JGI Knowledge Campus, Jayanagar 9th Block, Bengaluru – 69

Department of Computer Science and IT

MCA PROGRAMME

Server Operating System– 23MCASC205

ACTIVITY

Submitted By:
P S VAIBHAV
2nd SEM
MCA – SCT
23MCAR0053

Submitted to:
Mr. MD Tousif
Assistant Professor
Dept. of CS & IT

JAIN DEEMED-TO-BE UNIVERSITY | SCHOOL OF COMPUTER SCIENCE AND IT

JGI Knowledge Campus, Jayanagar 9th Block,
Bengaluru – 69

Certificate

This is to certify that P S VAIBHAV satisfactorily completed the course of Activity prescribed by the Jain (Deemed-to-be University) for the 2nd semester I M.C.A degree course in the year 2023– 2024.

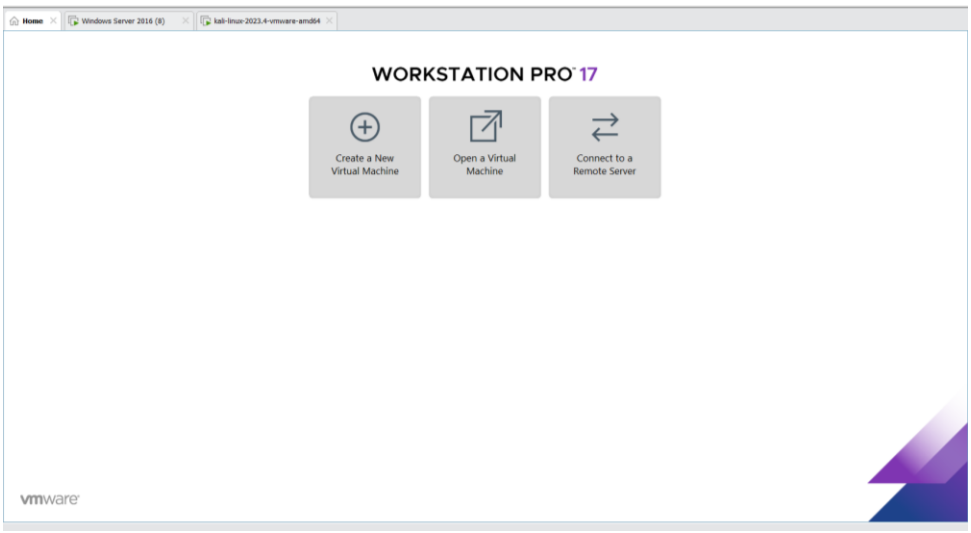
Date:

Signature of Student

Signature of Faculty Incharge

Step 1 Install windows server:

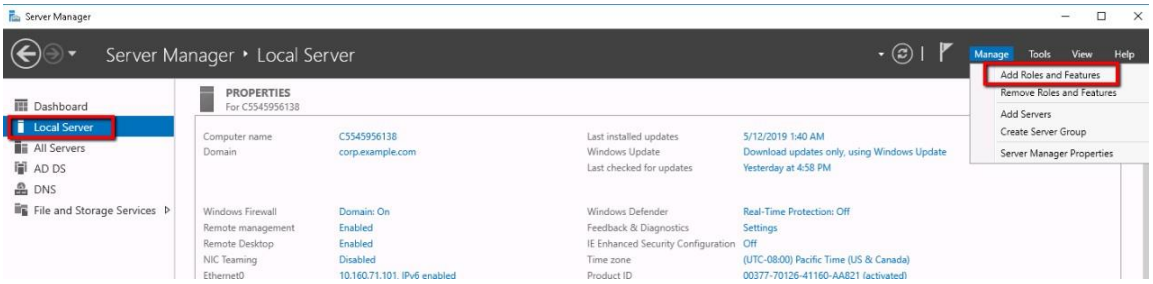
1. **Create a New Virtual Machine:**
    - Open VMware Workstation and click on "File" > "New Virtual Machine".
    - Select "Typical" and click "Next".
    - Choose "I will install the operating system later" and click "Next".
    - Select "Microsoft Windows" as the guest operating system and choose "Windows Server 2016" version. Click "Next".
    - Enter the name for your virtual machine and choose the location to store it. Click "Next".
    - Customize the hardware settings as needed and click "Finish".
2. **Customize Hardware Settings:**
    - Before powering on the virtual machine, you can customize the hardware settings such as CPU, RAM, network adapter, disk size, etc.
    - Click on "Edit virtual machine settings" and adjust the hardware settings according to your requirements.
3. **Mount the Windows Server 2016 ISO File:**
    - Right-click on the virtual machine in the VMware Workstation library and select "Settings".
    - In the Hardware tab, select the CD/DVD (SATA) option.
    - Choose "Use ISO image file" and browse to select the Windows Server 2016 ISO file.
    - Click "OK" to save the settings.
4. **Install Windows Server 2016:**
    - Power on the virtual machine.
    - The Windows Server 2016 installation process will start. Follow the on-screen instructions to proceed with the installation.
    - Select the language, time and currency format, and keyboard or input method.
    - Click "Install Now" to begin the installation.
    - Enter the product key if required and accept the license terms.
    - Choose the installation type (Custom: Install Windows only).
    - Select the disk where you want to install Windows Server 2016 and click "Next".
    - The installation process will begin, and the virtual machine will restart once the installation is complete.
    - Follow the setup prompts to set up your user account, password, and other settings.
5. **Complete the Installation:**
    - Once the installation is complete, you will be taken to the Windows Server 2016 desktop.
    - Install VMware Tools for better integration between the host and guest operating system.



