

## **TASK 1: VIRTUALBOX INSTALLATION**

### **Objective**

The objective of this task is to install Oracle Virtual-Box on Windows 11 and prepare the environment for creating virtual machines.

### **Steps Performed**

1. Opened a web browser and visited the official Oracle Virtual Box download page.
2. Downloaded Oracle Virtual-Box version 7.2.6 for Windows hosts.
3. During installation, the setup required Microsoft Visual C++ 2019 Redistributable package.
4. Downloaded and installed Microsoft Visual C++ 2019.
5. After installing the required dependency, Virtual-Box installation has completed successfully.
6. Verified successful installation by launching Oracle Virtual-Box.

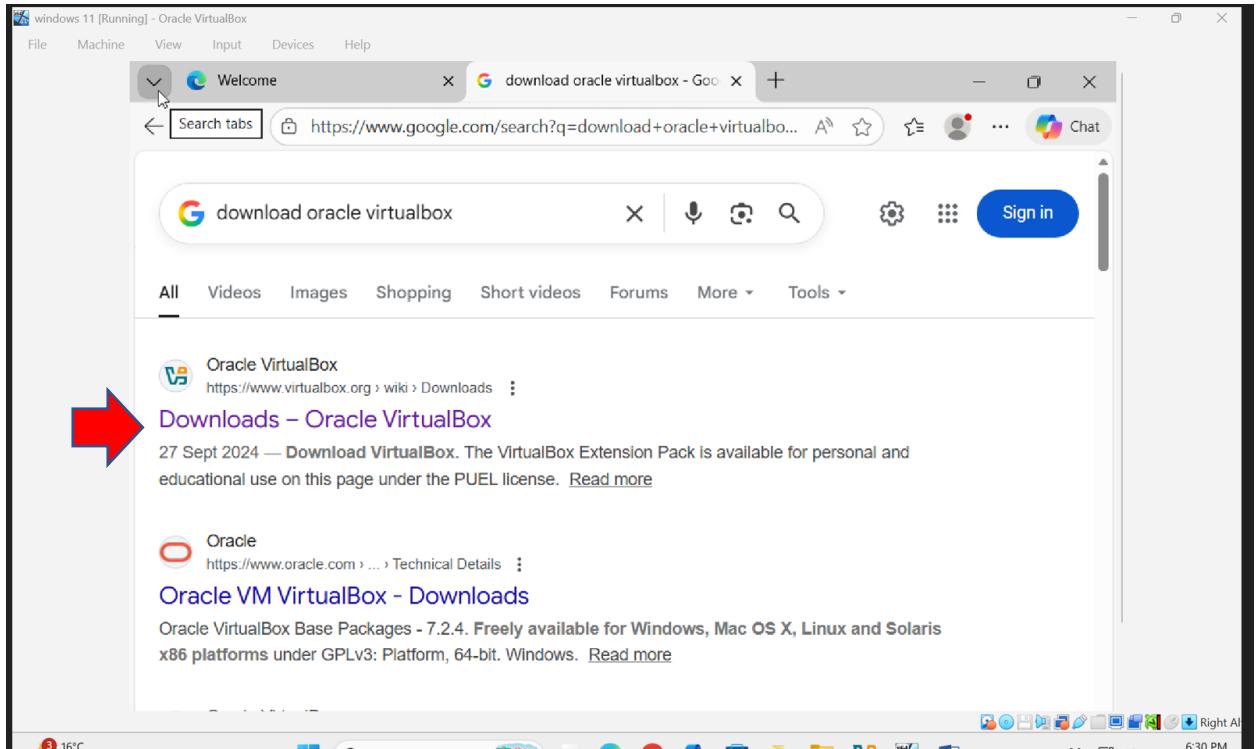
### **Host operating system used**

Windows 11

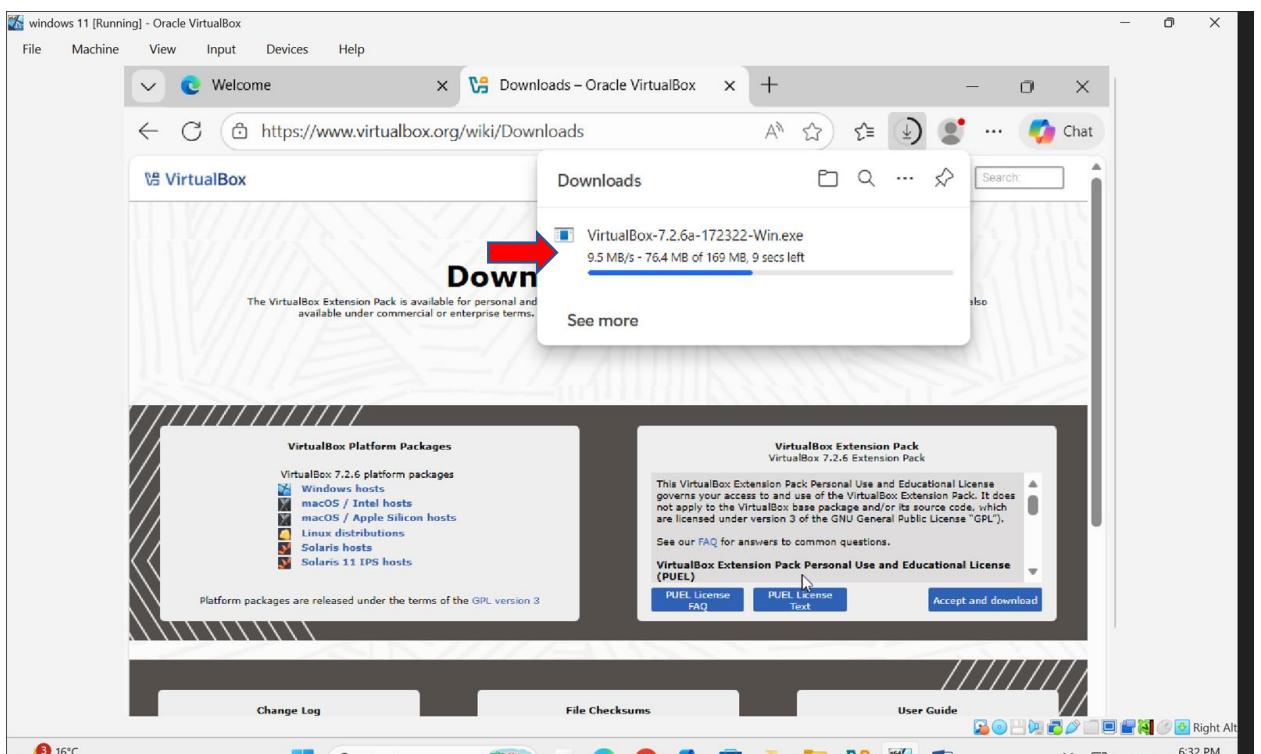
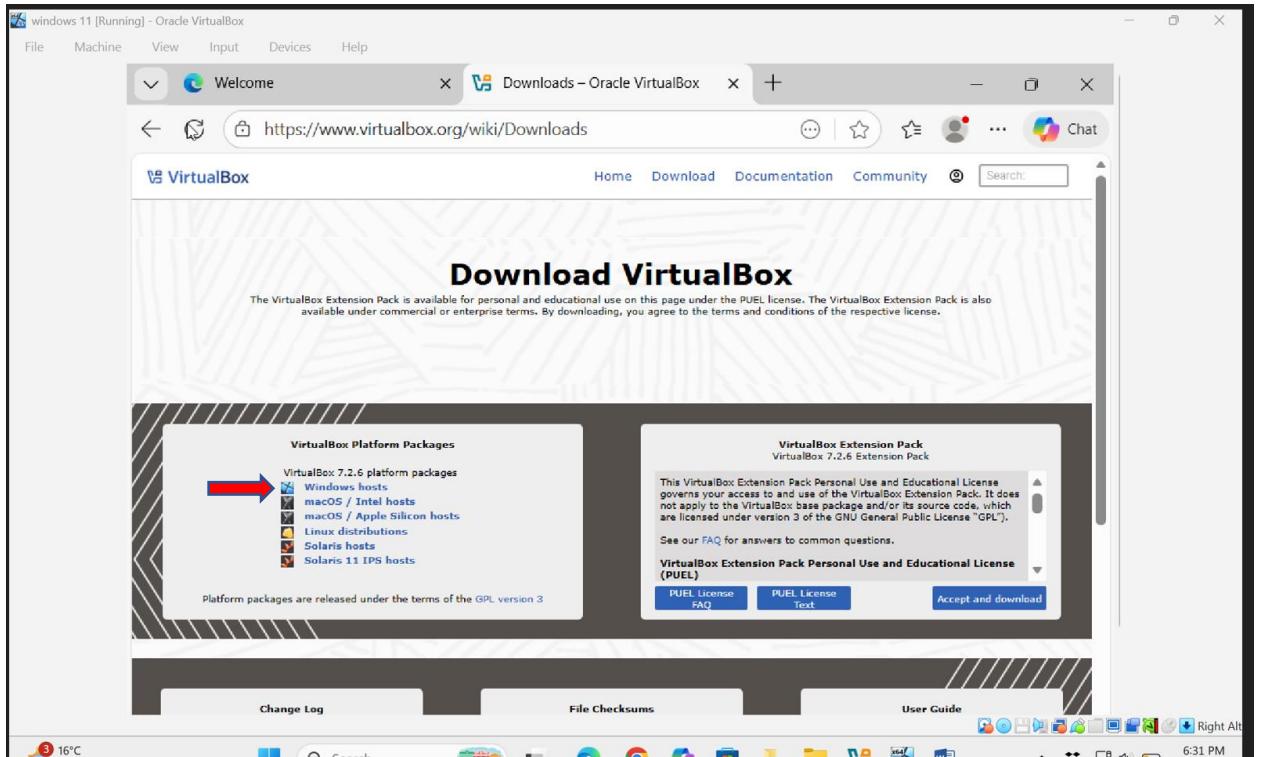
### **Verification**

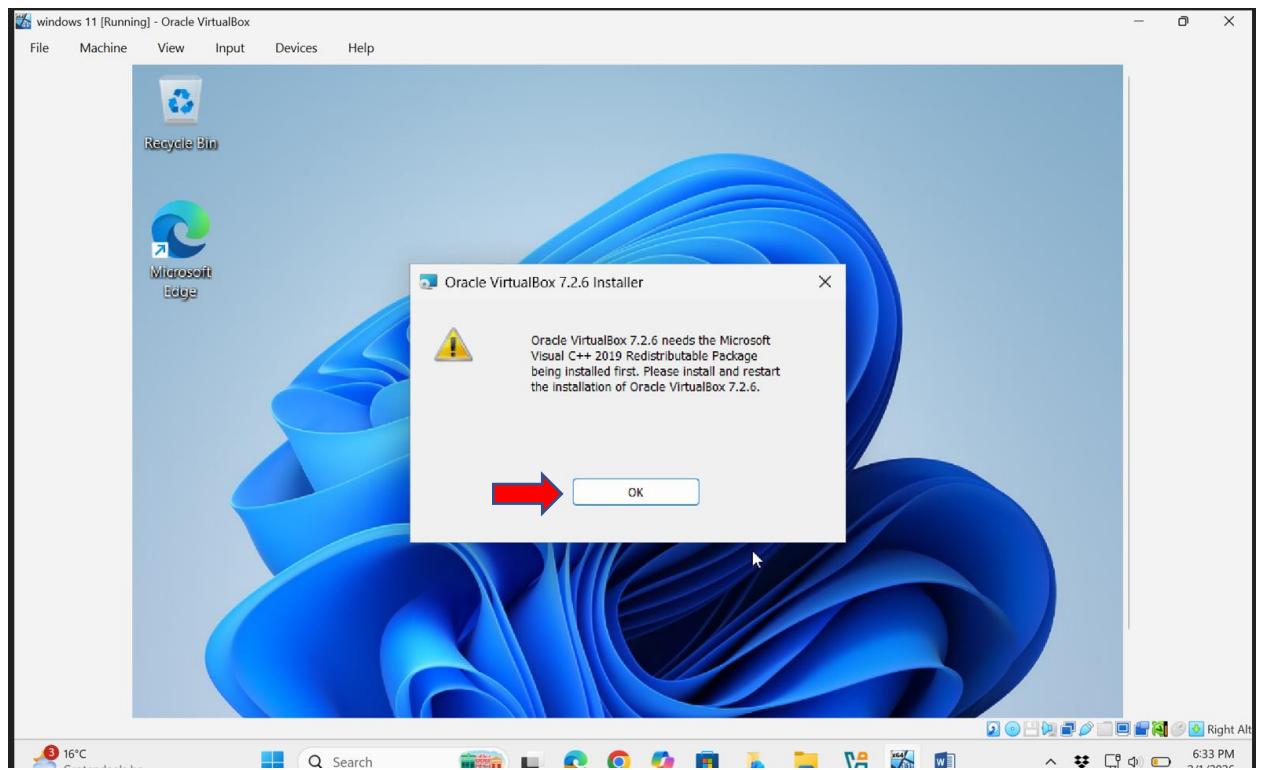
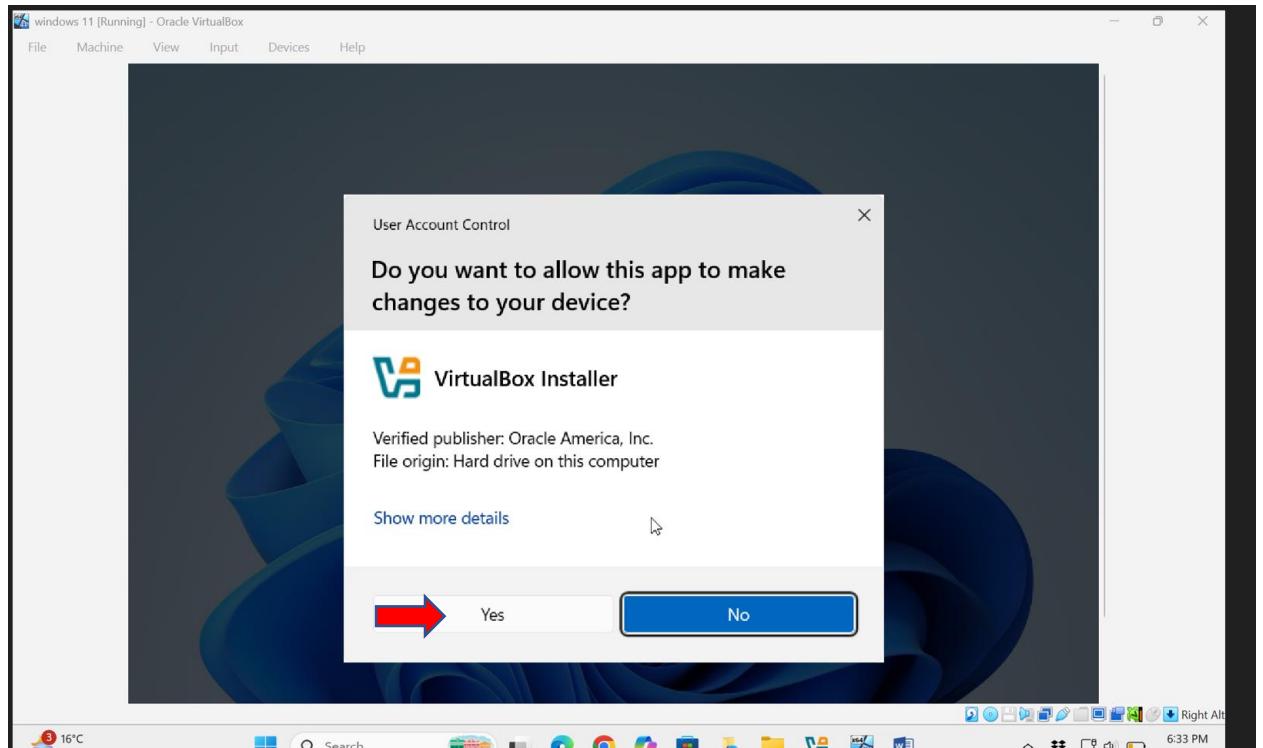
After installation, Virtual-Box has launched and the main dashboard appeared successfully.

## Screenshots of Virtual-Box Installation

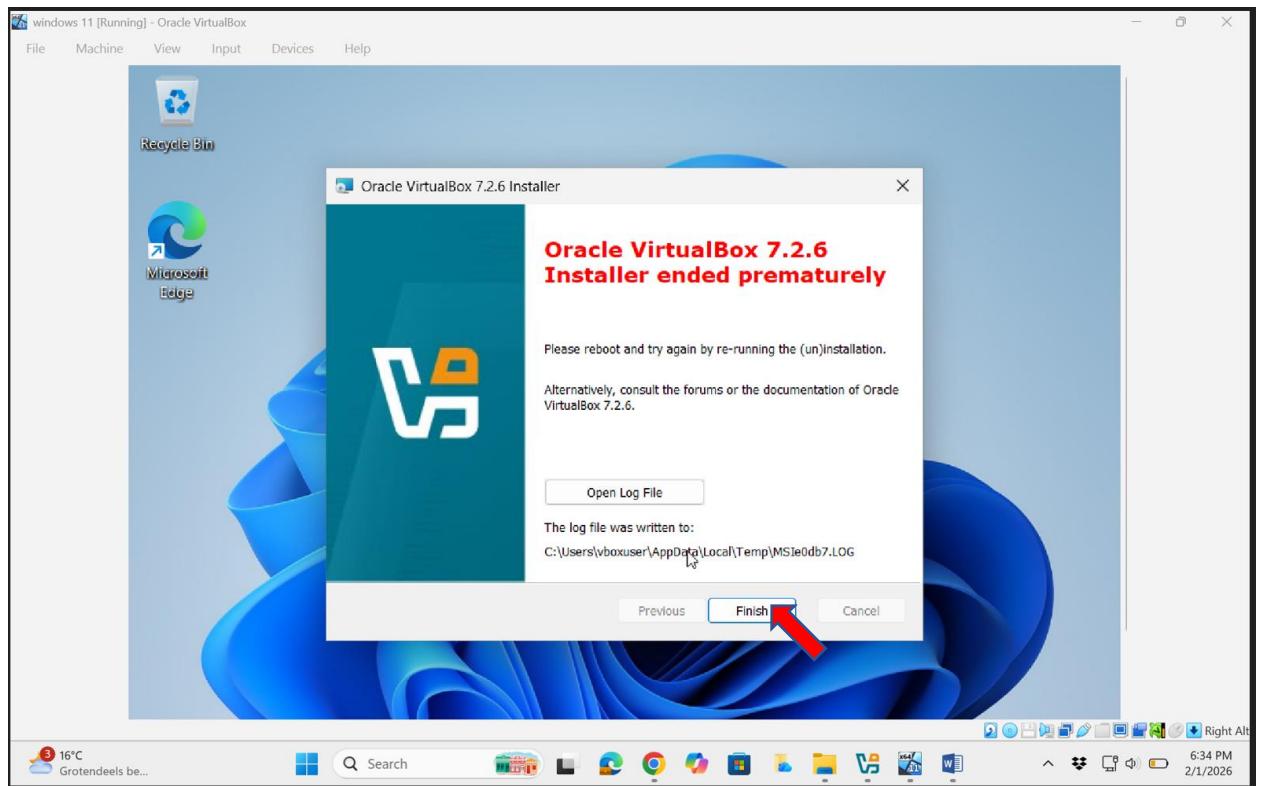


- Choose your operating system

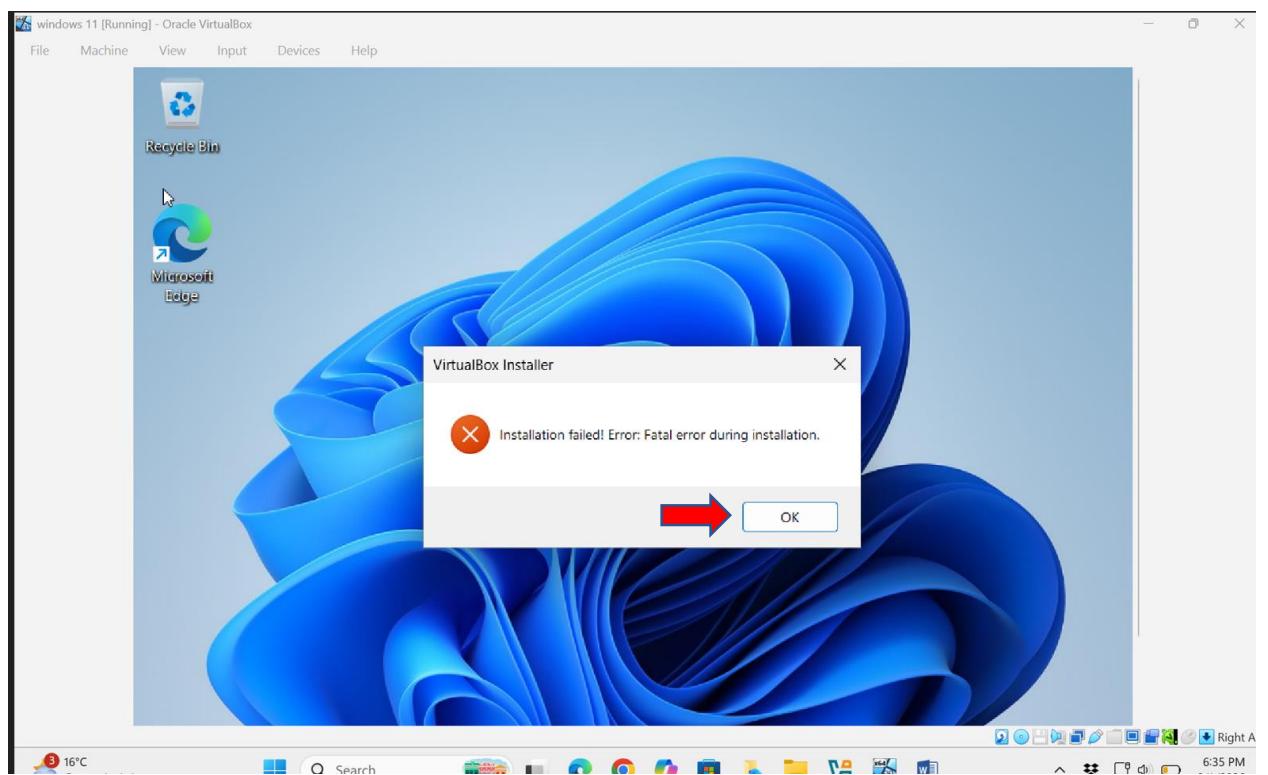




- ✓ Needed Microsoft Visual c++ 2019 to further installation of oracle virtual box



- ✓ Installation failed due to not having Microsoft visual c++2019



✓ Lets download Microsoft visual c++2019

A screenshot of a Microsoft Edge browser window. The address bar shows the URL: <https://www.bing.com/search?qs=MT&pq=download+c%2b%2b&sk...>. The search query 'download c++ 2019' is entered in the search bar. Below the search results, there is a section titled 'Copilot Search'. A red arrow points to a blue link titled 'Latest supported Visual C++ Redistributable downloads'. To the right of the main content area, there is a sidebar with the heading 'How do I do' and some text.

A screenshot of a Microsoft Edge browser window showing the 'Latest supported Visual C++ Redistributable Downloads' page from Microsoft Learn. The URL in the address bar is: <https://learn.microsoft.com/en-us/cpp/windows/latest-supported-vc-redist>. On the left side, there is a sidebar with a dropdown menu set to 'Visual Studio 2022'. A red arrow points to the 'Find by title' dropdown menu item. The main content area displays a table of redistributable versions:

Version	Section
Latest supported v14 (for Visual Studio 2017–2026)	Latest supported Redistributable version
Visual Studio 2015	Visual Studio 2015 (VC++ 14.0)
Visual Studio 2013	Visual Studio 2013 (VC++ 12.0)
Visual Studio 2012	Visual Studio 2012 (VC++ 11.0)
Visual Studio 2010	Visual Studio 2010 (VC++ 10.0)
Visual Studio 2008	Visual Studio 2008 (VC++ 9.0)
Visual Studio 2005	Visual Studio 2005 (VC++ 8.0)

At the bottom of the page, there is a note: 'Redistribution is permitted only for licensed Visual Studio users, as described in the [Visual Studio license terms](#). For details on'

windows 11 [Running] - Oracle VirtualBox

File Machine View Input Devices Help

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https://learn.microsoft.com/en-us/cpp/windows/latest-supported-vc-redist?view=msvc-170

## Latest supported redistributable version

Version

Visual Studio 2022

Find by title

application

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How to audit Visual C++ Runtime version usage

> Deployment examples

Redistribute web client applications

ClickOnce deployment for Microsoft C++ applications

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Architecture Link Notes

Architecture	Link	Notes
ARM64	<a href="https://aka.ms/vc14/vc_redist.arm64.exe">https://aka.ms/vc14/vc_redist.arm64.exe</a>	Permalink for latest supported ARM64 version
X86	<a href="https://aka.ms/vc14/vc_redist.x86.exe">https://aka.ms/vc14/vc_redist.x86.exe</a>	Permalink for latest supported x86 version
X64	<a href="https://aka.ms/vc14/vc_redist.x64.exe">https://aka.ms/vc14/vc_redist.x64.exe</a>	Permalink for latest supported x64 version. The X64

Right Alt

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https://learn.microsoft.com/en-us/cpp/windows/latest-supported-vc-redist?view=msvc-170

## Latest supported redistributable version

Version

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X86

VC\_redist.x64.exe Open file

X64

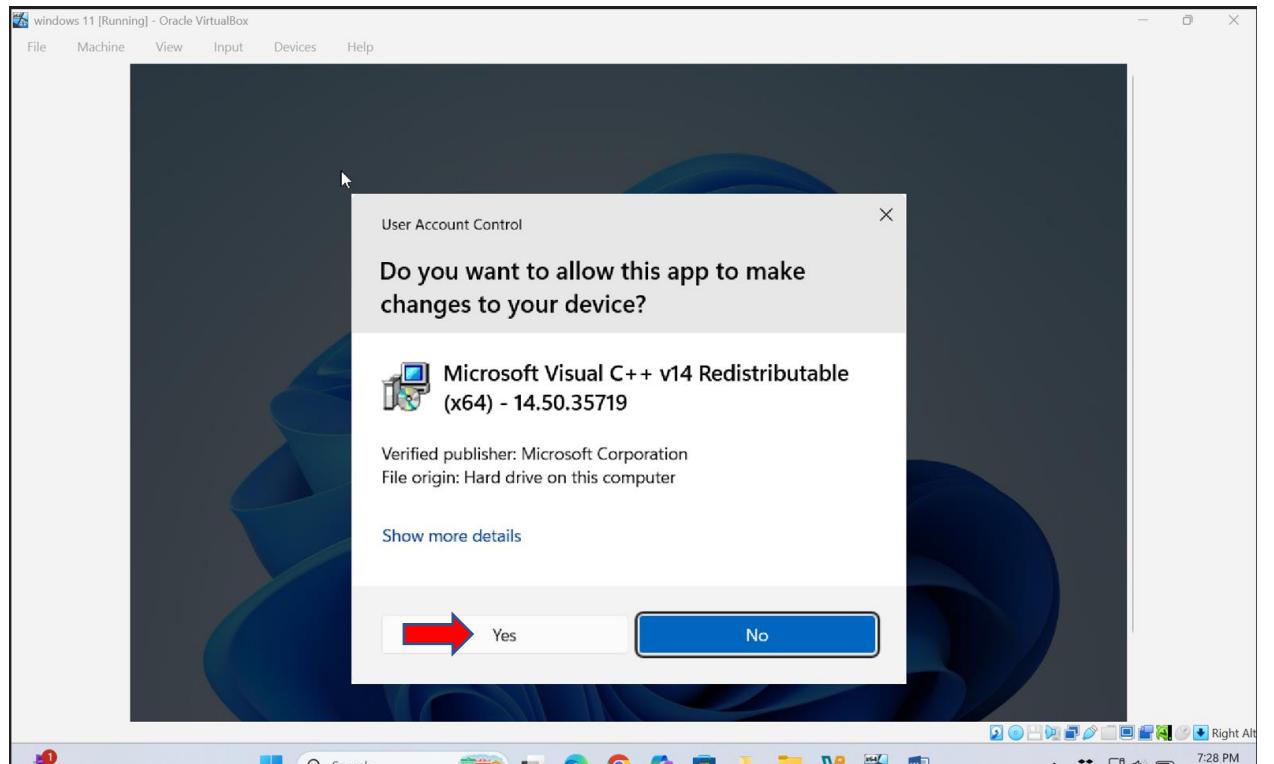
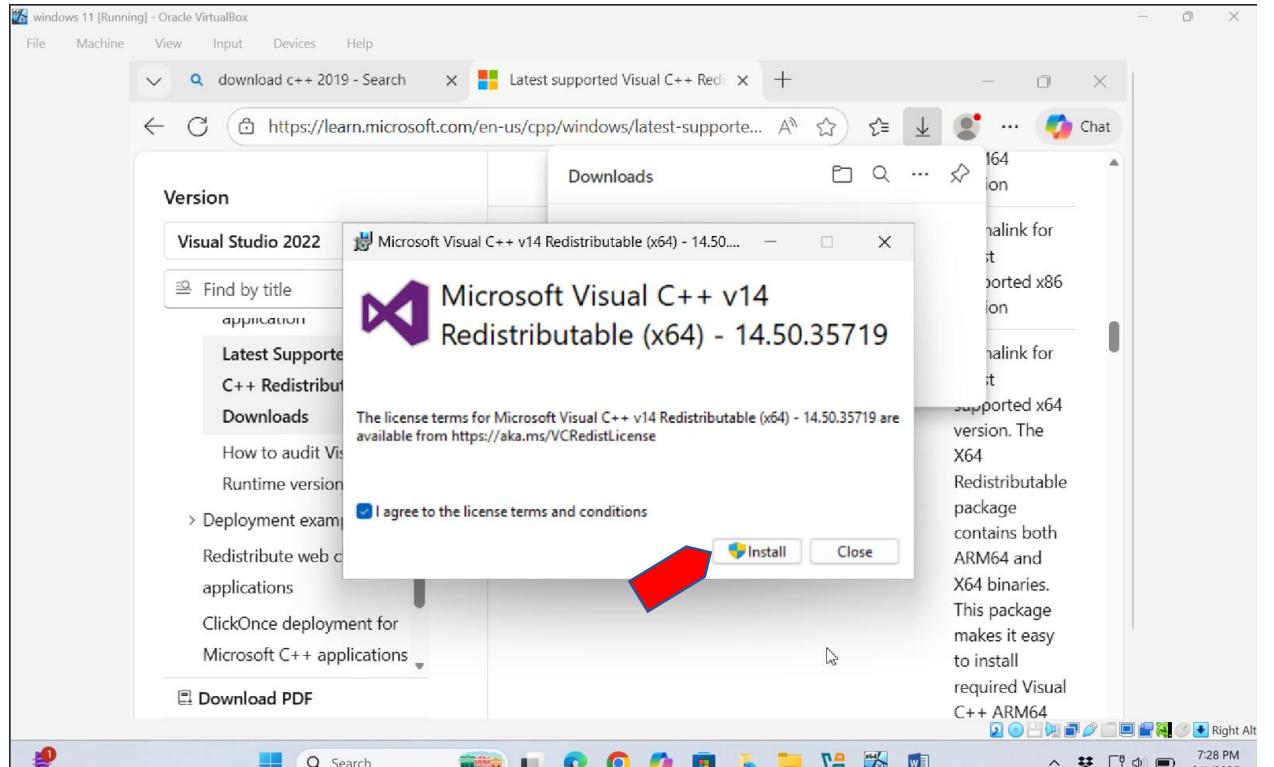
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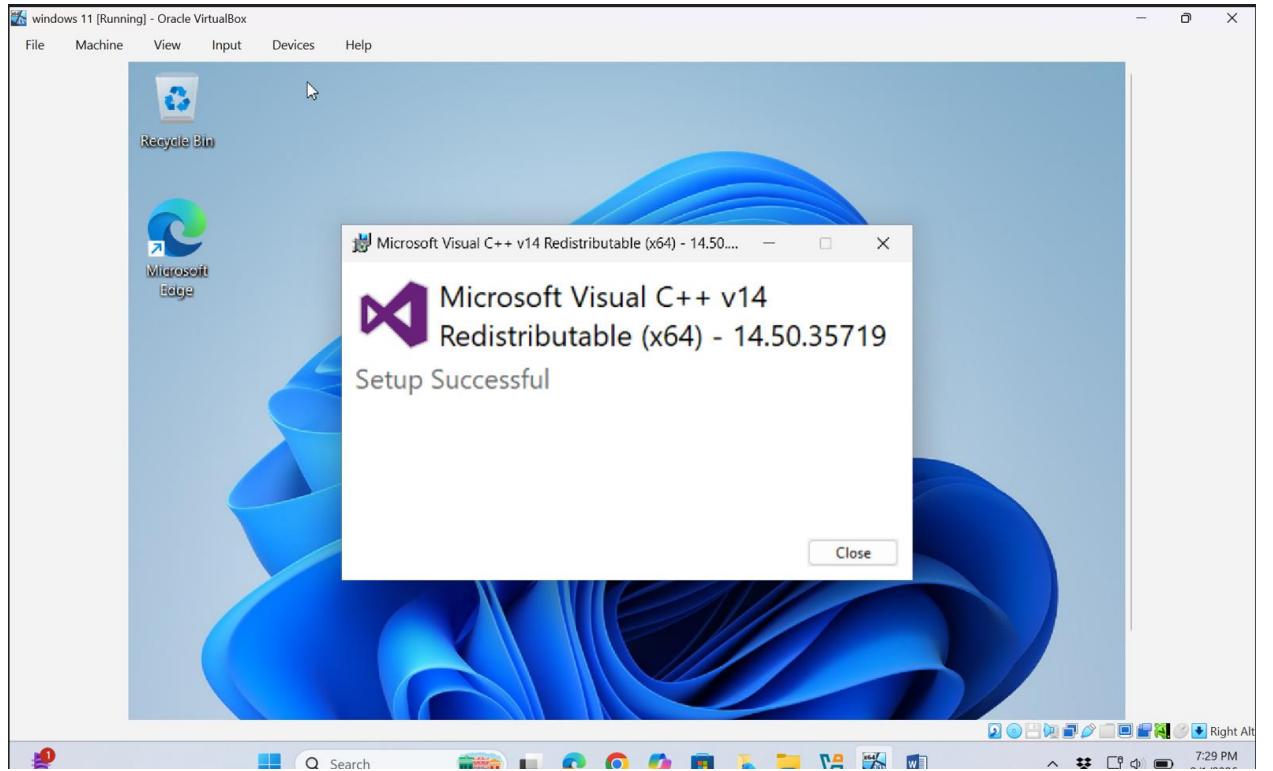
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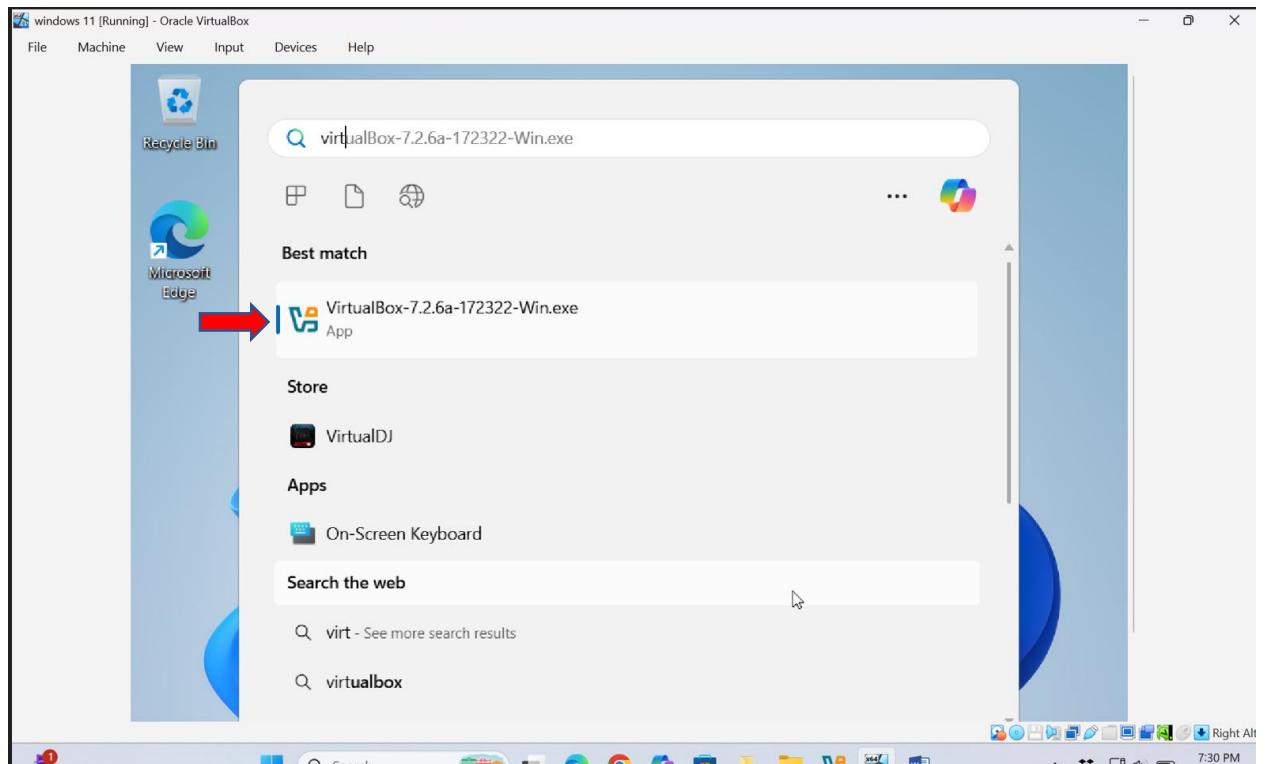
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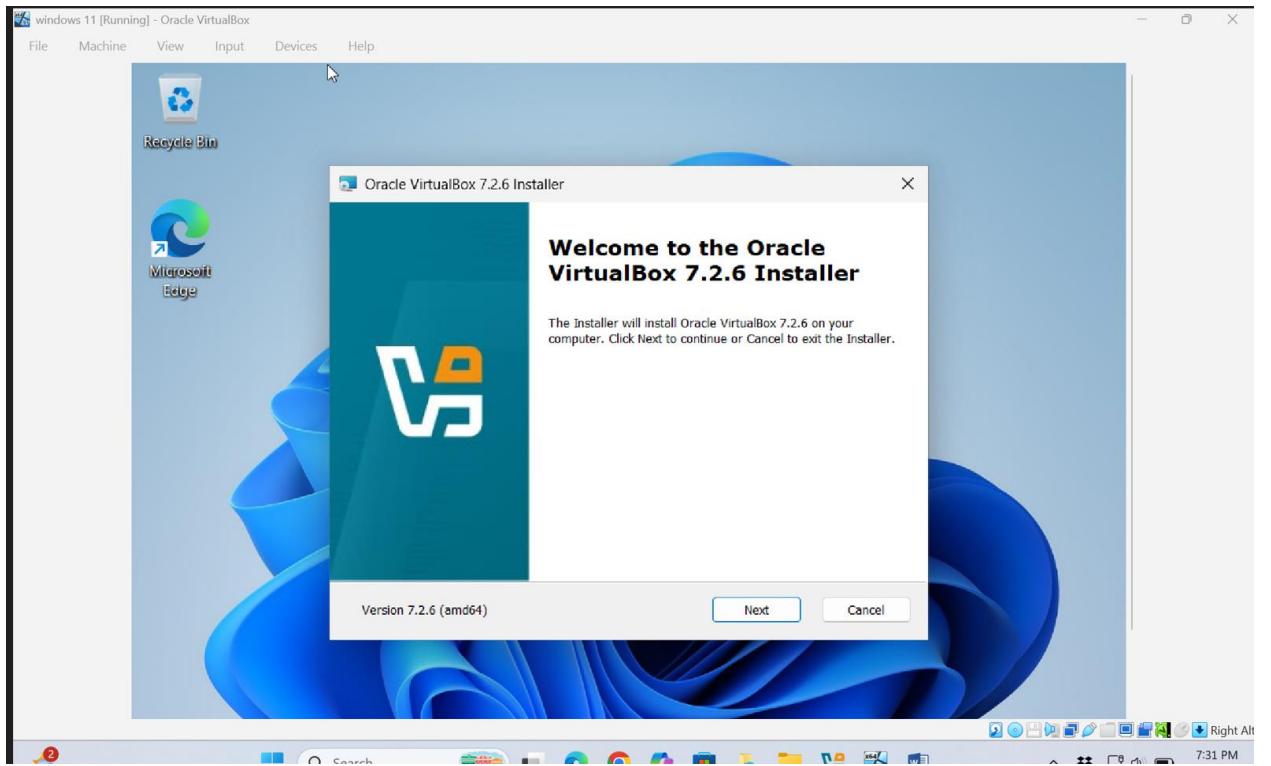
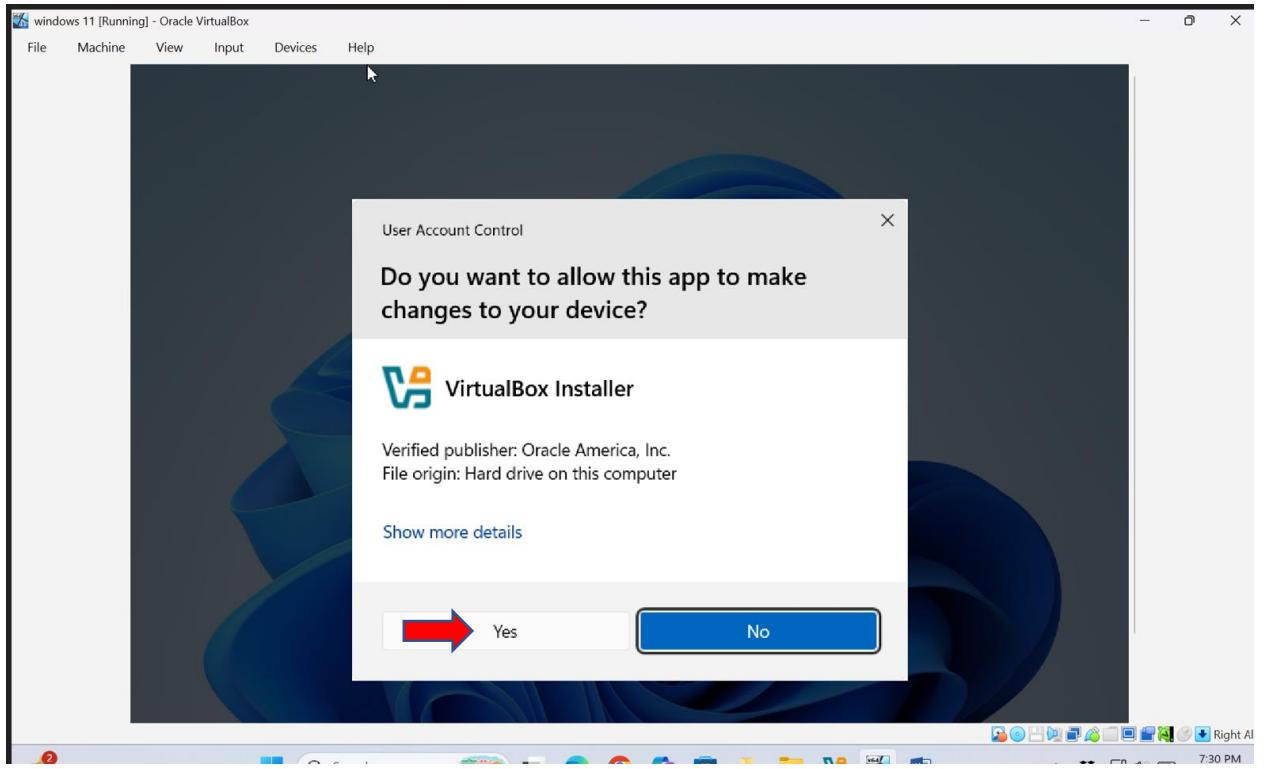
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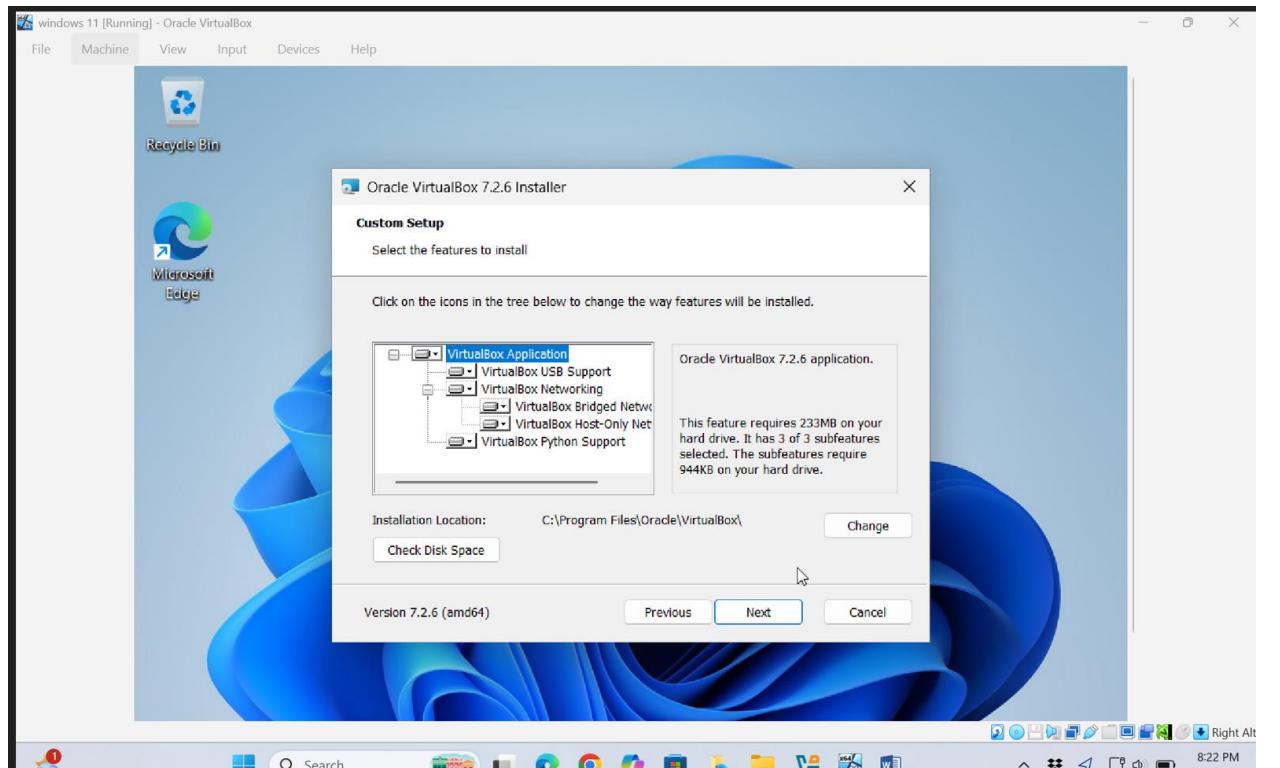
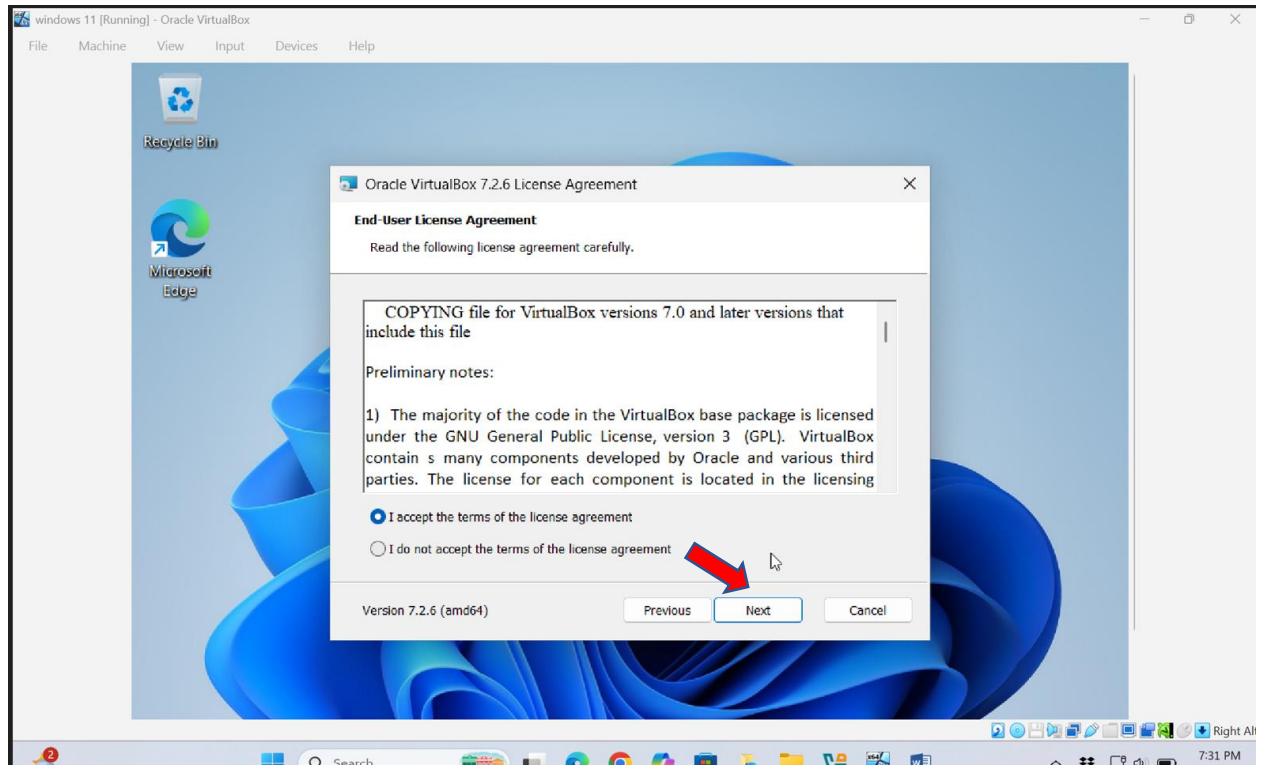


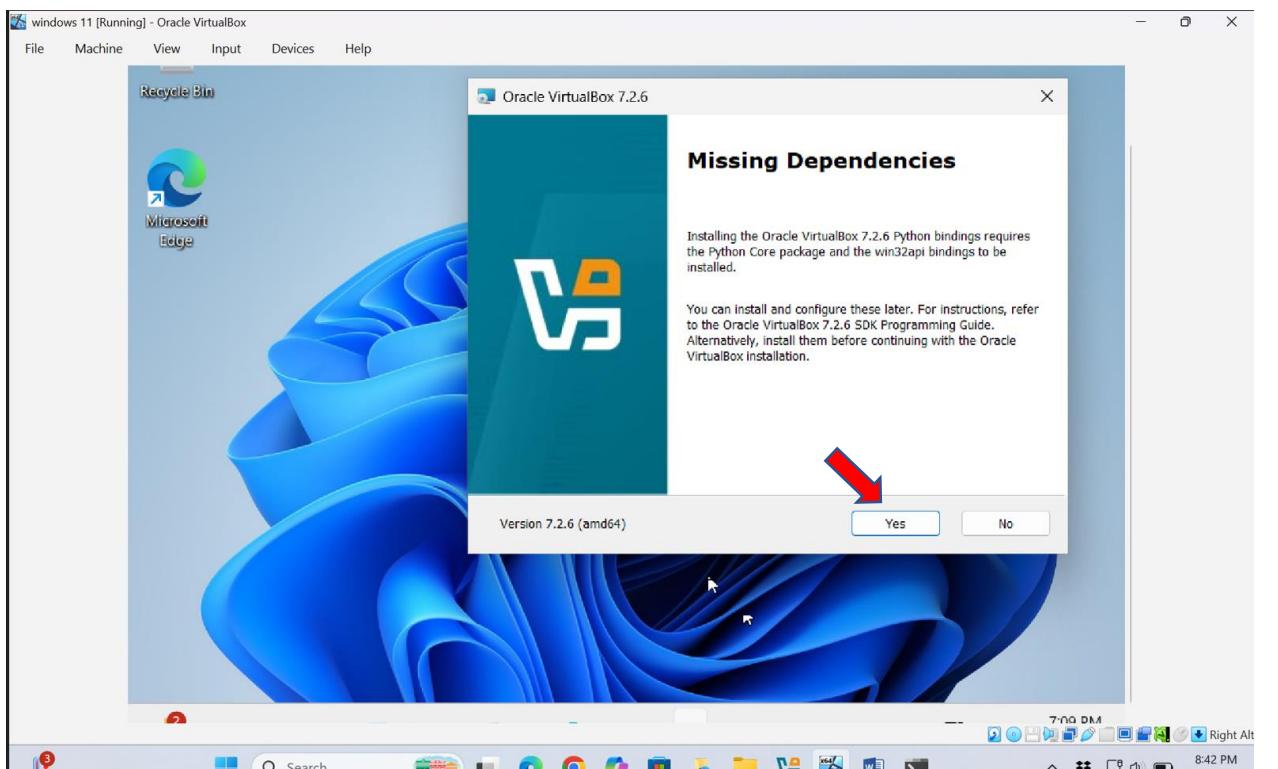
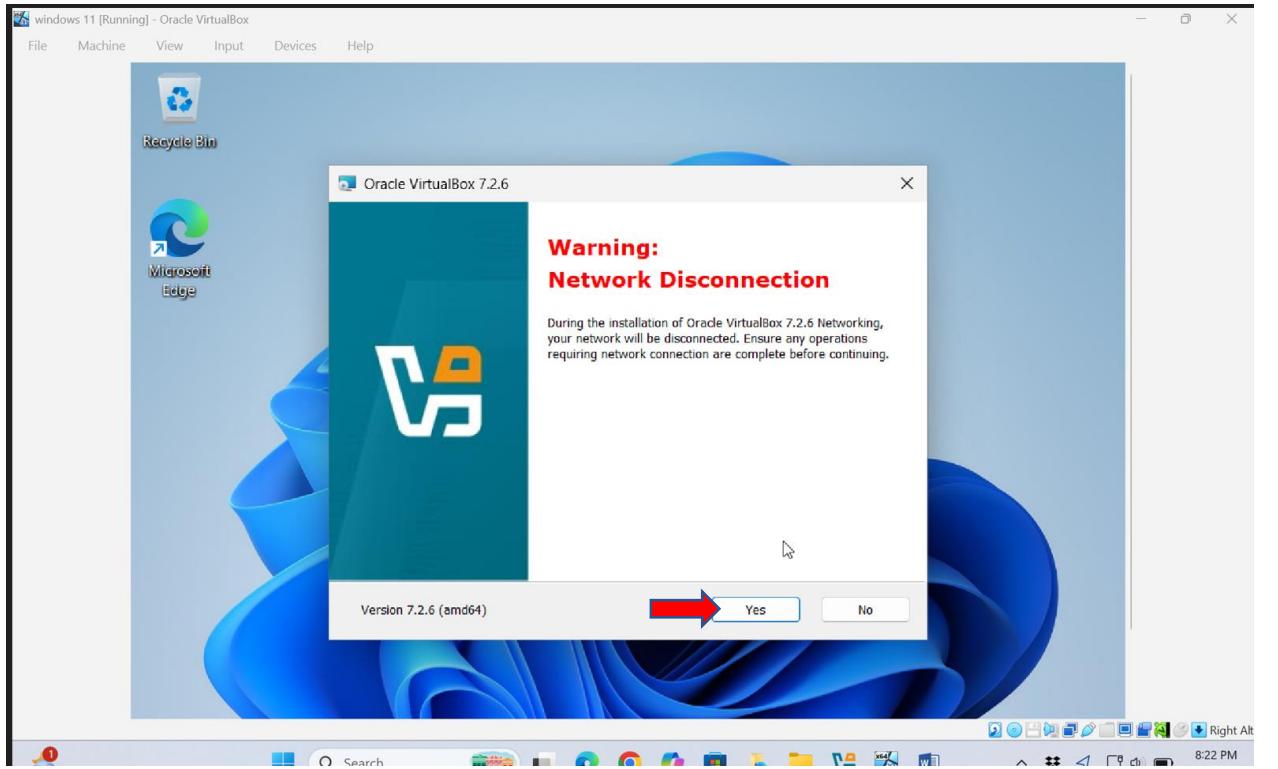


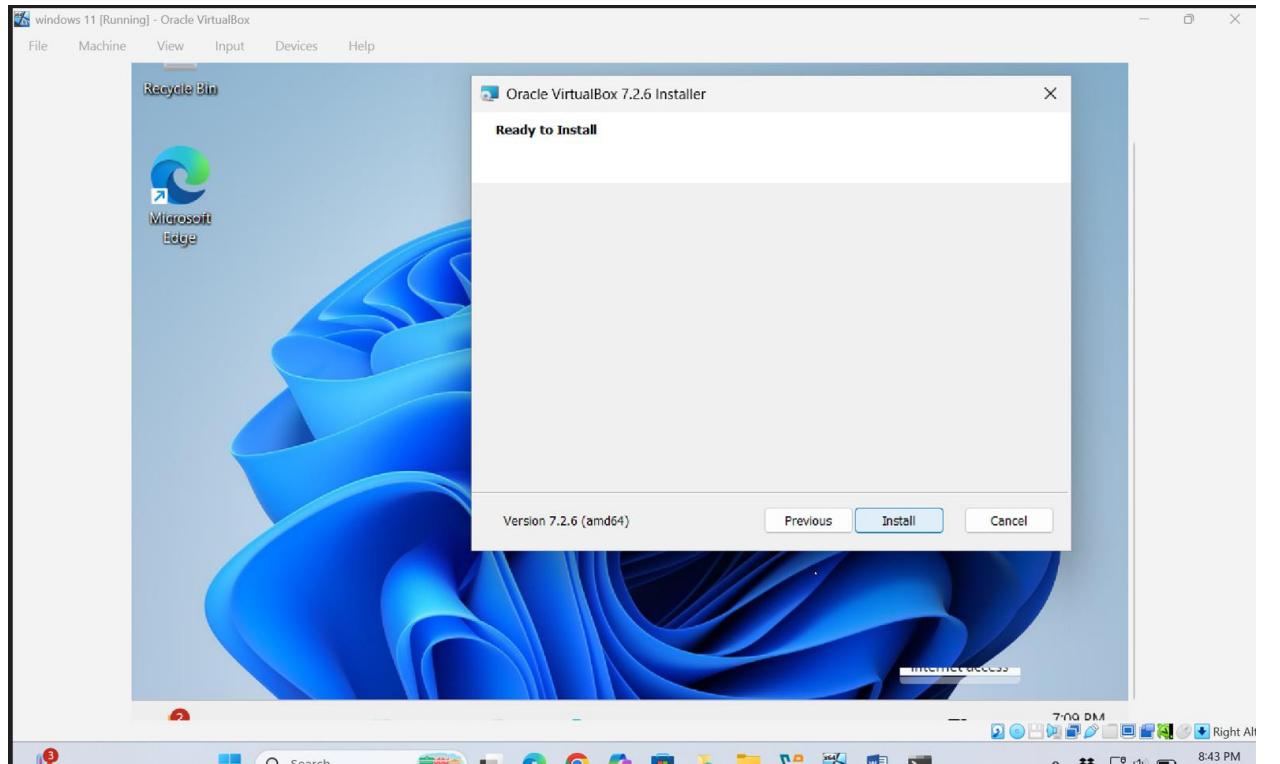
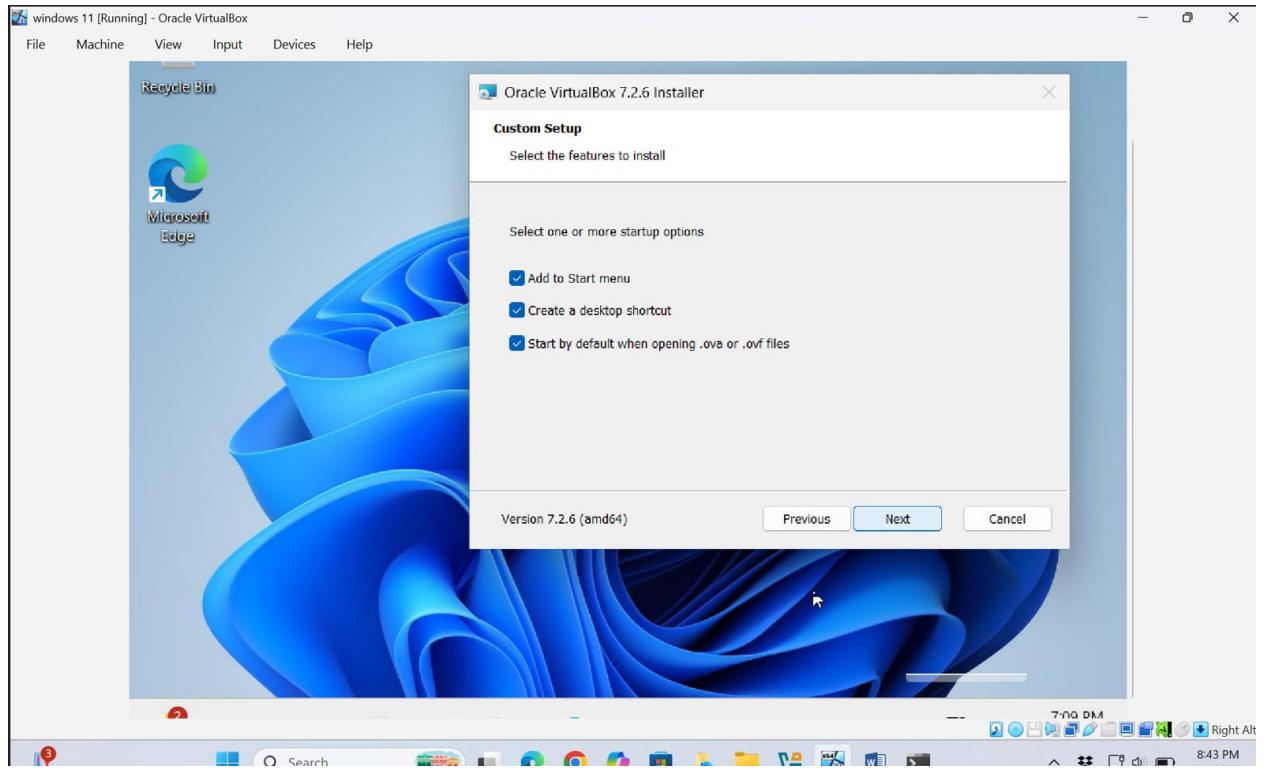
- ✓ Now after successful installation of Microsoft visual C++, lets proceed to install oracle virtual-box

