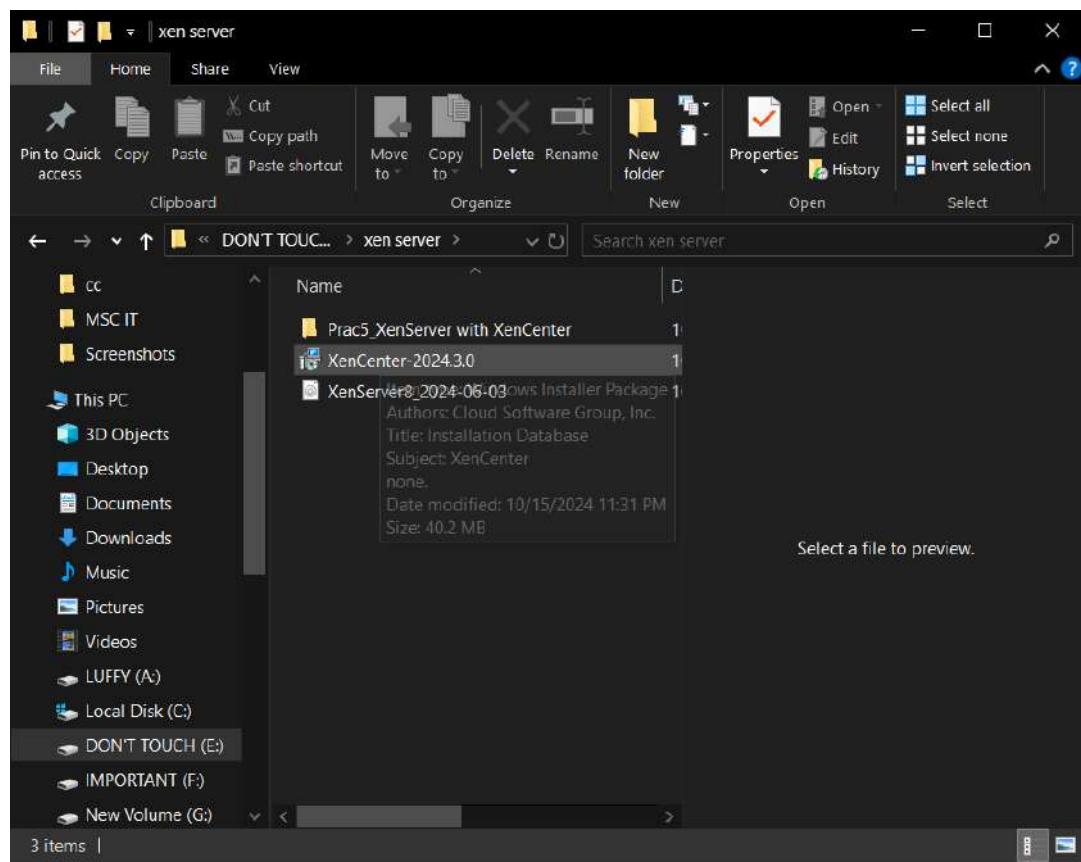
Step24: Press Enter



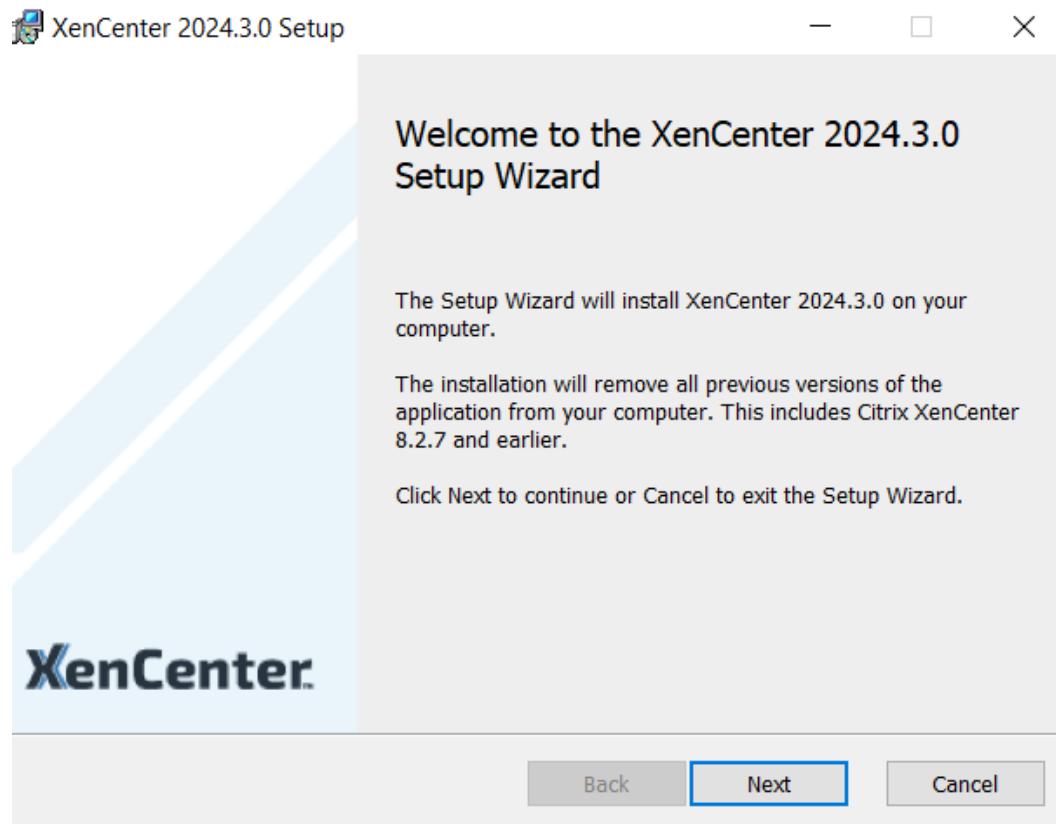
Step25:A panel will appear with bunch of imformation



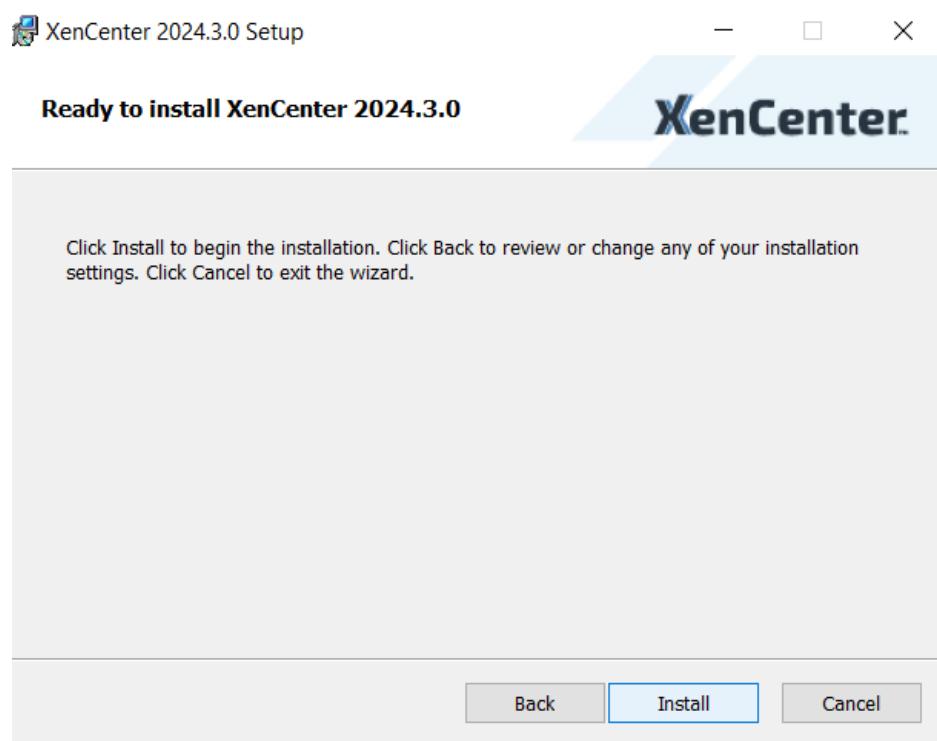
Step26: Now Install the Xen center application

