

WIPRO NGA Program

Datacenter Batch 2

Capstone Project

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Trainer name - Jitendra Singh Tomar

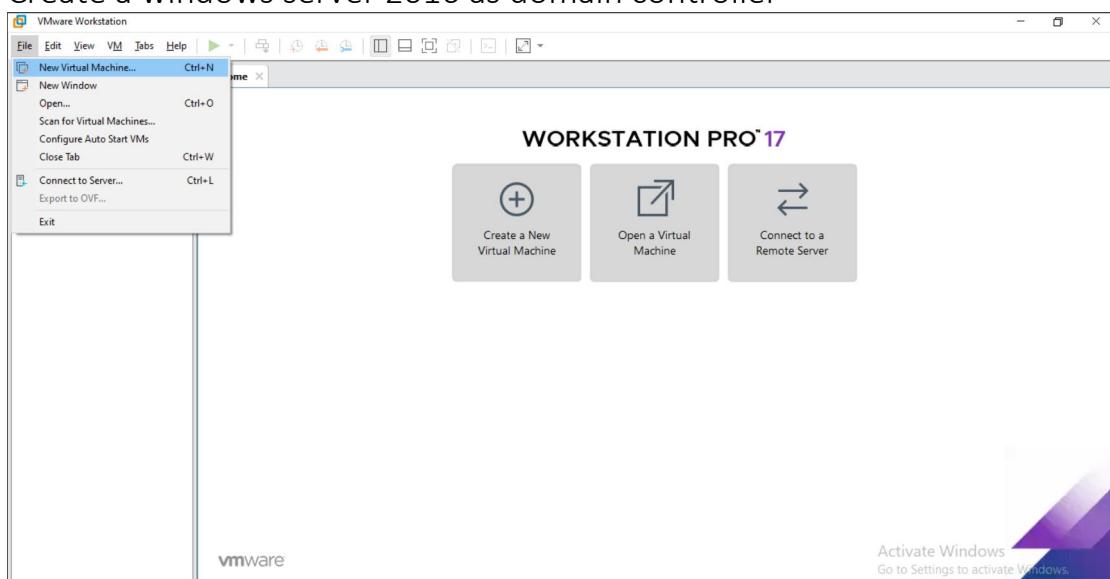
Project Task- 1

Objective:

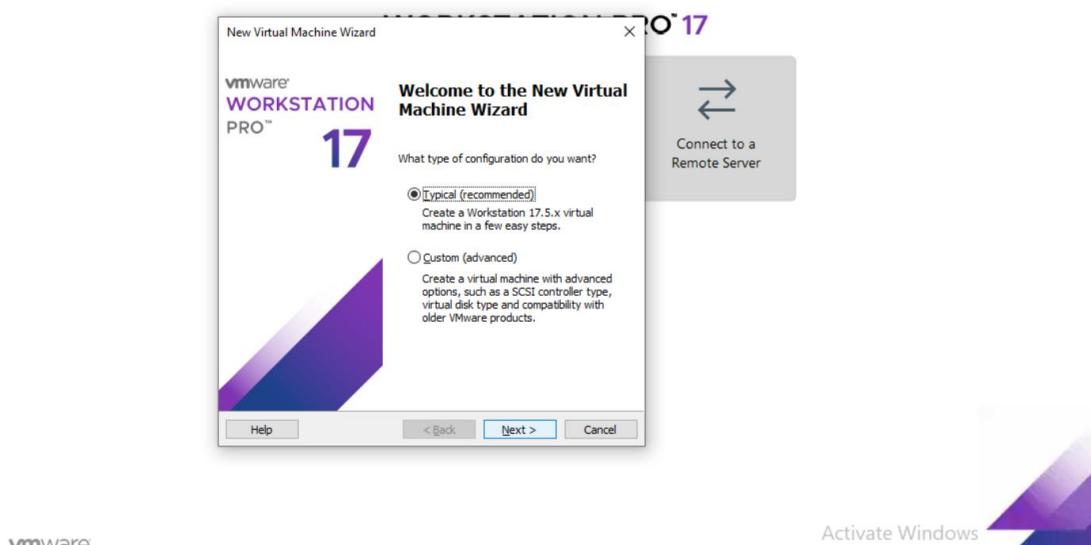
Create a domain controller using domain name as <yourusername>.training and create a shared NFS folder (c:\sharables) on domain controller machine with read-only permissions and access this folder on the member machine.

Solution-

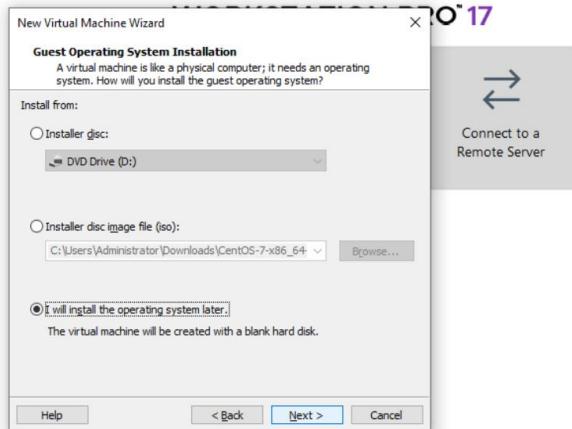
Create a windows server 2016 as domain controller



Select Typical-



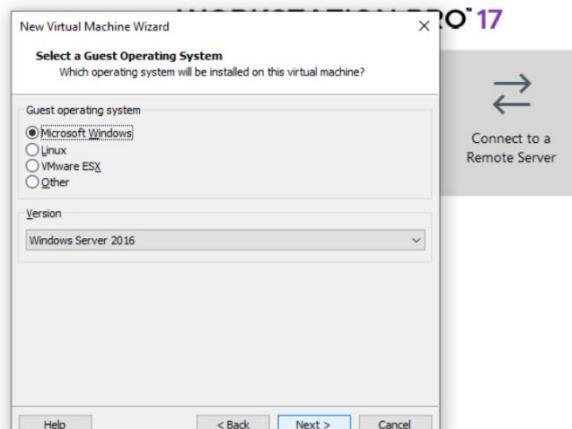
Select I will install later-



vmware

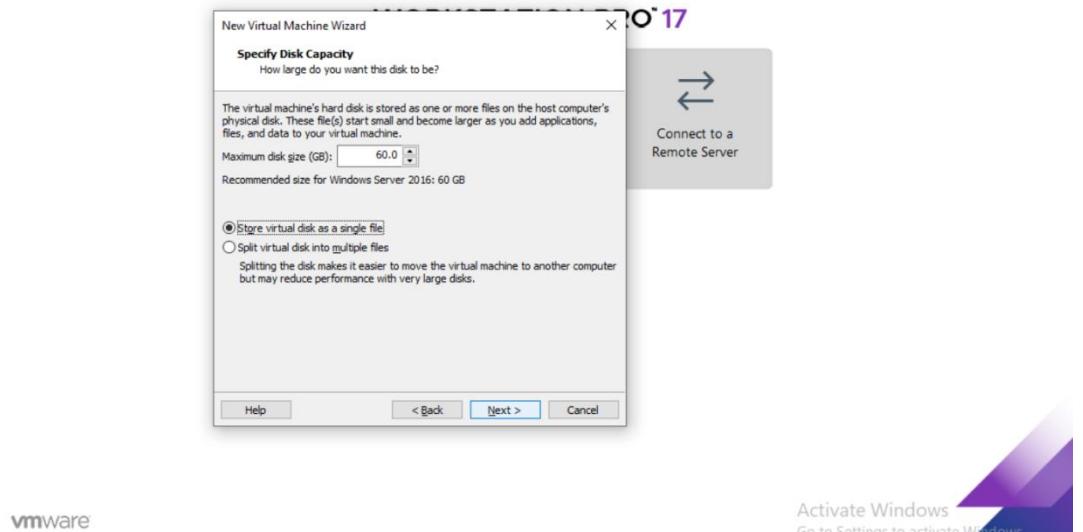
Activate Windows
Go to Settings to activate Windows.

Select the Windows Server Version-

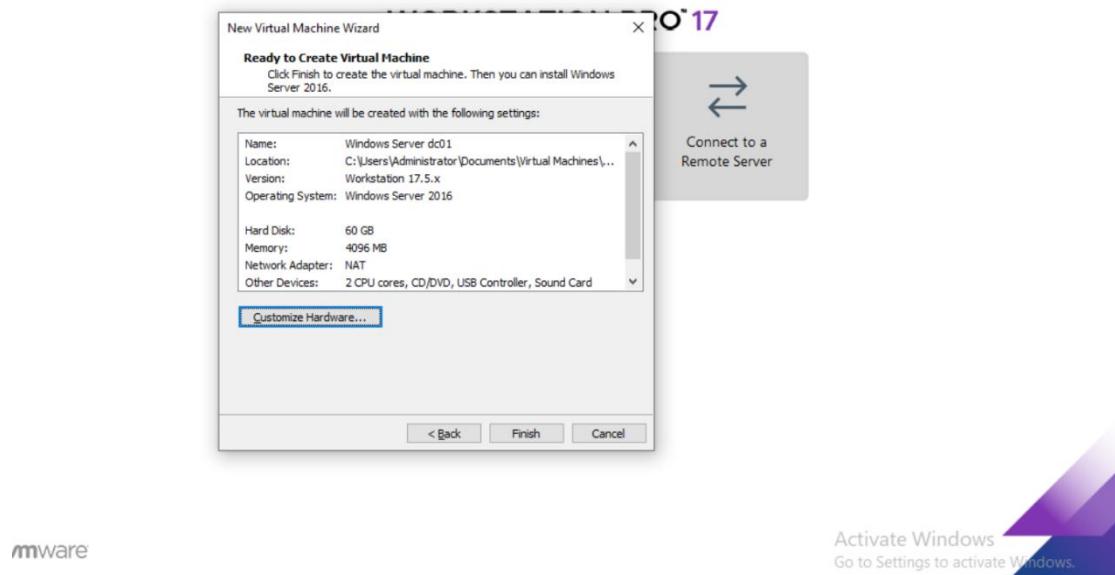


Activate Windows

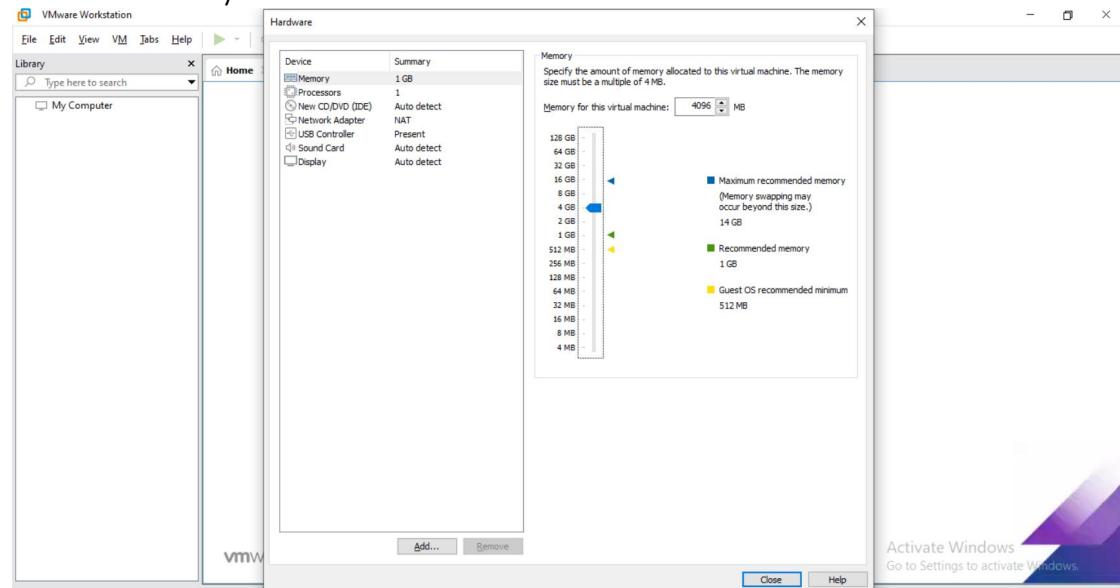
Specify the disk capacity-



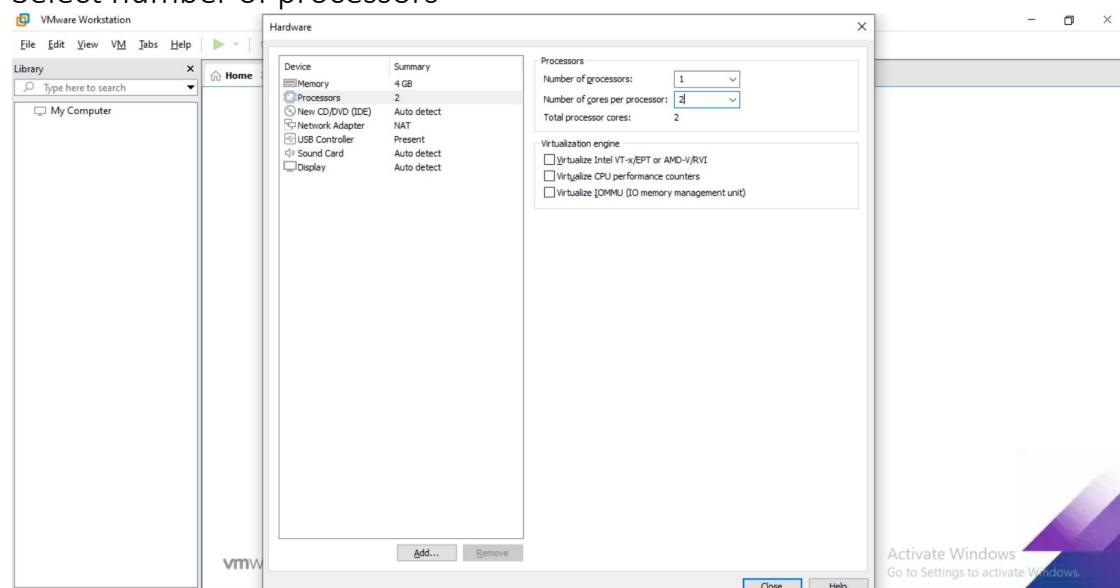
Select Customize Hardware-



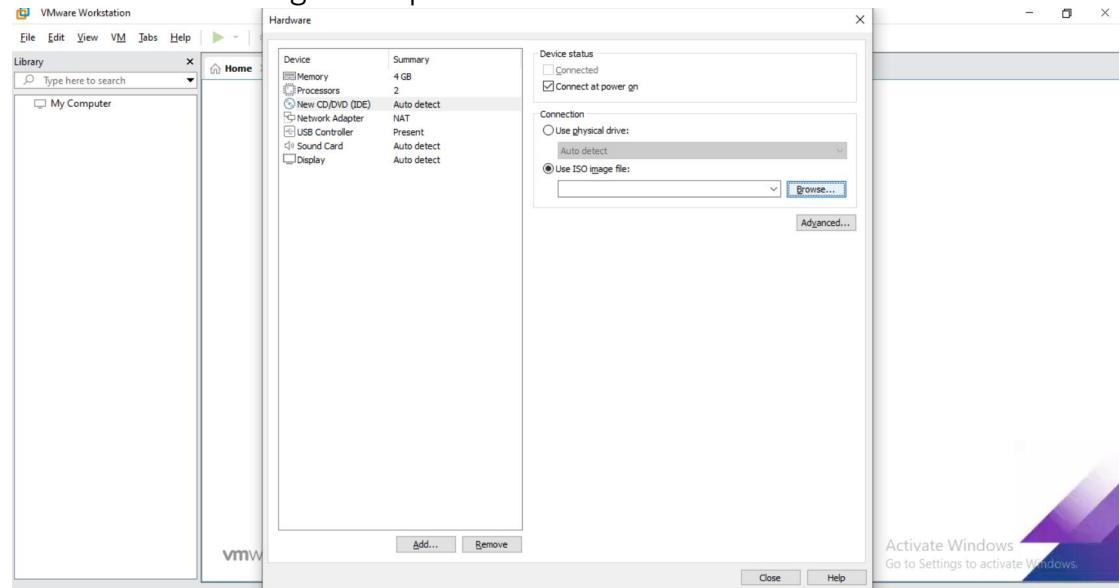
Select memory size -



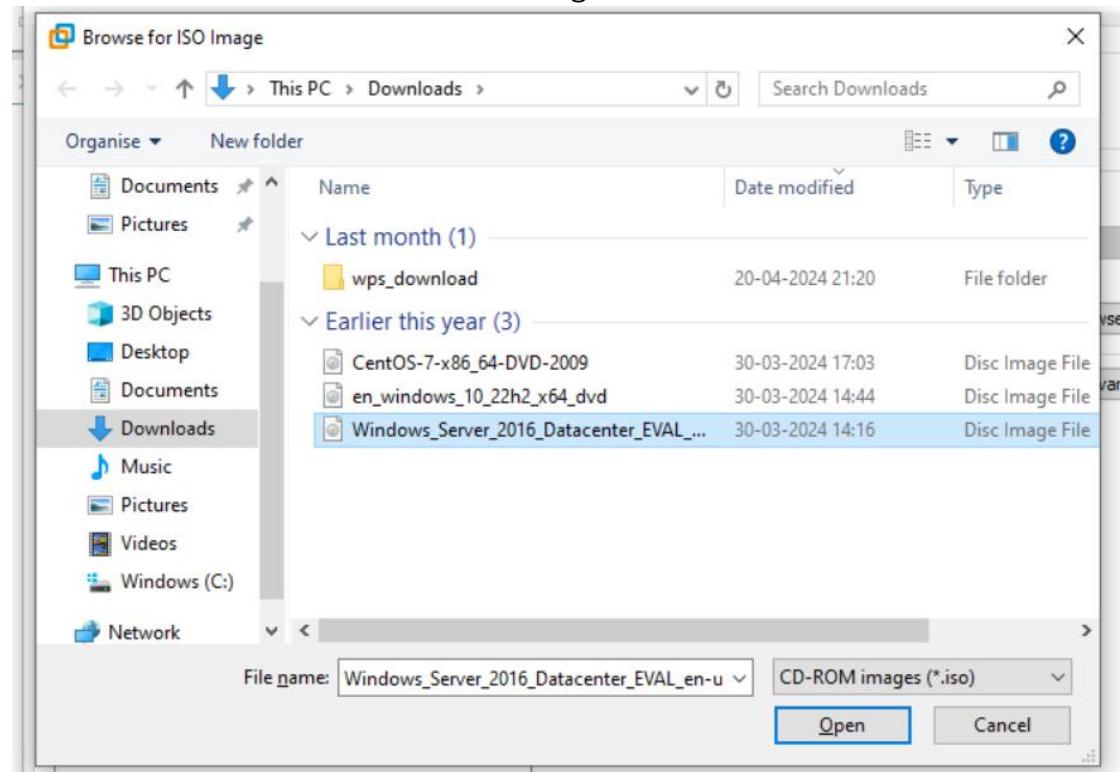
Select number of processors -



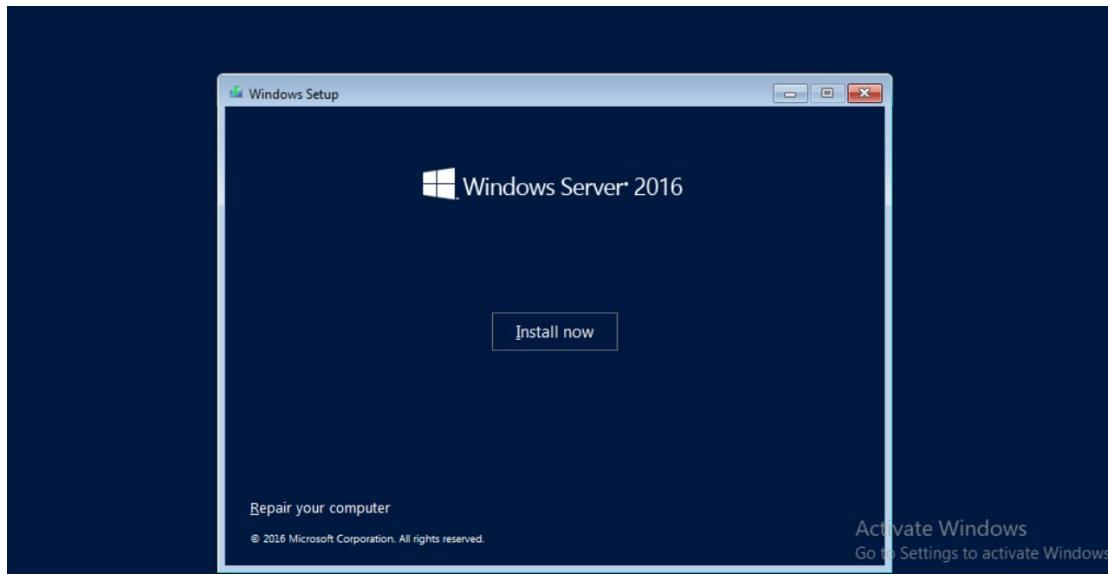
Select Use ISO image file option-



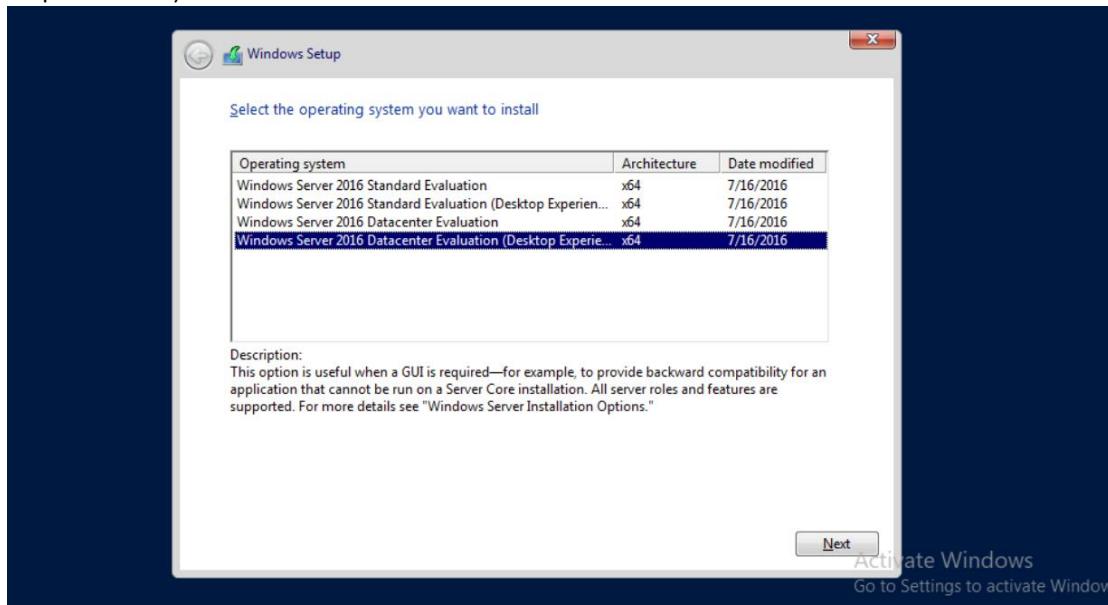
Browse and select the Server ISO image file-