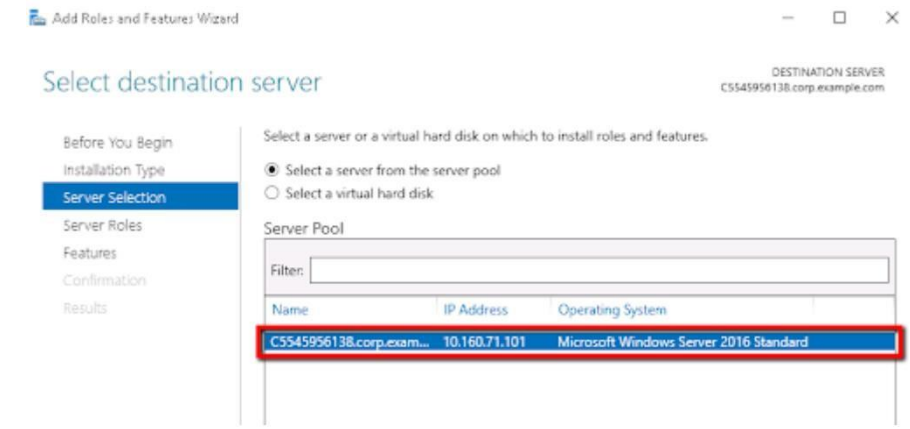
Step 2 Install and Configure ADDS

Create an Active Directory Domain on Windows Server 2016

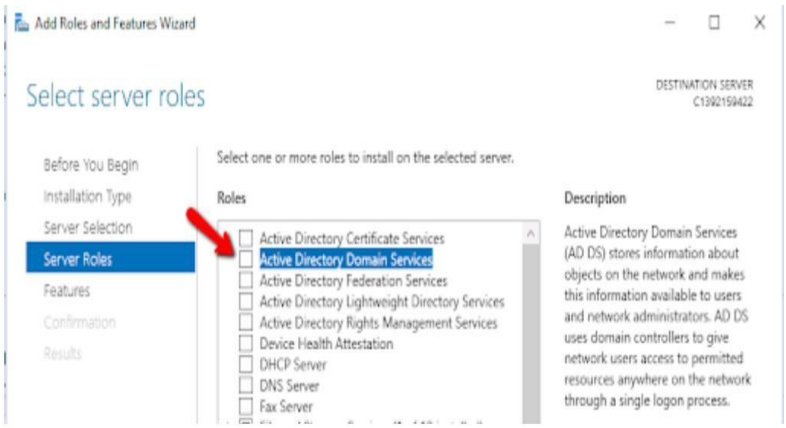
1. Log in to your Windows Server and start the **Server Manager**.
2. Navigate to the Local Server tab and select **Manage > Add Rolesand Features** from the command menu at the top right of the window:



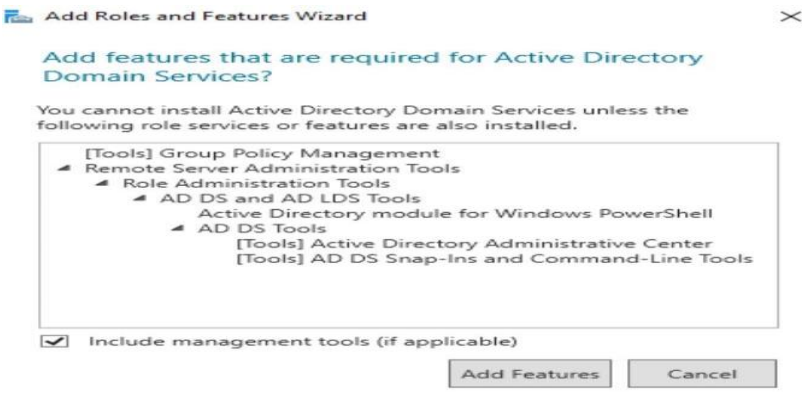
1. The *Add Roles and Features* Wizard will be displayed.
2. Click **Next**. The Wizard will proceed to the *InstallationType* option.
3. Select the *Role-based or feature-based installation* type.
4. Click **Next**. The *Select destination server* panel is displayed:



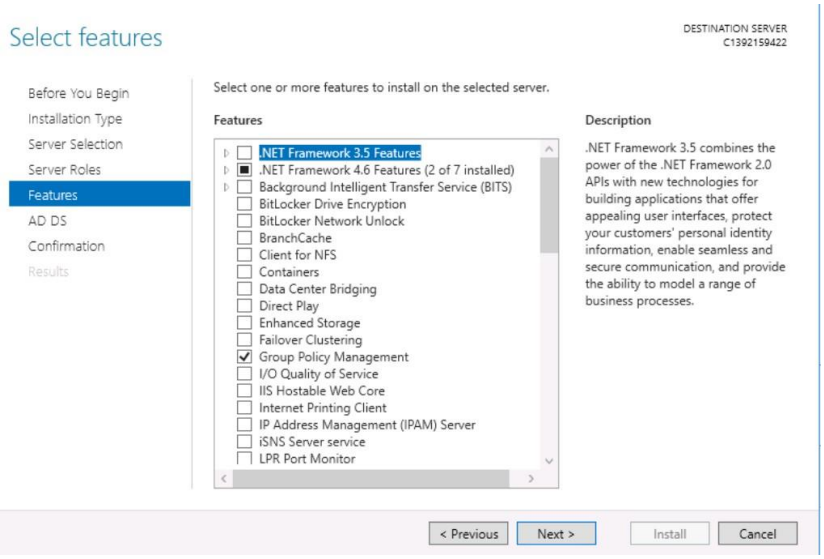
By default, the server to apply the installation should already be selected.
Confirm that the intended server has been selected from the server pool (or select the desired server) and click **Next**.
The *Select serverroles* panel is displayed:



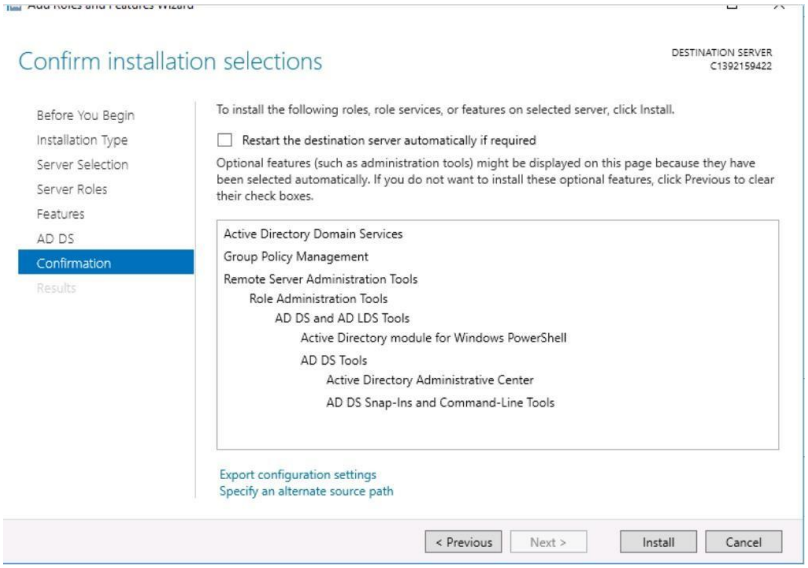
1. Click the **Active Directory Domain Services** checkbox to activateit as the role to use with the server.
2. Click **Next**. The required features list is display.



Click **Add Features** to add the required features to the server. The *Selectfeatures* panel is displayed:



1. Optionally select any additional features that may be required foryour server.
2. Click **Next**. The *Confirm installation selections* panel is displayed:



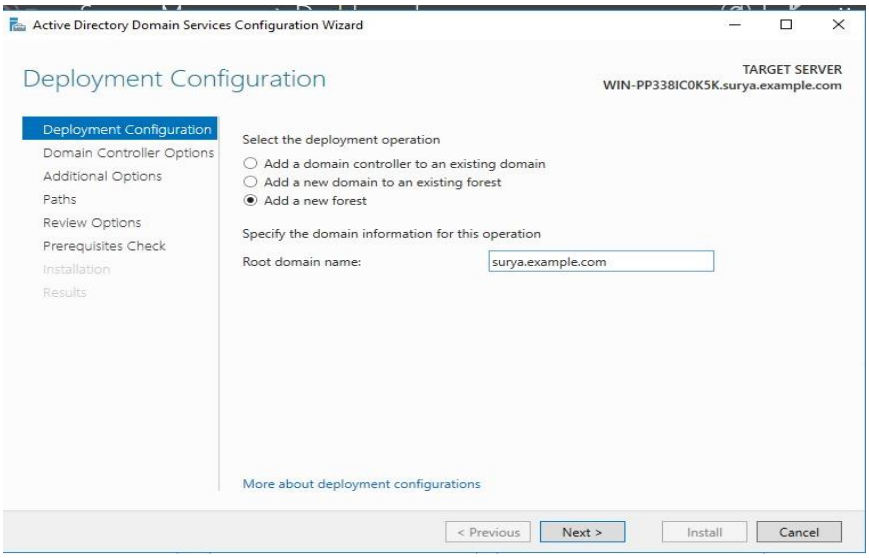
1. If all selections are correct, click **Install**.
2. Wait for the installation process to finish successfully, thenclick **Close** to close the wizard.

Configure Active Directory Domain Controller on Windows Server2016

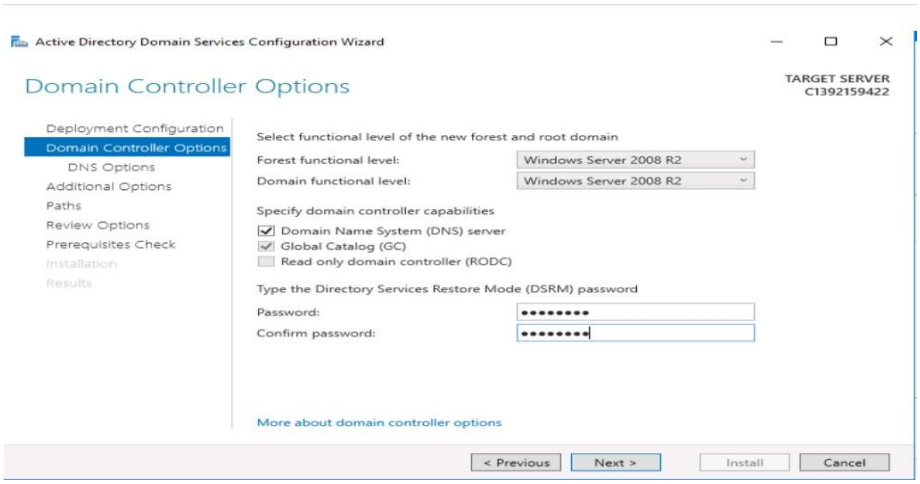
After the Active Directory Domain is created successfully, you need toconfigure the service on the server. To do that, we set up the **Active Directory Domain Services**.

1. After the AD DS server has been added, an alert notificationappears in the *Server Manager*. Click the notification flag.

