Hindi Vidya Prachar Samiti's

Ramniranjan Jhunjhunwala College of Arts, Science & Commerce (Autonomous), Ghatkopar(W) MUMBAI - 400 086

DEPARTMENT OF INFORMATION TECHNOLOGY

2021 - 2022

M.Sc. (I.T.) SEM II

Virtualization

Name: Pavan Yadav

Roll No.: 24

Hindi Vidya Prachar Samiti's

RAMNIRANJAN JHUNJHUNWALA COLLEGE

(AUTONOMOUS)

Opposite Ghatkopar Railway Station, Ghatkopar West, Mumbai-400086

CERTIFICATE

This is to certify that Mr/~~Miss/Mrs~~ **Pavan Yadav** with **Seat No: 24** has successfully completed the necessary course of experiments in the subject of Virtualization during the academic year 2021 – 2022 complying with the requirements of RAMNIRANJAN JHUNJHUNWALA COLLEGE OF ARTS, SCIENCE AND COMMERCE, for the course of M.Sc. (IT) Semester-II.

_____ 24th March 2022

Internal Examiner Date

_____ _____

Head Of Department College Seal External Examiner

INDEX

Practical No. 1

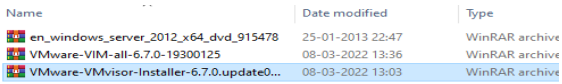
AIM: Implement VMware ESXi for server virtualization

A- Install VMware ESXi server and vSphere client.

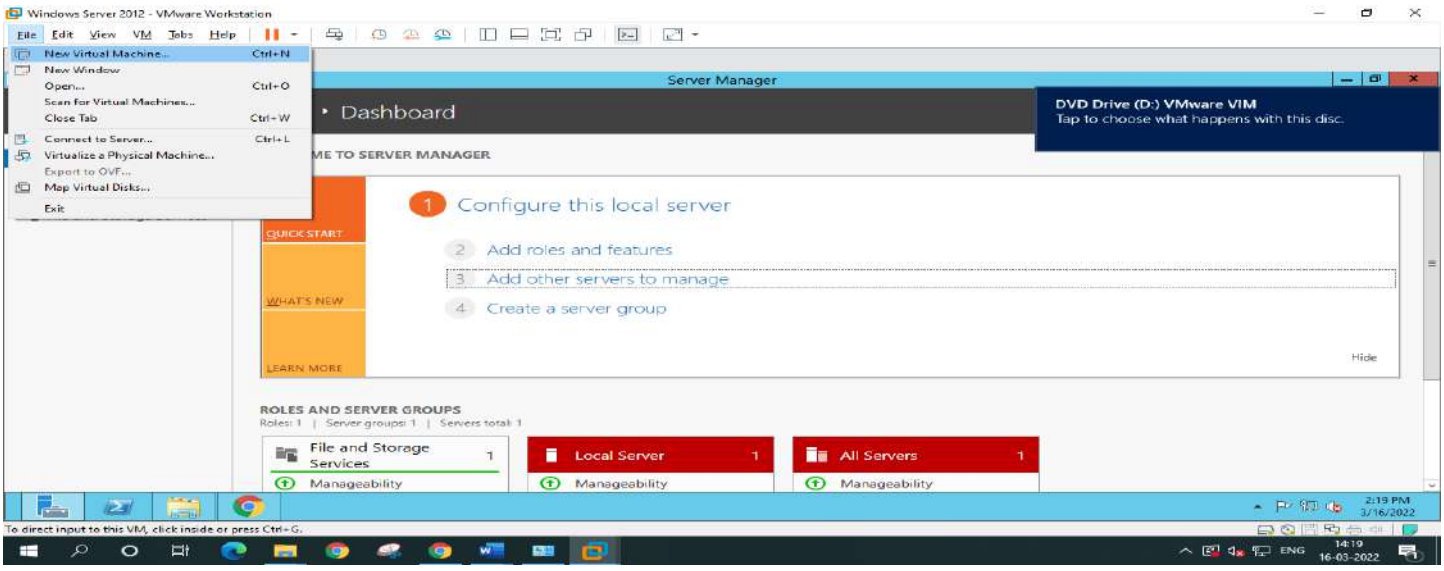
Download VMWare ESXI server from VMWare Portal. On the VMWare download portal, you will need to find the last version of VMWare ESXi. Select the VMWare ESXi software and click on the Download button.

The installation file name is

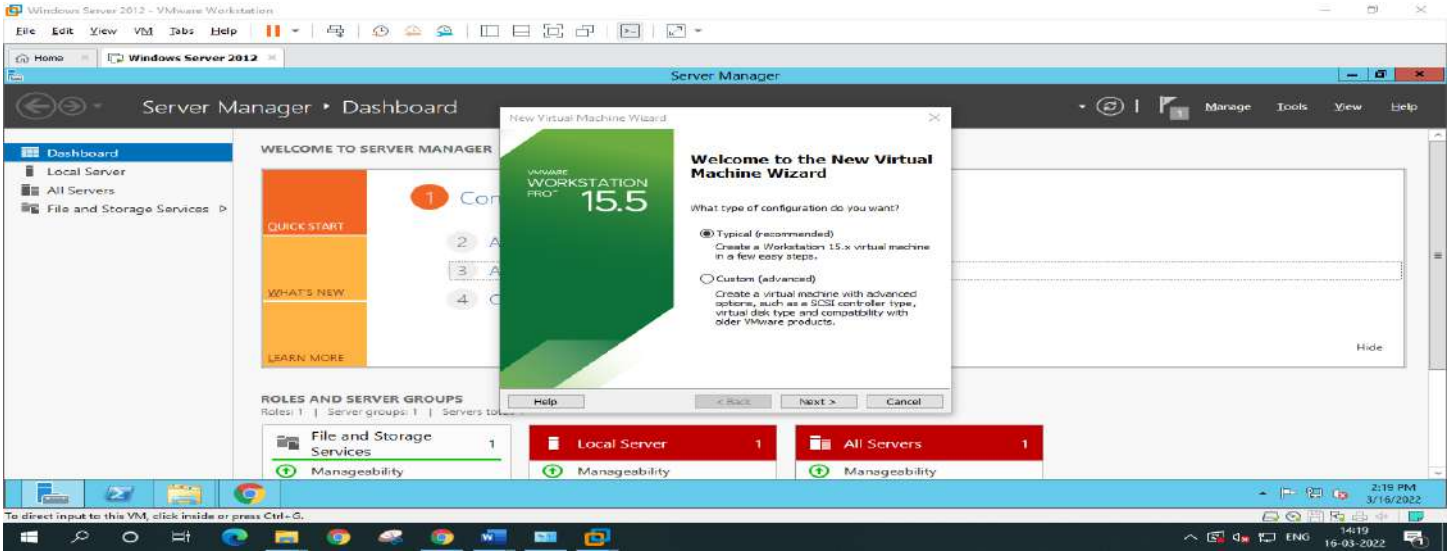
VMware-VMvisor-Installer-6.7.0.update03-14320388.x86_64.iso.



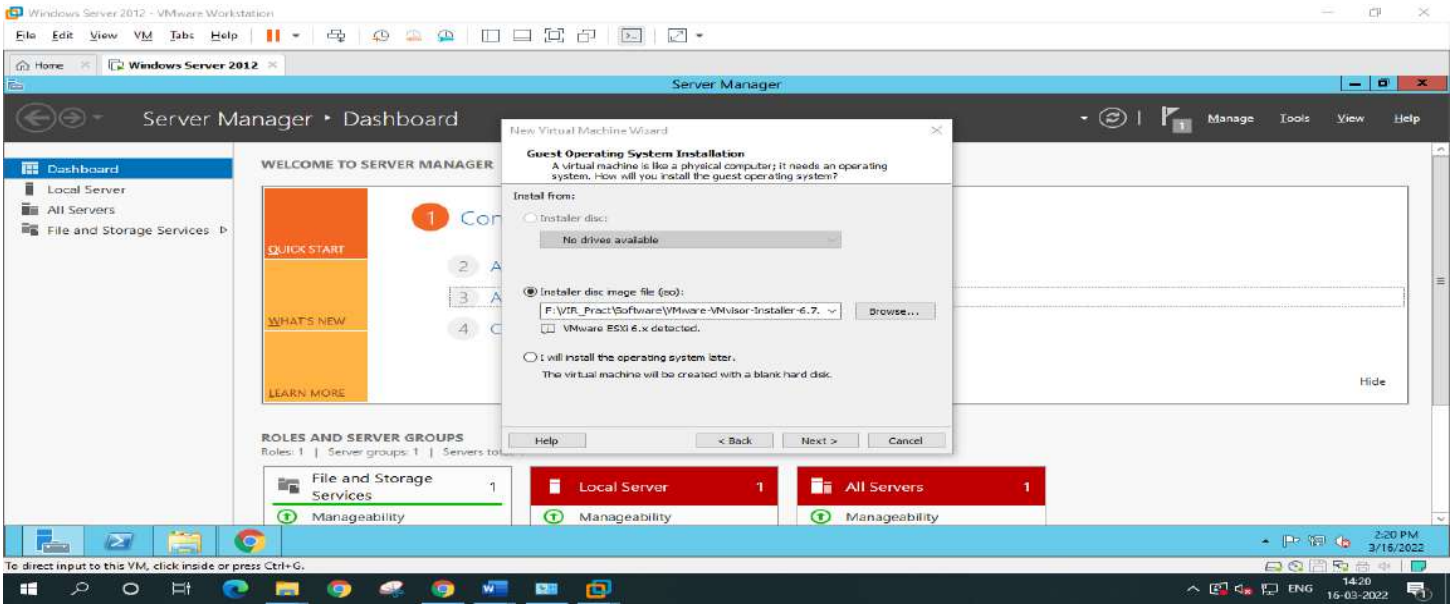
Create a new virtual machine in VMWare Workstation



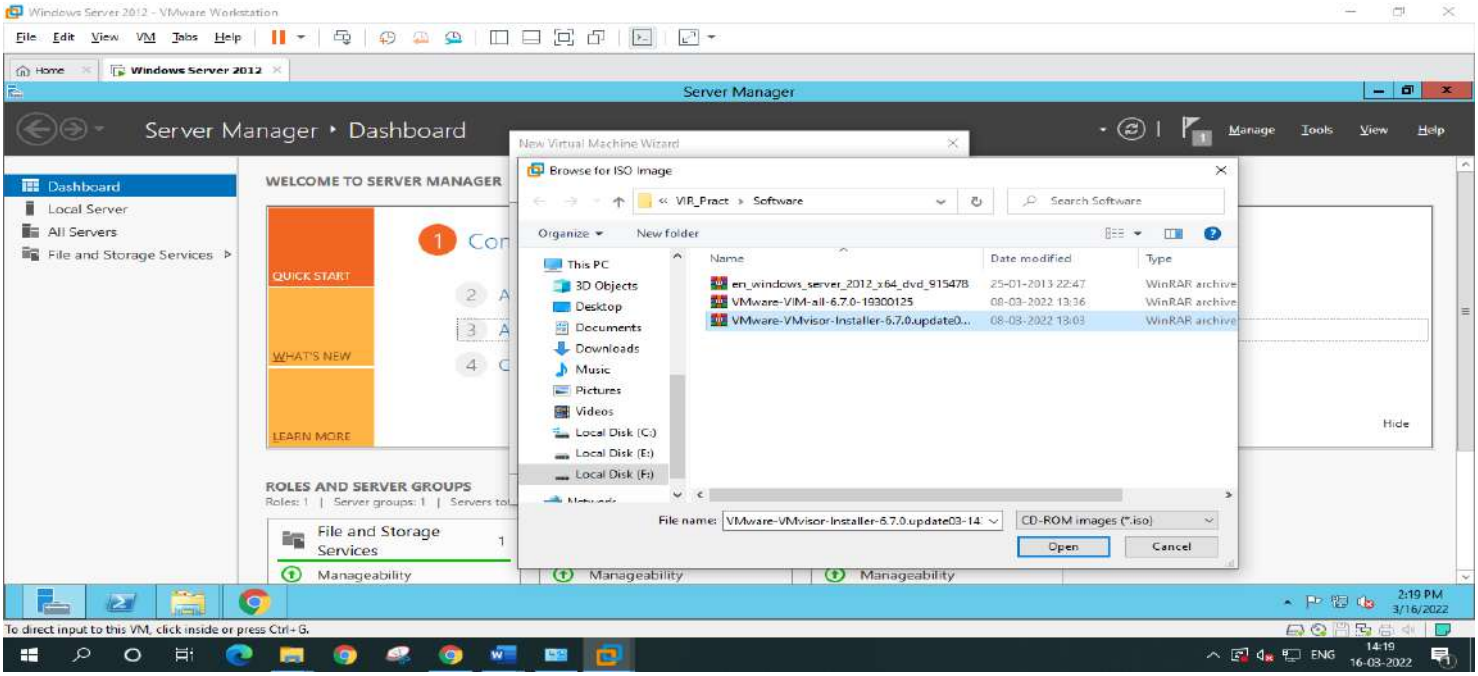
Click on the **Next** Button



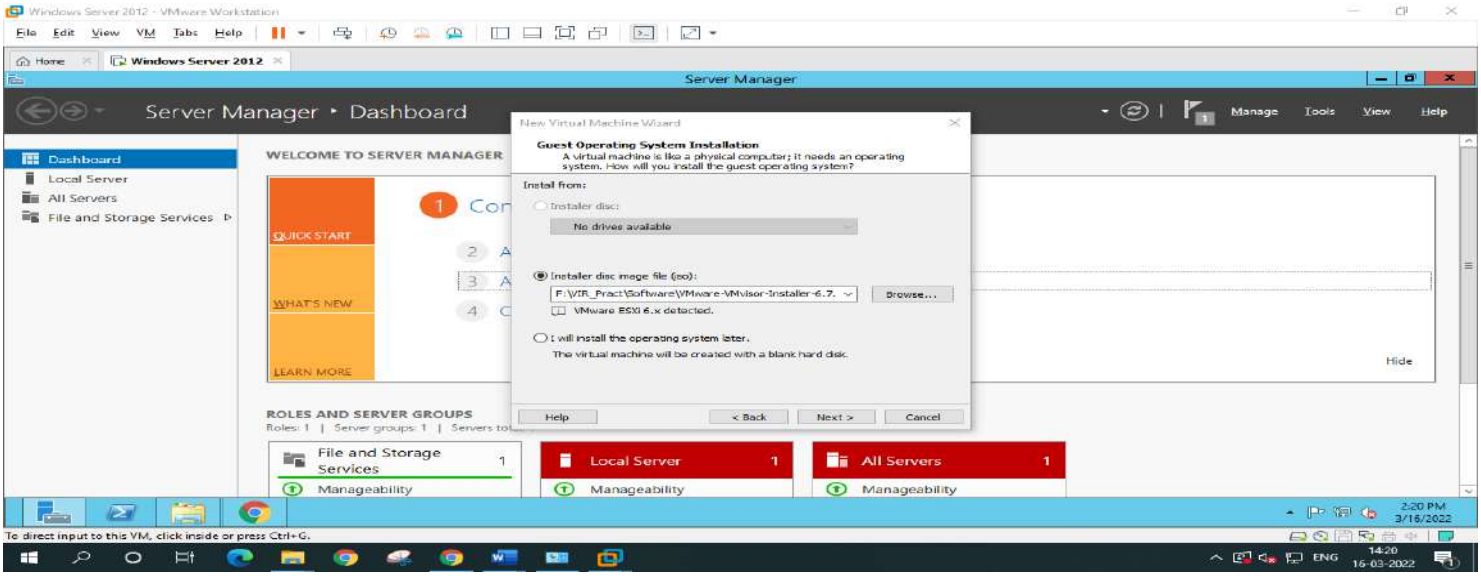
Click on the **Browser** Button



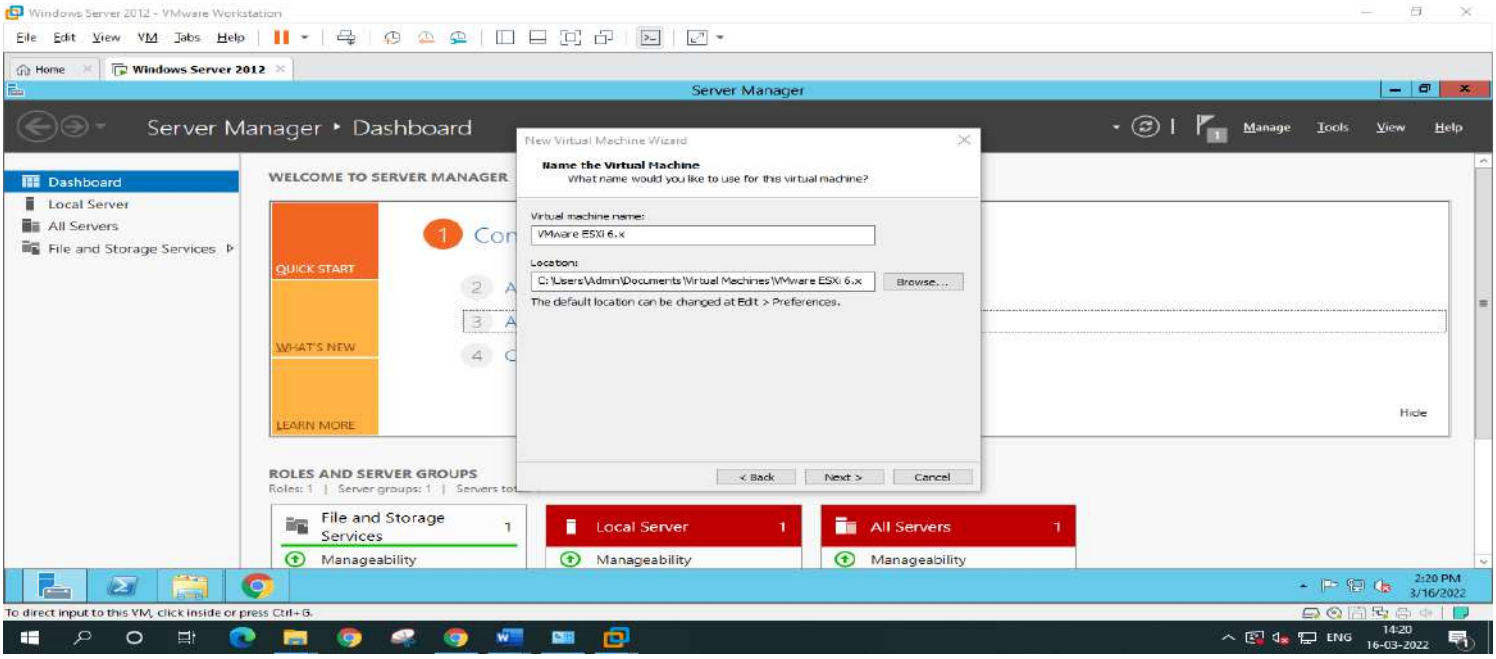
Select the **VMware-VMvisior-installer** see like in below image



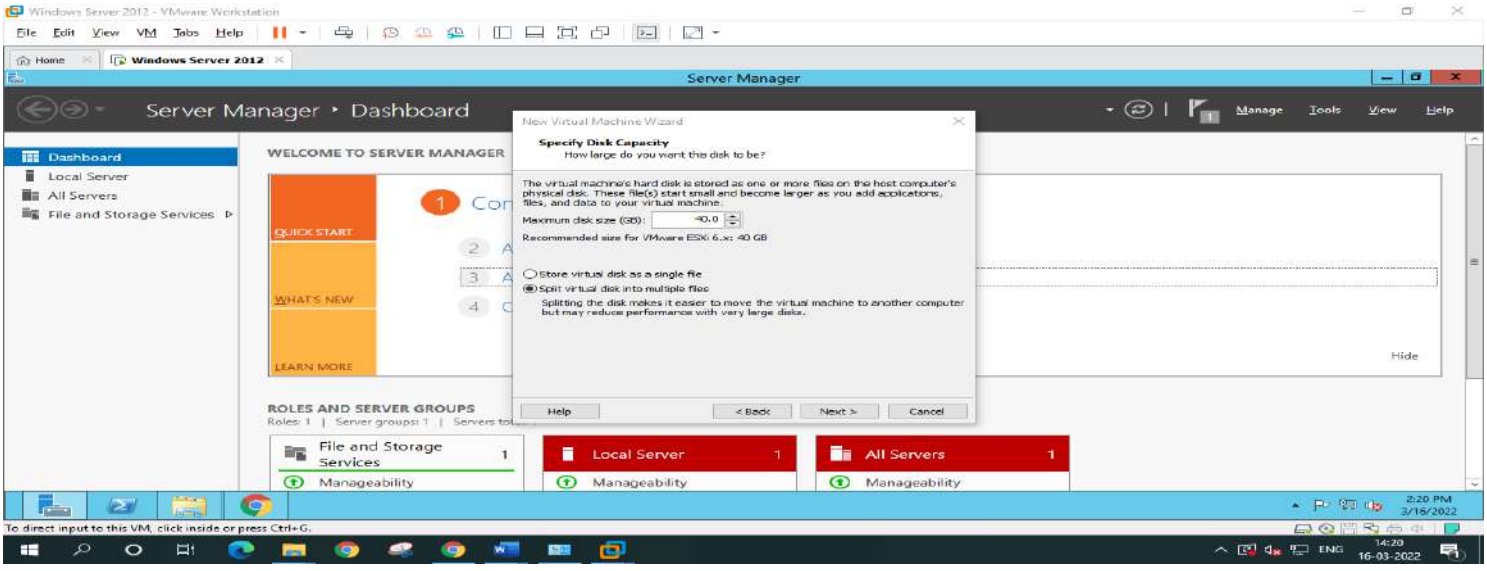
Click on the **Next** Button



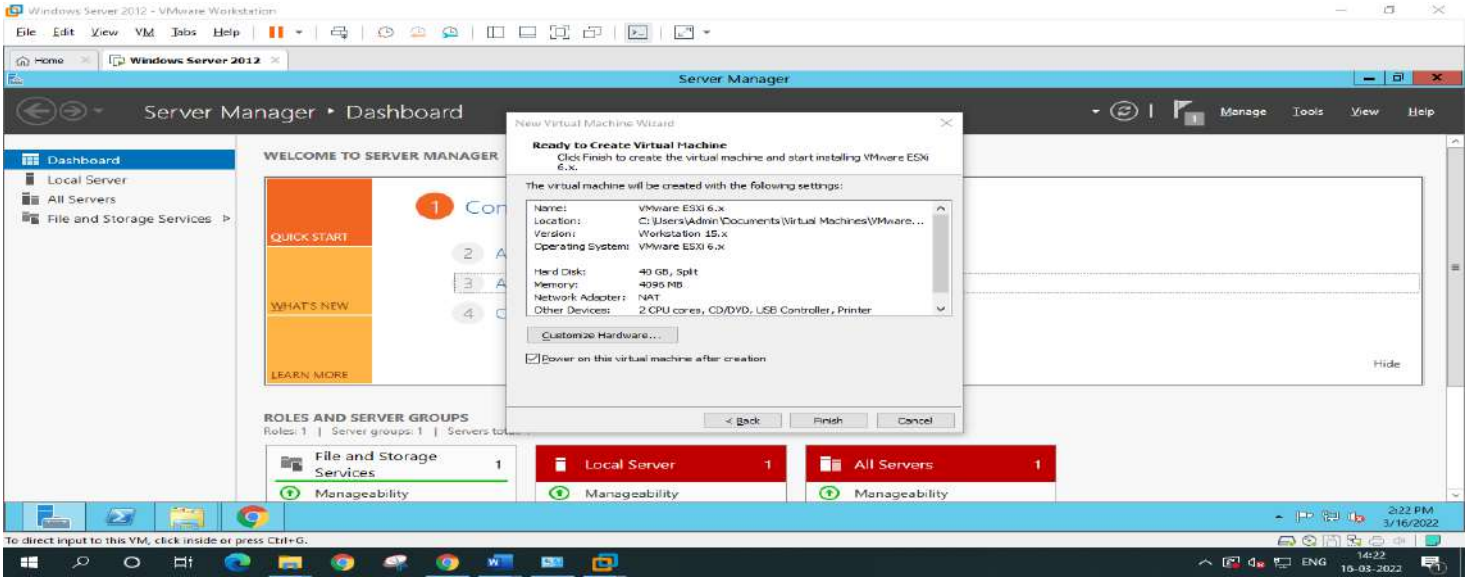
Click on the **Next** Button



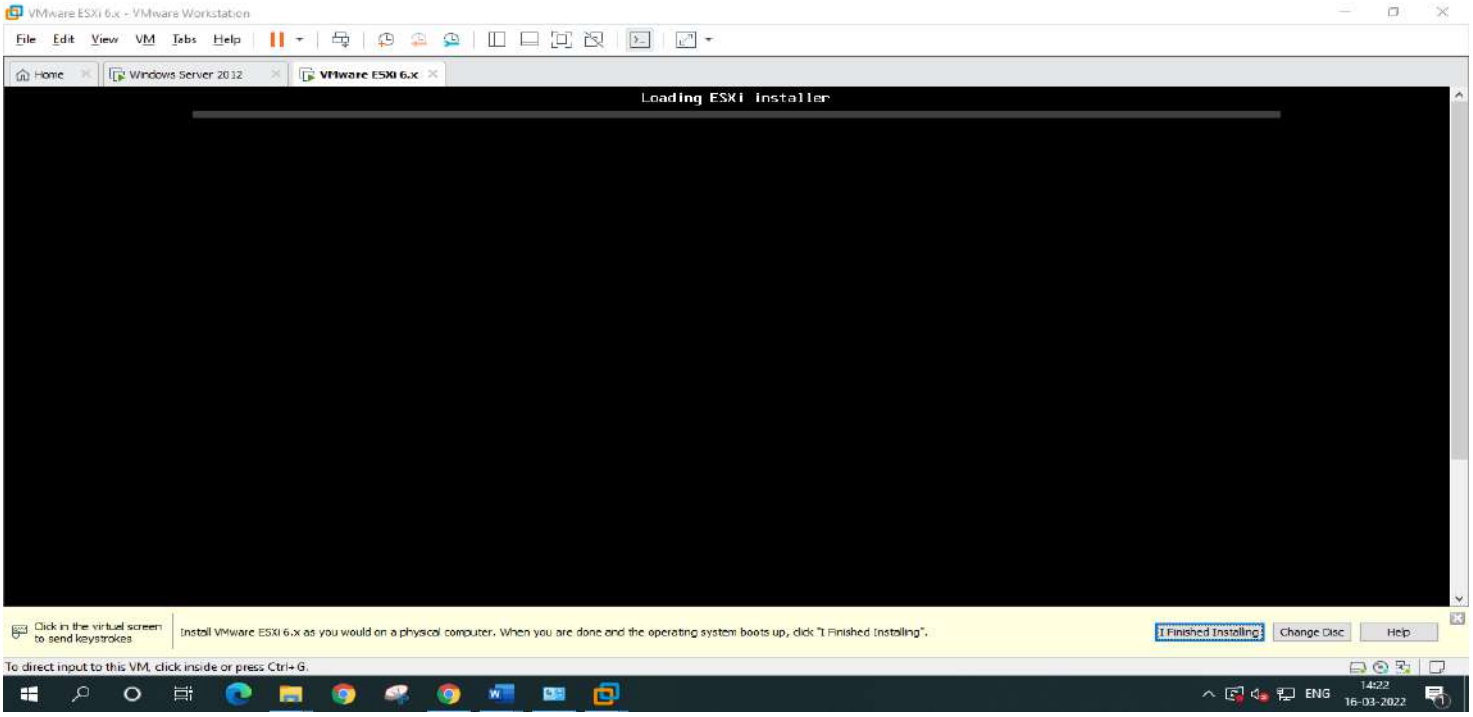
Click on the **Next** Button

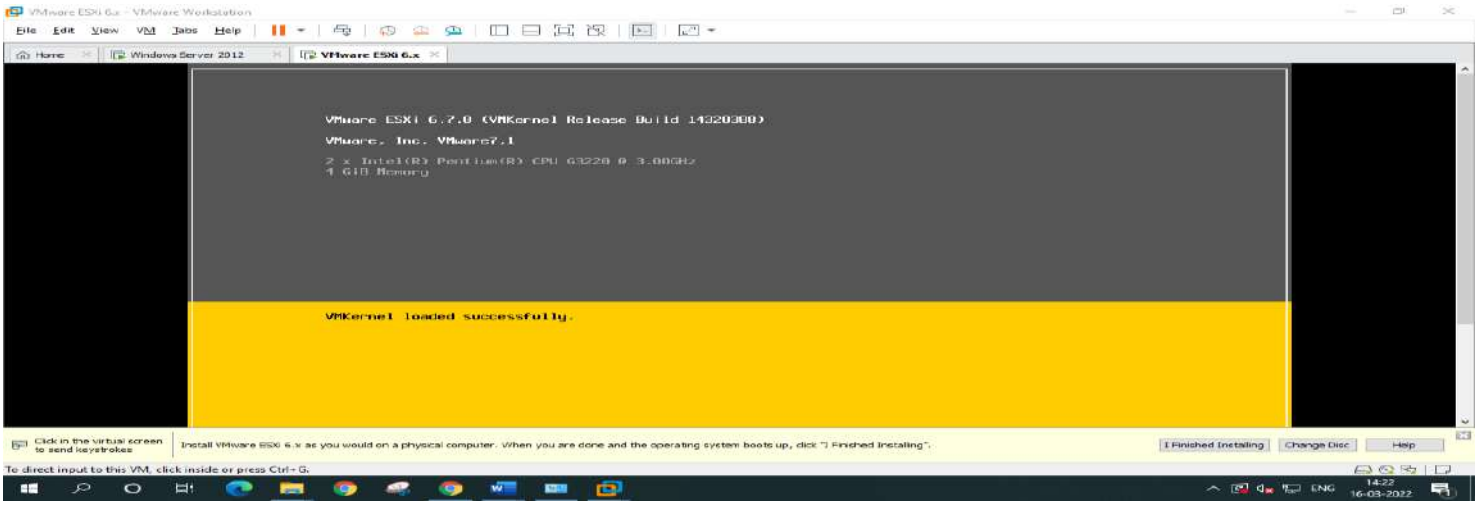


Click on the **Finish** Button

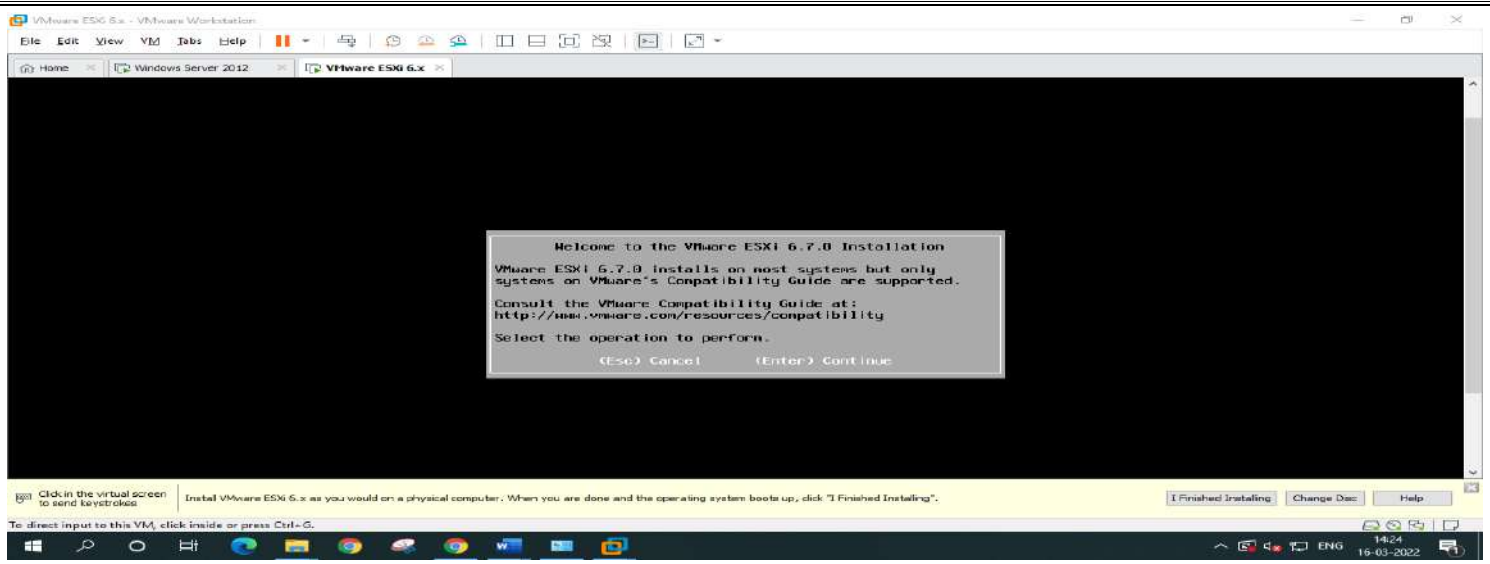


The following screen occurs:

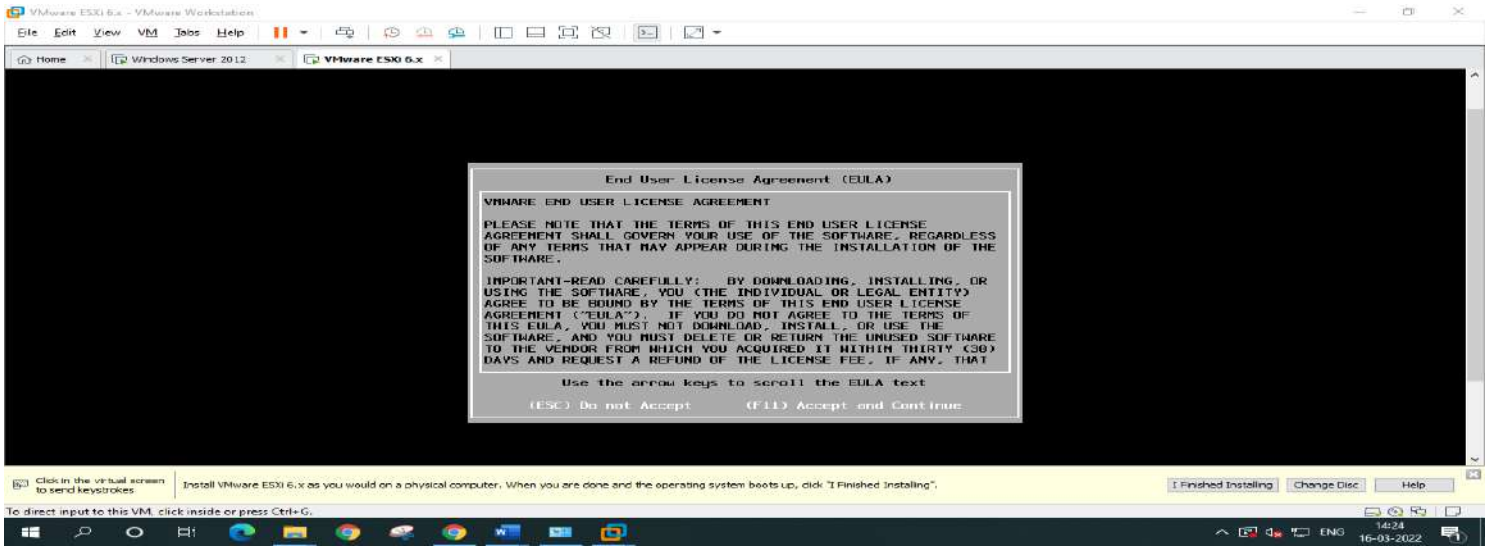




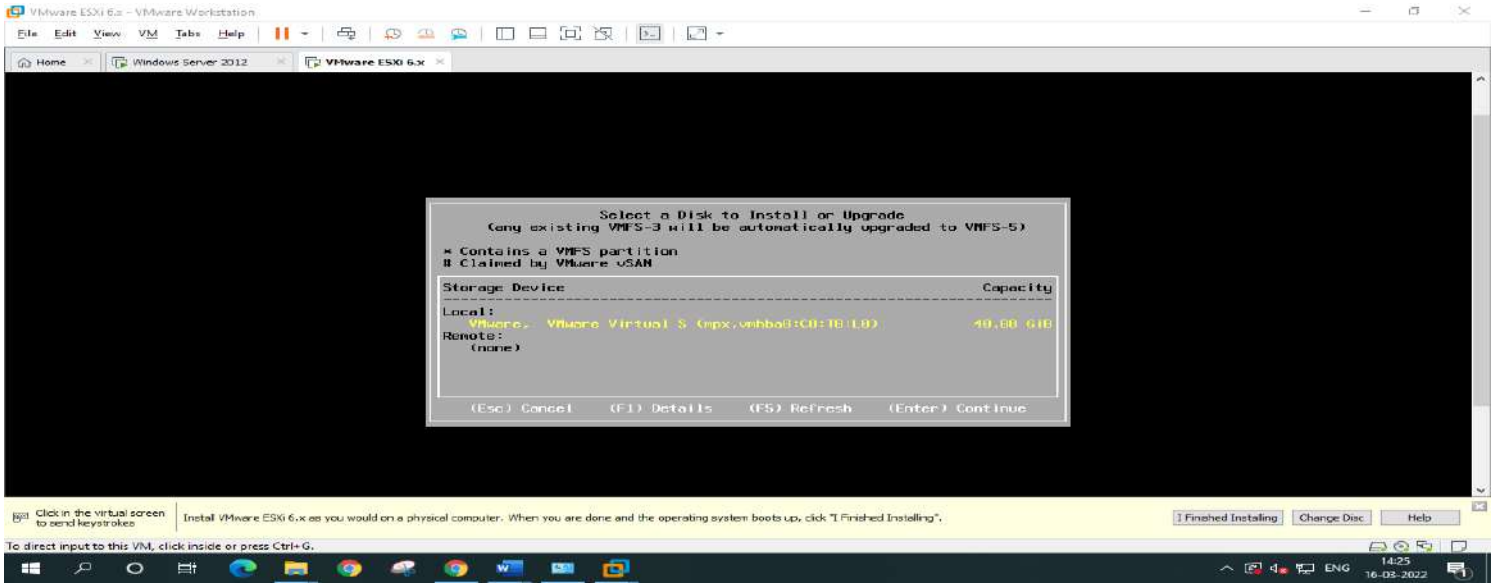
Press on the **Enter** button



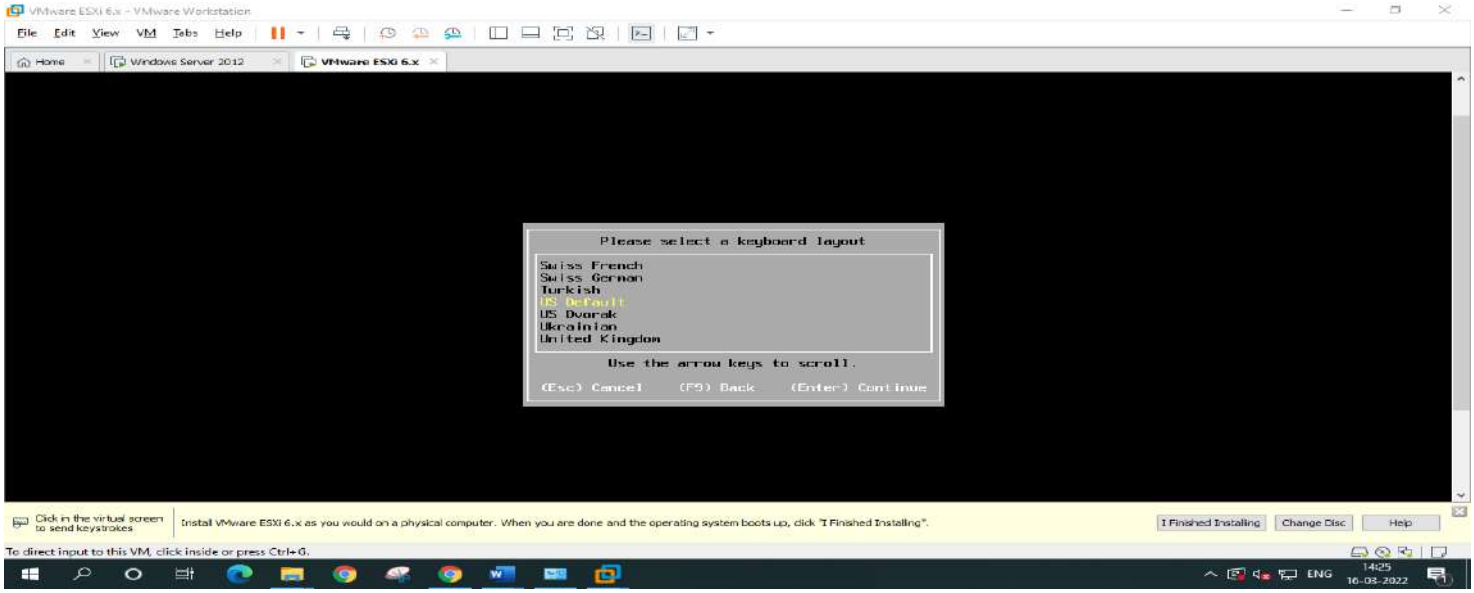
Press on the **F11** button



Press on the **Enter** button

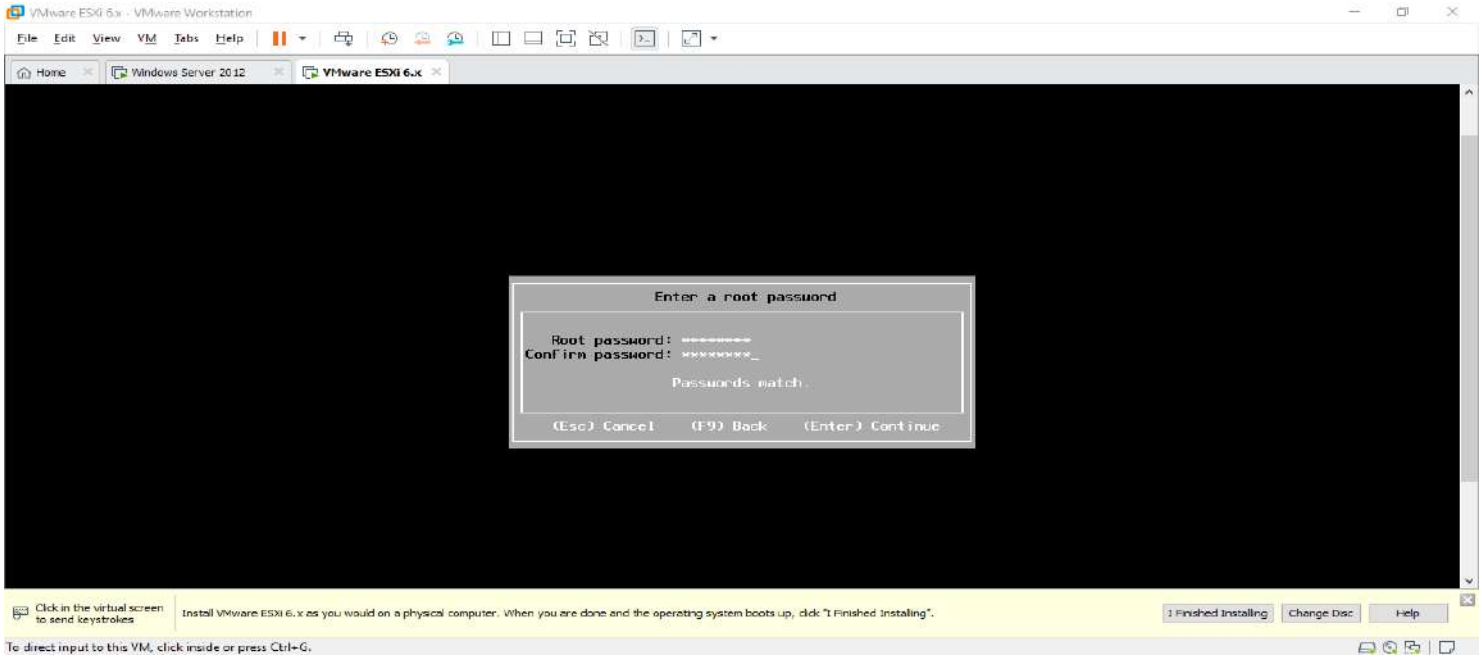


Press on the **Enter** button

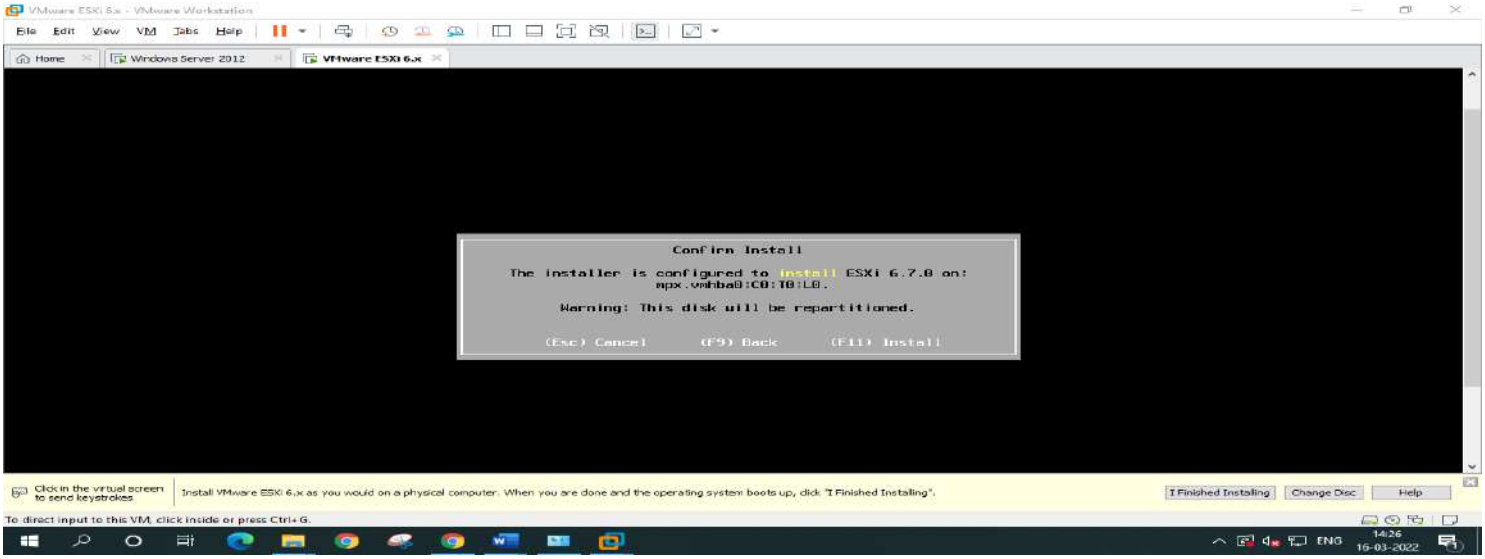


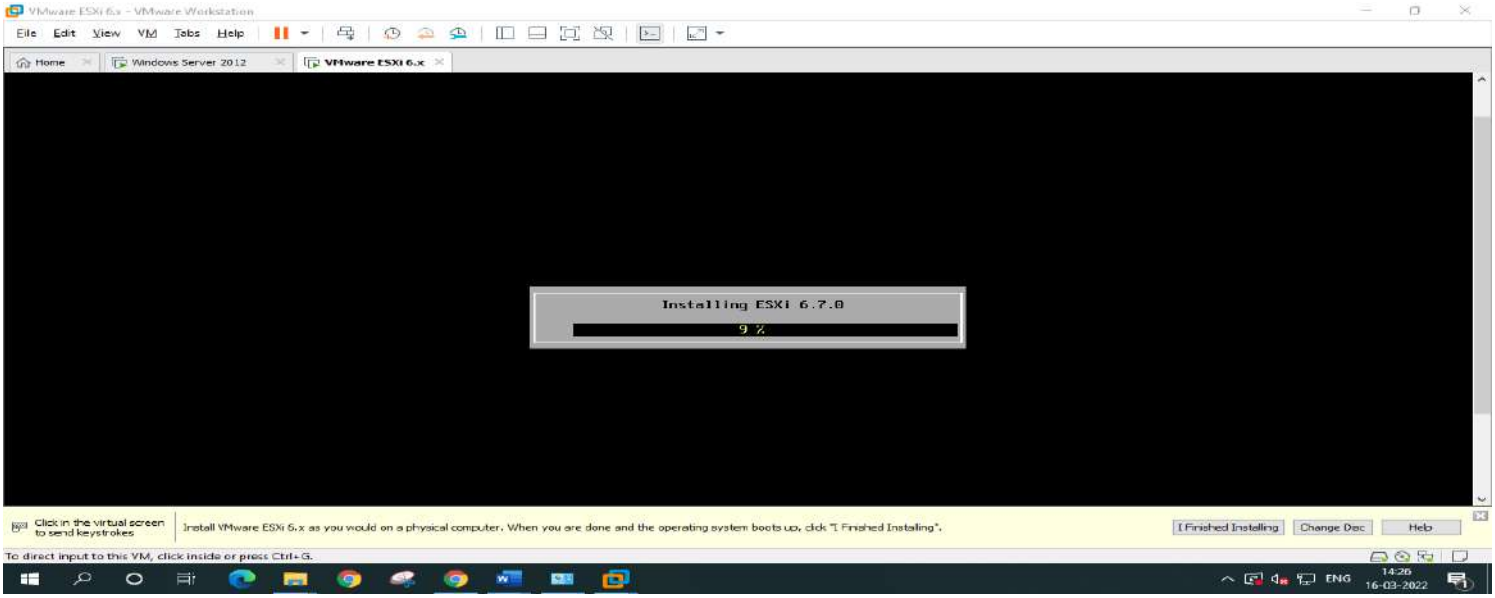
Press on the **Enter** button

Here Password is **It@13579**

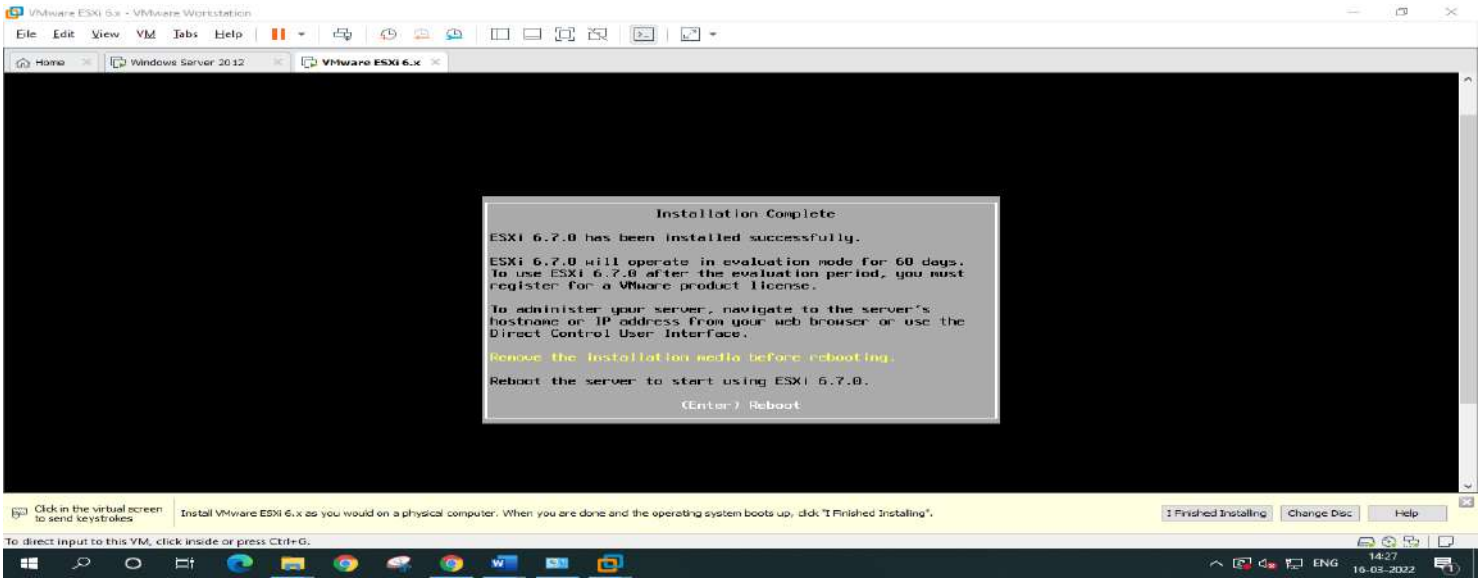


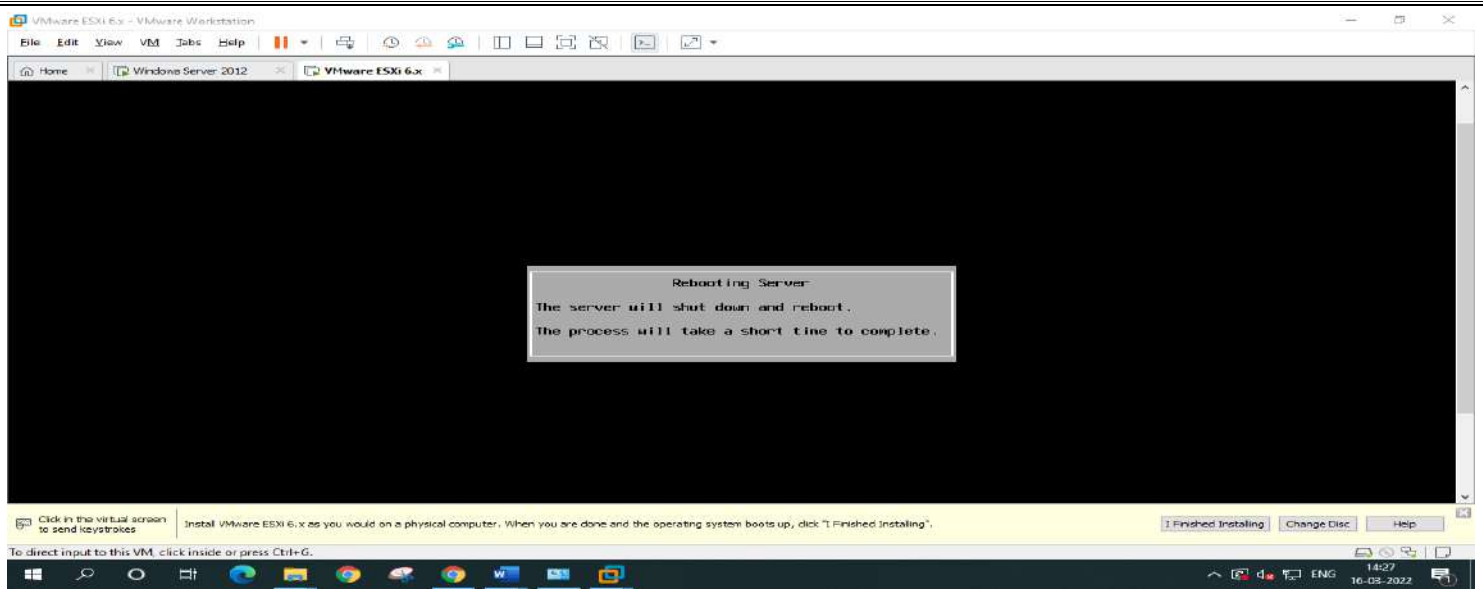
Press on the **F11** button



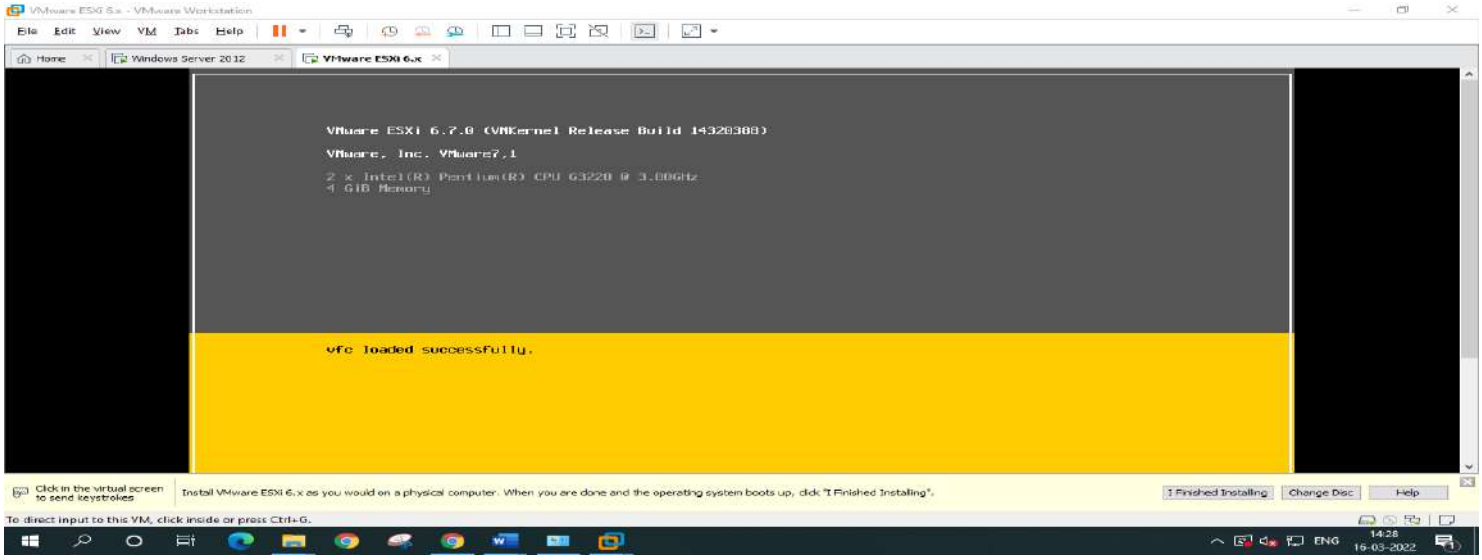


Press on the **Enter** button



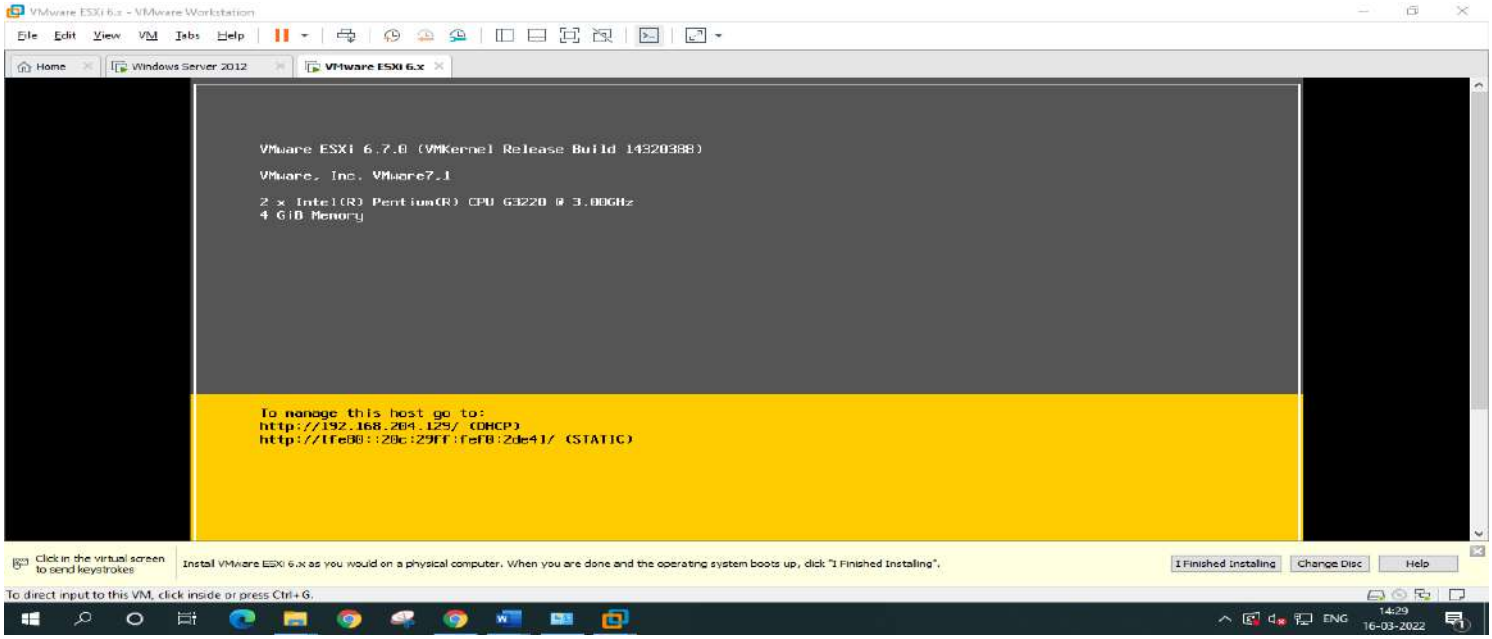


After rebooting, the VMWare console screen will be presented.



Congratulations VMWare ESXi successfully installed and

Used for **Host IP Address**: **192.168.204.129**

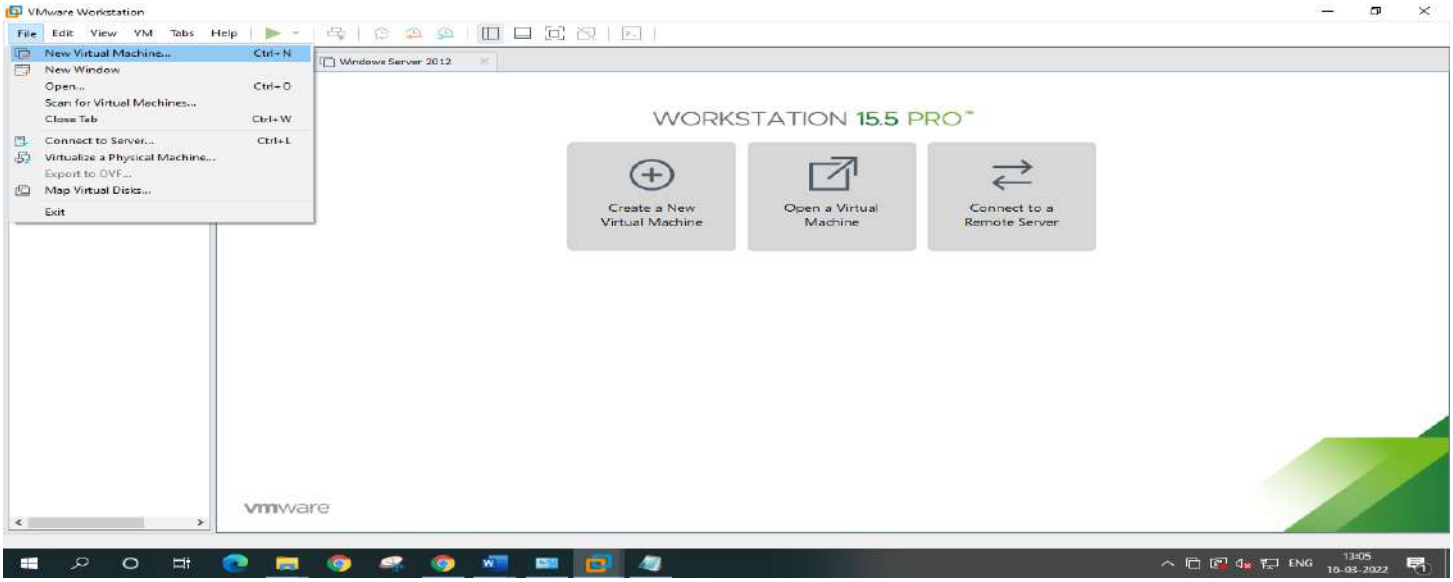


B- Install vCenter Single Sign-On as Part of a vCenter Server Simple Install.

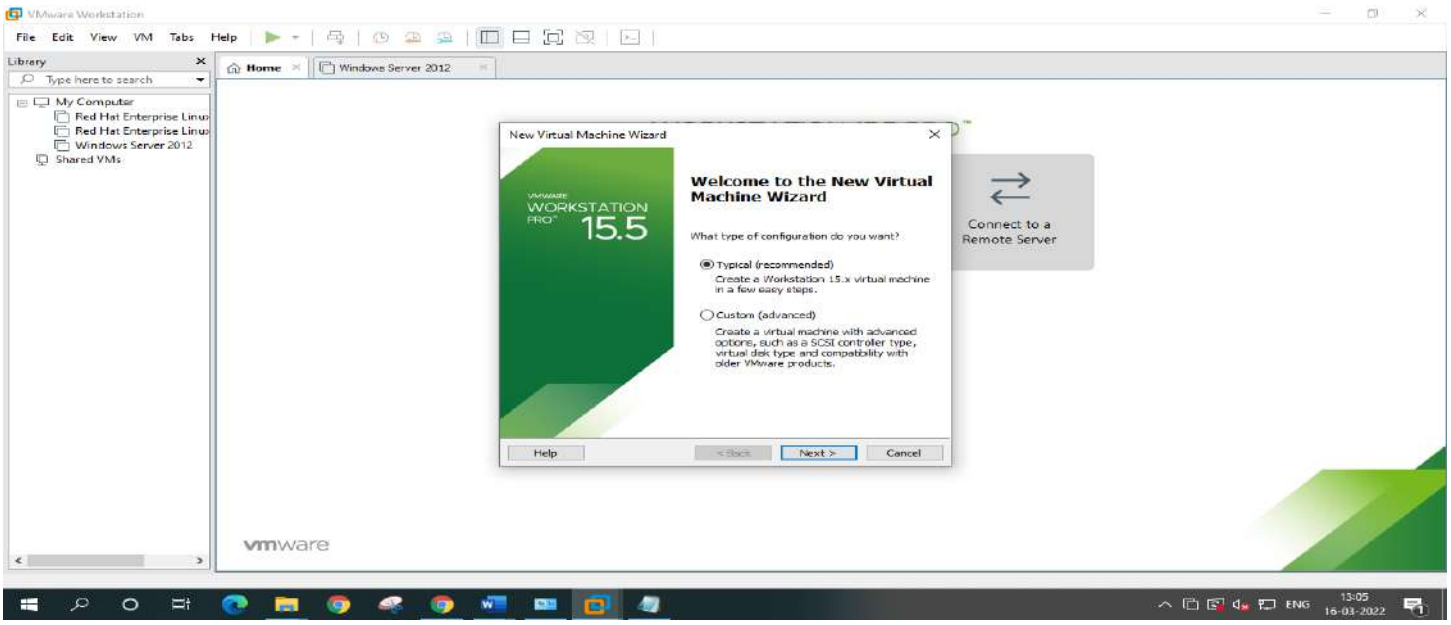
Install Windows Server 2012 Machine:

First for installing **vCenter**, we need to **create a Windows Server virtual machine**.

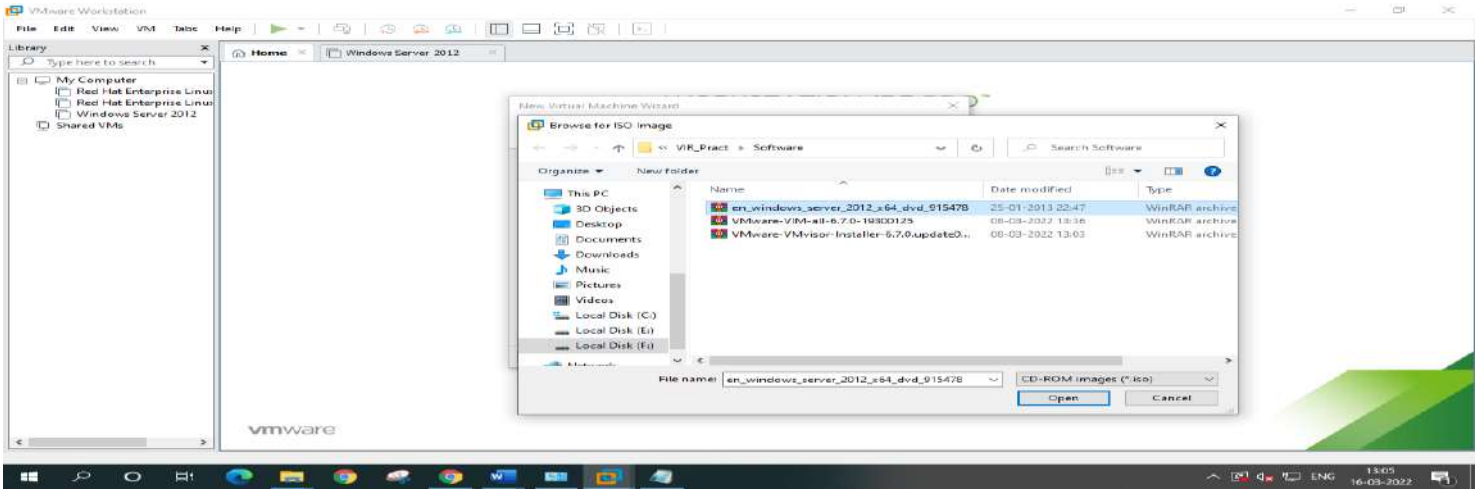
Open VMWare workstation and click on Create Virtual Machine and in the "**New Virtual Machine Wizard**"



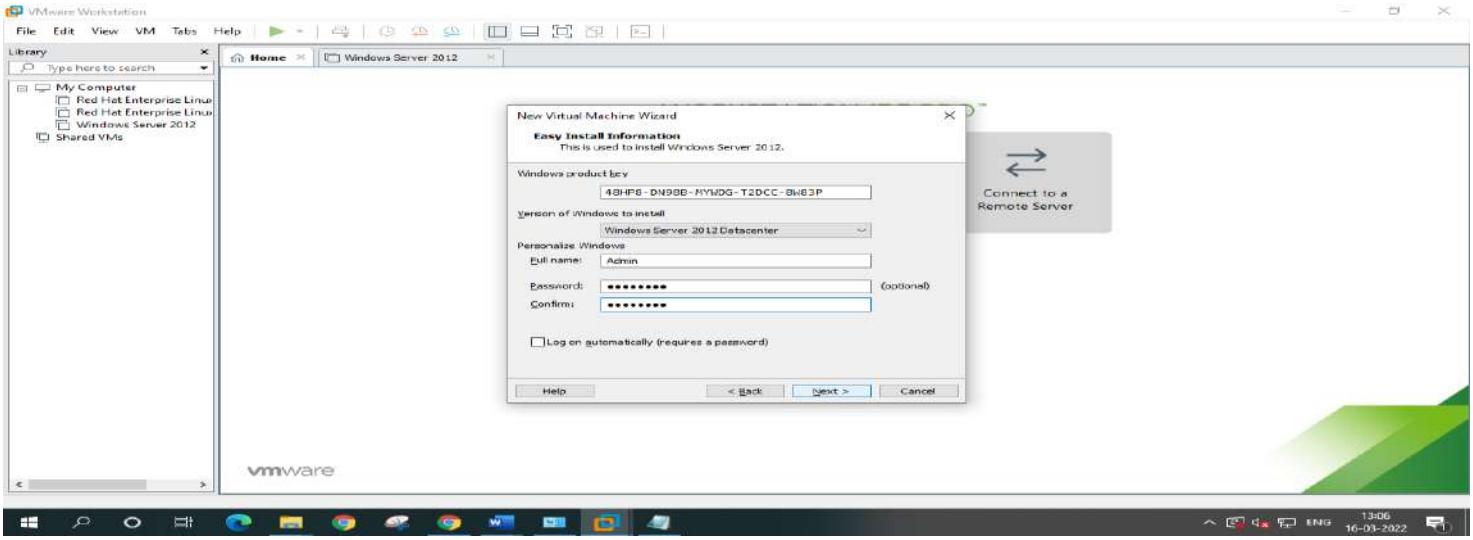
Select the "**Typical**" option and click on the "**Next**" button



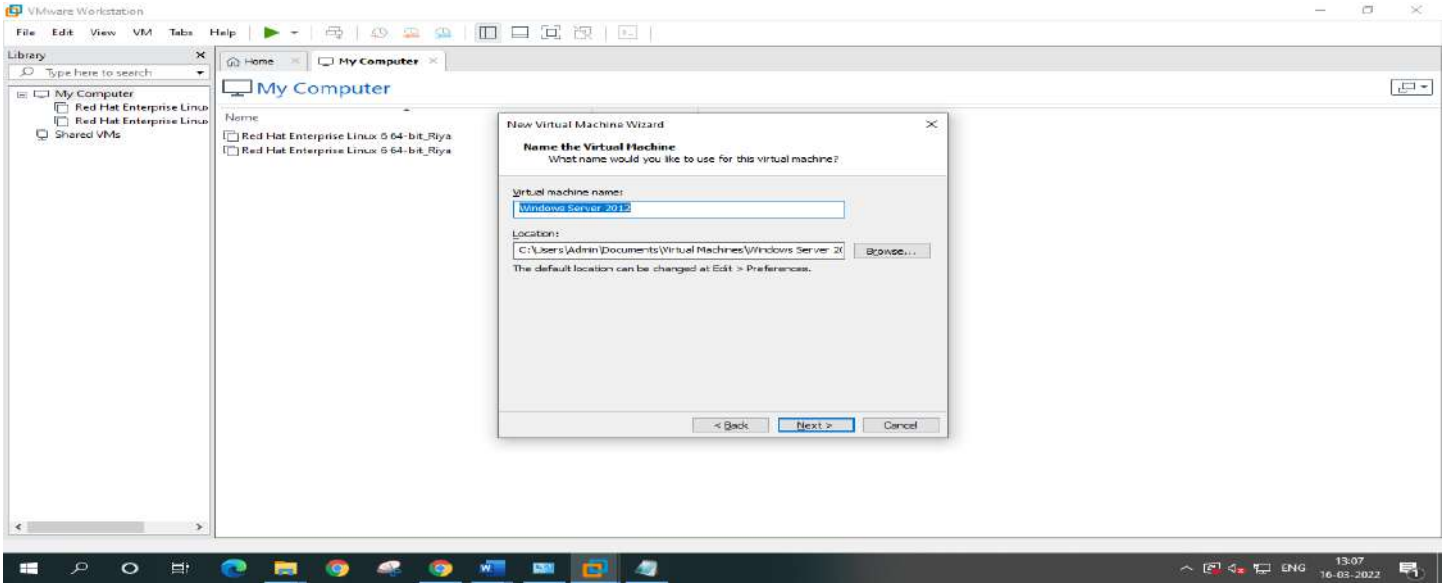
In the Next window, select the option **Installer Disc** and click on **Browse** to select the **Windows Server 2012 iso** file, and then click on Next.



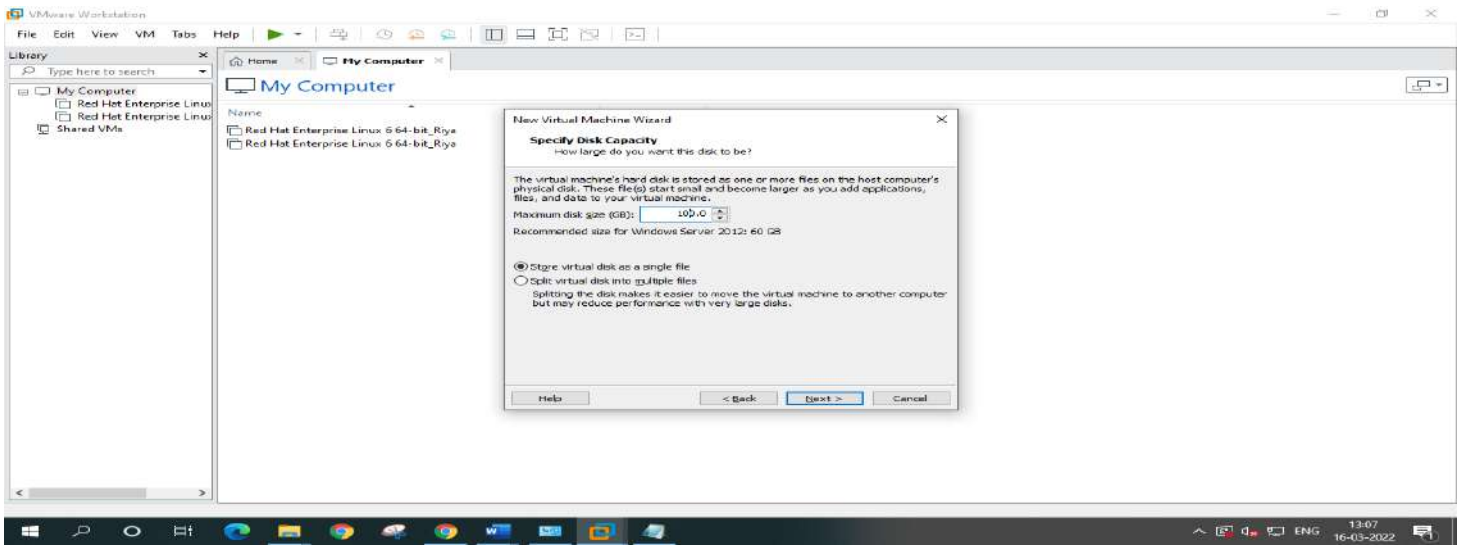
Provide the **key of windows server** and set the password as **It@13579**



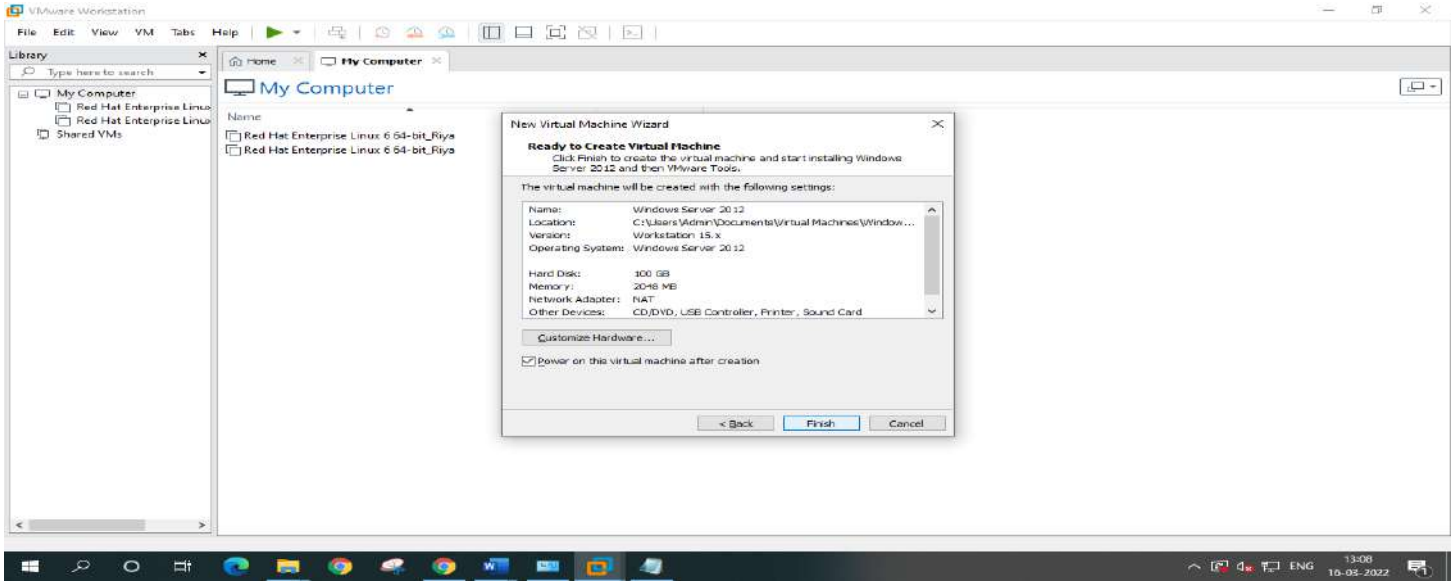
Click on the **Next** Button



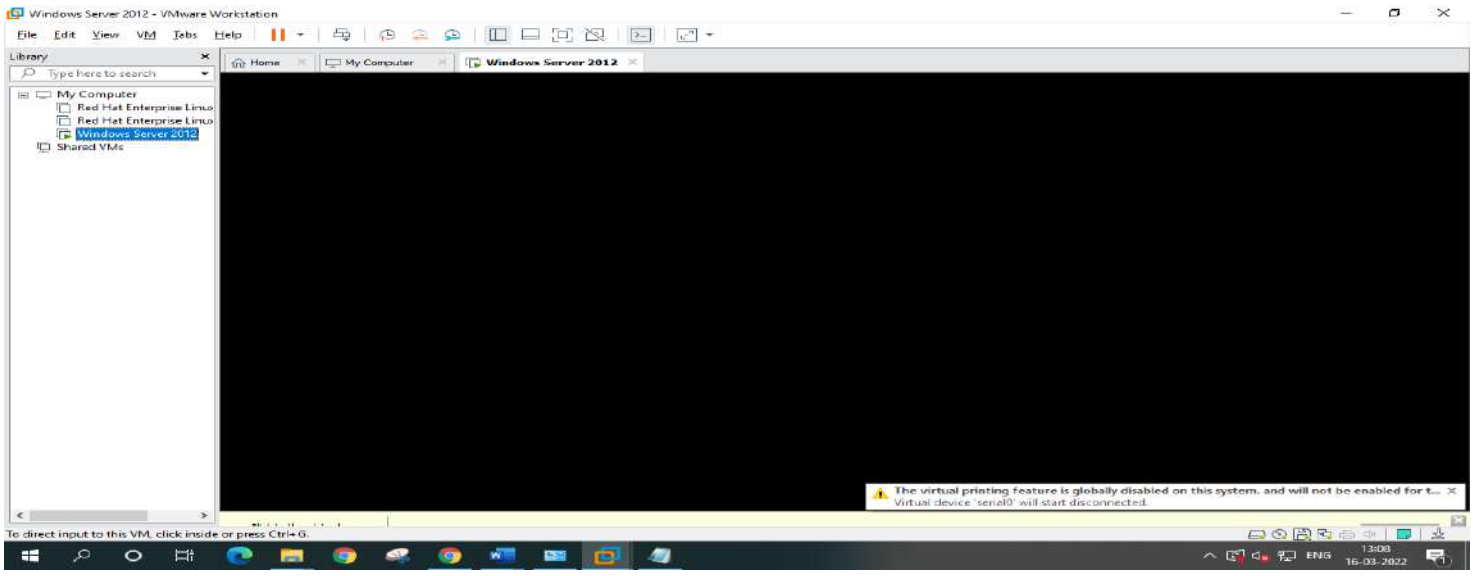
Provide the Disk size or default size then Click on the **Next** Button

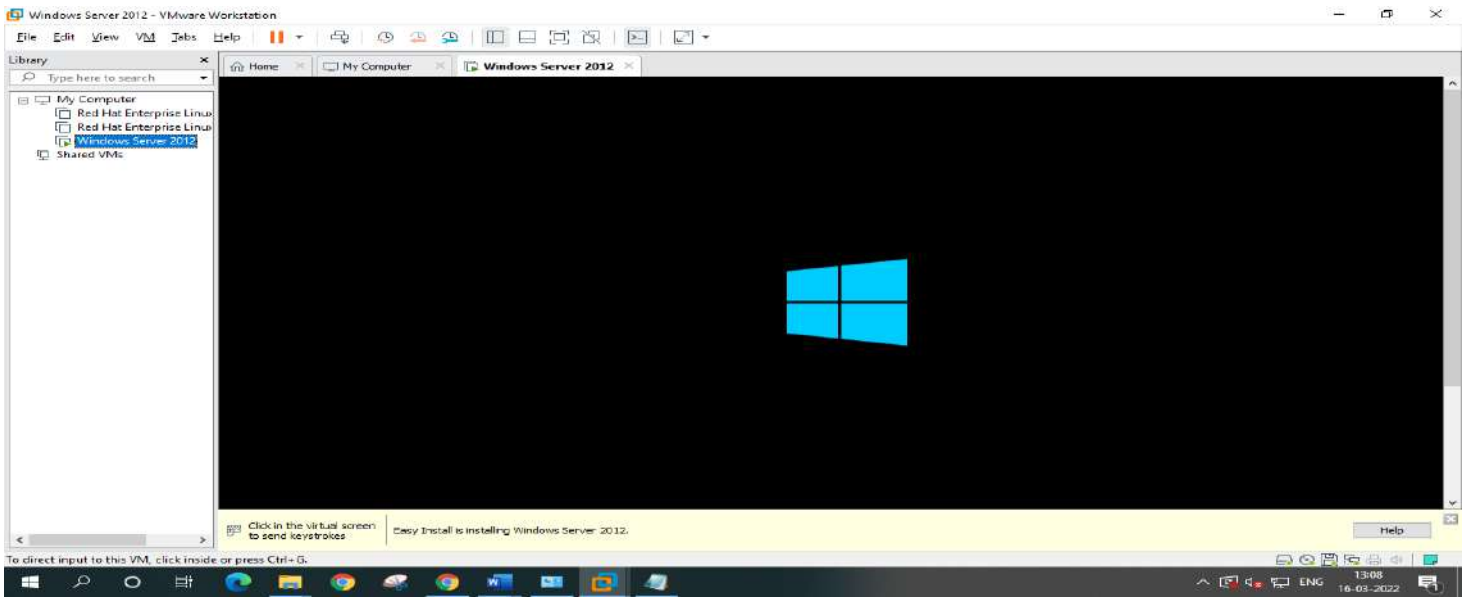


Click on the **Finish** Button. (Customize the Hardware settings)

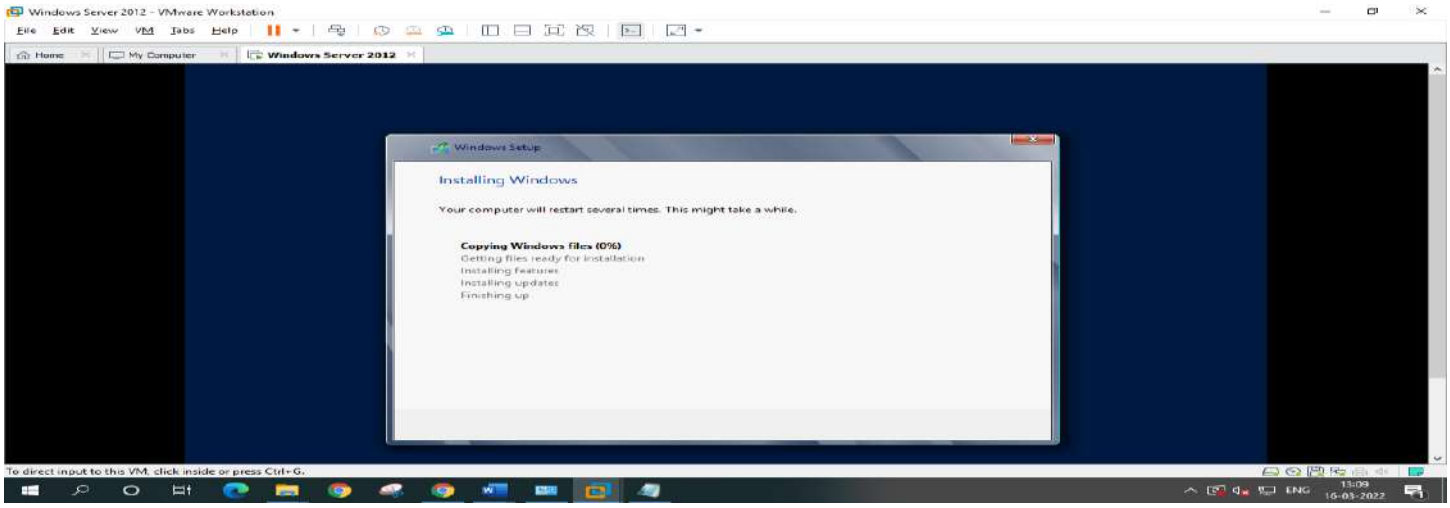


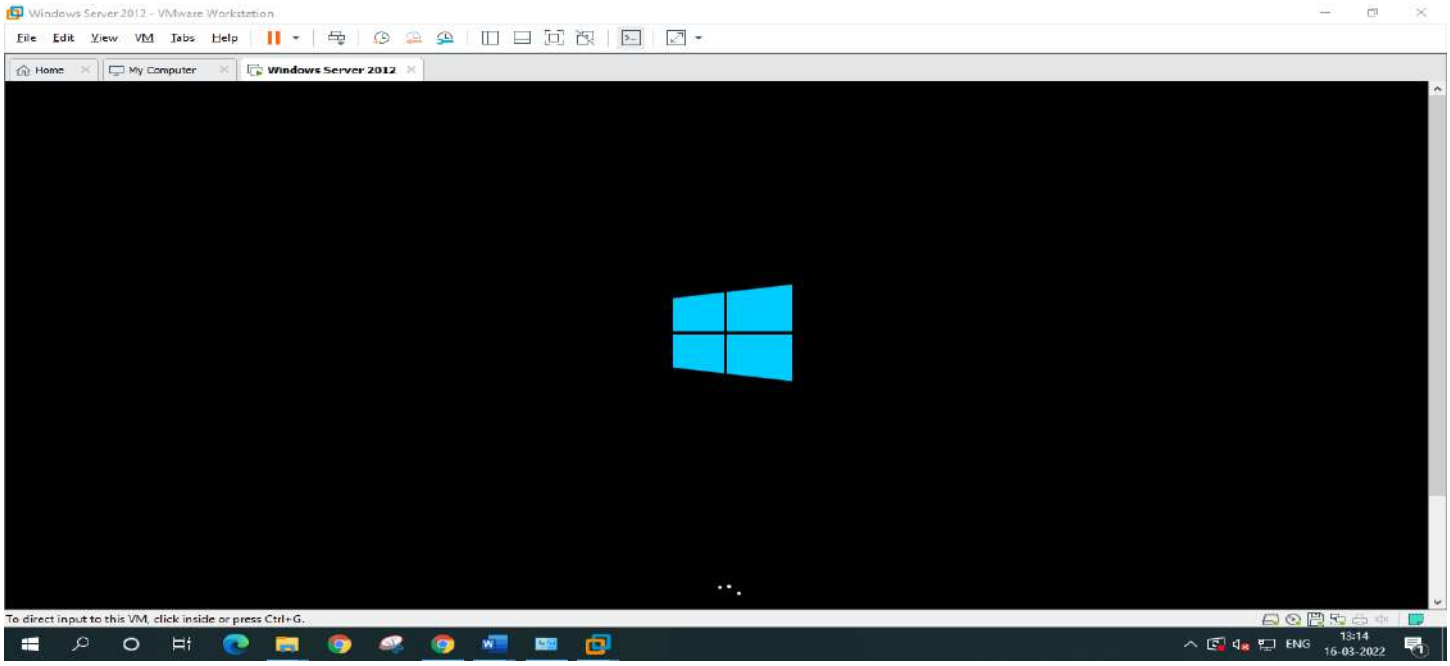
Installation of Windows Server 2012 begins.

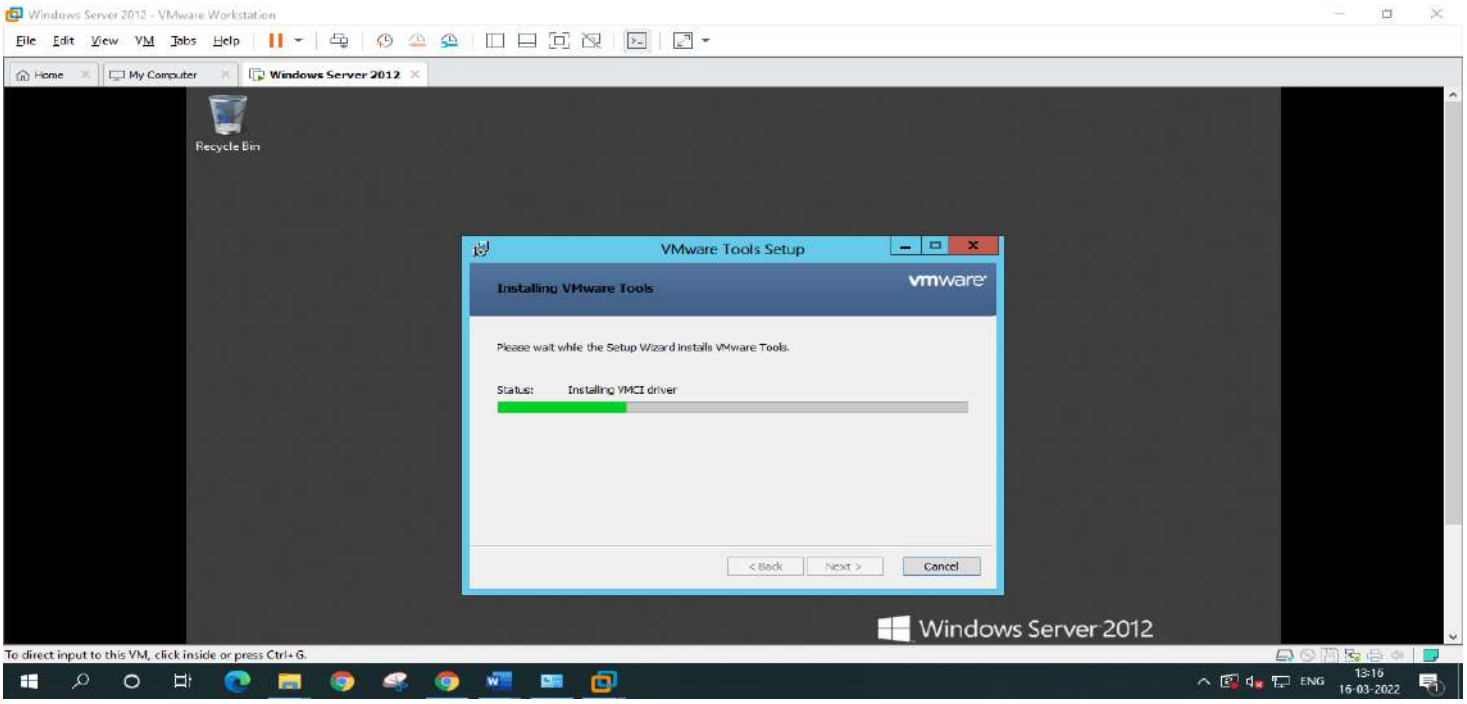


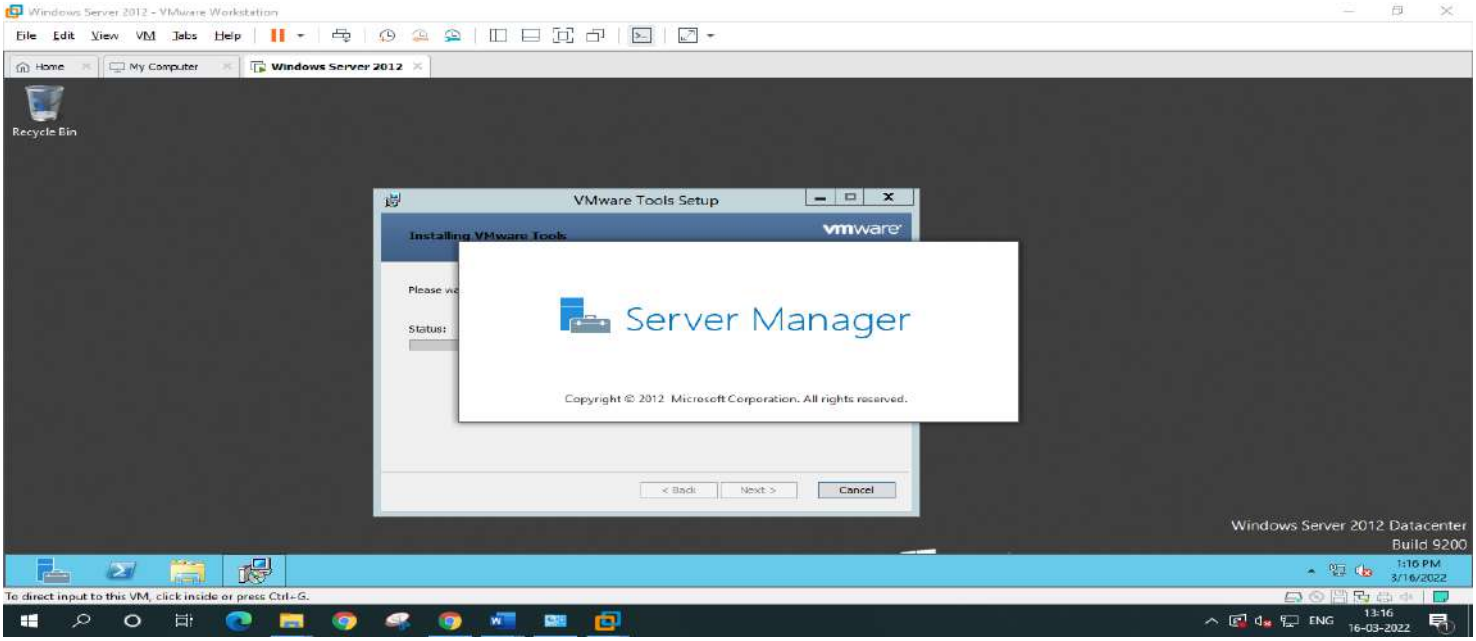


Copying of System Files will start.

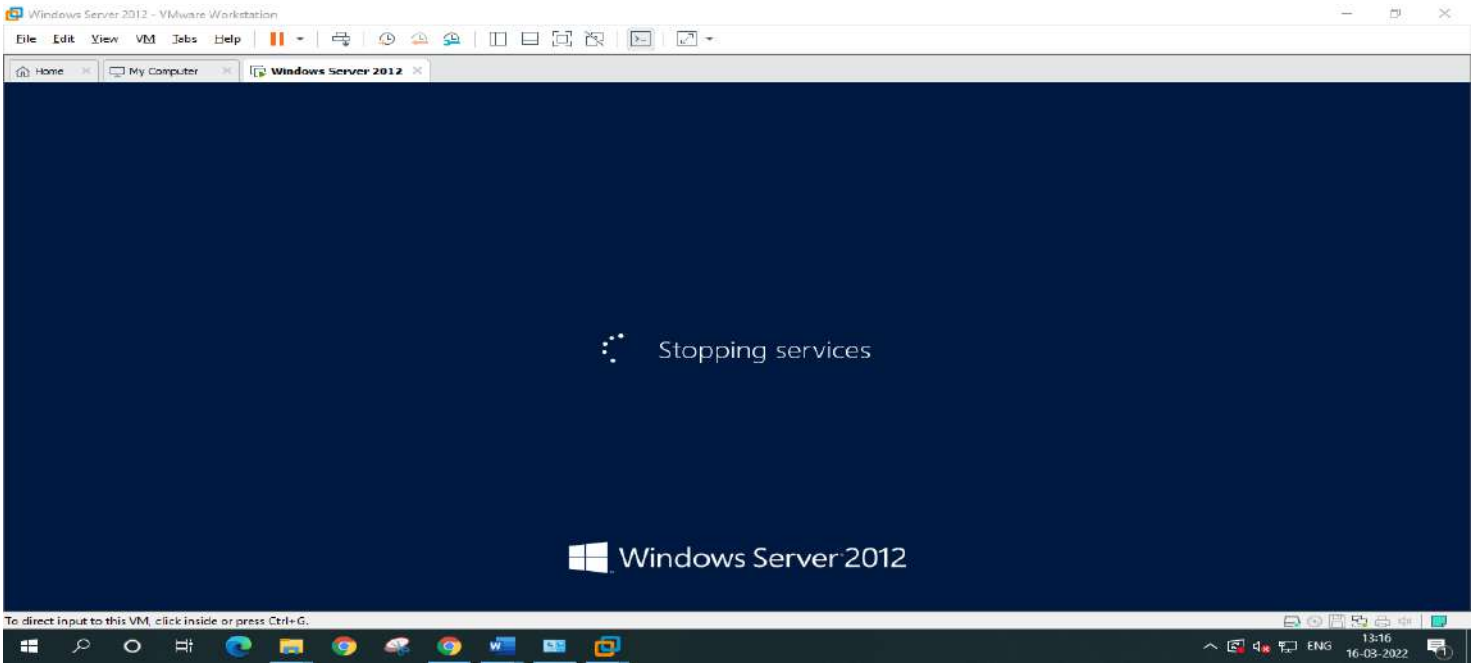


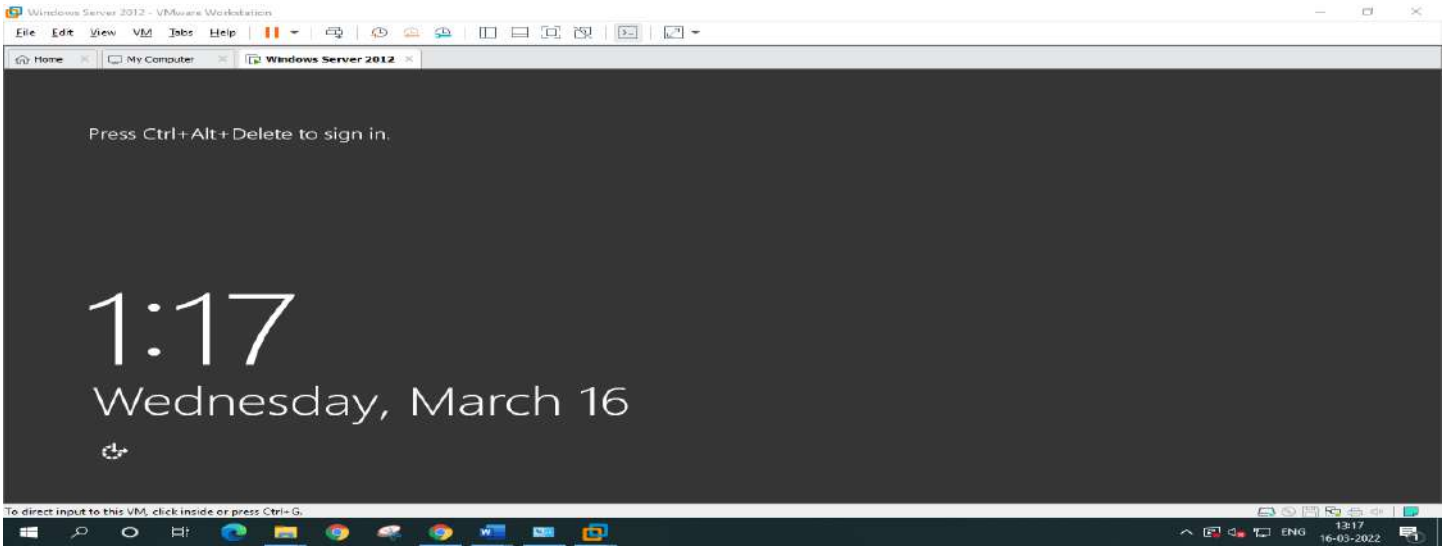


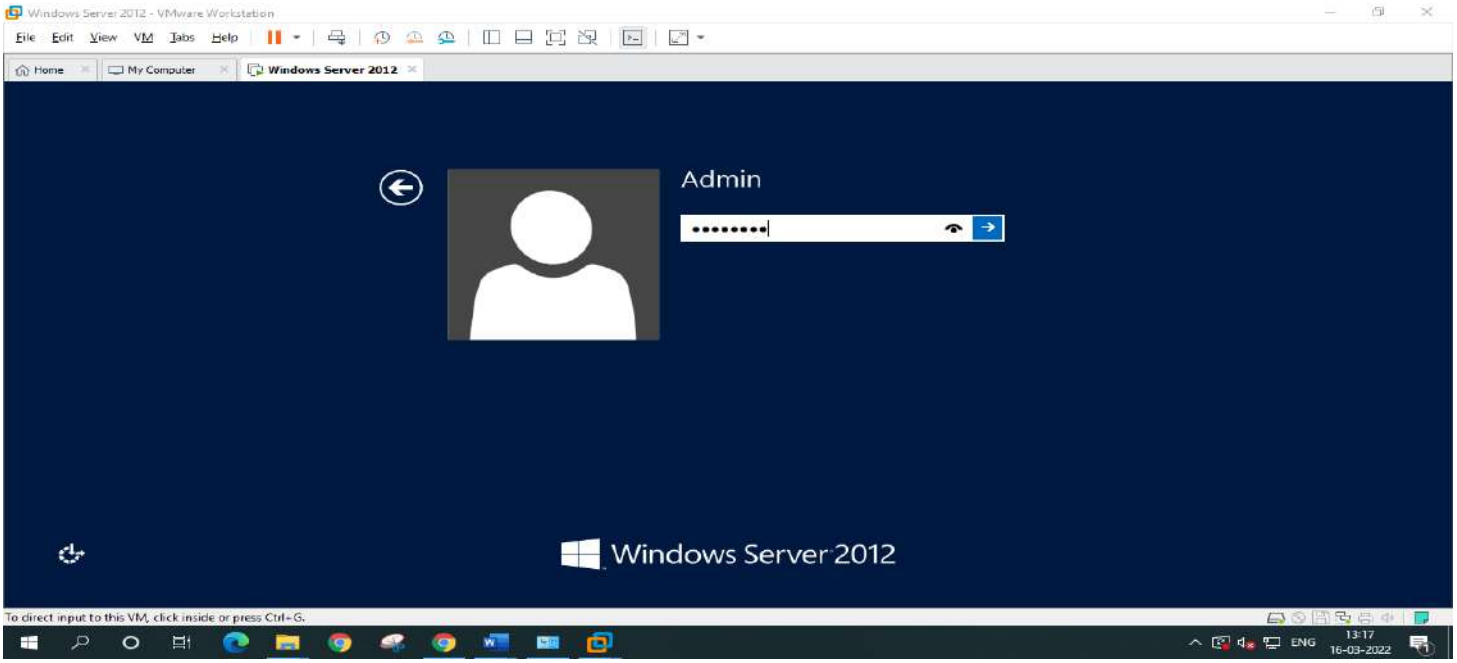




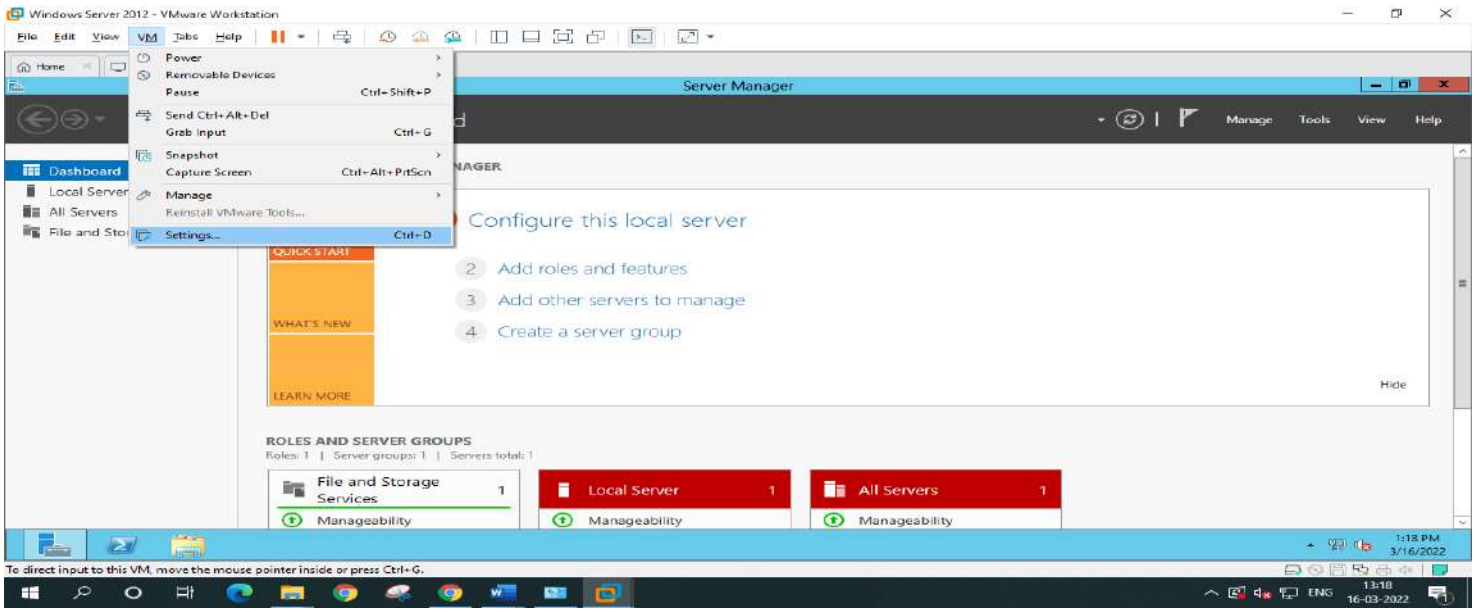
After installation the system will restart once, all options complete successfully.

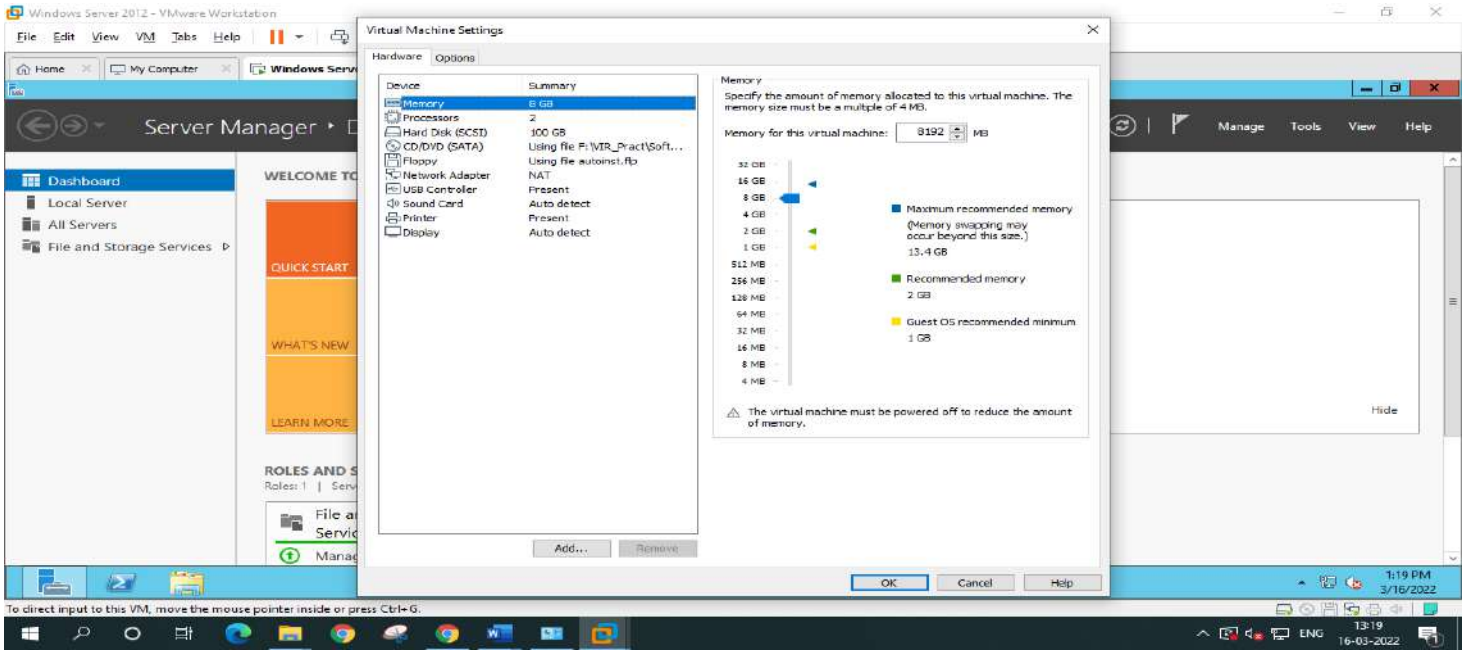

Windows Server 2012 - VMware Workstation
File Edit View VM Tabs Help
Home
My Computer
Windows Server 2012
Stopping services
Windows Server 2012
To direct input to this VM, click inside or press Ctrl+G.
ENG
13:16
16-03-2022

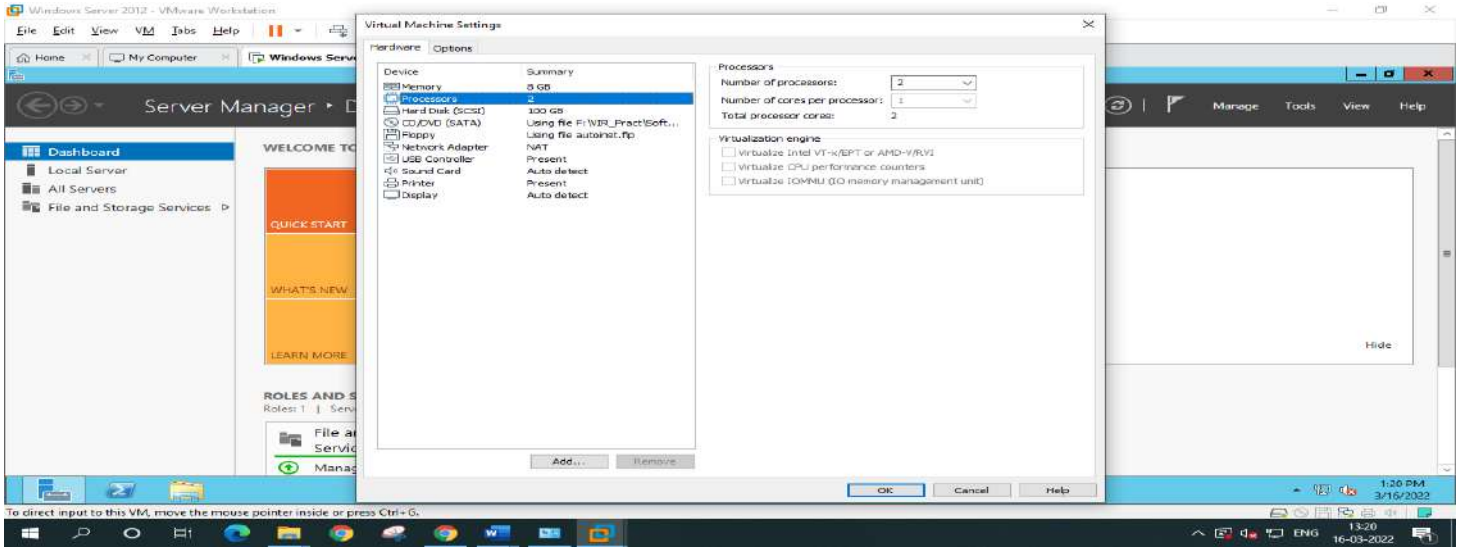

Windows Server 2012 - VMware Workstation
File Edit View VM Tabs Help
Home
My Computer
Windows Server 2012
Press Ctrl+Alt+Delete to sign in.
1:17
Wednesday, March 16
To direct input to this VM, click inside or press Ctrl+G.
ENG
13:17
16-03-2022

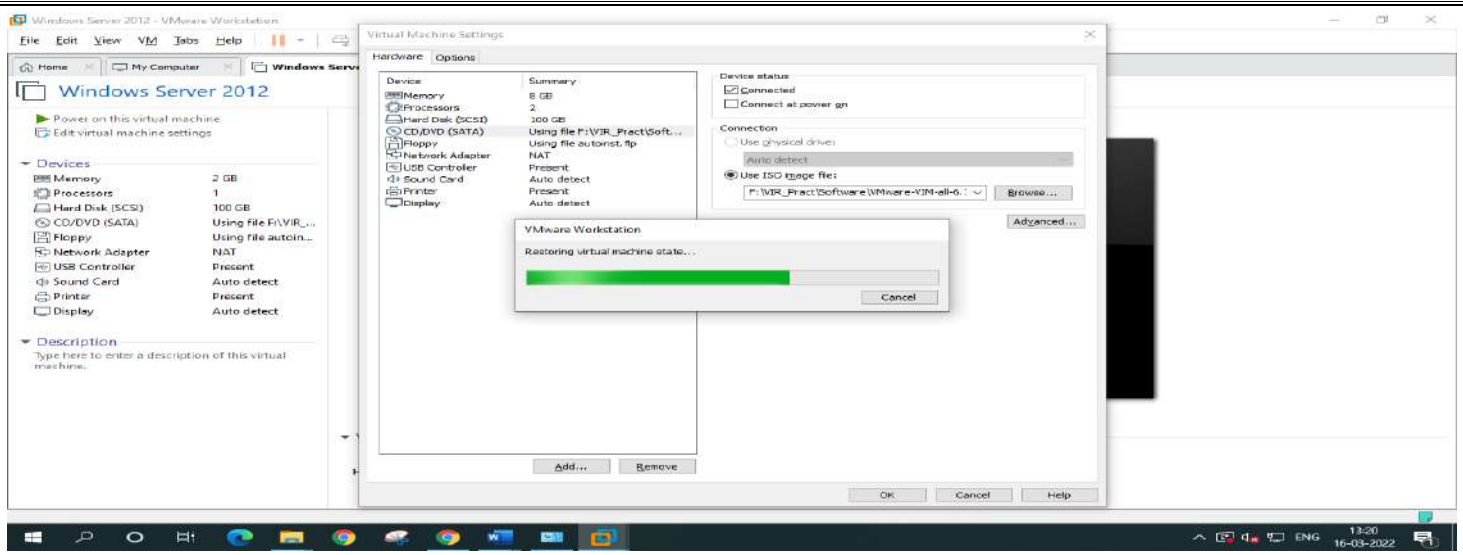

Windows Server 2012 - VMware Workstation
File Edit View VM Tabs Help
Home
My Computer
Windows Server 2012
Admin
Windows Server 2012
To direct input to this VM, click inside or press Ctrl+G.
ENG
13:17
16-03-2022

Add roles and features of .NET Framework 3.5 Features:

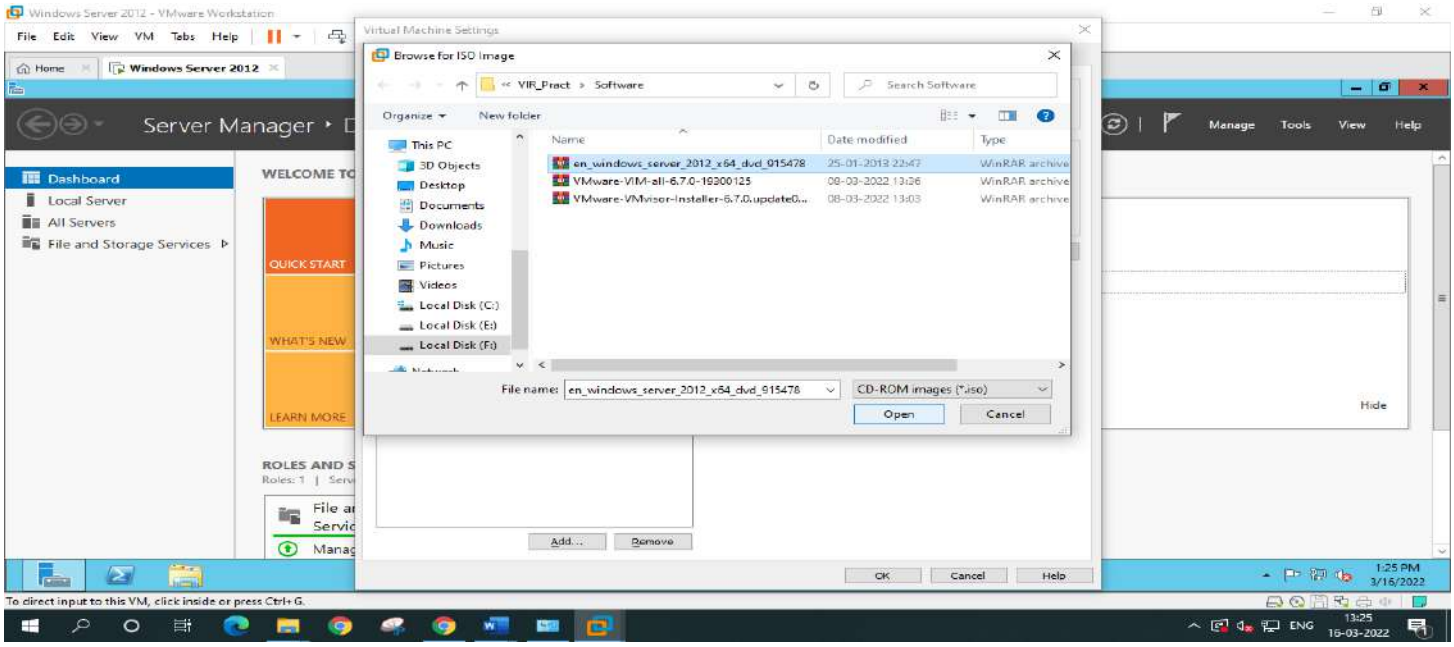


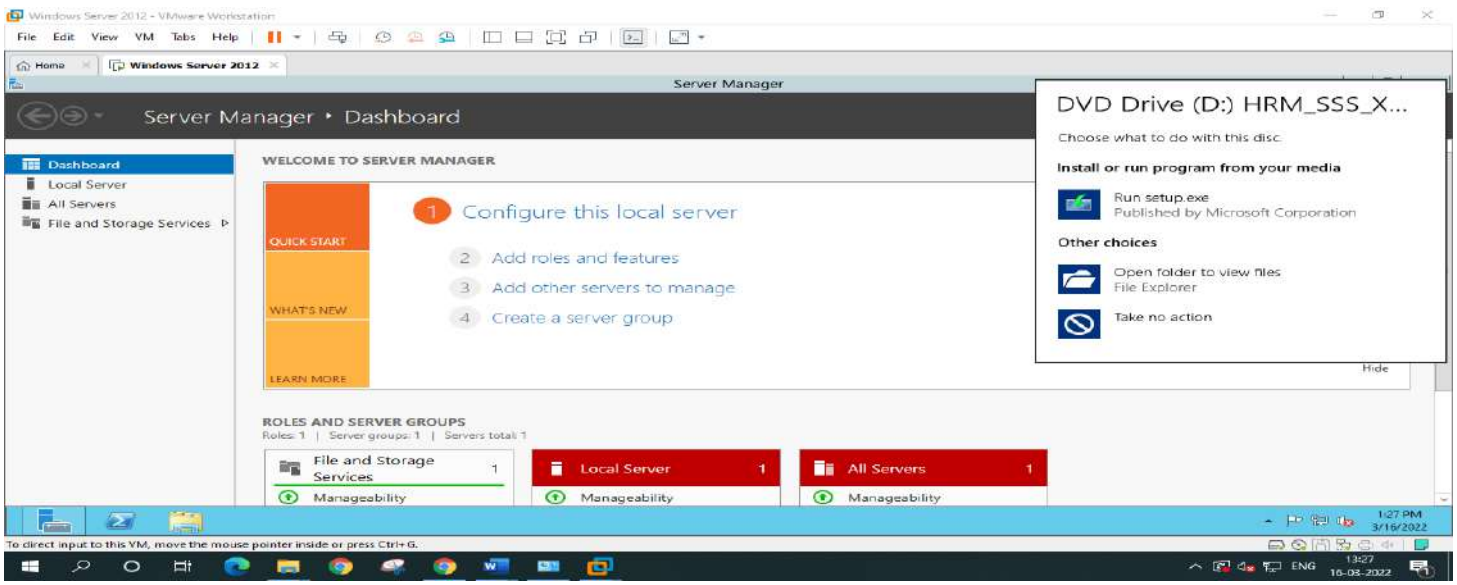




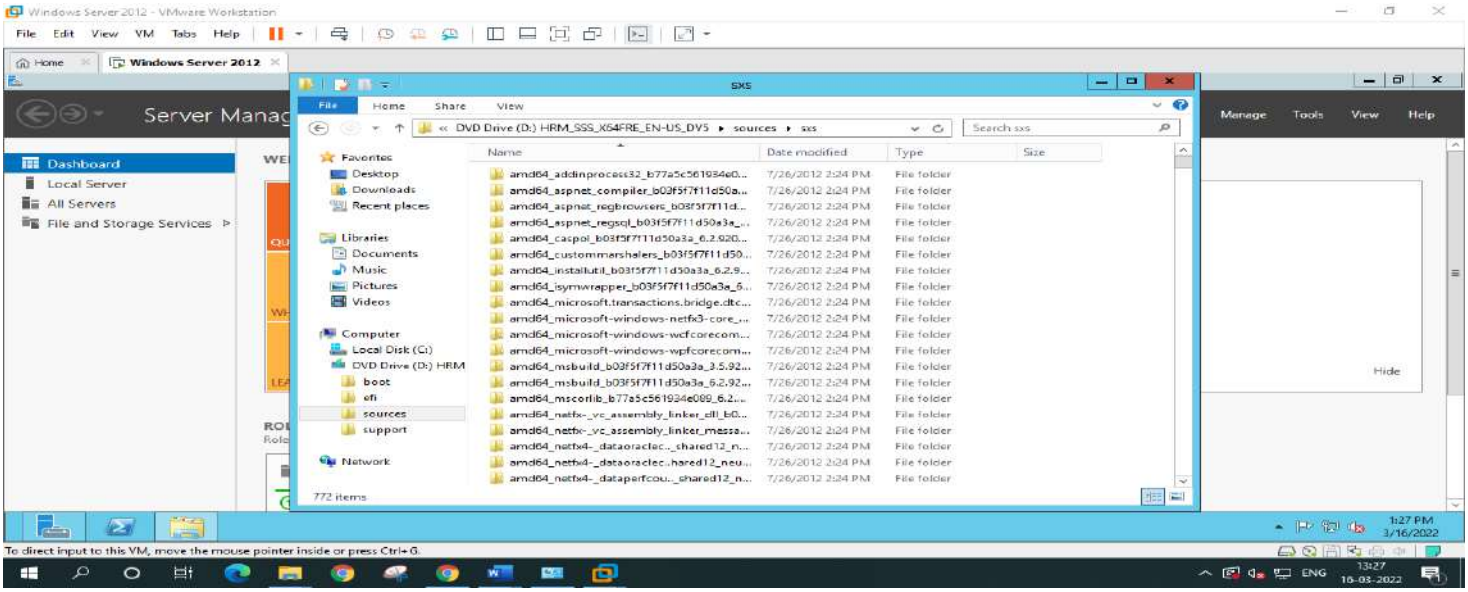


To specify the alternate source path go to the VM tab and click on setting and then browse the ISO of the Windows server, after that the device gets mounted to the system, where you can browse the source folder and copy the path of the source path.