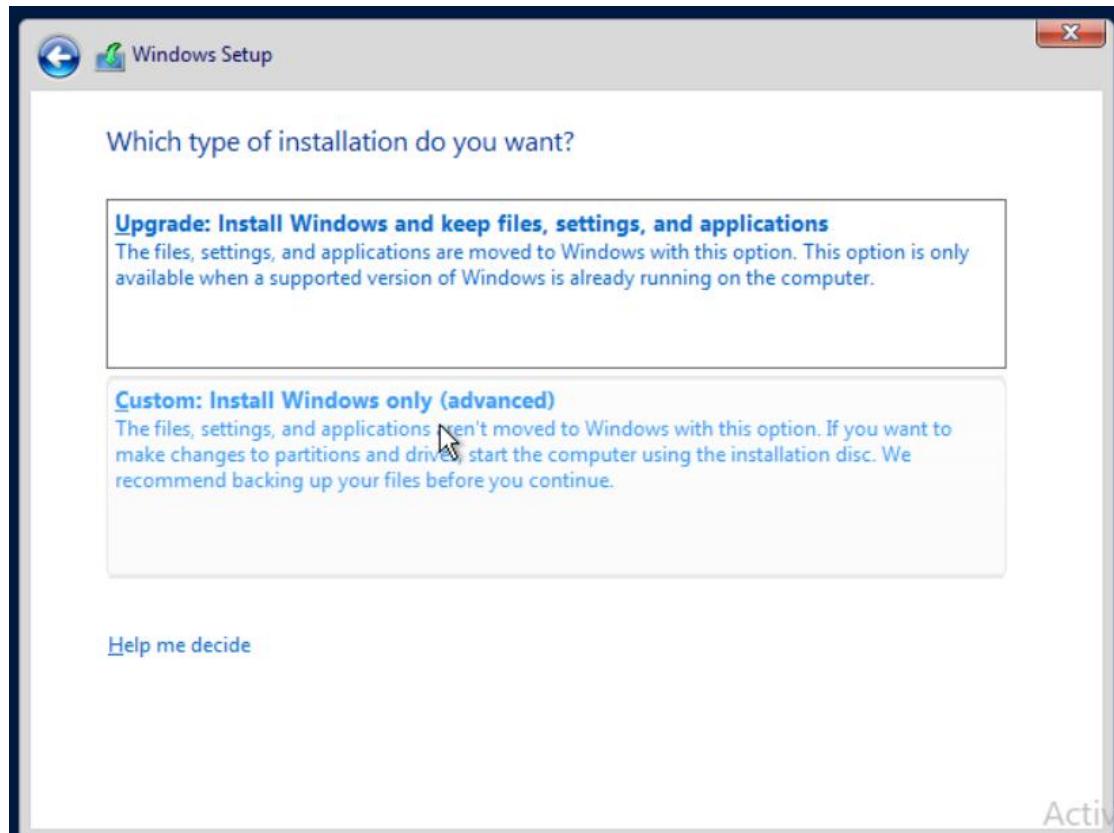
Click on Install now-



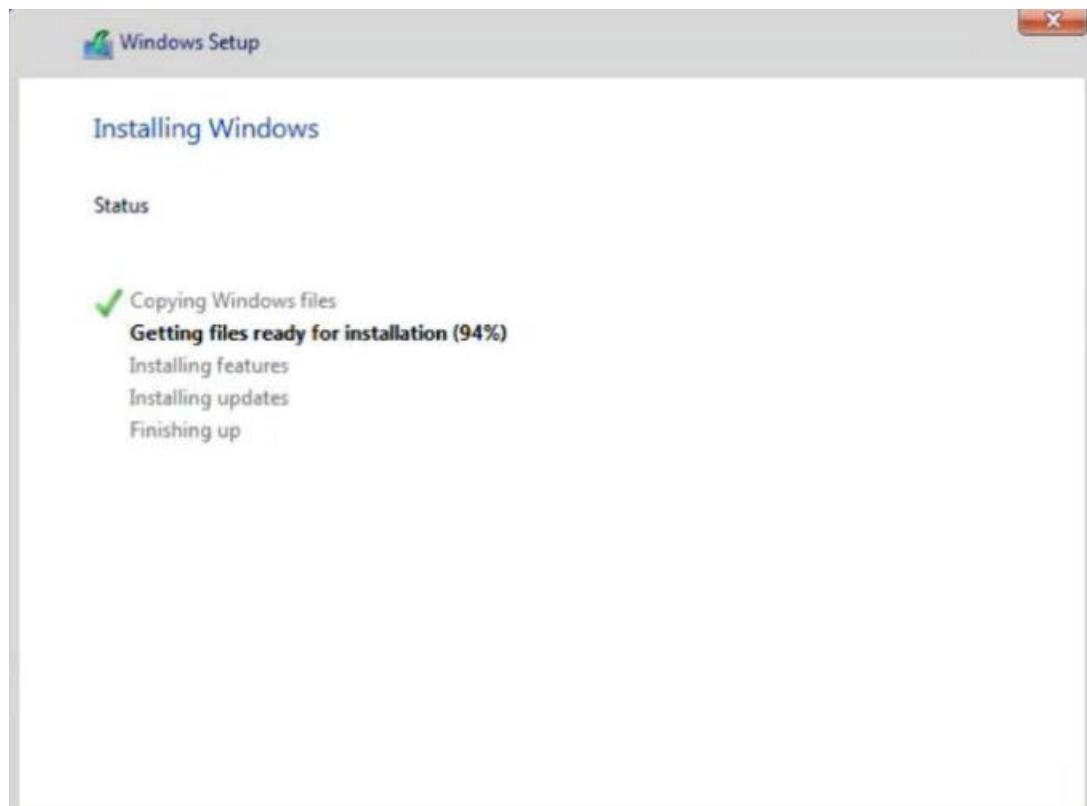
Select the Windows Server 2016 Datacenter Evaluation/Desktop Experience for GUI -



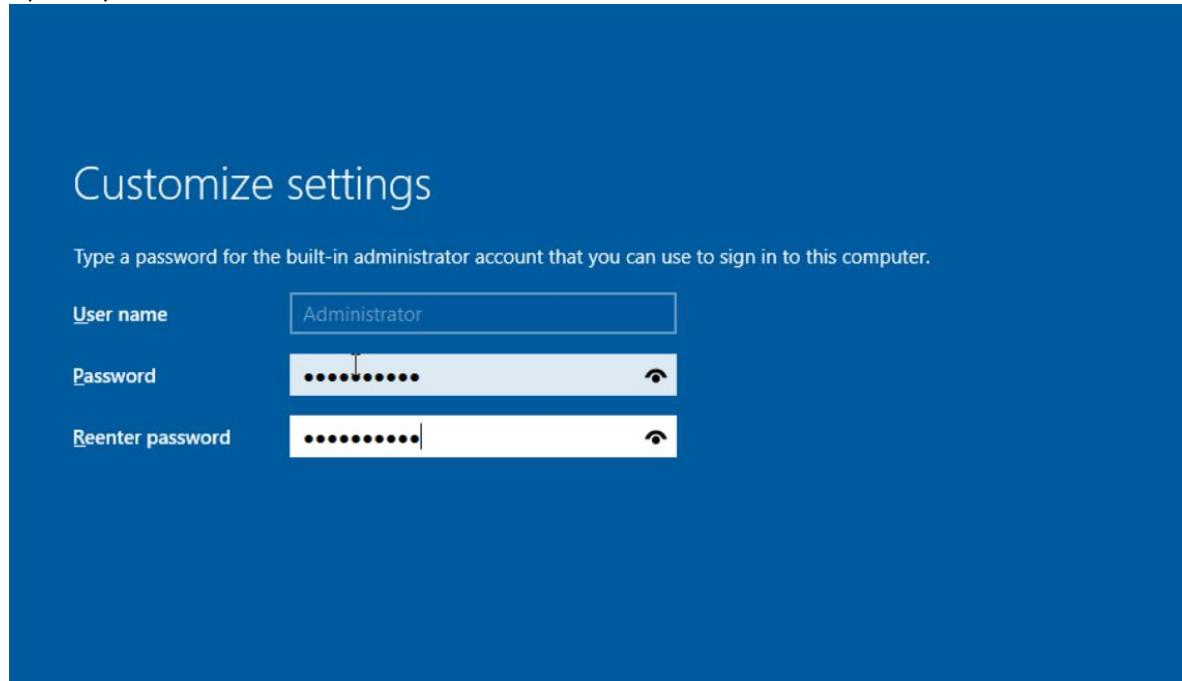
Select Custom -



Installation started-



Specify the Password for Administrator-



Windows server is ready for post-installation configuration-

Firewall - off

Time Zone - Asia/Kolkata

Ethernet0 - Specify the IP Address and DNS loopback address

The screenshot shows the 'Properties' window for the local server. The left sidebar lists 'Dashboard', 'Local Server' (which is selected), 'All Servers', and 'File and Storage Services'. The main pane displays system properties for the server 'WIN-O6BFA6VAOU3'. The 'PROPERTIES' tab is selected, showing the following details:

| Computer name | WIN-O6BFA6VAOU3 | Last installed updates | Never |
|--------------------------|---|------------------------------------|----------------|
| Workgroup | WORKGROUP | Windows Update | Install update |
| | | Last checked for updates | Never |
| Windows Firewall | Public: Off | Windows Defender | Real-Time |
| Remote management | Enabled | Feedback & Diagnostics | Settings |
| Remote Desktop | Disabled | IE Enhanced Security Configuration | On |
| NIC Teaming | Disabled | Time zone | (UTC-08:00) |
| Ethernet0 | IPv4 address assigned by DHCP, IPv6 enabled | Product ID | Not activated |
| Operating system version | Microsoft Windows Server 2016 Datacenter Evaluation | Processors | Intel(R) Xeon |
| Hardware information | VMware, Inc. VMware20,1 | Installed memory (RAM) | 4 GB |
| | | Total disk space | 59.45 GB |

Click on Add roles and features-

The screenshot shows the Microsoft Server Manager dashboard. On the left, there's a navigation bar with 'Dashboard' selected, followed by 'Local Server', 'All Servers', and 'File and Storage Services'. The main area is titled 'WELCOME TO SERVER MANAGER'. It features a 'QUICK START' sidebar with 'WHAT'S NEW' and 'LEARN MORE' options. A numbered list of tasks is displayed: 1. Configure this local server, 2. Add roles and features (which is highlighted with a red circle), 3. Add other servers to manage, 4. Create a server group, and 5. Connect this server to cloud services. Below this, there's a section for 'ROLES AND SERVER GROUPS' showing 'File and Storage Services' and 'Local Server' both with 1 item each. The 'File and Storage Services' group includes 'Manageability', 'Events', 'Performance', and 'BPA results'. The 'Local Server' group includes 'Manageability', 'Events', 'Services', 'Performance', and 'BPA results'. At the bottom right, there are links to 'Activate W' and 'Go to Settings'.

Select Role-based installation-

The screenshot shows the 'Add Roles and Features Wizard' window. The title bar says 'Add Roles and Features Wizard'. The left sidebar has steps: 'Before You Begin', 'Installation Type' (selected), 'Server Selection', 'Server Roles', 'Features', 'Confirmation', and 'Results'. The main pane is titled 'Select installation type'. It explains that you can install roles and features on a running physical computer or virtual machine, or on an offline virtual hard disk (VHD). There are two options: **Role-based or feature-based installation** (Configure a single server by adding roles, role services, and features) and **Remote Desktop Services installation** (Install required role services for Virtual Desktop Infrastructure (VDI) to create a virtual machine-based or session-based desktop deployment). In the top right corner, it says 'DESTINATION SERVER WIN-068FA6VAOU3'.

Select Active Directory Domain Services-

Select server roles

DESTINATION SERVER
dc01

Before You Begin
Installation Type
Server Selection
Server Roles
Features
AD DS
Confirmation
Results

Select one or more roles to install on the selected server.

Roles

| | |
|---|--|
| <input type="checkbox"/> Active Directory Certificate Services | Description |
| <input checked="" type="checkbox"/> Active Directory Domain Services | Active Directory Domain Services (AD DS) stores information about objects on the network and makes this information available to users and network administrators. AD DS uses domain controllers to give network users access to permitted resources anywhere on the network through a single logon process. |
| <input type="checkbox"/> Active Directory Federation Services | |
| <input type="checkbox"/> Active Directory Lightweight Directory Services | |
| <input type="checkbox"/> Active Directory Rights Management Services | |
| <input type="checkbox"/> Device Health Attestation | |
| <input type="checkbox"/> DHCP Server | |
| <input type="checkbox"/> DNS Server | |
| <input type="checkbox"/> Fax Server | |
| <input checked="" type="checkbox"/> File and Storage Services (1 of 12 installed) | |
| <input type="checkbox"/> Host Guardian Service | |
| <input type="checkbox"/> Hyper-V | |
| <input type="checkbox"/> MultiPoint Services | |
| <input type="checkbox"/> Network Controller | |
| <input type="checkbox"/> Network Policy and Access Services | |
| <input type="checkbox"/> Print and Document Services | |
| <input type="checkbox"/> Remote Access | |
| <input type="checkbox"/> Remote Desktop Services | |
| <input type="checkbox"/> Volume Activation Services | |
| <input type="checkbox"/> Web Server (IIS) | |

< Previous **Next >** Install Cancel

Installation progress

DESTINATION SERVER
dc01

Before You Begin
Installation Type
Server Selection
Server Roles
Features
AD DS
Confirmation
Results

View installation progress

i Feature installation

Installation started on dc01

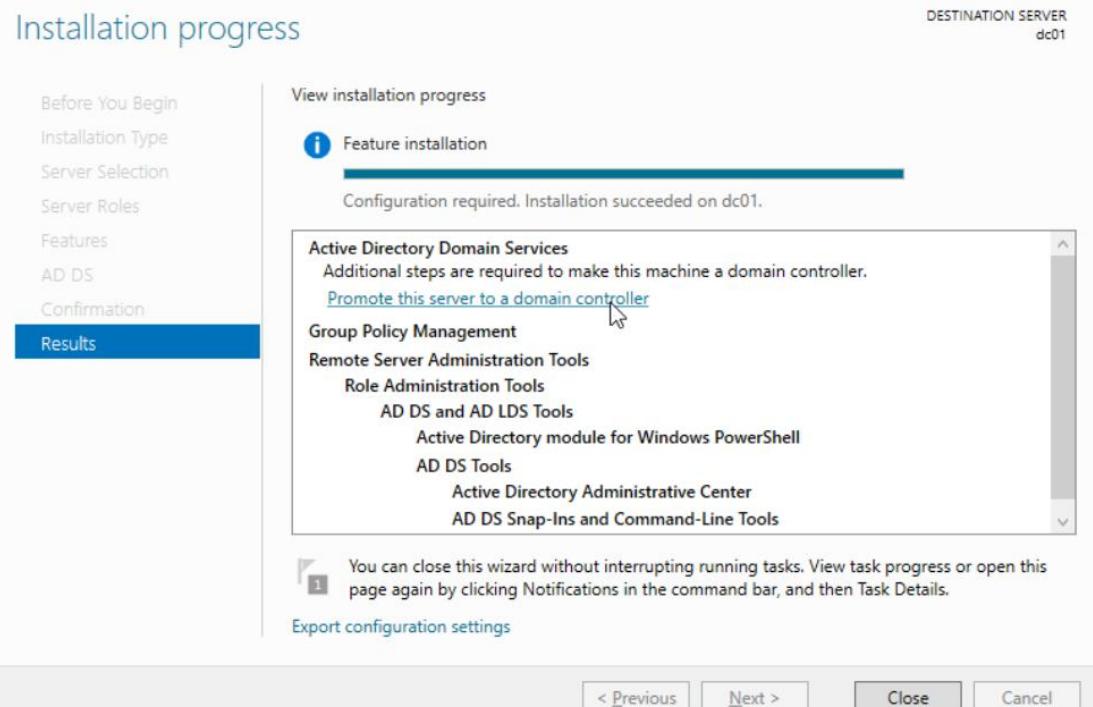
Active Directory Domain Services
Group Policy Management
Remote Server Administration Tools
Role Administration Tools
AD DS and AD LDS Tools
 Active Directory module for Windows PowerShell
AD DS Tools
 Active Directory Administrative Center
 AD DS Snap-Ins and Command-Line Tools

[i] You can close this wizard without interrupting running tasks. View task progress or open this page again by clicking Notifications in the command bar, and then Task Details.

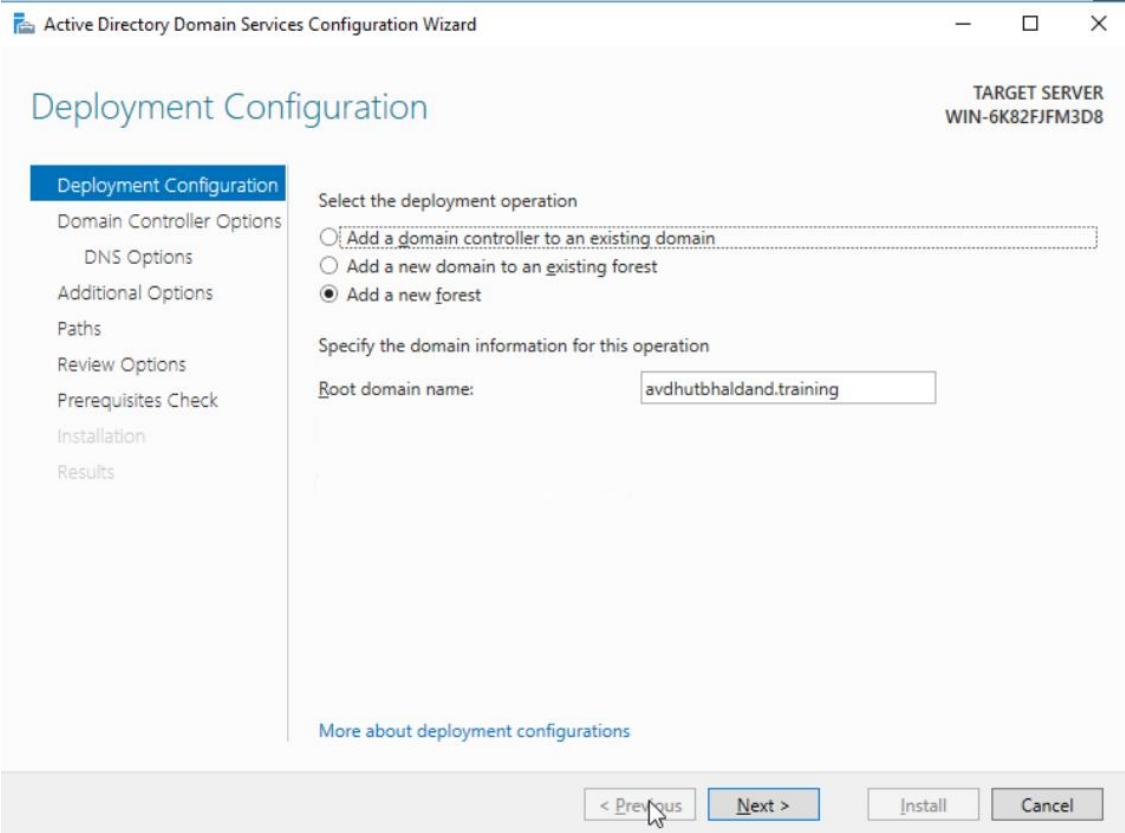
Export configuration settings

< Previous Next > Close Cancel

Click on the Blue line to promote server to domain controller-

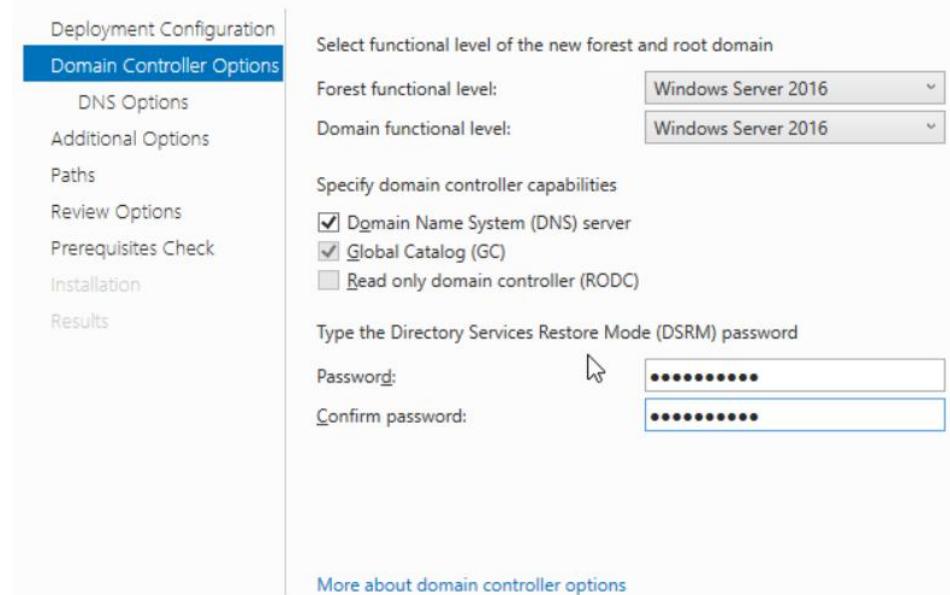


Click on Add a forest and specify domain name-



Specify the Password for domain- Domain Controller Options

TARGET SERVER
dc01



Prerequisites Check

TARGET SERVER
dc01

✓ All prerequisite checks passed successfully. Click 'Install' to begin installation. [Show more](#) X

Deployment Configuration
Domain Controller Options
DNS Options
Additional Options
Paths
Review Options
Prerequisites Check
Installation
Results

Prerequisites need to be validated before Active Directory Domain Services is installed on this computer
[Rerun prerequisites check](#)

[View results](#)

⚠ Windows Server 2016 domain controllers have a default for the security setting named "Allow cryptography algorithms compatible with Windows NT 4.0" that prevents weaker cryptography algorithms when establishing security channel sessions.
For more information about this setting, see Knowledge Base article 942564 (<http://go.microsoft.com/fwlink/?LinkId=104751>).

⚠ A delegation for this DNS server cannot be created because the authoritative parent zone cannot be found or it does not run Windows DNS server. If you are integrating with an existing DNS infrastructure, you should manually create a delegation to this DNS server in the parent zone to ensure reliable name resolution from outside the domain "avdhutbhaldand.in". Otherwise, no action is required.

⚠ If you click Install, the server automatically reboots at the end of the promotion operation.

[More about prerequisites](#)

[< Previous](#) [Next >](#) Install [Cancel](#) Go

ADDS roles & features are added -

PROPERTIES
For dc01

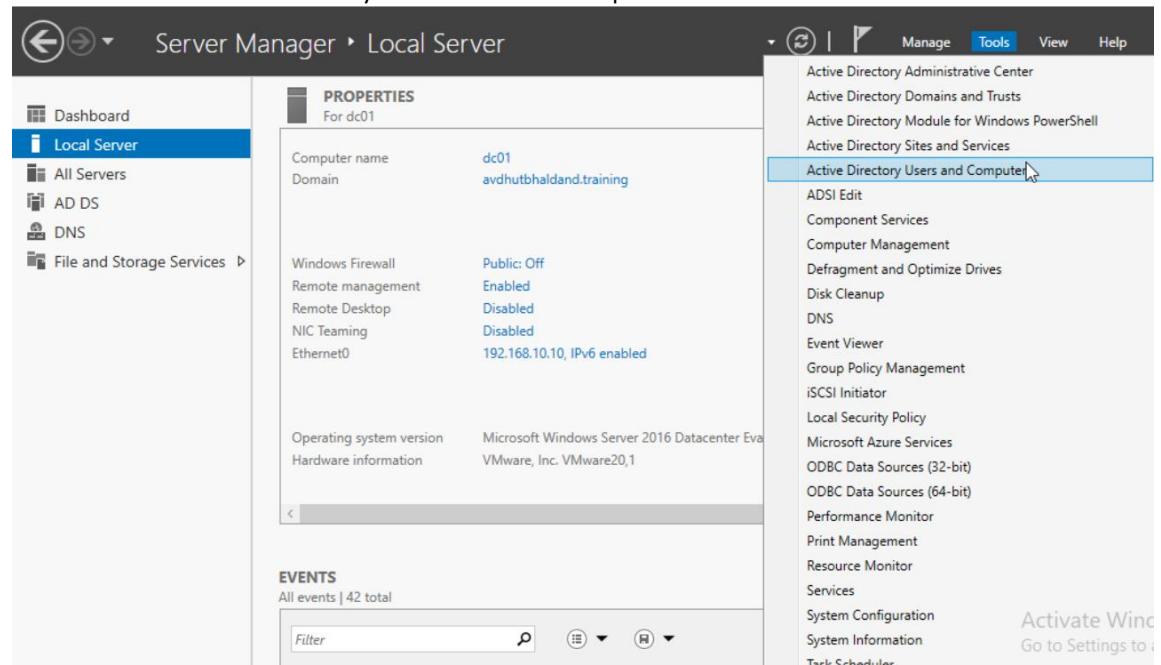
| | | |
|--------------------------|---|------------------------------------|
| Computer name | dc01 | Last installed updates |
| Domain | avdhutbhaldand.training | Windows Update |
| | | Last checked for updates |
| Windows Firewall | Public: Off | Windows Defender |
| Remote management | Enabled | Feedback & Diagnostics |
| Remote Desktop | Disabled | IE Enhanced Security Configuration |
| NIC Teaming | Disabled | Time zone |
| Ethernet0 | 192.168.10.10, IPv6 enabled | Product ID |
| Operating system version | Microsoft Windows Server 2016 Datacenter Evaluation | Processors |
| Hardware information | VMware, Inc. VMware20,1 | Installed memory (RAM) |
| | | Total disk space |