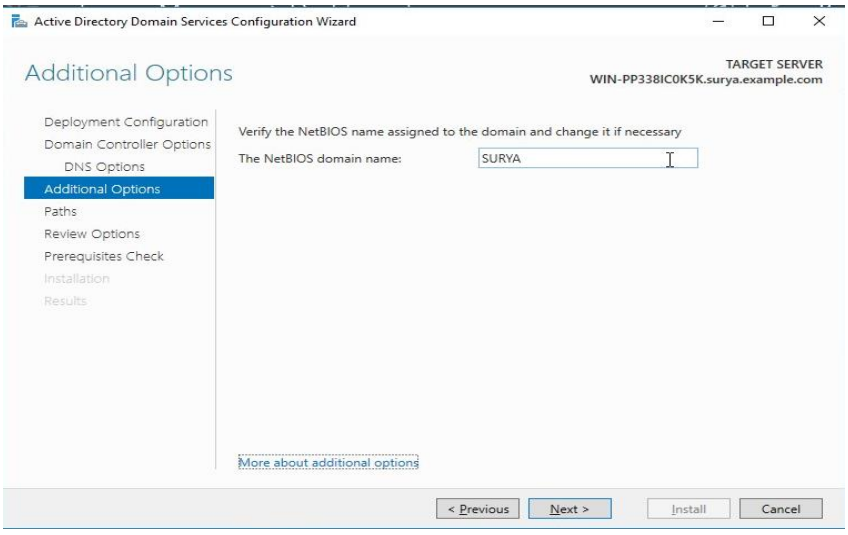
2. From the dropdown menu at the top right corner of the window, click **Promote this server to a domain controller**. The *DeploymentConfiguration* panel is displayed:



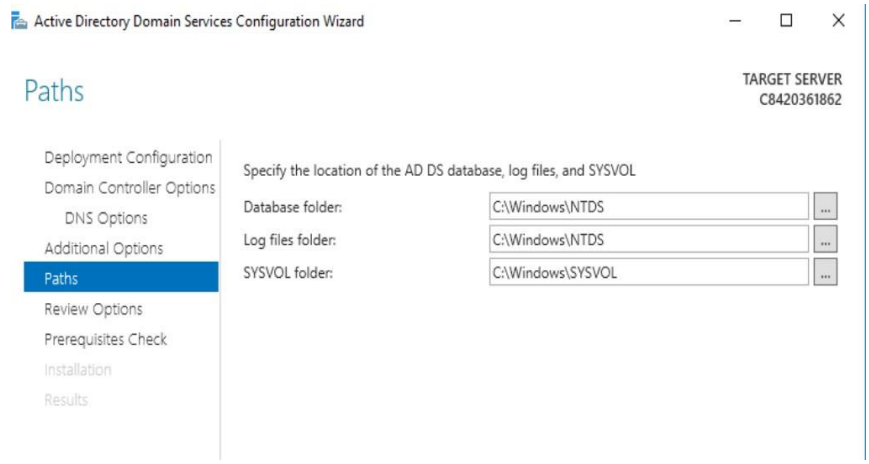
1. Select the option **Add a new forest** and enter a value in the *Rootdomain name* field.
2. Click **Next**. The *Domain Controller Options* panel is displayed:



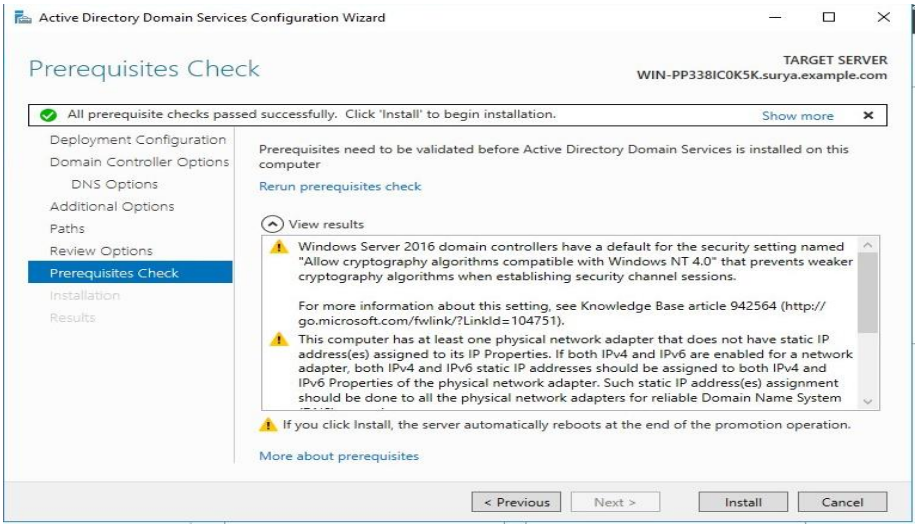
1. From the *Forest functional level* and *Domain functionallevel* dropdown lists, select the oldest operating system in your network. This option provides backwards compatibility for various features.
2. If your Domain Controller is a standalone server, you need notactivate the *DNS Name Server* checkbox. Otherwise, it's recommended to leave it checked.
3. Enter the *Directory Services Restore Mode (DSRM) password* andre-enter it in the *Confirm password* field.
4. Click **Next** twice. (There is no need to specifiy a DNS delegation.)The *Additional Options* panel is displayed:



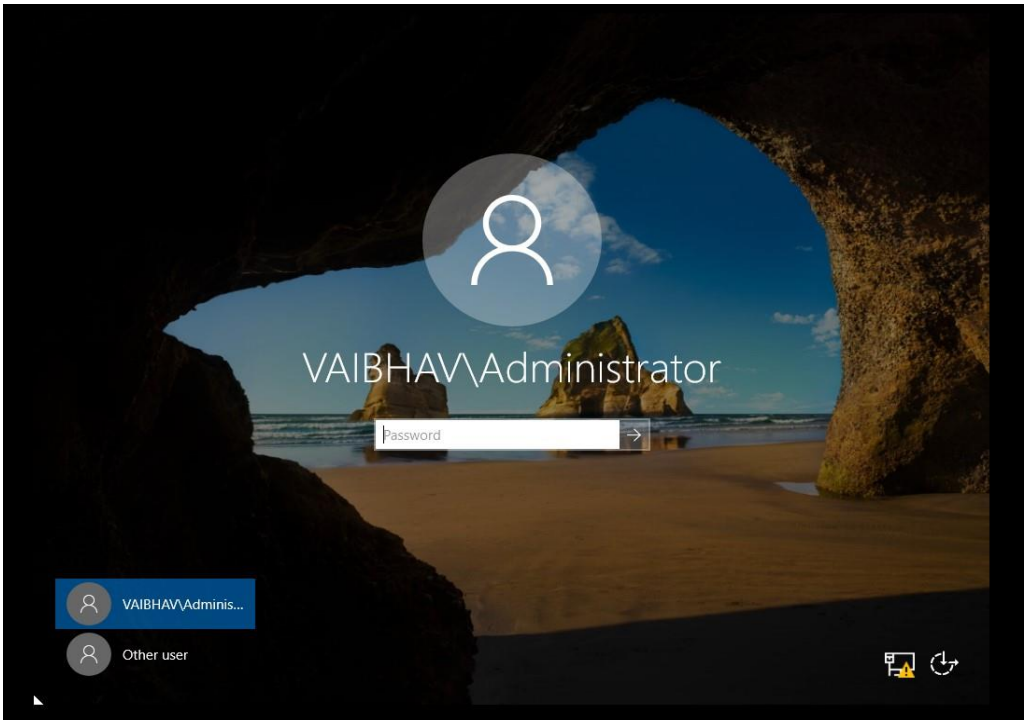
1. The value of the *NetBIOS domain name* field should automaticallyappear.
2. Click **Next**. The *Paths* panel is displayed:



1. Browse and select the Active Directory Controller paths foreach: *Database folder*, *Log files folder* and *SYSVOL folder*.
2. Click **Next**.
3. Confirm all your selected options and click **Next**. A prerequisitecheck will be performed. Although some warnings may be displayed, the check should complete successfully and a confirmation message will appear:



1. Click **Install**. When the wizard finishes configuring the settings,you will be prompted to log out of your current session.
2. Log out and then reboot the machine.



Step 3 : Here are the detailed steps to install Ubuntu in VMware:

Prerequisites

1. VMware Workstation/Player: Ensure you have VMware Workstation or VMware Player installed on your computer.

2. Ubuntu ISO: Download the latest Ubuntu ISO image from the official [Ubuntu website](https://ubuntu.com/download/desktop).

Step-by-Step Installation Guide

Step 1: Open VMware

Launch VMware Workstation or VMware Player on your computer.

Step 2: Create a New Virtual Machine

1. Click on `Create a New Virtual Machine`.

Step 3: New Virtual Machine Wizard

1. Choose `Typical (recommended)` and click `Next`.

Step 4: Select the Installer Disc Image (ISO)

1. Choose `Installer disc image file (iso)`.

2. Browse to the location of the downloaded Ubuntu ISO file.

3. Select the ISO file and click `Next`.

Step 5: Guest Operating System Installation

1. VMware should automatically detect Ubuntu. If not, select `Linux` as the guest operating system.

2. Choose `Ubuntu` from the version list.

3. Click `Next`.

Step 6: Name the Virtual Machine

1. Enter a name for your virtual machine (e.g., Ubuntu).

2. Specify the location where you want to save the VM files.

3. Click `Next`.

Step 7: Specify Disk Capacity

1. Allocate the disk space for your Ubuntu installation. A recommended size is at least 20 GB.

2. You can choose to store the virtual disk as a single file or split it into multiple files.

3. Click `Next`.

Step 8: Customize Hardware (Optional)

1. Before finishing, you can customize the hardware settings by clicking on `Customize Hardware`.

2. Allocate at least 2 GB of RAM for Ubuntu to run smoothly.

3. Adjust other settings like CPU cores, network adapter, etc., as needed.

4. Once done, click `Close` and then `Finish`.

Step 9: Start the Virtual Machine

1. Your new virtual machine should now appear in the VMware library.

2. Select it and click on `Power on this virtual machine`.

Step 10: Ubuntu Installation Process

1. The virtual machine will boot from the Ubuntu ISO.

2. Follow the on-screen instructions to install Ubuntu:

- Choose your language and click `Install Ubuntu`.

- Select your keyboard layout and click `Continue`.

- Choose `Normal installation` and click `Continue`.

- Select `Erase disk and install Ubuntu` (this will only affect the virtual disk, not your actual hard drive) and click `Install Now`.

- Confirm the changes to the disk and click `Continue`.

- Set your time zone and click `Continue`.

- Enter your name, computer name, username, and password. Click `Continue`.

Step 11: Complete Installation

1. The installation process will take a few minutes. Once it’s complete, you will be prompted to restart the virtual machine.

2. Click `Restart Now`.

Step 12: Remove Installation Media

1. After the restart, you may be asked to remove the installation media (the ISO file). Since this is a virtual machine, you can simply press `Enter` when prompted.

Step 13: Log into Ubuntu

1. After the virtual machine restarts, you will be presented with the Ubuntu login screen.

2. Enter your password and log in.

Step 14: Install VMware Tools

1. After logging into Ubuntu, it's recommended to install VMware Tools for better performance and additional features (such as shared folders and improved graphics performance).