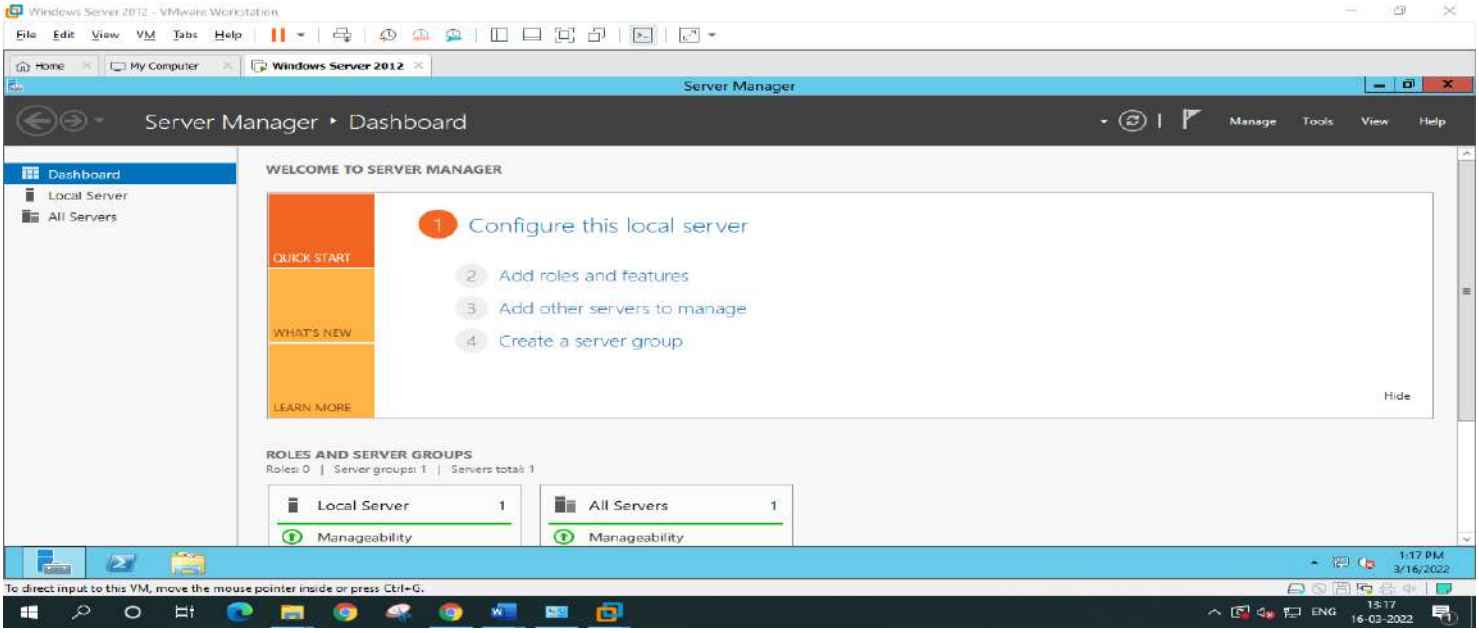




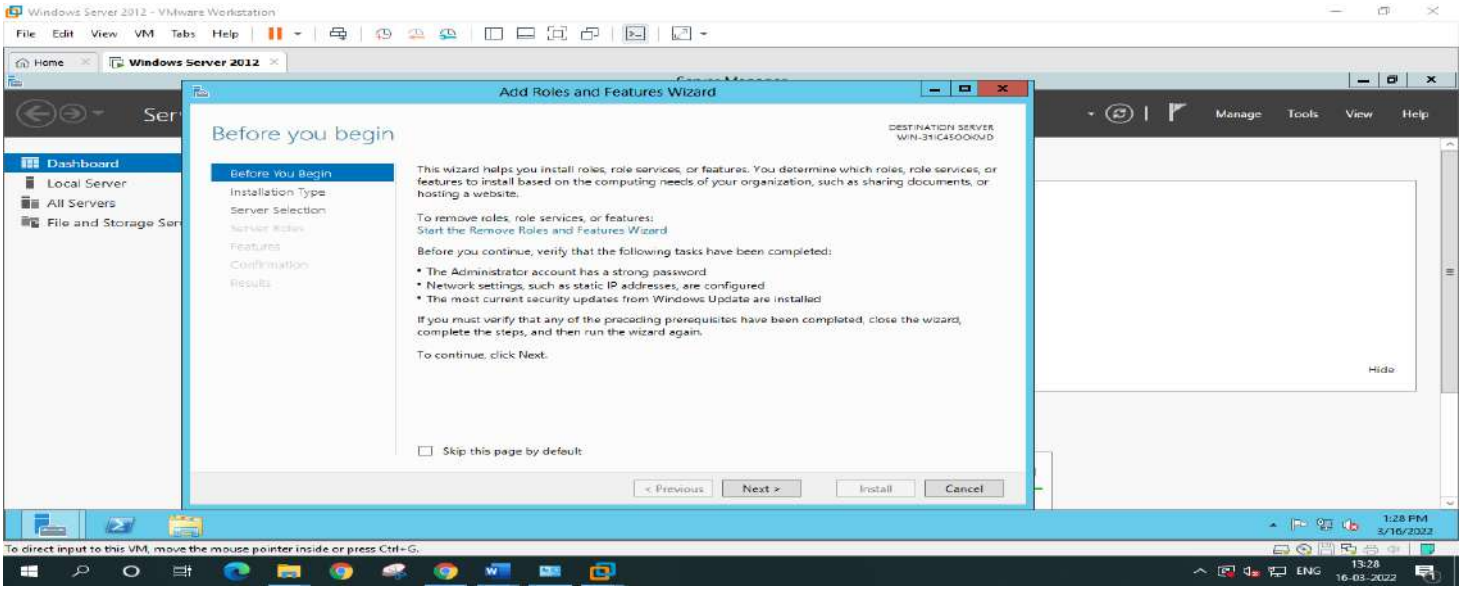
Copy the path **D:\sources\sxs**



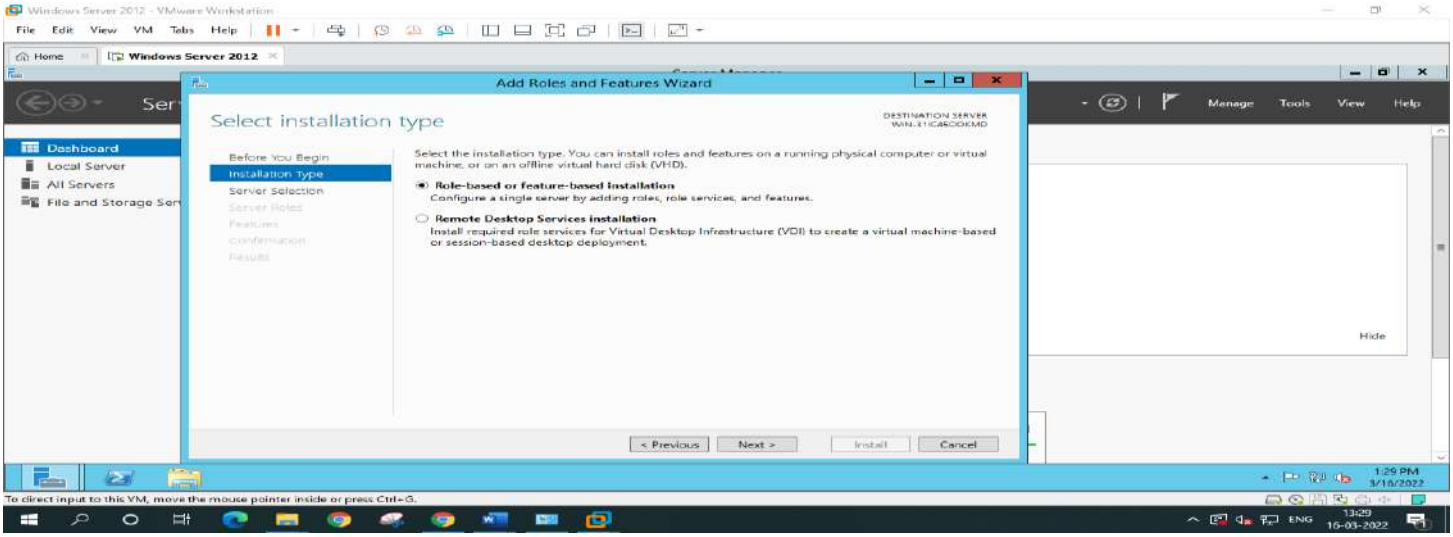
Click on **Add roles and features** button.



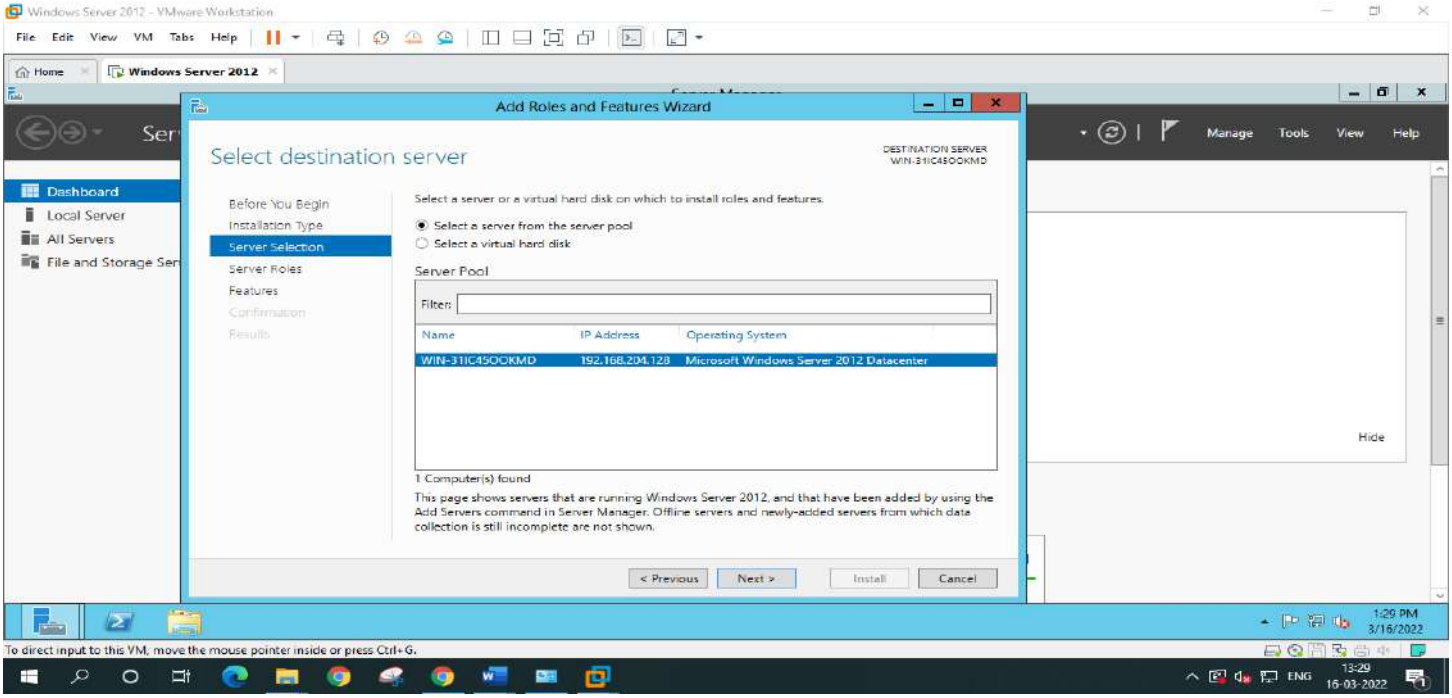
Click on the **Next** button.



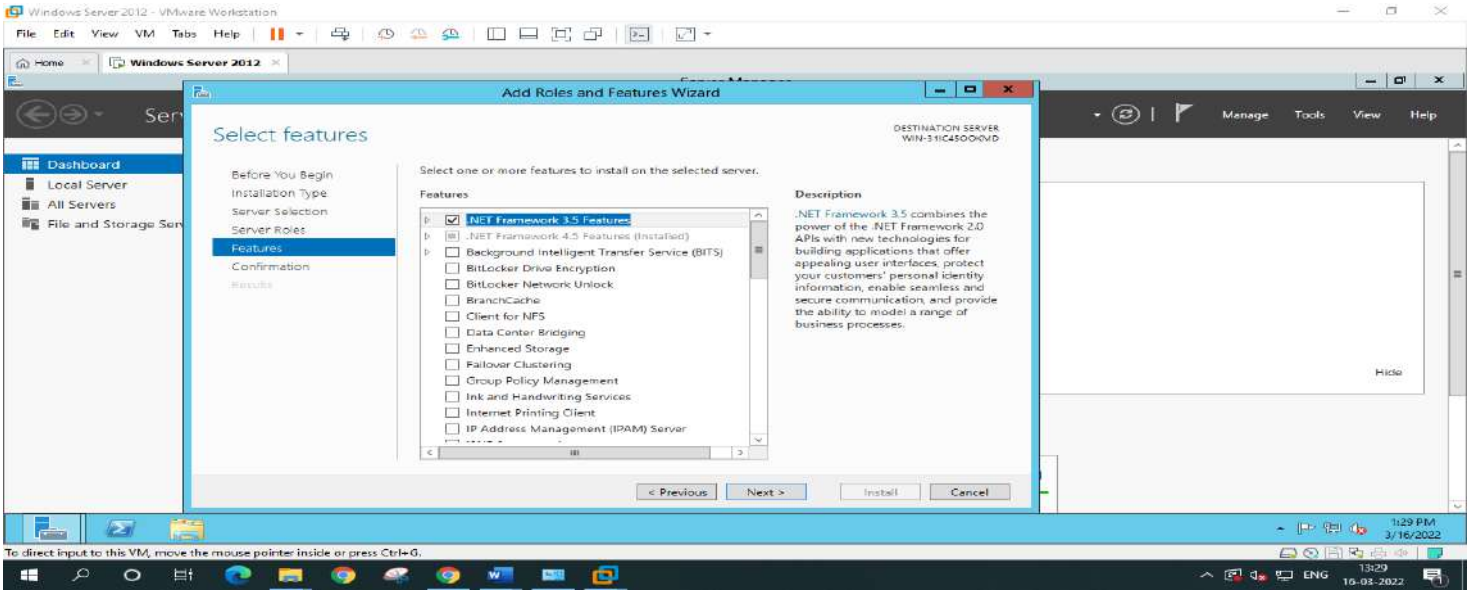
Select the **Role-based or feature-based installation** and Click on **Next** button.



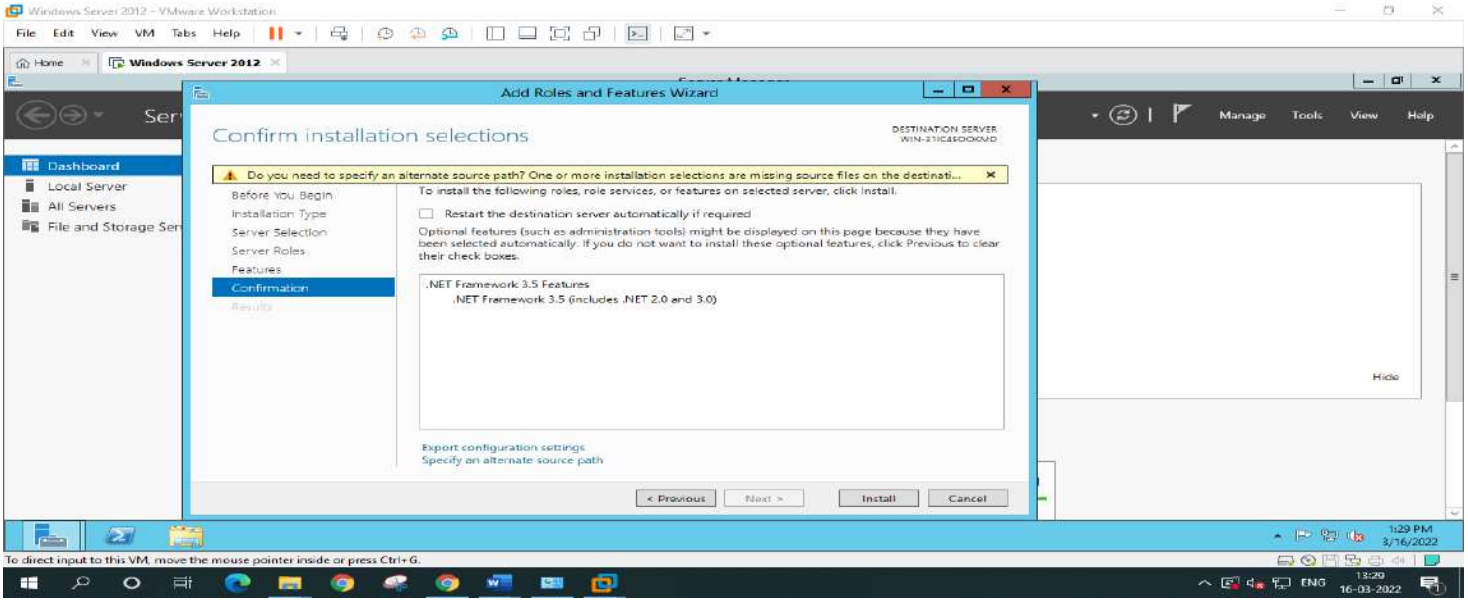
Click on **Next** button



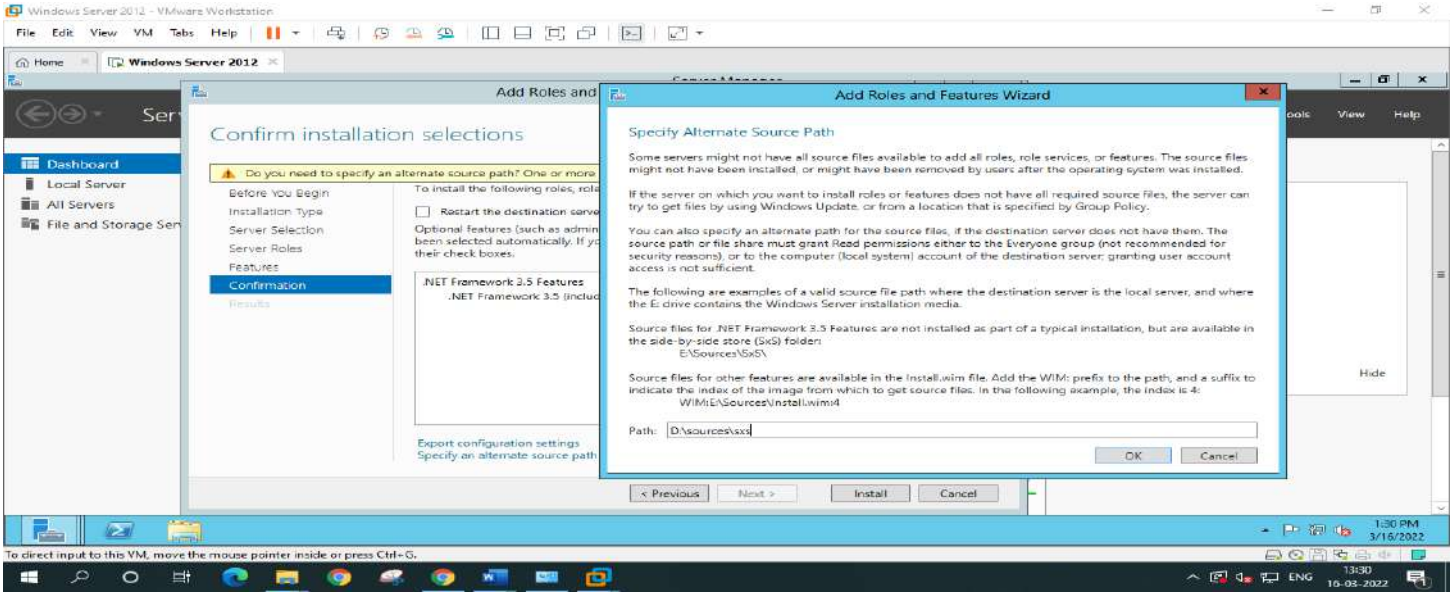
Check on the **.Net Framework 3.5 features** and Click on **Next** button



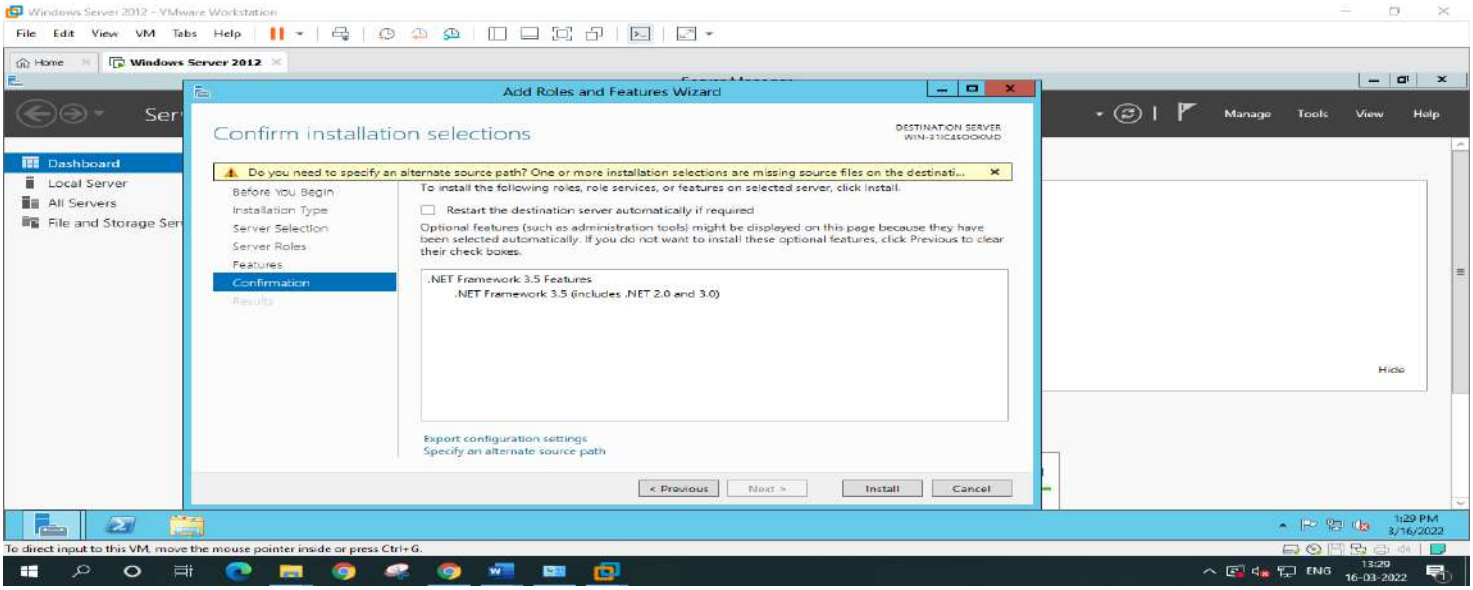
Click on **Specify an alternative source path** button

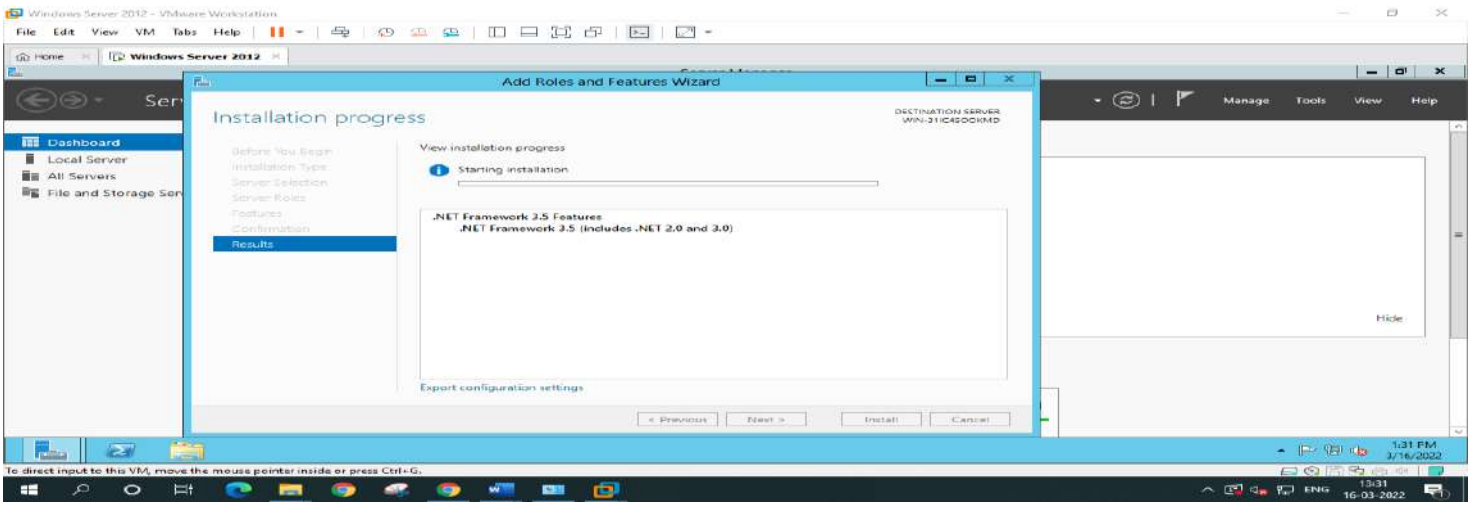


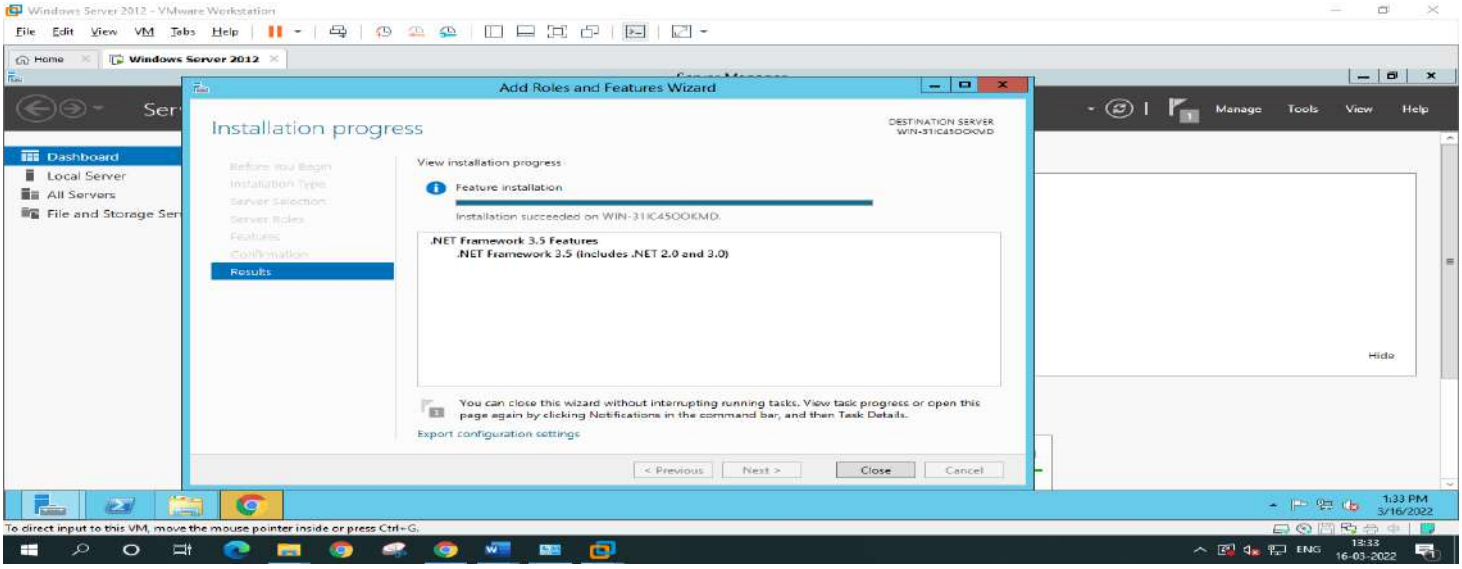
Paste the **D:\source\sxs** and Click on the **OK** button



Click on the **Install** Button

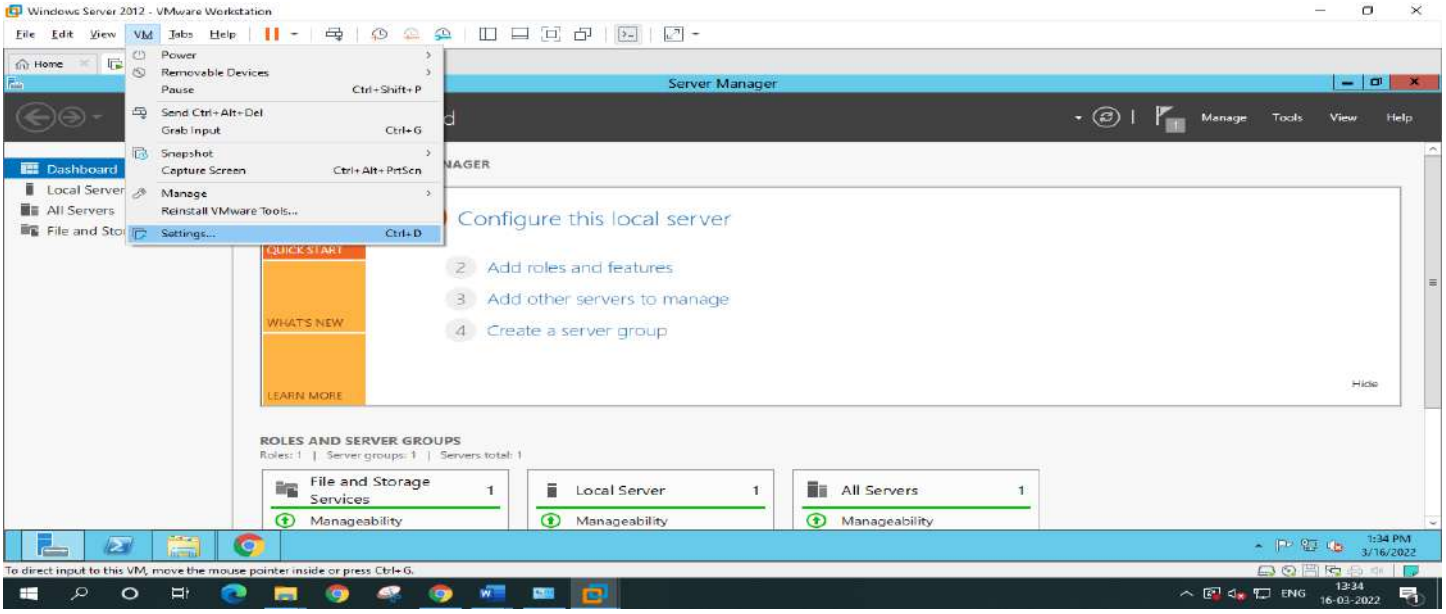




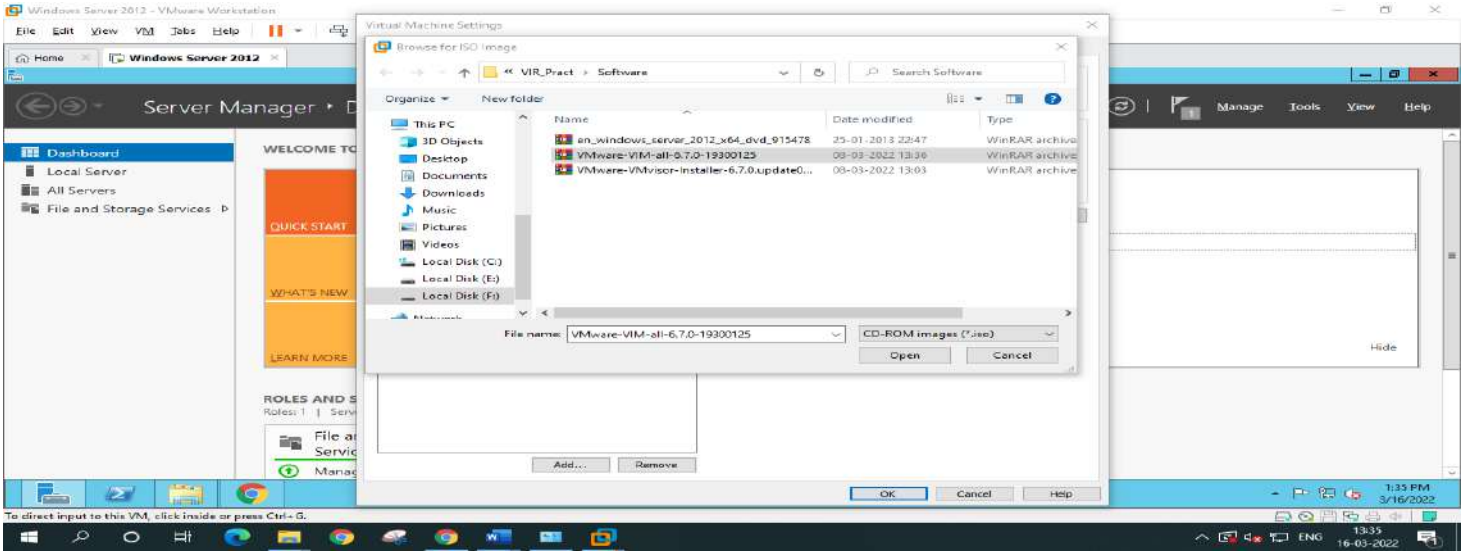


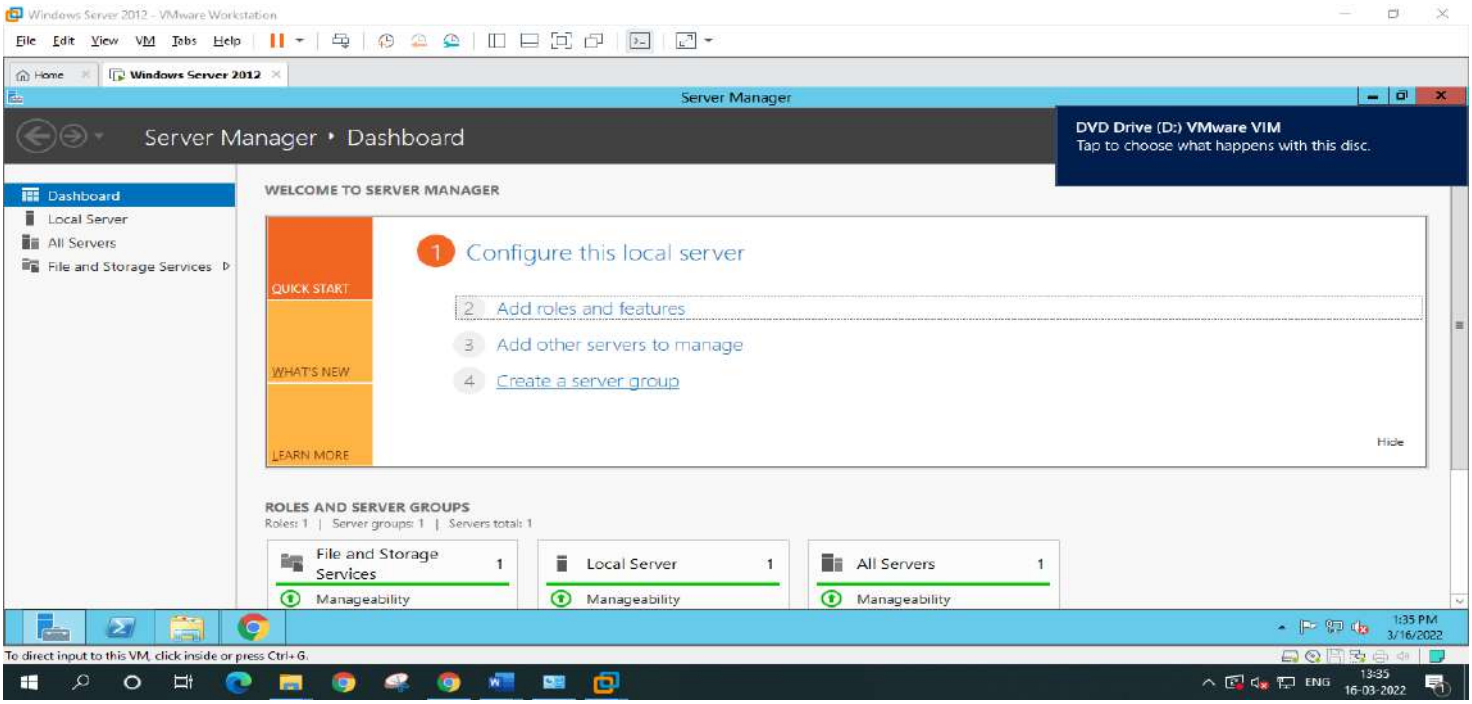
Install vCenter Server for Windows

VM and go to the setting.

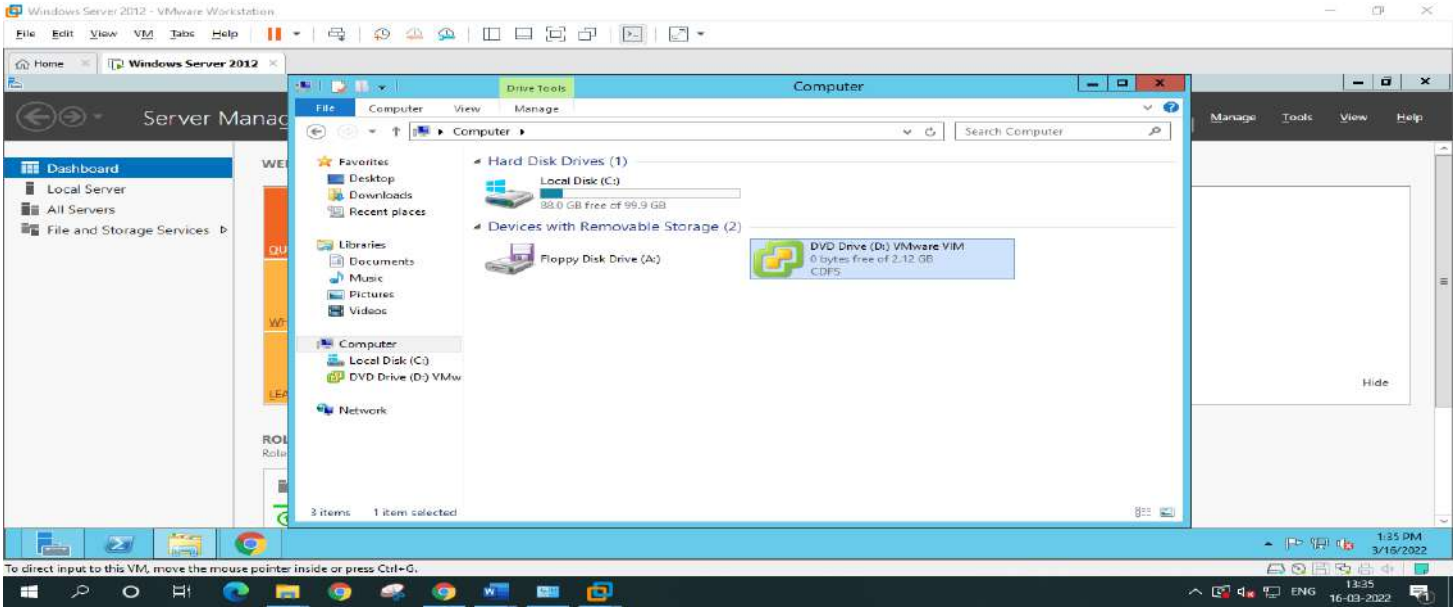


Select the CD/DVD(SATA) option then Browse the vCenter Server file and click on the **OK** button.

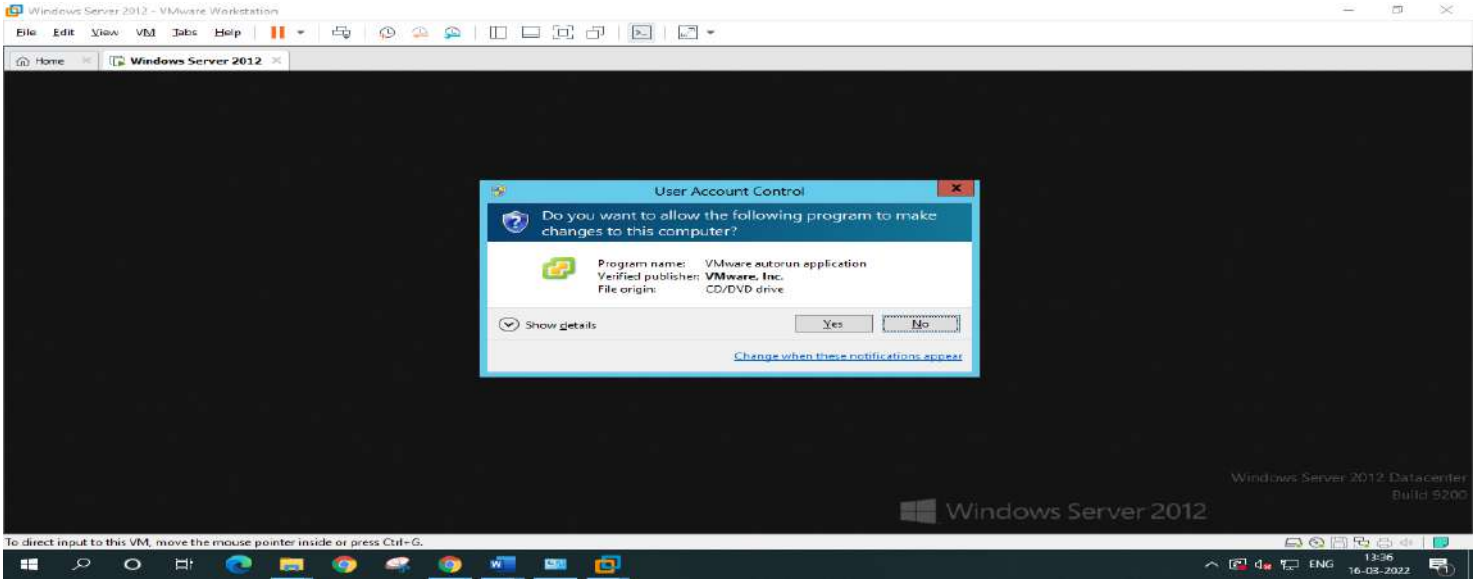




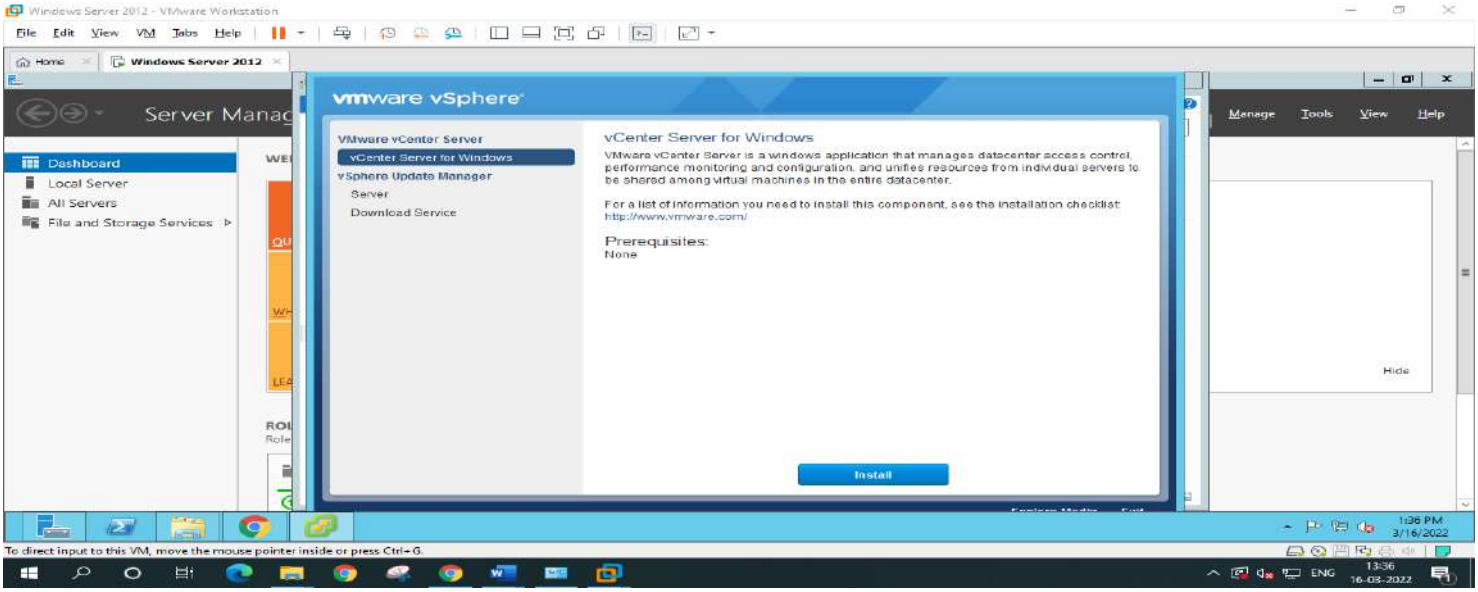
Go to the **File Explorer>Computer** and click on the **VMware VIM**



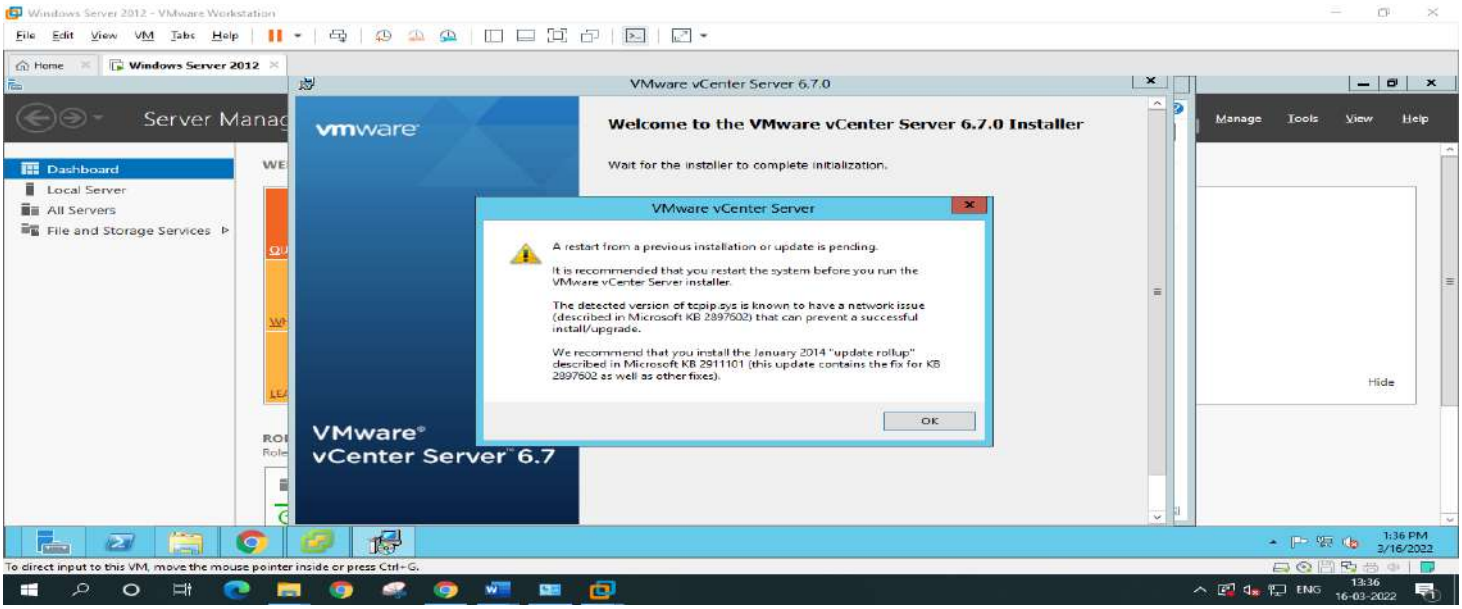
Click on the **Yes** button



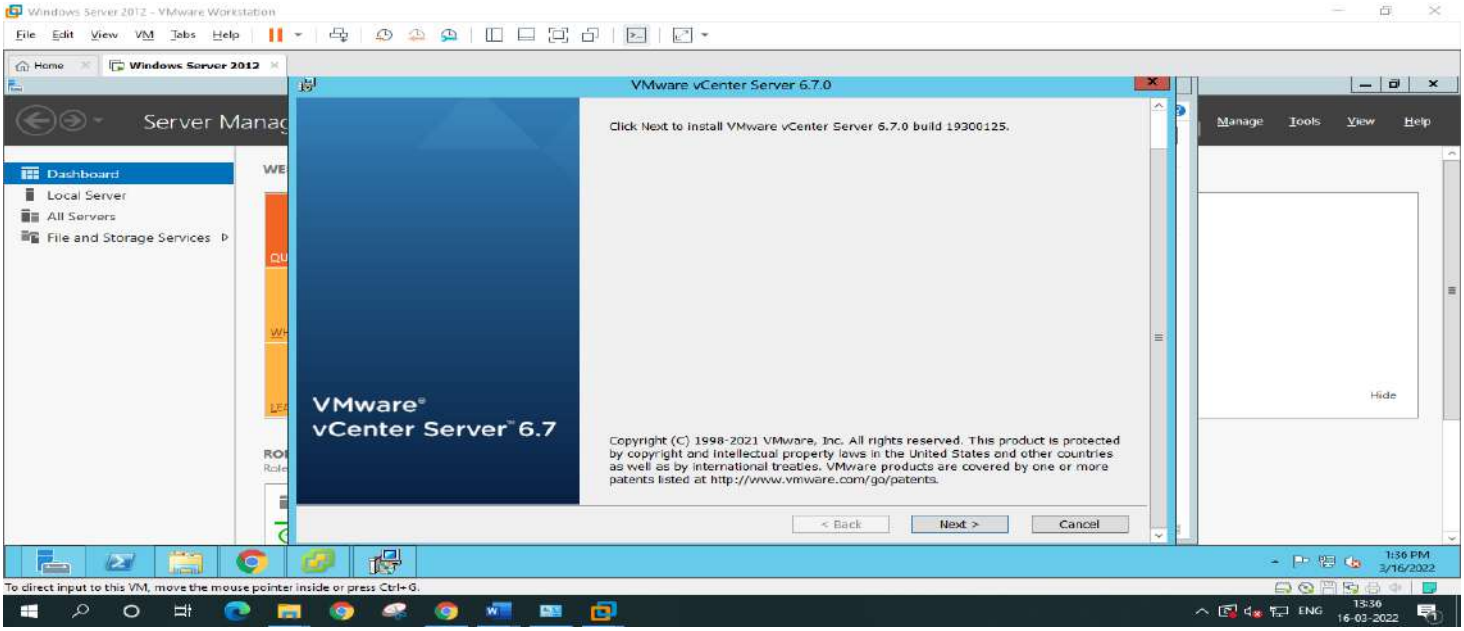
Click on the **Install** button



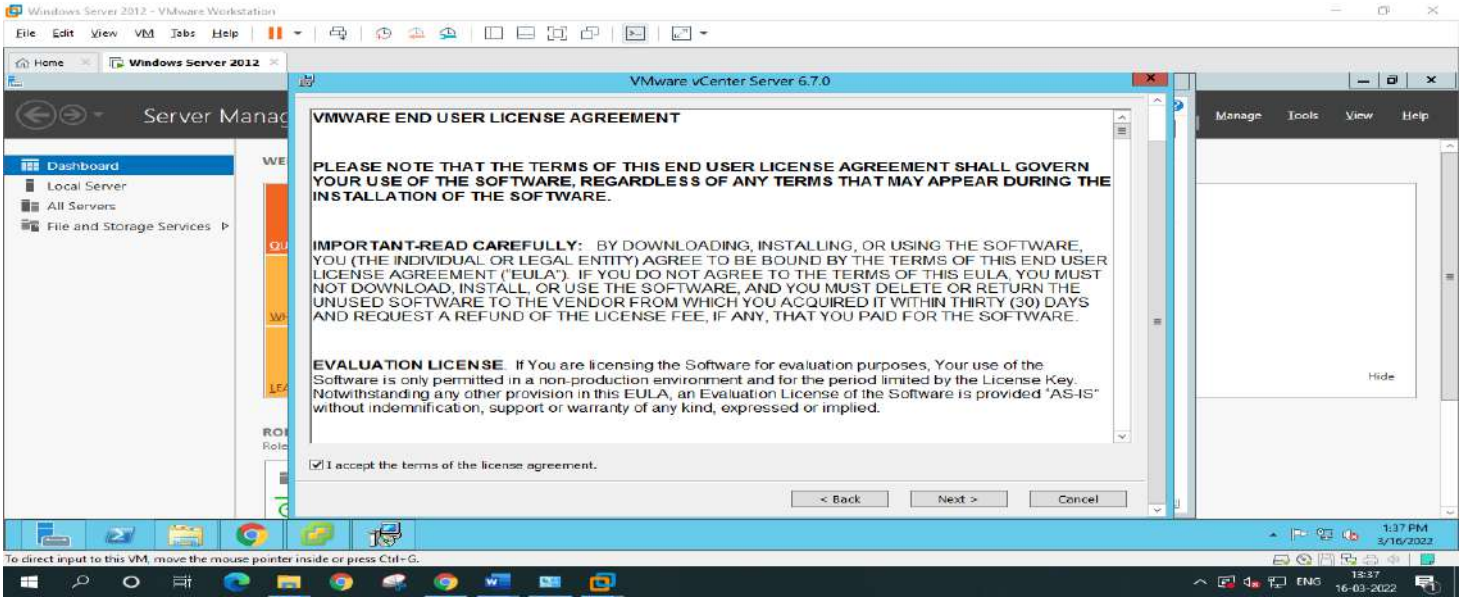
Click on the **OK** button



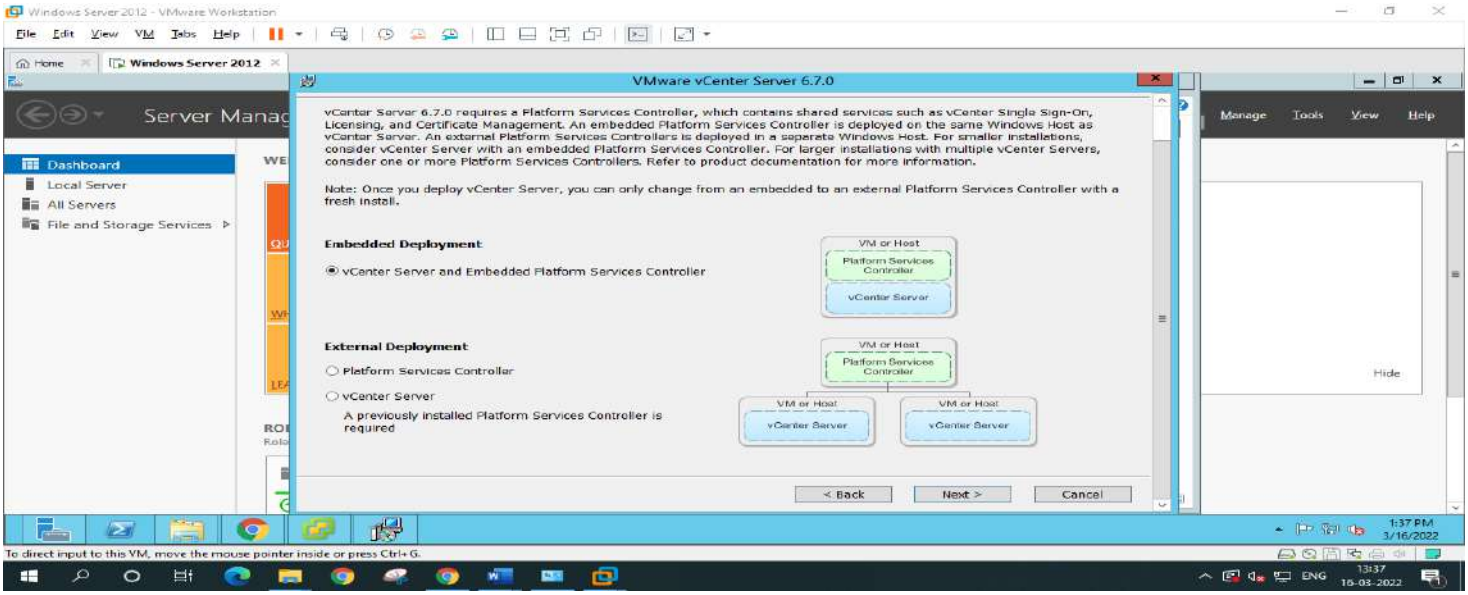
Click on the **Next** button



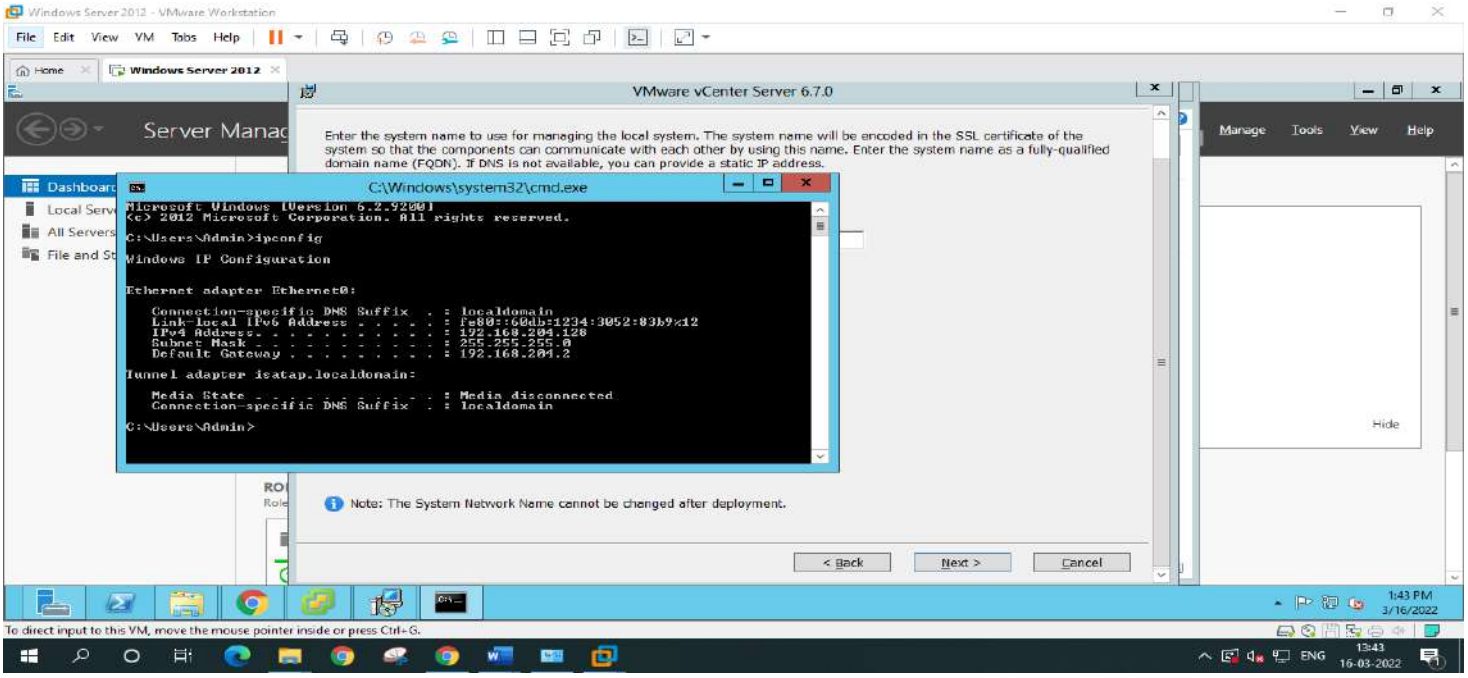
Click on the **Next** button



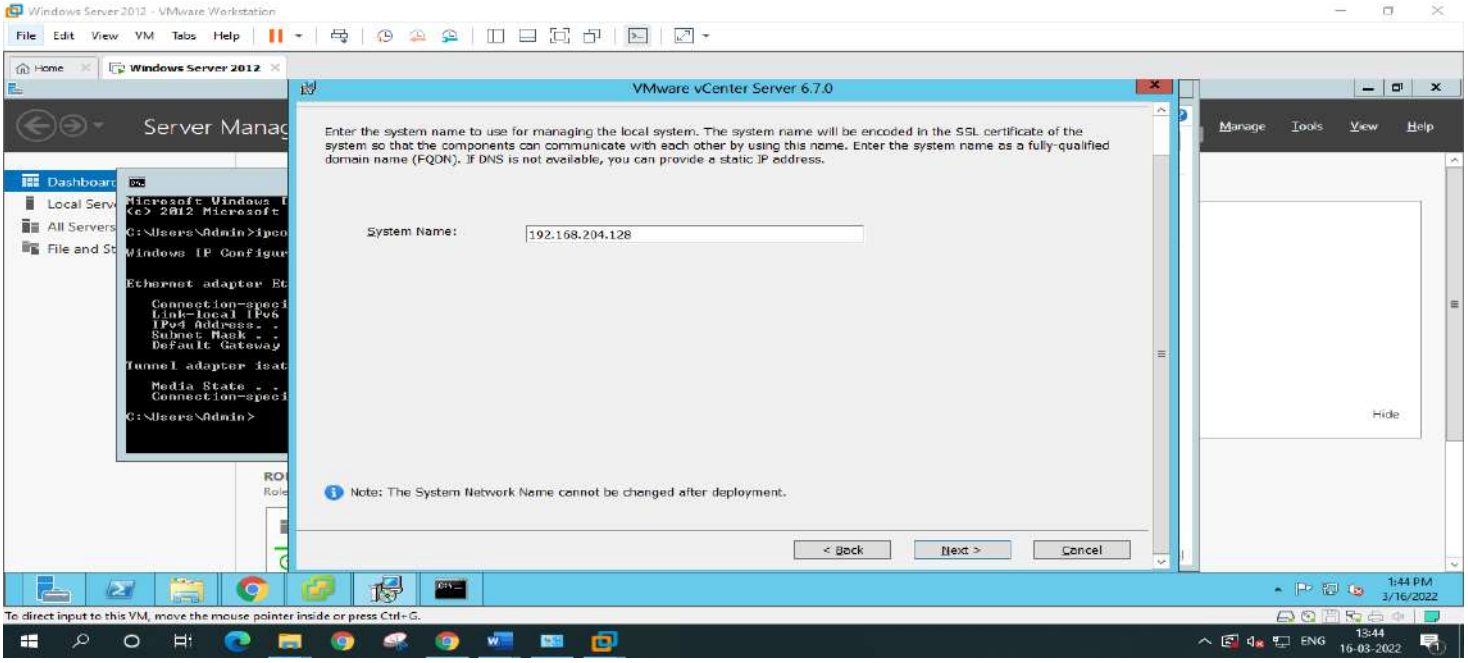
Click on the **Next** button



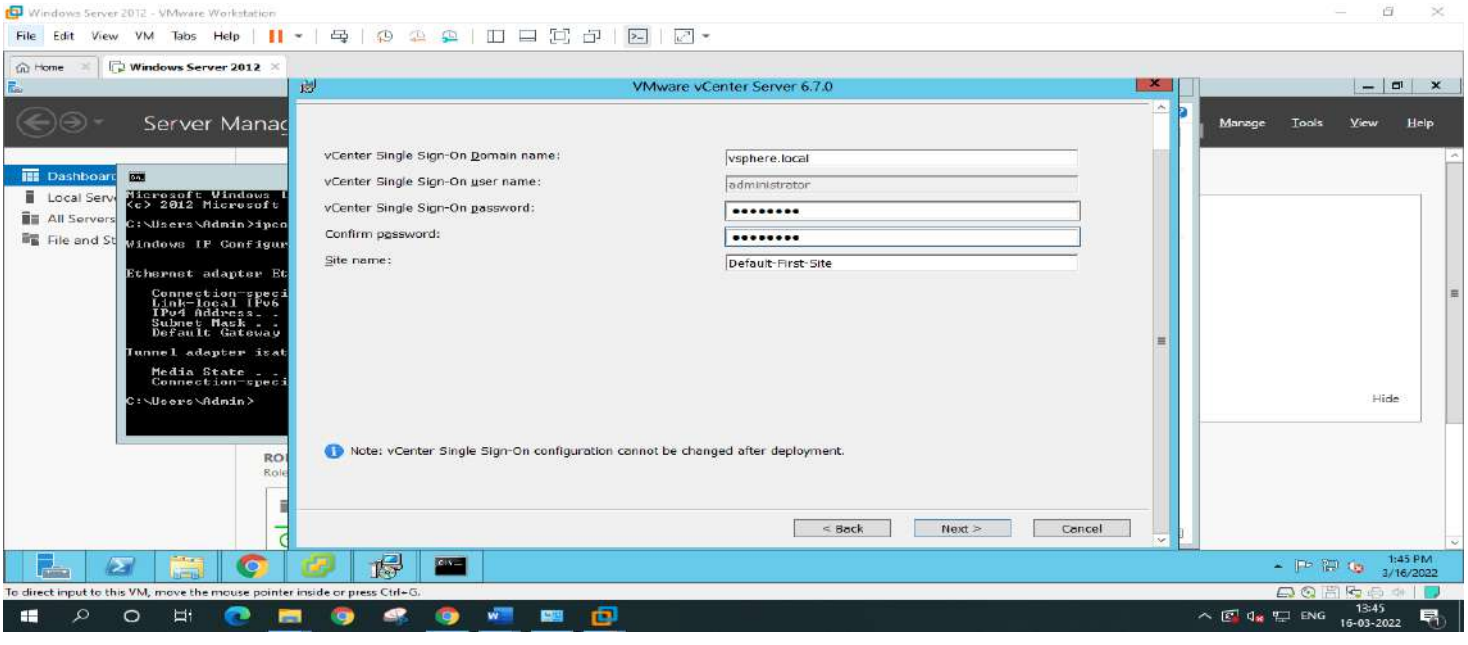
Go to the CMD and insert command **ipconfig** to get the IP address.



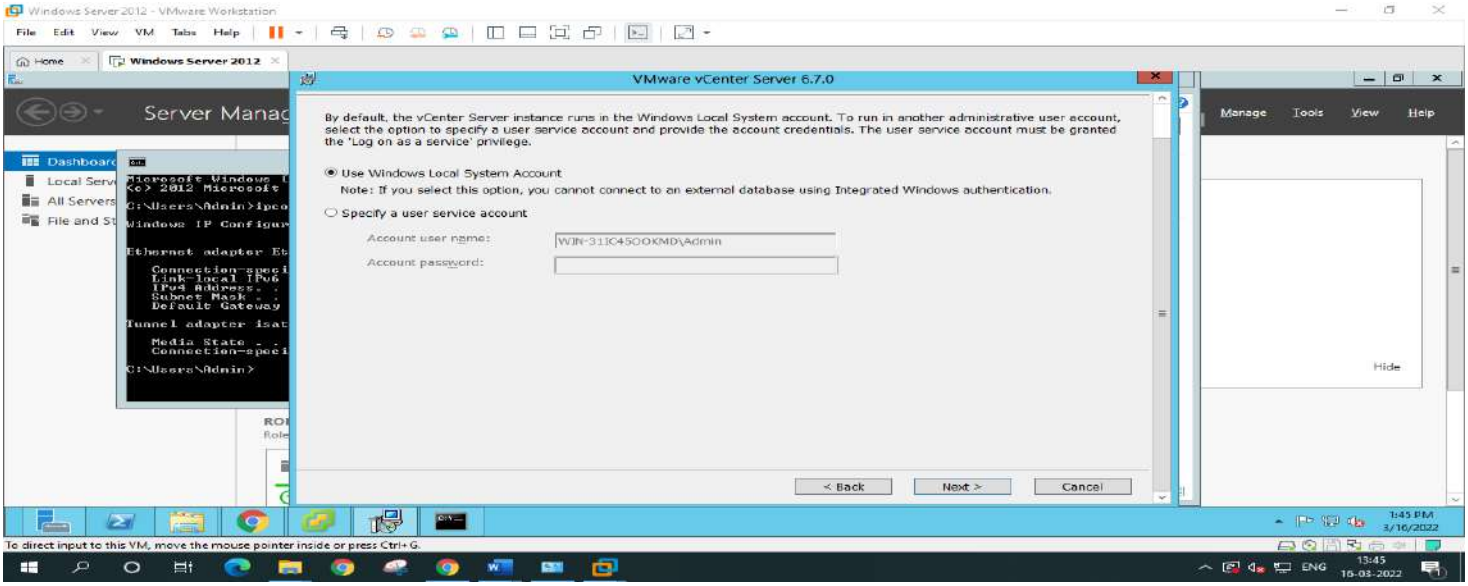
Write the IP address of VM. Click on the **Next** button



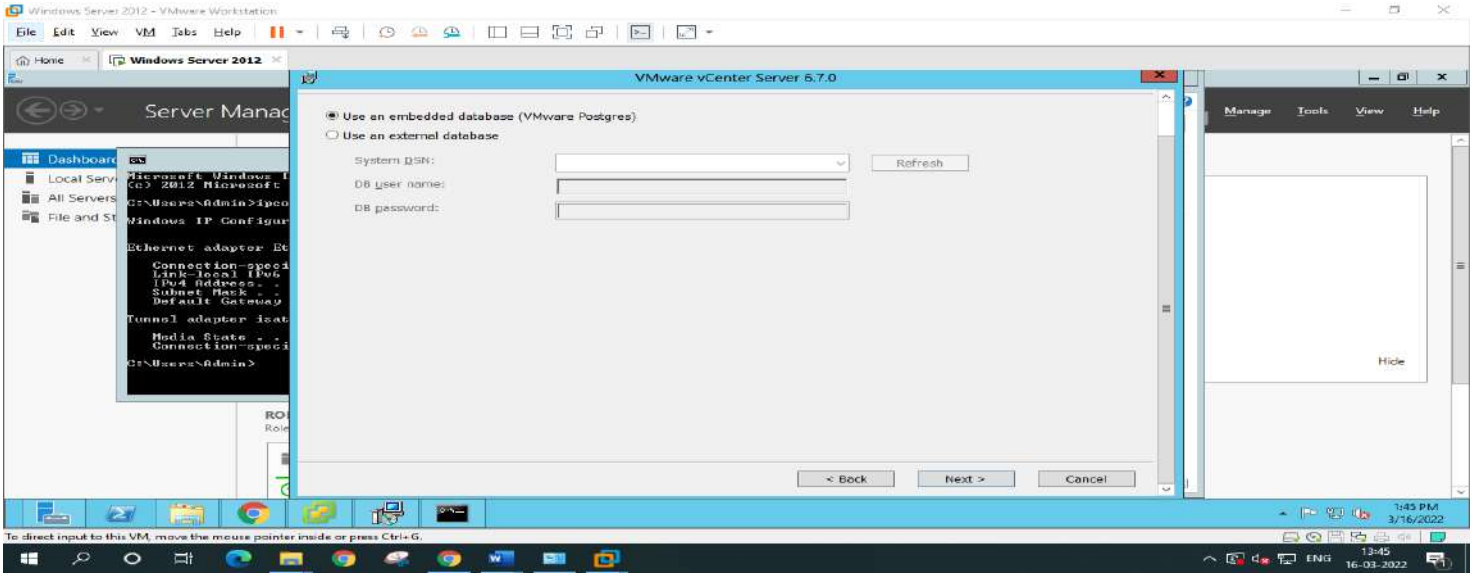
Set the password is **It@13579** and Click on the **Next** button



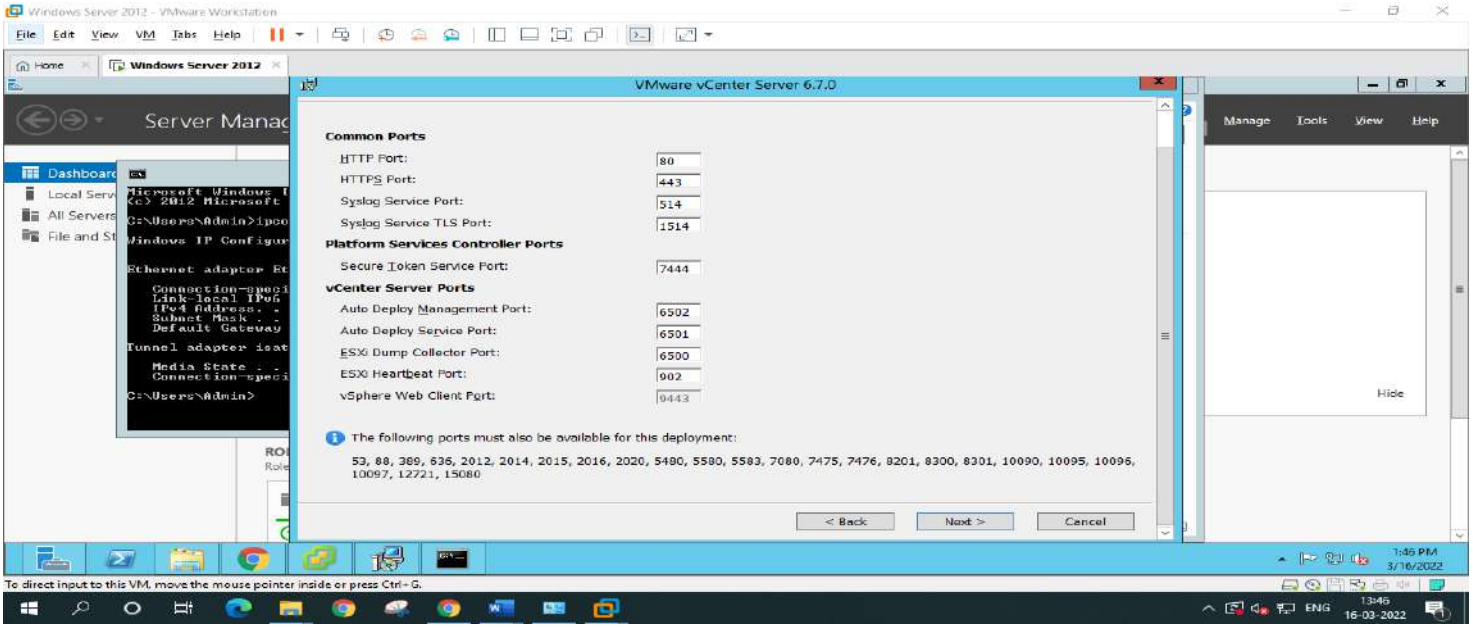
Click on the **Next** button



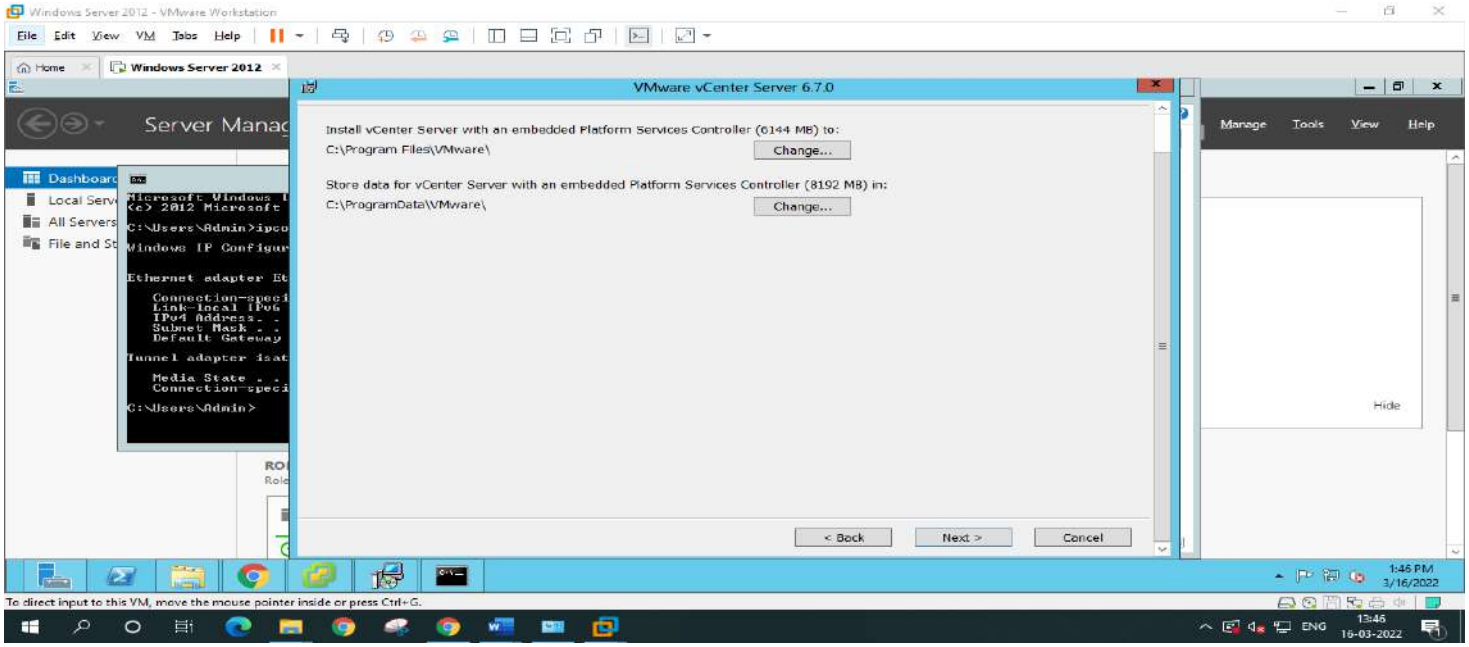
Click on the **Next** button



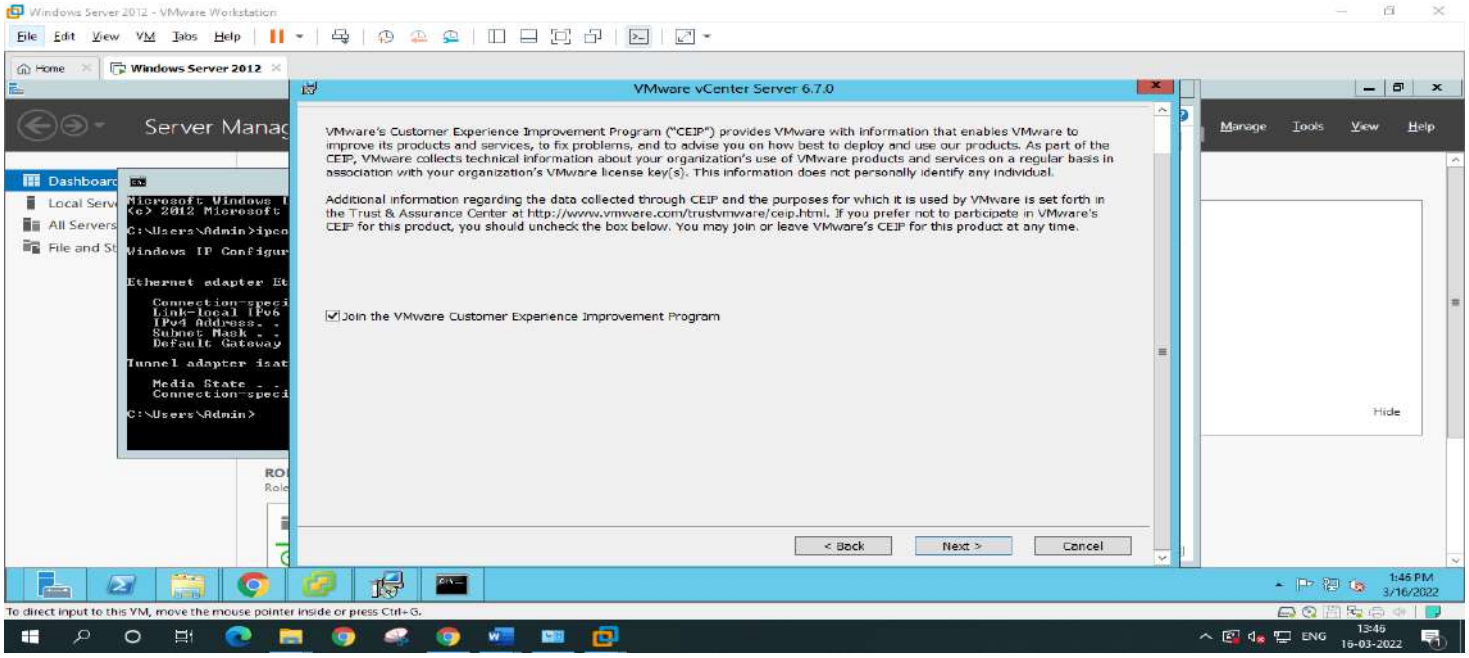
Click on the **Next** button



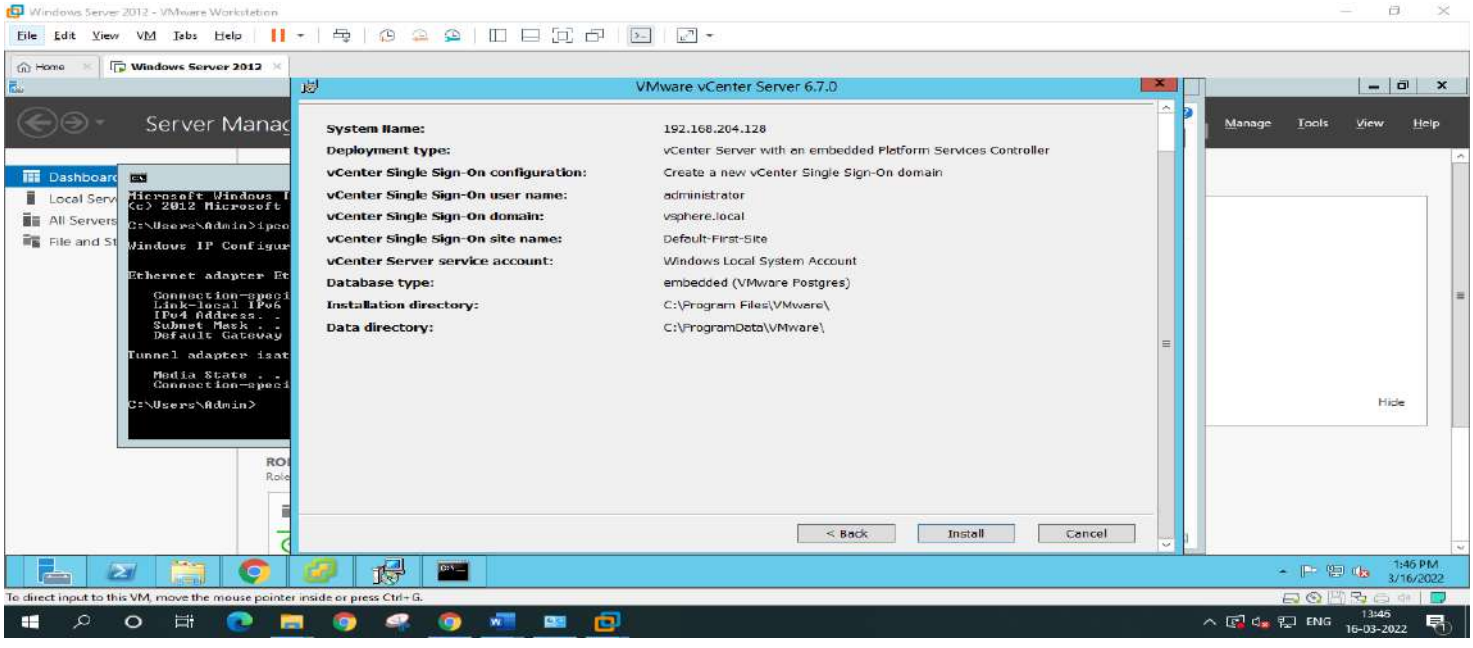
Click on the **Next** button



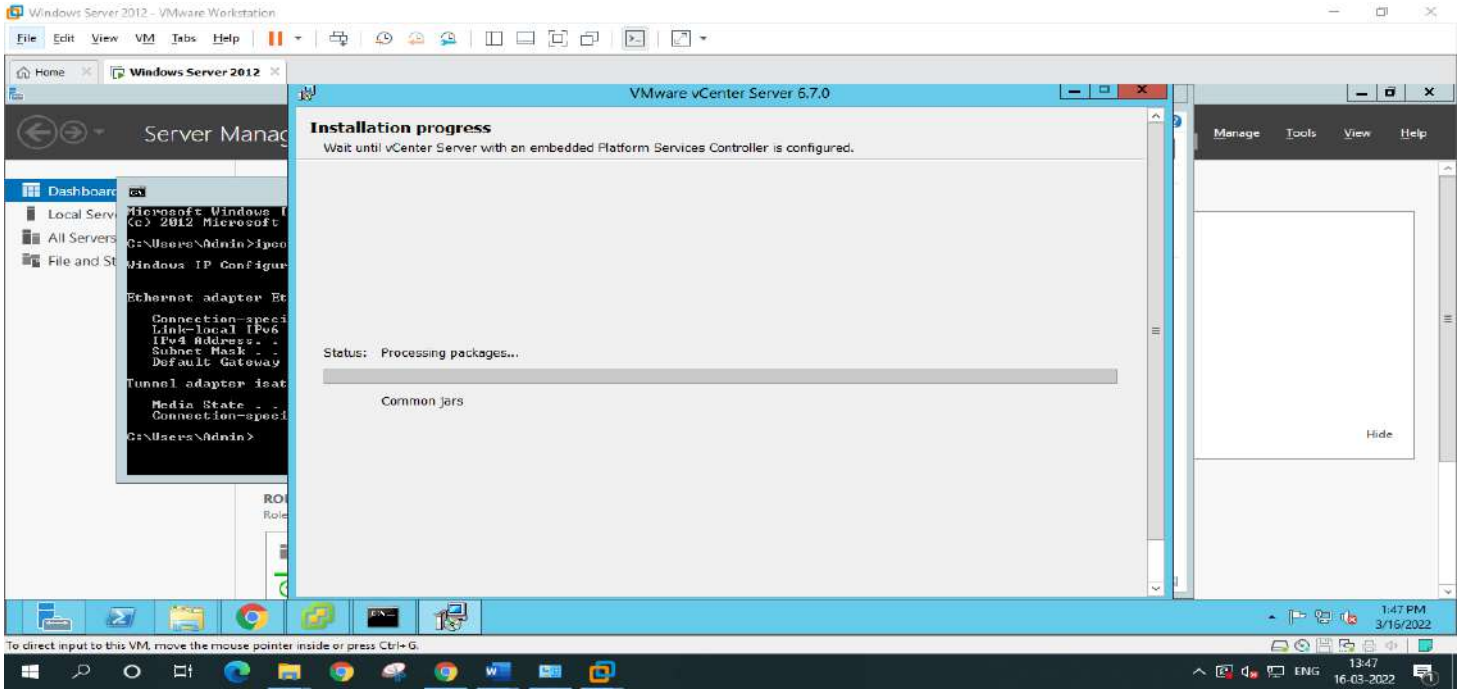
Click on the **Next** button



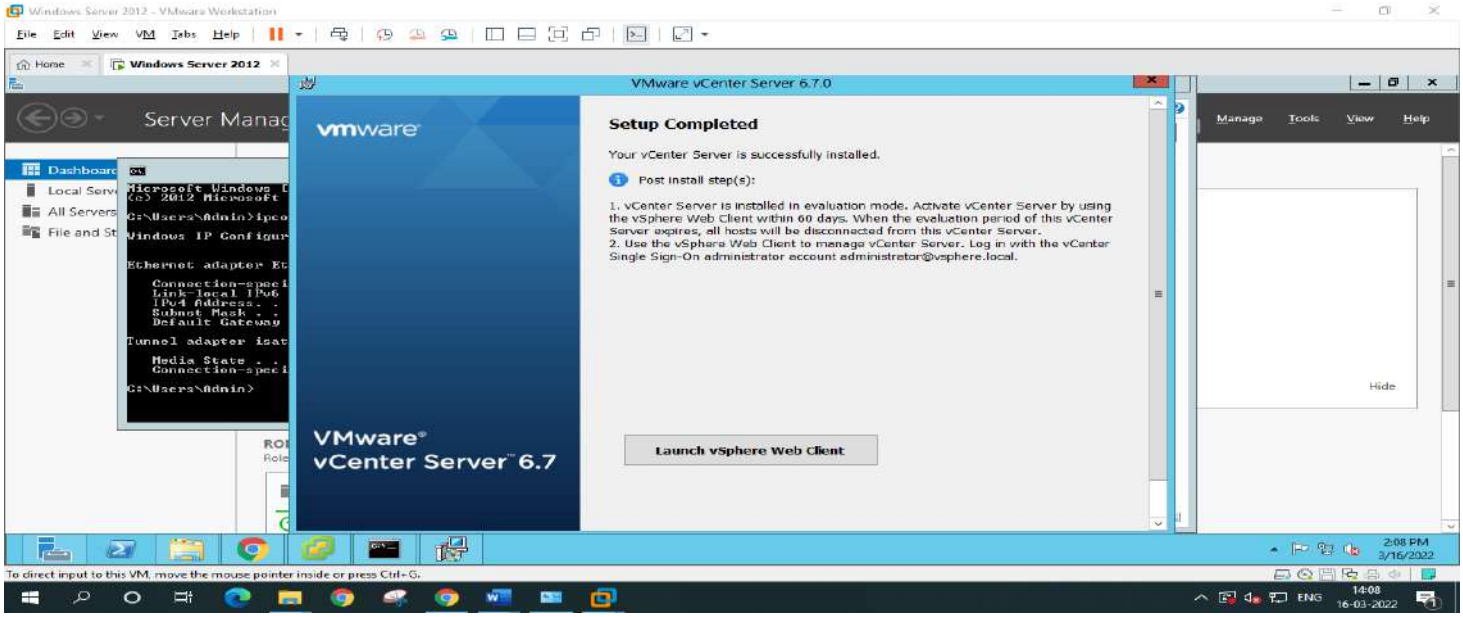
Click on the **Install** button

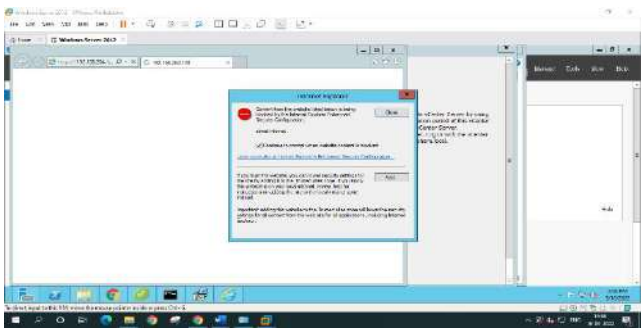


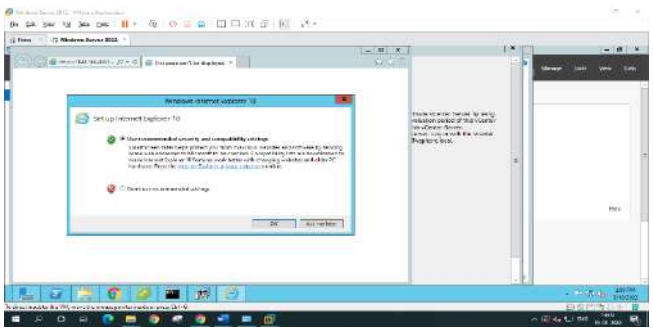
Installation of VMware vCenter Server begins



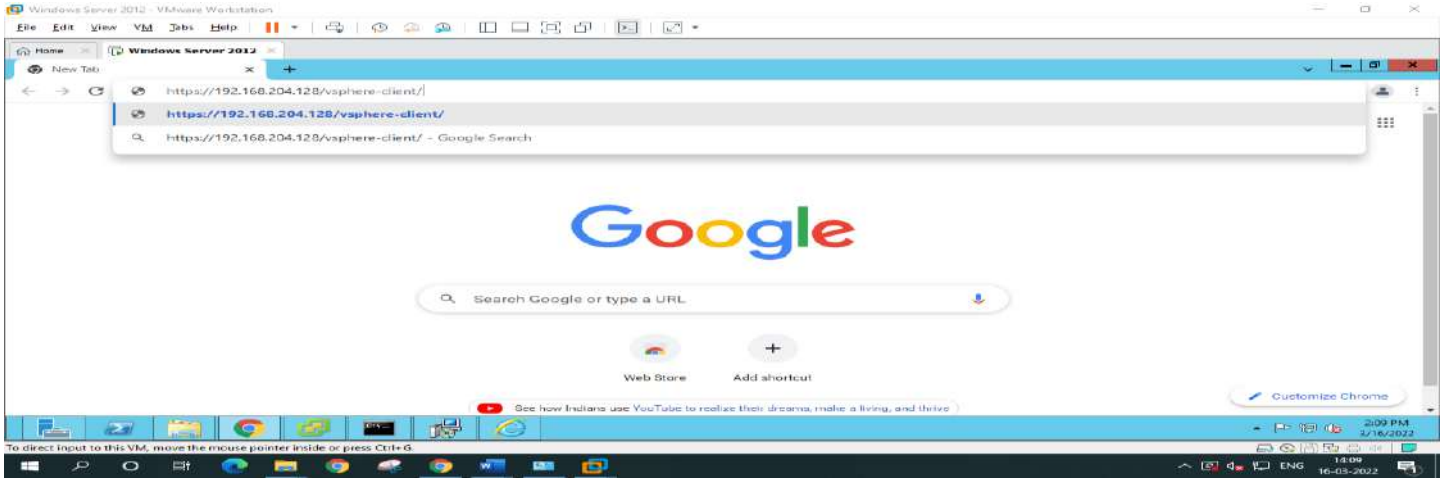
vCenter installed successfully



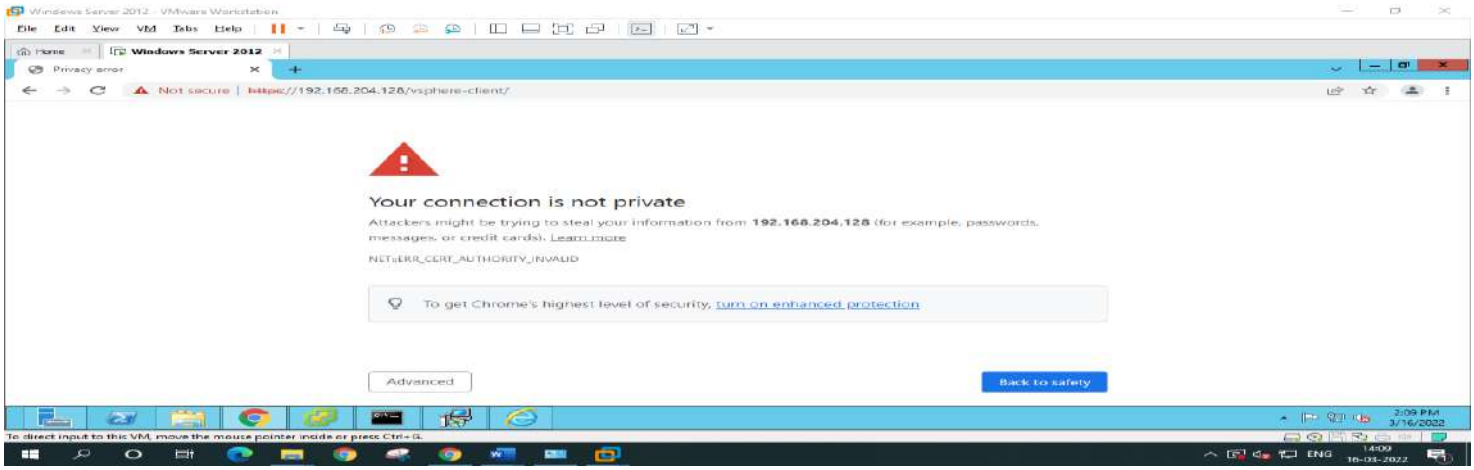




First install the **Chrome Browser** and go to the Link i.e. **<IP_address>/vsphere-client**



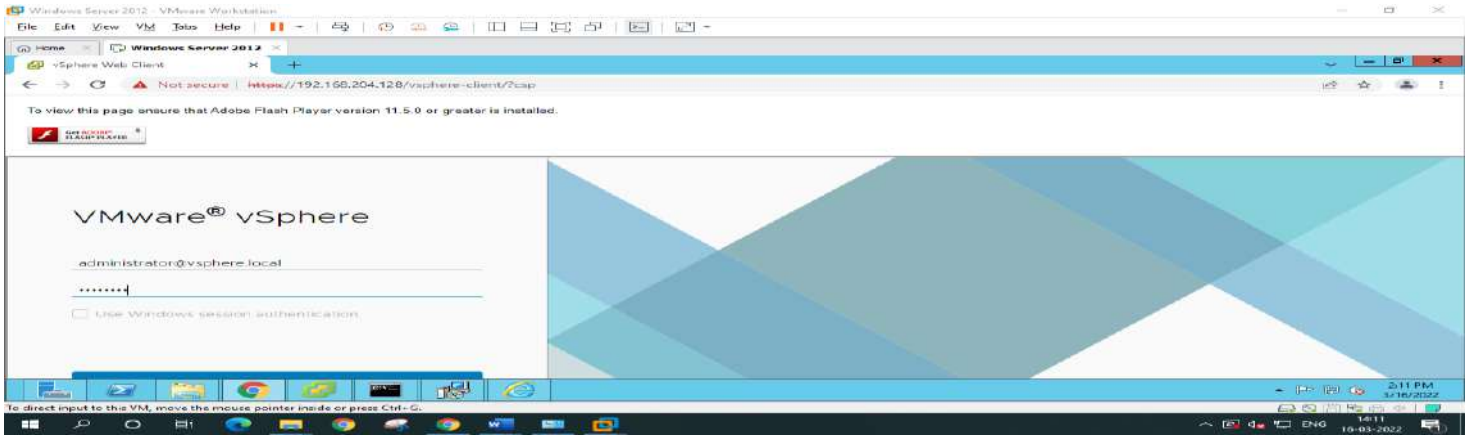
Click on an **Advanced** button and Next screen is coming then click on the **Proceed IP_address**

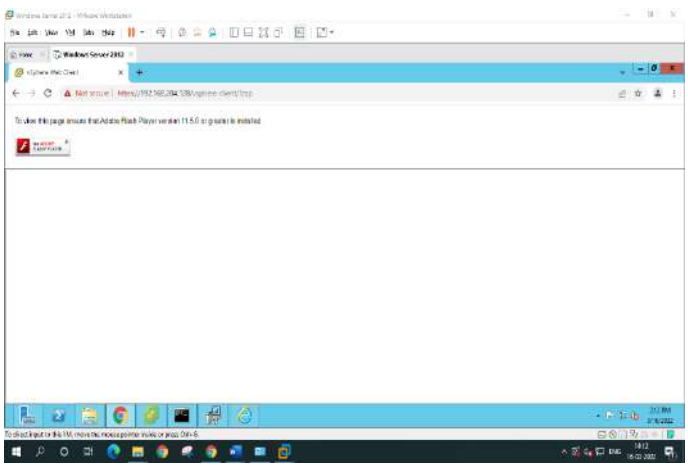


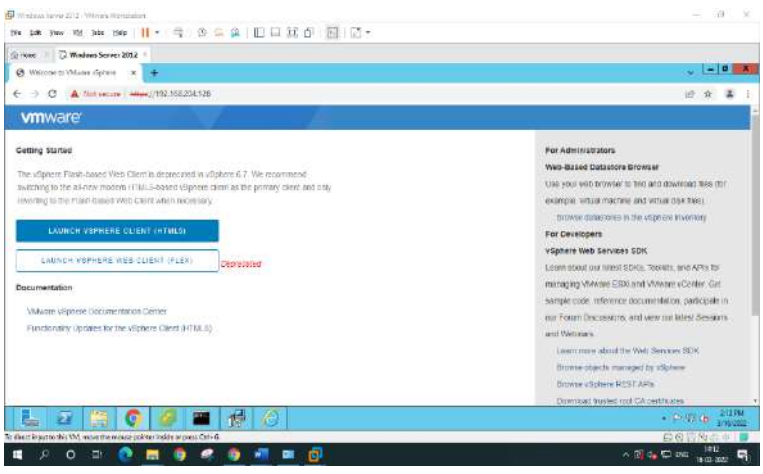
Now we can connect to the **VMWare vCentre through its User interface**.

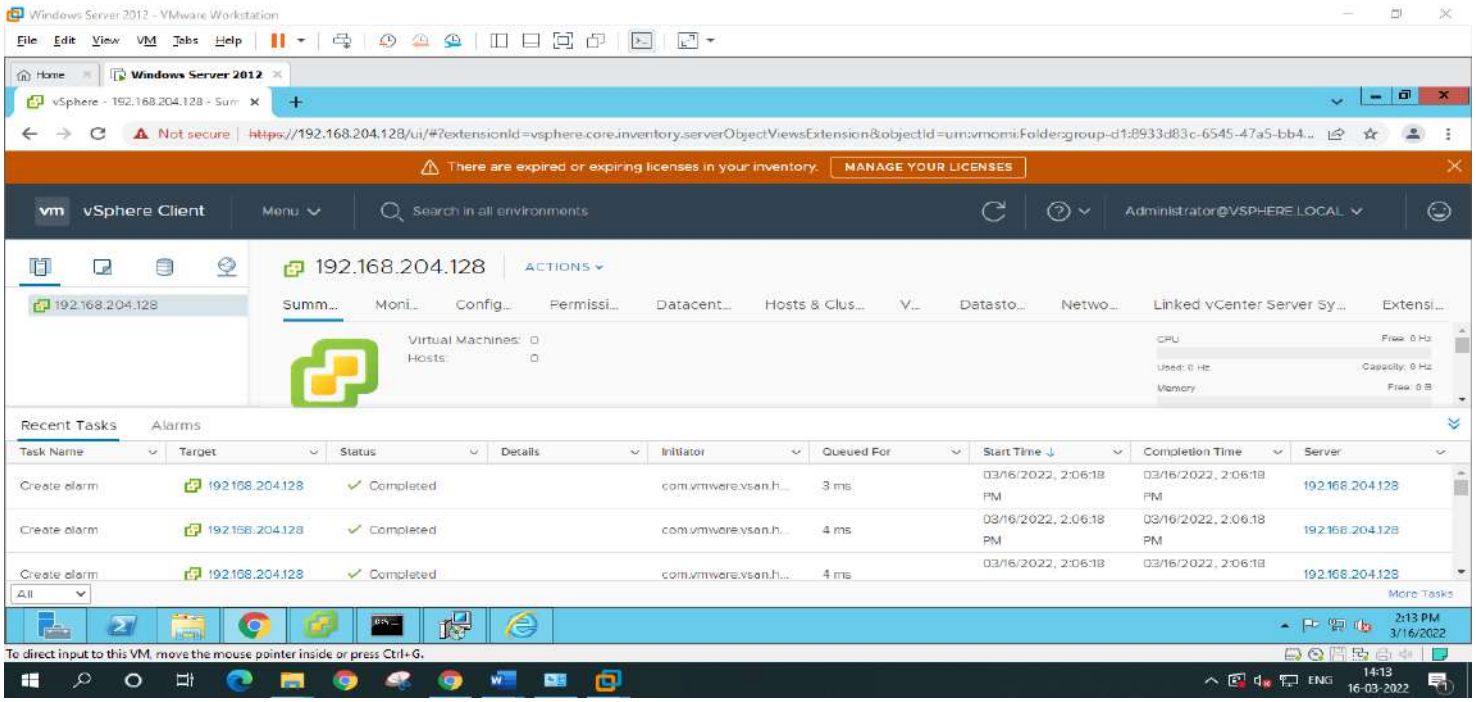
Username: administrator@vsphere.local

Password: It@13579








Windows Server 2012 - VMware Workstation
File Edit View VM Tabs Help
Home
Windows Server 2012
vSphere - 192.168.204.128 - Sum
Not secure https://192.168.204.128/ui/#?extensionId=vsphere.core.inventory.serverObjectViewsExtension&objectId=urn:vmomi:Folder:group-d1:8933d83c-6545-47a5-bb4...
There are expired or expiring licenses in your inventory.
MANAGE YOUR LICENSES
vm vSphere Client
Menu
Search in all environments
Administrator@VSPHERE.LOCAL
192.168.204.128
ACTIONS
Summ... Moni... Config... Permissi... Datacent... Hosts & Clus... V... Datasto... Netwo... Linked vCenter Server Sy... Extensi...
Virtual Machines: 0
Hosts: 0
CPU
Memory
Recent Tasks
Alarms
Task Name
Target
Status
Details
Initiator
Queued For
Start Time
Completion Time
Server
Create alarm
192.168.204.128
Completed
com.vmware.vsan.h...
3 ms
03/16/2022, 2:06:18 PM
03/16/2022, 2:06:18 PM
192.168.204.128
Create alarm
192.168.204.128
Completed
com.vmware.vsan.h...
4 ms
03/16/2022, 2:06:18 PM
03/16/2022, 2:06:18 PM
192.168.204.128
Create alarm
192.168.204.128
Completed
com.vmware.vsan.h...
4 ms
03/16/2022, 2:06:18
03/16/2022, 2:06:18
192.168.204.128
All
More Tasks
2:13 PM
3/16/2022
To direct input to this VM, move the mouse pointer inside or press Ctrl+G.
ENG
14:13
16-03-2022

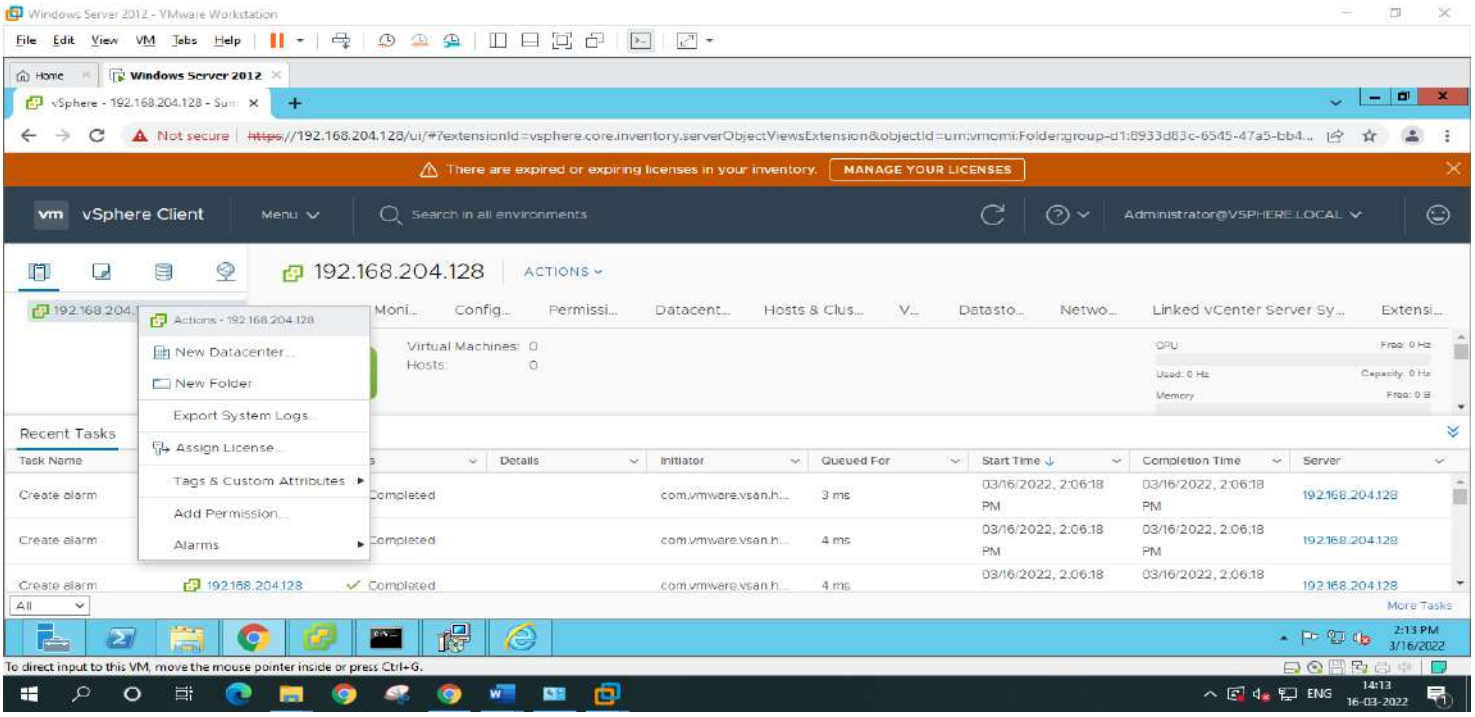
Practical No. 2

AIM: Manage VMwareESXi server with vCentre server.

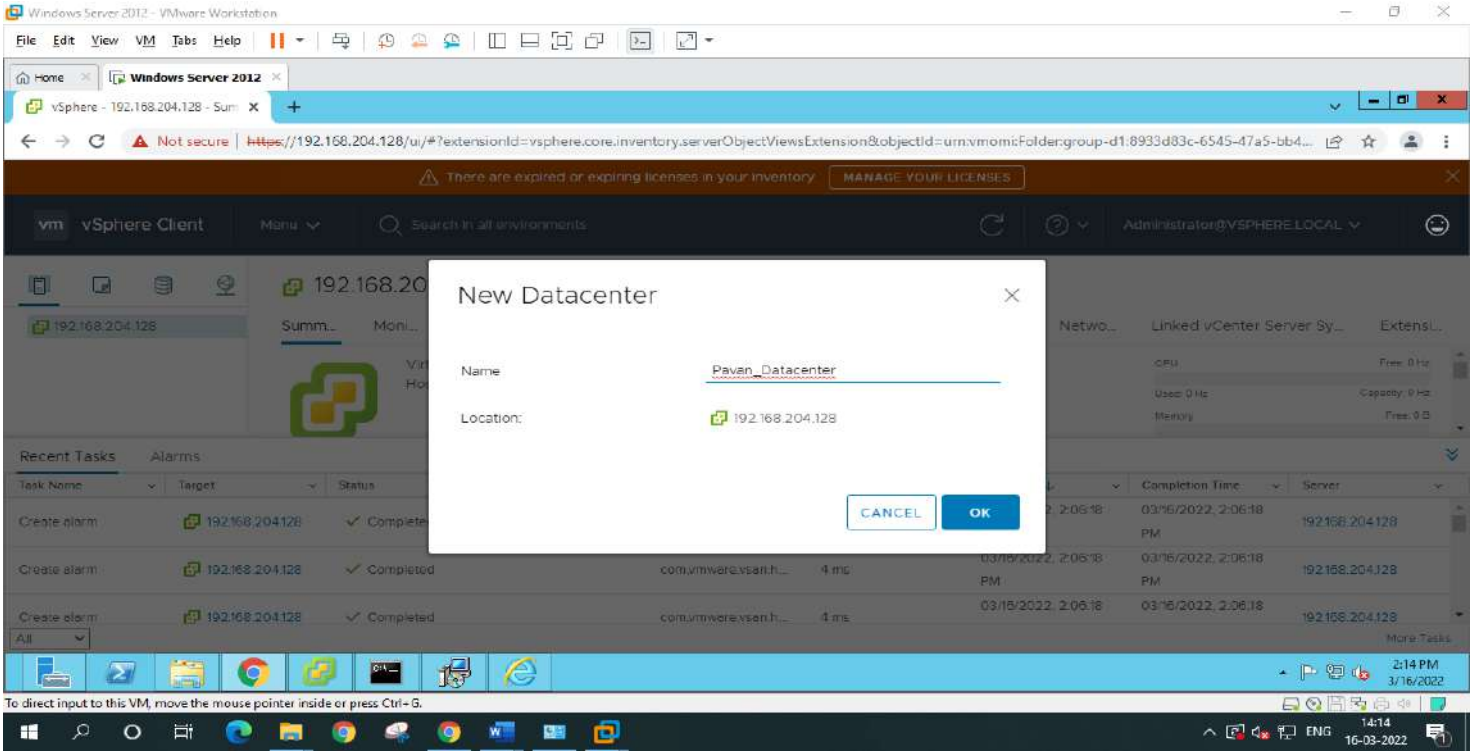
A- Create a virtual machine in VMware ESXi Server.

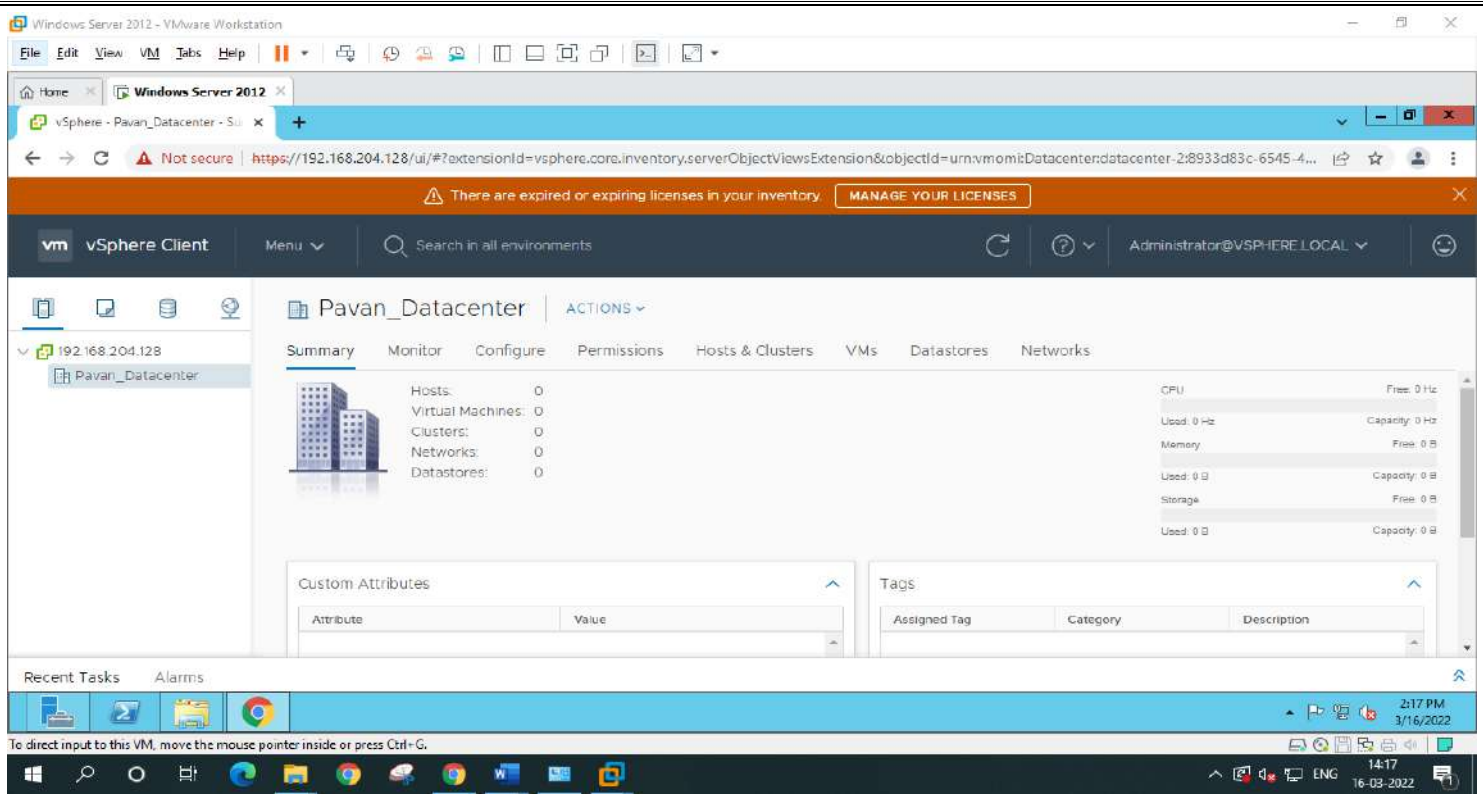
Create Datacenter and Add host on it:

After successful login, the below screen will appear, and after that click on the “Create a datacenter” button to add the data center into the vSphere server.