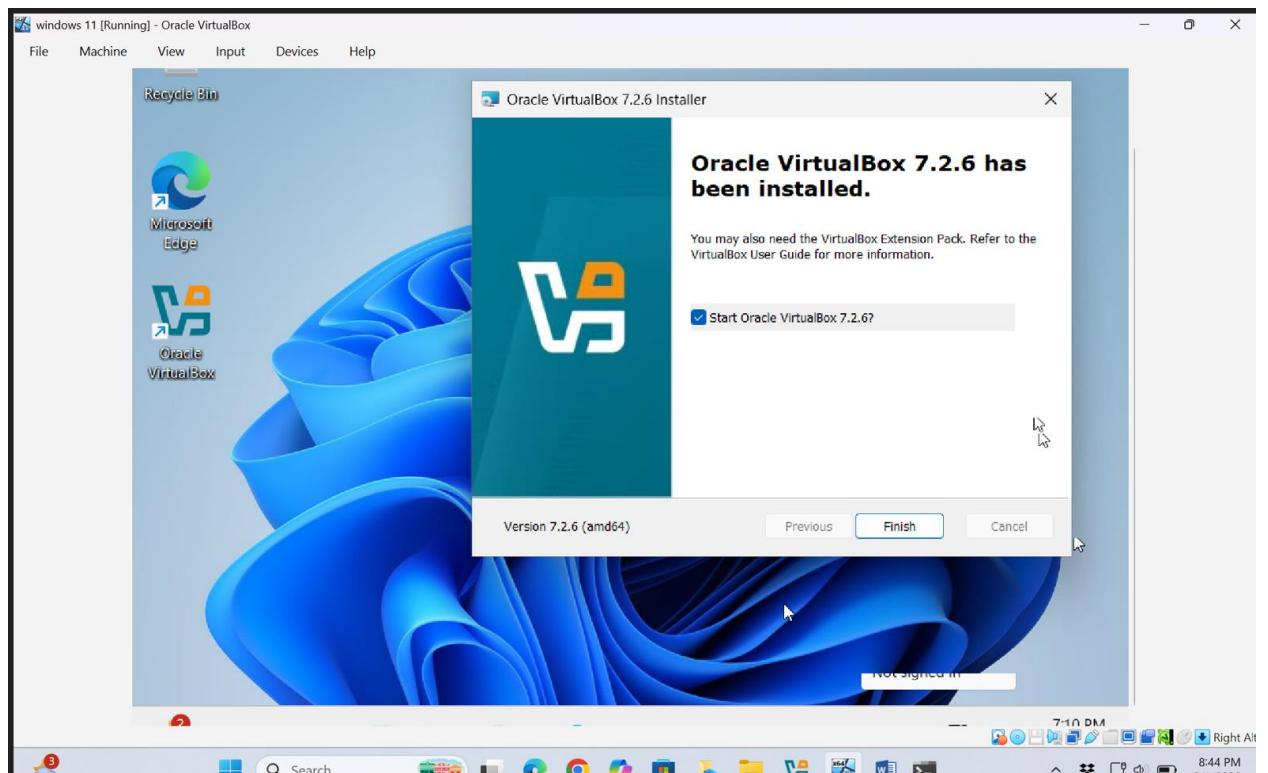
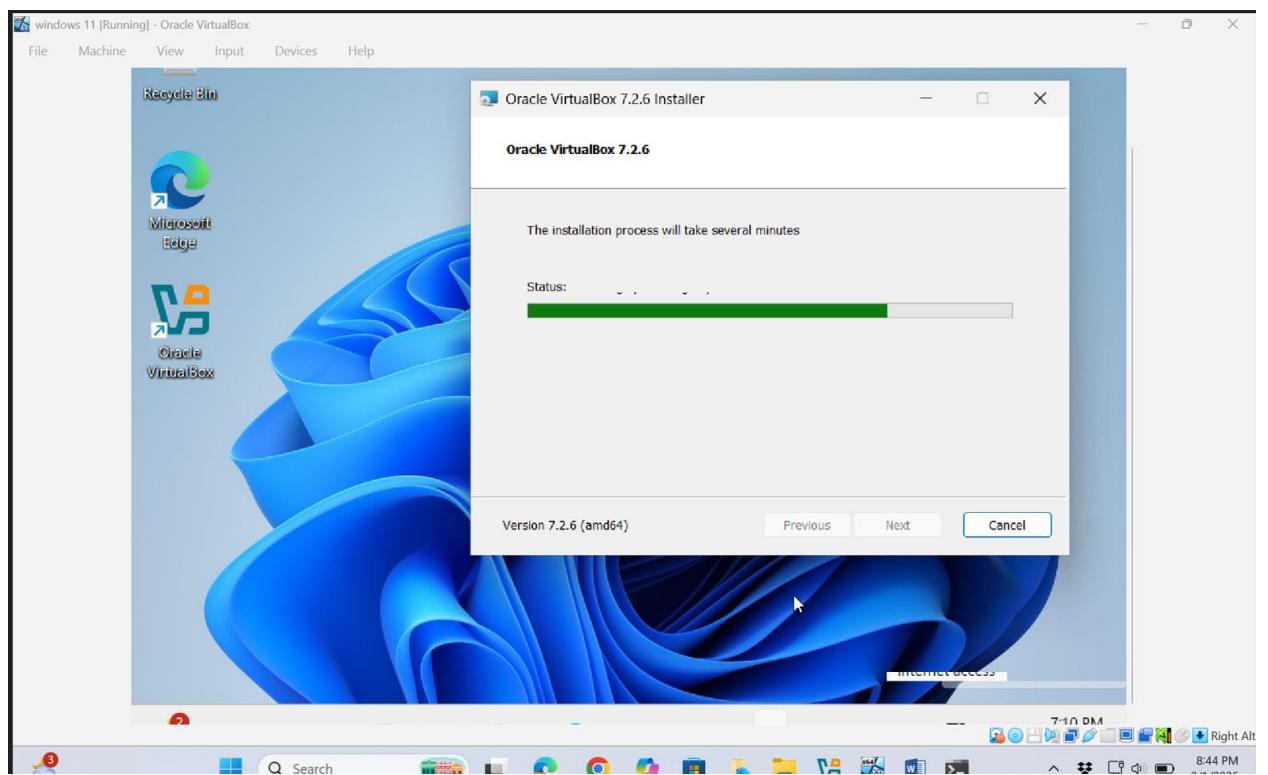


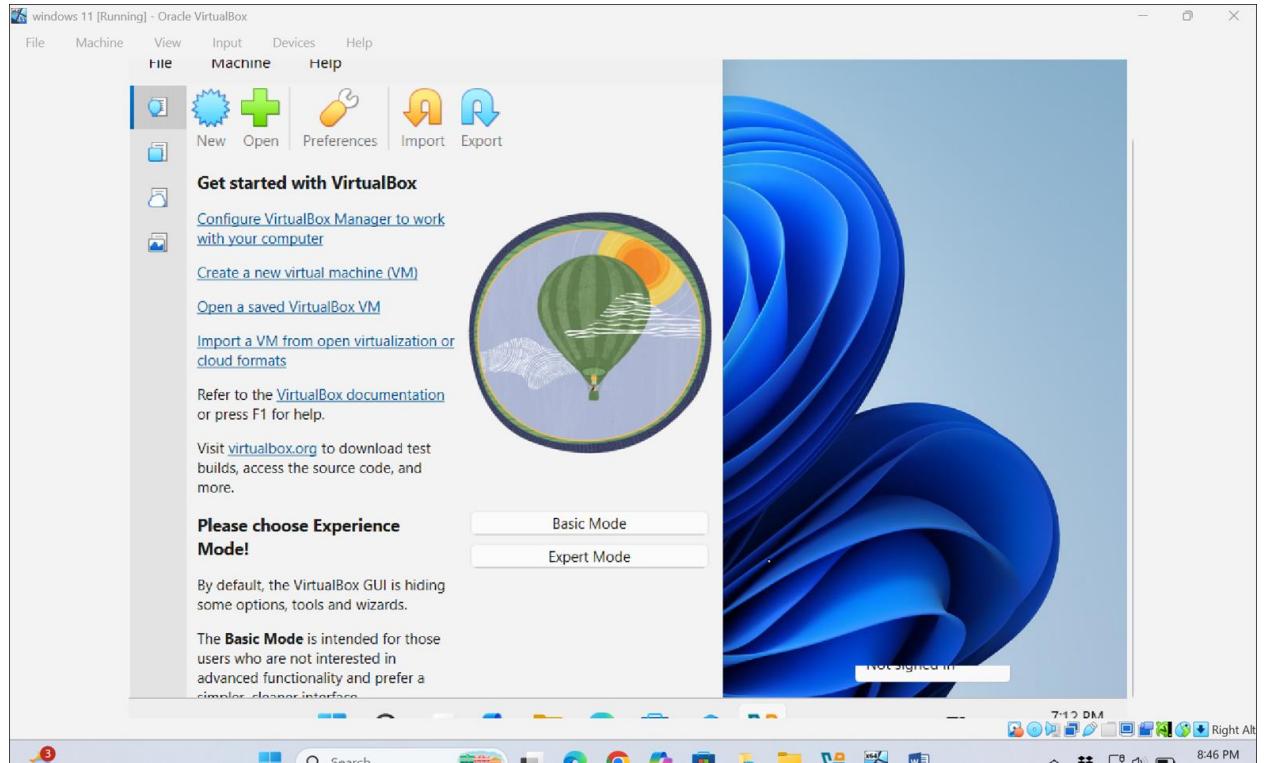




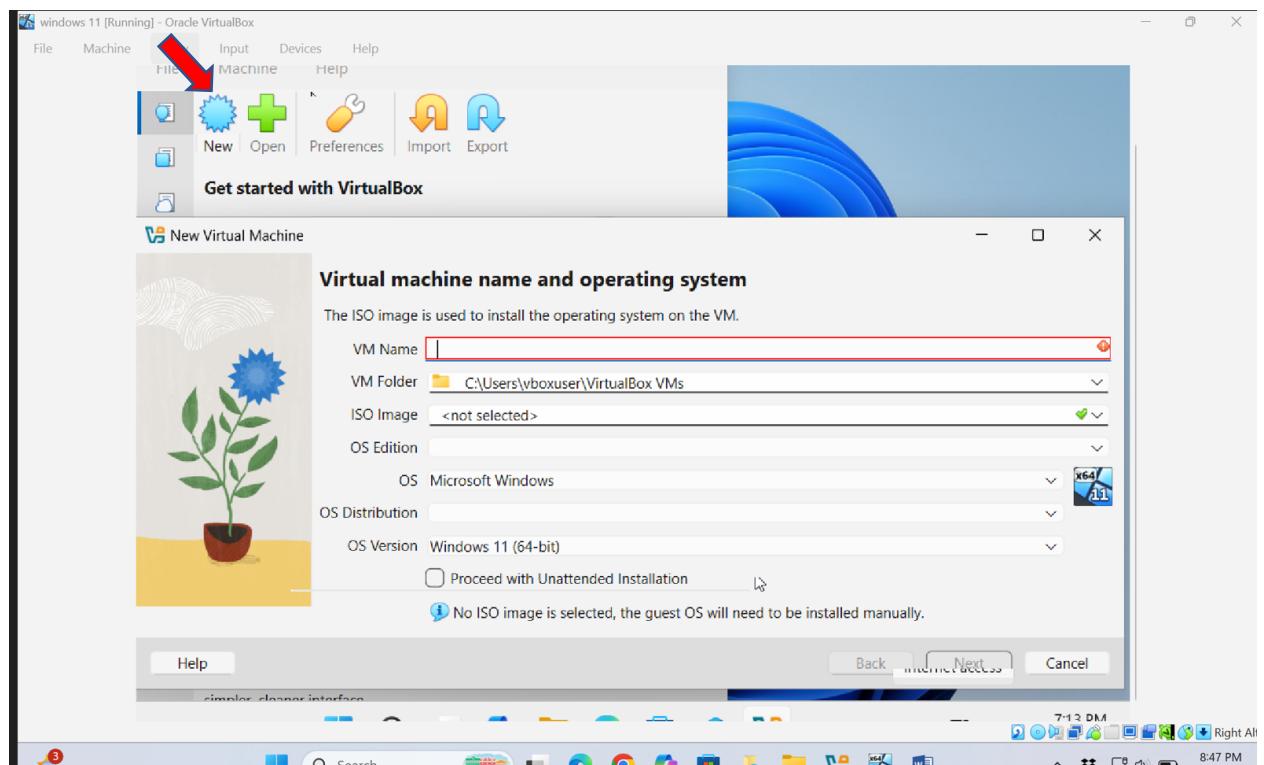








Successful installation of Virtual-Box, now clicking New option to add Virtual Operating System.



## **TASK 2: VM SETUP – ROCKY SERVER AND UBUNTU CLIENT**

### **Objective**

To create and configure two virtual machines: one running Rocky Linux (Server) and another running Ubuntu Linux (Client).

### **Rocky Linux Server Setup**

1. Clicked on “New” in Virtual-Box.
2. Created a virtual machine named “Rocky-Server”.
3. Allocated hardware resources:
  - o RAM: 4096 MB
  - o CPU: 2 cores
  - o Disk: 40 GB dynamically allocated
4. Attached Rocky Linux ISO file and installed the operating system.
5. Created user account during installation.

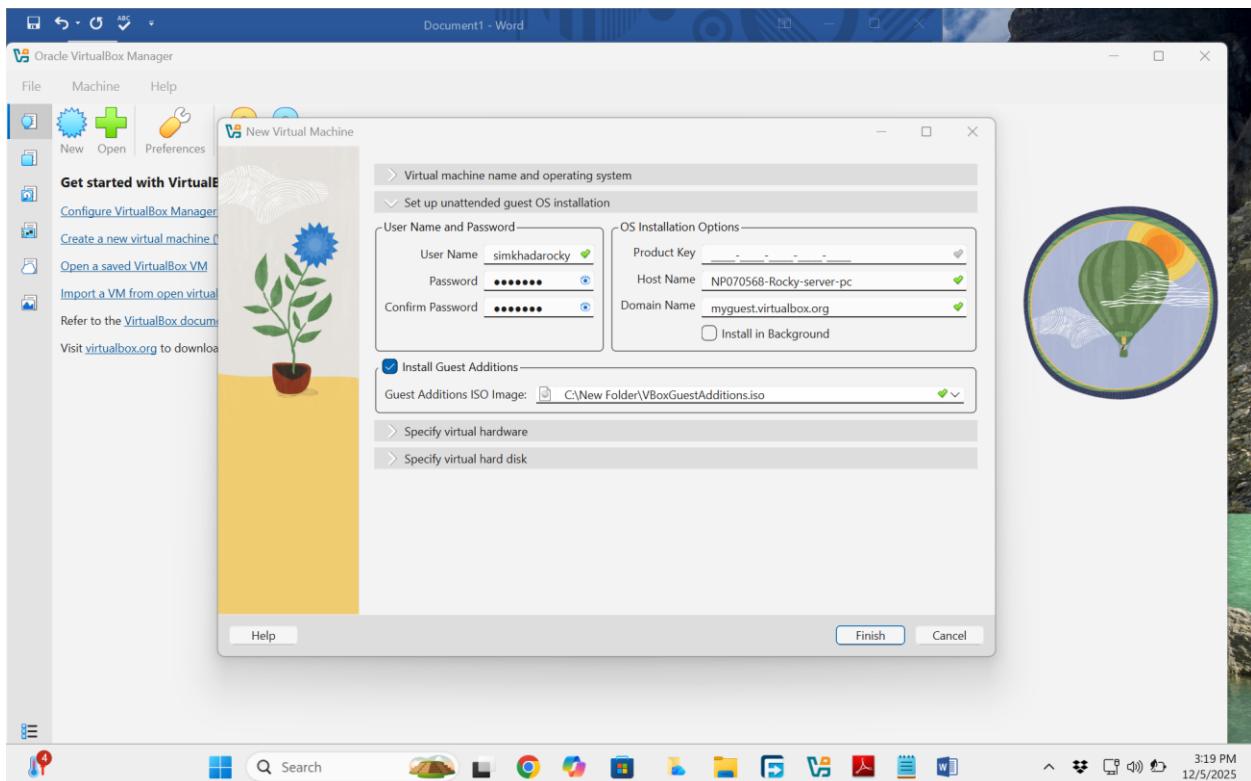
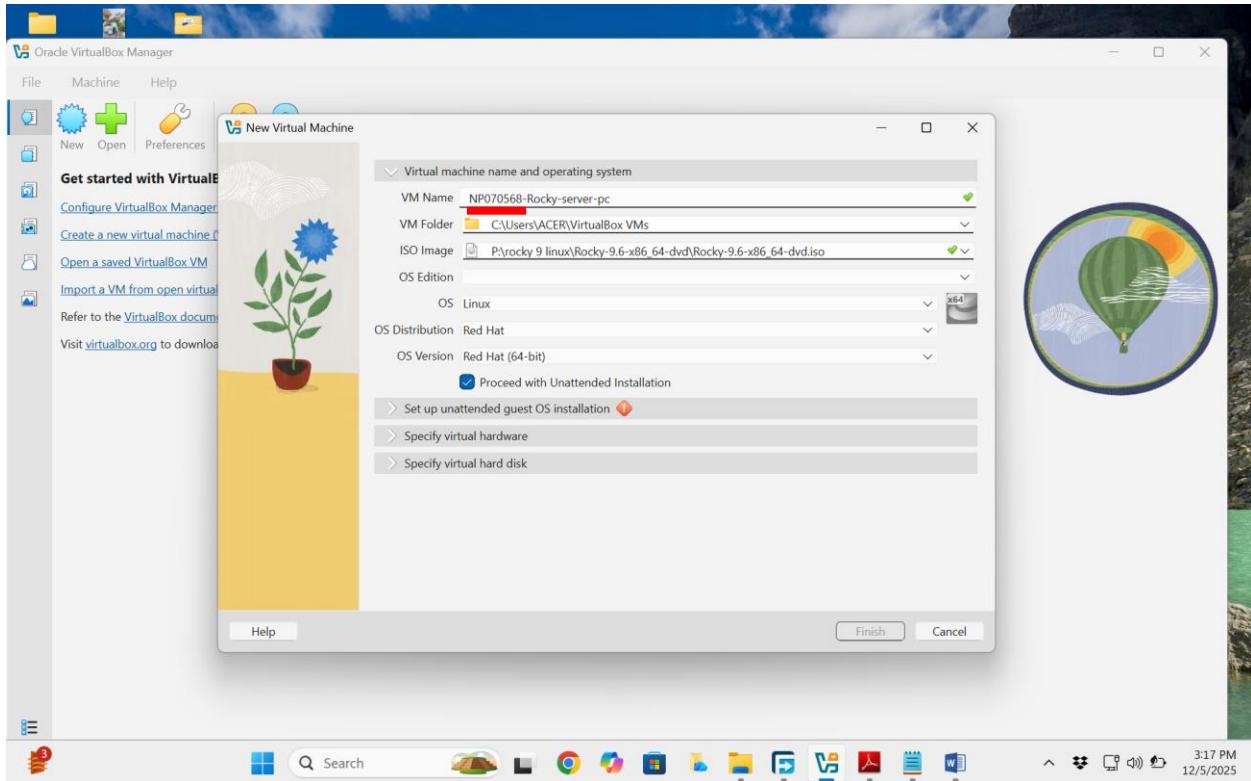
### **Ubuntu Client Setup**

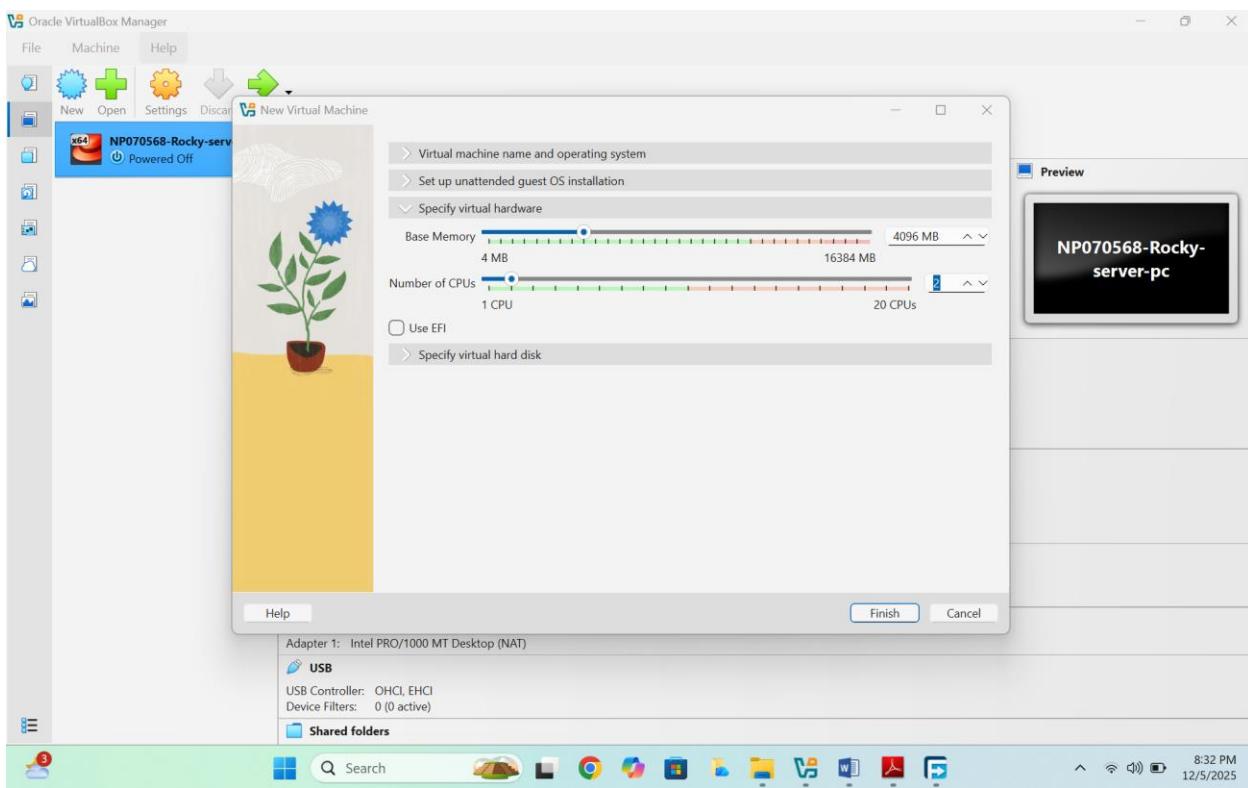
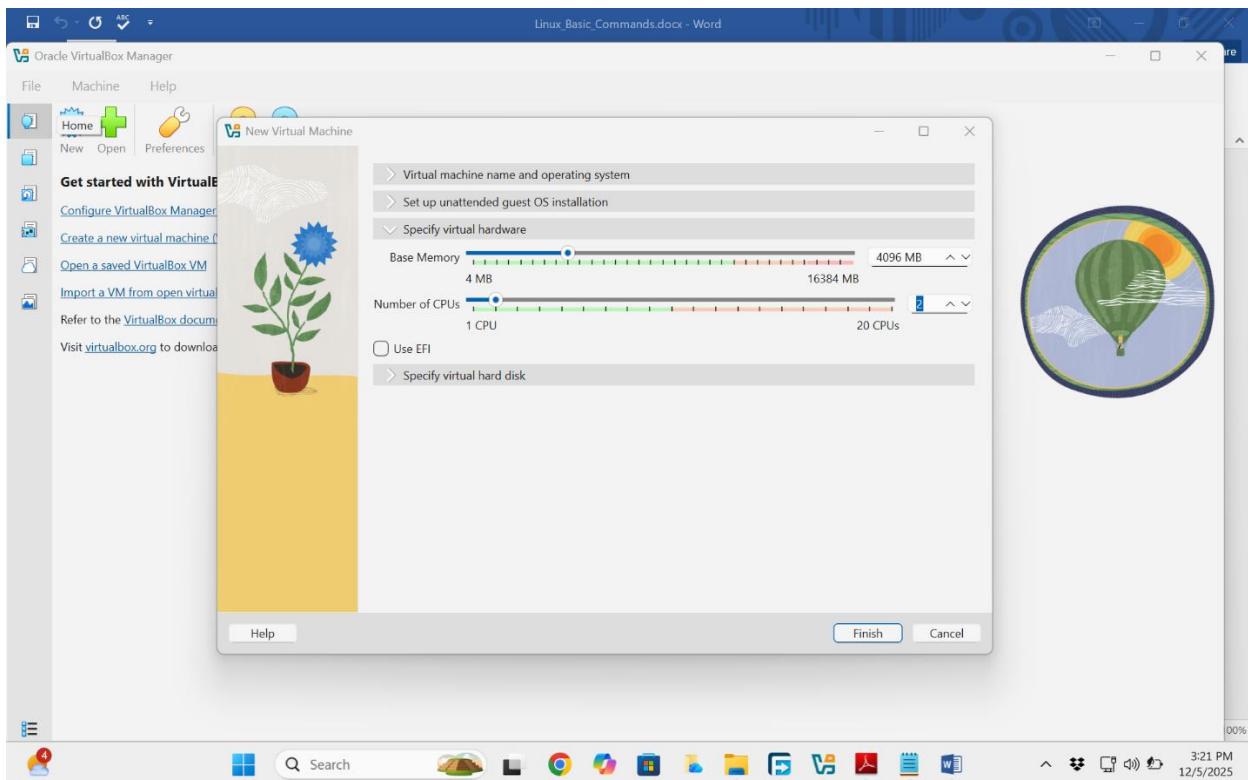
1. Created another virtual machine named “UbuntuClient”.
2. Allocated resources:
  - o RAM: 4096 MB
  - o CPU: 2 cores
  - o Disk: 40 GB
3. Installed Ubuntu Desktop operating system.
4. Changed user password and granted administrative privileges using the “visudo” command.

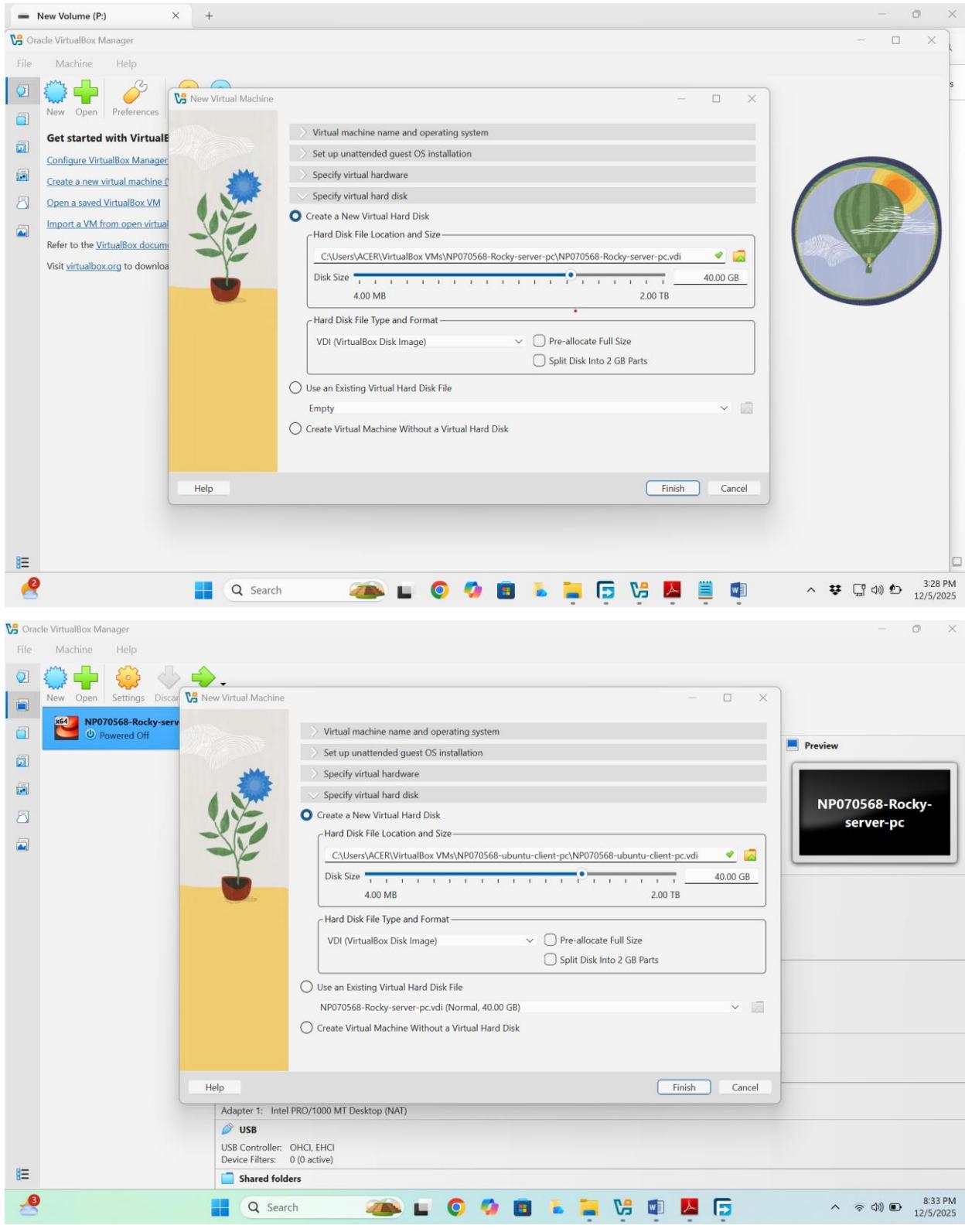
### **Verification**

Both virtual machines booted successfully and login screens were verified.

## VM Settings and Installation Screenshots of Rocky Server







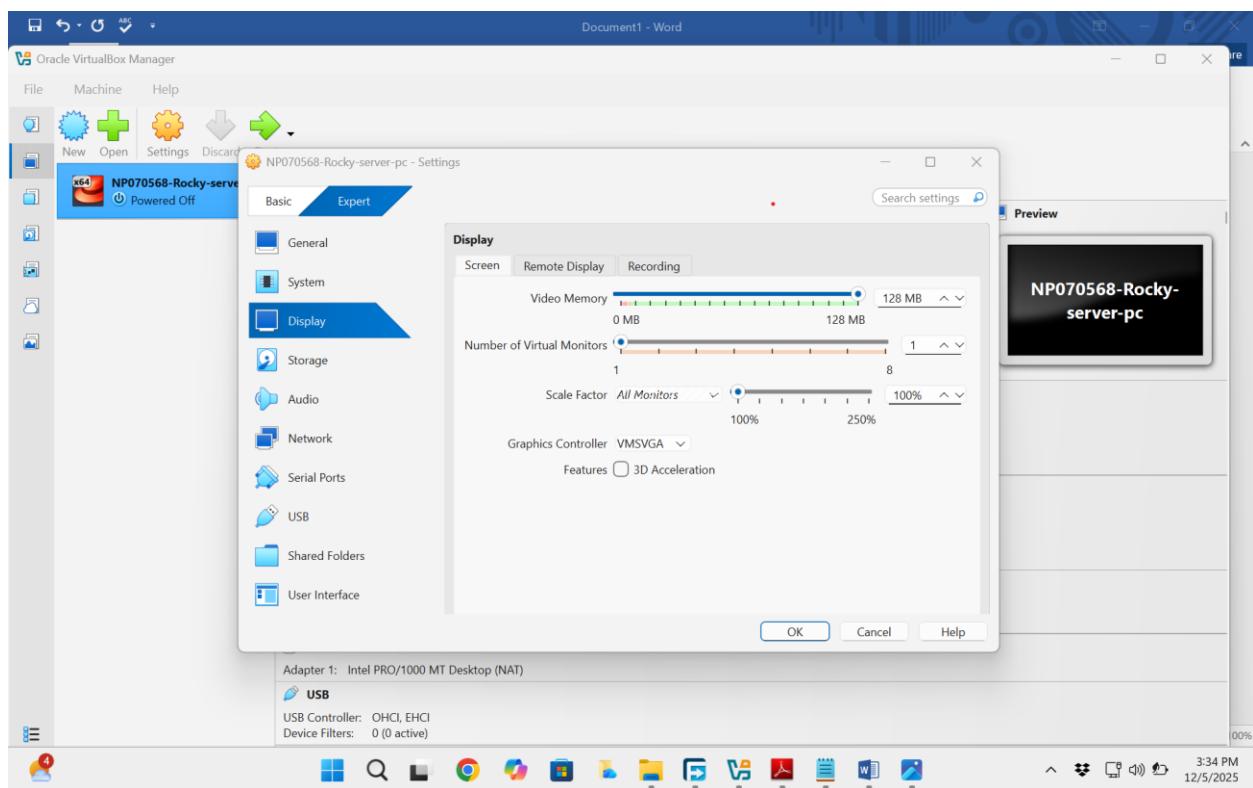
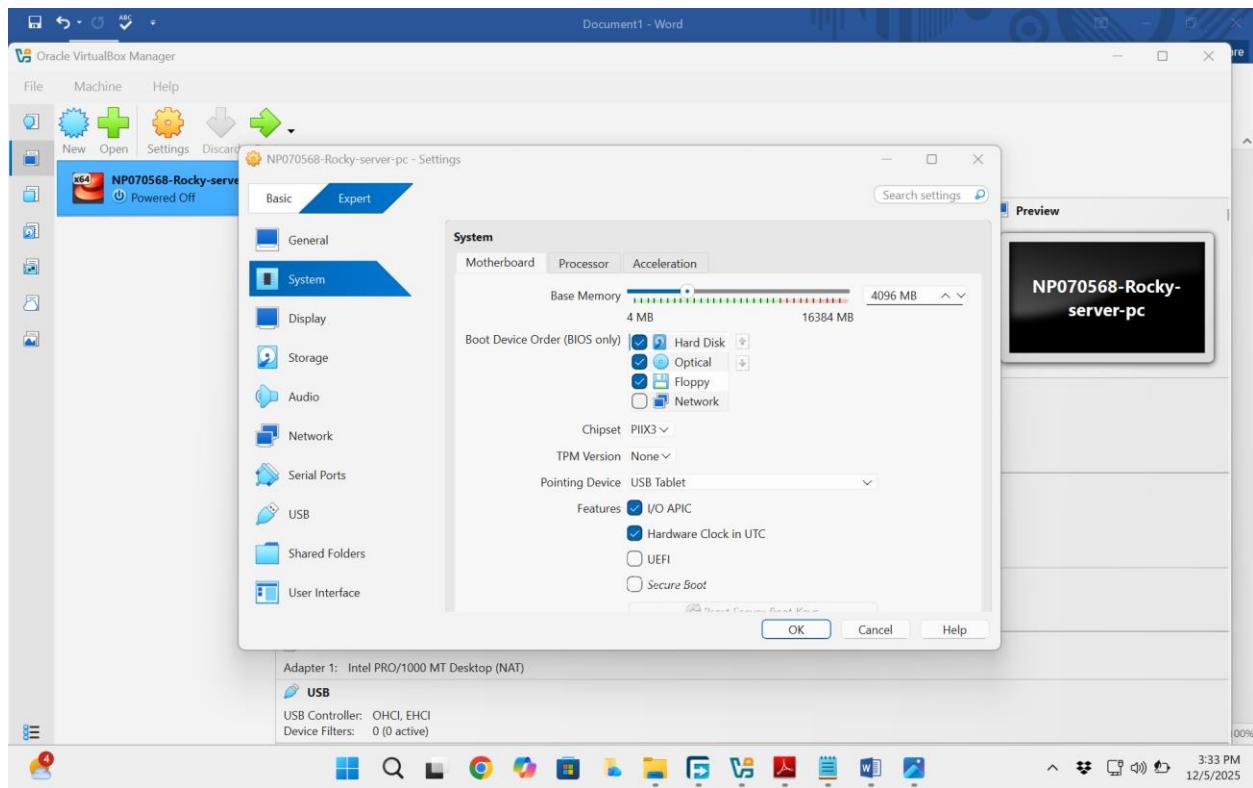
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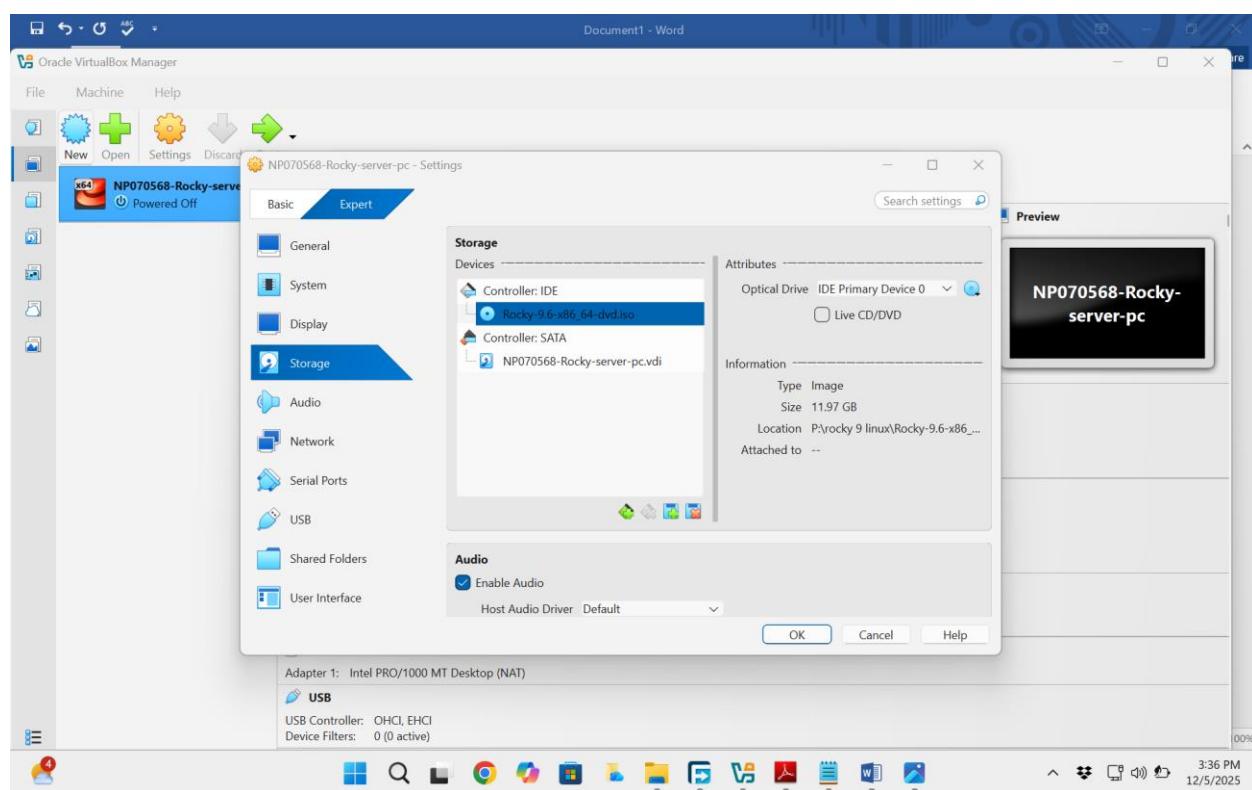
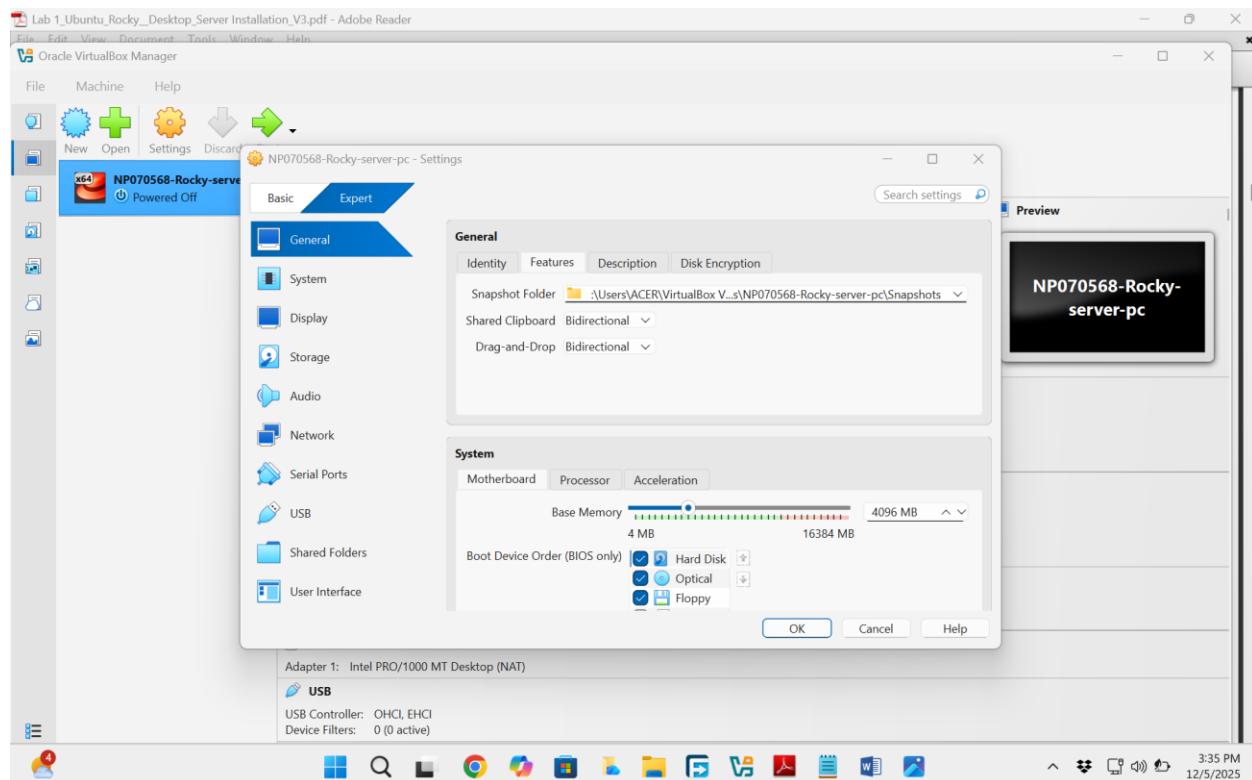
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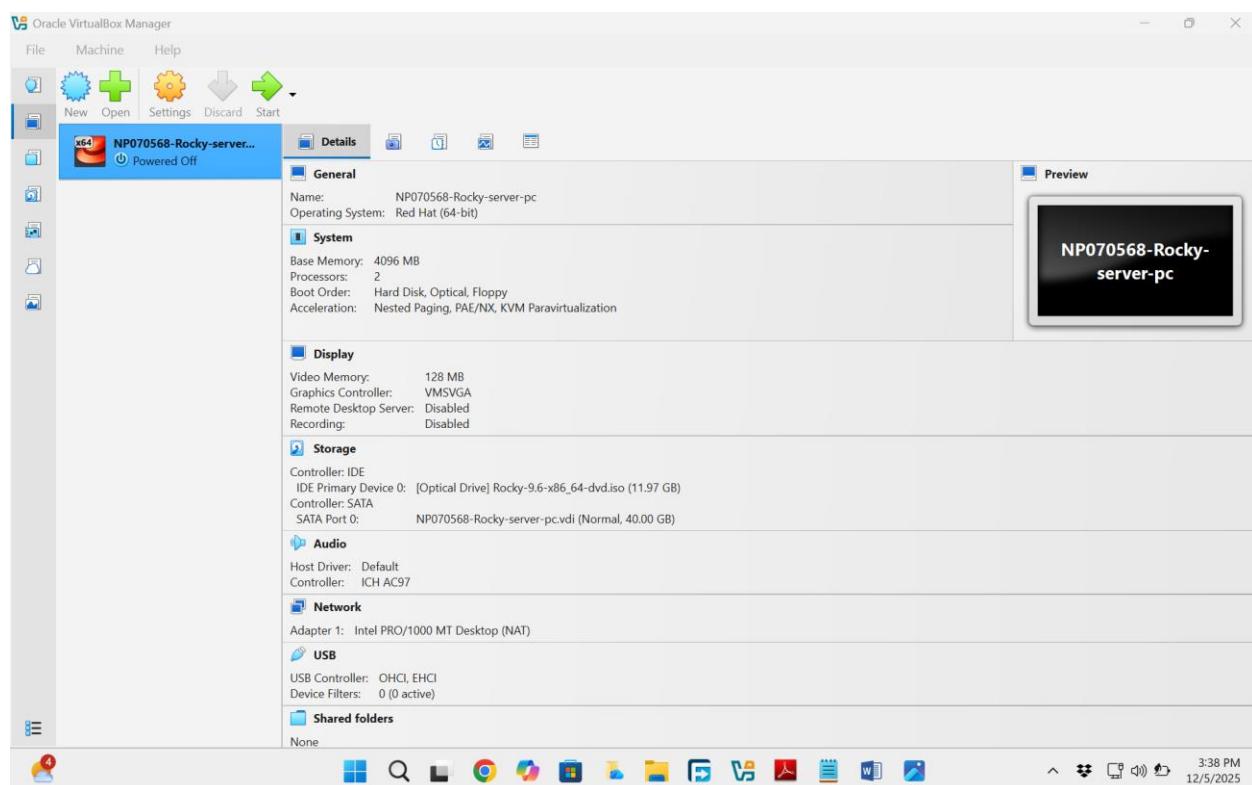
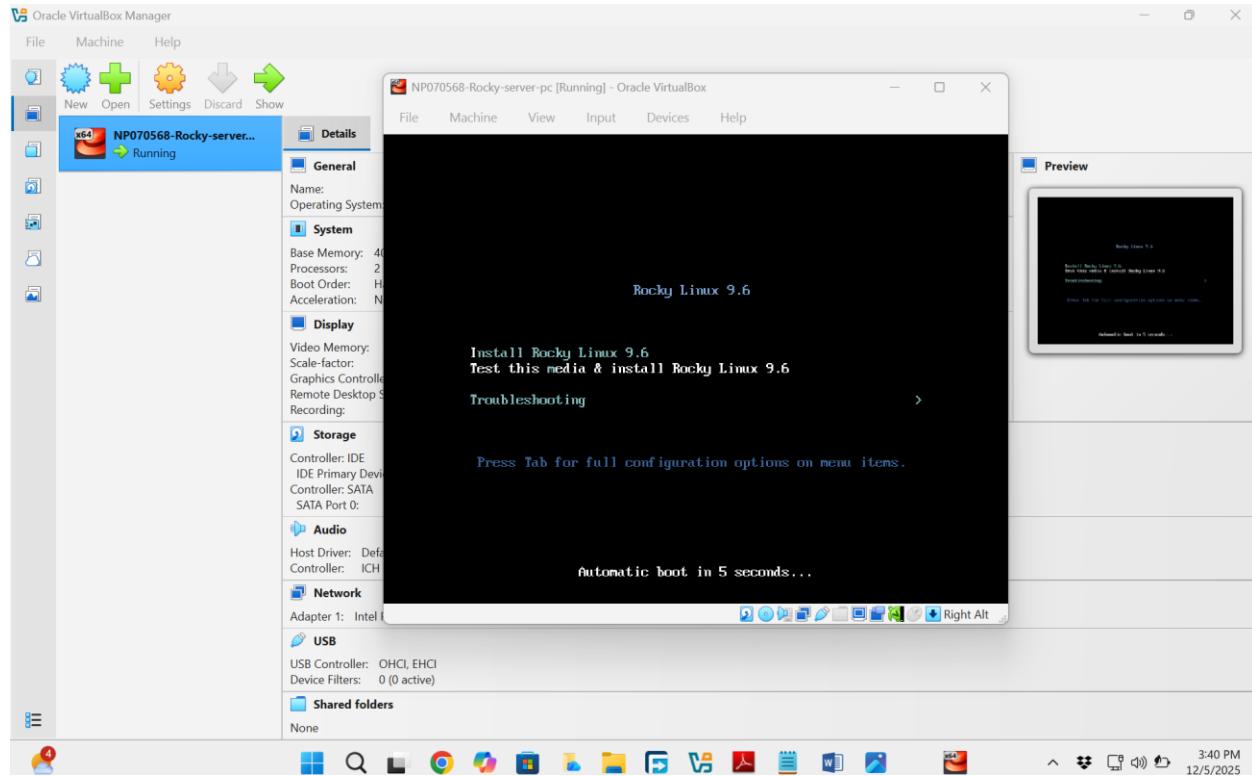
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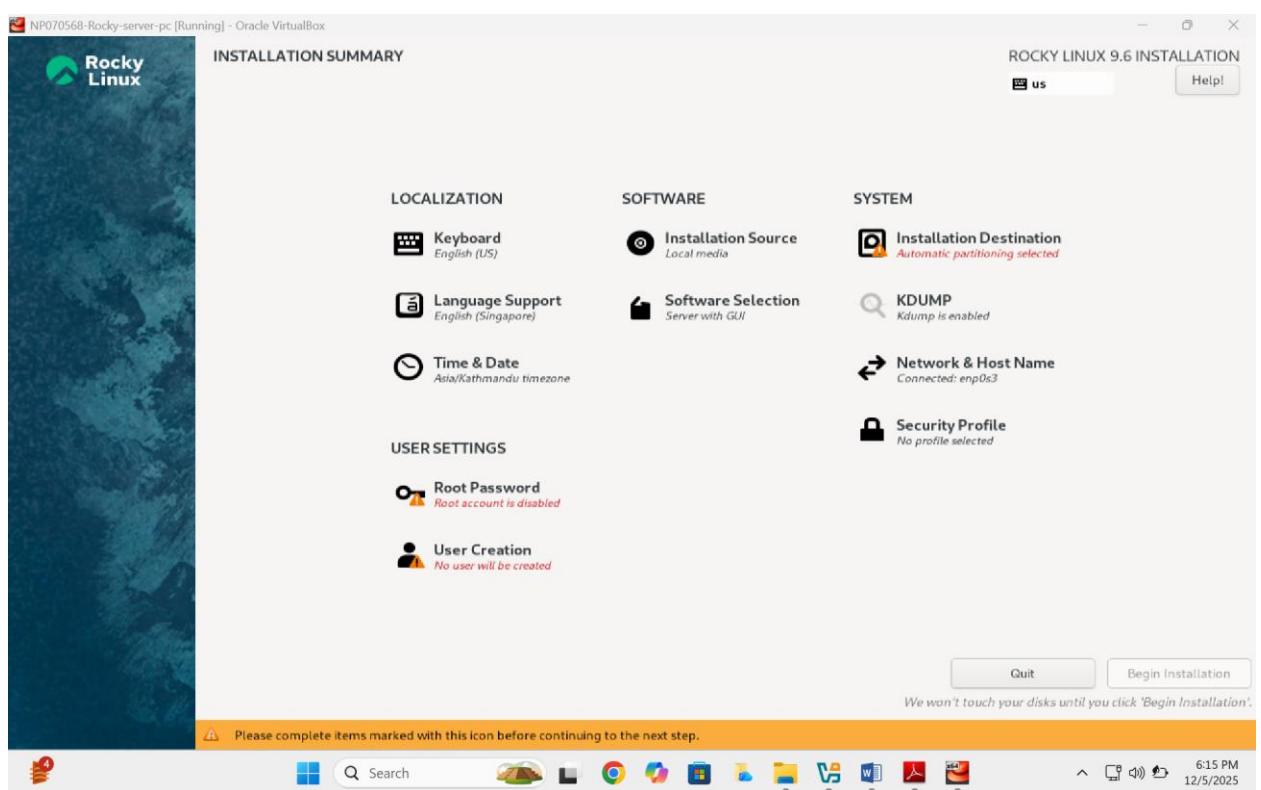
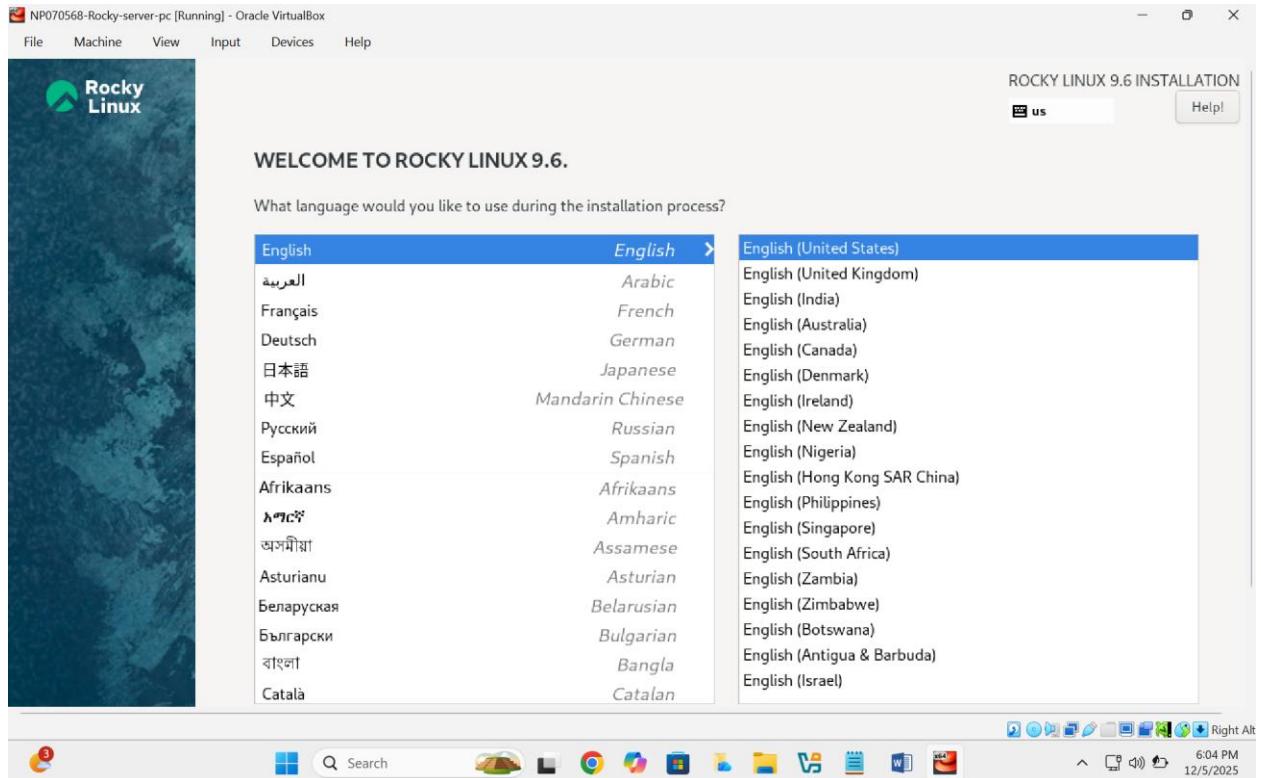
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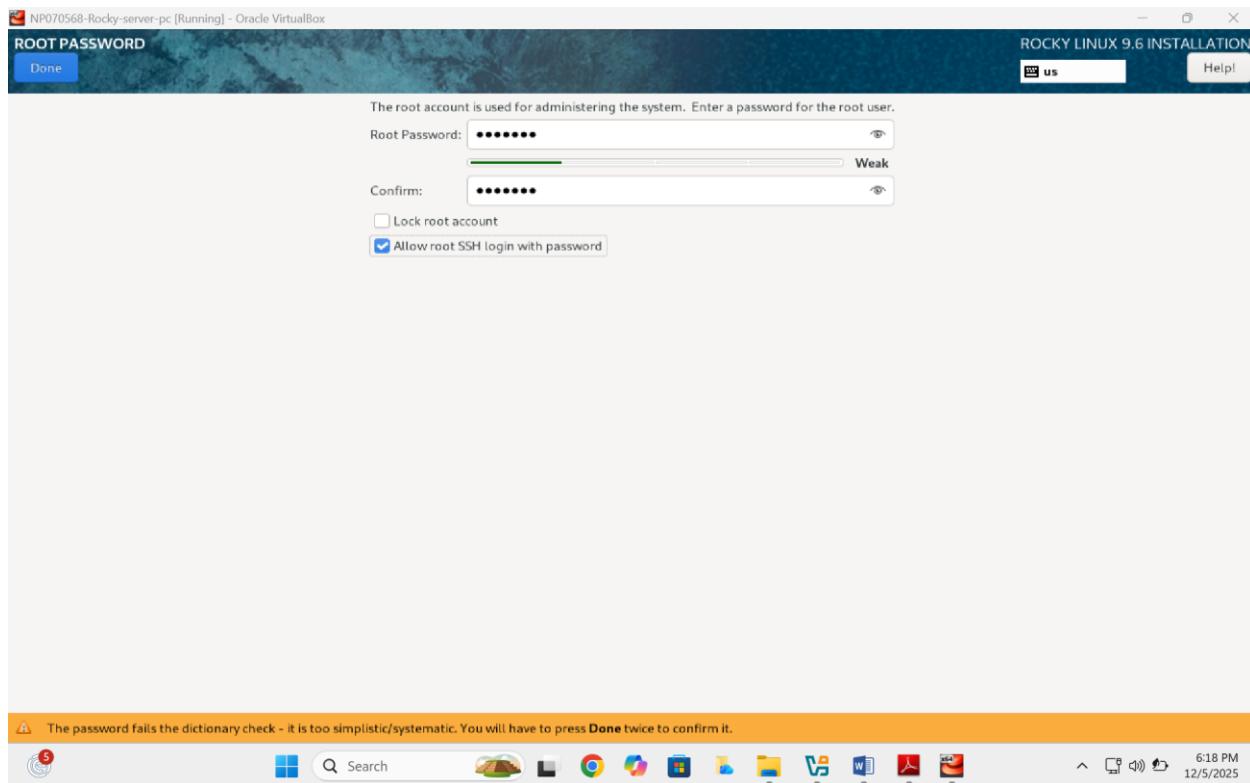
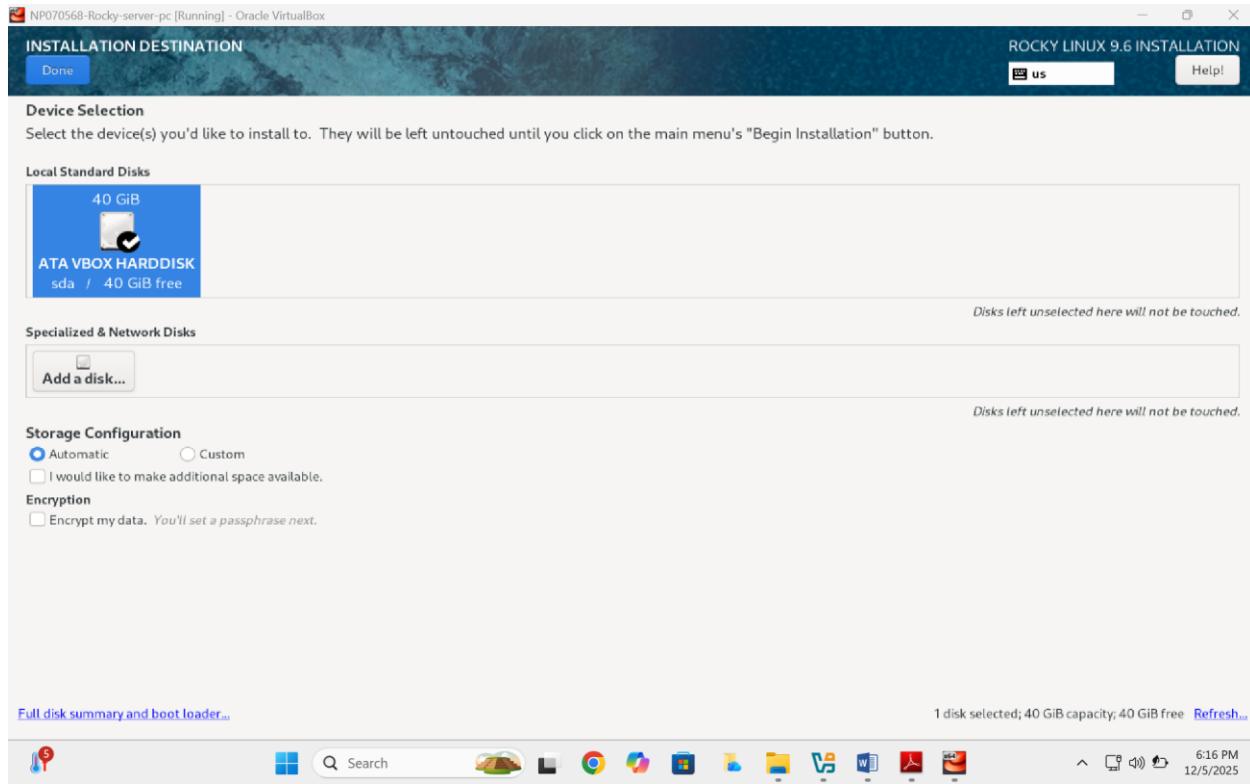
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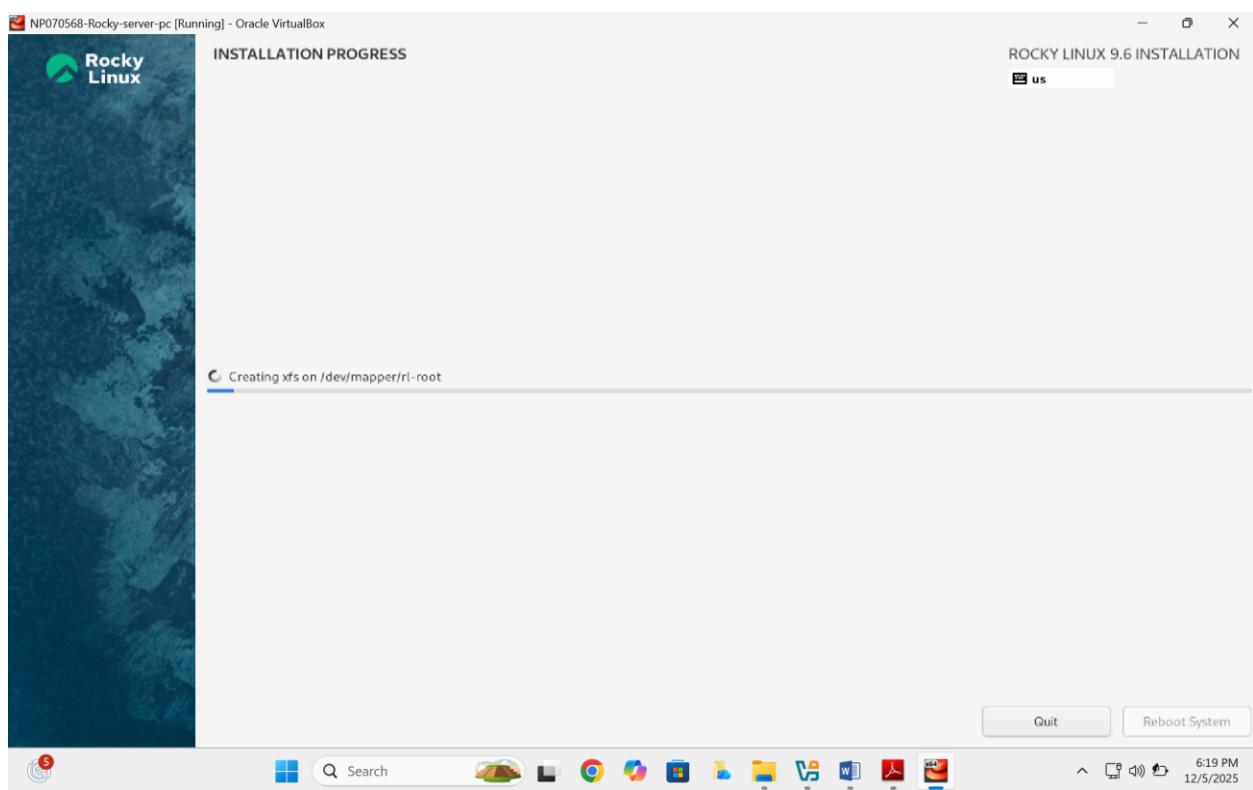
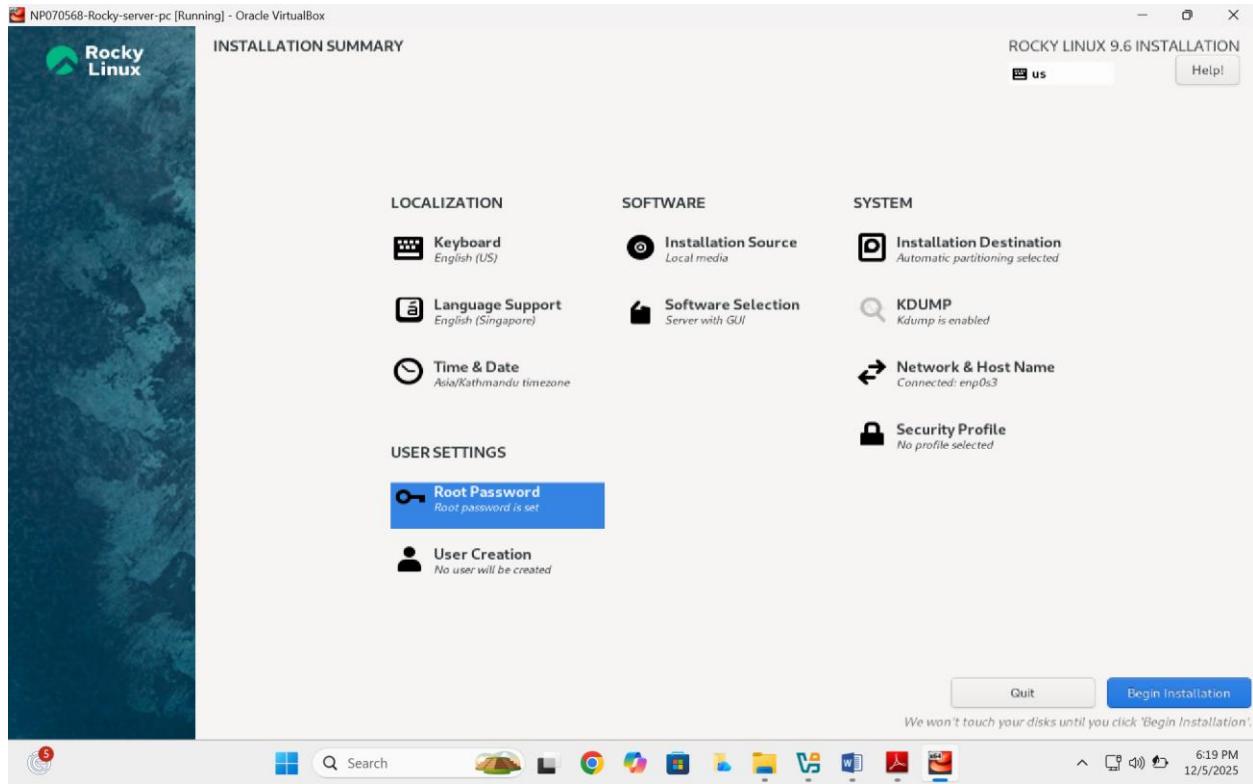