2. In the VMware menu, select `VM` -> `Install VMware Tools`.

3. Follow the instructions to complete the installation.

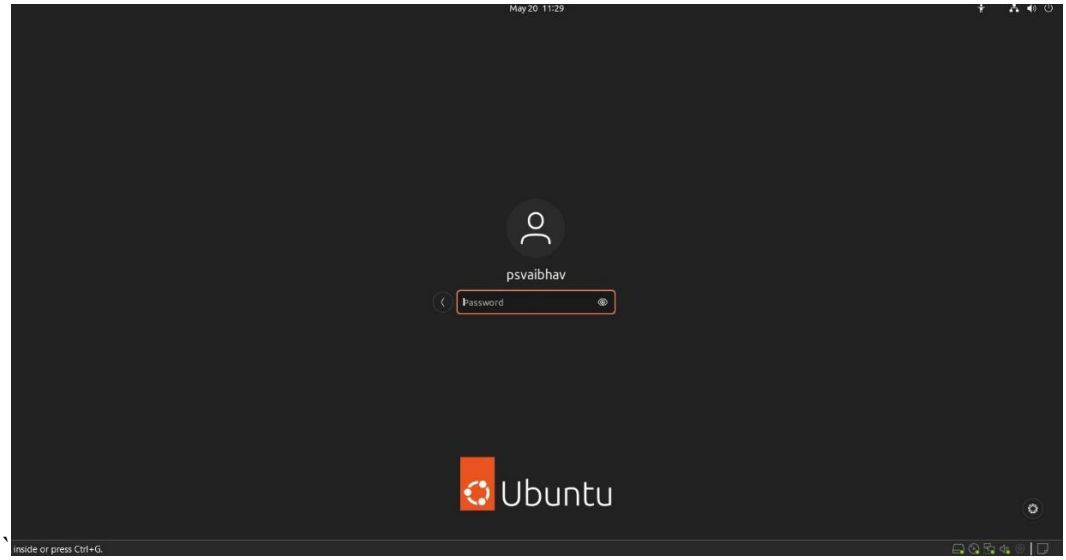
Step 15: Update Ubuntu

1. Open a terminal.

2. Run the following commands to update your system:

```bash
sudo apt update
```

sudo apt upgrade -y

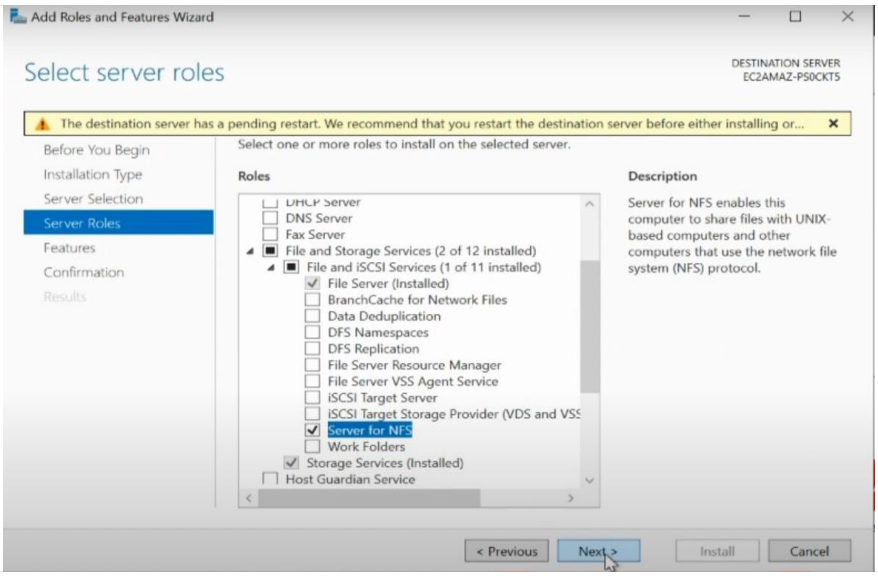


Step 4 Share files from windows to Linux using NFS Server

Step 1: Install and Configure NFS Server on Windows Server

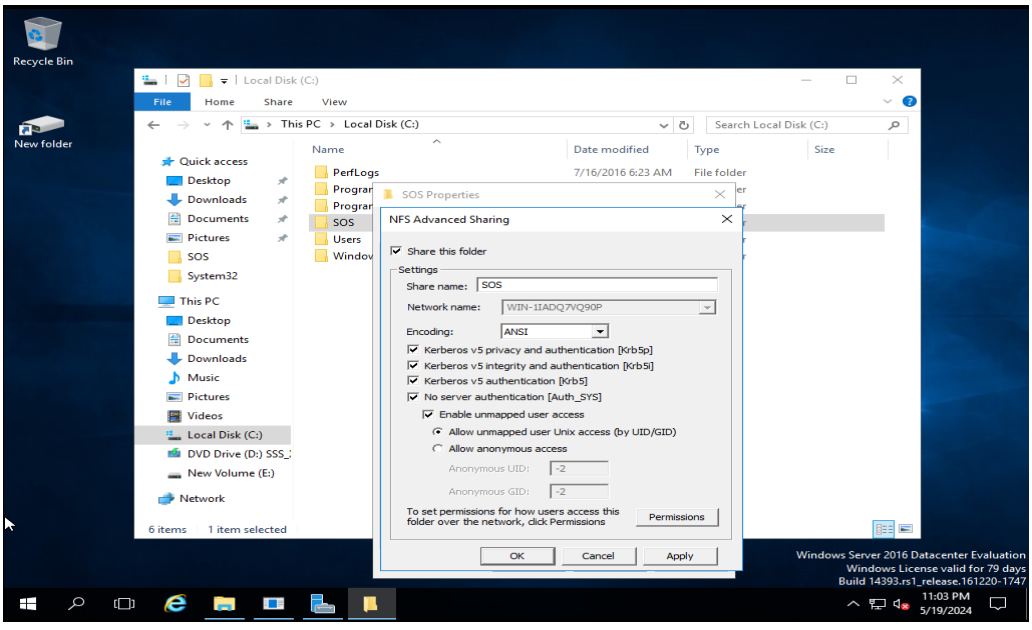
1. **Install NFS Server on Windows Server:**

   - Open **Server Manager**.
   - Click on **Add Roles and Features**.
   - Click **Next** through the initial steps until you reach the **Server Roles** section.
   - Scroll down and select **Server for NFS** under **File and Storage Services** > **File and iSCSI Services**.
   - Click **Next** and then **Install**.