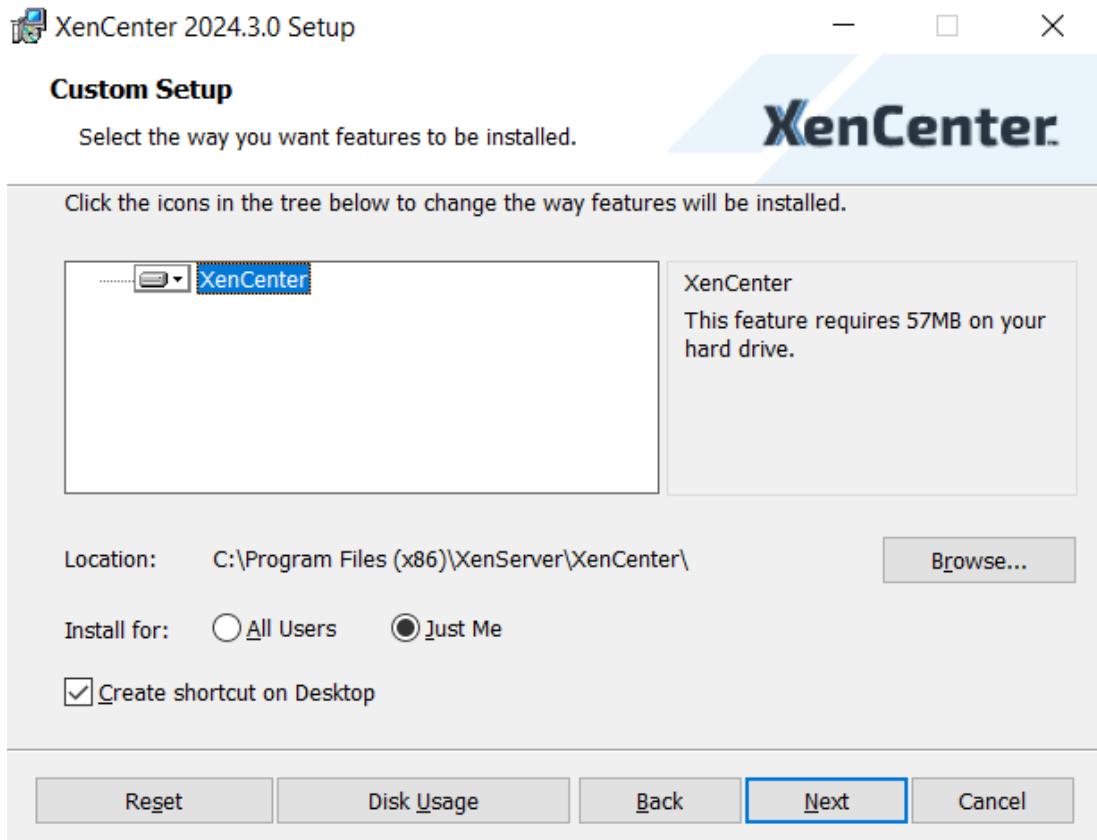


Step27: Click on Next

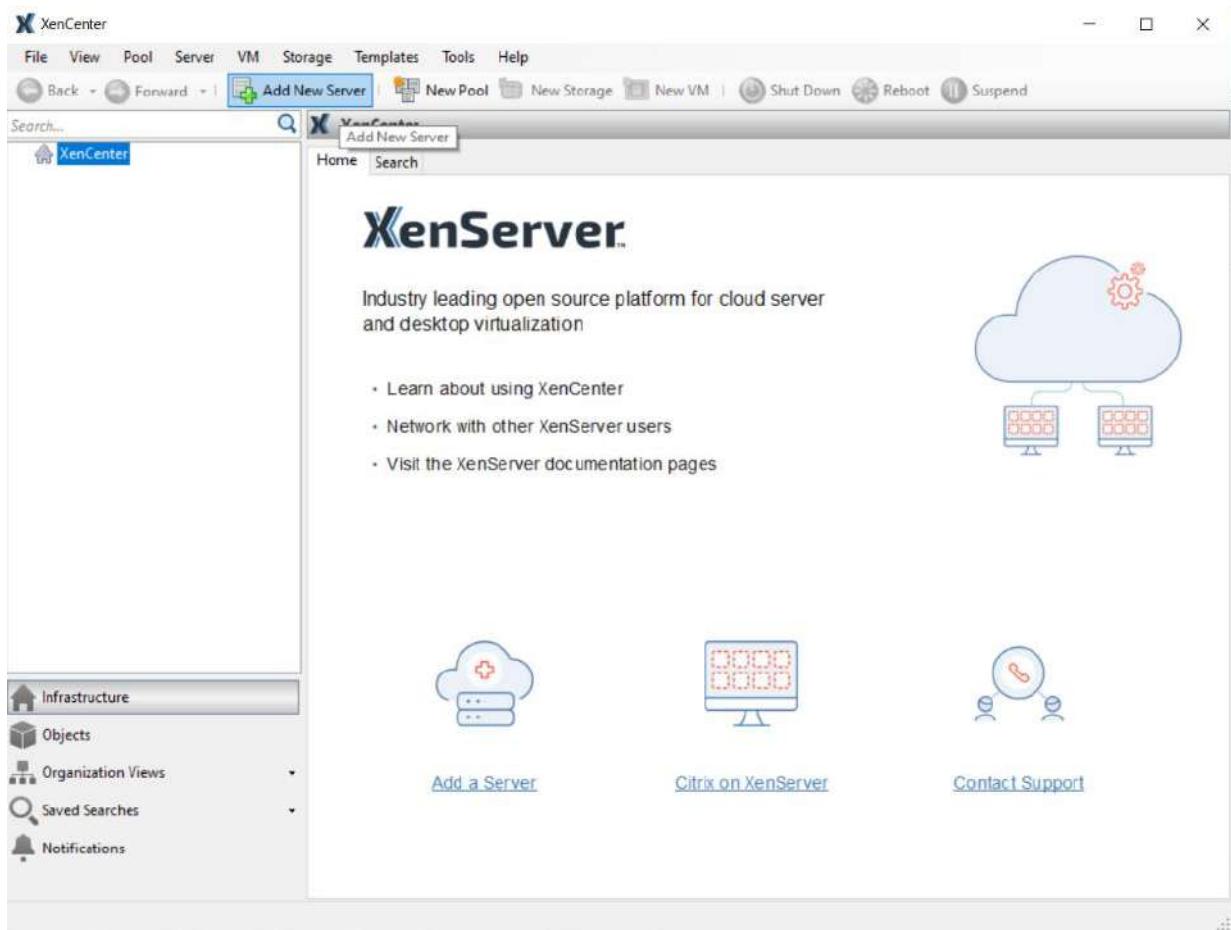


Step28: Click on Install & then Next

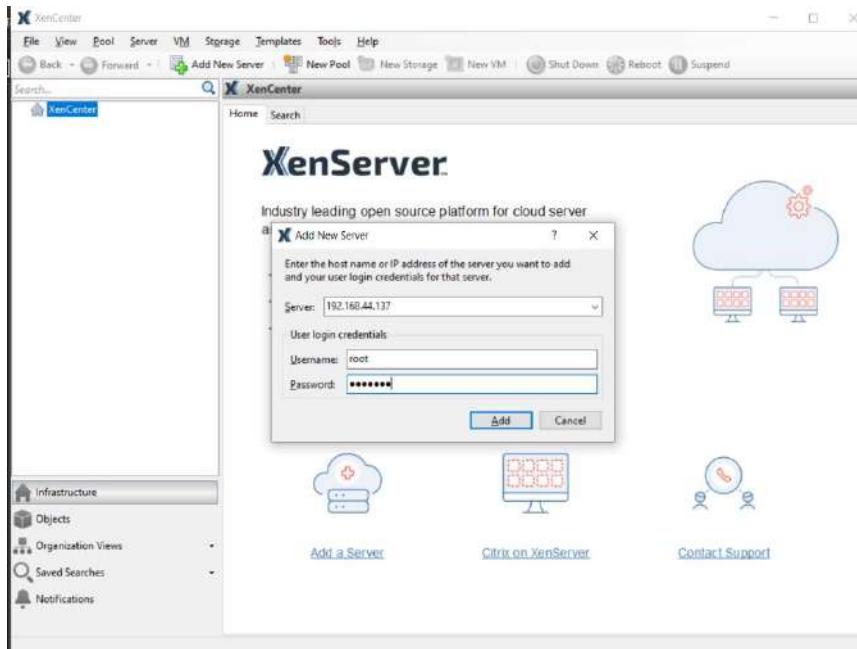




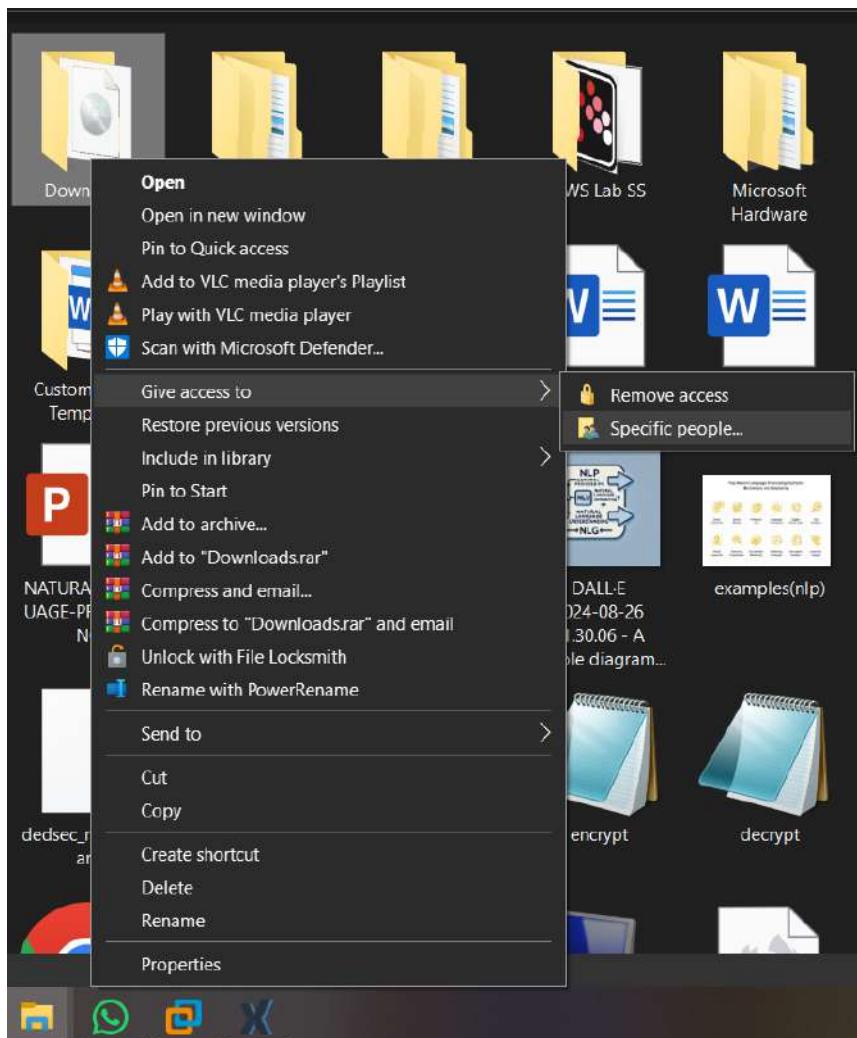
Step29: Open the Xen Center app and Click on Add New Server



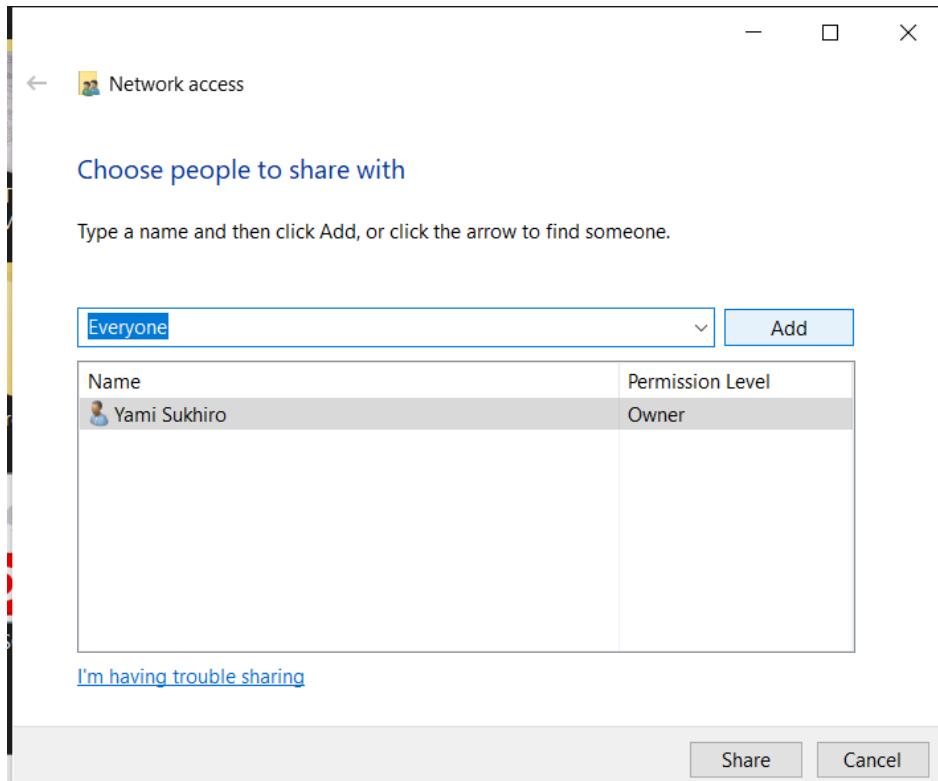
Step30: Copy the Ip Address from the VMWare panel and put 6 digit password which was set previously.



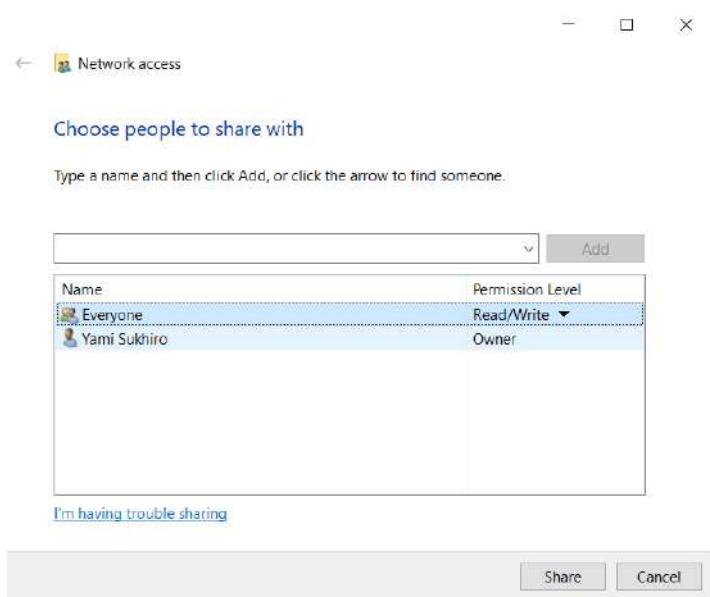
Step31: In the Base Machine Share a Iso file of Windows server 2022 over network .



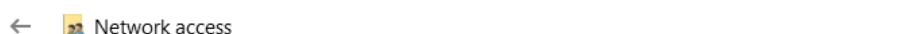
Step32: Select Everyone and Click on add.



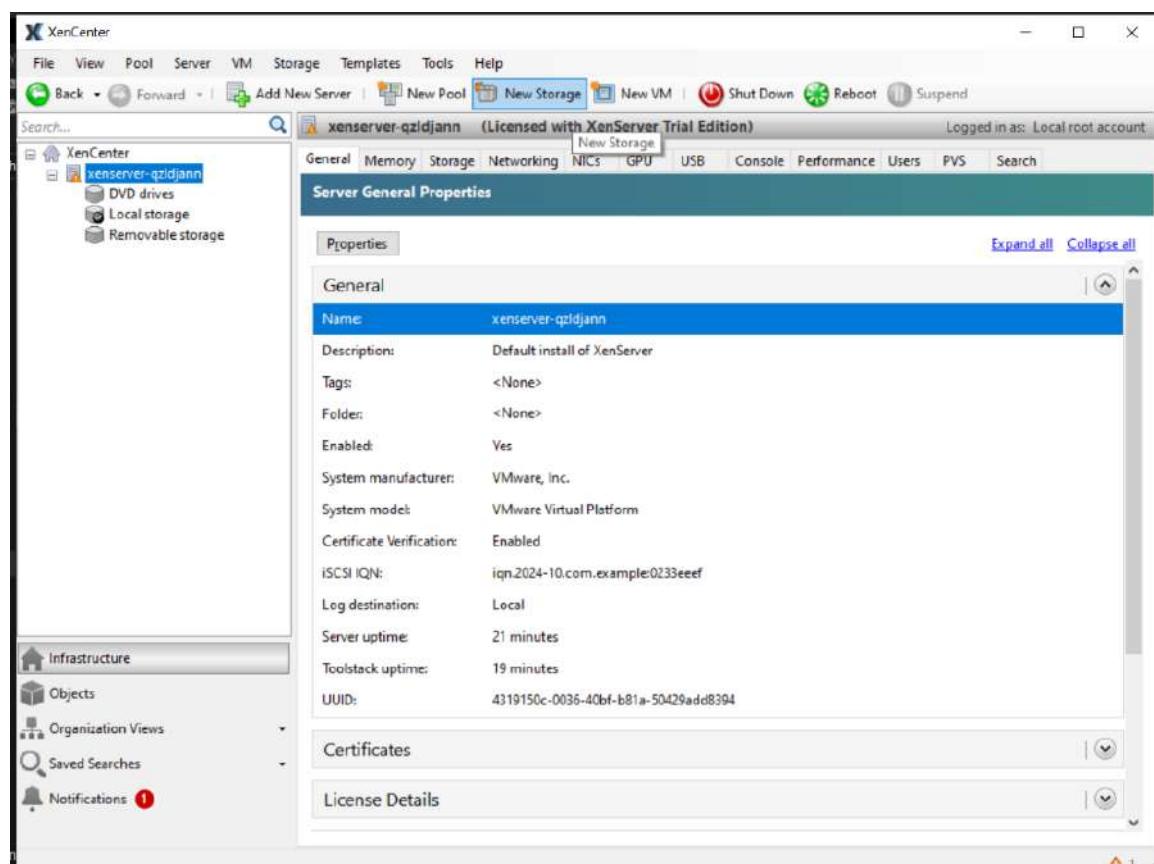
Step33: Change the permission level to Read/Write and click on Share.



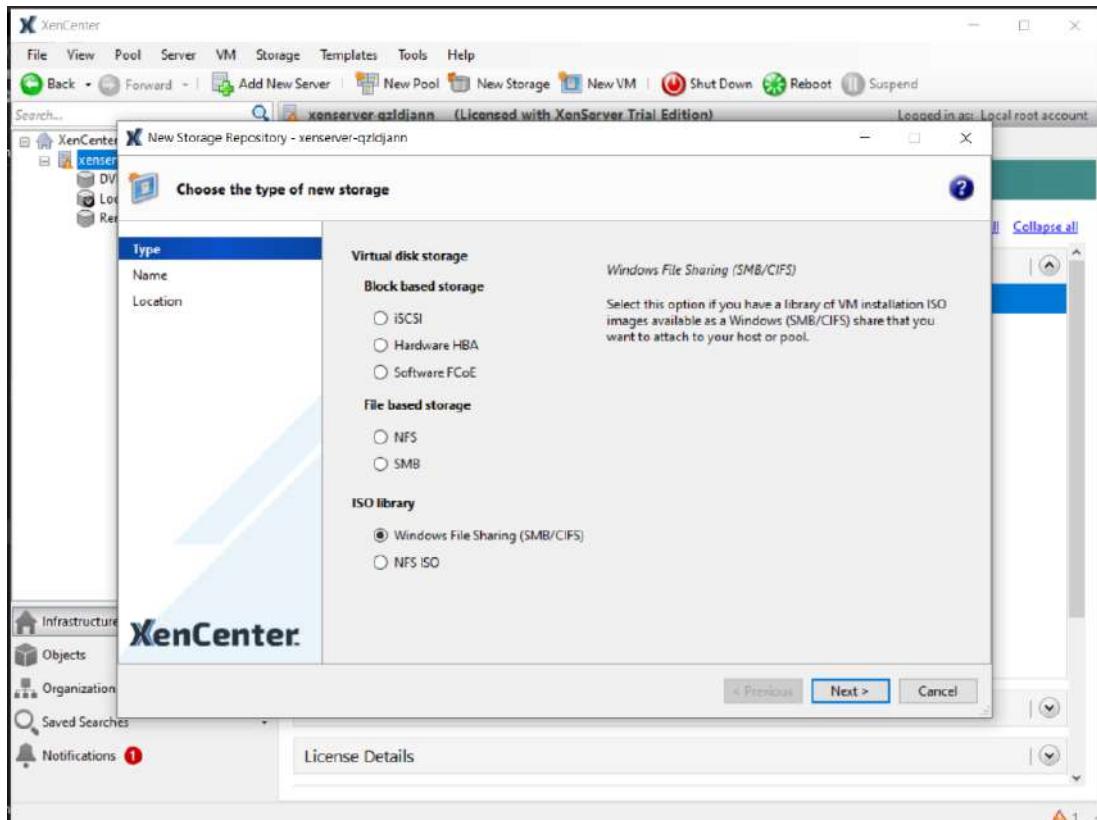
Step34: Copy the path.