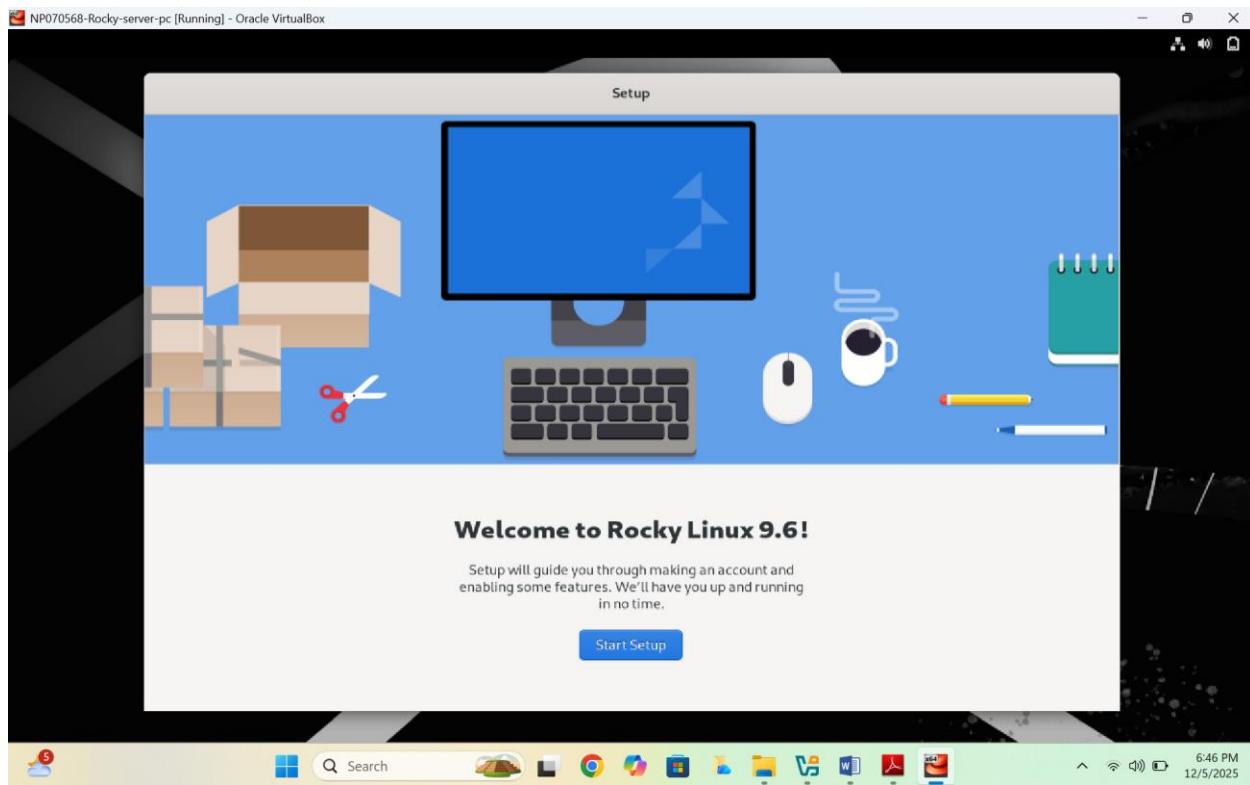
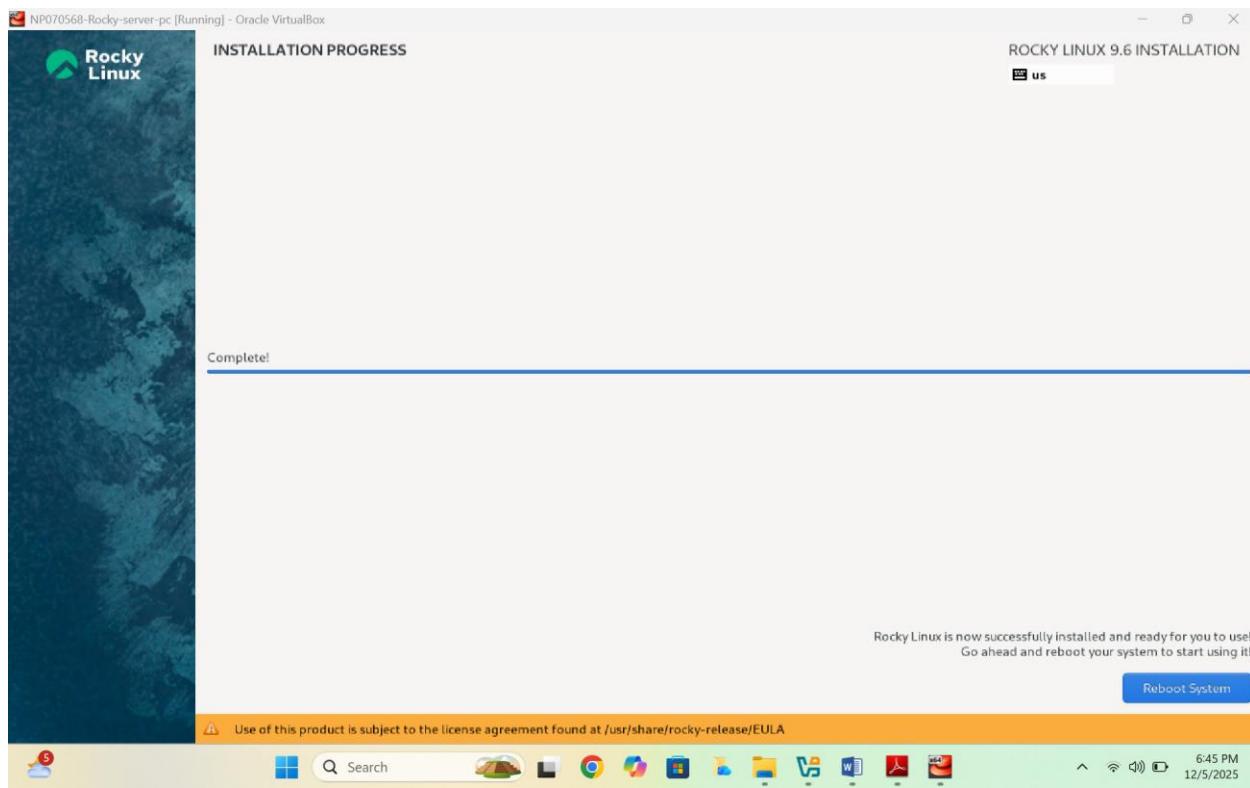


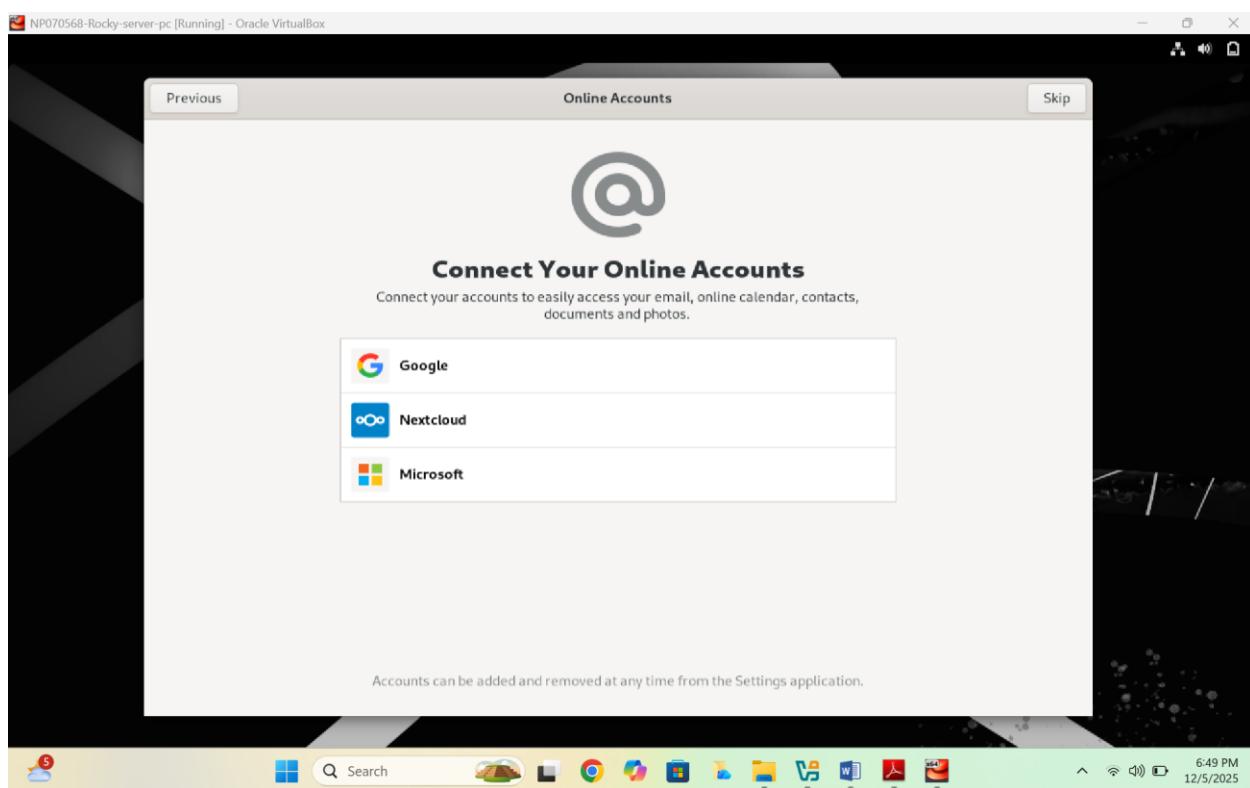
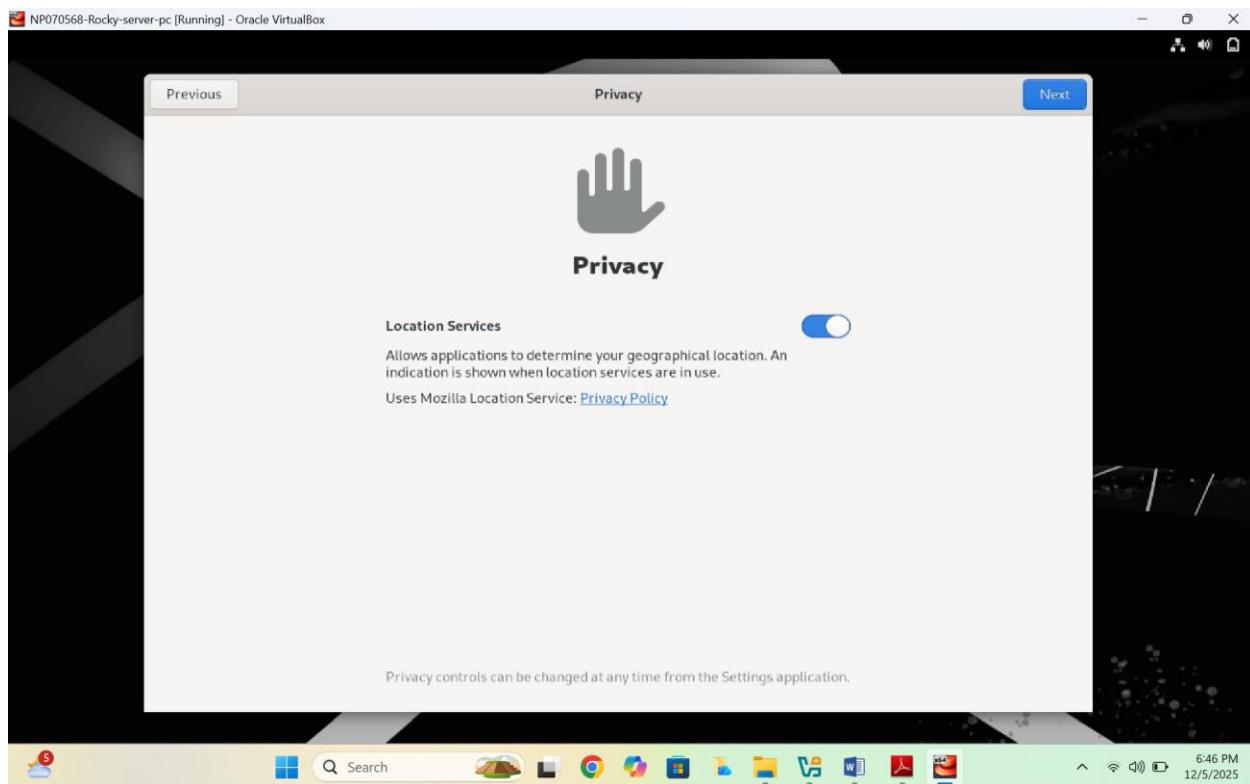


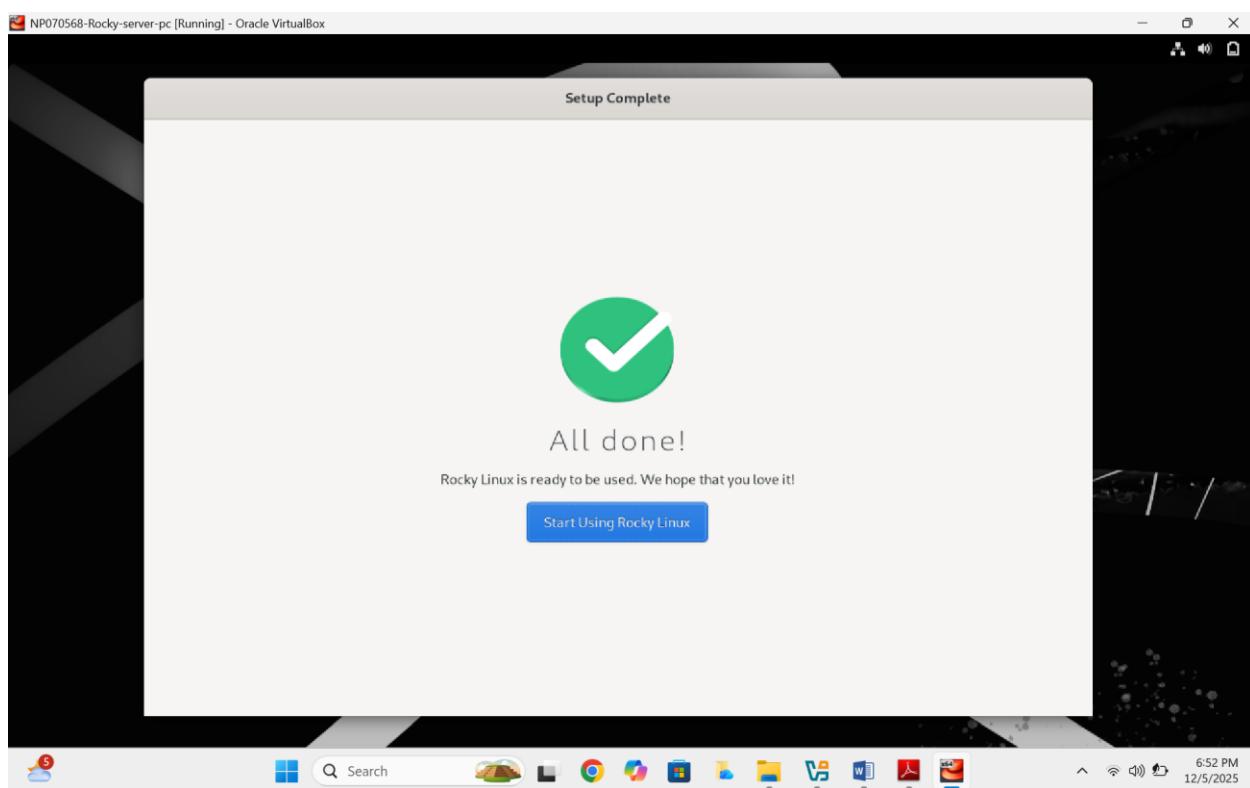
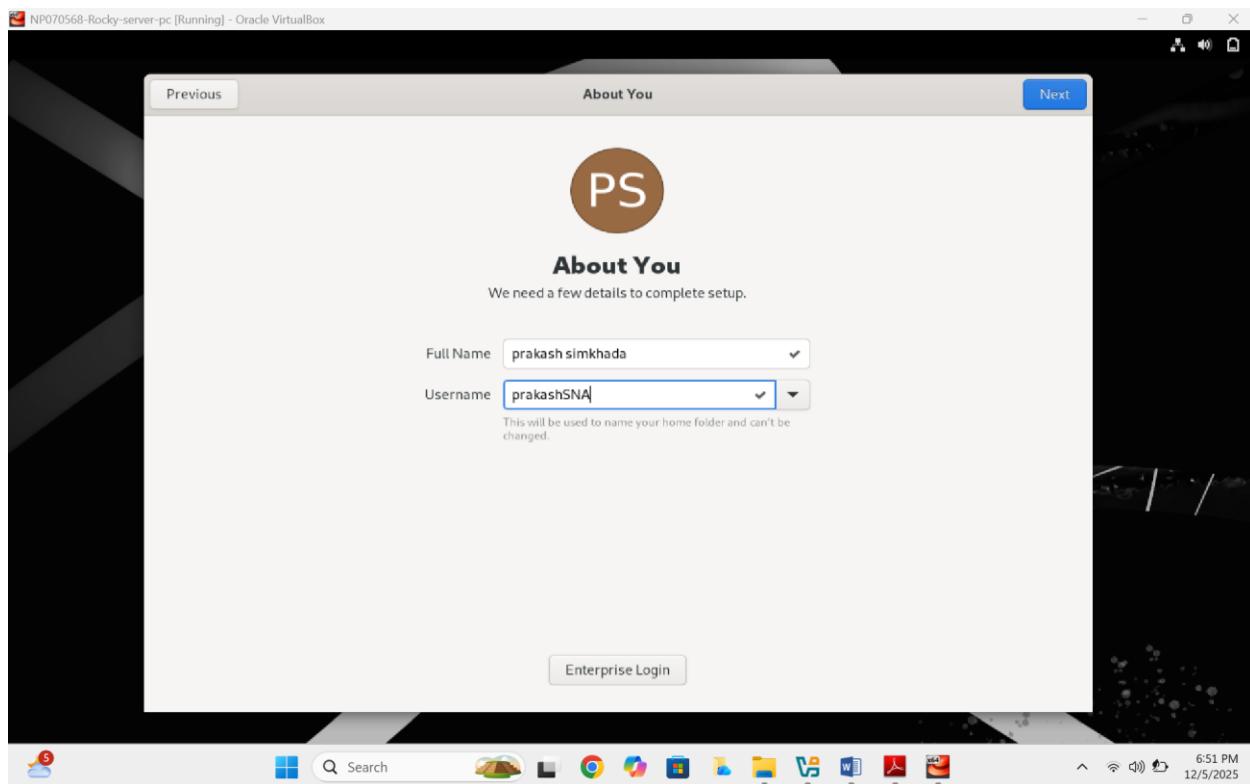


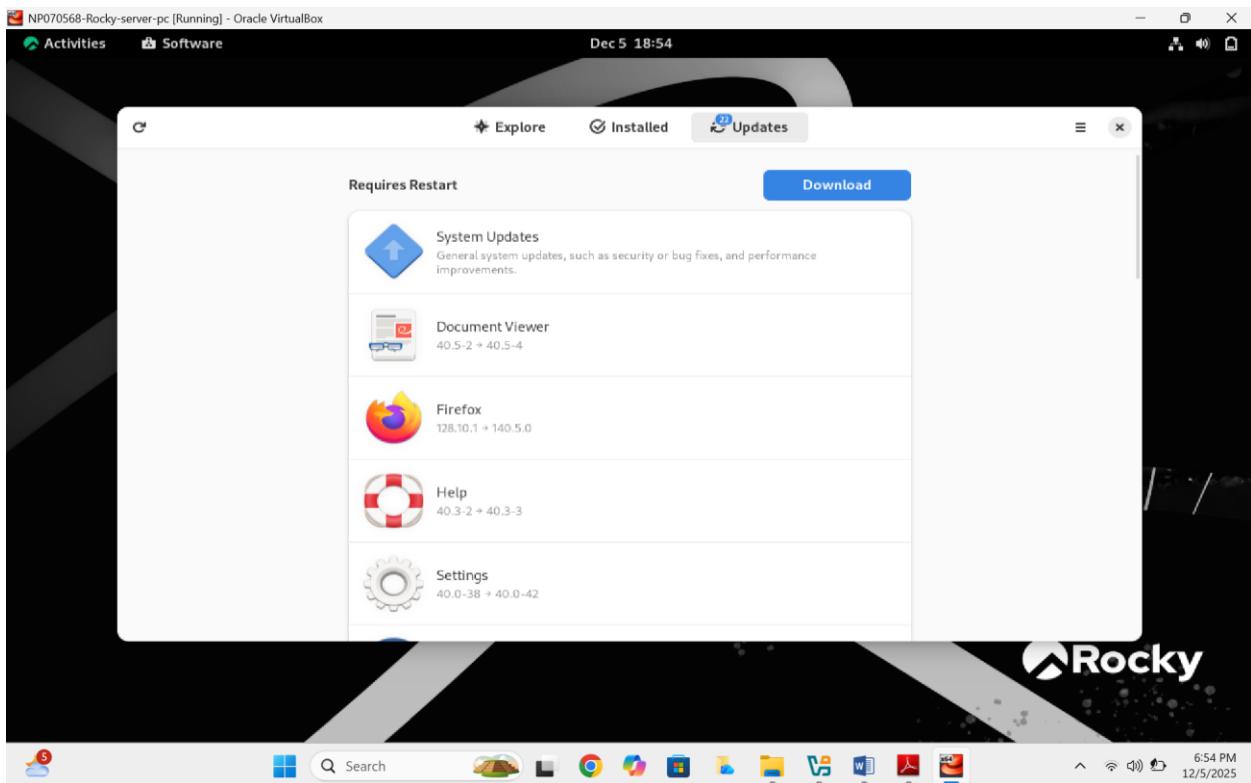
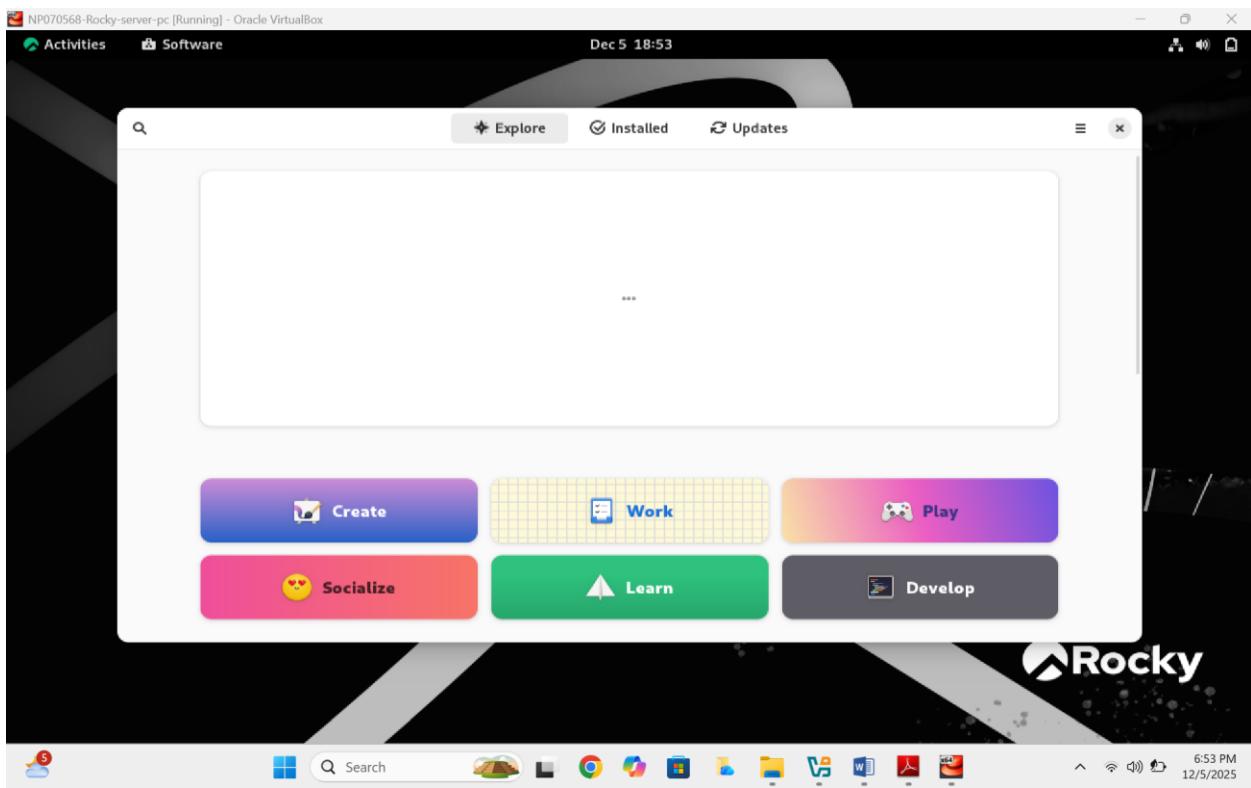


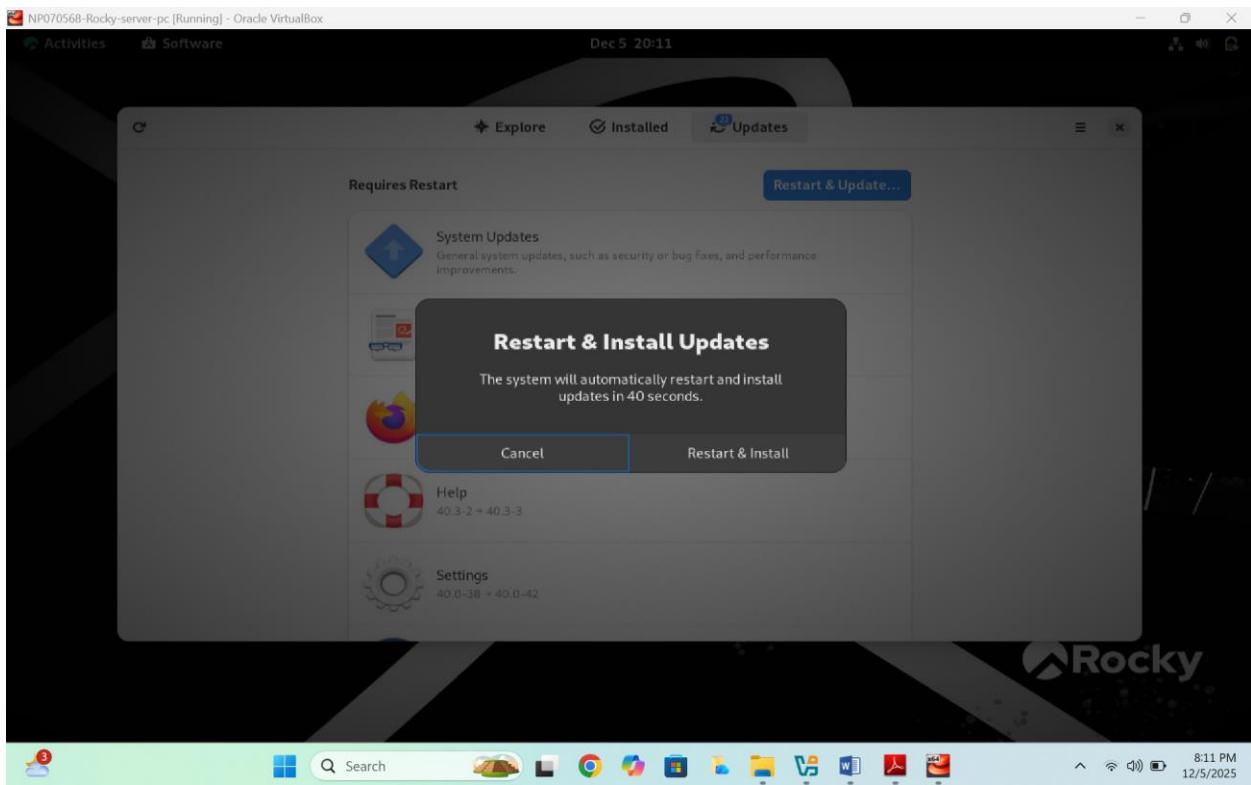
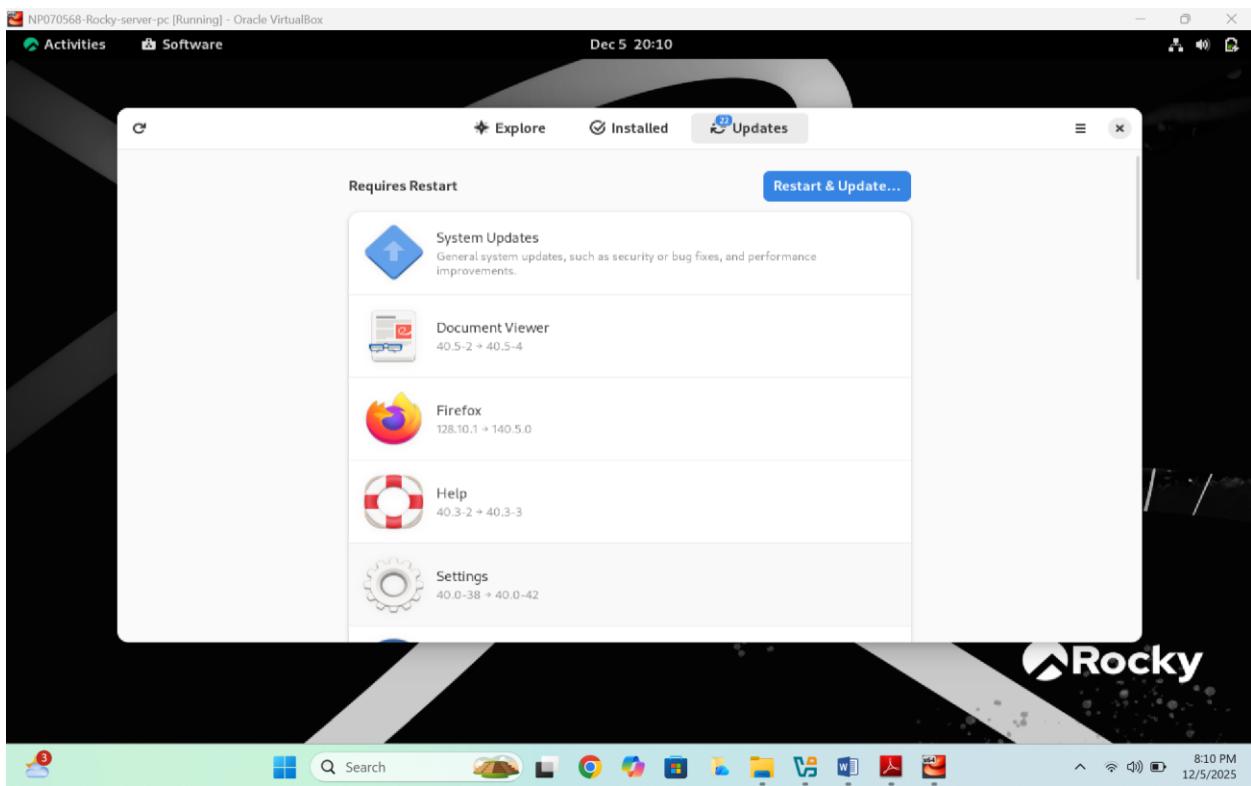


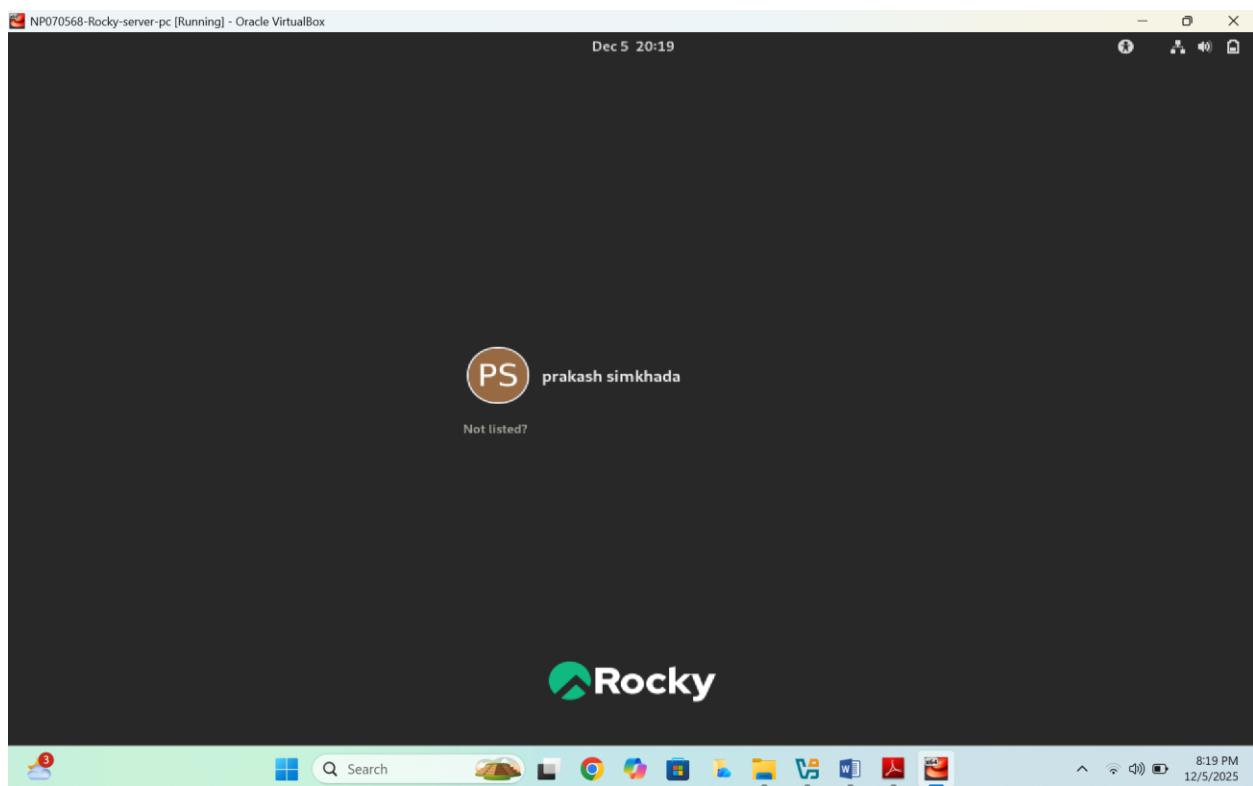
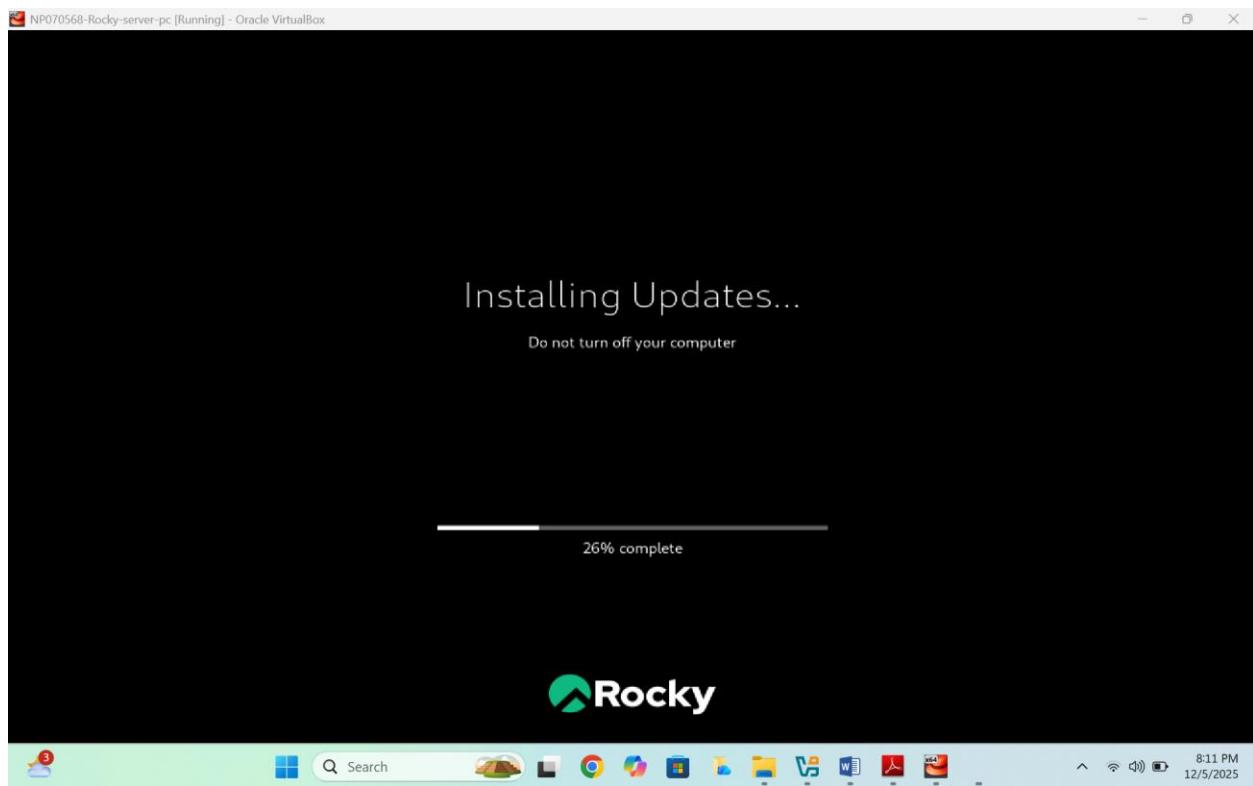


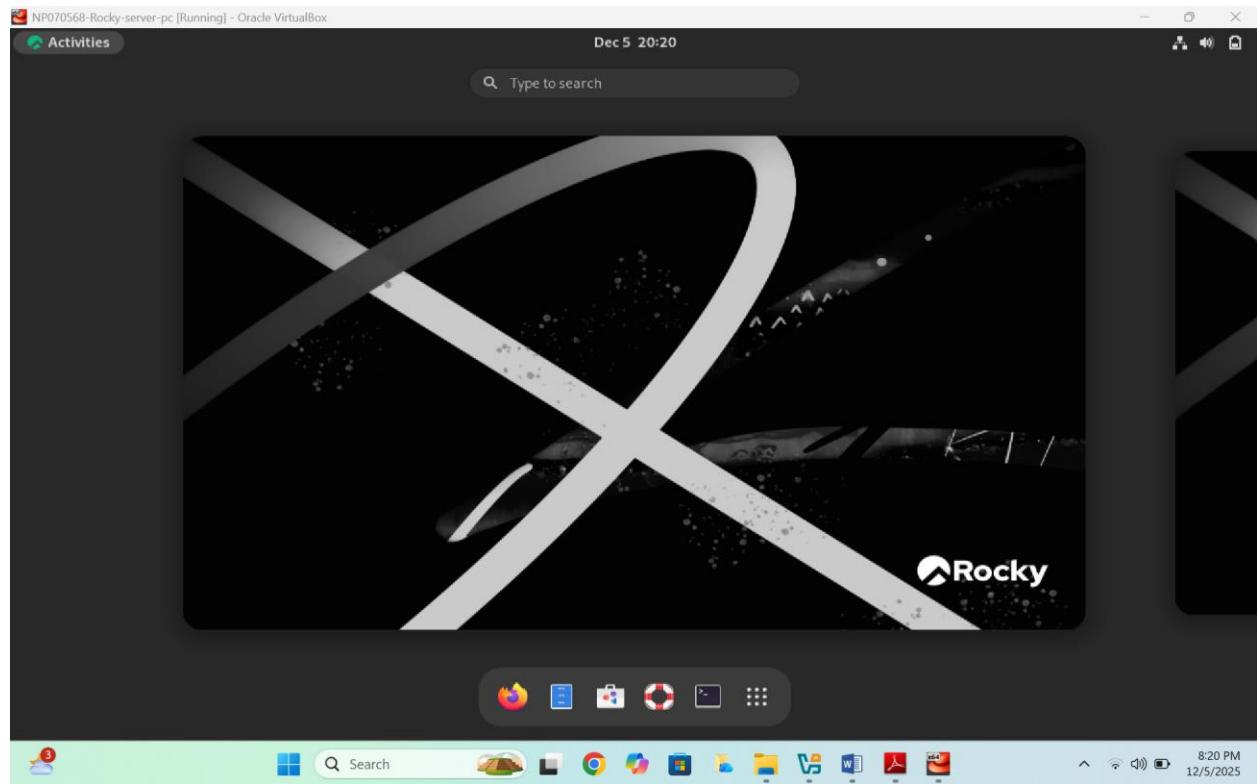






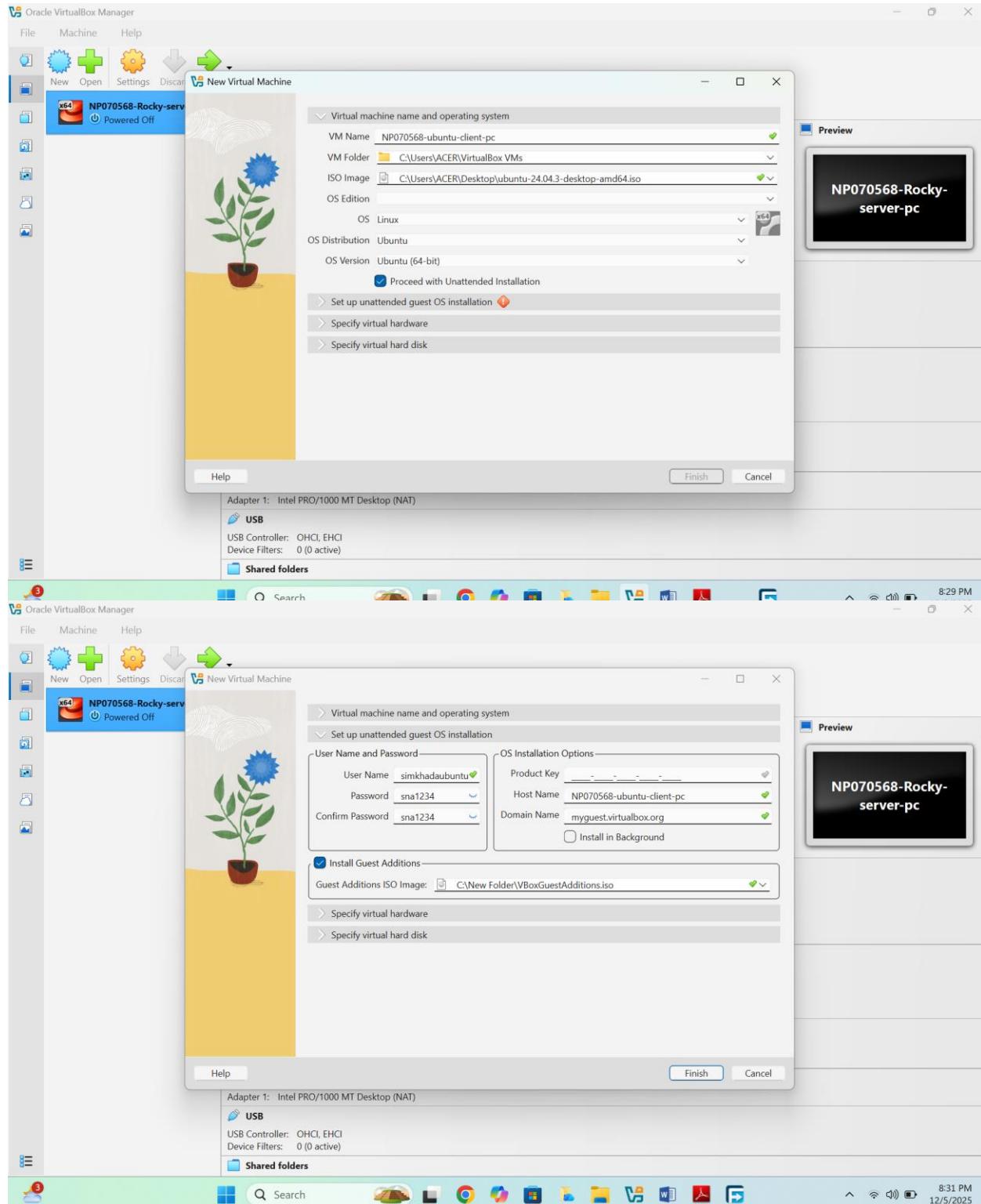


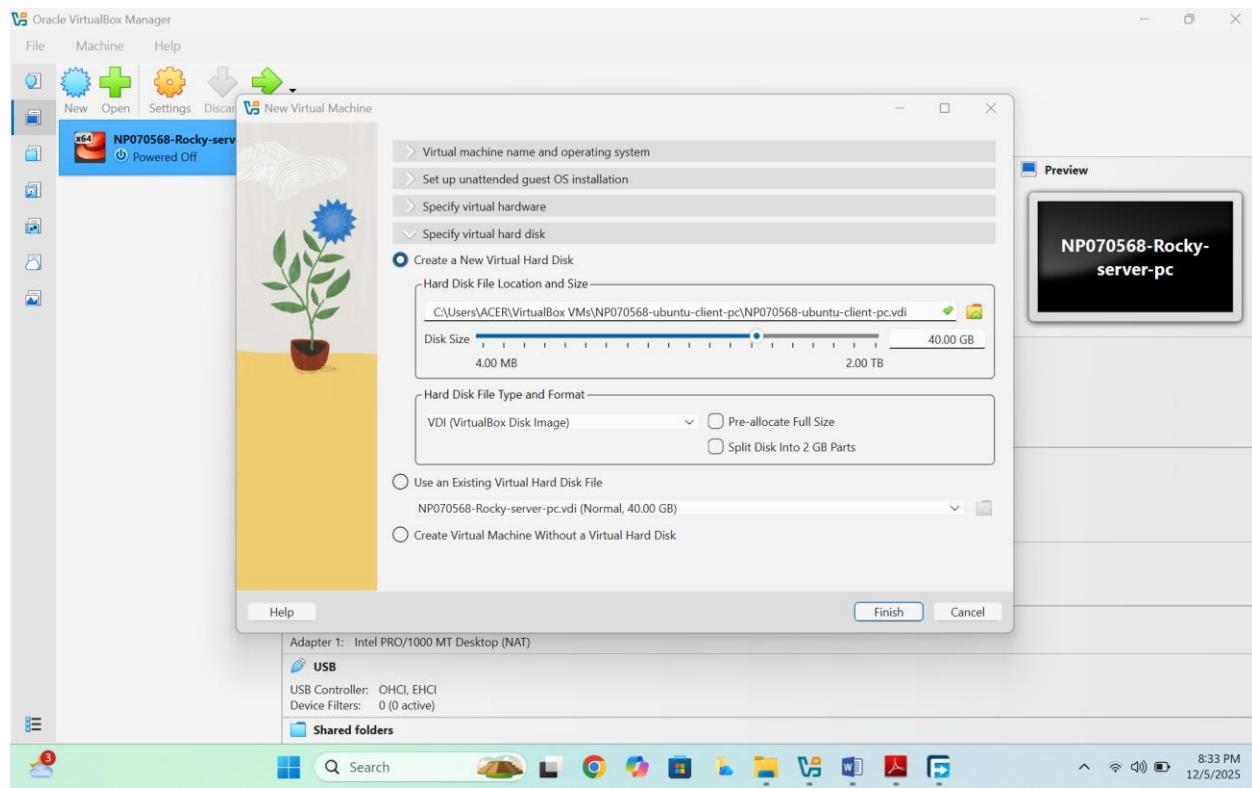




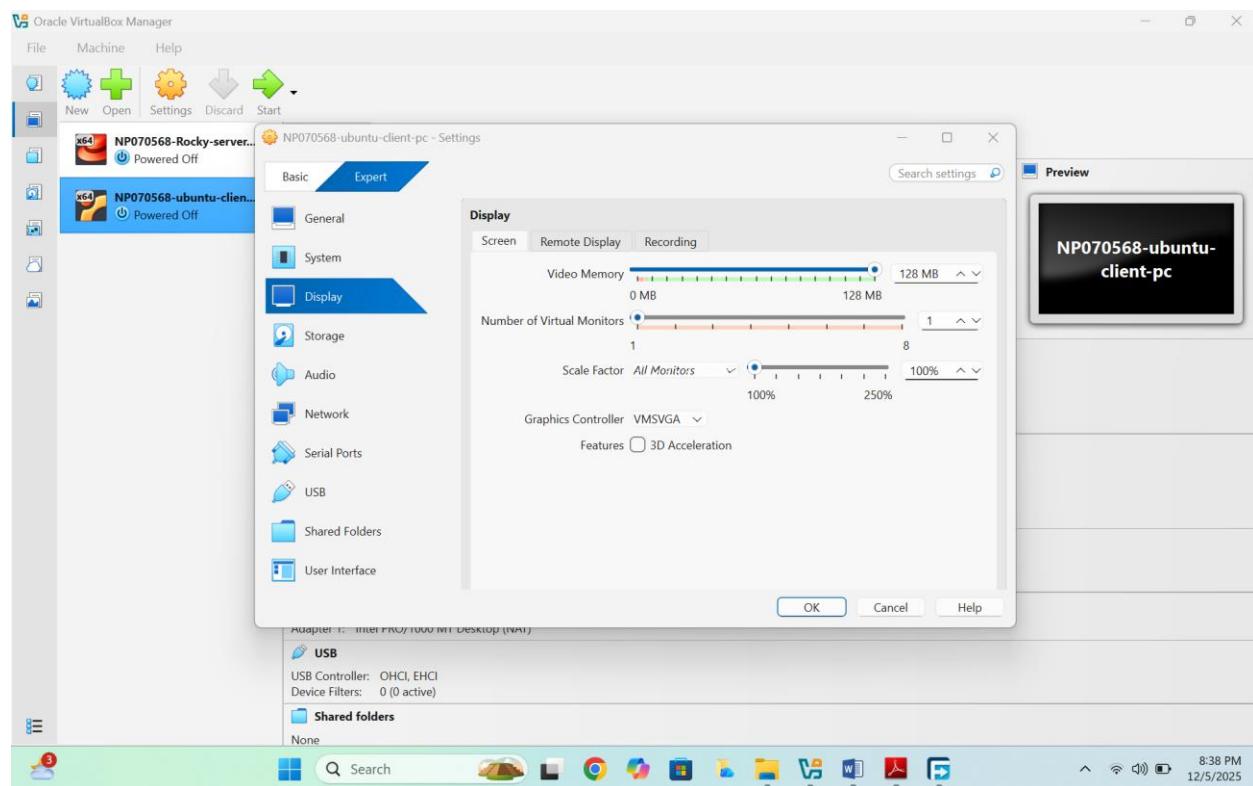
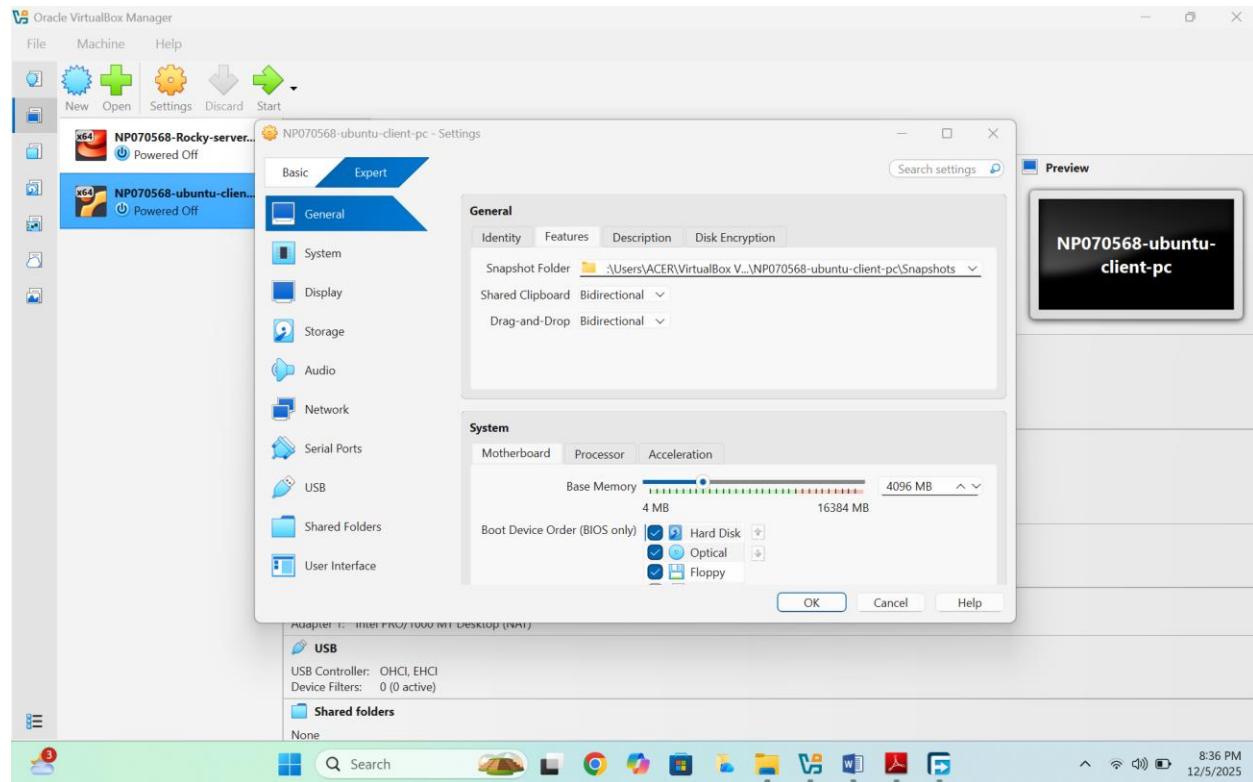