2. Configure NFS Shares:

- Open **File Explorer** and navigate to the folder you want to share.
- Right-click the folder and select **Properties**.
- Go to the **NFS Sharing** tab.
- Click **Manage NFS Sharing**.
- In the **NFS Advanced Sharing** dialog, check **Share this folder**.
- Optionally, set the **Share name** and configure the **Share permissions**. Ensure that you allow the necessary permissions (read/write) for the Linux clients.
- Click **OK** to apply the changes.

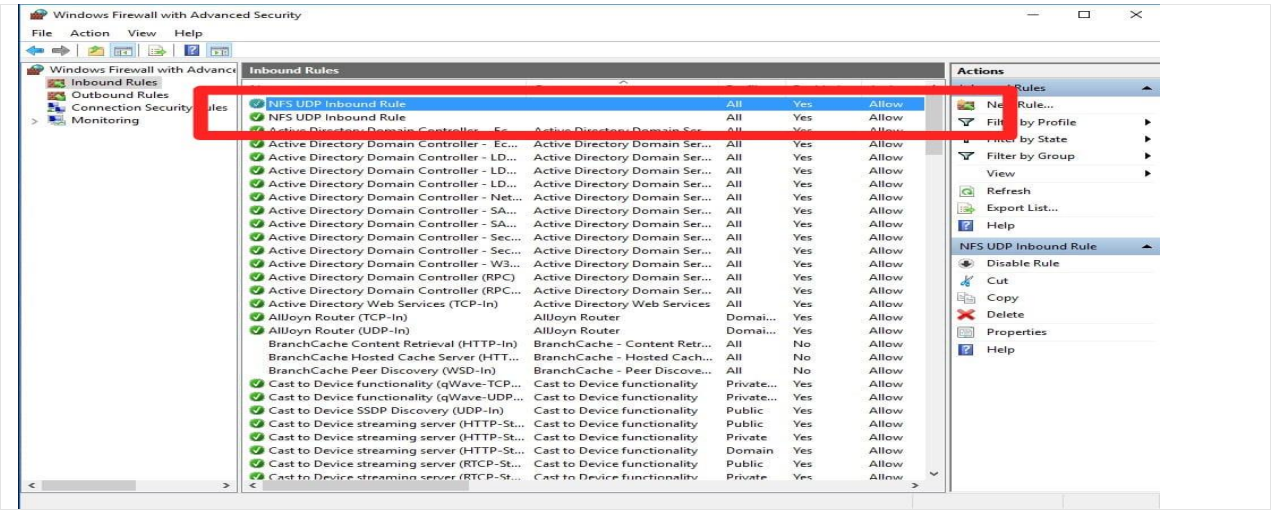


3. **Configure Permissions:**

- Ensure that the Windows firewall allows NFS traffic. Open **Windows Firewall with Advanced Security**

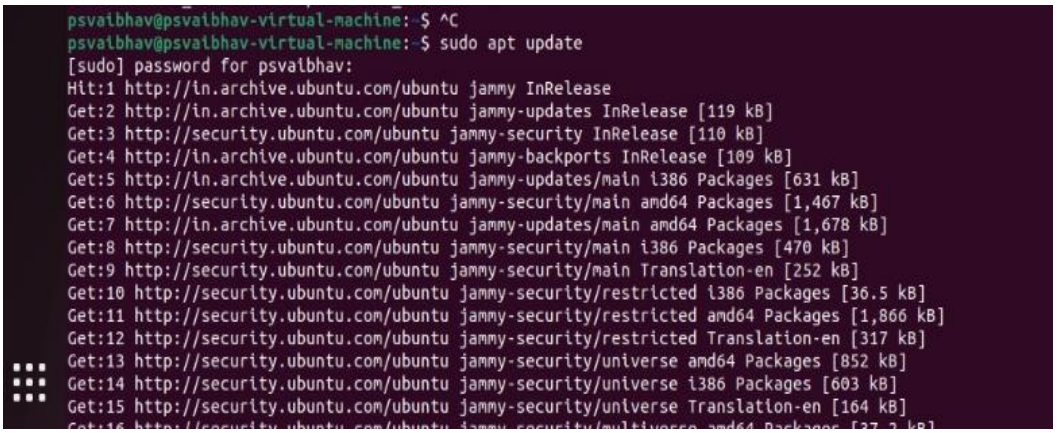
and create inbound rules to allow NFS.

- Configure the share permissions and security settings to allow access from the Linux client. This typically involves setting appropriate permissions for the user accounts that will access the share.