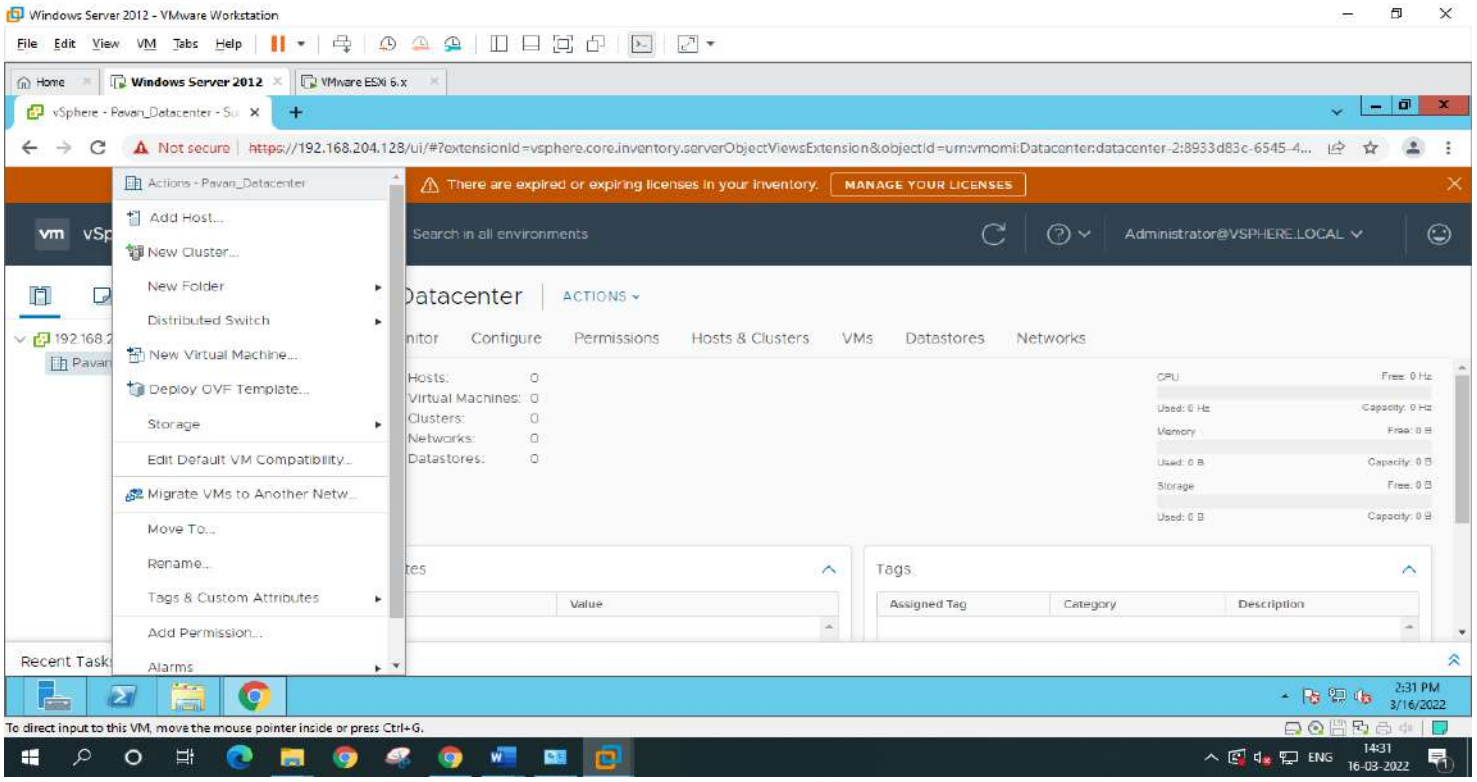


Give the name of Datacenter



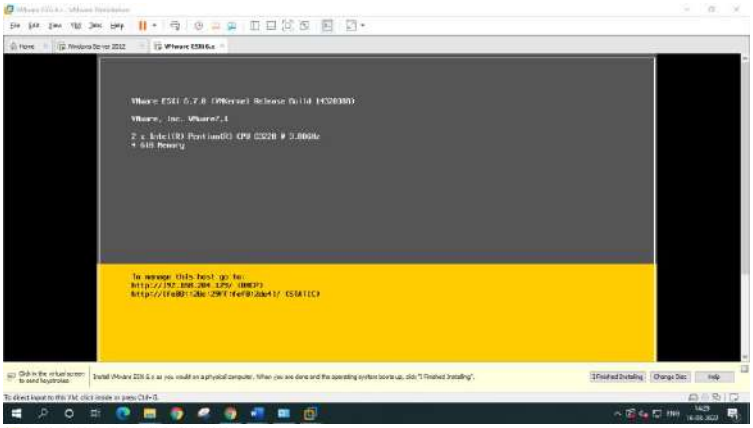


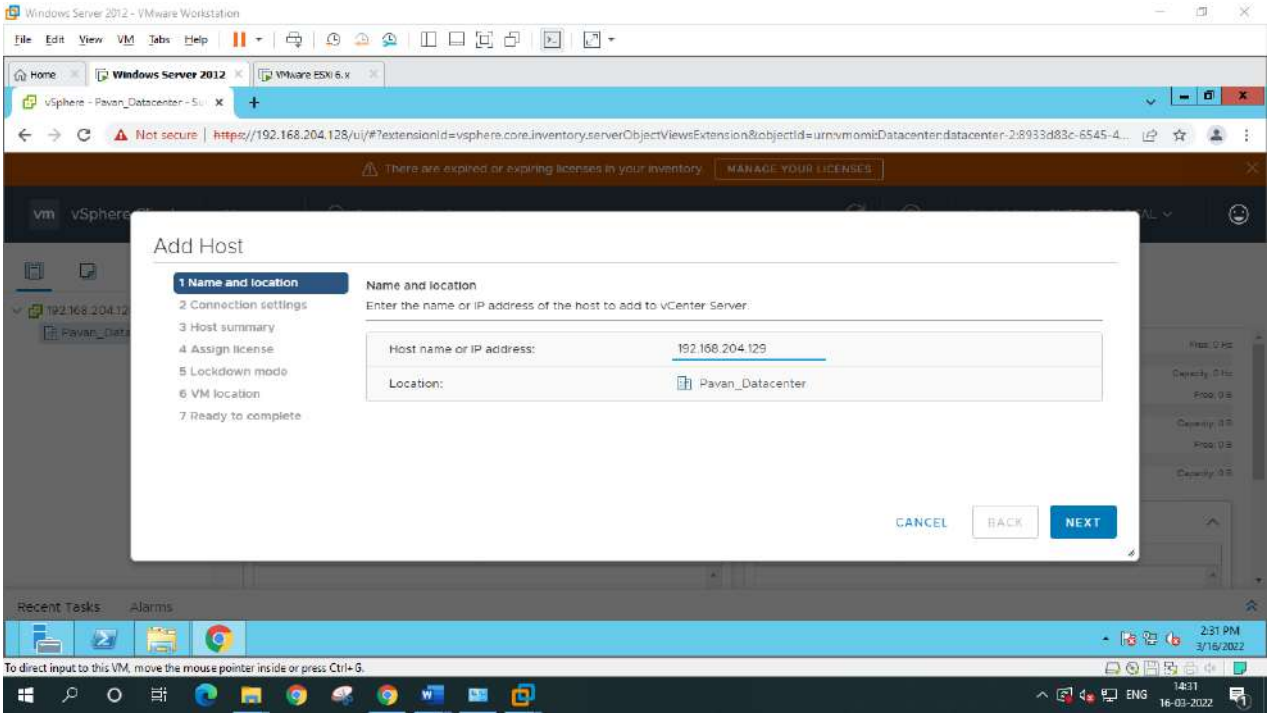
After that change, the name of the datacenter as you want, now click the "**Add a host**" button to add the host machine into the vSphere server.



Enter the **IP address of the host machine** and enter the credential of the host machine i.e. of VMWare Esxi 6. x.

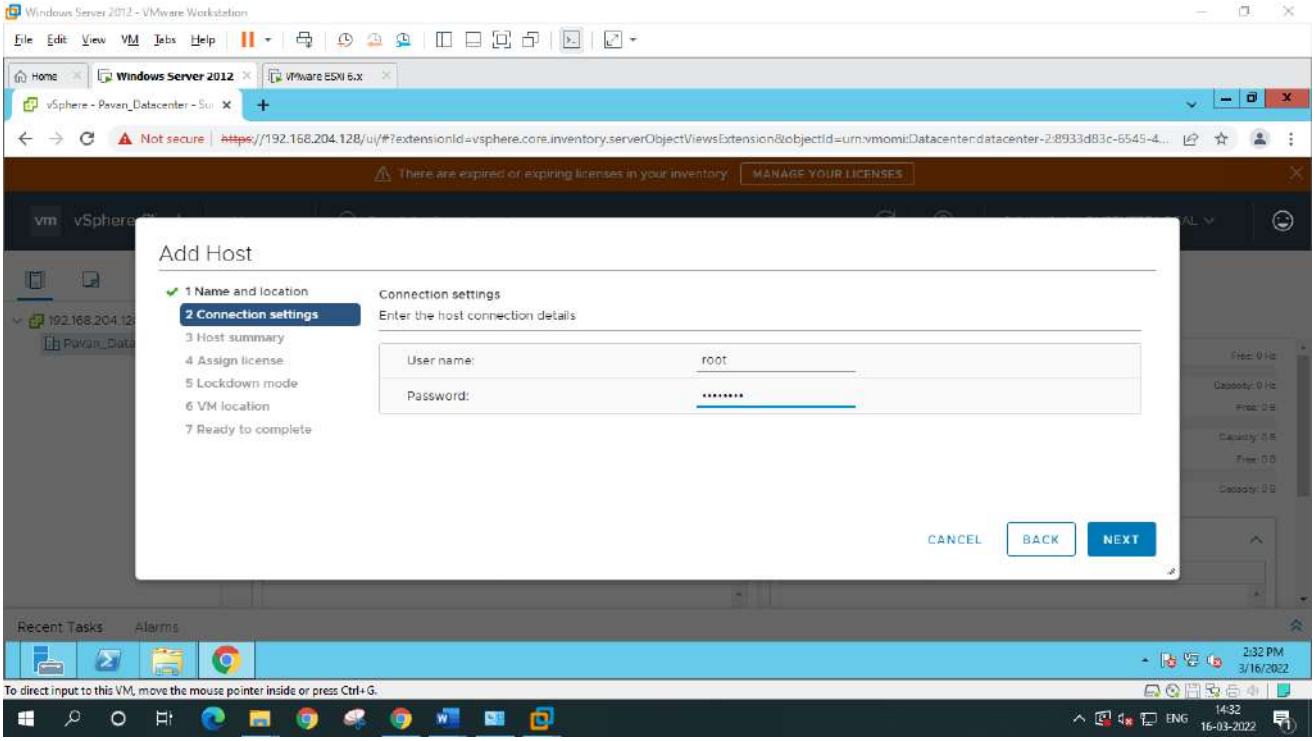
(i.e. Practical No.1 A last)



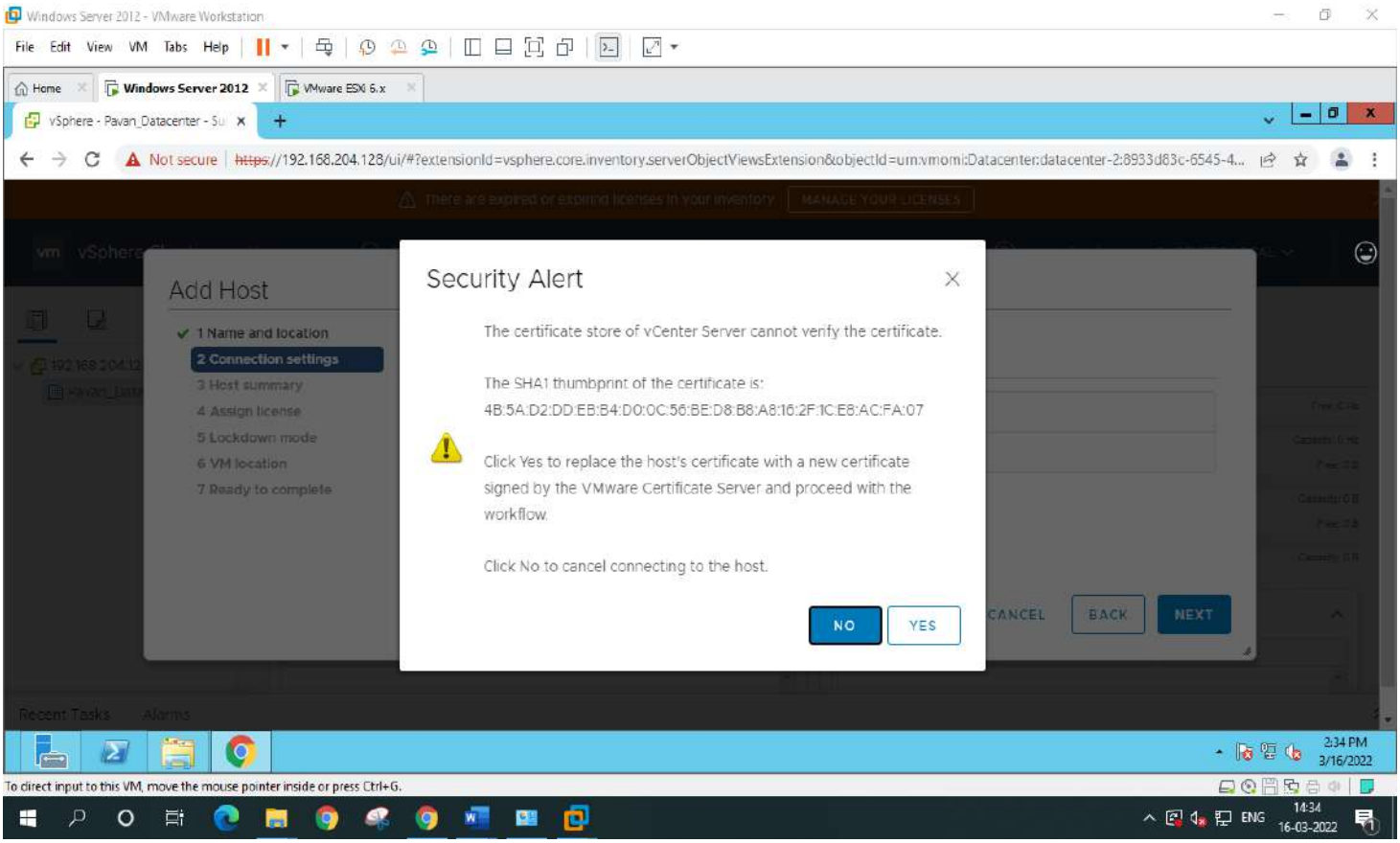


Username: root

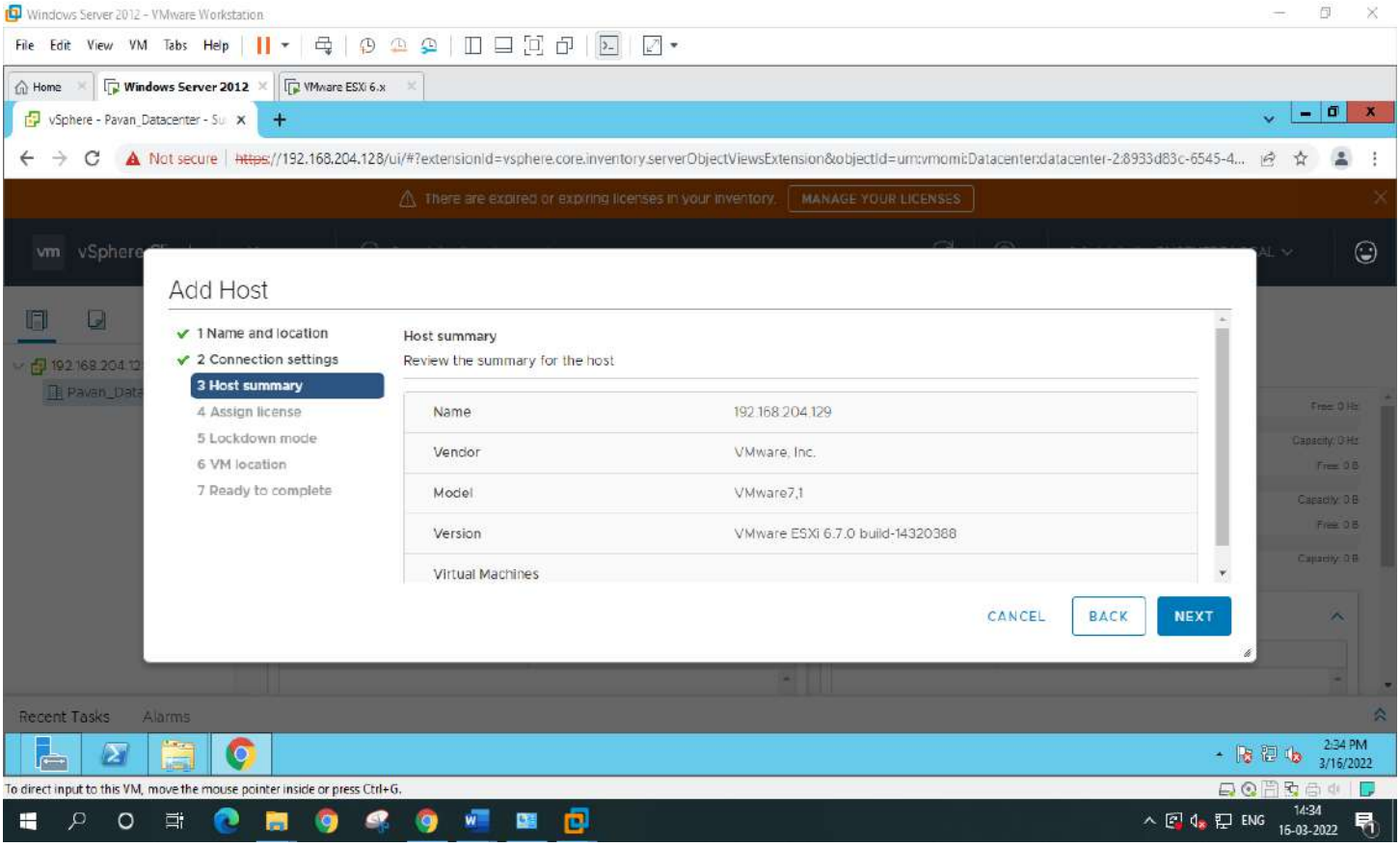
Password: It@13579



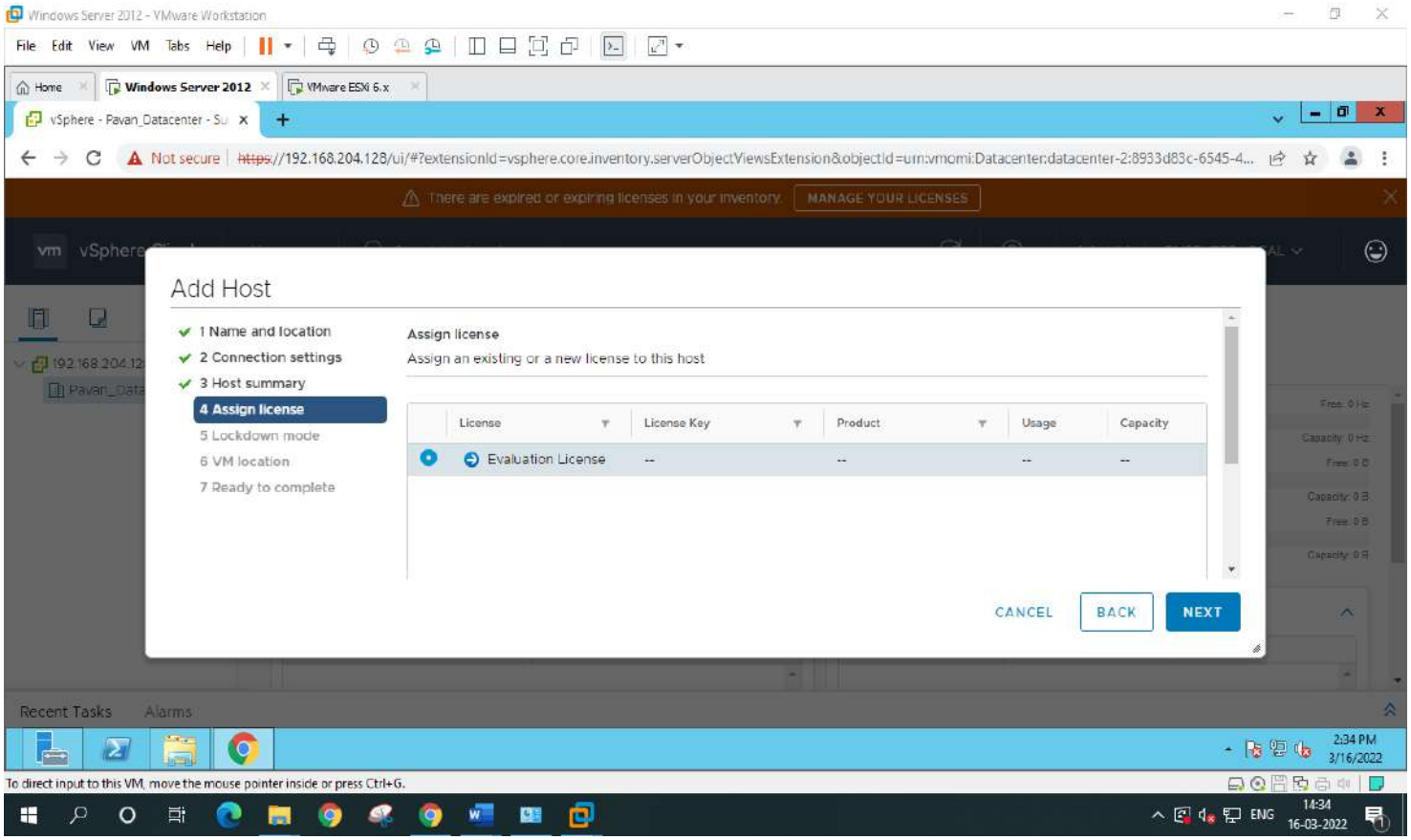
Click on the **Yes** button



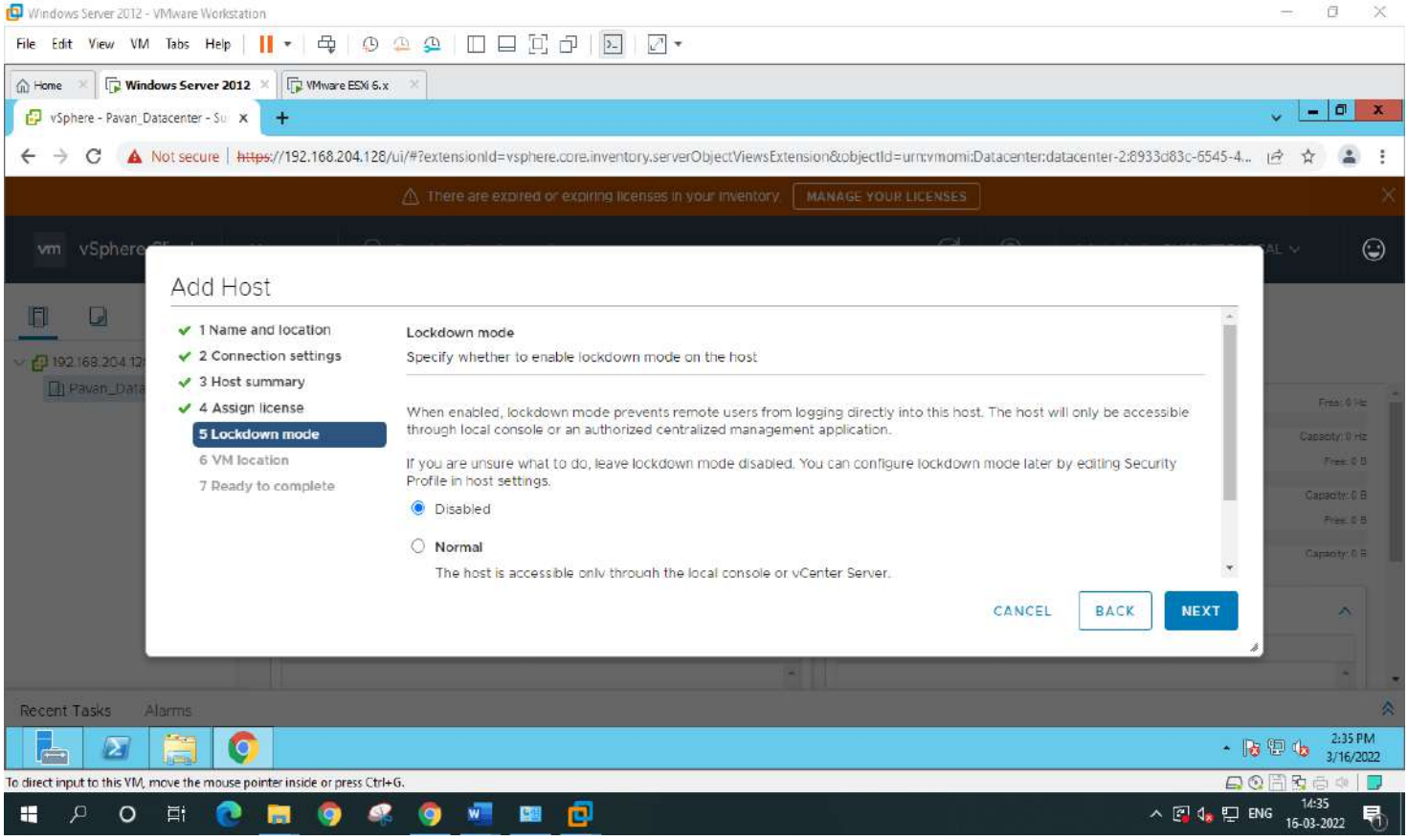
Click on the **Next** button



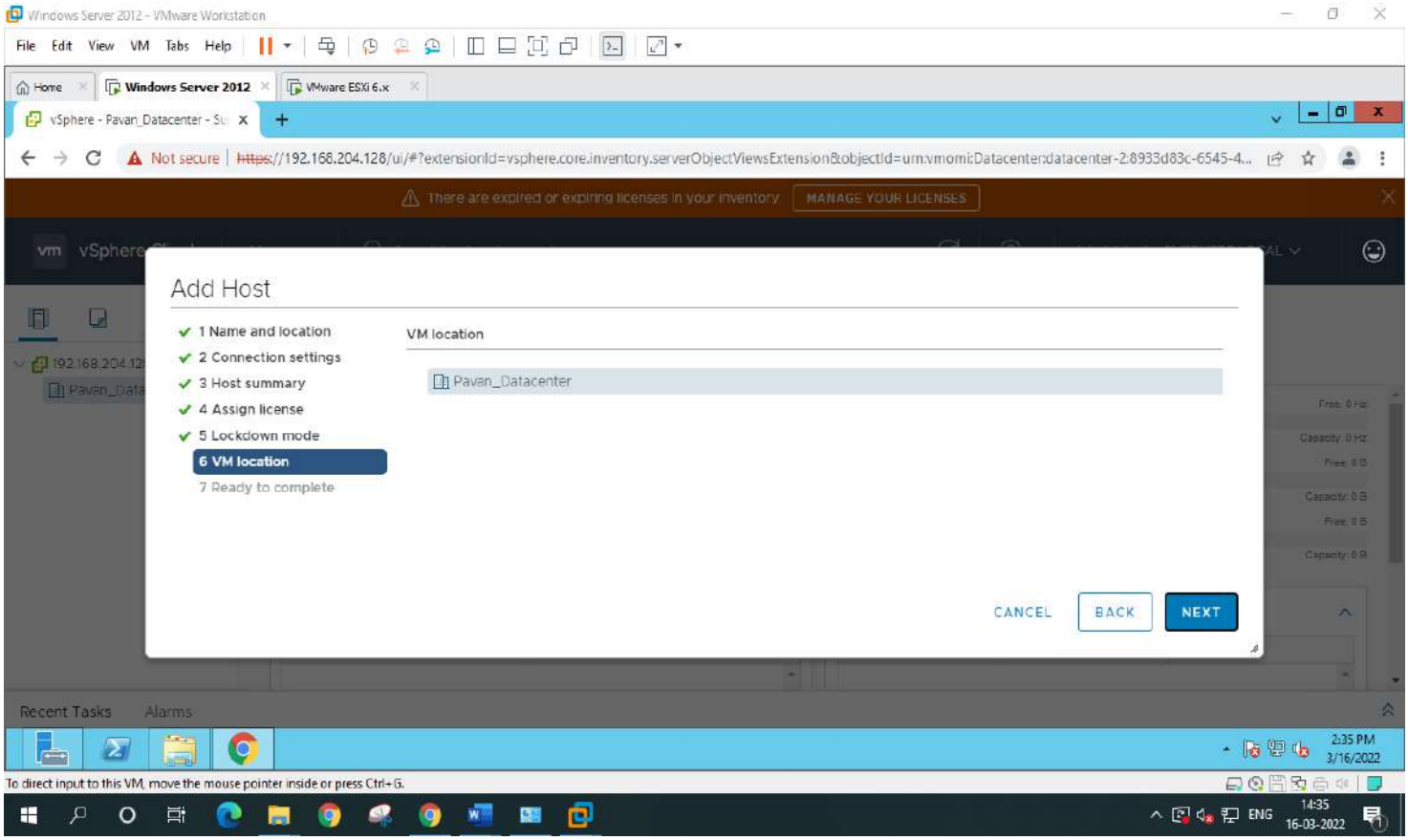
Click on the **Next** button



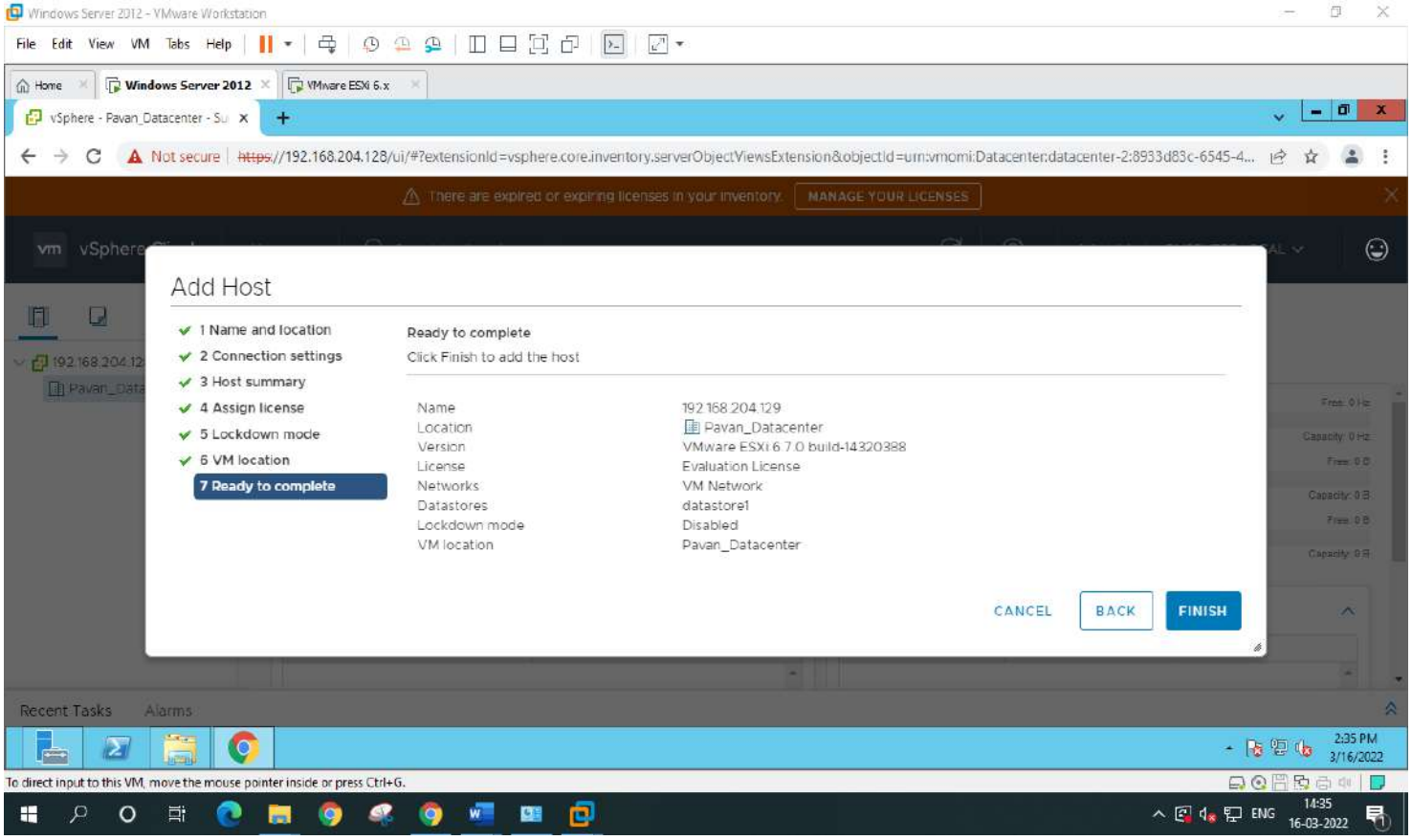
Click on the **Next** button

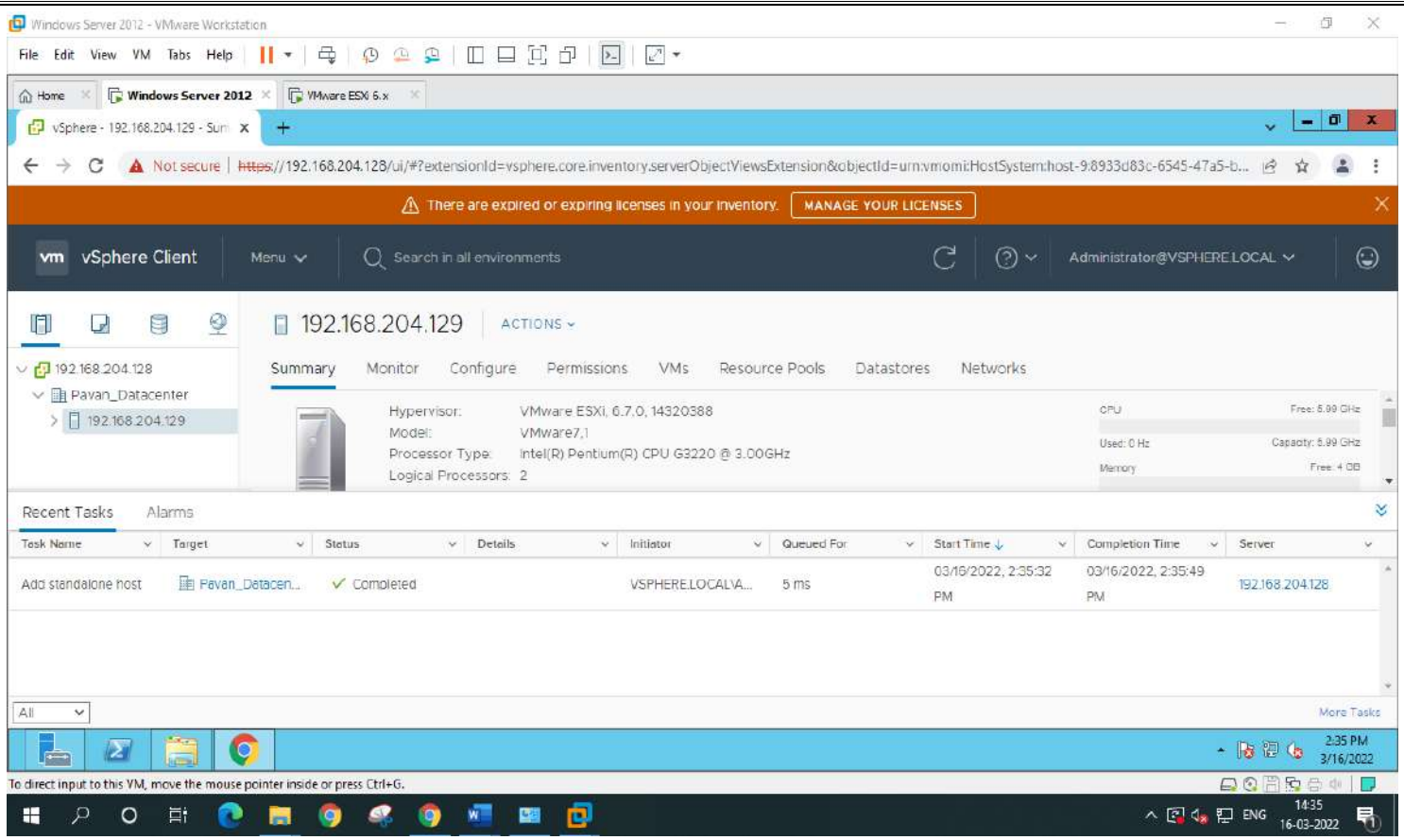


Click on the **Next** button



Click on the **Finish** button





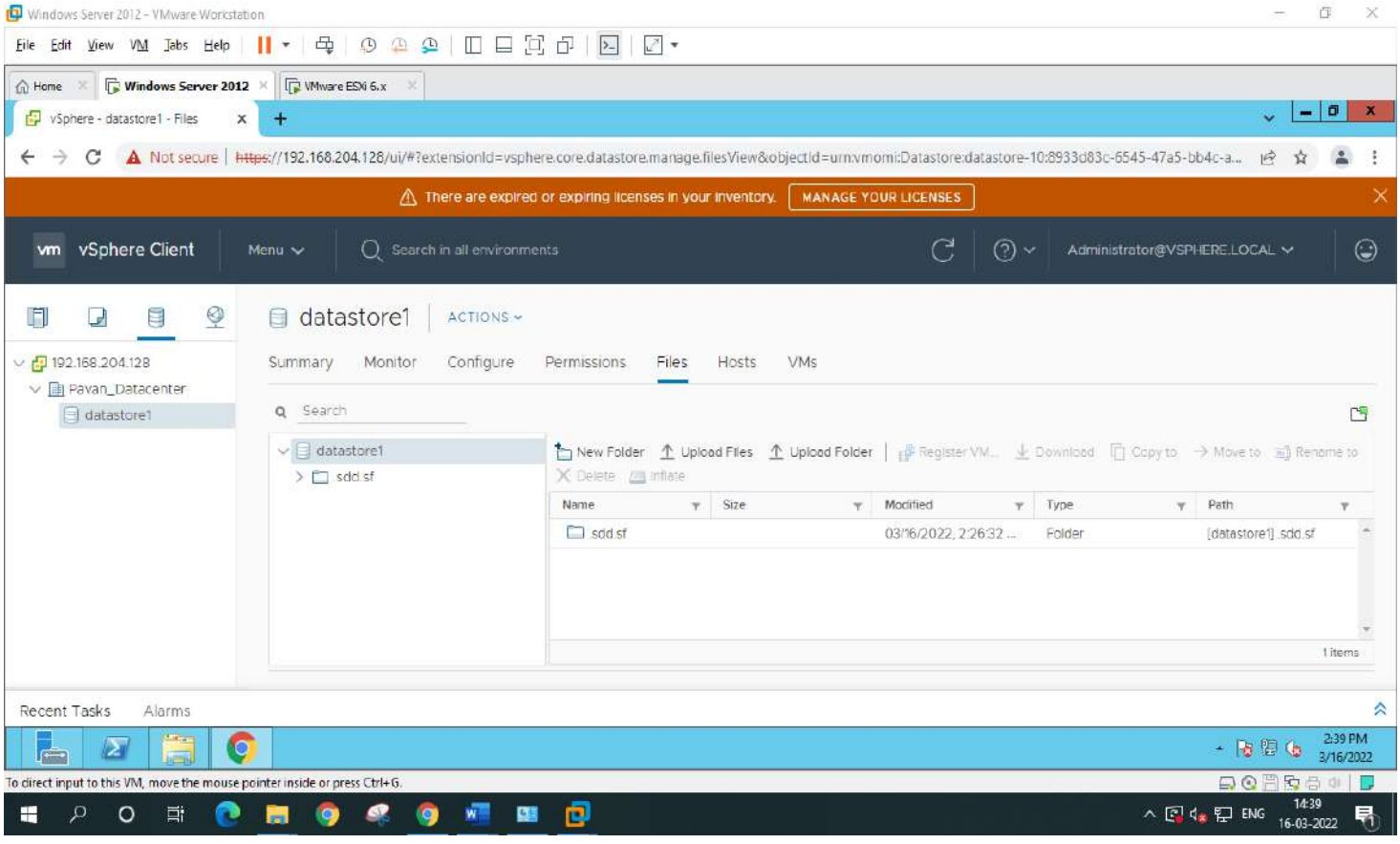
Create Virtual Machine into host:

For the creation of a virtual machine into the host, we need to add the **virtual machine iso** file **(WXPVOL_EN.iso)** into the datastore.

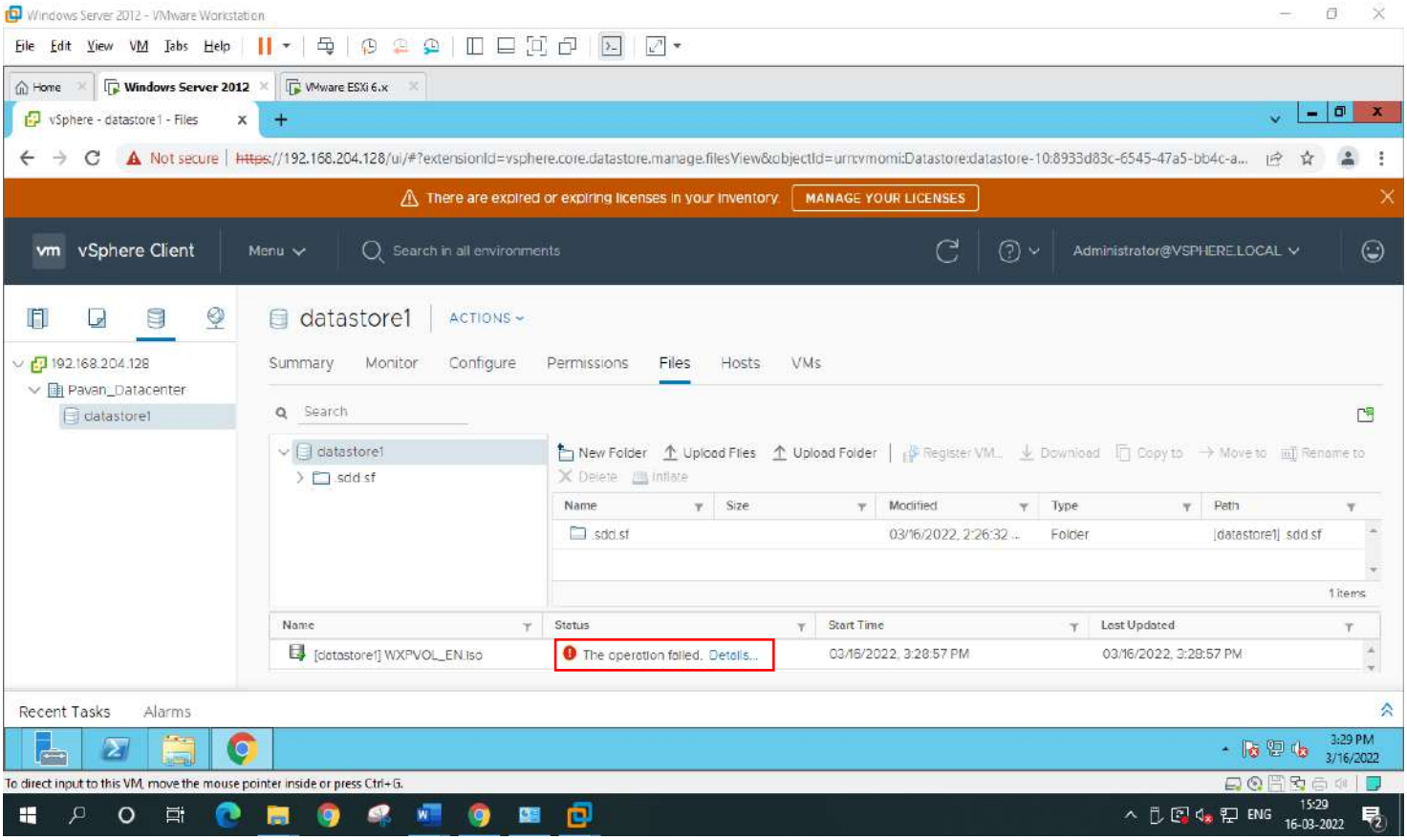
For that go to the configuration tab of the host and then click on the Storage button. After that double click on datastore1.

After that, you will be seen the below screen, just click on the “Browse this datastore” button

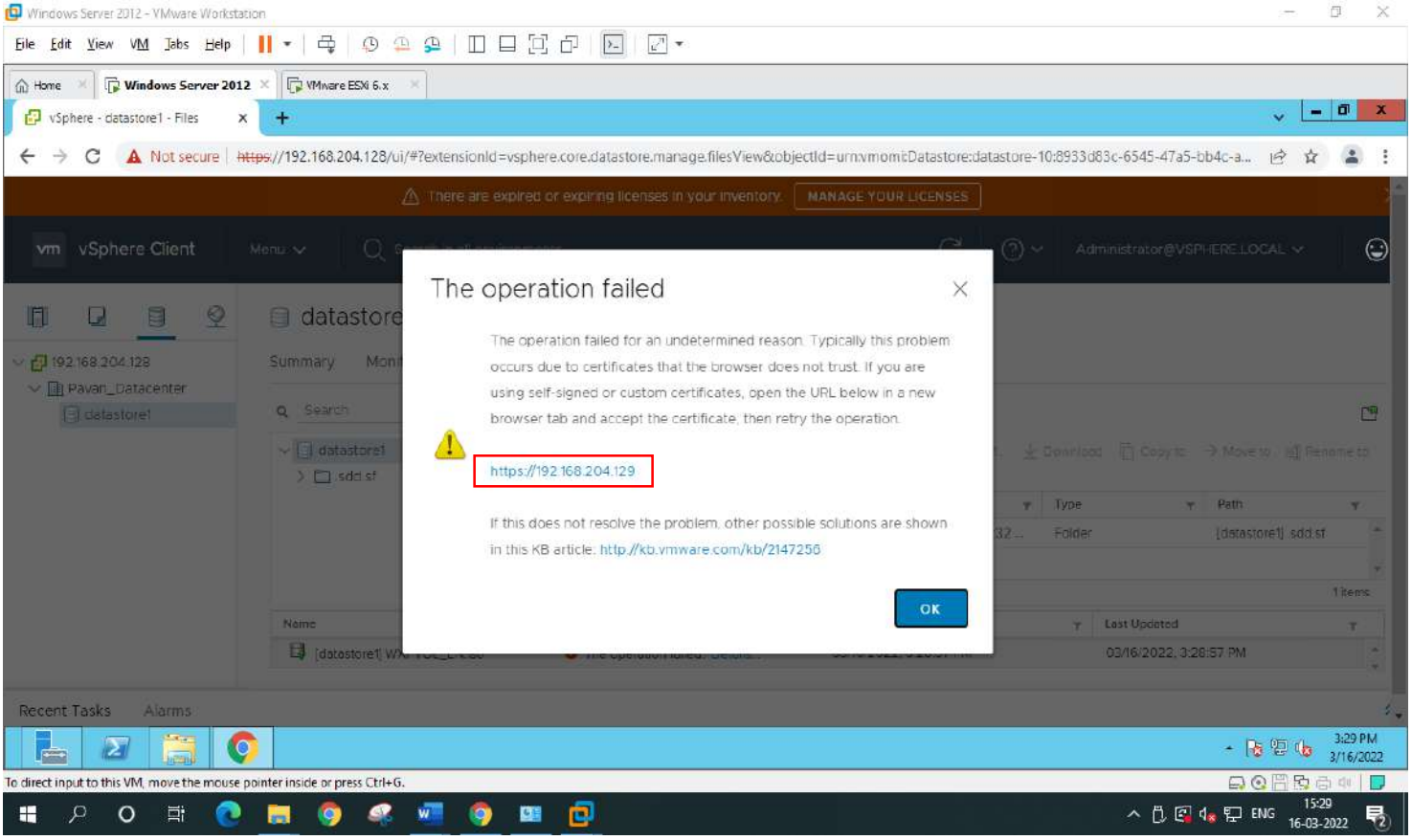
Click on the **upload file** button and **browse the iso file**.



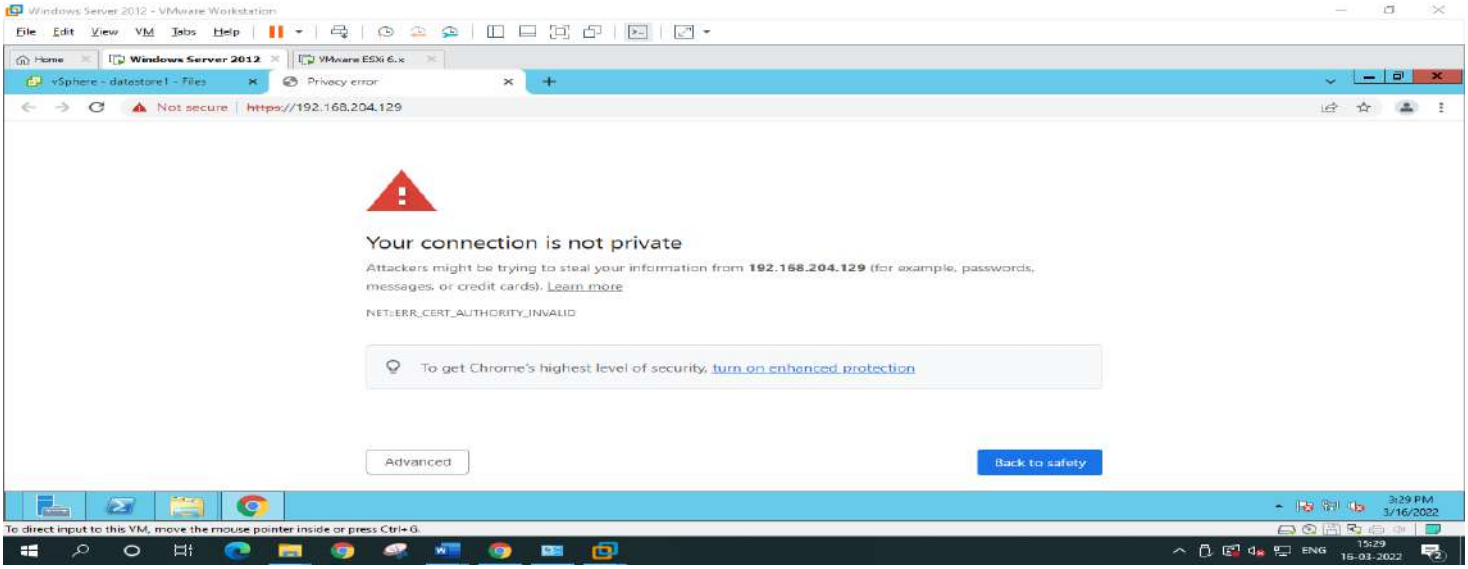
Click on details and **browse the hyperlink**. (Note: Click on the Details)



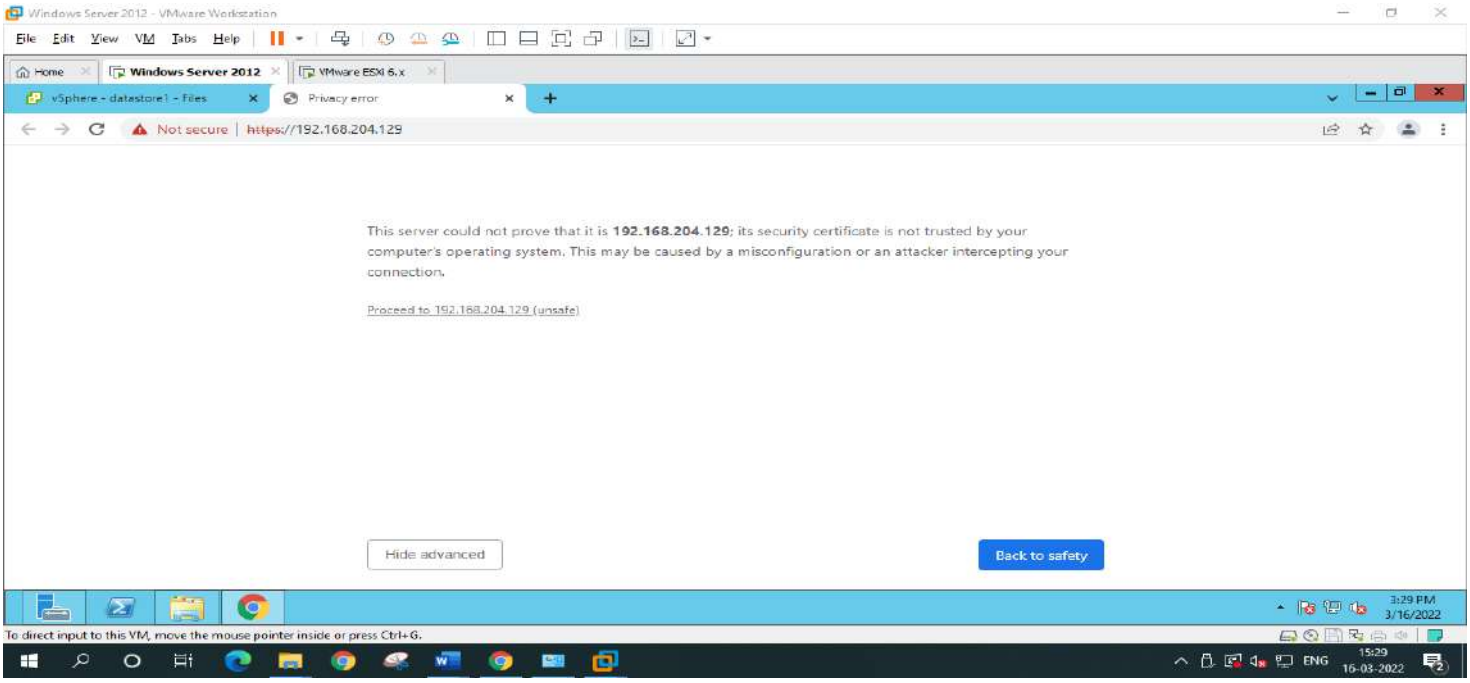
Click on the IP address



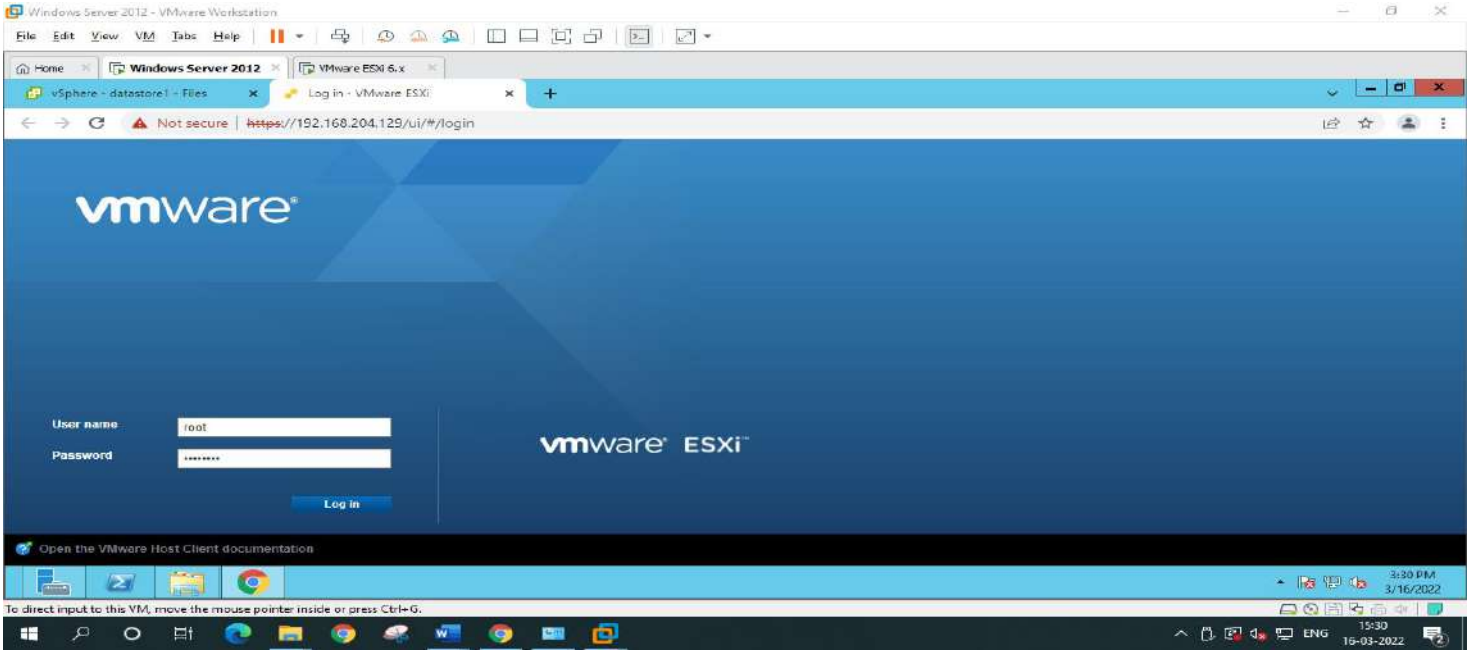
Click on the **Advanced** button

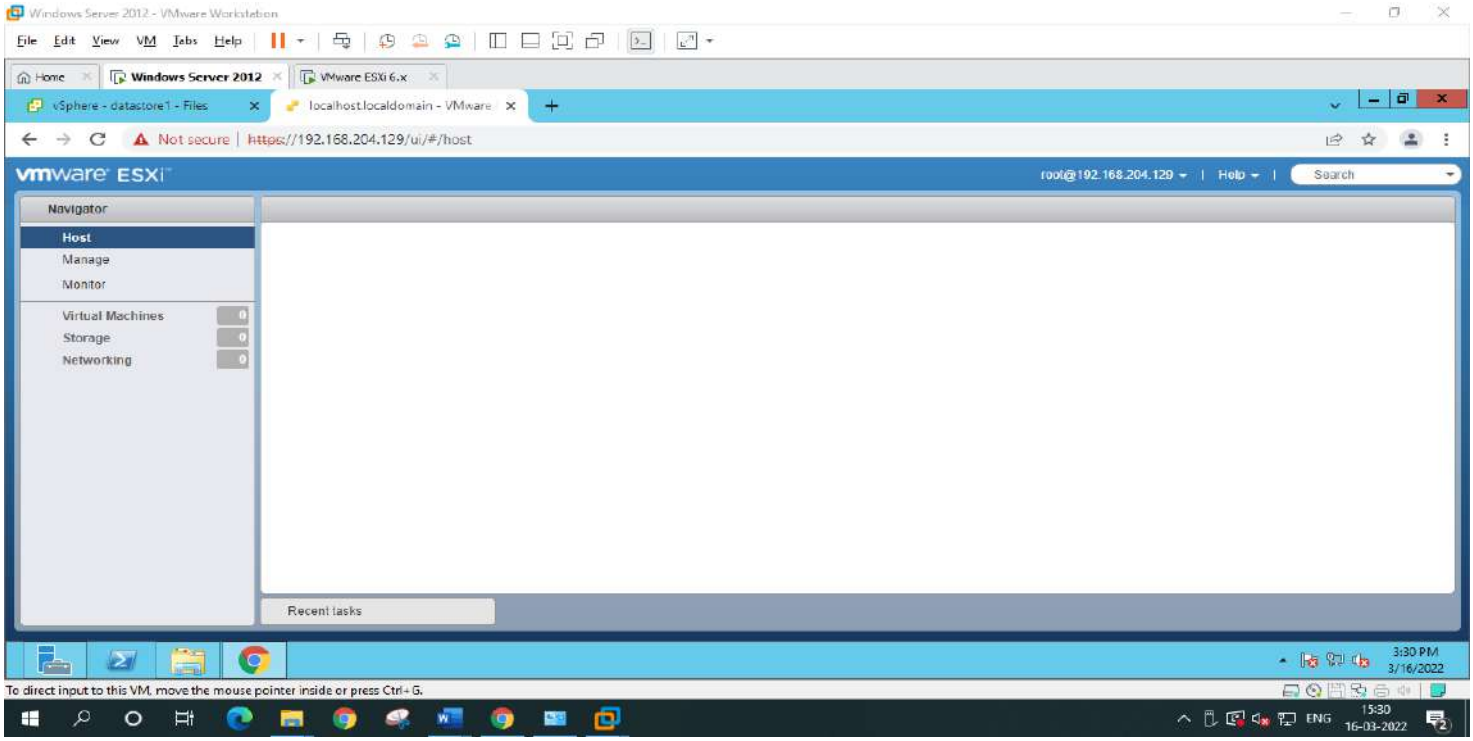


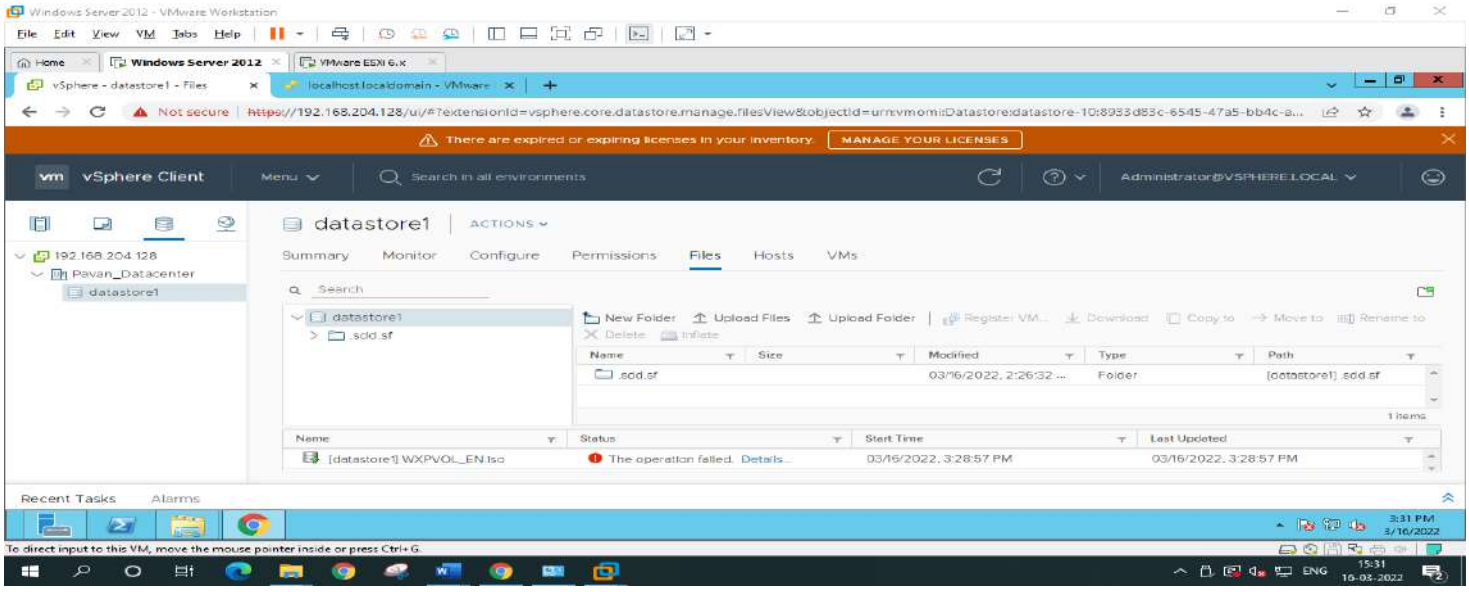
Click on the **Proceed to IP_Address** button



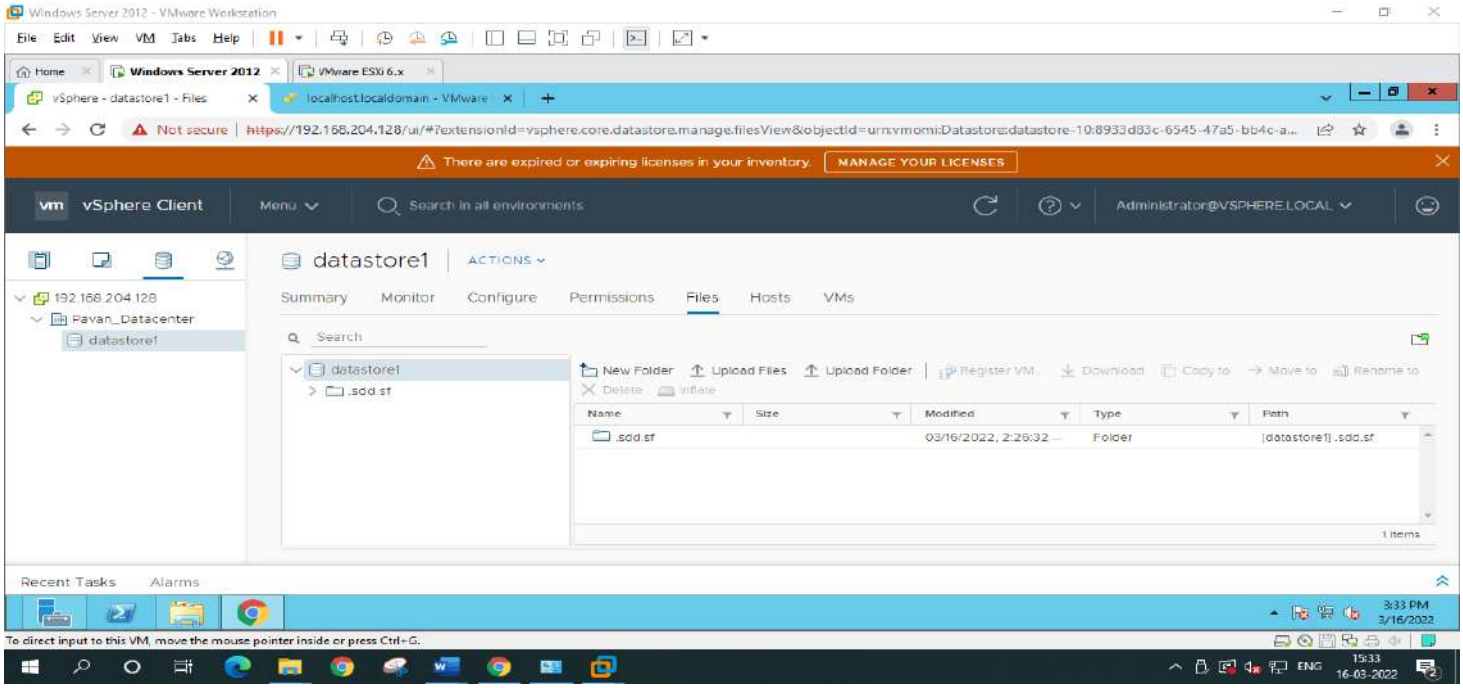
Enter the Username: **root** and Password: **It@13579** when creating ESXi Server



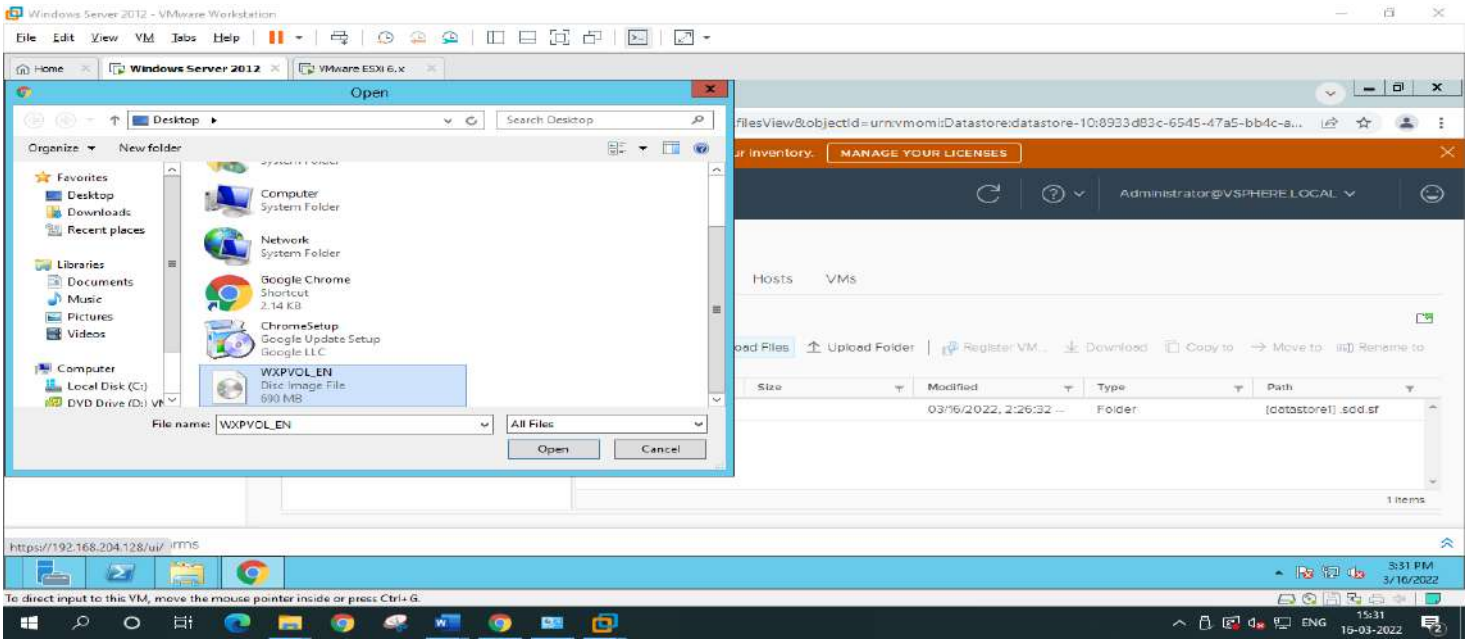




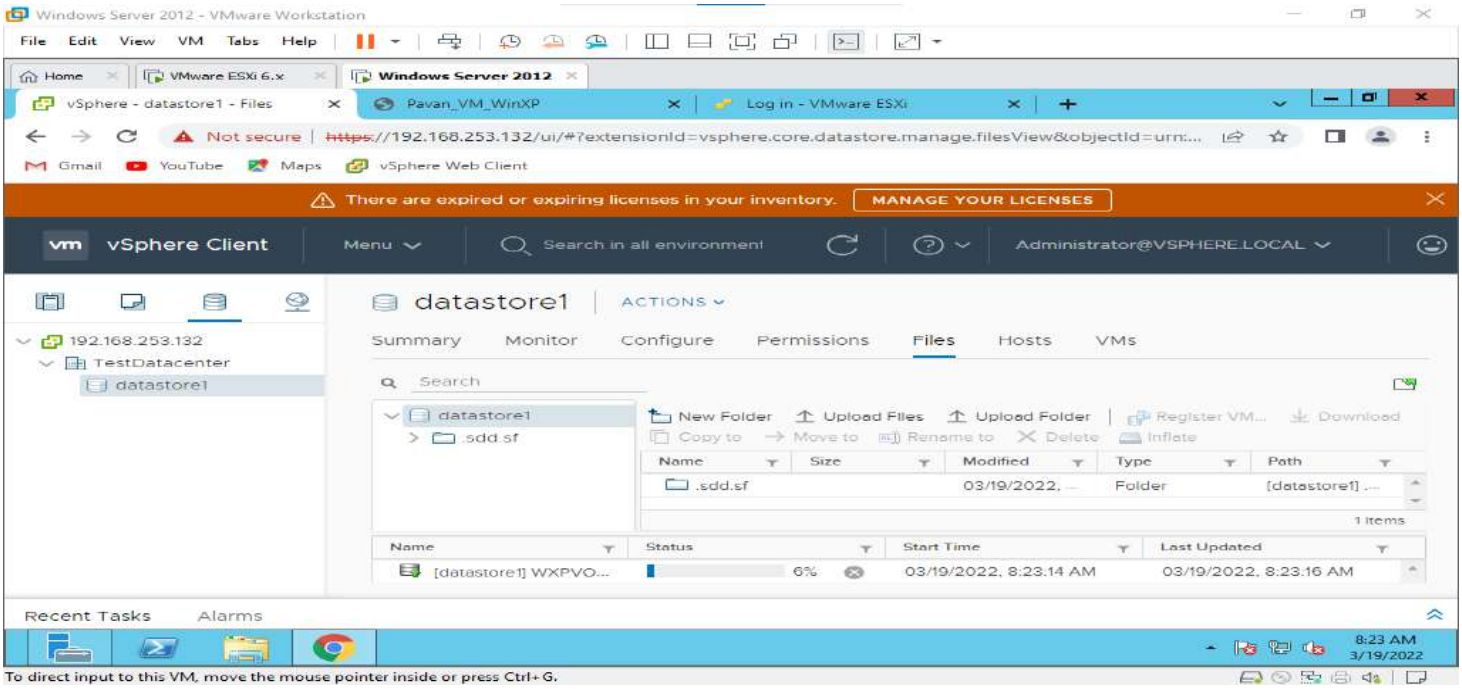
Refresh the datastore



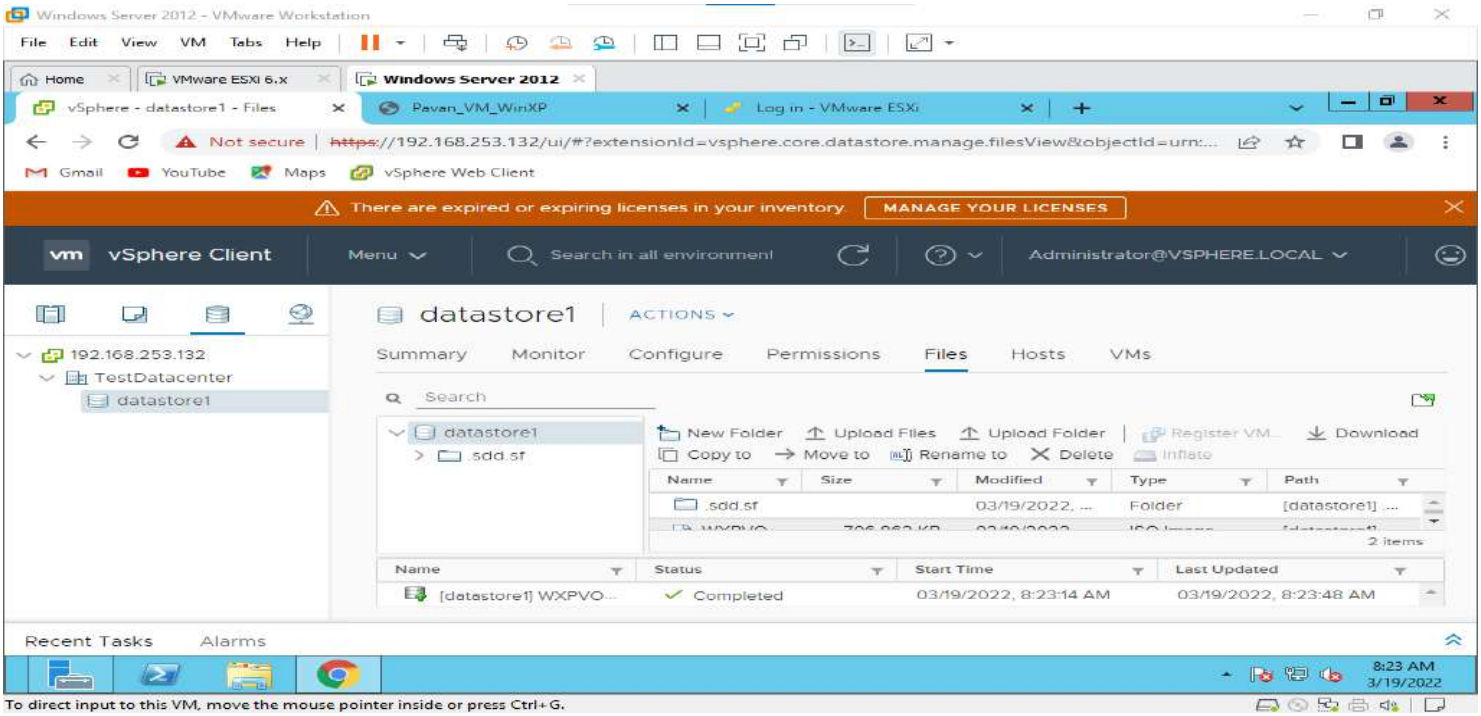
Upload again the .iso file of WindowsXP



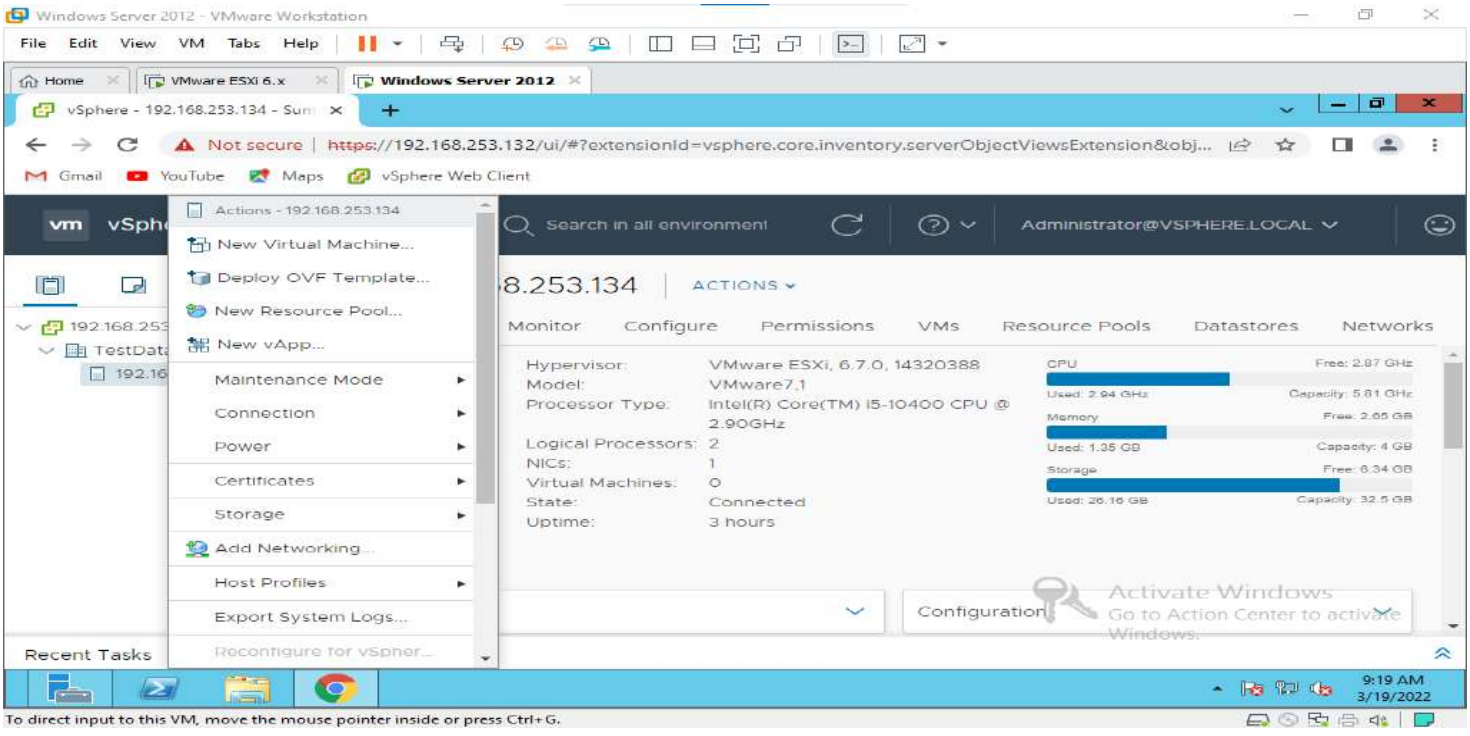
And this time successfully added the .iso file showing the progress of uploading in the **Recent Task**



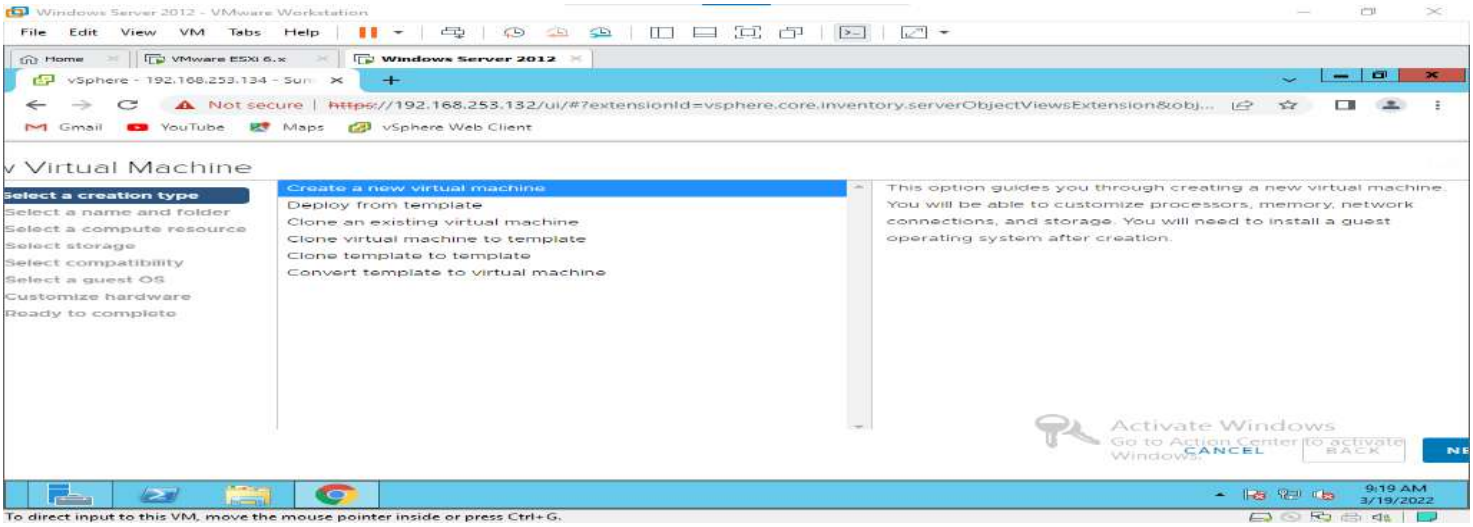
ISO file uploaded successfully into datastore



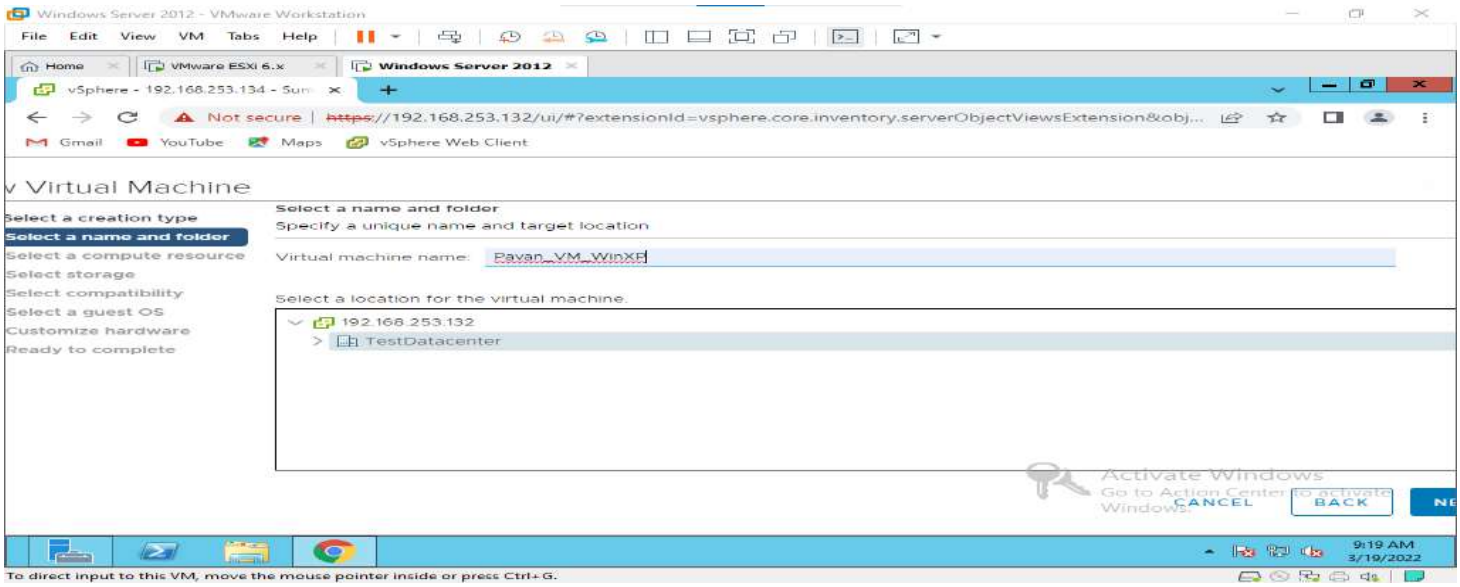
Again go to the **host tab** and **right-click** on the **host** (IP_address of Host) and select **New Virtual Machine**.



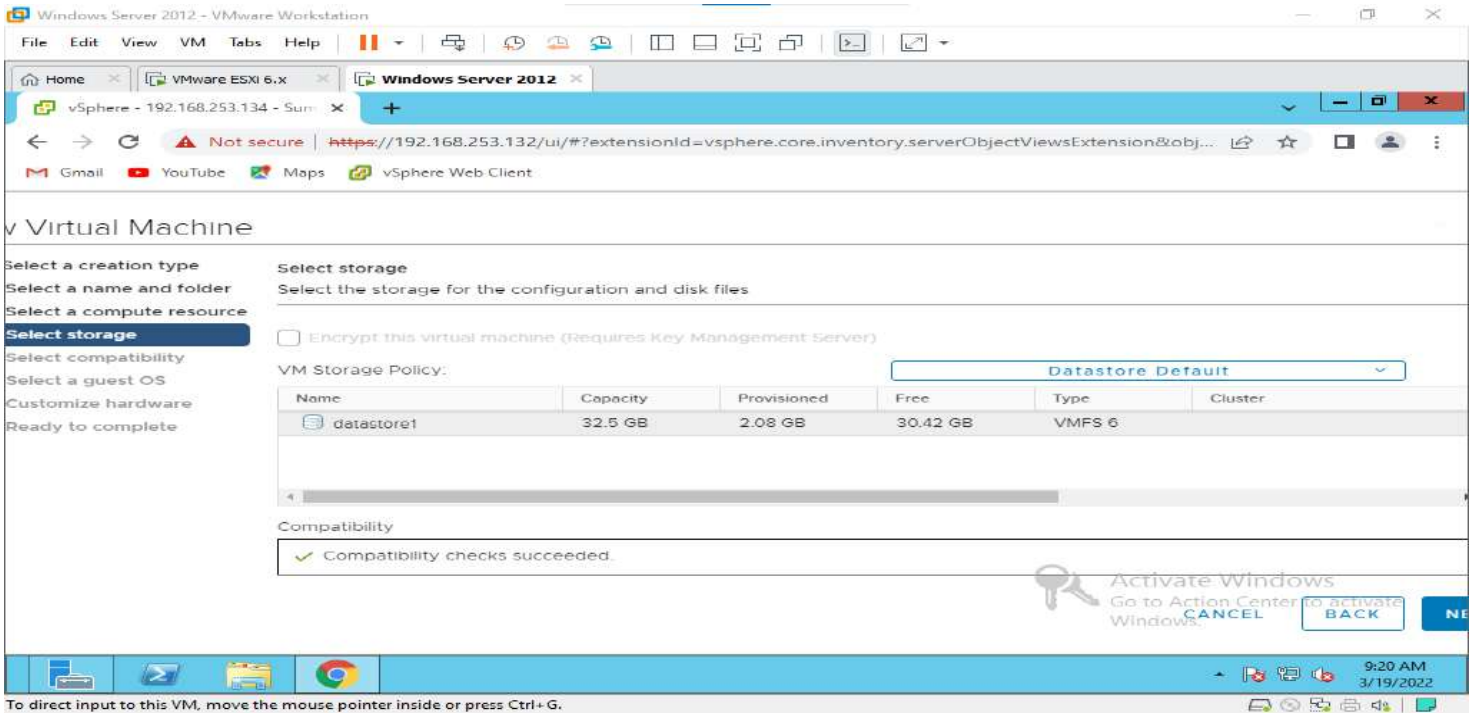
Click on the **Next** button



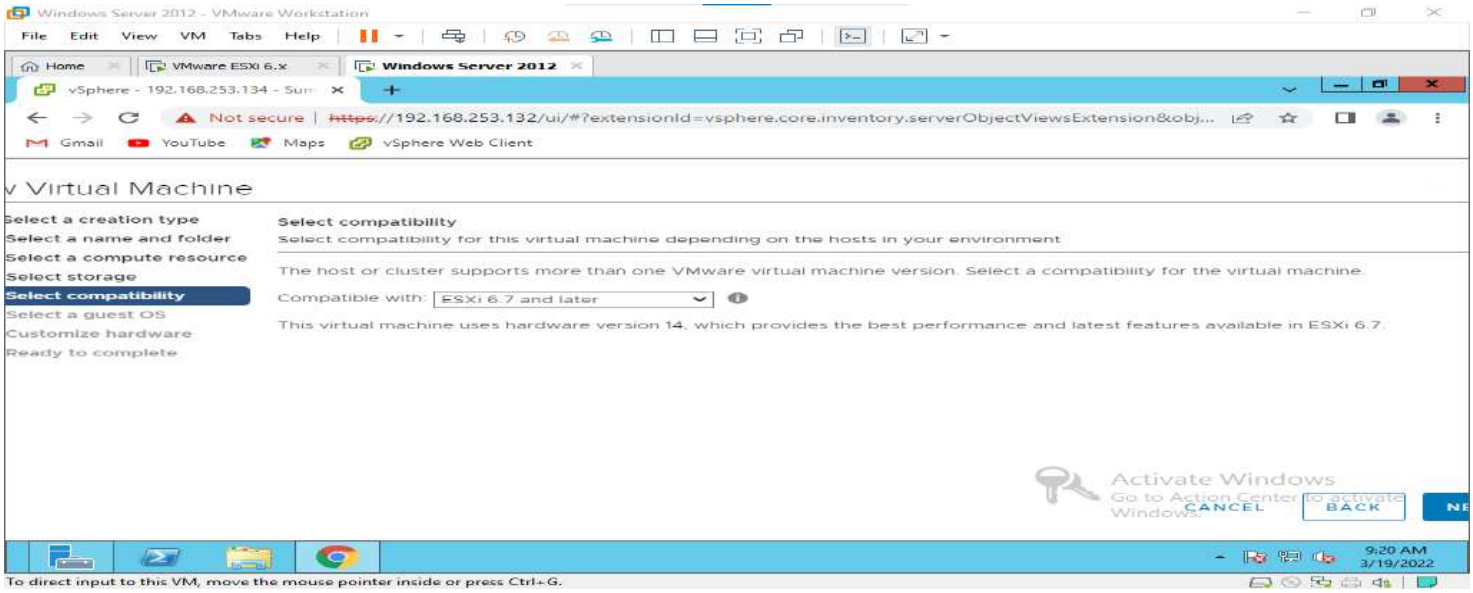
Enter the VM name and click on the **Next** button



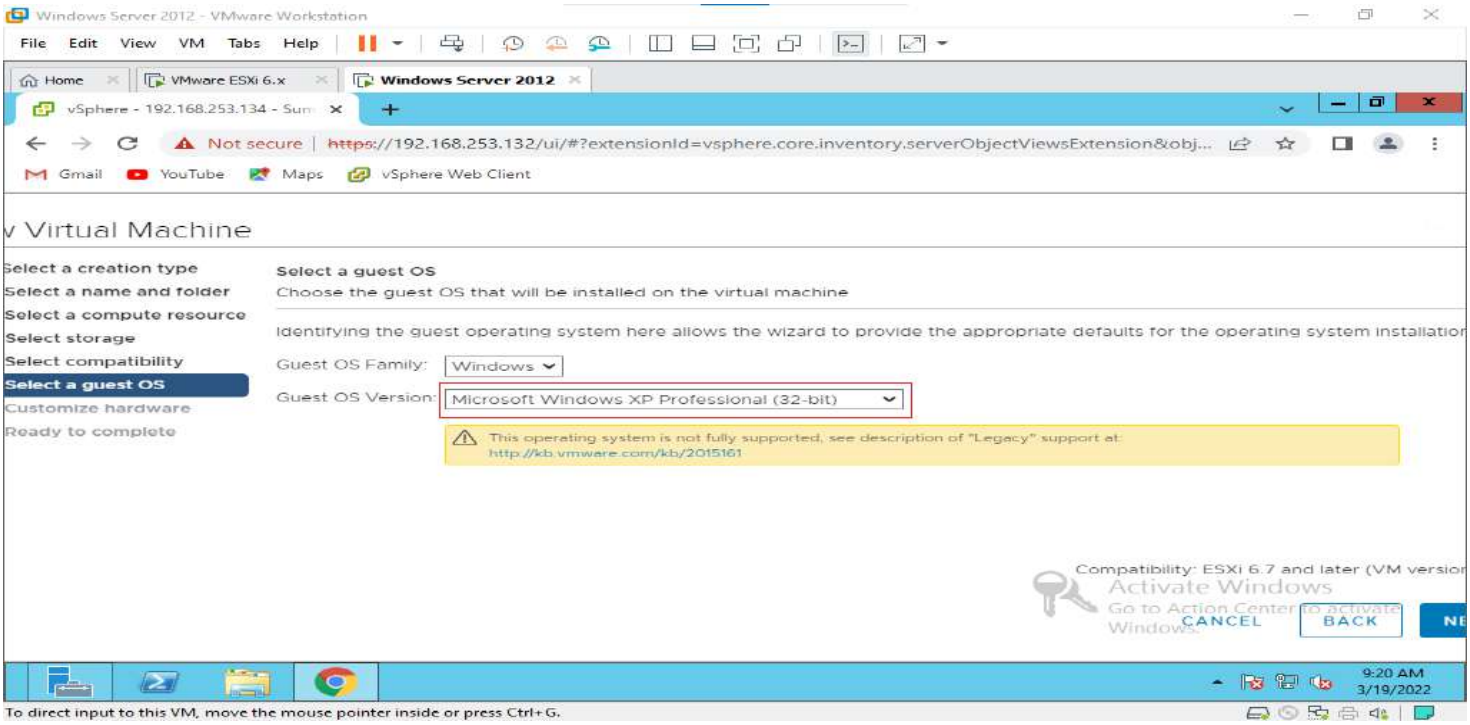
Select the Datastore and Click on the **Next** button



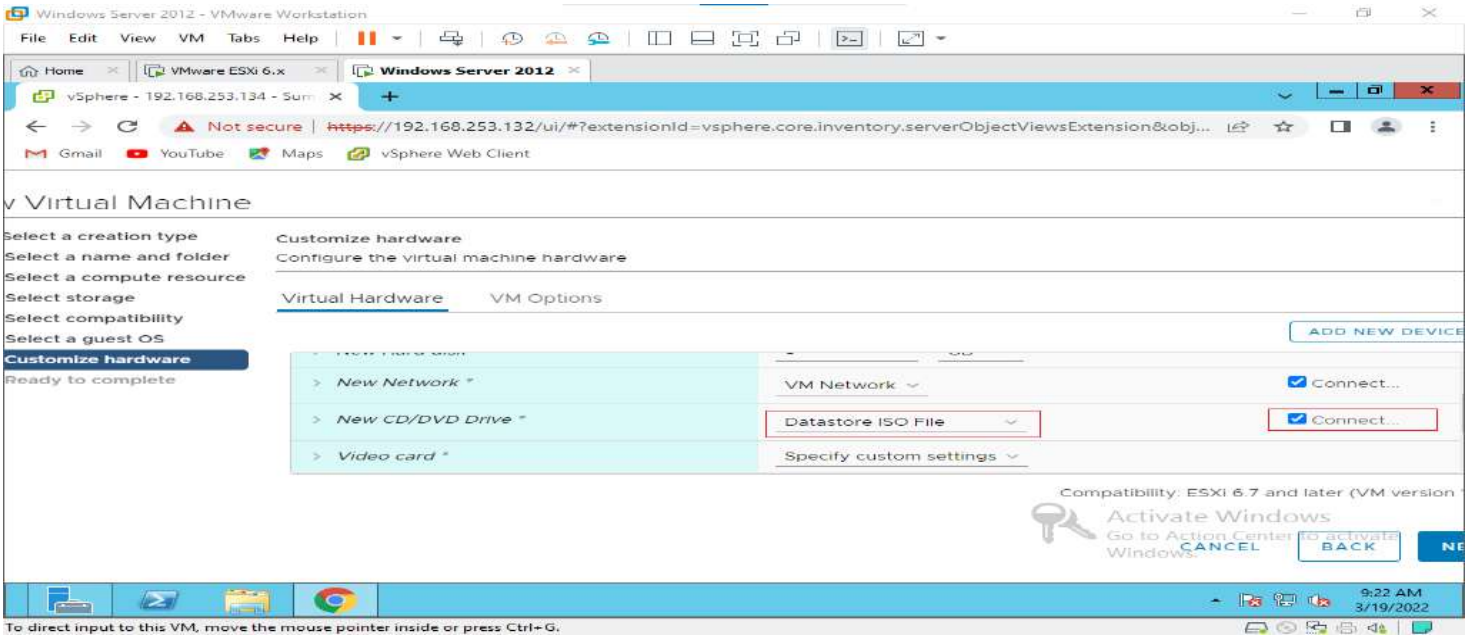
Click on the **Next** button



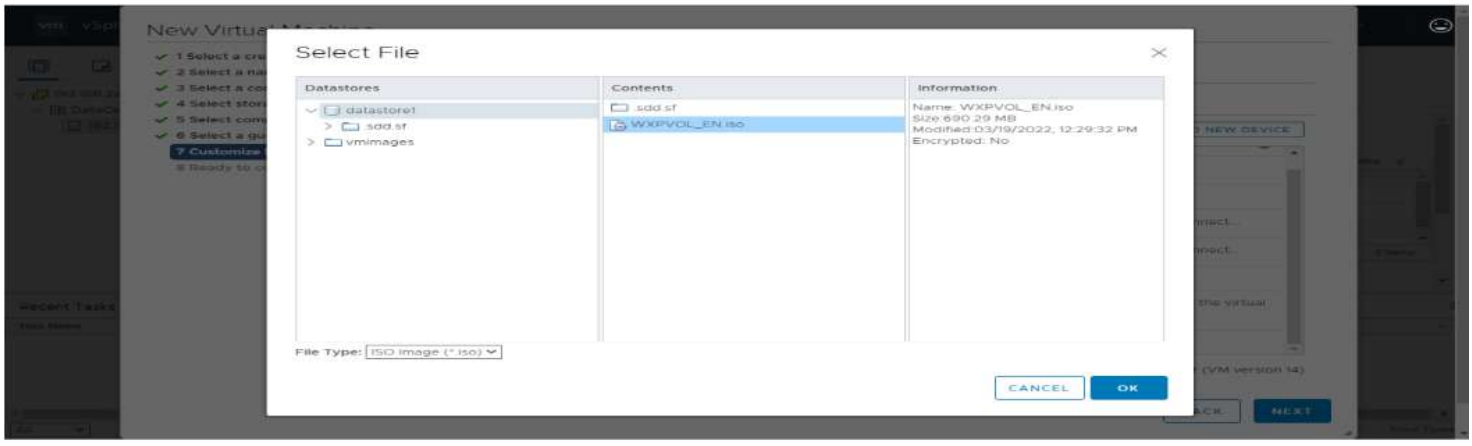
Select the Guest OS Version (in our case we choose the **WinXp Pro (32 bit)** because the .iso file is WinXPPro32) and Click on the **Next** button



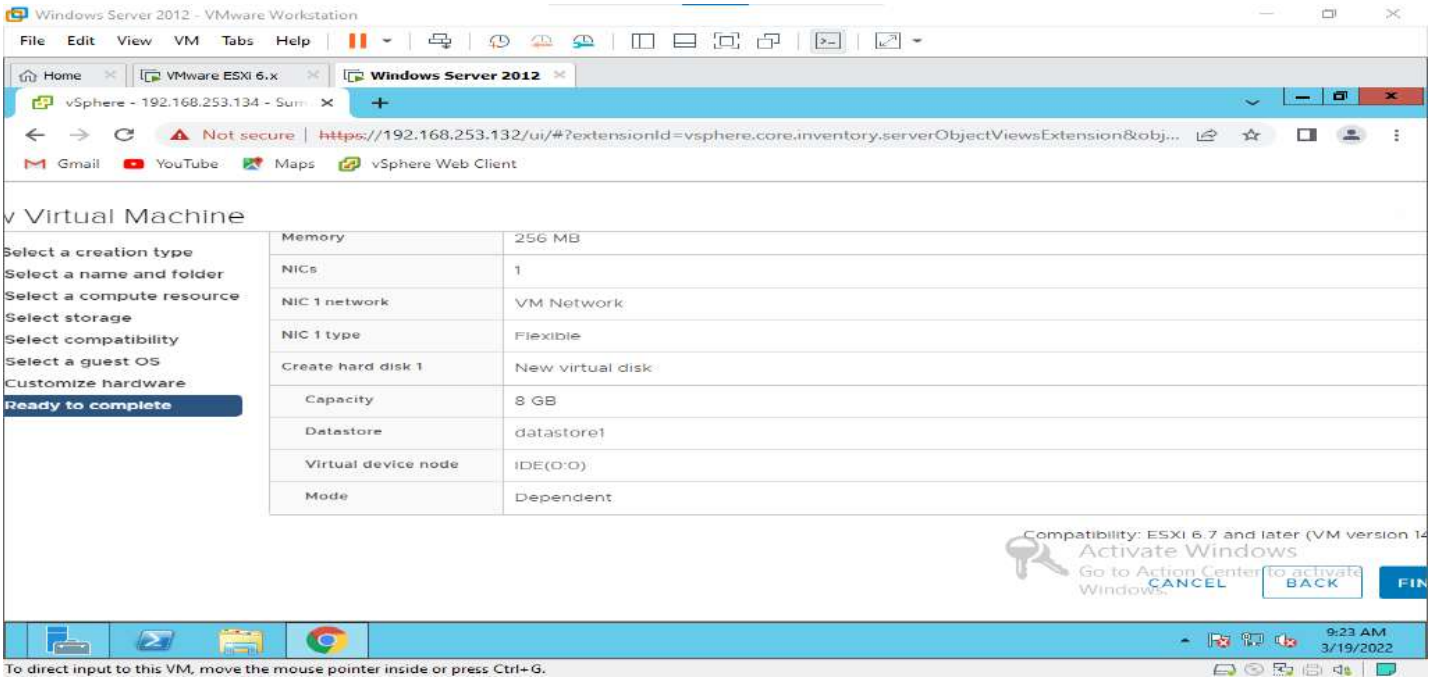
Select the New CD/DVD Drive i.e. **Datastore ISO file**



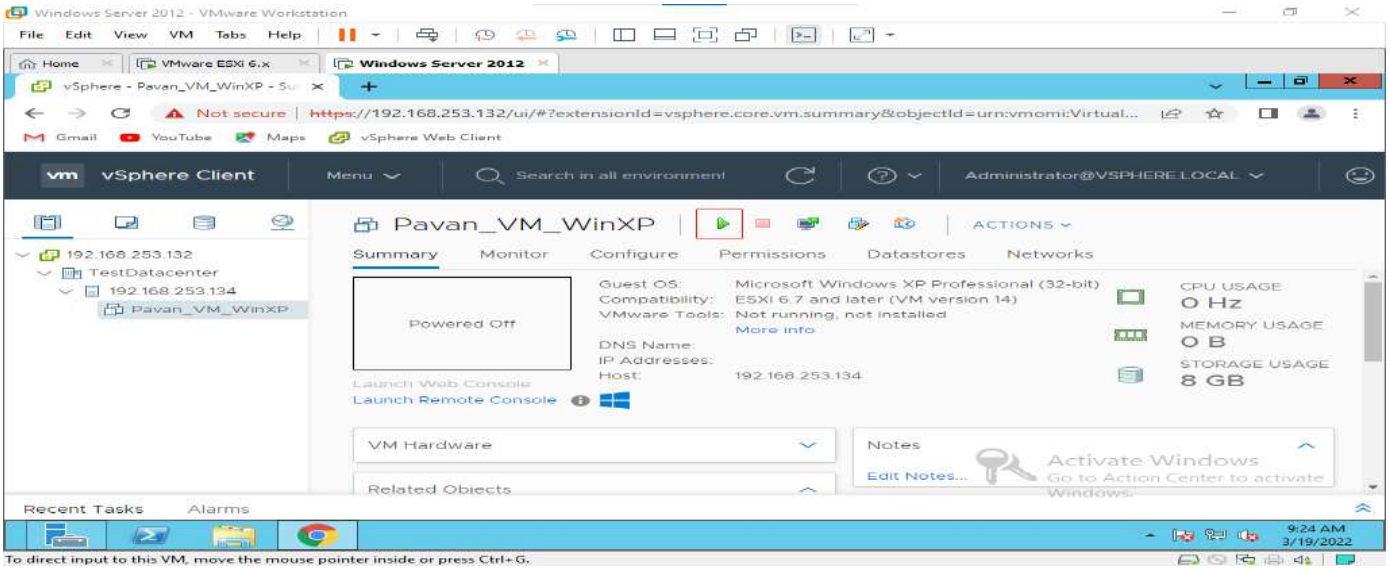
And select the uploaded iso file and Click on the **OK** button. After click on the **Next** button



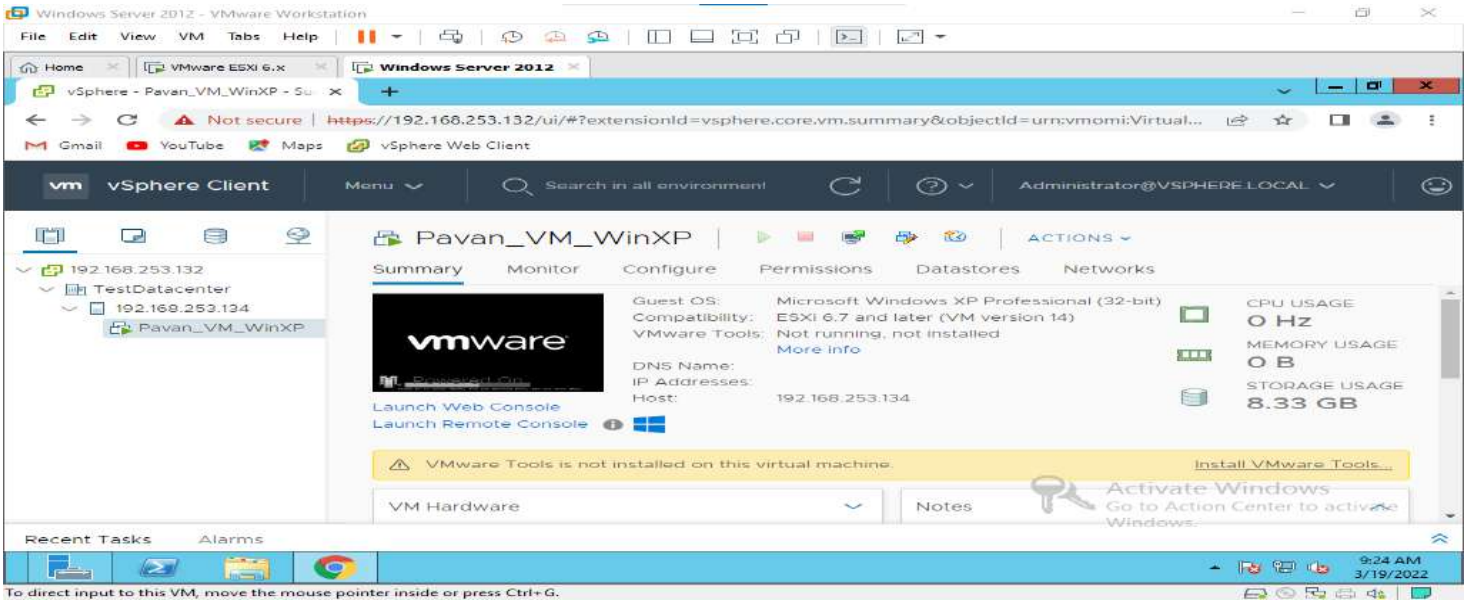
Click on the **Finish** button



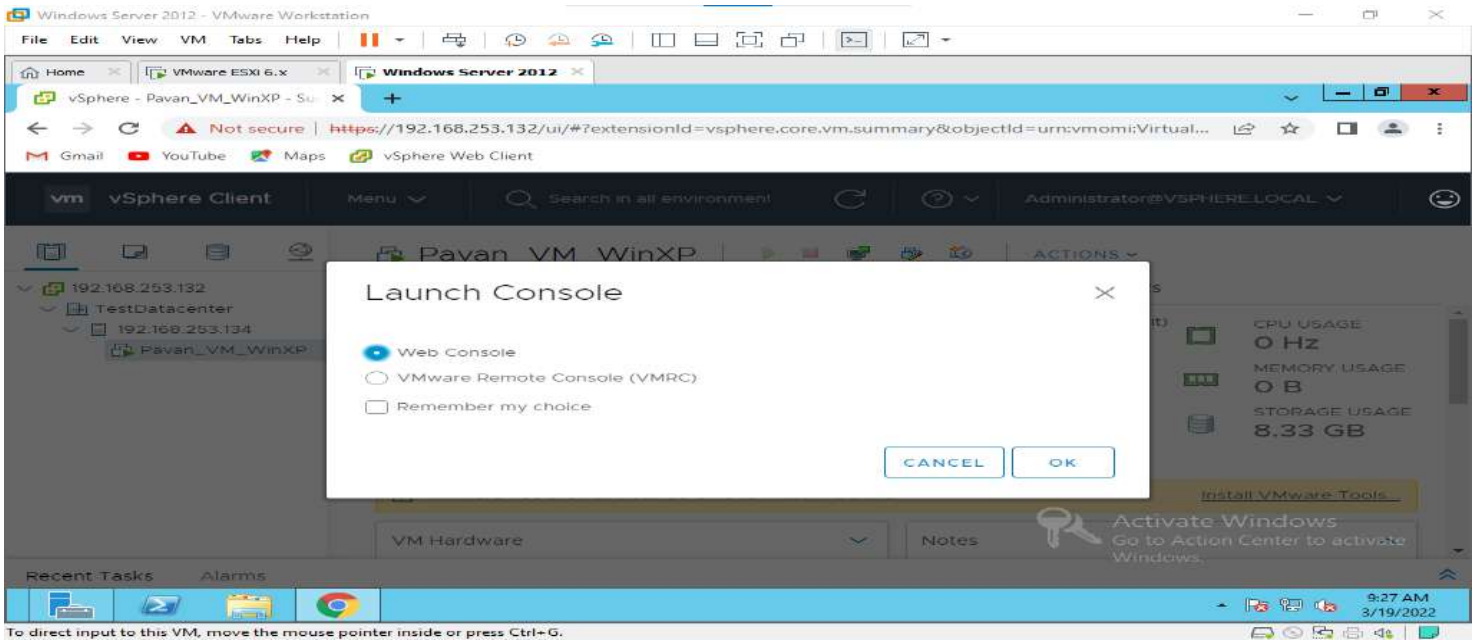
Virtual Machine created. First **refresh** the **Host** and **Start the VM**

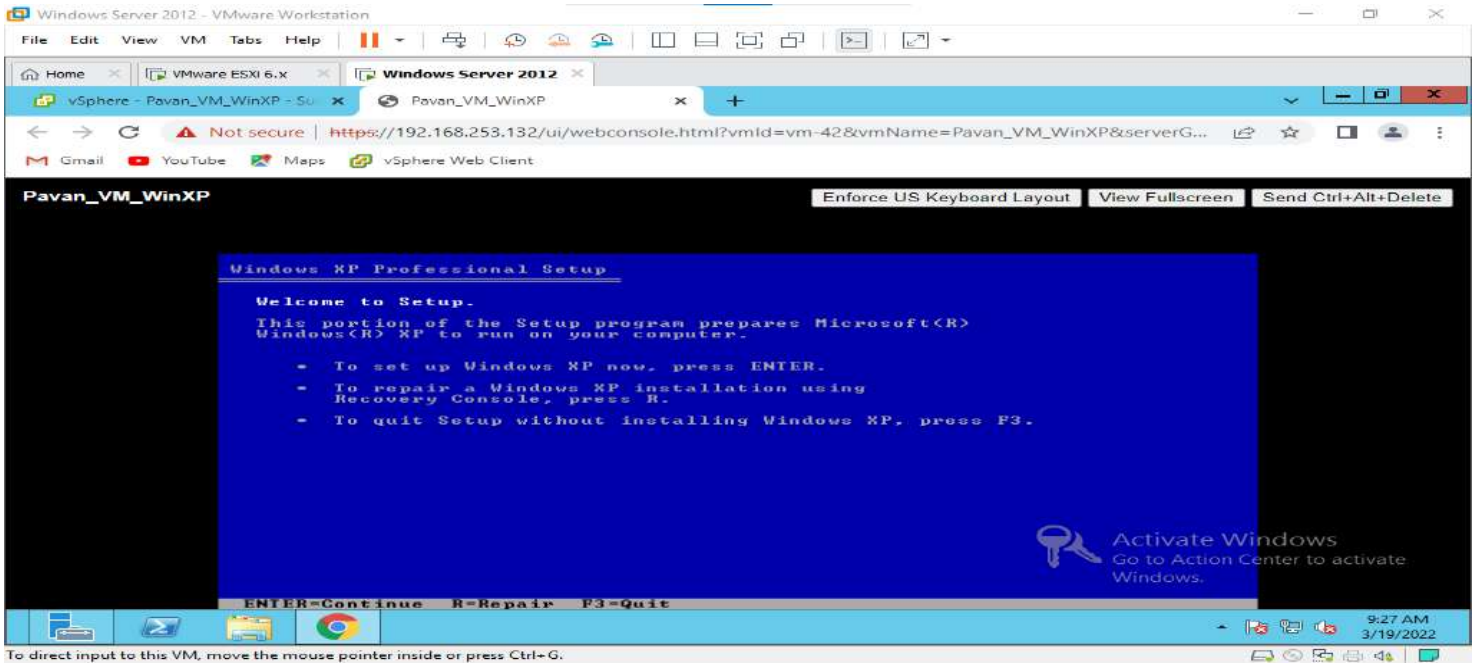


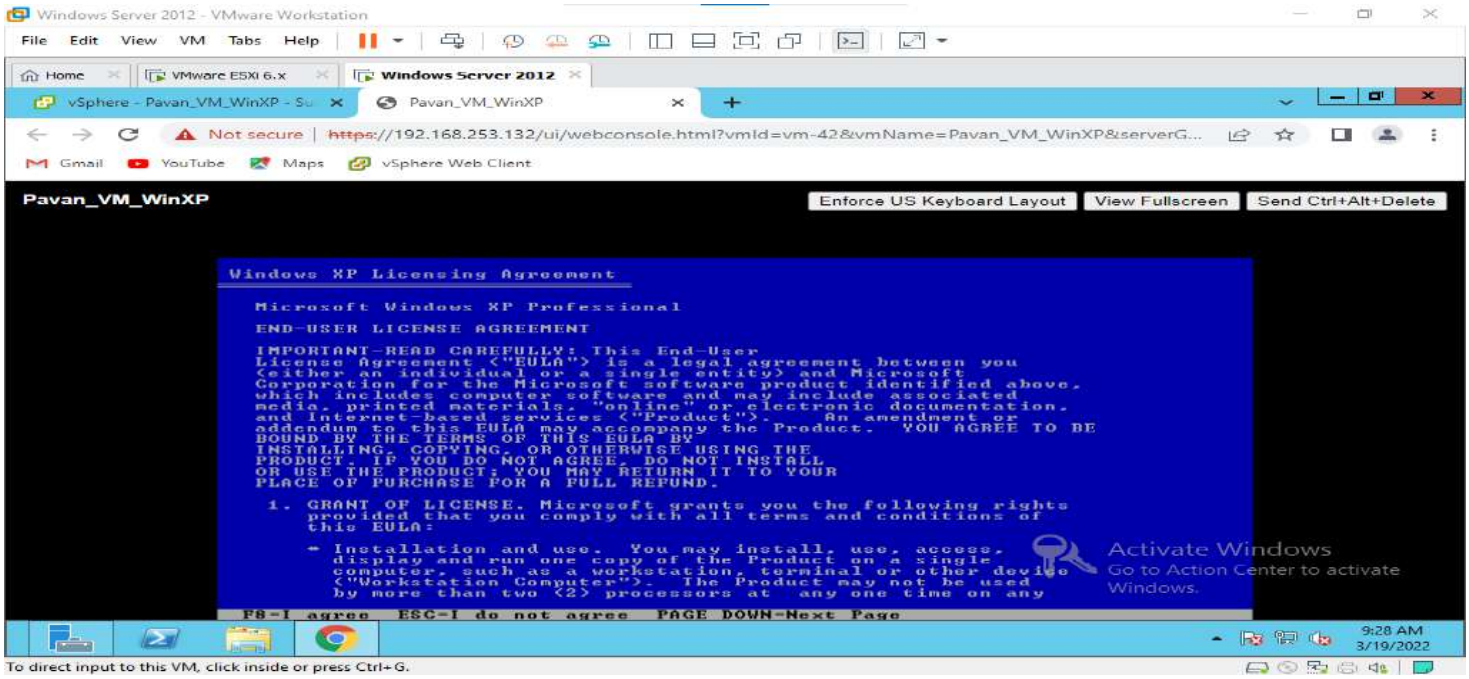
Click on the **Launch Web Console**

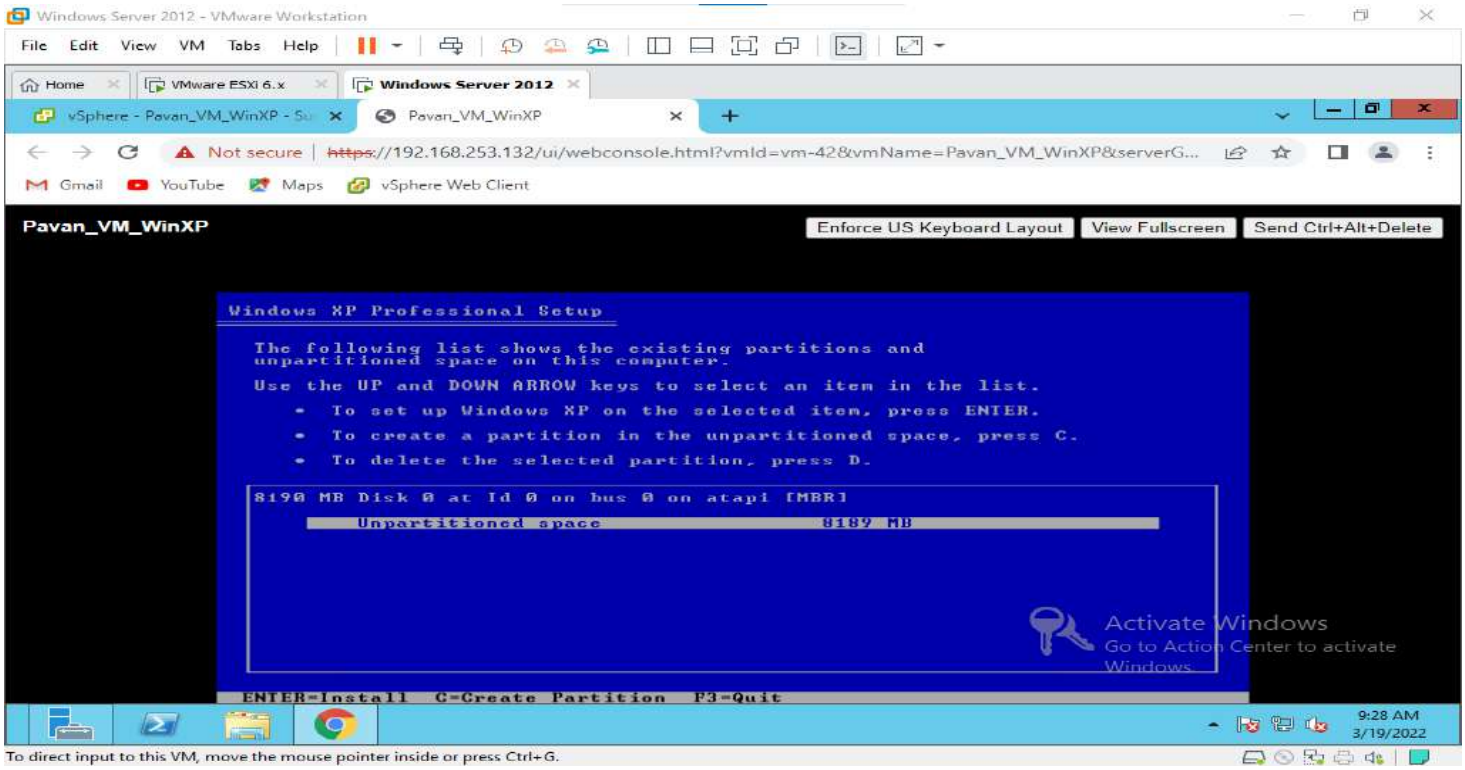


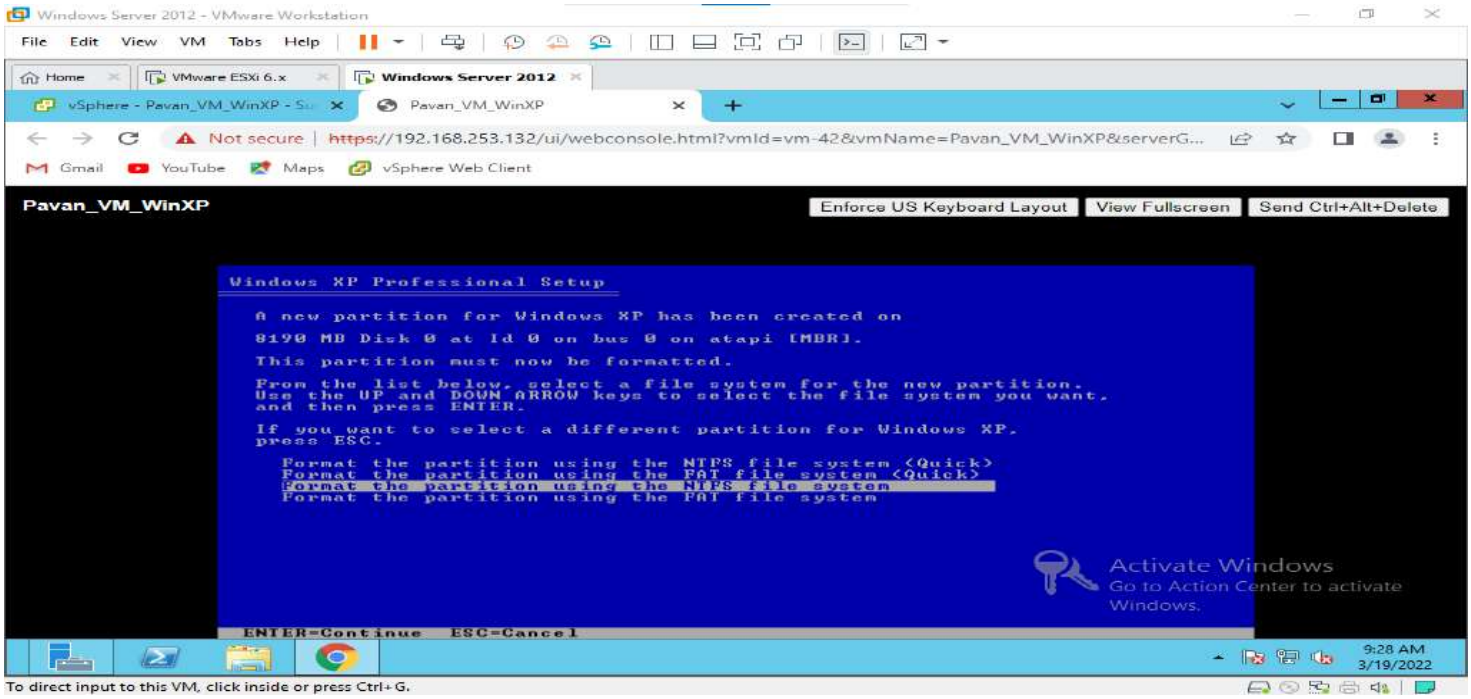
Select the **Web Console** and Click on the **OK** button

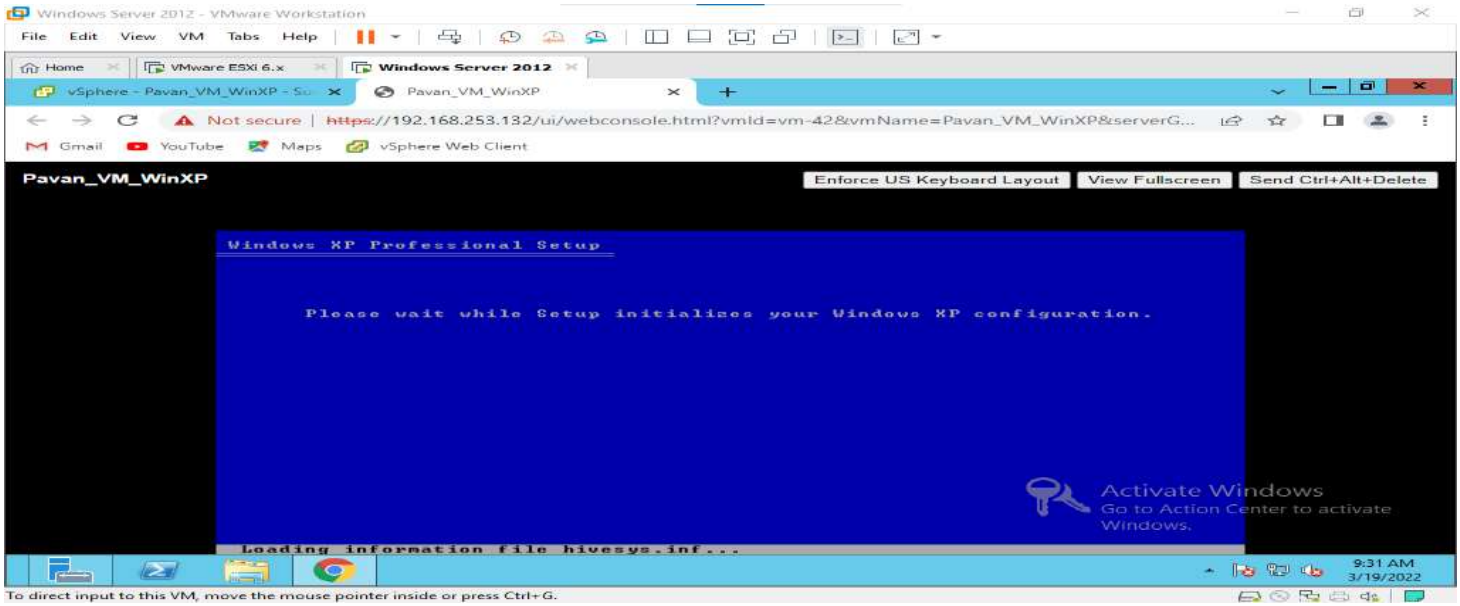




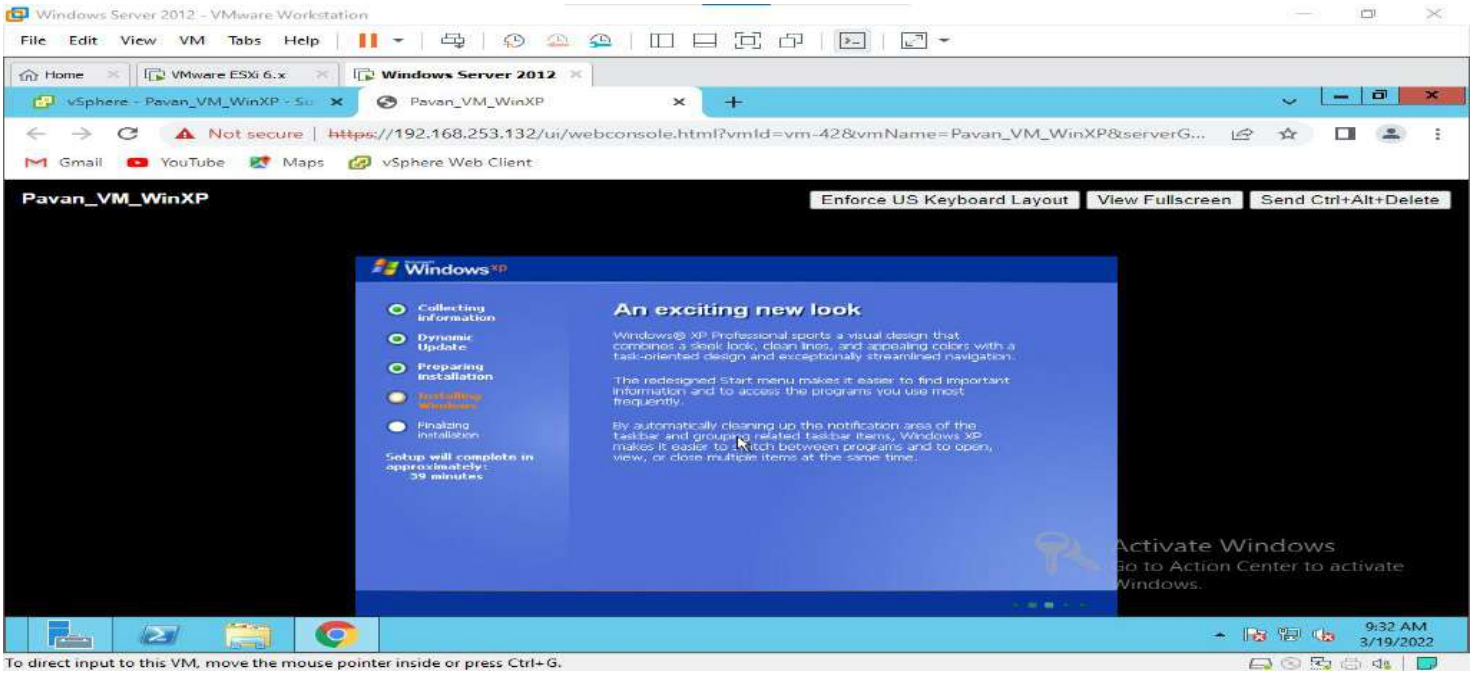


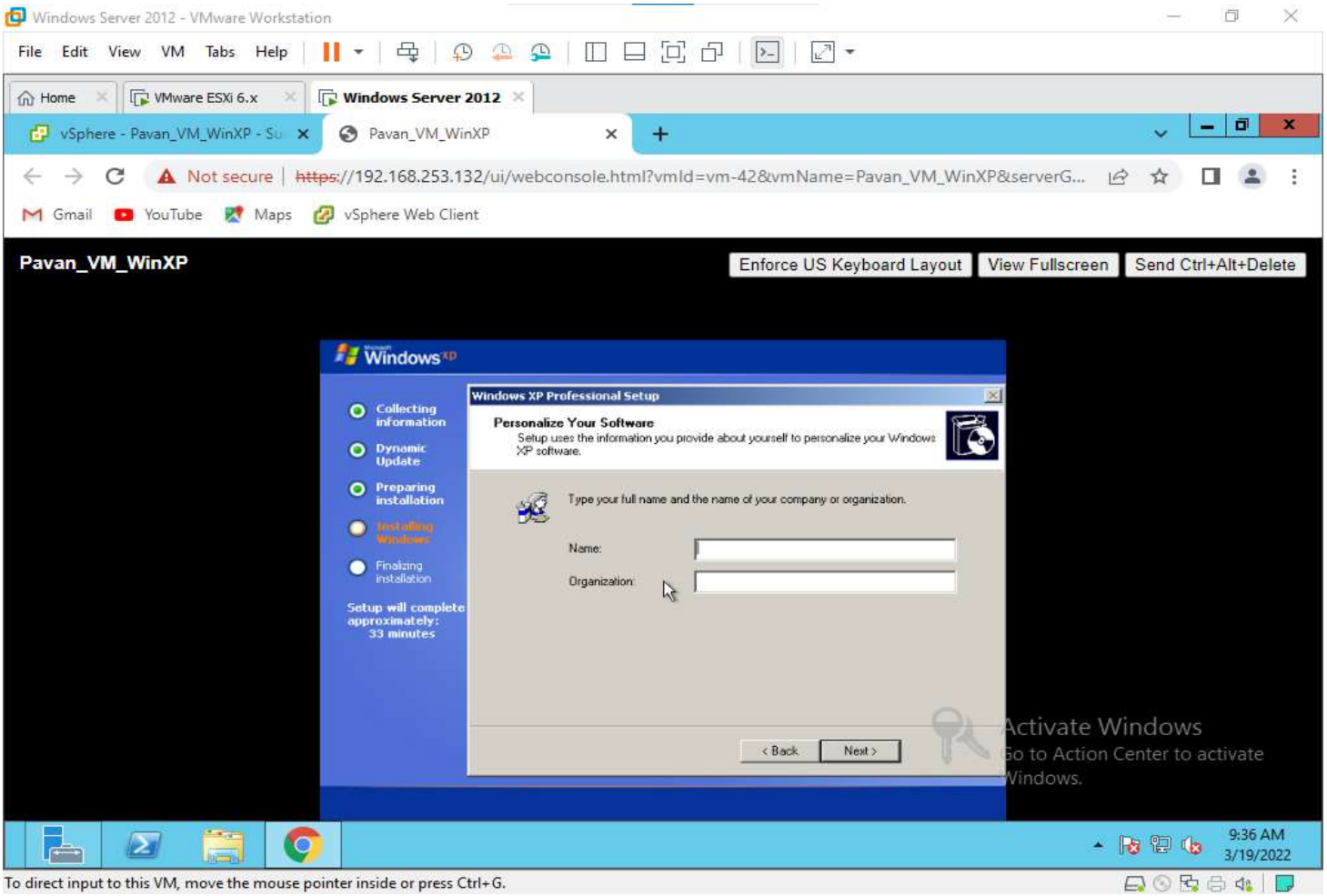

Windows Server 2012 - VMware Workstation
File Edit View VM Tabs Help
Home
VMware ESXi 6.x
Windows Server 2012
vSphere - Pavan_VM_WinXP - Su
Pavan_VM_WinXP
Not secure | https://192.168.253.132/ui/webconsole.html?vmId=vm-42&vmName=Pavan_VM_WinXP&serverG...
Gmail YouTube Maps vSphere Web Client
Pavan_VM_WinXP
Enforce US Keyboard Layout
View Fullscreen
Send Ctrl+Alt+Delete
Windows XP Professional Setup
The following list shows the existing partitions and unpartitioned space on this computer.
Use the UP and DOWN ARROW keys to select an item in the list.
• To set up Windows XP on the selected item, press ENTER.
• To create a partition in the unpartitioned space, press C.
• To delete the selected partition, press D.
8190 MB Disk 0 at Id 0 on bus 0 on atapi [MBR]
Unpartitioned space 8189 MB
Activate Windows
Go to Action Center to activate Windows.
ENTER=Install C=Create Partition F3=Quit
9:28 AM
3/19/2022
To direct input to this VM, move the mouse pointer inside or press Ctrl+G.