EVENTS

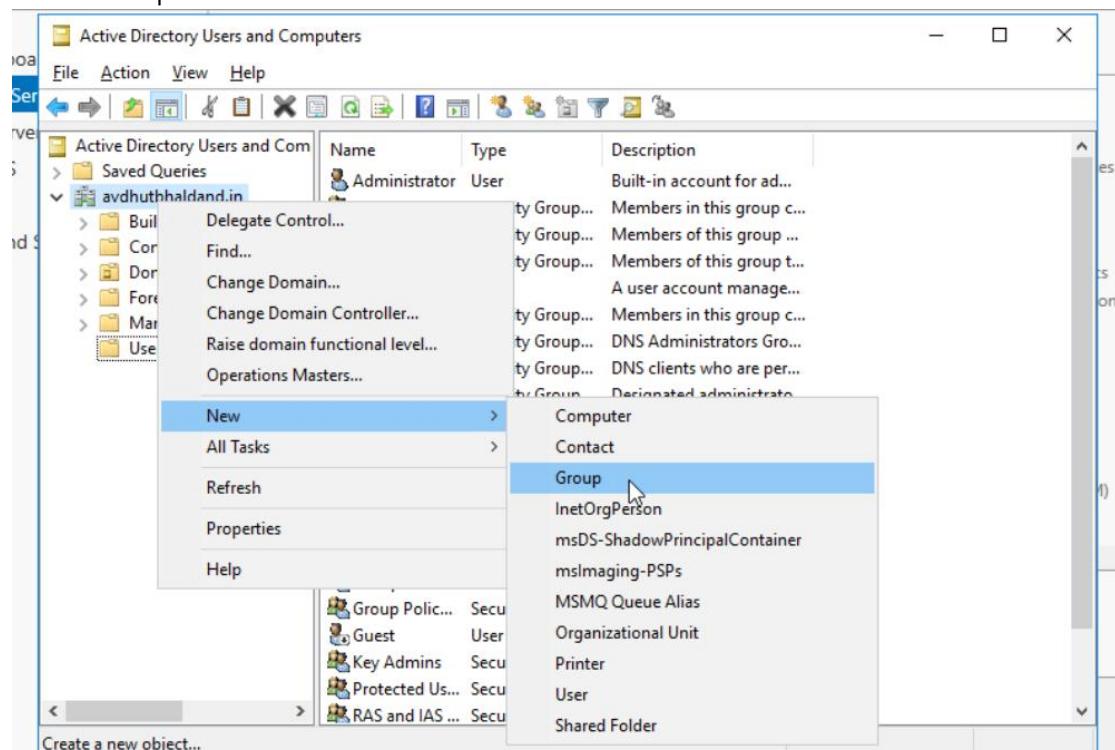
All events | 42 total

| Server Name | ID | Severity | Source | Log | Date and Time |
|-------------|------|----------|--------------------------------|-------------|----------------------|
| DC01 | 8198 | Error | Microsoft-Windows-Security-SPP | Application | 5/5/2024 11:41:18 PM |
| DC01 | 1014 | Error | Microsoft-Windows-Security-SPP | Application | 5/5/2024 11:41:18 PM |
| DC01 | 8200 | Error | Microsoft-Windows-Security-SPP | Application | 5/5/2024 11:41:18 PM |

Click on Active Directory Users and Computers-



Add Group "dcadmins" in domain-



New Object - Group

Create in: avdhutbhaldand.training/

Group name:
dcadmins

Group name (pre-Windows 2000):
dcadmins

Group scope

Domain local
 Global
 Universal

Group type

Security
 Distribution

OK Cancel

Add 2 users in the Group-

Copy Object - User

Create in: avdhutbhaldand.in/Users

First name: Ashutosh Initials:

Last name:

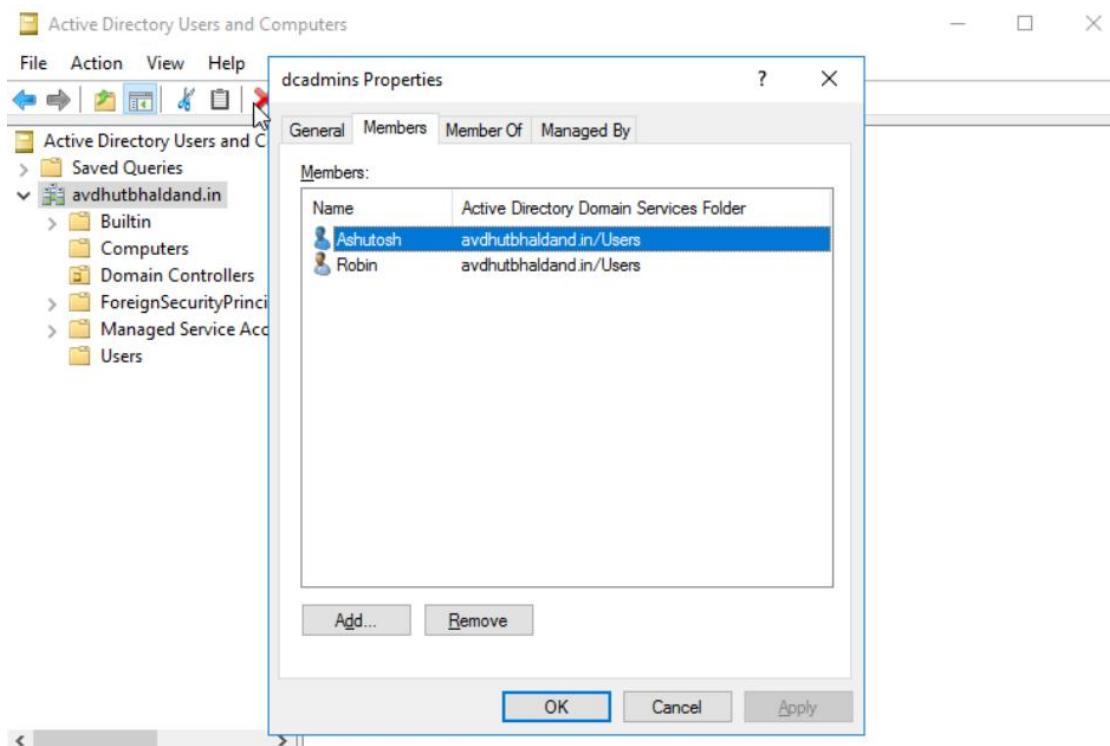
Full name: Ashutosh

User logon name:
ashutosh @avdhutbhaldand.in

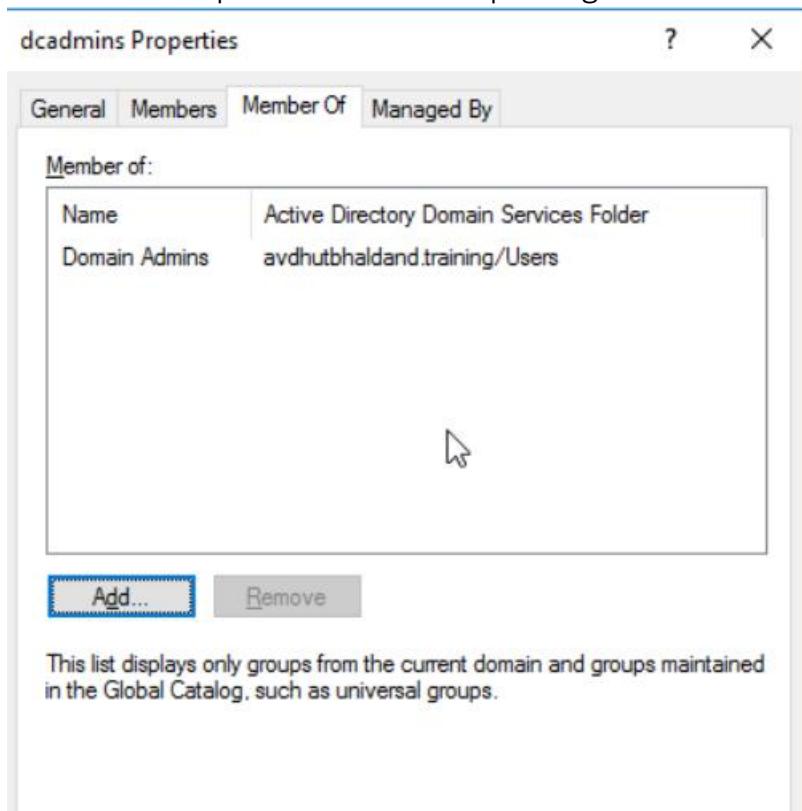
User logon name (pre-Windows 2000):
AVDHUTBHALDAND\ashutosh

< Back Next > Cancel

Enterprise R... Security Group... Members of this group ...
Group Polic... Security Group... Members in this group c...
Guest User Built-in account for gue...
Key Admins Security Group... Members of this group ...
Protected Us... Security Group... Members of this group ...



Give the Group Domain Admins privileges-



Give users dadmins priorities-

Ashutosh Properties

?

X

| | | | | | |
|----------------|---------------------------------|-------------|---------|------------|--------------|
| Remote control | Remote Desktop Services Profile | | | COM+ | |
| General | Address | Account | Profile | Telephones | Organization |
| Member Of | Dial-in | Environment | | Sessions | |

Member of:

| | |
|--------------|---|
| Name | Active Directory Domain Services Folder |
| dadmins | avdhutbhaldand.training |
| Domain Users | avdhutbhaldand.training/Users |

Add... Remove

Primary group: Domain Users

Set Primary Group There is no need to change Primary group unless you have Macintosh clients or POSIX-compliant applications.

Create another Windows Server same as created earlier-

Firewall - off

Time Zone - Asia/Kolkata

Ethernet0 -Specify IP Address & Domain join the member to dc

The screenshot shows the Windows Server Manager interface. The left sidebar has 'Local Server' selected. The main area displays the properties for the local server 'WIN-1U9OD6ERCI3'. The 'PROPERTIES' section includes the server name, workgroup (WORKGROUP), and various system settings like Windows Defender, Feedback & Diagnostics, and IE Enhanced Security Configuration. Below this is a table with general system information. At the bottom, there's an 'EVENTS' section showing 17 total events.

| Setting | Value | Details |
|---|------------------------------------|----------------------|
| Last installed updates | Never | |
| Windows Update | Install | |
| Last checked for updates | Never | |
| Public: Off | Windows Defender | Real-Time Protection |
| Enabled | Feedback & Diagnostics | Setting |
| Disabled | IE Enhanced Security Configuration | Off |
| Disabled | Time zone | (UTC+0) |
| IPv4 address assigned by DHCP, IPv6 enabled | Product ID | Not available |
| Microsoft Windows Server 2016 Datacenter Evaluation | Processors | Intel(R) Xeon(R) CPU |
| VMware, Inc. VMware20,1 | Installed memory (RAM) | 4 GB |
| | Total disk space | 59.45 |

PROPERTIES
For WIN-1U9OD6ERCI3

WIN-1U9OD6ERCI3
WORKGROUP

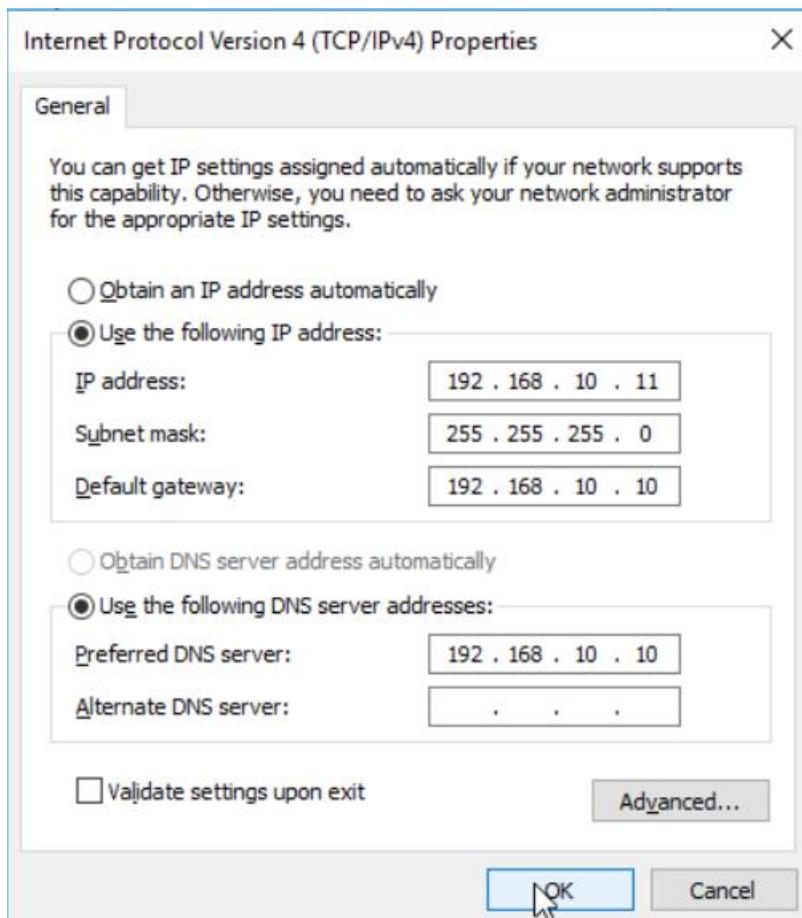
Public: Off
Enabled
Disabled
Disabled
IPv4 address assigned by DHCP, IPv6 enabled

Windows Defender
Feedback & Diagnostics
IE Enhanced Security Configuration
Time zone
Product ID

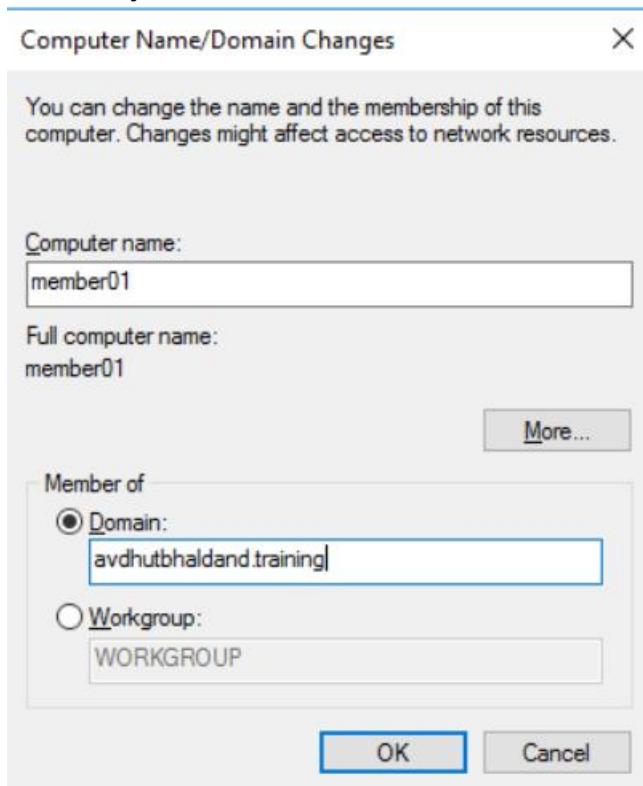
Microsoft Windows Server 2016 Datacenter Evaluation
VMware, Inc. VMware20,1

Processors
Installed memory (RAM)
Total disk space

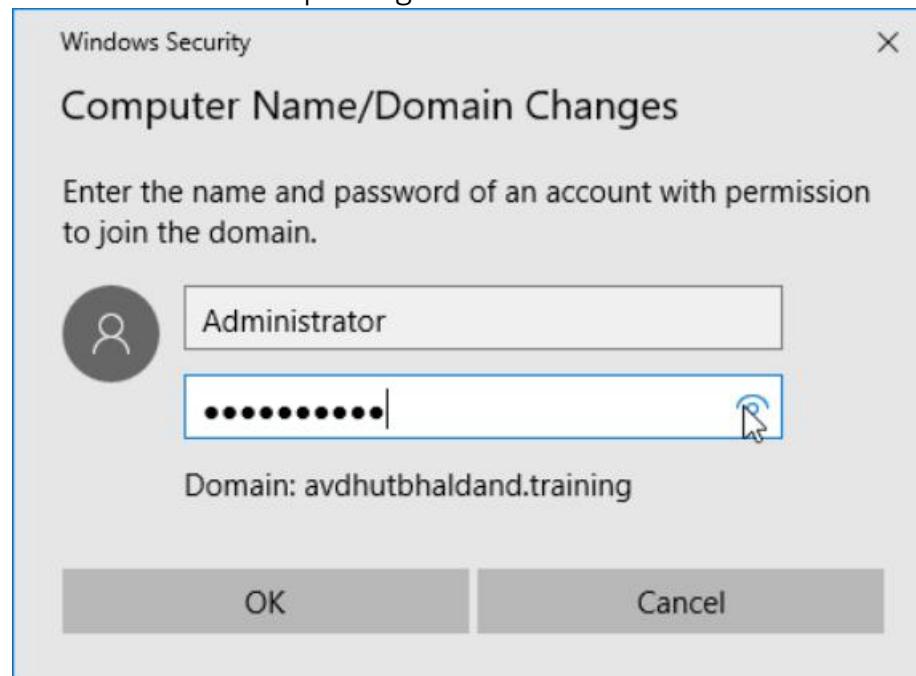
EVENTS
All events | 17 total



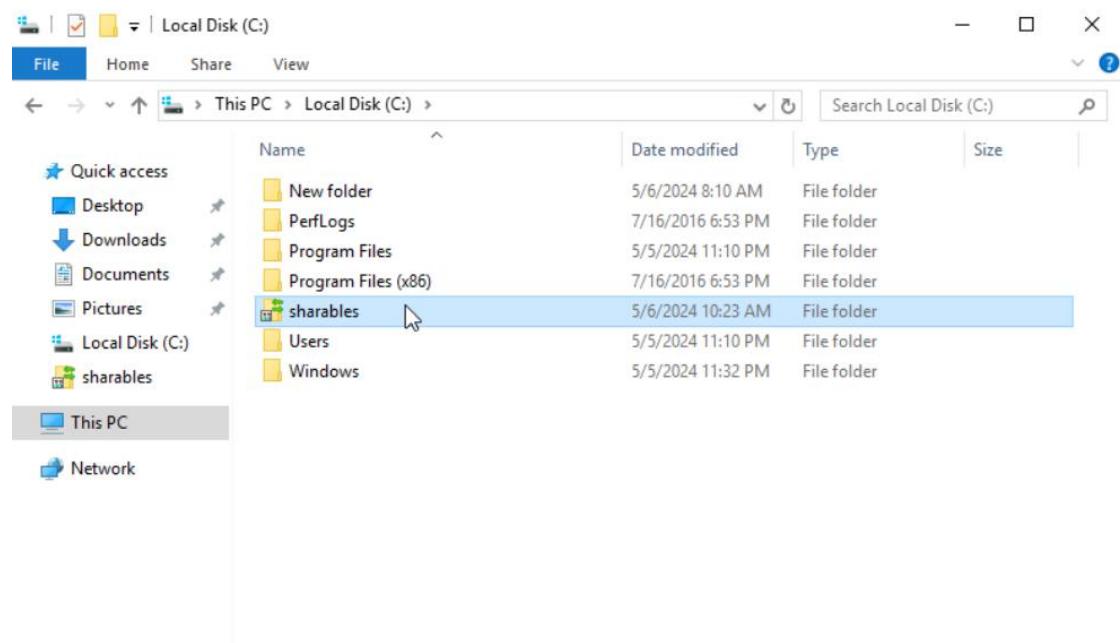
Domain join the member machine -



Give Administrator privileges to member machine-



Create a shared NFS folder (c:\sharables) on domain controller-



Click Add roles and features on dc machine-

The screenshot shows the 'WELCOME TO SERVER MANAGER' screen. On the left, there's a vertical sidebar with 'QUICK START', 'WHAT'S NEW', and 'LEARN MORE' sections. The main area has a large orange circle containing the number '1' followed by the text 'Configure this local server'. Below it is a numbered list: '2 Add roles and features' (with a hand cursor icon over it), '3 Add other servers to manage', '4 Create a server group', and '5 Connect this server to cloud services'. A 'Hide' link is at the bottom right of the list.

ROLES AND SERVER GROUPS
Roles: 3 | Server groups: 1 | Servers total: 1

| | |
|----------------------------------|---|
| AD DS Manageability Events | 1 |
| DNS Manageability Events | 1 |

Activate Wind
Go to Settings to a

Select Installation type-

The screenshot shows the 'Add Roles and Features Wizard' window. The title bar says 'Add Roles and Features Wizard'. The main area is titled 'Select installation type'. On the left, a navigation pane shows 'Before You Begin', 'Installation Type' (which is selected and highlighted in blue), 'Server Selection', 'Server Roles', 'Features', 'Confirmation', and 'Results'. The 'Installation Type' section contains two options: 'Role-based or feature-based installation' (selected with a radio button) and 'Remote Desktop Services installation'. The 'Role-based or feature-based installation' section includes a sub-note: 'Configure a single server by adding roles, role services, and features.' At the bottom, there are buttons for '< Previous', 'Next >', 'Install', and 'Cancel'. The 'DESTINATION SERVER' field shows 'dc01.avdhubhaldand.training'.

Select Server for NFS and install -

Select server roles

DESTINATION SERVER
dc01.avdhutbhaldand.training

! The destination server has a pending restart. We recommend that you restart the destination server before either installing or... X

| Before You Begin | Select one or more roles to install on the selected server. | Description |
|---------------------|---|--------------------|
| Installation Type | | |
| Server Selection | | |
| Server Roles | Roles | Description |
| Features | | |
| Confirmation | | |
| Results | | |

File and Storage Services (2 of 12 installed)

- Fax Server
- File and Storage Services (2 of 12 installed)
 - File and iSCSI Services (1 of 11 installed)
 - File Server (Installed)
 - BranchCache for Network Files
 - Data Deduplication
 - DFS Namespaces
 - DFS Replication
 - File Server Resource Manager
 - File Server VSS Agent Service
 - iSCSI Target Server
 - iSCSI Target Storage Provider (VDS and VSS)
 - Server for NFS
 - Work Folders
 - Storage Services (Installed)
 - Host Guardian Service
 - Hyper-V

< Previous Next > Install Cancel

Installation progress

DESTINATION SERVER
dc01.avdhutbhaldand.training

Before You Begin

View installation progress

i Feature installation

Installation started on dc01.avdhutbhaldand.training

| |
|---|
| File and Storage Services |
| File and iSCSI Services |
| Server for NFS |
| Remote Server Administration Tools |
| Role Administration Tools |
| File Services Tools |
| Services for Network File System Management Tools |

! You can close this wizard without interrupting running tasks. View task progress or open this page again by clicking Notifications in the command bar, and then Task Details.

i Export configuration settings

< Previous Next > Close Cancel

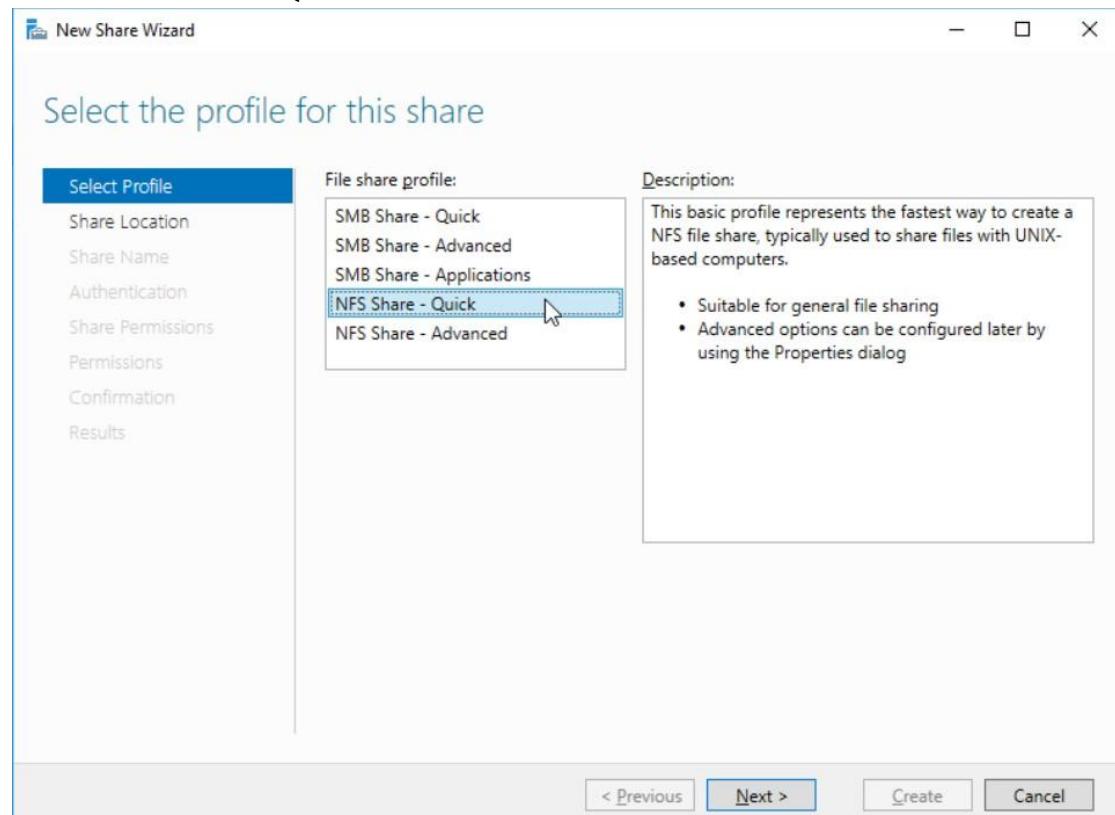
Open File and Storage Services -

The screenshot shows the Microsoft Server Manager interface. On the left, a navigation bar lists 'Dashboard', 'Local Server', 'All Servers', 'AD DS', 'DNS', and 'File and Storage Services'. The 'File and Storage Services' item is highlighted with a cursor. The main area is titled 'WELCOME TO SERVER MANAGER' and contains a 'QUICK START' section with five numbered steps: 1. Configure this local server, 2. Add roles and features, 3. Add other servers to manage, 4. Create a server group, and 5. Connect this server to cloud services. Below this, a 'ROLES AND SERVER GROUPS' section shows 'Roles: 3 | Server groups: 1 | Servers total: 1'. It lists 'AD DS' with 1 instance and 'DNS' with 1 instance, both highlighted with green bars.