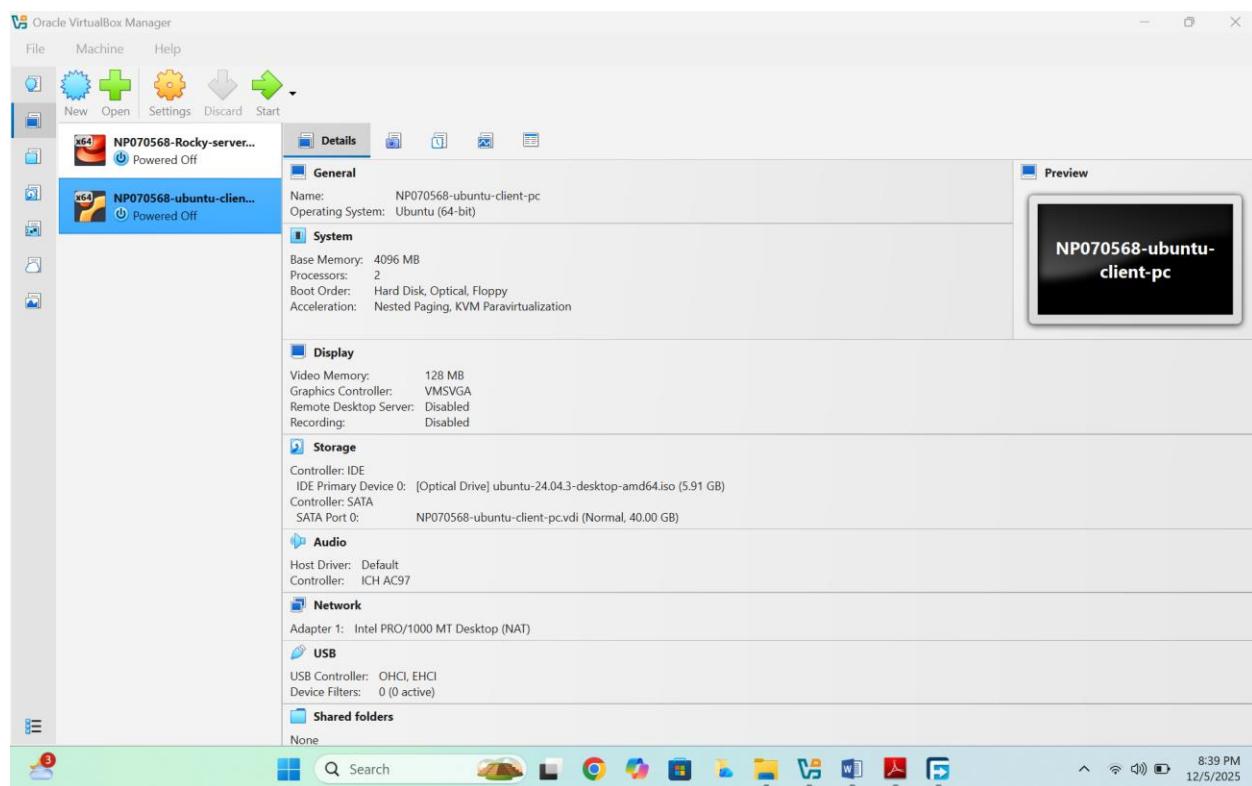
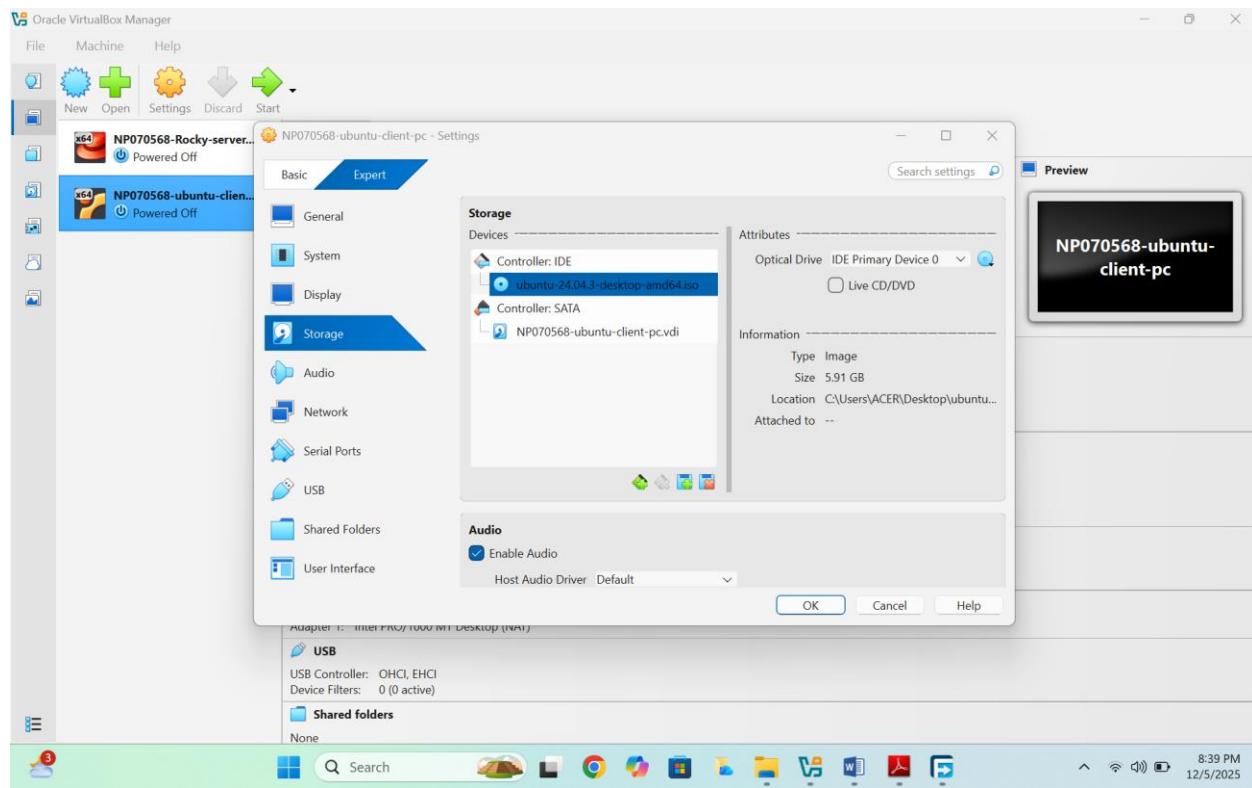
## **VM Settings and Installation Screenshots of Ubuntu Client**

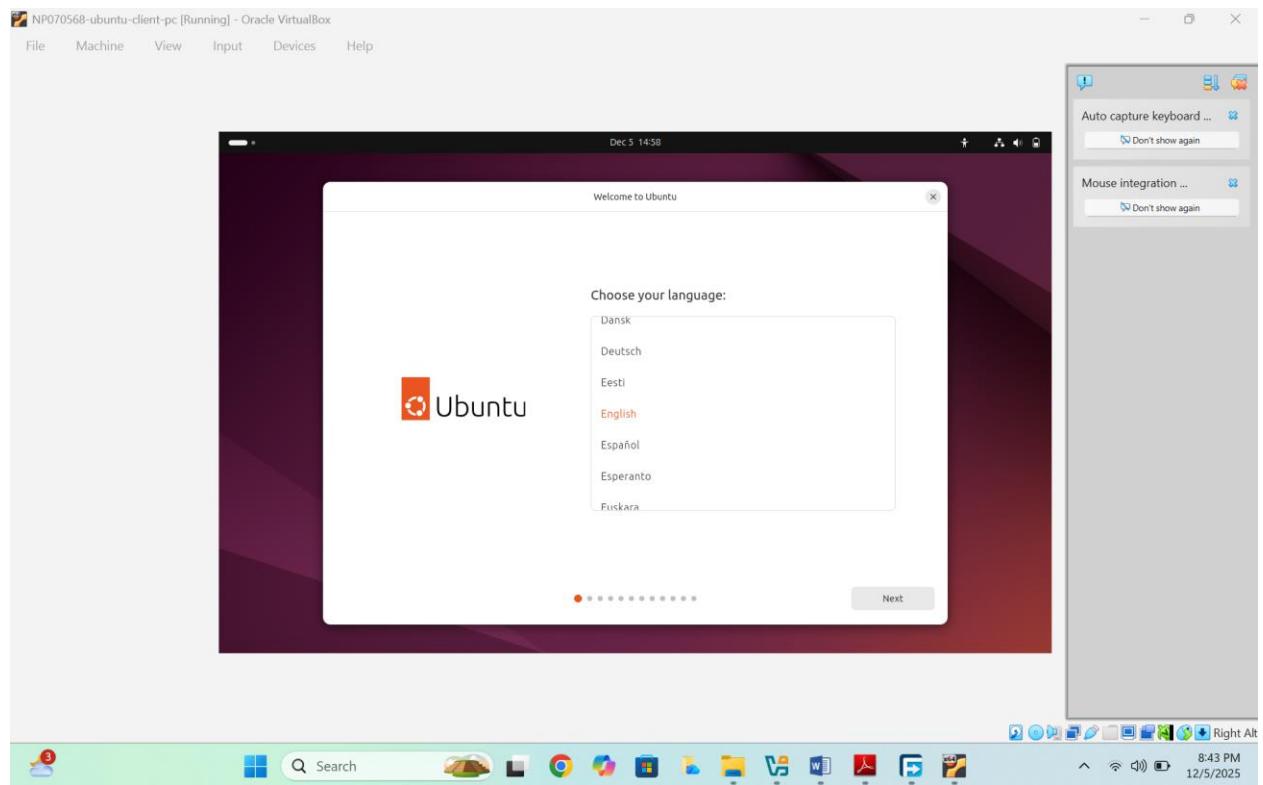
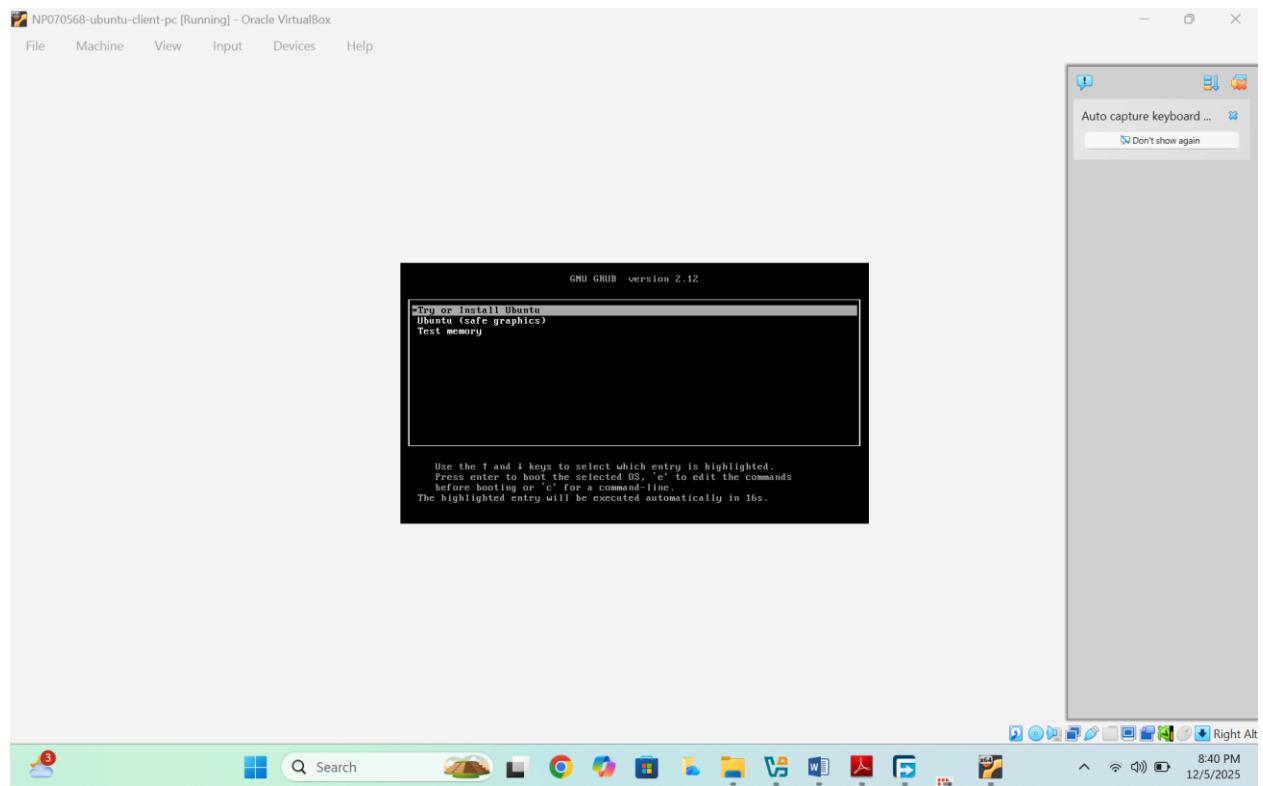


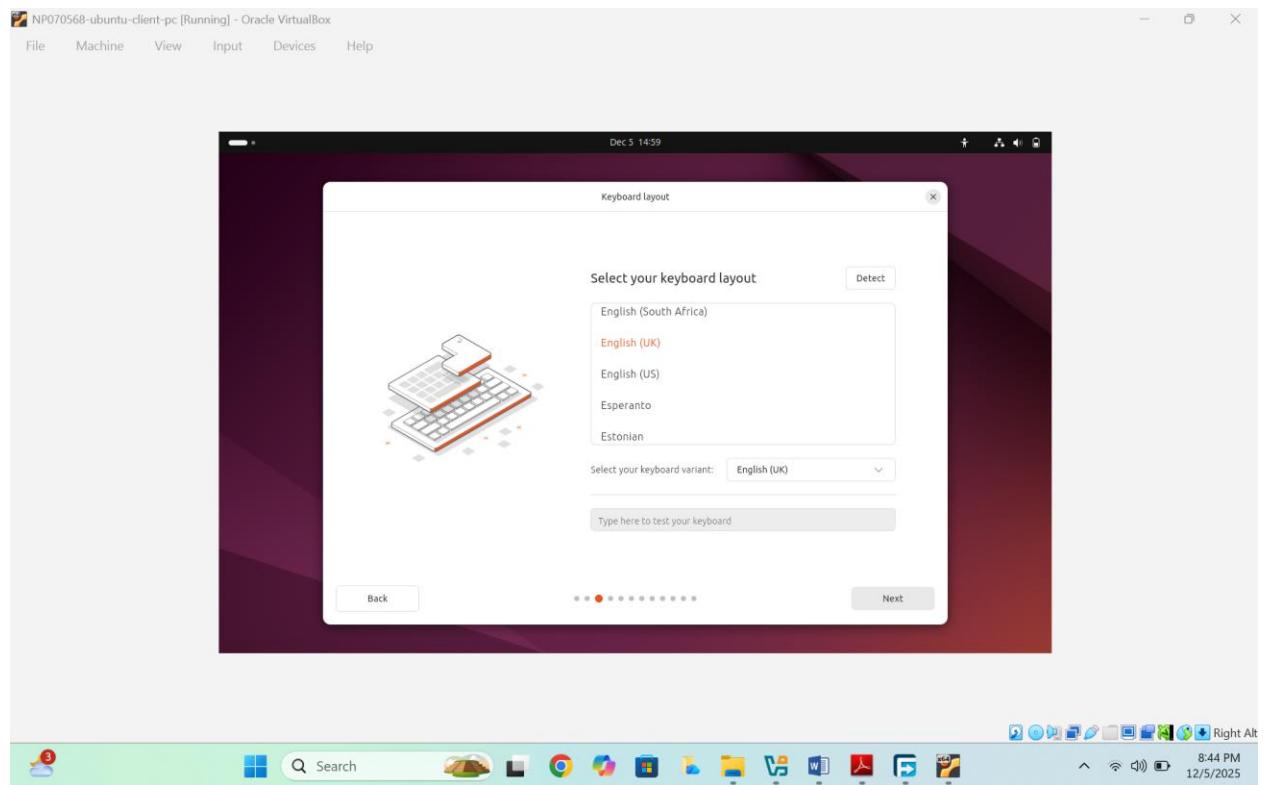
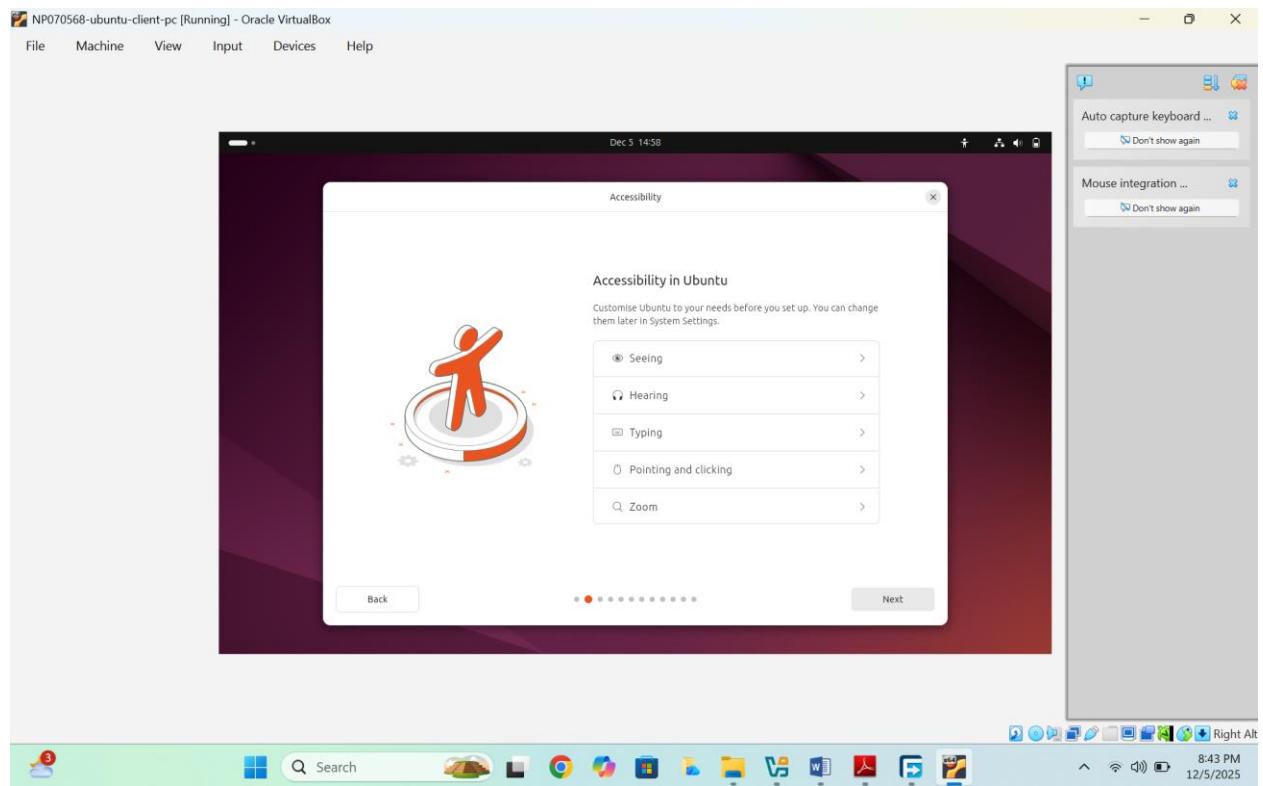


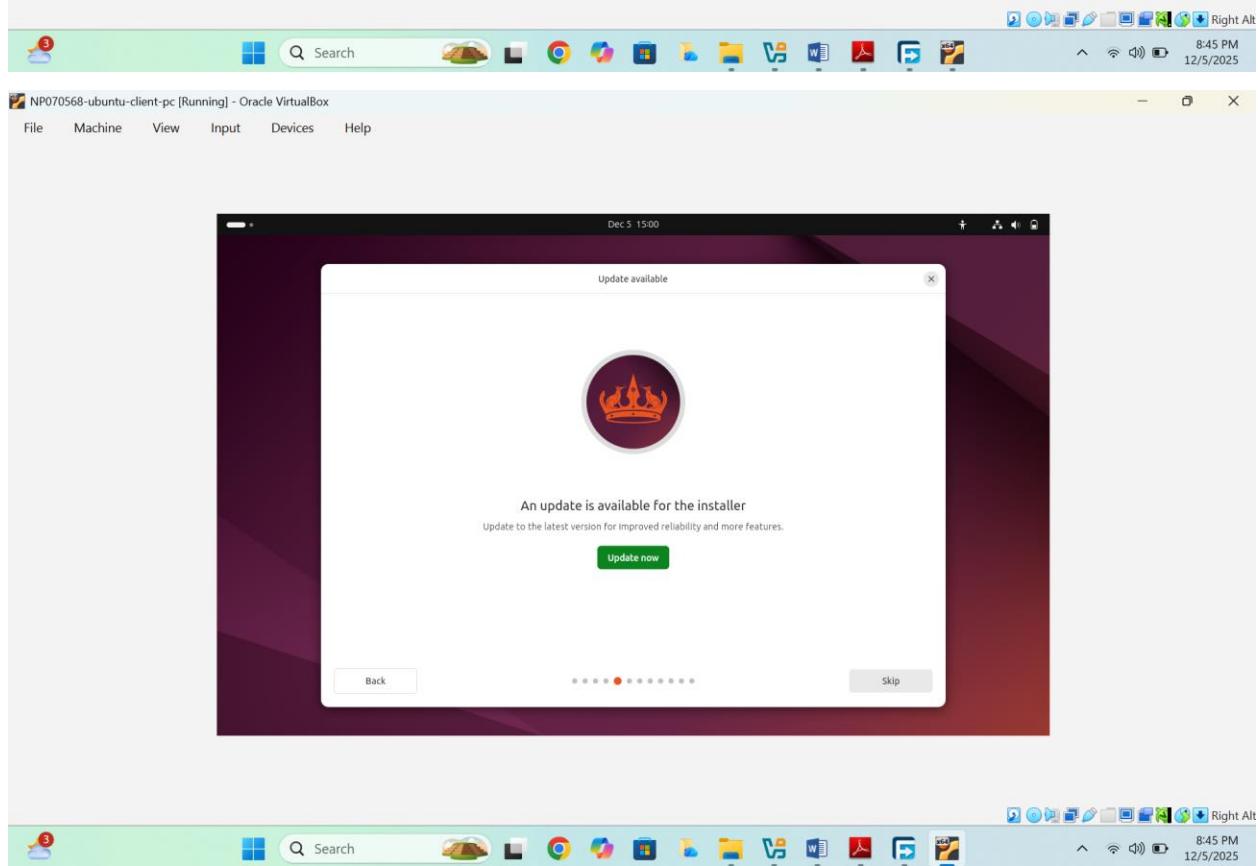
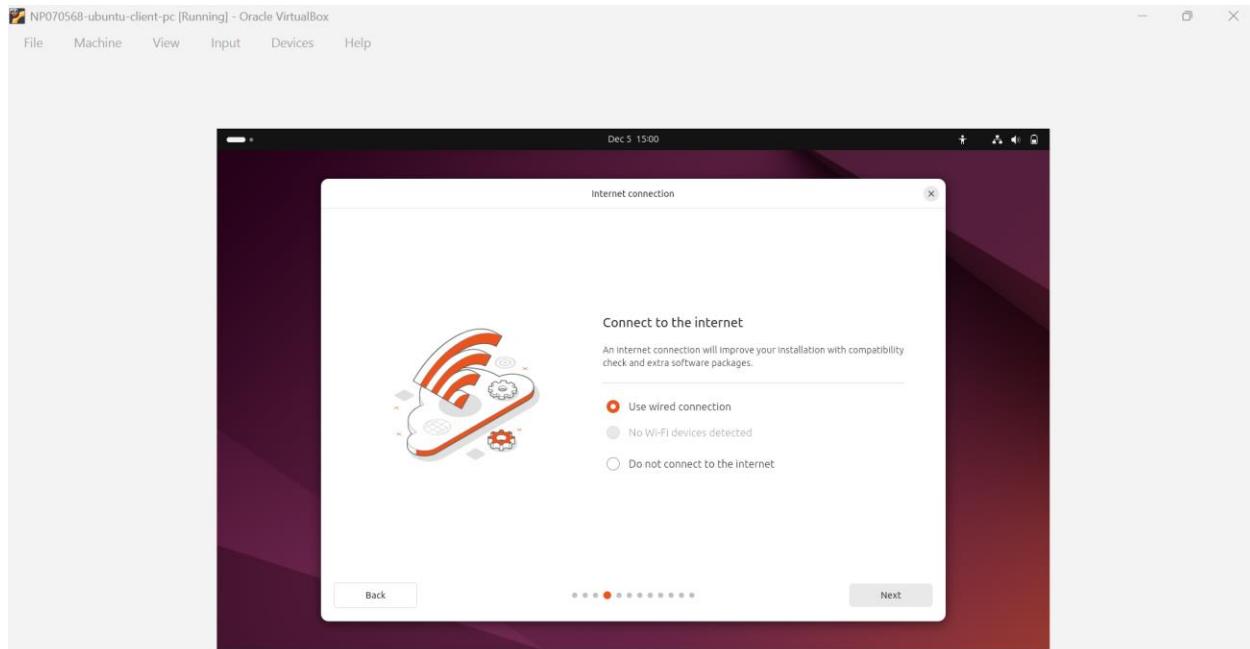
## VM setting of Ubuntu client

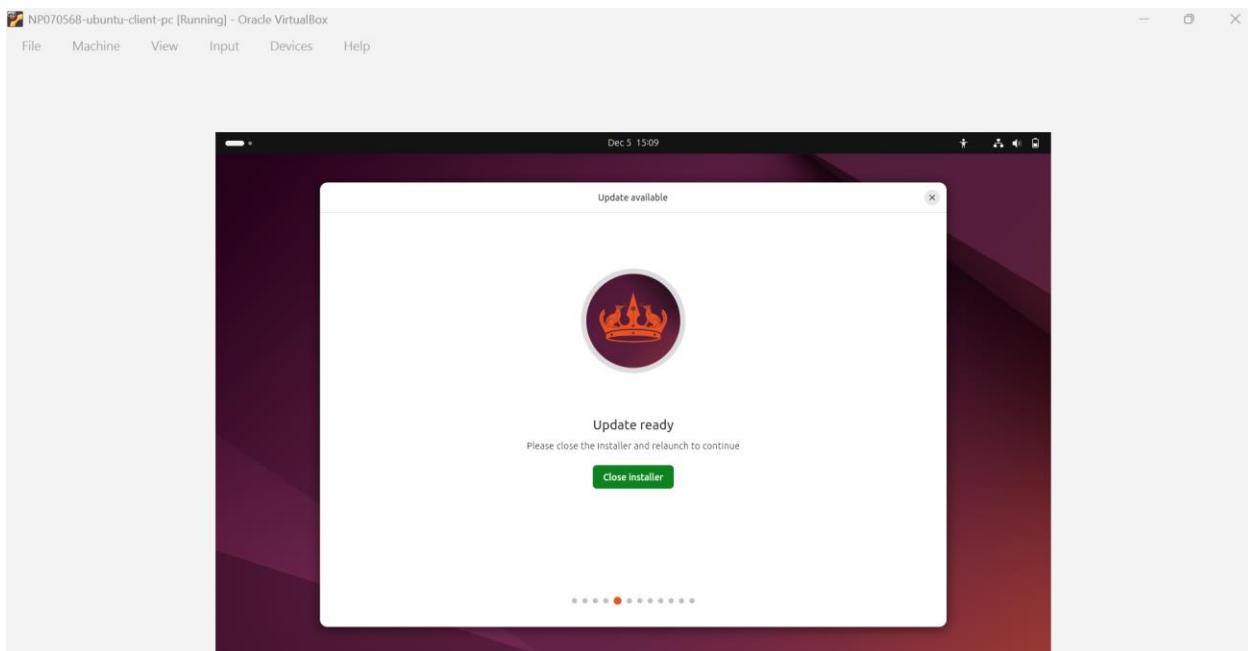
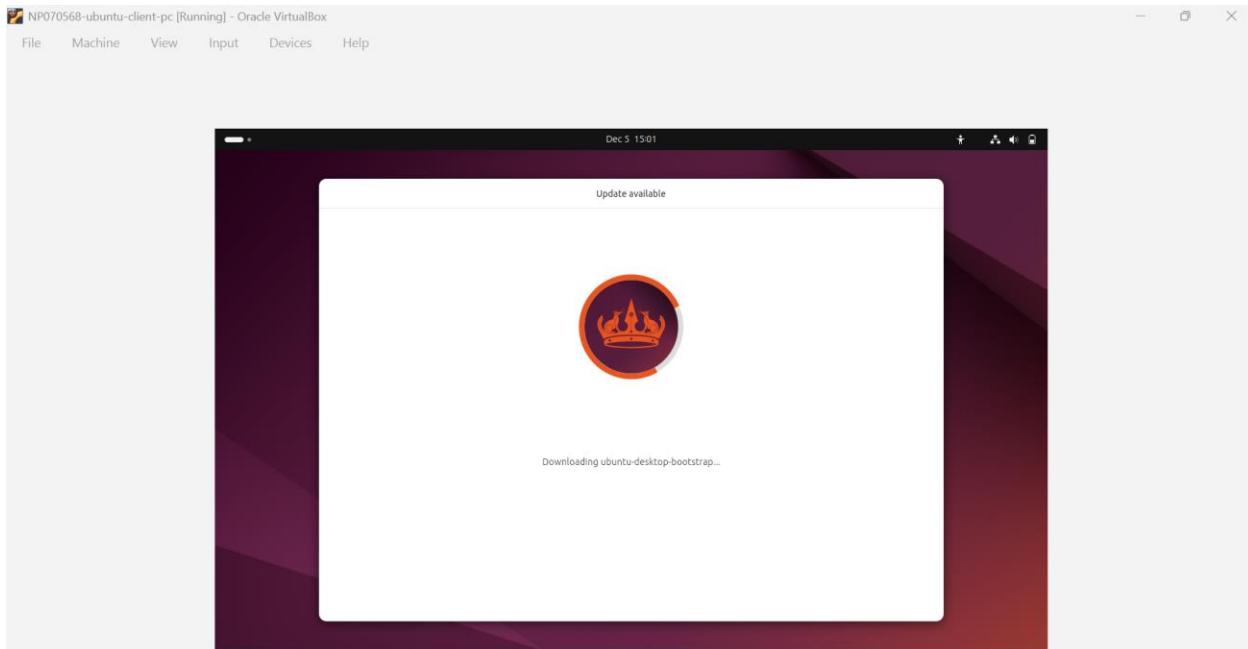


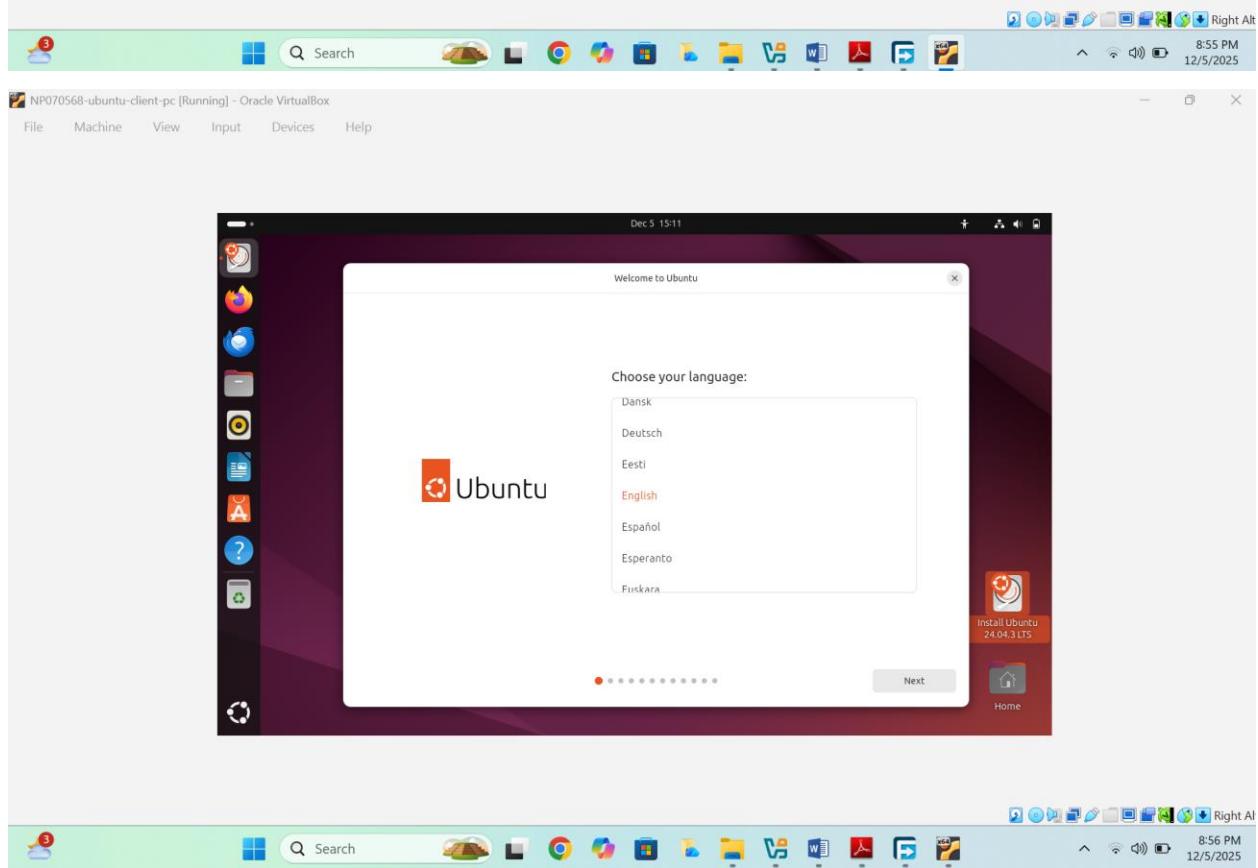
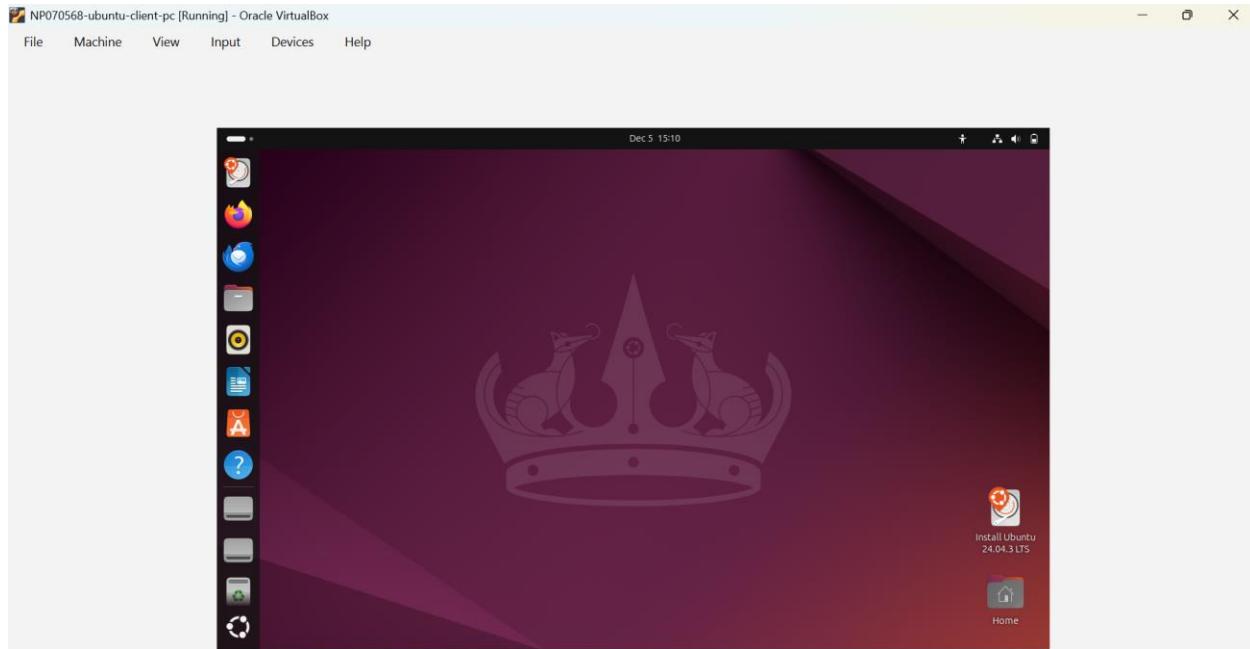


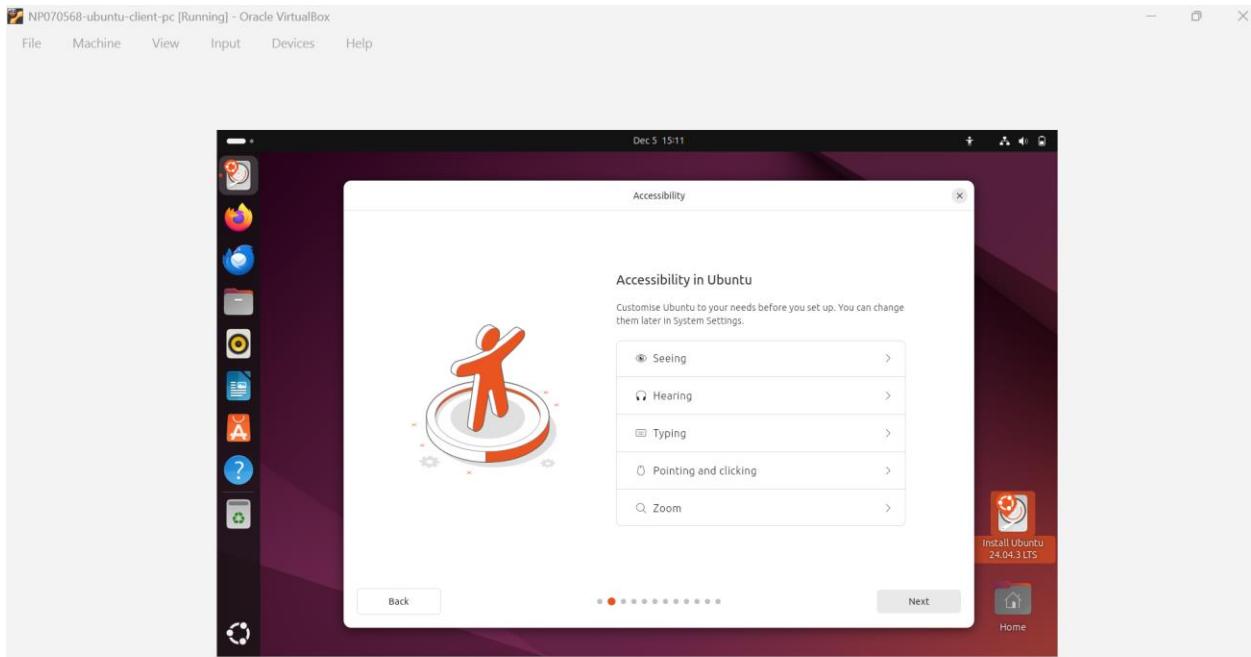






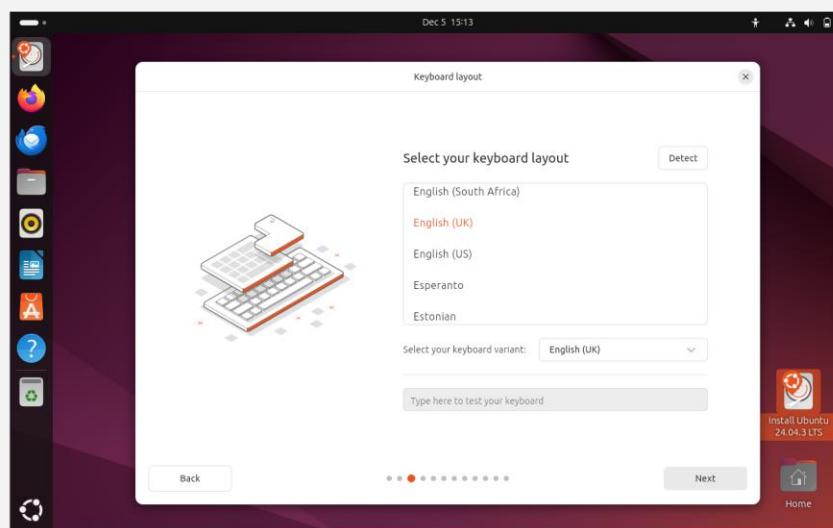


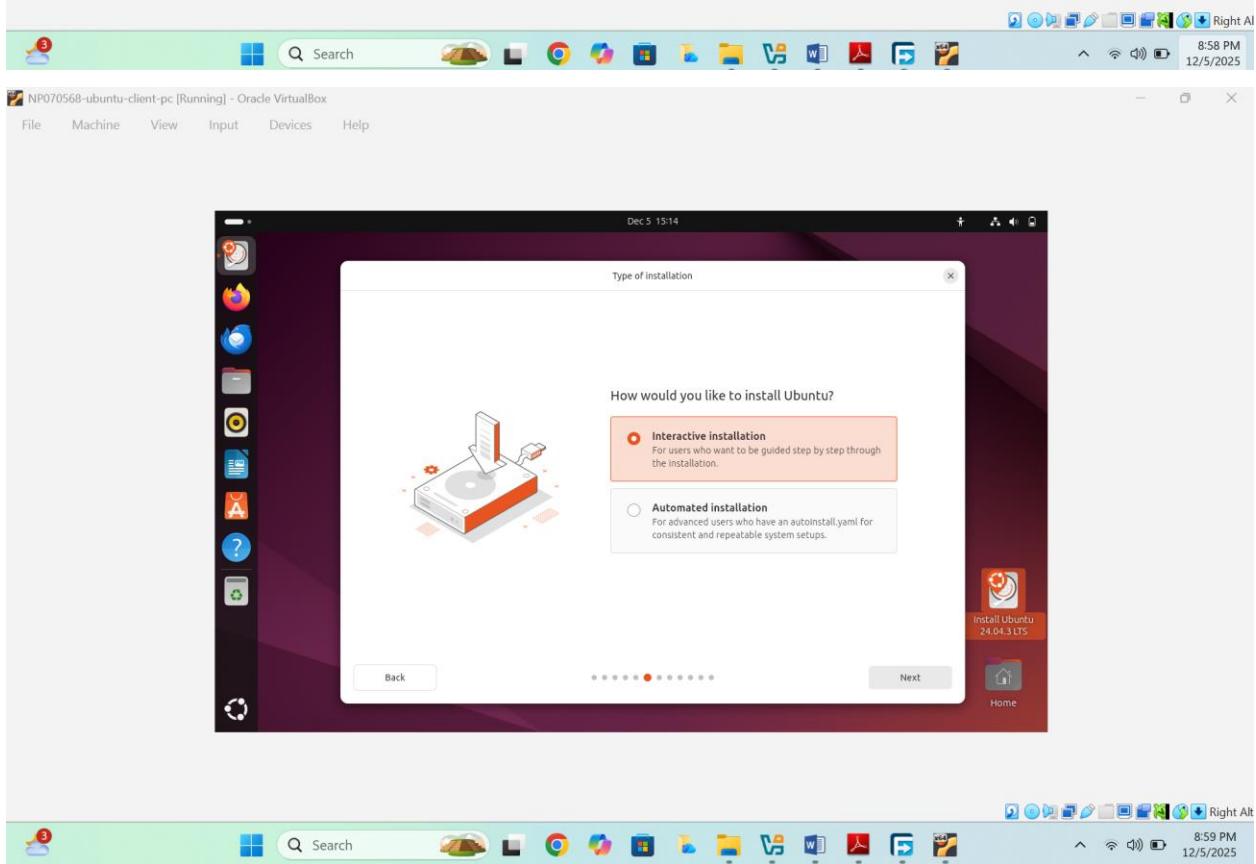
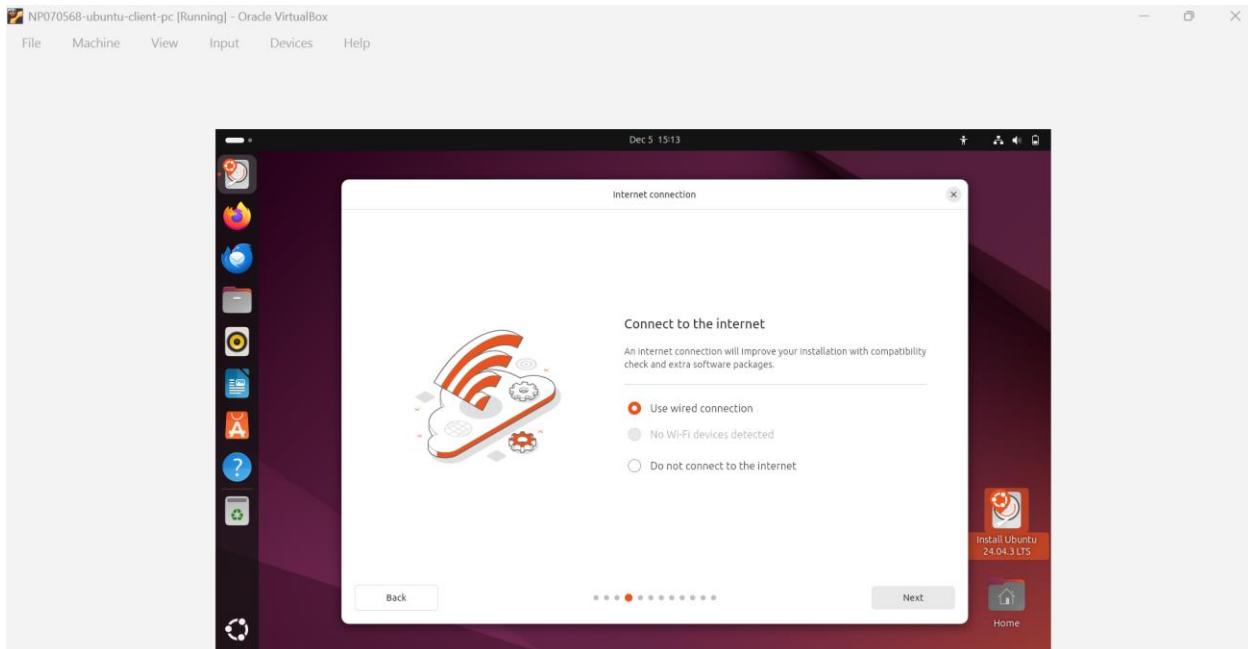


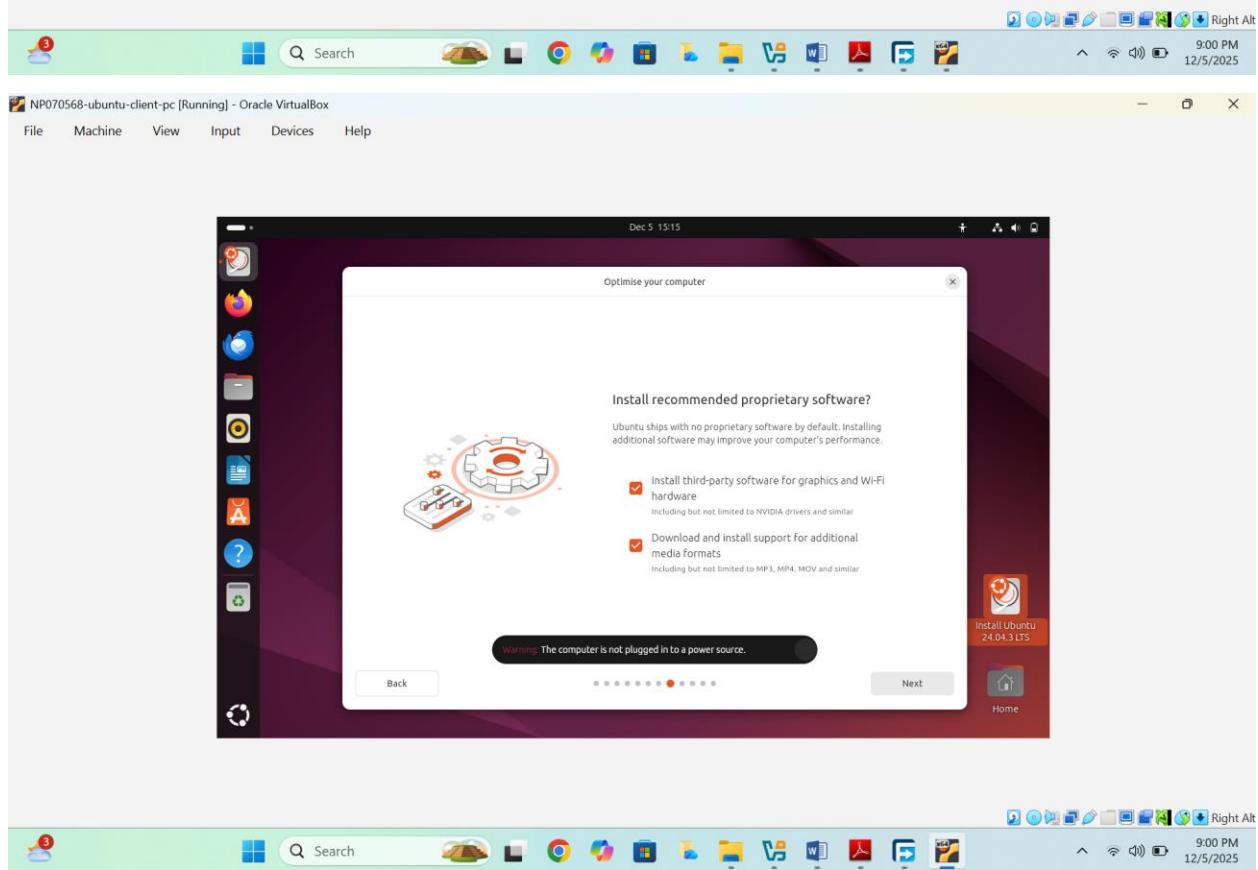
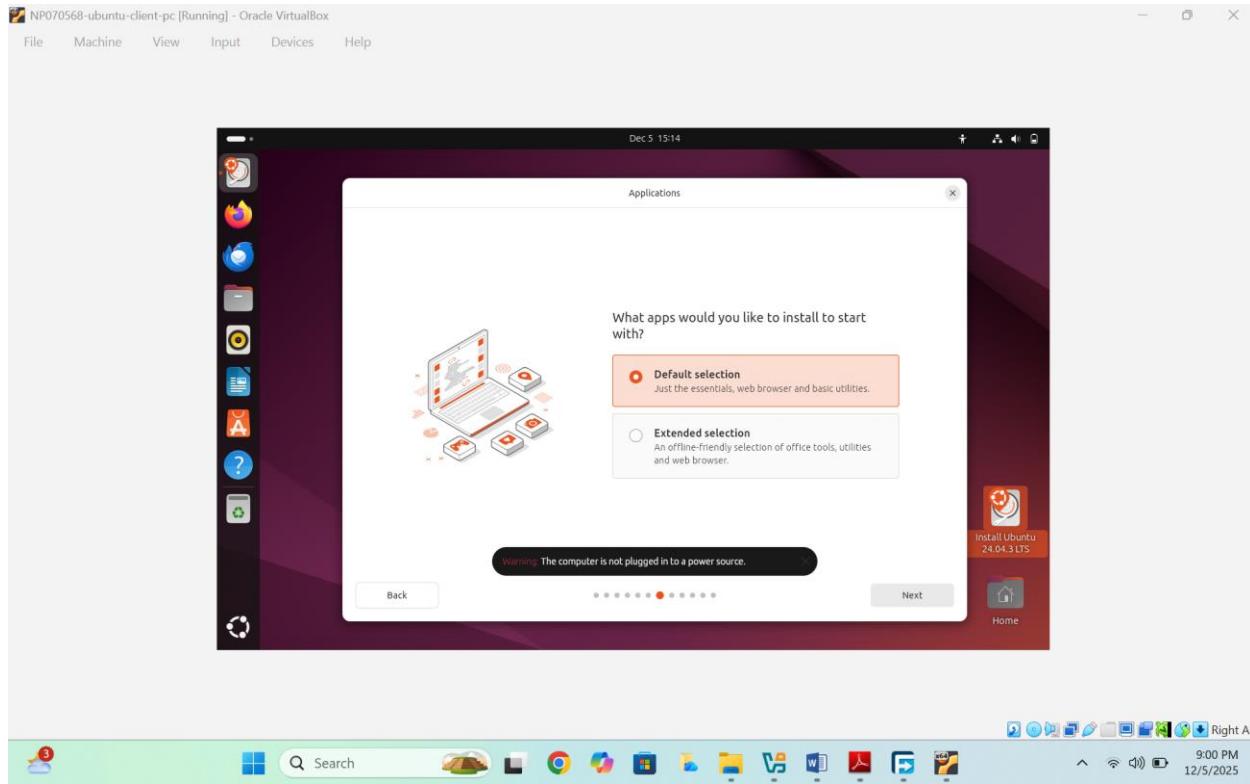


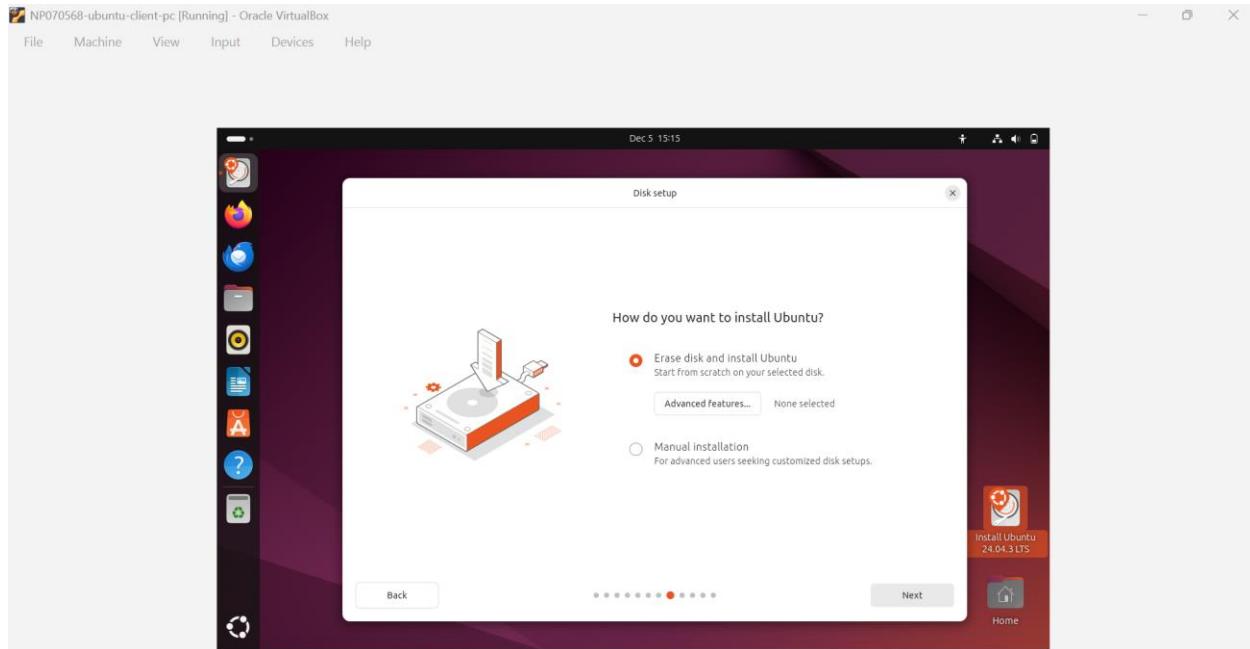
NIP070568-ubuntu-client-pc [Running] - Oracle VirtualBox