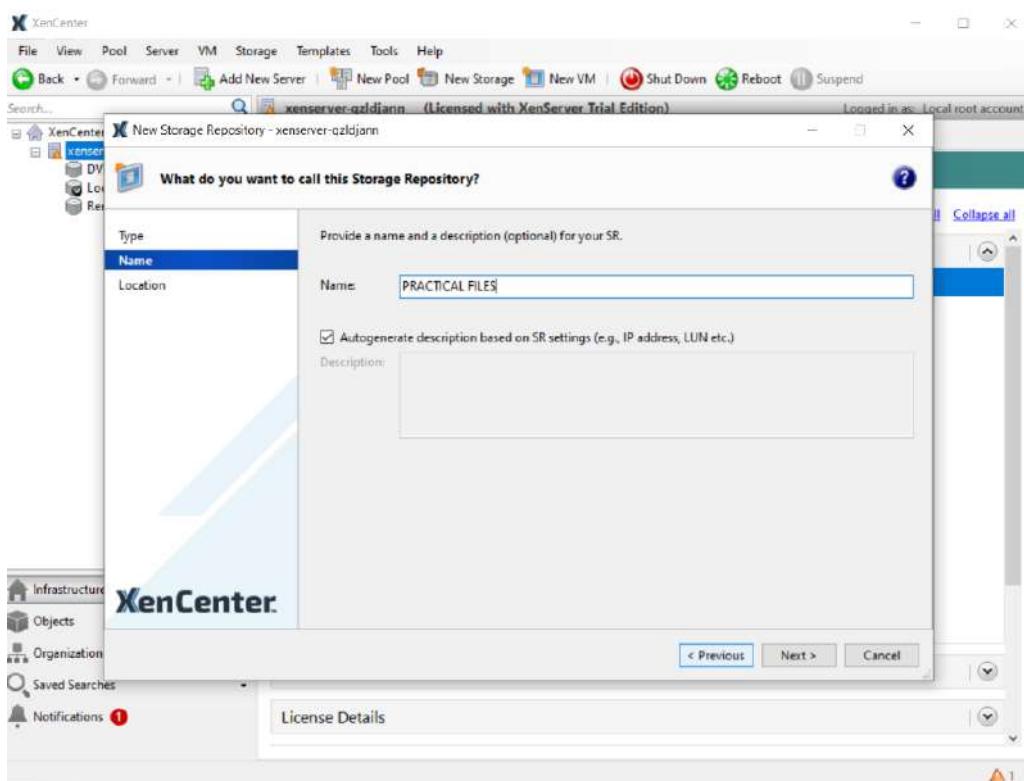
Step35: After Add the server Click on New Storage



Step36: Select Winows File Sharing(SMB/CIFS)



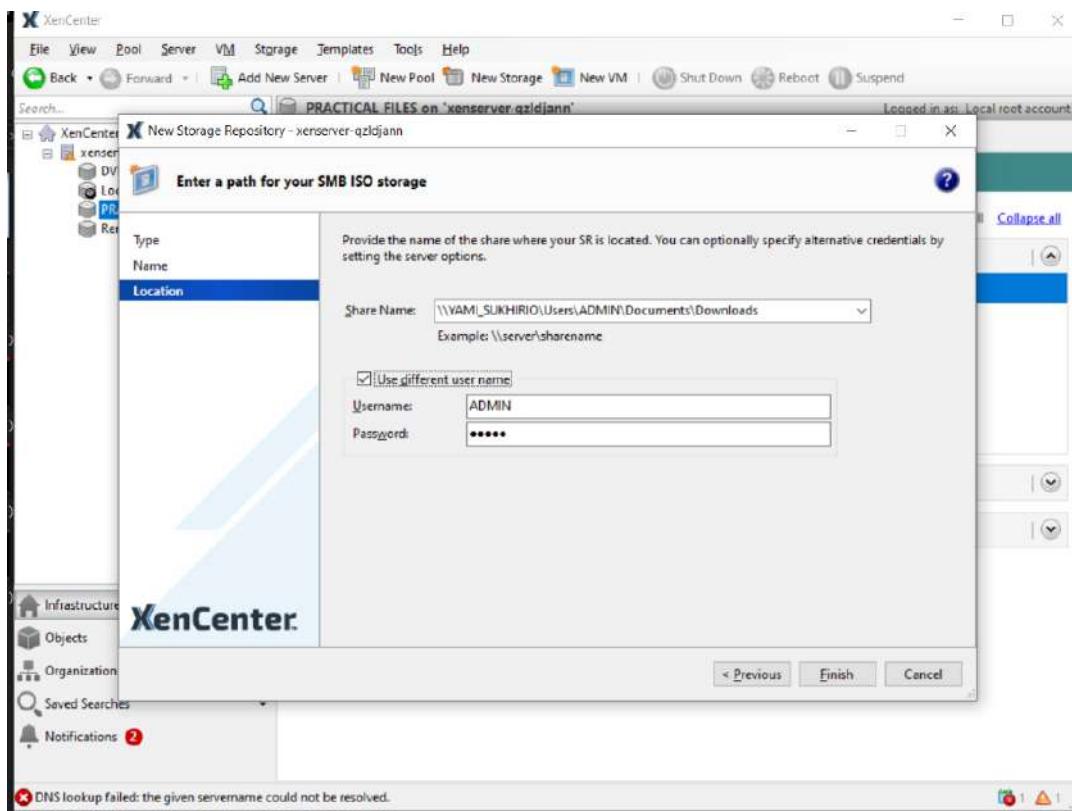
Step37: Change name to “PRACTICAL FILES”



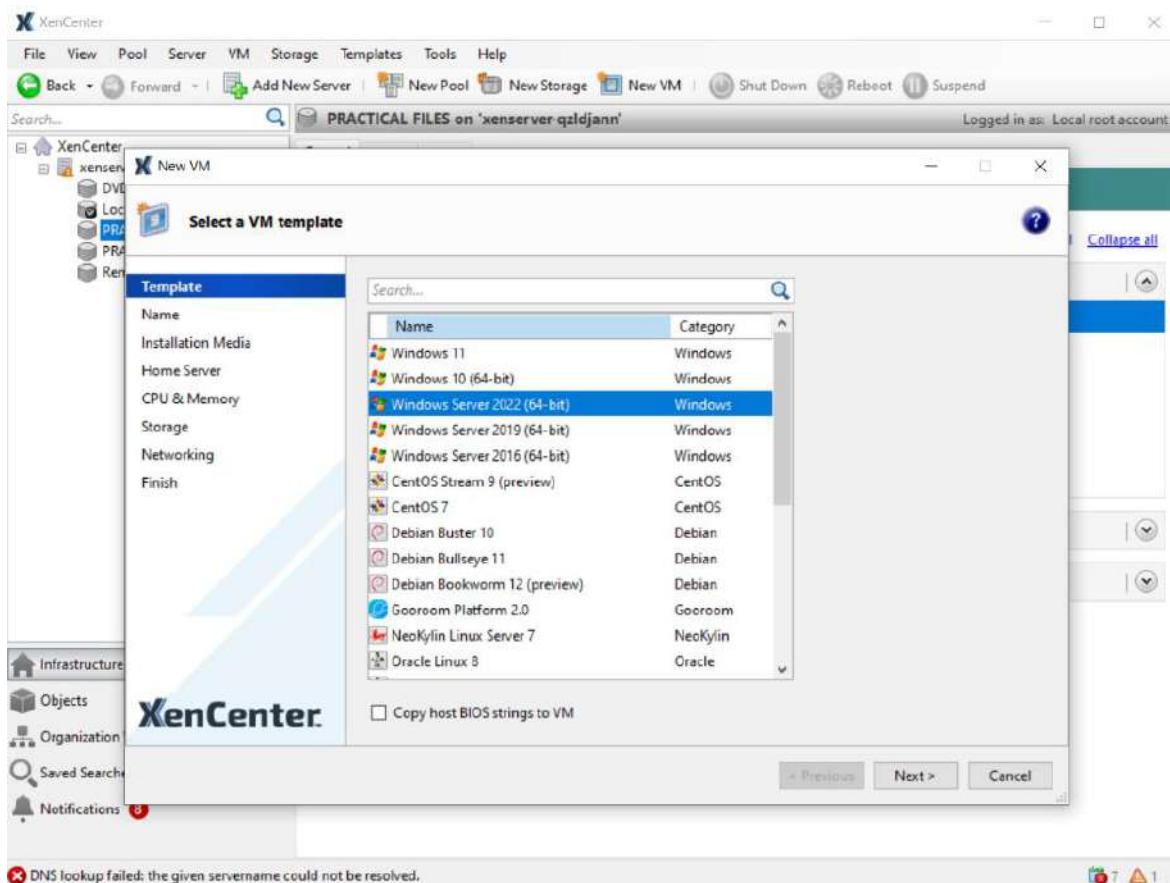
Step38: Paste the path of the file shared over the network

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

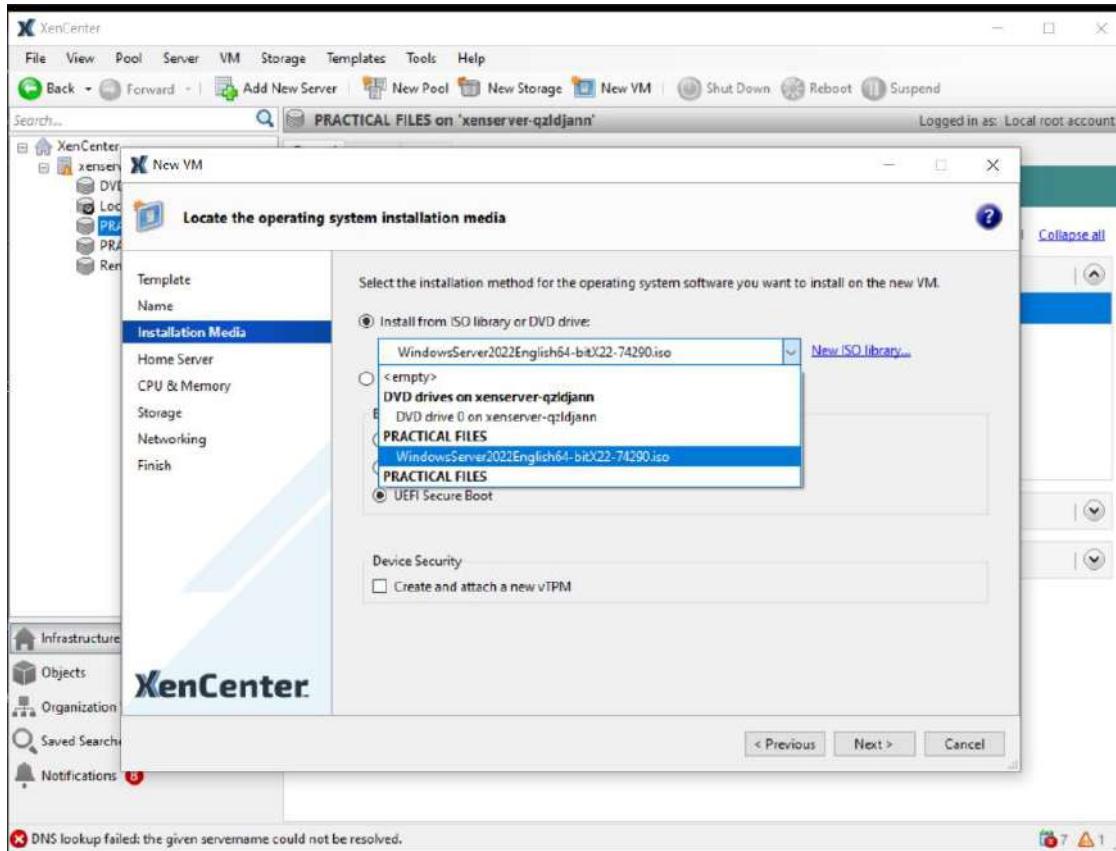
eg: “\\Downloads\\Windows_server2022”



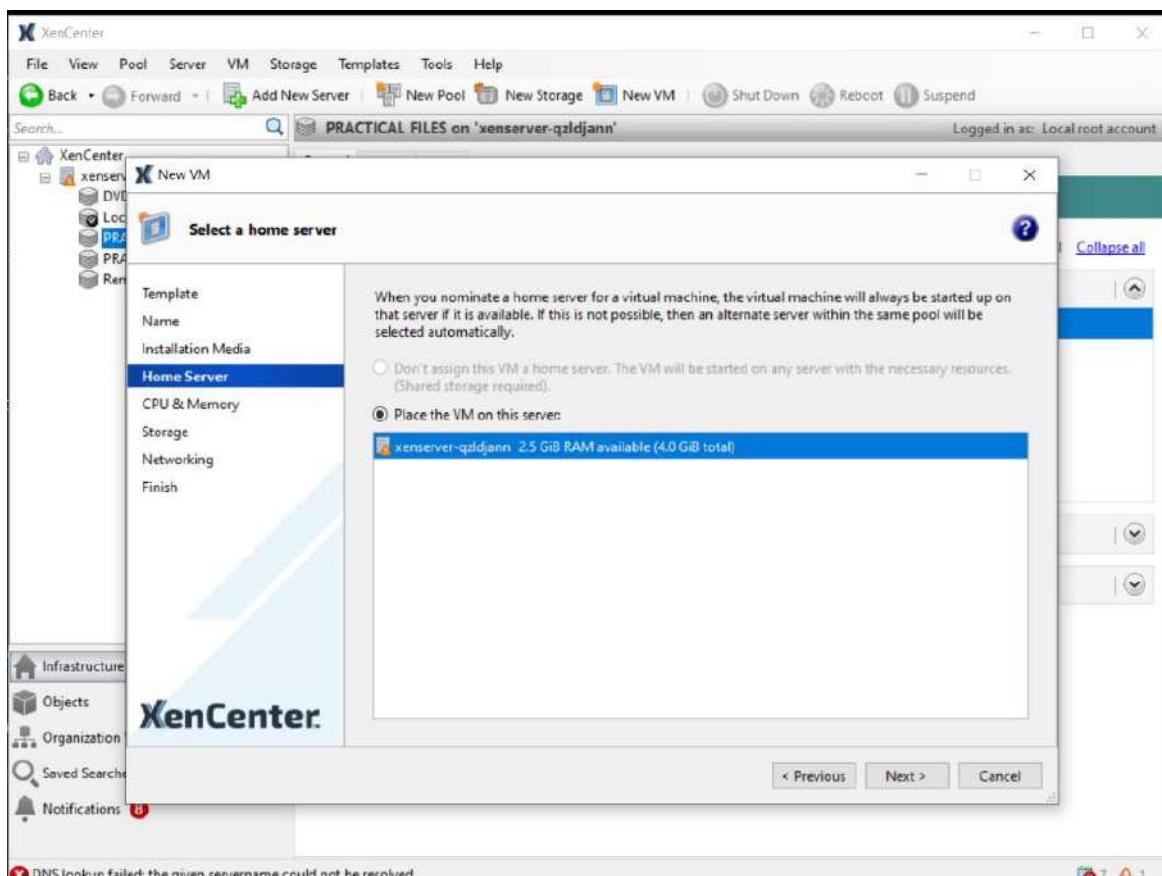
Step39: After adding a New Storage Click on New VM And Select Windows Server 2022(64-bit)



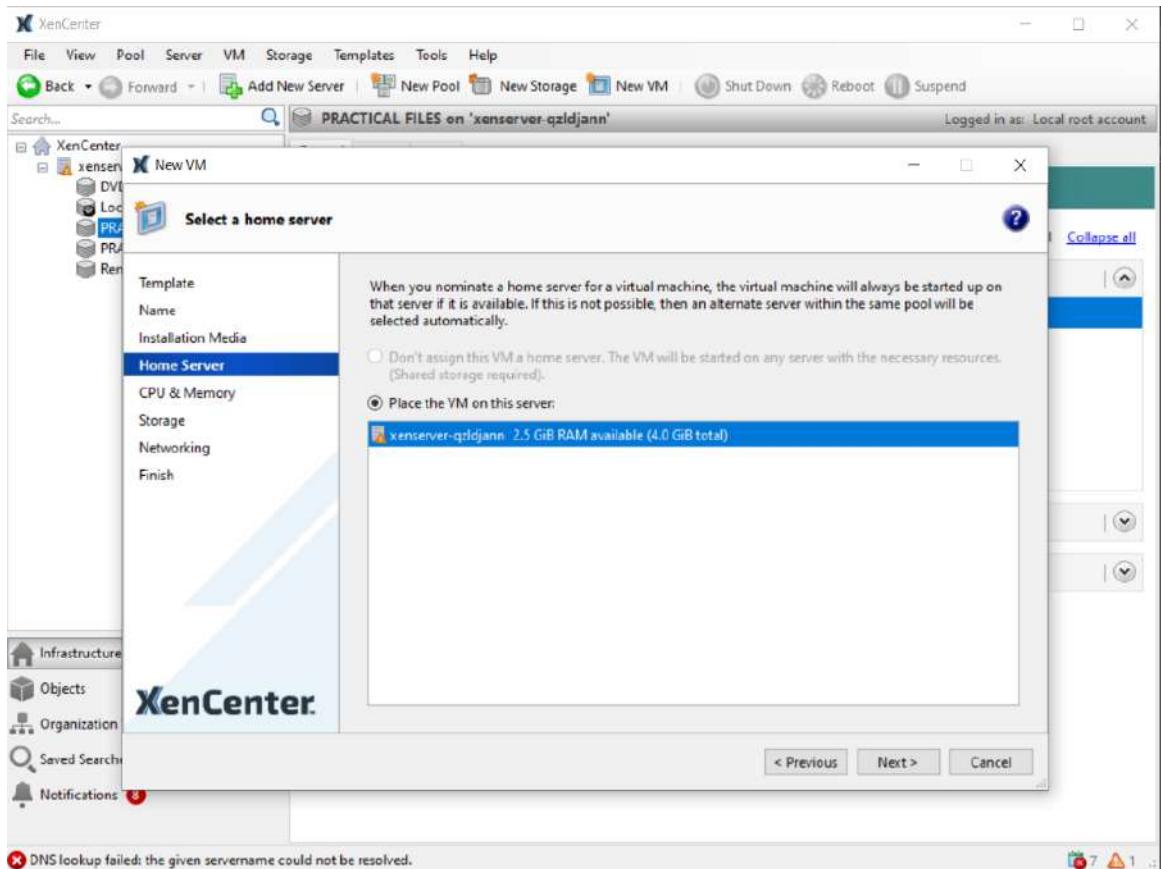
Step40: Select the ISO image which was shared over the network.