Select Shares and in Tasks select new Share-

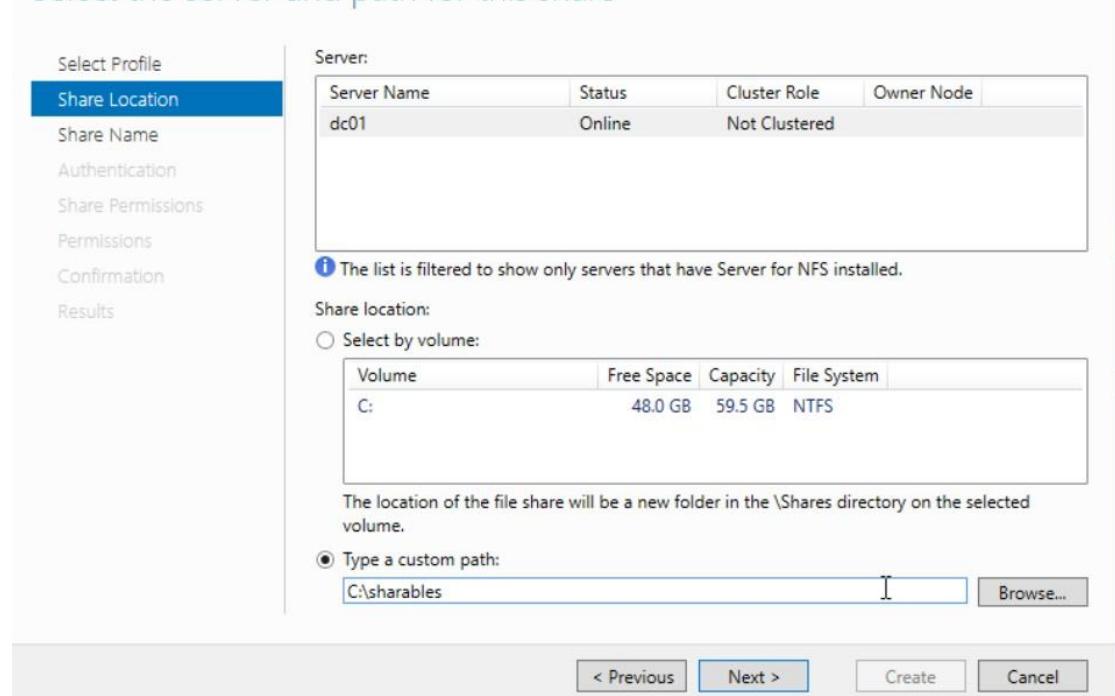
The screenshot shows the 'Shares' management interface in Server Manager. The left sidebar includes options for 'Servers', 'Volumes', 'Disks', 'Storage Pools', 'Shares' (which is selected and highlighted in blue), 'iSCSI', and 'Work Folders'. The main area displays a 'SHARES' table with two shares listed: 'dc01 (2)' (NETLOGON and SYSVOL) and 'avdh...' (Local Path C:\Windows\SYSVOL\sysvol). A 'TASKS' dropdown menu is open, showing 'New Share' (which is highlighted with a blue box and a cursor) and 'Refresh'. To the right, a 'VOLUME' section shows 'No share is selected.' and a note 'Select a share to display its related volume.' Below it, a 'QUOTA' section shows 'No share is selected.' and a note 'Select a share to display its related quota.' A link 'Go to Volumes Overview >' is also present.

Select NFS Share-Quick -



Select Location of the folder 'sharables' -

Select the server and path for this share



Specify share name

Select Profile

Share Location

Share Name

Authentication

Share Permissions

Permissions

Confirmation

Results

Share name: **sharables**

Local path to share:

C:\sharables

Remote path to share:

dc01:/sharables

< Previous

Next >

Create

Cancel

Check all the boxes as followed -

Specify authentication methods

Select Profile

Share Location

Share Name

Authentication

Share Permissions

Permissions

Confirmation

Results

Specify the authentication methods that you want to use for this NFS share.

Kerberos v5 authentication

- Kerberos v5 authentication(Krb5)
- Kerberos v5 authentication and integrity(Krb5i)
- Kerberos v5 authentication and privacy(Krb5p)

No server authentication

- No server authentication (AUTH_SYS)
 - Enable unmapped user access
 - Allow unmapped user access by UID/GID
 - Allow anonymous access



< Previous

Next >

Create

Cancel

Click on Add to specify share permissions -

Specify the share permissions

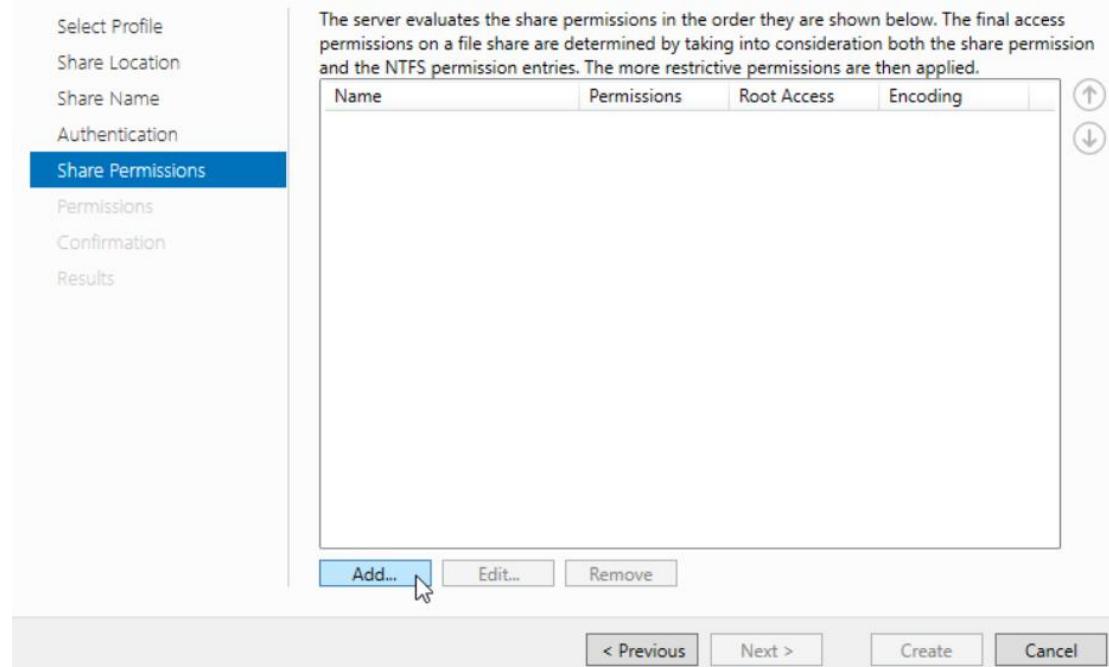
Select Profile
Share Location
Share Name
Authentication
Share Permissions
Permissions
Confirmation
Results

The server evaluates the share permissions in the order they are shown below. The final access permissions on a file share are determined by taking into consideration both the share permission and the NTFS permission entries. The more restrictive permissions are then applied.

| Name | Permissions | Root Access | Encoding |
|------|-------------|-------------|----------|
|------|-------------|-------------|----------|

Add... Edit... Remove

< Previous Next > Create Cancel



Select for All Machines and Read-Only Permissions -

New Share Wizard

Specify the share permissions

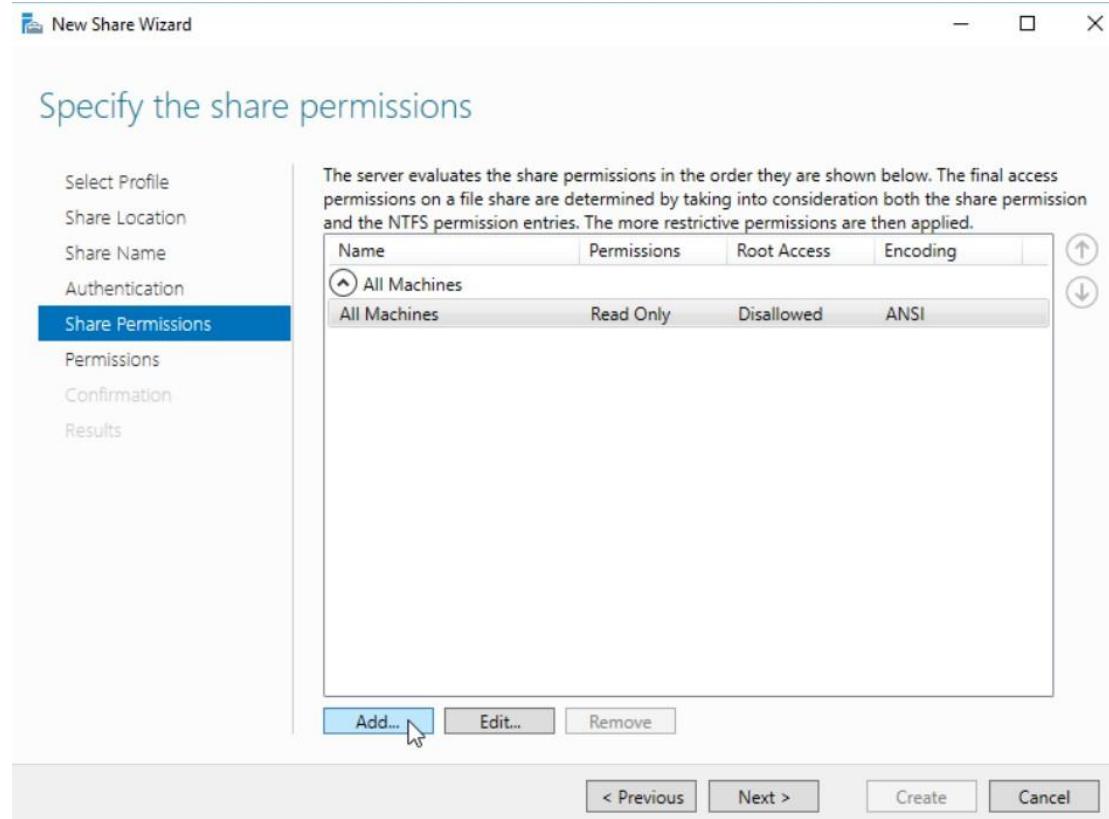
Select Profile
Share Location
Share Name
Authentication
Share Permissions
Permissions
Confirmation
Results

The server evaluates the share permissions in the order they are shown below. The final access permissions on a file share are determined by taking into consideration both the share permission and the NTFS permission entries. The more restrictive permissions are then applied.

| Name | Permissions | Root Access | Encoding |
|--------------|-------------|-------------|----------|
| All Machines | Read Only | Disabled | ANSI |

Add... Edit... Remove

< Previous Next > Create Cancel



Click on Add to add the principal -

The screenshot shows the 'Advanced Security Settings for sharables' dialog box. At the top, it displays the path 'C:\sharables' and the owner 'Administrators (AVDHUTBHADAND\Administrators)'. Below this, there are tabs for 'Permissions', 'Auditing', and 'Effective Access', with 'Permissions' selected. A note below the tabs says, 'For additional information, double-click a permission entry. To modify a permission entry, select the entry and click Edit (if available).'. The 'Permission entries:' section lists the following permissions:

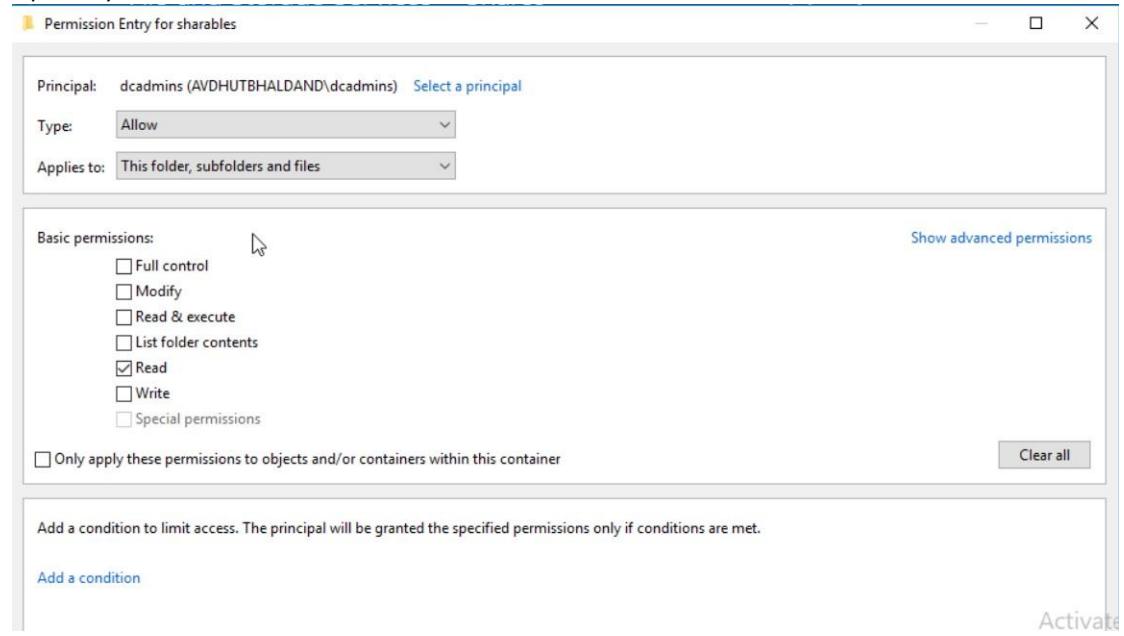
| Type | Principal | Access | Inherited from | Applies to |
|-------|-------------------------------|----------------|----------------|-----------------------------------|
| Allow | SYSTEM | Full control | C:\ | This folder, subfolders and files |
| Allow | Administrators (AVDHUTBHA...) | Full control | C:\ | This folder, subfolders and files |
| Allow | Users (AVDHUTBHADAND\U...) | Read & execute | C:\ | This folder, subfolders and files |
| Allow | Users (AVDHUTBHADAND\U...) | Special | C:\ | This folder and subfolders |
| Allow | CREATOR OWNER | Full control | C:\ | Subfolders and files only |

At the bottom of the dialog box are buttons for 'Add', 'Remove', 'View', 'Disable inheritance', and a checkbox for 'Replace all child object permission entries with inheritable permission entries from this object'. The 'OK', 'Cancel', and 'Apply' buttons are located at the very bottom right.

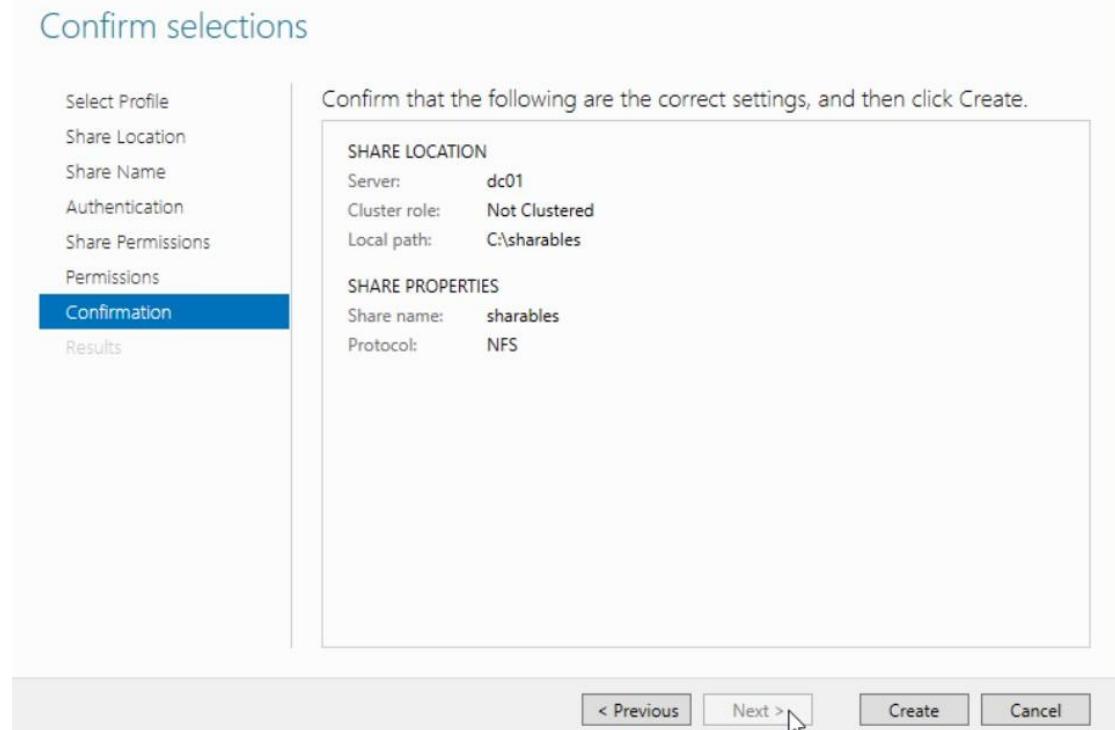
Enter the 'dadmins' group -

The screenshot shows the 'Select User, Computer, Service Account, or Group' dialog box. It has a title bar with a close button. The main area contains fields for selecting an object type ('User, Group, or Built-in security principal') and a location ('avdhutbhaldand.training'). There is also a 'Check Names' button and an 'Advanced...' button. At the bottom are 'OK', 'Cancel', and '...' buttons.