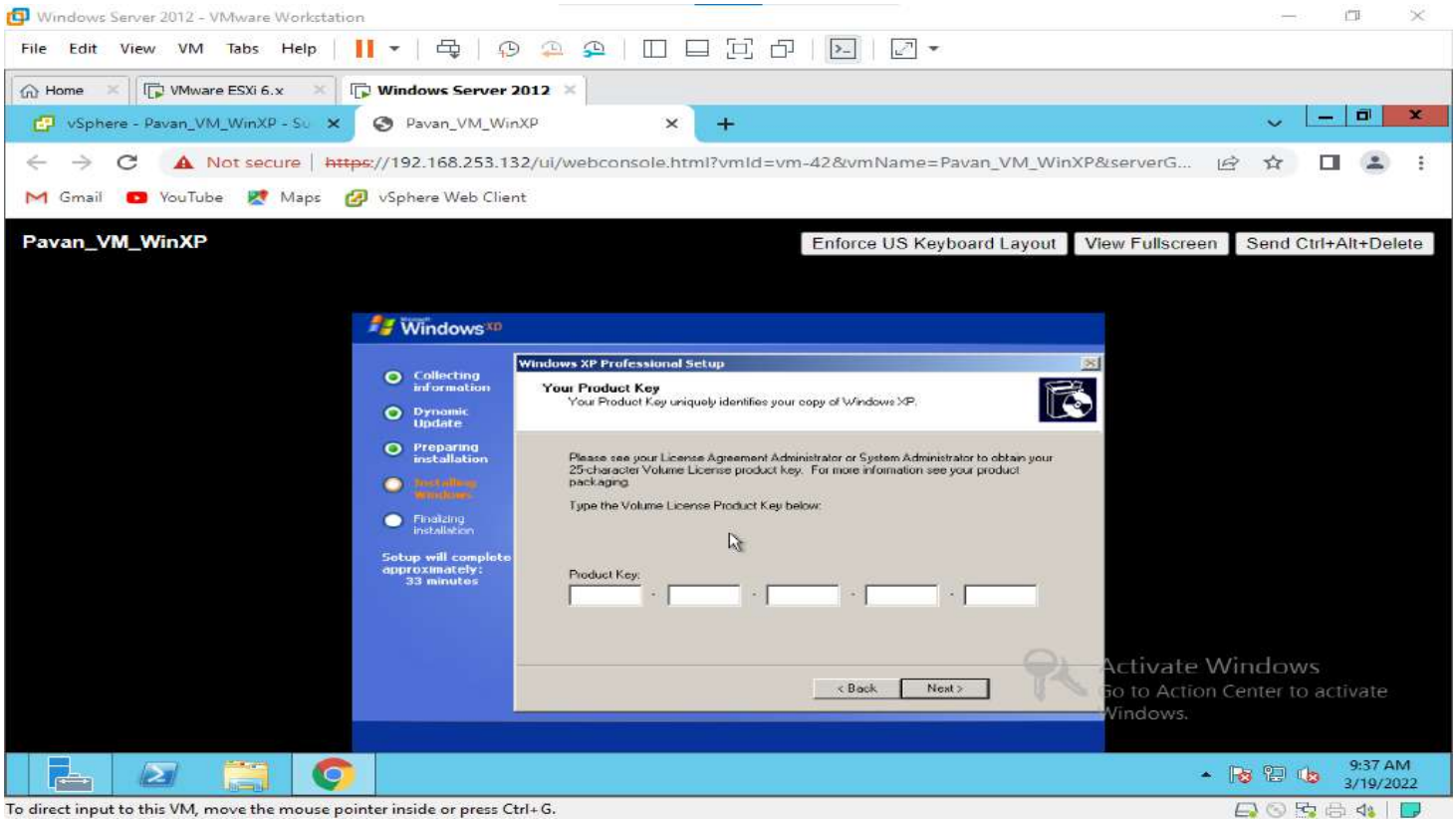

Windows Server 2012 - VMware Workstation
File Edit View VM Tabs Help
Home
VMware ESXi 6.x
Windows Server 2012
vSphere - Pavan_VM_WinXP - Su
Pavan_VM_WinXP
Not secure | https://192.168.253.132/ui/webconsole.html?vmId=vm-42&vmName=Pavan_VM_WinXP&serverG...
Gmail YouTube Maps vSphere Web Client
Pavan_VM_WinXP
Enforce US Keyboard Layout
View Fullscreen
Send Ctrl+Alt+Delete
Windows XP Professional Setup
A new partition for Windows XP has been created on
8190 MB Disk 0 at Id 0 on bus 0 on atapi [MBR].
This partition must now be formatted.
From the list below, select a file system for the new partition.
Use the UP and DOWN ARROW keys to select the file system you want,
and then press ENTER.
If you want to select a different partition for Windows XP,
press ESC.
Format the partition using the NTFS file system (Quick)
Format the partition using the FAT file system (Quick)
Format the partition using the NTFS file system
Format the partition using the FAT file system
Activate Windows
Go to Action Center to activate Windows.
ENTER=Continue ESC=Cancel
9:28 AM
3/19/2022
To direct input to this VM, click inside or press Ctrl+G.


Windows Server 2012 - VMware Workstation
File Edit View VM Tabs Help
Home
VMware ESXi 6.x
Windows Server 2012
vSphere - Pavan_VM_WinXP - Su
Pavan_VM_WinXP
Not secure | https://192.168.253.132/ui/webconsole.html?vmId=vm-42&vmName=Pavan_VM_WinXP&serverG...
Gmail YouTube Maps vSphere Web Client
Pavan_VM_WinXP
Enforce US Keyboard Layout
View Fullscreen
Send Ctrl+Alt+Delete
Windows XP Professional Setup
Please wait while Setup initializes your Windows XP configuration.
Activate Windows
Go to Action Center to activate Windows.
Loading information file hivesys.inf...
9:31 AM
3/19/2022
To direct input to this VM, move the mouse pointer inside or press Ctrl+G.

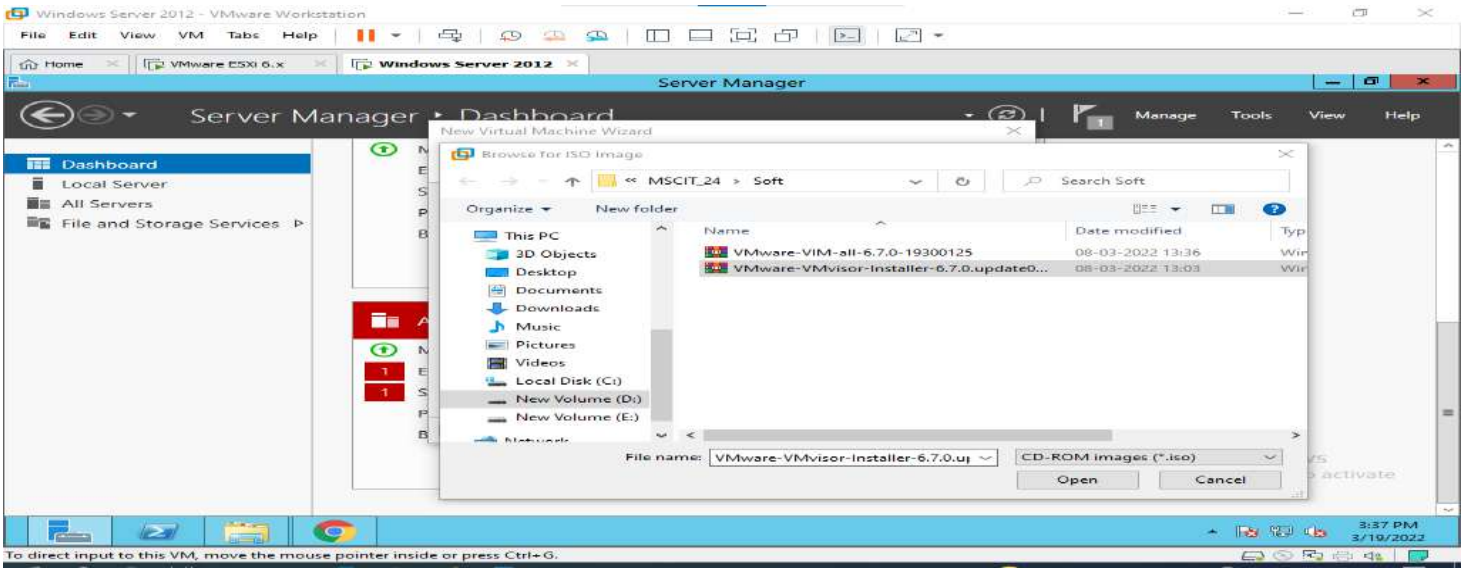
We can see the below image which shows that our virtual machine is running.

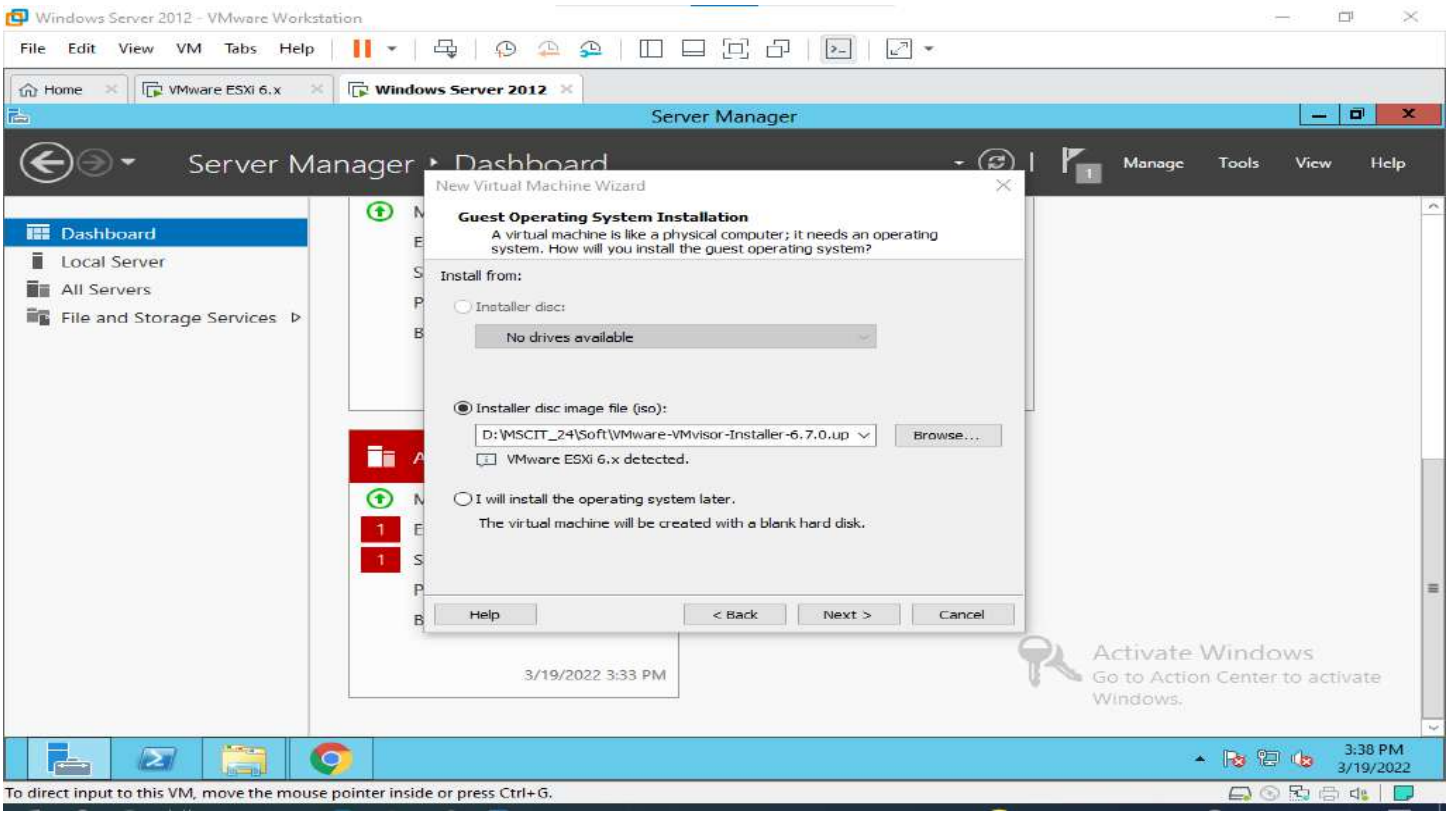


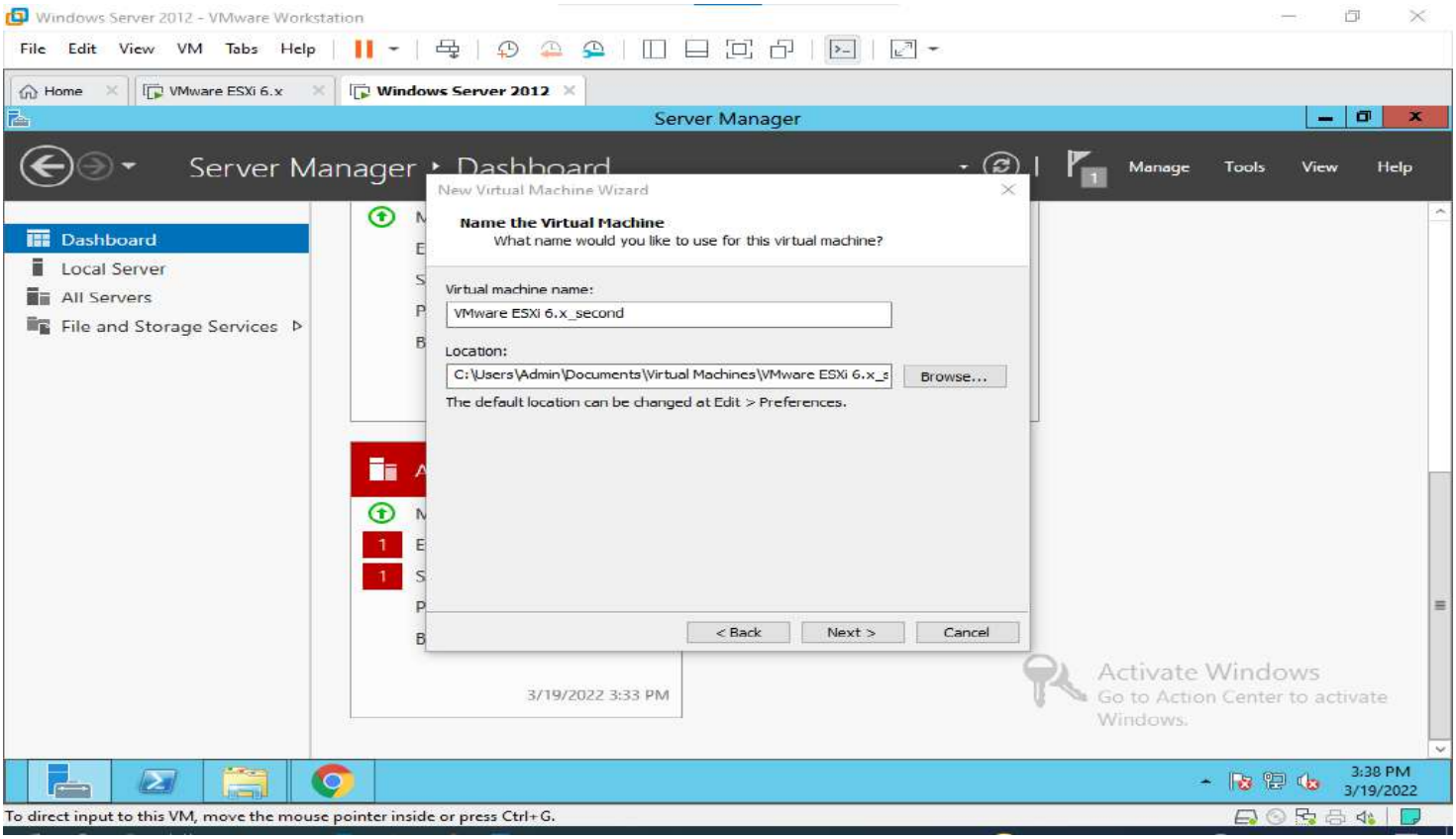


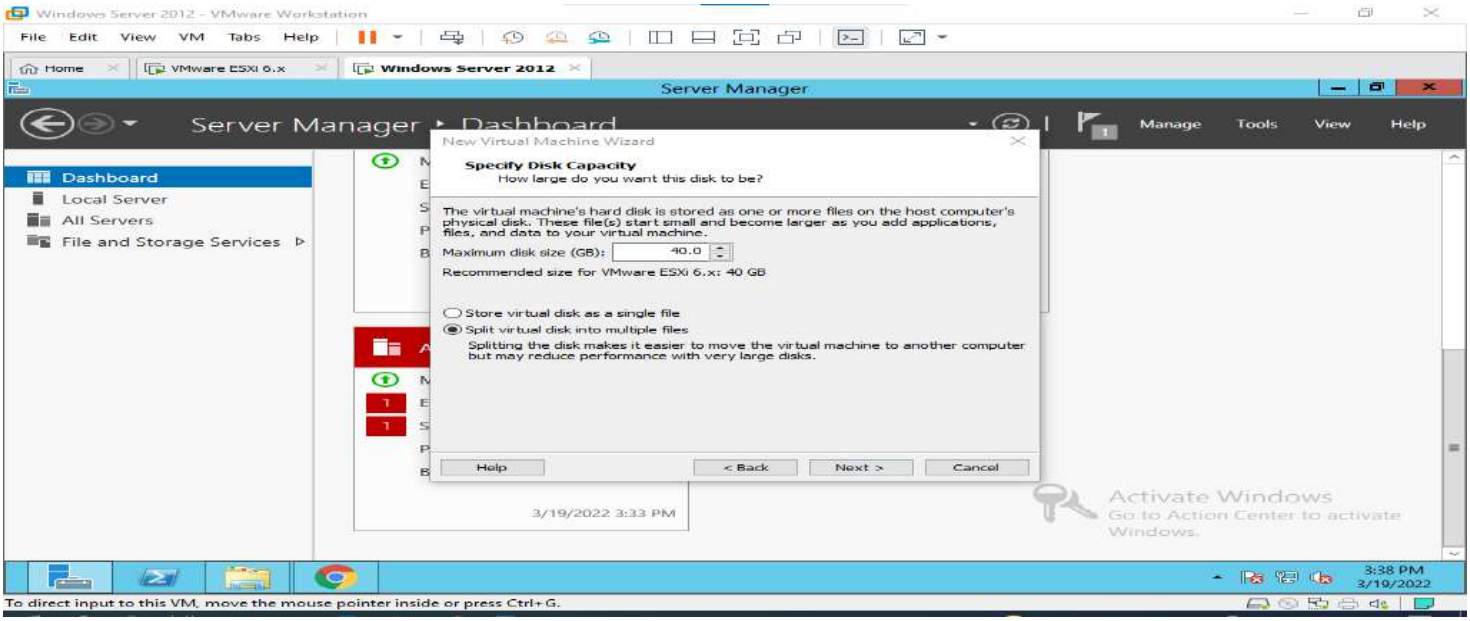

Windows Server 2012 - VMware Workstation
File Edit View VM Tabs Help
Home
VMware ESXi 6.x
Windows Server 2012
vSphere - Pavan_VM_WinXP - Su
Pavan_VM_WinXP
Not secure | https://192.168.253.132/ui/webconsole.html?vmId=vm-42&vmName=Pavan_VM_WinXP&serverG...
Gmail YouTube Maps vSphere Web Client
Pavan_VM_WinXP
Enforce US Keyboard Layout
View Fullscreen
Send Ctrl+Alt+Delete
Windows XP
Collecting information
Dynamic Update
Preparing installation
Installing Windows
Finalizing installation
Setup will complete approximately: 33 minutes
Windows XP Professional Setup
Your Product Key
Your Product Key uniquely identifies your copy of Windows XP.
Please see your License Agreement Administrator or System Administrator to obtain your 25-character Volume License product key. For more information see your product packaging.
Type the Volume License Product Key below:
Product Key:
< Back
Next >
Activate Windows
Go to Action Center to activate Windows.
9:37 AM
3/19/2022
To direct input to this VM, move the mouse pointer inside or press Ctrl+G.

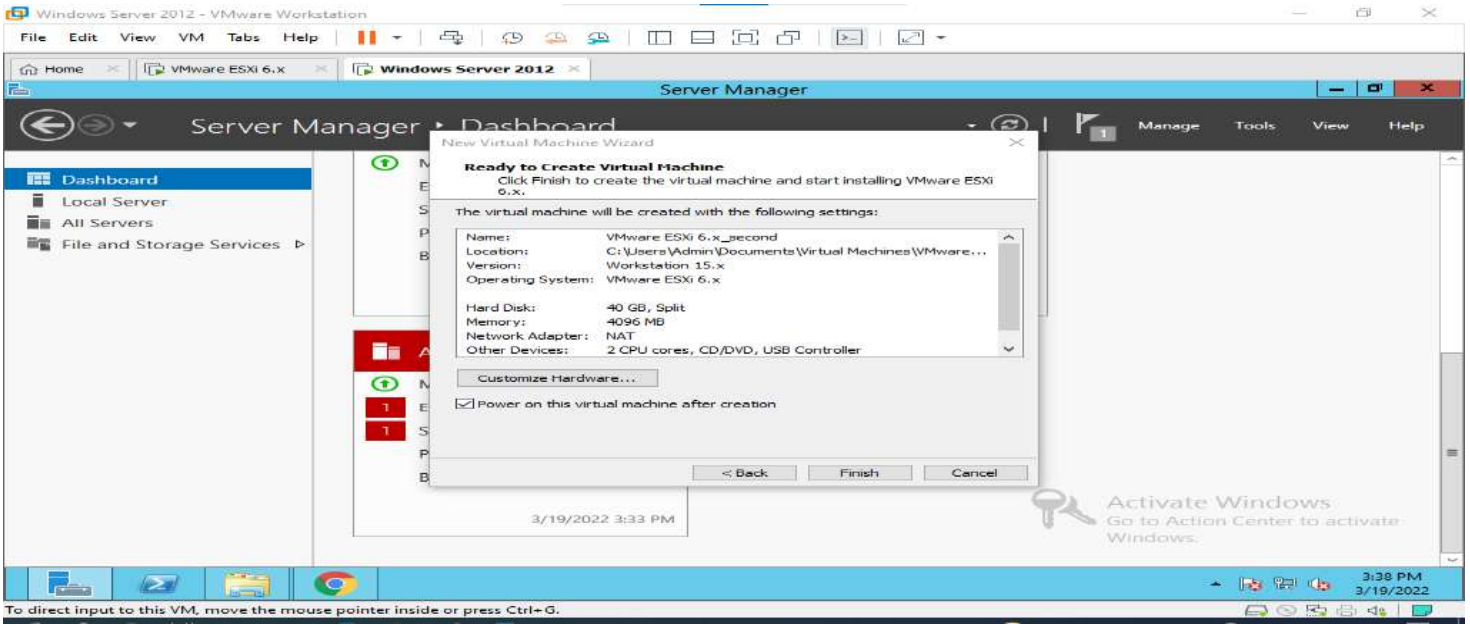
B- Migrate the virtual machine from one ESXi server to another ESXi server.

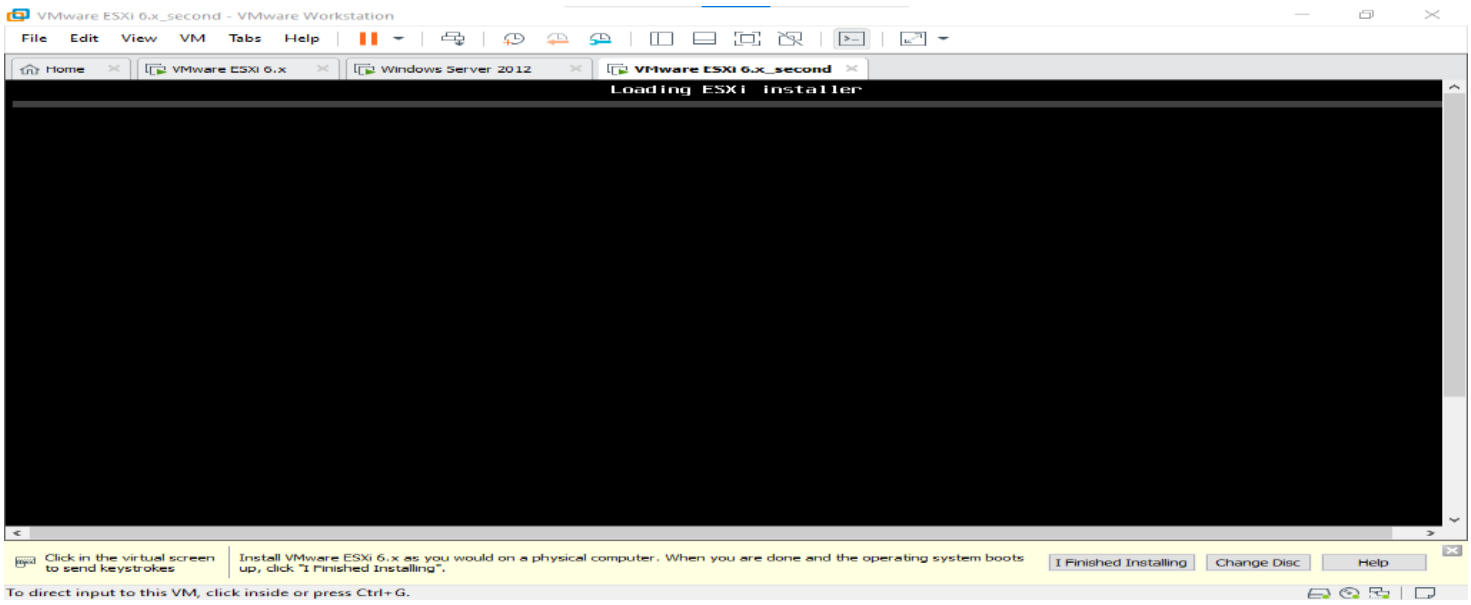


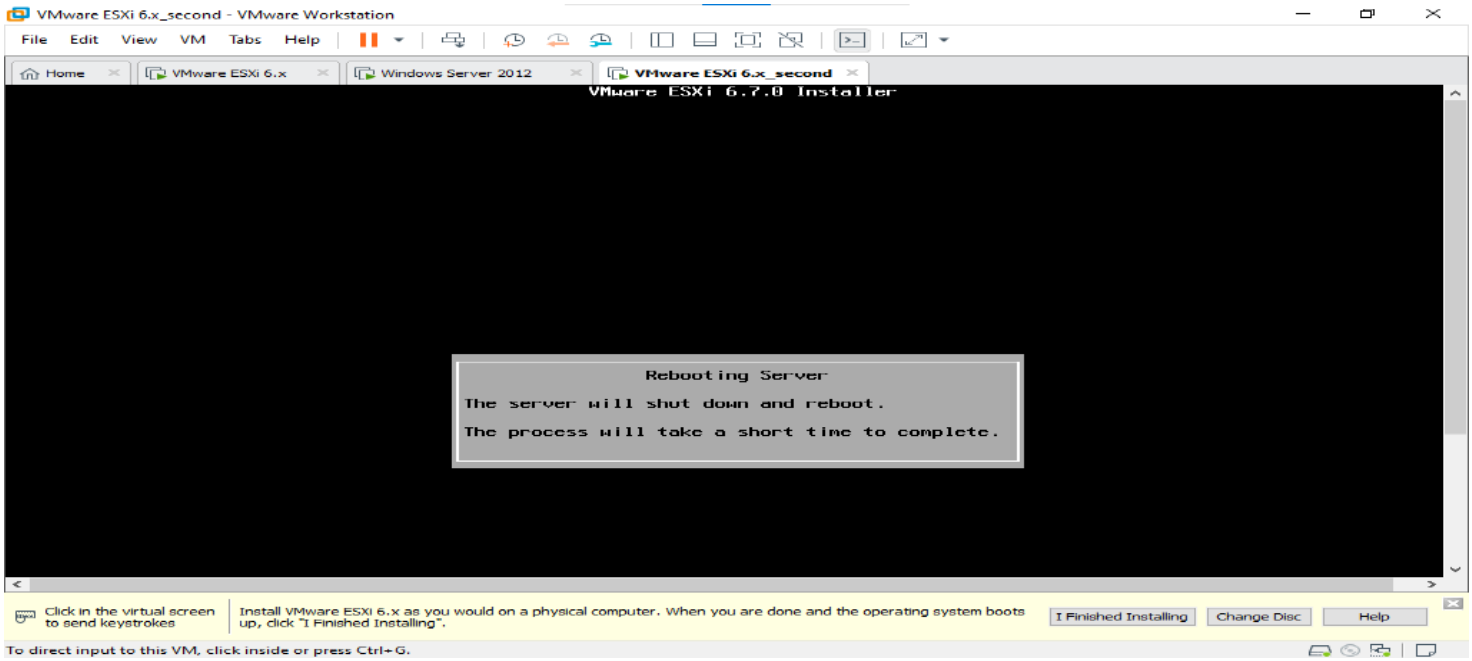



Windows Server 2012 - VMware Workstation
File Edit View VM Tabs Help
Home
VMware ESXi 6.x
Windows Server 2012
Server Manager
Server Manager ▸ Dashboard
Manage Tools View Help
Dashboard
Local Server
All Servers
File and Storage Services
New Virtual Machine Wizard
Name the Virtual Machine
What name would you like to use for this virtual machine?
Virtual machine name:
VMware ESXi 6.x_second
Location:
C:\Users\Admin\Documents\Virtual Machines\VMware ESXi 6.x_s
Browse...
The default location can be changed at Edit > Preferences.
< Back
Next >
Cancel
3/19/2022 3:33 PM
Activate Windows
Go to Action Center to activate Windows.
3:38 PM
3/19/2022
To direct input to this VM, move the mouse pointer inside or press Ctrl+G.

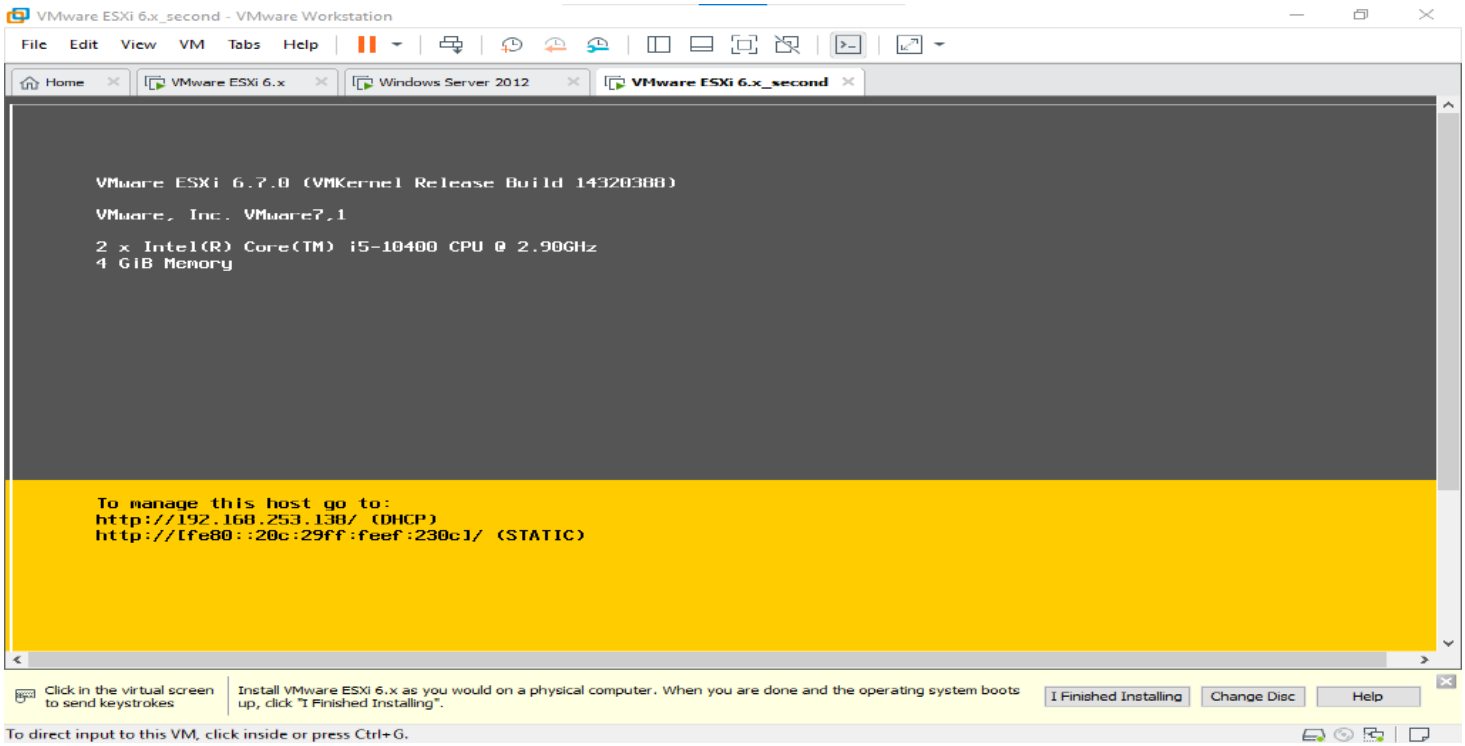

Windows Server 2012 - VMware Workstation
File Edit View VM Tabs Help
Home
VMware ESXi 6.x
Windows Server 2012
Server Manager
Server Manager ▸ Dashboard
Manage Tools View Help
Dashboard
Local Server
All Servers
File and Storage Services
New Virtual Machine Wizard
Specify Disk Capacity
How large do you want this disk to be?
The virtual machine's hard disk is stored as one or more files on the host computer's physical disk. These file(s) start small and become larger as you add applications, files, and data to your virtual machine.
Maximum disk size (GB):
40.0
Recommended size for VMware ESXi 6.x: 40 GB
Store virtual disk as a single file
Split virtual disk into multiple files
Splitting the disk makes it easier to move the virtual machine to another computer but may reduce performance with very large disks.
Help
< Back
Next >
Cancel
3/19/2022 3:33 PM
Activate Windows
Go to Action Center to activate Windows.
3:38 PM
3/19/2022
To direct input to this VM, move the mouse pointer inside or press Ctrl+G.


Windows Server 2012 - VMware Workstation
File Edit View VM Tabs Help
Home
VMware ESXi 6.x
Windows Server 2012
Server Manager
Server Manager ▸ Dashboard
Manage Tools View Help
Dashboard
Local Server
All Servers
File and Storage Services
New Virtual Machine Wizard
Ready to Create Virtual Machine
Click Finish to create the virtual machine and start installing VMware ESXi 6.x.
The virtual machine will be created with the following settings:
Name: VMware ESXi 6.x_second
Location: C:\Users\Admin\Documents\Virtual Machines\VMware...
Version: Workstation 15.x
Operating System: VMware ESXi 6.x
Hard Disk: 40 GB, Split
Memory: 4096 MB
Network Adapter: NAT
Other Devices: 2 CPU cores, CD/DVD, USB Controller
Customize Hardware...
Power on this virtual machine after creation
< Back
Finish
Cancel
3/19/2022 3:33 PM
Activate Windows
Go to Action Center to activate Windows.
3:38 PM
3/19/2022
To direct input to this VM, move the mouse pointer inside or press Ctrl+G.

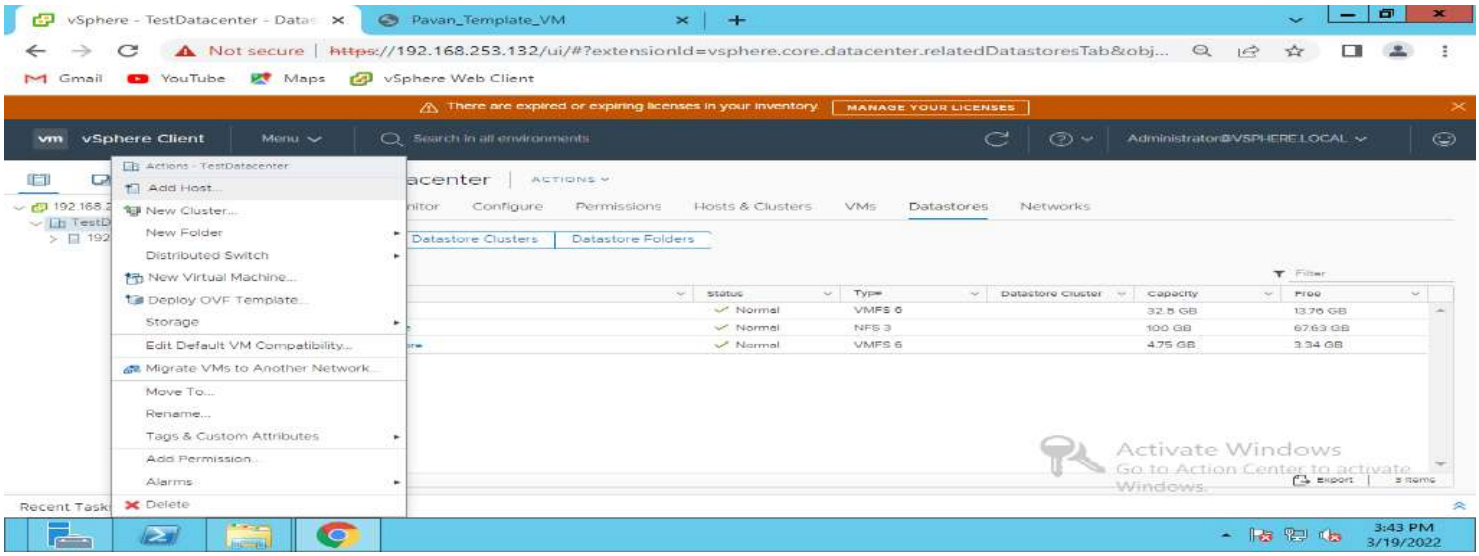


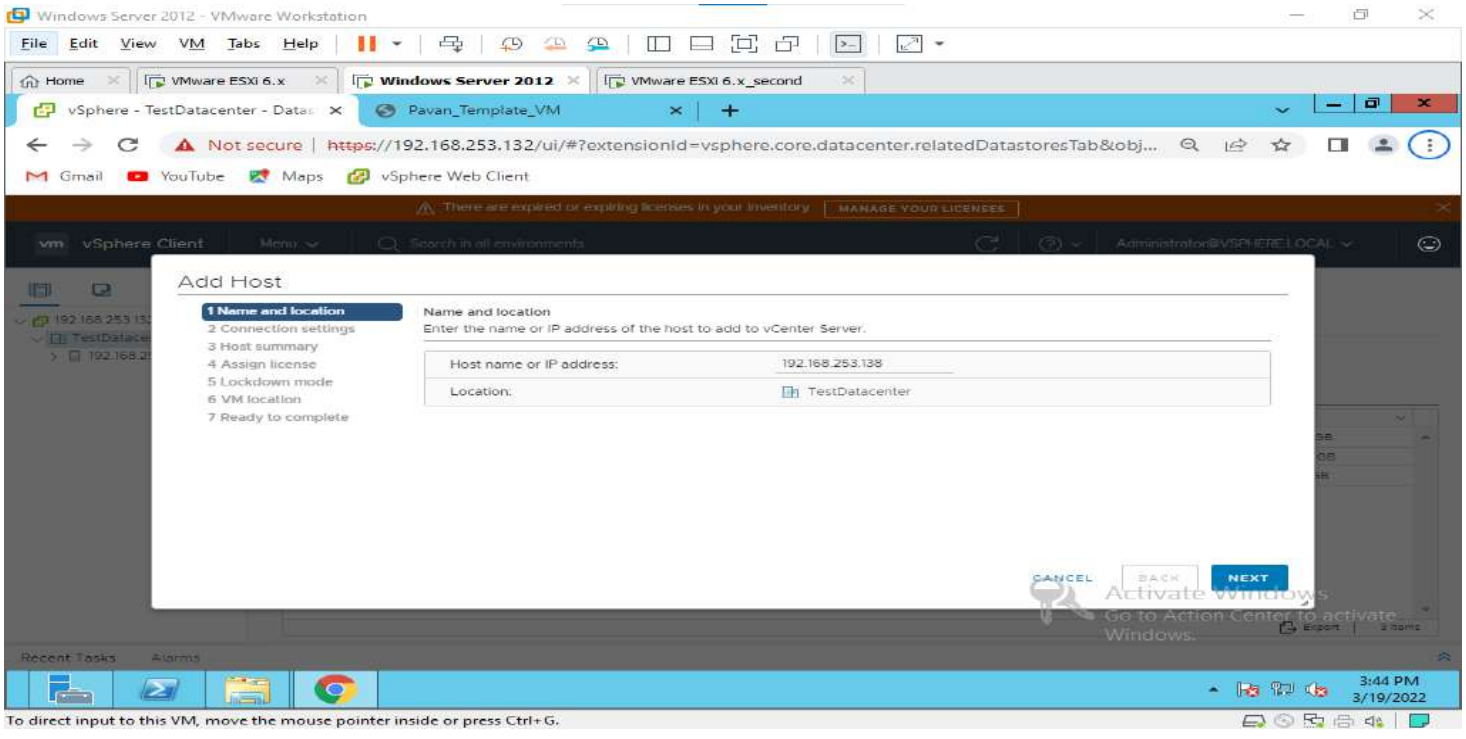


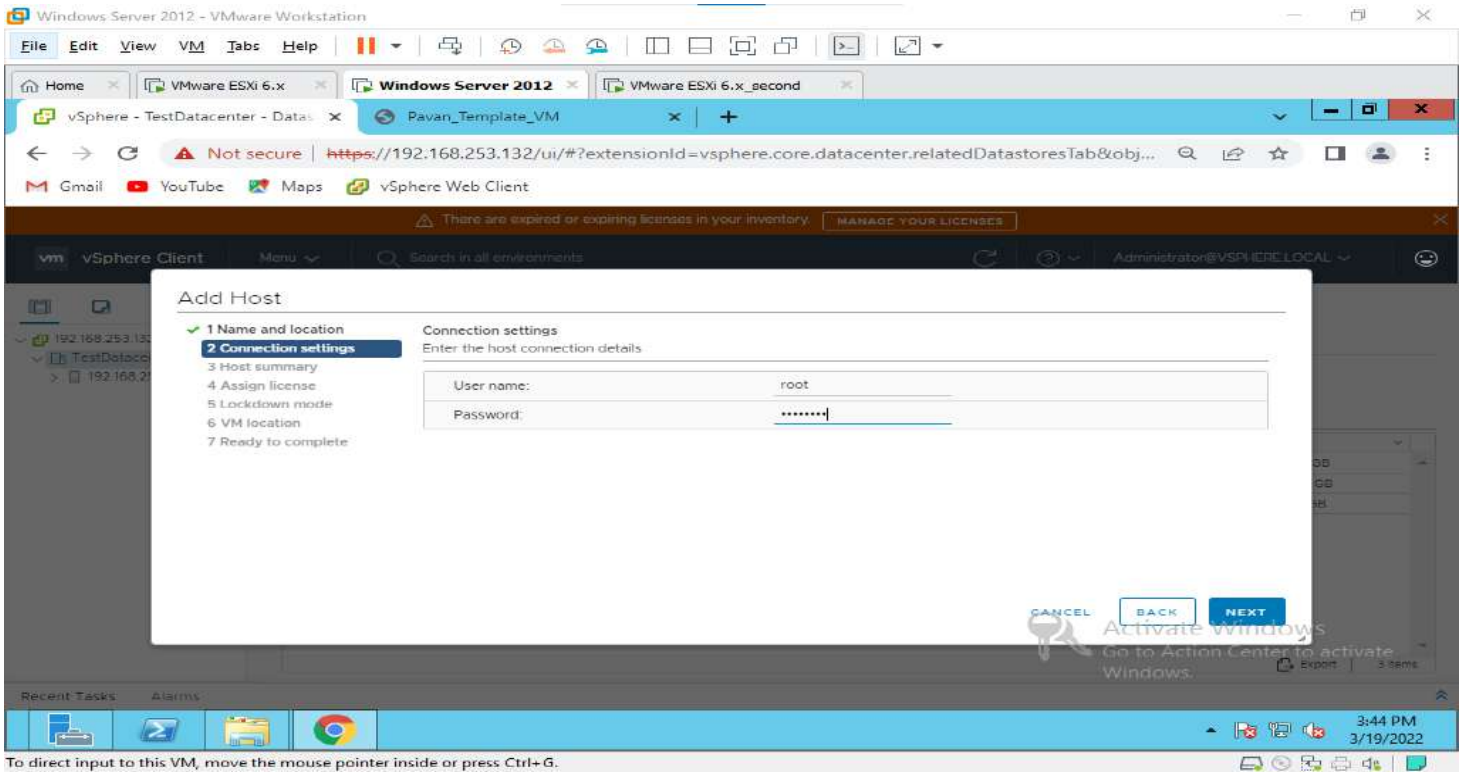
Host IP address : **192.168.253.138**

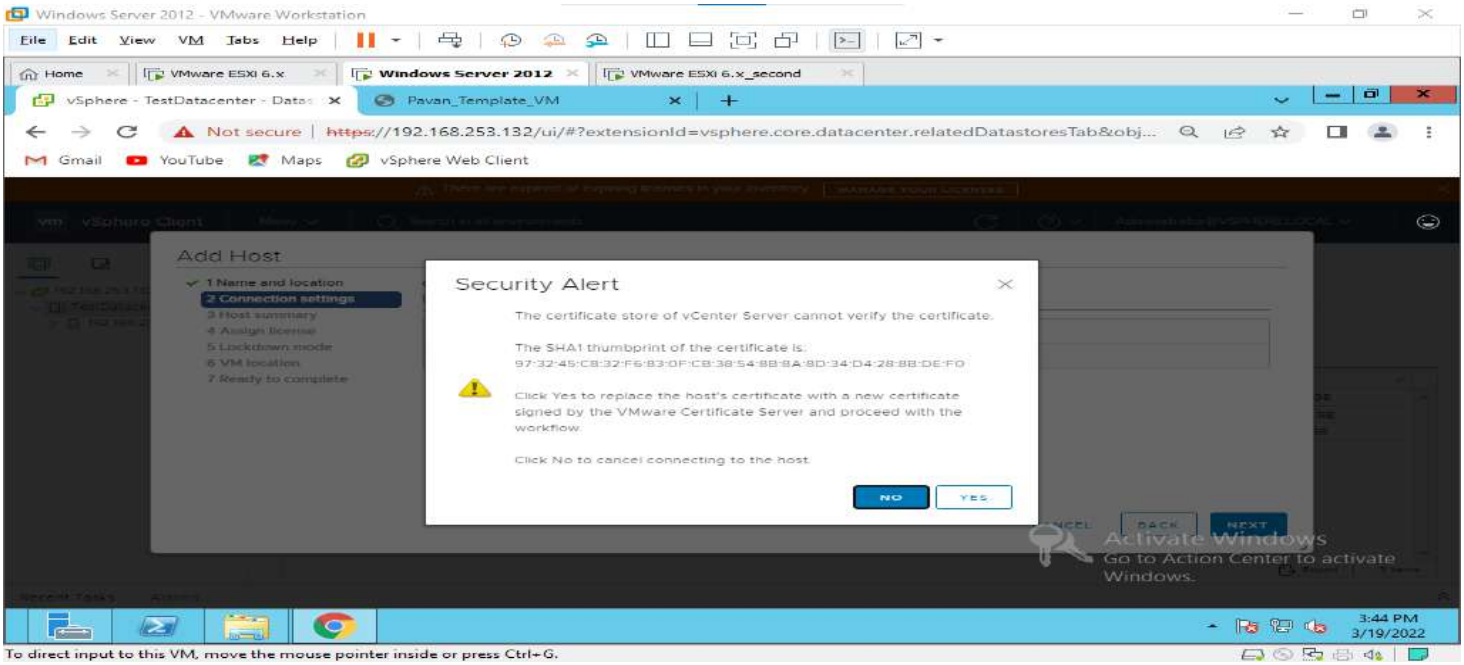


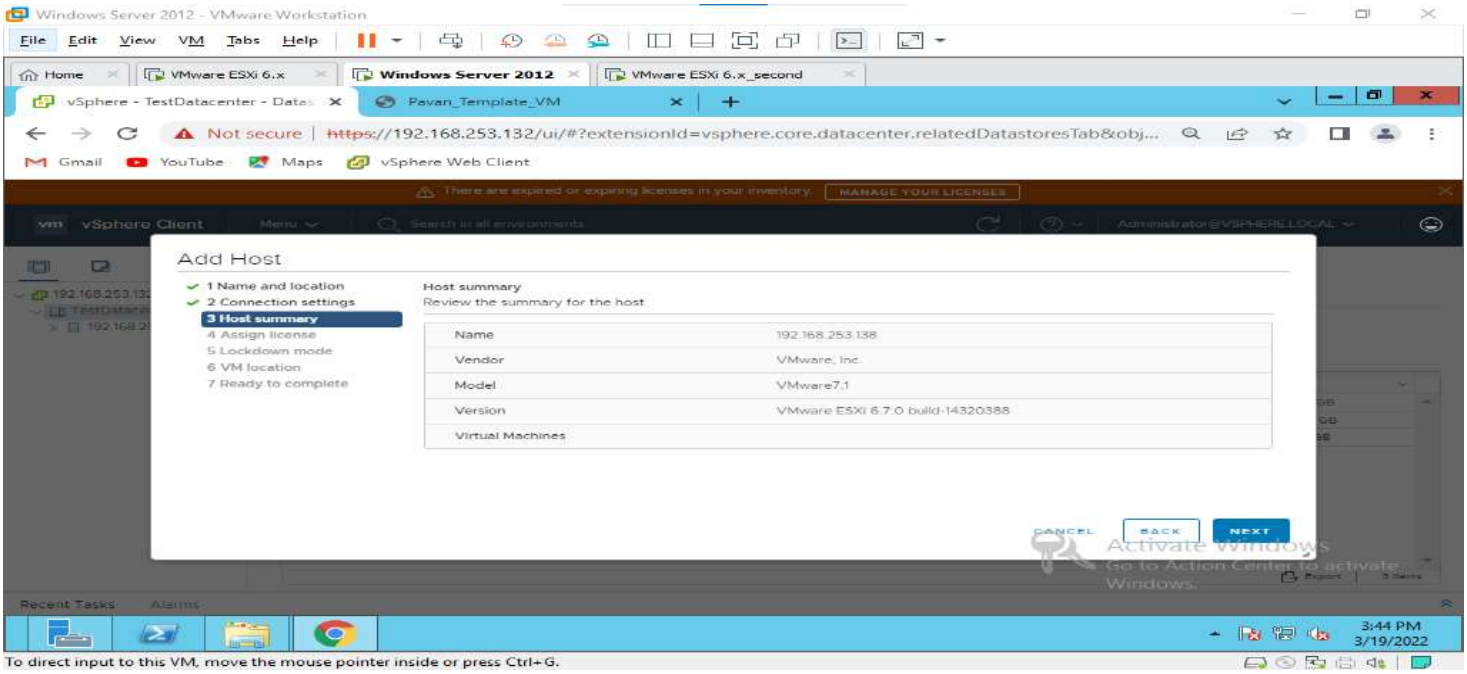
Add Second Host to VMware vSphere Server,To add the host click on **Add Host**

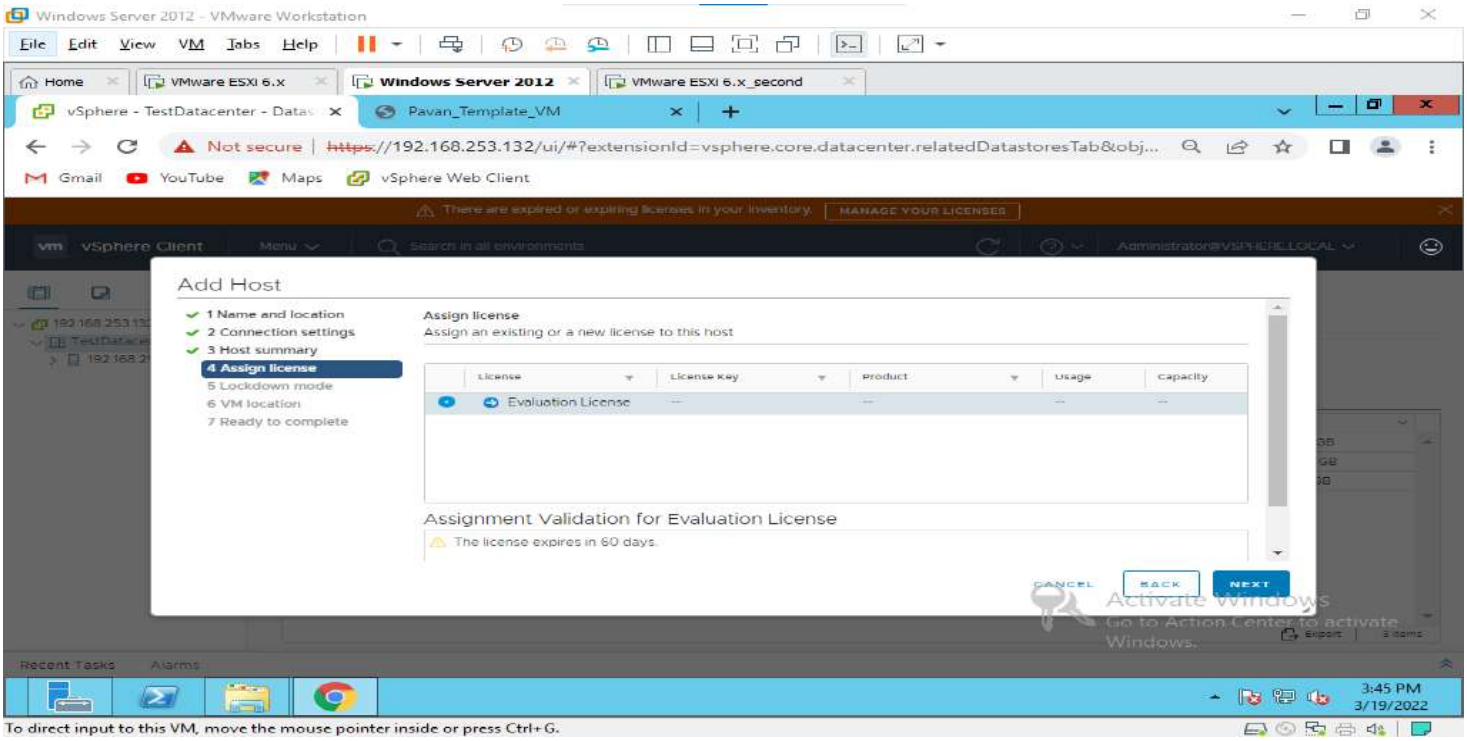


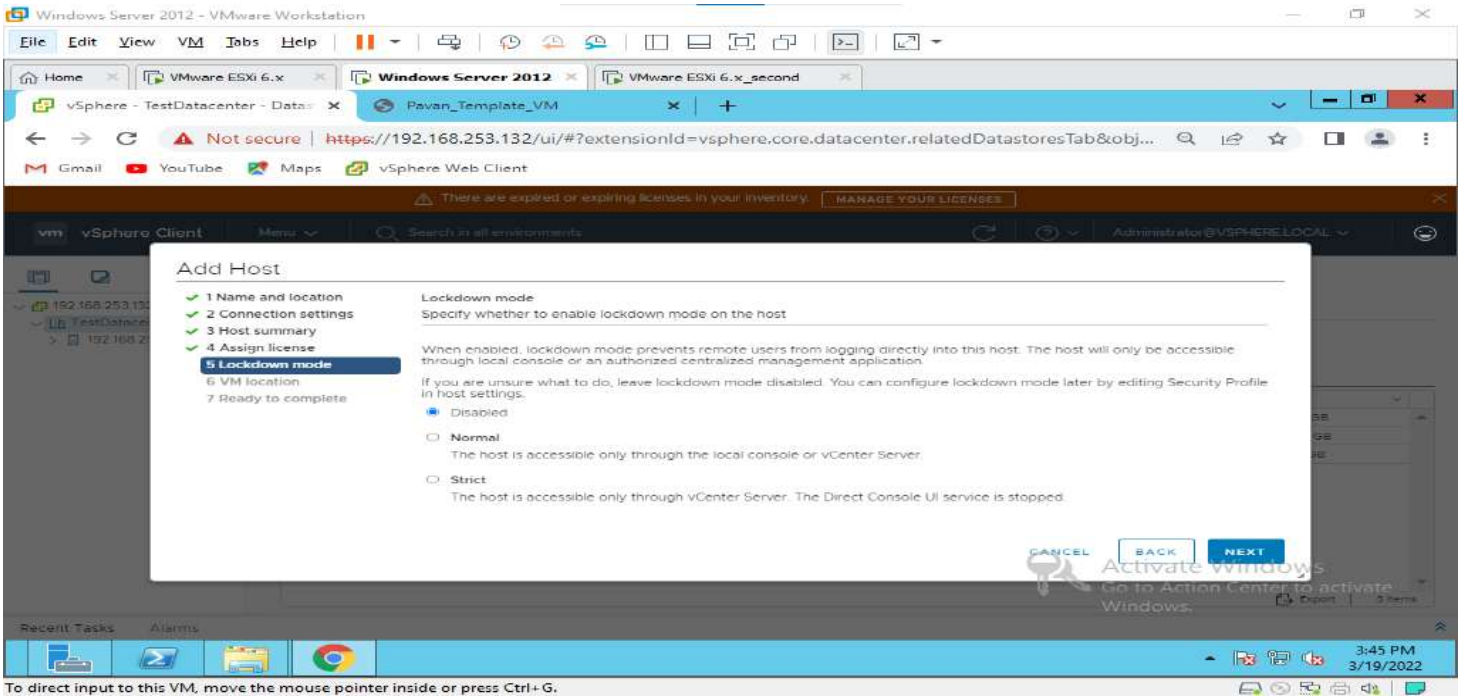


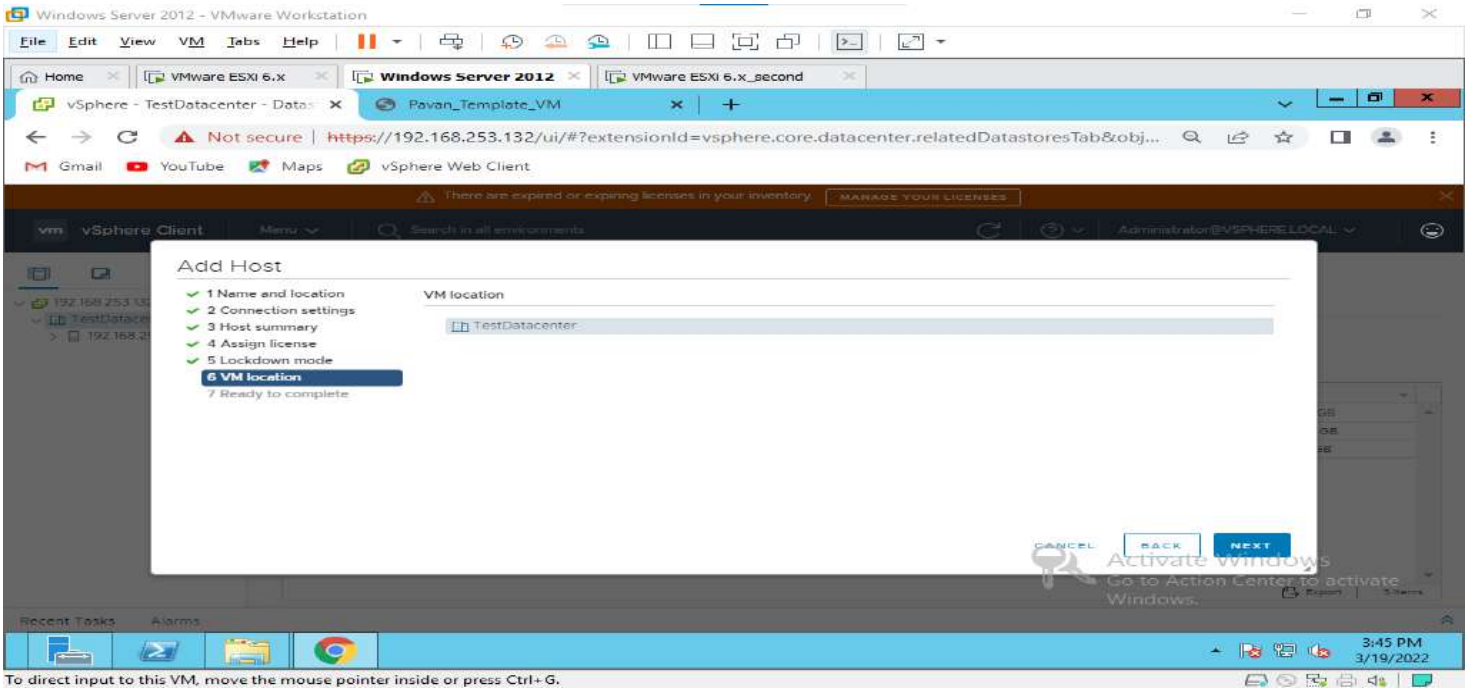


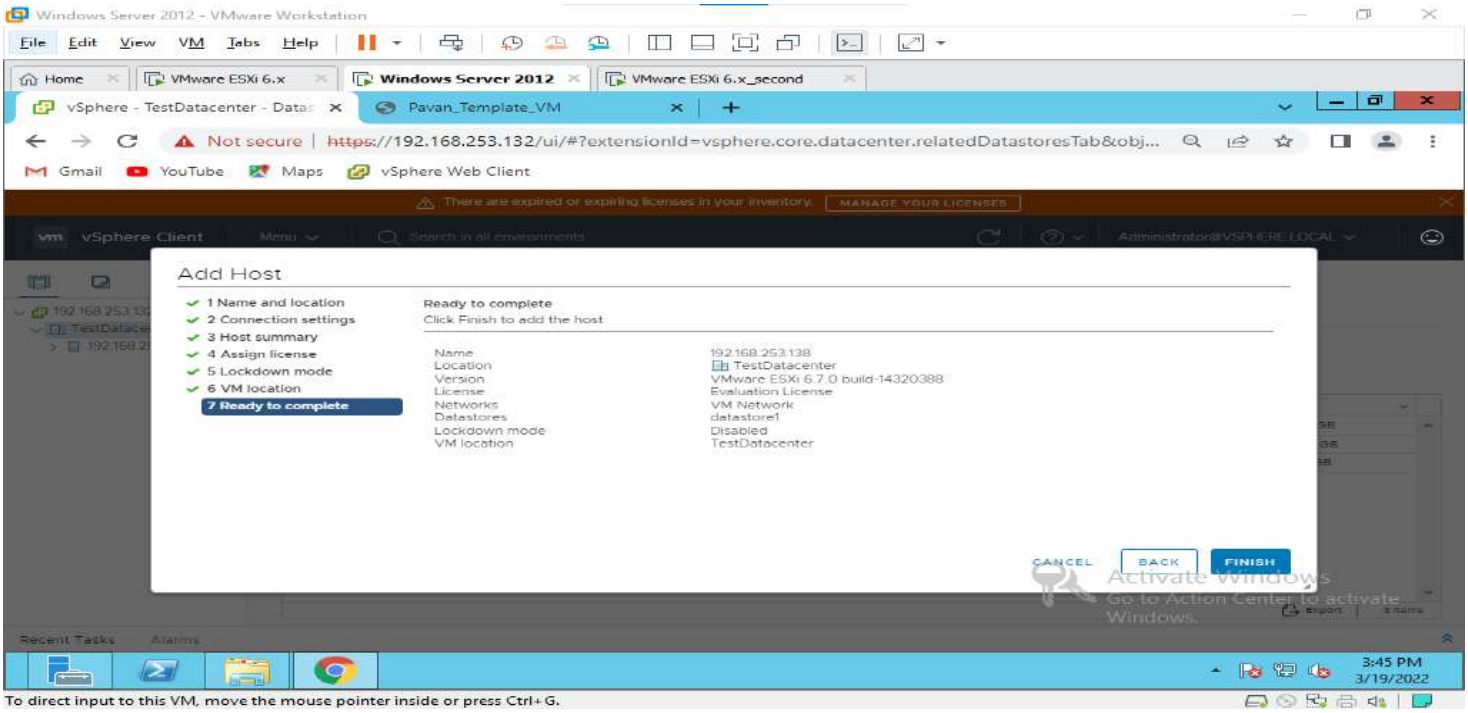

Windows Server 2012 - VMware Workstation
File Edit View VM Tabs Help
Home
VMware ESXi 6.x
Windows Server 2012
VMware ESXi 6.x_second
vSphere - TestDatacenter - Datas
Pavan_Template_VM
Not secure | https://192.168.253.132/ui/#?extensionId=vsphere.core.datacenter.relatedDatastoresTab&obj...
Gmail YouTube Maps vSphere Web Client
Add Host
1 Name and location
2 Connection settings
3 Host summary
4 Assign license
5 Lockdown mode
6 VM location
7 Ready to complete
Security Alert
The certificate store of vCenter Server cannot verify the certificate.
The SHA1 thumbprint of the certificate is:
97:32:45:C8:32:F6:83:0F:CB:38:54:8B:8A:8D:34:D4:28:8B:DE:F0
Click Yes to replace the host's certificate with a new certificate signed by the VMware Certificate Server and proceed with the workflow.
Click No to cancel connecting to the host.
NO
YES
CANCEL
BACK
NEXT
Activate Windows
Go to Action Center to activate Windows.
3:44 PM
3/19/2022
To direct input to this VM, move the mouse pointer inside or press Ctrl+G.

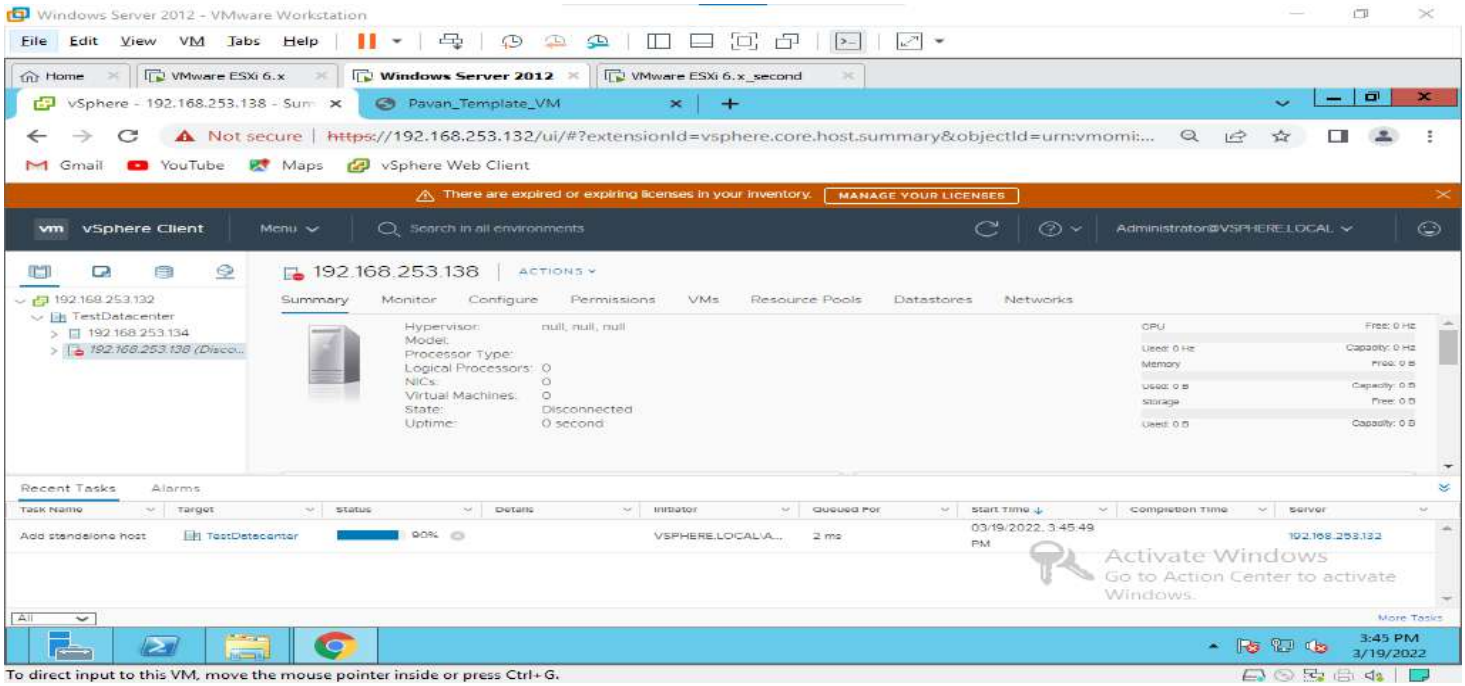

Windows Server 2012 - VMware Workstation
File Edit View VM Tabs Help
Home
VMware ESXi 6.x
Windows Server 2012
VMware ESXi 6.x_second
vSphere - TestDatacenter - Datas
Pavan_Template_VM
Not secure | https://192.168.253.132/ui/#?extensionId=vsphere.core.datacenter.relatedDatastoresTab&obj...
Gmail YouTube Maps vSphere Web Client
There are expired or expiring licenses in your inventory. MANAGE YOUR LICENSES
vSphere Client
Add Host
1 Name and location
2 Connection settings
3 Host summary
4 Assign license
5 Lockdown mode
6 VM location
7 Ready to complete
Host summary
Review the summary for the host
Name 192.168.253.138
Vendor VMware, Inc.
Model VMware7,1
Version VMware ESXi 6.7.0 build-14320388
Virtual Machines
CANCEL
BACK
NEXT
Activate Windows
Go to Action Center to activate Windows.
Recent Tasks
Alarms
3:44 PM
3/19/2022
To direct input to this VM, move the mouse pointer inside or press Ctrl+G.


Windows Server 2012 - VMware Workstation
File Edit View VM Tabs Help
Home
VMware ESXi 6.x
Windows Server 2012
VMware ESXi 6.x_second
vSphere - TestDatacenter - Datas
Pavan_Template_VM
Not secure | https://192.168.253.132/ui/#?extensionId=vsphere.core.datacenter.relatedDatastoresTab&obj...
Gmail YouTube Maps vSphere Web Client
There are expired or expiring licenses in your inventory. MANAGE YOUR LICENSES
vSphere Client
Add Host
1 Name and location
2 Connection settings
3 Host summary
4 Assign license
5 Lockdown mode
6 VM location
7 Ready to complete
Assign license
Assign an existing or a new license to this host
License
License Key
Product
Usage
Capacity
Evaluation License
Assignment Validation for Evaluation License
The license expires in 60 days.
CANCEL
BACK
NEXT
Activate Windows
Go to Action Center to activate Windows.
Recent Tasks
Alarms
3:45 PM
3/19/2022
To direct input to this VM, move the mouse pointer inside or press Ctrl+G.

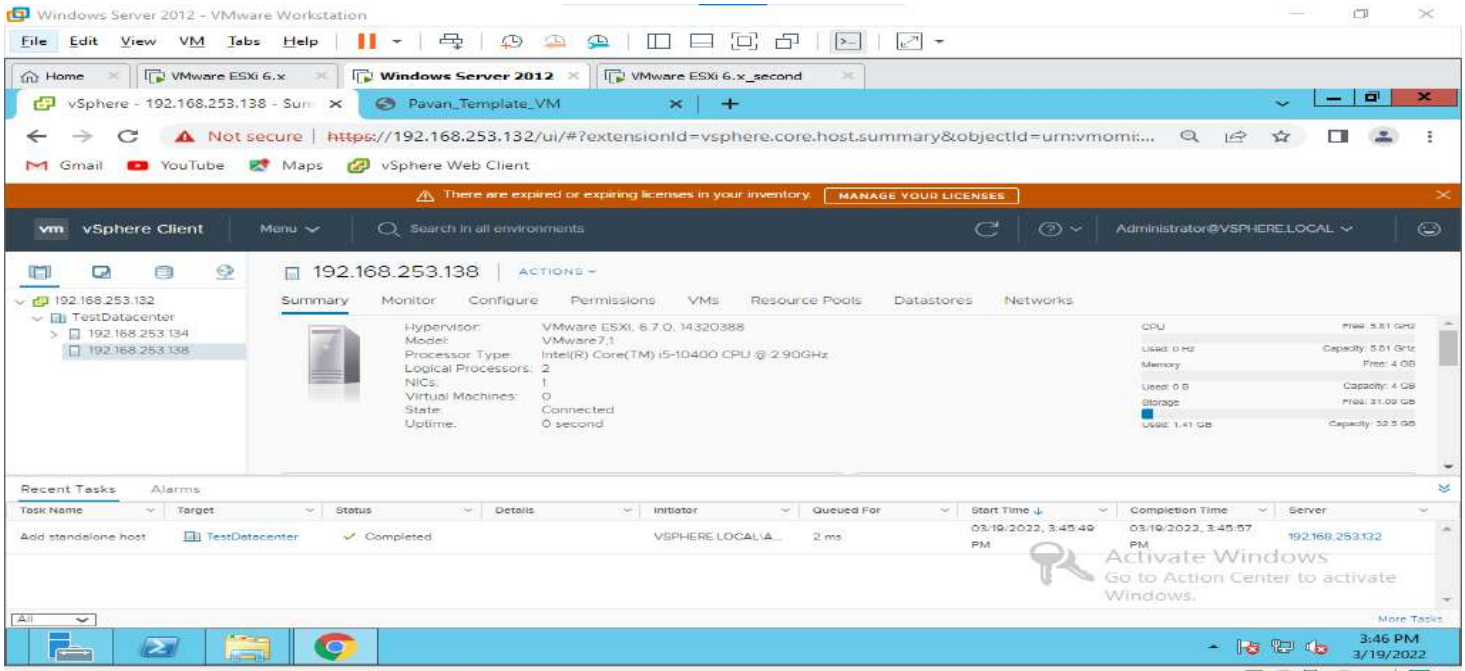

Windows Server 2012 - VMware Workstation
File Edit View VM Tabs Help
Home
VMware ESXi 6.x
Windows Server 2012
VMware ESXi 6.x_second
vSphere - TestDatacenter - Data
Pavan_Template_VM
Not secure | https://192.168.253.132/ui/#?extensionId=vsphere.core.datacenter.relatedDatastoresTab&obj...
Gmail YouTube Maps vSphere Web Client
There are expired or expiring licenses in your inventory. MANAGE YOUR LICENSES
vSphere Client
Add Host
1 Name and location
2 Connection settings
3 Host summary
4 Assign license
5 Lockdown mode
6 VM location
7 Ready to complete
Lockdown mode
Specify whether to enable lockdown mode on the host
When enabled, lockdown mode prevents remote users from logging directly into this host. The host will only be accessible through local console or an authorized centralized management application.
If you are unsure what to do, leave lockdown mode disabled. You can configure lockdown mode later by editing Security Profile in host settings.
Disabled
Normal
The host is accessible only through the local console or vCenter Server.
Strict
The host is accessible only through vCenter Server. The Direct Console UI service is stopped.
CANCEL BACK NEXT
Activate Windows
Go to Action Center to activate Windows.
Recent Tasks Alarms
3:45 PM
3/19/2022
To direct input to this VM, move the mouse pointer inside or press Ctrl+G.

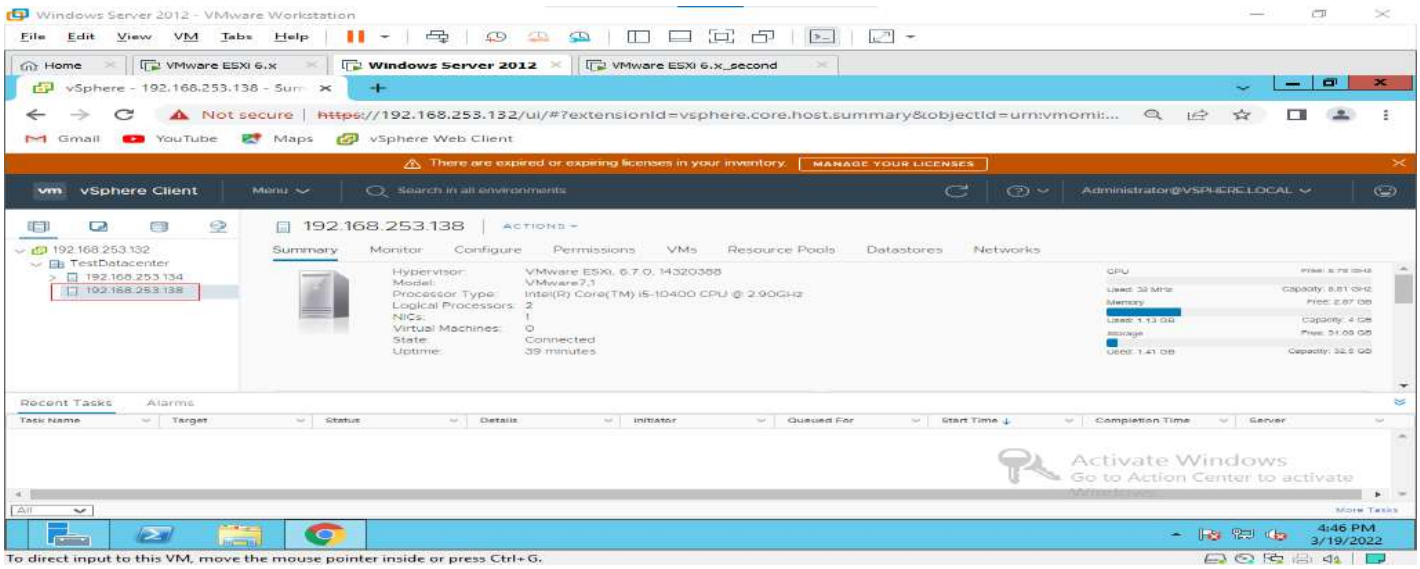

Windows Server 2012 - VMware Workstation
File Edit View VM Tabs Help
Home
VMware ESXi 6.x
Windows Server 2012
VMware ESXi 6.x_second
vSphere - TestDatacenter - Data
Pavan_Template_VM
Not secure | https://192.168.253.132/ui/#?extensionId=vsphere.core.datacenter.relatedDatastoresTab&obj...
Gmail YouTube Maps vSphere Web Client
There are expired or expiring licenses in your inventory. MANAGE YOUR LICENSES
vSphere Client
Add Host
1 Name and location
2 Connection settings
3 Host summary
4 Assign license
5 Lockdown mode
6 VM location
7 Ready to complete
VM location
TestDatacenter
CANCEL BACK NEXT
Activate Windows
Go to Action Center to activate Windows.
Recent Tasks Alarms
3:45 PM
3/19/2022
To direct input to this VM, move the mouse pointer inside or press Ctrl+G.


Windows Server 2012 - VMware Workstation
File Edit View VM Tabs Help
Home
VMware ESXi 6.x
Windows Server 2012
VMware ESXi 6.x_second
vSphere - TestDatacenter - Data
Pavan_Template_VM
Not secure | https://192.168.253.132/ui/#?extensionId=vsphere.core.datacenter.relatedDatastoresTab&obj...
Gmail YouTube Maps vSphere Web Client
There are expired or expiring licenses in your inventory. MANAGE YOUR LICENSES
vSphere Client
Add Host
1 Name and location
2 Connection settings
3 Host summary
4 Assign license
5 Lockdown mode
6 VM location
7 Ready to complete
Ready to complete
Click Finish to add the host
Name 192.168.253.138
Location TestDatacenter
Version VMware ESXi 6.7.0 build-14320388
License Evaluation License
Networks VM Network
Datastores datastore1
Lockdown mode Disabled
VM location TestDatacenter
CANCEL BACK FINISH
Activate Windows
Go to Action Center to activate Windows.
Recent Tasks Alarms
3:45 PM
3/19/2022
To direct input to this VM, move the mouse pointer inside or press Ctrl+G.



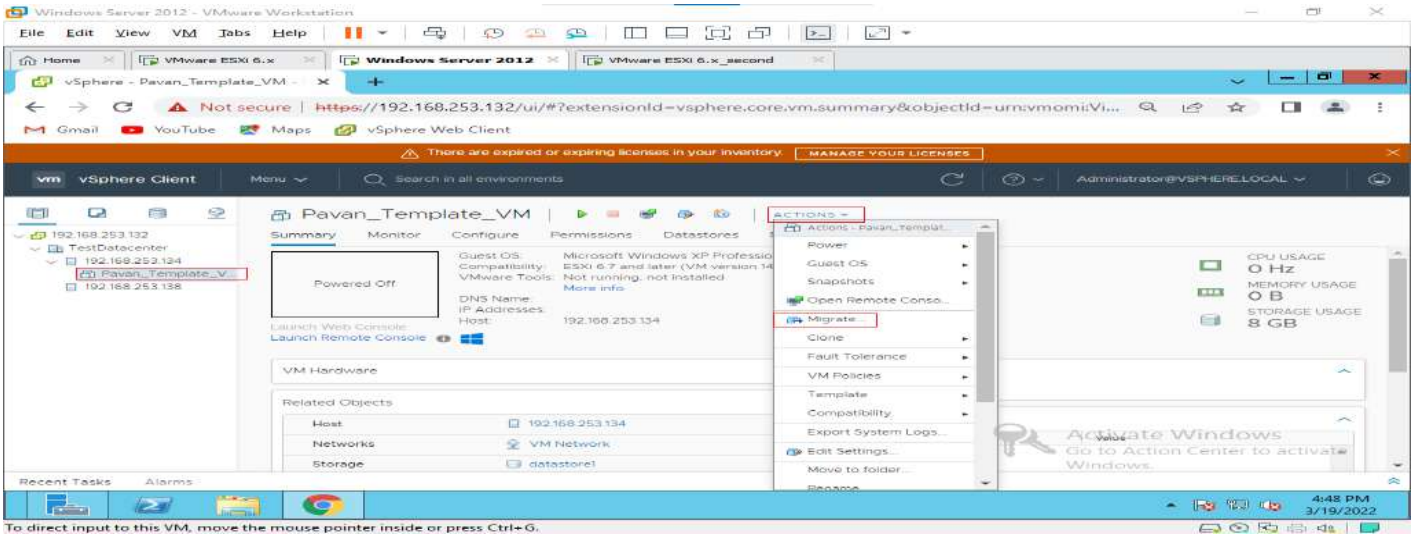
Host added successfully



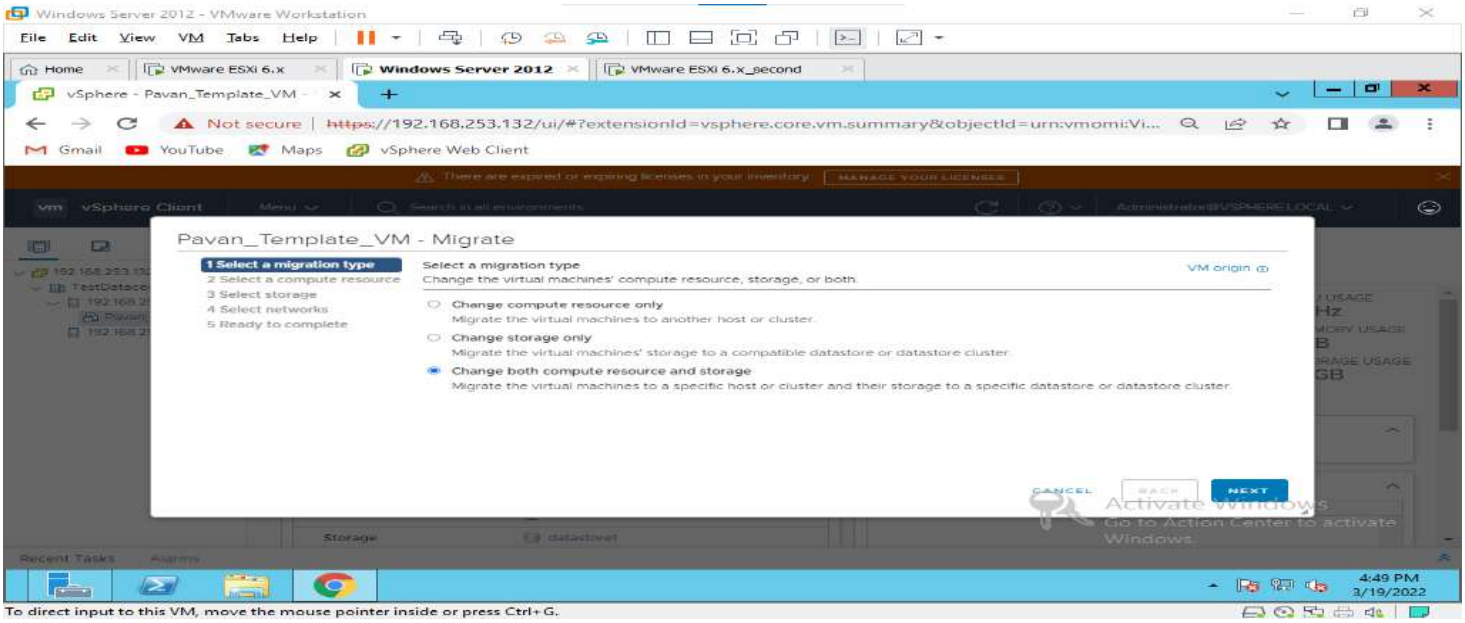


After adding the host go to the host and cluster tab and select the virtual machine which we deployed on the first host i.e VMware ESXI 6.x.

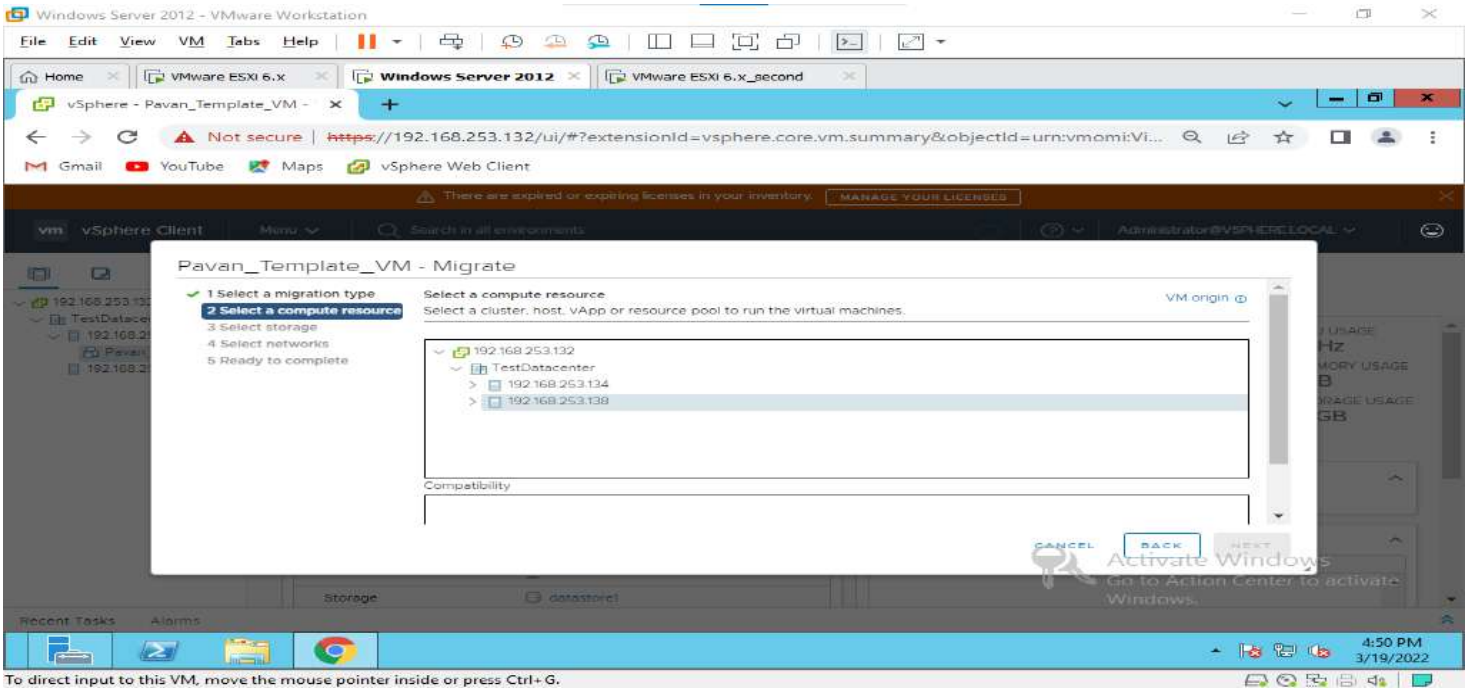
After that go to the action drop-down menu and select migrate and click on the Next button.



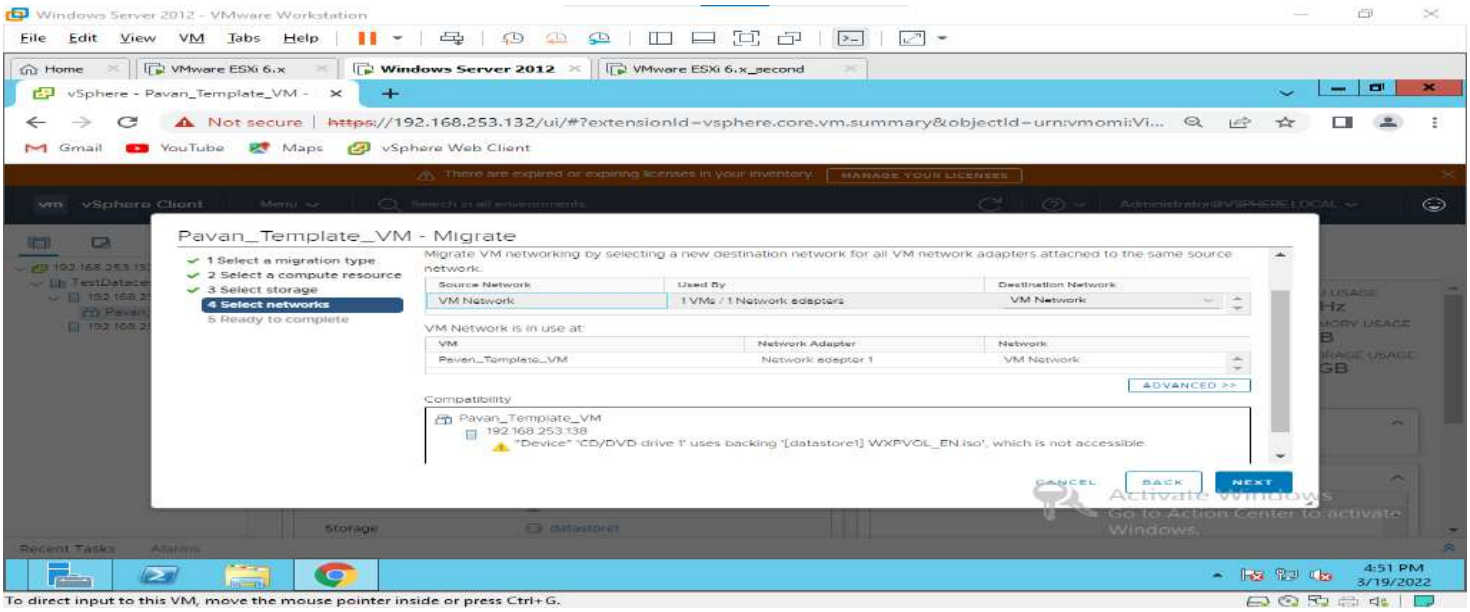
Select the **Change both compute resource and storage** and Click on the **Next** Button



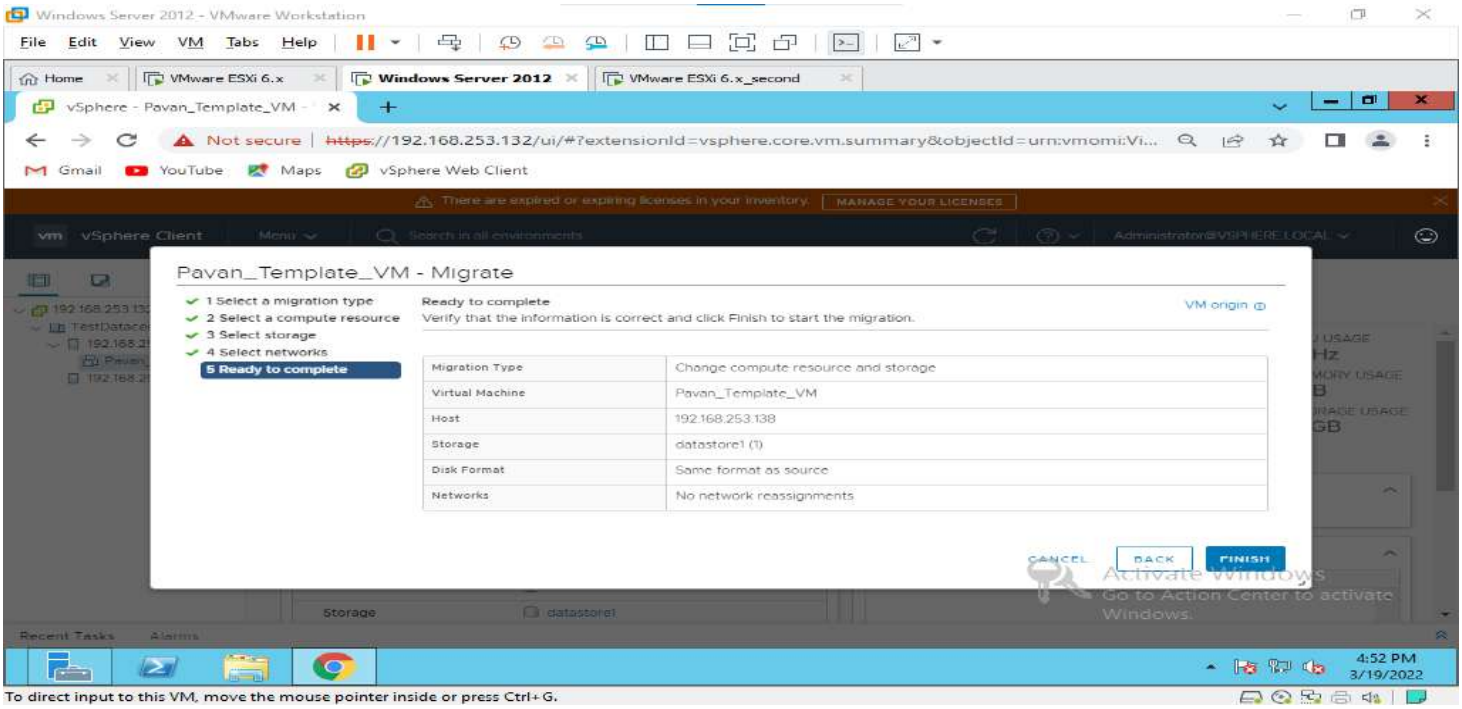
Select the 2nd Host and Click on the **Next** button



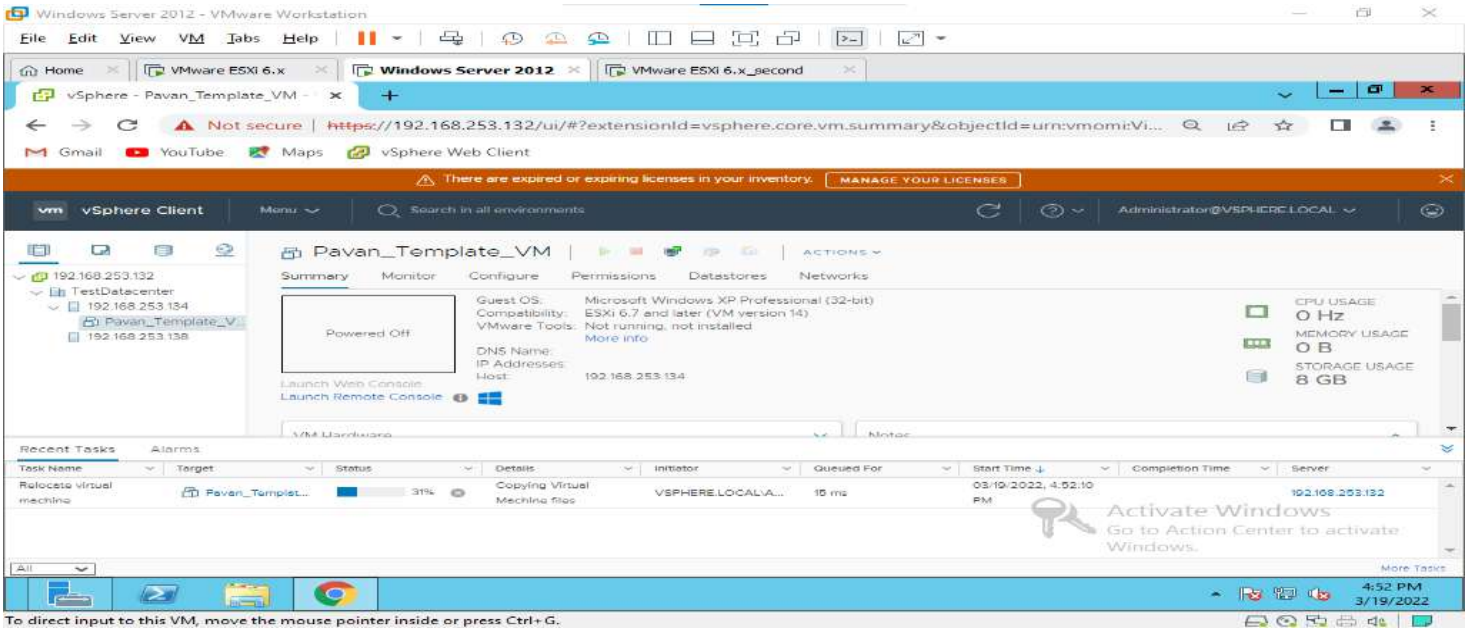
Select the Datastore and Click on the **Next** button



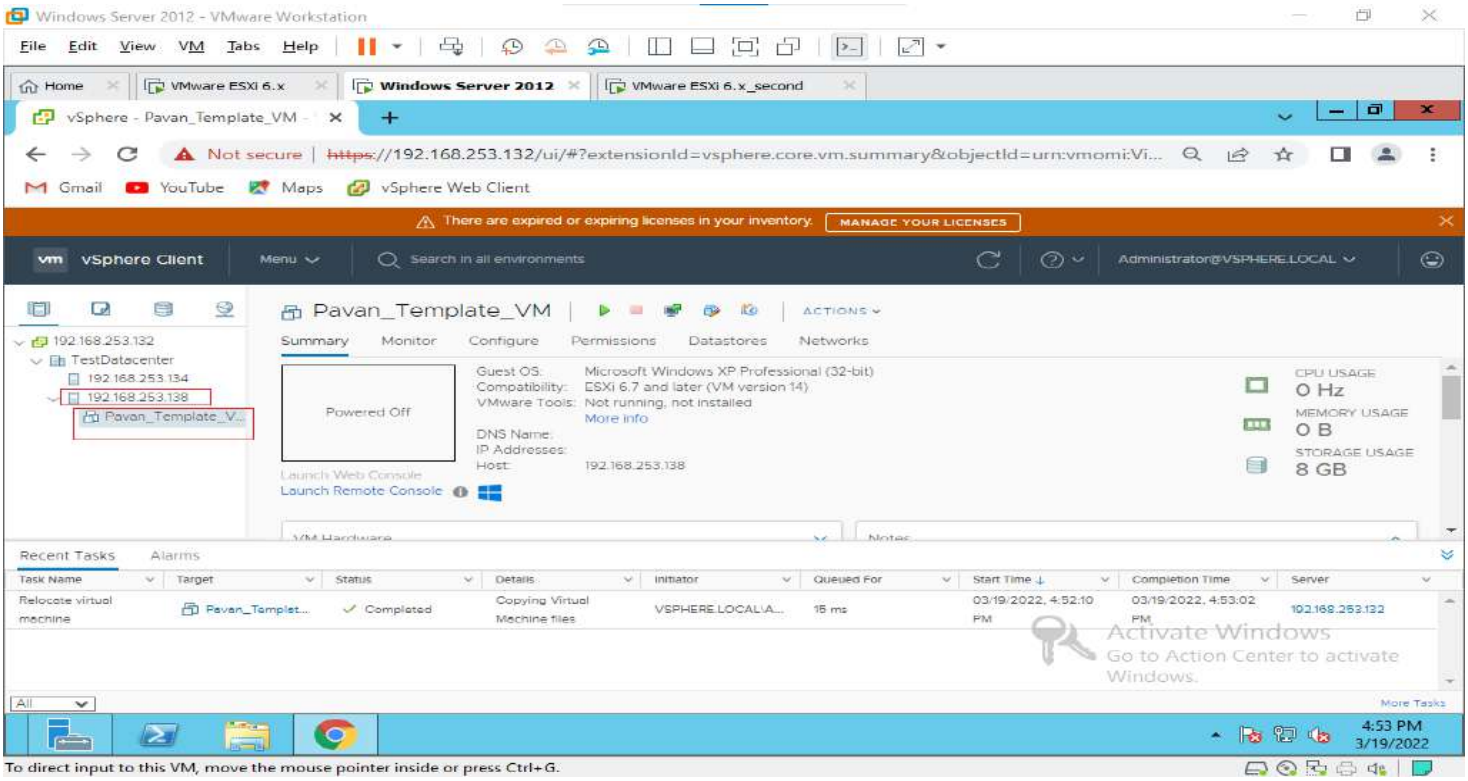
Click on the **Finish** Button

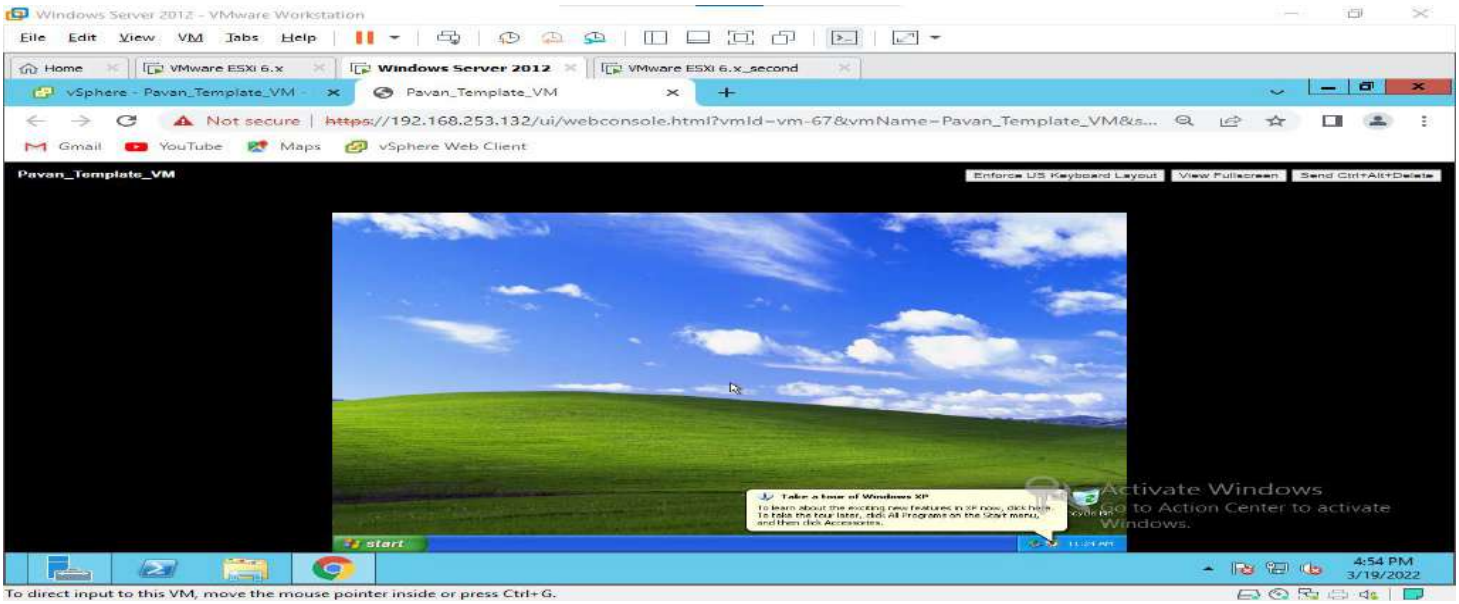


From the below image we can see that the migration has been started.