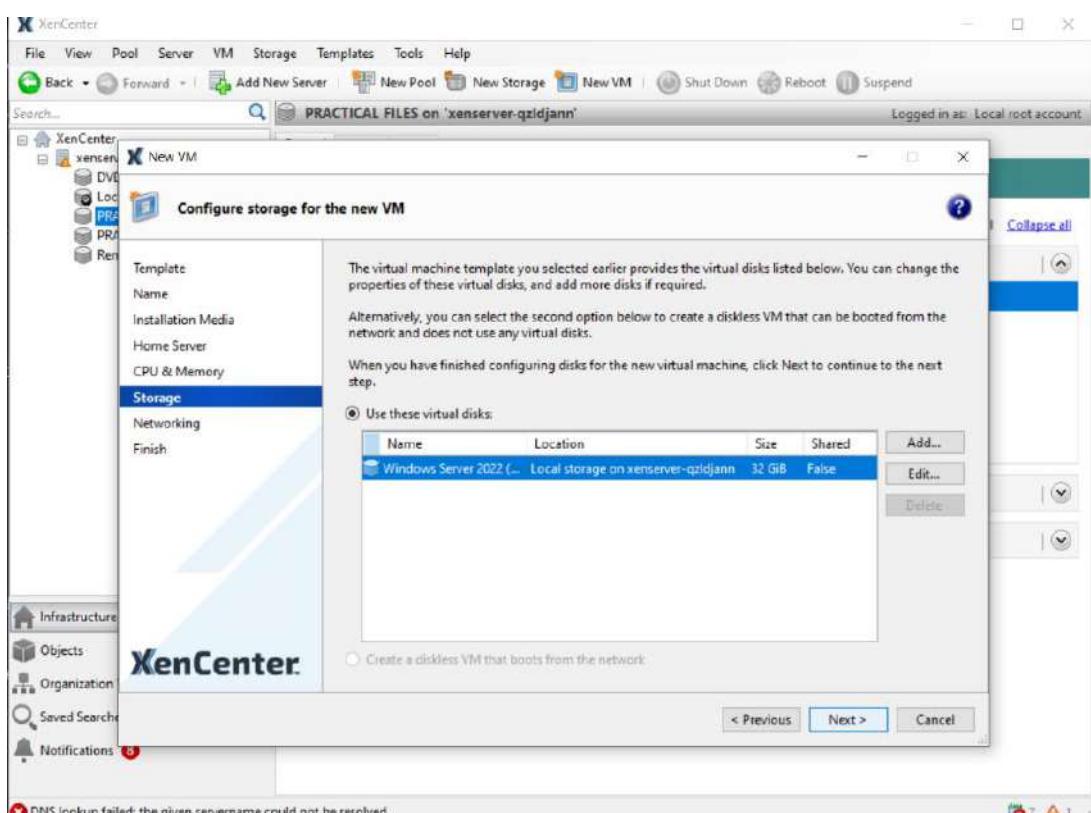
Step41: Click on Next



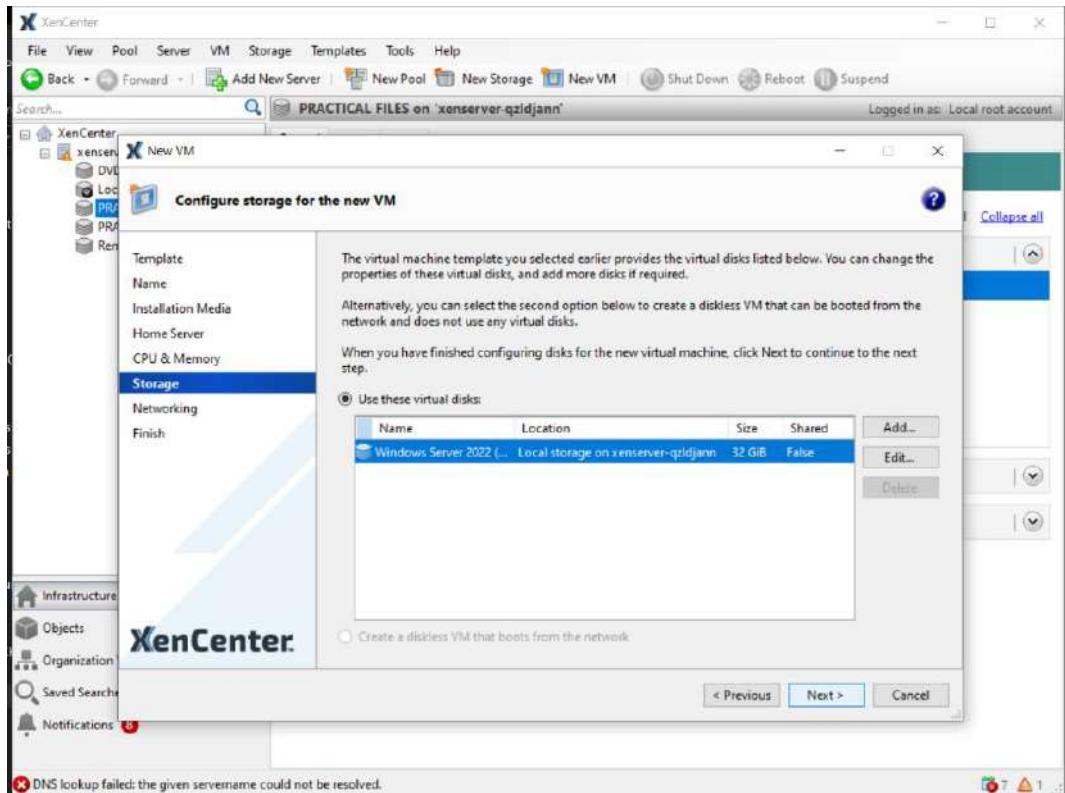
Step42: Click on Next



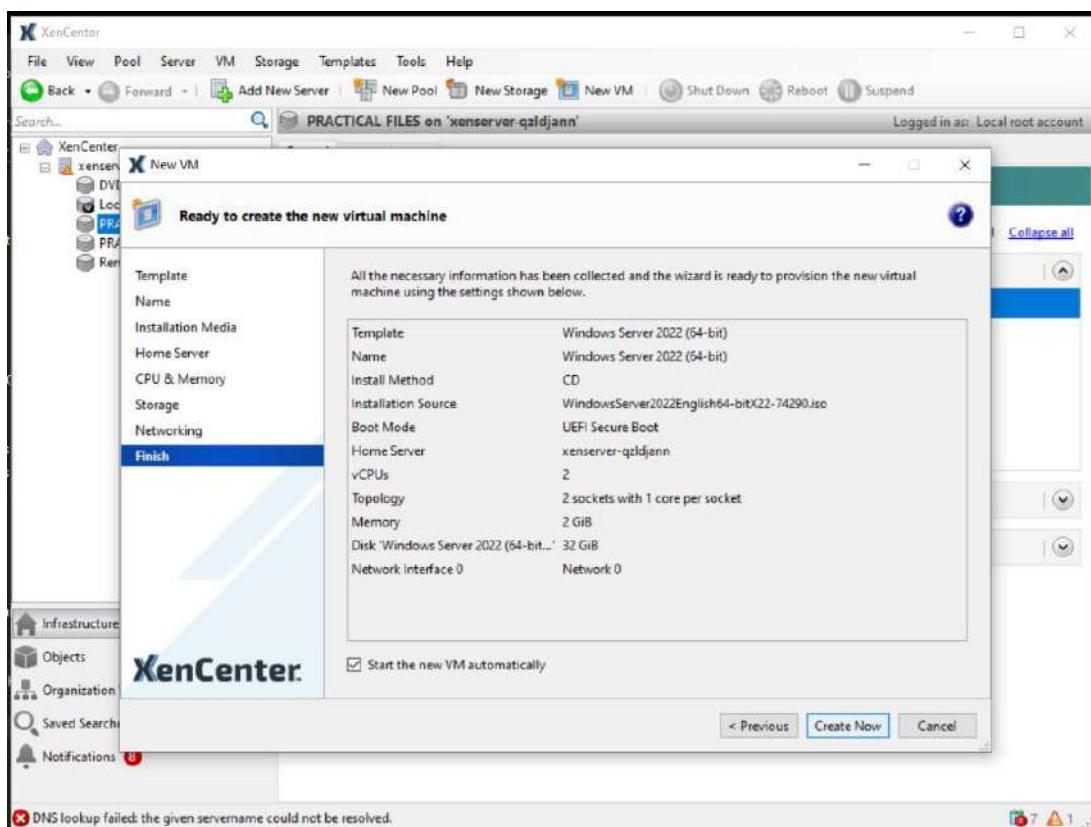
Step43: Click on Next



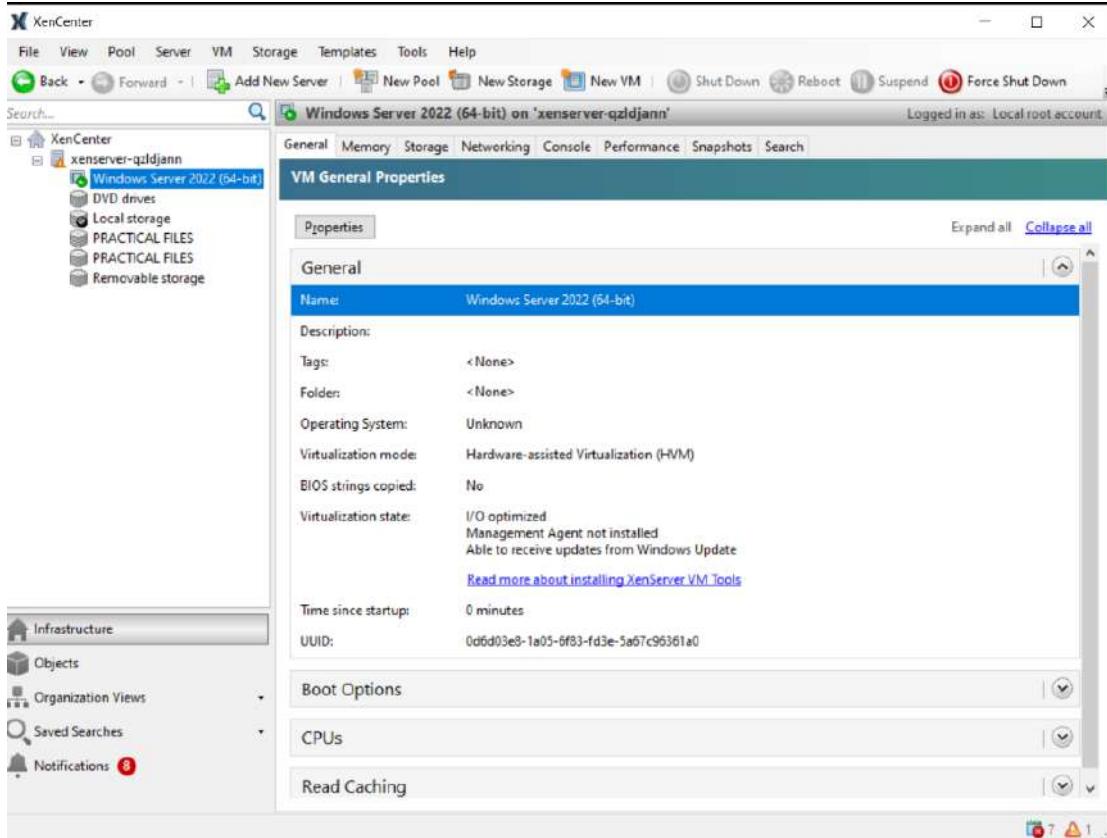
Step44: Click on Next



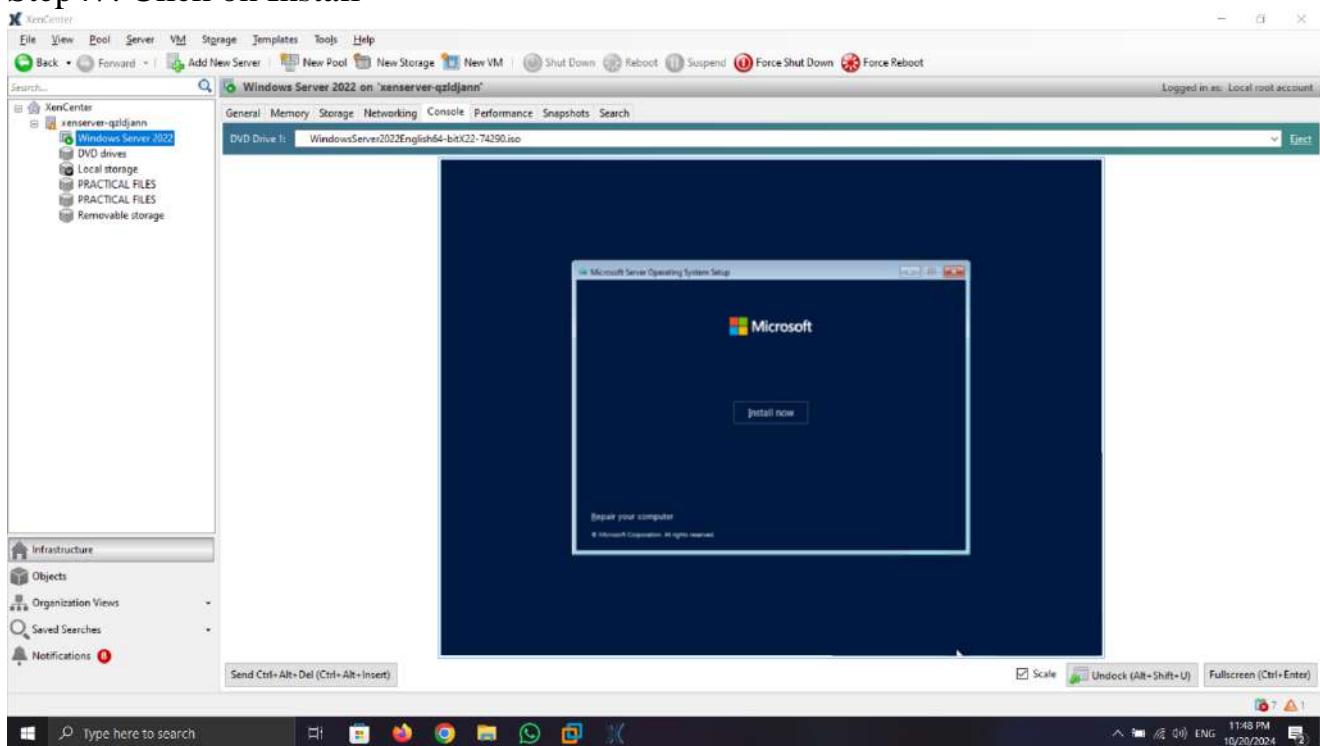
Step45: Click on Create Now



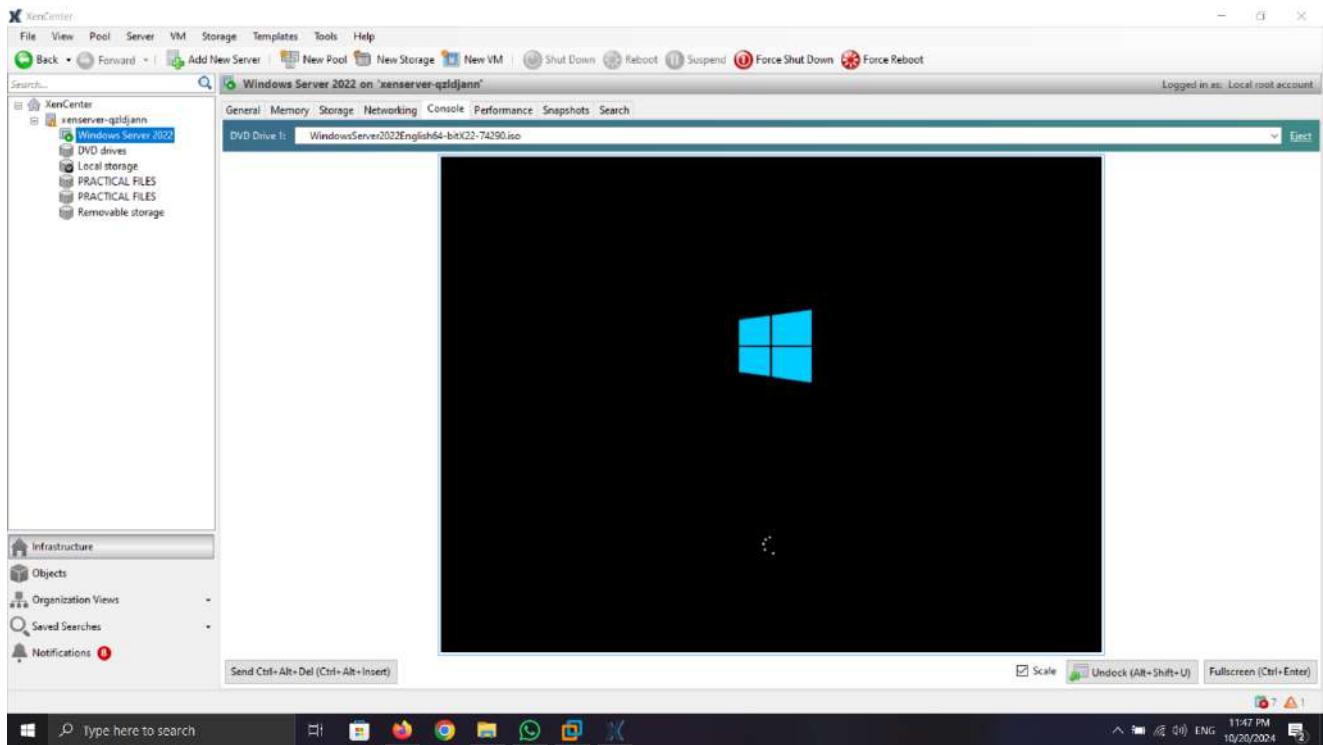
Step46: Click on Windows Server 2022(64-bit) & Navigate to Console tab



Step47: Click on Install



Step48: And Install Windows Server in Xen-Server



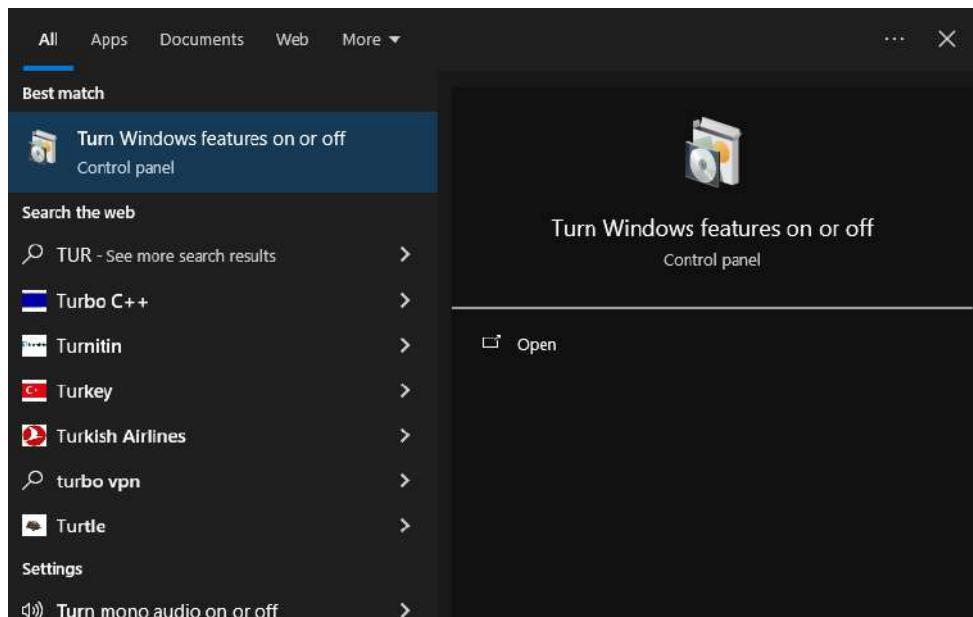
PRACTICAL 6

Aim:- Implementing Hypervisor

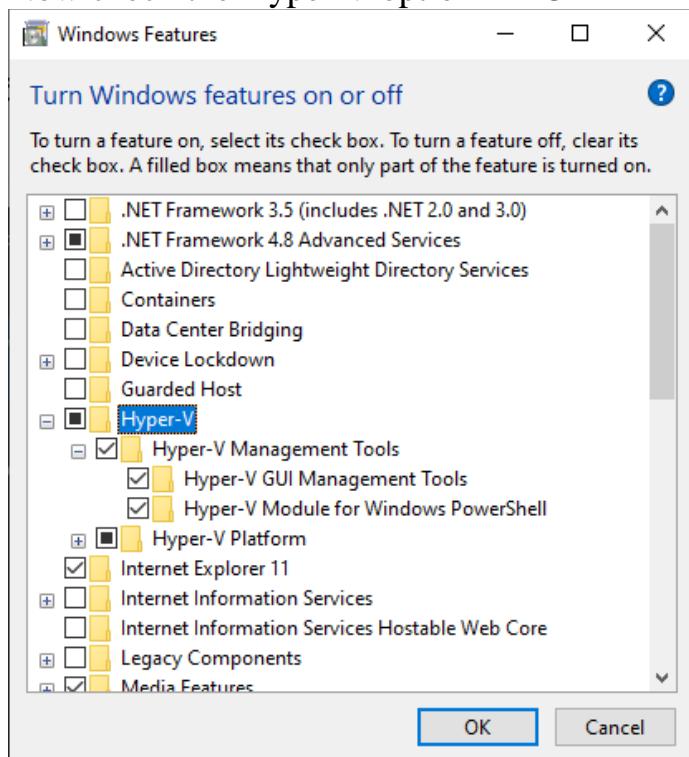
Requirements :- Hyper V manager

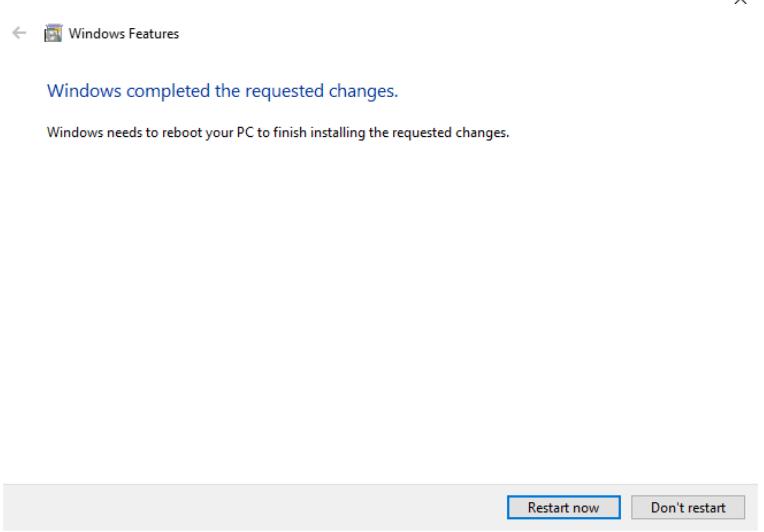