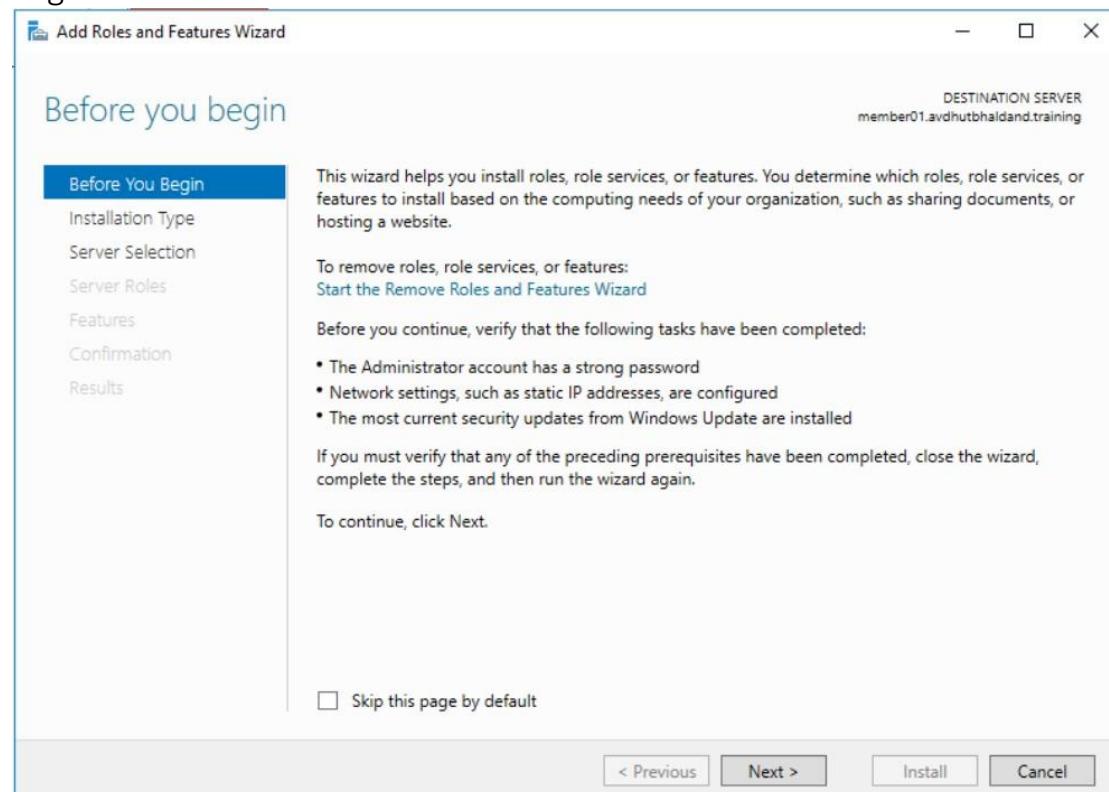
Specify the Permissions-



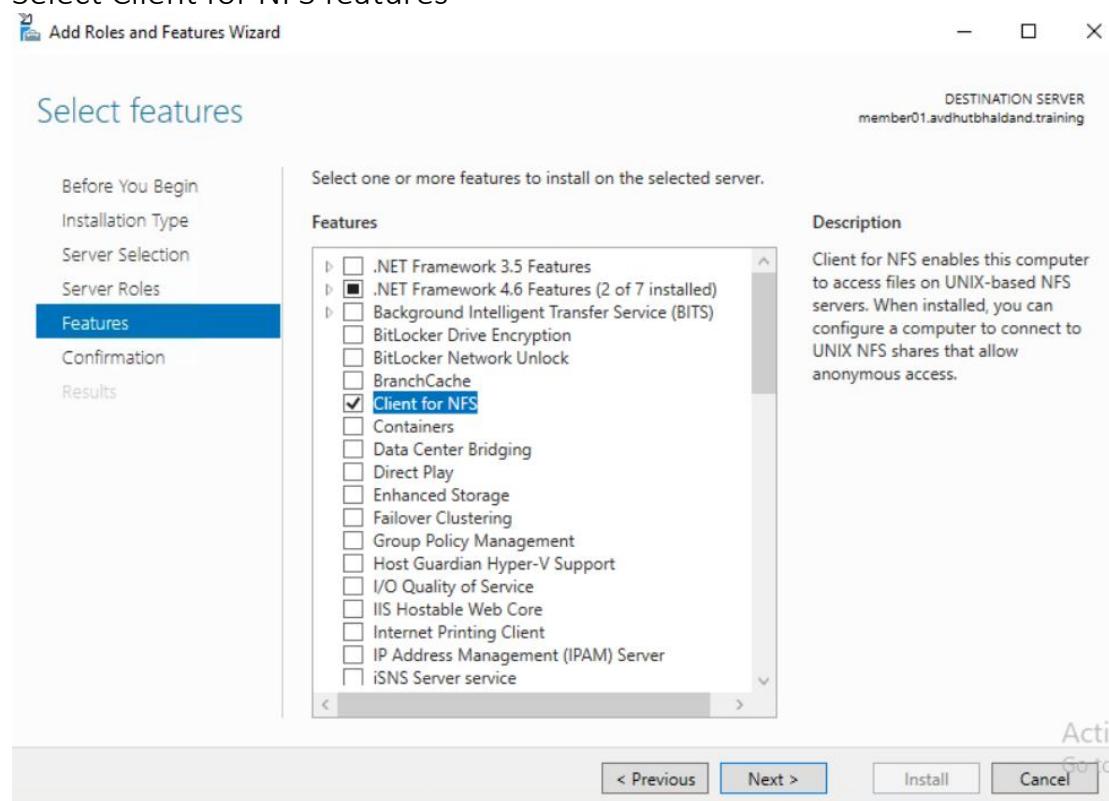
Click on create to create share-

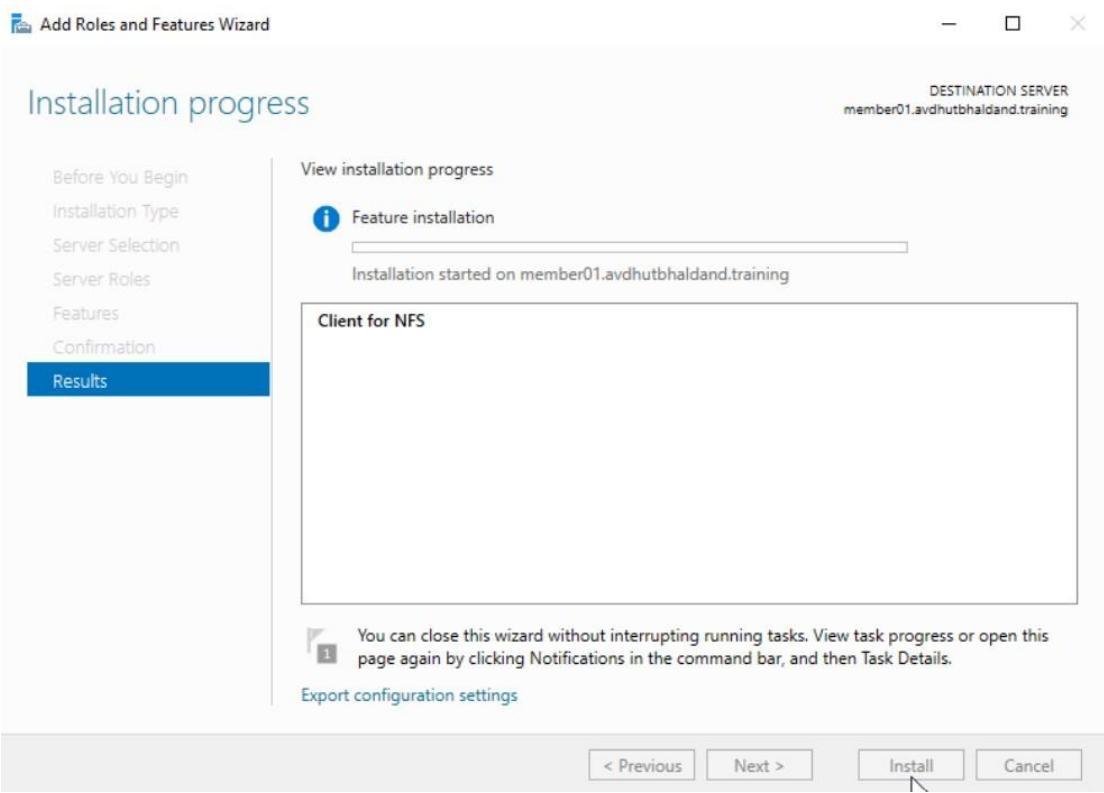


Login to member machine and Click Add roles and features-

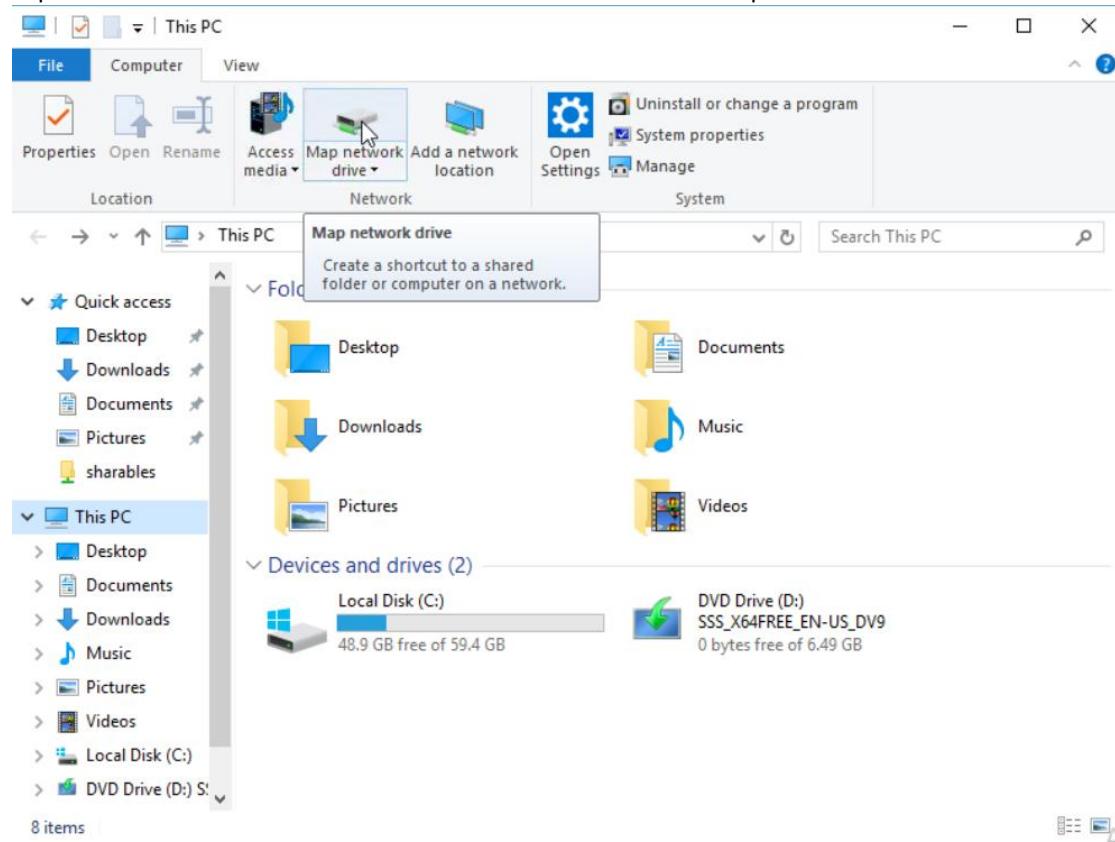


Select Client for NFS features -

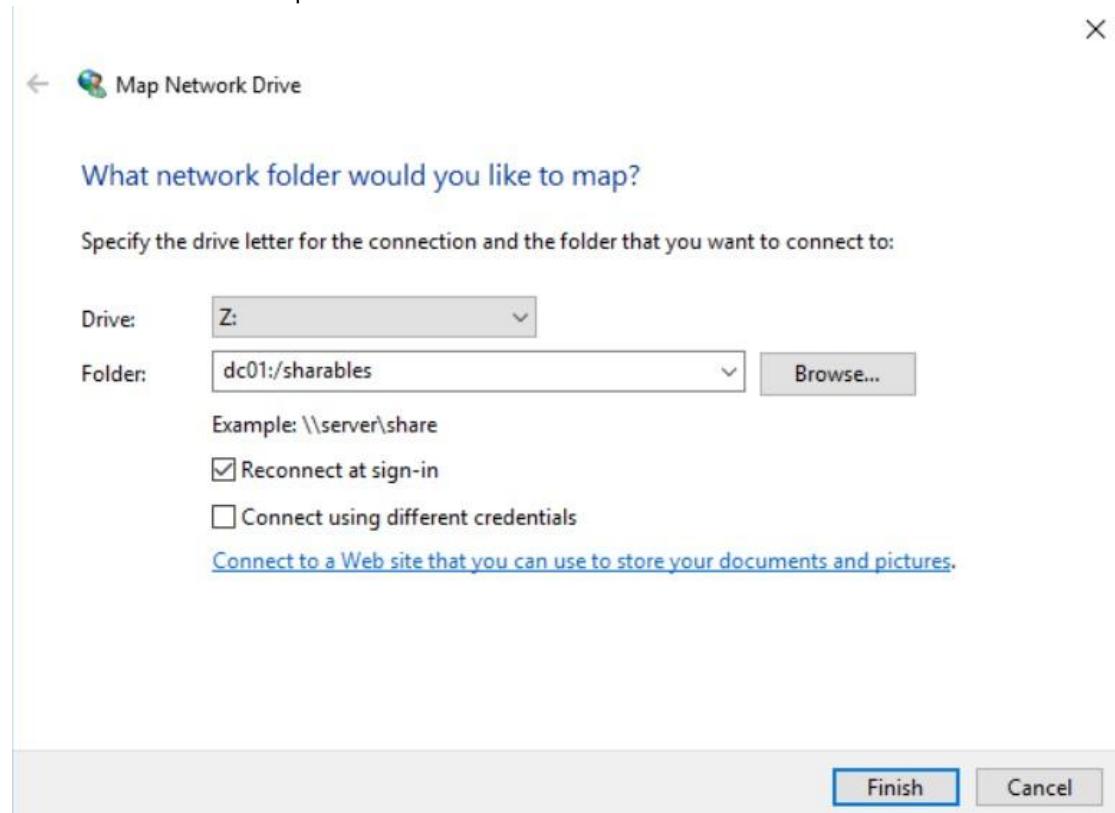




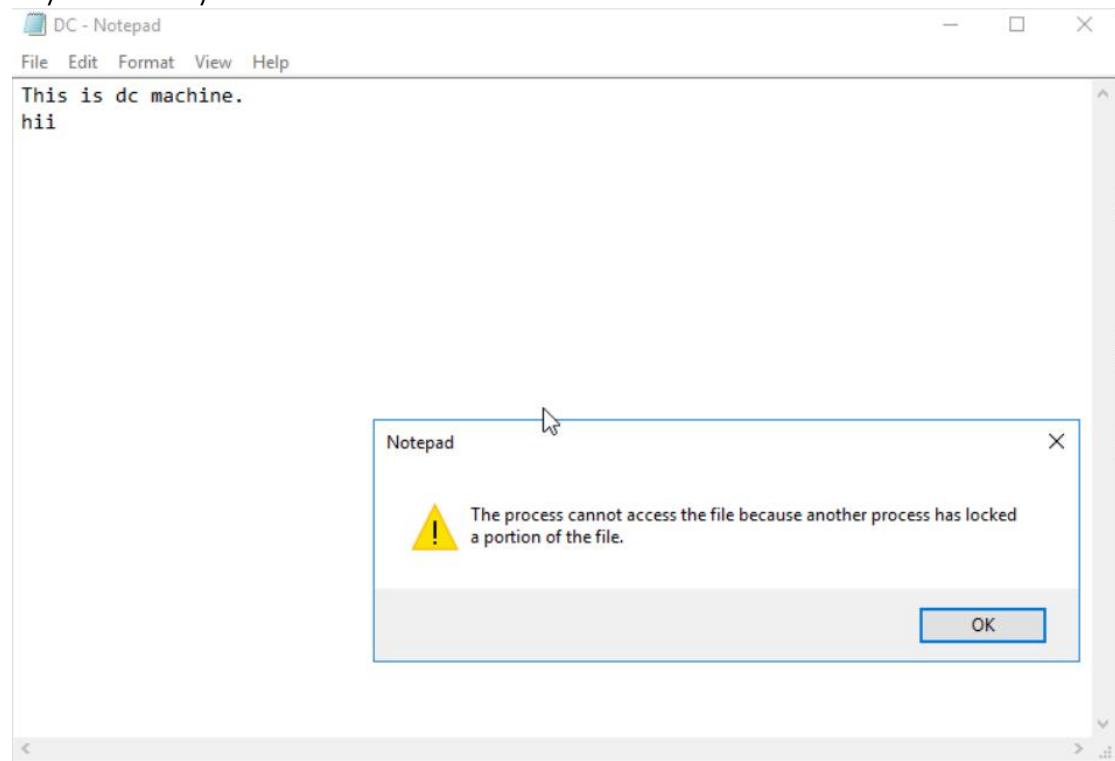
Open This PC on member machine and select Map network drive-



Enter the network path of the created share-



Try to modify the file in the folder and the access will be denied -



Project Task- 2

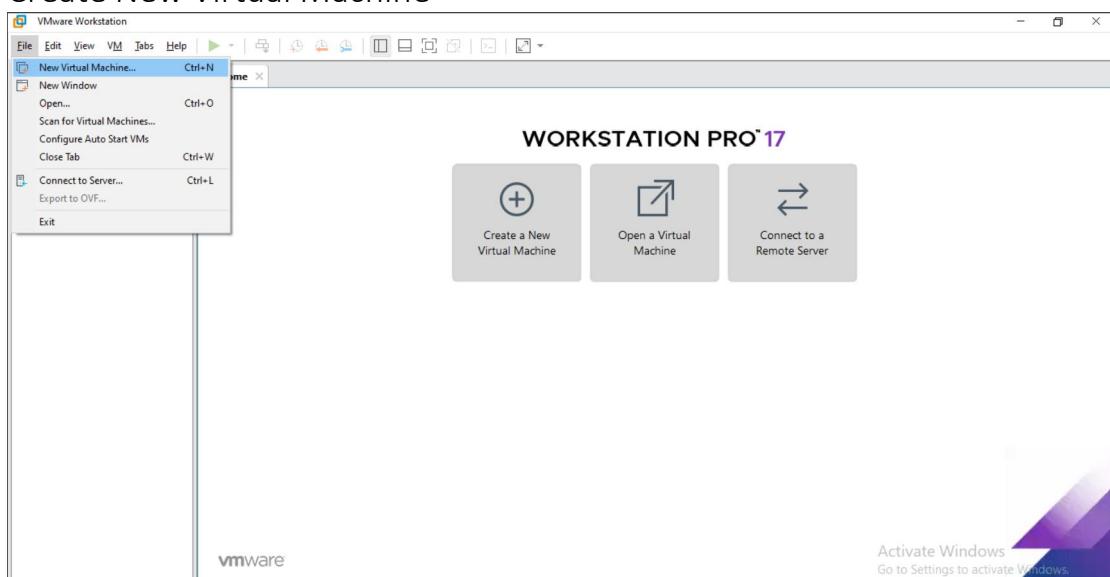
Objective:

Install CentOS 7 server (after installation GUI must be present). Attach 3 disks of 5GB each & create 2 LVMS from these disks of 7GB (/lvm1) and 8GB (/lvm2) with XFS and EXT4 file systems respectively and verify. Install the following RPM packages using the package manager of your choice using single command.

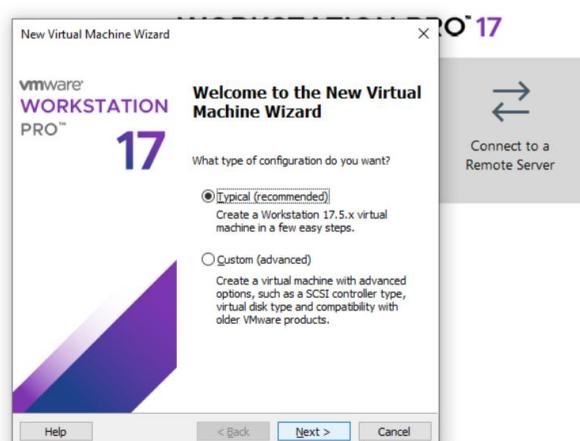
Solution-

Install CentOS 7 server-

Create New Virtual Machine

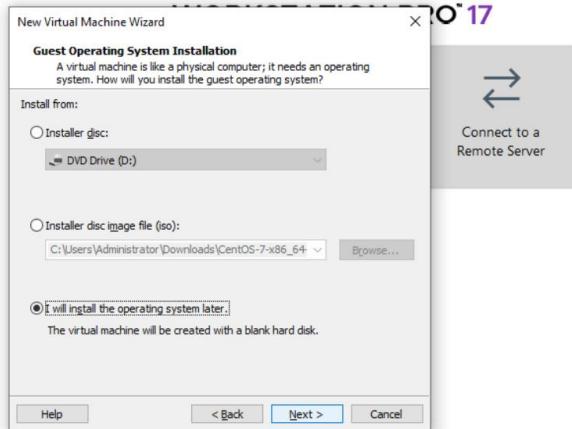


Select Typical-



Activate Windows

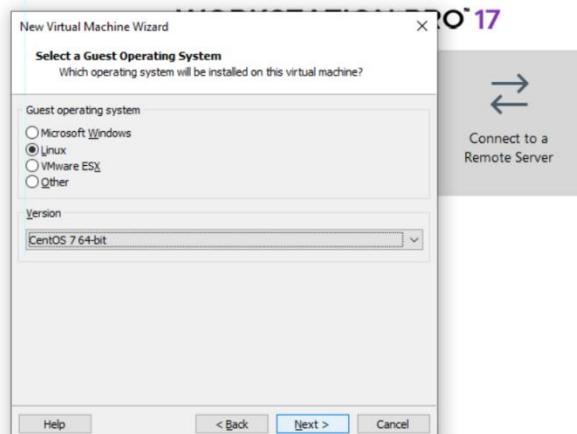
Select I will install later-



vmware

Activate Windows
Go to Settings to activate Windows.

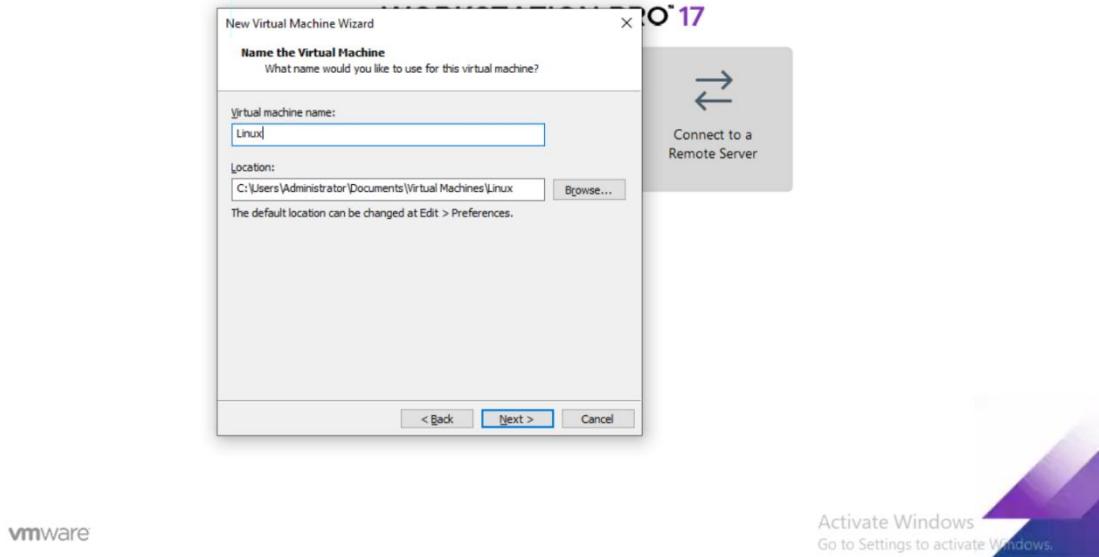
Select the CentOS Version-



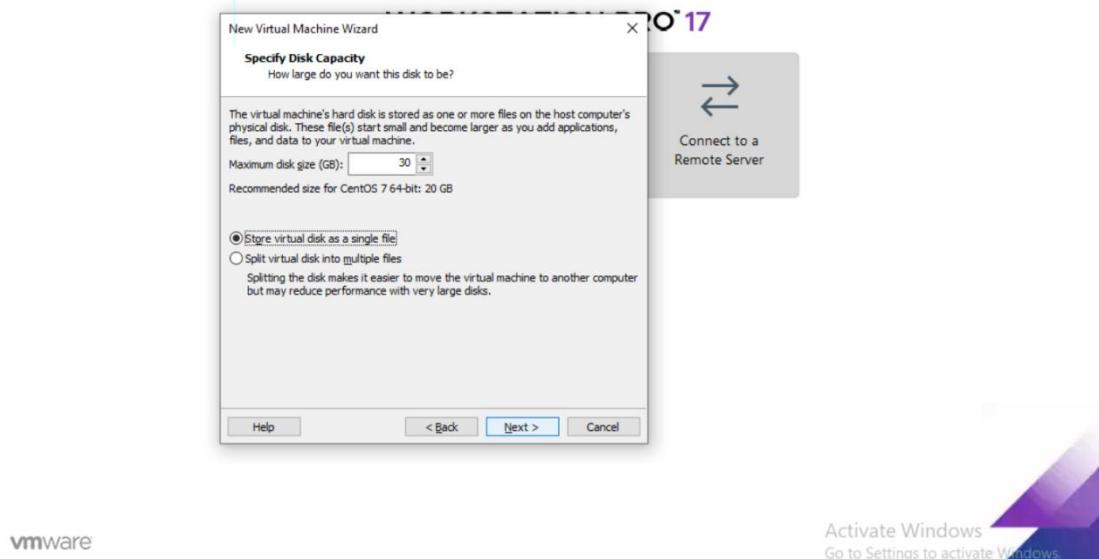
vmware

Activate Windows
Go to Settings to activate Windows.

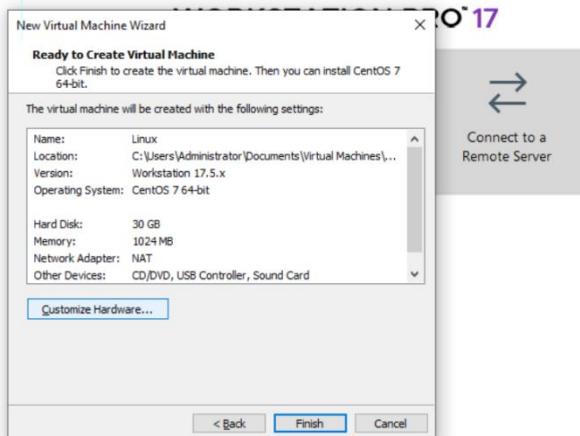
Specify VM Name-



Specify the disk capacity-



Select Customize Hardware-



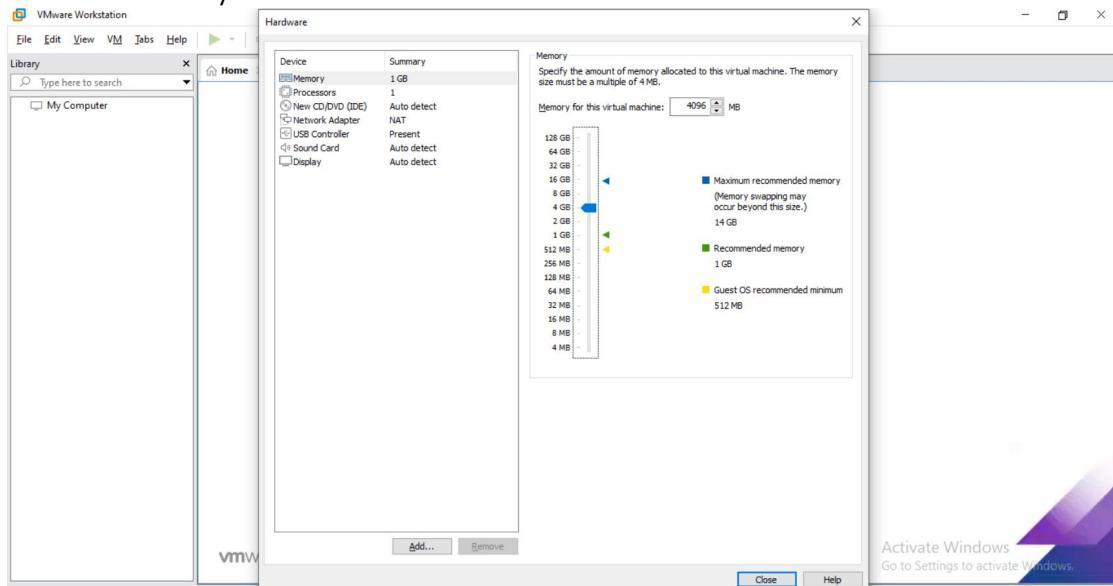
VMware

Activate Windows
Go to Settings to activate Windows.

17

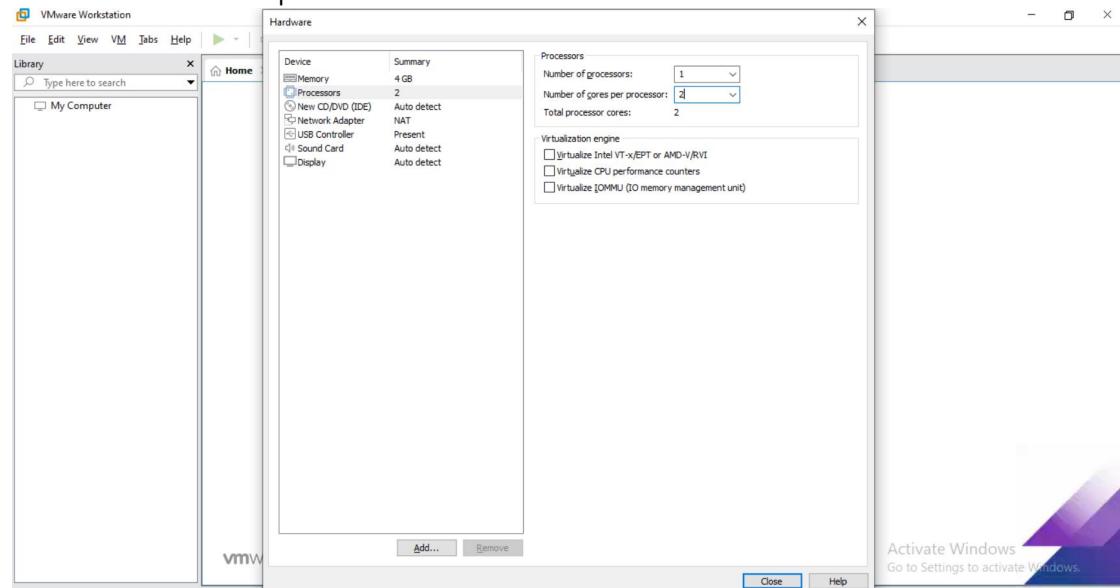
Connect to a
Remote Server

Select memory size-

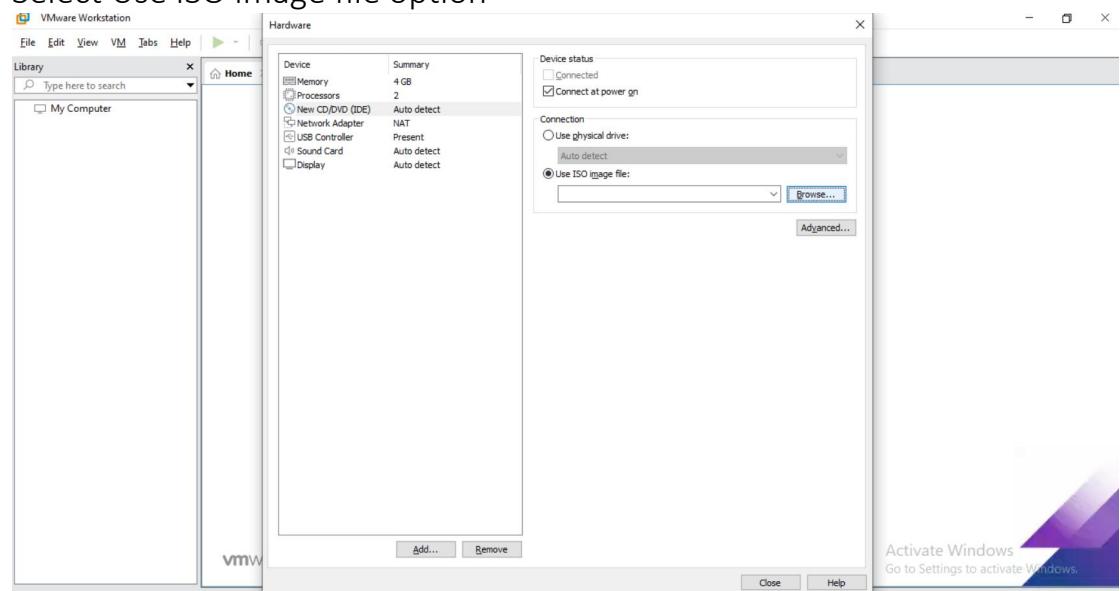


Activate Windows
Go to Settings to activate Windows.