Migration Completed



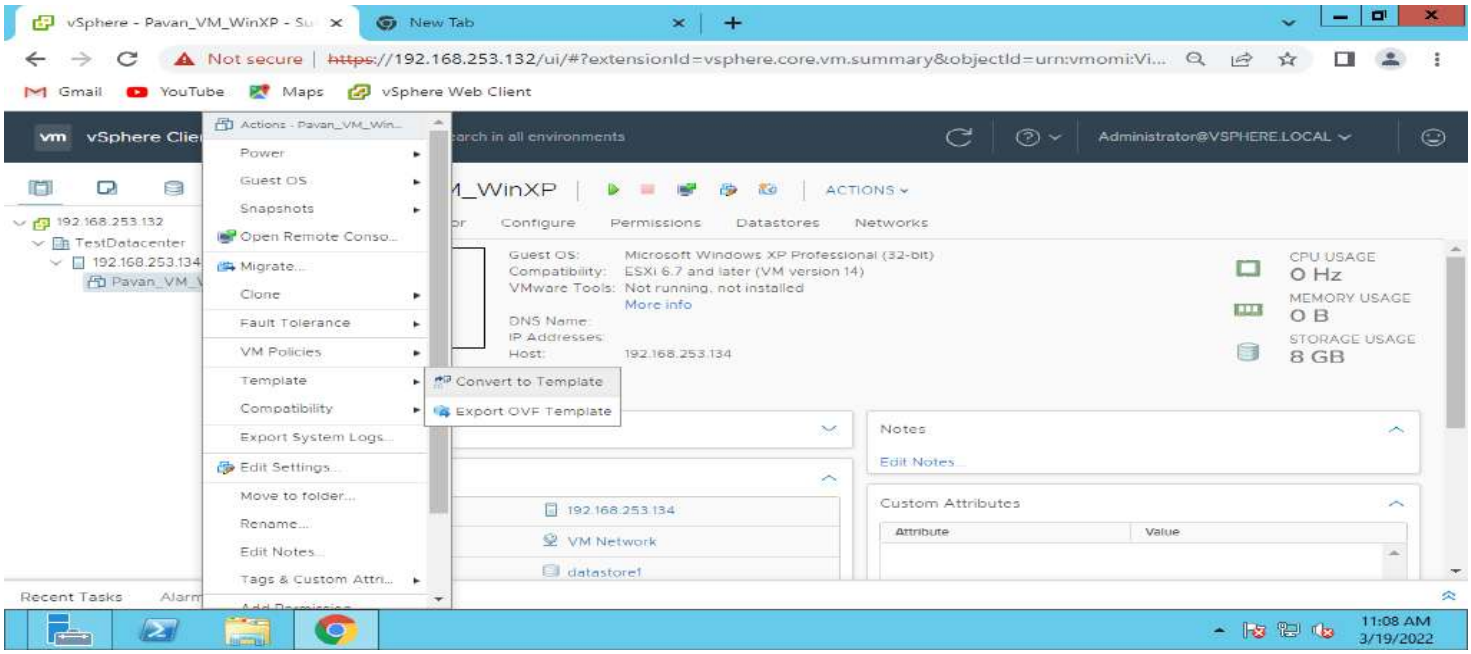


Practical No. 3

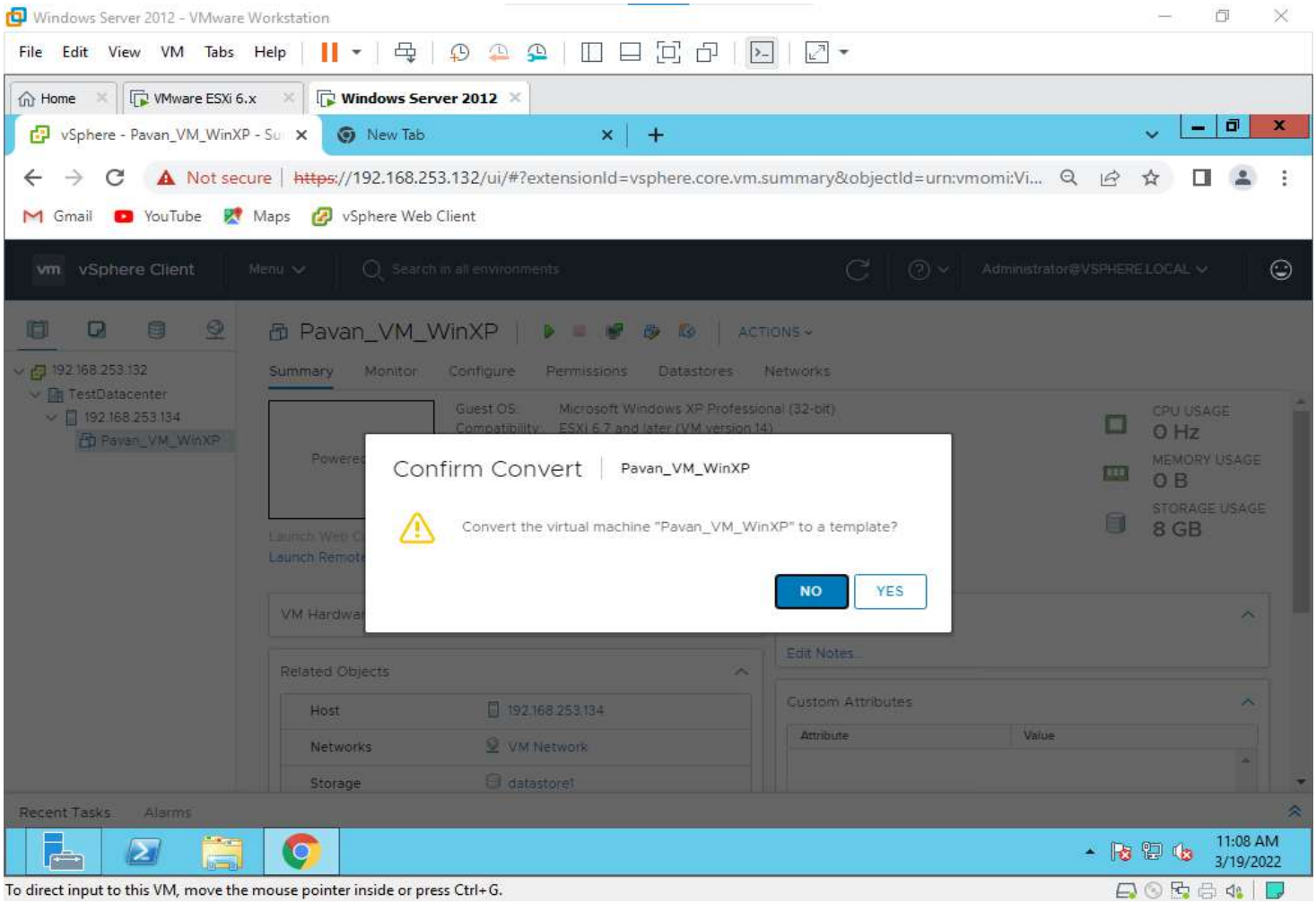
AIM: Create a Template in the vSphere Client

A- Clone a Virtual Machine to a Template in the vSphere Client

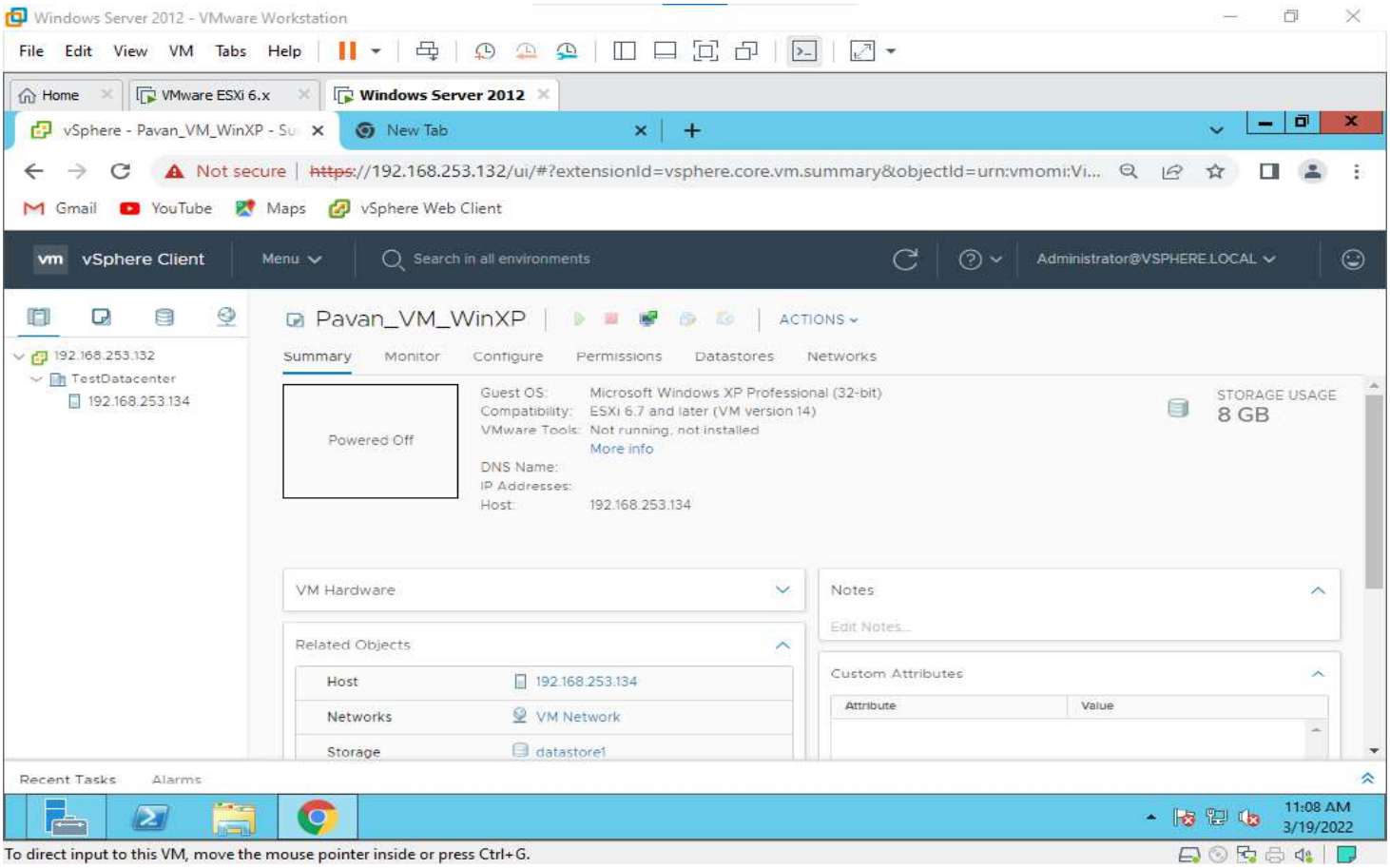
Right-click on the **virtual machine** then go to the **Template** option and choose **Convert to the template.**



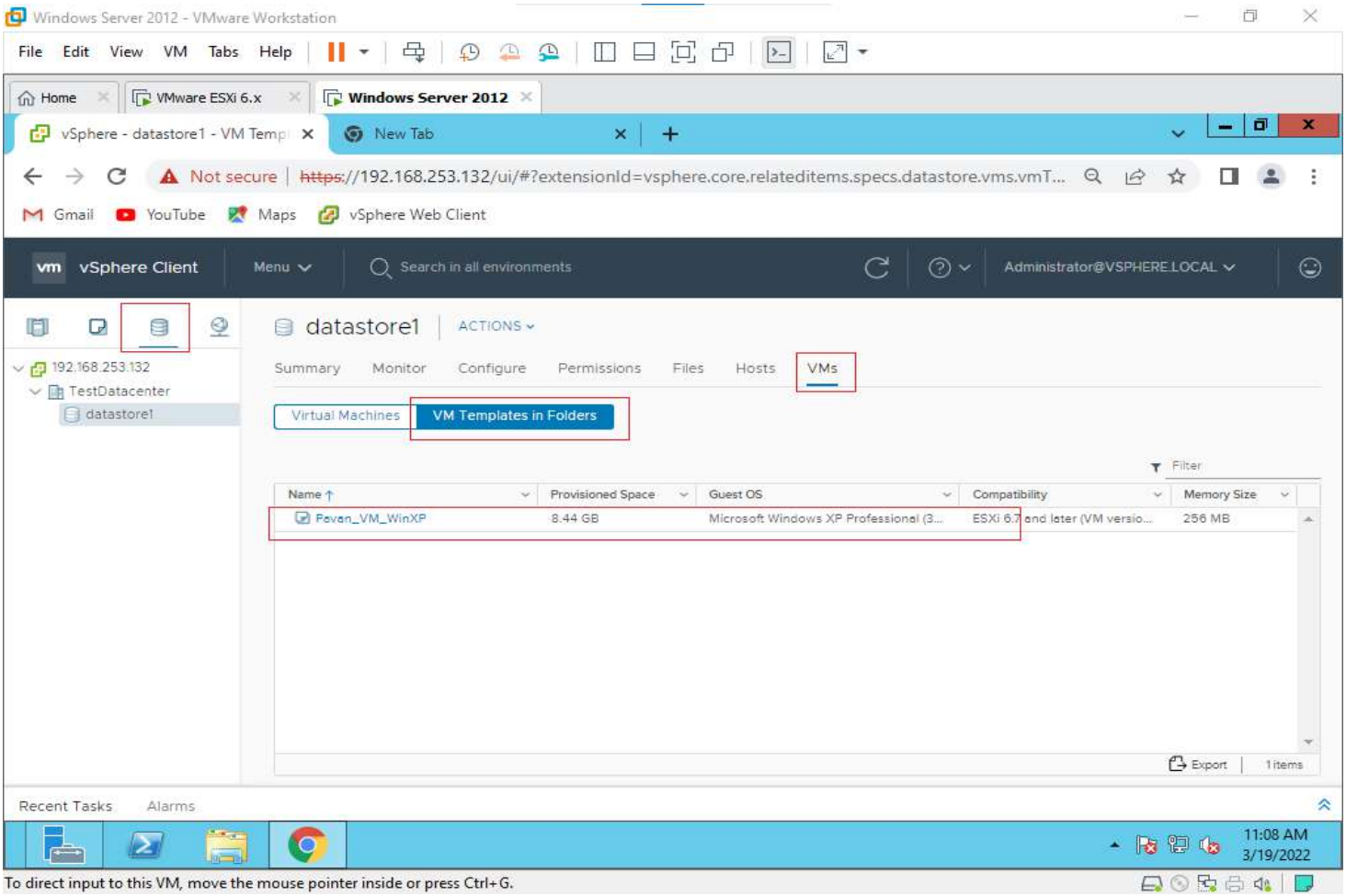
Click on the **Next** button



Please wait for successfully creation

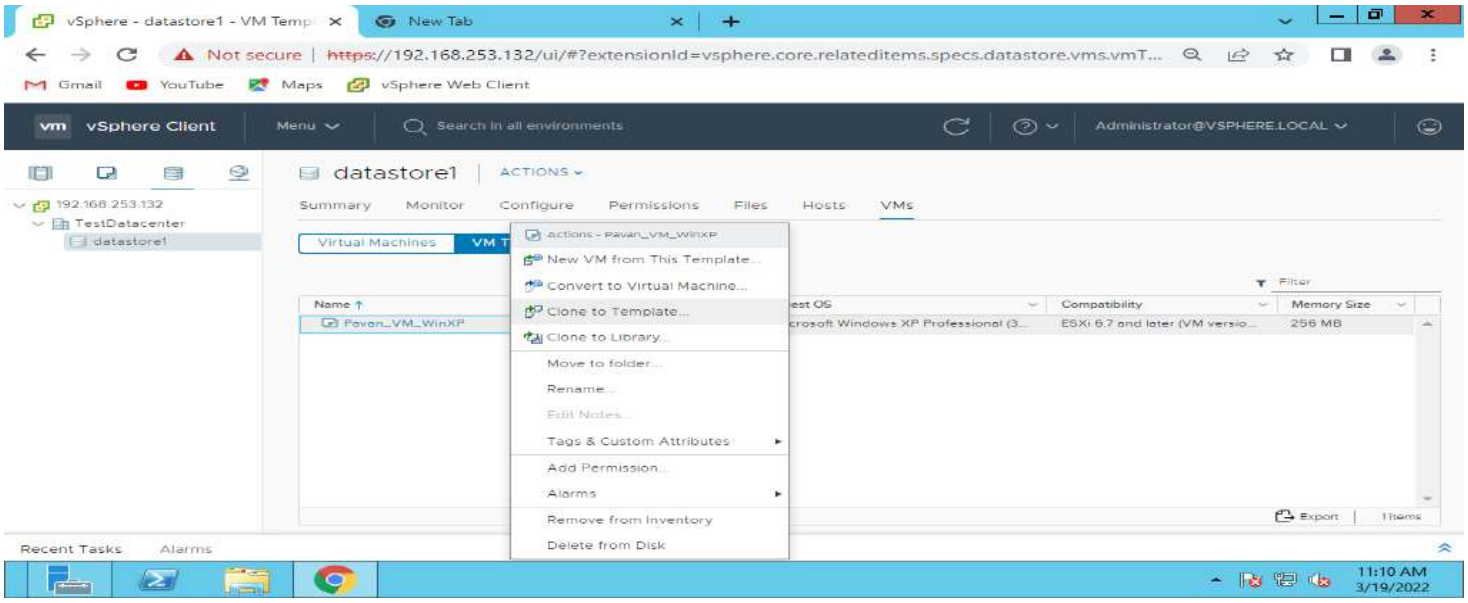


Go to the **Datastore Tab** and Click on the **VMs tab** and tab on the **VM Template in Folders**. Here VM Template created successfully.

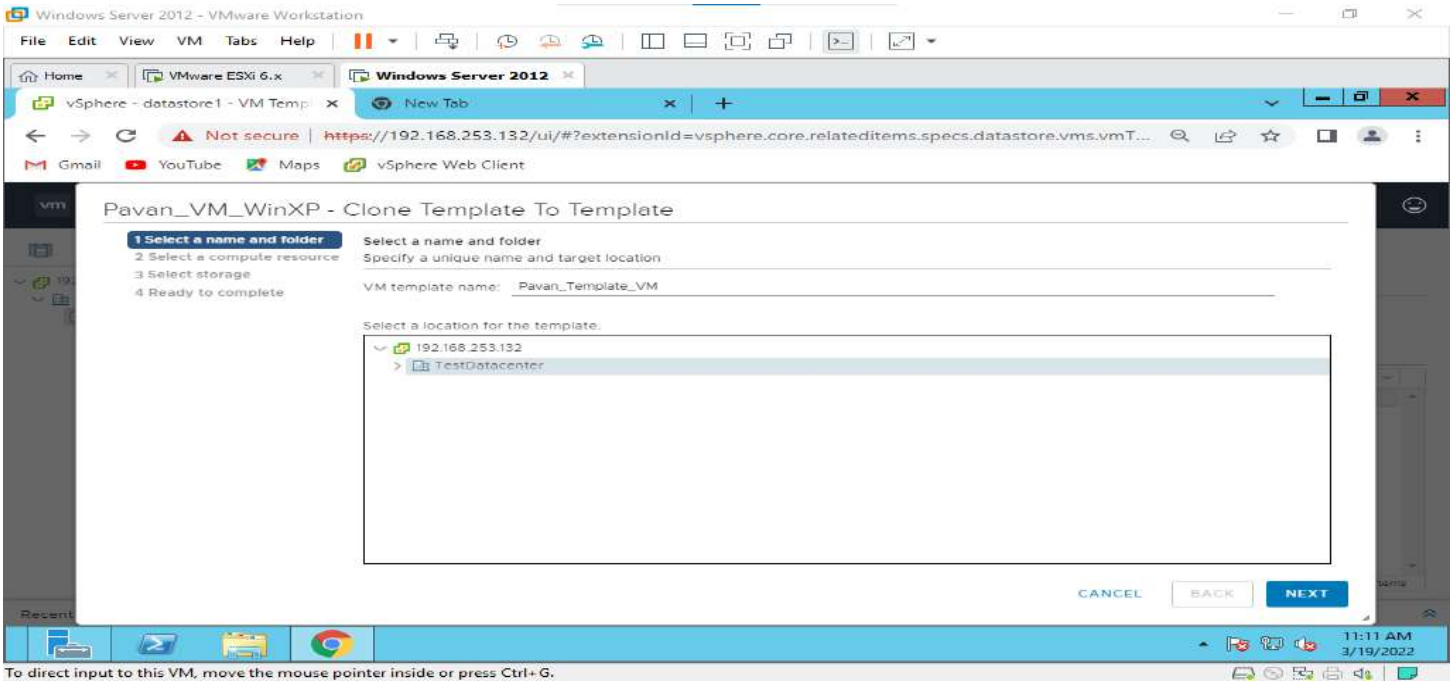


B- Clone a Template in the vSphere Client

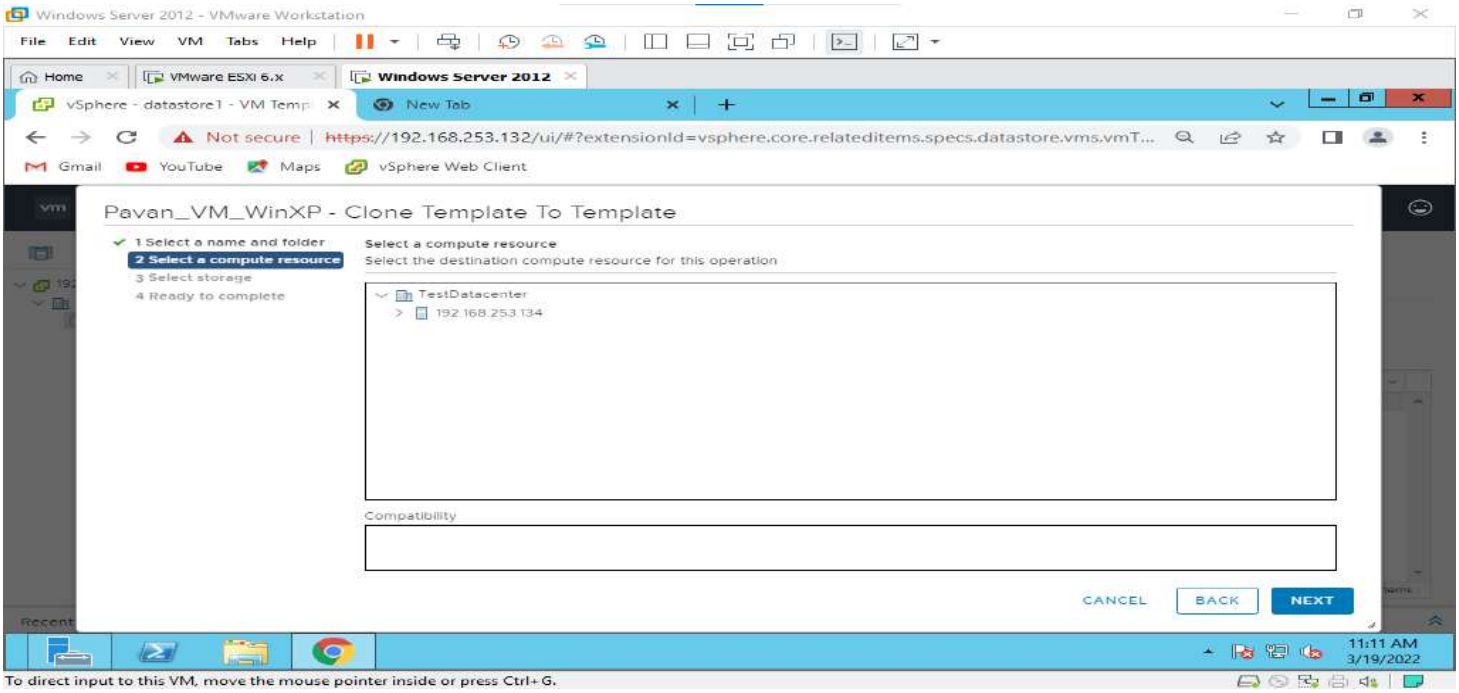
Right-click on template and click on **Clone to Template** option.



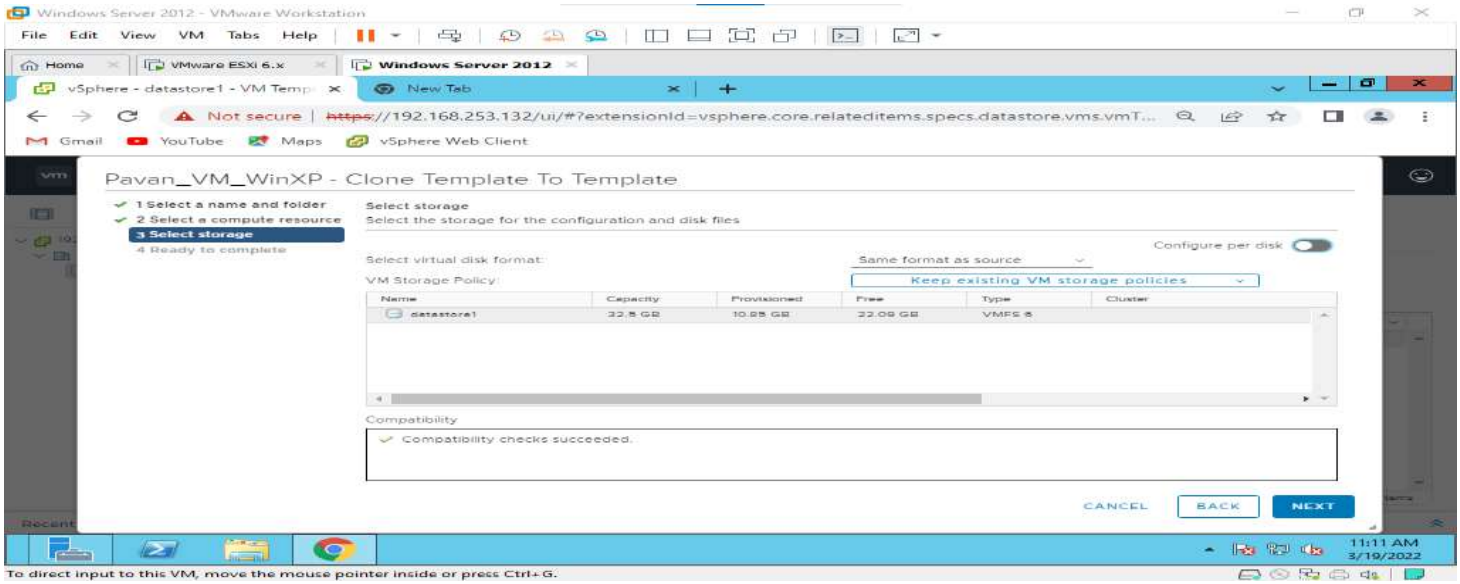
You will see the below screen after that enter the **Template_Name** and choose the **location** and click on the **Next** button.



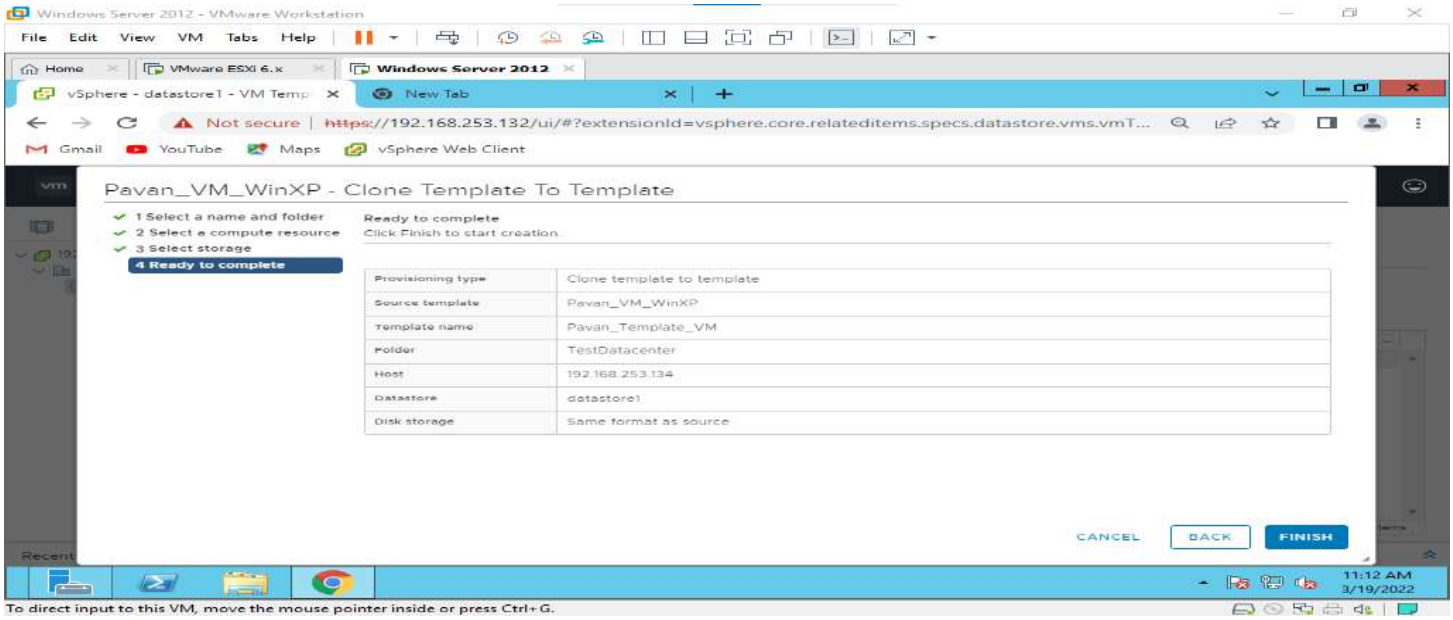
Click on the **Next** button



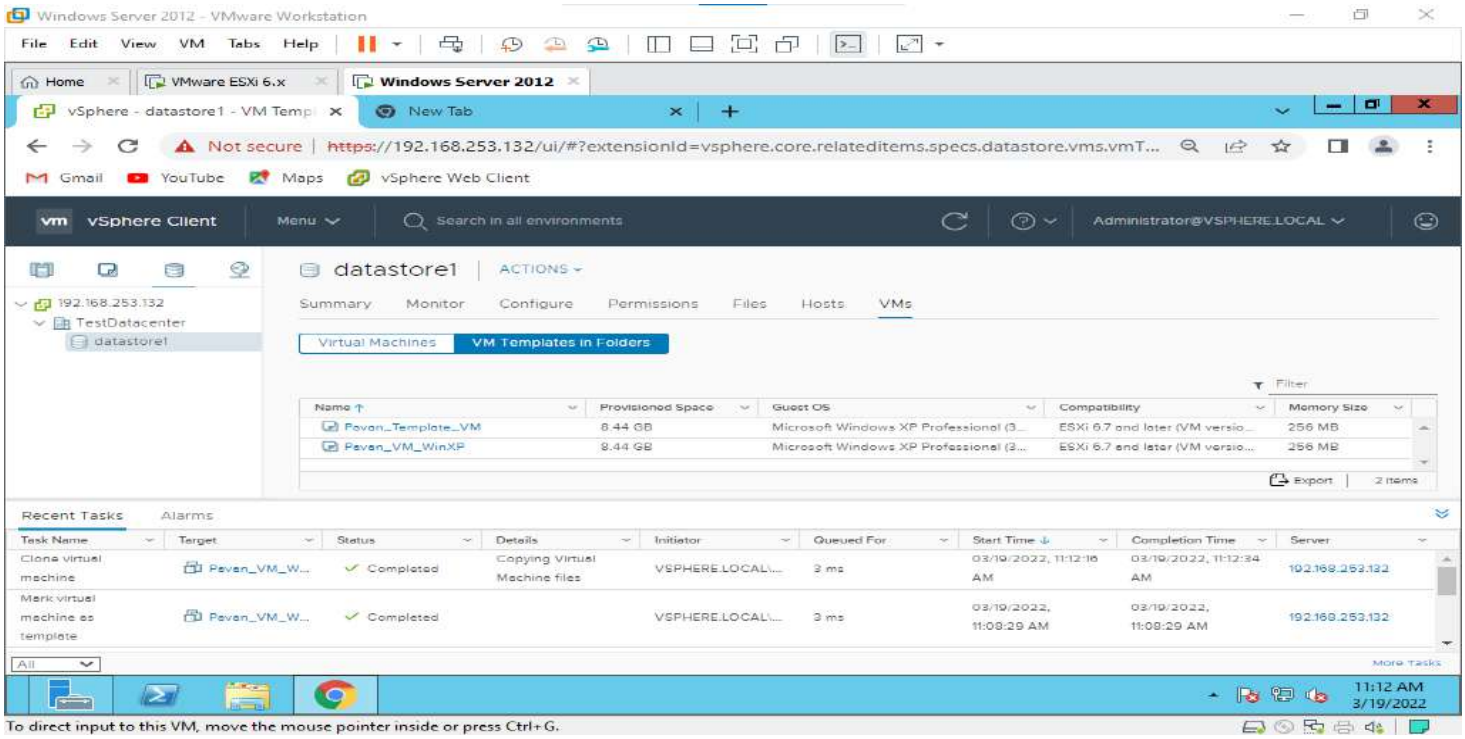
Click on the **Next** button



Click on the **Finish** button

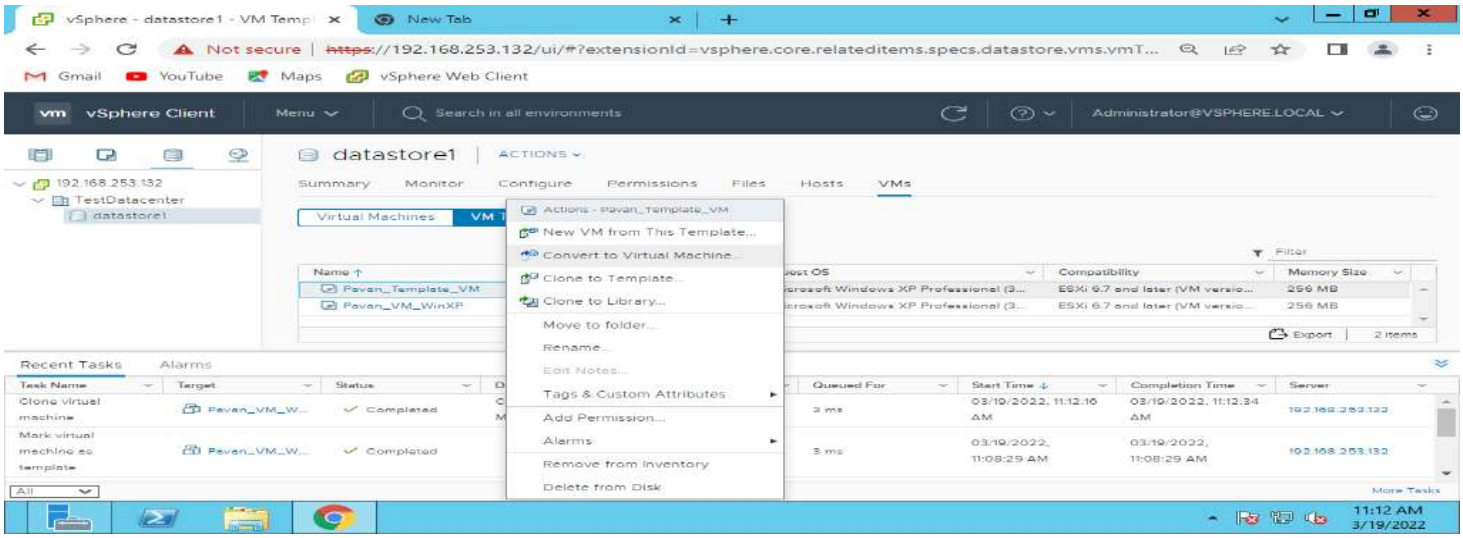


In below screen, you can see Template (Template_Clone) is cloned from Template (Windows_XP)

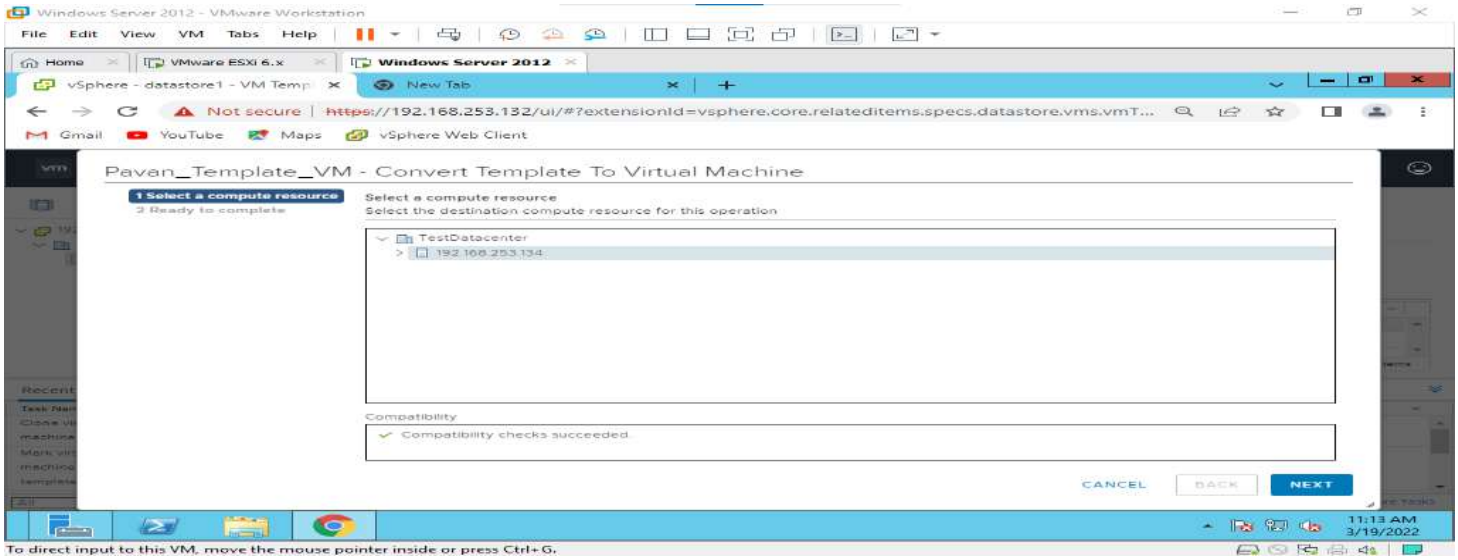


C- Convert a Virtual Machine from a Template in the vSphere Client

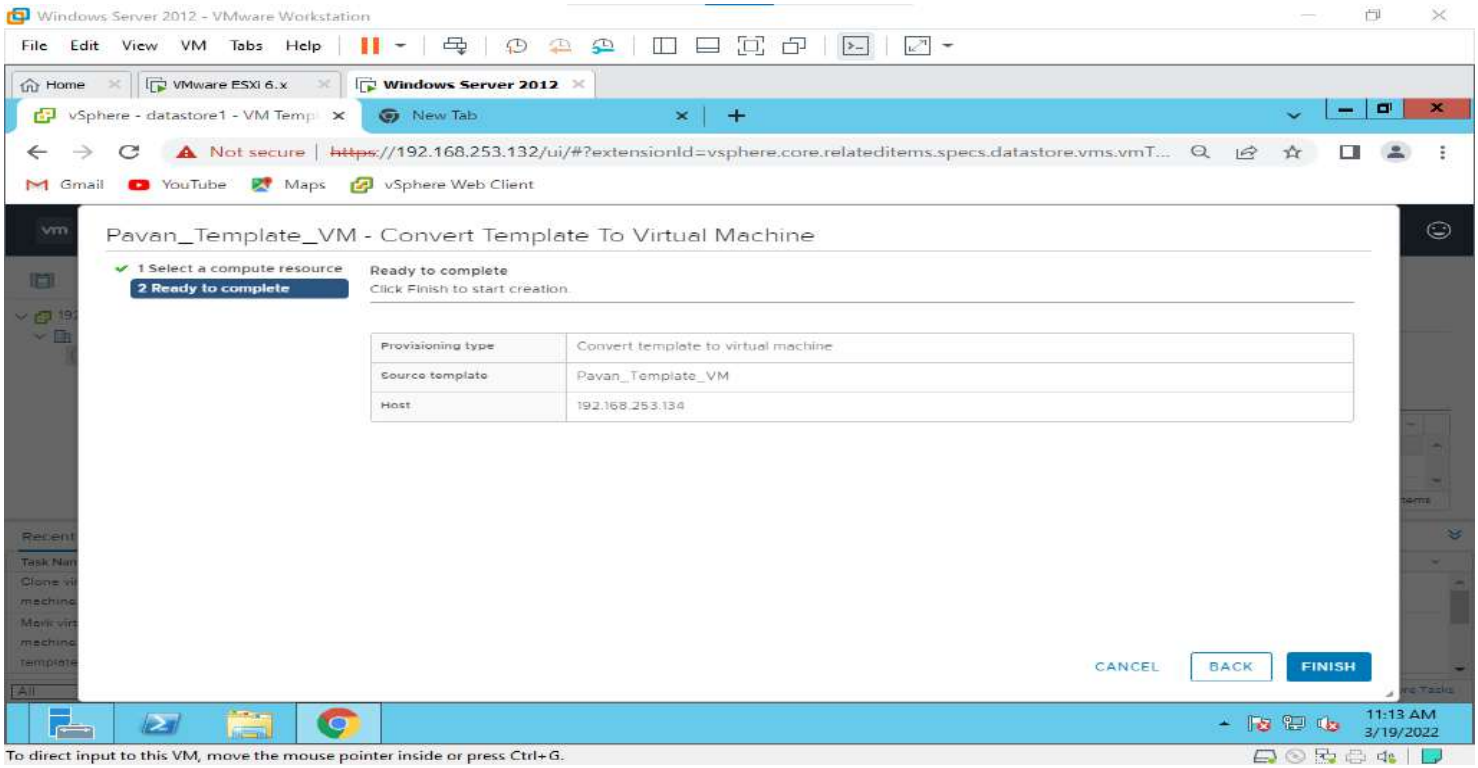
Right-click on the template then click on the "**Convert to Virtual Machine**" option.



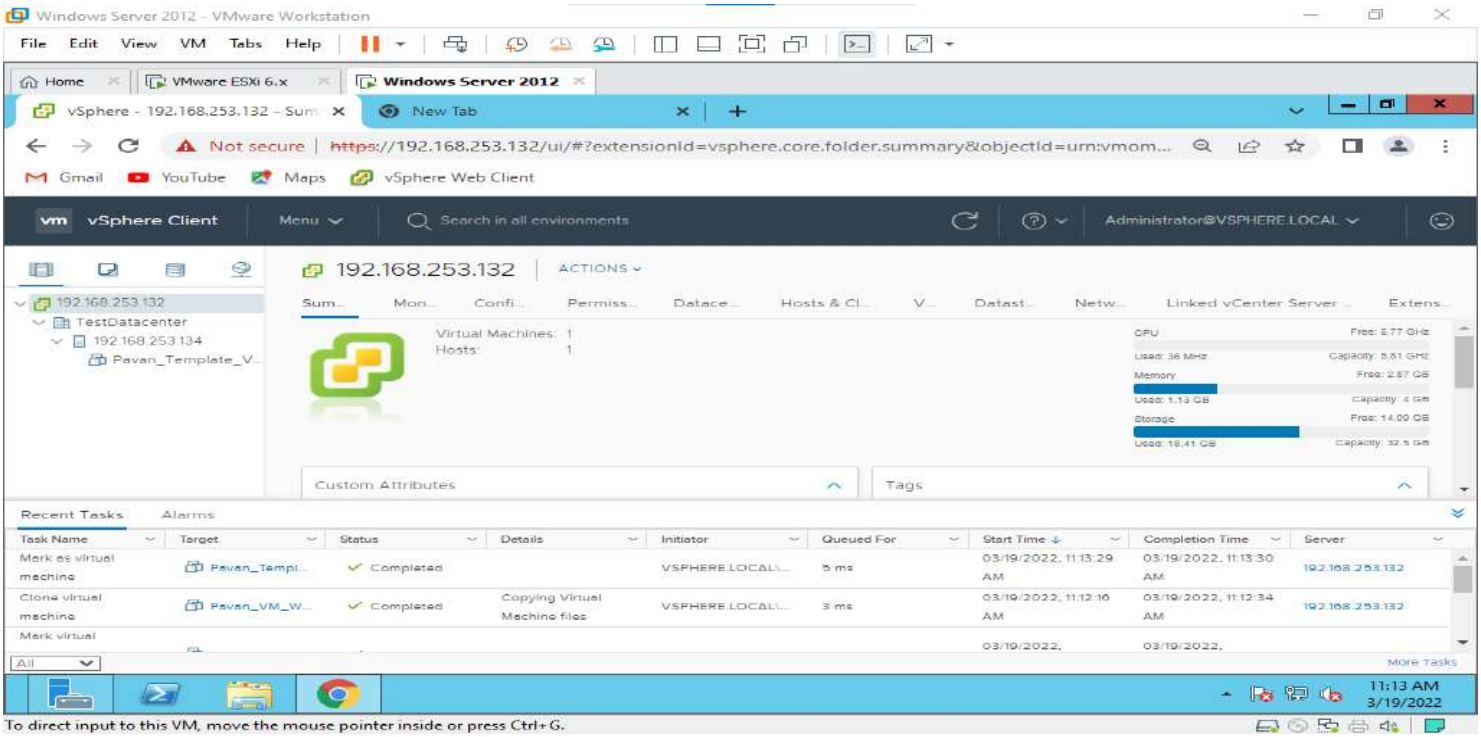
Select the Host and and Click on the **Next** button



Click on the **Finish** button



We can see that the virtual machine got generated in the virtual machine tab.



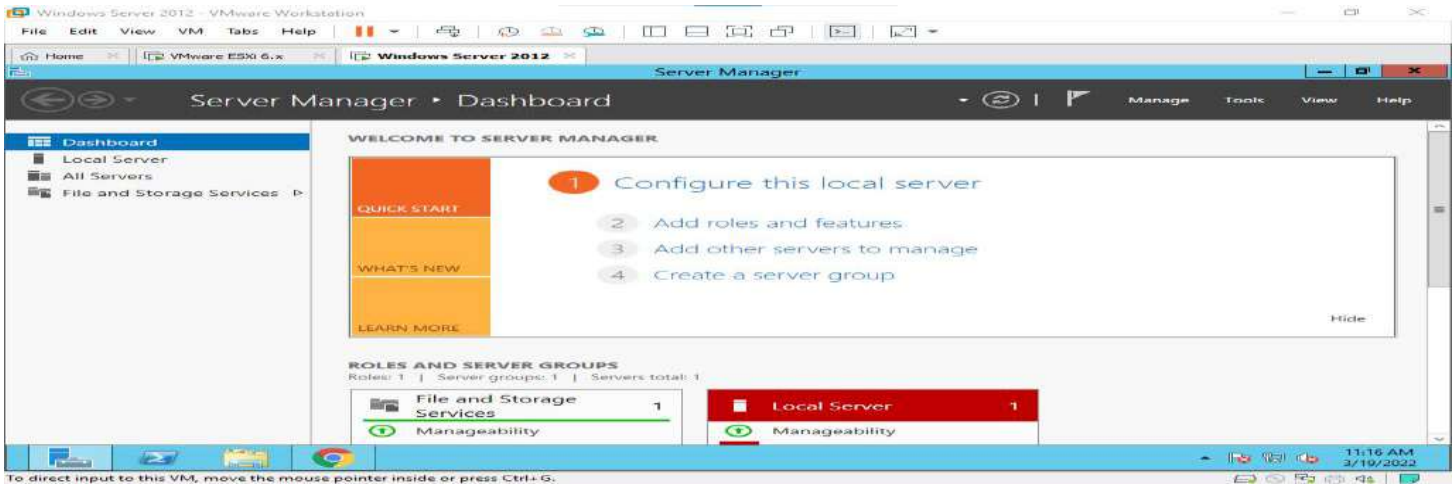
Practical No. 4

AIM: Manage the storage and Security of VMware ESXi server.

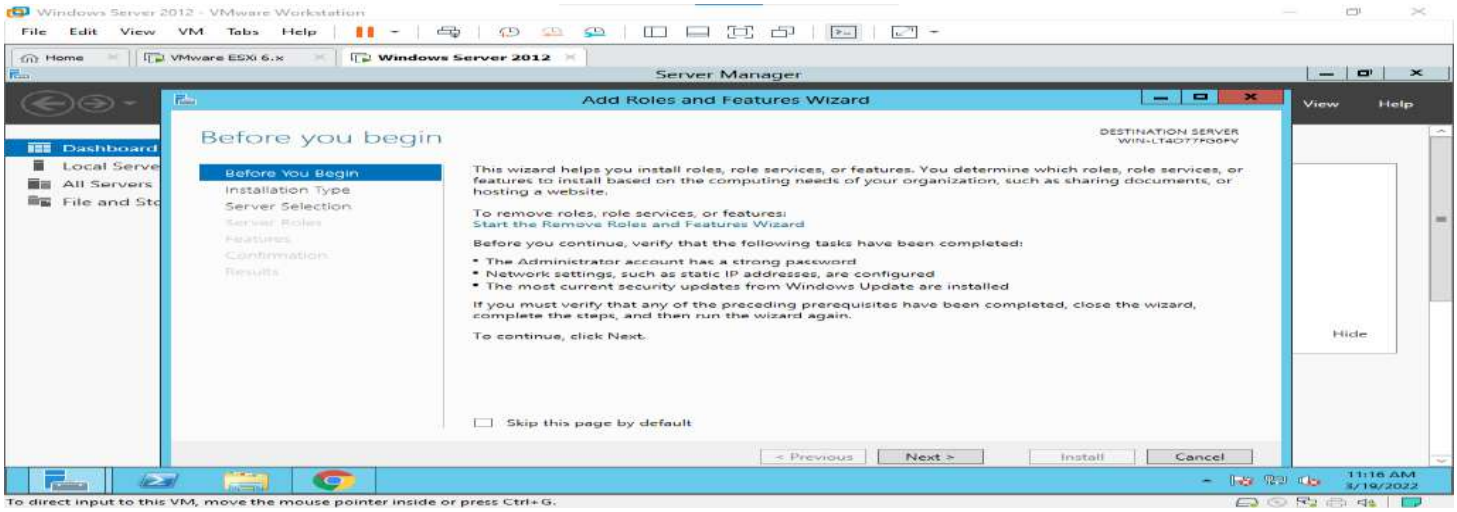
A- Add Virtual storage in VMware ESXi Server with vSphere Client.

Note: For iSCSI required to Add roles and features of iSCSI Target Server and Provider.

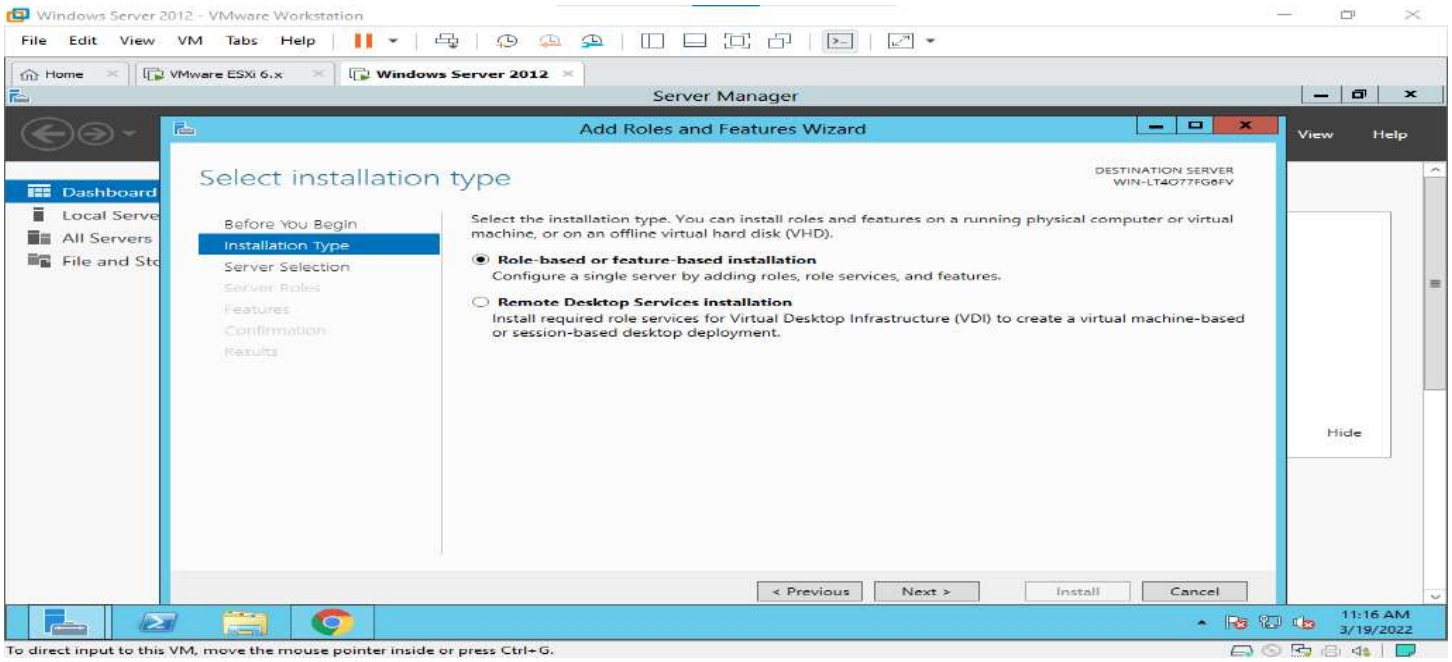
Click on **Add Roles and features**.



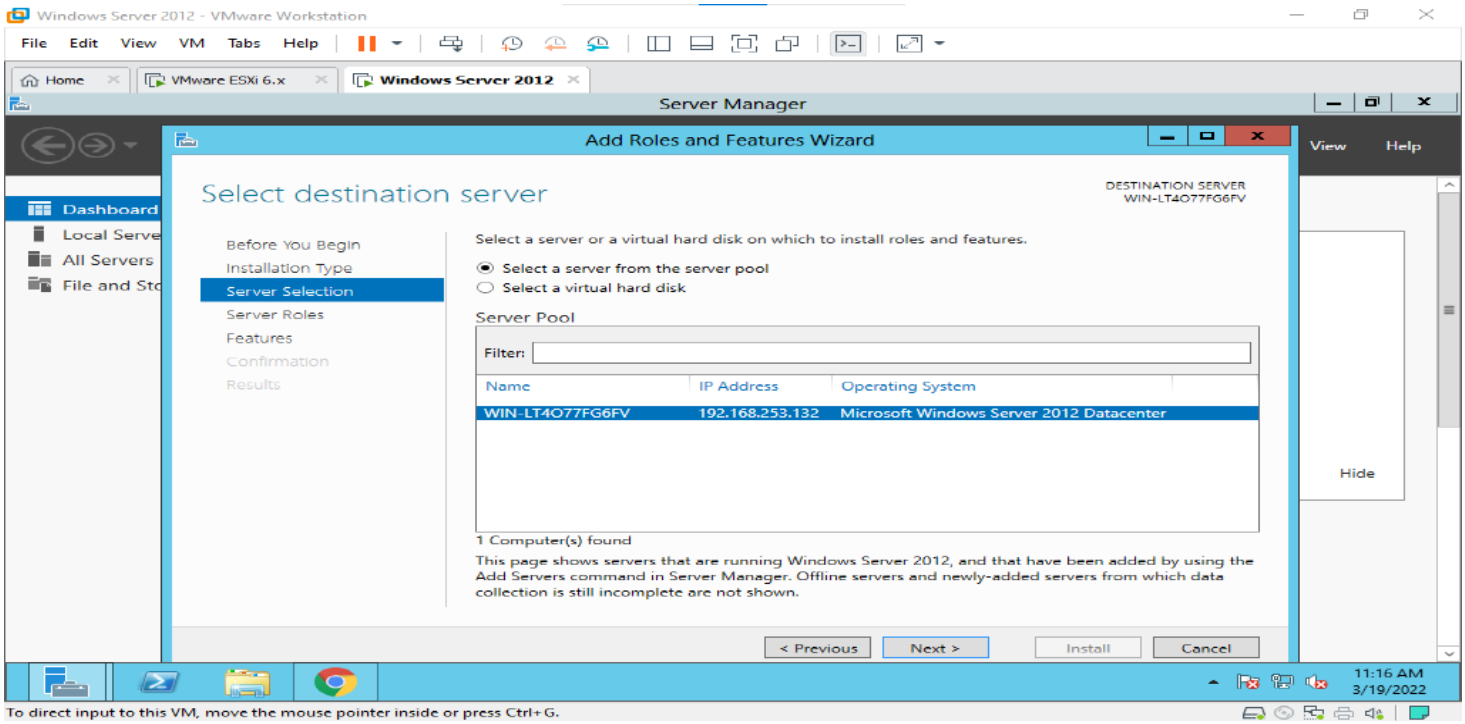
After clicking the below screen appear then Click on the **Next** button



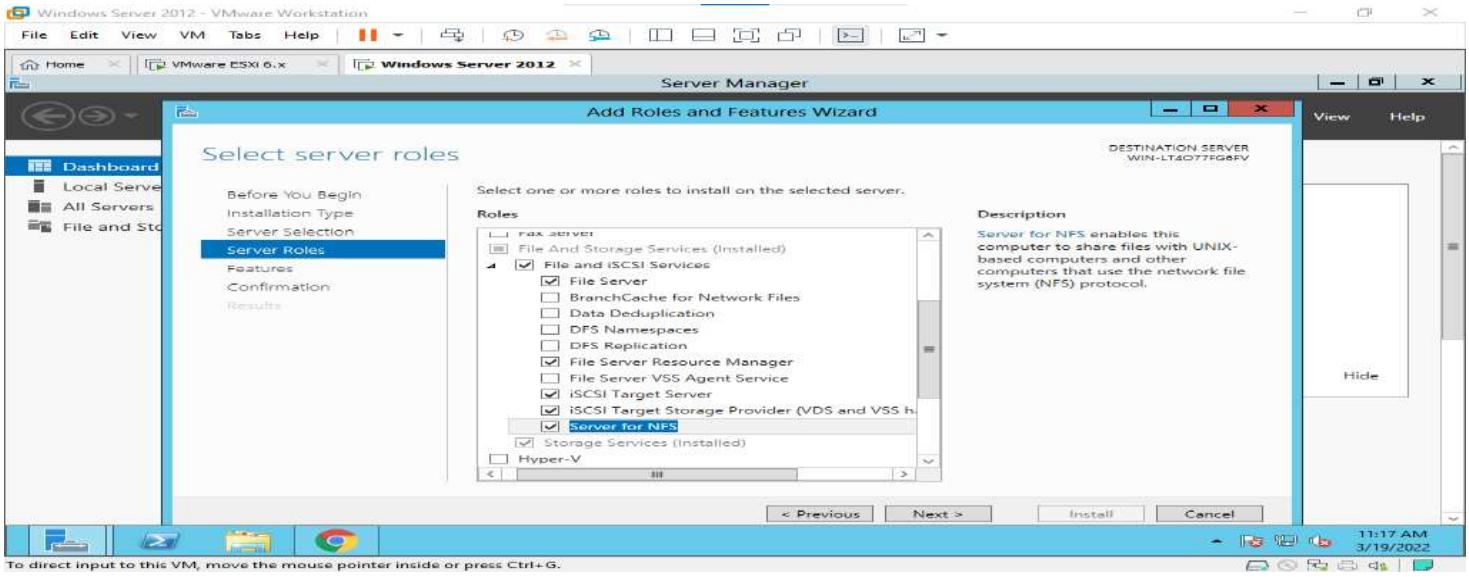
Select the **Role-based** installation and Click on the **Next** button



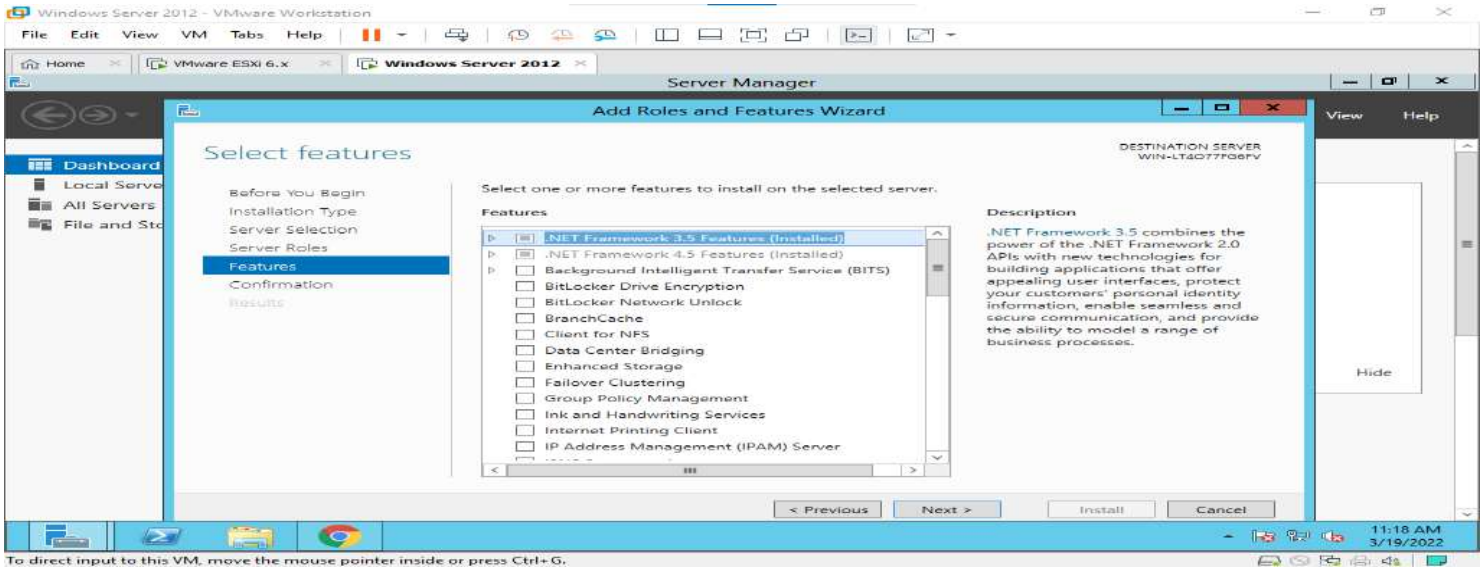
Click on the **Next** button



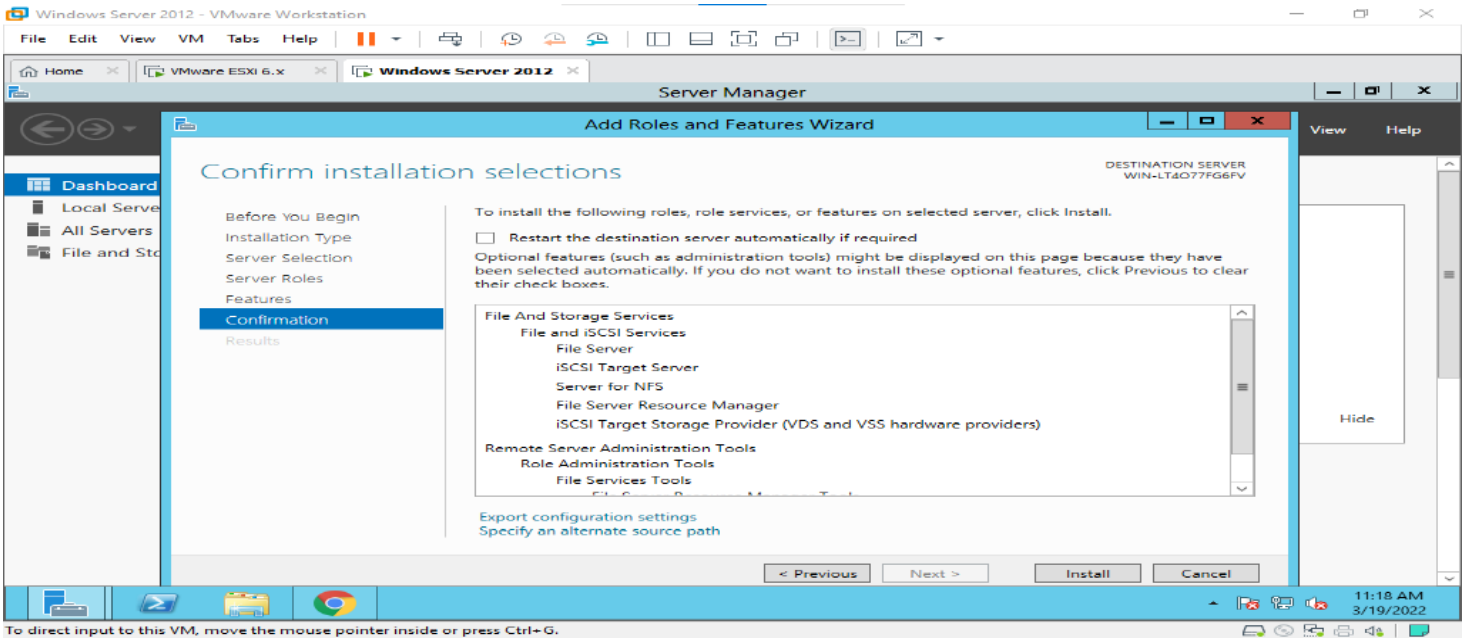
After that go to the roles and look for **File and iSCSI Services** and select **Server for NFS**.



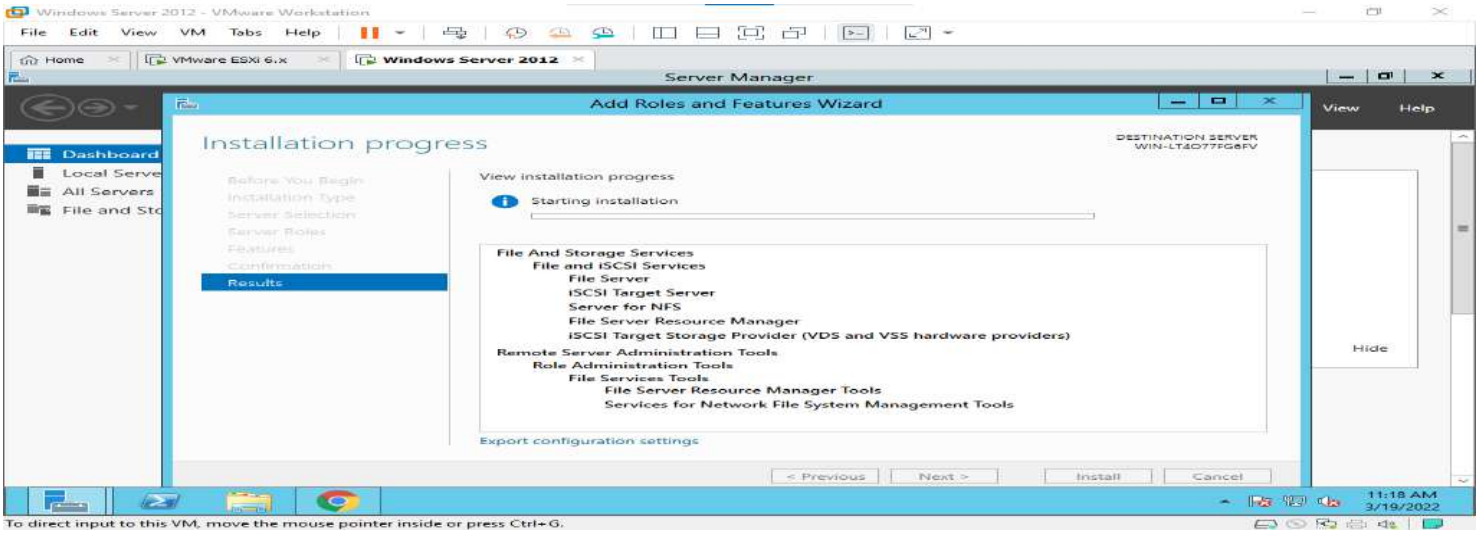
Click on the **Next** button

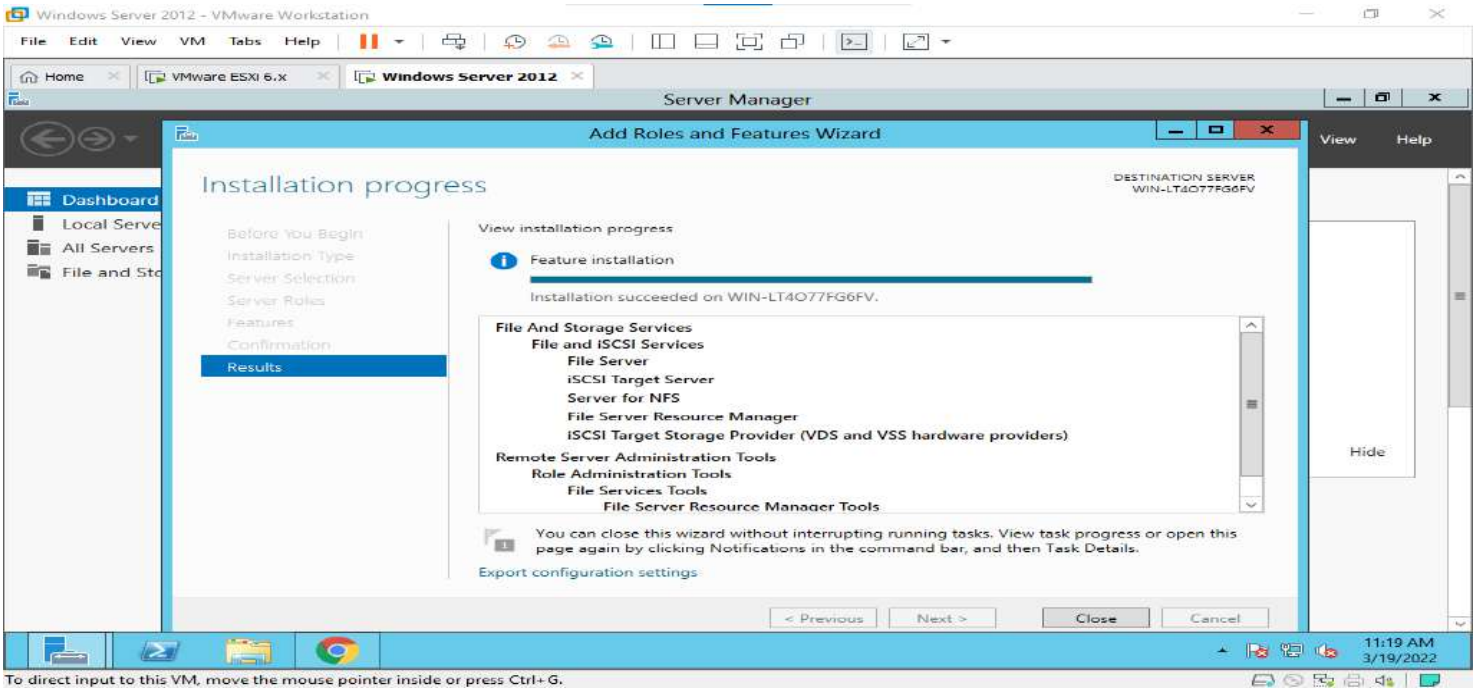


Click on the **Install** button

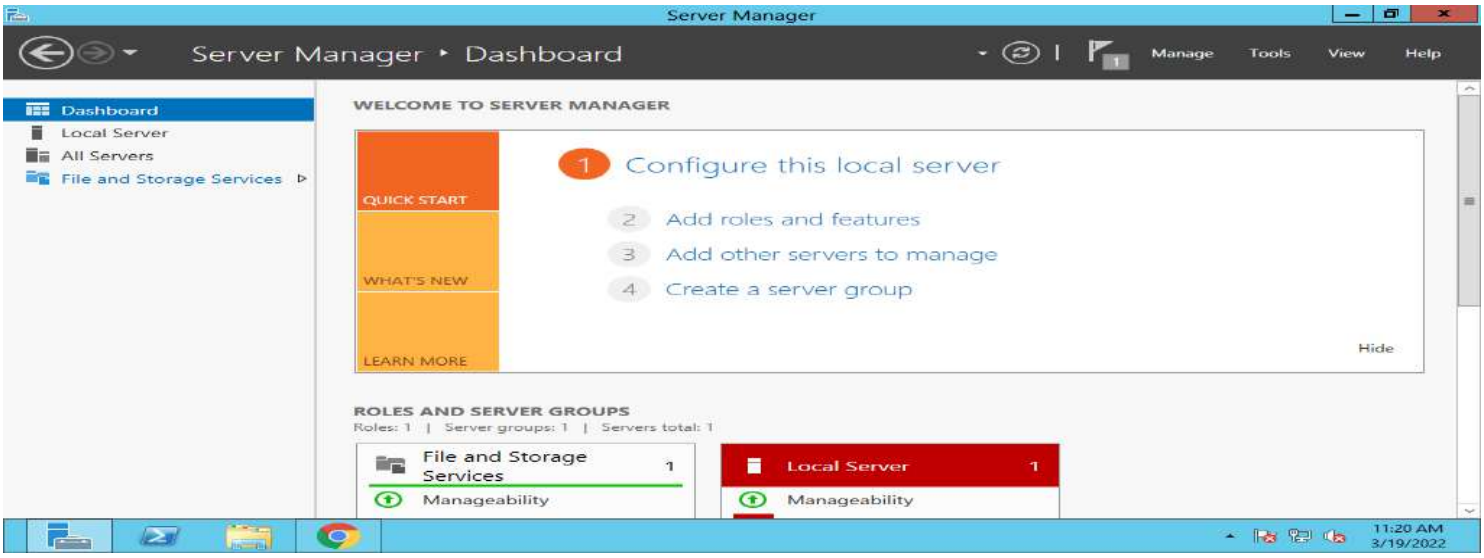


After clicking on the install button, the below screen will appear.

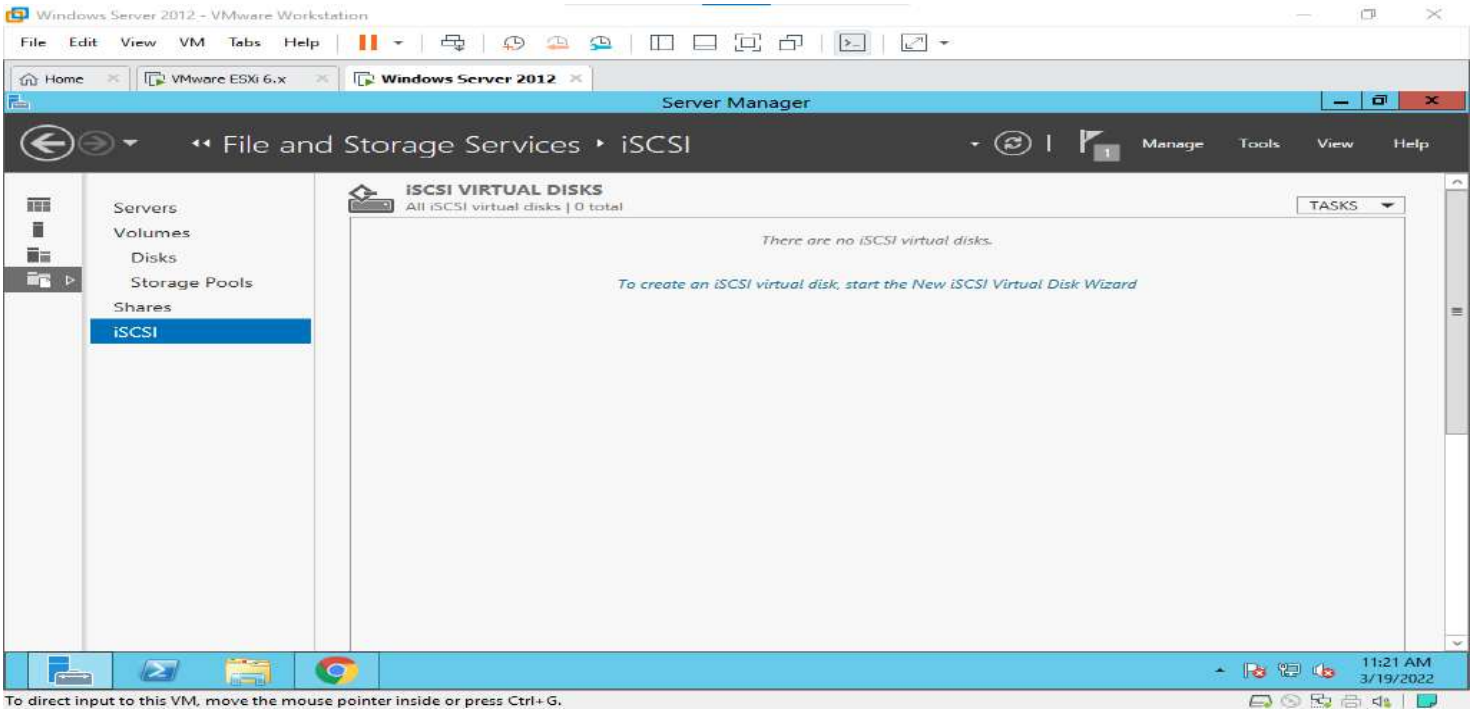




After adding the role of iSCSI go to the below path **Server Manager > File and Storage Services > iSCSI**

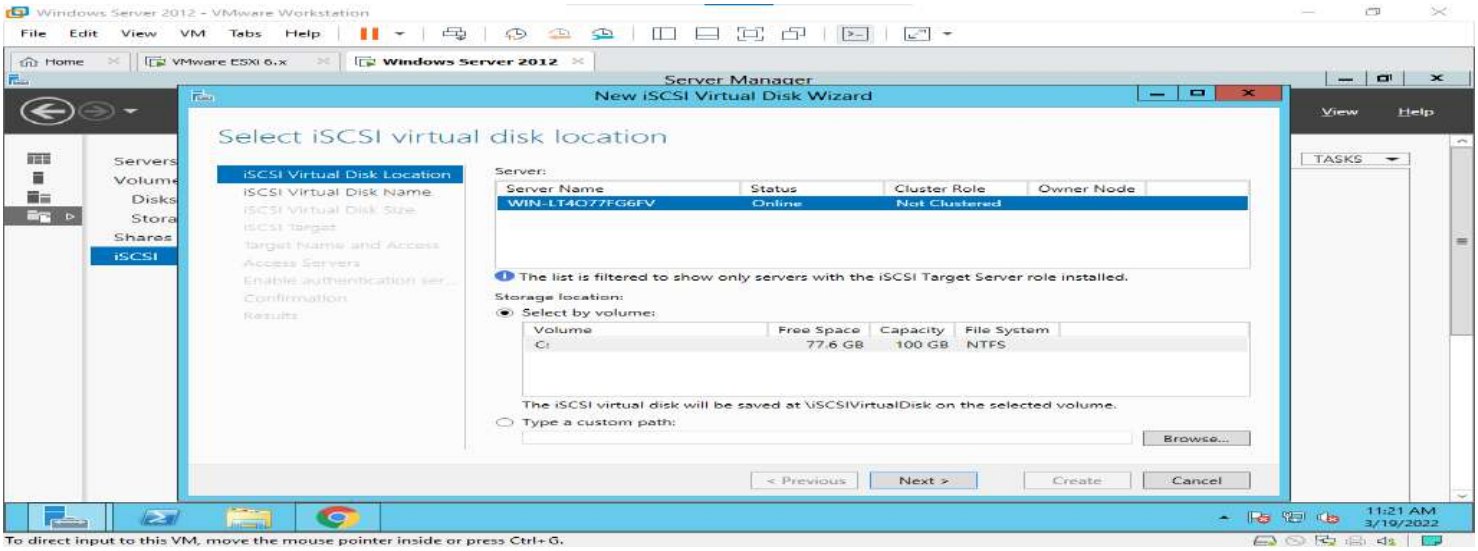


Create an **iSCSI** Virtual Disk.

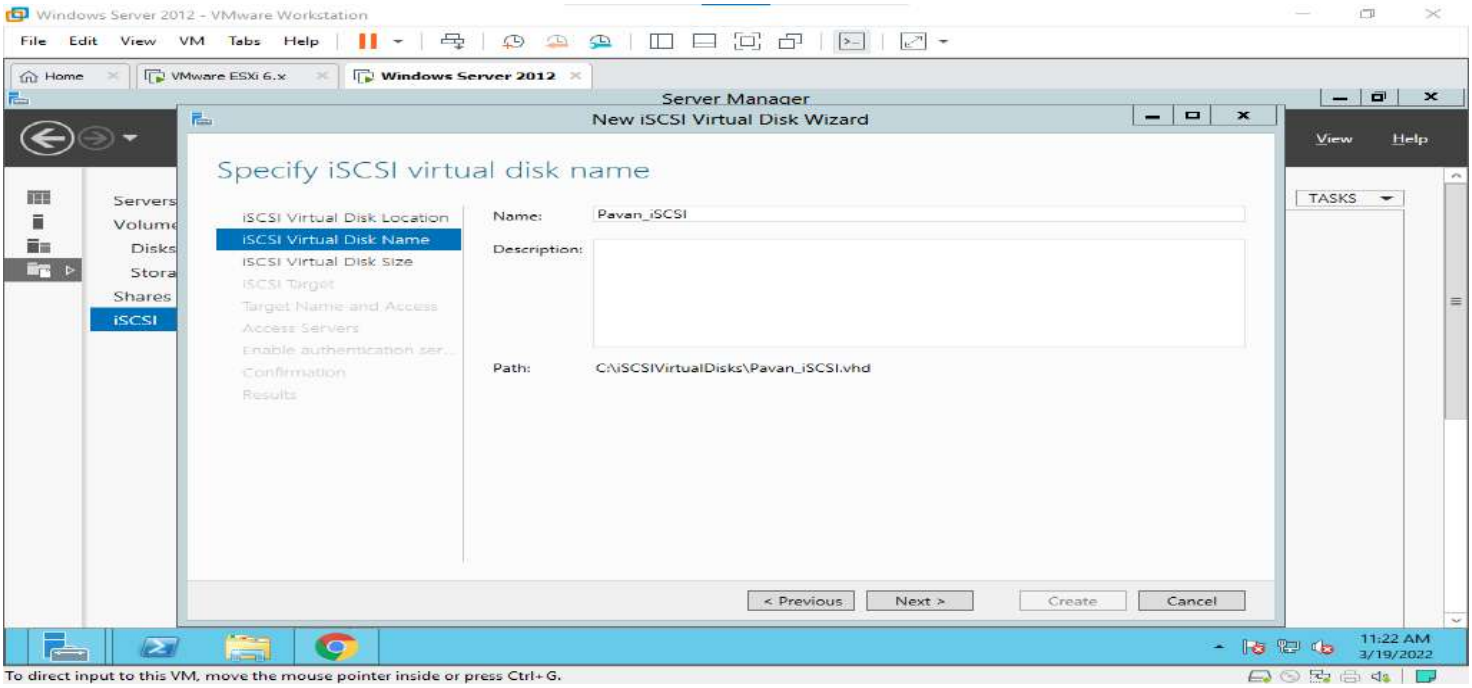


Just click on the "To create an iSCSI virtual disk, start the New Virtual Disk Wizard" button.

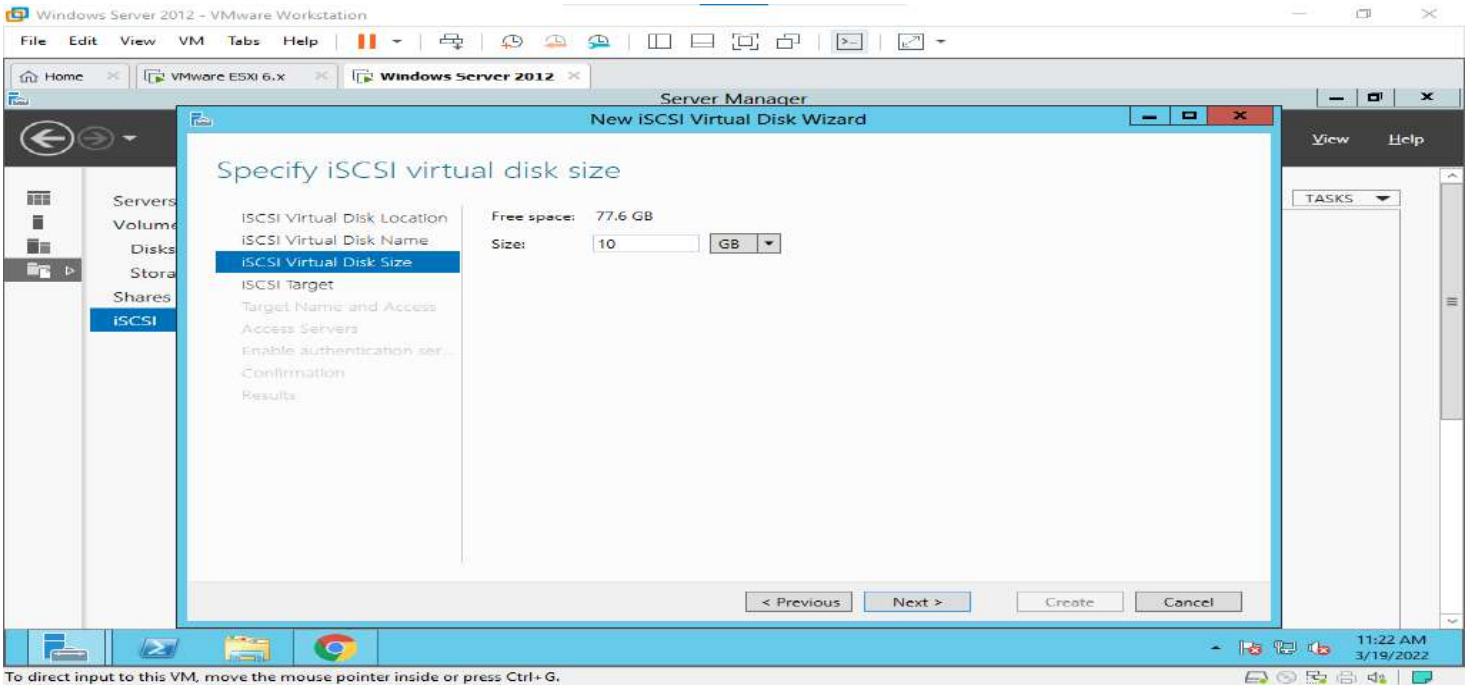
After that below screen will appear and Click on the **Next** button



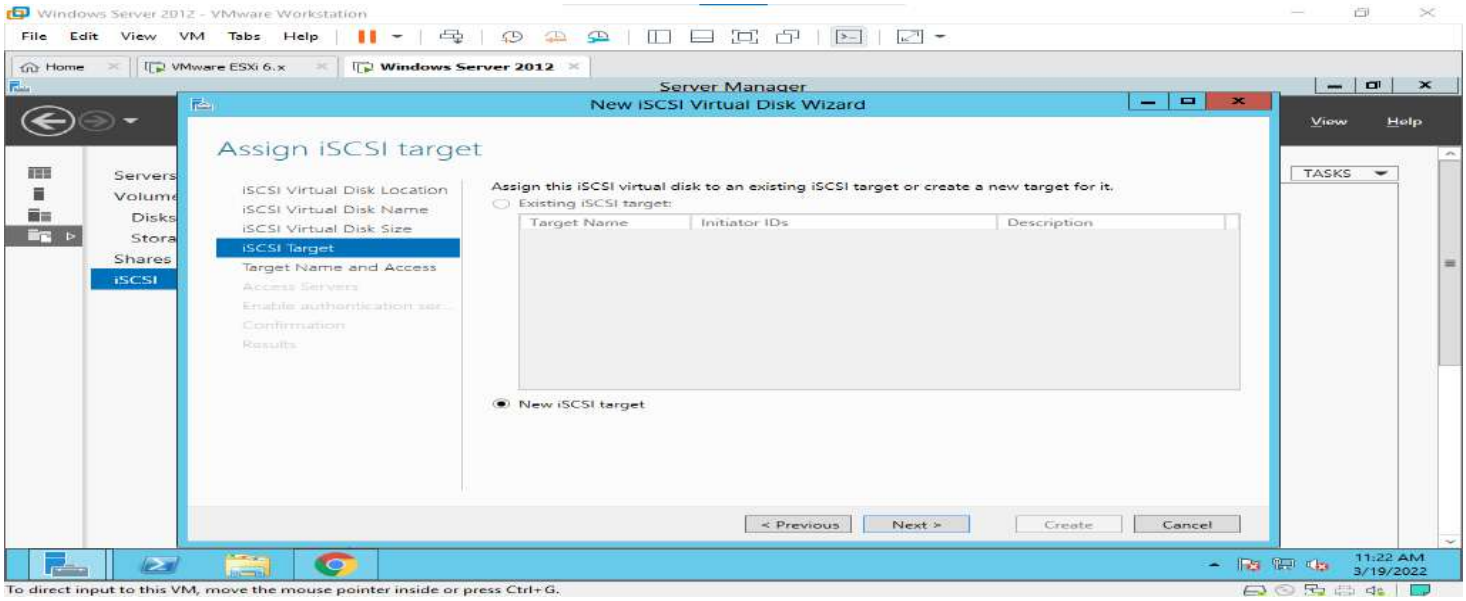
Enter **iSCSI virtual disk name** and click on the "**Next**" button



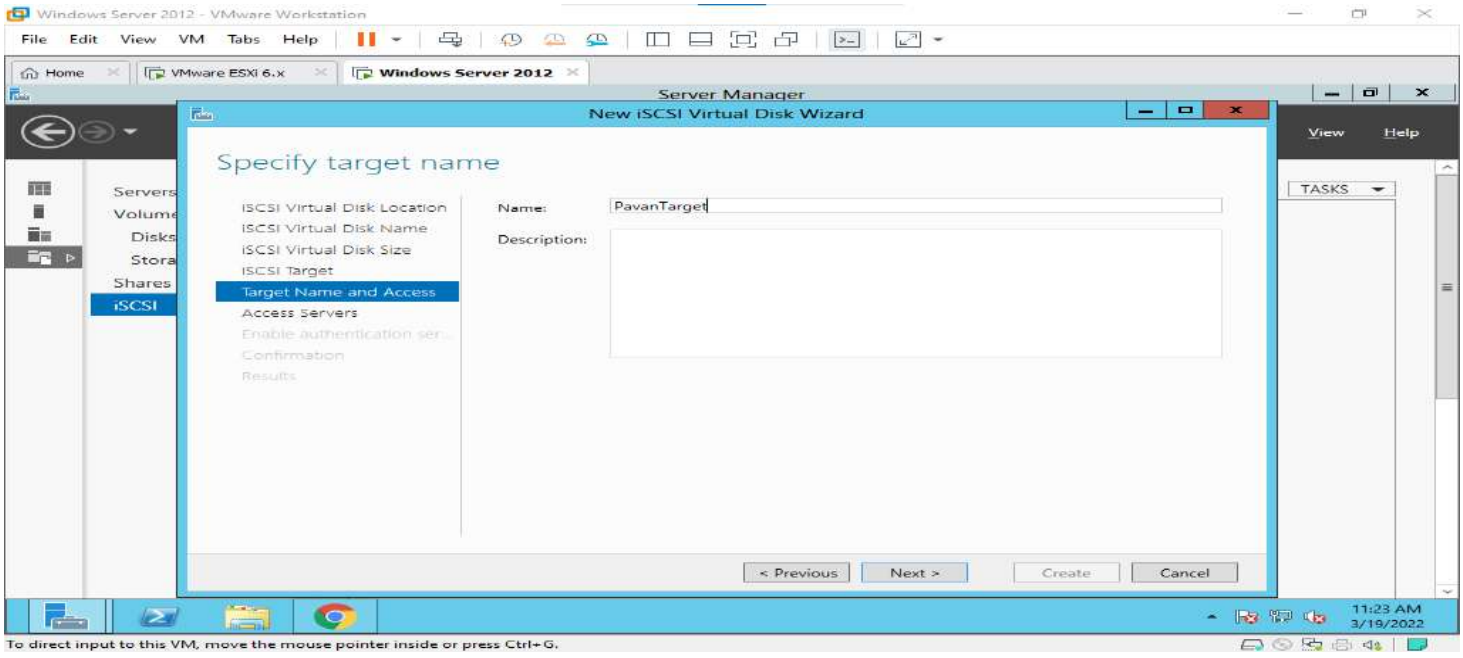
Enter **iSCSI virtual disk size** and click on the "**Next**" button.



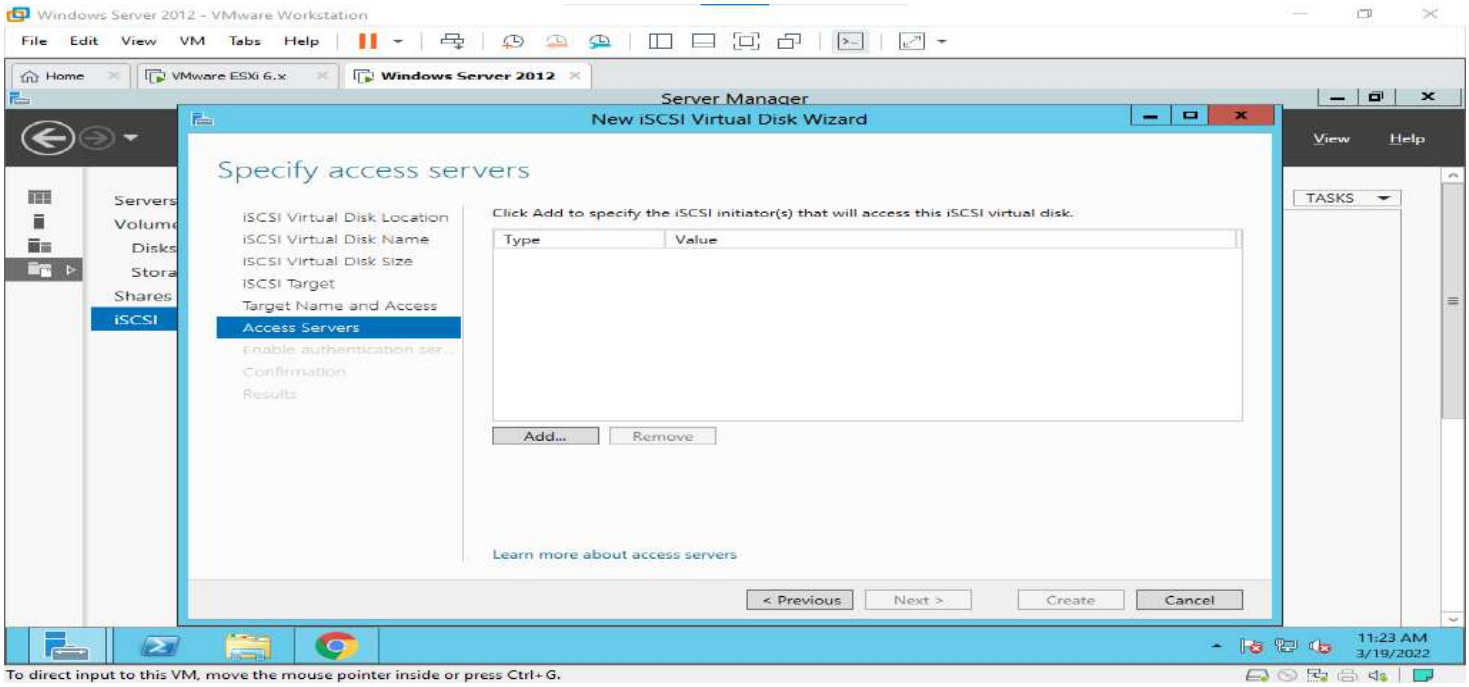
Choose the option “**New iSCSI target**” and click on the “**Next**” button.



Enter target name and click “**Next**” button to proceed



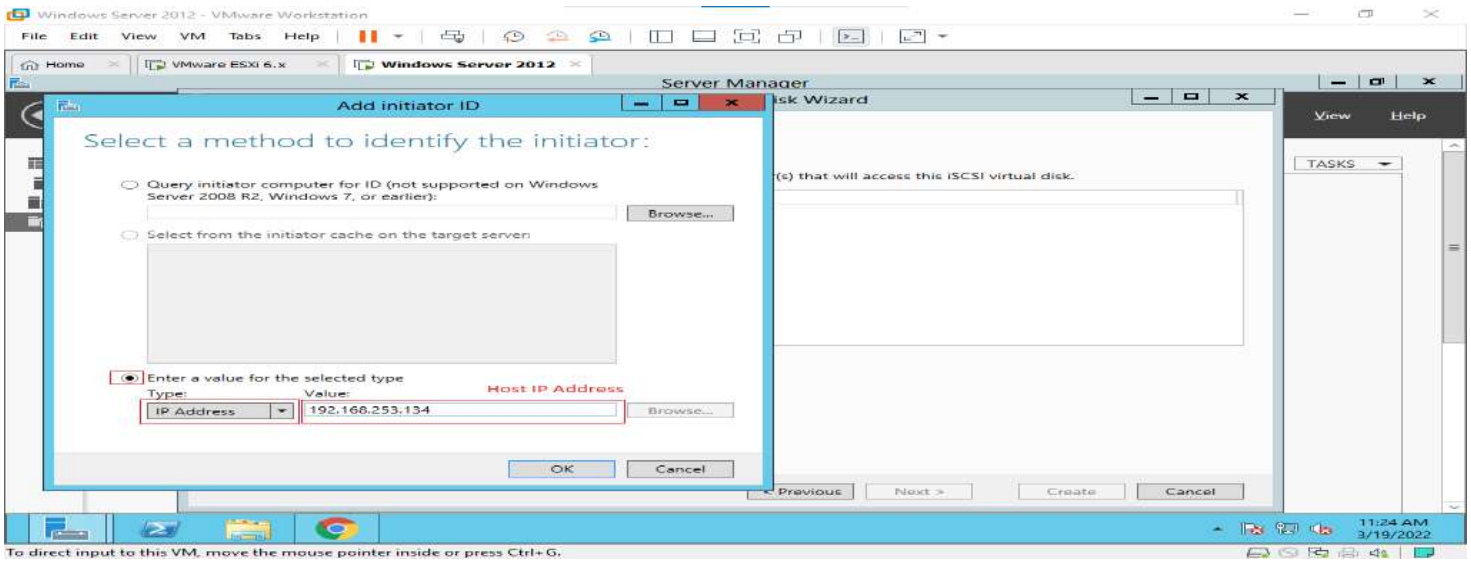
Here we need to specify which host can access this iSCSI virtual disk for this enter below details



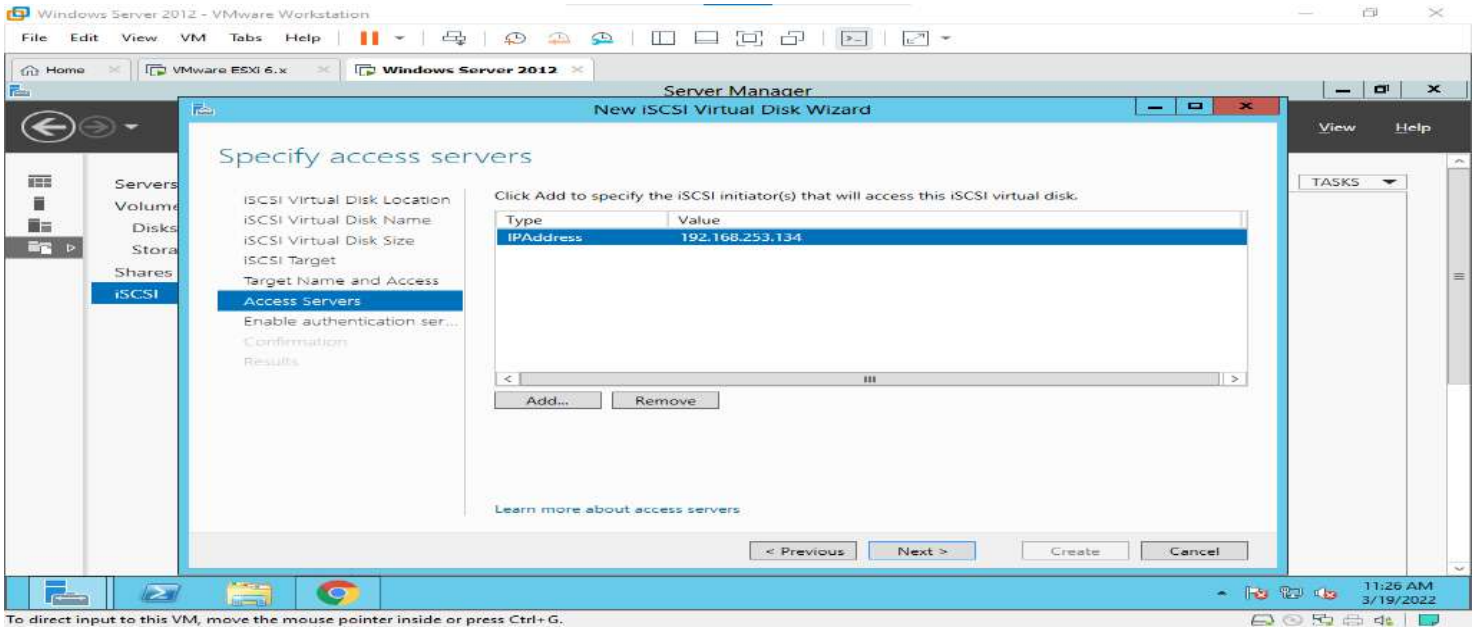
Choose the option “Enter a value for the selected type” and write below details

Type: Choose an option (IP Address)

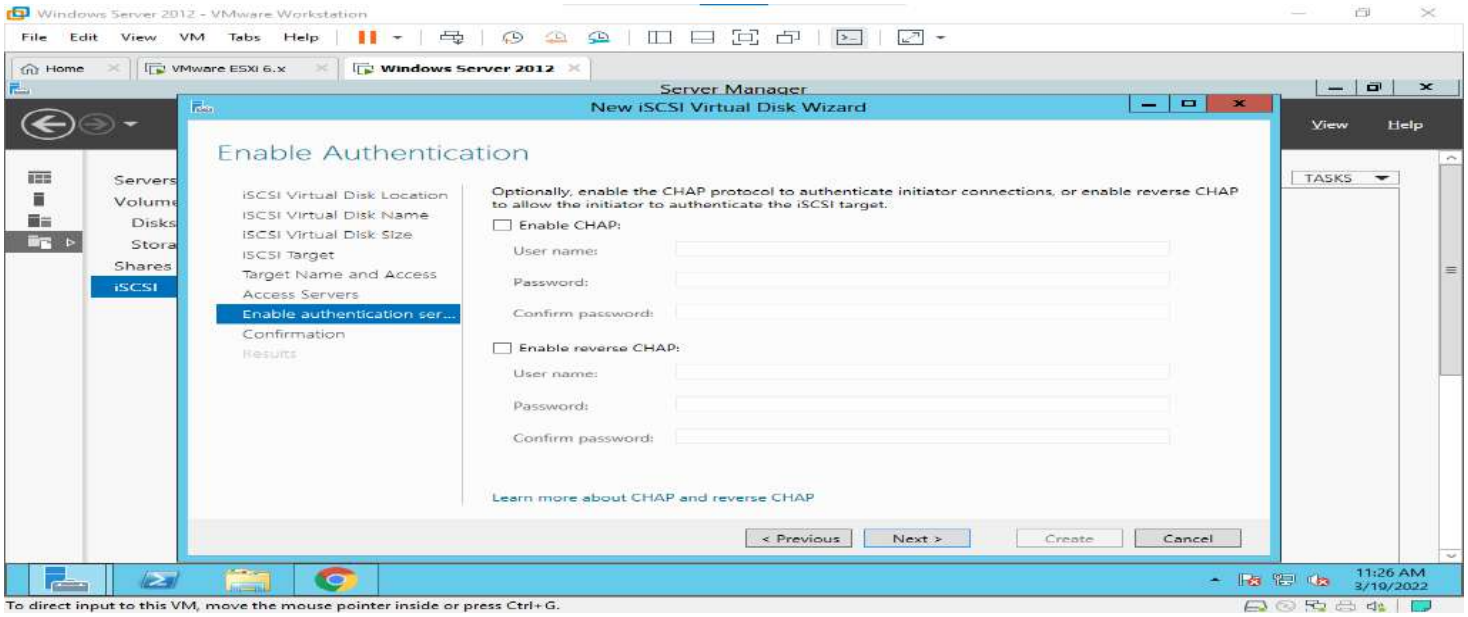
Value: Enter IP address of Host



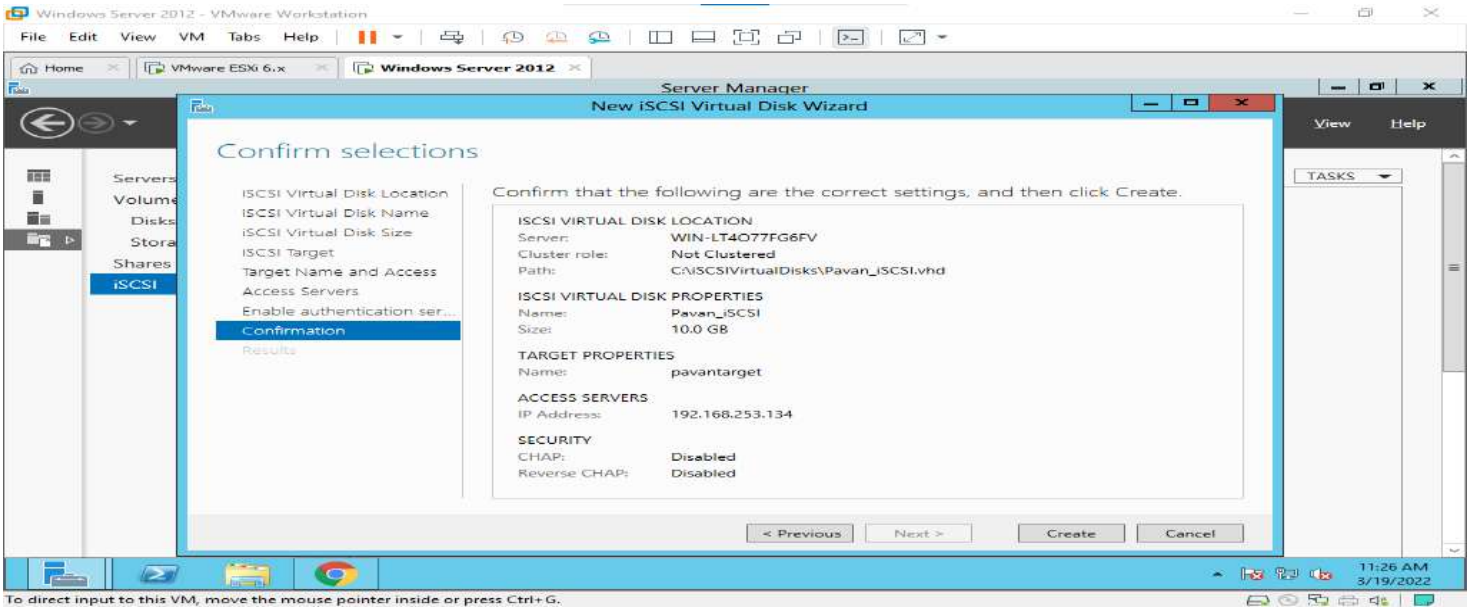
Click on the **Next** button



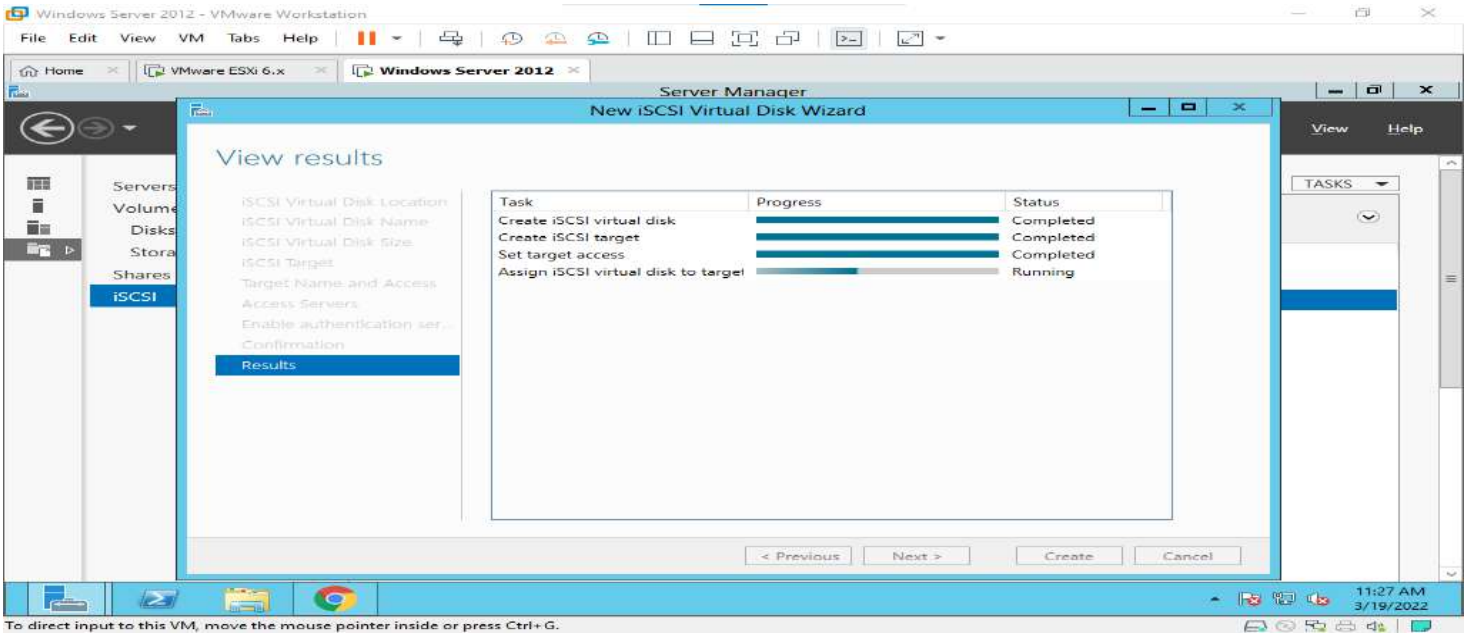
Click on the **Next** button

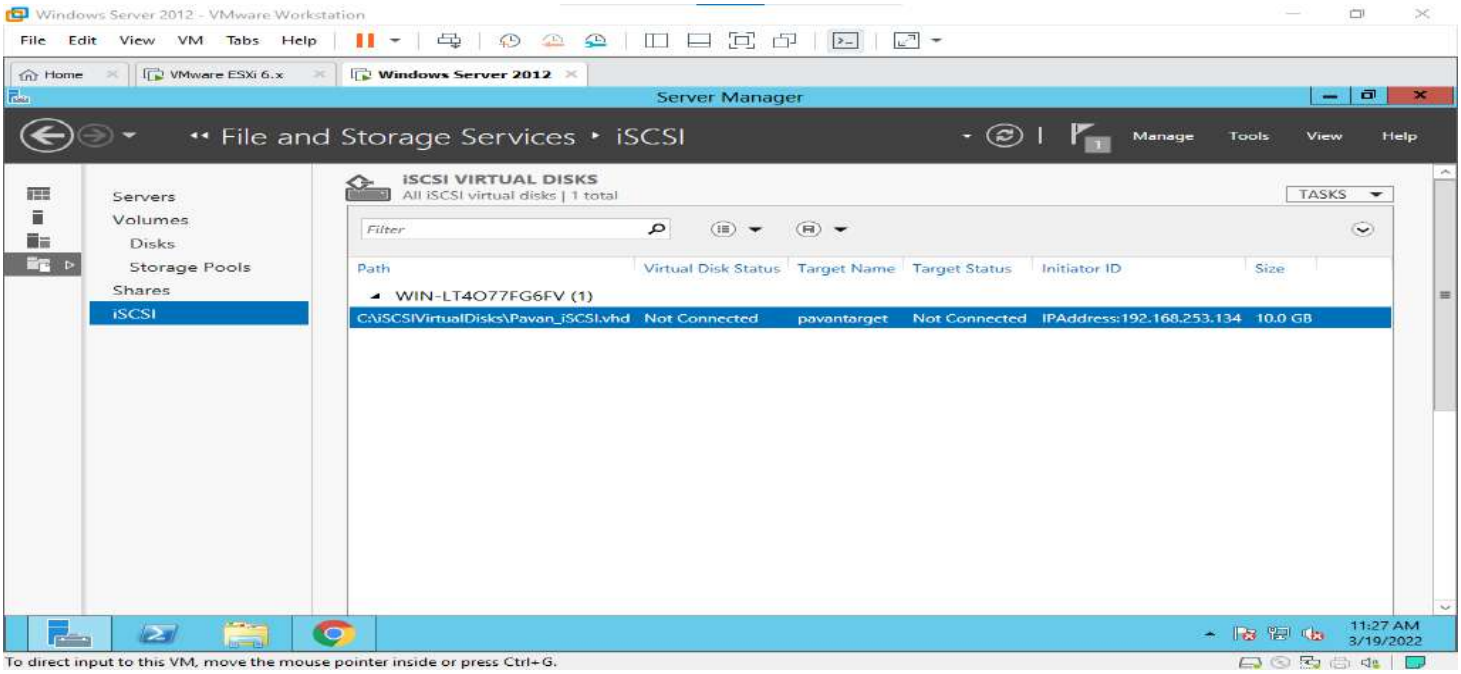


Click on the **Create** button



Here you can see iSCSI disk has been created successfully

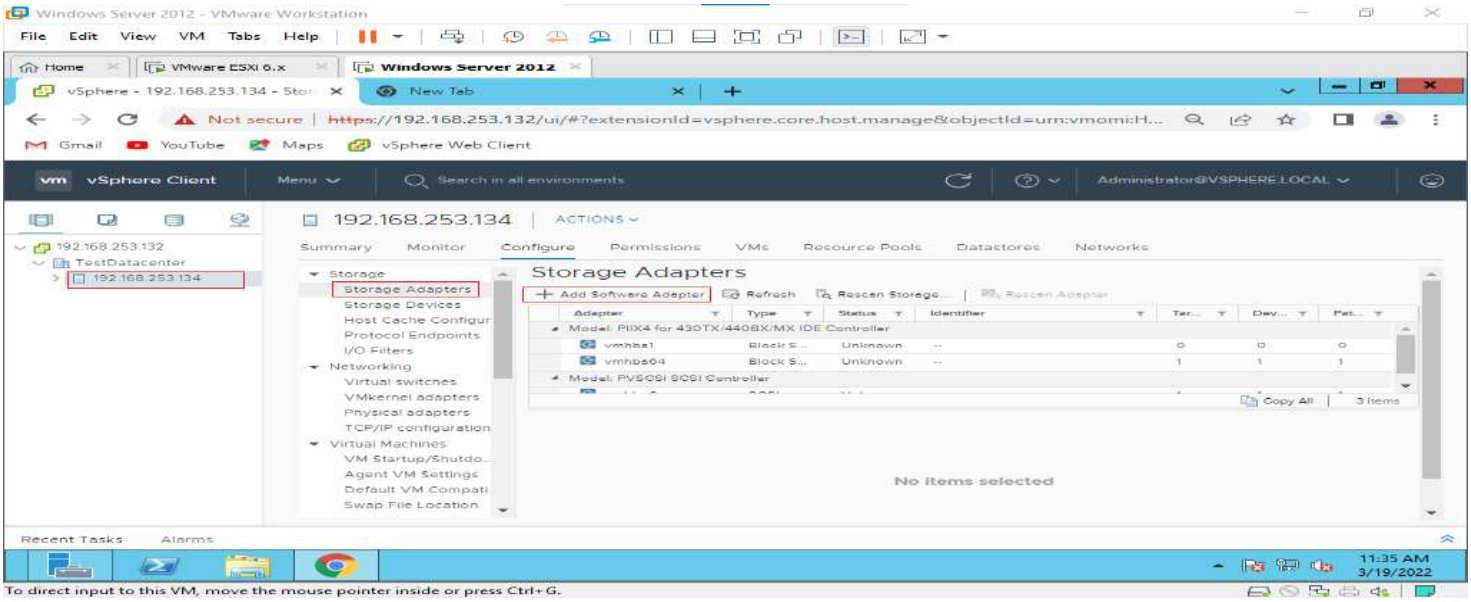


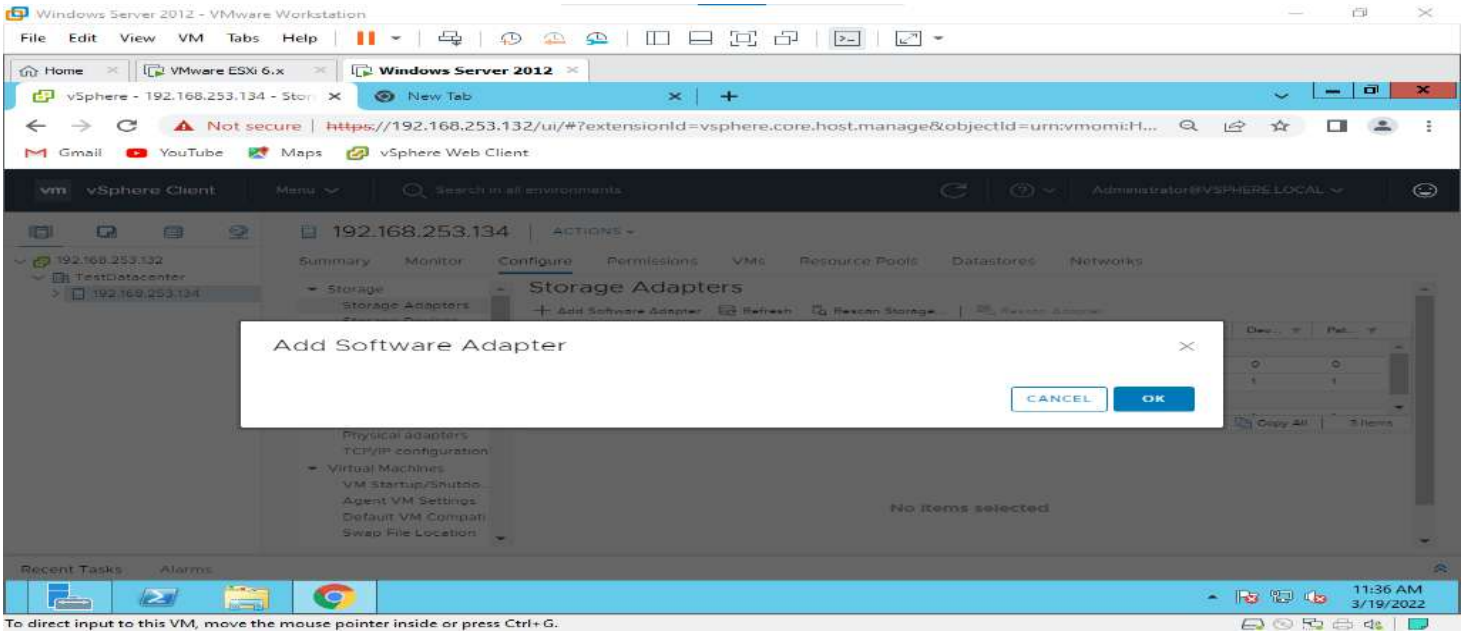


Create an iSCSI Adapter and configure an iSCSI adapter with the server

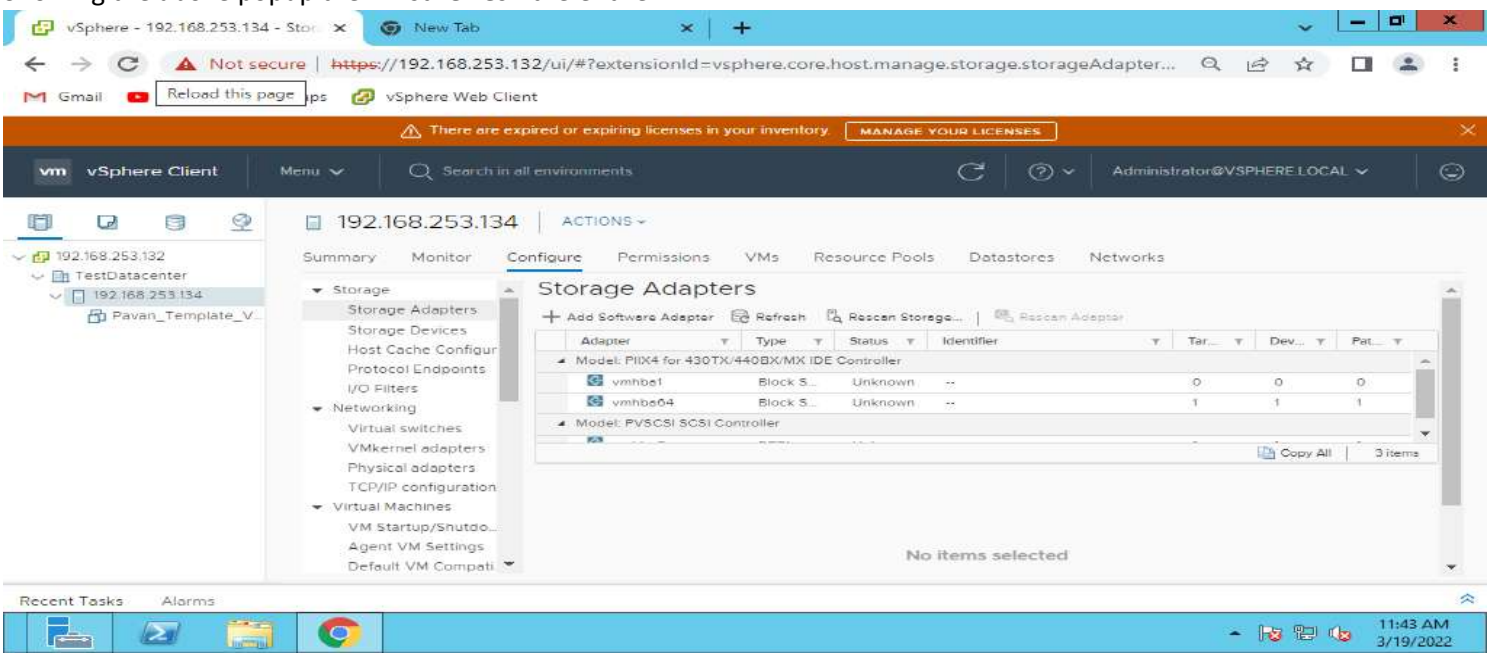
Login into vSphere client and go to the **Configuration tab** of the **host** where you want to add an iSCSI virtual disk.