Steps:-

Search for Turn Windows feature on or off

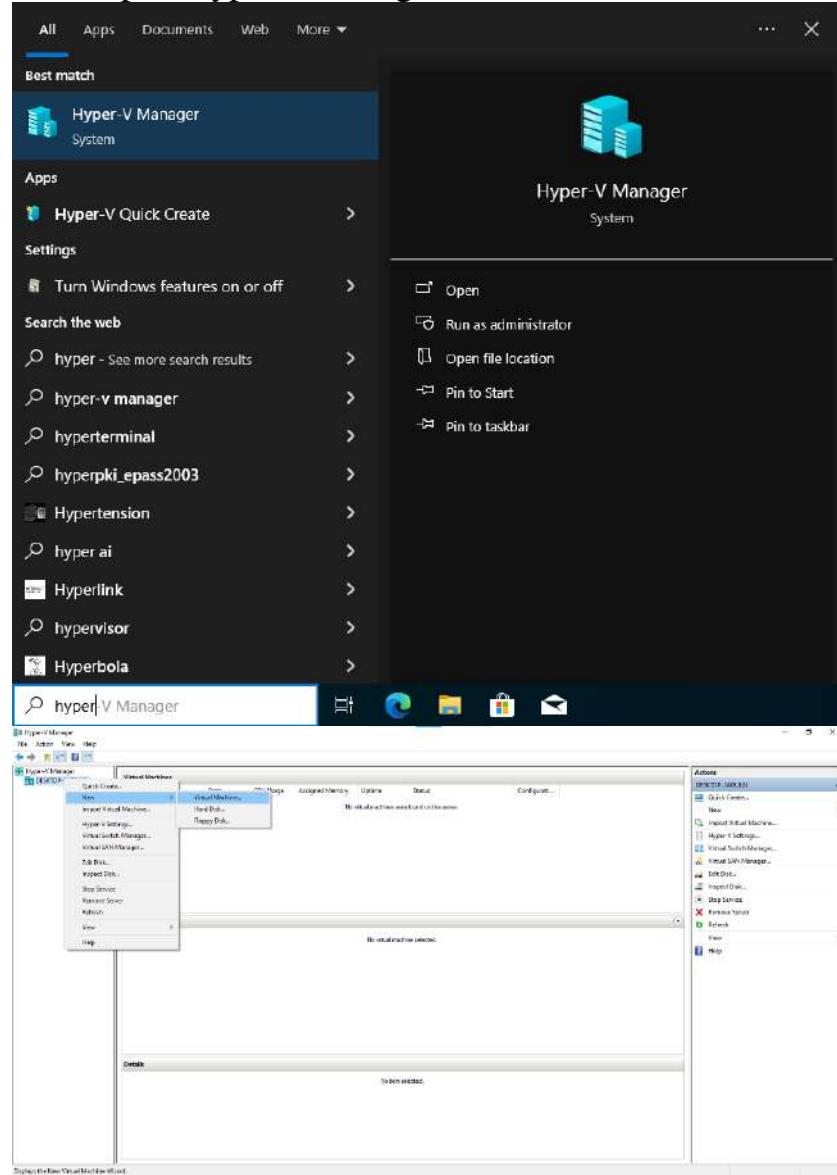


Now check the Hyper V option → Ok





Now Open Hyper v manager



New Virtual Machine Wizard

Before You Begin

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\

! 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: MB

Use Dynamic Memory for this virtual machine.

Information 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.

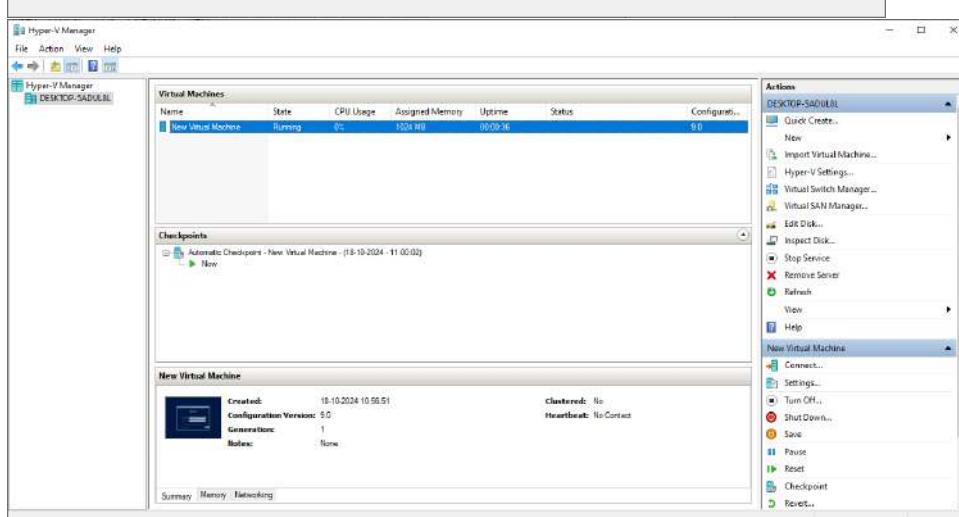
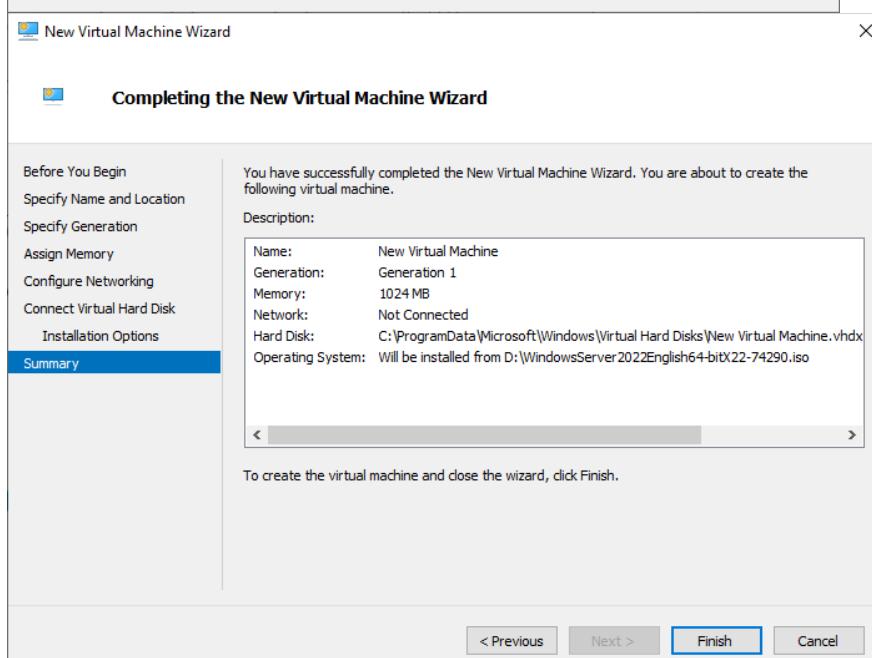
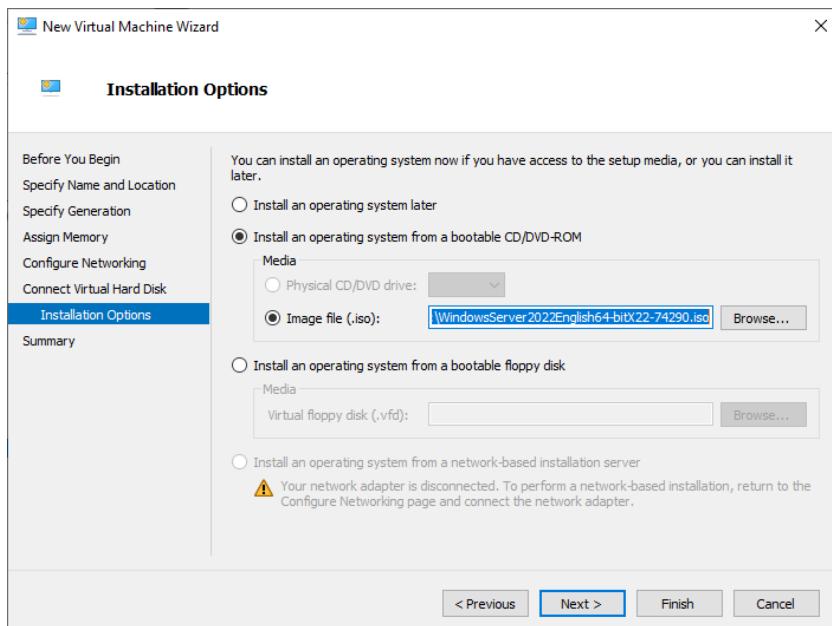
Name:
Location:
Size: GB (Maximum: 64 TB)

Use an existing virtual hard disk
Use this option to attach an existing virtual hard disk, either VHD or VHDX format.