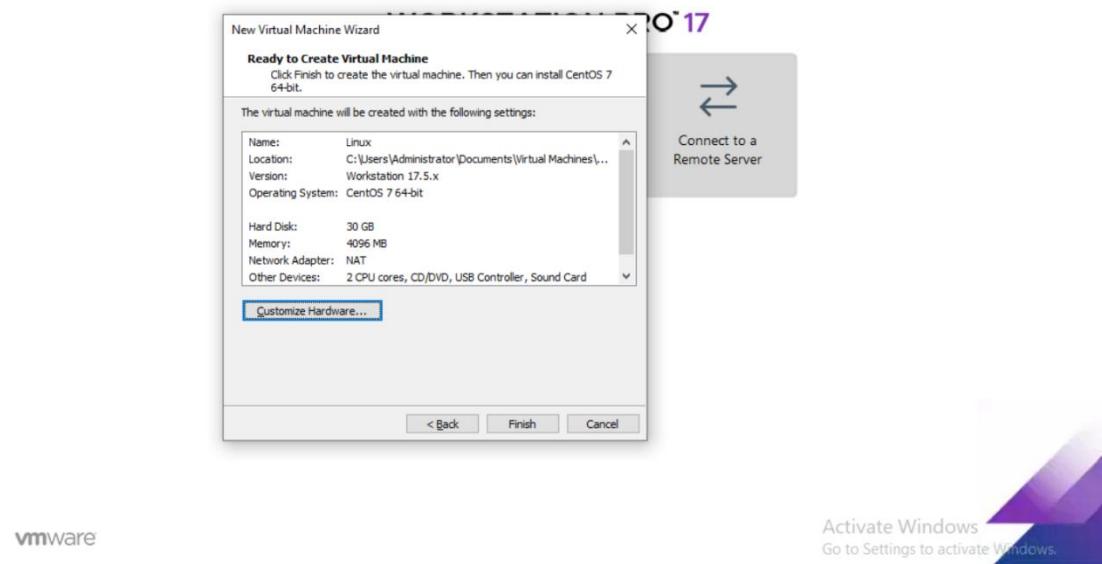
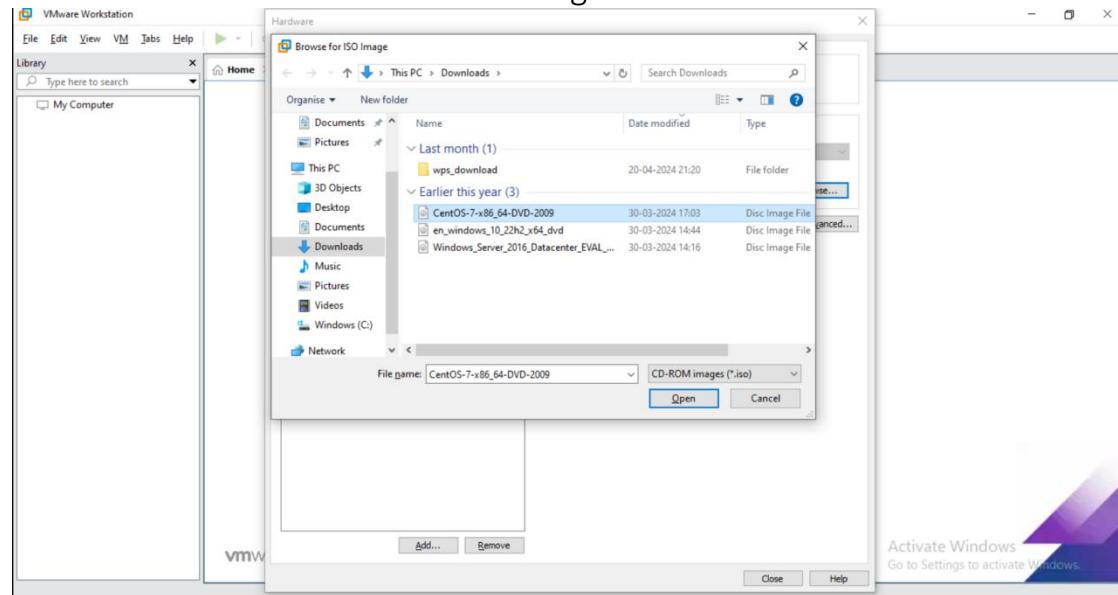
Select number of processors -



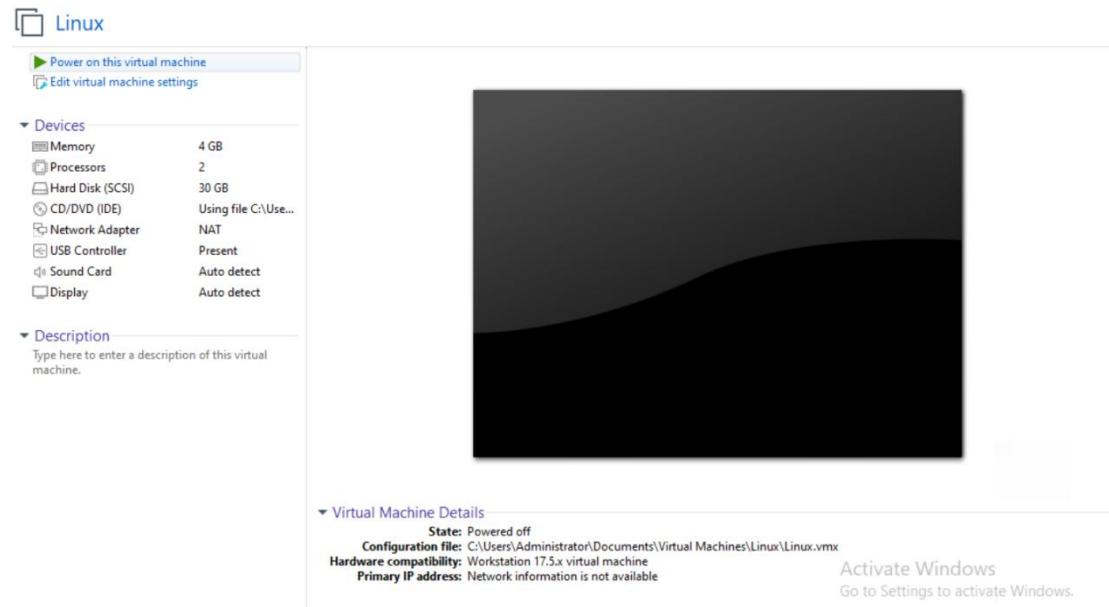
Select Use ISO image file option-



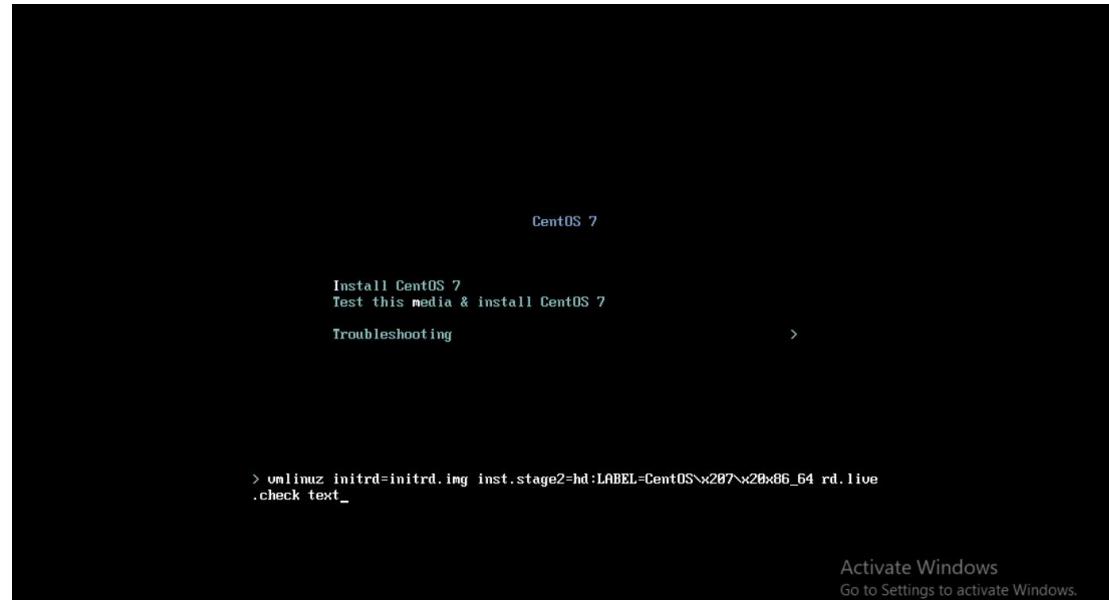
Browse and select the Server ISO image file-



Power ON this VM-



Hit Tab button and add 'text' to the line below-



Type 1 to set Time zone-

```
=====
Installation
1) [x] Language settings      2) [!] Time settings
   (English (United States))  (Timezone is not set.)
3) [!] Installation source    4) [!] Software selection
   (Processing...)
5) [!] Installation Destination 6) [x] Kdump
   (No disks selected)        (Kdump is enabled)
7) [ ] Network configuration   8) [!] Root password
   (Not connected)            (Password is not set.)
9) [!] User creation          (No user will be created)
Please make your choice from above [ 'q' to quit | 'b' to begin installation | 'r' to refresh]: 2
=====
Time settings
Timezone: not set
NTP servers: not configured
1) Set timezone
2) Configure NTP servers
Please make your choice from above [ 'q' to quit | 'c' to continue | 'r' to refresh]: 1
=====
Activate Windows
[anaconda] 1:main* 2:shell 3:log 4:storage-log 5:program-log  Switch tab: Alt+Tab; F11:Activate Windows.
```

Select the region-

```
Available timezones in region Asia
 1) Aden                      29) Hong_Kong                56) Pontianak
 2) Almaty                     30) Hovd                     57) Pyongyang
 3) Amman                      31) Irkutsk                  58) Qatar
 4) Anadyr                     32) Jakarta                  59) Qostanay
 5) Aqttau                     33) Jayapura                 60) Qyzylorda
 6) Aqtobe                     34) Jerusalem                61) Riyadh
 7) Ashgabat                   35) Kabul                    62) Sakhalin
 8) Atyrau                     36) Kamchatka               63) Samarkand
 9) Baghdad                     37) Karachi                  64) Seoul
10) Bahrain                    38) Kathmandu               65) Shanghai
11) Baku                       39) Khandyga                66) Singapore
12) Bangkok                     40) Kolkata                  67) Srednekolymsk
13) Barnaul                    41) Krasnoyarsk             68) Taipei
14) Beirut                     42) Kuala_Lumpur            69) Tashkent
15) Bishkek                    43) Kuching                  70) Tbilisi
16) Brunei                     44) Kuwait                  71) Tehran
17) Chita                      45) Macau                   72) Thimphu
18) Choibalsan                 46) Magadan                 73) Tokyo
19) Colombo                    47) Makassar                 74) Tomsk
20) Damascus                   48) Manila                  75) Ulaanbaatar
21) Dhaka                      49) Muscat                  76) Urumqi
22) Dili                        50) Nicosia                 77) Ust-Nera
Press ENTER to continue
23) Dubai                      51) Novokuznetsk            78) Vientiane
24) Dushanbe                   52) Novosibirsk             79) Vladivostok
25) Famagusta                  53) Omsk                     80) Yakutsk
26) Gaza                       54) Oral                     81) Yangon
27) Hebron                     55) Phnom_Penh              82) Yekaterinburg
28) Ho_Chi_Minh               Please select the timezone.
Use numbers or type names directly [b to region list, q to quit]: 48
```

Type 4 for Software selection-

```
Installation
1) [x] Language settings      2) [x] Time settings
   (English (United States))  (Asia/Kolkata timezone)
3) [x] Installation source    4) [x] Software selection
   (Local media)             (Minimal Install)
5) [!] Installation Destination 6) [x] Kdump
   (No disks selected)       (Kdump is enabled)
7) [ ] Network configuration   8) [!] Root password
   (Not connected)           (Password is not set.)
9) [!] User creation
   (No user will be created)

Please make your choice from above ['q' to quit | 'b' to begin installation |
'r' to refresh]:
Please make your choice from above ['q' to quit | 'b' to begin installation |
'r' to refresh]: 4
=====
Base environment
Software selection

Base environment
1) [x] Minimal Install        2) [ ] Server with GUI
2) [ ] Compute Node          8) [ ] GNOME Desktop
3) [ ] Infrastructure Server  9) [ ] KDE Plasma Workspaces
4) [ ] File and Print Server 10) [ ] Development and Creative
5) [ ] Basic Web Server       Workstation
6) [ ] Virtualization Host

Please make your choice from above ['q' to quit | 'c' to continue |
'r' to refresh]: 7.
[anaconda] 1:main* 2:shell  3:log  4:storage-log  5:program-log  Switch tab: Alt+Tab, Esc+Up/Down, F1:Activate Windows.
```

Type 5 for selecting disk -

```
3) [!] Installation source      4) [!] Software selection
   (Processing...)
5) [!] Installation Destination 6) [x] Kdump
   (No disks selected)          (Kdump is enabled)
7) [ ] Network configuration    8) [!] Root password
   (Not connected)              (Password is not set.)
9) [!] User creation
   (No user will be created)

Please make your choice from above ['q' to quit | 'b' to begin installation |
'r' to refresh]: 5
=====
Probing storage...
Installation Destination

[ ] 1) VMware Virtual S: 30 GiB (sda)

1 disk selected: 30 GiB capacity: 30 GiB free ...

Please make your choice from above ['q' to quit | 'c' to continue |
'r' to refresh]: c
=====
Autopartitioning Options

[ ] 1) Replace Existing Linux system(s)
[ ] 2) Use All Space
[ ] 3) Use Free Space

Installation requires partitioning of your hard drive. Select what space to use
for the install target.

Please make your choice from above ['q' to quit | 'c' to continue |
'r' to refresh]:
[anaconda] 1:main* 2:shell  3:log  4:storage-log  5:program-log  Switch tab: Alt+Tab, Esc+Up/Down, F1:Activate Windows.
```

Type 7 for Network configuration-

```
=====
Installation
1) [x] Language settings           2) [x] Time settings
      (English (United States))    (Asia/Kolkata timezone)
3) [x] Installation source        4) [x] Software selection
      (Local media)                (Server with GUI)
5) [x] Installation Destination   6) [x] Kdump
      (Automatic partitioning     (Kdump is enabled)
       selected)
7) [ ] Network configuration      8) [!] Root password
      (Not connected)             (Password is not set.)
9) [!] User creation
      (No user will be created)
Please make your choice from above ['q' to quit | 'b' to begin installation | 'r' to refresh]: 7
=====
Network configuration
Wired (ens33) disconnected
Host name: localhost.localdomain
Current host name: localhost

1) Set host name
2) Configure device ens33
Please make your choice from above ['q' to quit | 'c' to continue | 'r' to refresh]: _
```

Type 1 to specify host name-

```
=====
1) Set host name
2) Configure device ens33
Please make your choice from above ['q' to quit | 'c' to continue |
'r' to refresh]: Please make your choice from above ['q' to quit | 'c' to continue |
'r' to refresh]: Please make your choice from above ['q' to quit | 'c' to continue |
'r' to refresh]: 1
=====
Enter new value for 'Host name' and press enter
server
=====
Network configuration
Wired (ens33) disconnected
Host name: server
Current host name: localhost

1) Set host name
2) Configure device ens33
Please make your choice from above ['q' to quit | 'c' to continue |
'r' to refresh]: 2
```

Type 2 for network configuration-

```
=====
Device configuration
1) IPv4 address or "dhcp" for DHCP
   dhcp
2) IPv4 netmask
3) IPv4 gateway
4) IPv6 address/prefix or "auto" for automatic, "dhcp" for DHCP, "ignore" to
   turn off
   auto
5) IPv6 default gateway
6) Nameservers (comma separated)
7) [x] Connect automatically after reboot
8) [ ] Apply configuration in installer
Configuring device ens33.

Please make your choice from above ['q' to quit | 'c' to continue |
'r' to refresh]: c
=====
Network configuration
Wired (ens33) disconnected

Host name: server
Current host name: localhost

1) Set host name
2) Configure device ens33
   Please make your choice from above ['q' to quit | 'c' to continue |
'r' to refresh]:
[anaconda] 1:main* 2:shell 3:log 4:storage-log 5:program-log  Switch tab: Alt+Tab, Ctrl+Shift+F1 activate Windows.
```

Type 8 for creating user-

```
=====
Installation
1) [x] Language settings
   (English (United States))      2) [x] Time settings
                                   (Asia/Kolkata timezone)
3) [x] Installation source
   (Local media)                 4) [x] Software selection
                                   (Server with GUI)
5) [x] Installation Destination
   (Automatic partitioning
   selected)                     6) [x] Kdump
                                   (Kdump is enabled)
7) [ ] Network configuration
   (Not connected)               8) [!] Root password
                                   (Password is not set.)
9) [!] User creation
   (No user will be created)

Please make your choice from above ['q' to quit | 'b' to begin installation |
'r' to refresh]: 8
=====
Please select new root password. You will have to type it twice.

Password:
Password (confirm):
=====
Question

The password you have provided is weak: The password fails the dictionary check
- it is based on a dictionary word.
Would you like to use it anyway?

Please respond 'yes' or 'no': yes
[anaconda] 1:main* 2:shell 3:log 4:storage-log 5:program-log  Switch tab: Alt+Tab, Ctrl+Shift+F1 activate Windows.
```

Type 1 to create user-

```
=====
Installation
1) [x] Language settings
   (English (United States))      2) [x] Time settings
                                   (Asia/Kolkata timezone)
3) [x] Installation source
   (Local media)                 4) [x] Software selection
                                   (Server with GUI)
5) [x] Installation Destination
   (Automatic partitioning
   selected)                     6) [x] Kdump
                                   (Kdump is enabled)
7) [ ] Network configuration
   (Not connected)               8) [x] Root password
                                   (Password is set.)
9) [!] User creation
   (No user will be created)

Please make your choice from above ['q' to quit | 'b' to begin installation |
'r' to refresh]: 9
=====
User creation
1) [ ] Create user
   Please make your choice from above ['q' to quit | 'c' to continue |
'r' to refresh]:
[anaconda] 1:main* 2:shell 3:log 4:storage-log 5:program-log  Switch tab: Alt+Tab, Ctrl+Shift+F1 activate Windows.
```

Type 2 for specifying User name-

```
=====
User creation
1) [x] Create user
2) Fullname
3) Username
4) [ ] Use password
5) [ ] Administrator
6) Groups
Please make your choice from above [q] to quit [c] to continue !
'r' to refresh!: 2
=====
Enter new value for 'Fullname' and press enter
Avdut Bhaldand
=====
User creation
1) [x] Create user
2) Fullname
Avdut Bhaldand
3) Username
abhaland
4) [ ] Use password
5) [ ] Administrator
6) Groups
Please make your choice from above [q] to quit [c] to continue !
'r' to refresh!: 5
[anaconda] 1:main* 2:shell 3:log 4:storage-log 5:program-log  Switch tab: Alt+F6 F1:Activate Windows
```

Type 4 to specify password-

Type 5 to set password-

Type 6 to specify administrator privileges to user-

Type b to begin installation-

```
=====
User creation
1) [x] Create user
2) Fullname
Avdut Bhaldand
3) Username
avdut
4) [x] Use password
5) Password
Password set.
6) [x] Administrator
7) Groups
wheel
Please make your choice from above [q] to quit [c] to continue !
'r' to refresh!: c
=====
Installation
1) [x] Language settings
(English (United States))          2) [x] Time settings
                                         (Asia/Kolkata timezone)
3) [x] Installation source
(Local media)                      4) [x] Software selection
                                         (Server with GUI)
5) [x] Installation Destination
(Automatic partitioning
selected)                          6) [x] Kdump
                                         (Kdump is enabled)
7) [ ] Network configuration
(Not connected)                    8) [x] Root password
                                         (Password is set..)
9) [x] User creation
(Administrator avdut will be
created)
Please make your choice from above [q] to quit [b] to begin installation !
'r' to refresh!: b
[anaconda] 1:main* 2:shell 3:log 4:storage-log 5:program-log  Switch tab: Alt+F6 F1:Activate Windows
```

Accept the Licence Agreement-

```
[ 14.280513] sd 0:0:0:0: [sda] Assuming drive cache: write through
=====
Initial setup of CentOS Linux 7 (Core)

1) (!) License information
   (License not accepted)
   Please make your choice from [ 'i' to enter the License information spoke | 'q' to quit |
   'c' to continue | 'r' to refresh]: i
=====
License information

 1) Read the License Agreement

[ 1 2) I accept the license agreement.

Please make your choice from above [ 'q' to quit | 'c' to continue |
'r' to refresh]: 2_
```

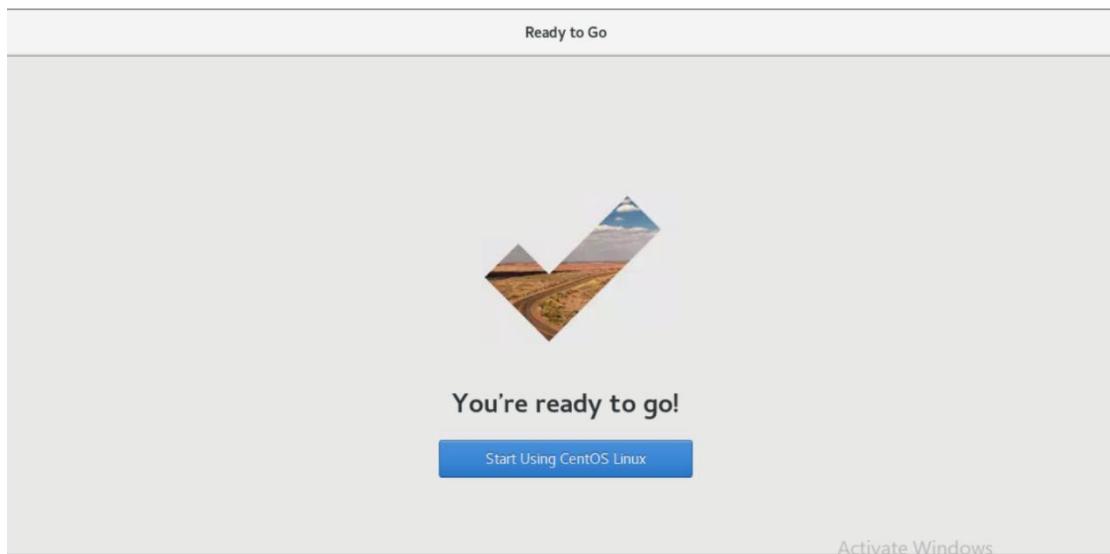
Login using root-

Type Command 'startx' to run GUI-

```
CentOS Linux 7 (Core)
Kernel 3.10.0-1160.el7.x86_64 on an x86_64

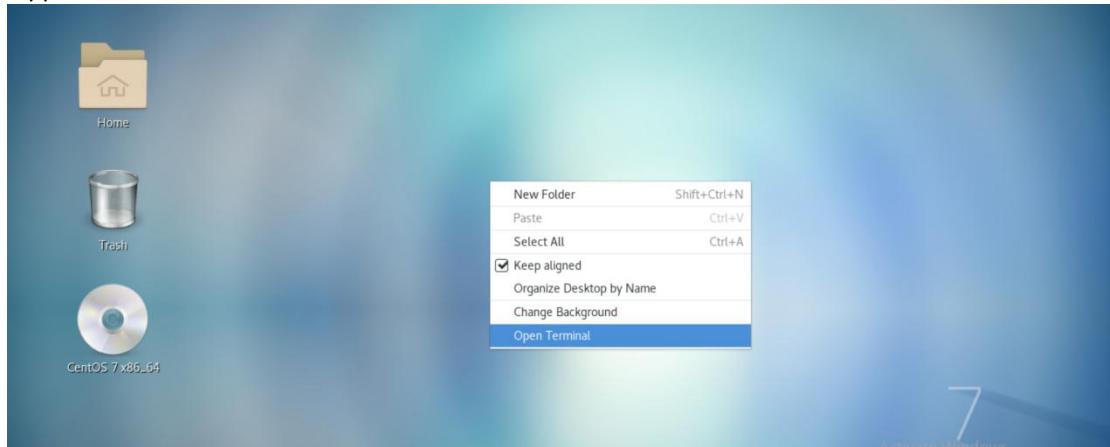
server login: root
Password:

[root@server ~]#
[root@server ~]#
[root@server ~]# startx
```