Now go to "**Storage Adapters**" then choose "**Add Software Adapter**"

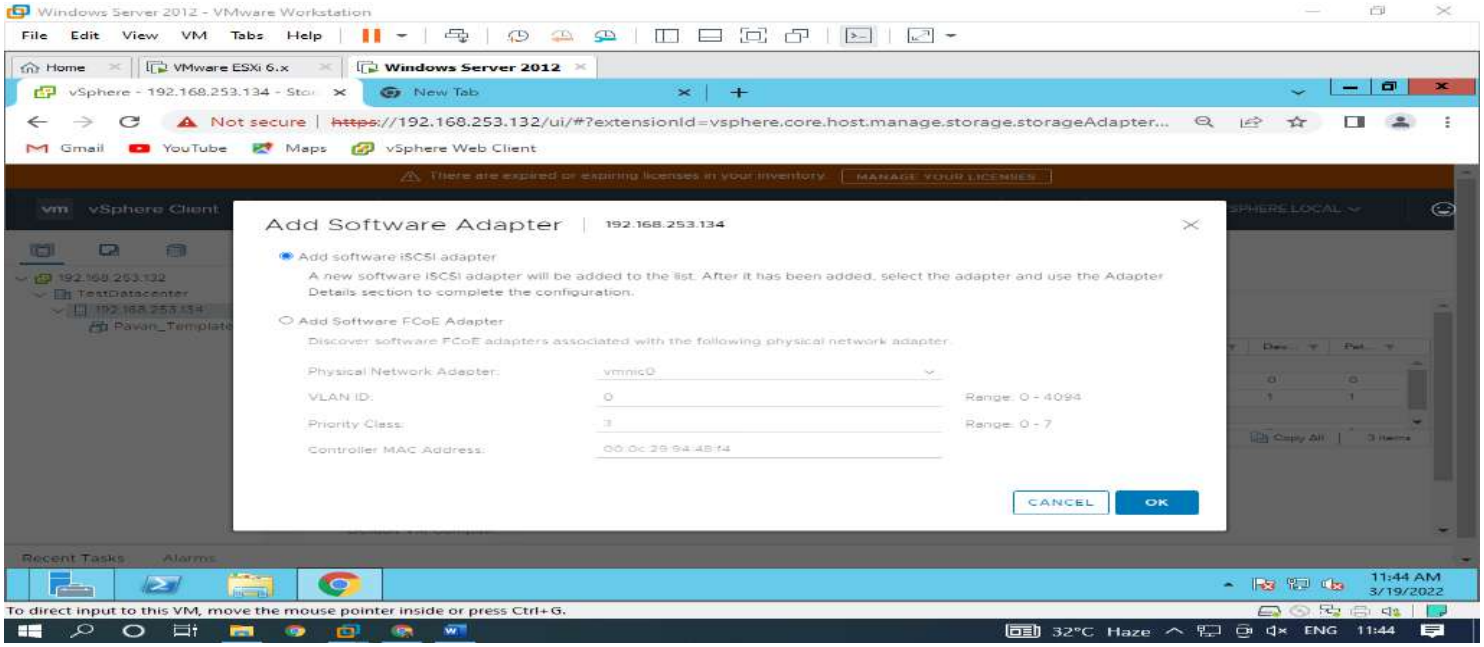




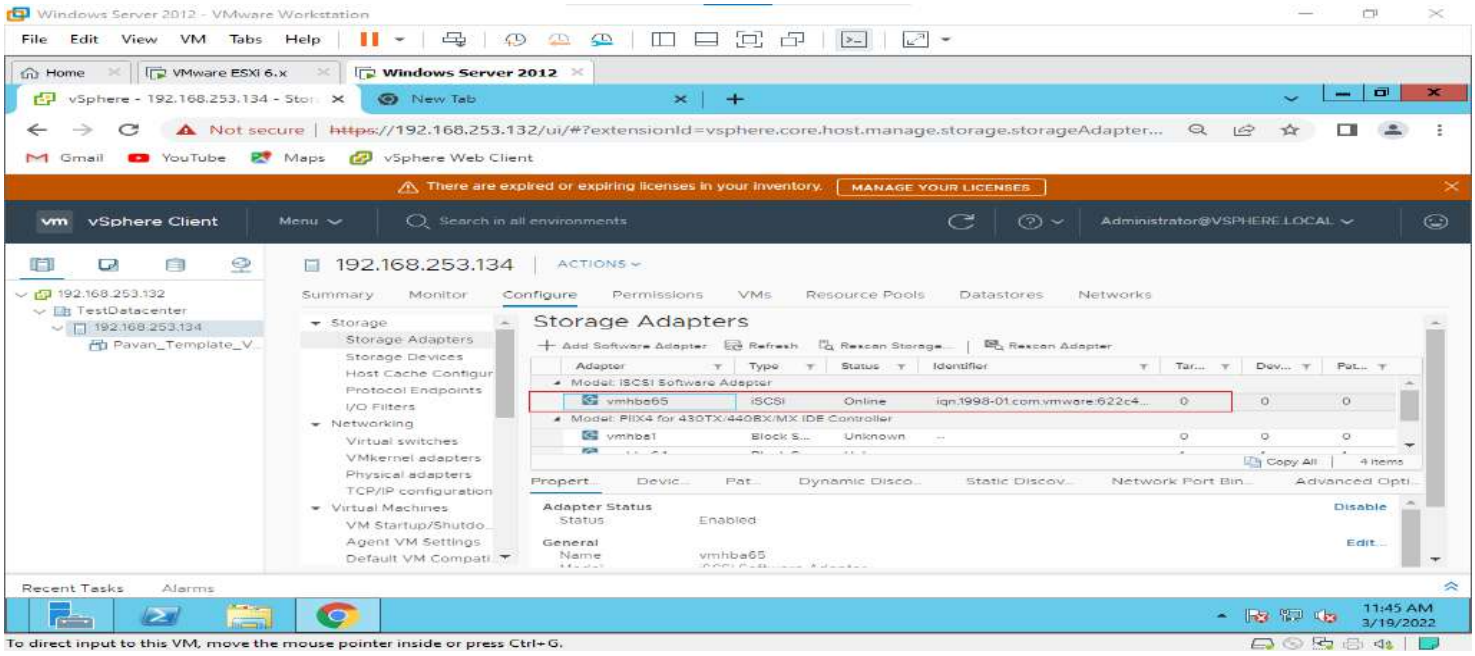
Showing the above popup then first **refresh** the entire link



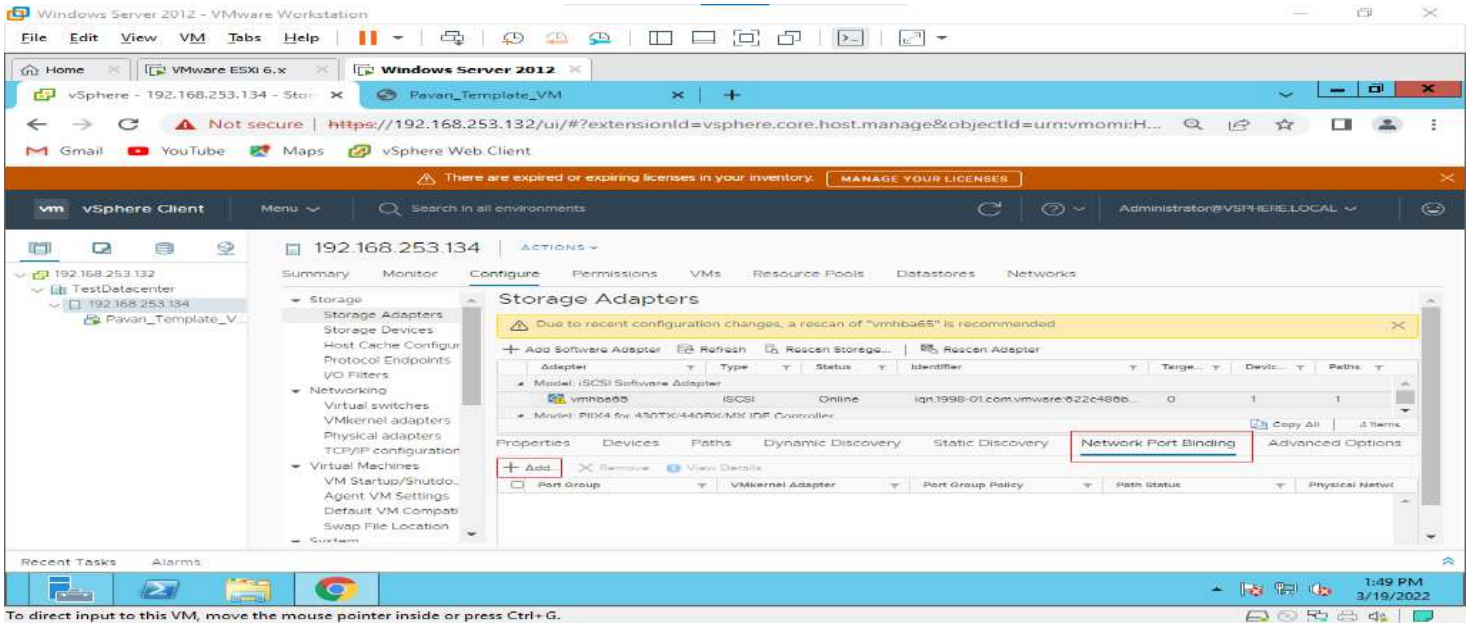
Select the **Add Software iSCSI Adapter** and click on the **OK** button



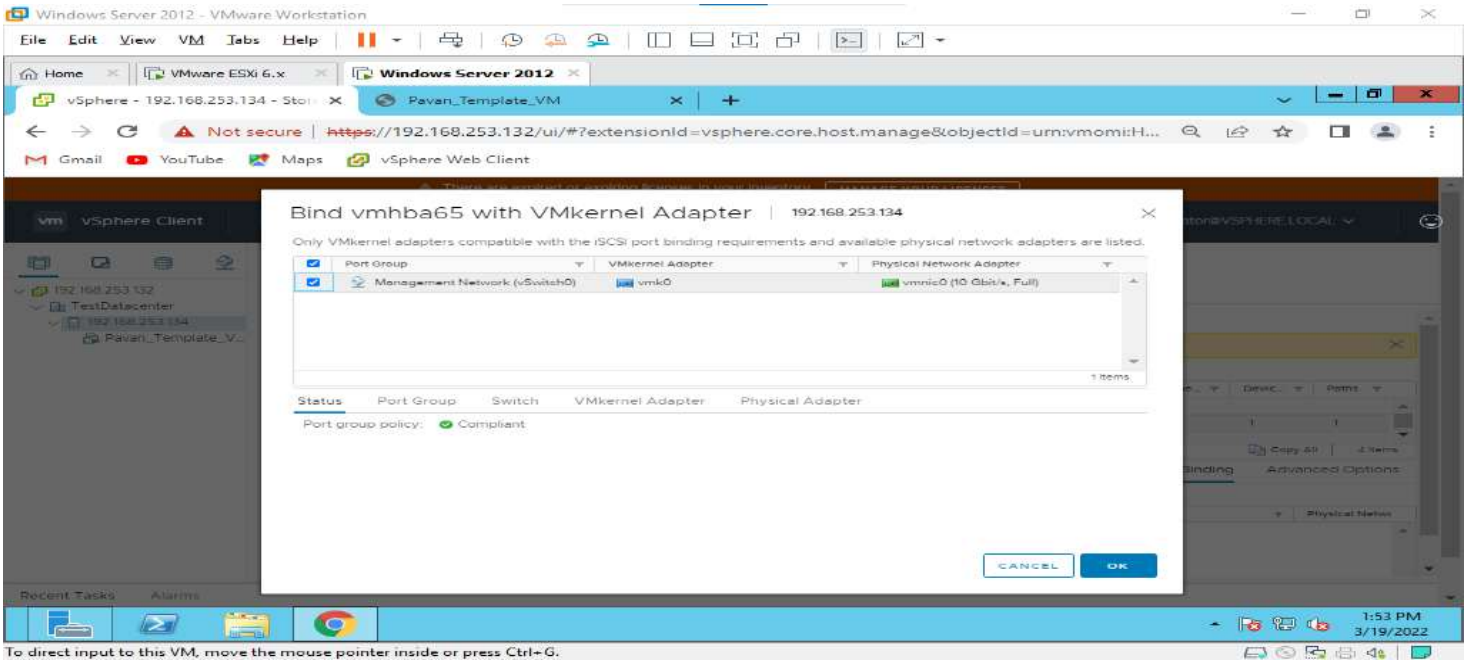
Select the newly **created iSCSI Adapter** and go to **properties** below wizard will appear.



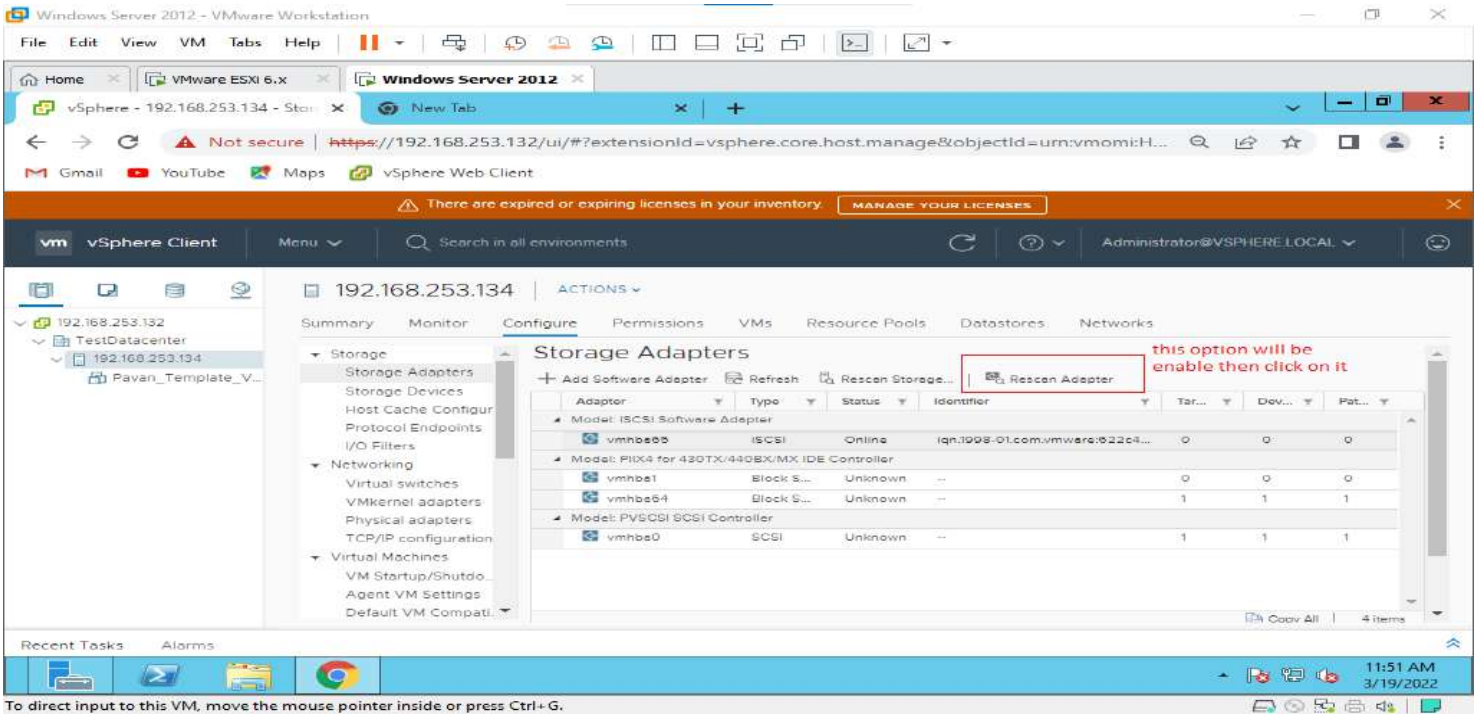
Now go to the "**Network Port Binging**" tab and click on the "**Add**" button



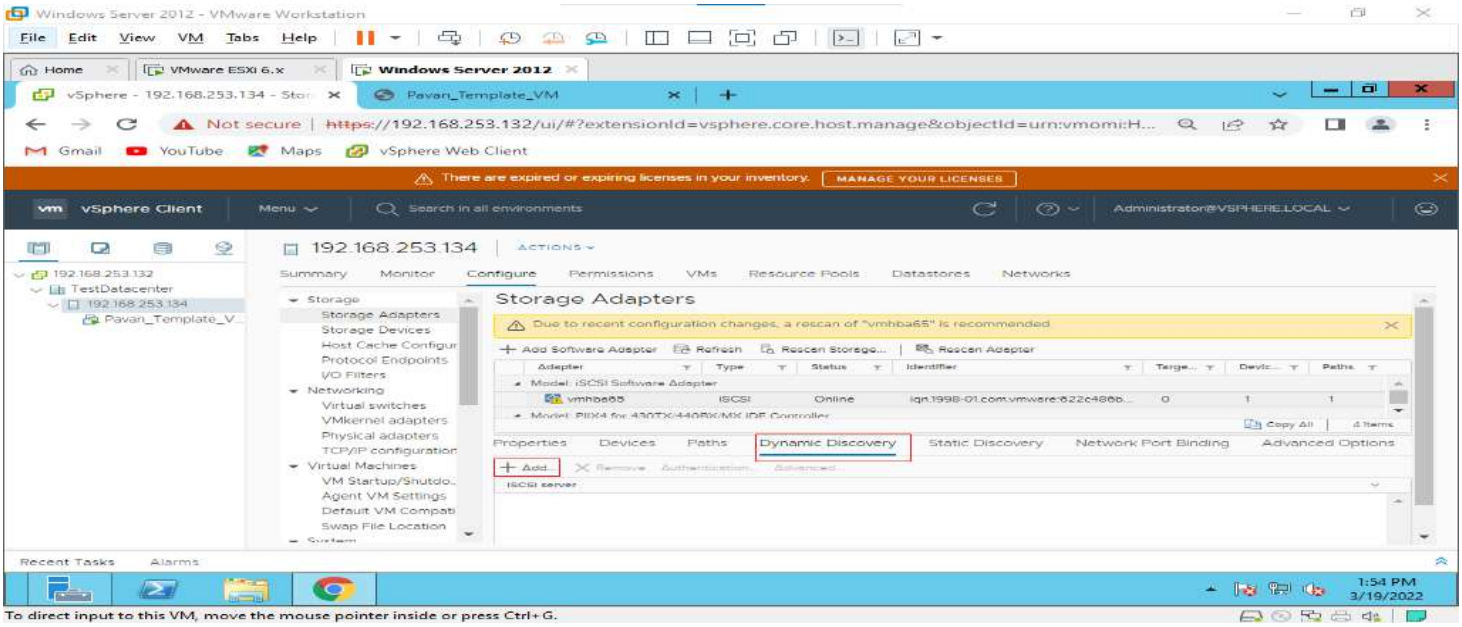
Check the option and Click on **OK** button



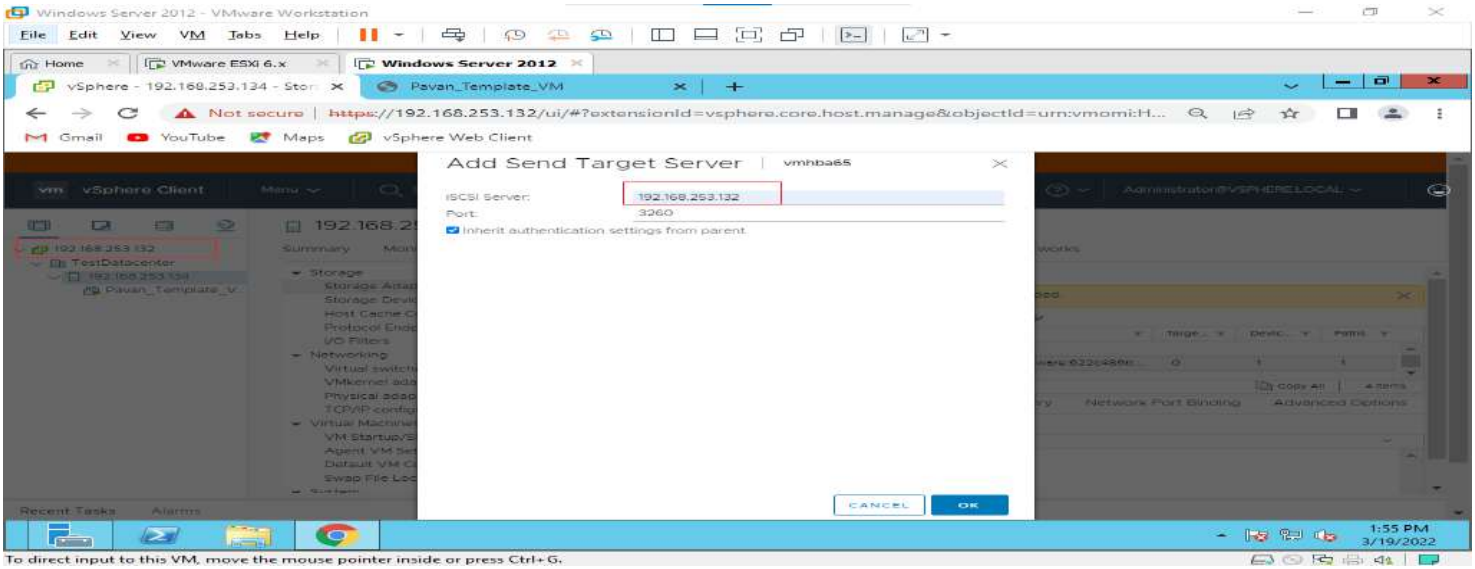
After Click on **OK** then refresh the Host and Here enable the **Rescan Adapter**

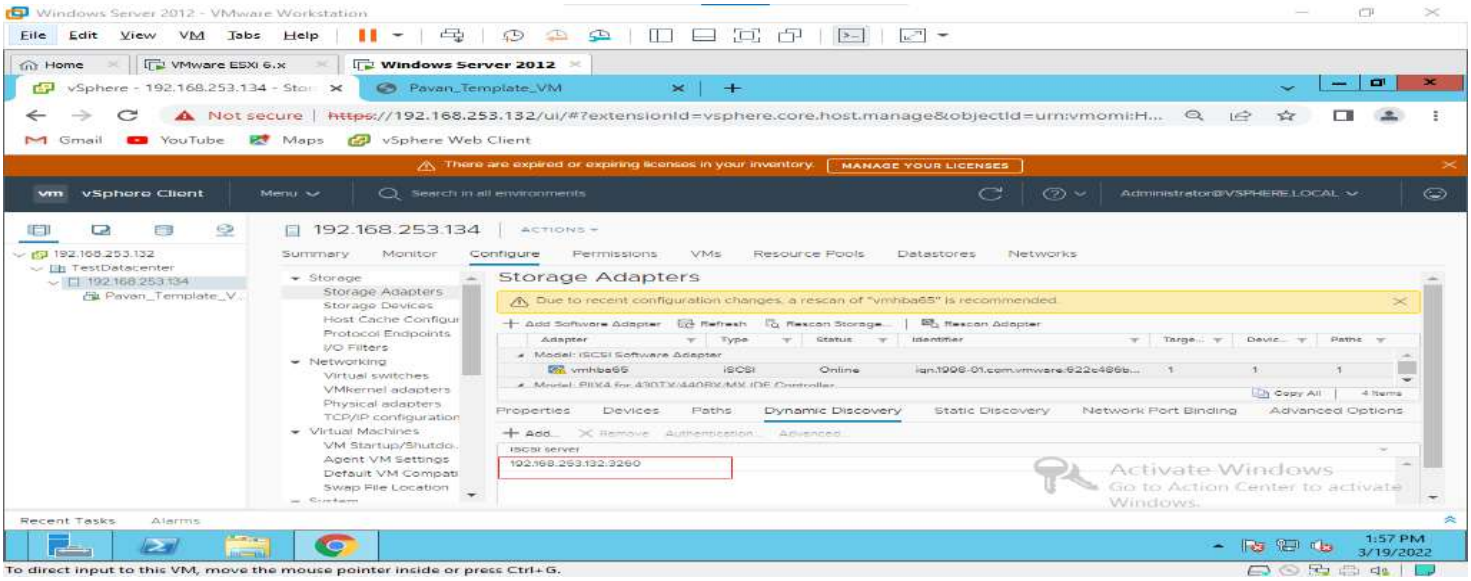


Now go to the "**Dynamic Discovery**" tab and **Add** button.

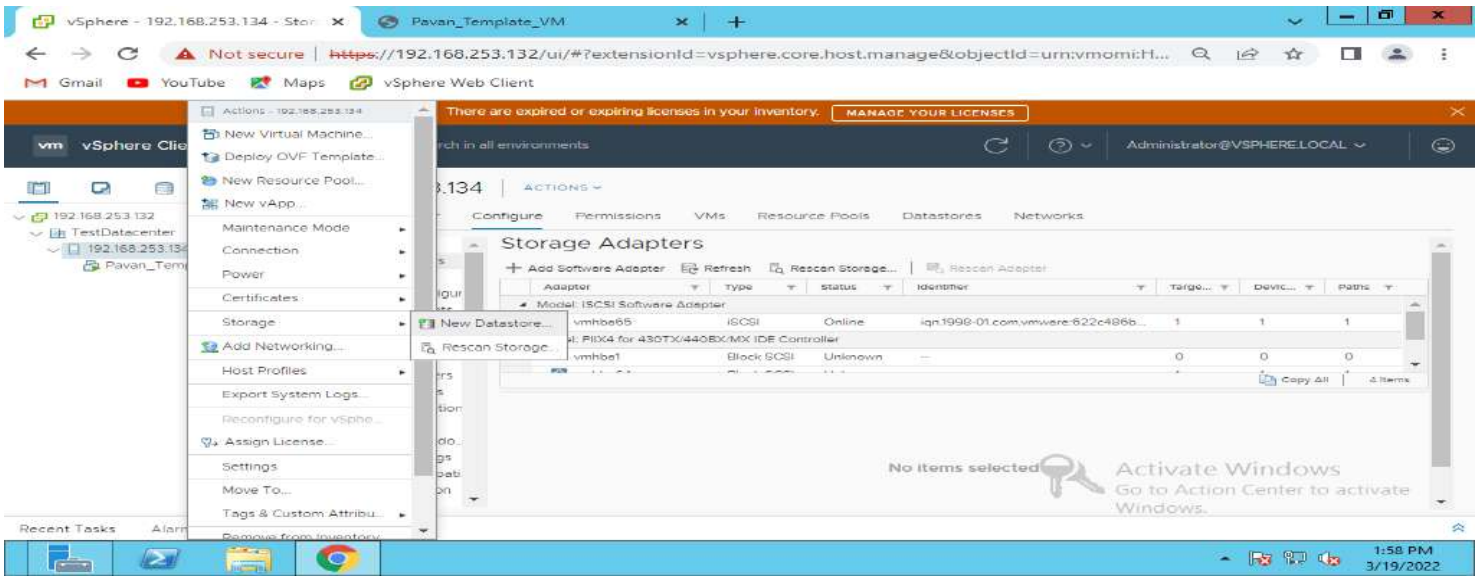


Enter the iSCSI Server details and Click on the **OK** button

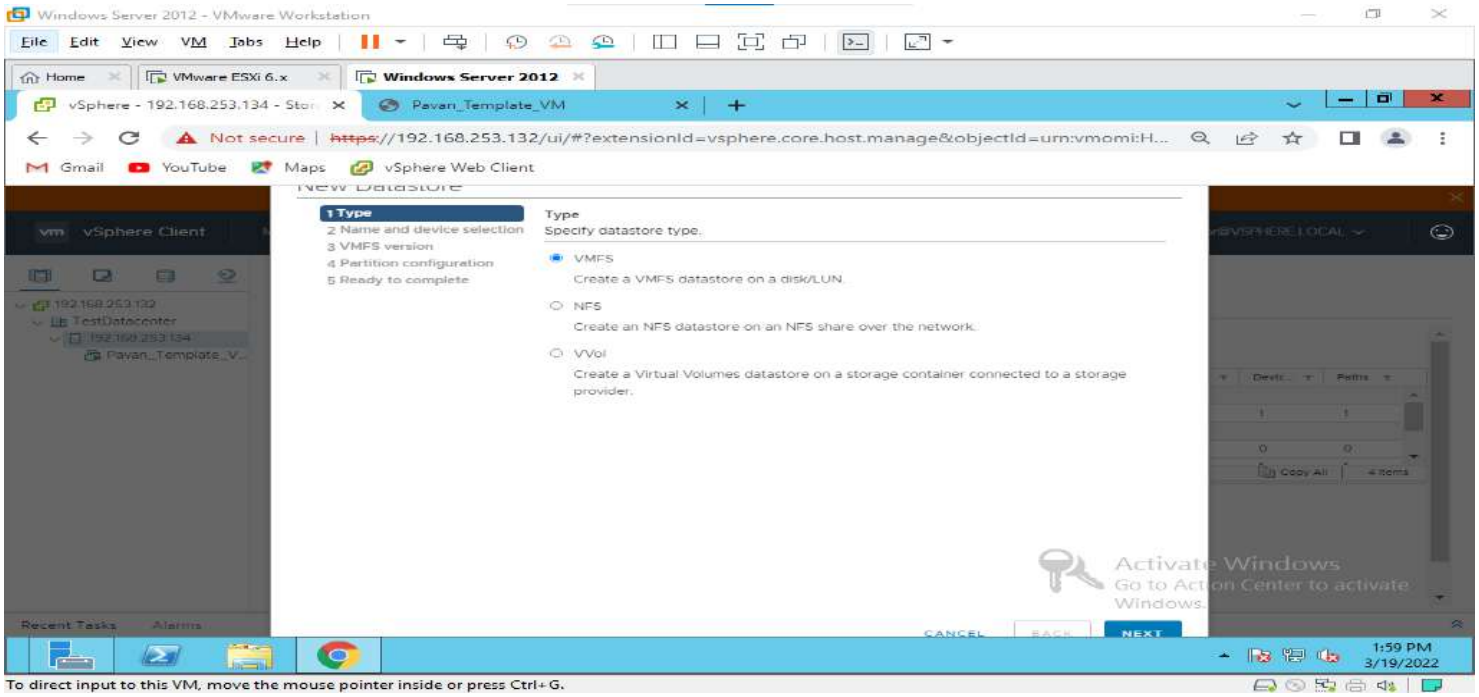




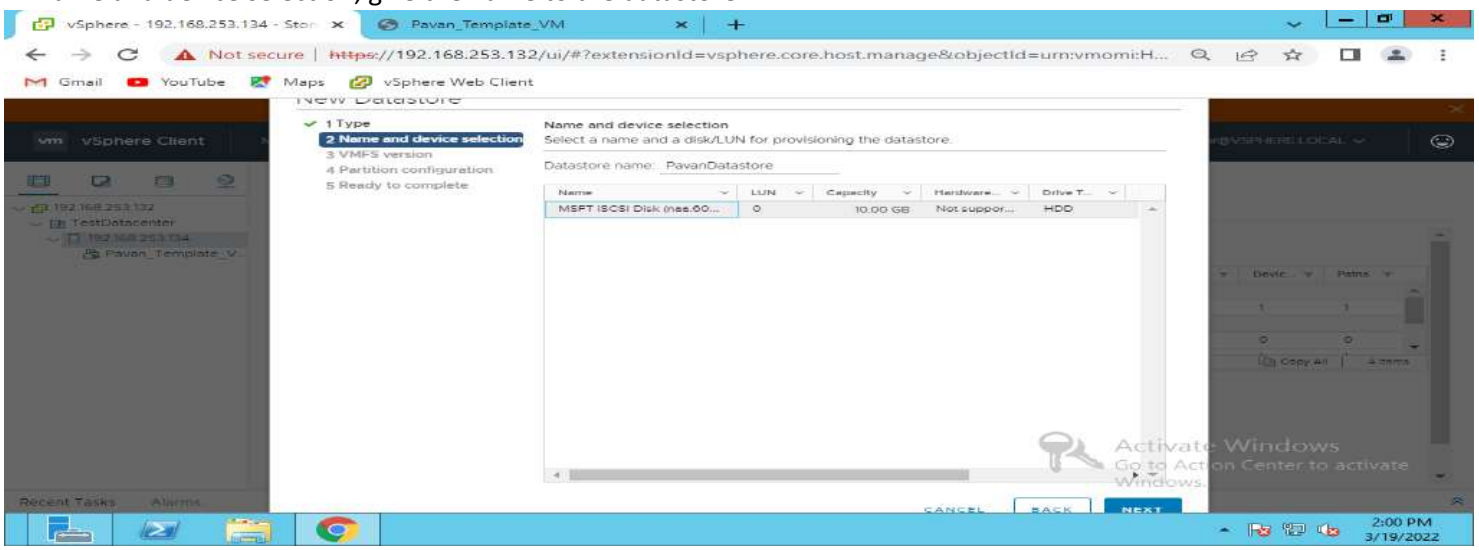
Create **iSCSI Storage** to Host. Right Click on Host > Storage > New Database



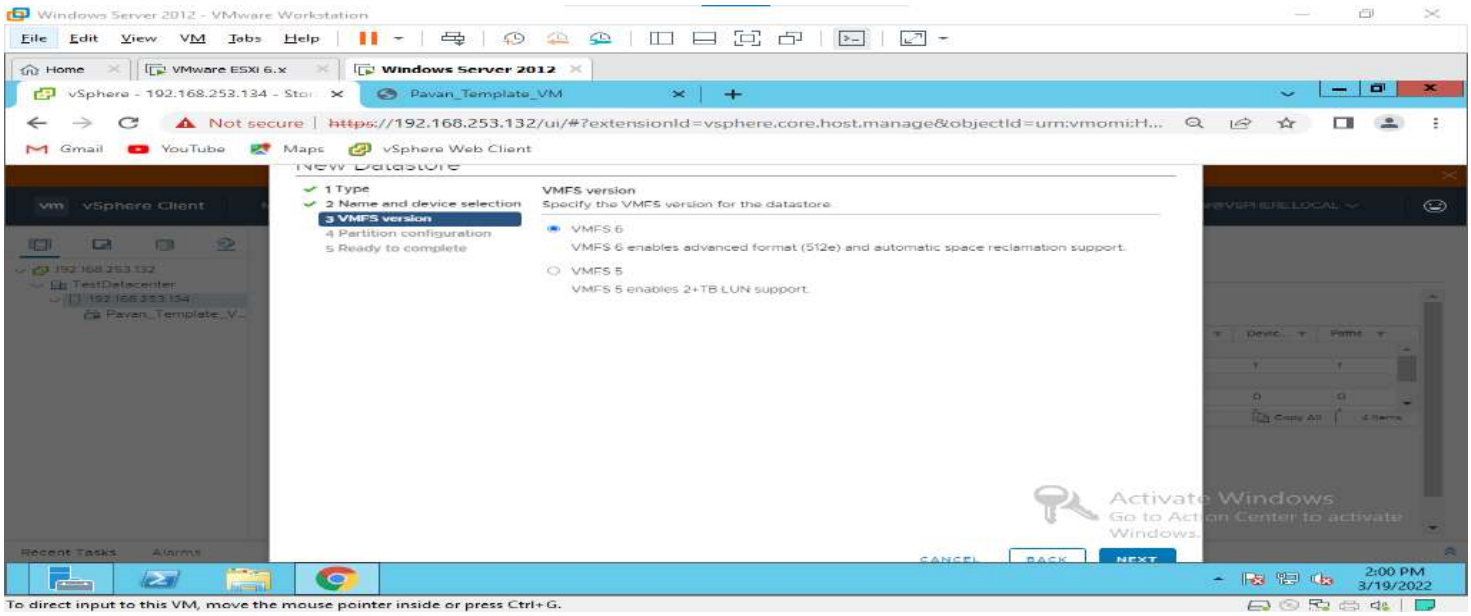
Select type as **VMFS**.



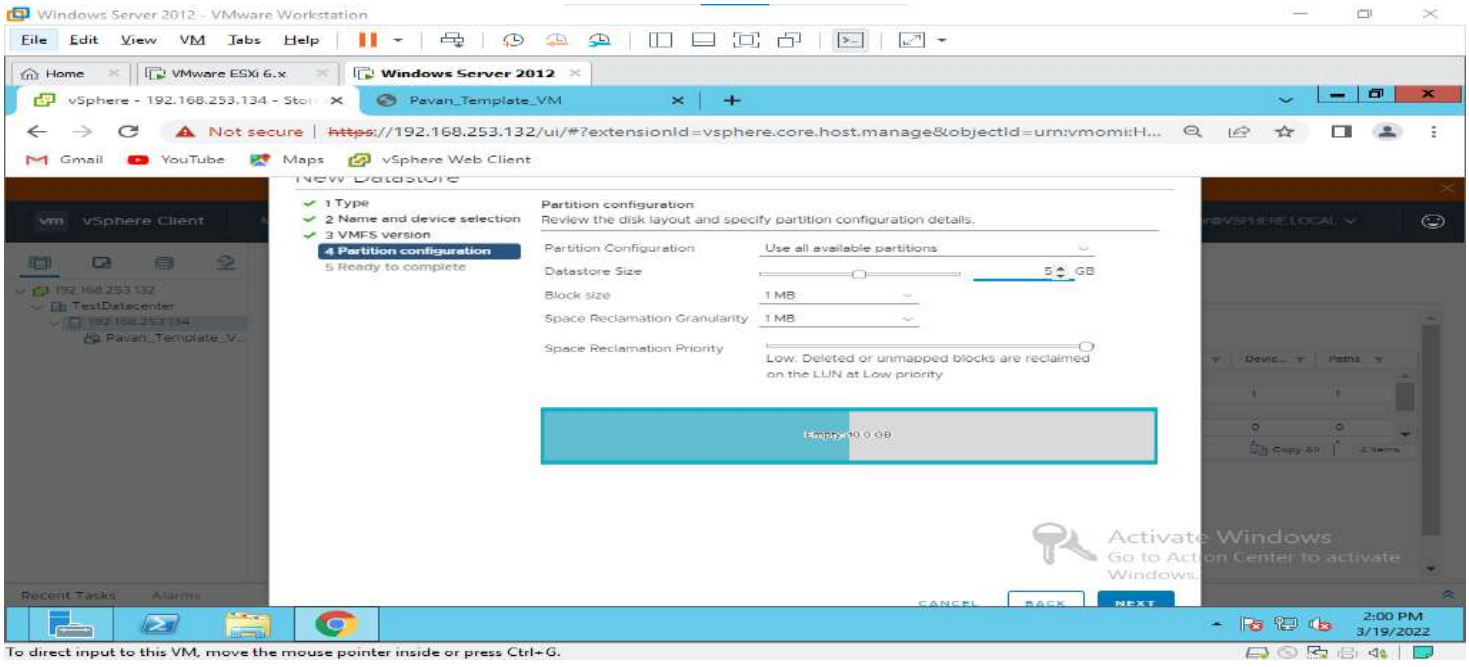
In Name and device selection, give the name to the datastore



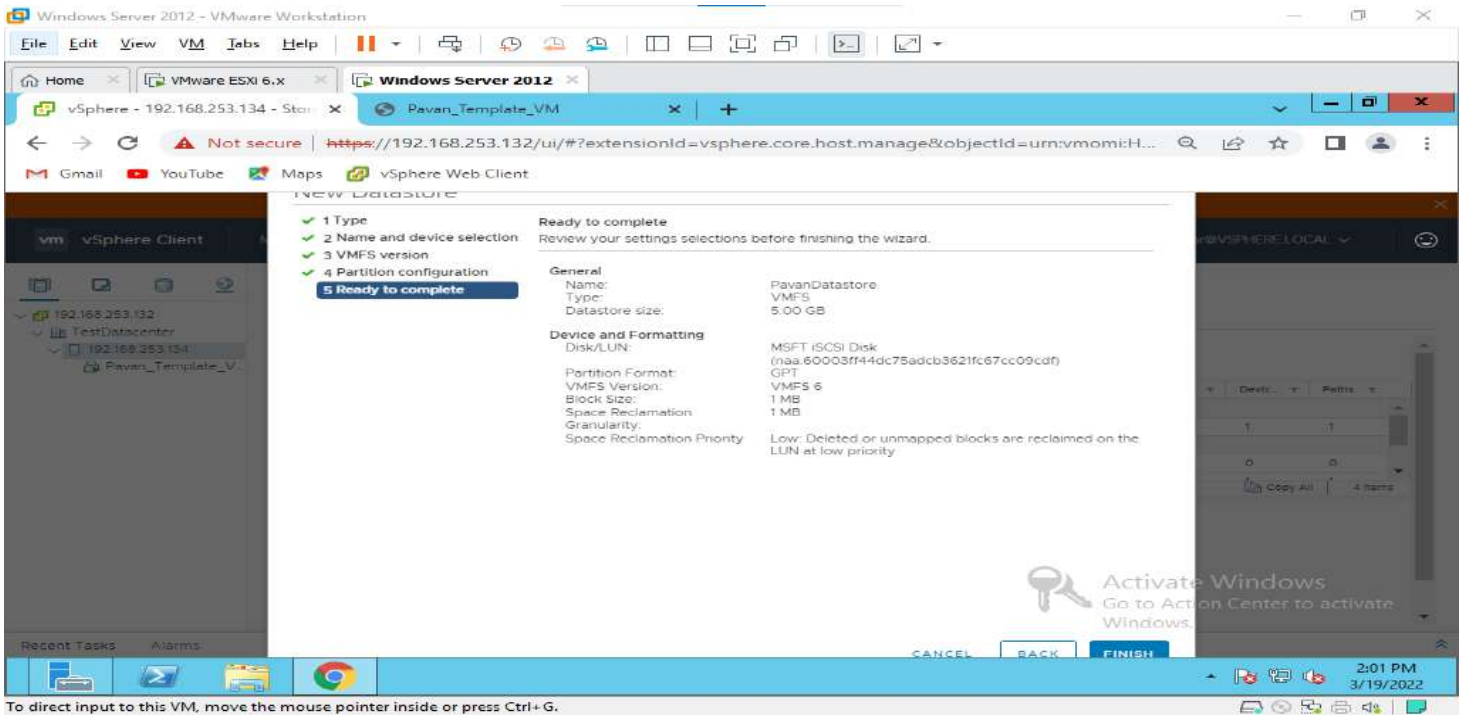
Select the **first option** in the **VMFS version** menu.



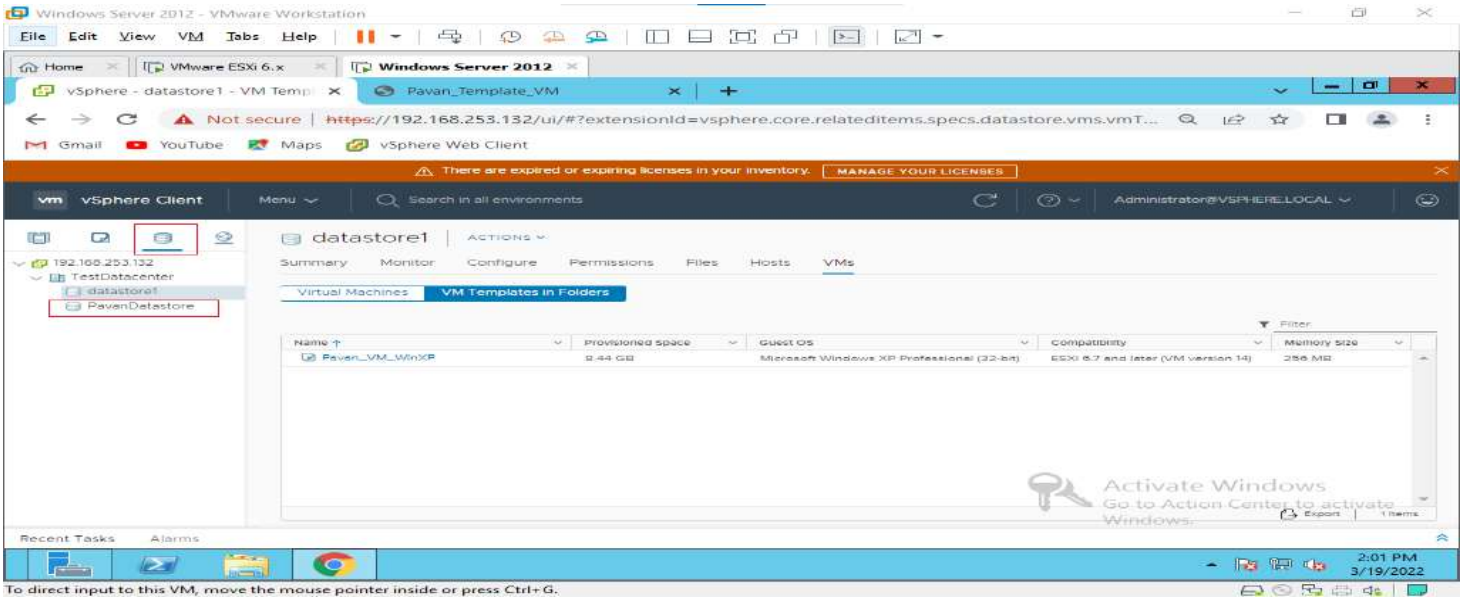
Click on **Next**.



Click on the **Finish**



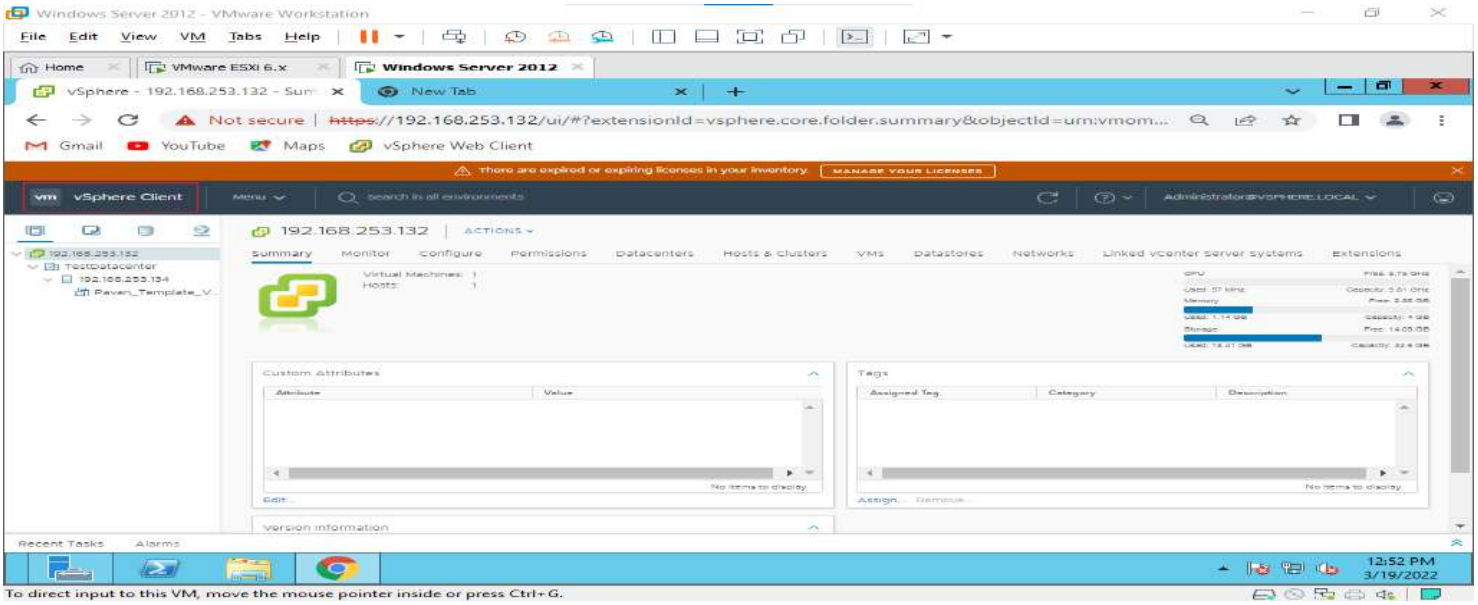
Here you can see **iSCSI storage** has been **created into the ESXi host**.



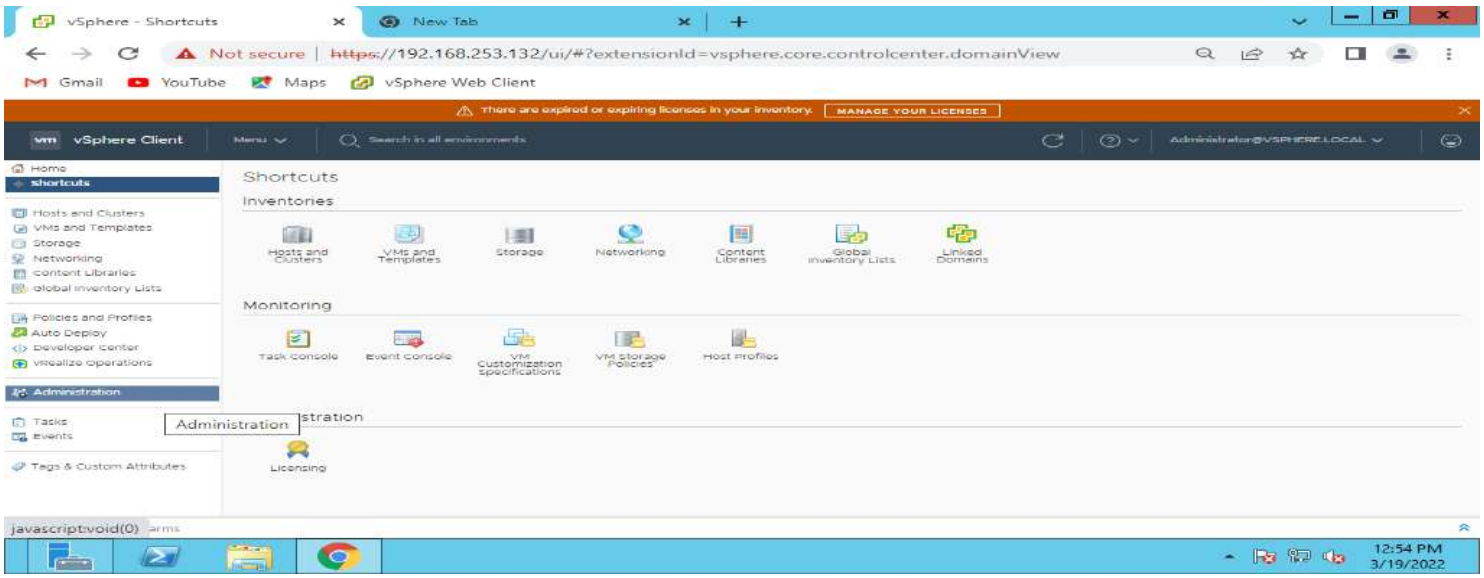
B- Create a one user account of VMware ESXi server using vSphere WebClient Application.

Login into vSphere server from Web Client application.

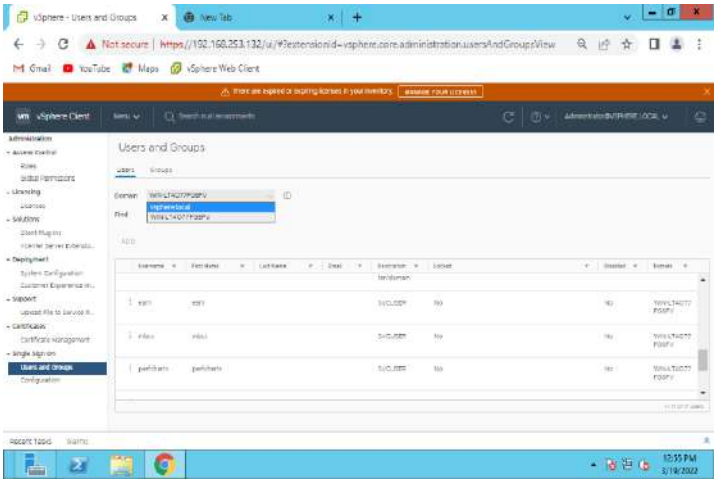
Click on the vSphere Client like below image

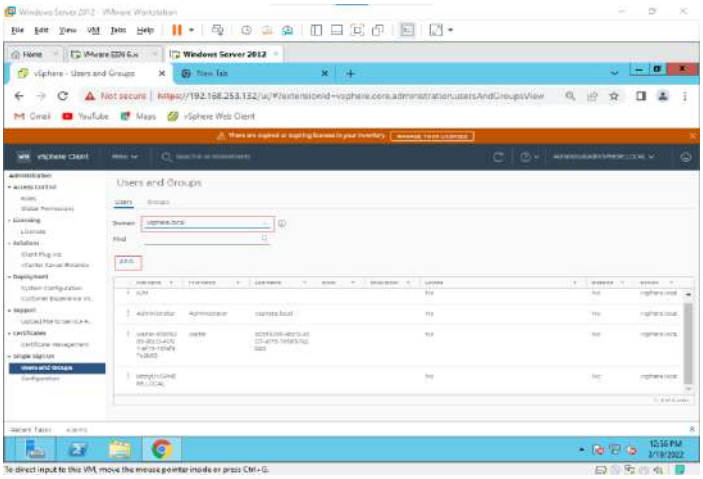


Go to "**Home**" and click on the "**Administration**" tab

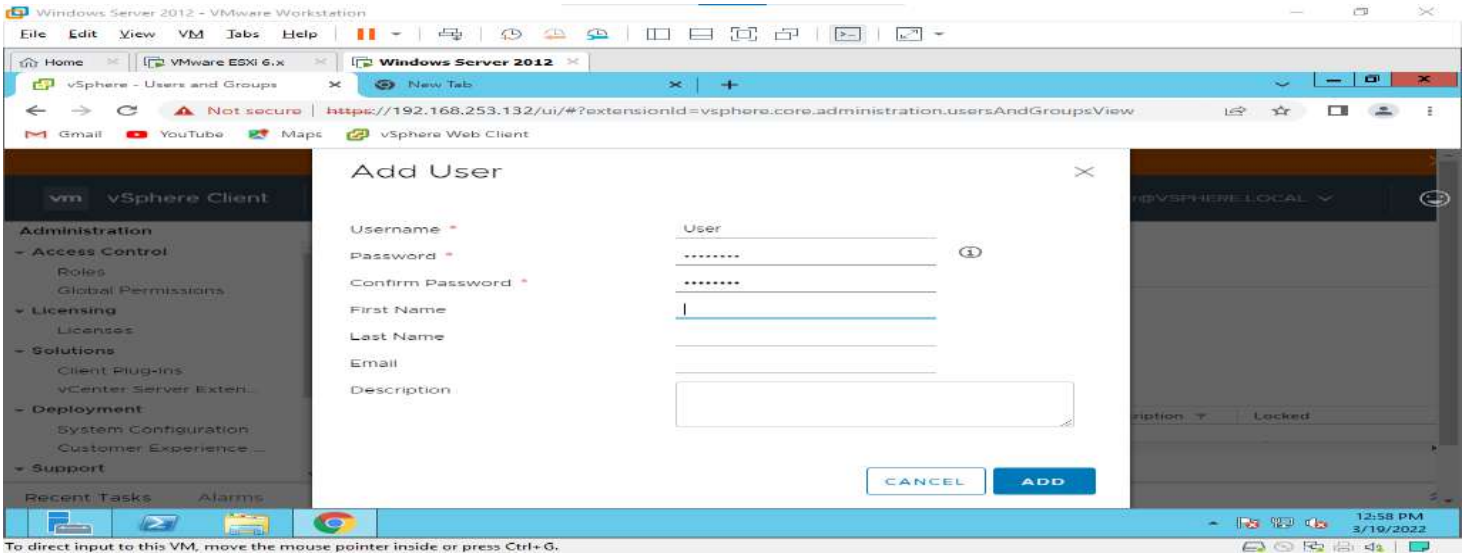


Go to the “**User and Groups**” tab select domain as **vsphere.local** and click on **add** button.



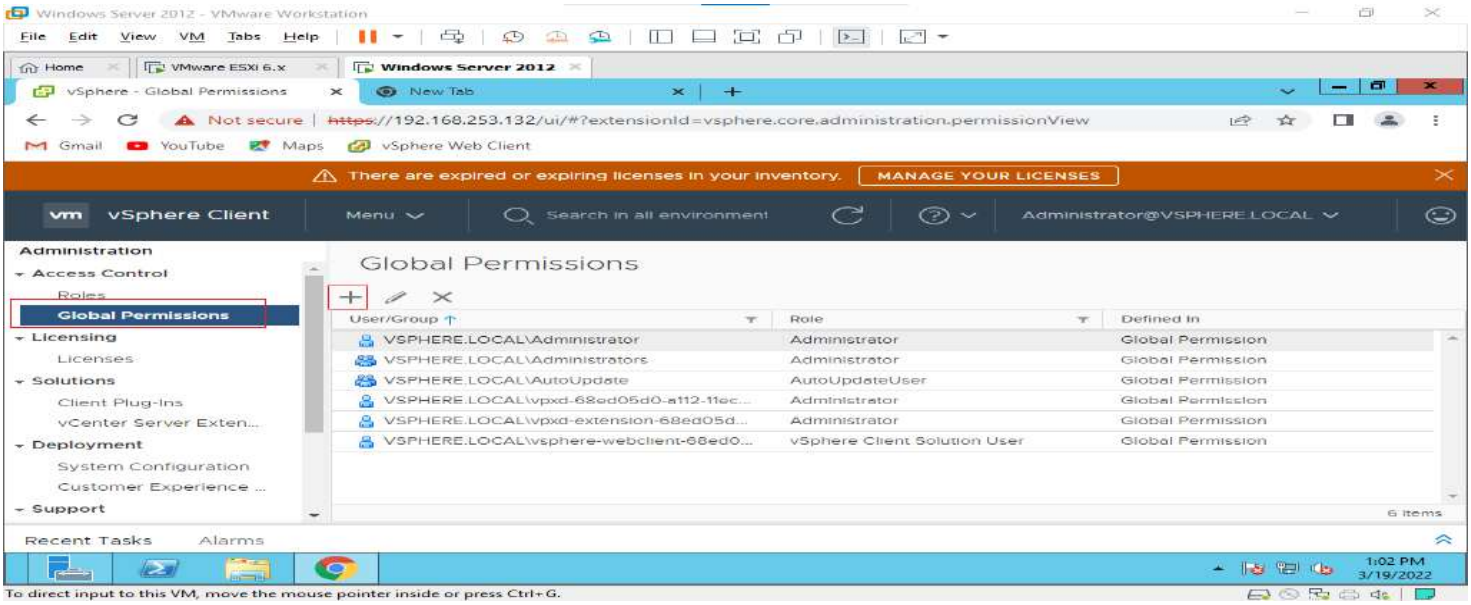


Add User details like Username & Password and Click on the **ADD** button

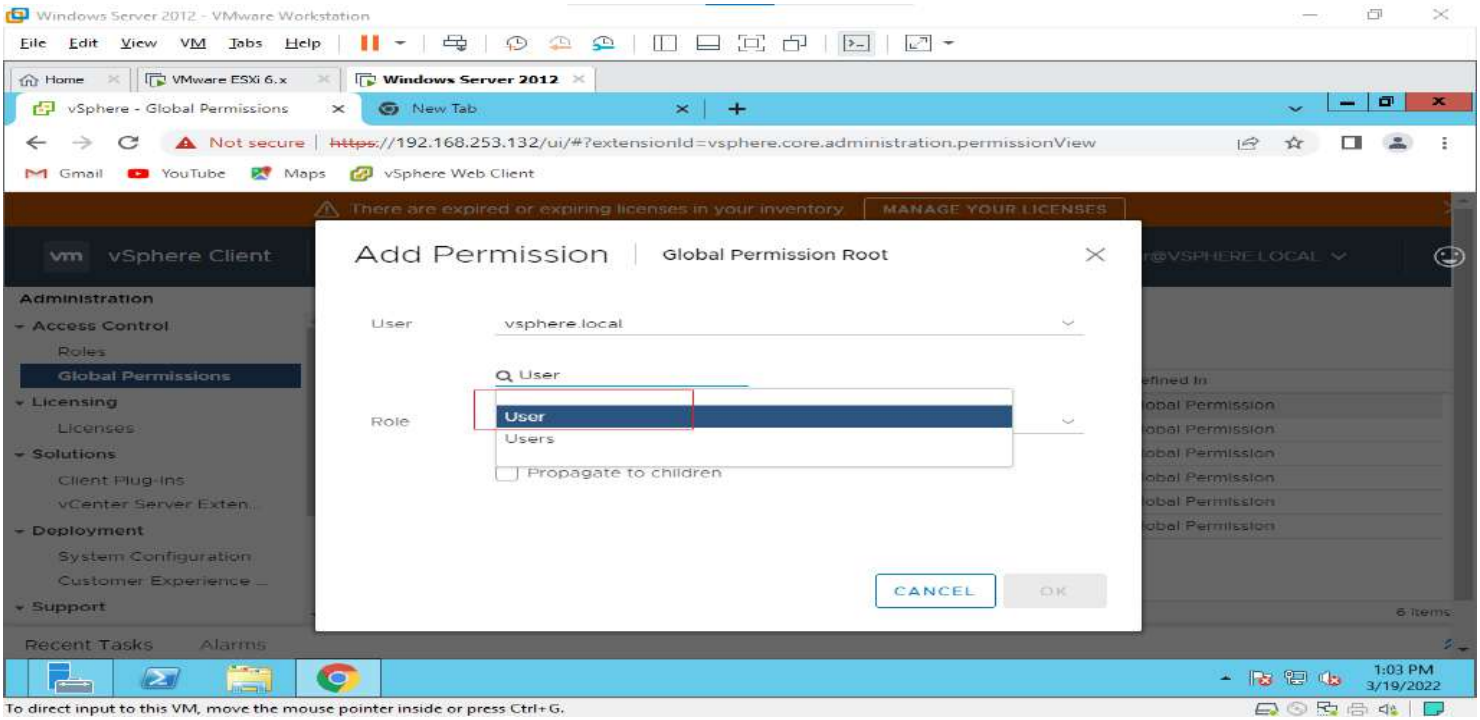


Now it's required to give permission to the newly created user

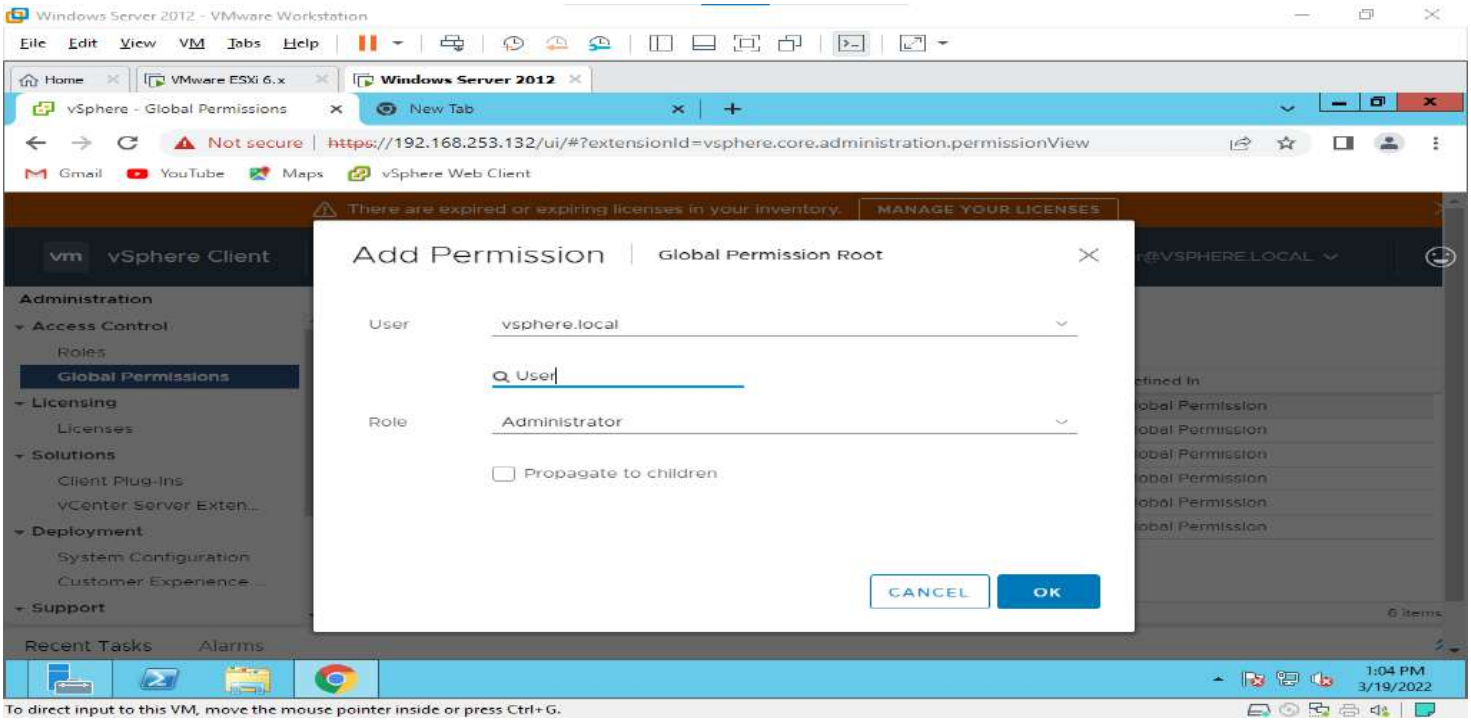
Go to “Global Permissions” and click on add button

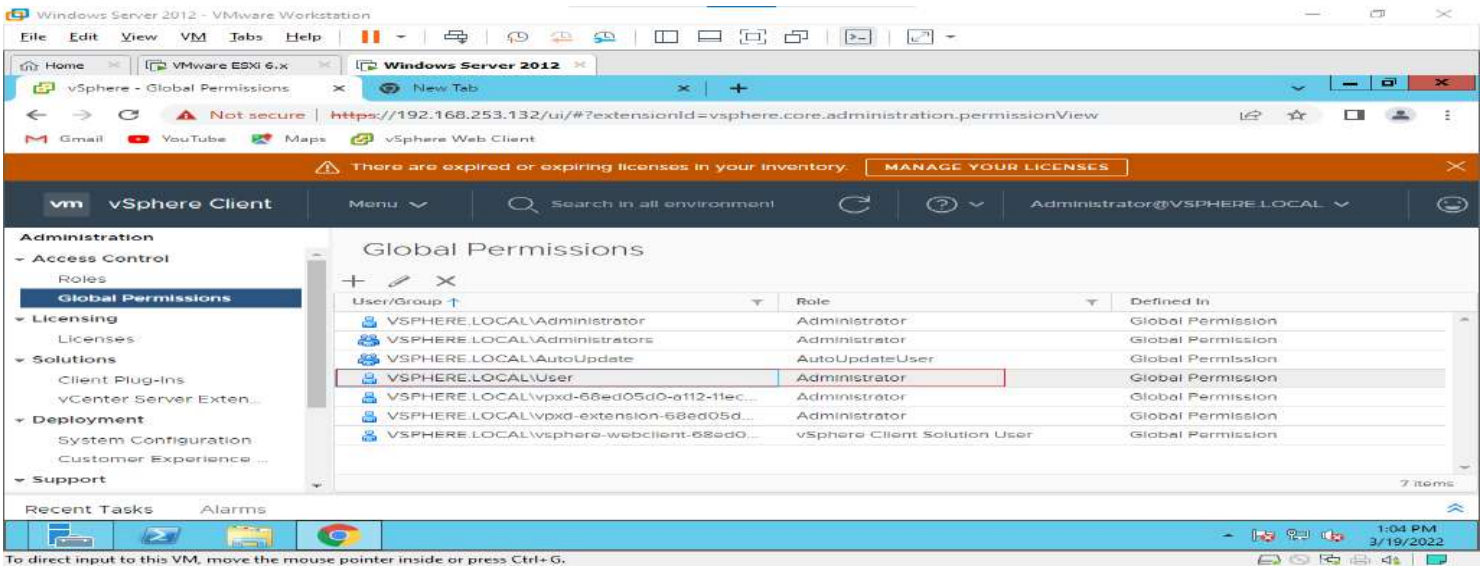


Select the user and click on the "**OK**" button. Choose a **role** for the user and click on the **OK** button



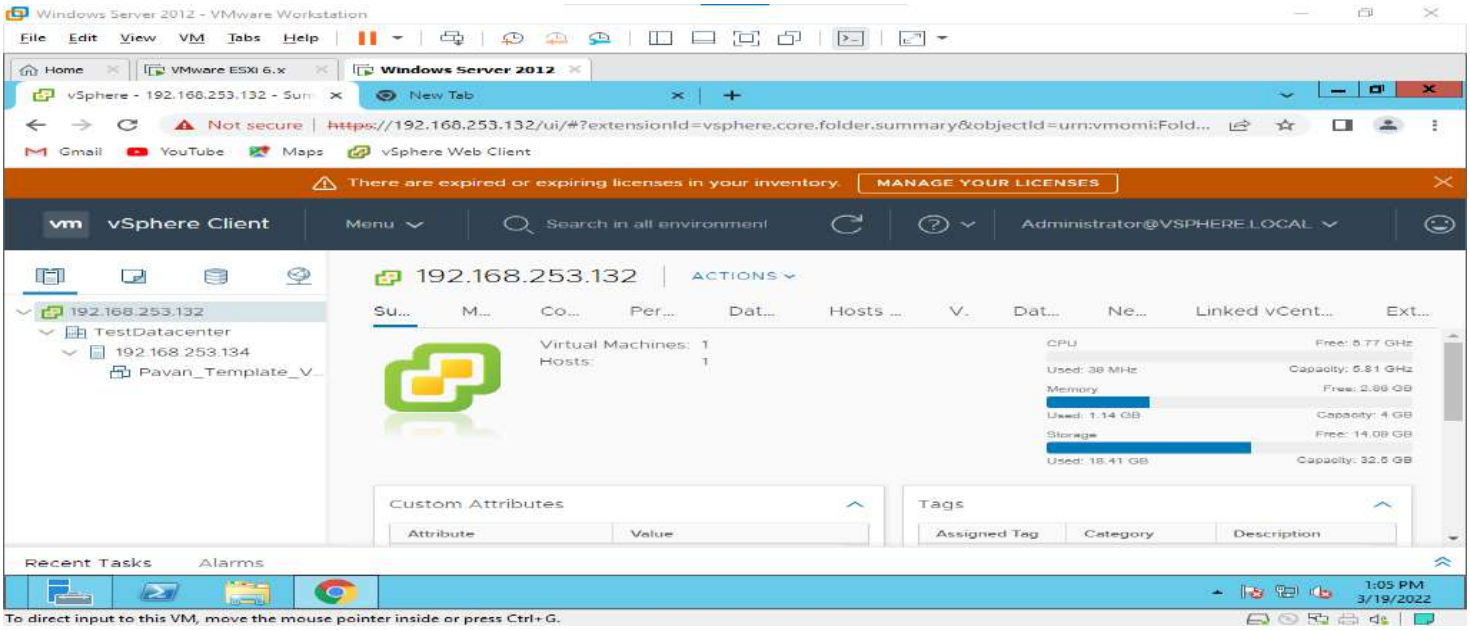
Here we are selected as the **Administrator** role to the **User** (Which we are created). Note: Here we not check the Propagate to children



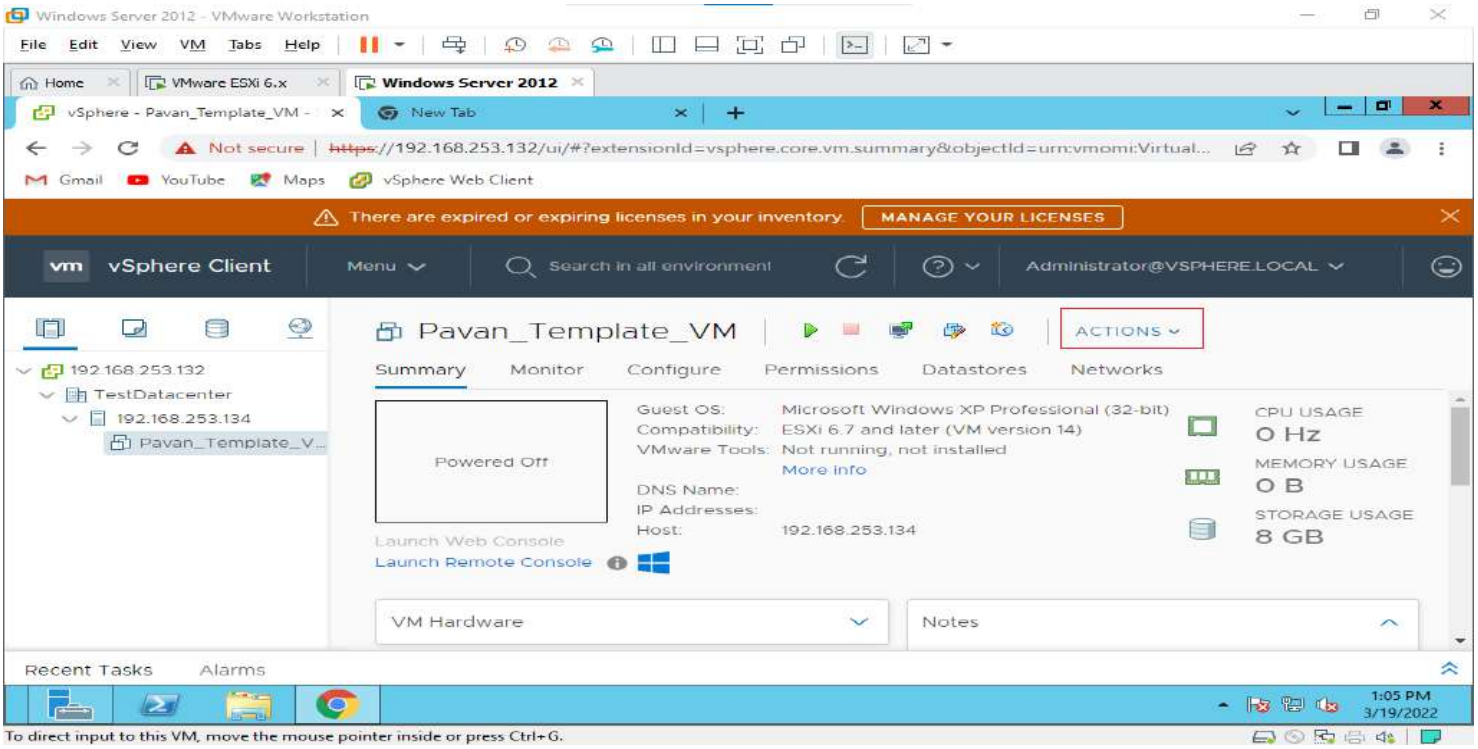


C- Prevent Users from Spying on Remote Console Sessions.

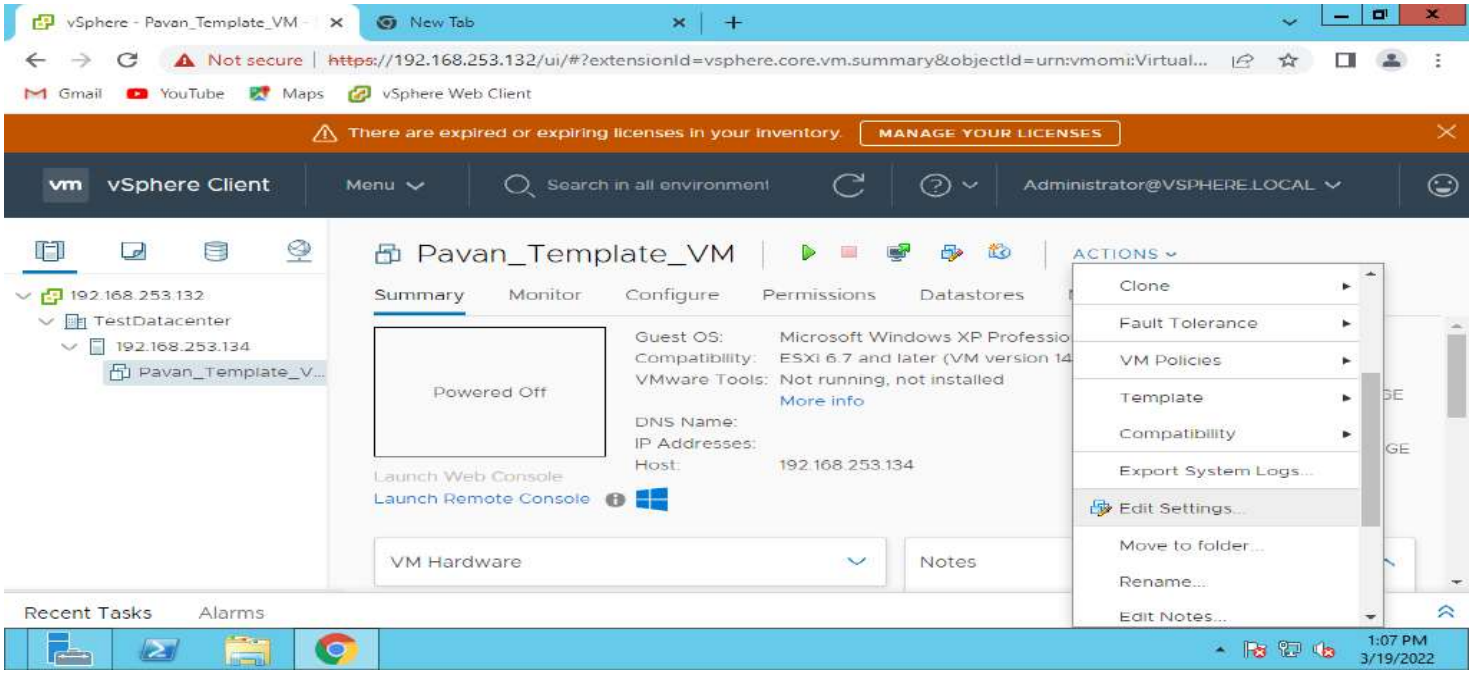
Login into vSphere server from Web Client application.



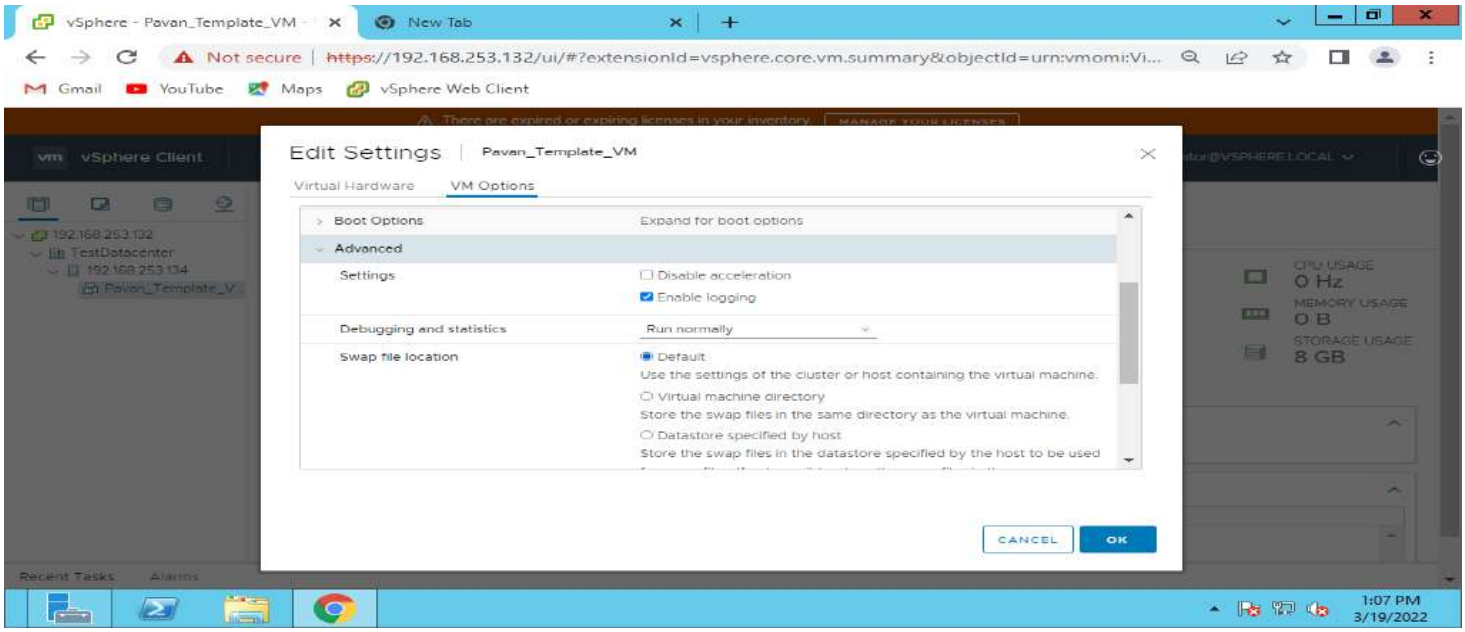
Select the **virtual machine** template and click on the **action** button.



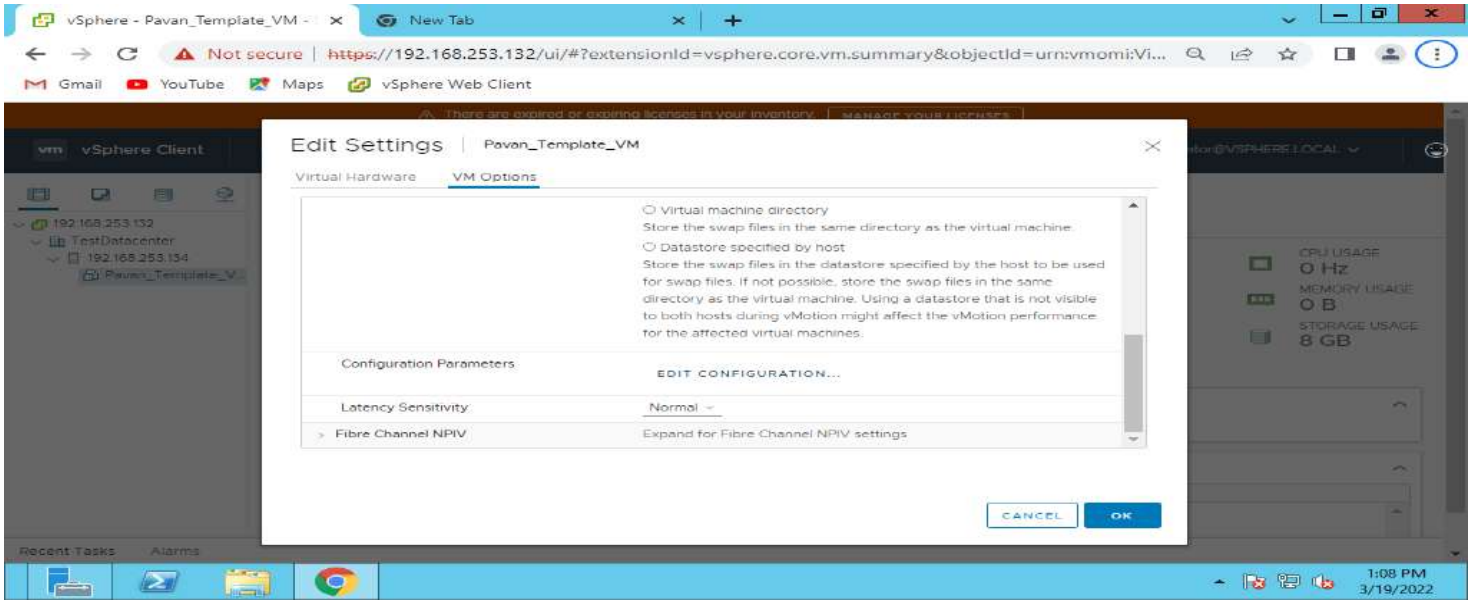
Click on the **Edit Settings** option.



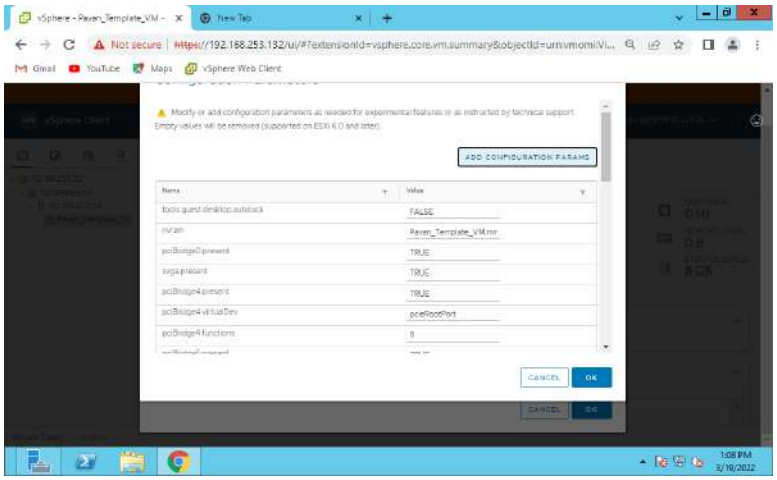
Click on **VM Options**, then go to **advanced**

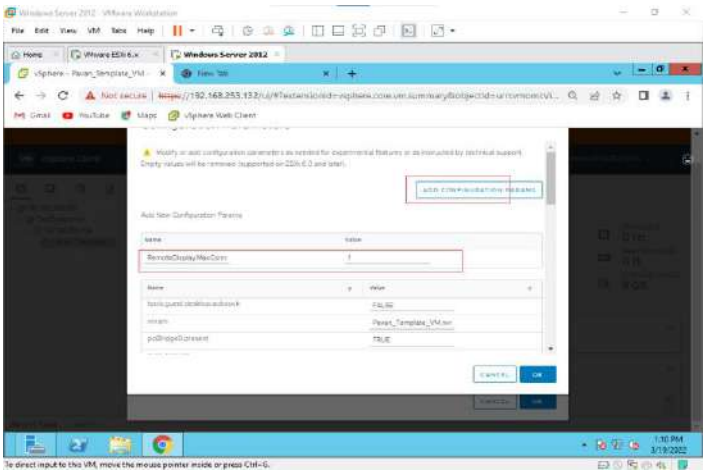


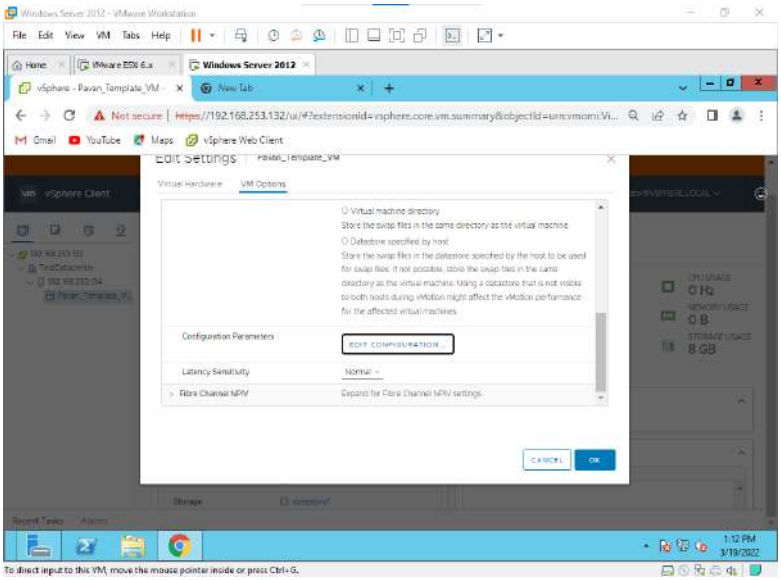
Click on **edit configurations**.

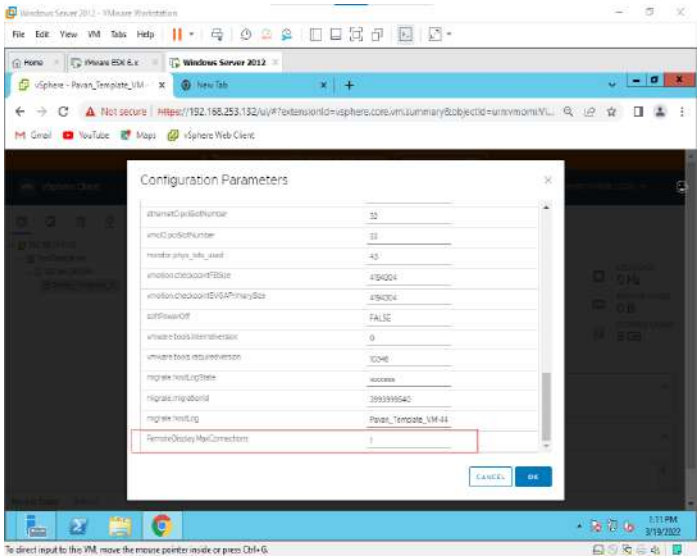


Click on the “**Add Configuration Params**” button and enter below details and **no of connections** you required and then click on the “**OK**” button. Add row with Name as **RemoteDisplay.MaxConnections** = 1



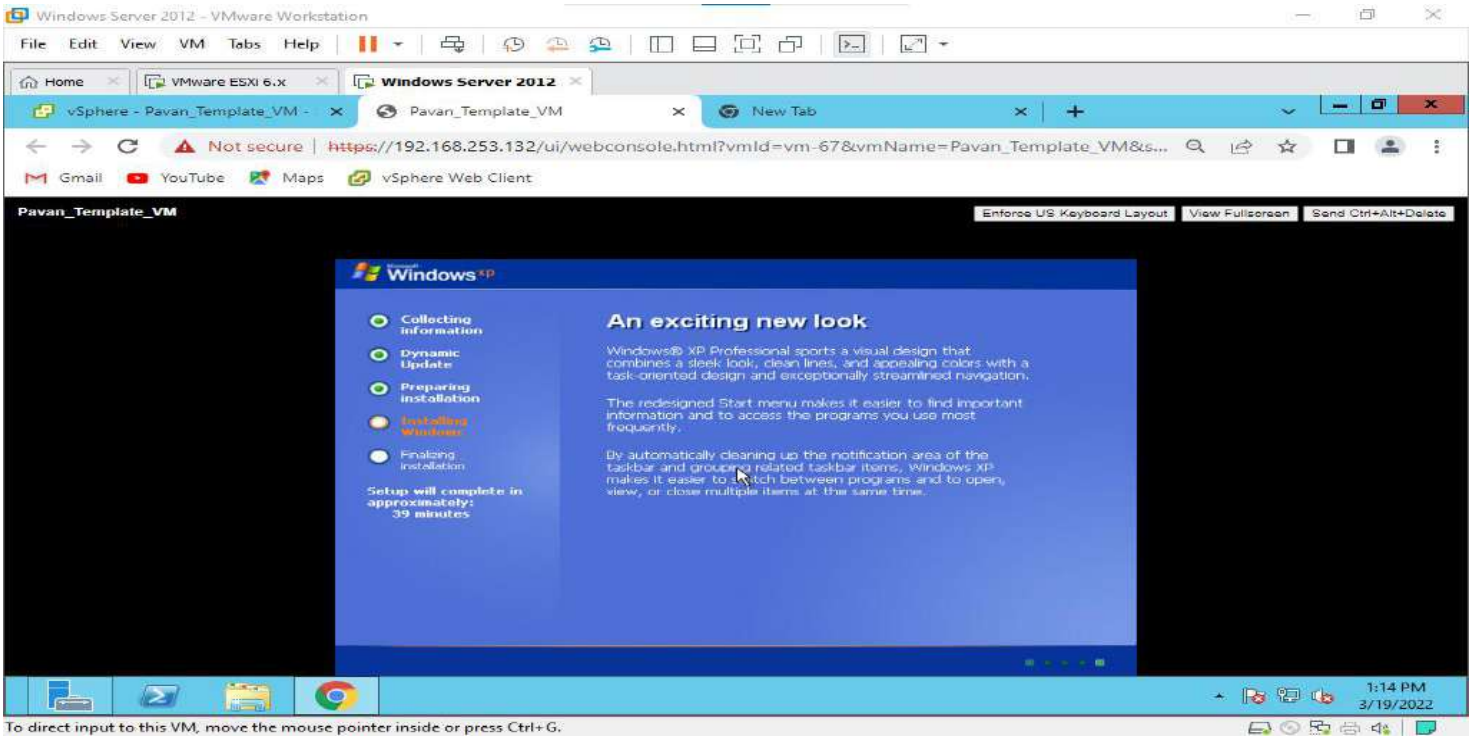




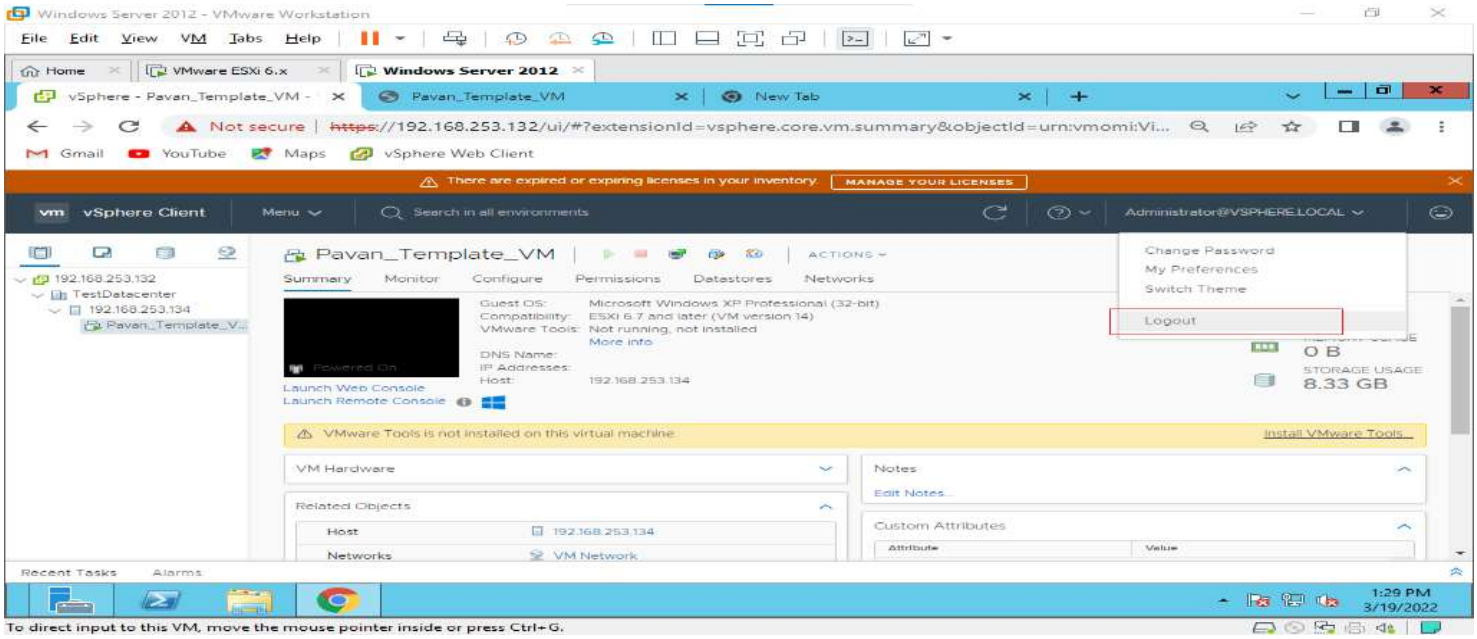


Now power-on of the virtual machine

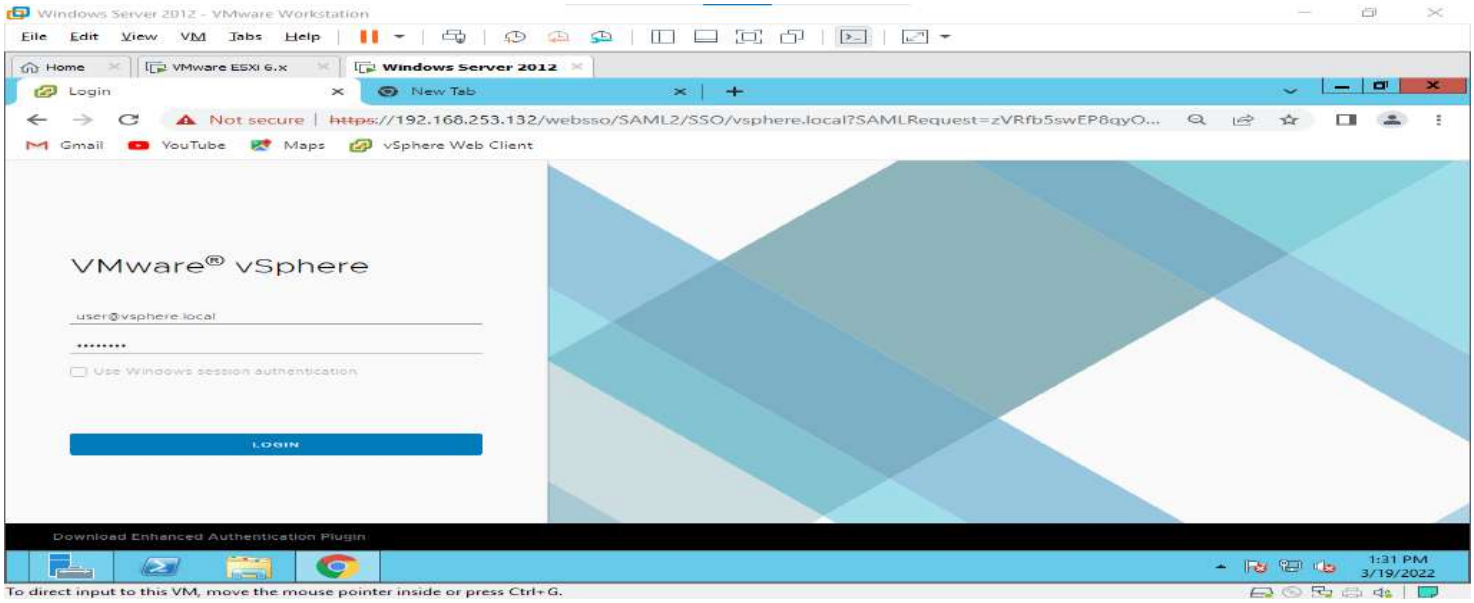
Here you can see virtual machine has been started



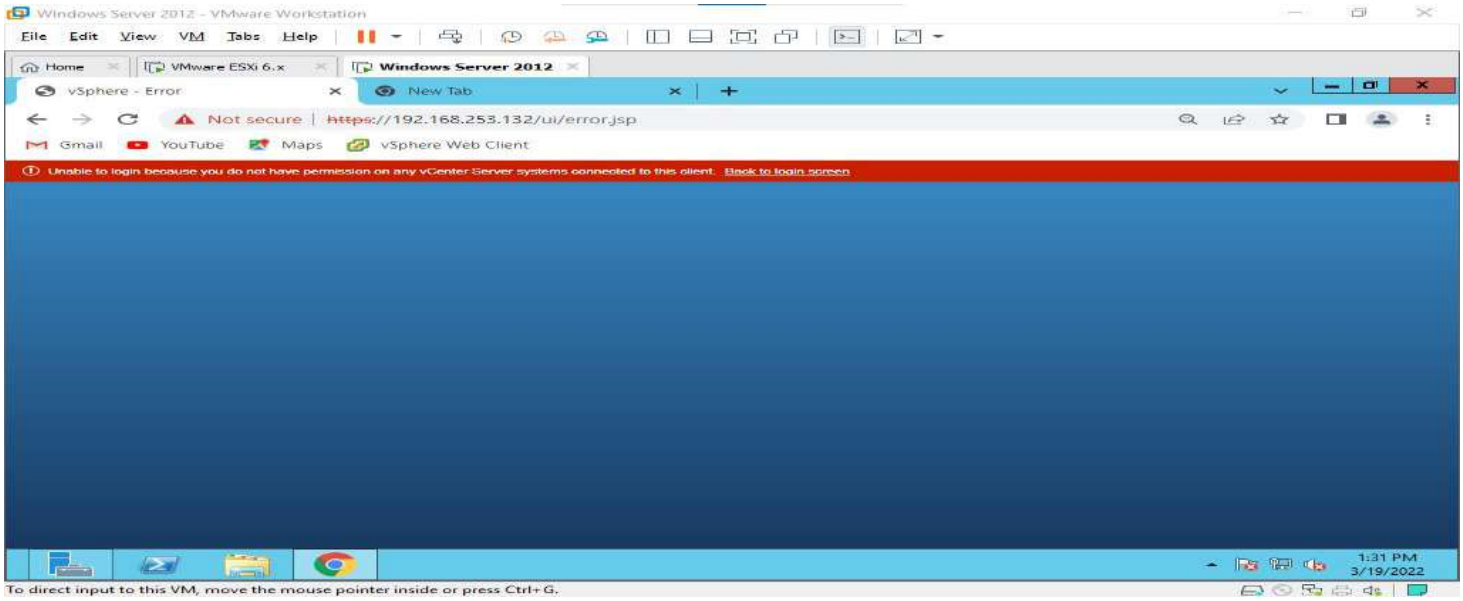
Now login from the different user and try to connect the same virtual machine, but we will get below error of max connection has been reached.



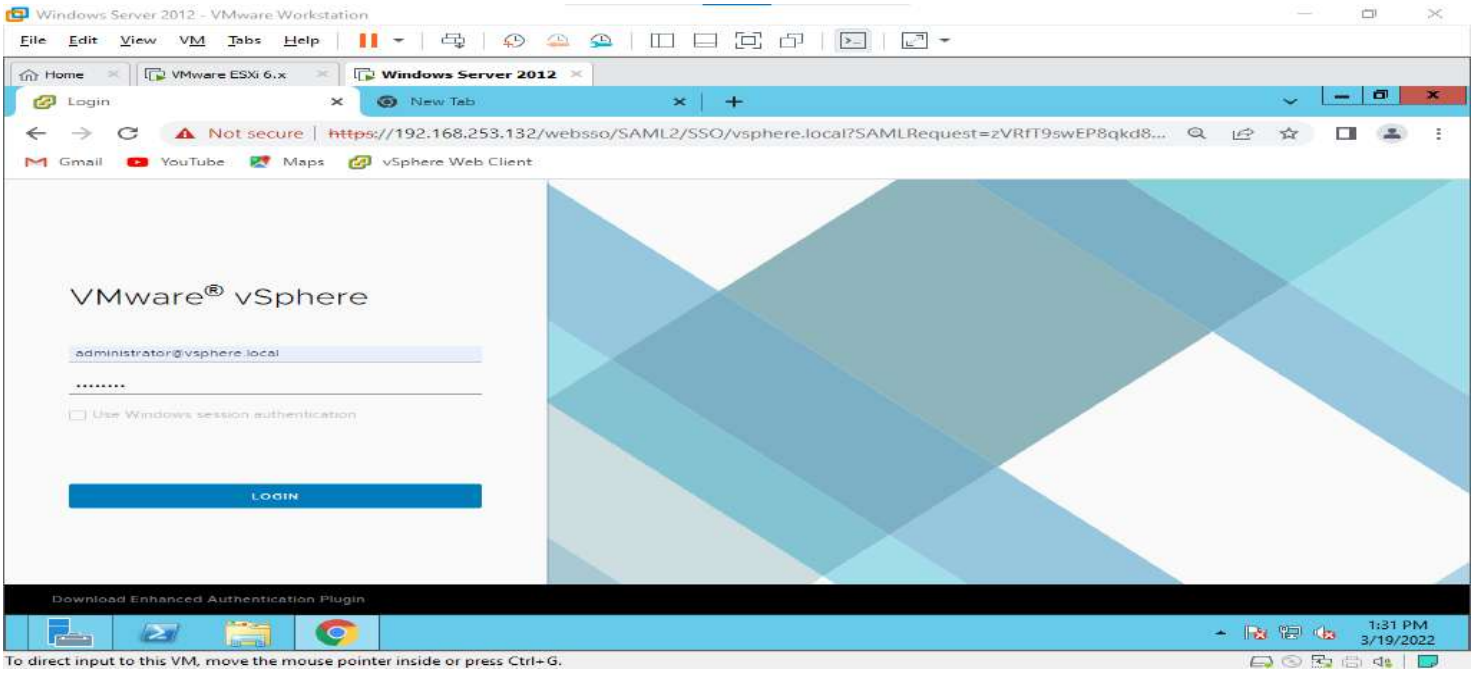
Now we login with **user**



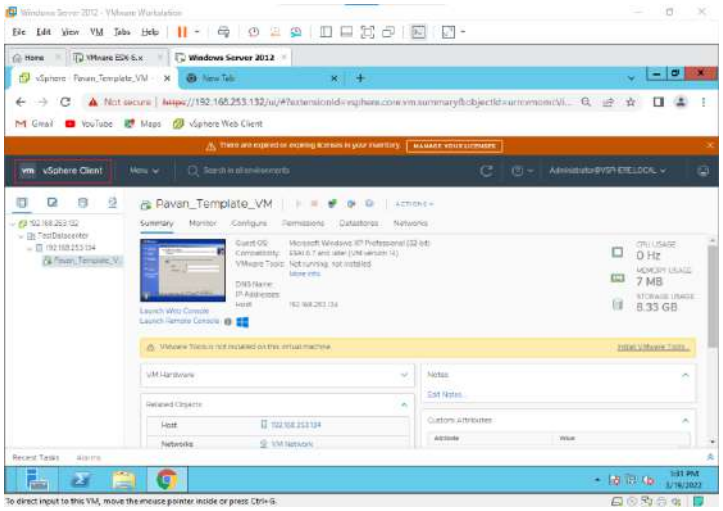
Show error then go to the permission and edit the user permission

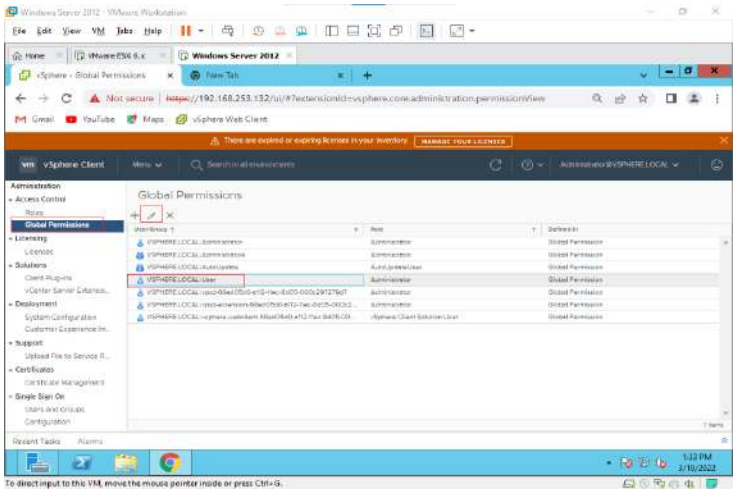


Administrator change the Permission of the User then first login by administrator

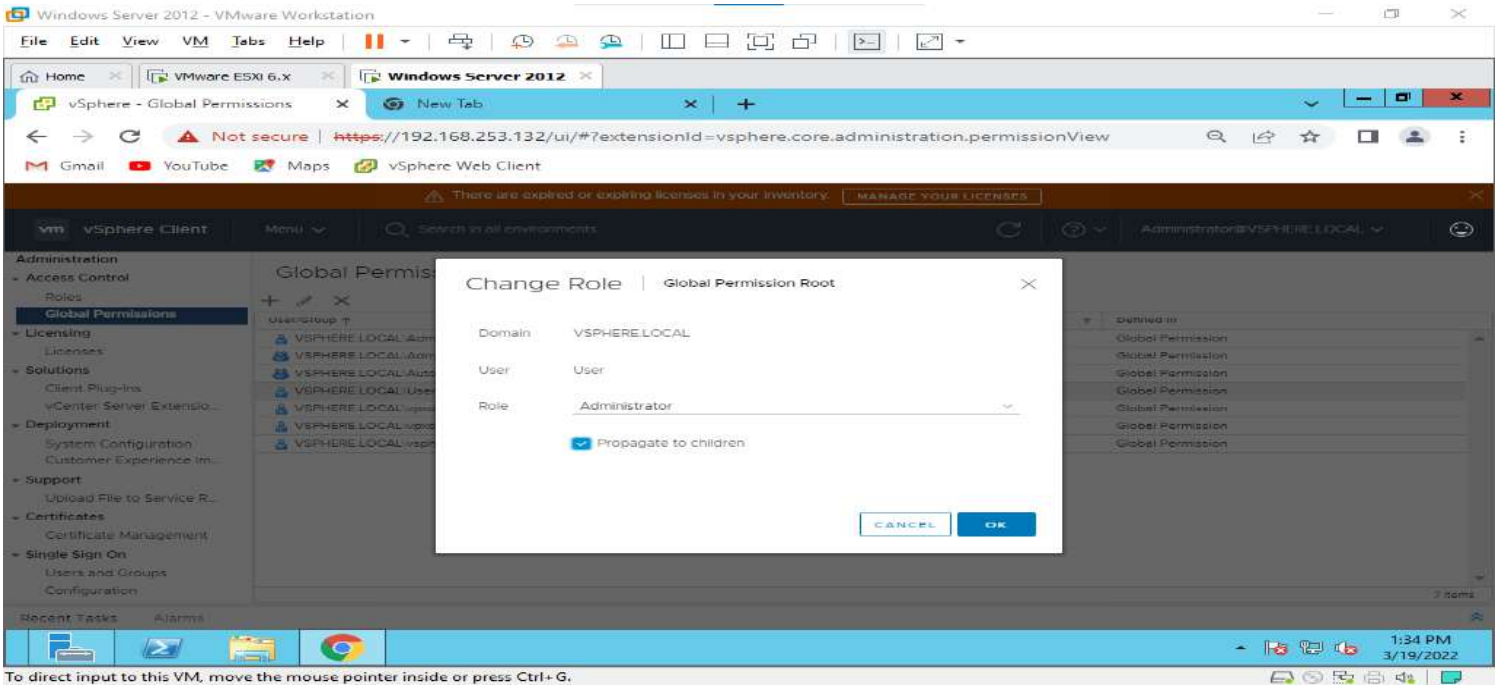


Go to the **vSphere Client > Global Permission** then select the user and Click on the Edit button icon

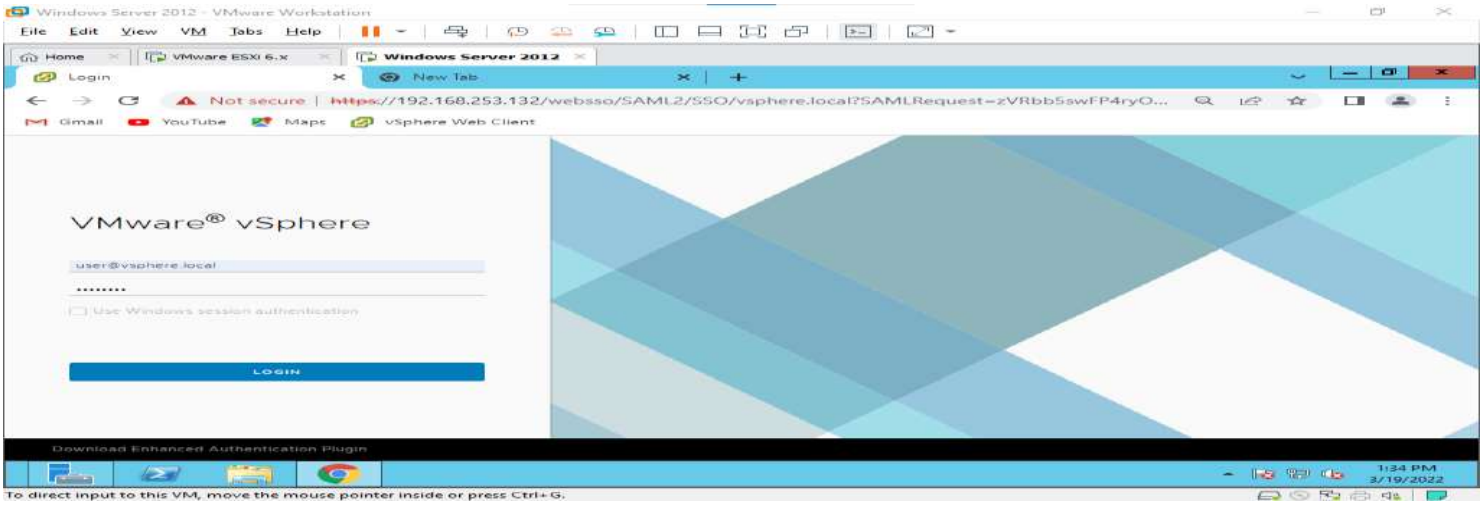




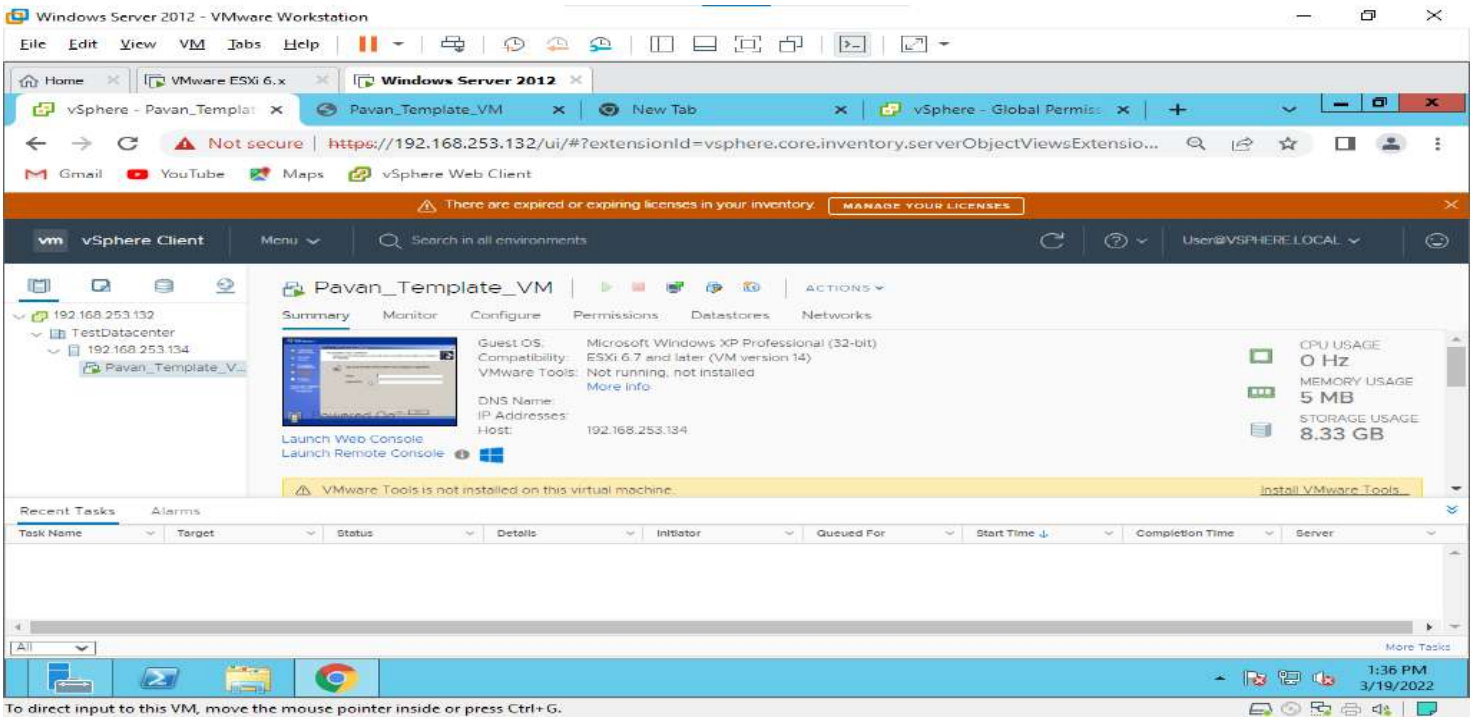
Check the **Propagate to Children** and Click on the **OK** button



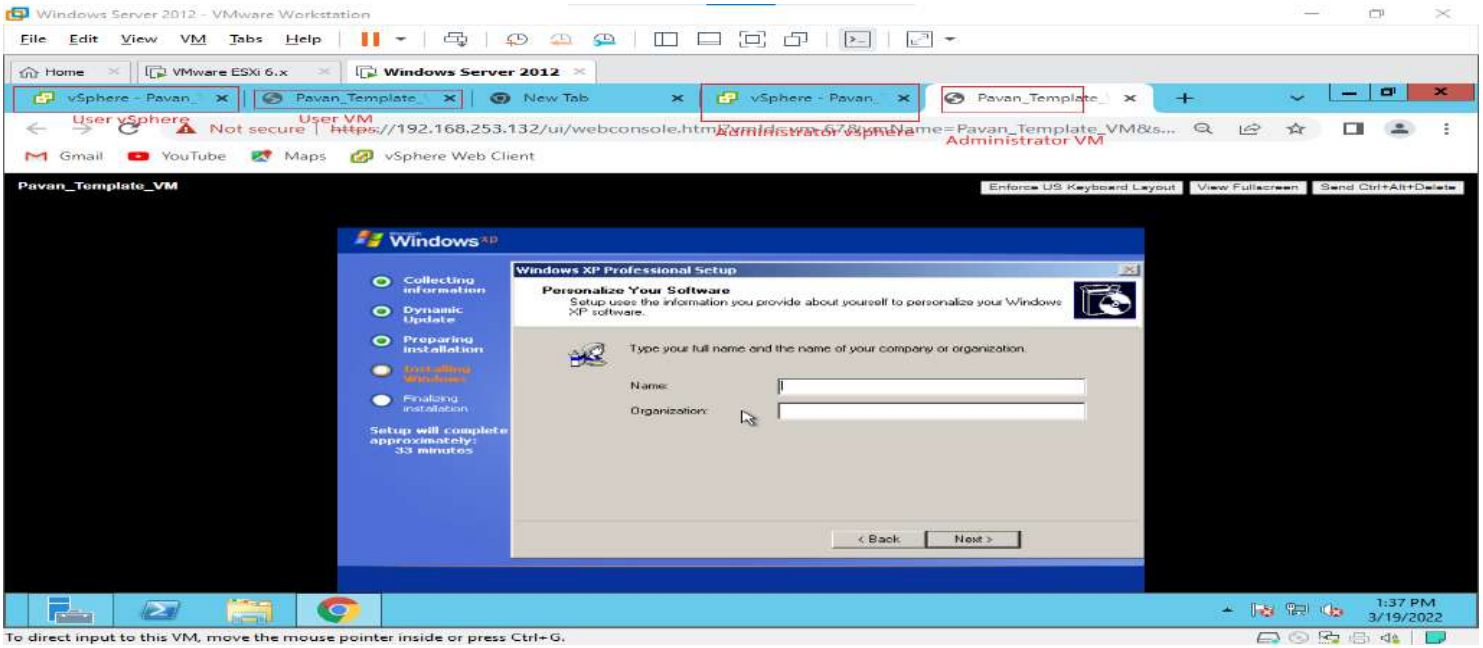
Now login from the different user and try to connect the same virtual machine, but we will get below error of max connection has been reached.

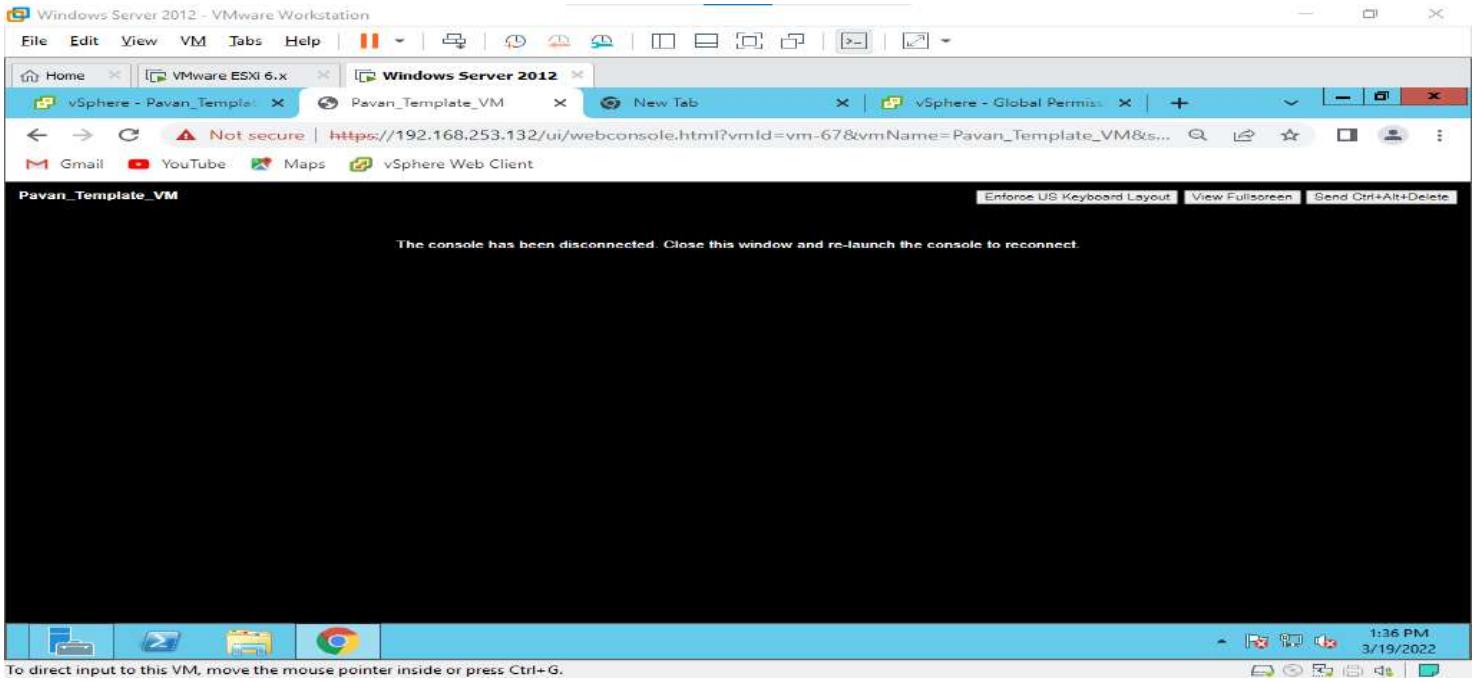


Start the VM and Launch Web Console



If we login with other account then show the message the console will be disconnected

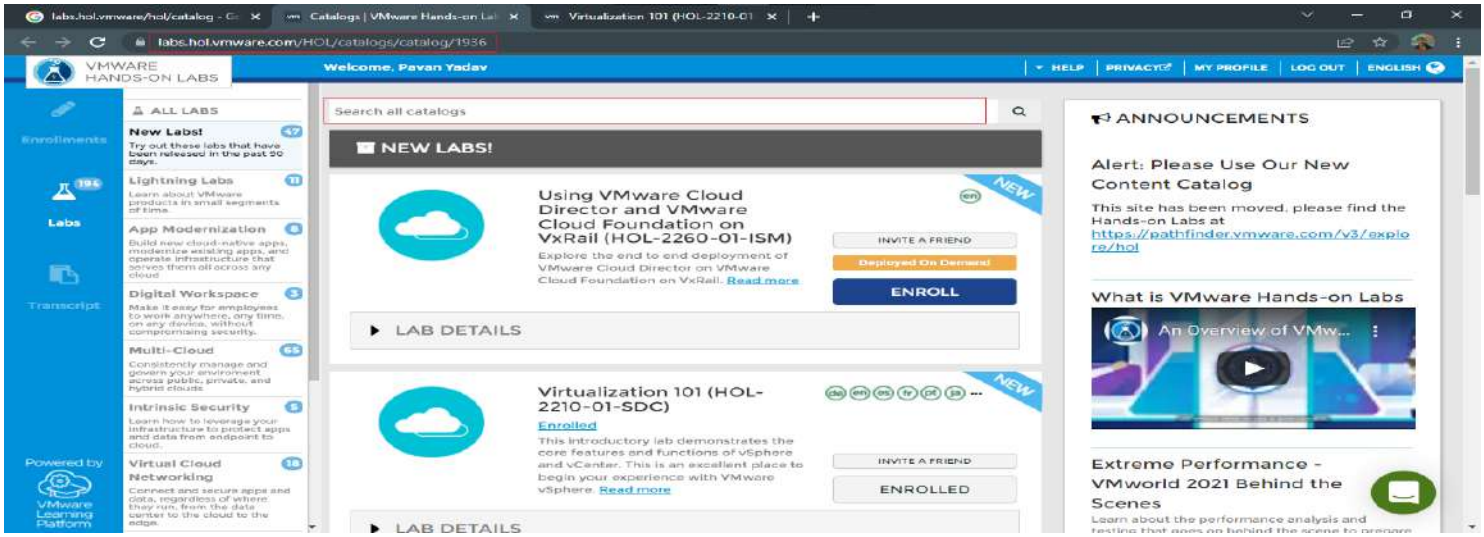



Windows Server 2012 - VMware Workstation
File Edit View VM Tabs Help
Home
VMware ESXi 6.x
Windows Server 2012
vSphere - Pavan_Templa
Pavan_Template_VM
New Tab
vSphere - Global Permis
Not secure | https://192.168.253.132/ui/webconsole.html?vmId=vm-67&vmName=Pavan_Template_VM&s...
Gmail
YouTube
Maps
vSphere Web Client
Pavan_Template_VM
Enforce US Keyboard Layout
View Fullscreen
Send Ctrl+Alt+Delete
The console has been disconnected. Close this window and re-launch the console to reconnect.
1:36 PM
3/19/2022
To direct input to this VM, move the mouse pointer inside or press Ctrl+G.

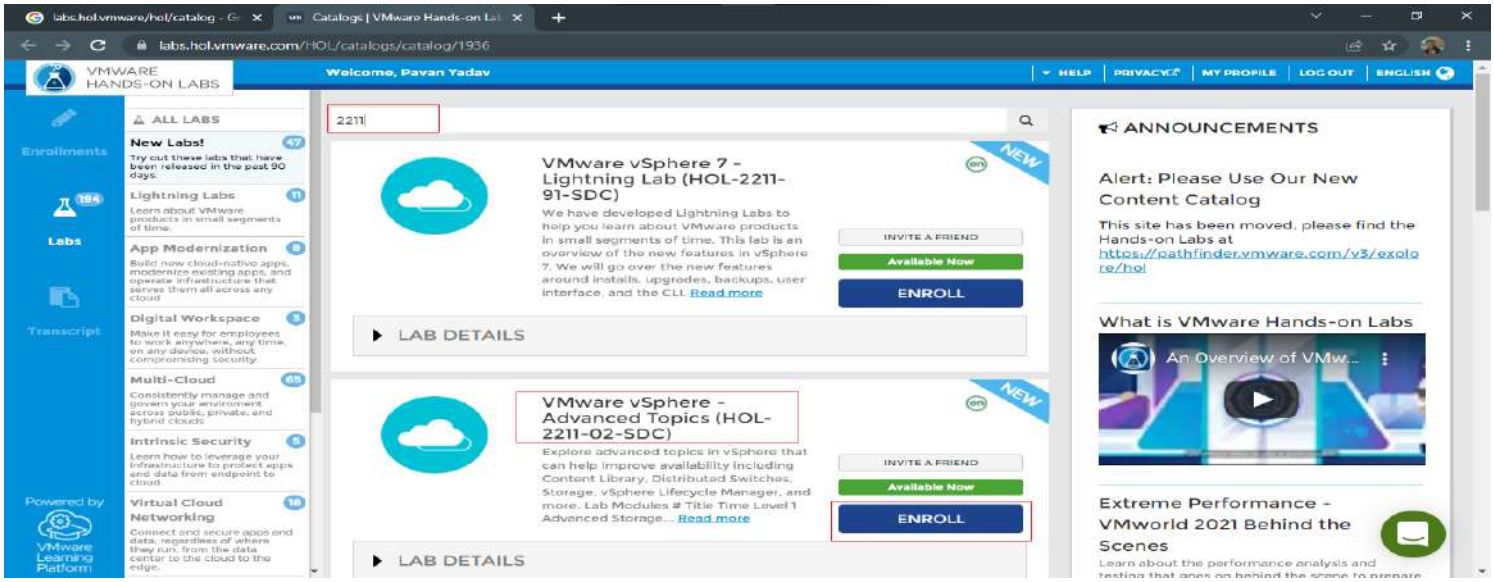
Practical No. 5

Aim: Upgrade the VMware ESXi server 6.7 to 7.0 using simple installation.