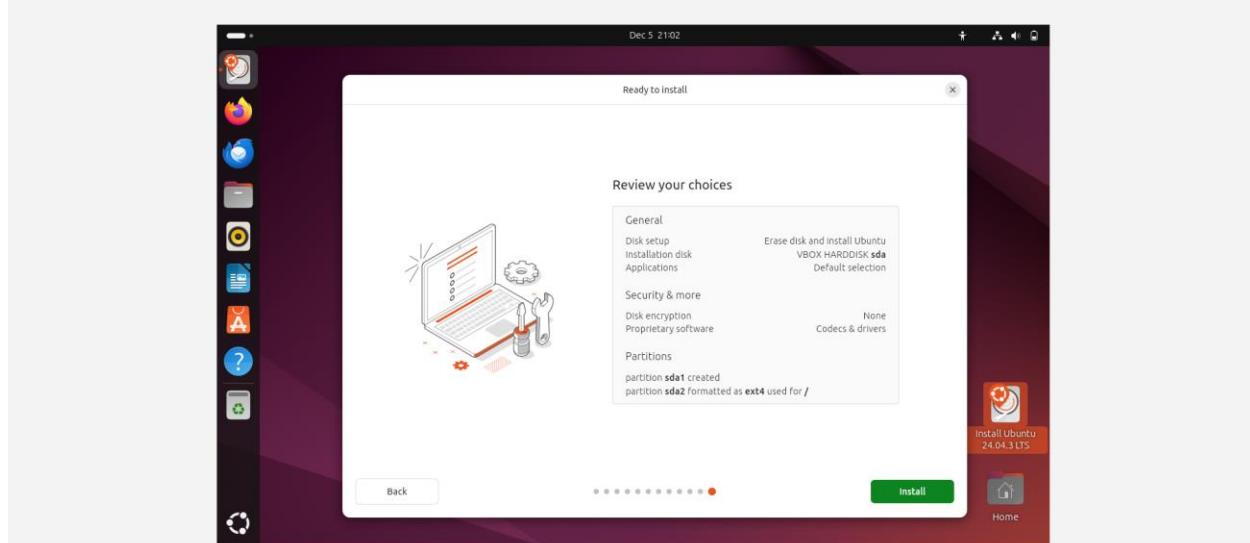
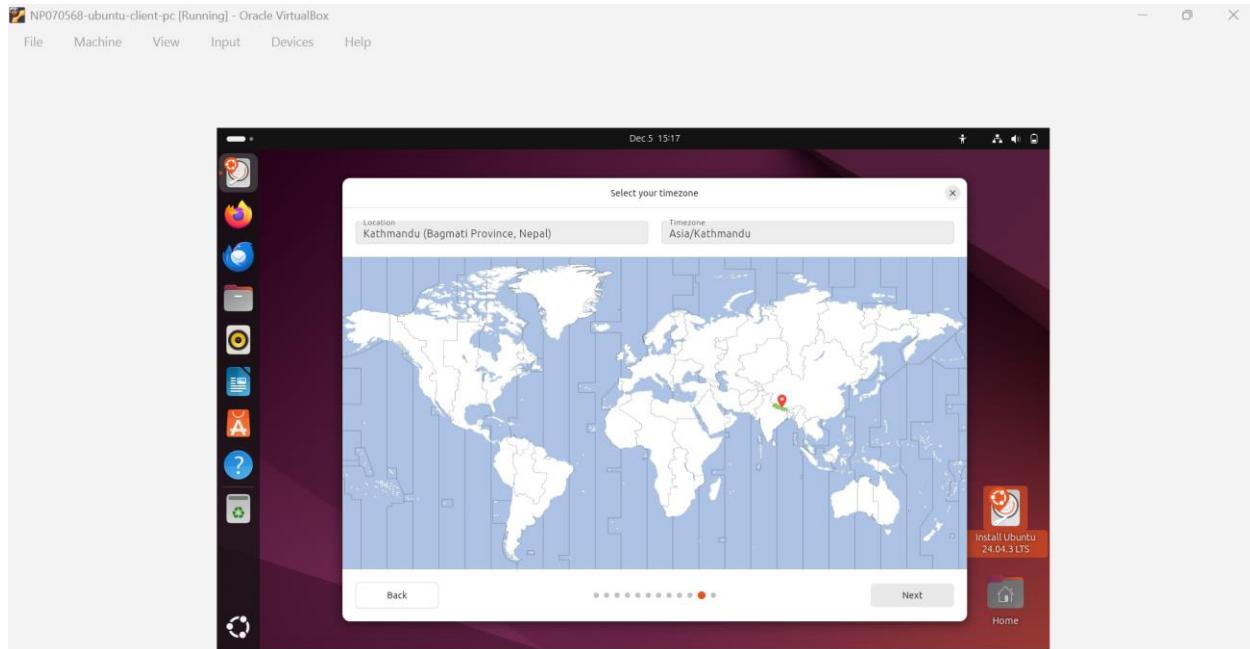
File Machine View Input Devices Help

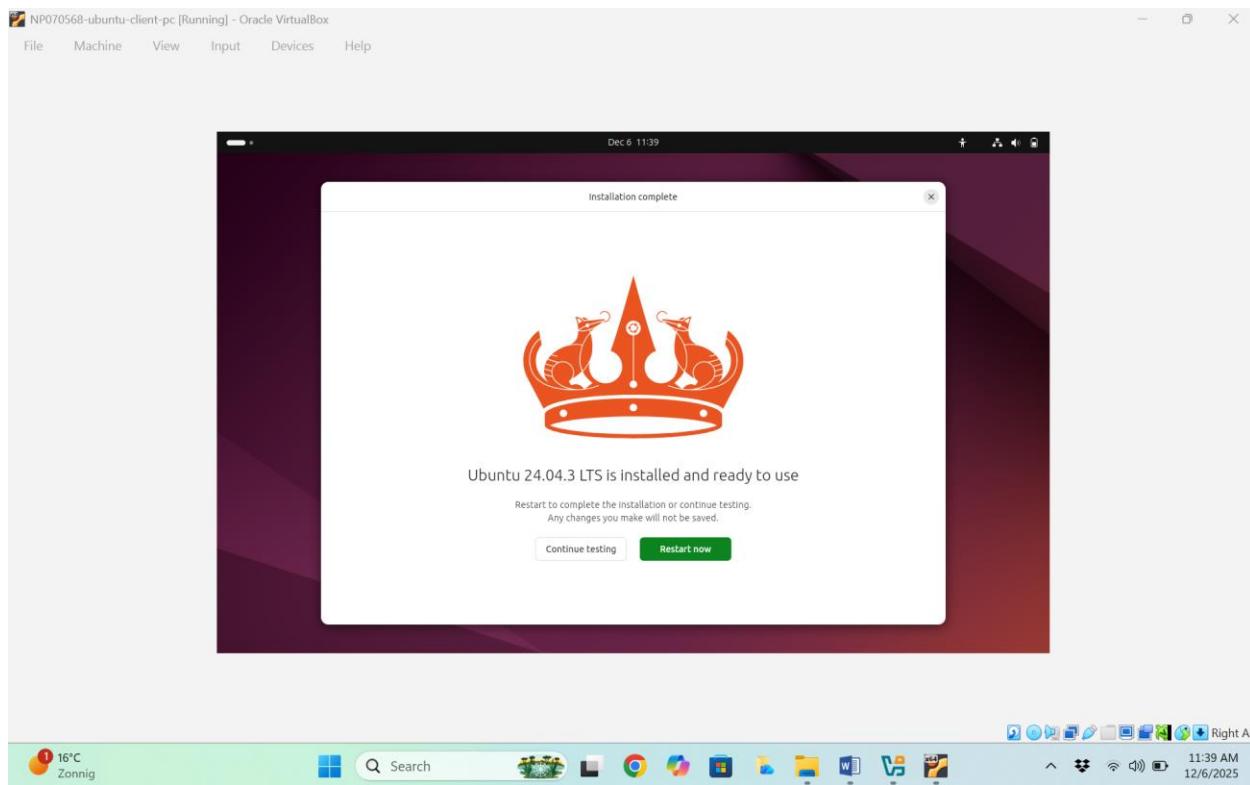
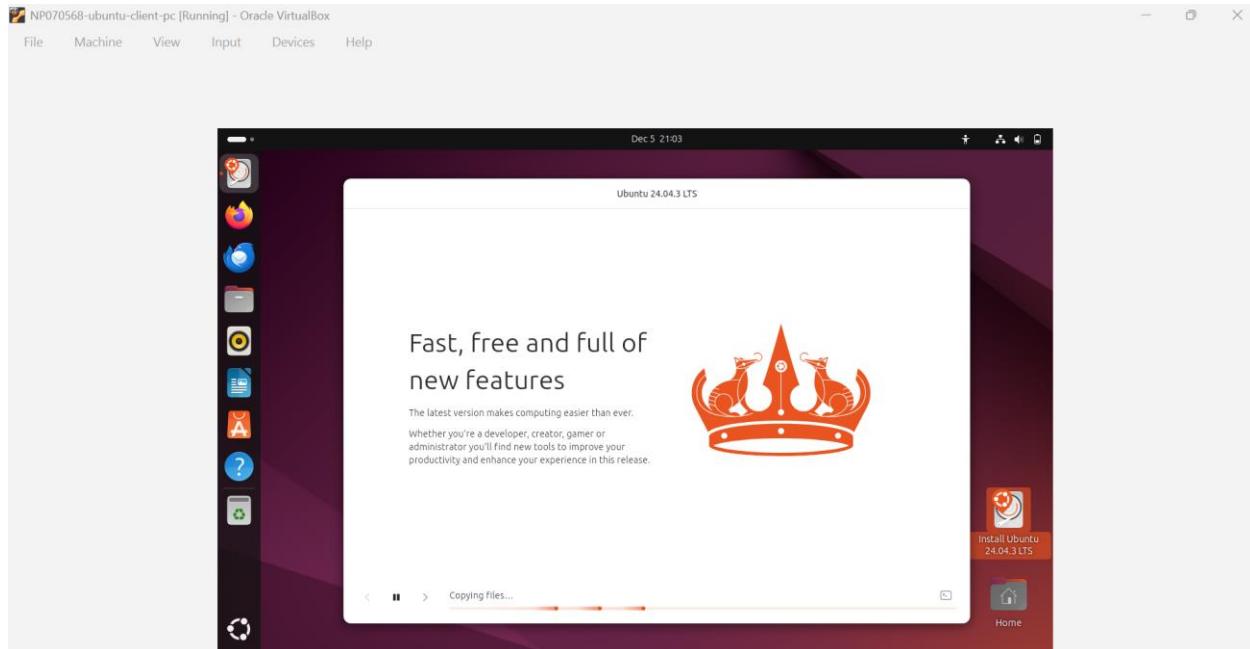


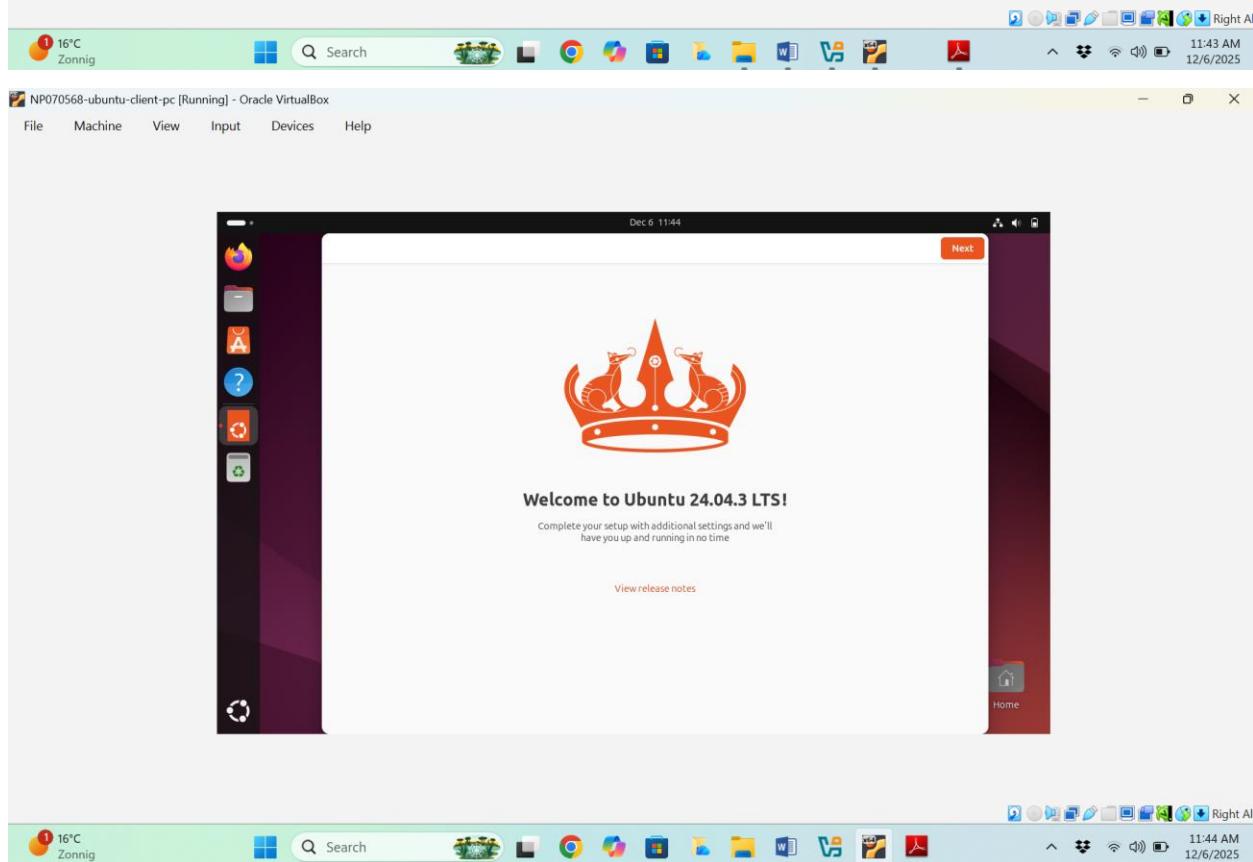
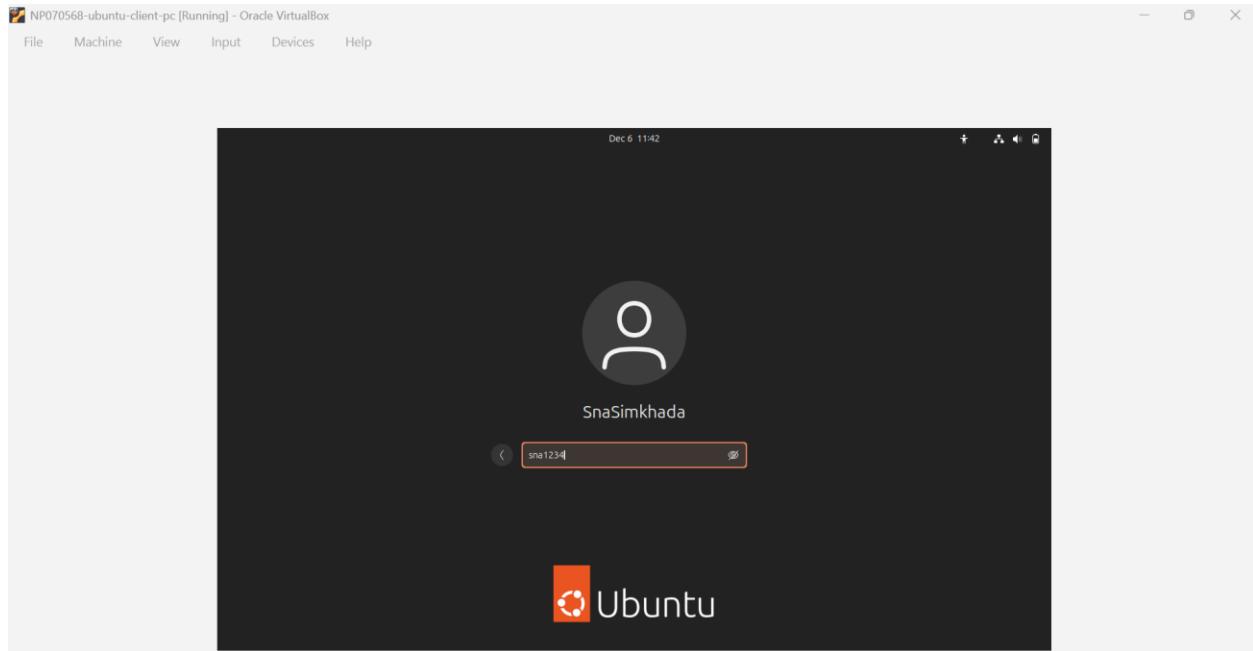


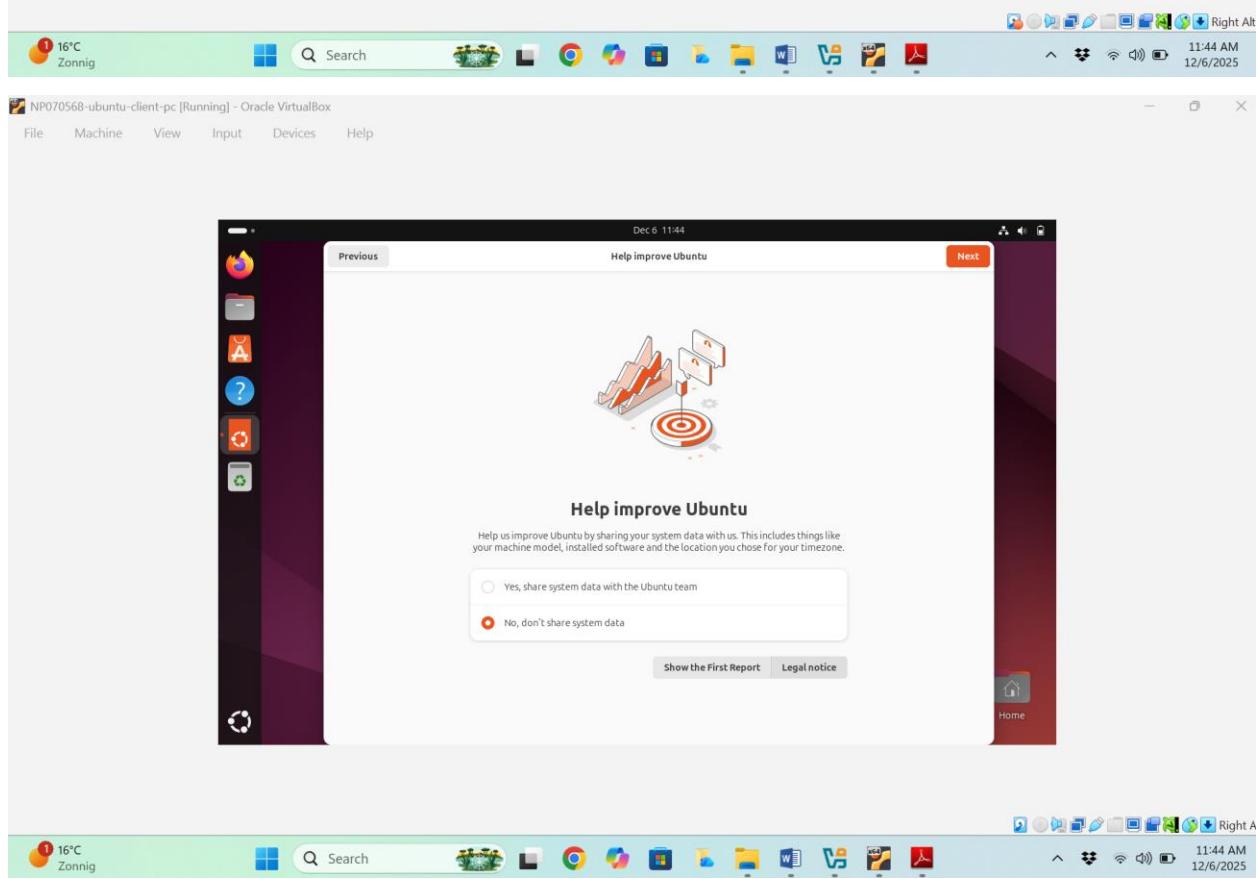
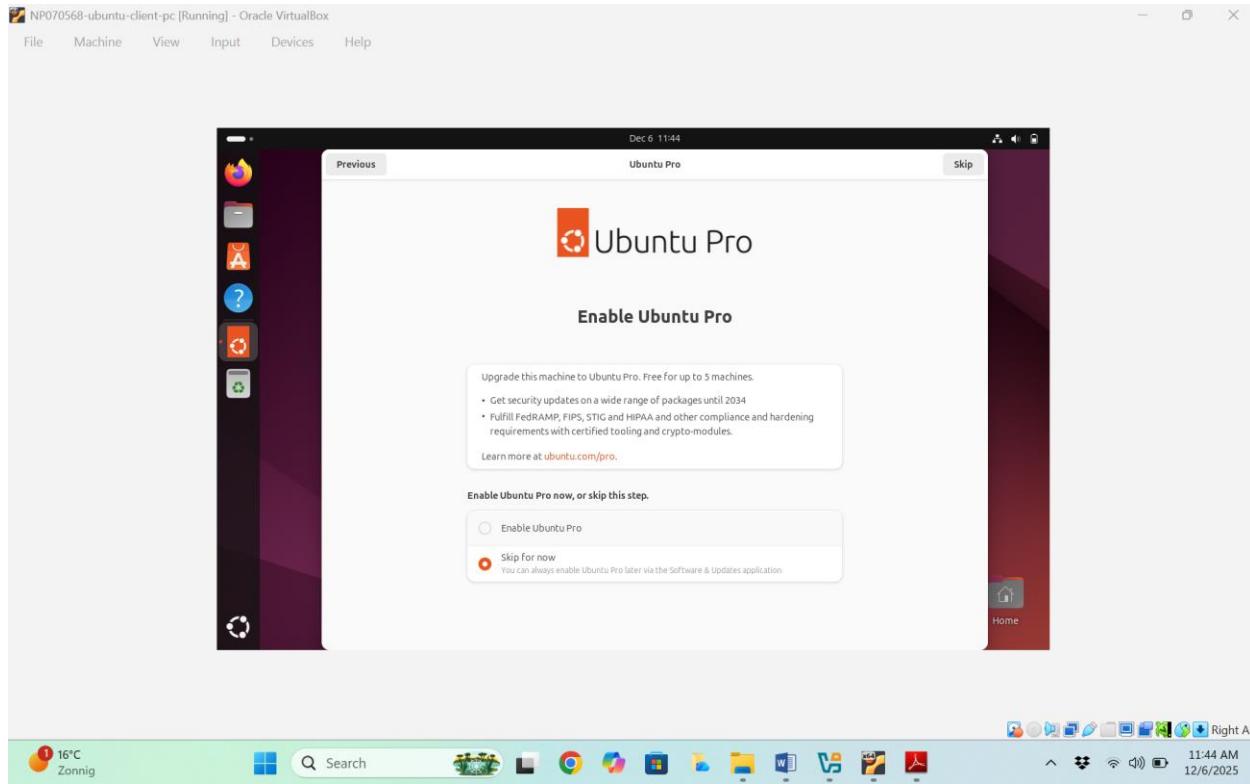


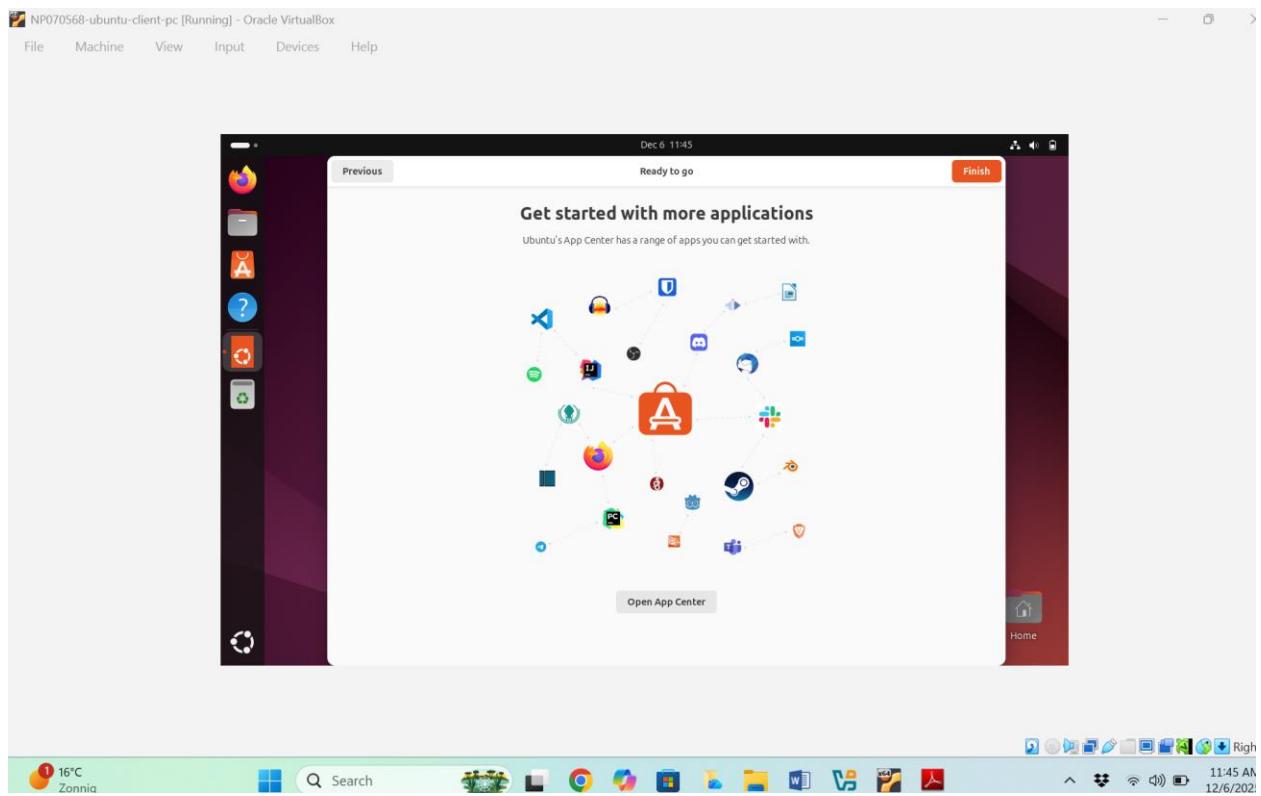




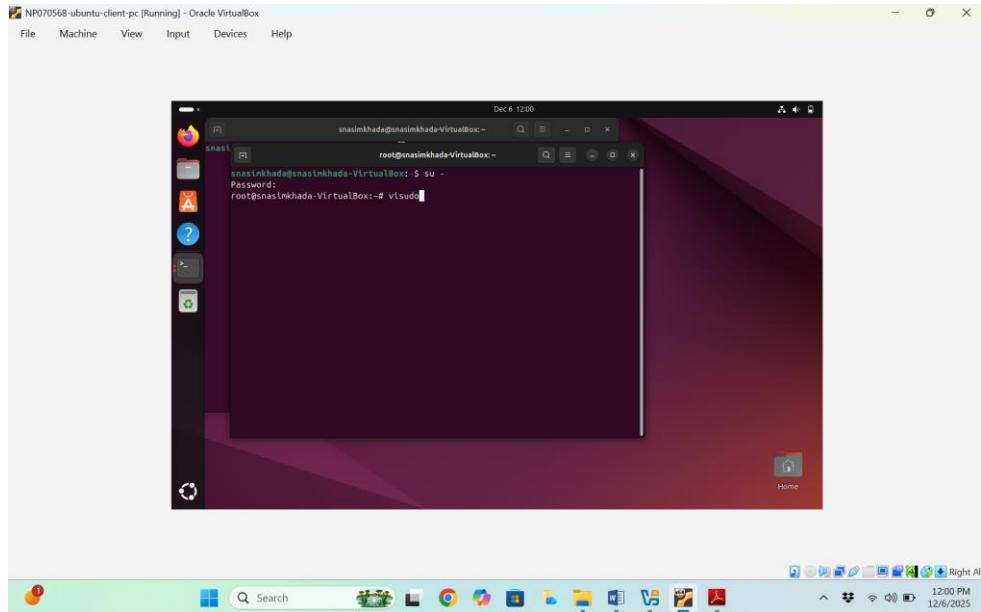


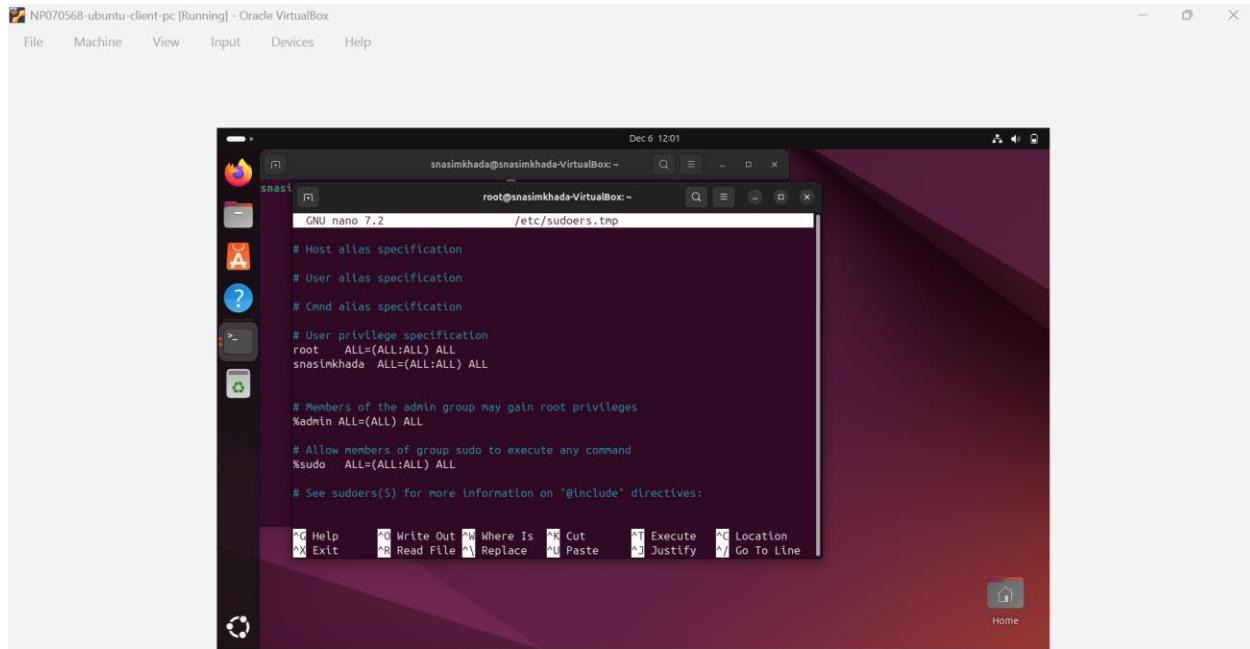






## Providing root privilege to current user of Ubuntu client by using command visudo





## **TASK 3: HOSTNAME, FQDN AND STATIC IP CONFIGURATION**

### **Objective:**

To configure proper hostname, Fully Qualified Domain Name (FQDN), and static IP addresses for both server and client.

### **Steps for Rocky Server:**

Edited hostname using command: hostnamectl set-hostname simkhadaserver.prakash.com

Modified /etc/hosts file to map IP address to hostname.

Configured network interface with static IP address.

### **Steps for Ubuntu Client:**

1. Set hostname using hostnamectl.
2. Edited /etc/hosts file.
3. Configured network using Netplan.

### **Network-Configuration**

A NAT Network named “ClientServerNet” was created in VirtualBox with network range 192.168.200.0/24.

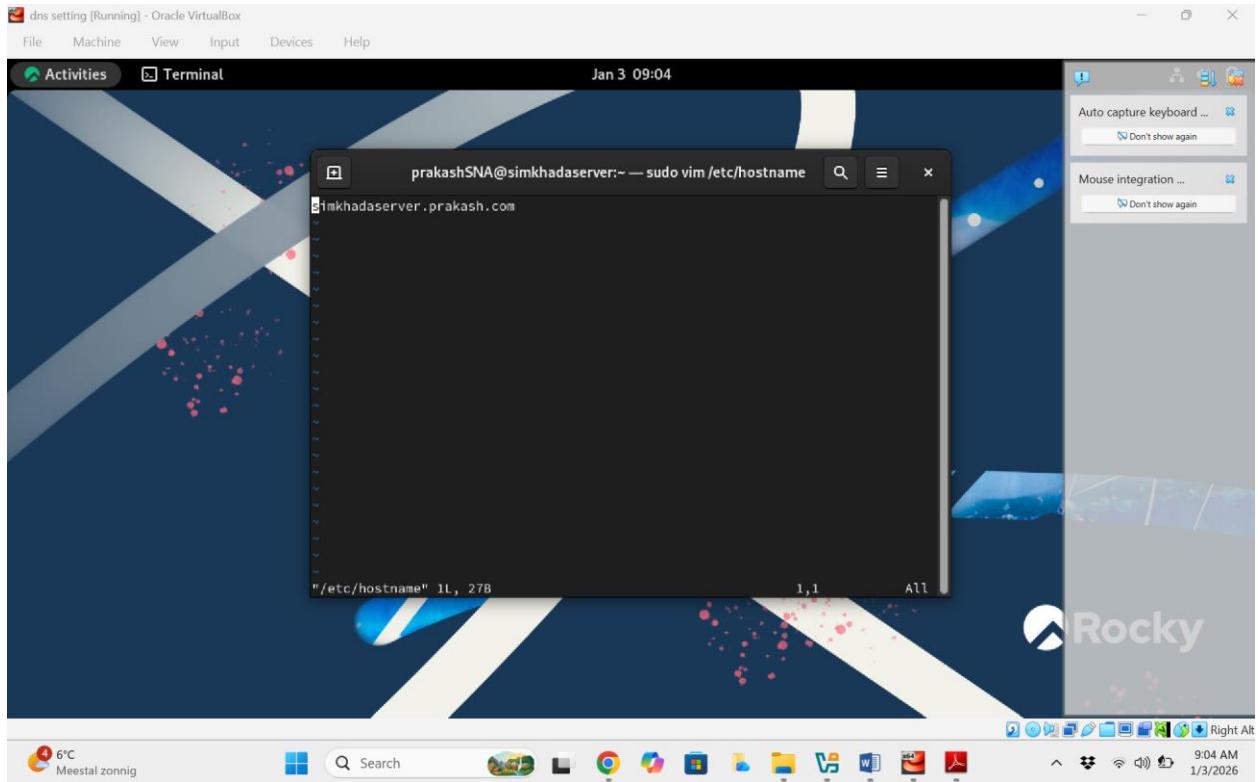
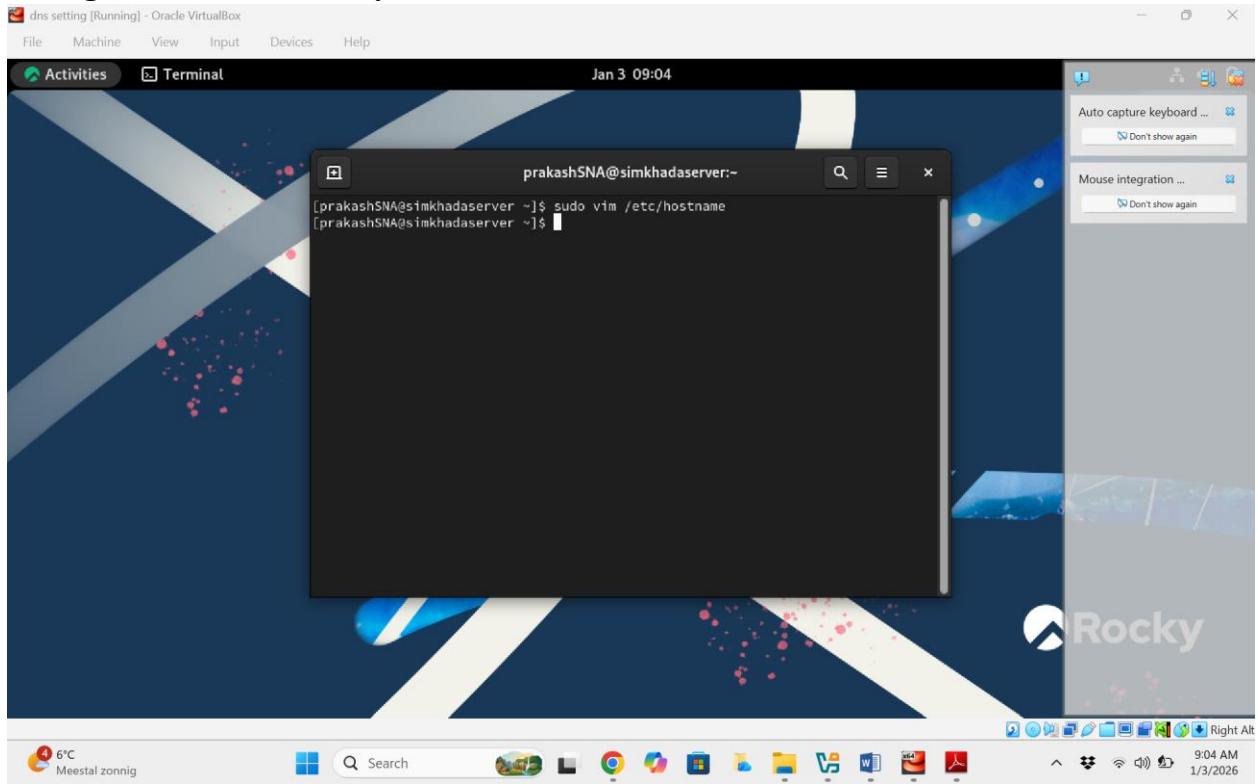
Both virtual machines were attached to this NAT network.

### **Verification:**

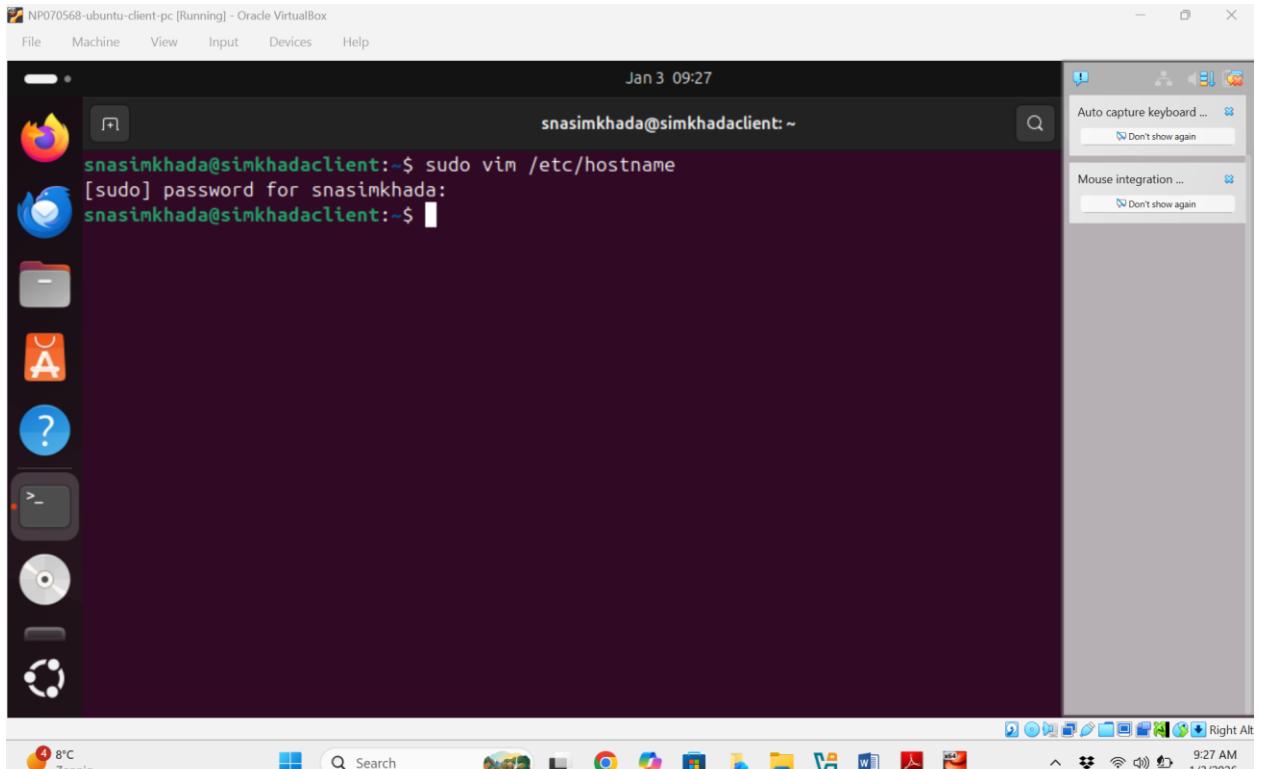
- Checked IP addresses using ip addr command.
- Verified connectivity using ping between server and client.
- Verified hostnames using hostnamectl.

## Screenshots of hostnamectl, ping results, and configuration files

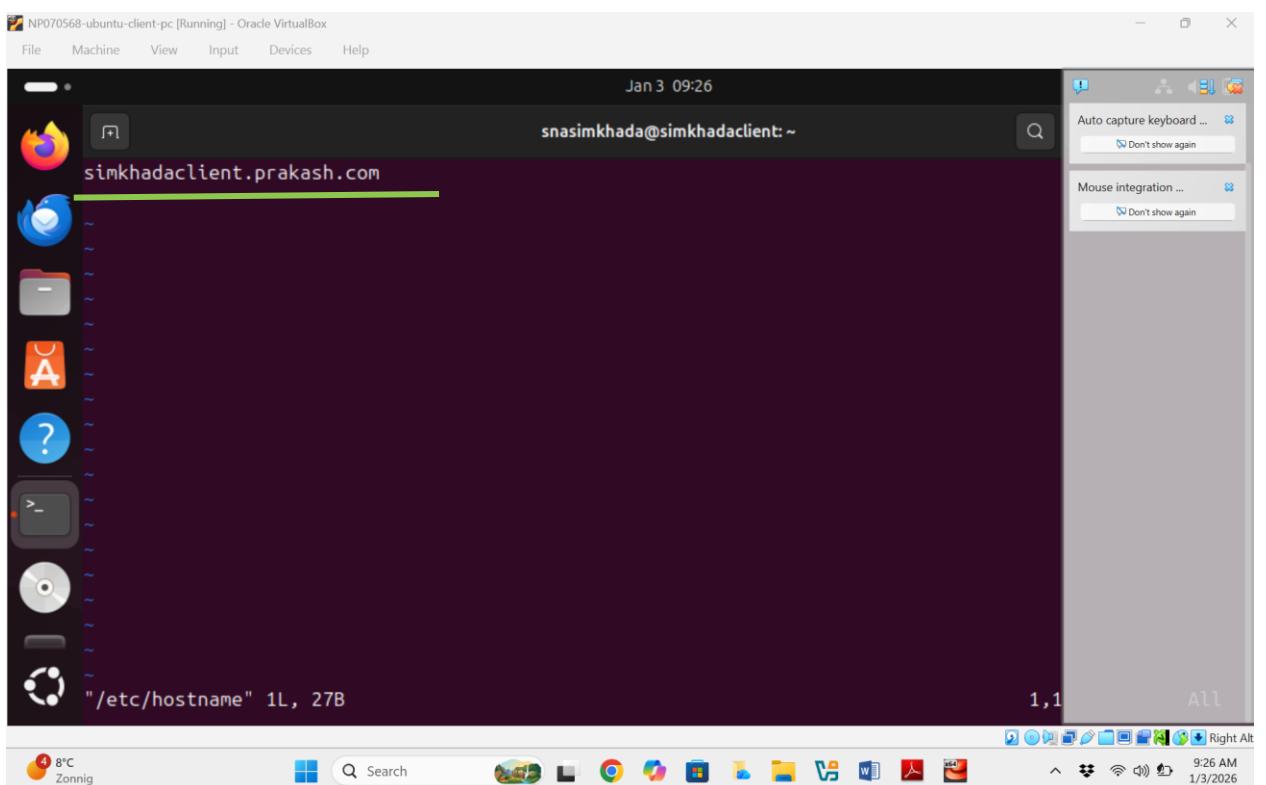
### Setting of FQDN , For rocky server



## Setting up FQDN for Ubuntu Client



```
snasimkhada@simkhadaclient:~$ sudo vim /etc/hostname
[sudo] password for snasimkhada:
```

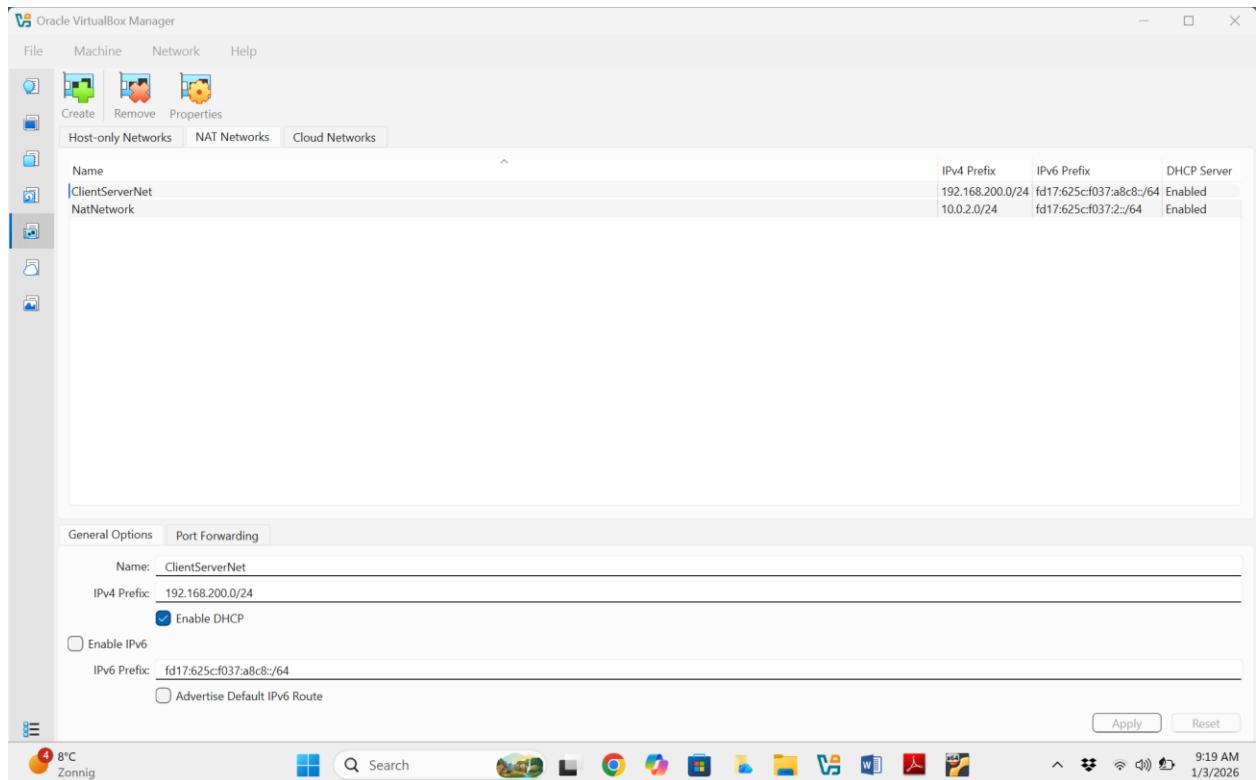
  


```
snasimkhada@simkhadaclient:~$ simkhadaclient.prakash.com
```

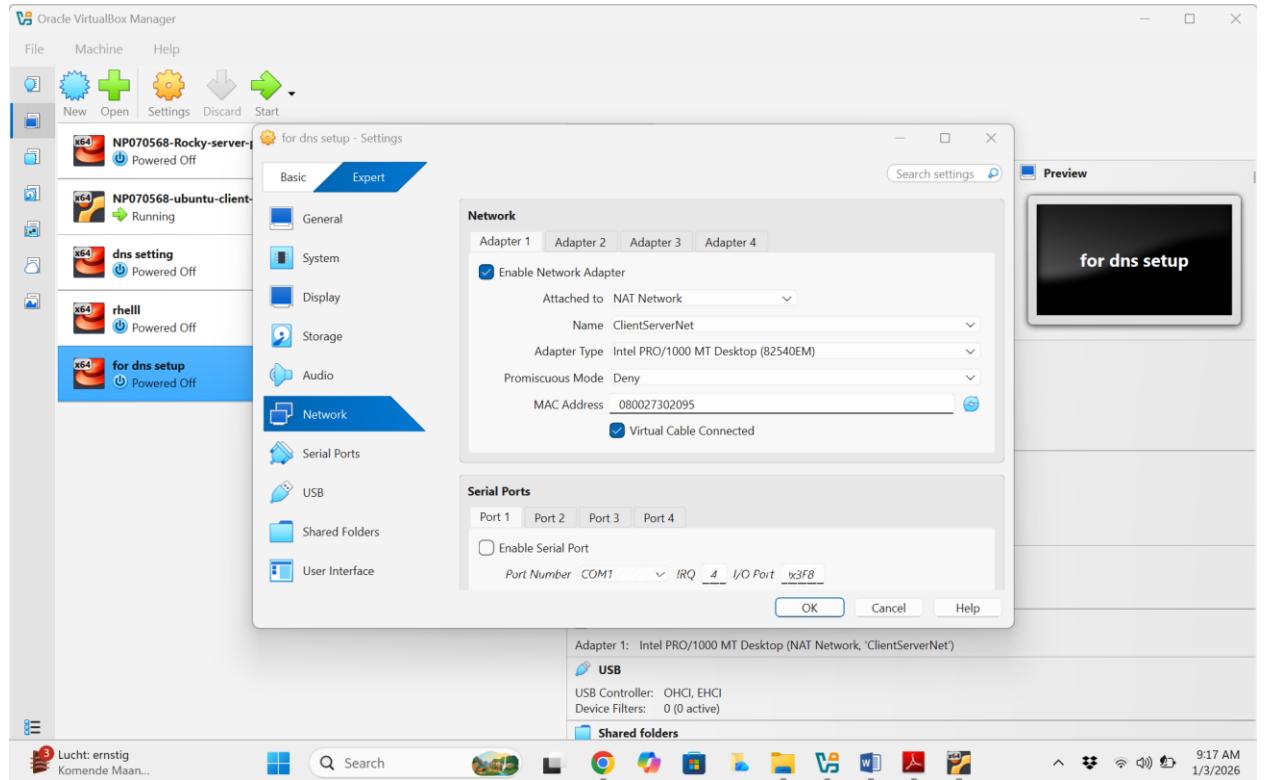
The screenshots show the process of changing the FQDN in the /etc/hostname file on an Ubuntu client running in Oracle VirtualBox. In the first screenshot, the user runs the command `sudo vim /etc/hostname` and is prompted for their password. In the second screenshot, the terminal shows the new FQDN `simkhadaclient.prakash.com` has been successfully set.

## Configuring Nat Networks

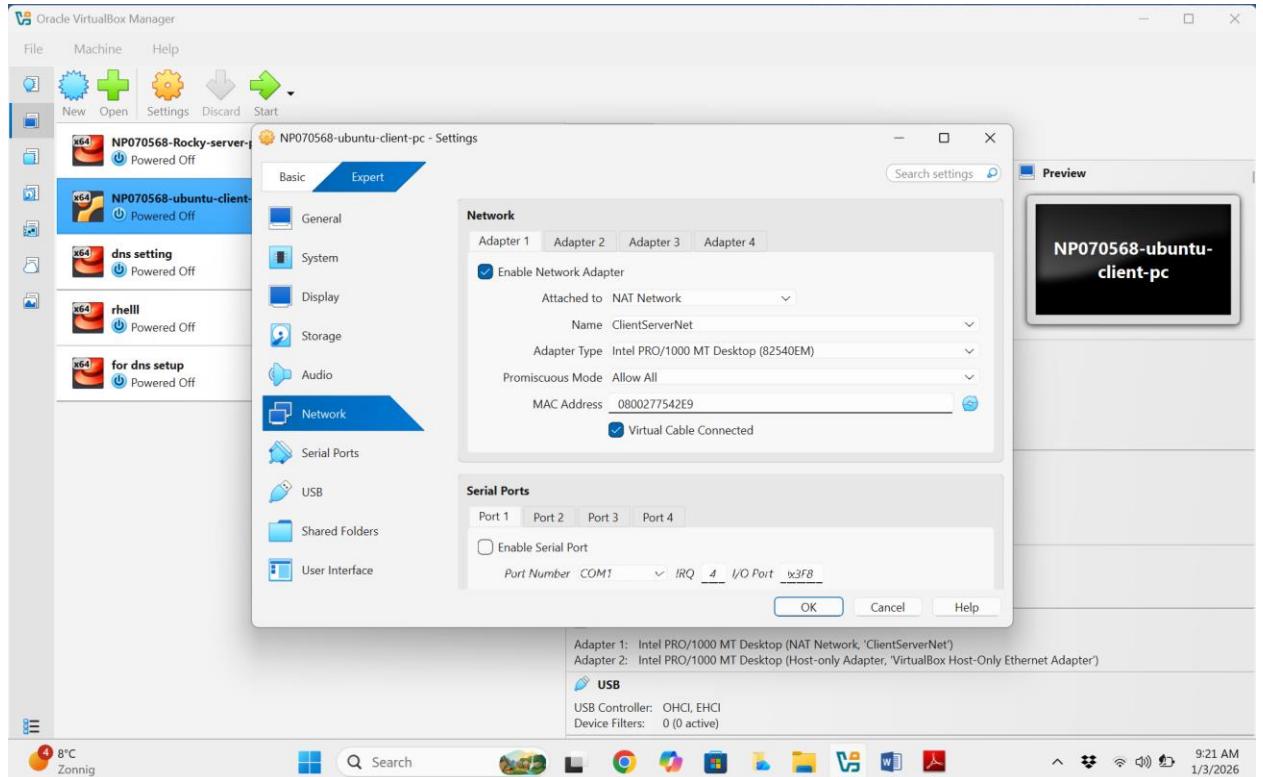
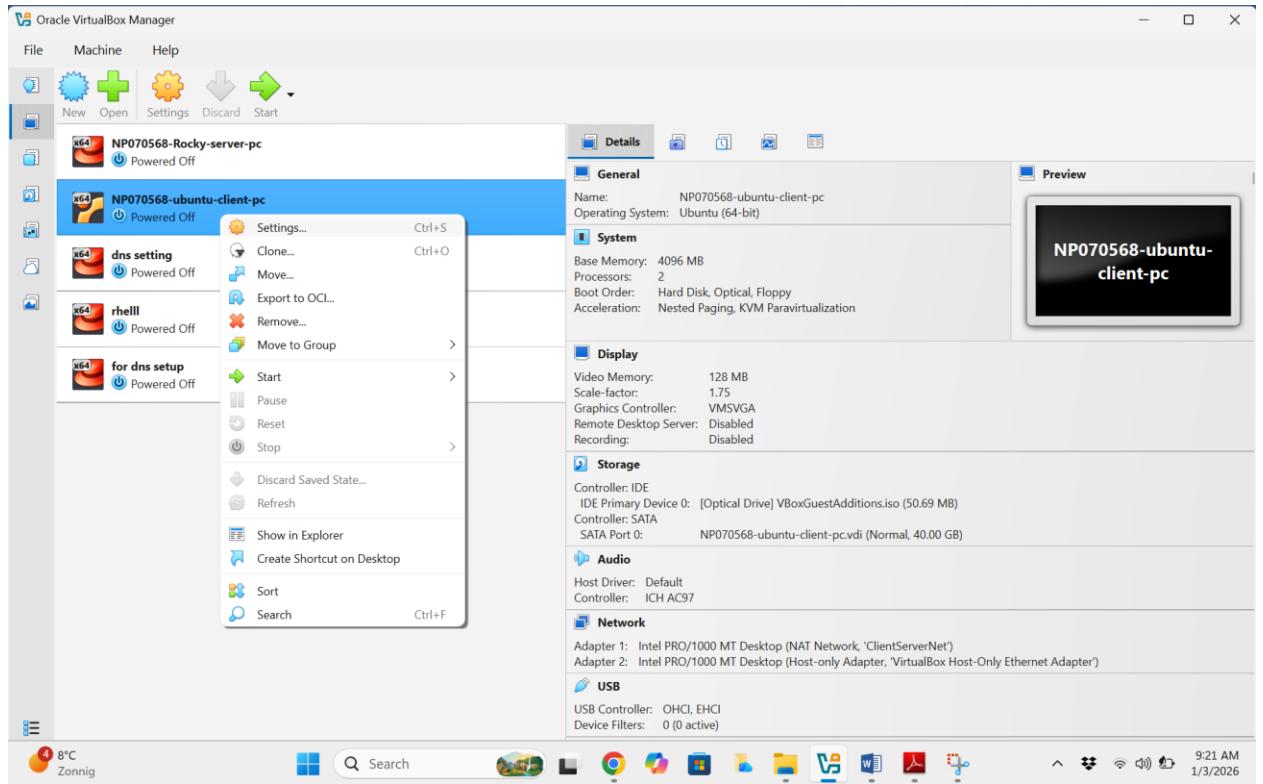
- For network setup, go to file, tools and network manager, choose NAT networks along with dhcp configuration with prefix /24,, ip address 192.168.200.0.. set name ClientServerNet



- Now go to rocky server machine, Setting , Network then hover mouse to “Attached TO” then select NAT Network, for Name=ClientServerNet, follow the screenshot



- For client machine, same as rocky server, set same network setting like rocky server