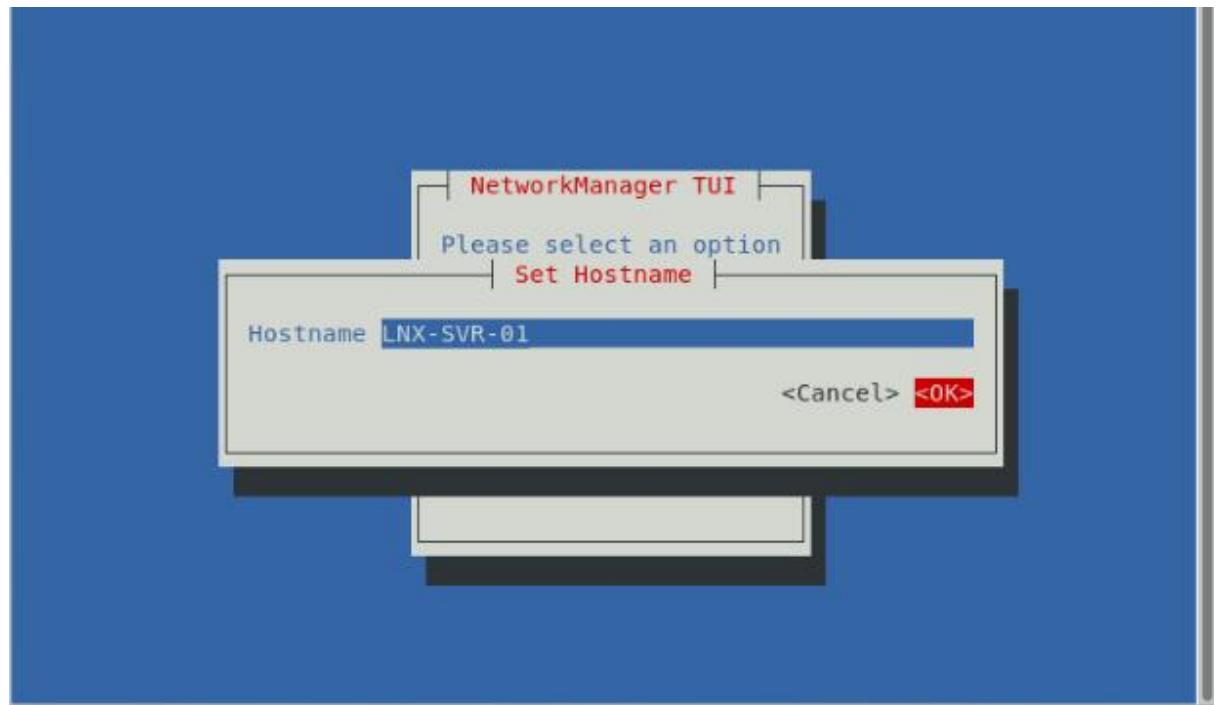
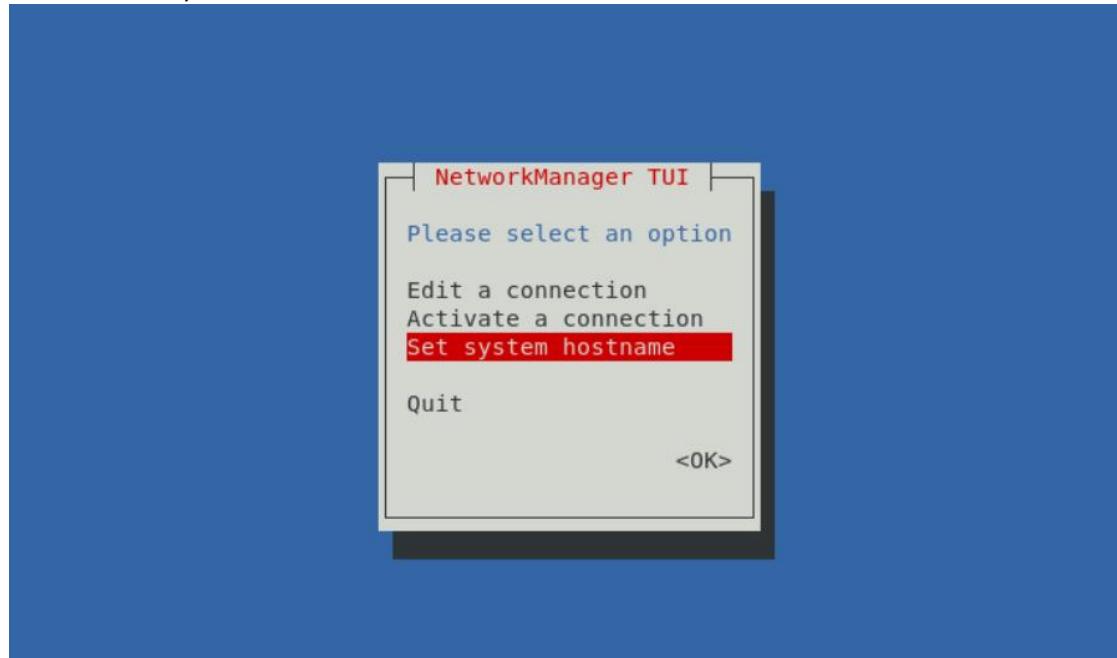


Change your linux server name to "LNX-SVR-01" using NMTUI command.
Change the IP address on linux to 192.168.10.10/24

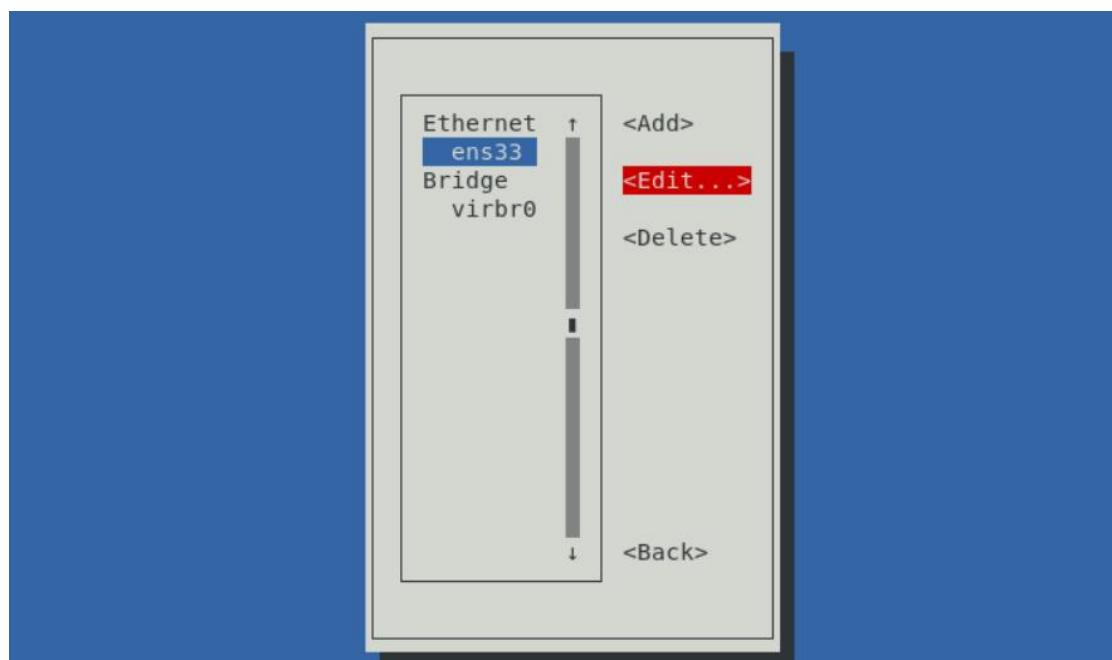
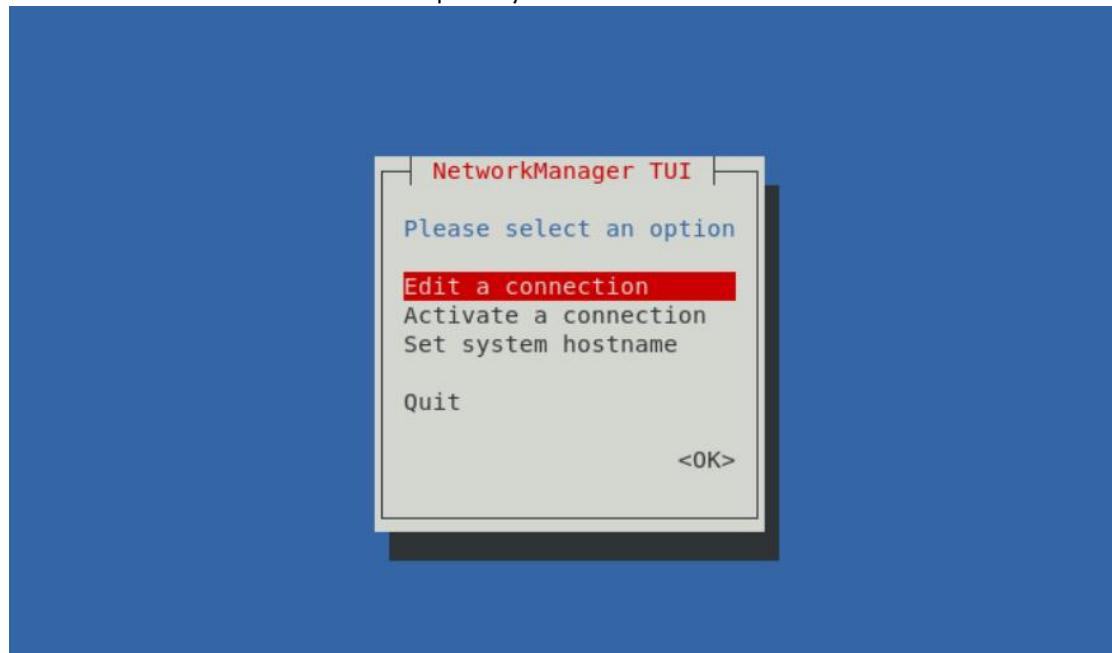
Right click on screen and Open Terminal-
Type command nmtui and enter-

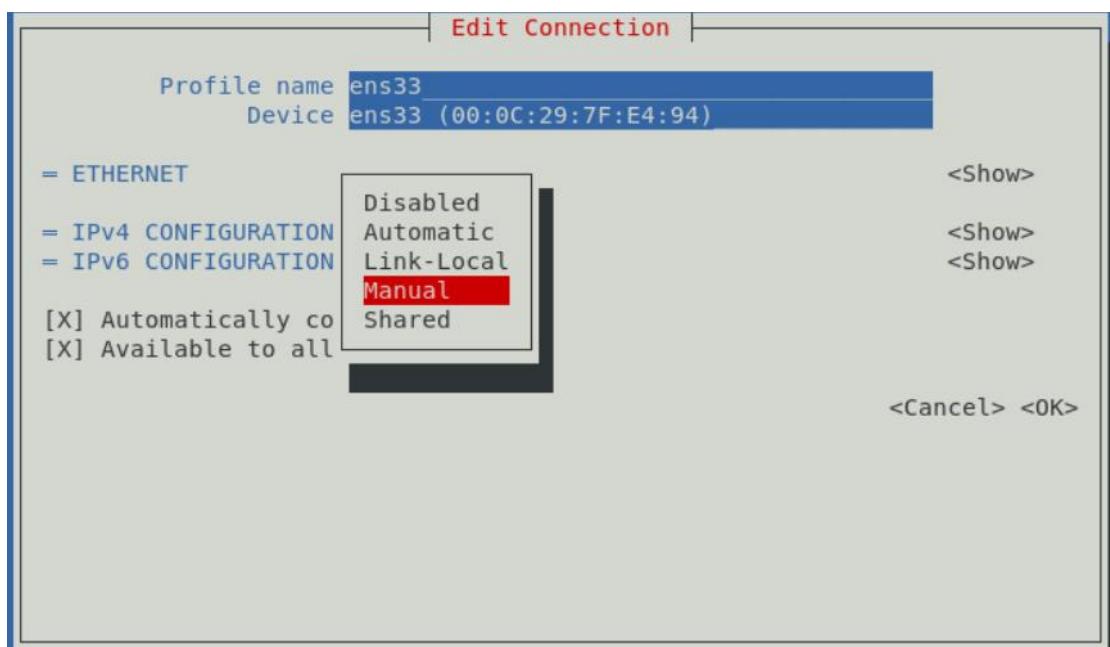
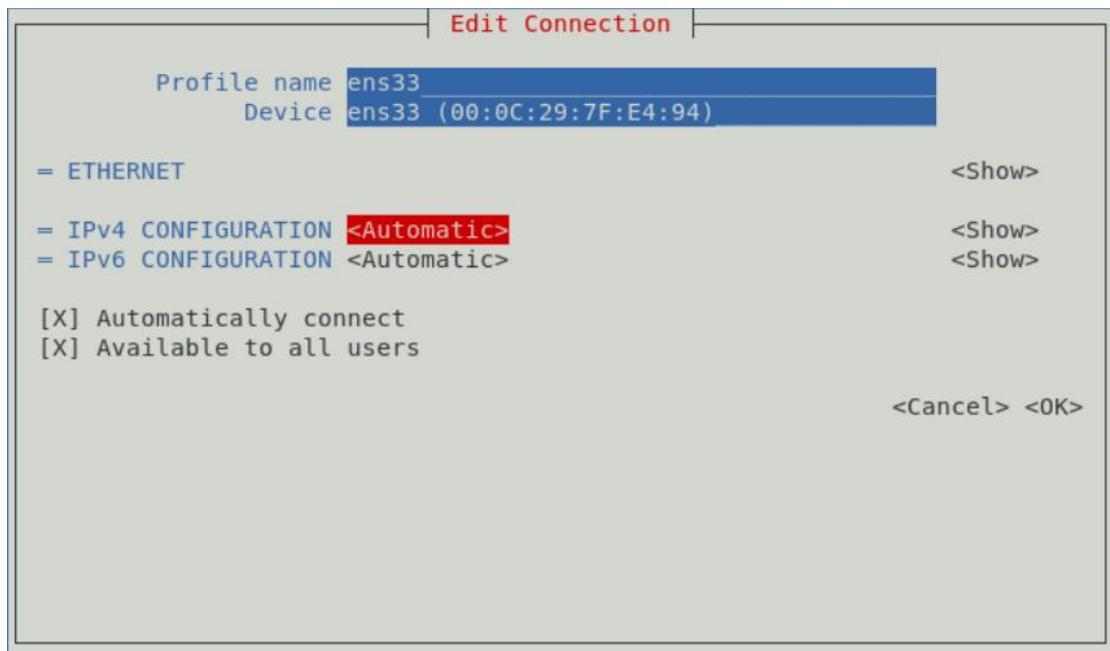


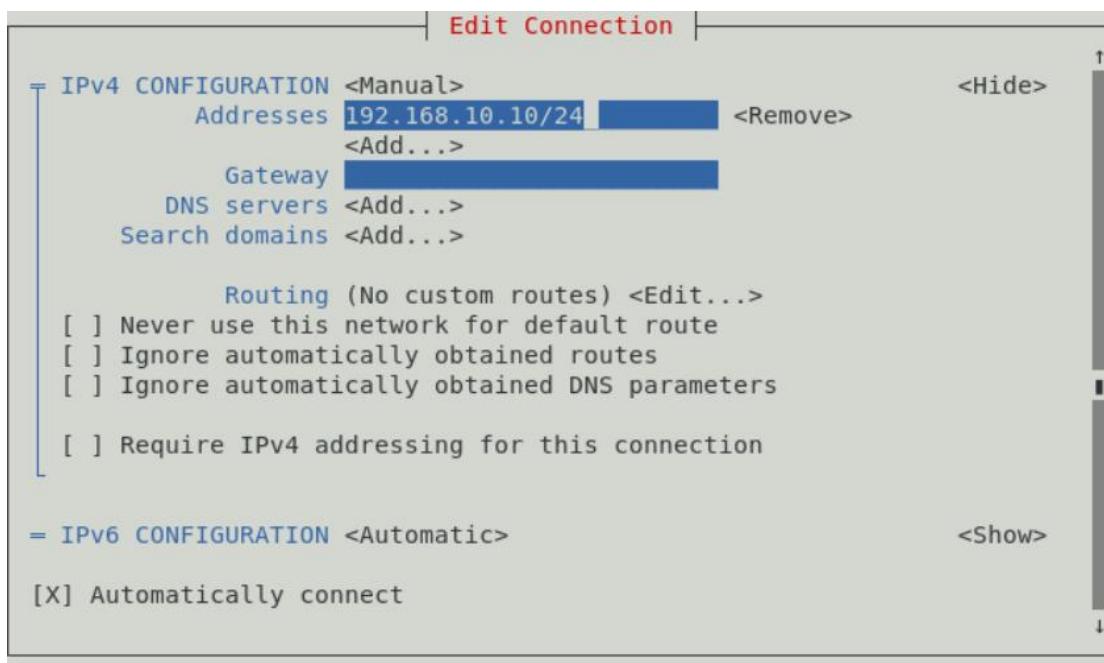
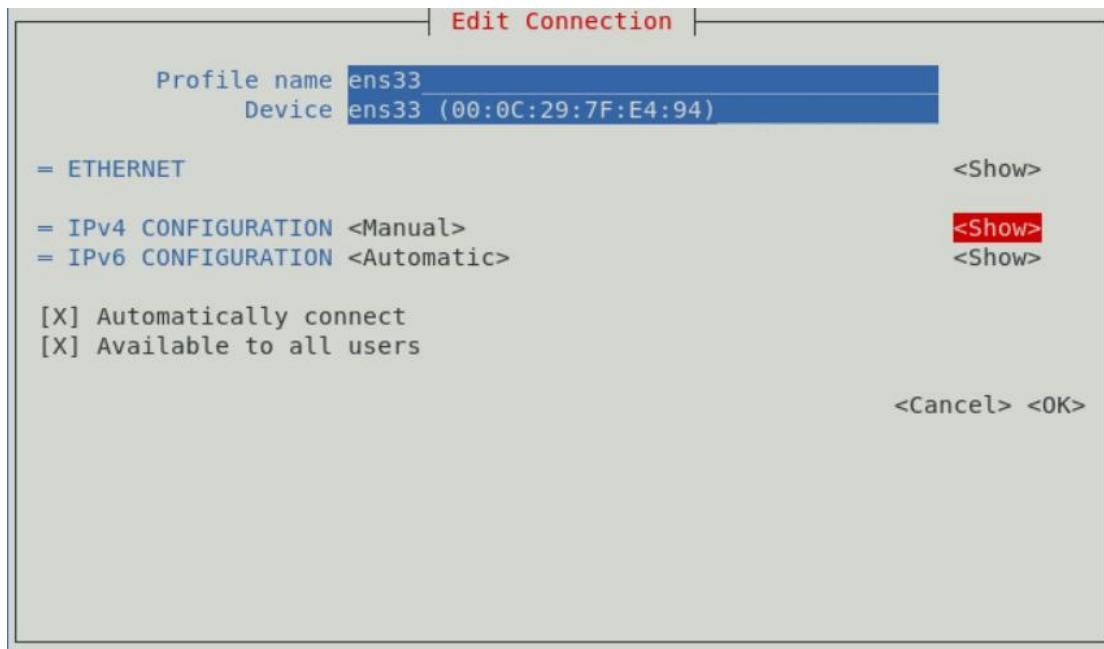
Select Set System Hostname -



Select Edit a Connection to specify IP Address-





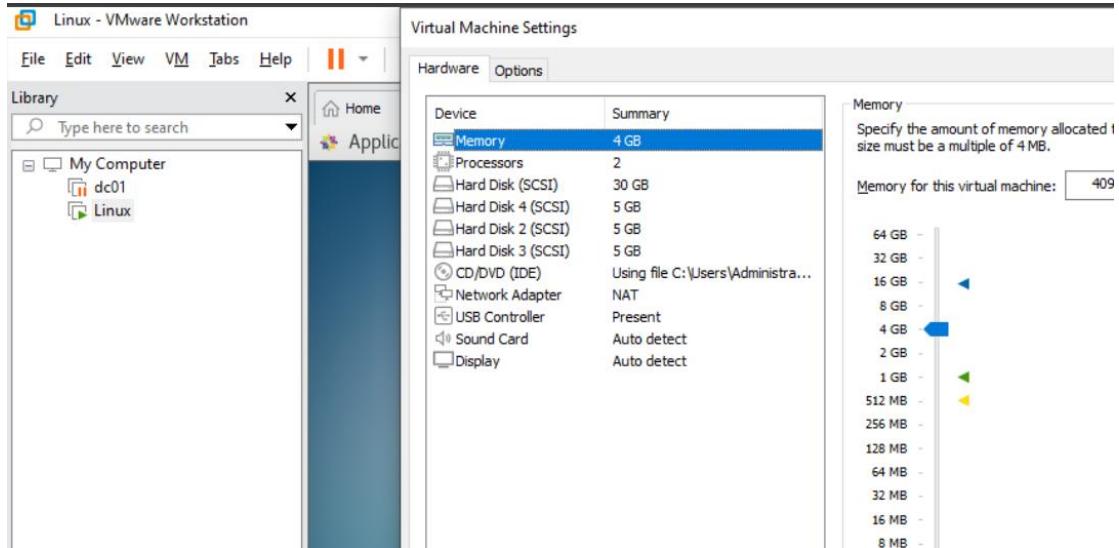


Run cmd systemctl restart network to update network-

```
[root@LNX-SVR-01 ~]# systemctl restart network
[root@LNX-SVR-01 ~]# ifconfig
ens33: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
        inet 192.168.10.10 netmask 255.255.255.0 broadcast 192.168.10.255
              inet6 fe80::20a2:775c:35f5:3188 prefixlen 64 scopeid 0x20<link>
                ether 00:0c:29:93:42:ca txqueuelen 1000 (Ethernet)
                  RX packets 0 bytes 0 (0.0 B)
                  RX errors 0 dropped 0 overruns 0 frame 0
                  TX packets 65 bytes 9016 (8.8 KiB)
                  TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
```

Attach 3 disks of 5GB each & create 2 LVMS from these disks of 7GB (/lvm1) and 8GB (/lvm2) with XFS and EXT4 file systems respectively and verify.