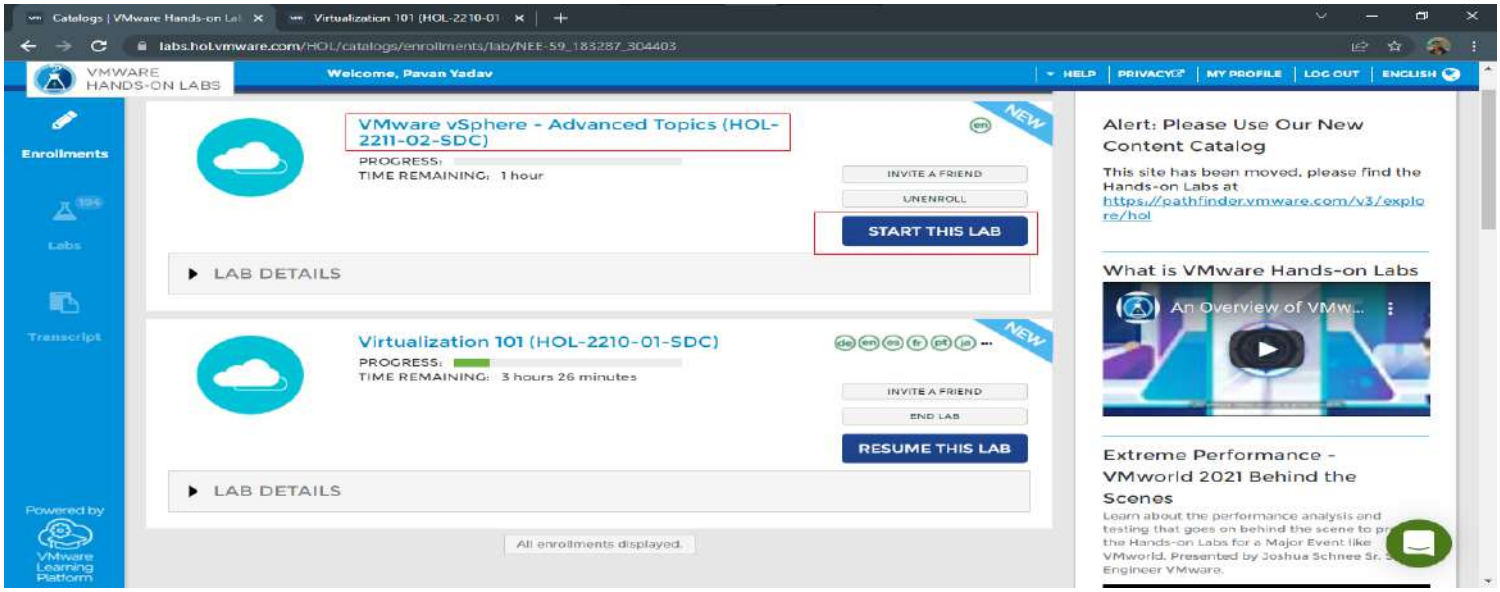
Go to the VMware website labs.hol.vmware/hol/catalog



Search the 2211 on the search panel

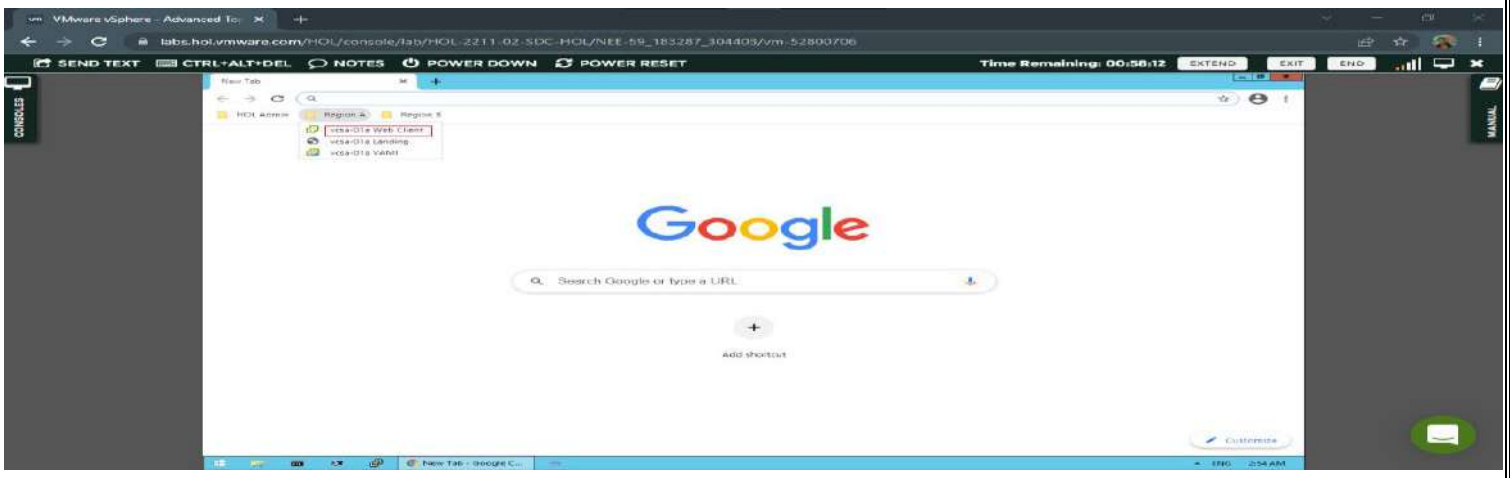


Start the lab of vSphere Advanced Topic (2211-02-SDC)

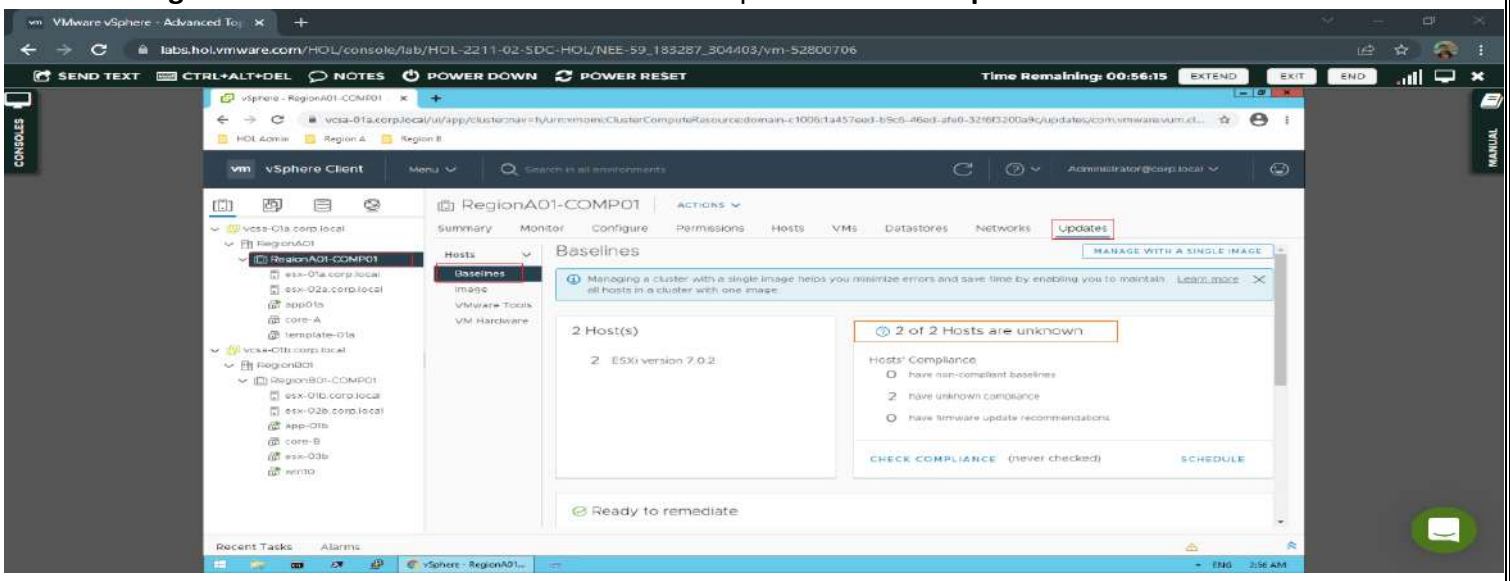


Open the Chrome Browser

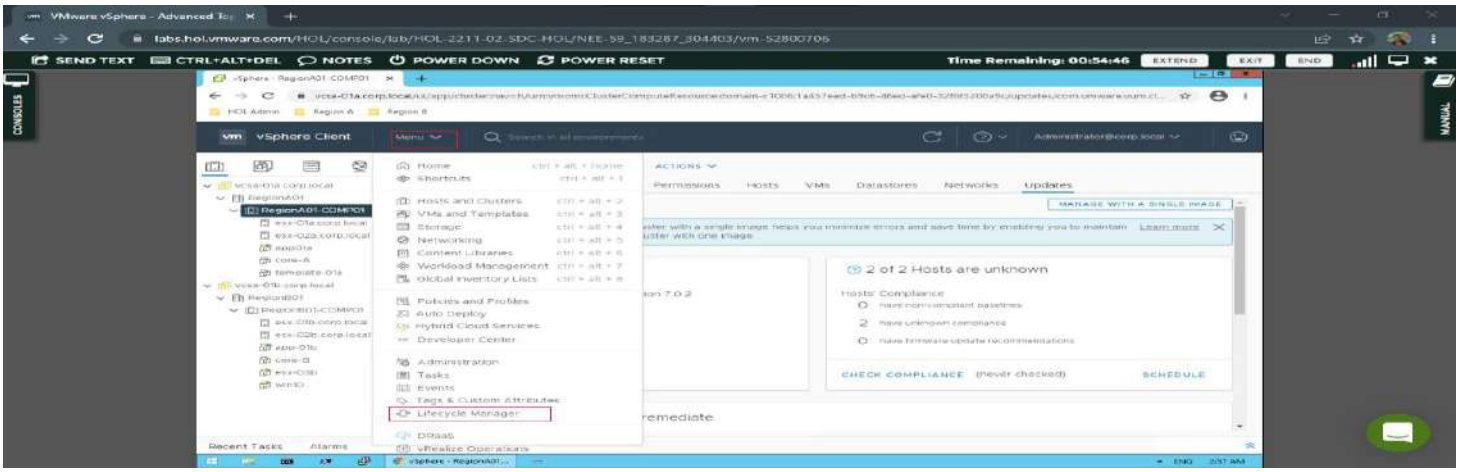
Select the **vcsa-01a Web Client**



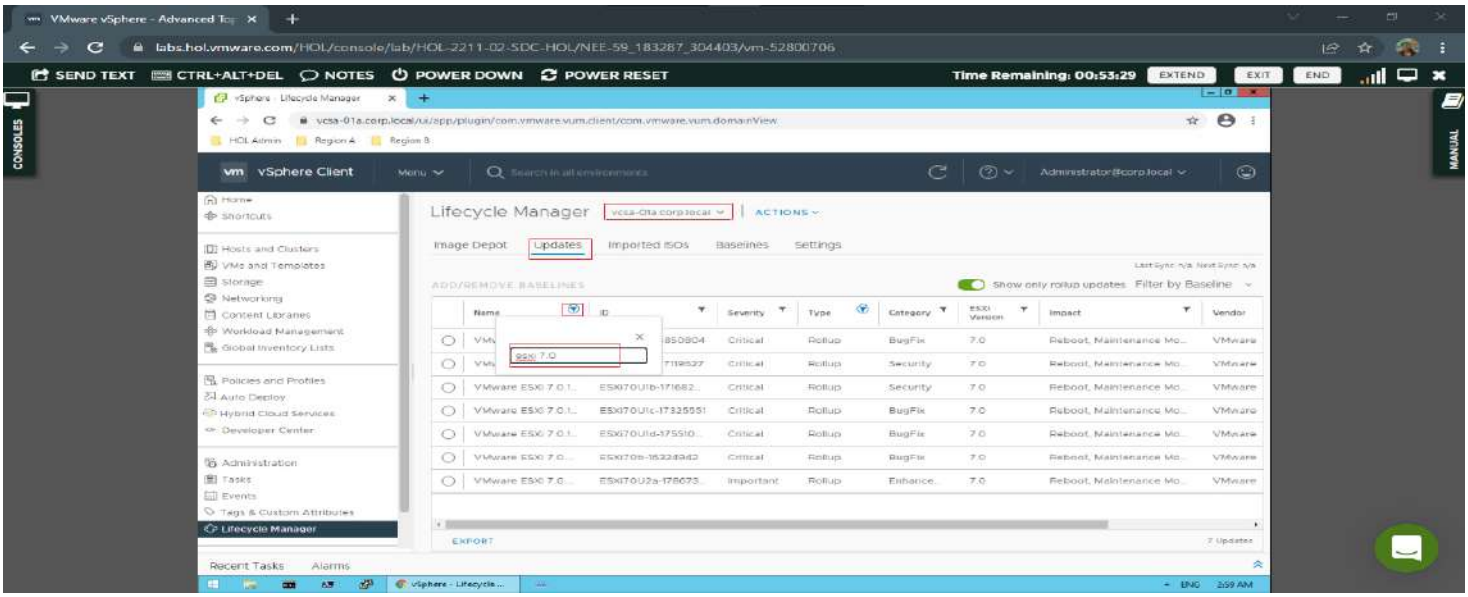
Go to the **RegionA01-COMP01** and Select the **Baseline** option inside the **Update** Tab

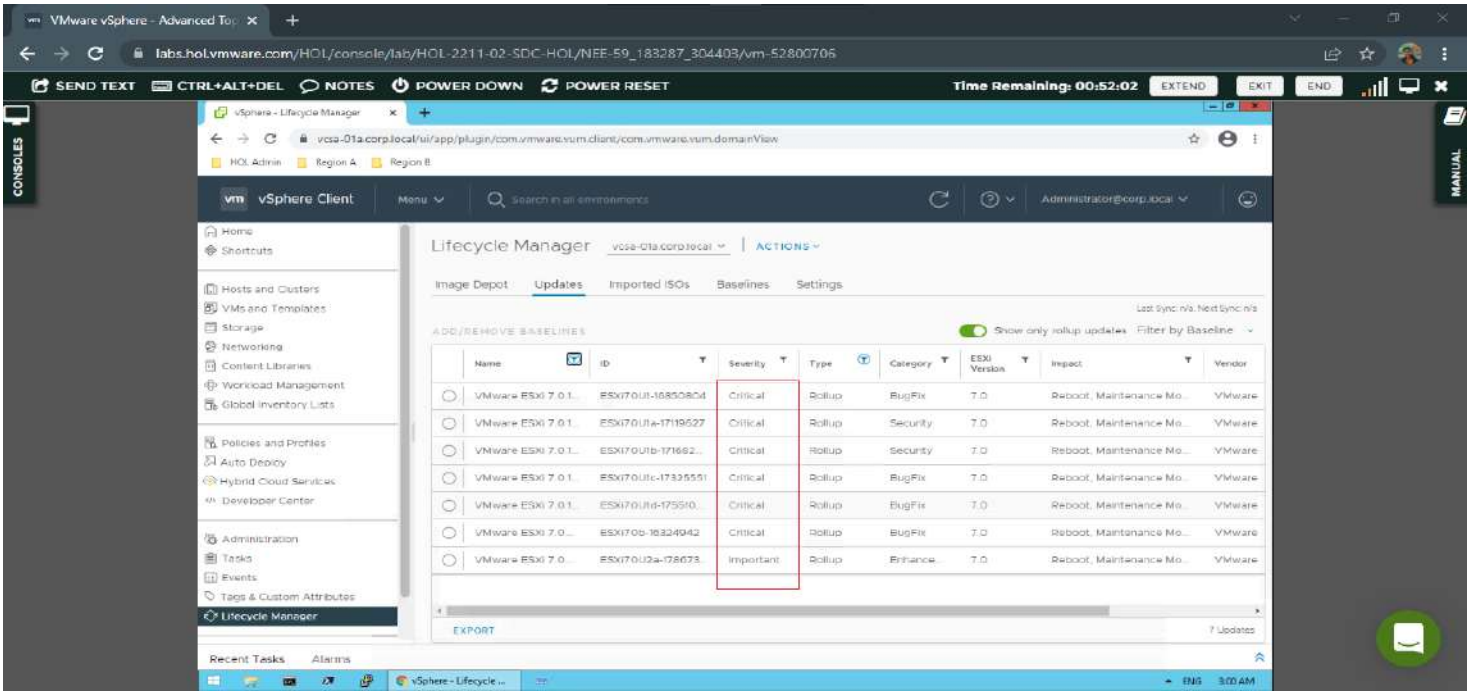


Go to **Menu** and click on the **Lifecycle Manager**

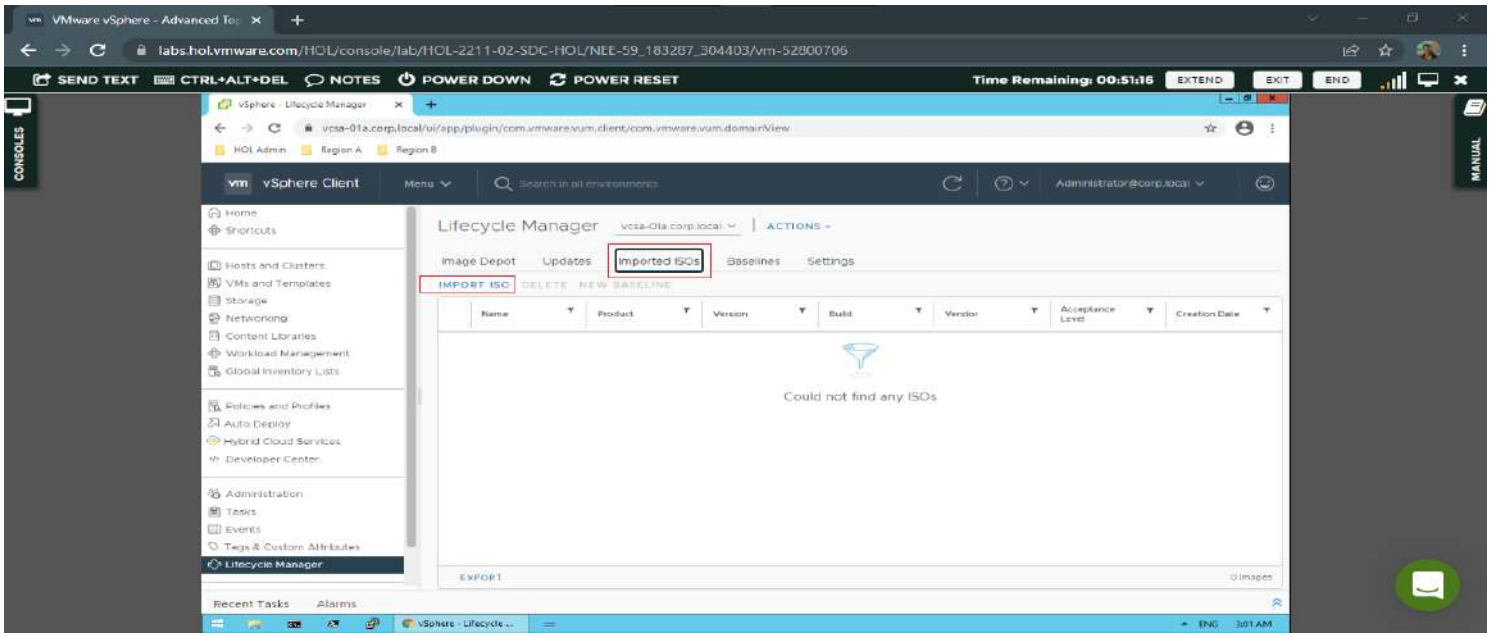


Click on the **Update** Tab and filter the Name i.e. esxi 7.0

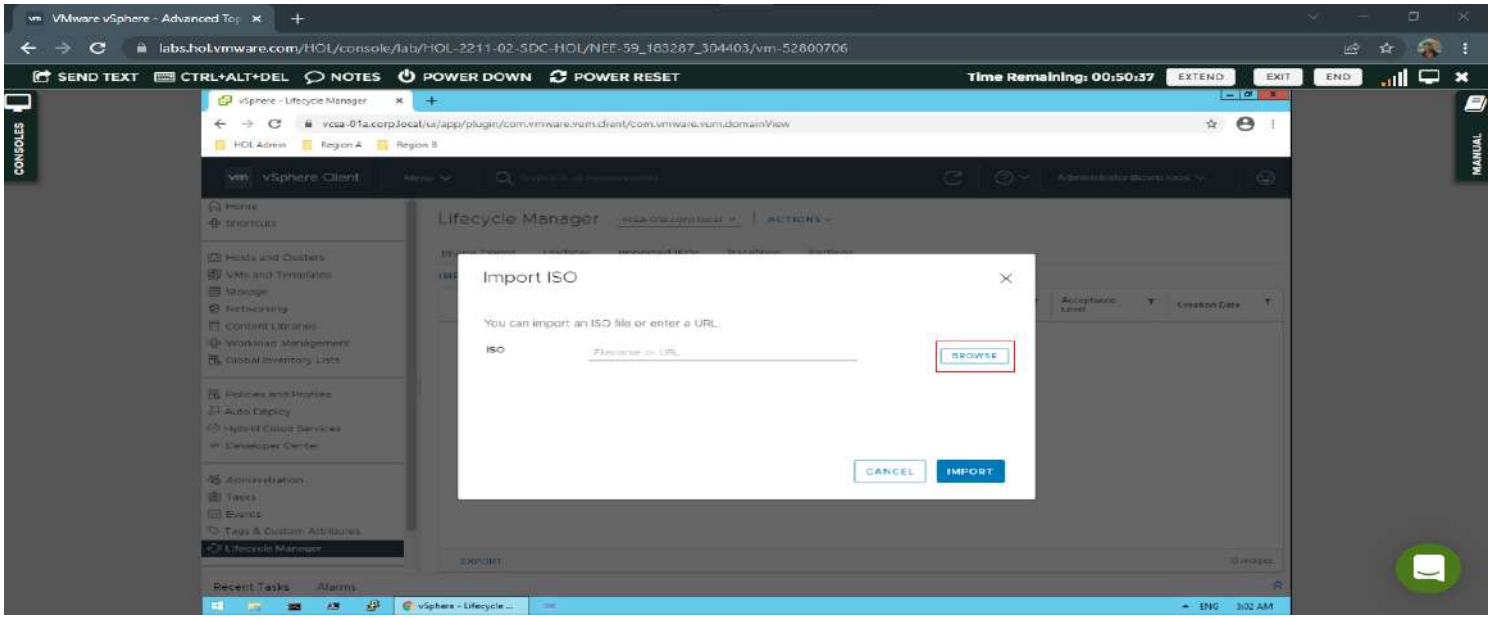


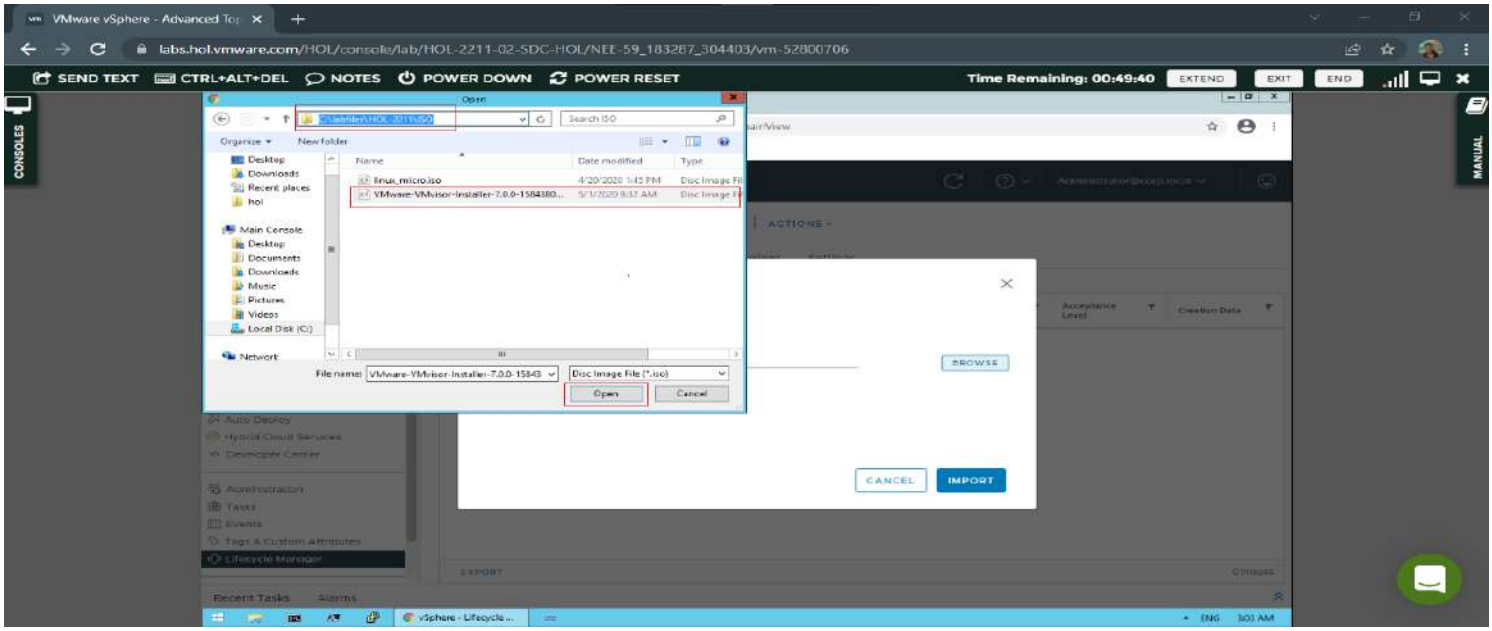


Go to the **Imported ISOs Tab** and Click on the **Import ISO** button

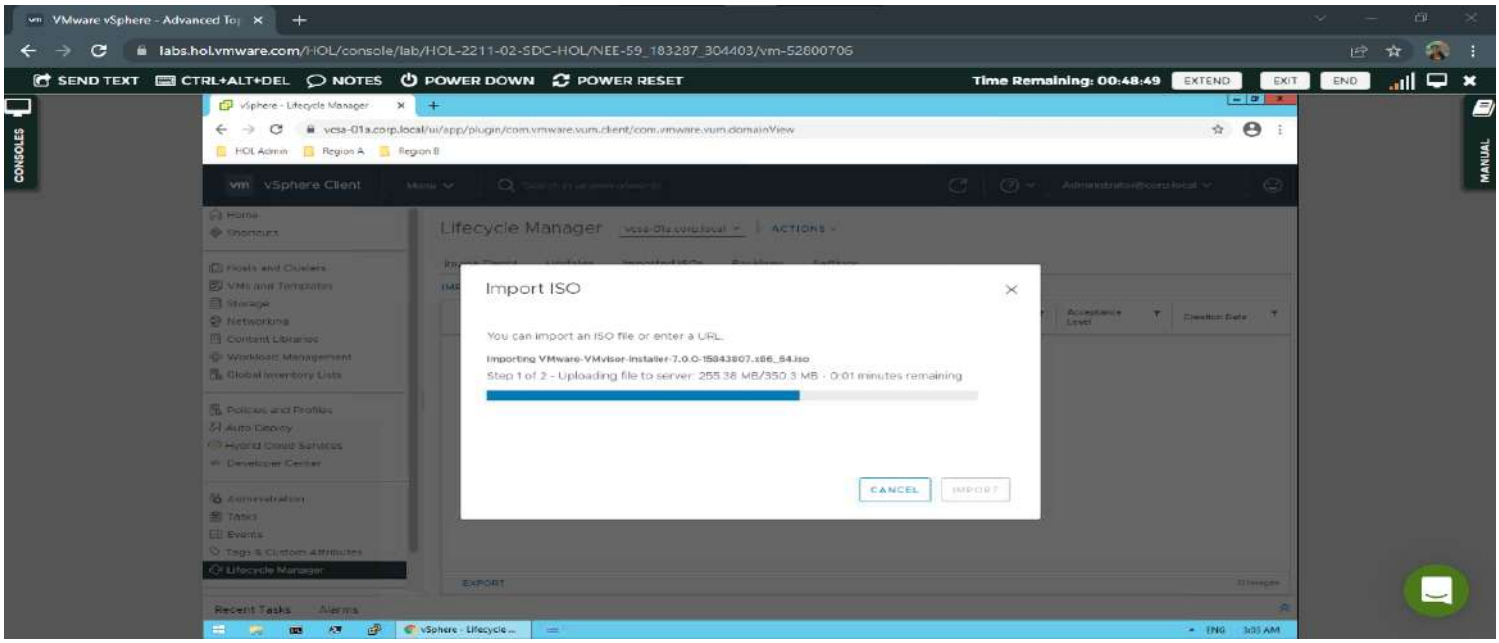


Click on the **Browse** button and browse the ISO file of VMvisor-installer respected path mention into the image and open it. After select the iso file then click on the **Import** button

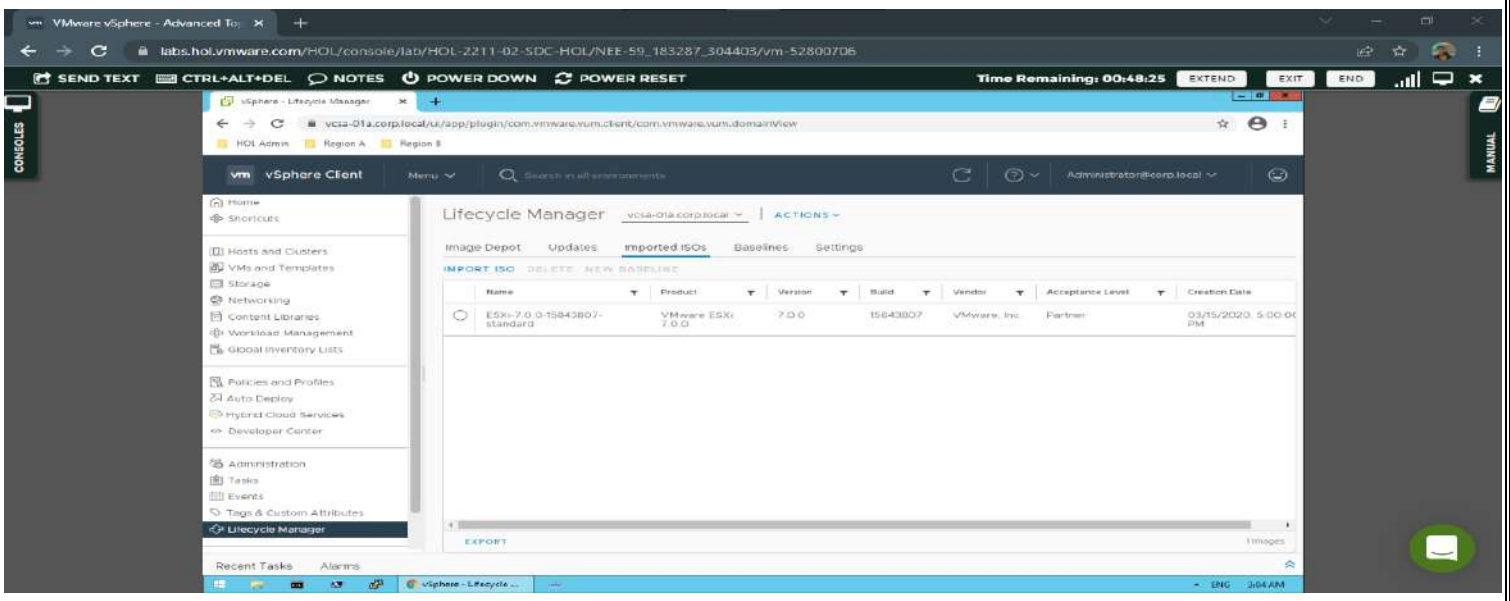




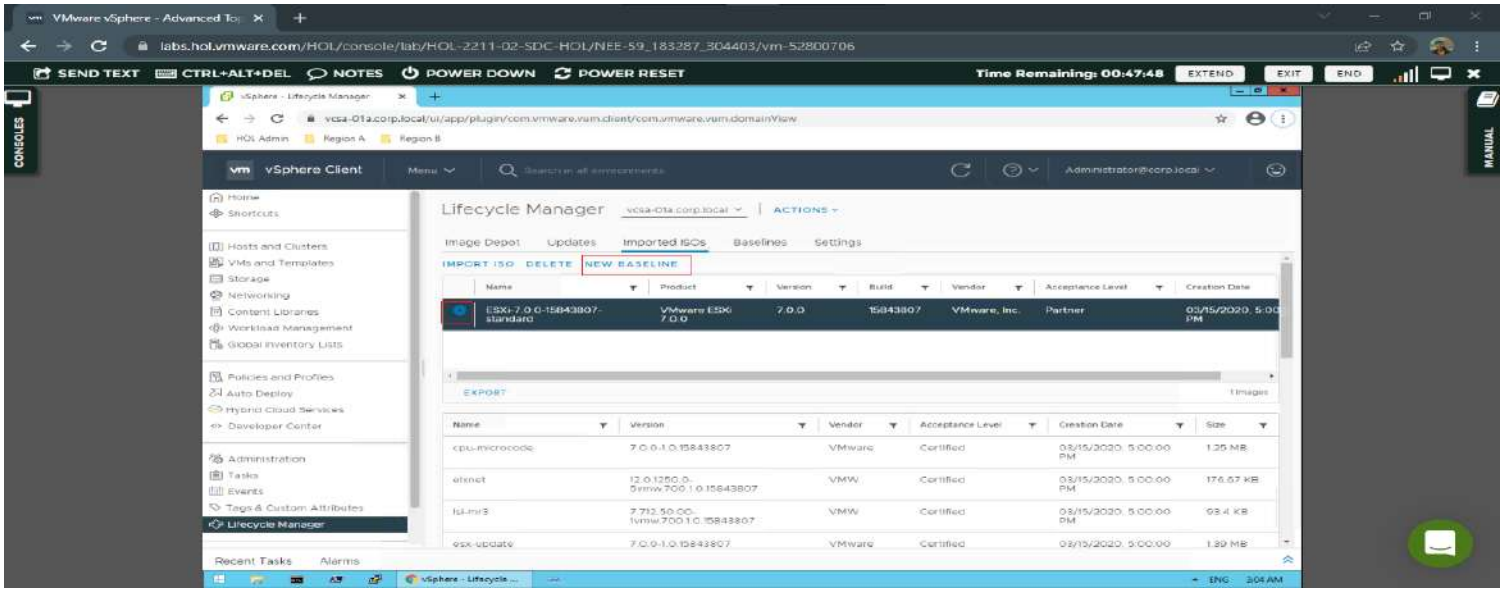
Wait few seconds for uploading the iso file



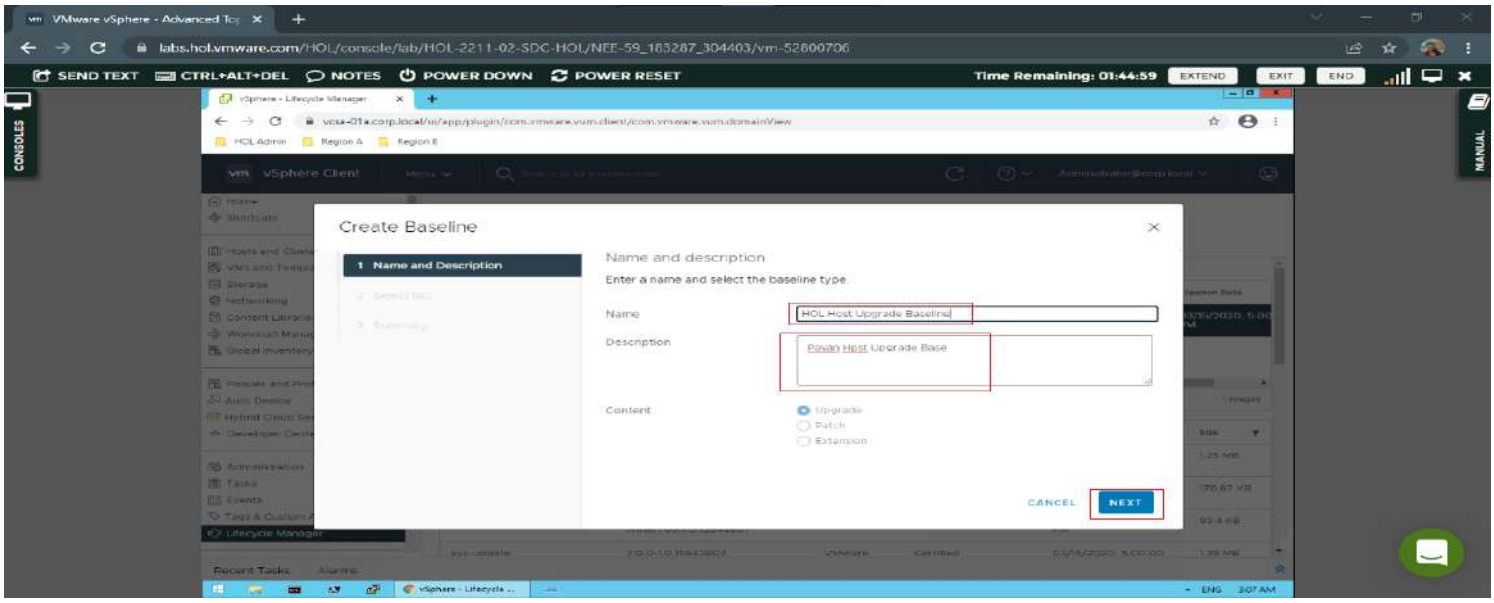
Go to an **Imported ISOs** Tab then view the uploaded iso file present



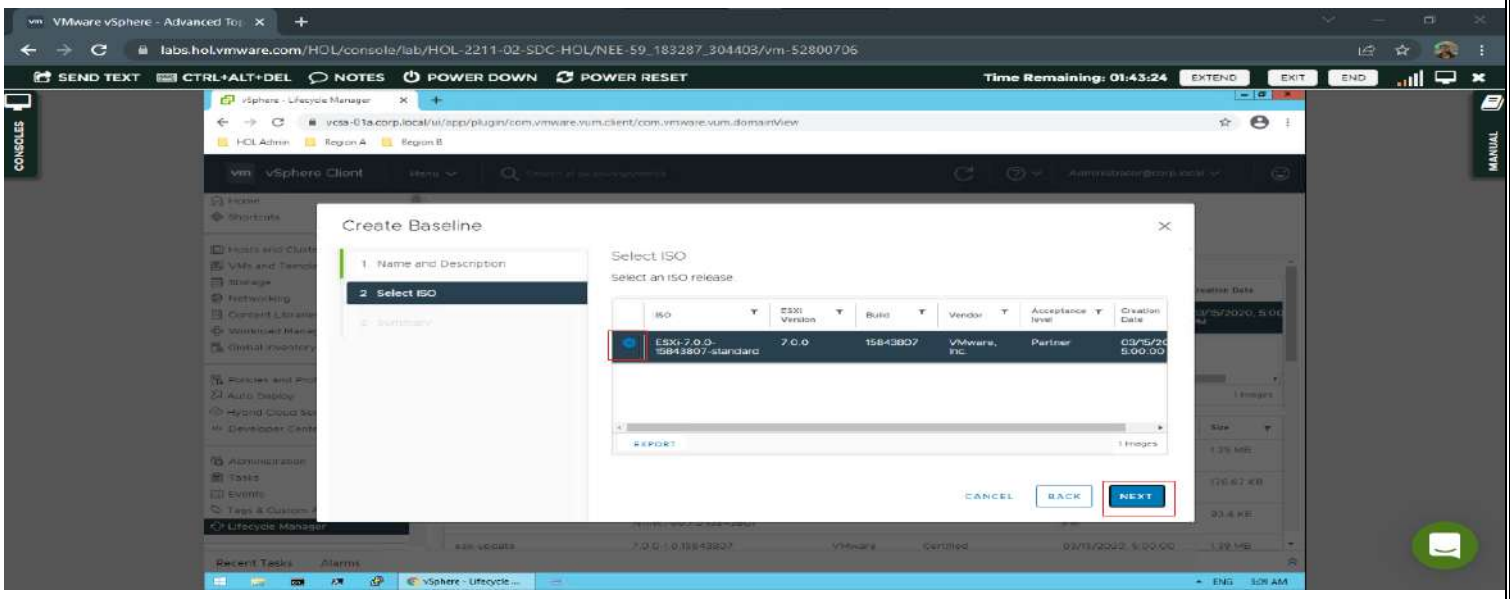
Select on the particular iso file mention on the image and Click on the **New Baseline**



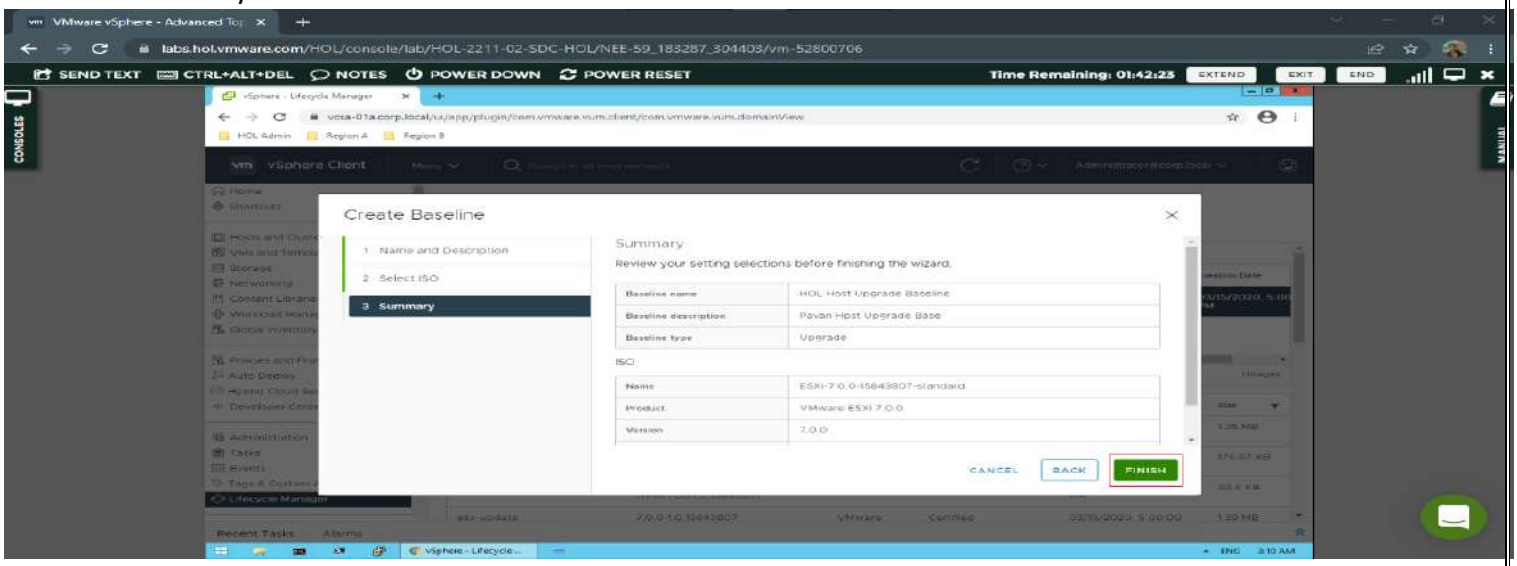
Enter the required field to fill it then click on the **Next** button



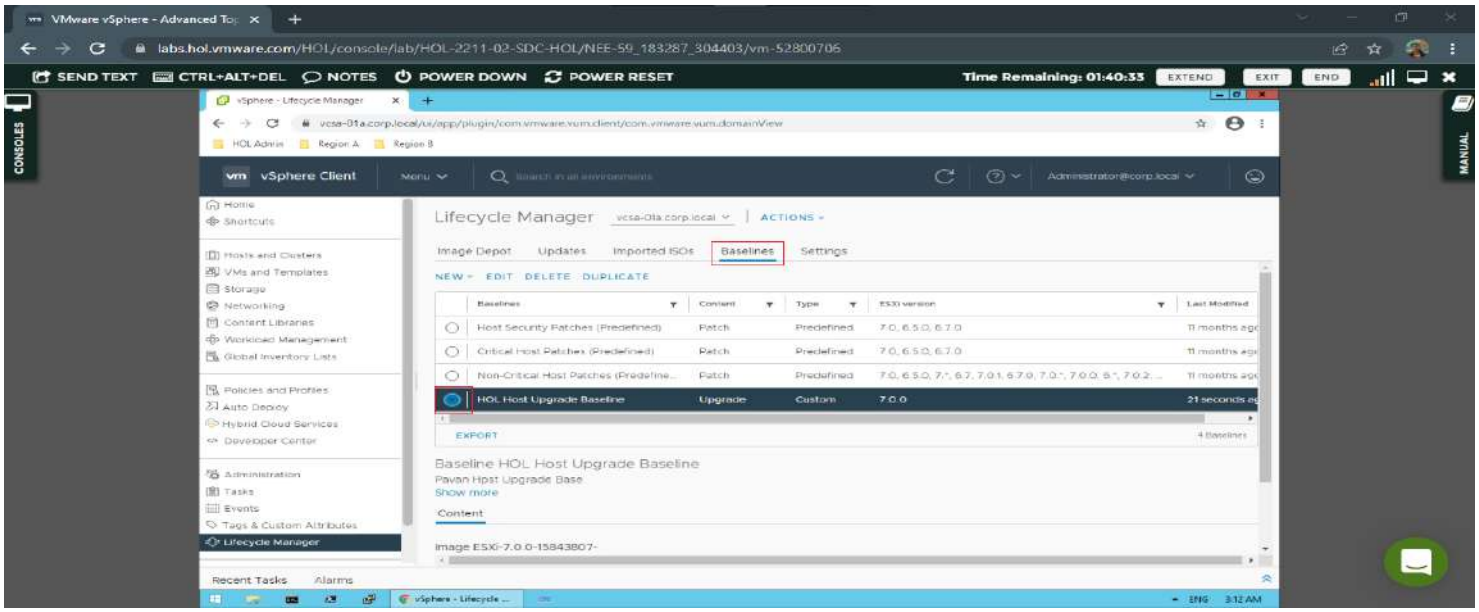
Select ISO file and click on the **Next** button



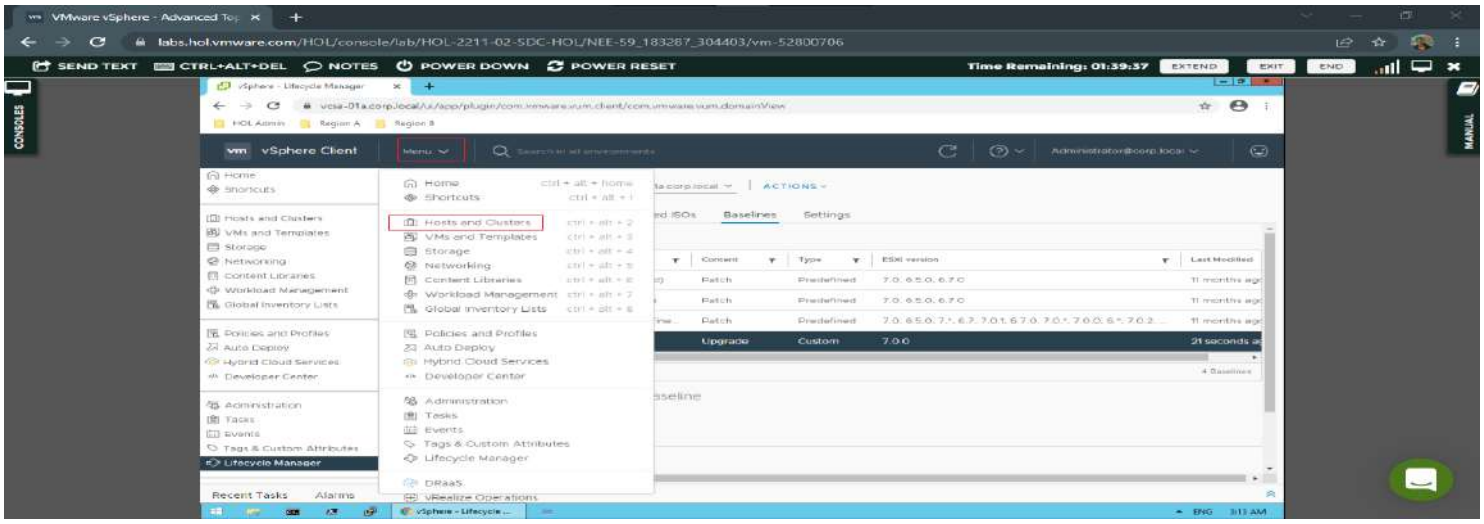
View the summery of Create baseline and Click on **Finish** button



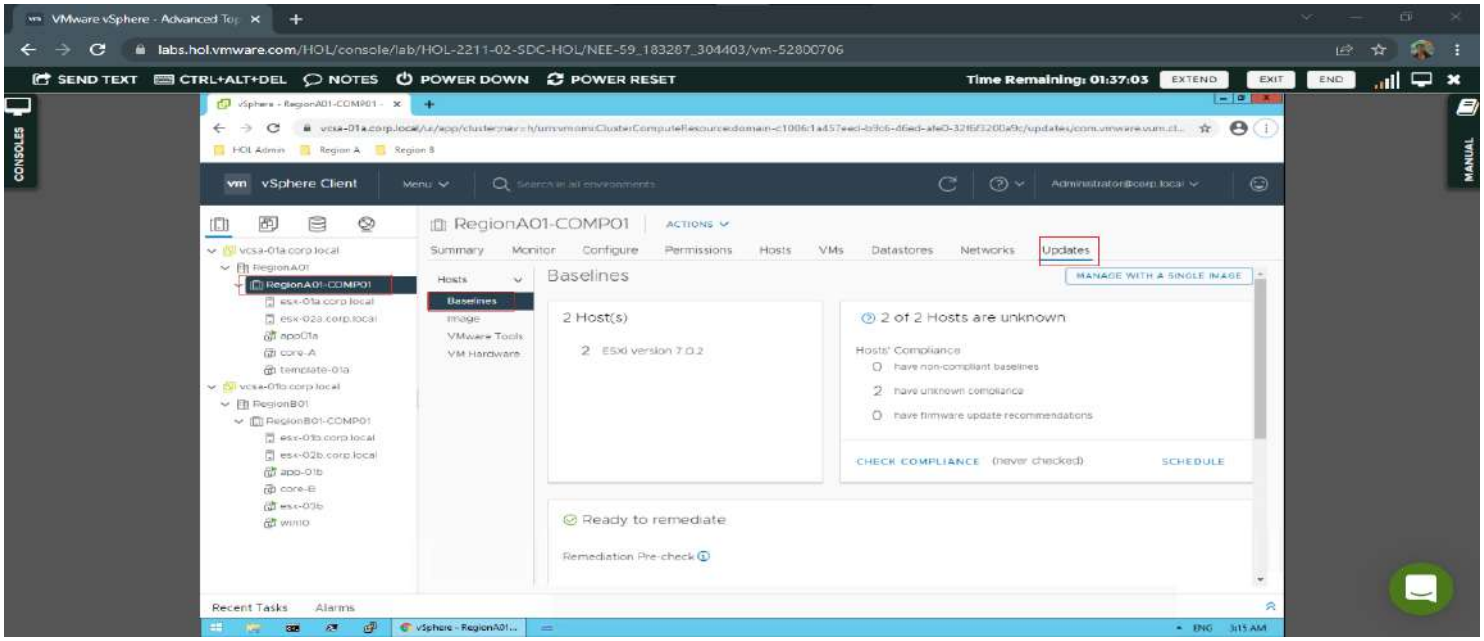
Tab on the **Baselines** tab and select the recently created Baseline option



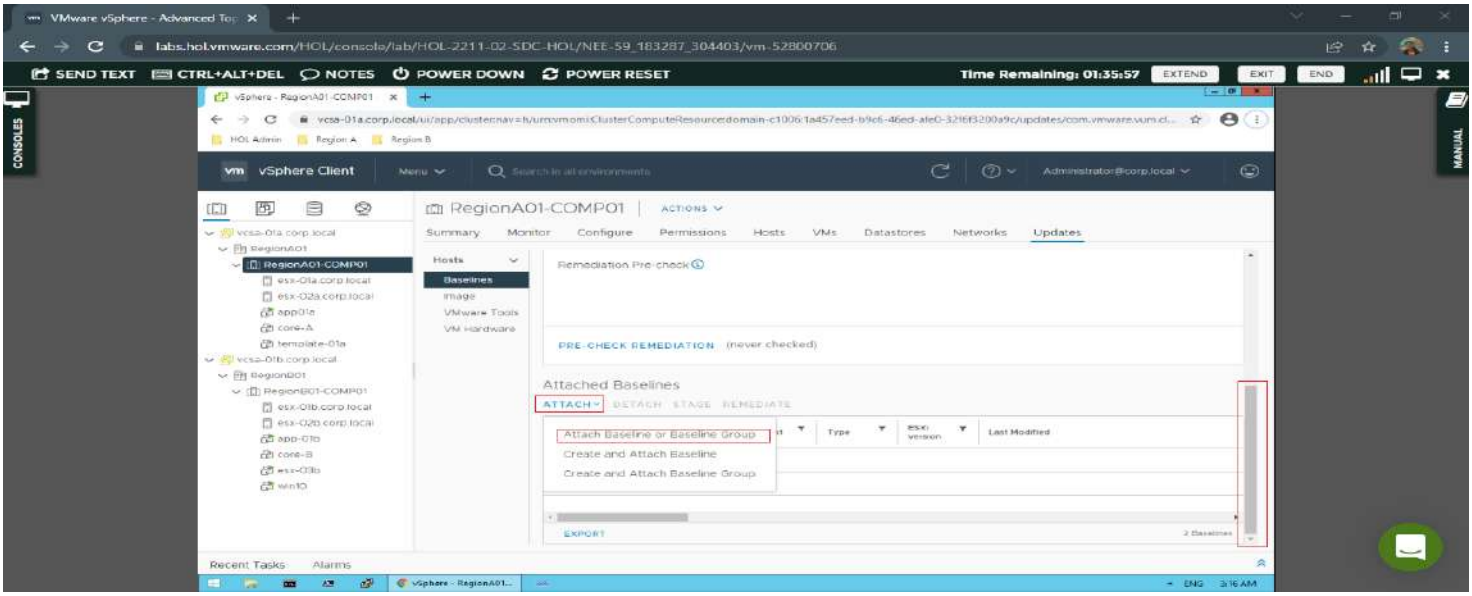
Go to the **Menu** and Click on the **Hosts and Clusters** option



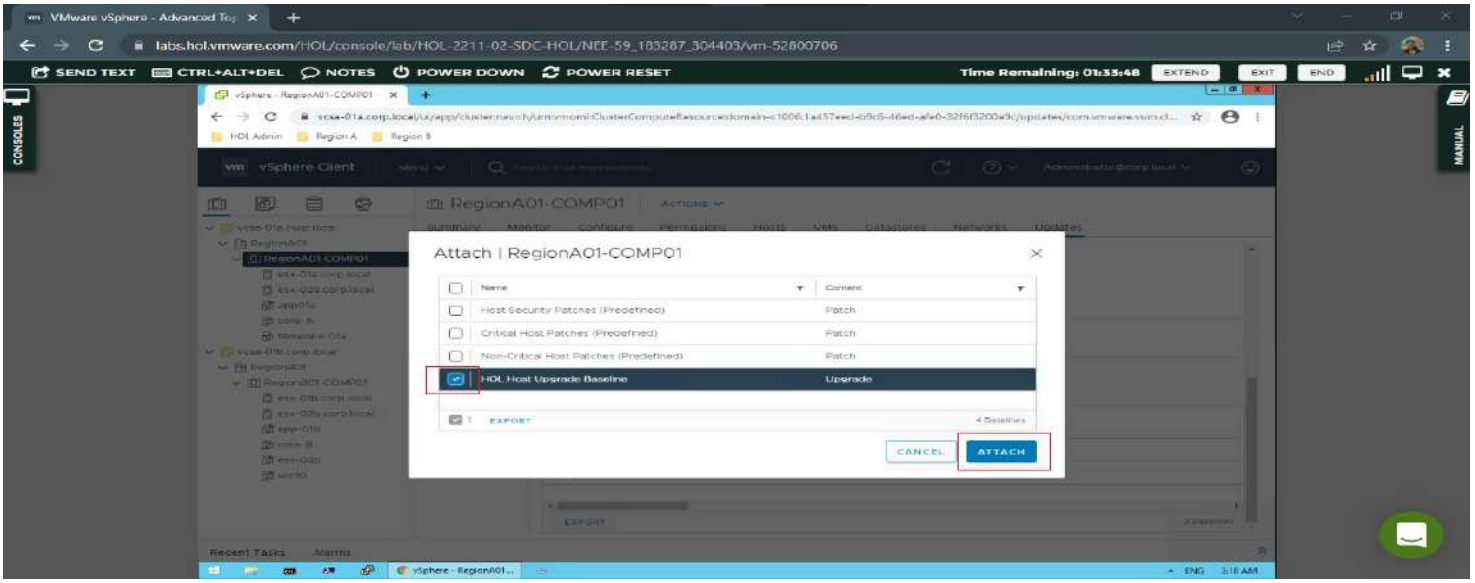
Go to the **RegionA01-COMP01** and Tab on the **Update** tab and Click on the **Baselines**



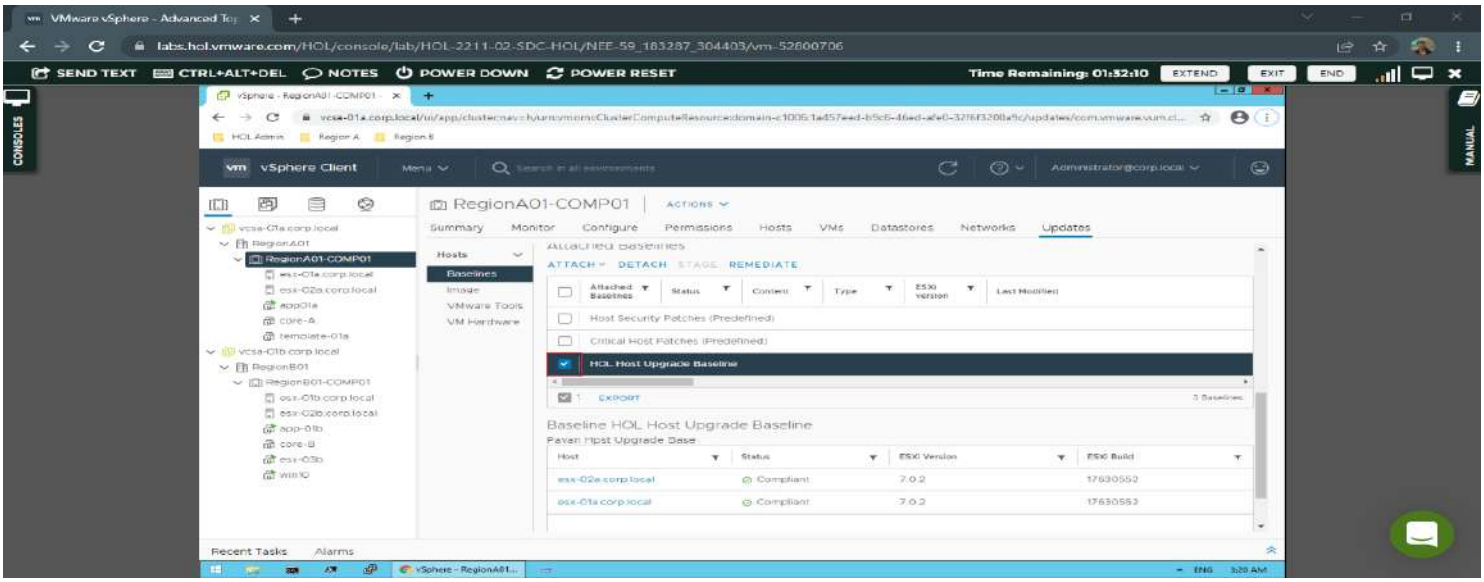
Scroll down the page. Select the **Attach Baselines or Baselines Group** on click an Attach button i.e. inside the Attached Baselines



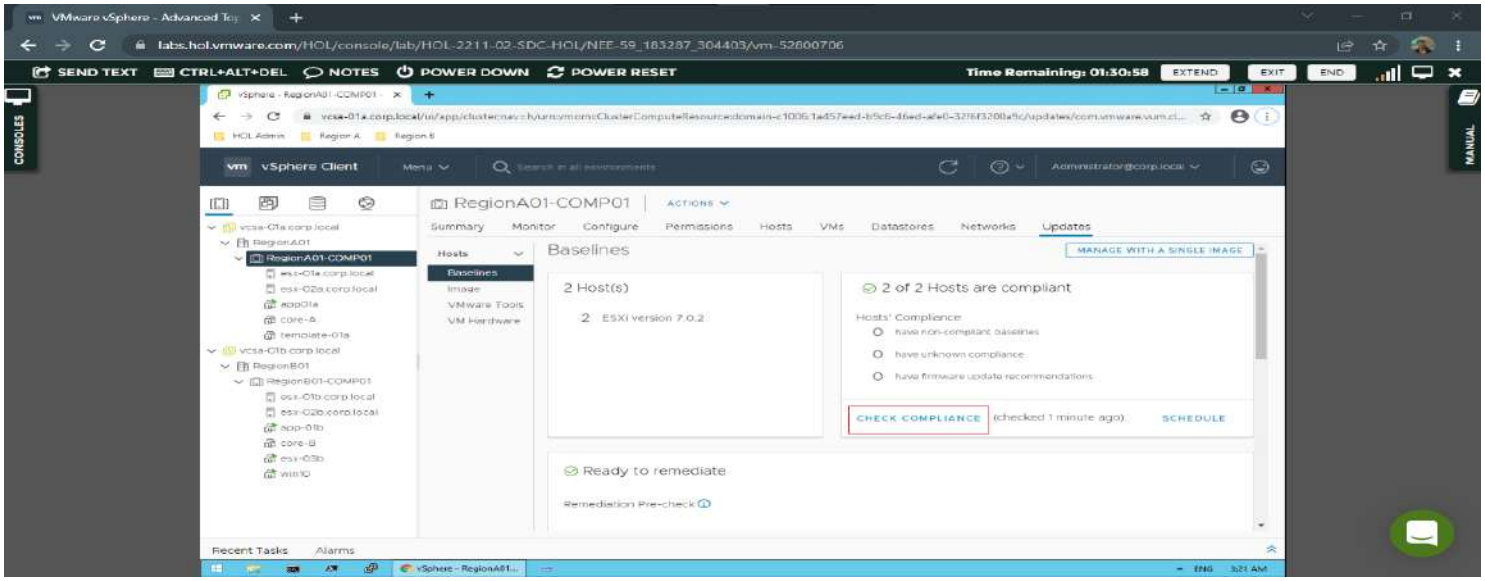
Check the Created Baseline inside the Attach | RegionA01-COMPO1 and Click on **Attach** button



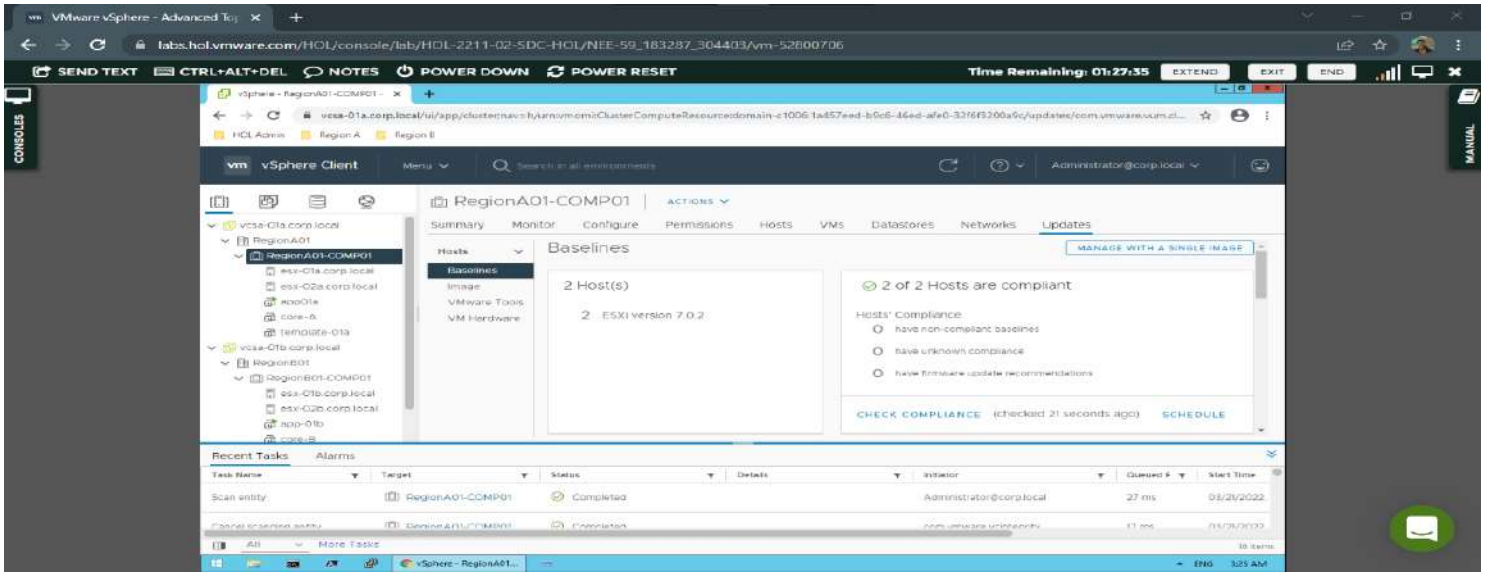
View the Attach Baseline inside the Attached Baseline section



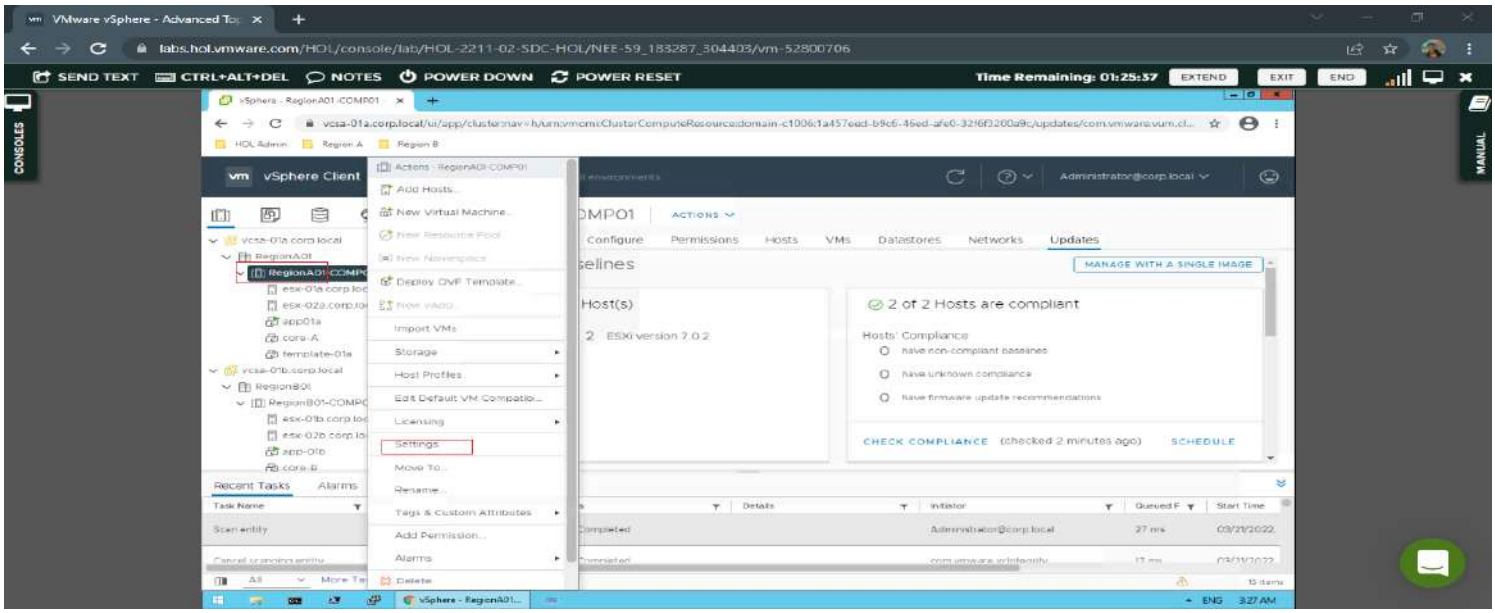
Scroll up Click on the Check Compliance inside the Baseline section



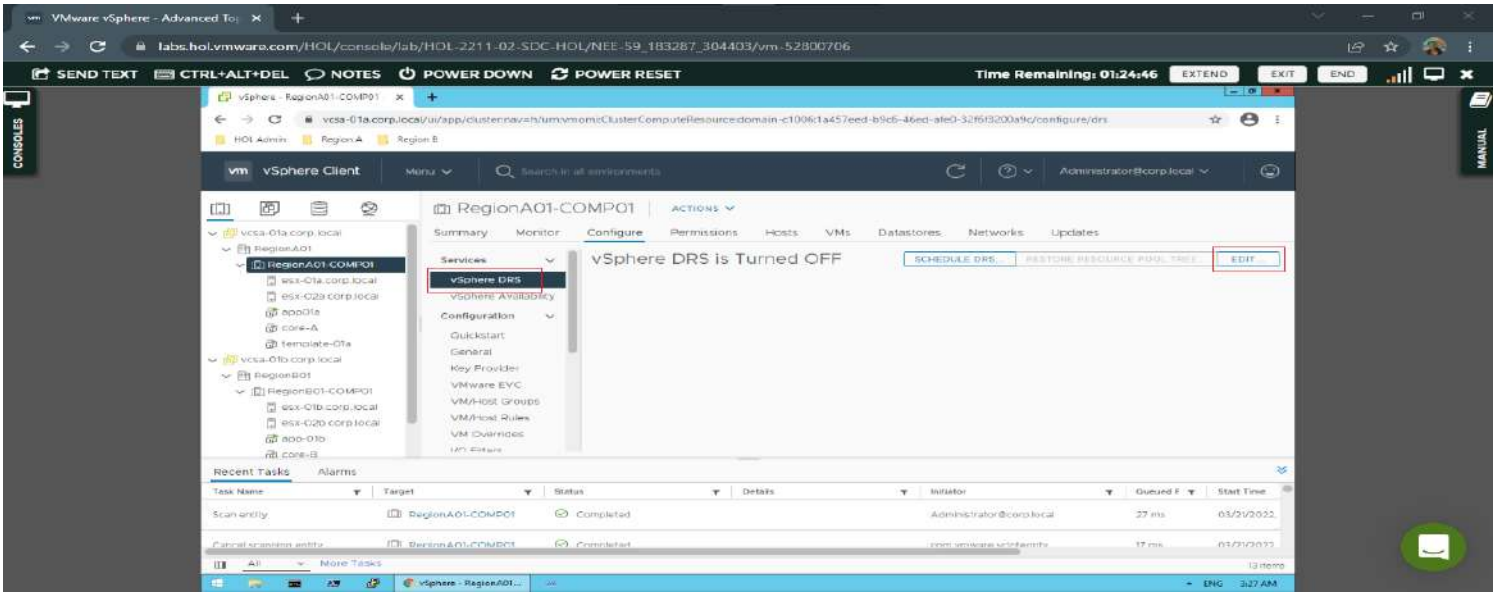
In Recent Task show the progress of recent activity



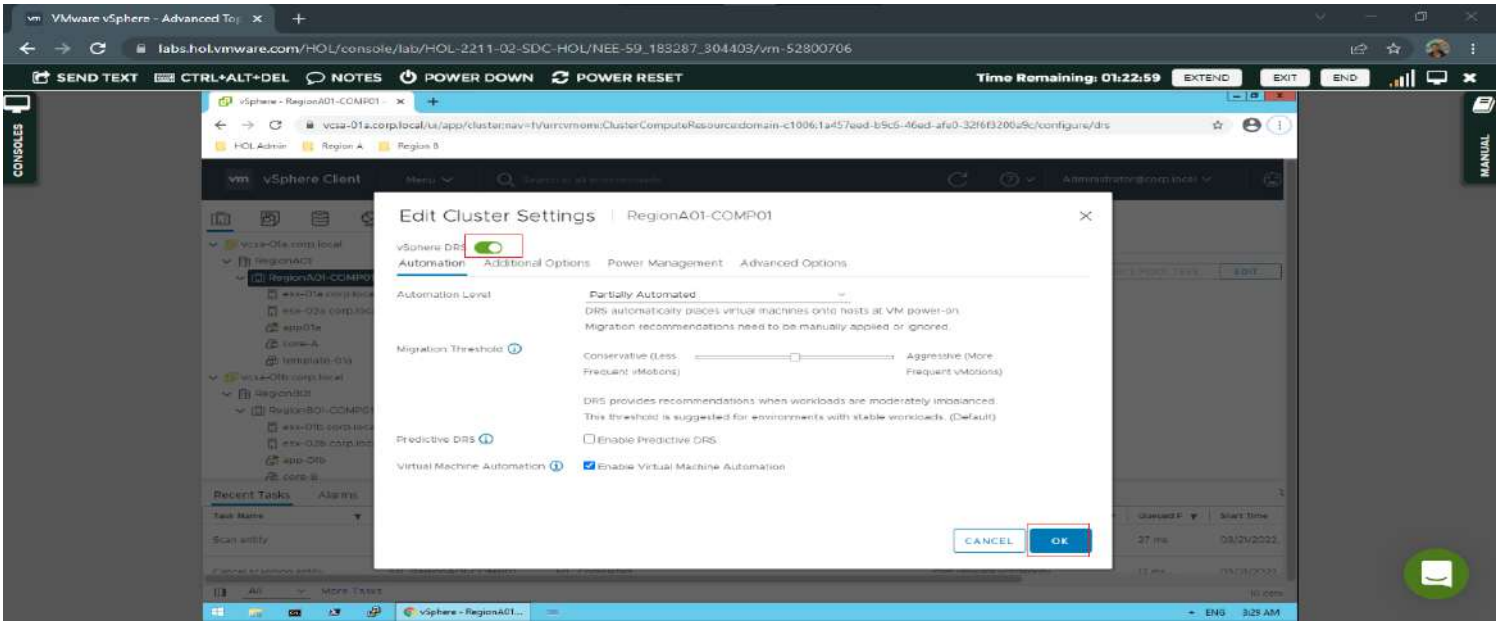
Right click on the <u>RegionA01-COMP01</u> and click on the **Settings**

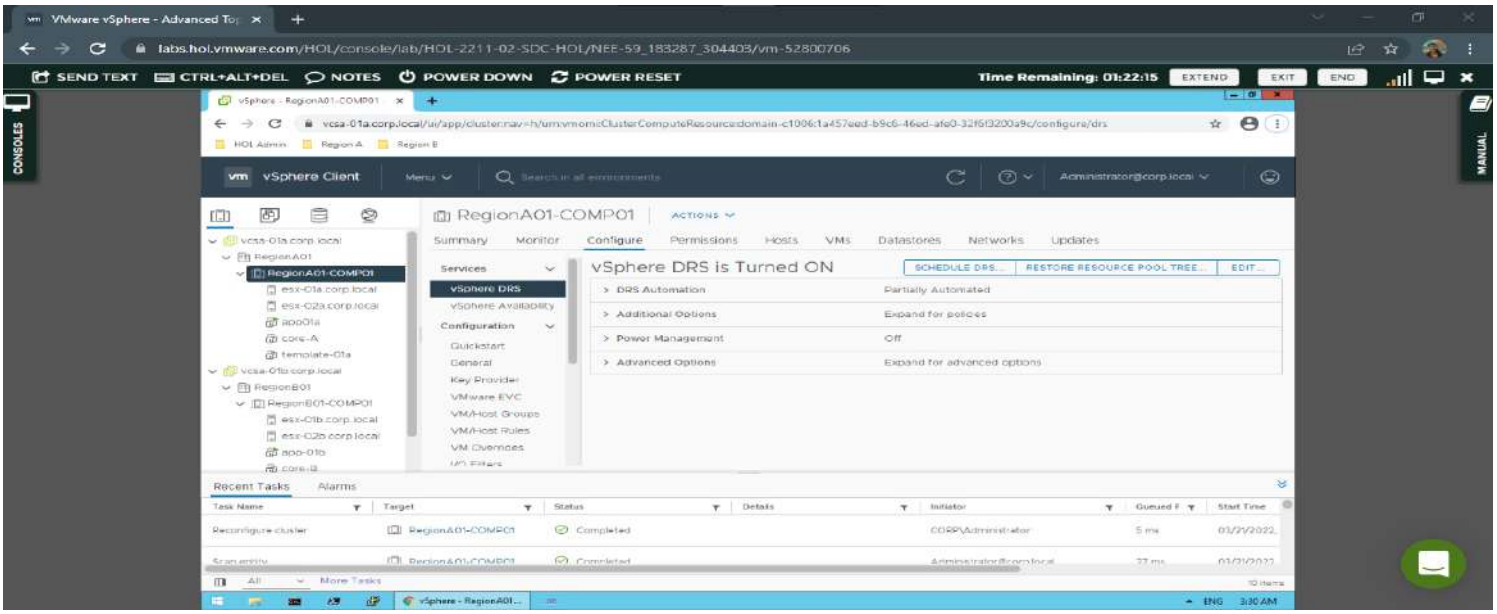


Go to the **Configure** Tab and Click on the **vSphere DRS** option. Inside the vSphere DRS option have **Edit** button click on the button

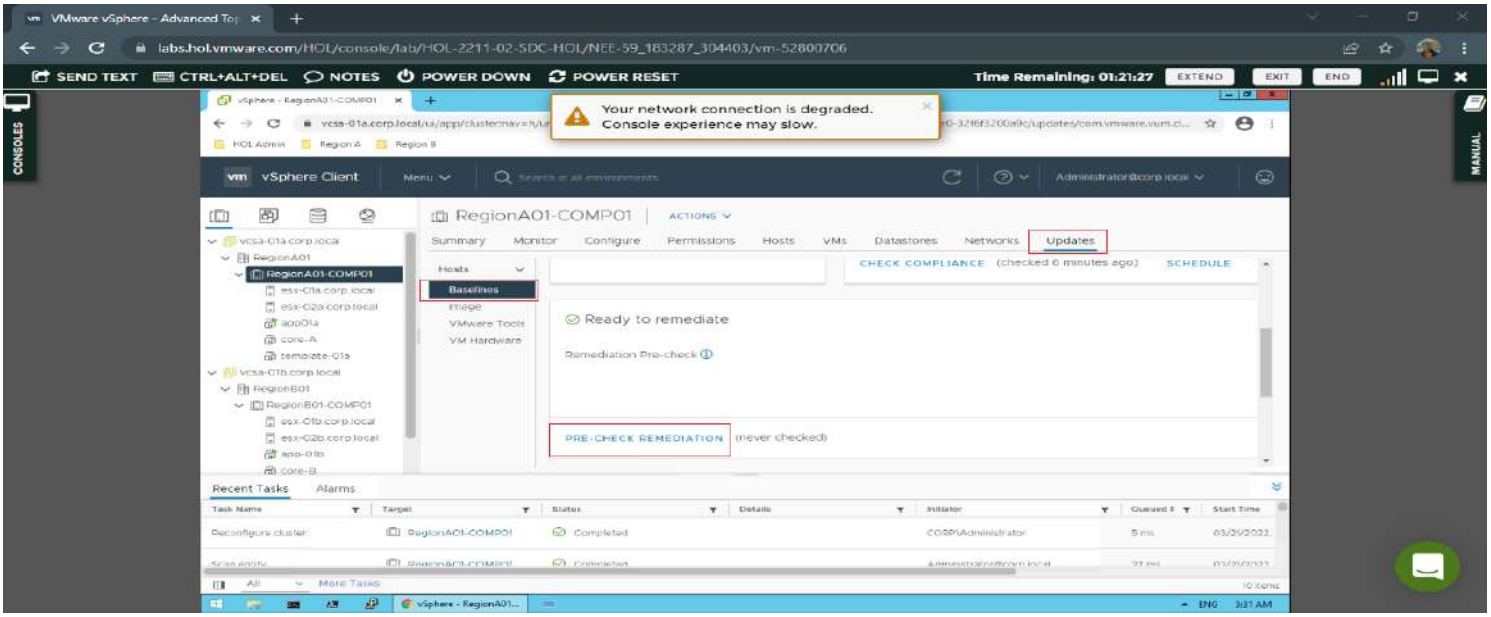


Enable the vSphere DRS on click on the toggle and Click **OK**

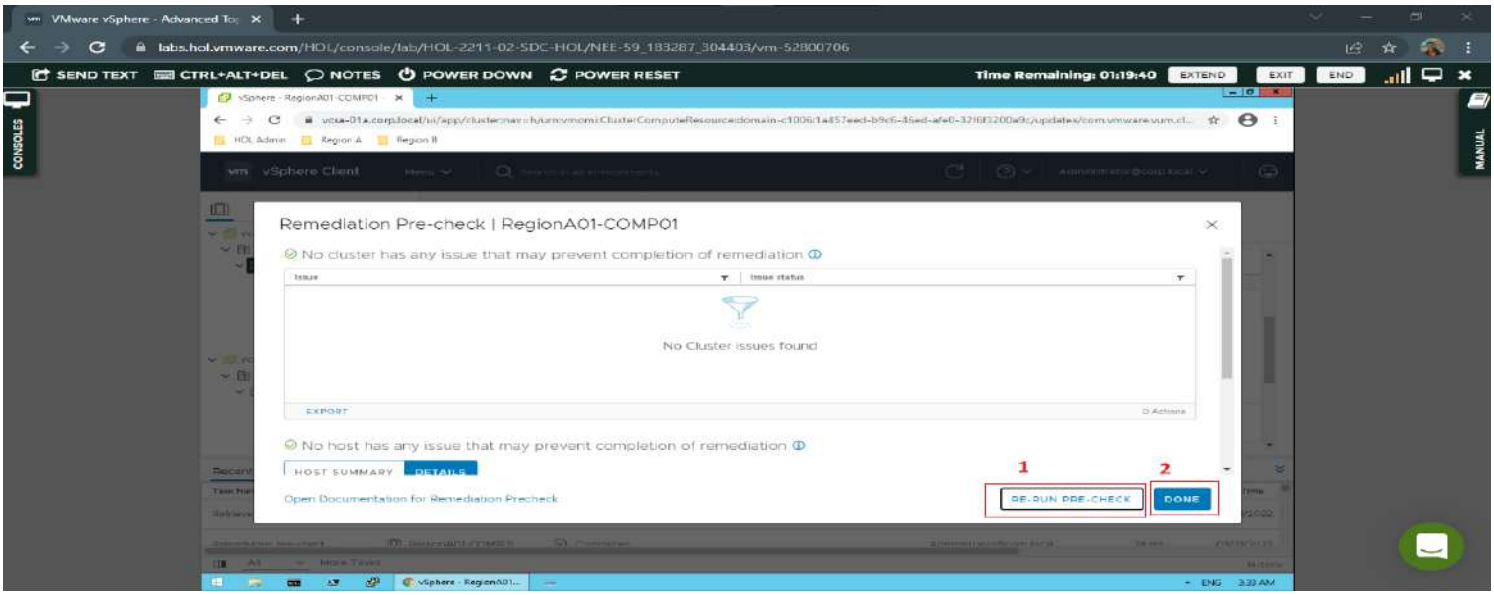


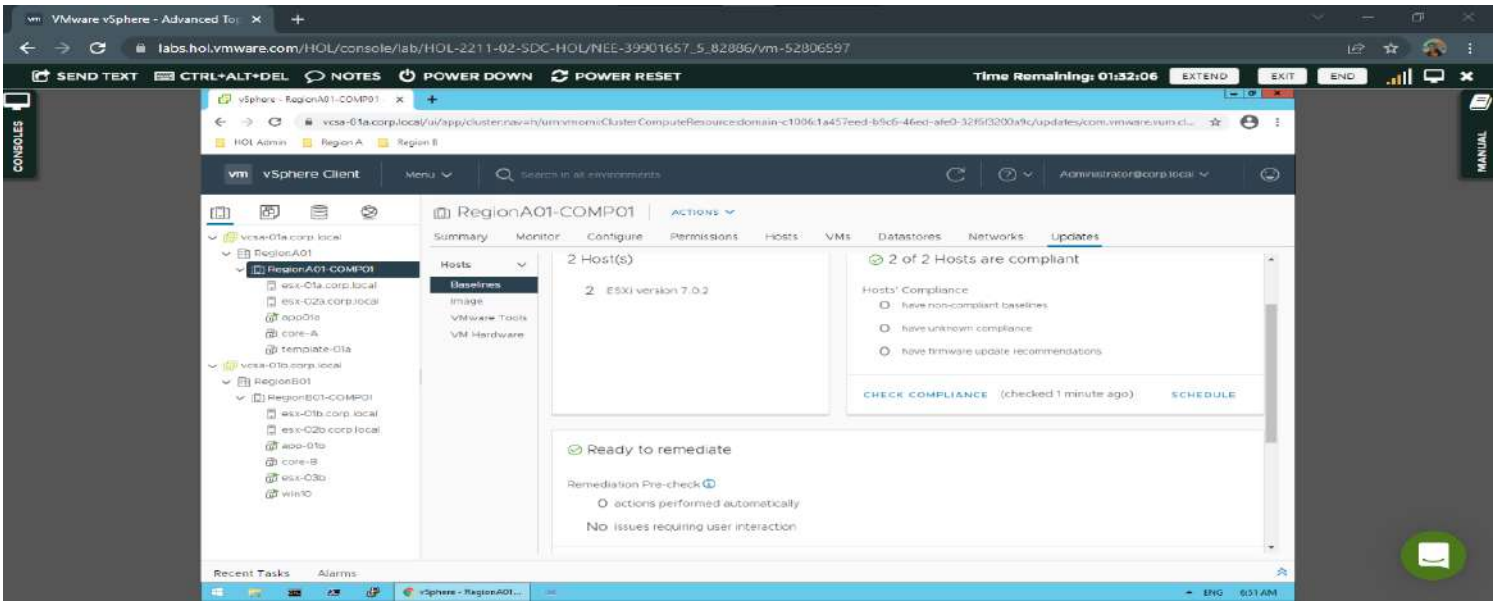


Now again go to the RegionA01-COMP01. Tab on the **Update** Tab and Click on the **Baselines** option. Inside the Ready to remediate section click on the **Pre-Check Remediation** button



First click on the **Re-Run Pre-Check** button and after that click on the **Done** button



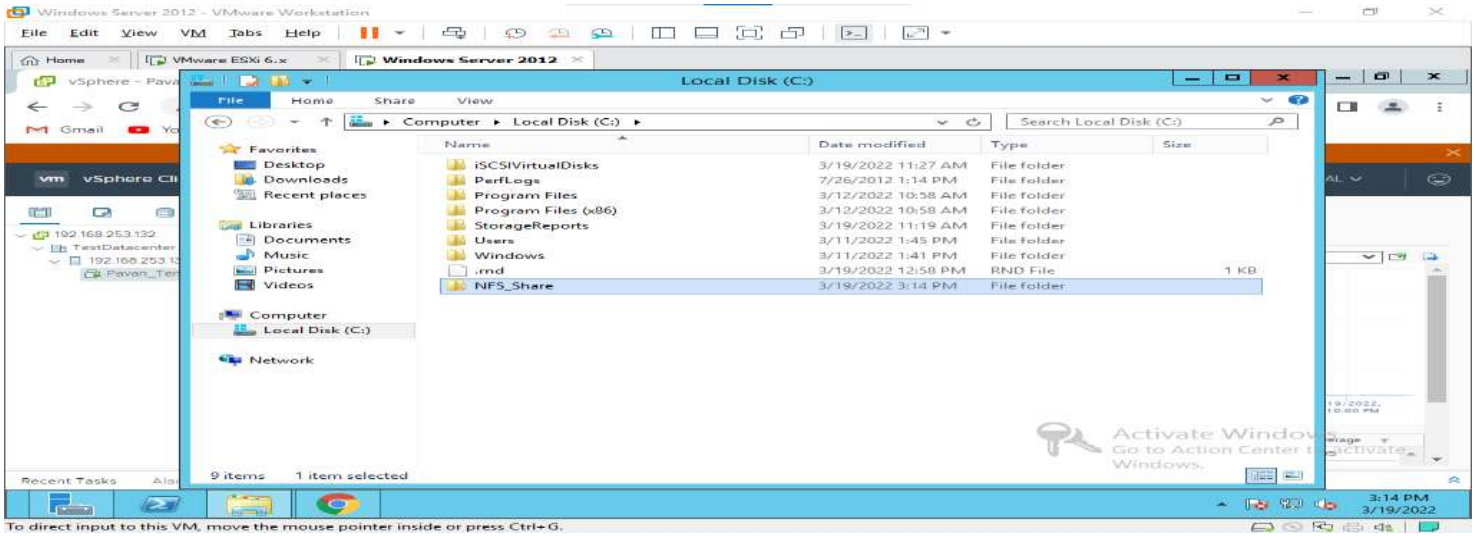


Practical No. 6

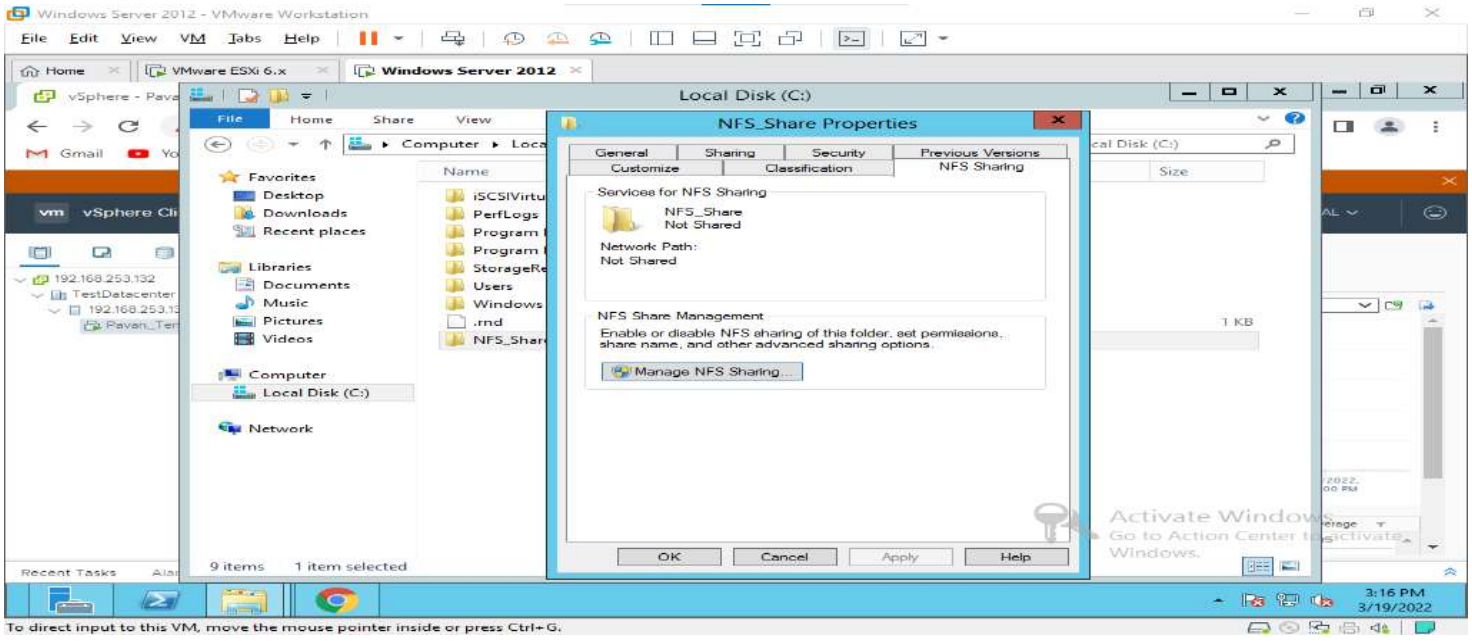
Aim: Implement the NFS with the vCenter Server.

This practical depends on the **Practical No. 4 A**

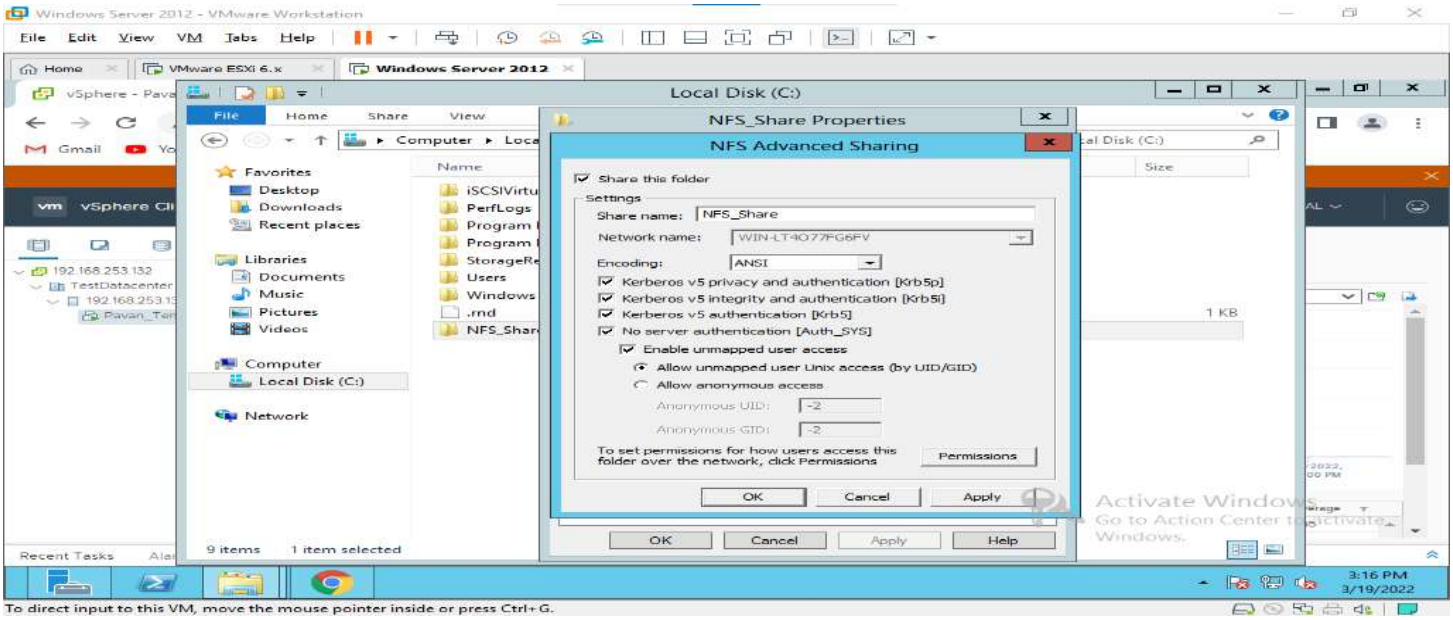
First go to the Disk C then Create a Folder (i.e. NFS_Share)



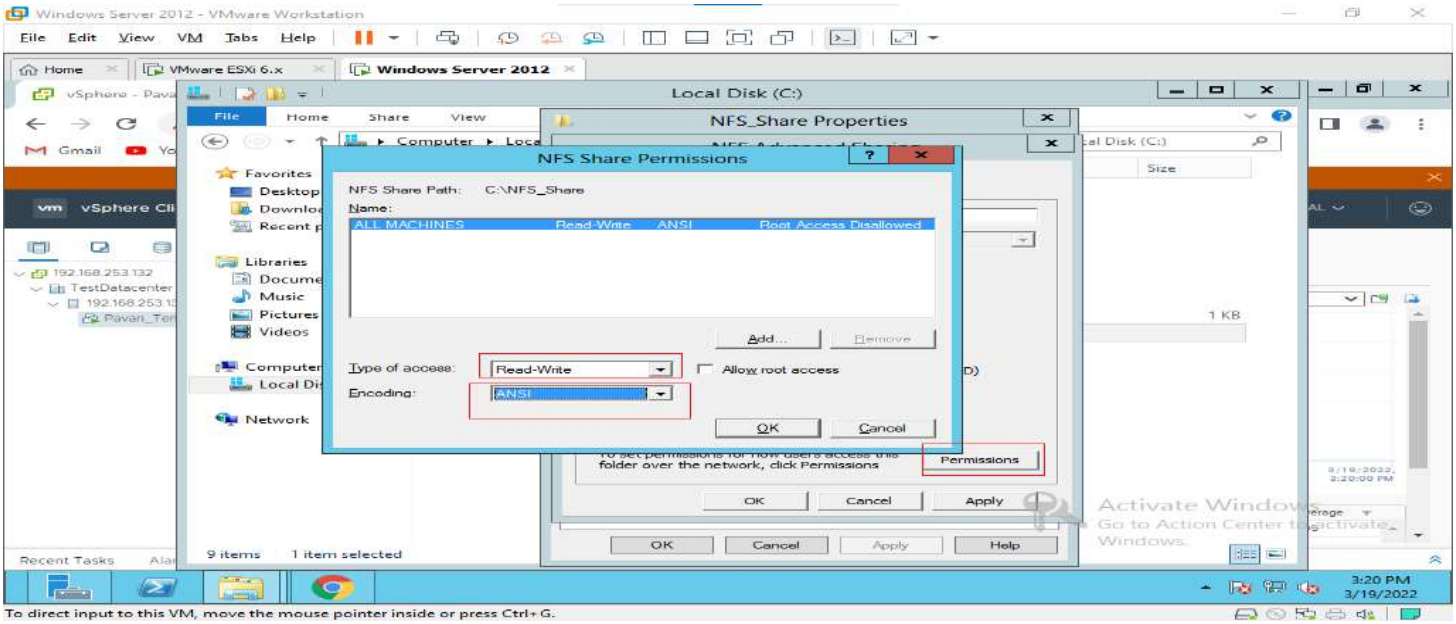
Go to the **folder properties** and after that click on the **NFS sharing** tab



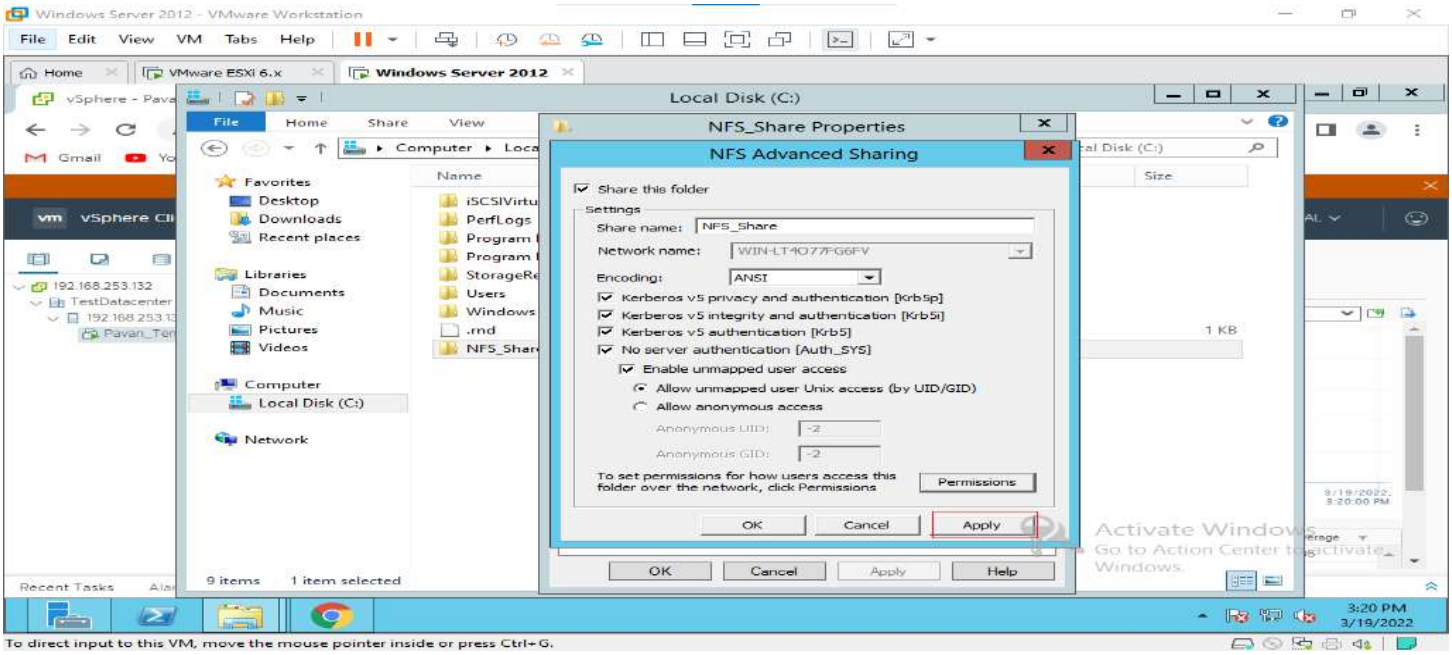
Click on the **Permissions**



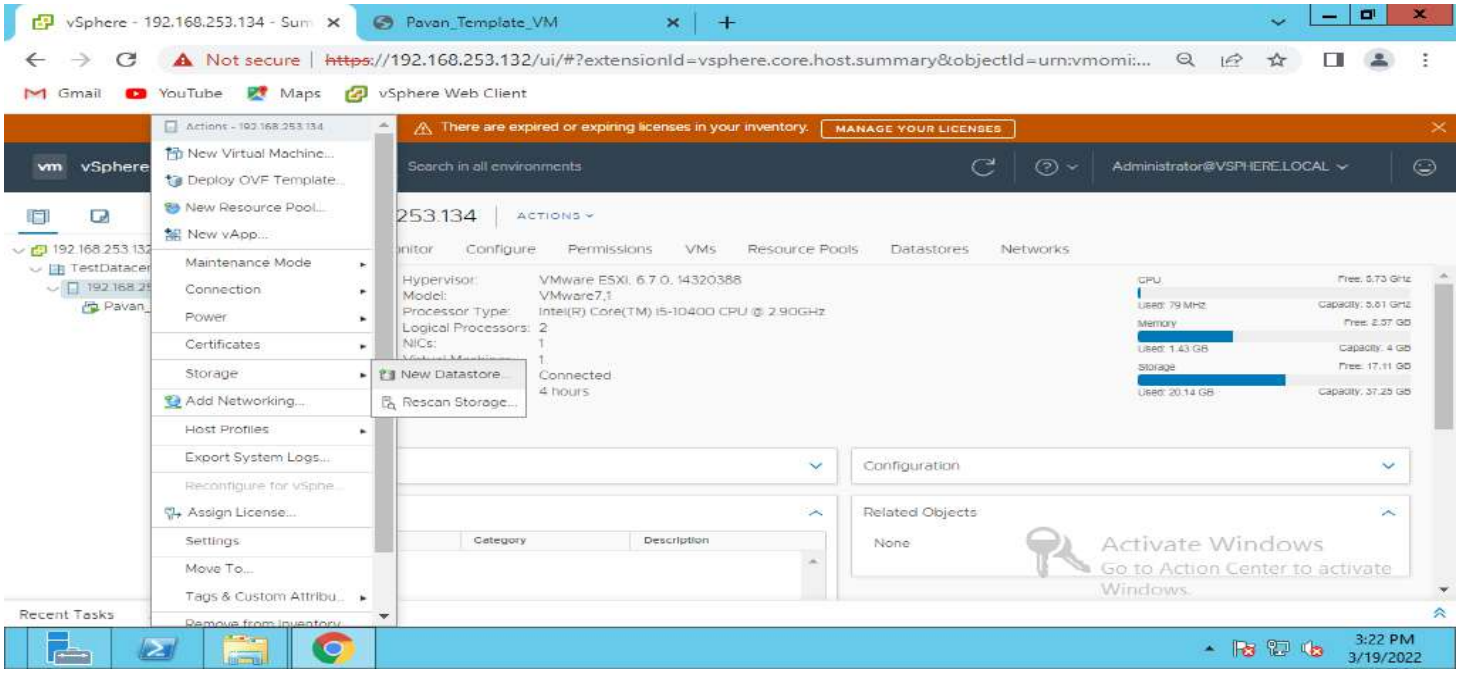
And select the **Read-Write** option into the Type of access and **ANSI** option into the Encoding and Click on the **OK** button



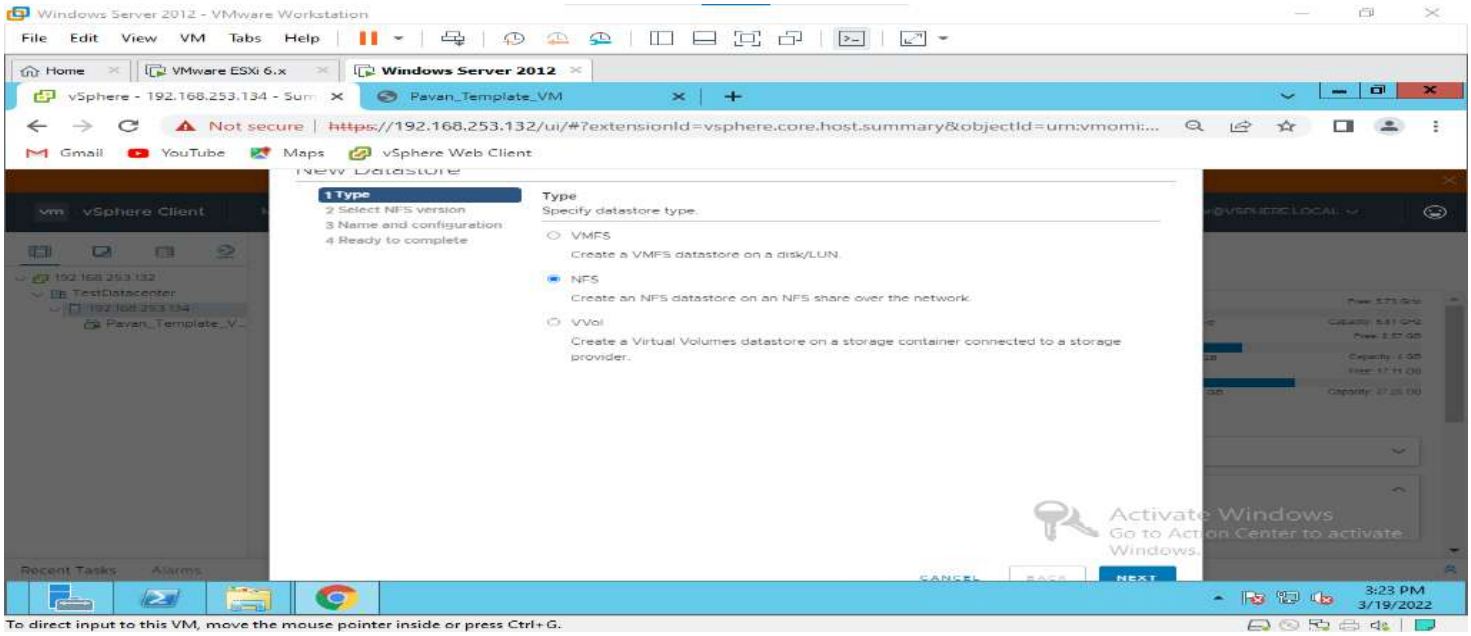
Click on the **Apply** button



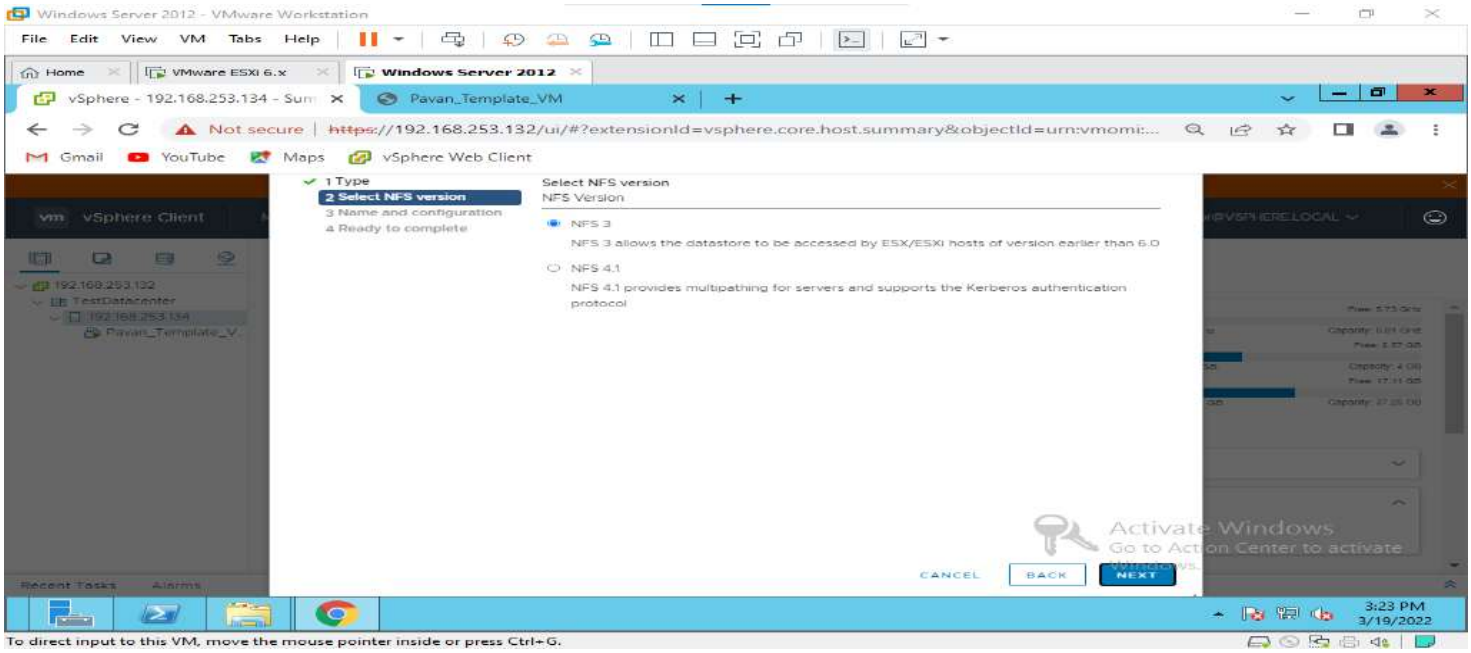
Right click on the **Host** and Go to the **Storage**. Click on the **New Datastore** option



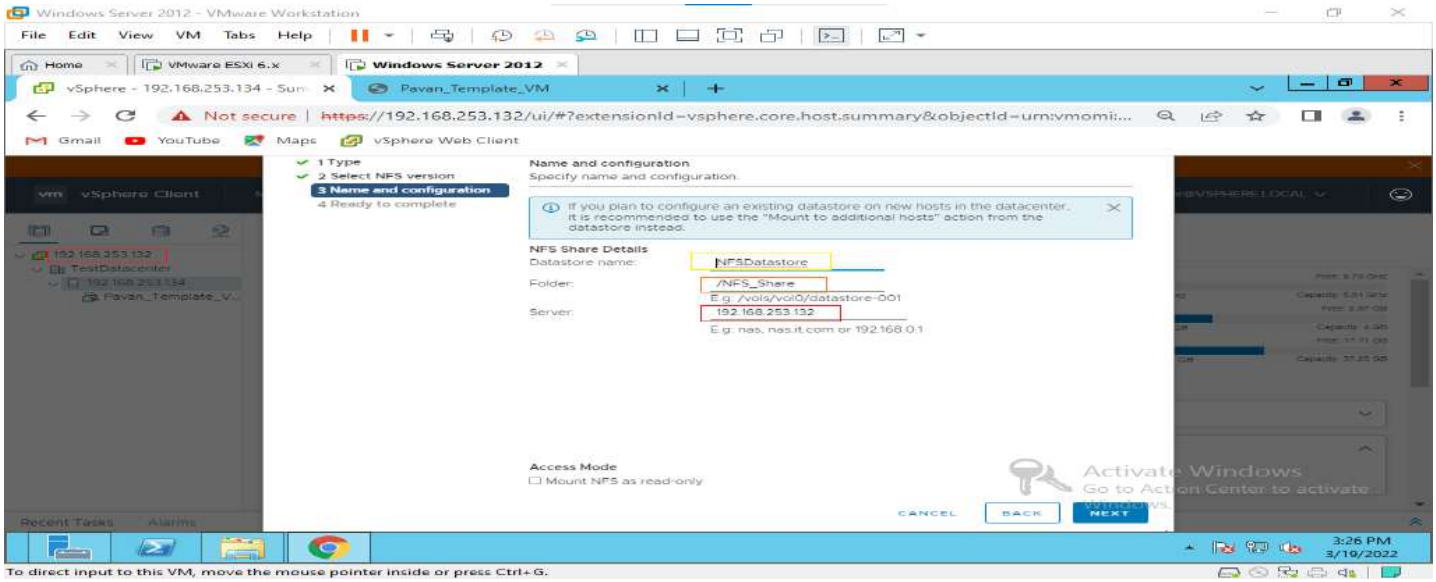
Choose the **NFS** option and Click on the **Next** button



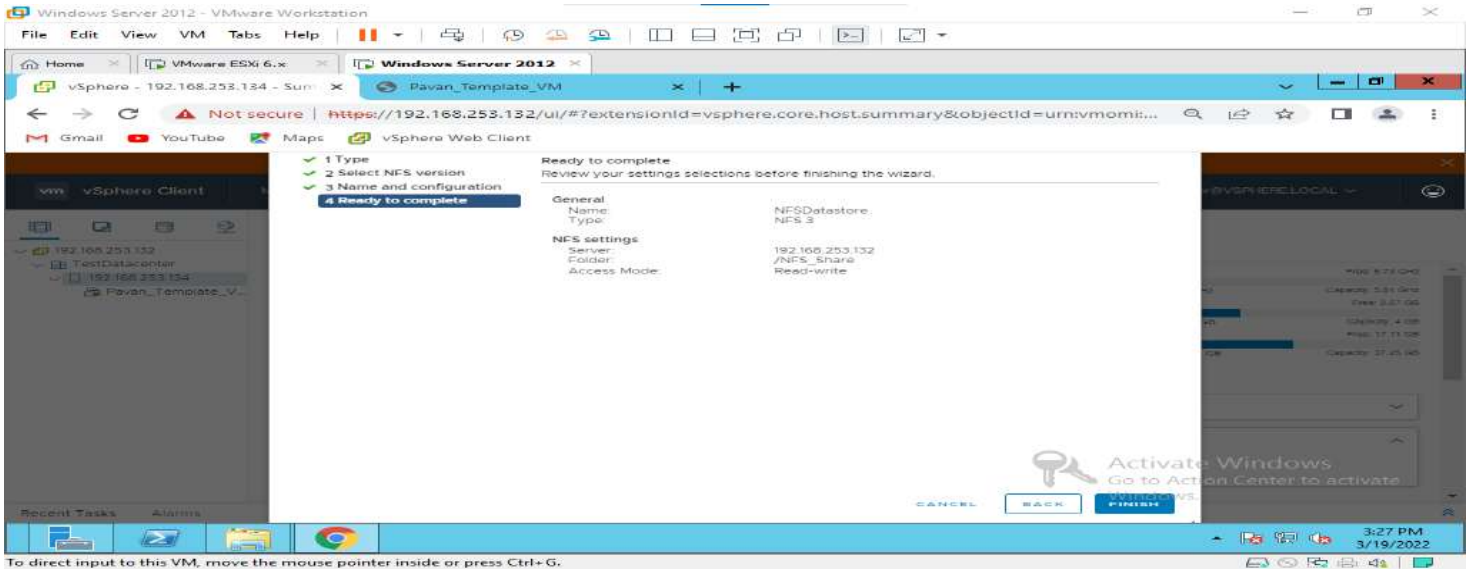
Select the **NFS version** and click on the **Next** button



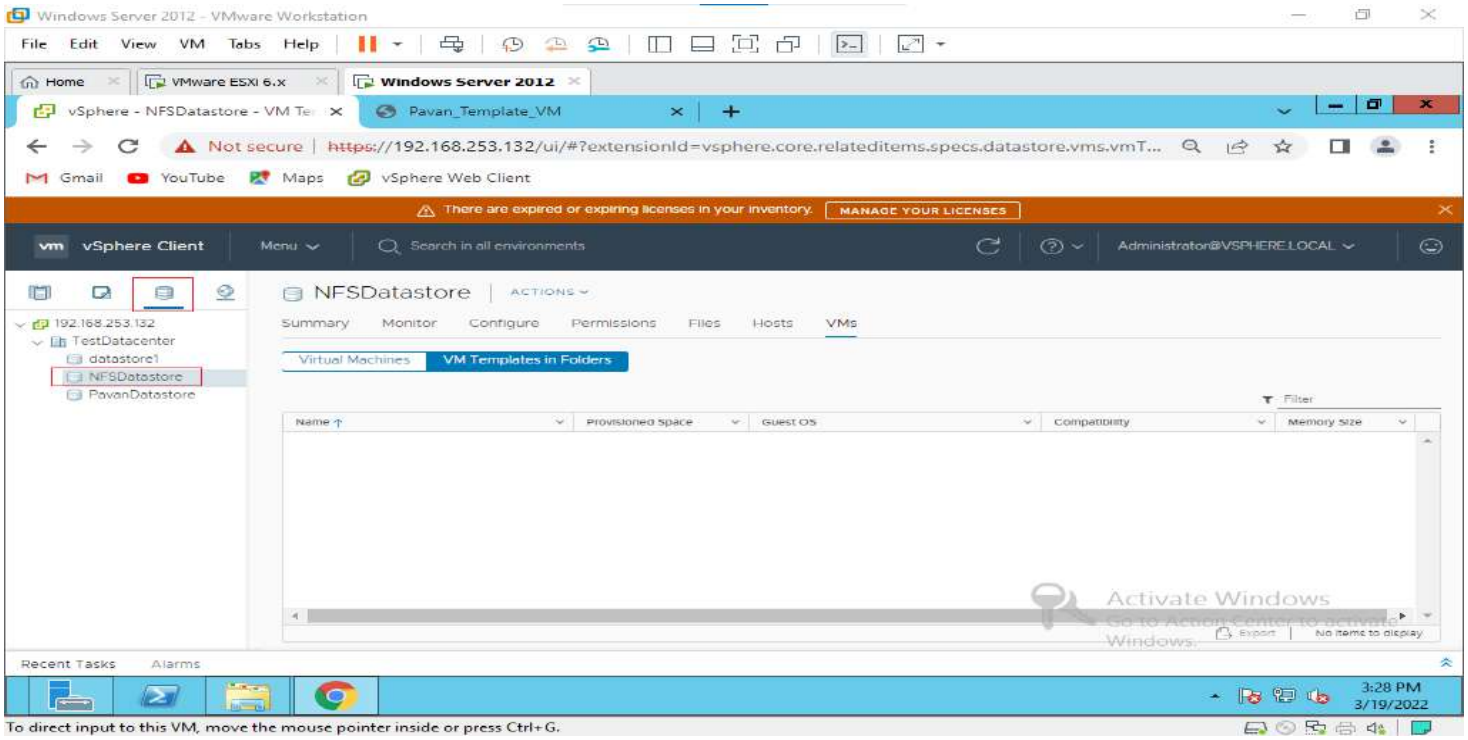
Enter the **Datastore** Name, **Server** IP address and **Folder** (Created folder into Disk C) and Click on the **Next** button



Click on the **Finish** button



Here datastore created successfully



Practical No. 7

Aim: Implement and manage the network of VMware ESXi server

A- Create vSphere Standard switch

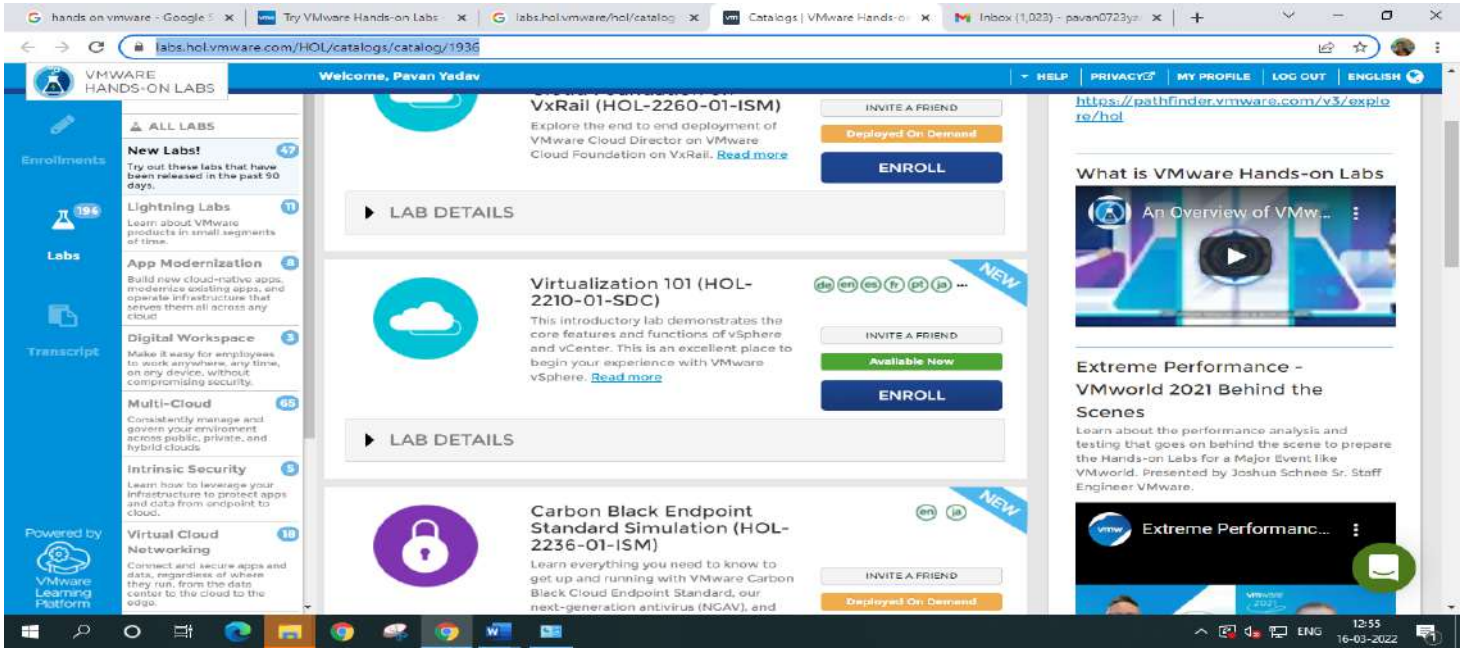
The vSphere Standard Switch is a simple virtual switch configured and managed at the host level. This switch provides access, traffic aggregation, and fault tolerance by allowing multiple physical adapters to be bound to each virtual switch.