- Now after setting correct network setting, Probably we can ping between Ubuntu client and rocky server, first lets check ip address of Ubuntu client and Rocky-server simultaneously

```
nasimkhada@simkhadaclient:~$ ifconfig
enp0s3: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
        inet 192.168.200.4 netmask 255.255.255.0 broadcast 192.168.200.255
                ether 08:00:27:75:42:e9 txqueuelen 1000 (Ethernet)
                RX packets 67 bytes 11256 (11.2 KB)
                RX errors 0 dropped 0 overruns 0 frame 0
                TX packets 151 bytes 14424 (14.4 KB)
                TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

enp0s8: flags=4099<UP,BROADCAST,MULTICAST> mtu 1500
        ether 08:00:27:be:d3:88 txqueuelen 1000 (Ethernet)
        RX packets 0 bytes 0 (0.0 B)
        RX errors 0 dropped 0 overruns 0 frame 0
        TX packets 0 bytes 0 (0.0 B)
        TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

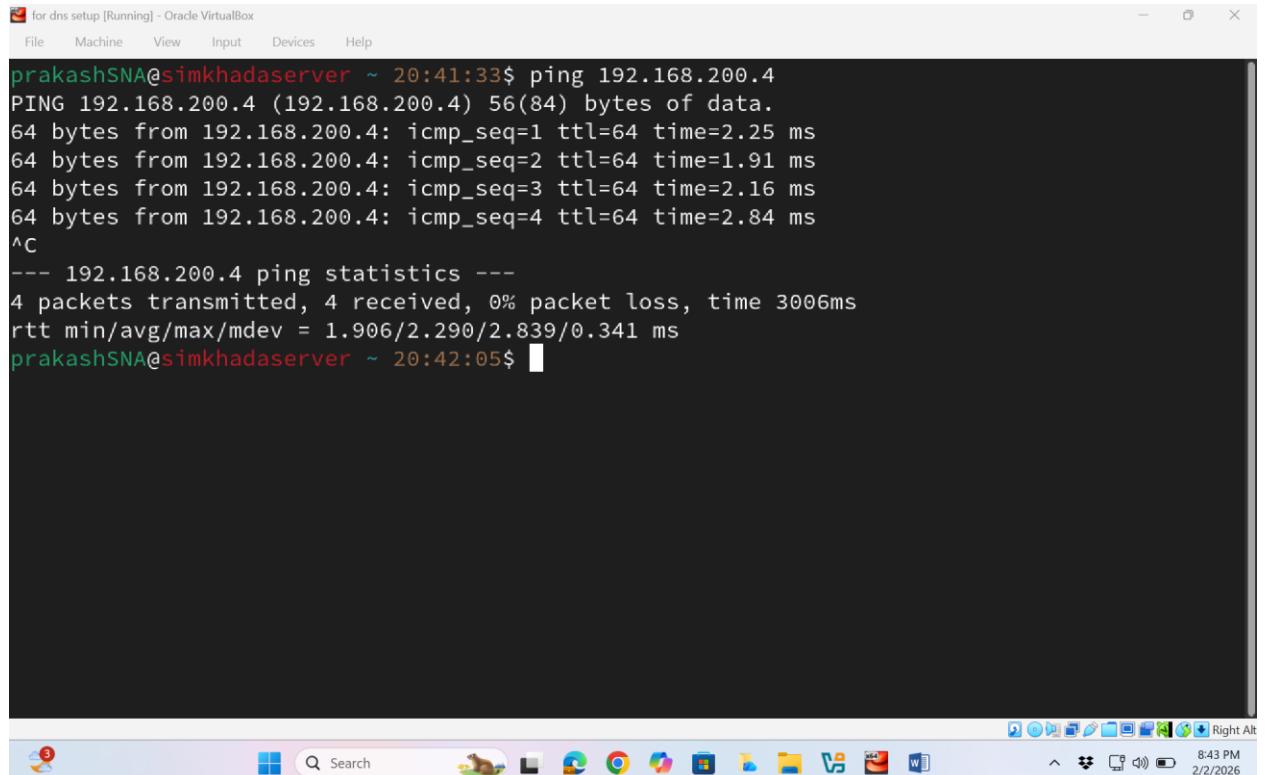
lo: flags=73<UP,LOOPBACK,RUNNING> mtu 65536
        inet 127.0.0.1 netmask 255.0.0.0
        inet6 ::1 prefixlen 128 scopeid 0x10<host>
                loop txqueuelen 1000 (Local Loopback)
                RX packets 37 bytes 4181 (4.1 KB)
                RX errors 0 dropped 0 overruns 0 frame 0
                TX packets 37 bytes 4181 (4.1 KB)
                TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

for dns setup [Running] - Oracle VirtualBox
File Machine View Input Devices Help
prakashSNA@simkhadaserver ~ 20:39:53$ ifconfig
enp0s3: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
        inet 192.168.200.5 netmask 255.255.255.0 broadcast 192.168.200.255
                inet6 fe80::a00:27ff:fe30:2095 prefixlen 64 scopeid 0x20<link>
                ether 08:00:27:30:20:95 txqueuelen 1000 (Ethernet)
                RX packets 617548 bytes 819124386 (781.1 MiB)
                RX errors 0 dropped 0 overruns 0 frame 0
                TX packets 63718 bytes 3889217 (3.7 MiB)
                TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

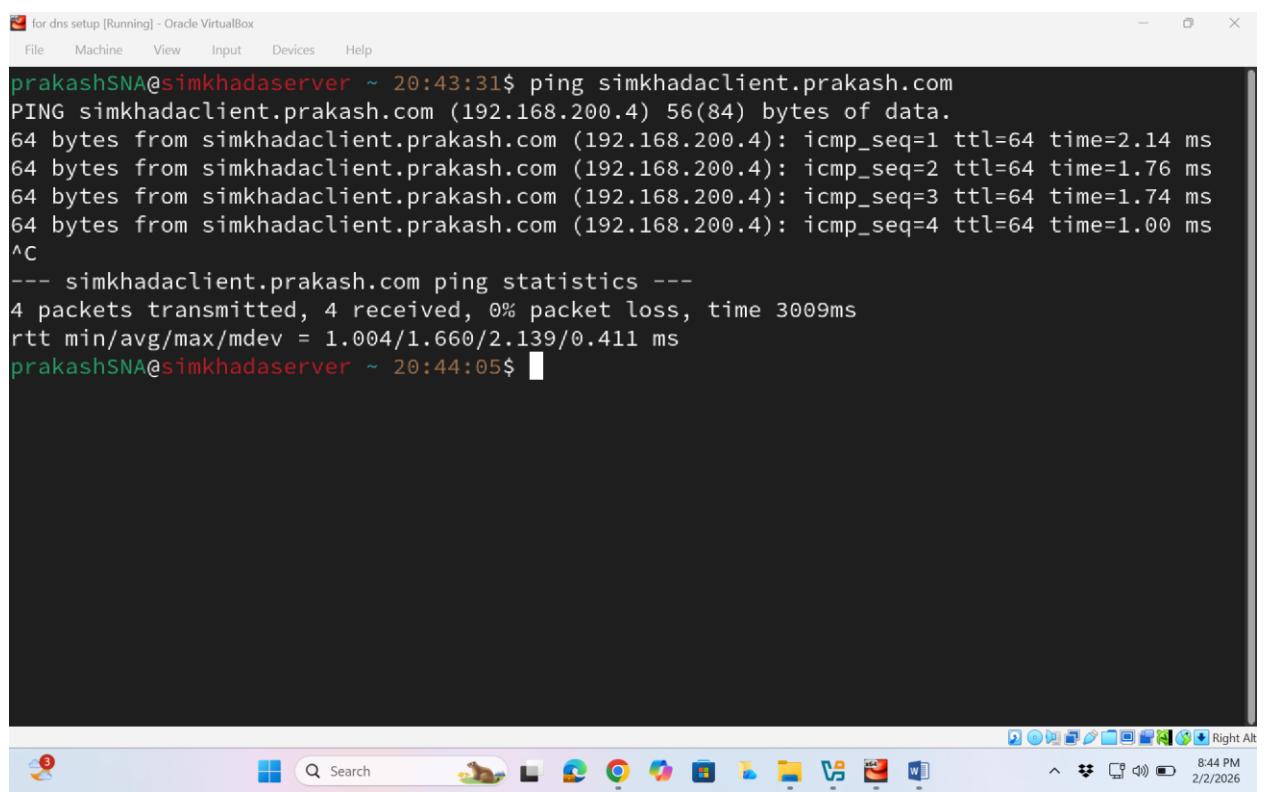
lo: flags=73<UP,LOOPBACK,RUNNING> mtu 65536
        inet 127.0.0.1 netmask 255.0.0.0
        inet6 ::1 prefixlen 128 scopeid 0x10<host>
                loop txqueuelen 1000 (Local Loopback)
                RX packets 225 bytes 24371 (23.7 KiB)
                RX errors 0 dropped 0 overruns 0 frame 0
                TX packets 225 bytes 24371 (23.7 KiB)
                TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
```

prakashSNA@simkhadaserver ~ 20:40:04\$

- Now lets ping between Ubuntuclient and rocky-server using IPADDRESS and FQDN



```
prakashSNA@simkhadaserver ~ 20:41:33$ ping 192.168.200.4
PING 192.168.200.4 (192.168.200.4) 56(84) bytes of data.
64 bytes from 192.168.200.4: icmp_seq=1 ttl=64 time=2.25 ms
64 bytes from 192.168.200.4: icmp_seq=2 ttl=64 time=1.91 ms
64 bytes from 192.168.200.4: icmp_seq=3 ttl=64 time=2.16 ms
64 bytes from 192.168.200.4: icmp_seq=4 ttl=64 time=2.84 ms
^C
--- 192.168.200.4 ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 3006ms
rtt min/avg/max/mdev = 1.906/2.290/2.839/0.341 ms
prakashSNA@simkhadaserver ~ 20:42:05$
```



```
prakashSNA@simkhadaserver ~ 20:43:31$ ping simkhadaclient.prakash.com
PING simkhadaclient.prakash.com (192.168.200.4) 56(84) bytes of data.
64 bytes from simkhadaclient.prakash.com (192.168.200.4): icmp_seq=1 ttl=64 time=2.14 ms
64 bytes from simkhadaclient.prakash.com (192.168.200.4): icmp_seq=2 ttl=64 time=1.76 ms
64 bytes from simkhadaclient.prakash.com (192.168.200.4): icmp_seq=3 ttl=64 time=1.74 ms
64 bytes from simkhadaclient.prakash.com (192.168.200.4): icmp_seq=4 ttl=64 time=1.00 ms
^C
--- simkhadaclient.prakash.com ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 3009ms
rtt min/avg/max/mdev = 1.004/1.660/2.139/0.411 ms
prakashSNA@simkhadaserver ~ 20:44:05$
```

NP070568-ubuntu-client-pc (system upodate) [Running] - Oracle VirtualBox

File Machine View Input Devices Help

nasimkhada@simkhadaclient:~

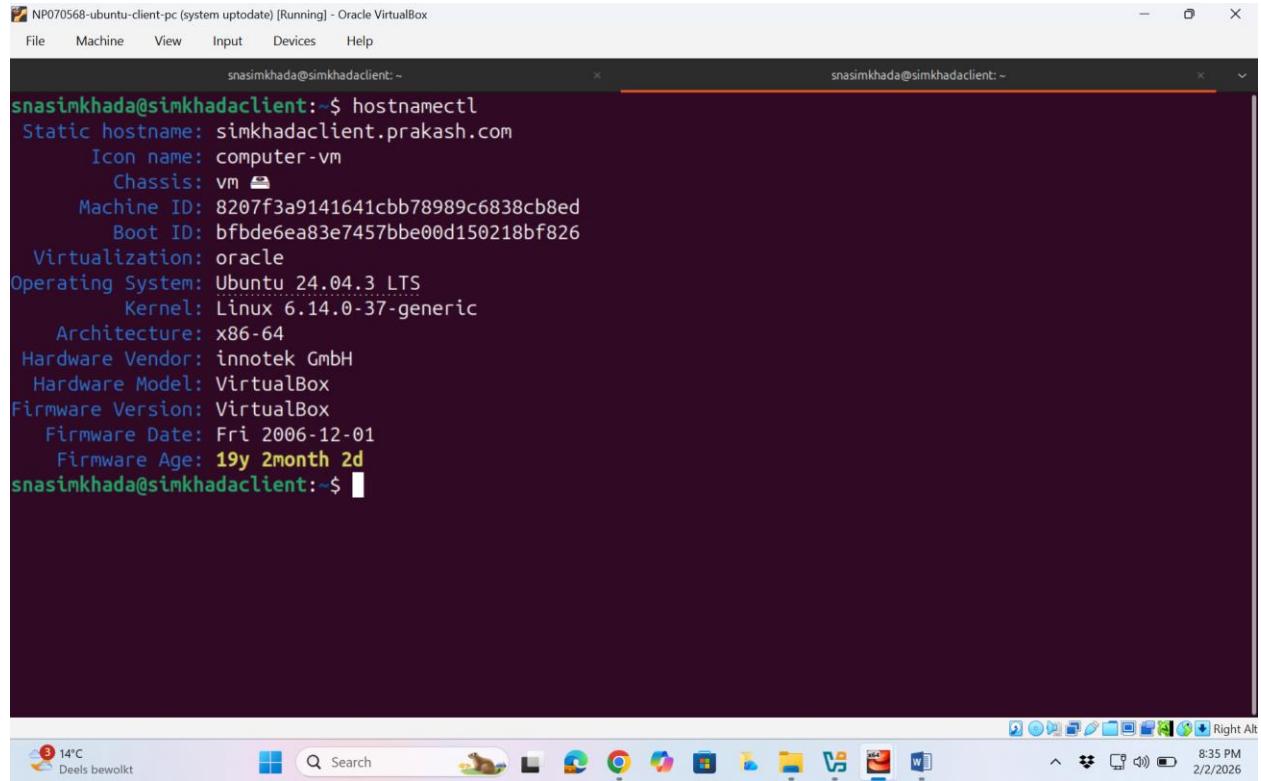
```
nasimkhada@simkhadaclient:~$ ping 192.168.200.5
PING 192.168.200.5 (192.168.200.5) 56(84) bytes of data.
64 bytes from 192.168.200.5: icmp_seq=1 ttl=64 time=1.99 ms
64 bytes from 192.168.200.5: icmp_seq=2 ttl=64 time=3.42 ms
64 bytes from 192.168.200.5: icmp_seq=3 ttl=64 time=2.98 ms
^C
--- 192.168.200.5 ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 2068ms
rtt min/avg/max/mdev = 1.989/2.795/3.416/0.597 ms
nasimkhada@simkhadaclient:~$ ping simkhadaserver.prakash.com
PING simkhadaserver.prakash.com (192.168.200.5) 56(84) bytes of data.
64 bytes from simkhadaserver.prakash.com (192.168.200.5): icmp_seq=1 ttl=64 time=3.15 ms
64 bytes from simkhadaserver.prakash.com (192.168.200.5): icmp_seq=2 ttl=64 time=2.82 ms
64 bytes from simkhadaserver.prakash.com (192.168.200.5): icmp_seq=3 ttl=64 time=1.04 ms

--- simkhadaserver.prakash.com ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 2004ms
rtt min/avg/max/mdev = 1.040/2.337/3.151/0.927 ms
^Cnasimkhada@simkhadaclient:~$
```

Right Alt

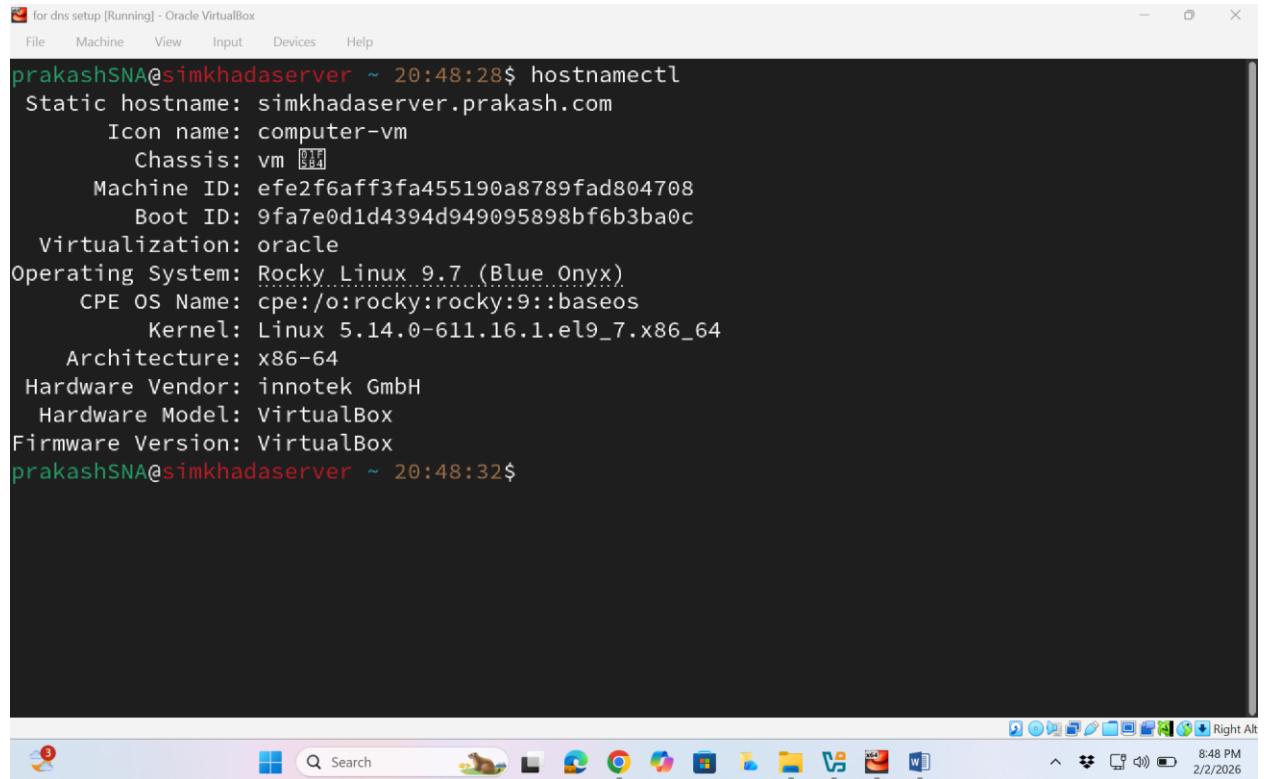
8:47 PM  
2/2/2026

## Hostnamectl command for UbuntuClient



```
snasimkhada@simkhadaclient:~$ hostnamectl
Static hostname: simkhadaclient.prakash.com
Icon name: computer-vm
Chassis: vm
Machine ID: 8207f3a9141641cbb78989c6838cb8ed
Boot ID: bfbde6ea83e7457bbe00d150218bf826
Virtualization: oracle
Operating System: Ubuntu 24.04.3 LTS
Kernel: Linux 6.14.0-37-generic
Architecture: x86-64
Hardware Vendor: innotek GmbH
Hardware Model: VirtualBox
Firmware Version: VirtualBox
Firmware Date: Fri 2006-12-01
Firmware Age: 19y 2month 2d
snasimkhada@simkhadaclient:~$
```

## hostnamectl command for rocky-server



A screenshot of a Windows desktop environment. At the top, there's a taskbar with various icons including a file explorer, a browser, and system status indicators. Below the taskbar is a large window titled "for dns setup [Running] - Oracle VirtualBox". Inside this window, a terminal session is running on a Rocky Linux 9.7 (Blue Onyx) host. The terminal output shows the results of the "hostnamectl" command, listing details about the host's name, icon, chassis, machine ID, boot ID, virtualization type, operating system, CPE OS name, kernel, architecture, hardware vendor, model, and firmware version. The terminal prompt "prakashSNA@simkhadaserver ~ 20:48:32\$" is visible at the bottom.

```
prakashSNA@simkhadaserver ~ 20:48:28$ hostnamectl
Static hostname: simkhadaserver.prakash.com
Icon name: computer-vm
Chassis: vm [!]
Machine ID: efe2f6aff3fa455190a8789fad804708
Boot ID: 9fa7e0d1d4394d949095898bf6b3ba0c
Virtualization: oracle
Operating System: Rocky Linux 9.7 (Blue Onyx)
CPE OS Name: cpe:/o:rocky:rocky:9::baseos
Kernel: Linux 5.14.0-611.16.1.el9_7.x86_64
Architecture: x86-64
Hardware Vendor: innotek GmbH
Hardware Model: VirtualBox
Firmware Version: VirtualBox
prakashSNA@simkhadaserver ~ 20:48:32$
```

## **TASK 4: OPERATING SYSTEM UPDATE AND UPGRADE**

### **Objective**

To update and upgrade both server and client systems to the latest packages.

### **Commands Used for Rocky Linux**

```
sudo dnf update -y
```

```
sudo dnf upgrade -y
```

### **Commands Used for Ubuntu Client**

```
sudo apt update
```

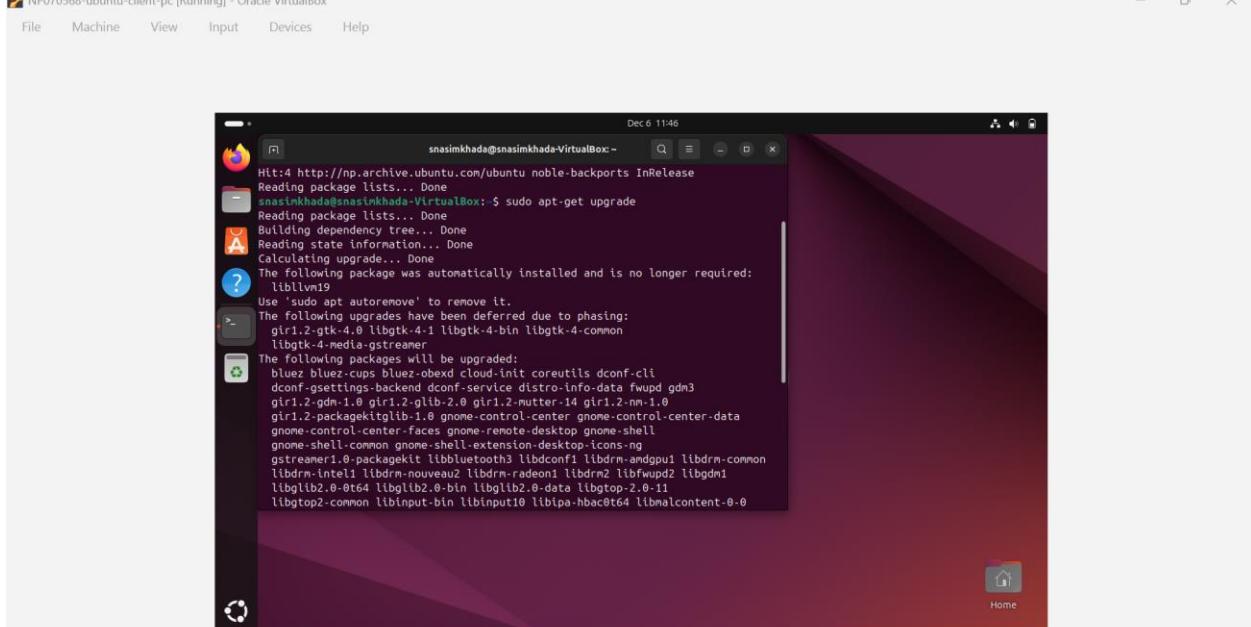
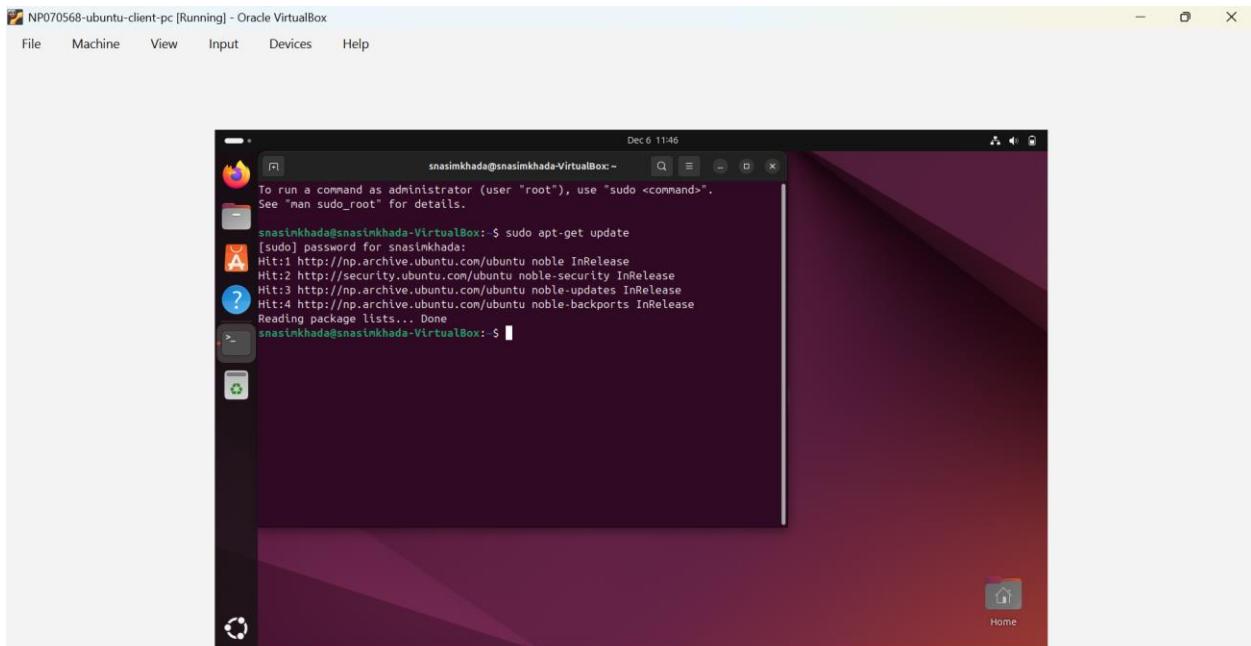
```
sudo apt upgrade -y
```

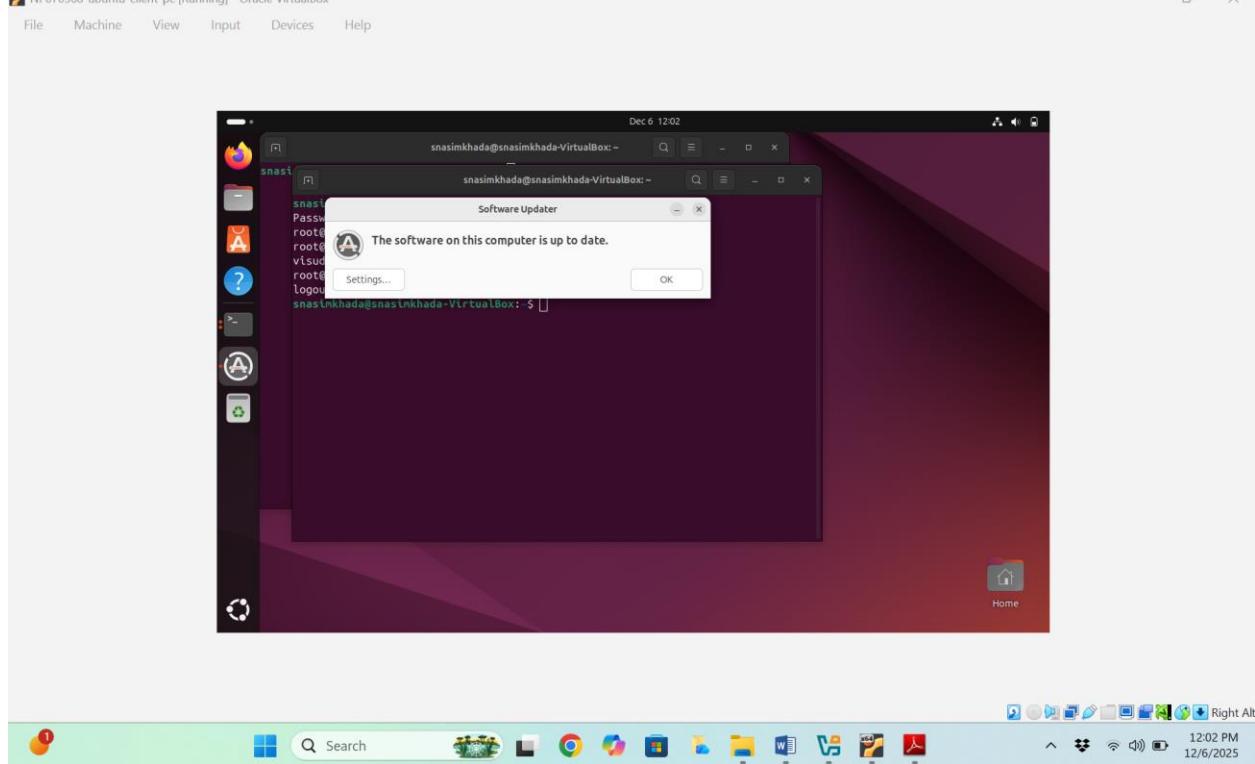
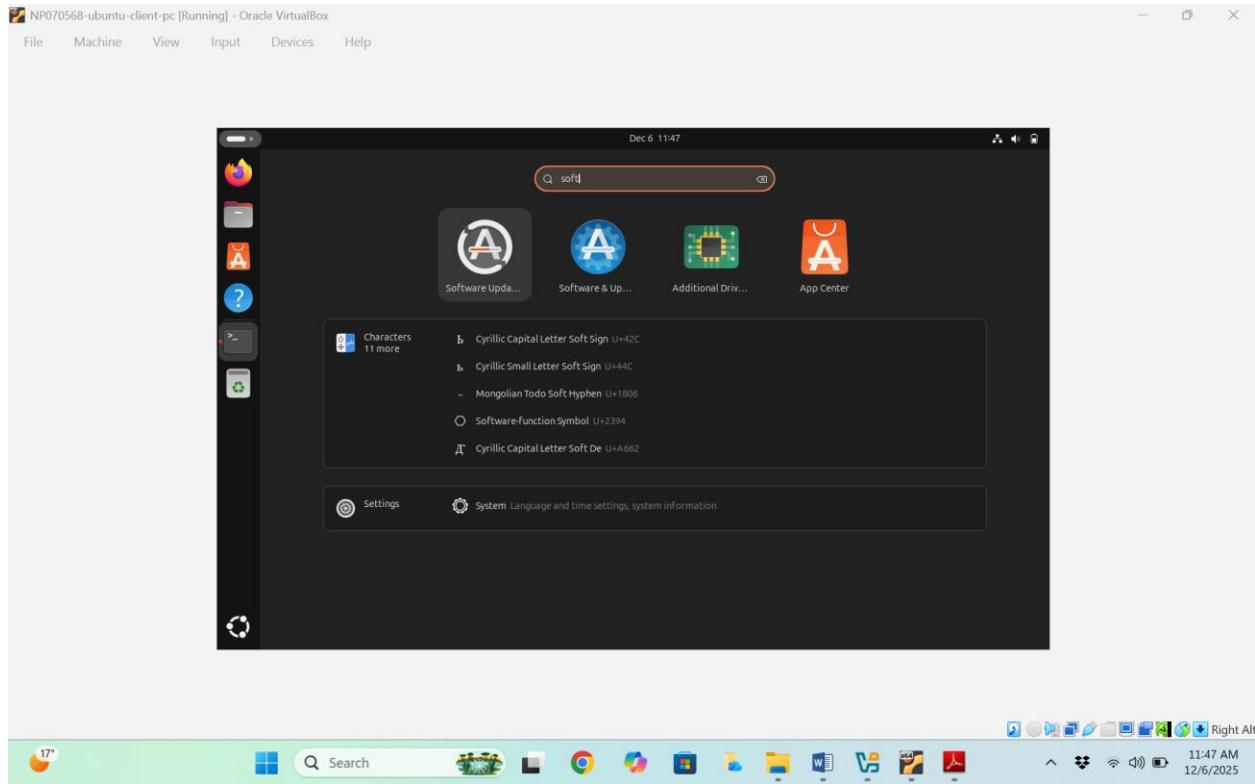
### **Verification**

Both systems were successfully updated without errors.

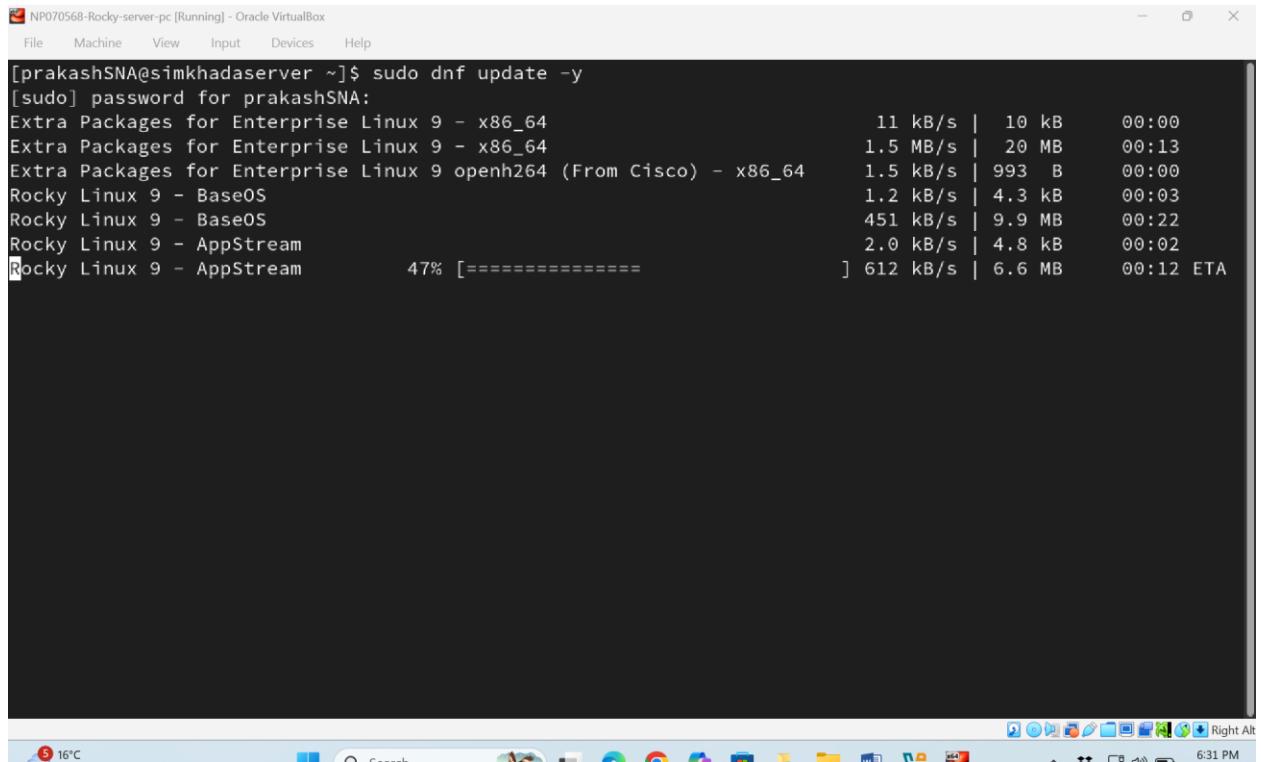
## Update and Upgrade Command Screenshots

*system update and upgrade of Ubuntu client*

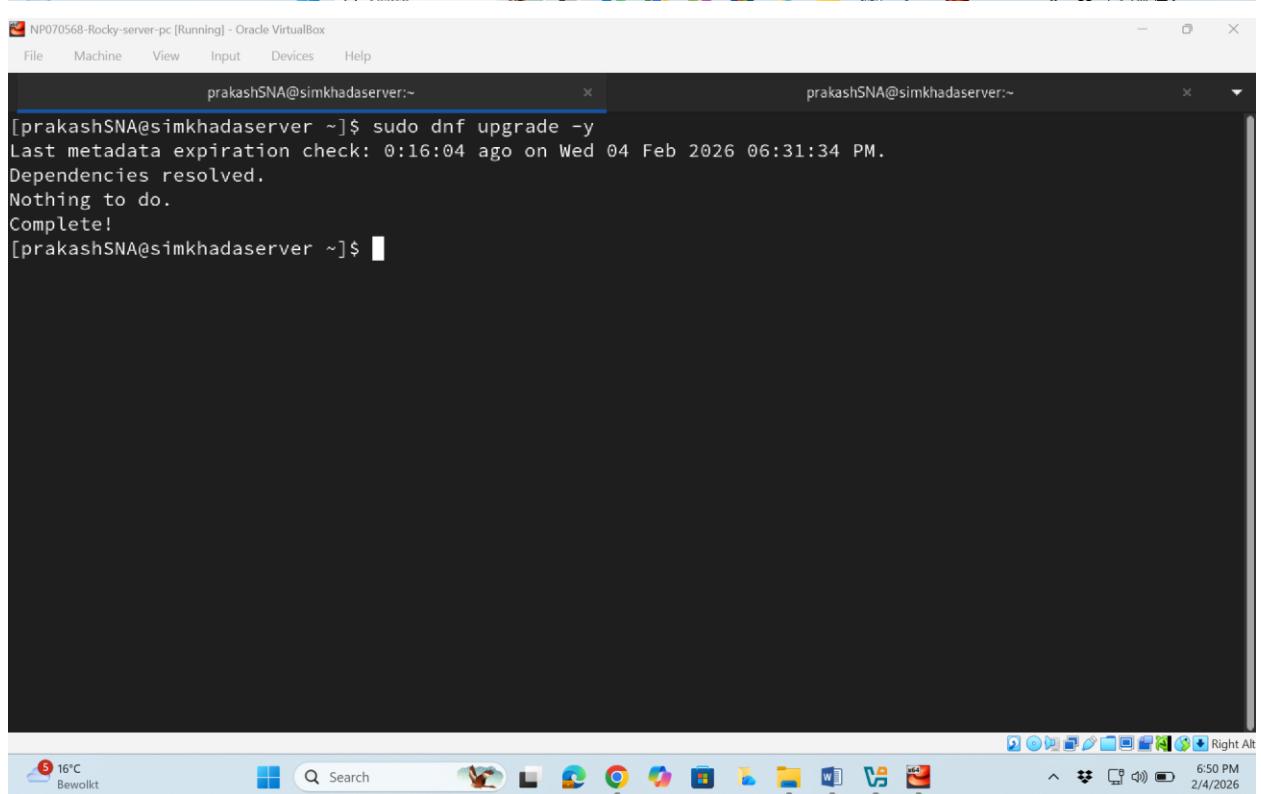




## *Update and upgrade of rockyserver*



```
[prakashSNA@simkhadaserver ~]$ sudo dnf update -y
[sudo] password for prakashSNA:
Extra Packages for Enterprise Linux 9 - x86_64           11 kB/s |  10 kB   00:00
Extra Packages for Enterprise Linux 9 - x86_64           1.5 MB/s | 20 MB    00:13
Extra Packages for Enterprise Linux 9 openh264 (From Cisco) - x86_64  1.5 kB/s | 993 B    00:00
Rocky Linux 9 - BaseOS                  1.2 kB/s | 4.3 kB   00:03
Rocky Linux 9 - BaseOS                  451 kB/s | 9.9 MB   00:22
Rocky Linux 9 - AppStream                2.0 kB/s | 4.8 kB   00:02
Rocky Linux 9 - AppStream                612 kB/s | 6.6 MB   00:12 ETA
[prakashSNA@simkhadaserver ~]$
```



```
[prakashSNA@simkhadaserver ~]$ sudo dnf upgrade -y
Last metadata expiration check: 0:16:04 ago on Wed 04 Feb 2026 06:31:34 PM.
Dependencies resolved.
Nothing to do.
Complete!
[prakashSNA@simkhadaserver ~]$
```

## **TASK 5: BACKUP – EXPORT APPLIANCE AND CLONE**

### **Objective**

To understand and perform VM backup using cloning and exporting.

### **Cloning Steps**

1. Right clicked on RockyServer VM.
2. Selected “Clone”.
3. Created full clone with new MAC address.

### **Export Appliance Steps**

1. Selected VM.
2. Clicked File → Export Appliance.
3. Saved VM as .OVA file.

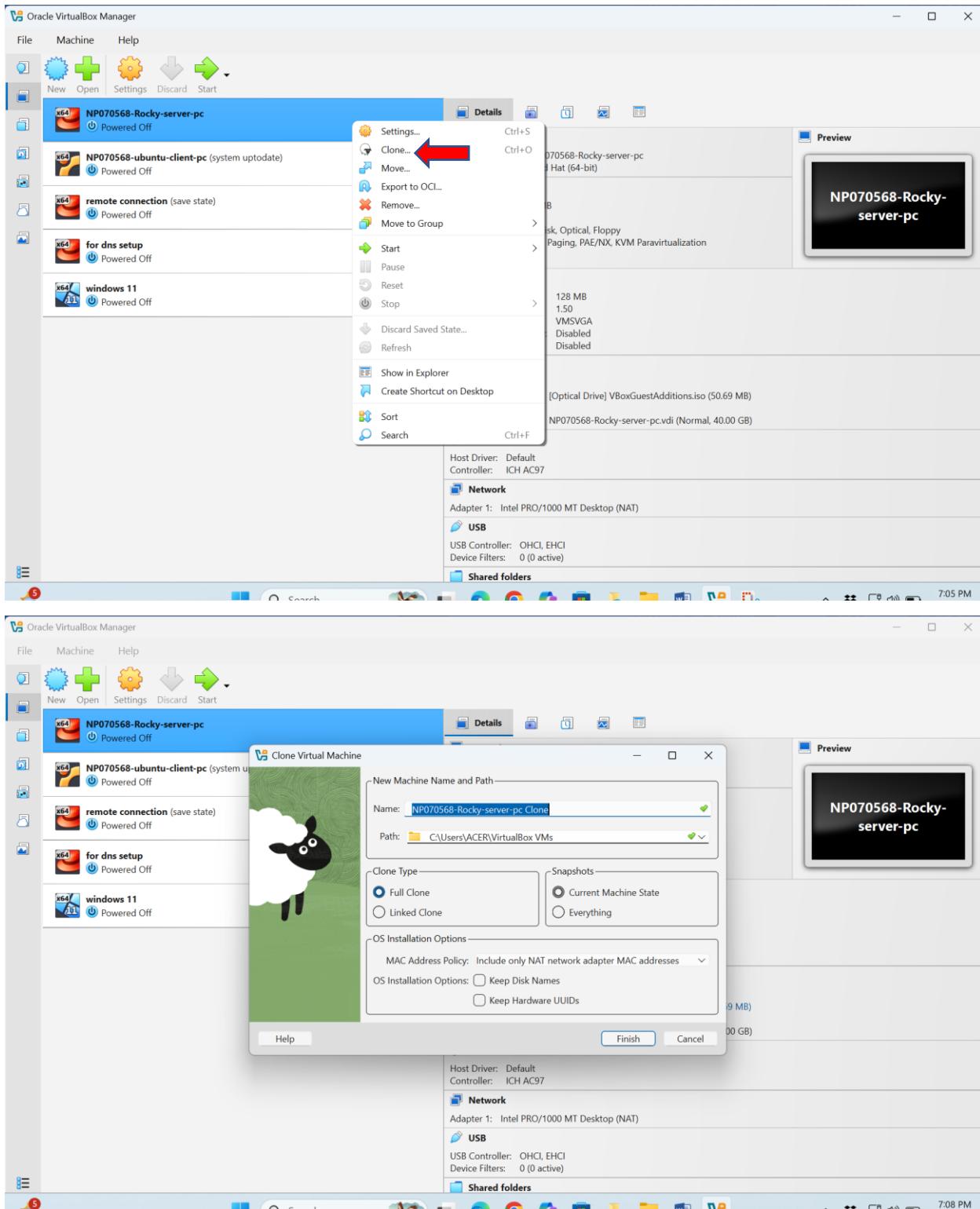
### **Difference Between Clone and Export**

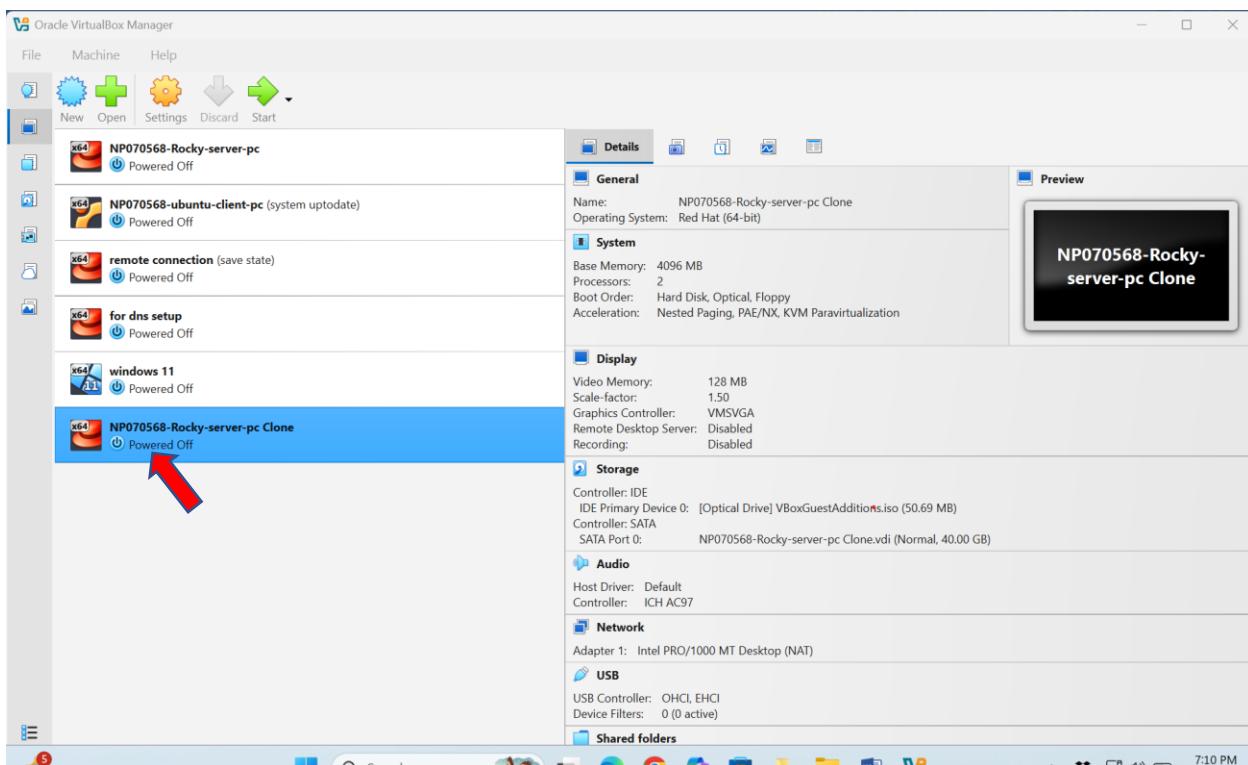
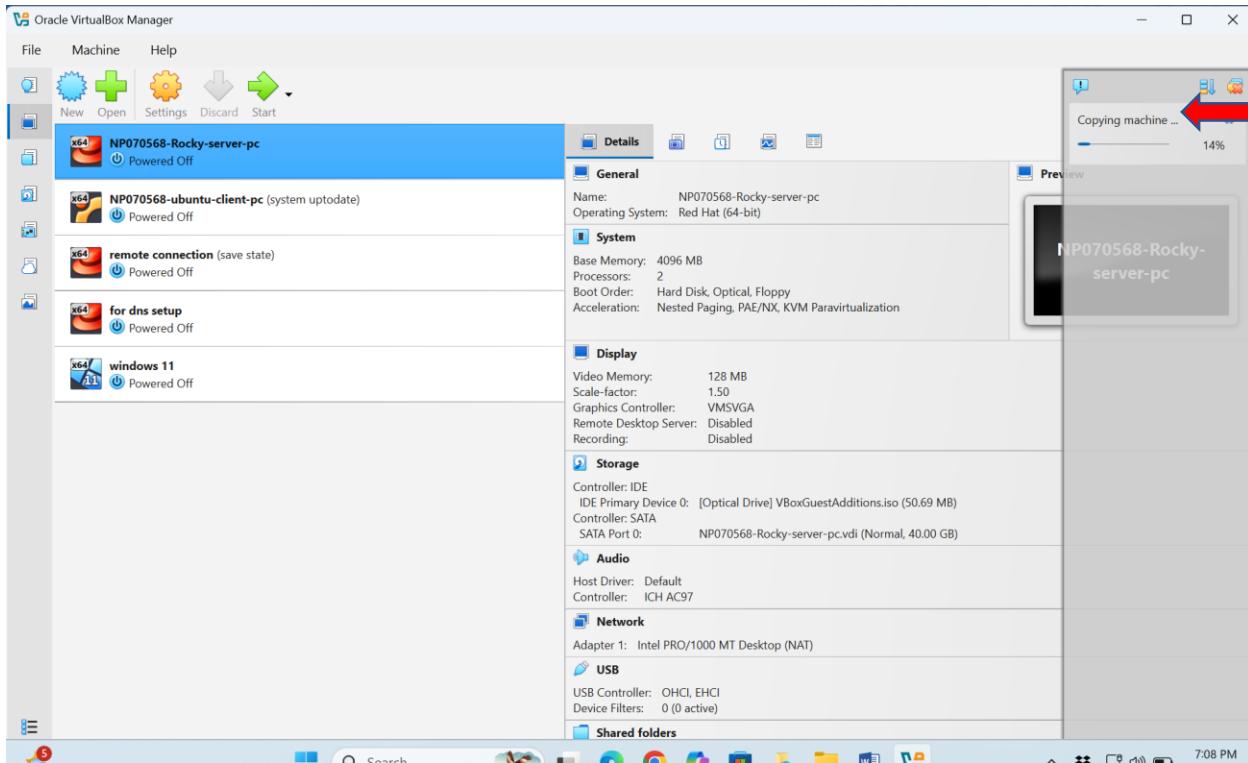
Clone creates an exact copy inside VirtualBox

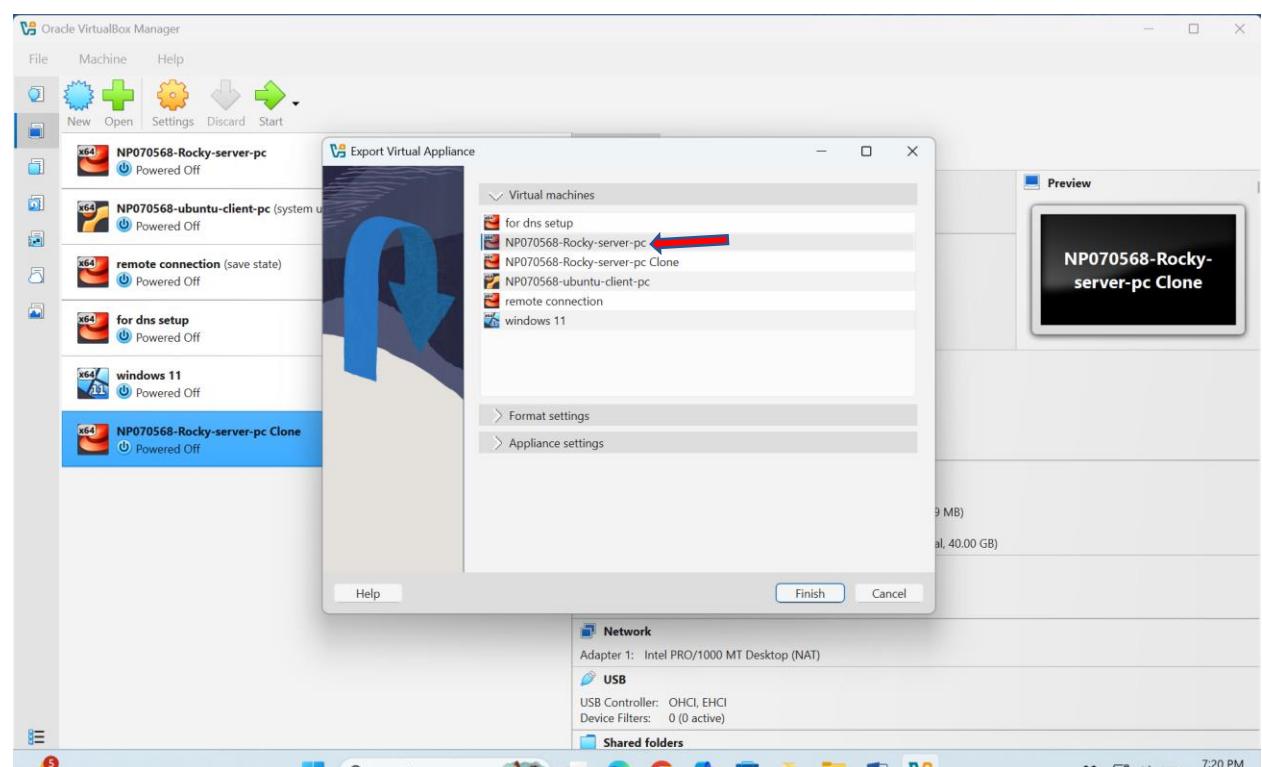
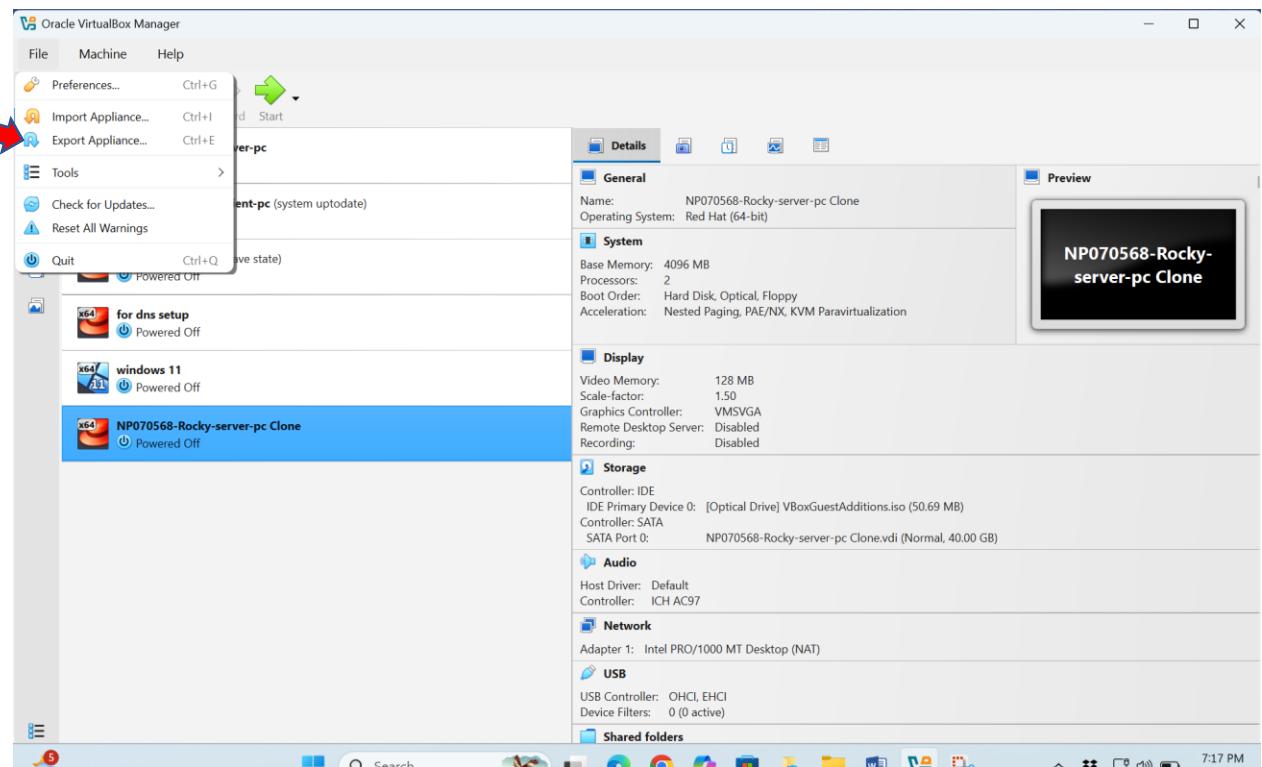
Export creates a portable backup that can be imported to another system.

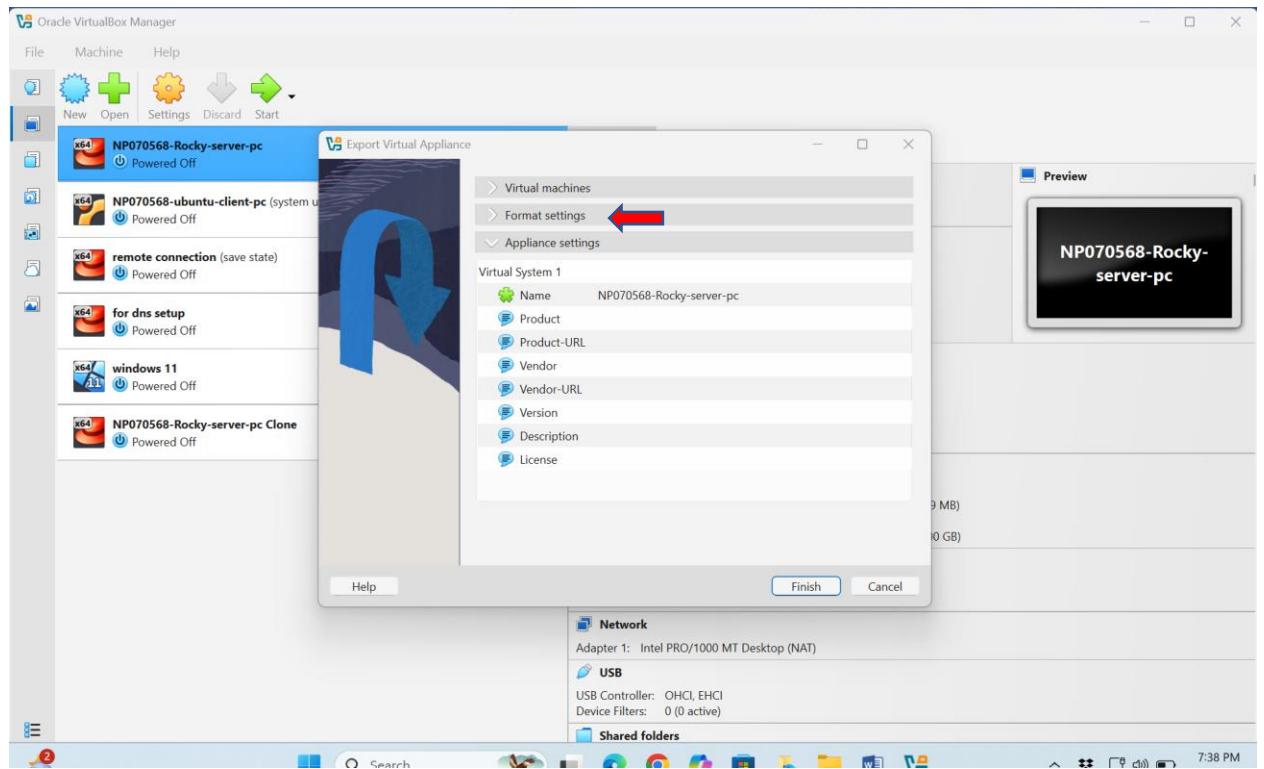
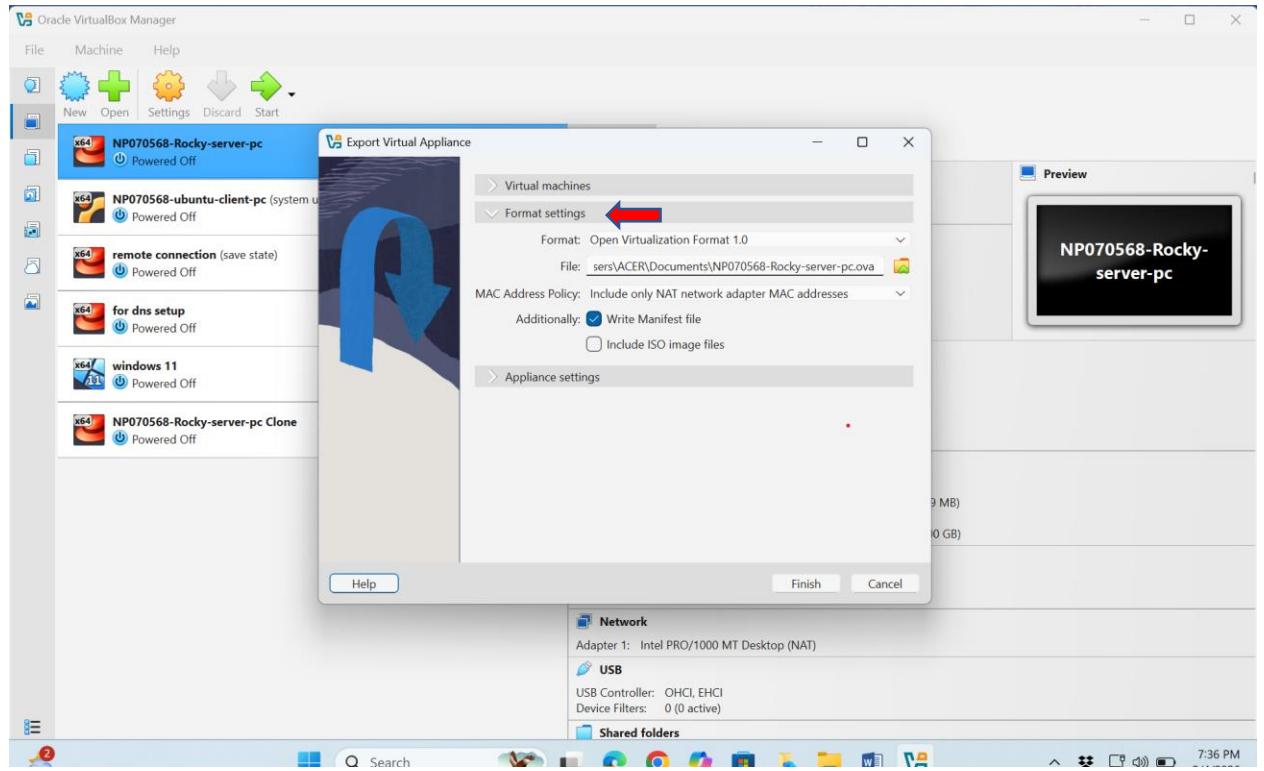
## VM Clone and Export Screenshots

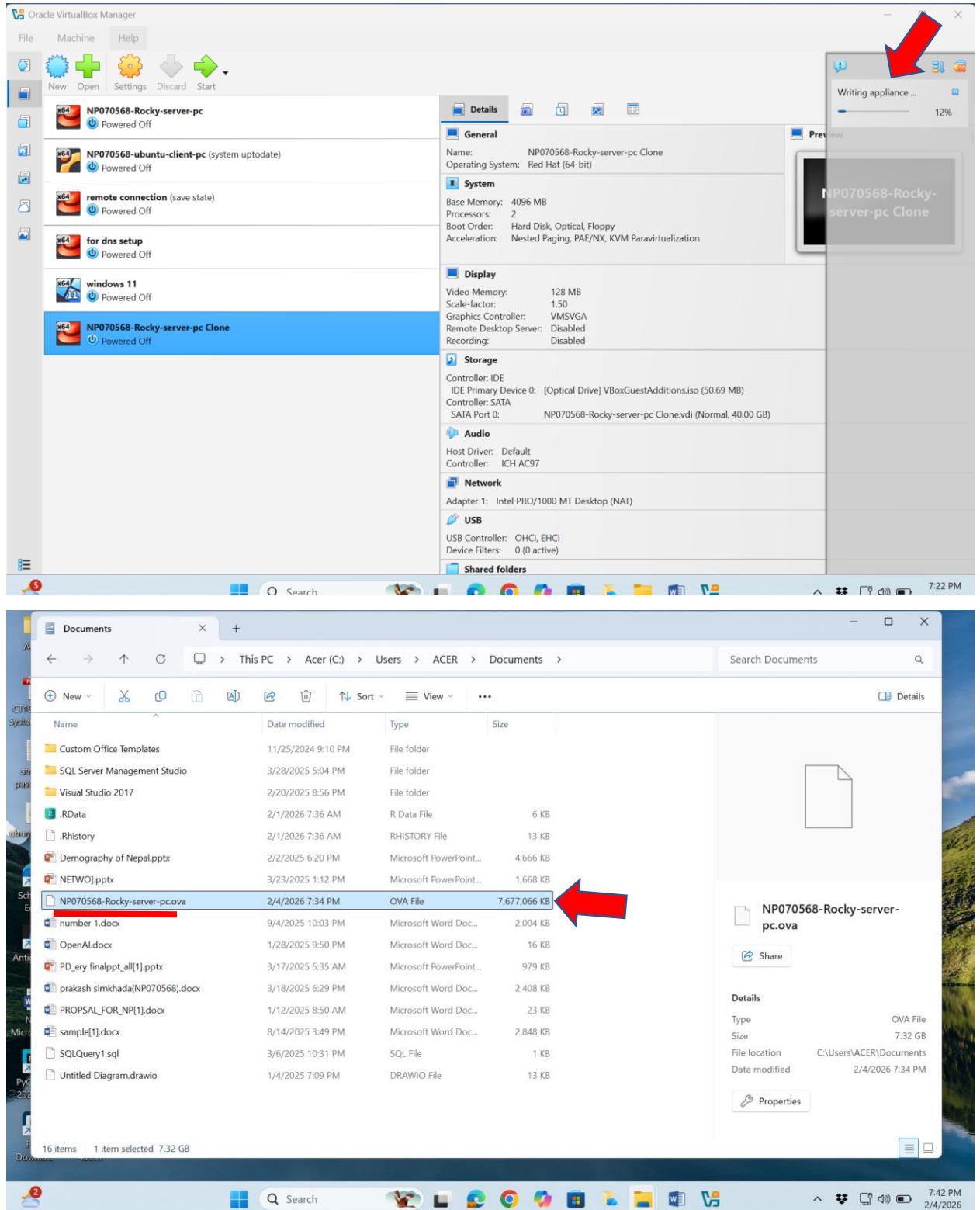
### Cloning virtual machine for rocky server











## **TASK 6: DNS AND DHCP CONFIGURATION**

### **Objective**

**To configure DNS and DHCP services on the Rocky Linux server.**

### **DNS Configuration**

- Installed BIND package.
- Edited /etc/named.conf.
- Created zone files.