Add 3 disks of 5GB each from settings-



Run cmd 'init 6' to restart system-

Run cmd 'lsblk' to see attached disks-

```
[root@LNX-SVR-01 ~]# lsblk
NAME      MAJ:MIN RM  SIZE RO TYPE MOUNTPOINT
sda        8:0    0   30G  0 disk
└─sda1     8:1    0    1G  0 part /boot
└─sda2     8:2    0   29G  0 part
  ├─centos-root 253:0  0   26G  0 lvm  /
  └─centos-swap 253:1  0    3G  0 lvm  [SWAP]
sdb        8:16   0    5G  0 disk
sdc        8:32   0    5G  0 disk
sdd        8:48   0    5G  0 disk
sr0       11:0    1 1024M 0 rom
[root@LNX-SVR-01 ~]#
```

Run cmd 'fdisk </dev/sd...>' to create partition of disk-

```
[root@LNX-SVR-01 ~]# fdisk /dev/sdb
Welcome to fdisk (util-linux 2.23.2).
```

Changes will remain in memory only, until you decide to write them.
Be careful before using the write command.

```
Device does not contain a recognized partition table
Building a new DOS disklabel with disk identifier 0xfb18fe4d.
```

```
Command (m for help): n
Partition type:
  p  primary (0 primary, 0 extended, 4 free)
  e  extended
Select (default p):
Using default response p
Partition number (1-4, default 1):
First sector (2048-10485759, default 2048):
Using default value 2048
Last sector, +sectors or +size{K,M,G} (2048-10485759, default 10485759):
Using default value 10485759
Partition 1 of type Linux and of size 5 GiB is set
```

```
Command (m for help): t
Selected partition 1
Hex code (type L to list all codes): 8e
Changed type of partition 'Linux' to 'Linux LVM'
```

```
Command (m for help): w
The partition table has been altered!
```

```
Calling ioctl() to re-read partition table.
Syncing disks.
```

```
[root@LNX-SVR-01 ~]# fdisk /dev/sdc
Welcome to fdisk (util-linux 2.23.2).
```

Changes will remain in memory only, until you decide to write them.
Be careful before using the write command.

```
Device does not contain a recognized partition table
Building a new DOS disklabel with disk identifier 0xa3833b4c.
```

```
Command (m for help): n
Partition type:
  p  primary (0 primary, 0 extended, 4 free)
  e  extended
Select (default p):
Using default response p
Partition number (1-4, default 1):
First sector (2048-10485759, default 2048):
Using default value 2048
Last sector, +sectors or +size{K,M,G} (2048-10485759, default 10485759): +2G
Partition 1 of type Linux and of size 2 GiB is set
```

```
Command (m for help): t
Selected partition 1
Hex code (type L to list all codes): 8e
Changed type of partition 'Linux' to 'Linux LVM'

Command (m for help): n
Partition type:
  p  primary (1 primary, 0 extended, 3 free)
  e  extended
Select (default p):
Using default response p
Partition number (2-4, default 2):
First sector (4196352-10485759, default 4196352):
Using default value 4196352
Last sector, +sectors or +size{K,M,G} (4196352-10485759, default 10485759):
Using default value 10485759
Partition 2 of type Linux and of size 3 GiB is set

Command (m for help): t
Partition number (1,2, default 2): 8e
Partition number (1,2, default 2): 2
Hex code (type L to list all codes): 8e
Changed type of partition 'Linux' to 'Linux LVM'

Command (m for help): w
The partition table has been altered!
[root@LNX-SVR-01 ~]# fdisk /dev/sdd
Welcome to fdisk (util-linux 2.23.2).
```

Changes will remain in memory only, until you decide to write them.
Be careful before using the write command.

```
Device does not contain a recognized partition table
Building a new DOS disklabel with disk identifier 0xab8ece90.
```

```
Command (m for help): n
Partition type:
  p  primary (0 primary, 0 extended, 4 free)
  e  extended
Select (default p):
Using default response p
Partition number (1-4, default 1):
First sector (2048-10485759, default 2048):
Using default value 2048
Last sector, +sectors or +size{K,M,G} (2048-10485759, default 10485759):
Using default value 10485759
Partition 1 of type Linux and of size 5 GiB is set
```

```

Command (m for help): t
Selected partition 1
Hex code (type L to list all codes): 8e
Changed type of partition 'Linux' to 'Linux LVM'

Command (m for help): w
The partition table has been altered!

Calling ioctl() to re-read partition table.
Syncing disks.
[root@LNX-SVR-01 ~]# lsblk
NAME      MAJ:MIN RM  SIZE RO TYPE MOUNTPOINT
sda        8:0    0   30G  0 disk
└─sda1     8:1    0    1G  0 part /boot
  └─sda2     8:2    0   29G  0 part
    ├─centos-root 253:0  0   26G  0 lvm  /
    └─centos-swap 253:1  0    3G  0 lvm  [SWAP]
sdb        8:16   0   5G  0 disk
└─sdb1     8:17   0   5G  0 part
sdc        8:32   0   5G  0 disk
└─sdc1     8:33   0   2G  0 part
  └─sdc2     8:34   0   3G  0 part
sdd        8:48   0   5G  0 disk
└─sdd1     8:49   0   5G  0 part
sr0       11:0   1 1024M 0 rom
[root@LNX-SVR-01 ~]#

```

Run cmd 'pvcreate' to create Physical volumes -

Run cmd 'vgcreate' to create Volume groups-

Run cmd 'lvcreate' to create Logical volumes -

```

[root@LNX-SVR-01 ~]# pvcreate /dev/sdb1 /dev/sdc1 /dev/sdc2 /dev/sdd1
  Physical volume "/dev/sdb1" successfully created.
  Physical volume "/dev/sdc1" successfully created.
  Physical volume "/dev/sdc2" successfully created.
  Physical volume "/dev/sdd1" successfully created.
[root@LNX-SVR-01 ~]#
[root@LNX-SVR-01 ~]# vgcreate vg1 /dev/sdb1 /dev/sdc1
  Volume group "vg1" successfully created
[root@LNX-SVR-01 ~]# vgcreate vg2 /dev/sdc2 /dev/sdd1
  Volume group "vg2" successfully created
[root@LNX-SVR-01 ~]#
[root@LNX-SVR-01 ~]# lvcreate -l 100%FREE -n lv1 vg1
  Logical volume "lv1" created.
[root@LNX-SVR-01 ~]# lvcreate -l 100%FREE -n lv2 vg2
  Logical volume "lv2" created.
[root@LNX-SVR-01 ~]#

```

Add file systems to the Logical volumes-

```
[root@LNX-SVR-01 ~]# mkfs.xfs /dev/vg1/lv1
meta-data=/dev/vg1/lv1          isize=512      agcount=4, agsize=458240 blk
                                =          sectsz=512    attr=2, projid32bit=1
                                =          crc=1       finobt=0, sparse=0
data     =          bsize=4096   blocks=1832960, imaxpct=25
          =          sunit=0      swidth=0 blks
naming   =version 2           bsize=4096   ascii-ci=0 ftype=1
log      =internal log        bsize=4096   blocks=2560, version=2
          =          sectsz=512  sunit=0 blks, lazy-count=1
realtime =none                extsz=4096  blocks=0, rtextents=0
[root@LNX-SVR-01 ~]# mkfs.ext4 /dev/vg2/lv2
mke2fs 1.42.9 (28-Dec-2013)
Filesystem label=
OS type: Linux
Block size=4096 (log=2)
Fragment size=4096 (log=2)
Stride=0 blocks, Stripe width=0 blocks
524288 inodes, 2095104 blocks
104755 blocks (5.00%) reserved for the super user
First data block=0
Maximum filesystem blocks=2145386496
64 block groups
32768 blocks per group, 32768 fragments per group
8192 inodes per group
Superblock backups stored on blocks:
            32768, 98304, 163840, 229376, 294912, 819200, 884736, 1605632
```

Make directories and mount the volumes to lvm-

```
[root@LNX-SVR-01 ~]# mkdir /lvm1
[root@LNX-SVR-01 ~]#
[root@LNX-SVR-01 ~]# vim /etc/fstab
[root@LNX-SVR-01 ~]# mount -a
[root@LNX-SVR-01 ~]# mount | grep /lvm1
/dev/mapper/vg1-lv1 on /lvm1 type xfs (rw,relatime,seclabel,attr2,inode64,
[root@LNX-SVR-01 ~]#
[root@LNX-SVR-01 ~]# mkdir /lvm2
[root@LNX-SVR-01 ~]# vim /etc/fstab
[root@LNX-SVR-01 ~]# mount -a
[root@LNX-SVR-01 ~]# mount | grep /lvm2
/dev/mapper/vg2-lv2 on /lvm2 type ext4 (rw,relatime,seclabel,data=ordered)
[root@LNX-SVR-01 ~]#
[root@LNX-SVR-01 ~]# df -h
Filesystem      Size  Used Avail Use% Mounted on
devtmpfs        1.9G    0  1.9G  0% /dev
tmpfs          1.9G    0  1.9G  0% /dev/shm
tmpfs          1.9G   13M  1.9G  1% /run
tmpfs          1.9G    0  1.9G  0% /sys/fs/cgroup
/dev/mapper/centos-root  26G  4.8G  22G  19% /
/dev/sda1       1014M 185M  830M  19% /boot
tmpfs          378M   36K  378M  1% /run/user/0
/dev/mapper/vg1-lv1   7.0G  33M  7.0G  1% /lvm1
/dev/mapper/vg2-lv2   7.8G  36M  7.3G  1% /lvm2
```

Install the following RPM packages using the package manager of your choice using single command.

- VSFTPD
- PHP
- System-Config-Kickstart
- finger.

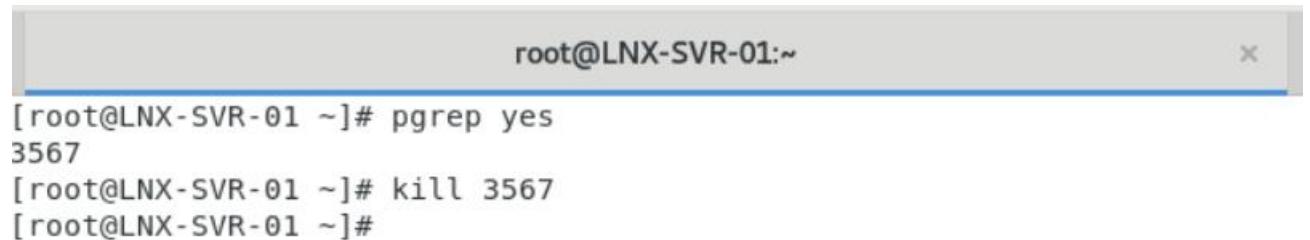
```
[root@LNX-SVR-01 Packages]# yum install -y --nodeps vsftpd-3.0.2-28.el7.x86_64.rpm finger-0.17-52.el7.x86_64.rpm
Loaded plugins: fastestmirror, langpacks
Examining vsftpd-3.0.2-28.el7.x86_64.rpm: vsftpd-3.0.2-28.el7.x86_64
Marking vsftpd-3.0.2-28.el7.x86_64.rpm to be installed
Examining php-5.4.16-48.el7.x86_64.rpm: php-5.4.16-48.el7.x86_64
Marking php-5.4.16-48.el7.x86_64.rpm to be installed
Examining system-config-kickstart-2.9.7-1.el7.noarch.rpm: system-config-kickstart-2.9.7-1.el7.noarch
Marking system-config-kickstart-2.9.7-1.el7.noarch.rpm to be installed
Examining finger-0.17-52.el7.x86_64.rpm: finger-0.17-52.el7.x86_64
Marking finger-0.17-52.el7.x86_64.rpm to be installed
Resolving Dependencies
--> Running transaction check
---> Package finger.x86_64 0:0.17-52.el7 will be installed
---> Package php.x86_64 0:5.4.16-48.el7 will be installed
---> Processing Dependency: httpd-mmn = 20120211x8664 for package: php-5.4.16-48.el7.x86_64

=====
Package           Arch      Version
=====
Installing:
finger            x86_64    0.17-52.el7
php               x86_64    5.4.16-48.el7
system-config-kickstart noarch   2.9.7-1.el7
vsftpd           x86_64    3.0.2-28.el7
```

Use appropriate commands to start and kill the ‘yes’ process and verify

Process 1-

Run process ‘yes’ in second tab and type following commands in tab 1-



A screenshot of a terminal window titled "root@LNX-SVR-01:~". The window contains the following text:

```
[root@LNX-SVR-01 ~]# pgrep yes
3567
[root@LNX-SVR-01 ~]# kill 3567
[root@LNX-SVR-01 ~]#
```

Check in tab 2 the process gets killed/terminated-

```
y
y
y
y
y
y
y
y
Terminated
[root@LNX-SVR-01 ~]#
```

Process 2-

Run process 'yes' in second tab and type following commands in tab 1-

```
root@LNX-SVR-01:~  
[root@LNX-SVR-01 ~]# top
```

After running top command press 'k' to kill process and type process id-

```
top - 14:01:04 up 42 min, 3 users, load average: 0.79, 0.62, 0.30  
Tasks: 227 total, 3 running, 224 sleeping, 0 stopped, 0 zombie  
%Cpu(s): 56.4 us, 29.5 sy, 0.0 ni, 13.9 id, 0.0 wa, 0.0 hi, 0.2 si, 0.0 id  
KiB Mem : 3861300 total, 2296560 free, 834436 used, 730304 buff/cache  
KiB Swap: 3145724 total, 3145724 free, 0 used. 2772468 avail Mem  
PID to signal/kill [default pid = 3637] 3637  


| PID  | USER | PR | NI | VIRT    | RES    | SHR   | S | %CPU | %MEM | TIME+   | COMMAND |
|------|------|----|----|---------|--------|-------|---|------|------|---------|---------|
| 3637 | root | 20 | 0  | 108056  | 356    | 280   | S | 68.2 | 0.0  | 0:08.28 | yes     |
| 2042 | root | 20 | 0  | 3292220 | 181260 | 68612 | S | 47.4 | 4.7  | 1:40.51 | gnome   |
| 2590 | root | 20 | 0  | 682700  | 29940  | 17708 | R | 36.4 | 0.8  | 0:40.72 | gnome   |
| 1882 | root | 19 | -1 | 340096  | 50436  | 25716 | S | 14.9 | 1.3  | 0:42.37 | X       |
| 3645 | root | 20 | 0  | 162100  | 2348   | 1572  | R | 1.0  | 0.1  | 0:00.10 | top     |
| 9    | root | 20 | 0  | 0       | 0      | 0     | R | 0.7  | 0.0  | 0:03.79 | rcu_s   |


```

Check in tab 2 the process gets killed/terminated-

```
y  
y  
y  
y  
y  
y  
y  
Terminated  
[root@LNX-SVR-01 ~]#
```

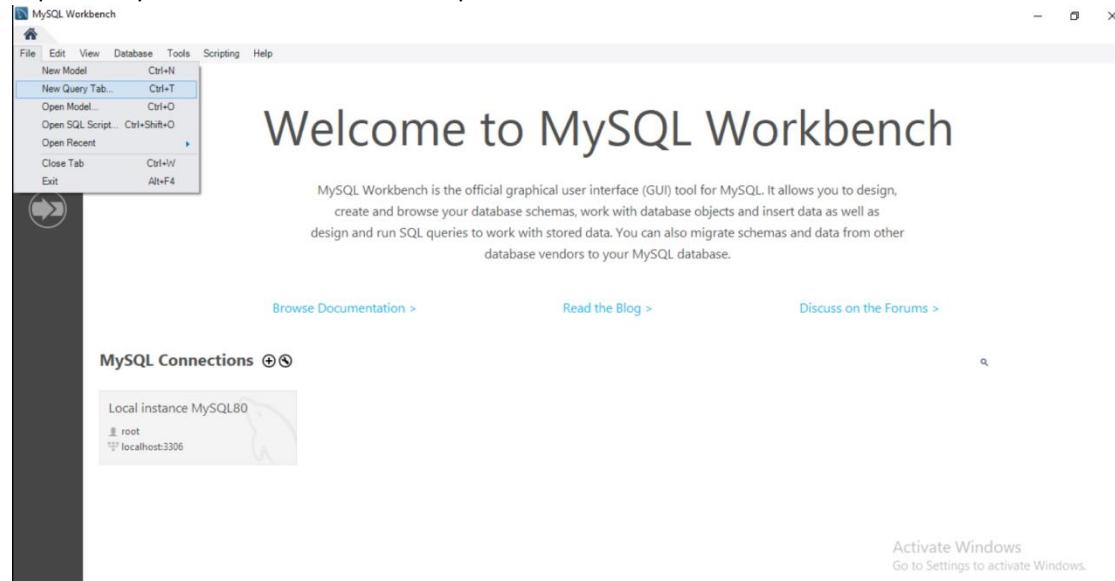
Project Task- 6

Objective:

Use MySQL workbench and create an employee database. Create a table empdetails (emp_id, Name, Age, Salary, Position). Create another table emplocation (emp_id, location). Create primary key & foreign key in the tables accordingly and perform CRUD operation on the table. Use joins to display “emp_id, Name, Age, Salary, location” using primary key & foreign key concept

Solution-

Open MySQL workbench setup.



Click on MySQL Connections



Welcome to MySQL W

MySQL Workbench is the official graphical user interface (GUI) tool for MySQL. It allows you to create and browse your database schemas, work with database objects and data, design and run SQL queries to work with stored data. You can also migrate schema between database vendors to your MySQL database.

[Browse Documentation >](#)

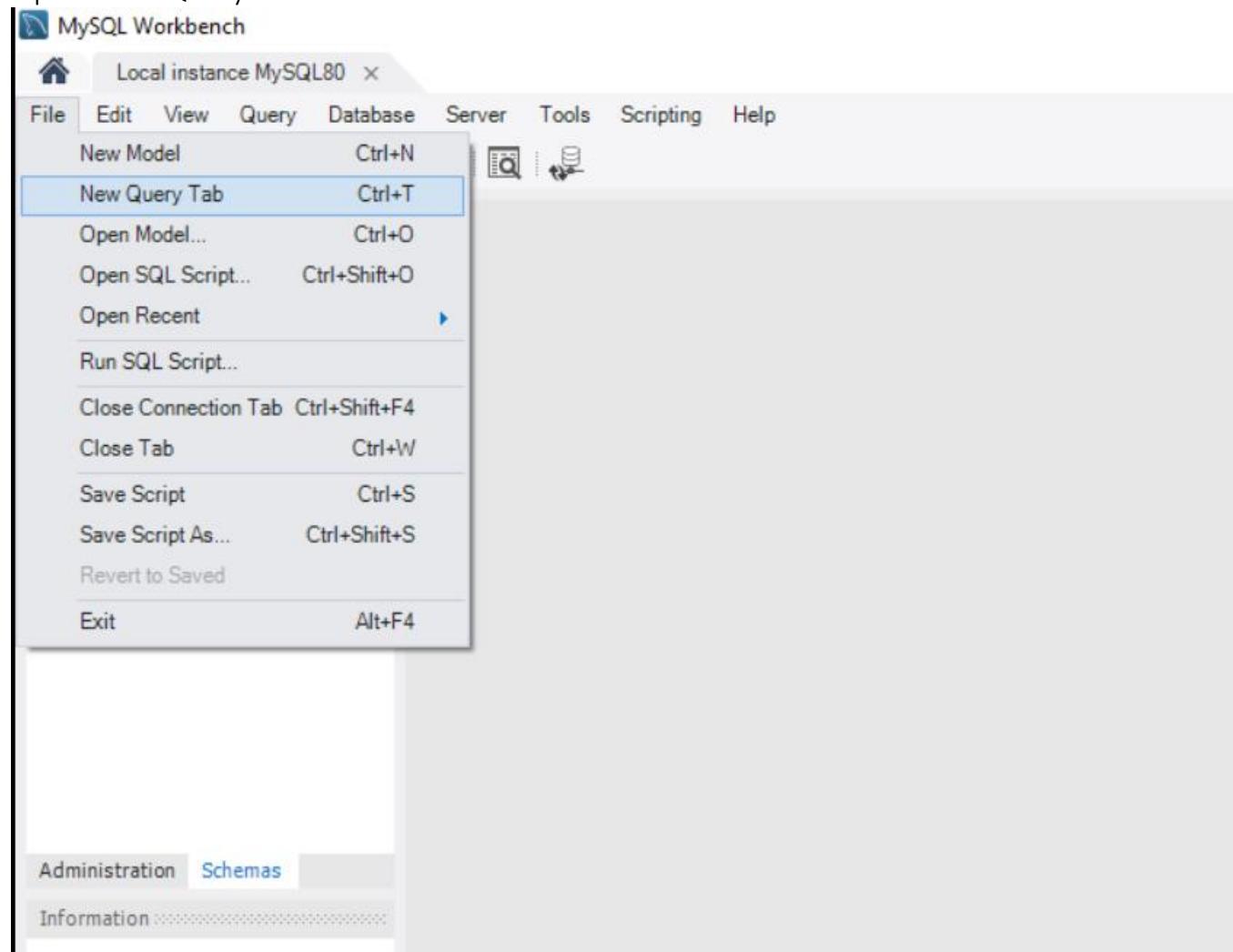
[Read the Blog >](#)

MySQL Connections ⊕ ⊖

Local instance MySQL80

root
 localhost:3306

Open New Query Tab-



Create a database 'employee'-

The screenshot shows a MySQL Workbench interface. At the top, there's a toolbar with various icons. Below the toolbar, a code editor window displays the following SQL commands:

```
1 • CREATE DATABASE employee;
2
3 • USE employee;
```

Below the code editor is an output pane titled "Output". It contains a table titled "Action Output" with two rows of data:

| # | Time | Action | Message |
|---|----------|--------------------------|-------------------|
| 1 | 08:30:15 | CREATE DATABASE employee | 1 row(s) affected |
| 2 | 08:30:41 | USE employee | 0 row(s) affected |

Create a table 'empdetails' & insert data

The screenshot shows the MySQL Workbench interface. At the top, there's a toolbar with various icons. Below the toolbar, the SQL editor window displays the following code:

```
4
5 • CREATE TABLE empdetails(
6     emp_id INT auto_increment primary key,
7     Name varchar(30),
8     Age INT,
9     Salary decimal(10,2),
10    Position varchar(30)
11 );
12
13 • INSERT INTO empdetails (Name, Age, Salary, Position) values
14     ('John Doe', 30, 50000.00, 'Manager'),
15     ('Jane Smith', 25, 60000.00, 'Developer'),
16     ('Michael Johnson', 35, 55000.00, 'Analyst'),
17     ('David Wilson', 40, 70000.00, 'Engineer'),
18     ('Kylan Gentry', 32, 45000.00, 'Engineer');
19
20 • SELECT * FROM empdetails;
21 |
```

Below the SQL editor is the Result Grid window, which displays the data from the 'empdetails' table:

| | emp_id | Name | Age | Salary | Position |
|---|--------|-----------------|------|----------|-----------|
| ▶ | 1 | John Doe | 30 | 50000.00 | Manager |
| | 2 | Jane Smith | 25 | 60000.00 | Developer |
| | 3 | Michael Johnson | 35 | 55000.00 | Analyst |
| | 4 | David Wilson | 40 | 70000.00 | Engineer |
| | 5 | Kylan Gentry | 32 | 45000.00 | Engineer |
| * | HULL | HULL | HULL | HULL | HULL |

Create another table 'emplocation' & insert data

The screenshot shows the MySQL Workbench interface. At the top, there's a toolbar with various icons. Below the toolbar, a code editor window displays the following SQL script:

```
22 • CREATE TABLE emplocation(
23     emp_id INT auto_increment,
24     location varchar(30),
25     foreign key(emp_id) references empdetails(emp_id)
26 );
27
28 • INSERT INTO emplocation(emp_id, location) VALUES
29     (1, 'New York'),
30     (2, 'Los Angeles'),
31     (3, 'America'),
32     (4, 'London'),
33     (5, 'Tokyo');
34
35 • SELECT * FROM emplocation;
```

Below the code editor is a results grid titled "Result Grid". It contains a table with two columns: "emp_id" and "location". The data is as follows:

| | emp_id | location |
|---|--------|-------------|
| ▶ | 1 | New York |
| | 2 | Los Angeles |
| | 3 | America |
| | 4 | London |
| | 5 | Tokyo |

Updating data in empdetails

```
37 • UPDATE empdetails  
38     SET Salary = 550000.00  
39     WHERE emp_id = 4;  
40  
41 • SELECT * FROM empdetails;  
42  
43  
44  
45  
46  
47
```

The screenshot shows a MySQL Workbench interface with a result grid titled 'Result Grid'. The table has columns: emp_id, Name, Age, Salary, and Position. The data is as follows:

| | emp_id | Name | Age | Salary | Position |
|---|--------|-----------------|------|-----------|-----------|
| ▶ | 1 | John Doe | 30 | 50000.00 | Manager |
| | 2 | Jane Smith | 25 | 60000.00 | Developer |
| | 3 | Michael Johnson | 35 | 55000.00 | Analyst |
| | 4 | David Wilson | 40 | 550000.00 | Engineer |
| * | 5 | Kylan Gentry | 32 | 45000.00 | Engineer |
| * | NULL | NULL | NULL | NULL | NULL |

Deleting data in emplocation

```
42  
43 • DELETE FROM emplocation  
44     WHERE emp_id = 5 ;  
45  
46 • SELECT * FROM emplocation;  
47  
48  
49  
50  
51
```

The screenshot shows a MySQL Workbench interface with a result grid titled 'Result Grid'. The table has columns: emp_id and location. The data is as follows:

| | emp_id | location |
|---|--------|-------------|
| ▶ | 1 | New York |
| | 2 | Los Angeles |
| | 3 | America |
| | 4 | London |

Reading data using inner join to display (emp_id, Name, Age, Salary, location) as a single output

```
47
48 •   select e.emp_id,e.Name,e.Age,e.Salary,emplocation.location from empdetails e
49     inner join emplocation on e.emp_id=emplocation.emp_id;
50
51
```

The screenshot shows a database query results grid. At the top, there are buttons for 'Result Grid' (selected), 'Filter Rows:', 'Export:', and 'Wrap Cell Content:'. The grid itself has columns for emp_id, Name, Age, Salary, and location. There are four rows of data:

| | emp_id | Name | Age | Salary | location |
|---|--------|-----------------|-----|-----------|-------------|
| ▶ | 1 | John Doe | 30 | 50000.00 | New York |
| | 2 | Jane Smith | 25 | 60000.00 | Los Angeles |
| | 3 | Michael Johnson | 35 | 55000.00 | America |
| | 4 | David Wilson | 40 | 550000.00 | London |

THANK YOU