Adding and configuring vSphere standard switch.

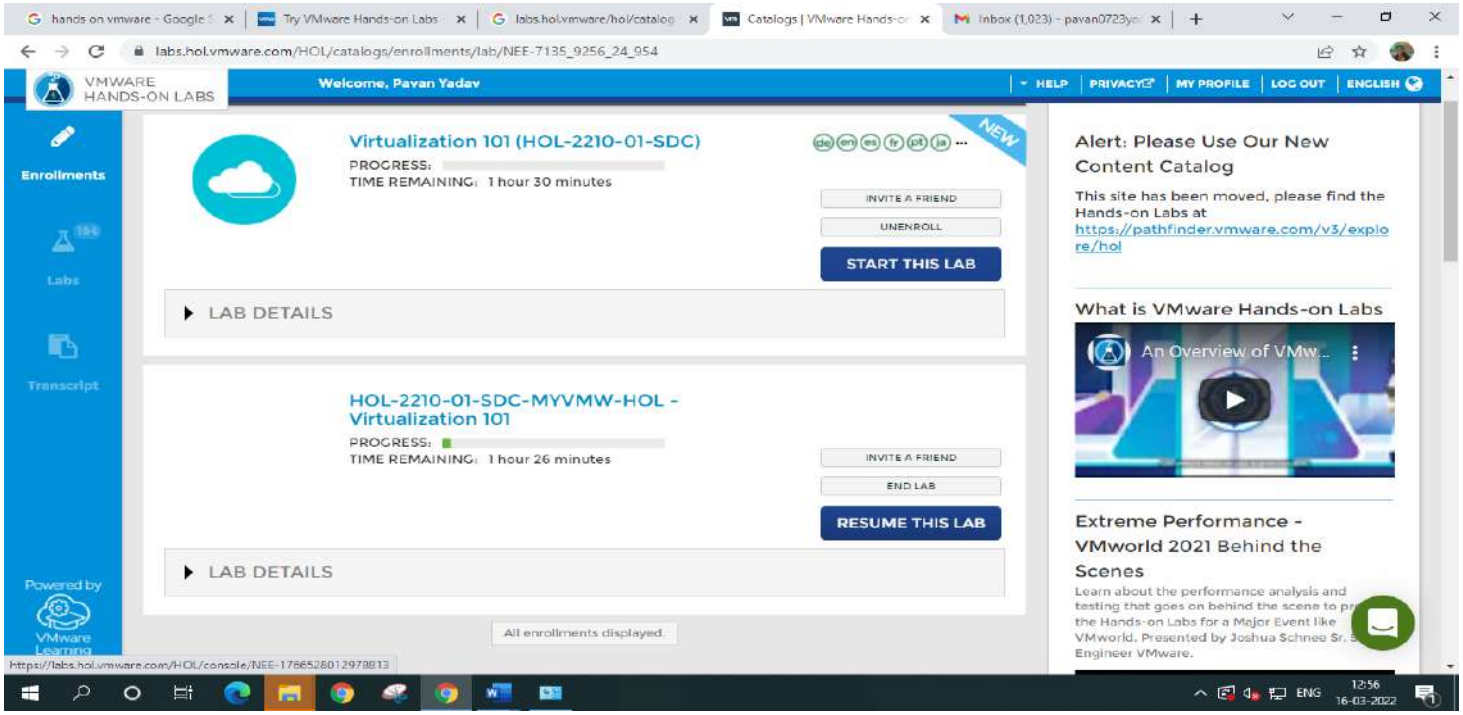
Go to the browser and paste the labs.hol.vmware/hol/catalog content and first link to open then show screen like below image

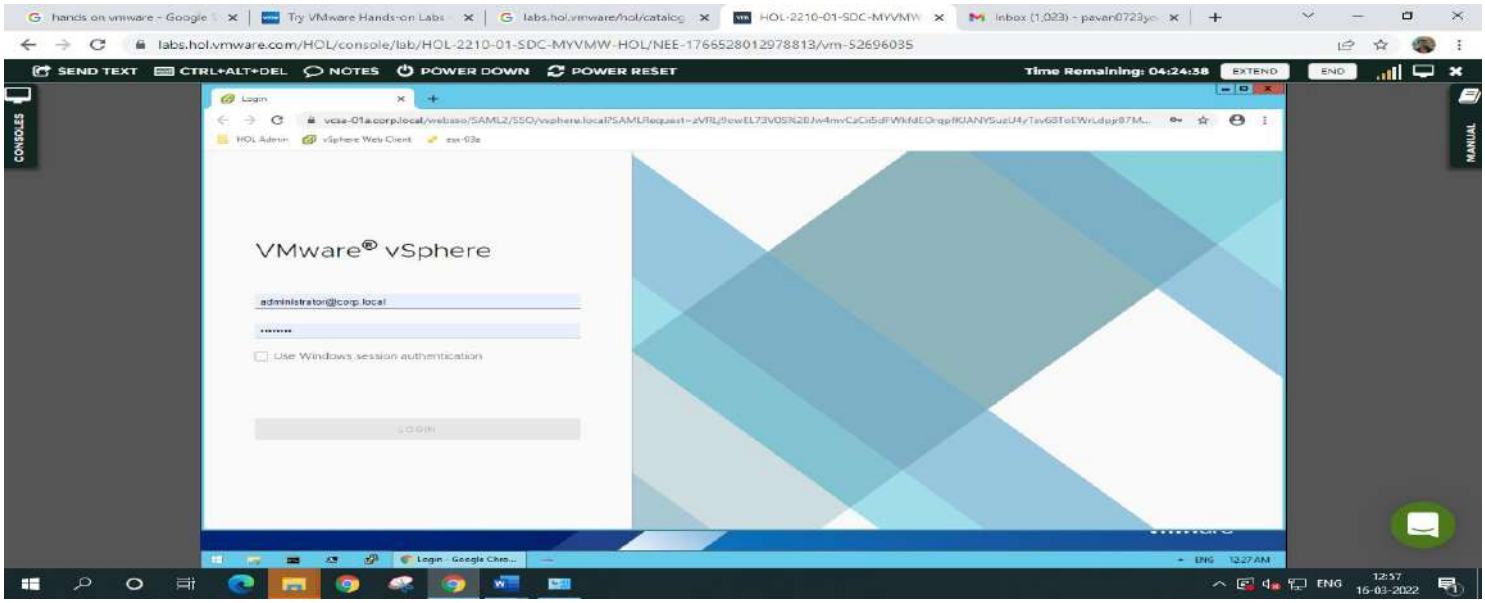
If you are not already logged in, launch the Chrome browser from the desktop and log in to the vSphere Web Client

Enroll the Virtualization 101(HOL-2210-01-SDC)

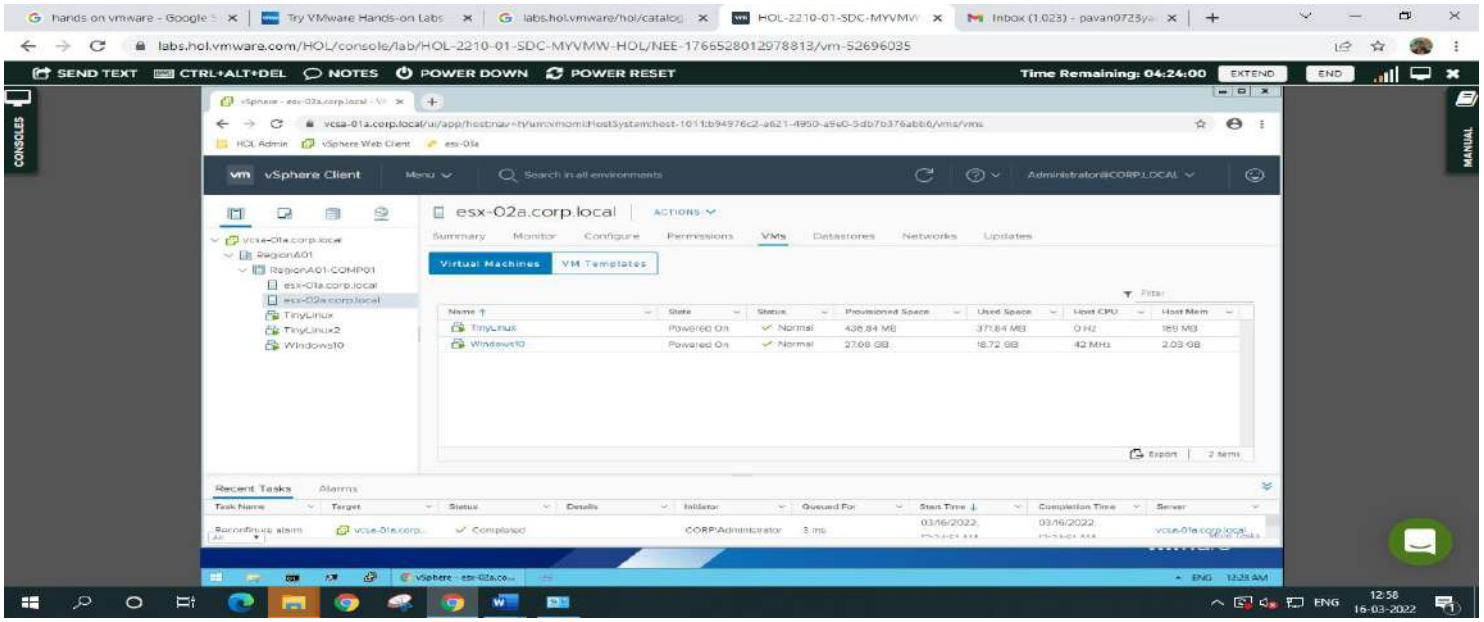


Start the Lab

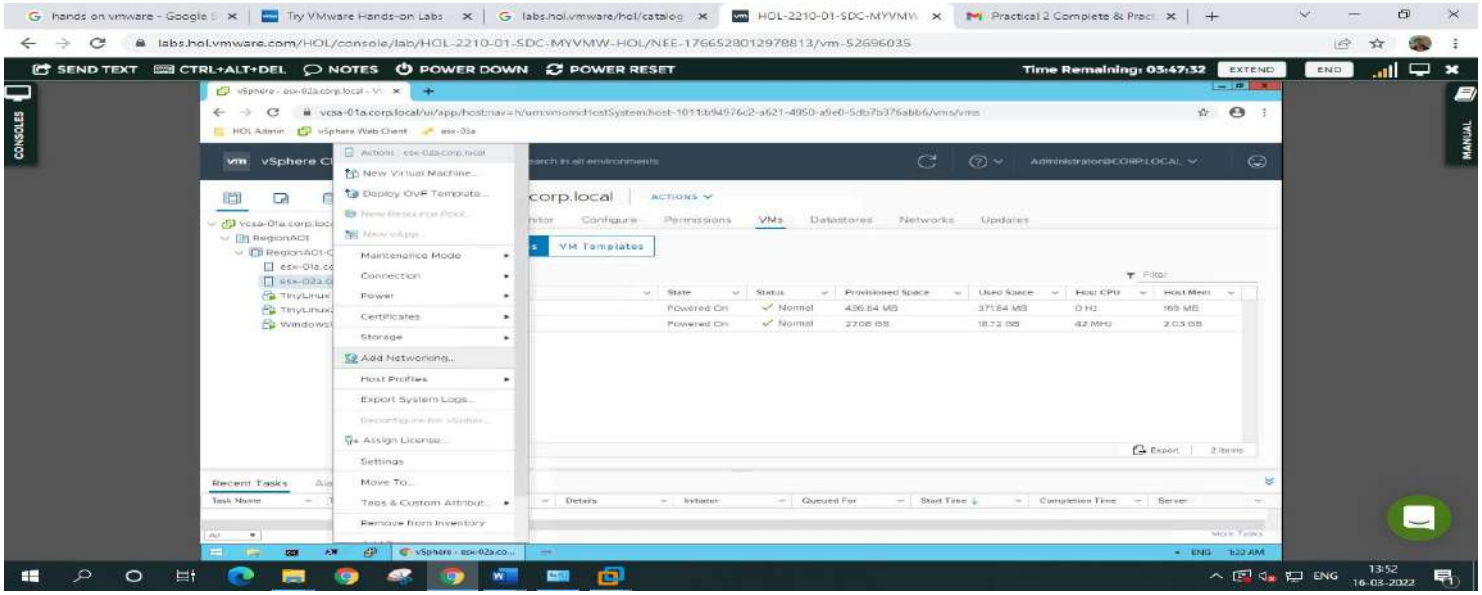




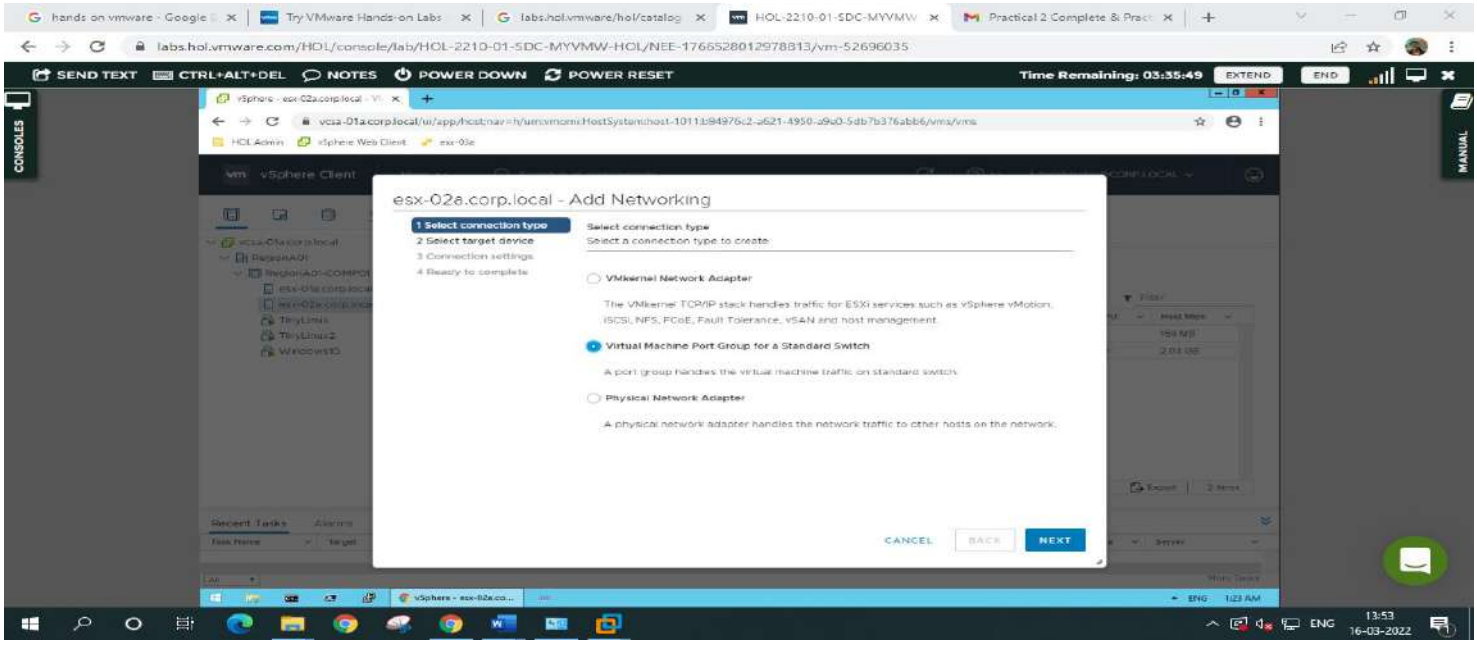
Then select host and clusters.



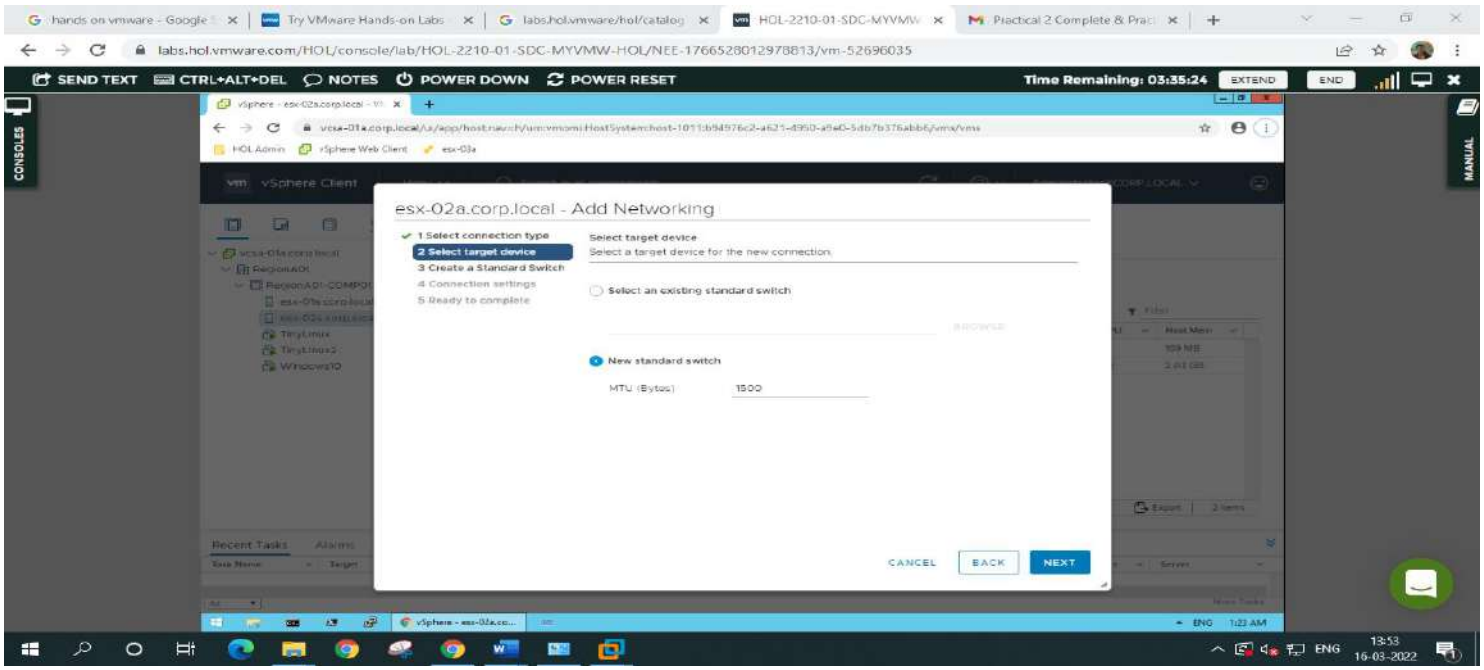
Under **vcsa-01a.corp.local**, expand **RegionA01** and then **RegionA01-COMP01**. Next**, right-click on esx-02a.corp.local** in the Navigator. Select **Add Networking**…



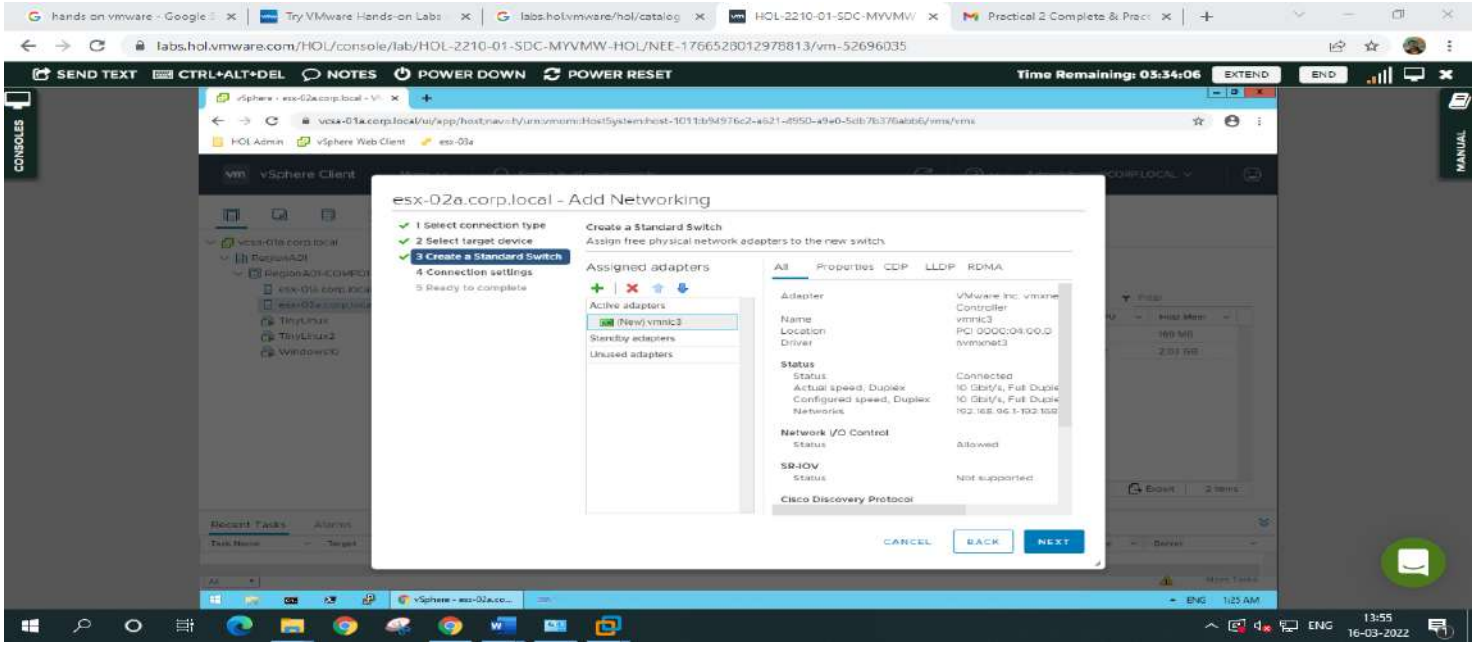
When asked to select the **connection type**, choose **Virtual Machine Port Group for a Standard Switch** & Click **Next**.



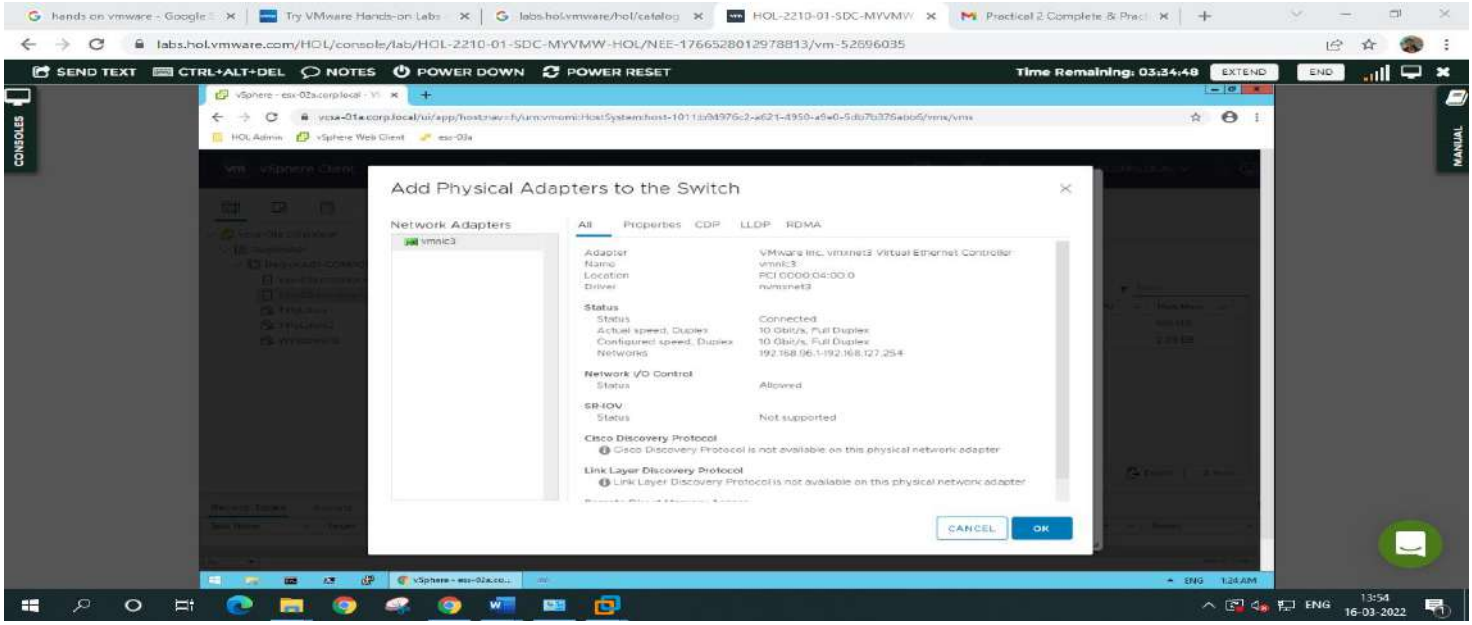
When asked to **select a target device**, choose **New Standard Switch**. Note that a larger **MTU size** can be specified if **needed** & Click **Next**.



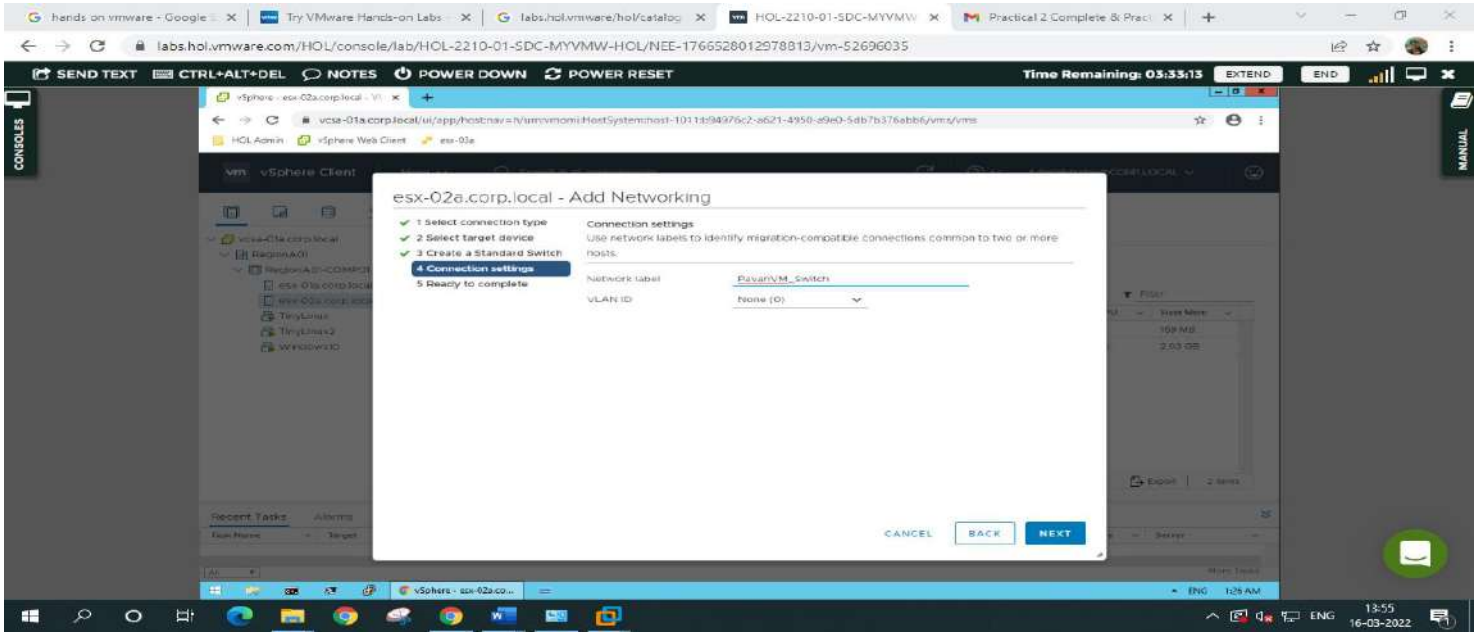
Click the '+' button.



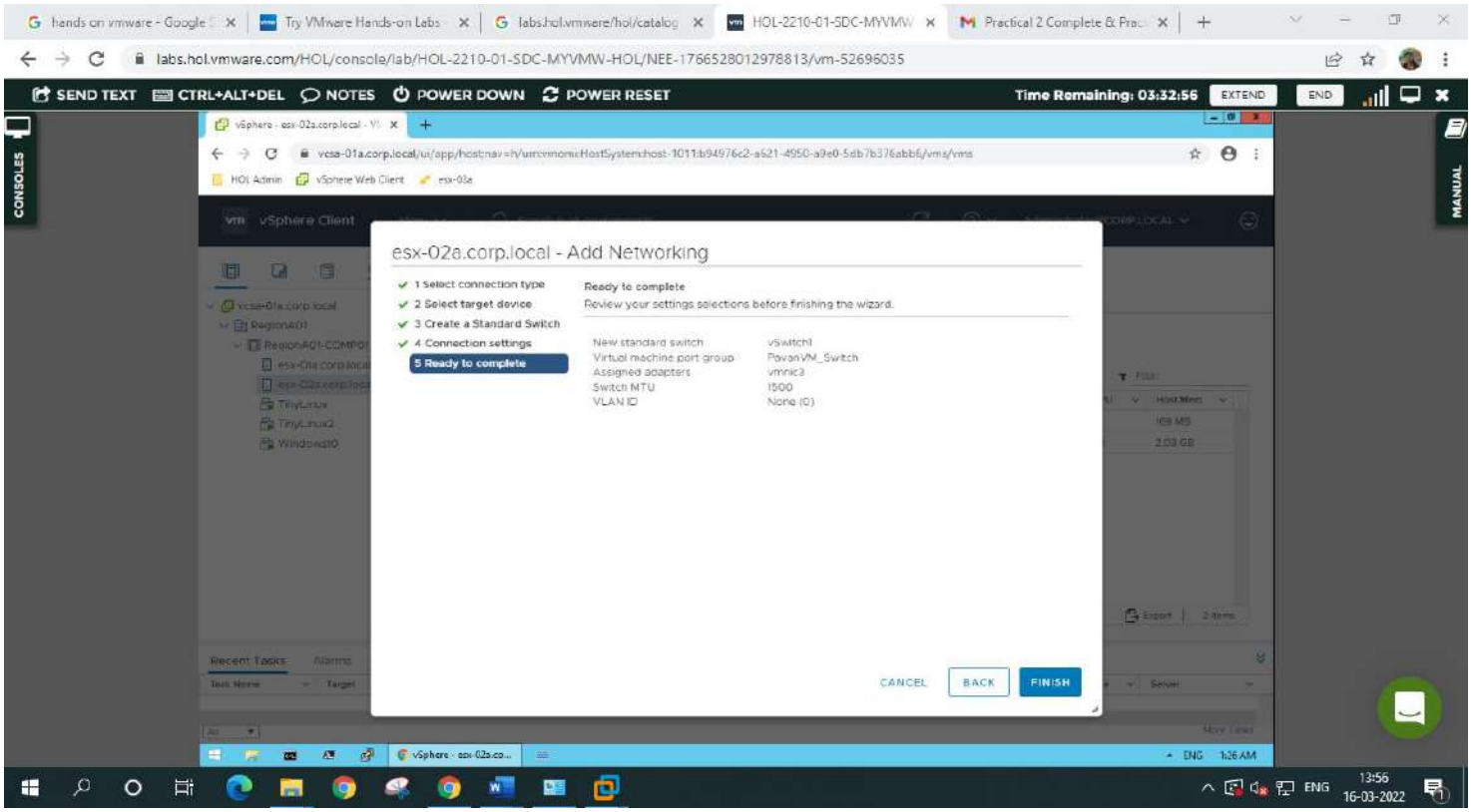
Select **vmnic3** under **Network Adapters** & Click **OK**. After Click **Next** to continue.



At the Connection settings step of the wizard, for the **Network label**, leave the default name of VM Network 2. **Do not change the VLAN ID**; leave this set to None (0).:

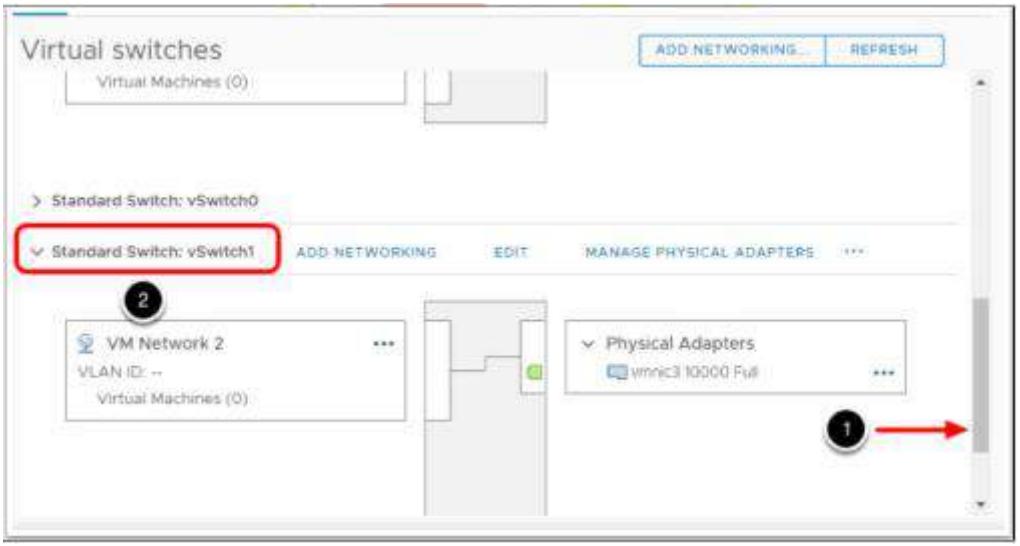


Review the port group settings in Ready to complete and click **Finish**.



Click **Configure**. Click on **Virtual Switches**.

Scroll down until you see Standard Switch: vSwitch1. If needed, expand the section.



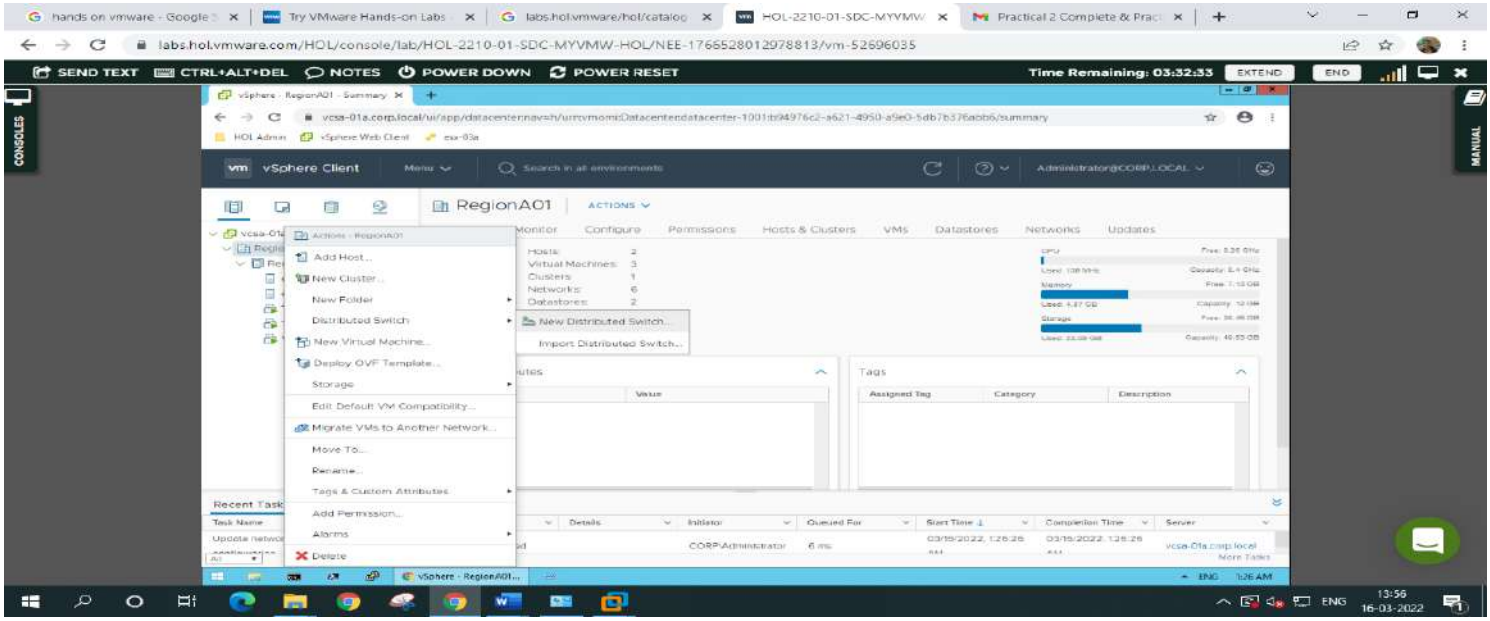
You should see the above diagram showing a virtual port group (VM Network 2) that is on vSwitch1 and it is using vmnic3 as an uplink.

B- Create vSphere Distributed switch

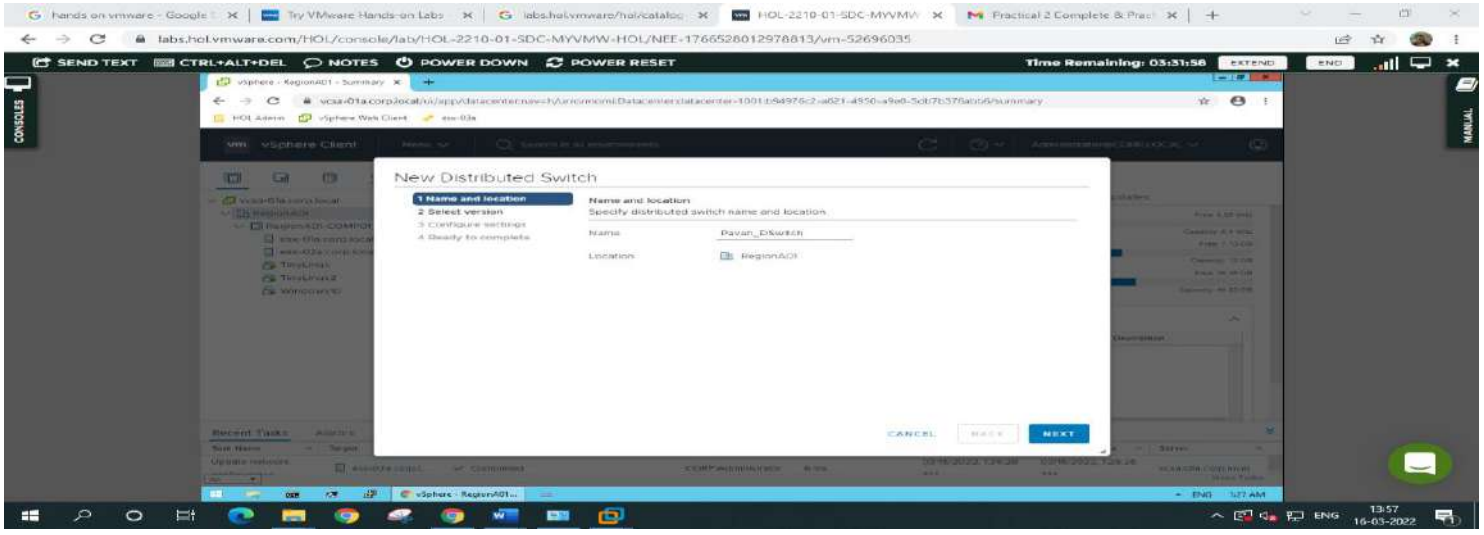
The VMware vSphere Distributed Switch builds on the capabilities of the vSS and simplifies management in large deployments by appearing as a single switch spanning multiple associated hosts. This allows changes to be made once and propagated to every host that is a member of the switch.

Creating a new distributed switch.

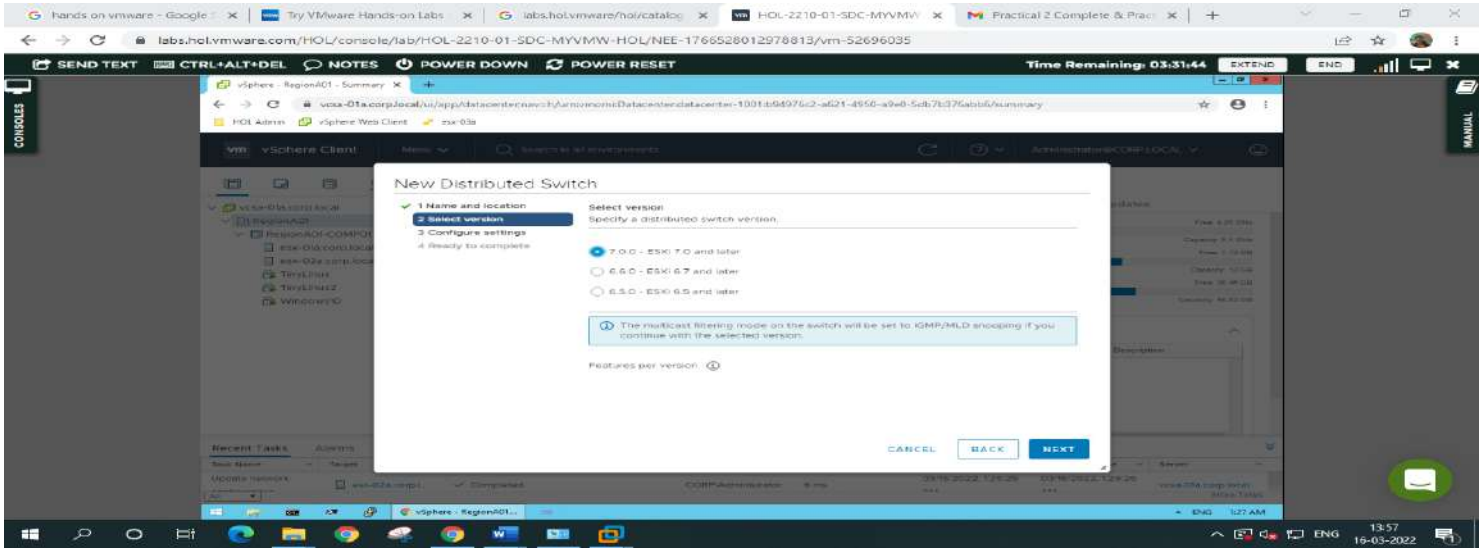
In the vSphere Web Client, click on RegionA01. And the navigator**, right-click the RegionA01**. Select **Distributed Switch** and then **New Distributed Switch**, This will open the New Distributed Switch wizard



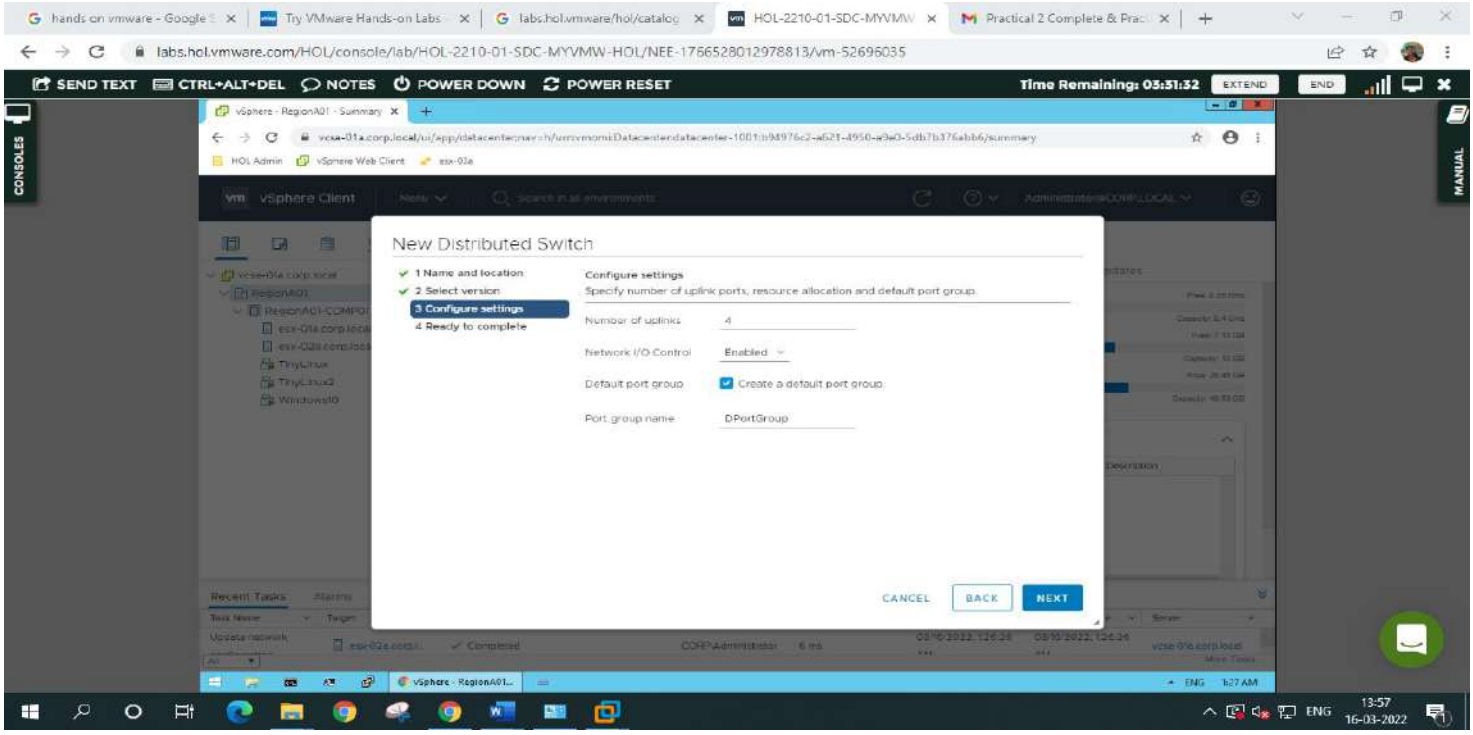
Type **Name_DS** in the Name field & Click **Next**.



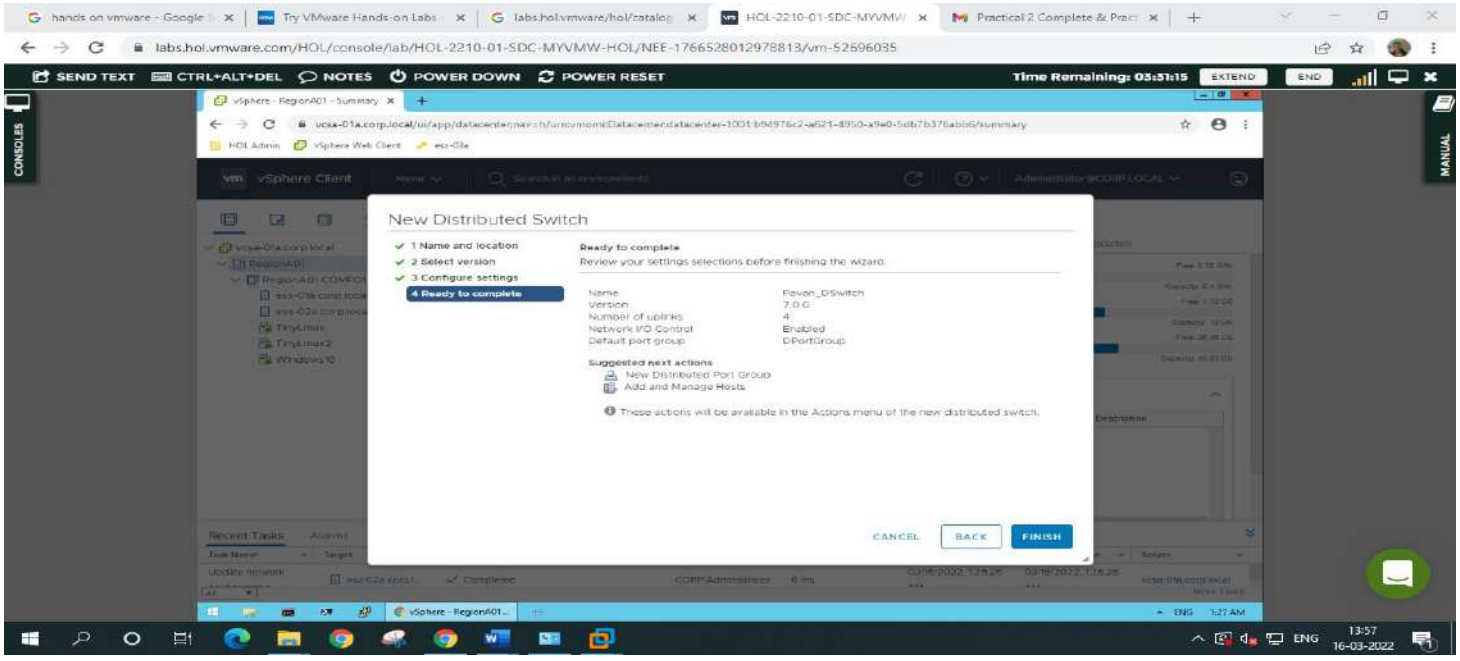
Leave the default setting of **7.0.0 - ESXi 7.0 and later** & Click **Next**.

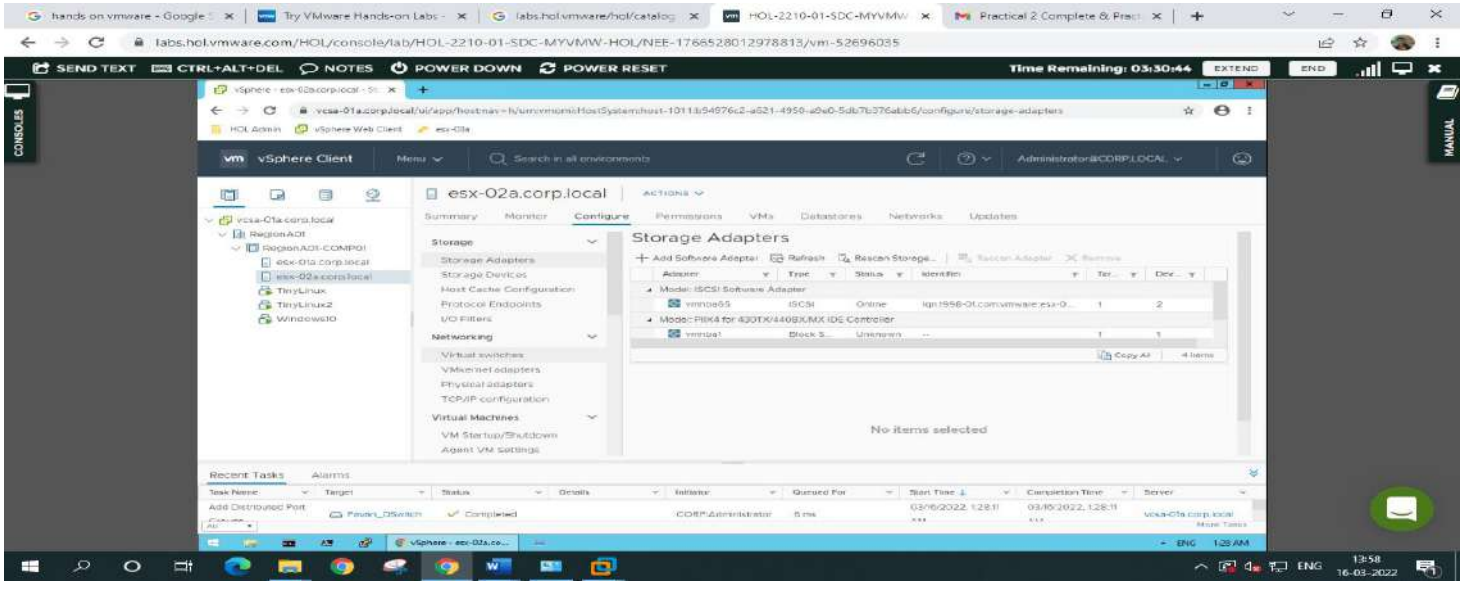


Leave the default options on the below screen and click **Next**.



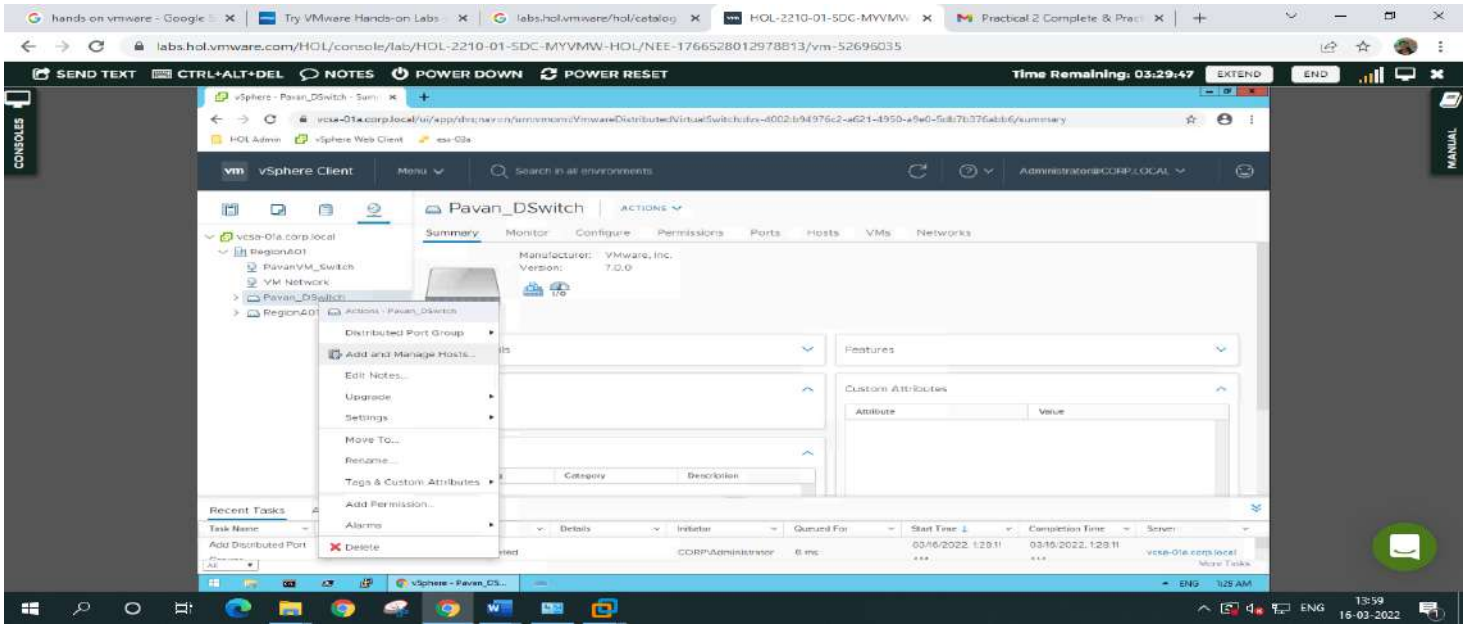
Review your settings and click **Finish**.



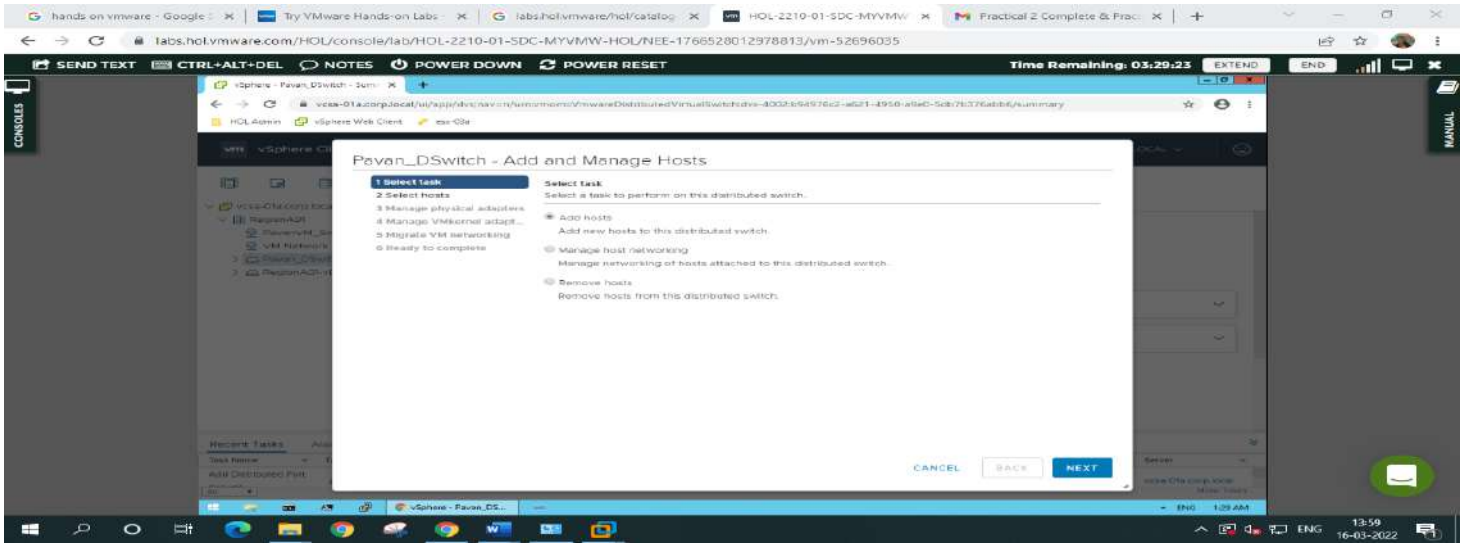


Add Hosts to a new distributed switch.

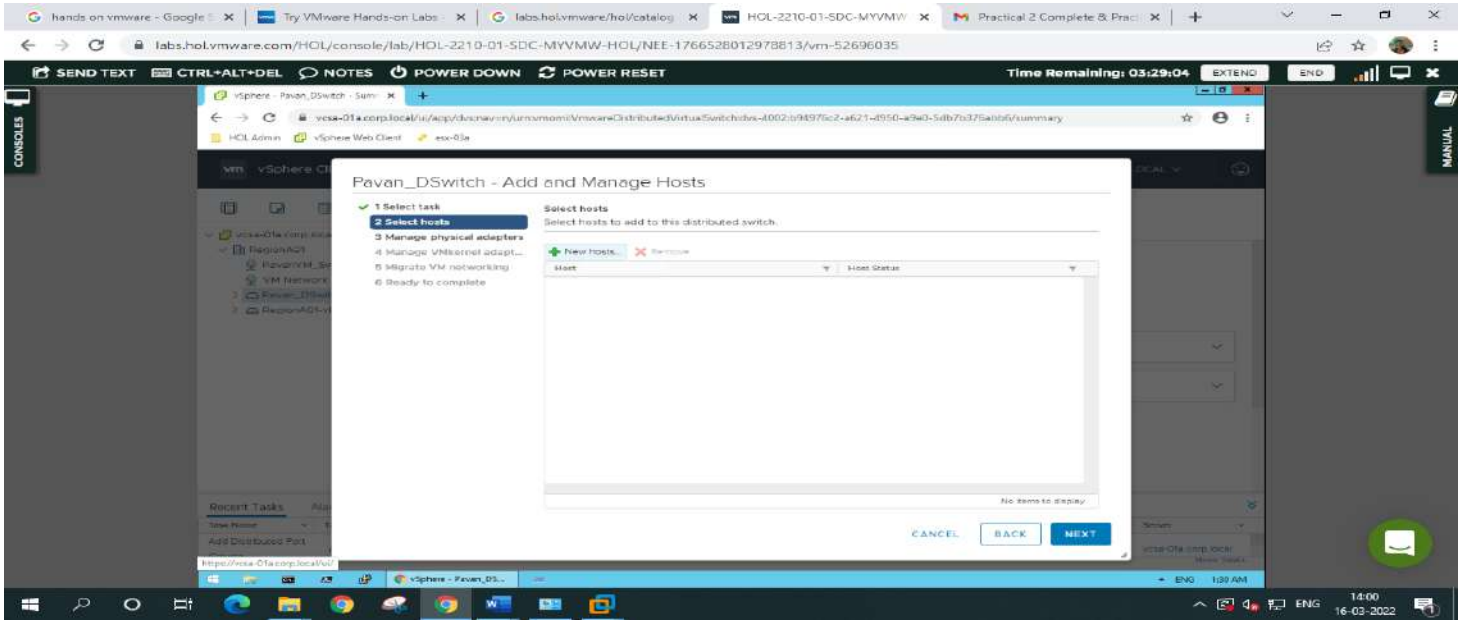
Right-click on the newly created switch, Name_DS & Select **Add and Manage Hosts**.



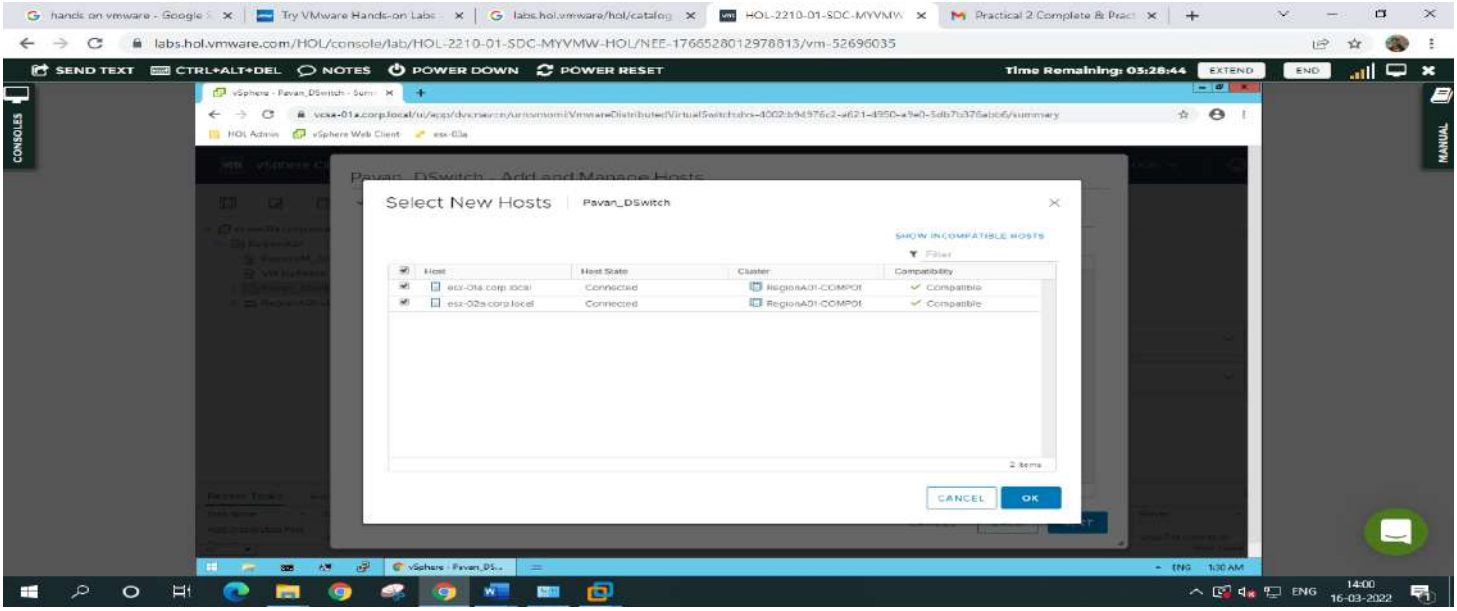
On the Select Task page, select **Add hosts** & Click **Next**.



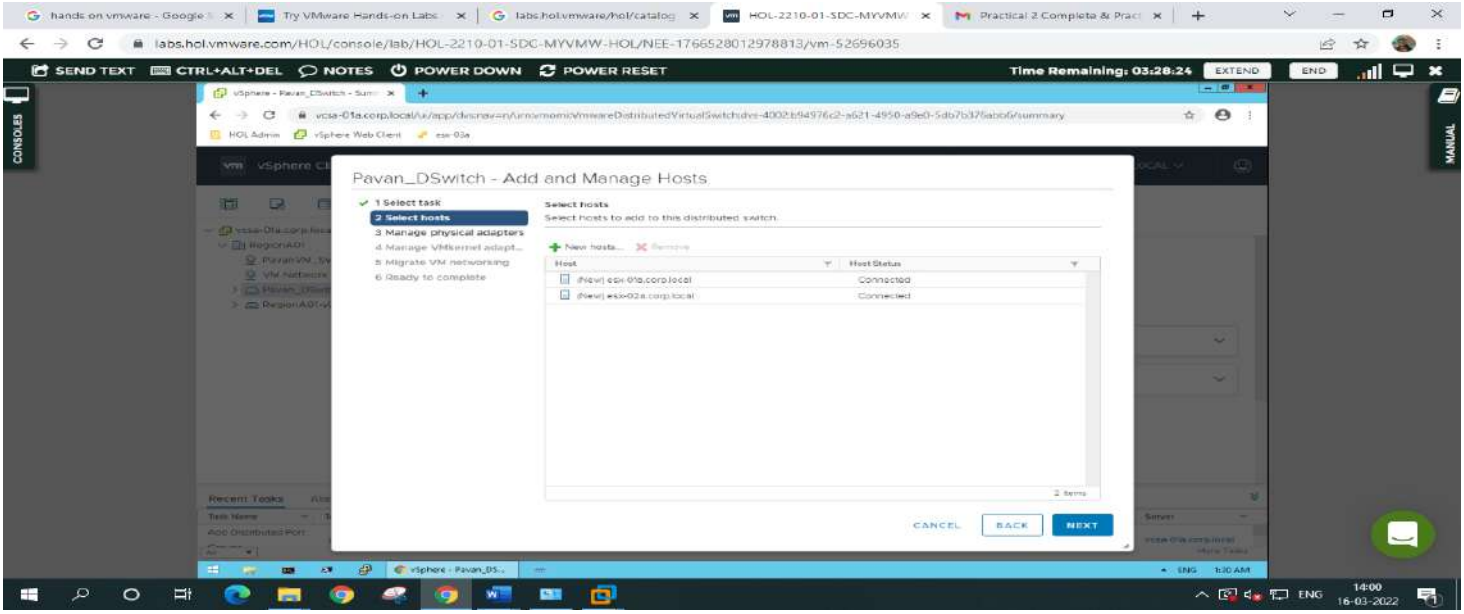
On the Select host's page, click **New hosts**.



Click the **check box** on the left to **select both hosts** in the datacenter & Click **OK**.

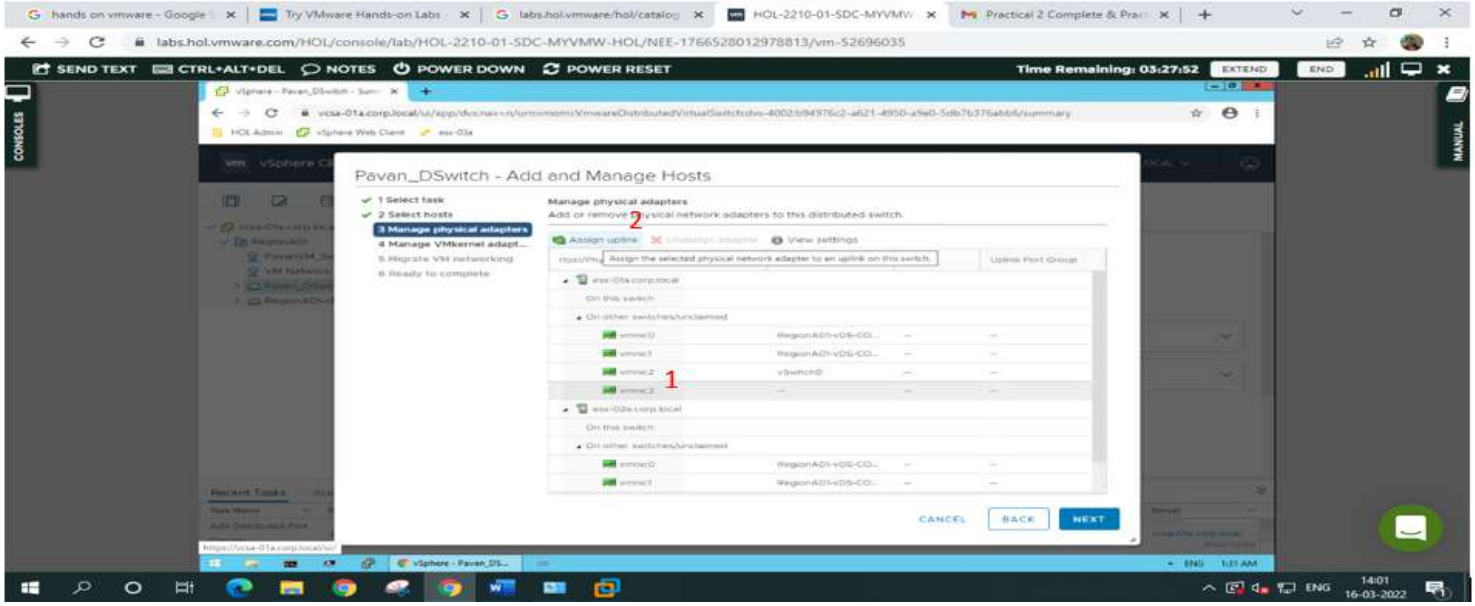


Verify the <u>two hosts are listed</u>, then click **Next**

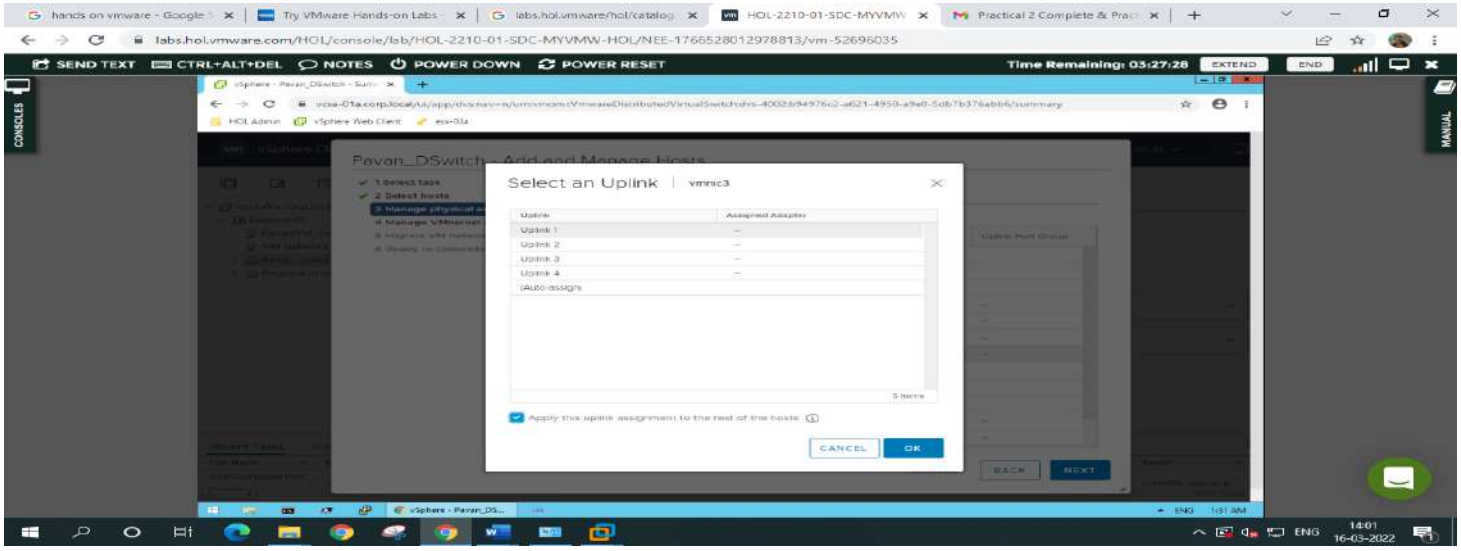


On the Manage physical network adapter's page, we want to configure which physical NICs will be used on the distributed switch.

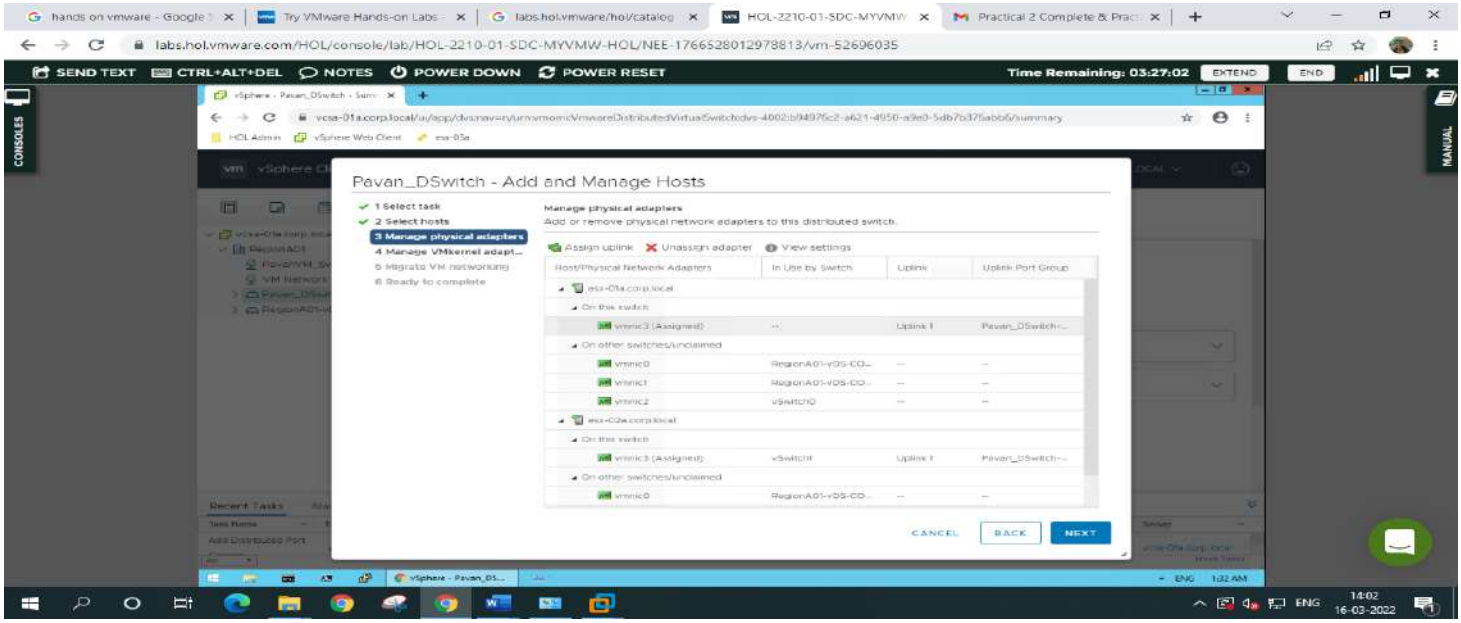
From the On other switches/unclaimed list, highlight vmnic3 & Click Assign uplink.



From the Select an Uplink page, **select Uplink 1**. **Check the box** next to Apply this uplink assignment to the rest of the hosts & click **OK**.

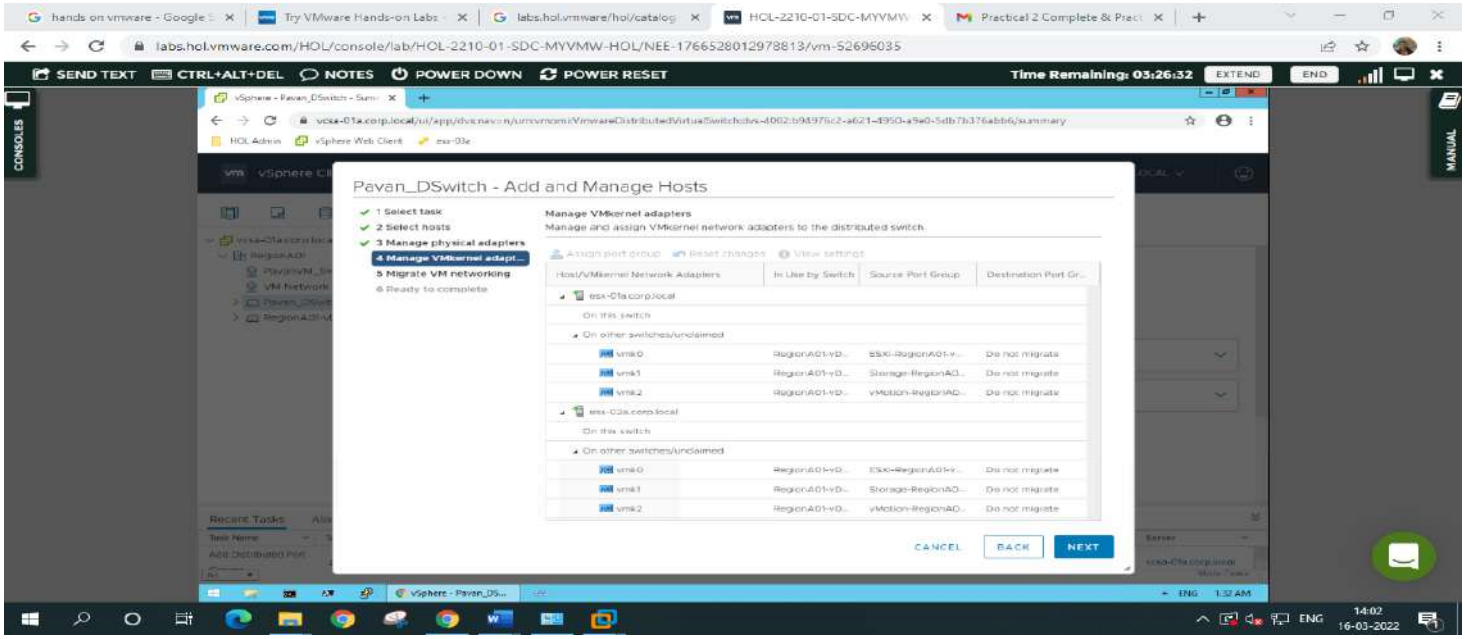


Review vmnic and uplink settings for the hosts you are adding and click **Next**

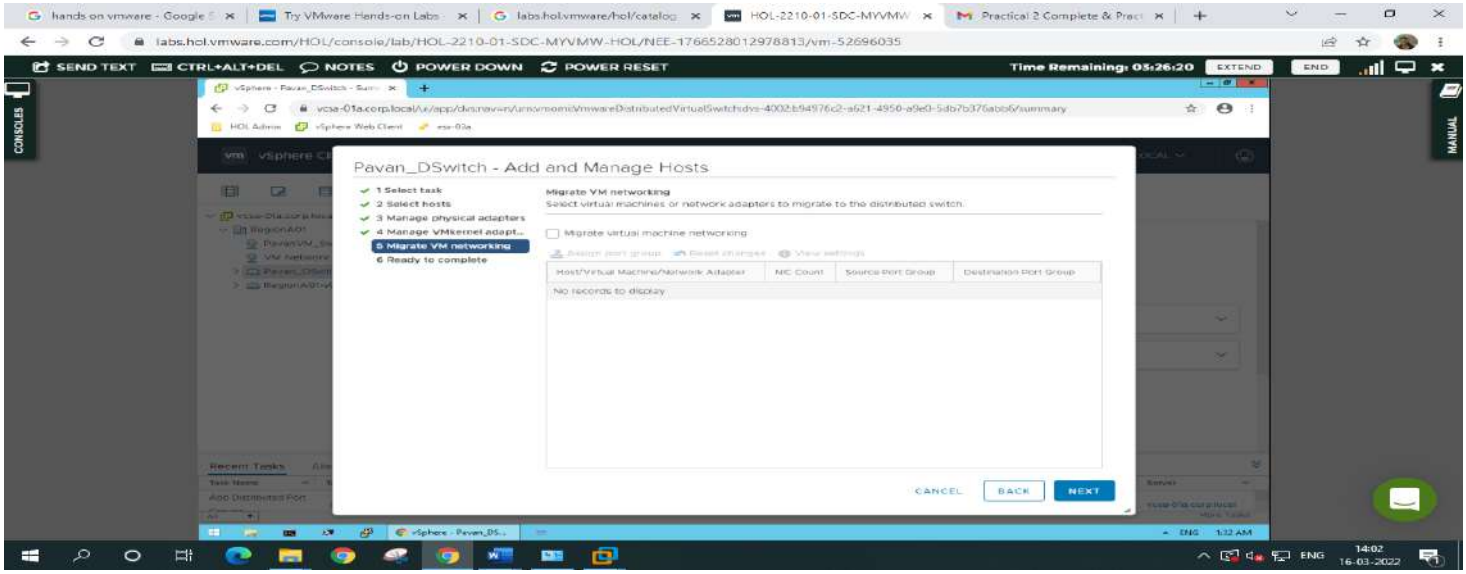


Manage VMKernal Adapters.

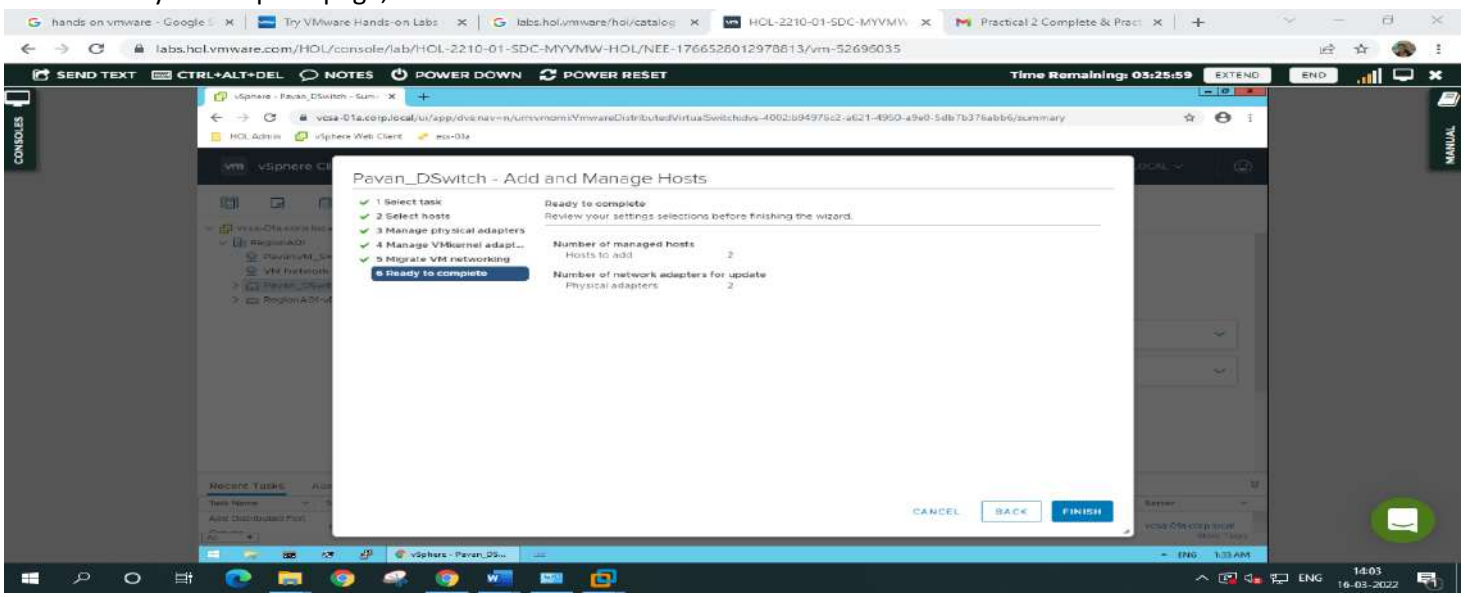
Since we will not be using this distributed switch for any VMKernel functions, click **Next**.



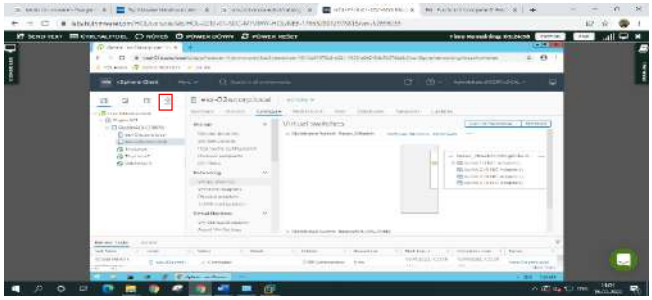
The add hosts wizard also gives us the ability to migrate VMs from one distributed switch to another on this page. While this action can be done here. Click **Next**

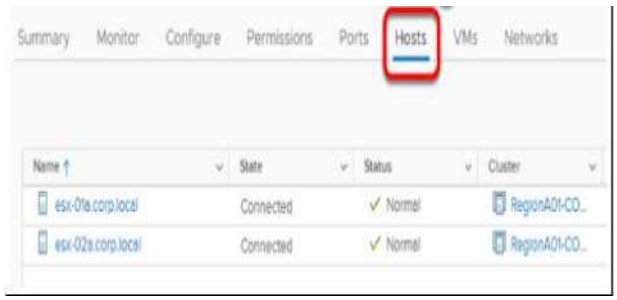


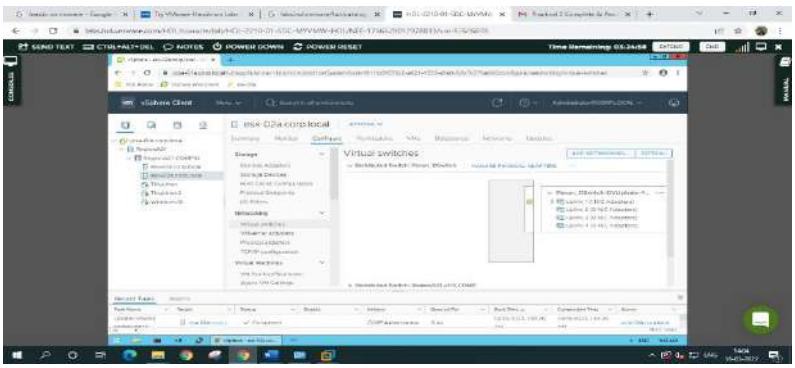
On the Ready to complete page, click **Finish**



Click on the Hosts tab to see the newly connected hosts.





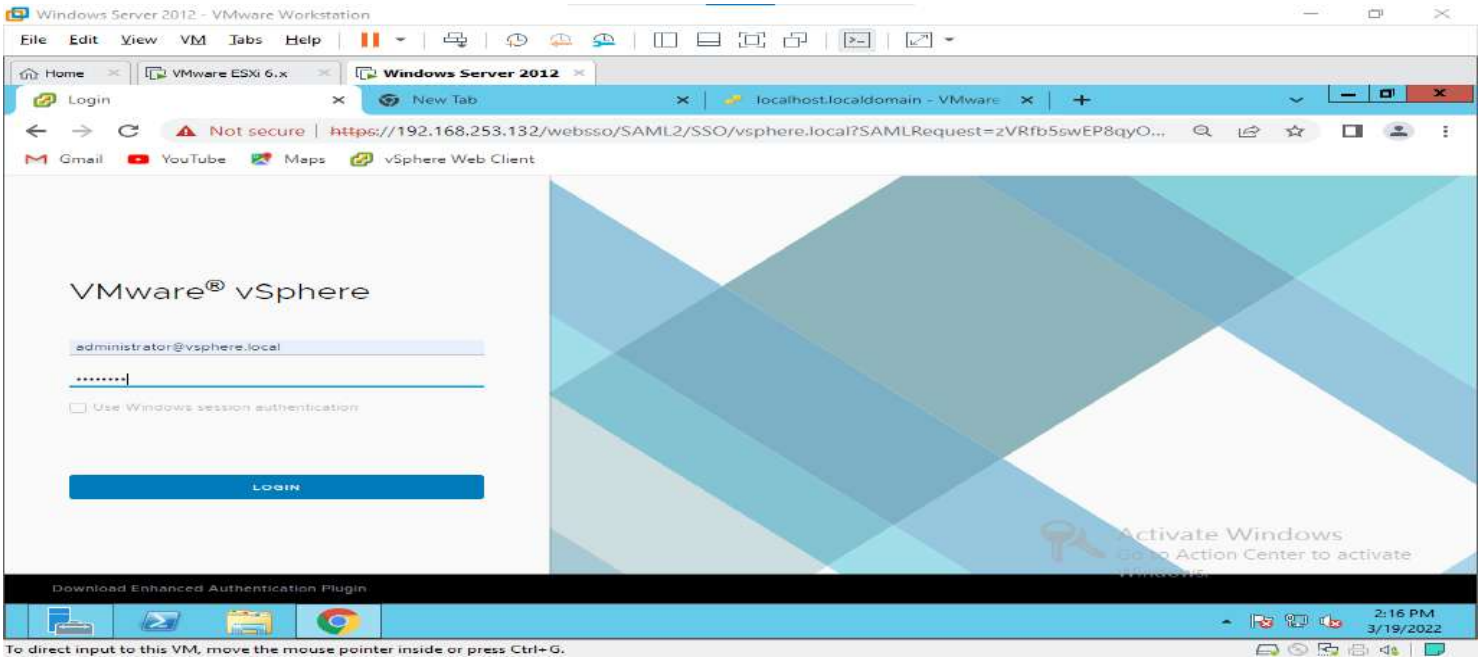


Practical No. 8

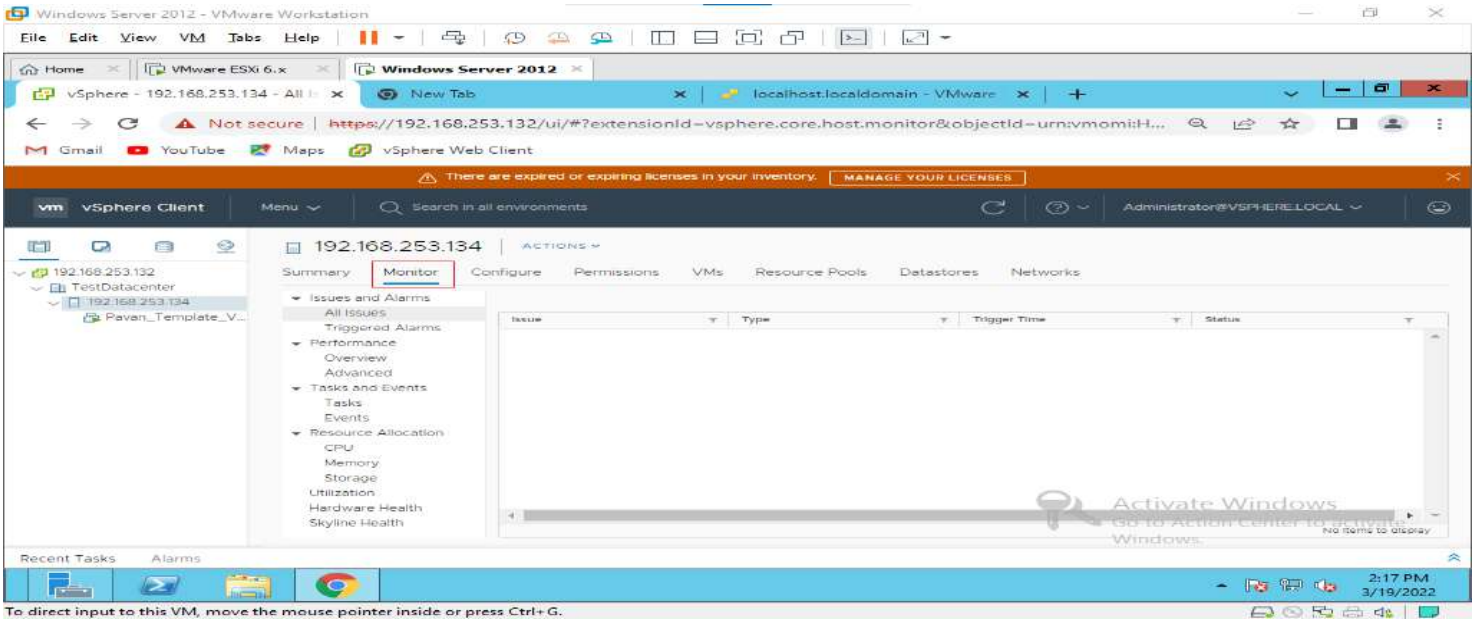
Aim: Perform vSphere Monitoring and Performance

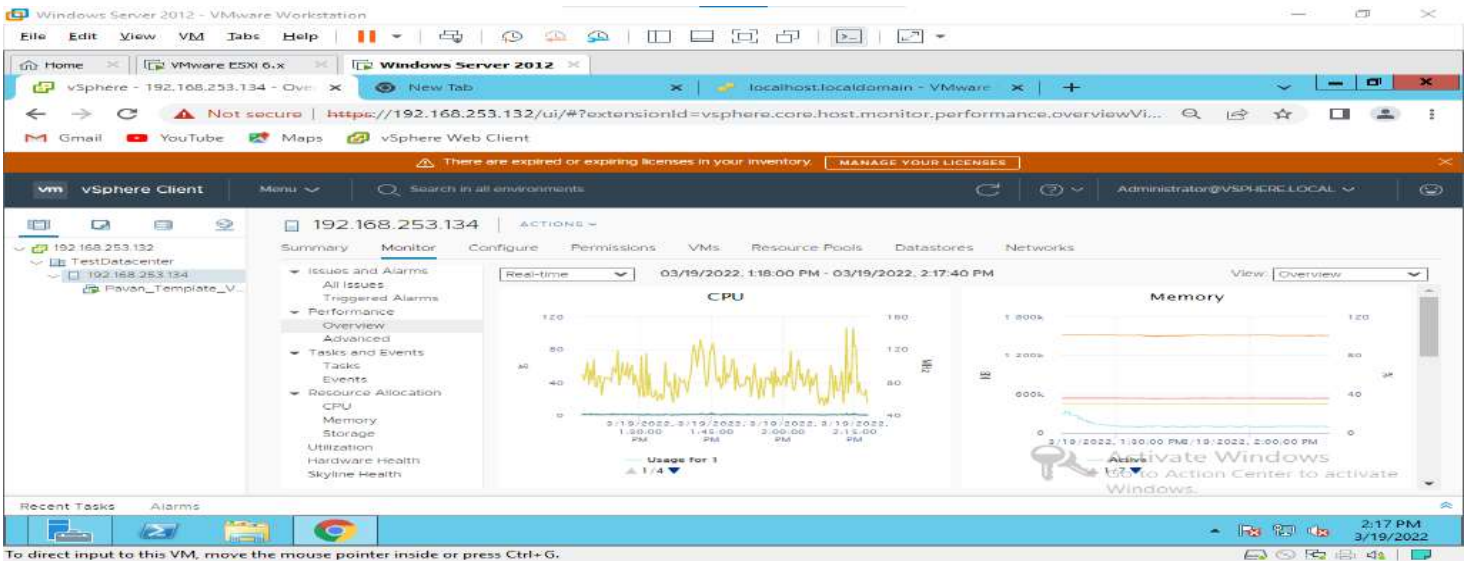
A- Monitoring Guest Operating System Performance.

Login the VMWare vSphere

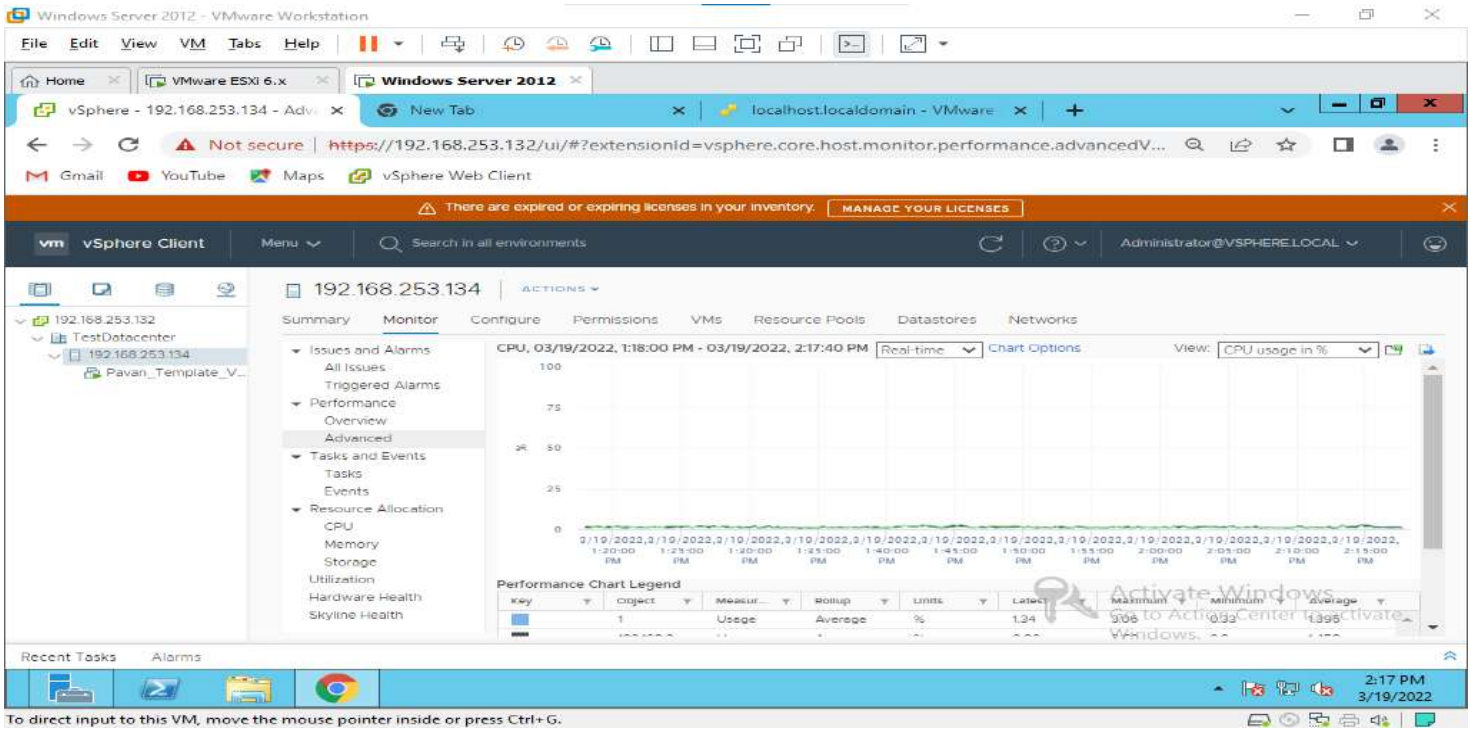


Select **Host IP address** then Click the **Monitor** tab & Click **Overview** under the Performance section.





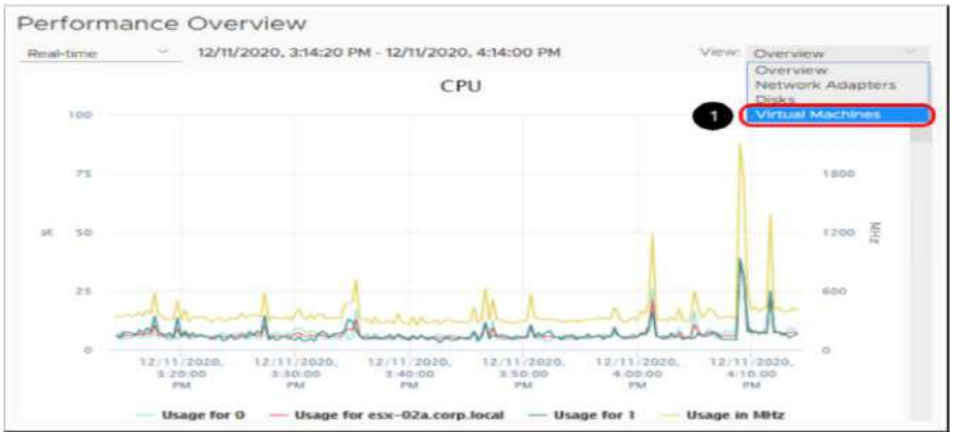
Ensure Real-time has been selected from the Time Range drop-down menu. Here we can see in real-time the CPU usage in percent for **HOST IP address**. By default, the chart will refresh every 20 seconds.



Now click the View drop-down box and select **Virtual Machines**.

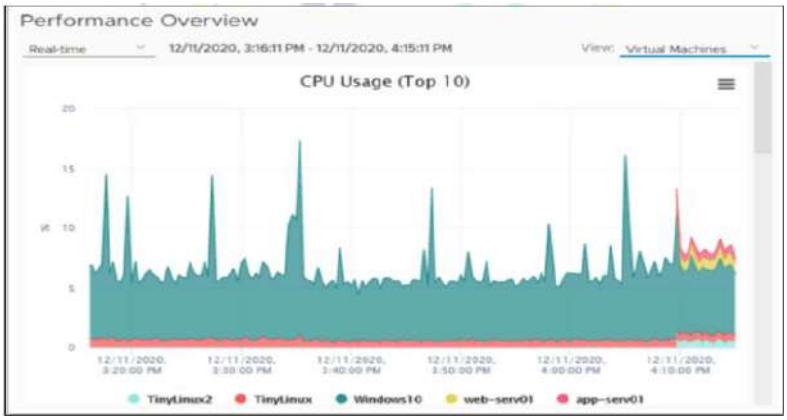
This chart shows the real-time CPU usage of each virtual machine. Each VM is represented by a different color in the graph and you can see at the bottom, which VM is represented by what color. Combined, they give you an idea of overall CPU usage on the host.

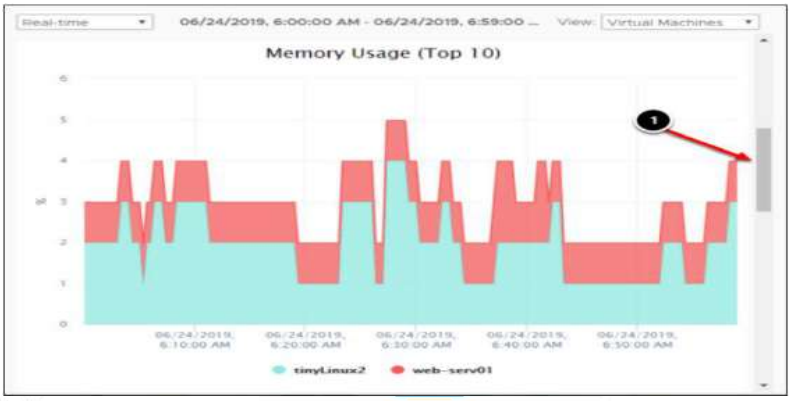
There are other graphs available to show host and virtual machine memory usage, network (Mbps), and disk (KBps). Use the scroll bars to access the additional charts.

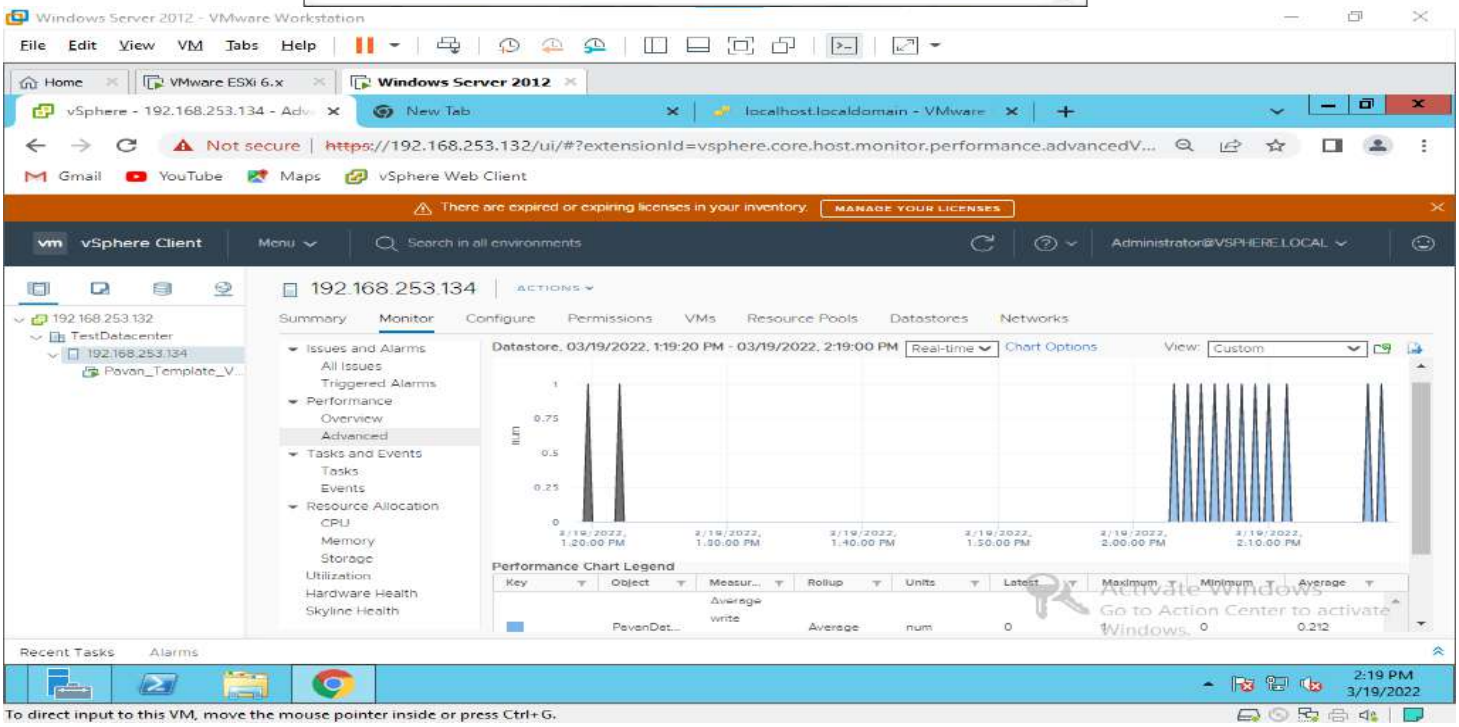


The graphs we have looked at so far will give you an overview of the four main components, CPU, memory, disk, and storage. The advanced graphs will give you more detailed information on each of these.

Click on the **Monitor** tab. & Click **Advanced** in the Performance section.



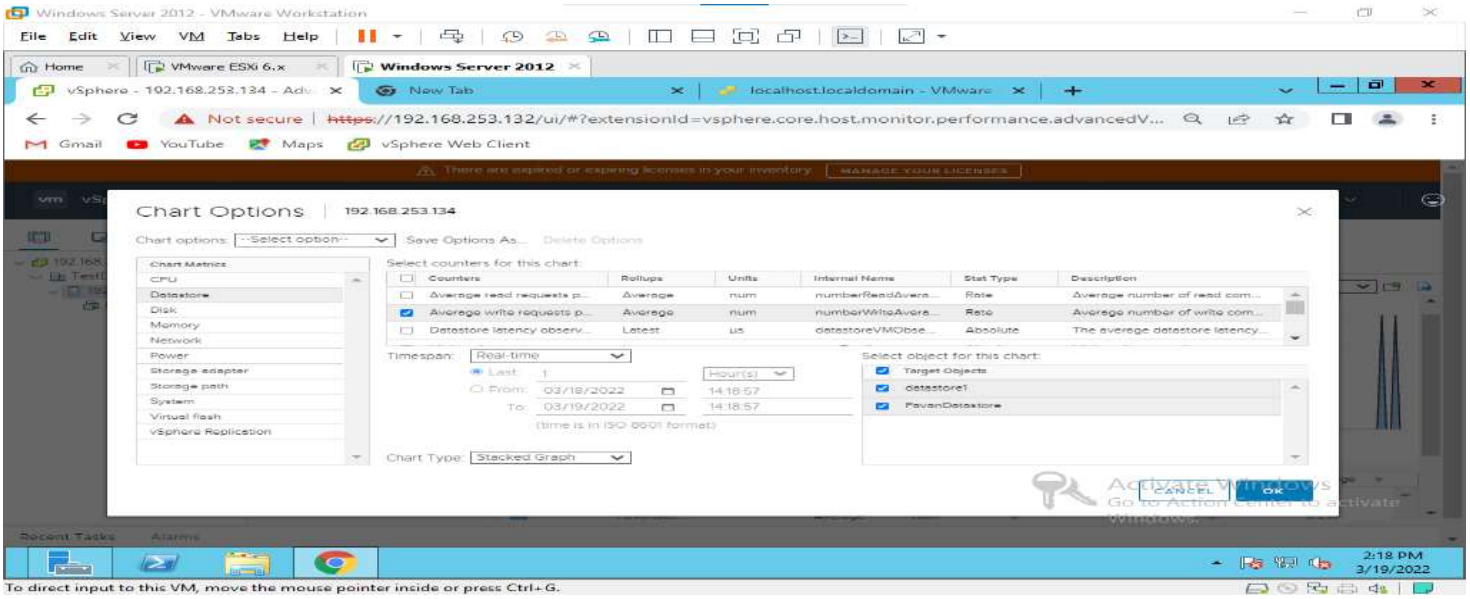


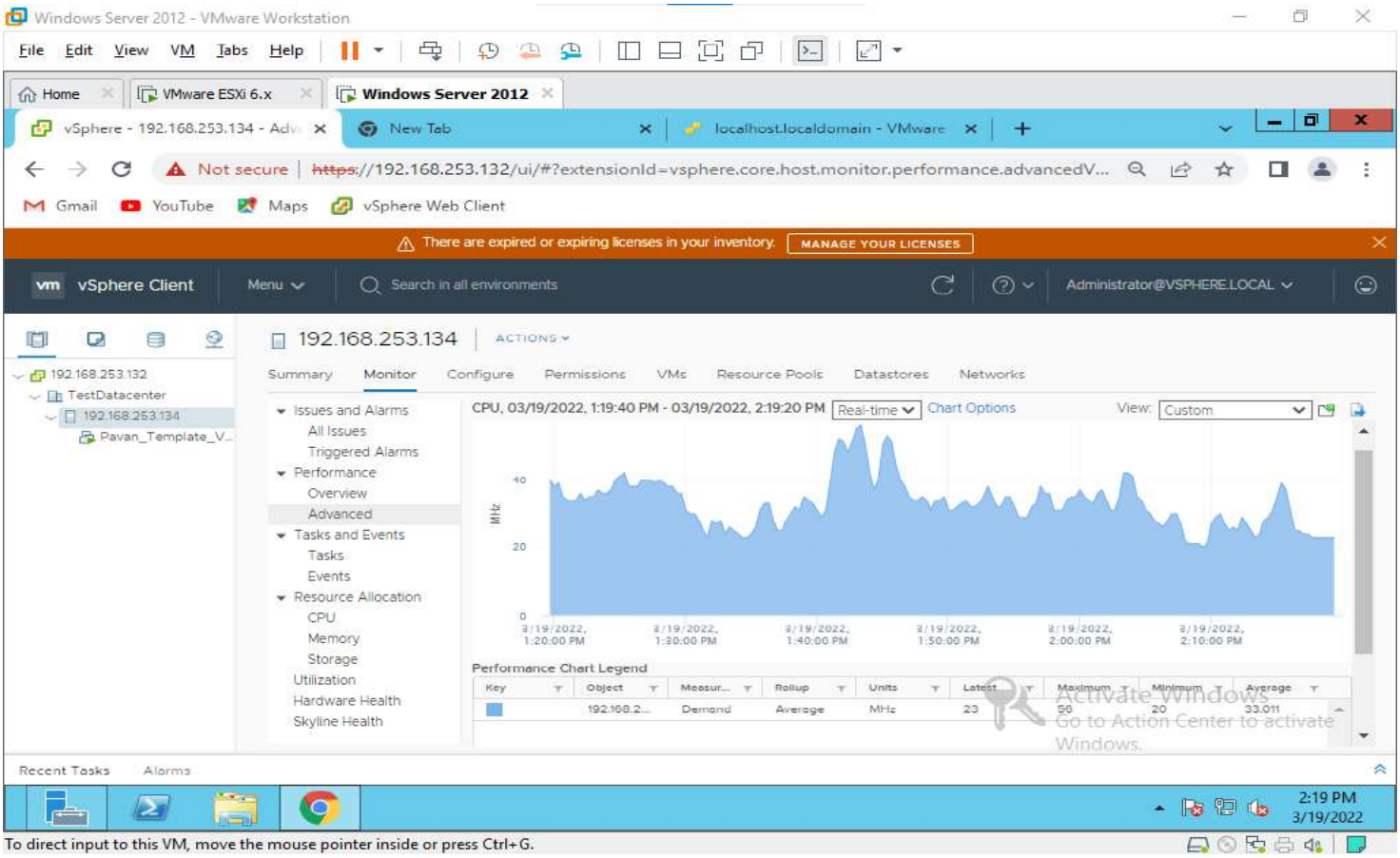


Click the Chart Options link. This will bring up options to **customize the chart.**

From the Chart Type drop-down menu, select **Stacked Graph** per VM.

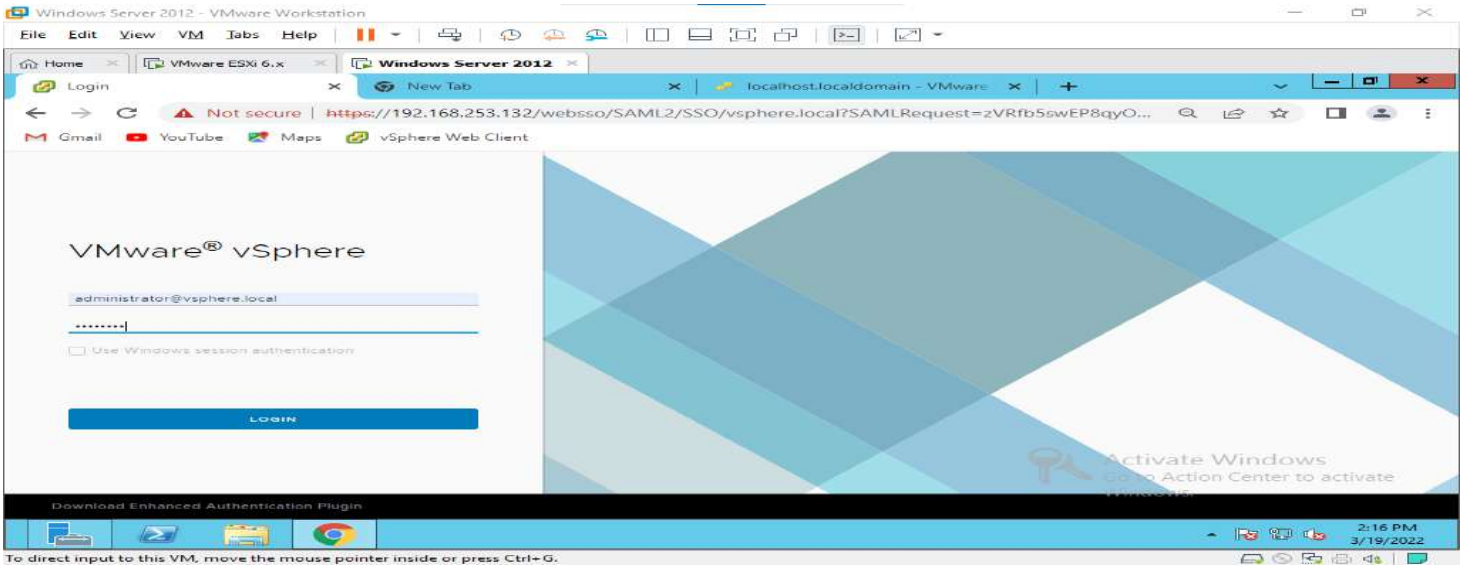
Under the Select objects for this chart box, **verify all the virtual machines** are **selected**. Click the **OK** button to see the newly customized chart.



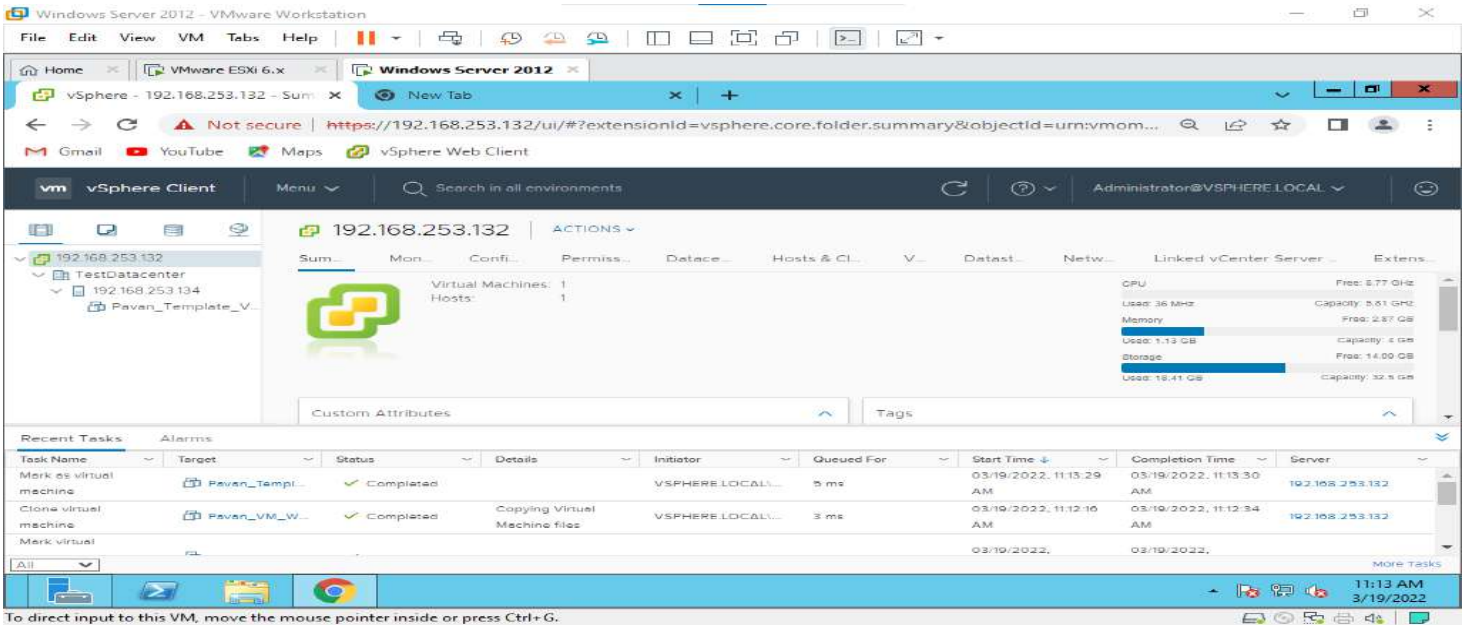


B- Monitoring Guest Operating System Performance & View Performance Statistics for Windows Guest Operating Systems.

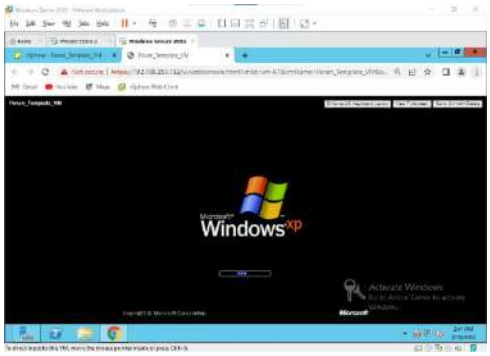
For this, we need a virtual machine in running status. Let's install the virtual machine (Windows XP).

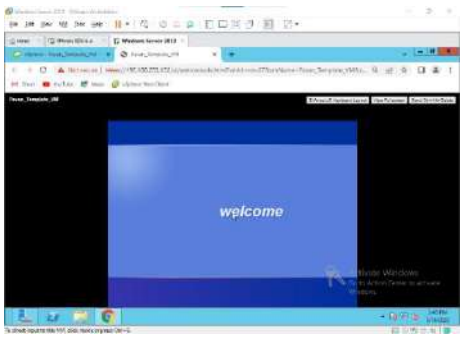


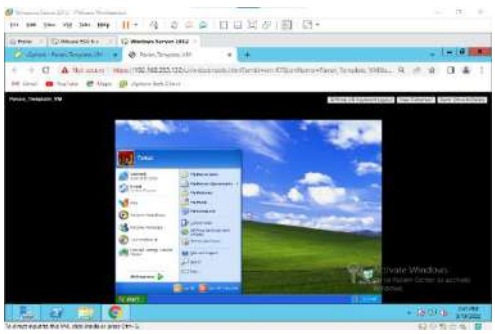
Select the virtual machine we have created.



Start the VM







Monitor the Usages of VM