### **DHCP Configuration**

- Installed DHCP server.
- Configured IP address range.

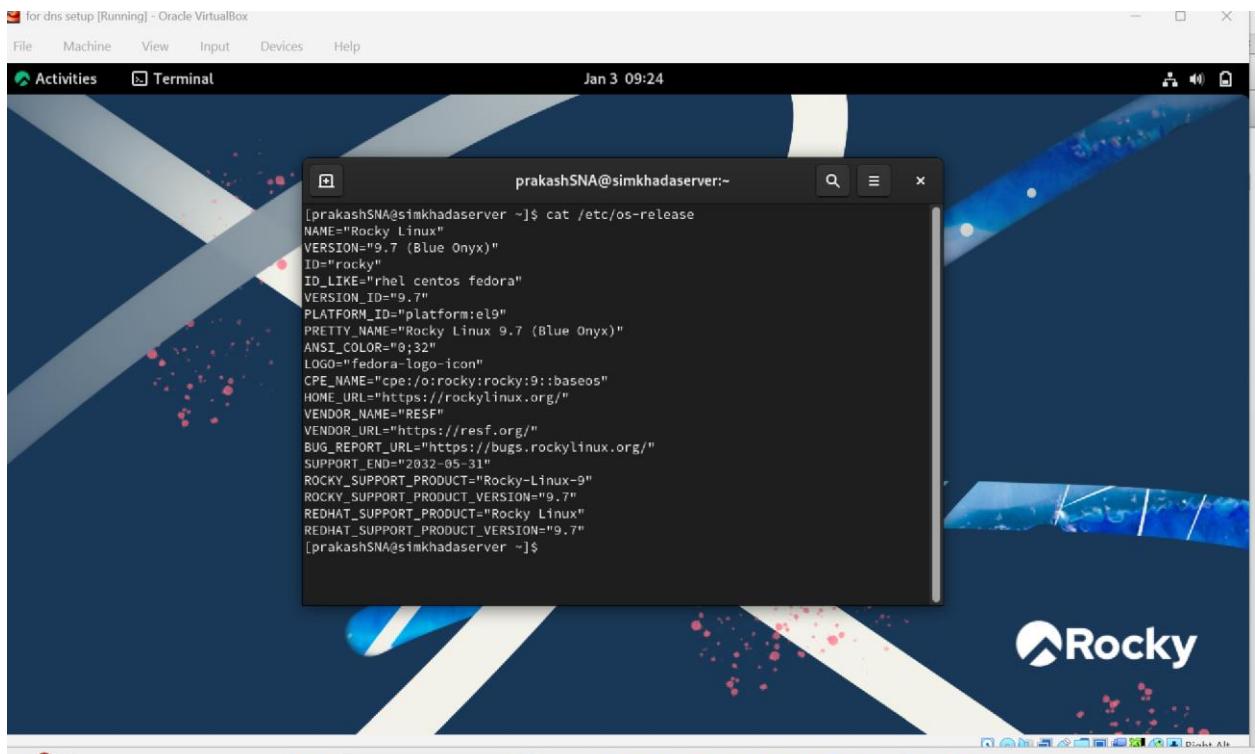
### **Verification-Used commands**

nslookup

dig

ping

## DNS/DHCP configuration screenshots



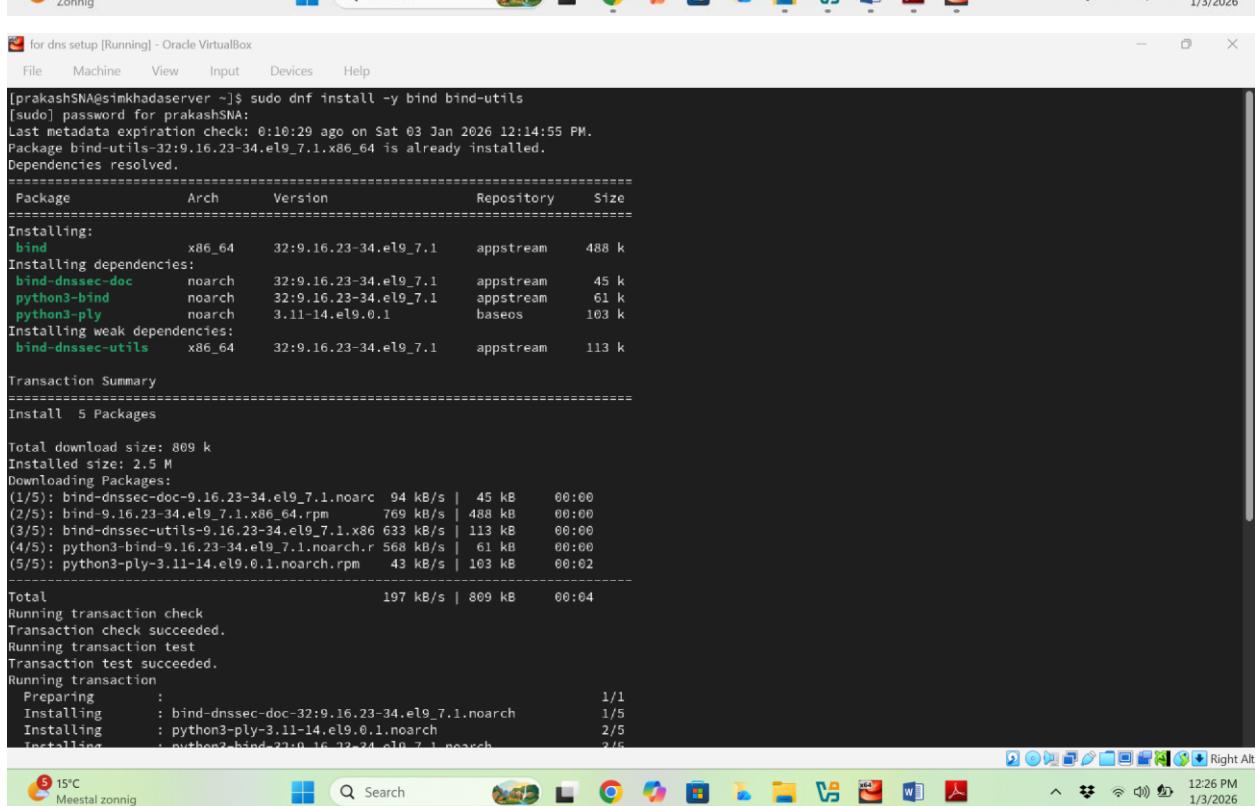
for dns setup [Running] - Oracle VirtualBox

File Machine View Input Devices Help

Activities Terminal Jan 3 09:24

prakashSNA@simkhadaserver:~

```
[prakashSNA@simkhadaserver ~]$ cat /etc/os-release
NAME="Rocky Linux"
VERSION="9.7 (Blue Onyx)"
ID="rocky"
ID_LIKE="rhel centos fedora"
VERSION_ID="9.7"
PLATFORM_ID="platform:el9"
PRETTY_NAME="Rocky Linux 9.7 (Blue Onyx)"
ANSI_COLOR="#0;32"
LOGO="fedora-logo-icon"
CPE_NAME="cpe:/o:rocky:rocky:9::baseos"
HOME_URL="https://rockylinux.org/"
VENDOR_NAME="RESF"
VENDOR_URL="https://resf.org/"
BUG_REPORT_URL="https://bugs.rockylinux.org/"
SUPPORT_END="2032-05-31"
ROCKY_SUPPORT_PRODUCT="Rocky Linux-9"
ROCKY_SUPPORT_PRODUCT_VERSION="9.7"
REDHAT_SUPPORT_PRODUCT="Rocky Linux"
REDHAT_SUPPORT_PRODUCT_VERSION="9.7"
[prakashSNA@simkhadaserver ~]$
```



for dns setup [Running] - Oracle VirtualBox

File Machine View Input Devices Help

[prakashSNA@simkhadaserver ~]\$ sudo dnf install -y bind bind-utils

[sudo] password for prakashSNA:

Last metadata expiration check: 0:10:29 ago on Sat 03 Jan 2026 12:14:55 PM.

Package bind-utils-32:9.16.23-34.el9\_7.1.x86\_64 is already installed.

Dependencies resolved.

Package	Arch	Version	Repository	Size
bind	x86_64	32:9.16.23-34.el9_7.1	appstream	488 k
Installing dependencies:				
bind-dnssec-doc	noarch	32:9.16.23-34.el9_7.1	appstream	45 k
python3-bind	noarch	32:9.16.23-34.el9_7.1	appstream	61 k
python3-ply	noarch	3.11-14.el9.0.1	baseos	103 k
Installing weak dependencies:				
bind-dnssec-utils	x86_64	32:9.16.23-34.el9_7.1	appstream	113 k

Transaction Summary

Install	5 Packages
Total download size:	809 k
Installed size:	2.5 M
Downloading Packages:	
(1/5): bind-dnssec-doc-9.16.23-34.el9_7.1.noarch	94 kB/s   45 kB 00:00
(2/5): bind-9.16.23-34.el9_7.1.x86_64.rpm	769 kB/s   488 kB 00:00
(3/5): bind-dnssec-utils-9.16.23-34.el9_7.1.x86_64.rpm	633 kB/s   113 kB 00:00
(4/5): python3-bind-9.16.23-34.el9_7.1.noarch.r	568 kB/s   61 kB 00:00
(5/5): python3-ply-3.11-14.el9.0.1.noarch.rpm	43 kB/s   103 kB 00:02

Total 197 kB/s | 809 kB 00:04

Running transaction check

Transaction check succeeded.

Running transaction test

Transaction test succeeded.

Running transaction

Preparing	1/1
Installing : bind-dnssec-doc-32:9.16.23-34.el9_7.1.noarch	1/5
Installing : python3-bind-3.11-14.el9.0.1.noarch	2/5
Installing : python3-ply-3.11-14.el9.0.1.noarch	2/5

15°C Meestal zonnig Search 9:26 AM 1/3/2026

```
[prakashSNA@simkhadaserver ~]$ sudo systemctl enable named --now
Created symlink /etc/systemd/system/multi-user.target.wants/named.service → /usr/lib/systemd/system/named.service.
[prakashSNA@simkhadaserver ~]$ sudo systemctl start named
[prakashSNA@simkhadaserver ~]$ sudo systemctl status named
● named.service - Berkeley Internet Name Domain (DNS)
   Loaded: loaded (/usr/lib/systemd/system/named.service; enabled; preset: disabled)
     Active: active (running) since Sat 2026-01-03 12:26:58 +0545; 1min 32s ago
       Process: 12055 ExecStartPre=/bin/bash -c if [ ! "$DISABLE_ZONE_CHECKING" == "yes" ]; then /usr/sbin/named-checkconf -z "$NAMEDCONF"; else echo "Checking $NAMEDCONF"; fi
      Main PID: 12058 (named)
         Tasks: 10 (limit: 22979)
        Memory: 25.6M (peak: 26.1M)
          CPU: 121ms
         CGroup: /system.slice/named.service
             └─12058 /usr/sbin/named -u named -c /etc/named.conf

Jan 03 12:26:58 simkhadaserver.prakash.com named[12058]: network unreachable resolving '.NS/IN': 2001:500:2::c#53
Jan 03 12:26:58 simkhadaserver.prakash.com named[12058]: network unreachable resolving '.DNSKEY/IN': 2001:500:8::e#53
Jan 03 12:26:58 simkhadaserver.prakash.com named[12058]: network unreachable resolving '.NS/IN': 2001:500:a8::e#53
Jan 03 12:26:58 simkhadaserver.prakash.com named[12058]: zone localhost/IN: loaded serial 0
Jan 03 12:26:58 simkhadaserver.prakash.com named[12058]: all zones loaded
Jan 03 12:26:58 simkhadaserver.prakash.com systemd[1]: Started Berkeley Internet Name Domain (DNS).
Jan 03 12:26:58 simkhadaserver.prakash.com named[12058]: running
Jan 03 12:26:59 simkhadaserver.prakash.com named[12058]: managed-keys-zone: Initializing automatic trust anchor management for zone '.'; DNSKEY ID 28326 is not yet available
Jan 03 12:26:59 simkhadaserver.prakash.com named[12058]: managed-keys-zone: Initializing automatic trust anchor management for zone '.'; DNSKEY ID 38696 is not yet available
Jan 03 12:26:59 simkhadaserver.prakash.com named[12058]: resolver priming query complete
(lines 1-22/22 (END))
```



```
[prakashSNA@simkhadaserver etc]$ ll /etc/named.conf
-rw-r-----. 1 root named 1722 Nov 12 20:30 /etc/named.conf
[prakashSNA@simkhadaserver etc]$
```



```
[prakashSNA@simkhadaserver etc]$ ll /etc/named.conf
-rw-r----- 1 root named 1722 Nov 12 20:30 /etc/named.conf
[prakashSNA@simkhadaserver etc]$ sudo cp /etc/named.conf /etc/named.backup
[sudo] password for prakashSNA:
[prakashSNA@simkhadaserver etc]$ ls
accountsservice      csh.login          glvnd      libibverbs.d      nftables      rndc.key      sysconfig
adjtime               cups                GREP_COLORS libpaper.d      nswswitch.conf    rocky-release   sysctl.conf
aliases              cupshelpers        groff     libpaper.bak    nswswitch.conf.bak  rocky-release-upstream  sysctl.d
alsa                 dbus-1             group     libssh       nvme          rpc          systemd
alternatives         dconf              grub      libuser.conf    openldap      rpm          system-release
anacrontab           debuginfod       grub.cfg  locale.conf    os-release    rsyncd.conf   system-release-cpe
appstream.conf       default           grub.d    localtime     ostree        rsyslog.conf  terminfo
asound.conf          depmod.d          gshadow   login.defs    packagekit   rsyslog.d    tmpfiles.d
asoundconf           dhcpc              gshadow-  logrotate.conf pam          samba        trusted-key.key
at.deny              DIR_COLORS        gss       host.conf     papersize    sane.d      tuned
audit               DIR_COLORS.lightbgcolor hostnames   hostname     passwd       sasl2        udev
authselect           dnf                group    machine-id   packagekit   security    udisks2
avahi               dnsmasq.conf     hosts     machine-id   pam          sasl        updatedb.conf
bash_completion.d   dnsmasq.d        hp       magic        pam          services   UPower
bashrc              dracut.conf      inittab   mailcap     papersize    sasl2       usb_modeswitch.conf
bindresport.blacklist dracut.conf.d  inputrc   makedumpfile.conf.sample pkcs11       seastatus   vconsole.conf
binfmt.d            egl                iproute2  man_db.conf  pkgsel       sgml        vimrc
bluetooth           enscript.cfg     jvm      modules-load.d pki          shadow     virc
brlapi.key          environment      jvm-common  motd        Plymouth    shadow-    vmware-tools
brlity              ethertypes      issue    microcode_ctl pm          shells     vulkan
brlity.conf         exports          issue.d   mime_types  pm2ppa.conf  skel        wgetrc
chromium            favicon.png     issue.net mke2fs.conf  polkit-1     smartmontools  wireplumber
chrony.conf         filesystems     java      modprobe.d  popit.d      sos         wpa_supplicant
chrony.keys         firefox          jvm      modules-load.d printcap     speech-dispatcher  x11
cifs-utils          firewalld       jvm-common motd        profile     ssh        xattr.conf
cockpit             flatpak          kdump    motd.d      protocols   ssel        xdg
containers          fonts             kdump.conf mtab       protocols   statab.d   yum
cron.d              foomatic        kernel   named      pulse        subgid     yum.conf
cron.daily          fprintd.conf   keys     named      qemu-ga    subgid-    yum.repos.d
cron.deny           fstab            keyutils  named.bakup ras         subuid
cron.hourly         fuse.conf       krb5.conf  named.conf  rc.d        subuid-    zabbix
cron.monthly        fwupd            ld.so.cache  named.root.key rc.local   sudo.conf
cron.weekly         gcrypt           ld.so.conf  nanorc    redhat-release sudo.conf
[prakashSNA@simkhadaserver etc]$
```

```
[prakashSNA@simkhadaserver ~]$ ll /etc/named.backup
-rw-r----- 1 root root 1722 Jan 3 12:34 /etc/named.backup
[prakashSNA@simkhadaserver ~]$
```

```
[prakashSNA@simkhadaserver ~]$ su -
Password:
[root@simkhadaserver ~]# vim /etc/named.conf
[root@simkhadaserver ~]#
```

```
15°C
Meestal zonnig
Search
12:35 PM
1/3/2026
```

```
// for dns setup [Running] - Oracle VirtualBox
File Machine View Input Devices Help

// named.conf
//
// Provided by Red Hat bind package to configure the ISC BIND named(8) DNS
// server as a caching only nameserver (as a localhost DNS resolver only).
//
// See /usr/share/doc/bind*/sample/ for example named configuration files.
//

options {
    listen-on port 53 { 127.0.0.1:any; };
    listen-on-v6 port 53 { ::1; };
    directory      "/var/named";
    dump-file     "/var/named/data/cache_dump.db";
    statistics-file "/var/named/data/named_stats.txt";
    memstatistics-file "/var/named/data/named_mem_stats.txt";
    secroots-file  "/var/named/data/named.secroots";
    recursing-file "/var/named/data/named.recurse";
    allow-query   { localhost;any; };
    /*
     - If you are building an AUTHORITATIVE DNS server, do NOT enable recursion.
     - If you are building a RECURSIVE (caching) DNS server, you need to enable
       recursion.
     - If your recursive DNS server has a public IP address, you MUST enable access
       control to limit queries to your legitimate users. Failing to do so will
       cause your server to become part of large scale DNS amplification
       attacks. Implementing BCP38 within your network would greatly
       reduce such attack surface
    */
    recursion yes;
    dnssec-validation yes;
    managed-keys-directory "/var/named/dynamic";
    geoip-directory "/usr/share/GeoIP";
    pid-file "/run/named/named.pid";
-- INSERT --

```

19,34-41 Top

Right Alt

15°C Meestal zonnig

Search

12:40 PM 1/3/2026

```
for dns setup [Running] - Oracle VirtualBox
File Machine View Input Devices Help

managed-keys-directory "/var/named/dynamic";
geoip-directory "/usr/share/GeoIP";

pid-file "/run/named/named.pid";
session-keyfile "/run/named/session.key";

/* https://fedoraproject.org/wiki/Changes/CryptoPolicy */
include "/etc/crypto-policies/back-ends/bind.config";
};

logging {
    channel default_debug {
        file "data/named.run";
        severity dynamic;
    };
};

zone "." IN {
    type hint;
    file "named.ca";
};

zone "prakash.com" IN {
    type master;
    file "fwd.prakash.com.db";
    allow-update { none; };
};

zone "200.168.192.in-addr.arpa" IN {
    type master;
    file "rvs.200.168.192.db";
    allow-update { none; };
};

include "/etc/named.rfc1912.zones";
include "/etc/named.root.key";
-- INSERT (paste) --

```

67,3 Bot

Right Alt

12:57 PM 1/3/2026

```
[prakashSNA@simkhadaserver ~]$ su -
Password:
[root@simkhadaserver ~]# vim /etc/named.conf
[root@simkhadaserver ~]# vim /etc/named.conf
[root@simkhadaserver ~]# named-checkconf
[root@simkhadaserver ~]#
```

```
zone "prakash.com" IN {
    type master;
    file "fwd.prakash.com.db";
    allow-update { none; };
};

zone "200.168.192.in-addr.arpa" IN {
    type master;
    file "rvs.200.168.192.db";
    allow-update { none; };
};

include "/etc/named.rfc1912.zones";
include "/etc/named.root.key";
[root@simkhadaserver named]#
```

for dns setup [Running] - Oracle VirtualBox

File Machine View Input Devices Help

Activities Terminal Jan 3 13:12

root@simkhadaserver:/var/named

```
$TTL 86400
@ IN SOA simkhadaserver.prakash.com. root.prakash.com. (
    2001062501 ; serial
    21600 ; refresh (6 hours)
    3600 ; retry (1 hour)
    604800 ; expire (1 week)
    86400 ) ; minimum TTL (1 day)

; NS records for name servers
@ IN NS simkhadaserver.prakash.com.

; A records and IP address for name server
simkhadaserver IN A 192.168.200.5
simkhadaclient IN A 192.168.200.4

; fwd.prakash.com.db" 16L, 668B
```

13:59 All

Rocky

Search Right Alt

1:12 PM 1/3/2026

[root@simkhadaserver named]# vim rvs.200.168.192.db

[root@simkhadaserver named]#

Rocky

Search Right Alt

1:17 PM 1/3/2026

for dns setup [Running] - Oracle VirtualBox

File Machine View Input Devices Help

Activities Terminal Jan 3 13:16

```
root@simkhadaserver:/var/named
prakashSNA@simkhadaserver:~%
```

```
$TTL 86400
@ IN SOA simkhadaserver.prakash.com. root.prakash.com. (
    2001062501 ; serial
    21600      ; refresh (6 hours)
    3600       ; retry (1 hour)
    604800     ; expire (1 week)
    86400 )    ; minimum TTL (1 day)

; NS records for name servers
@ IN NS simkhadaserver.prakash.com.

; PTR records (last octet of IP → full hostname)
5           IN PTR simkhadaserver.prakash.com.
4           IN PTR simkhadaclient.prakash.com.

;w
```

Right Alt

5 Search 1:16 PM 1/3/2026

```
root@simkhadaserver named]# vim rvs.200.168.192.db
[root@simkhadaserver named]# ll
total 24
drwxrwx---. 2 named named 23 Jan 3 12:26 data
drwxrwx---. 2 named named 60 Jan 3 12:27 dynamic
-rw-r--r--. 1 root root 668 Jan 3 13:11 fwd.prakash.com.db
-rw-r-----. 1 root named 2112 Nov 12 20:30 named.ca
-rw-r-----. 1 root named 152 Nov 12 20:30 named.empty
-rw-r-----. 1 root named 152 Nov 12 20:30 named.localhost
-rw-r-----. 1 root named 168 Nov 12 20:30 named.loopback
-rw-r--r--. 1 root root 688 Jan 3 13:16 rvs.200.168.192.db
drwxrwx---. 2 named named 6 Nov 12 20:30 slaves
[root@simkhadaserver named]# named-checkzone fwd.prakash.com.db /var/named/fwd.prakash.com.db
zone fwd.prakash.com.db/IN: loaded serial 2001062501
OK
[root@simkhadaserver named]# named-checkzone rvs.200.168.192.db /var/named/rvs.200.168.192.db
zone rvs.200.168.192.db/IN: loaded serial 2001062501
OK
[root@simkhadaserver named]#
```

Right Alt

1:19 PM 1/3/2026

for dns setup [Running] - Oracle VirtualBox

File Machine View Input Devices Help

Activities Terminal Jan 3 13:22

root@simkhadaserver:/var/named prakashSNA@simkhadaserver:~

```
[root@simkhadaserver named]# systemctl restart named
[root@simkhadaserver named]# systemctl status named
● named.service - Berkeley Internet Name Domain (DNS)
   Loaded: loaded (/usr/lib/systemd/system/named.service; enabled; preset: disabled)
   Active: active (running) since Sat 2026-01-03 13:20:39 +0545; 11s ago
     Process: 12547 ExecStartPre=/bin/bash -c if [ ! "$DISABLE_ZONE_CHECKING" = "true" ]; then
   Main PID: 12550 (named)
      Tasks: 8 (limit: 22979)
        Memory: 26.3M (peak: 26.5M)
         CPU: 150ms
        CGroup: /system.slice/named.service
               └─12550 /usr/sbin/named -u named -c /etc/named.conf

Jan 03 13:20:39 simkhadaserver.prakash.com named[12550]: network unreachable r...
Jan 03 13:20:39 simkhadaserver.prakash.com named[12550]: managed-keys-zone: Ke...
Jan 03 13:20:40 simkhadaserver.prakash.com named[12550]: managed-keys-zone: Ke...
```

Right Alt

1:22 PM 1/3/2026

firewall-cmd: error: unrecognized arguments: --reload
[root@simkhadaserver named]# sudo firewall-cmd --permanent --add-port=53/tcp
sudo firewall-cmd --permanent --add-port=53/udp
sudo firewall-cmd --reload
success
Warning: ALREADY\_ENABLED: 53:udp
success
success
[root@simkhadaserver named]#

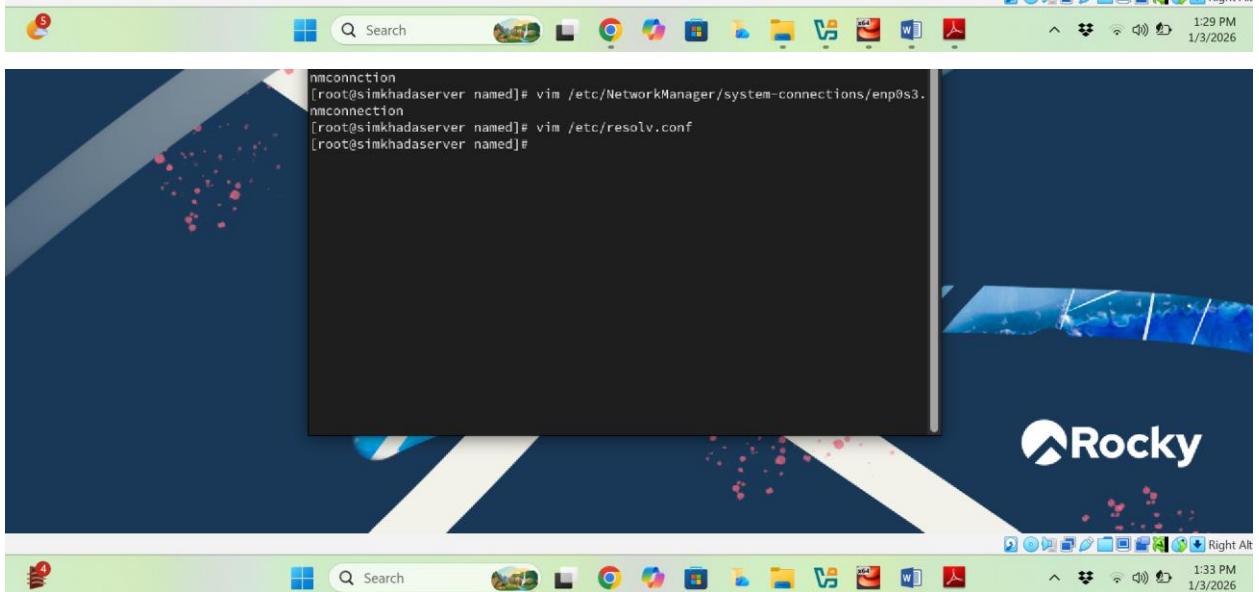
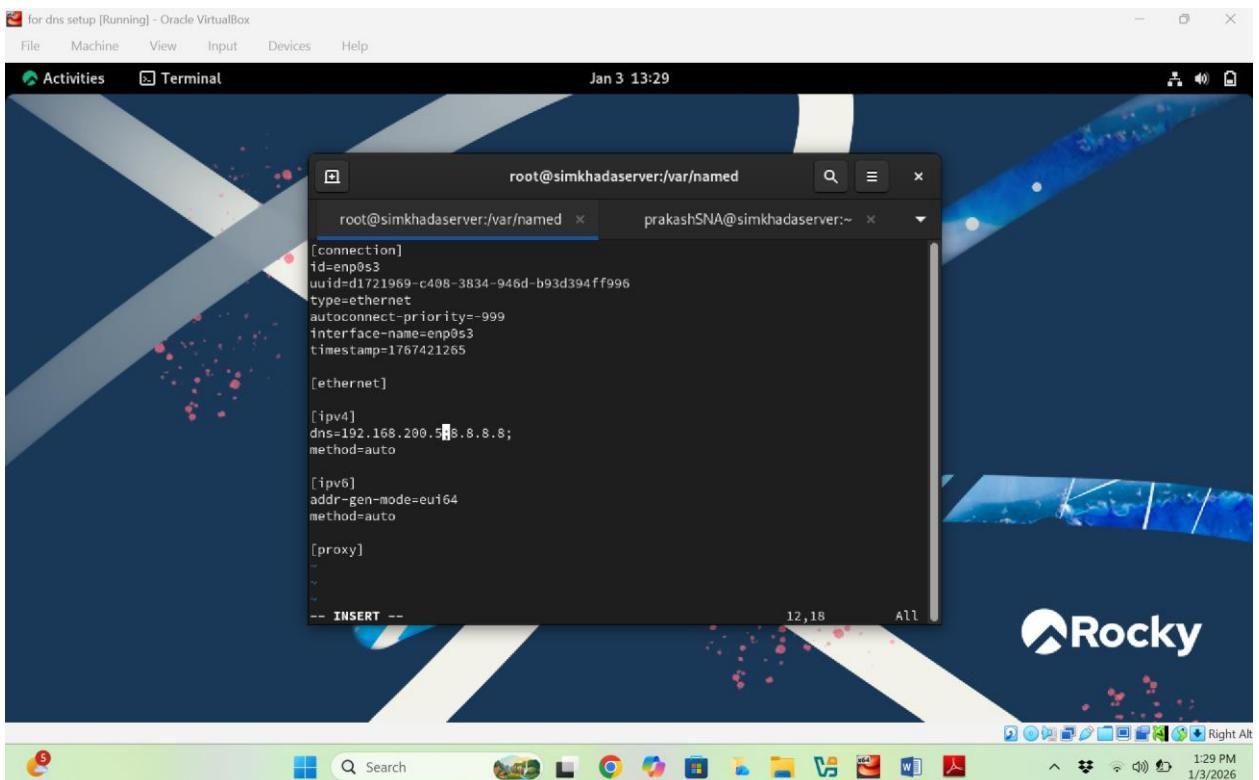
Right Alt

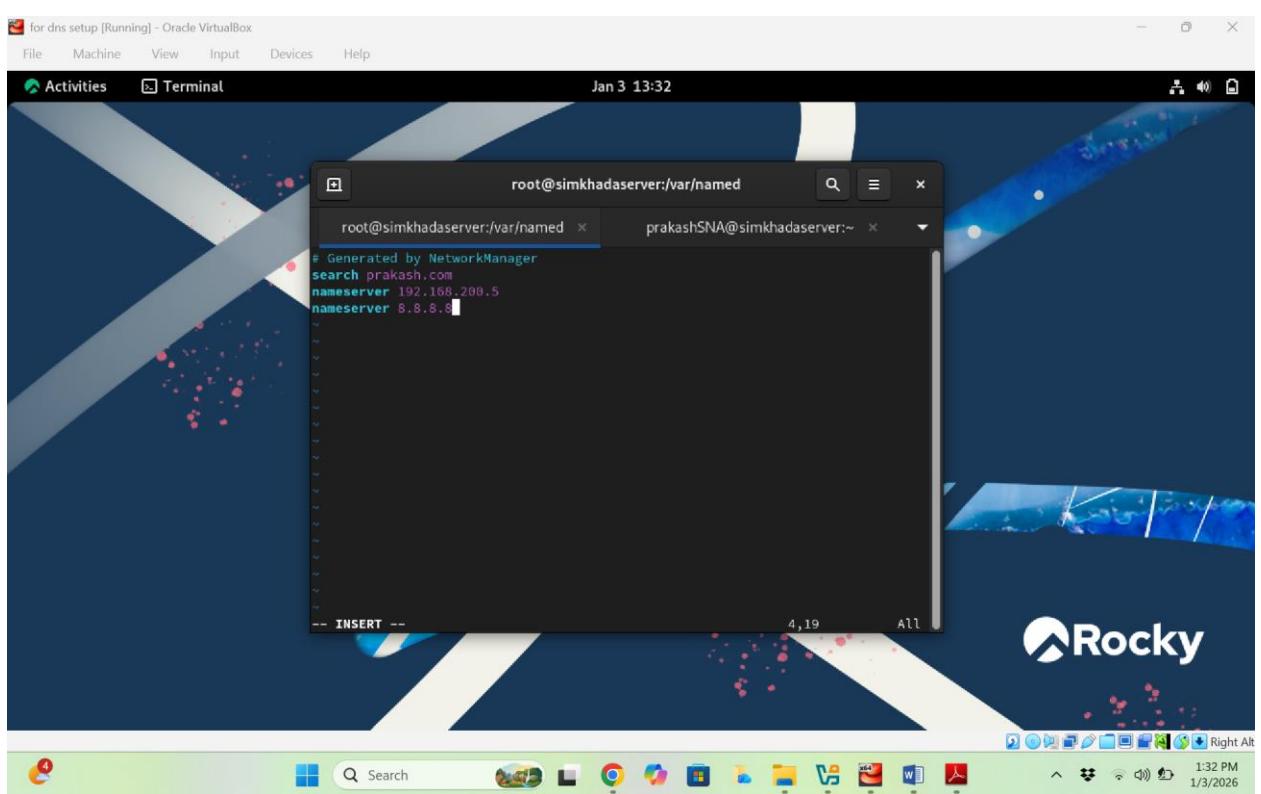
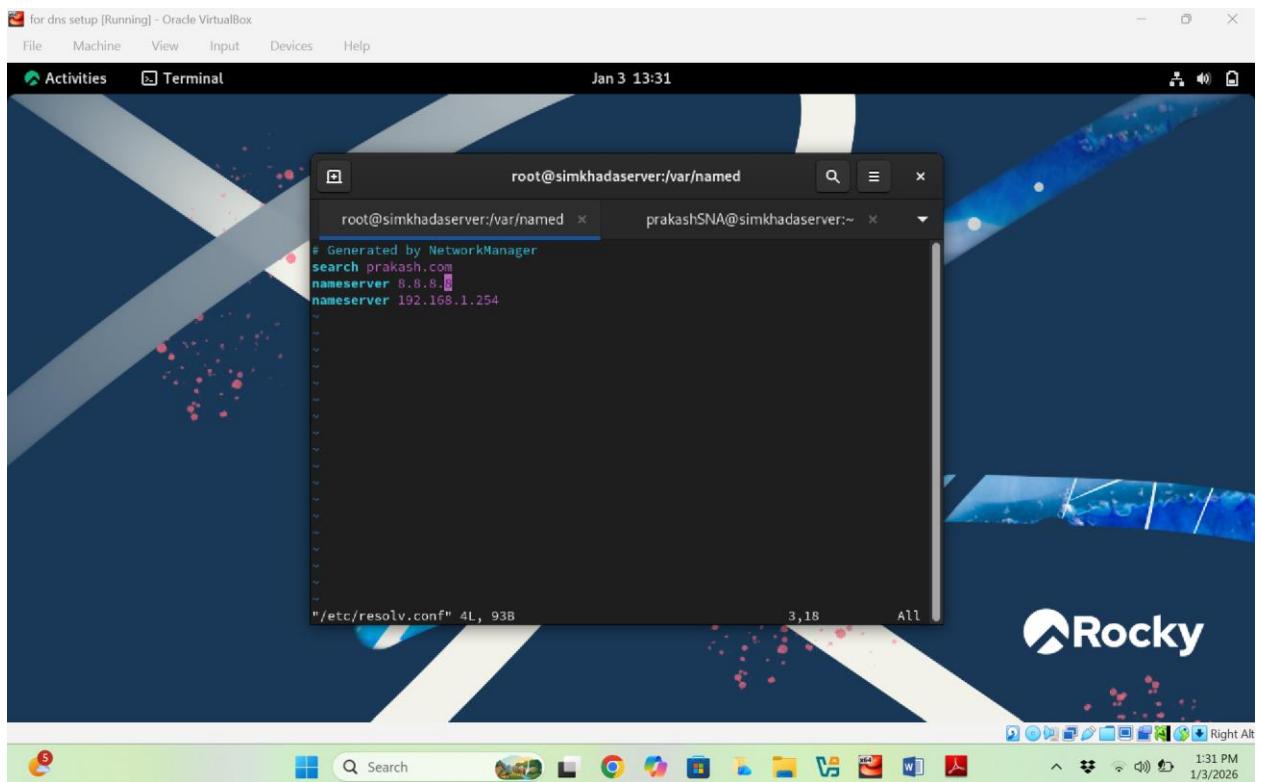
1:24 PM 1/3/2026

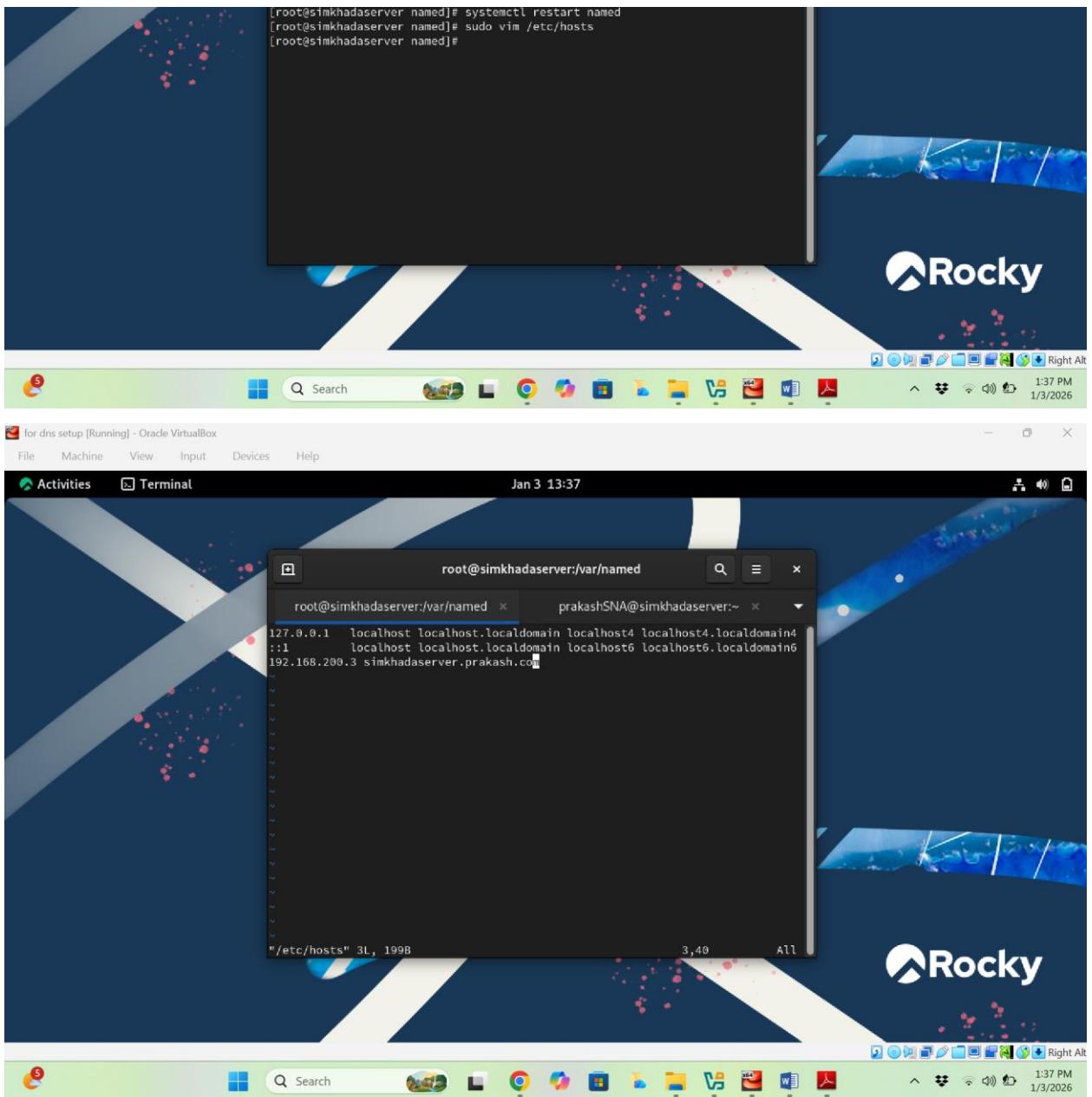
```
nmconnection
[root@simkhadaserver named]# vim /etc/NetworkManager/system-connections/enp0s3.
nmconnection
[root@simkhadaserver named]#
```

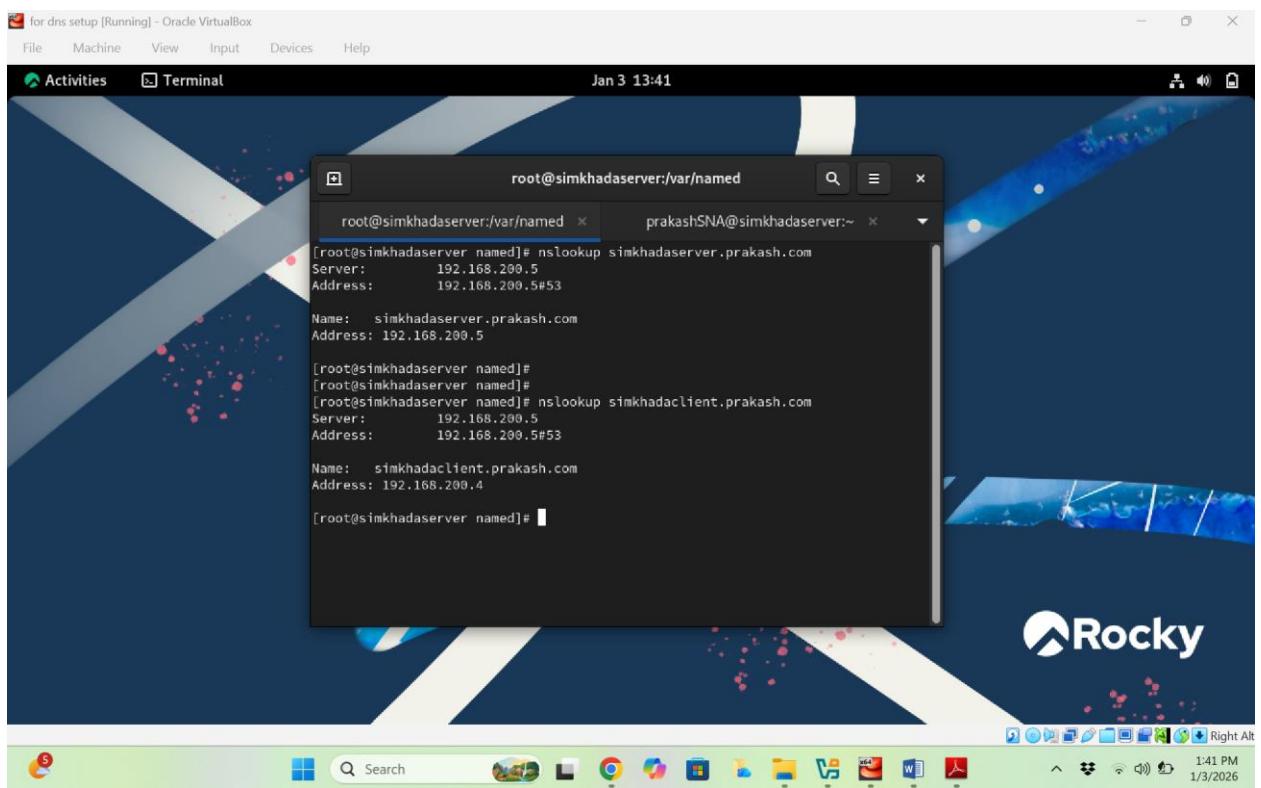
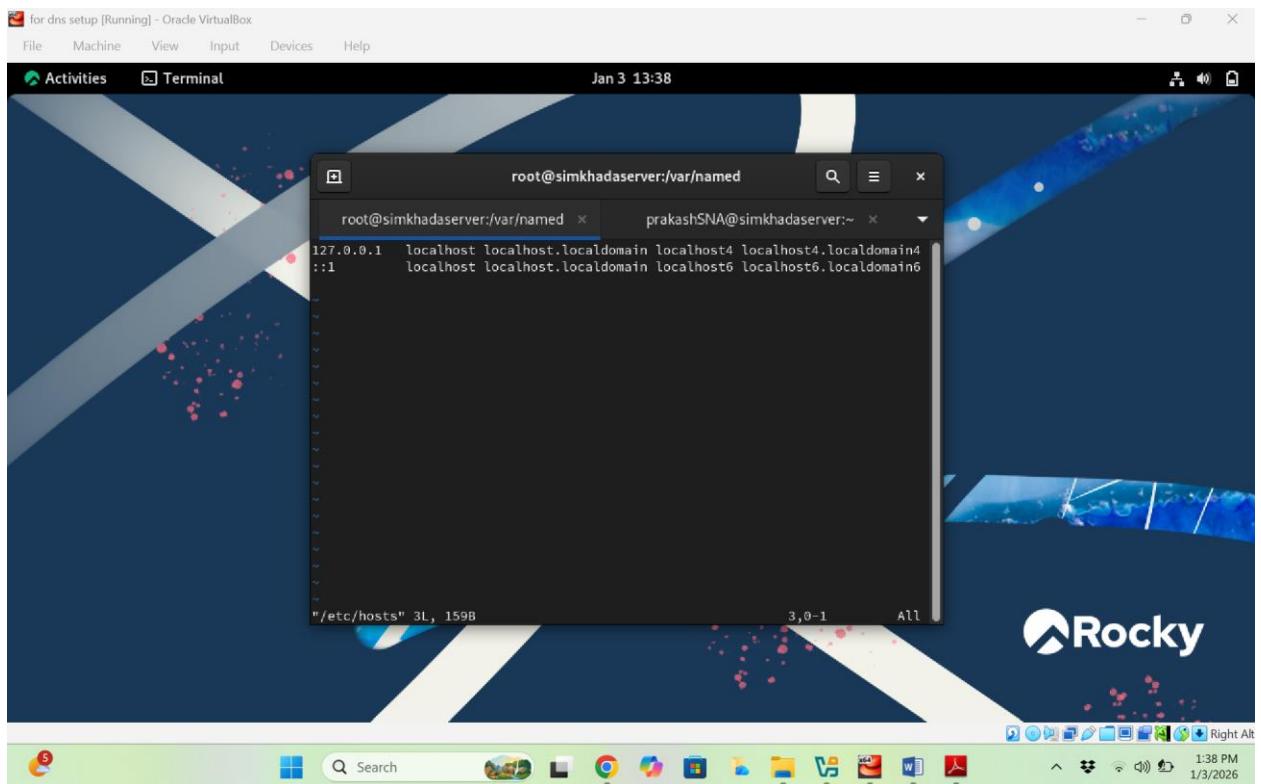
Right Alt

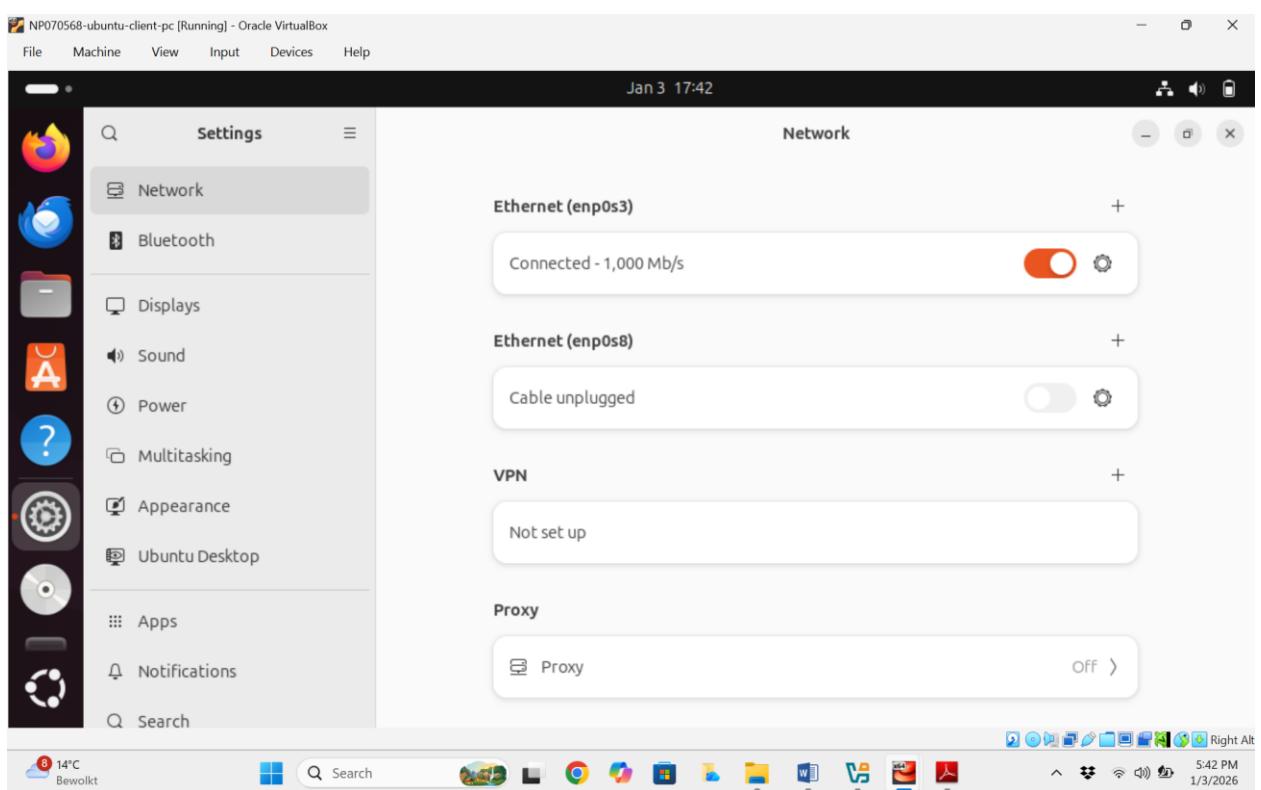
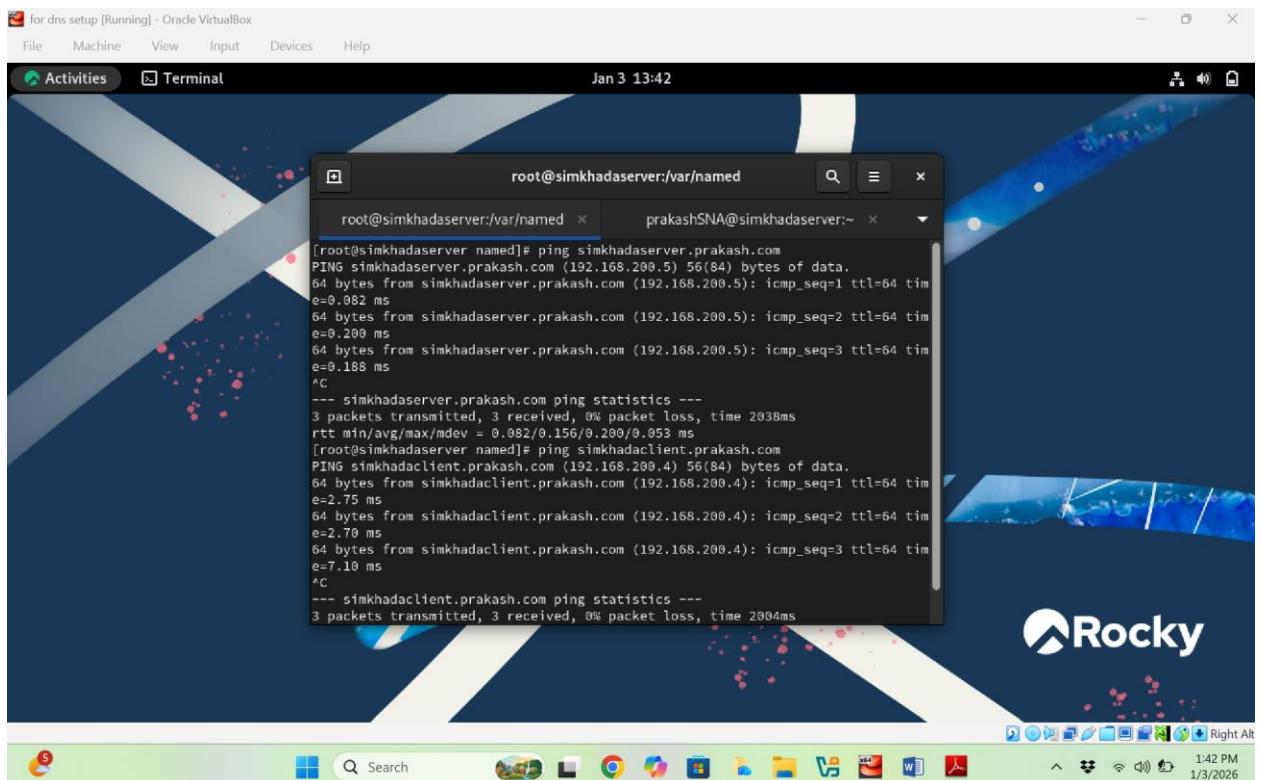
1:29 PM 1/3/2026

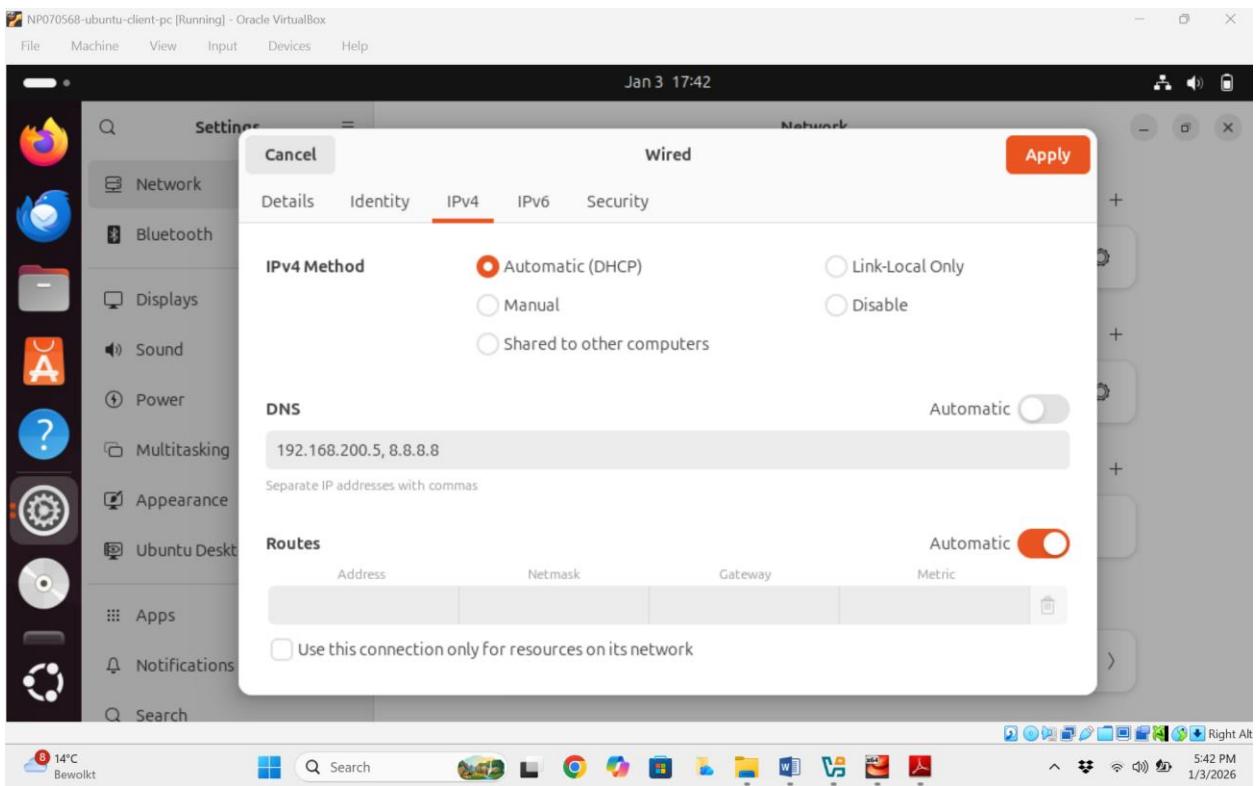






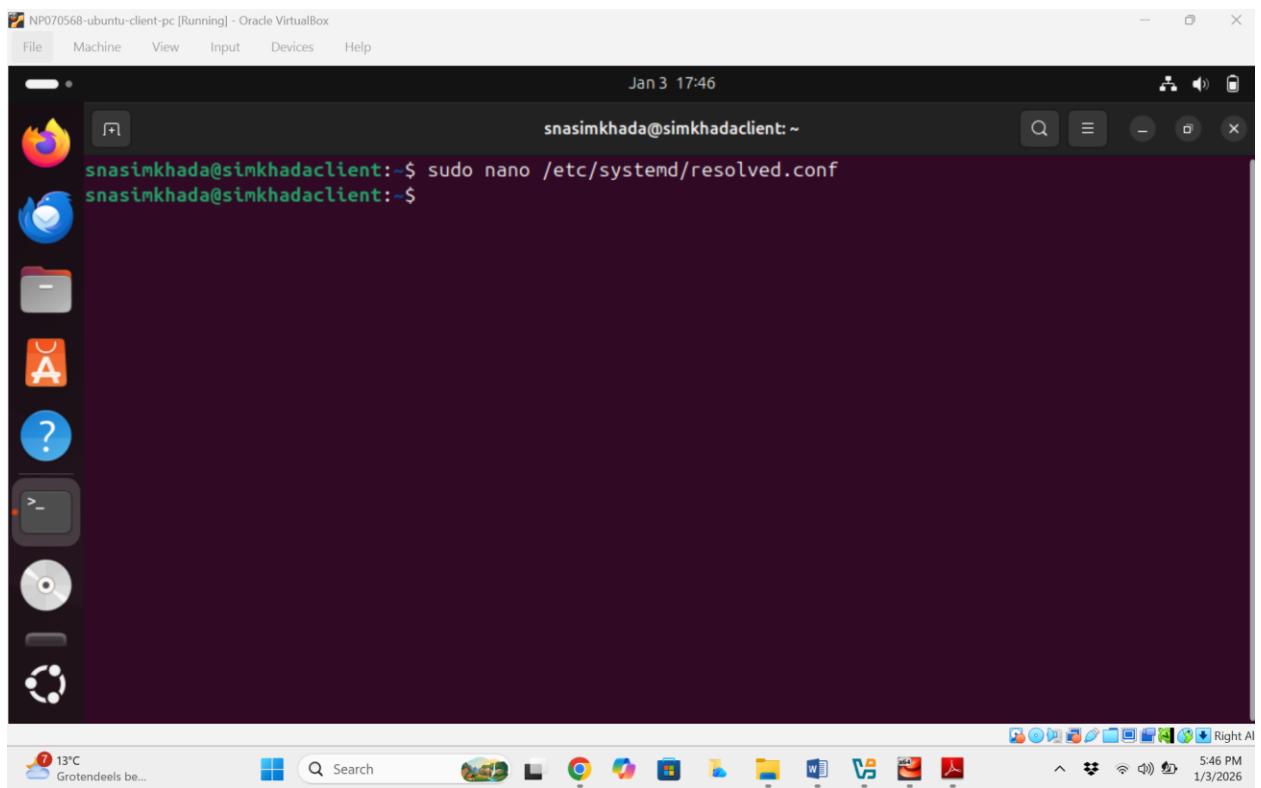






```
snasimkhada@simkhadaclient:~$ sudo systemctl enable systemd-resolved
[sudo] password for snasimkhada:
Sorry, try again.
[sudo] password for snasimkhada:
snasimkhada@simkhadaclient:~$ sudo systemctl start systemd-resolved
snasimkhada@simkhadaclient:~$ sudo systemctl status systemd-resolved
● systemd-resolved.service - Network Name Resolution
    Loaded: loaded (/usr/lib/systemd/system/systemd-resolved.service; enabled; preset: enabled)
    Active: active (running) since Sat 2026-01-03 17:37:39 +0545; 7min ago
      Docs: man:systemd-resolved.service(8)
             man:org.freedesktop.resolve1(5)
             https://www.freedesktop.org/wiki/Software/systemd/writing-network-configuration-managers
             https://www.freedesktop.org/wiki/Software/systemd/writing-resolver-clients
     Main PID: 371 (systemd-resolve)
        Status: "Processing requests..."
           Tasks: 1 (limit: 4600)
          Memory: 7.6M (peak: 8.1M)
            CPU: 279ms
          CGroup: /system.slice/systemd-resolved.service
                  └─371 /usr/lib/systemd/systemd-resolved

Jan 03 17:37:38 simkhadaclient.prakash.com systemd[1]: Starting systemd-resolved.service - Network N
Jan 03 17:37:39 simkhadaclient.prakash.com systemd[371]: Positive Trust Anchors:
```