Location:

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



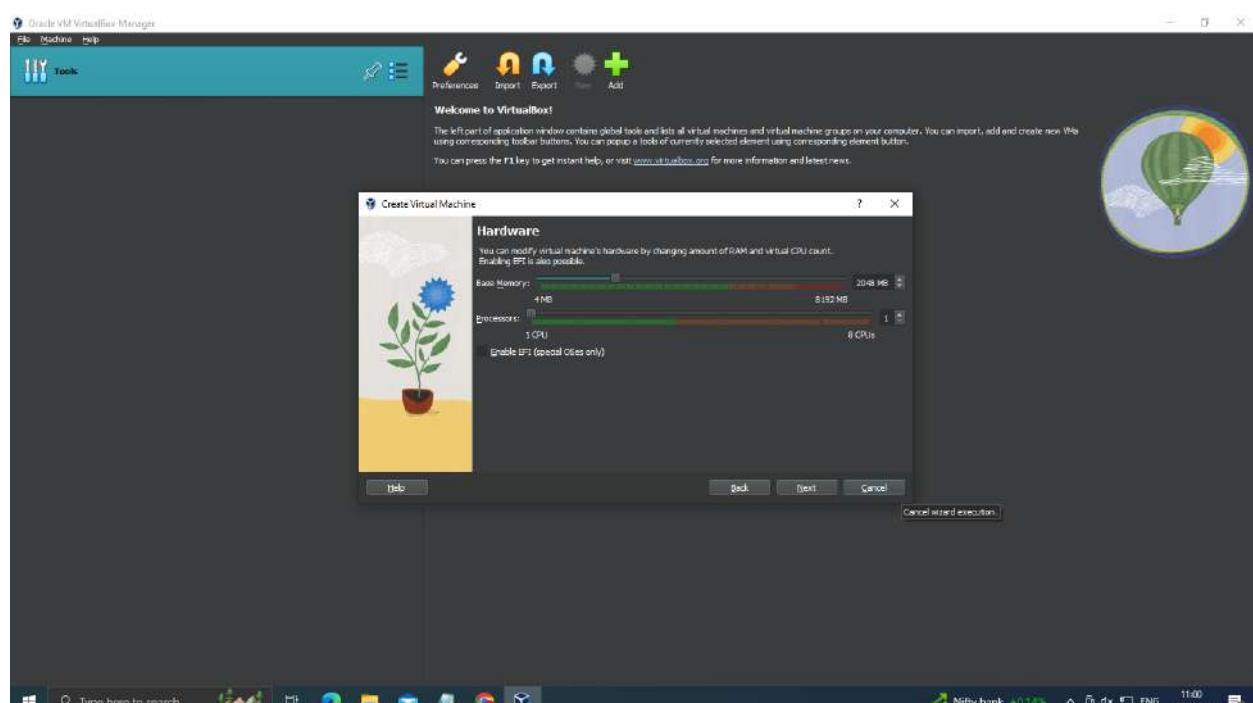
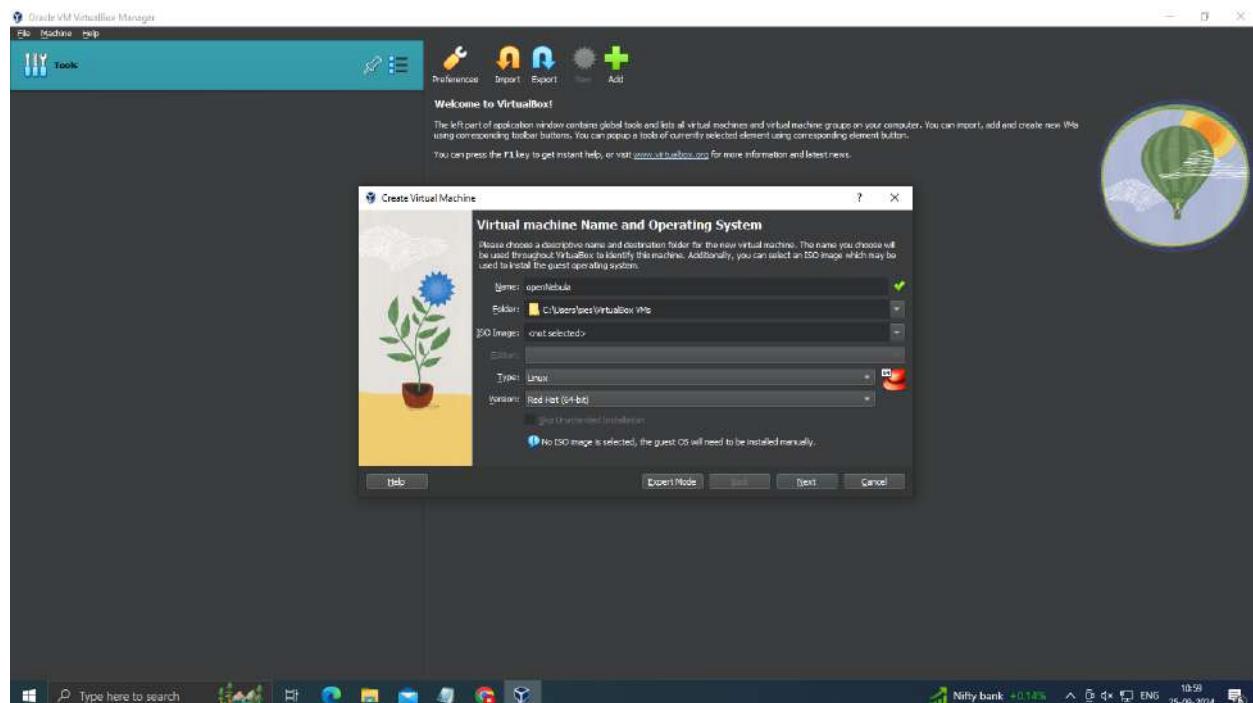
PRACTICAL 7

Aim - Implementing open Nebula

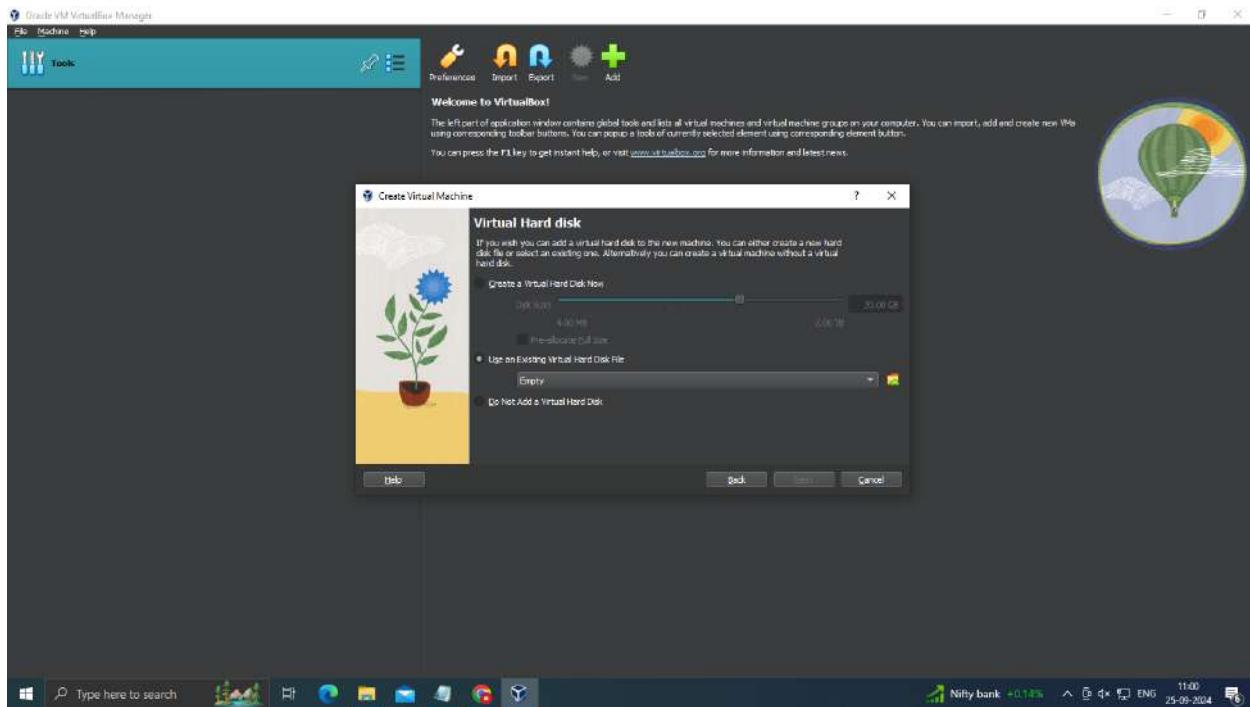
Requirements :- oracle vm virtual box , open nebula sandbox

Steps:-

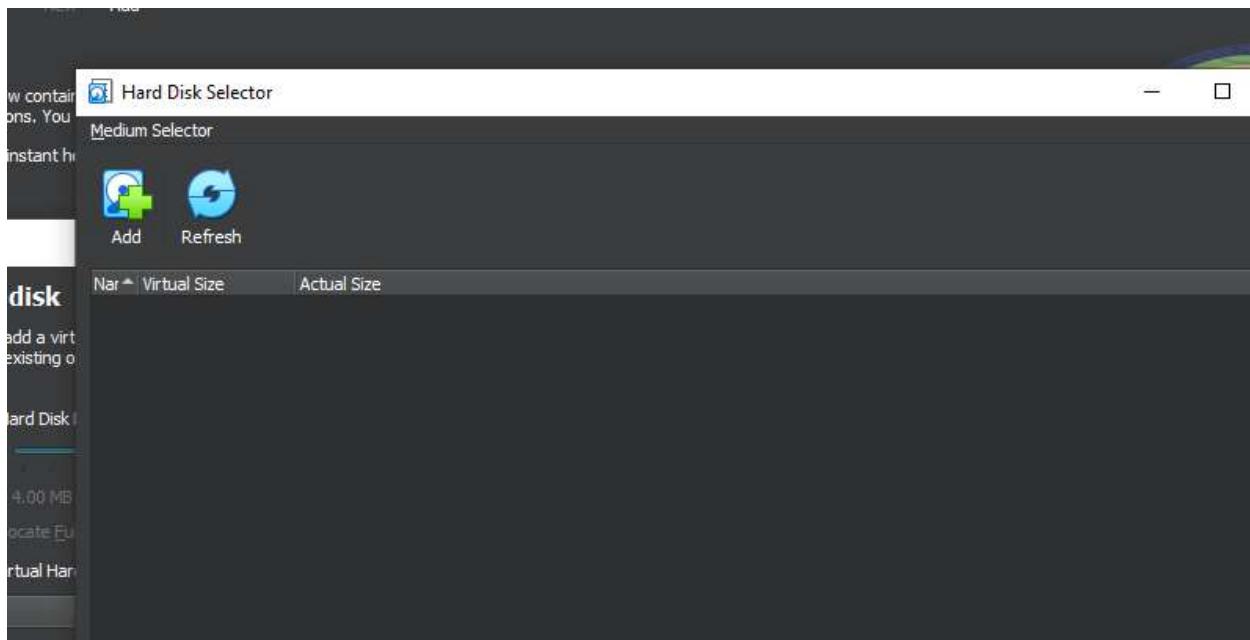
Open oracle Vm VirtualBox → Click on New → Give name, Type - Linux, Version - Red Hat(64-bit) → Next



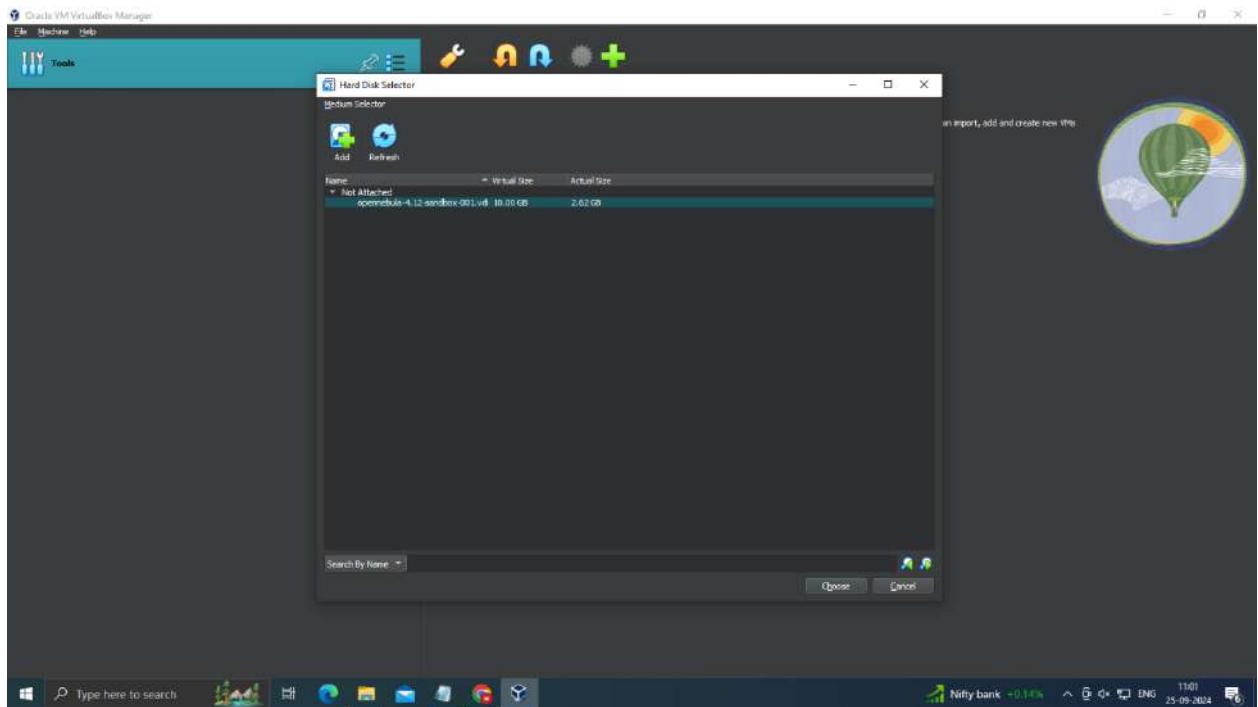
Click on a “use existing virtual hard disk file”