Step 2: Configure NFS Client on Linux

1. **Install NFS Client Utilities:**



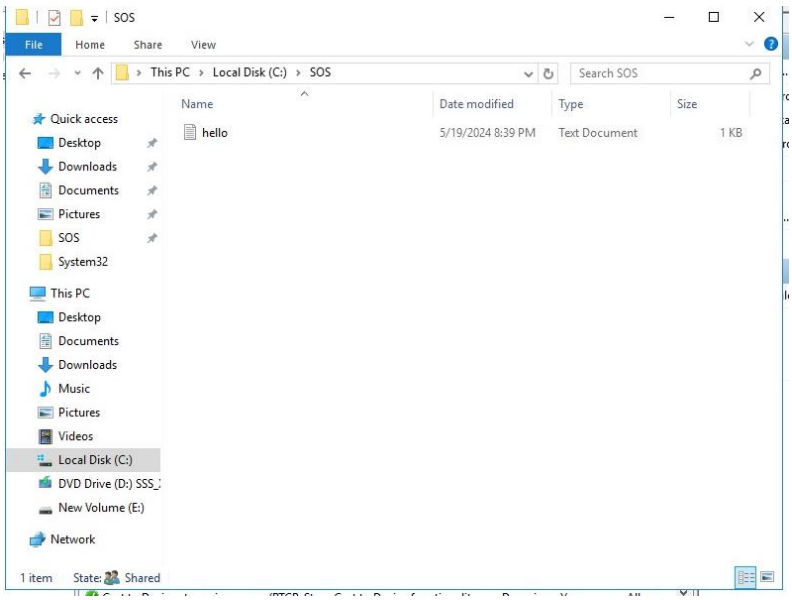
```
psvaibhav@psvaibhav-virtual-machine:~$ sudo apt install nfs-common
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  keyutils libevent-core-2.1-7 libnfsidmap1 rpcbind
Suggested packages:
  open-iscsi watchdog
The following NEW packages will be installed:
  keyutils libevent-core-2.1-7 libnfsidmap1 nfs-common rpcbind
0 upgraded, 5 newly installed, 0 to remove and 159 not upgraded.
Need to get 475 kB of archives.
After this operation, 1,709 kB of additional disk space will be used.
Do you want to continue? [Y/n] Y
Get:1 http://in.archive.ubuntu.com/ubuntu jammy/main amd64 libevent-core-2.1-7 amd64 2.1.12-stable-1build3 [93.9 kB]
Get:2 http://in.archive.ubuntu.com/ubuntu jammy-updates/main amd64 libnfsidmap1 amd64 1:2.6.1-1ubuntu1.2 [42.9 kB]
Get:3 http://in.archive.ubuntu.com/ubuntu jammy/main amd64 rpcbind amd64 1.2.6-2build1 [46.6 kB]
Get:4 http://in.archive.ubuntu.com/ubuntu jammy/main amd64 keyutils amd64 1.6.1-2ubuntu3 [50.4 kB]
Get:5 http://in.archive.ubuntu.com/ubuntu jammy-updates/main amd64 nfs-common amd64 1:2.6.1-1ubuntu1.2 [241 kB]
Fetched 475 kB in 3s (178 kB/s)
Selecting previously unselected package libevent-core-2.1-7:amd64.
```

```
psvaibhav@psvaibhav-virtual-machine:~$ sudo mkdir -p /mnt/windows_nfs
psvaibhav@psvaibhav-virtual-machine:~$ sudo mount -t nfs 192.168.232.128:/SOS /mnt/windows_nfs
psvaibhav@psvaibhav-virtual-machine:~$ showmount
clnt_create: RPC: Program not registered
psvaibhav@psvaibhav-virtual-machine:~$ showmount -e 192.168.232.128
Export list for 192.168.232.128:
/SOS (everyone)
psvaibhav@psvaibhav-virtual-machine:~$ ls /mnt/windows_nfs
ls: cannot open directory '/mnt/windows_nfs': Permission denied
psvaibhav@psvaibhav-virtual-machine:~$ ls /mnt/windows_nfs
hello.txt
psvaibhav@psvaibhav-virtual-machine:~$ sudo nano /etc/fstab
psvaibhav@psvaibhav-virtual-machine:~$ sudo mount -t nfs 192.168.232.128:/SOS /mnt/windows_nfs
psvaibhav@psvaibhav-virtual-machine:~$ cp -r /mnt/windows_nfs/* ~/Desktop/
psvaibhav@psvaibhav-virtual-machine:~$
buse pointer inside or press Ctrl+G.
```

Step 5: Copy the files and paste it on desktop (Linux)

```
Processing triggers for libc-bin (2.35-0ubuntu3.6) ...
psvaibhav@psvaibhav-virtual-machine:~$ sudo mkdir -p /mnt/windows_nfs
psvaibhav@psvaibhav-virtual-machine:~$ sudo mount -t nfs 192.168.232.128:/SOS /mnt/windows_nfs
psvaibhav@psvaibhav-virtual-machine:~$ showmount
clnt_create: RPC: Program not registered
psvaibhav@psvaibhav-virtual-machine:~$ showmount -e 192.168.232.128
Export list for 192.168.232.128:
/SOS (everyone)
psvaibhav@psvaibhav-virtual-machine:~$ ls /mnt/windows_nfs
ls: cannot open directory '/mnt/windows_nfs': Permission denied
psvaibhav@psvaibhav-virtual-machine:~$ ls /mnt/windows_nfs
hello.txt
psvaibhav@psvaibhav-virtual-machine:~$ sudo nano /etc/fstab
psvaibhav@psvaibhav-virtual-machine:~$ sudo mount -t nfs 192.168.232.128:/SOS /mnt/windows_nfs
psvaibhav@psvaibhav-virtual-machine:~$ cp -r /mnt/windows_nfs/* ~/Desktop/
psvaibhav@psvaibhav-virtual-machine:~$
ve the mouse pointer inside or press Ctrl+G.
```

File in window server



File is copied to linux using NFS server