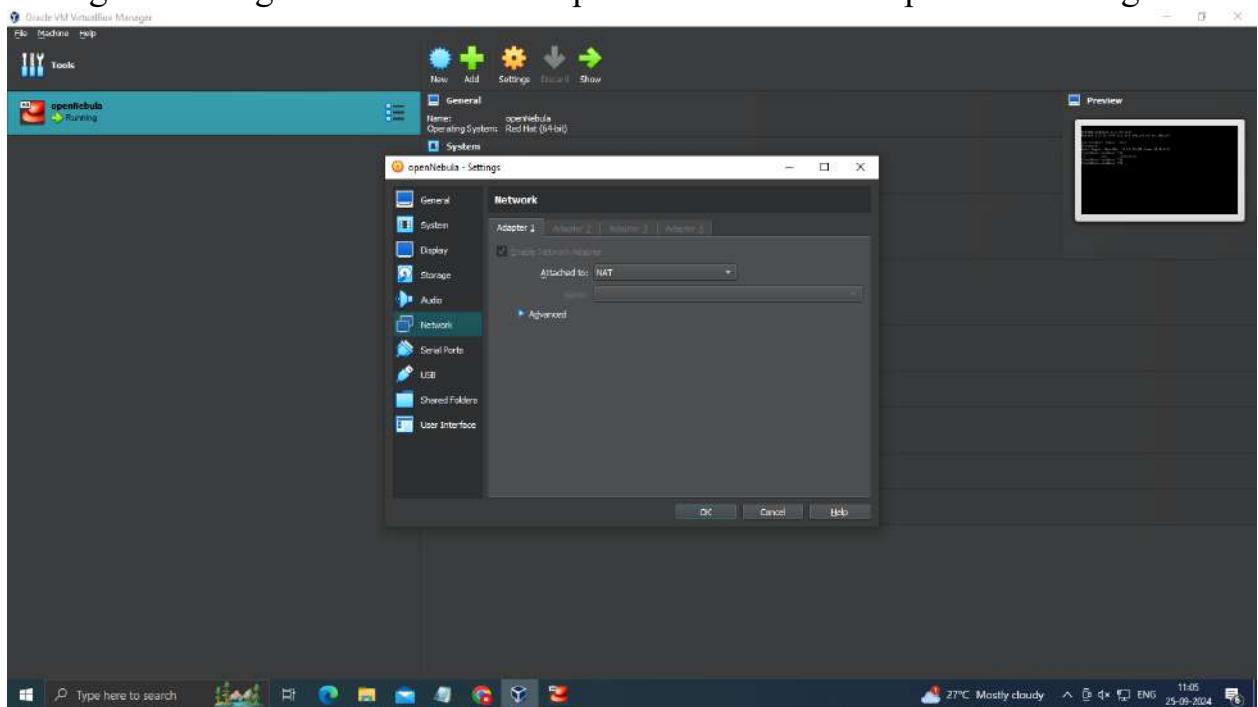
Click on add



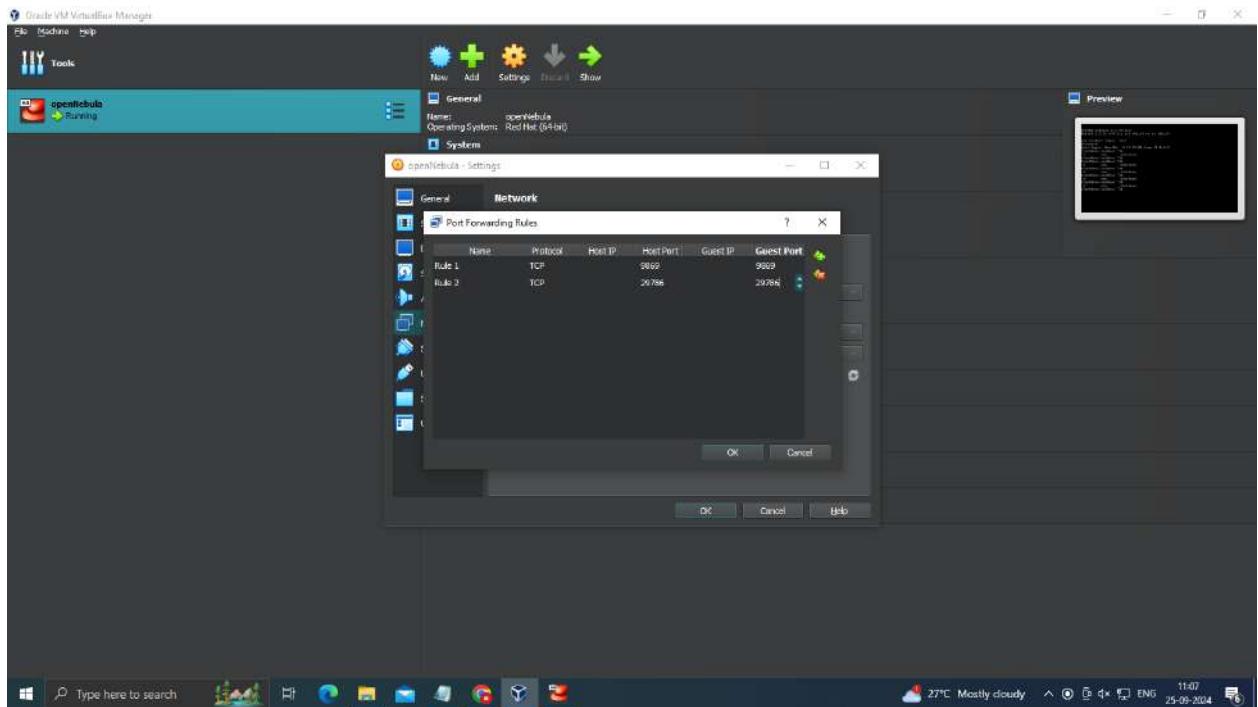
Add open nebula sandbox → Choose → finish



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



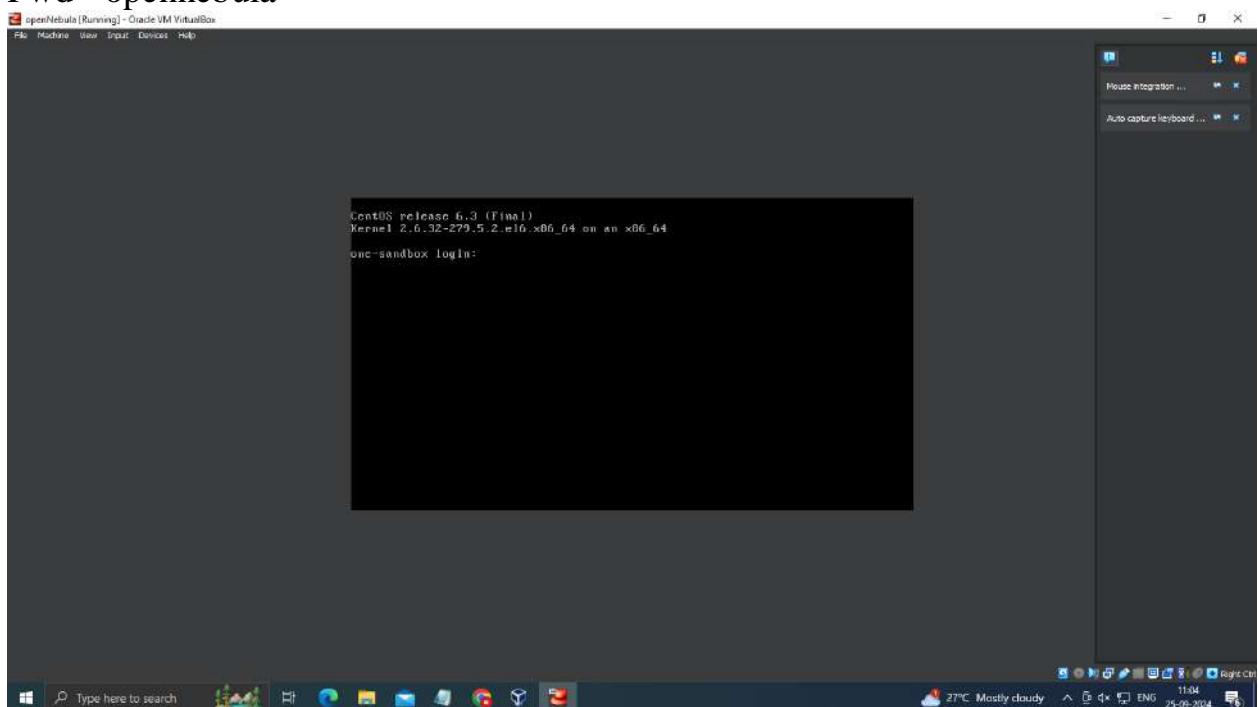
Now add host port and guest port number then add one more
(Remember the port numbers)



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

A screenshot of the OpenNebula Sunstone dashboard. The title bar says "localhost:9869". The dashboard has a sidebar with links like "Dashboard", "System", "Virtual Resources", "Infrastructure", "Marketplace", and "OneFlow". The main area shows "Virtual Machines" statistics: 0 TOTAL, 0 ACTIVE, 0 PENDING, 0 FAILED. It also shows "Hosts" statistics: 1 TOTAL, 1 ON, 0 OFF, 0 ERROR. There are also sections for "CPU hours" and "Memory GB hours", both stating "There is no information available". Buttons for "VMs" and "Create" are visible.

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

OpenNebula Marketplace

Name	Publisher	Hypervisor	Arch	Format
Ttylinux - KVM	OpenNebula Systems	KVM	x86_64	qcow2

Showing 1 to 1 of 1 entries (filtered from 75 total entries)

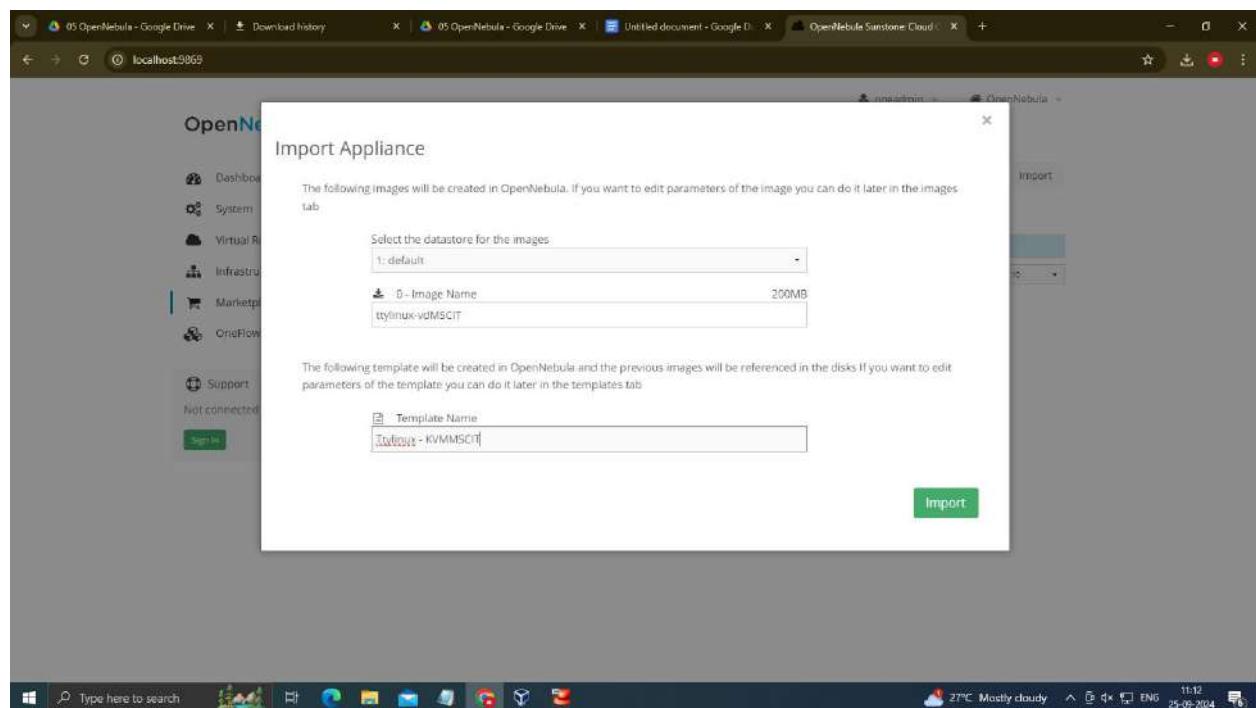
Previous 1 Next 10

OpenNebula 4.12.0 by OpenNebula Systems.

Support: Not connected

Sign In

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



Click Virtual Resources → Virtual Machines → Click on “+” button

OpenNebula

Virtual Machines

The dashboard shows a sidebar with navigation links: Dashboard, System, Virtual Resources, Virtual Machines (selected), Templates, Images, Files & Kernels, Infrastructure, Marketplace, OneFlow, Support (Not connected), and Sign in.

Main content area: A large cloud icon with an 'i' inside, followed by the message "There is no data available". Below it, a table summary: Showing 0 to 0 of 0 entries, 0 TOTAL, 0 ACTIVE, 0 OFF, 0 PENDING, 0 FAILED. At the bottom right is the footer: OpenNebula 4.12.0 by OpenNebula Systems.

Click on oneadmin → import

Create Virtual Machine

Step 1: Specify a name and the number of instances

VM Name: <input type="text"/>	Number of instances: <input type="text" value="1"/>	<input type="checkbox"/> Hold: <input type="radio"/>
-------------------------------	---	--

Step 2: Select a template

ID	Owner	Group	Name	Registration time
1	oneadmin	oneadmin	Ttylinux - KVMMSCIT	11:12:54 25/09/2024
0	oneadmin	oneadmin	ttylinux	19:55:40 28/04/2014

You selected the following template: **Ttylinux - KVMMSCIT**

Create

OpenNebula

Virtual Machines

The sidebar is identical to the first screenshot.

Main content area: A table showing 1 entry: ID 0, Owner oneadmin, Group oneadmin, Name Ttylinux - KVMMSCIT-0, Status RUNNING, Host one-sandbox. Below the table: Showing 1 to 1 of 1 entries, 1 TOTAL, 1 ACTIVE, 0 OFF, 0 PENDING, 0 FAILED. At the bottom right is the footer: 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

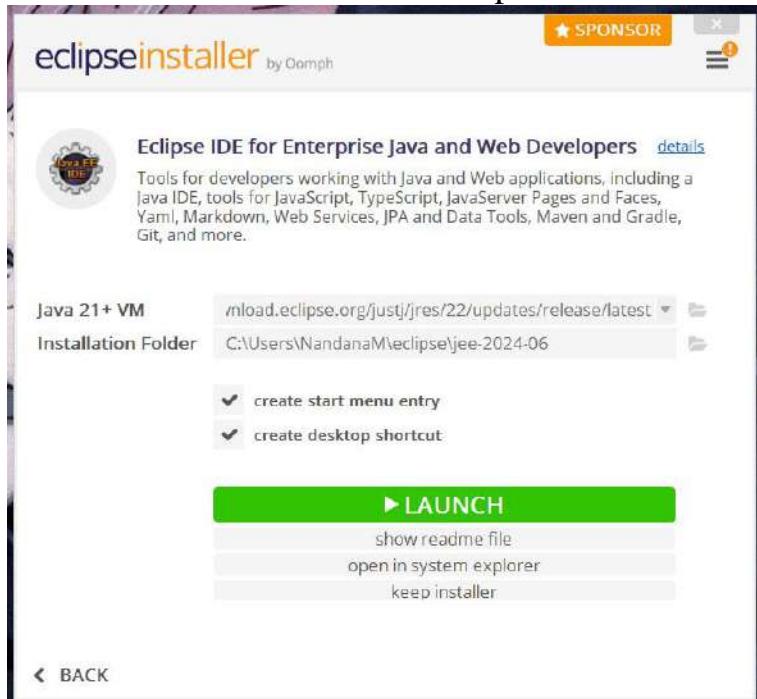
Click on



Click on Install

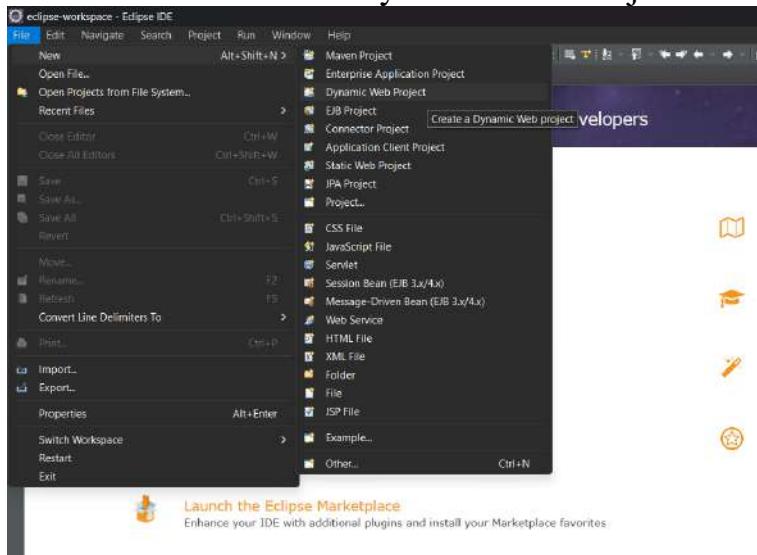


Wait until the installation is completed

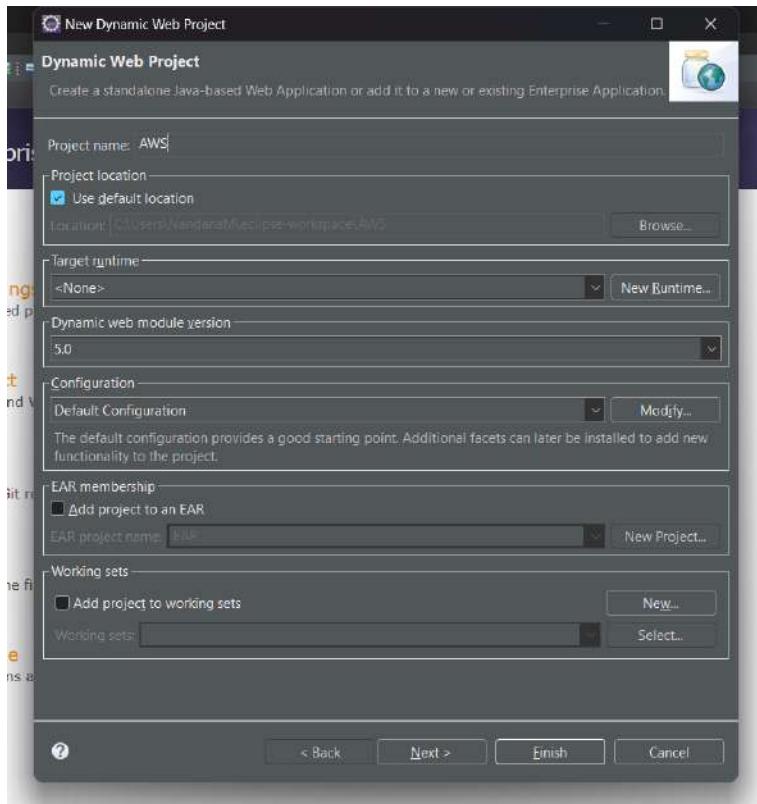


Click on Launch

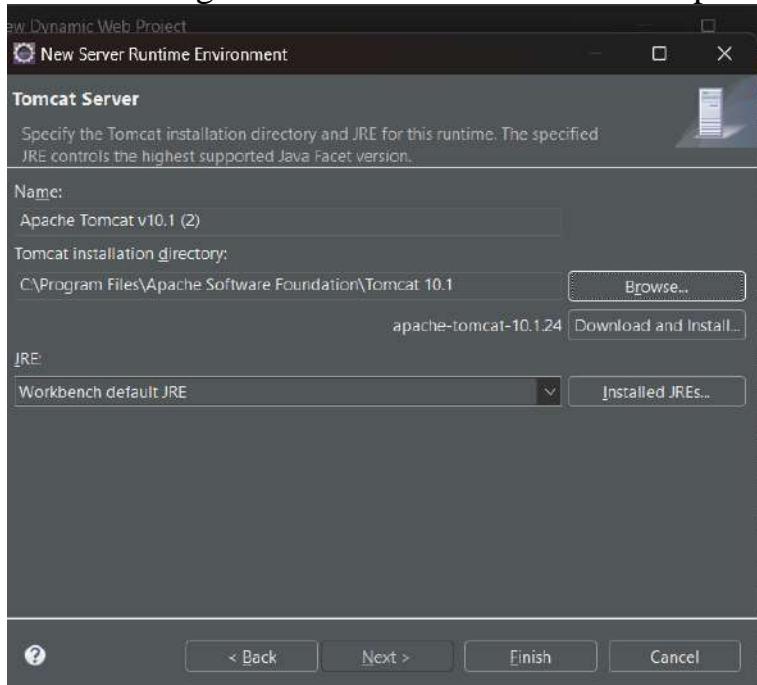
Click on File > New > Dynamic Web Project



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

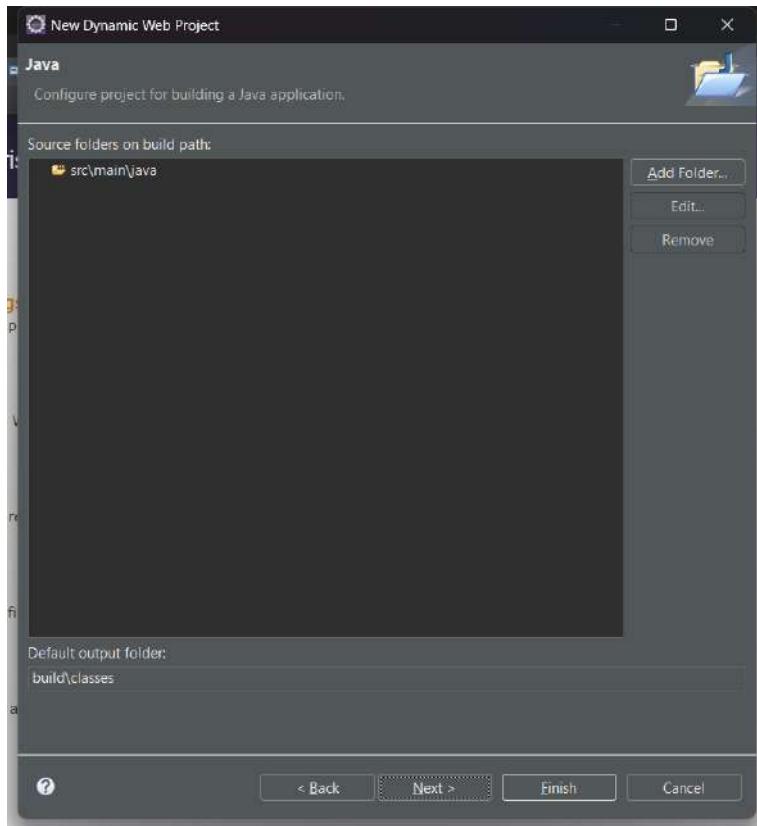


Click on Target Runtime > New Runtime > Apache > Apache tomcat v10.1 > Next

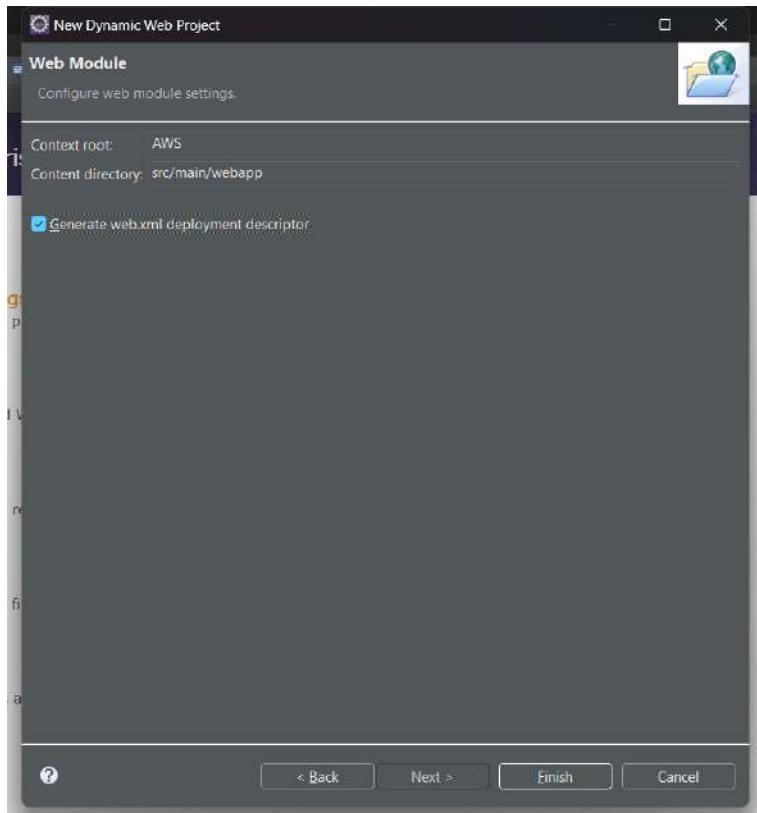


Click Browse > C drive > program files > Apache Software foundation > Tomcat 10.1
> Click on Continue > give access

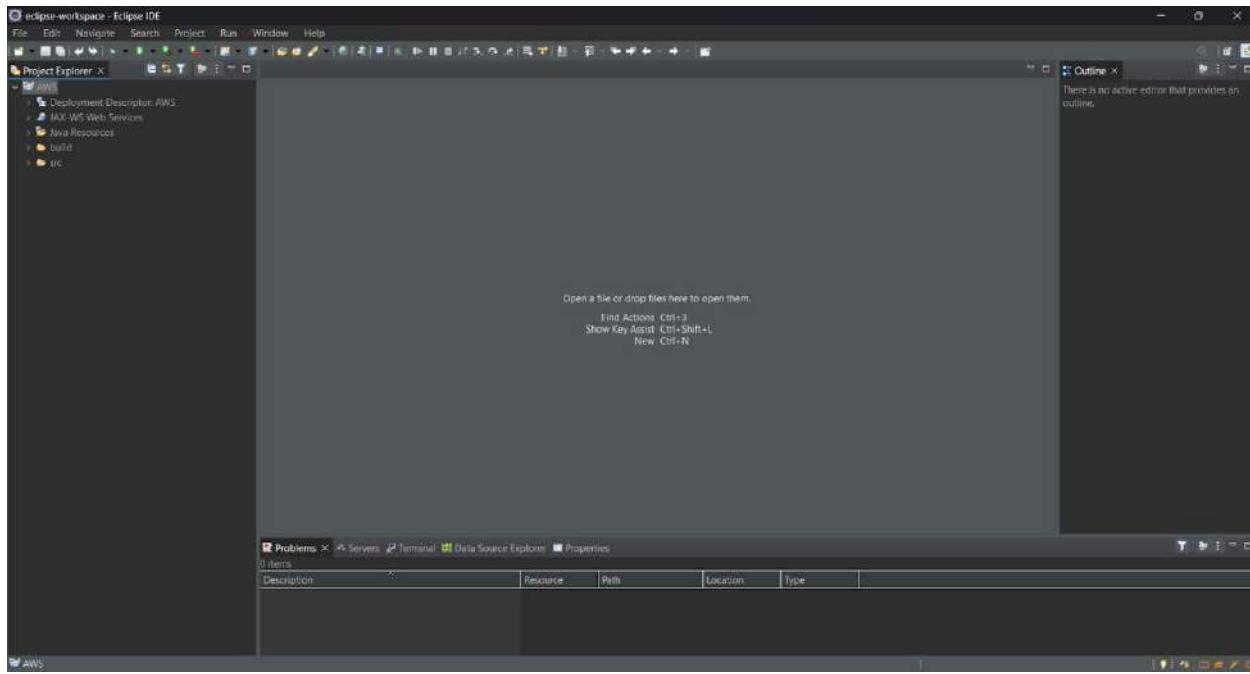
Select that and then click “Next”



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

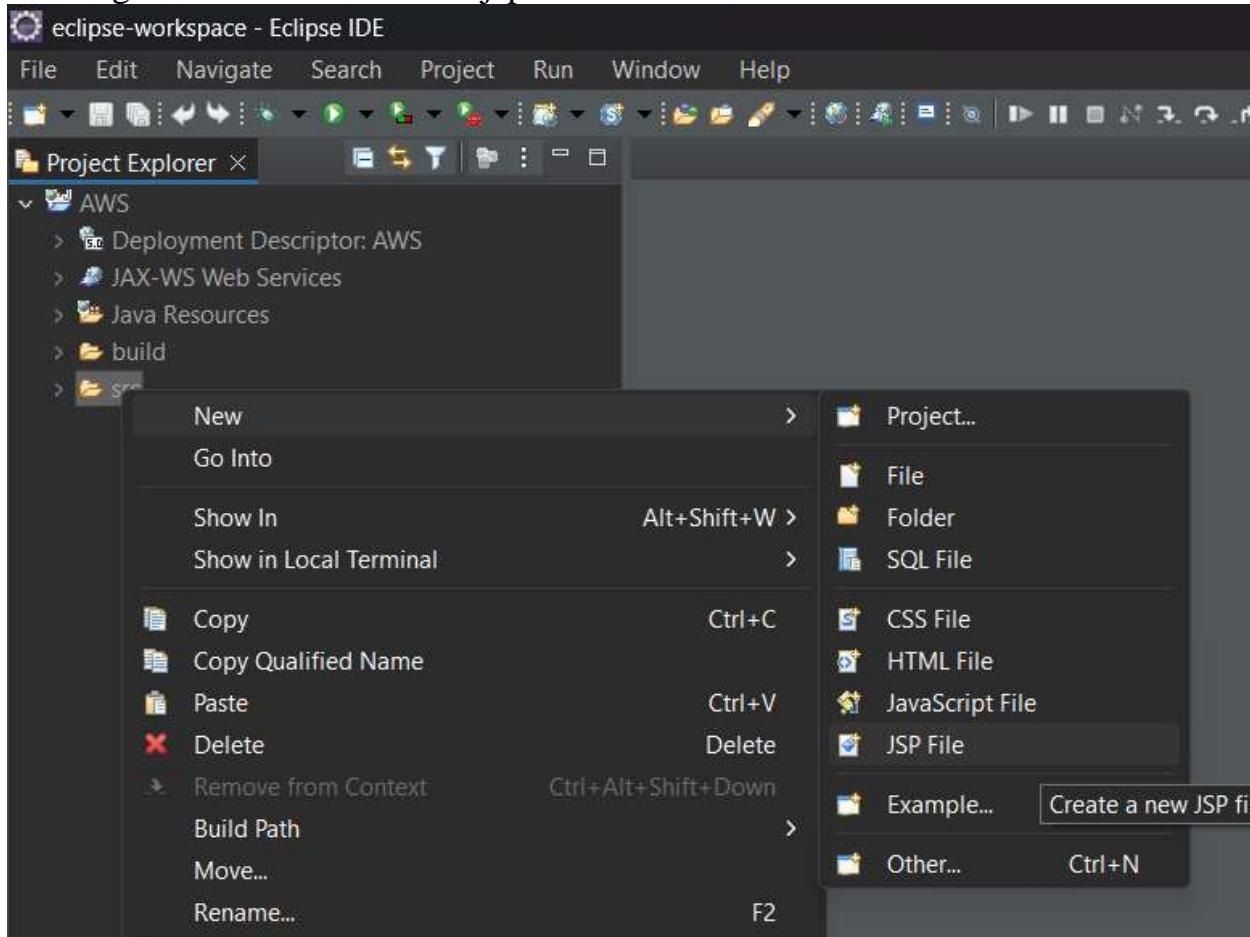


U will be navigated to this page



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

```
1 <%@ page language="java" contentType="text/html; charset=UTF-8"
2 pageEncoding="UTF-8"%>
3 <!DOCTYPE html>
4 <html>
5 <head>
6 <meta charset="UTF-8">
7 <title>Insert title here</title>
8 </head>
9 <body>
10 <form action="Fibonacci.jsp">
11   Enter a value for n: <input type="text" name="val">
12   <input type="submit" value="Submit">
13 </form>
14 </body>
15 </html>
```



```
1 <%@ page language="java" contentType="text/html; charset=UTF-8"
2 pageEncoding="UTF-8"%>
3 <!DOCTYPE html>
4 <html>
5 <head>
6 <meta charset="UTF-8">
7 <title>Insert title here</title>
8 </head>
9 <body>
10 <!
11   int n;
12   String str;
13
14   int fibo(int n) {
15     if(n<2)
16       return n;
17     else
18       return fibo(n-1) + fibo(n-2);
19   }
20 <%
21 <b>Fibonacci series:</b><br>
22 <%
23 str = request.getParameter("val");
24 n = Integer.parseInt(str);
25
26 for(int i=0; i<n; i++) {
27   out.print(fibo(i) + " ");
28 }
29 <%
30 </body>
31 </html>
```

Now run the code

Enter a value for n:

Fibonacci series:

0 1 1 2 3 5