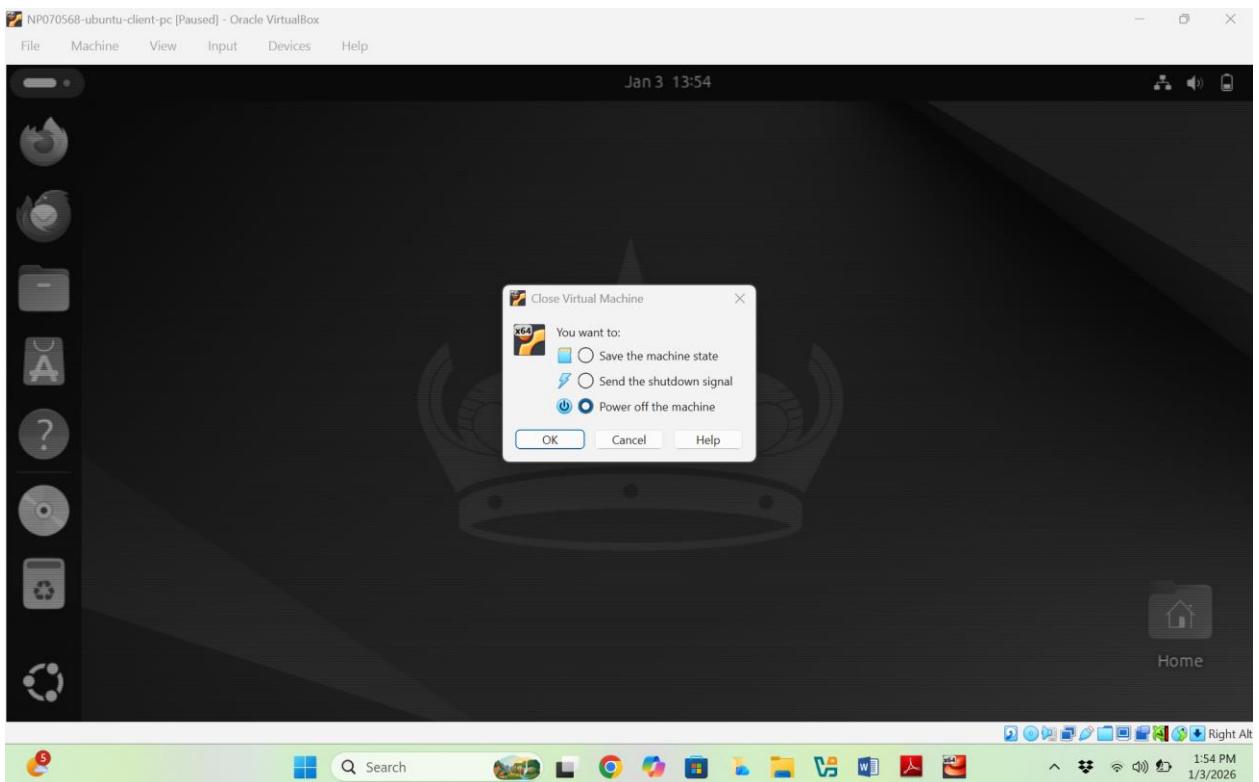
A screenshot of a Linux desktop environment, likely Ubuntu, running in Oracle VirtualBox. The desktop has a light theme with icons for various applications like a browser, file manager, and terminal. A terminal window is open with the command:

```
snasimkhada@simkhadaclient:~$
```

The output shows the contents of the `/etc/systemd/resolved.conf` file:

```
GNU nano 7.2 /etc/systemd/resolved.conf
# Cloudflare: 1.1.1.1#cloudflare-dns.com 1.0.0.1#cloudflare-dns.com 2606:4700:4700::1111#cloudflare->
# Google:     8.8.8.8#dns.google 8.8.4.4#dns.google 2001:4860:4860::8888#dns.google 2001:4860:4860:>
# Quad9:      9.9.9.9#dns.quad9.net 149.112.112.112#dns.quad9.net 2620:fe::fe#dns.quad9.net 2620:fe:>
DNS=192.168.200.5 8.8.8.8
#FallbackDNS=
#Domains=
#DNSSEC=no
#DNSOverTLS=no
#MulticastDNS=no
#LLMNR=no
#Cache=no-negative
#CacheFromLocalhost=no
#DNSStubListener=yes
#DNSStubListenerExtra=
#ReadEtcHosts=yes
#ResolveUnicastSingleLabel=no
#StaleRetentionSec=0
```

The terminal window includes a menu bar with File, Machine, View, Input, Devices, Help, and a status bar showing the date and time.



```
snasimkhada@simkhadaclient:~$ nmcli
enp0s3: connected to netplan-enp0s3
    "Intel 82540EM"
    ethernet (e1000), 08:00:27:75:42:E9, hw, mtu 1500
    ip4 default
    inet4 192.168.200.4/24
    route4 192.168.200.0/24 metric 100
    route4 default via 192.168.200.1 metric 100

lo: connected (externally) to lo
    "lo"
    loopback (unknown), 00:00:00:00:00:00, sw, mtu 65536
    inet4 127.0.0.1/8
    inet6 ::1/128

enp0s8: unavailable
    "Intel 82540EM"
    ethernet (e1000), 08:00:27:BE:D3:88, hw, mtu 1500

DNS configuration:
    servers: 192.168.200.5 8.8.8.8
    interface: enp0s3
```

NP070568-ubuntu-client-pc [Running] - Oracle VirtualBox

File Machine View Input Devices Help

Jan 3 17:47

```
snasimkhada@simkhadaclient:~
```

```
enp0s3: connected to netplan-enp0s3
    "Intel 82540EM"
    ethernet (e1000), 08:00:27:75:42:E9, hw, mtu 1500
    ip4 default
        inet4 192.168.200.4/24
            route4 192.168.200.0/24 metric 100
            route4 default via 192.168.200.1 metric 100

lo: connected (externally) to lo
    "lo"
    loopback (unknown), 00:00:00:00:00:00, sw, mtu 65536
    inet4 127.0.0.1/8
    inet6 ::1/128

enp0s8: unavailable
    "Intel 82540EM"
    ethernet (e1000), 08:00:27:BE:D3:88, hw, mtu 1500

DNS configuration:
    servers: 192.168.200.5 8.8.8.8
    interface: enp0s3
```

lines 1-21

Lucht: ernstig Morgen 5:48 PM 1/3/2026 Right Alt

NP070568-ubuntu-client-pc [Running] - Oracle VirtualBox

File Machine View Input Devices Help

Jan 3 17:50

```
snasimkhada@simkhadaclient:~
```

```
nslookup simkhadaclient.prakash.com
Server:      192.168.200.5
Address:     192.168.200.5#53

Name:   simkhadaclient.prakash.com
Address: 192.168.200.4

nsasimkhada@simkhadaclient:~$ nslookup simkhadaserver.prakash.com
Server:      192.168.200.5
Address:     192.168.200.5#53

Name:   simkhadaserver.prakash.com
Address: 192.168.200.5

snasimkhada@simkhadaclient:~$
```

Lucht: ernstig Morgen 5:51 PM 1/3/2026 Right Alt

NP070568-ubuntu-client-pc [Running] - Oracle VirtualBox

File Machine View Input Devices Help

Jan 3 17:52

```
snasimkhada@simkhadaclient:~$ ping simkhadaserver.prakash.com
PING simkhadaserver.prakash.com (192.168.200.5) 56(84) bytes of data.
64 bytes from simkhadaserver.prakash.com (192.168.200.5): icmp_seq=1 ttl=64 time=2.74 ms
64 bytes from simkhadaserver.prakash.com (192.168.200.5): icmp_seq=2 ttl=64 time=7.22 ms
64 bytes from simkhadaserver.prakash.com (192.168.200.5): icmp_seq=3 ttl=64 time=7.33 ms
^C
--- simkhadaserver.prakash.com ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 2066ms
rtt min/avg/max/mdev = 2.741/5.765/7.330/2.138 ms
snasimkhada@simkhadaclient:~$ ping simkhadaclient.prakash.com
PING simkhadaclient.prakash.com (192.168.200.4) 56(84) bytes of data.
64 bytes from simkhadaclient.prakash.com (192.168.200.4): icmp_seq=1 ttl=64 time=0.066 ms
64 bytes from simkhadaclient.prakash.com (192.168.200.4): icmp_seq=2 ttl=64 time=0.062 ms
^C
--- simkhadaclient.prakash.com ping statistics ---
2 packets transmitted, 2 received, 0% packet loss, time 1052ms
rtt min/avg/max/mdev = 0.062/0.064/0.066/0.002 ms
snasimkhada@simkhadaclient:~$
```

NP070568-ubuntu-client-pc [Running] - Oracle VirtualBox

File Machine View Input Devices Help

Jan 3 17:53

```
snasimkhada@simkhadaclient:~$ dig simkhadaserver.prakash.com
; <>> DiG 9.18.39-0ubuntu0.24.04.2-Ubuntu <>> simkhadaserver.prakash.com
;; global options: +cmd
;; Got answer:
;; ->>HEADER<- opcode: QUERY, status: NOERROR, id: 32078
;; flags: qr aa rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 1
;; OPT PSEUDOSECTION:
;; EDNS: version: 0, flags:; udp: 1232
;; COOKIE: 4ddd2b78153b1d6b01000000695906c54a235630b2375dbb (good)
;; QUESTION SECTION:
;simkhadaserver.prakash.com. IN A
;; ANSWER SECTION:
simkhadaserver.prakash.com. 86400 IN A 192.168.200.5
;; Query time: 4 msec
;; SERVER: 192.168.200.5#53(192.168.200.5) (UDP)
;; WHEN: Sat Jan 03 17:52:58 +0545 2026
;; MSG SIZE rcvd: 99
snasimkhada@simkhadaclient:~$
```

NP070568-ubuntu-client-pc [Running] - Oracle VirtualBox

File Machine View Input Devices Help

Jan 3 17:54

```
snasimkhada@simkhadaclient:~$ dig simkhadaclient.prakash.com
; <>> DiG 9.18.39-0ubuntu0.24.04.2-Ubuntu <>> simkhadaclient.prakash.com
;; global options: +cmd
;; Got answer:
;; ->>HEADER<- opcode: QUERY, status: NOERROR, id: 5793
;; flags: qr aa rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 1
;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 1232
; COOKIE: b0d7425f278604220100000695906fcda969107c065d164 (good)
;; QUESTION SECTION:
;simkhadaclient.prakash.com. IN A
>-
;; ANSWER SECTION:
simkhadaclient.prakash.com. 86400 IN A 192.168.200.4
;; Query time: 6 msec
;; SERVER: 192.168.200.5#53(192.168.200.5) (UDP)
;; WHEN: Sat Jan 03 17:53:53 +0545 2026
;; MSG SIZE rcvd: 99
```

Right Alt

13°C Grotendeels be... Search

5:54 PM 1/3/2026

## **TASK 7: FTP AND SFTP CONFIGURATION**

### **Objective**

To install and configure FTP and SFTP services.

### **FTP Setup**

- Installed vsftpd.
- Created FTP user.
- Set directory permissions.

### **SFTP Setup**

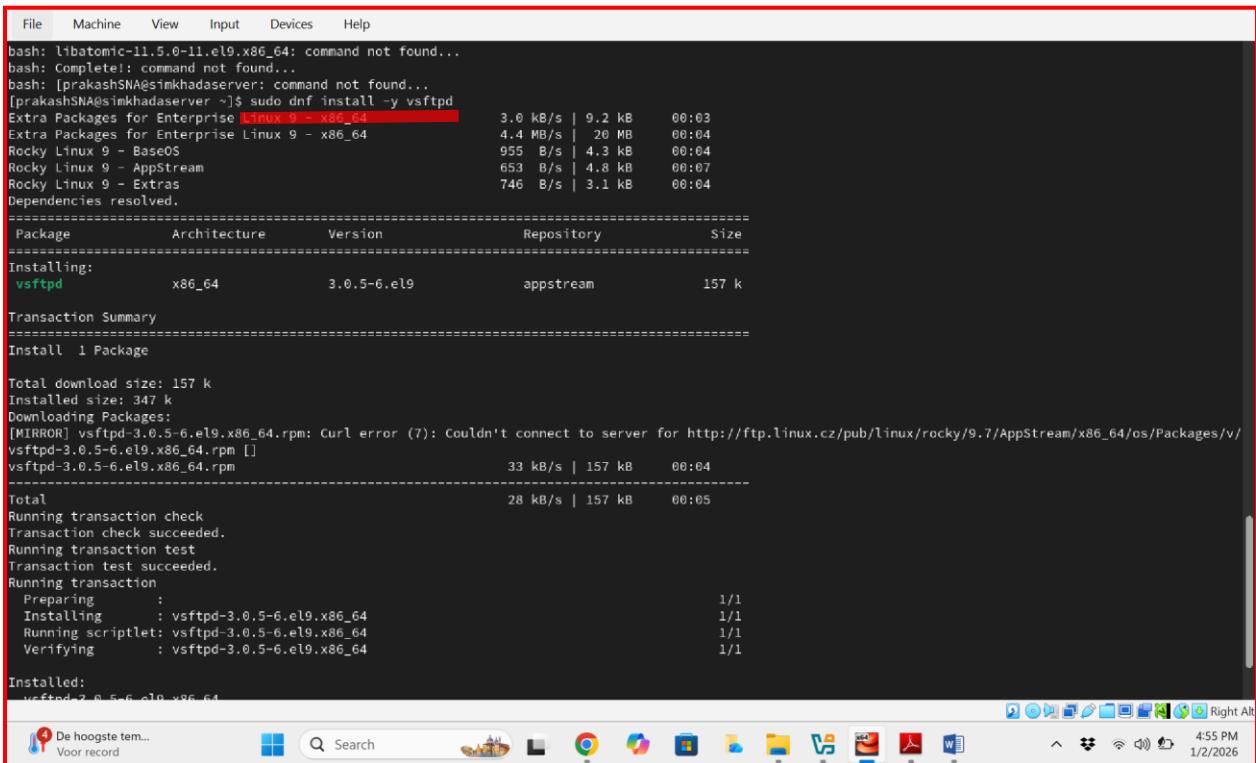
- Used OpenSSH.
- Created secure user accounts.

### **Verification**

Files were successfully transferred between client and server.

## FTP/SFTP Screenshots

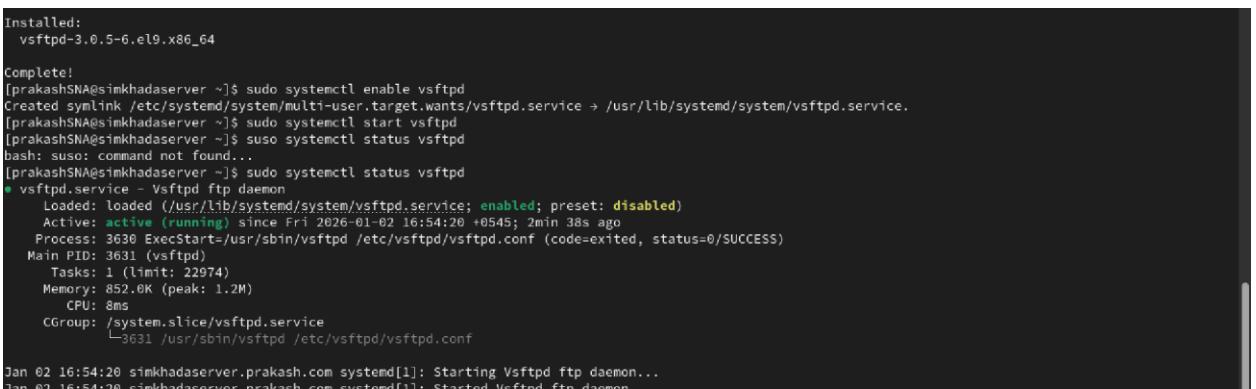
### FTP Server ScreenShots



```
File Machine View Input Devices Help
bash: libatomic-11.5.0-11.el9.x86_64: command not found...
bash: Complete! command not found...
bash: [prakashSNA@simkhadaserver: command not found...
[prakashSNA@simkhadaserver ~]$ sudo dnf install -y vsftpd
Extra Packages for Enterprise Linux 9 - x86_64
Extra Packages for Enterprise Linux 9 - BaseOS
Rocky Linux 9 - AppStream
Rocky Linux 9 - Extras
Dependencies resolved.
=====
| Package           | Architecture | Version      | Repository | Size |
| ======            | ======       | ======       | ======     | ===== |
Installing:
| vsftpd           | x86_64      | 3.0.5-6.el9 | appstream  | 157 k |
=====
Transaction Summary
=====
Install 1 Package

Total download size: 157 k
Installed size: 347 k
Downloading Packages:
[MIRROR] vsftpd-3.0.5-6.el9.x86_64.rpm: Curl error (7): Couldn't connect to server for http://ftp.linux.cz/pub/linux/rocky/9.7/AppStream/x86_64/os/Packages/v/
vsftpd-3.0.5-6.el9.x86_64.rpm []
vsftpd-3.0.5-6.el9.x86_64.rpm
=====
Total
Running transaction check
Transaction check succeeded.
Running transaction test
Transaction test succeeded.
Running transaction
Preparing : 1/1
Installing : vsftpd-3.0.5-6.el9.x86_64 1/1
Running scriptlet: vsftpd-3.0.5-6.el9.x86_64 1/1
Verifying : vsftpd-3.0.5-6.el9.x86_64 1/1
=====
Installed:
vsftpd-3.0.5-6.el9.x86_64

De hoogste tem... Voor record 455 PM 1/2/2026 Right Alt
```



```
Installed:
vsftpd-3.0.5-6.el9.x86_64

Complete!
[prakashSNA@simkhadaserver ~]$ sudo systemctl enable vsftpd
Created symlink /etc/systemd/system/multi-user.target.wants/vsftpd.service → /usr/lib/systemd/system/vsftpd.service.
[prakashSNA@simkhadaserver ~]$ sudo systemctl start vsftpd
[prakashSNA@simkhadaserver ~]$ sudo systemctl status vsftpd
bash: sudo: command not found...
[prakashSNA@simkhadaserver ~]$ sudo systemctl status vsftpd
* vsftpd.service - Vsftpd ftp daemon
   Loaded: loaded (/usr/lib/systemd/system/vsftpd.service; enabled; preset: disabled)
   Active: active (running) since Fri 2026-01-02 16:54:20 +0545; 2min 38s ago
     Process: 3638 ExecStart=/usr/sbin/vsftpd /etc/vsftpd/vsftpd.conf (code=exited, status=0/SUCCESS)
    Main PID: 3631 (vsftpd)
       Tasks: 1 (limit: 22974)
      Memory: 852.0K (peak: 1.2M)
        CPU: 8ms
       CGroup: /system.slice/vsftpd.service
               └─3631 /usr/sbin/vsftpd /etc/vsftpd/vsftpd.conf

Jan 02 16:54:20 simkhadaserver.prakash.com systemd[1]: Starting Vsftpd ftp daemon...
Jan 02 16:54:20 simkhadaserver.prakash.com systemd[1]: Started Vsftpd ftp daemon.
[prakashSNA@simkhadaserver ~]$
```



```
Zonsondergang 17:20 457 PM 1/2/2026 Right Alt
[prakashSNA@simkhadaserver ~]$ sudo vim /etc/vsftpd/vsftpd.conf
[prakashSNA@simkhadaserver ~]$
```

```
14°C Meestal zonnig 5:04 PM 1/2/2026 Right Alt
```

```
File Machine View Input Devices Help
# Example config file /etc/vsftpd/vsftpd.conf
#
# The default compiled in settings are fairly paranoid. This sample file
# loosens things up a bit, to make the ftp daemon more usable.
# Please see vsftpd.conf.5 for all compiled in defaults.
#
# READ THIS: This example file is NOT an exhaustive list of vsftpd options.
# Please read the vsftpd.conf.5 manual page to get a full idea of vsftpd's
# capabilities.
#
# Allow anonymous FTP? (Beware - allowed by default if you comment this out).
anonymous_enable=NO
#
# Uncomment this to allow local users to log in.
local_enable=YES
#
# Uncomment this to enable any form of FTP write command.
write_enable=YES
#
# Default umask for local users is 077. You may wish to change this to 022,
# if your users expect that (022 is used by most other ftpt's)
#local_umask=022
#
# Uncomment this to allow the anonymous FTP user to upload files. This only
# has an effect if the above global write enable is activated. Also, you will
# obviously need to create a directory writable by the FTP user.
# When SELinux is enforcing check for SE bool allow_ftpd_anon_write, allow_ftpd_full_access
anon_upload_enable=YES
#
# Uncomment this if you want the anonymous FTP user to be able to create
# new directories.
#anon_mkdir_write_enable=YES
#
# Activate directory messages - messages given to remote users when they
# go into a certain directory.
dirmessage_enable=YES
#
# Activate logging of uploads/downloads.

```

1,1 Top



```
38 # Activate logging of uploads/downloads.
#xferlog_enable=YES
40 #
41 # Make sure PORT transfer connections originate from port 20 (ftp-data).
42 connect_from_port_20=YES
43 #
44 # If you want, you can arrange for uploaded anonymous files to be owned by
45 # a different user. Note! Using "root" for uploaded files is not
46 # recommended!
47 #chown_uploads=YES
48 #chown_username=whoever
49 #
50 # You may override where the log file goes if you like. The default is shown
51 # below.
52 xferlog_file=/var/log/xferlog
53 #
54 # If you want, you can have your log file in standard ftpd xferlog format.
55 # Note that the default log file location is /var/log/xferlog in this case.
56 xferlog_std_format=YES
57 #
58 # You may change the default value for timing out an idle session.
59 #idle_session_timeout=600
60 #
61 # You may change the default value for timing out a data connection.
62 #data_connection_timeout=120
63 #
64 # It is recommended that you define on your system a unique user which the
65 # ftp server can use as a totally isolated and unprivileged user.
66 #nopriv_user=ftpsecure
67 #
68 # Enable this and the server will recognise asynchronous ABOR requests. Not
69 # recommended for security (the code is non-trivial). Not enabling it,
70 # however, may confuse older FTP clients.
71 #async_abor_enable=YES
72 #
73 # By default the server will pretend to allow ASCII mode but in fact ignore
```

41,1 39% Right Alt



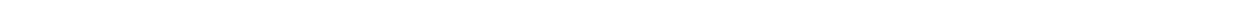
```
File Machine View Input Devices Help

89 # useful for combatting certain DoS attacks.
90 #deny_email_enable=YES
91 # (default follows)
92 #banned_email_file=/etc/vsftpd/banned_emails
93 #
94 # You may specify an explicit list of local users to chroot() to their home
95 # directory. If chroot_local_user is YES, then this list becomes a list of
96 # users to NOT chroot().
97 # (Warning! chroot'ing can be very dangerous. If using chroot, make sure that
98 # the user does not have write access to the top level directory within the
99 # chroot)
100 #chroot_local_user=YES
101 #chroot_list_enable=YES
102 # (default follows)
103 #chroot_list_file=/etc/vsftpd/chroot_list
104 #
105 # You may activate the "-R" option to the builtin ls. This is disabled by
106 # default to avoid remote users being able to cause excessive I/O on large
107 # sites. However, some broken FTP clients such as "ncftp" and "mirror" assume
108 # the presence of the "-R" option, so there is a strong case for enabling it.
109 #ls_recurse_enable=YES
110 #
111 # When "Listen" directive is enabled, vsftpd runs in standalone mode and
112 # listens on IPv4 sockets. This directive cannot be used in conjunction
113 # with the listen_ipv6 directive.
114 listen=NO
115 #
116 # This directive enables listening on IPv6 sockets. By default, listening
117 # on the IPv6 "any" address (::) will accept connections from both IPv6
118 # and IPv4 clients. It is not necessary to listen on <both> IPv4 and IPv6
119 # sockets. If you want that (perhaps because you want to listen on specific
120 # addresses) then you must run two copies of vsftpd with two configuration
121 # files.
122 # Make sure, that one of the listen options is commented !!
123 listen_ipv6=YES
124 #
125 pam_service_name=vsftpd
126 userlist_enable=YES
127 
```

```
79 # predicted this attack and has always been safe, reporting the size of the
80 # raw file.
81 # ASCII mangling is a horrible feature of the protocol.
82 #ascii_upload_enable=YES
83 #ascii_download_enable=YES
84 #
85 # You may fully customise the login banner string:
86 #ftpd_banner=Welcome to blah FTP service.
87 #
88 # You may specify a file of disallowed anonymous e-mail addresses. Apparently
89 # useful for combatting certain DoS attacks.
90 #deny_email_enable=YES
91 # (default follows)
92 #banned_email_file=/etc/vsftpd/banned_emails
93 #
94 # You may specify an explicit list of local users to chroot() to their home
95 # directory. If chroot_local_user is YES, then this list becomes a list of
96 # users to NOT chroot().
97 # (Warning! chroot'ing can be very dangerous. If using chroot, make sure that
98 # the user does not have write access to the top level directory within the
-- INSERT --
```

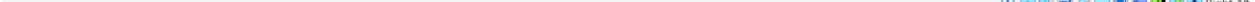
```
82 ascii_upload_enable=YES
83 ascii_download_enable=YES
84 #
85 # You may fully customise the login banner string:
86 #ftpd_banner=Welcome to blah FTP service.
87 #
88 # You may specify a file of disallowed anonymous e-mail addresses. Apparently
89 # useful for combatting certain DoS attacks.
90 #deny_email_enable=YES
91 # (default follows)
92 #banned_email_file=/etc/vsftpd/banned_emails
93 #
94 # You may specify an explicit list of local users to chroot() to their home
95 # directory. If chroot_local_user is YES, then this list becomes a list of
96 # users to NOT chroot().
97 # (Warning! chroot'ing can be very dangerous. If using chroot, make sure that
98 # the user does not have write access to the top level directory within the
99 # chroot)
100 chroot_local_user=YES
101 chroot_list_enable=YES
102 allow_writeable_chroot=NO
103 chroot_list_file=/etc/vsftpd/chroot_list
104 #
105 # You may activate the "-R" option to the builtin ls. This is disabled by
106 # default to avoid remote users being able to cause excessive I/O on large
107 # sites. However, some broken FTP clients such as "ncftp" and "mirror" assume
108 # the presence of the "-R" option, so there is a strong case for enabling it.
109 #ls_recurse_enable=YES
110 #
111 # When "listen" directive is enabled, vsftpd runs in standalone mode and
112 # listens on IPv4 sockets. This directive cannot be used in conjunction
-- INSERT --
```

101,1 84%



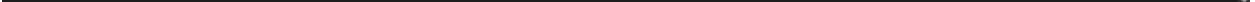
```
93 # You may specify an explicit list of local users to chroot() to their home
94 # directory. If chroot_local_user is YES, then this list becomes a list of
95 # users to NOT chroot().
96 # (Warning! chroot'ing can be very dangerous. If using chroot, make sure that
97 # the user does not have write access to the top level directory within the
98 # chroot)
99 #chroot
100 chroot_local_user=YES
101 chroot_list_enable=YES
102 allow_writeable_chroot=NO
103 chroot_list_file=/etc/vsftpd/chroot_list
104 #
105 # You may activate the "-R" option to the builtin ls. This is disabled by
106 # default to avoid remote users being able to cause excessive I/O on large
107 # sites. However, some broken FTP clients such as "ncftp" and "mirror" assume
108 # the presence of the "-R" option, so there is a strong case for enabling it.
109 #ls_recurse_enable=YES
110 #
111 # When "listen" directive is enabled, vsftpd runs in standalone mode and
-- INSERT --
```

102,27 83%



```
93 #
94 # You may specify an explicit list of local users to chroot() to their home
95 # directory. If chroot_local_user is YES, then this list becomes a list of
96 # users to NOT chroot().
97 # (Warning! chroot'ing can be very dangerous. If using chroot, make sure that
98 # the user does not have write access to the top level directory within the
99 # chroot)
100 chroot_local_user=YES
101 chroot_list_enable=YES
102 allow_writeable_chroot=YES
103 chroot_list_file=/etc/vsftpd/chroot_list
104 #
105 # You may activate the "-R" option to the builtin ls. This is disabled by
106 # default to avoid remote users being able to cause excessive I/O on large
107 # sites. However, some broken FTP clients such as "ncftp" and "mirror" assume
108 # the presence of the "-R" option, so there is a strong case for enabling it.
109 #ls_recurse_enable=YES
110 #
111 # When "listen" directive is enabled, vsftpd runs in standalone mode and
112 # listens on IPv4 sockets. This directive cannot be used in conjunction
113 # with the listen_ipv6 directive.
114 #listen=NO
-- INSERT --
```

110,1 86%



```
103 # (default follows)
104 chroot_list_file=/etc/vsftpd/chroot_list
105 #
106 # You may activate the "-R" option to the builtin ls. This is disabled by
107 # default to avoid remote users being able to cause excessive I/O on large
108 # sites. However, some broken FTP clients such as "ncftp" and "mirror" assume
109 # the presence of the "-R" option, so there is a strong case for enabling it
110 ls_recurse_enable=YES
111 #
112 # When "Listen" directive is enabled, vsftpd runs in standalone mode and
113 # listens on IPv4 sockets. This directive cannot be used in conjunction
114 # with the listen_ipv6 directive.
115 listen=NO
116 #
117 # This directive enables listening on IPv6 sockets. By default, listening
118 # on the IPv6 "any" address (::) will accept connections from both IPv6
119 # and IPv4 clients. It is not necessary to listen on +both+ IPv4 and IPv6
120 # sockets. If you want that (perhaps because you want to listen on specific
121 # addresses) then you must run two copies of vsftpd with two configuration
122 # files.
123 # Make sure, that one of the listen options is commented !!
124 listen_ipv6=YES
125 #
126 pam_service_name=vsftpd
127 userlist_enable=YES
128 local_root=public_html
129 use_localtime=YES
130 seccomp_sandbox=NO
-- INSERT --
```

130,19



```
# Make sure, that one of the listen options is commented !!
listen_ipv6=YES

pam_service_name=vsftpd
userlist_enable=YES
local_root=public_html
use_localtime=YES
seccomp_sandbox=NO
```



```
[prakashSNA@simkhadaserver ~]$ whoami  
prakashSNA  
[prakashSNA@simkhadaserver ~]$
```



```
[prakashSNA@simkhadaserver ~]$ sudo vim /etc/vsftpd/chroot_list  
[prakashSNA@simkhadaserver ~]$
```



File Machine View Input Devices Help

prakashSNA

```
:wc
```

Lucht: zeer slecht  
Nu

Search

Right Alt

S 14°C Meestal zonnig

Right Alt

```
[prakashSNA@simkhadaserver ~]$ sudo cp /etc/vsftpd/vsftpd.conf /etc/vsftpd/vsftpd.bak
[sudo] password for prakashSNA:
[prakashSNA@simkhadaserver ~]$ cd /etc/vsftpd/
[prakashSNA@simkhadaserver vsftpd]$ ls
chroot_list ftpusers user_list vsftpd.bak vsftpd.conf vsftpd_conf_migrate.sh
[prakashSNA@simkhadaserver vsftpd]$ cd
```

Right Alt

```
[prakashSNA@simkhadaserver ~]$
```

14°C Meestal zonnig

Search

Right Alt

```
[prakashSNA@simkhadaserver ~]$ sudo sestatus
SELinux status:                 enabled
SELinuxfs mount:                /sys/fs/selinux
SELinux root directory:         /etc/selinux
Loaded policy name:              targeted
Current mode:                   enforcing
Mode from config file:          enforcing
Policy MLS status:              enabled
Policy deny_unknown status:     allowed
Memory protection checking:    actual (secure)
Max kernel policy version:     33
[prakashSNA@simkhadaserver ~]$
```

Right Alt

```
[prakashSNA@simkhadaserver ~]$ sudo setsebool -P ftpd_full_access on
[prakashSNA@simkhadaserver ~]$
```

Right Alt

```
[prakashSNA@simkhadaserver ~]$
```

```
[prakashSNA@simkhadaserver ~]$ sudo setsebool -P ftpd_full_access on
[prakashSNA@simkhadaserver ~]$ sudo systemctl enable --now vsftpd
[prakashSNA@simkhadaserver ~]$ sudo systemctl start vsftpd
[prakashSNA@simkhadaserver ~]$ sudo systemctl status vsftpd
● vsftpd.service - Vsftpd ftp daemon
   Loaded: loaded (/usr/lib/systemd/system/vsftpd.service; enabled; preset: disabled)
     Active: active (running) since Fri 2020-01-02 16:54:20 +0545; 40min ago
       Main PID: 3631 (vsftpd)
         Tasks: 1 (limit: 22974)
        Memory: 852.0K (peak: 1.2M)
          CPU: 8ms
        CGroup: /system.slice/vsftpd.service
                  └─3631 /usr/sbin/vsftpd /etc/vsftpd/vsftpd.conf

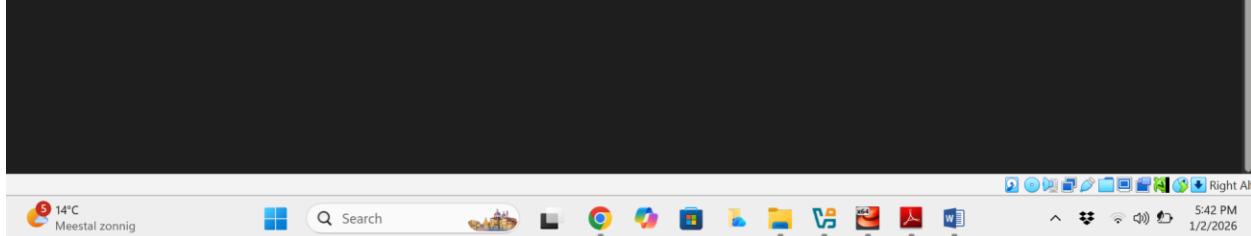
Jan 02 16:54:20 simkhadaserver.prakash.com systemd[1]: Starting Vsftpd ftp daemon...
Jan 02 16:54:20 simkhadaserver.prakash.com systemd[1]: Started Vsftpd ftp daemon.
[prakashSNA@simkhadaserver ~]$
```



```
[prakashSNA@simkhadaserver ~]$ sudo firewall-cmd --add-service=ftp
Warning: ALREADY_ENABLED: 'ftp' already in 'public'
success
[prakashSNA@simkhadaserver ~]$ sudo firewall-cmd --runtime-to-permanent
success
[prakashSNA@simkhadaserver ~]$ sudo firewall-cmd --reload
success
[prakashSNA@simkhadaserver ~]$
```



```
[File Machine View Input Devices Help
[prakashSNA@simkhadaserver ~]$ mkdir Bunker
[prakashSNA@simkhadaserver ~]$ ls -l
total 4
drwxrwxrwx. 2 root      root      6 Dec 28 09:26 Jungkus
drwxr-xr-x. 2 prakashSNA prakashSNA 6 Jan  2 17:46 Bunker
drwxr-xr-x. 2 prakashSNA prakashSNA 6 Dec  5 18:52 Desktop
drwxr-xr-x. 2 prakashSNA prakashSNA 6 Dec  5 18:52 Documents
drwxr-xr-x. 2 prakashSNA prakashSNA 6 Dec  5 18:52 Downloads
drwxr-xr-x. 2 prakashSNA prakashSNA 6 Dec  5 18:52 Music
-rw-----. 1 prakashSNA prakashSNA 22 Jan  2 08:18 newfile1.txt
drwxr-xr-x. 2 prakashSNA prakashSNA 6 Dec  5 18:52 Pictures
drwxr-xr-x. 2 prakashSNA prakashSNA 6 Dec  5 18:52 Public
drwxr-xr-x. 2 prakashSNA prakashSNA 6 Dec  5 18:52 Templates
drwxr-xr-x. 2 prakashSNA prakashSNA 6 Dec  5 18:52 Videos
[prakashSNA@simkhadaserver ~]$ sudo chmod 777 Bunker
[prakashSNA@simkhadaserver ~]$ ls -l
total 4
drwxrwxrwx. 2 root      root      6 Dec 28 09:26 Jungkus
drwxrwxrwx. 2 prakashSNA prakashSNA 6 Jan  2 17:46 Bunker
drwxr-xr-x. 2 prakashSNA prakashSNA 6 Dec  5 18:52 Desktop
drwxr-xr-x. 2 prakashSNA prakashSNA 6 Dec  5 18:52 Documents
drwxr-xr-x. 2 prakashSNA prakashSNA 6 Dec  5 18:52 Downloads
drwxr-xr-x. 2 prakashSNA prakashSNA 6 Dec  5 18:52 Music
-rw-----. 1 prakashSNA prakashSNA 22 Jan  2 08:18 newfile1.txt
drwxr-xr-x. 2 prakashSNA prakashSNA 6 Dec  5 18:52 Pictures
drwxr-xr-x. 2 prakashSNA prakashSNA 6 Dec  5 18:52 Public
drwxr-xr-x. 2 prakashSNA prakashSNA 6 Dec  5 18:52 Templates
drwxr-xr-x. 2 prakashSNA prakashSNA 6 Dec  5 18:52 Videos
[prakashSNA@simkhadaserver ~]$
```



```
snasimkhada@simkhadaclient:~$ cat /etc/os-release
PRETTY_NAME="Ubuntu 24.04.3 LTS"
NAME="Ubuntu"
VERSION_ID="24.04"
VERSION="24.04.3 LTS (Noble Numbat)"
VERSION_CODENAME=noble
ID=ubuntu
ID_LIKE=debian
HOME_URL="https://www.ubuntu.com/"
SUPPORT_URL="https://help.ubuntu.com/"
BUG_REPORT_URL="https://bugs.launchpad.net/ubuntu/"
PRIVACY_POLICY_URL="https://www.ubuntu.com/legal/terms-and-policies/privacy-policy"
UBUNTU_CODENAME=noble
LOGO=ubuntu-logo
snasimkhada@simkhadaclient:~$ sudo lftp -u prakashSNA 192.168.200.3
[sudo] password for snasimkhada:
Password:
lftp prakashSNA@192.168.200.3:~> 
```



```
ls -la
snasimkhada@simkhadaclient:~$ sudo lftp -u prakashSNA 192.168.200.3
[sudo] password for snasimkhada:
Password:
lftp prakashSNA@192.168.200.3:~> ls
drwxrwxrwx  2  0      0          6 Dec 28 03:41 Bungkus
drwxrwxrwx  2 1000   1000        6 Jan  2 11:55 Bunker
drwxr-xr-x  2 1000   1000        6 Dec  5 13:07 Desktop
drwxr-xr-x  2 1000   1000        6 Dec  5 13:07 Documents
drwxr-xr-x  2 1000   1000        6 Dec  5 13:07 Downloads
drwxr-xr-x  2 1000   1000        6 Dec  5 13:07 Music
drwxr-xr-x  2 1000   1000        6 Dec  5 13:07 Pictures
drwxr-xr-x  2 1000   1000        6 Dec  5 13:07 Public
drwxr-xr-x  2 1000   1000        6 Dec  5 13:07 Templates
drwxr-xr-x  2 1000   1000        6 Dec  5 13:07 Videos
-rw-----  1 1000   1000       22 Jan  2 02:33 newfile1.txt
lftp prakashSNA@192.168.200.3:~> 
```



```
ls
snasimkhada@simkhadaclient:~$ lftp -u prakashSNA 192.168.200.3
Password:
lftp prakashSNA@192.168.200.3:~> ls
drwxrwxrwx  2  0      0          6 Dec 28 03:41 Bungkus
drwxrwxrwx  2 1000   1000        6 Jan  2 11:55 Bunker
drwxr-xr-x  2 1000   1000        6 Dec  5 13:07 Desktop
drwxr-xr-x  2 1000   1000        6 Dec  5 13:07 Documents
drwxr-xr-x  2 1000   1000        6 Dec  5 13:07 Downloads
drwxr-xr-x  2 1000   1000        6 Dec  5 13:07 Music
drwxr-xr-x  2 1000   1000        6 Dec  5 13:07 Pictures
drwxr-xr-x  2 1000   1000        6 Dec  5 13:07 Public
drwxr-xr-x  2 1000   1000        6 Dec  5 13:07 Templates
drwxr-xr-x  2 1000   1000        6 Dec  5 13:07 Videos
-rw-----  1 1000   1000       22 Jan  2 02:33 newfile1.txt
lftp prakashSNA@192.168.200.3:~> mput newfile1.txt
22 bytes transferred
lftp prakashSNA@192.168.200.3:~> 
```



```
Jan 2 18:19
snasimkhada@simkhadaclient:~
```

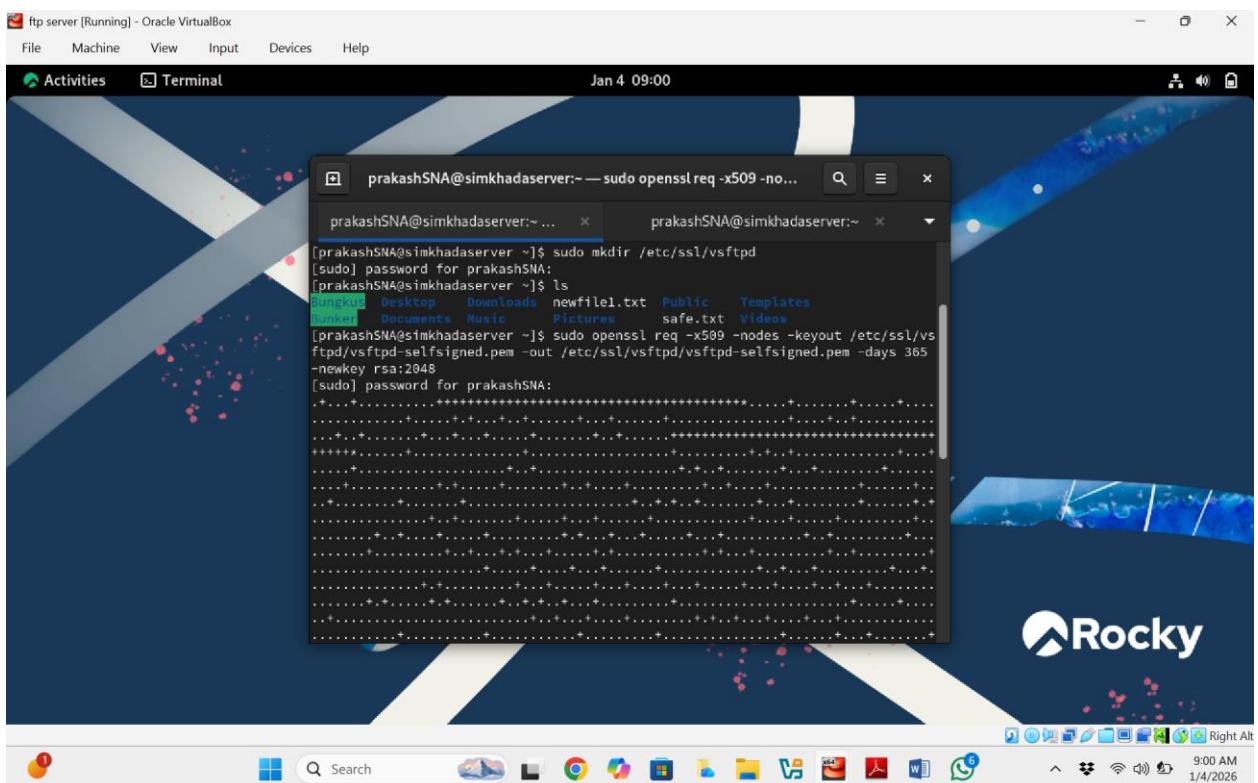
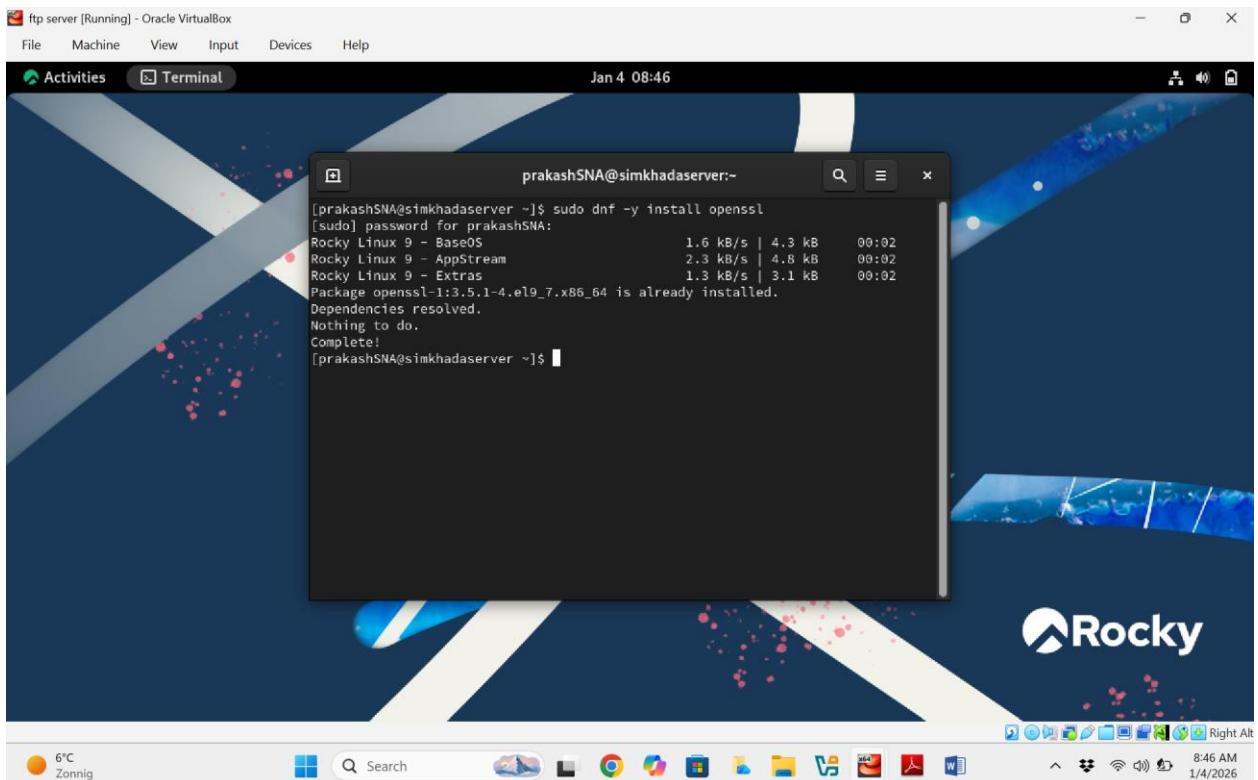
lftp prakashSNA@192.168.200.3:~> !ls  
Desktop Downloads newfile1.txt prakash.txt Public ssh-key-2025-12-30.key Videos  
Documents Music Pictures project snap Templates  
lftp prakashSNA@192.168.200.3:> ls  
drwxrwxrwx 2 0 0 6 Dec 28 03:41 Bungkus  
drwxrwxrwx 2 1000 1000 6 Jan 02 11:55 Bunker  
drwxr-xr-x 2 1000 1000 6 Dec 05 13:07 Desktop  
drwxr-xr-x 2 1000 1000 6 Dec 05 13:07 Documents  
drwxr-xr-x 2 1000 1000 6 Dec 05 13:07 Downloads  
drwxr-xr-x 2 1000 1000 6 Dec 05 13:07 Music  
drwxr-xr-x 2 1000 1000 6 Dec 05 13:07 Pictures  
drwxr-xr-x 2 1000 1000 6 Dec 05 13:07 Public  
drwxr-xr-x 2 1000 1000 6 Dec 05 13:07 Templates  
drwxr-xr-x 2 1000 1000 6 Dec 05 13:07 Videos  
-rw----- 1 1000 1000 22 Jan 02 12:22 newfile1.txt  
lftp prakashSNA@192.168.200.3:> put /Bunker/prakash.txt  
put: /Bunker/prakash.txt: No such file or directory  
lftp prakashSNA@192.168.200.3:> cd Bunker  
lftp prakashSNA@192.168.200.3:>/Bunker> put prakash.txt  
lftp prakashSNA@192.168.200.3:>/Bunker> ls  
-rw-r--r-- 1 1000 1000 0 Jan 02 12:33 prakash.txt  
lftp prakashSNA@192.168.200.3:>/Bunker>

```
13°C Overw. helder 6:19 PM 1/2/2026
```

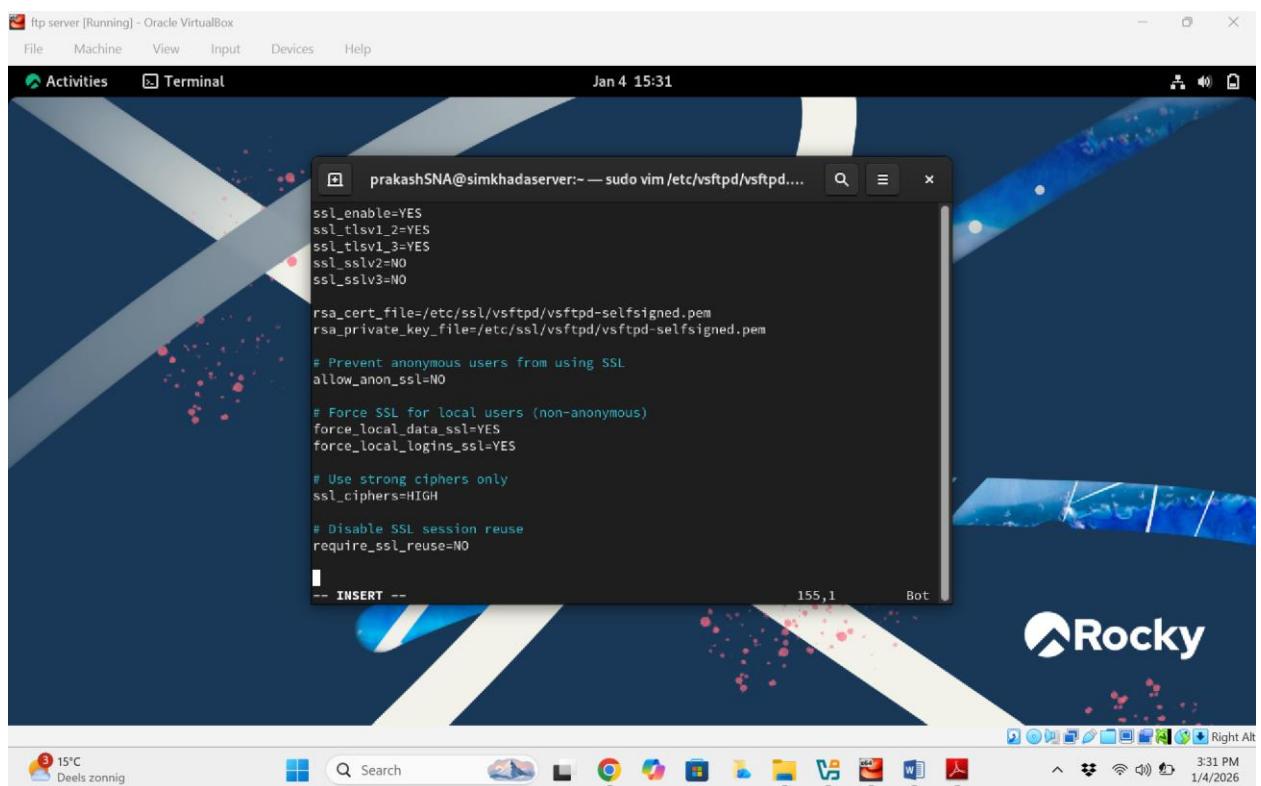
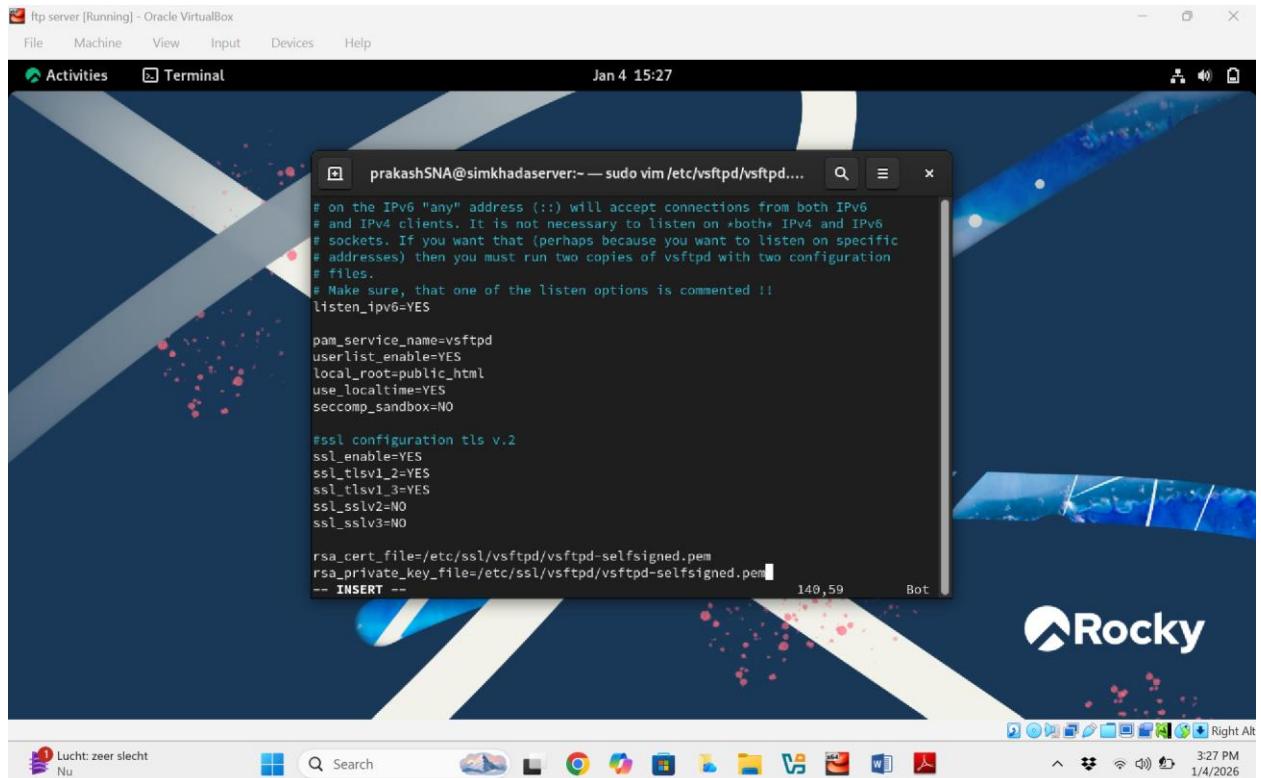
lftp prakashSNA@192.168.200.3:> exit  
snasimkhada@simkhadaclient:~\$ lftp -u prakashSNA 192.168.200.3  
Password:  
lftp prakashSNA@192.168.200.3:> ls  
drwxrwxrwx 2 0 0 6 Dec 28 09:26 Bungkus  
drwxrwxrwx 2 1000 1000 25 Jan 02 18:18 Bunker  
drwxr-xr-x 2 1000 1000 6 Dec 05 18:52 Desktop  
drwxr-xr-x 2 1000 1000 6 Dec 05 18:52 Documents  
drwxr-xr-x 2 1000 1000 6 Dec 05 18:52 Downloads  
drwxr-xr-x 2 1000 1000 6 Dec 05 18:52 Music  
drwxr-xr-x 2 1000 1000 6 Dec 05 18:52 Pictures  
drwxr-xr-x 2 1000 1000 6 Dec 05 18:52 Public  
drwxr-xr-x 2 1000 1000 6 Dec 05 18:52 Templates  
drwxr-xr-x 2 1000 1000 6 Dec 05 18:52 Videos  
-rw----- 1 1000 1000 22 Jan 02 18:07 newfile1.txt  
-rw-r--r-- 1 1000 1000 0 Jan 02 18:20 safe.txt  
lftp prakashSNA@192.168.200.3:> get safe.txt  
lftp prakashSNA@192.168.200.3:> !ls  
Desktop Downloads newfile1.txt prakash.txt Public snap Templates  
Documents Music Pictures project safe.txt ssh-key-2025-12-30.key Videos  
lftp prakashSNA@192.168.200.3:>

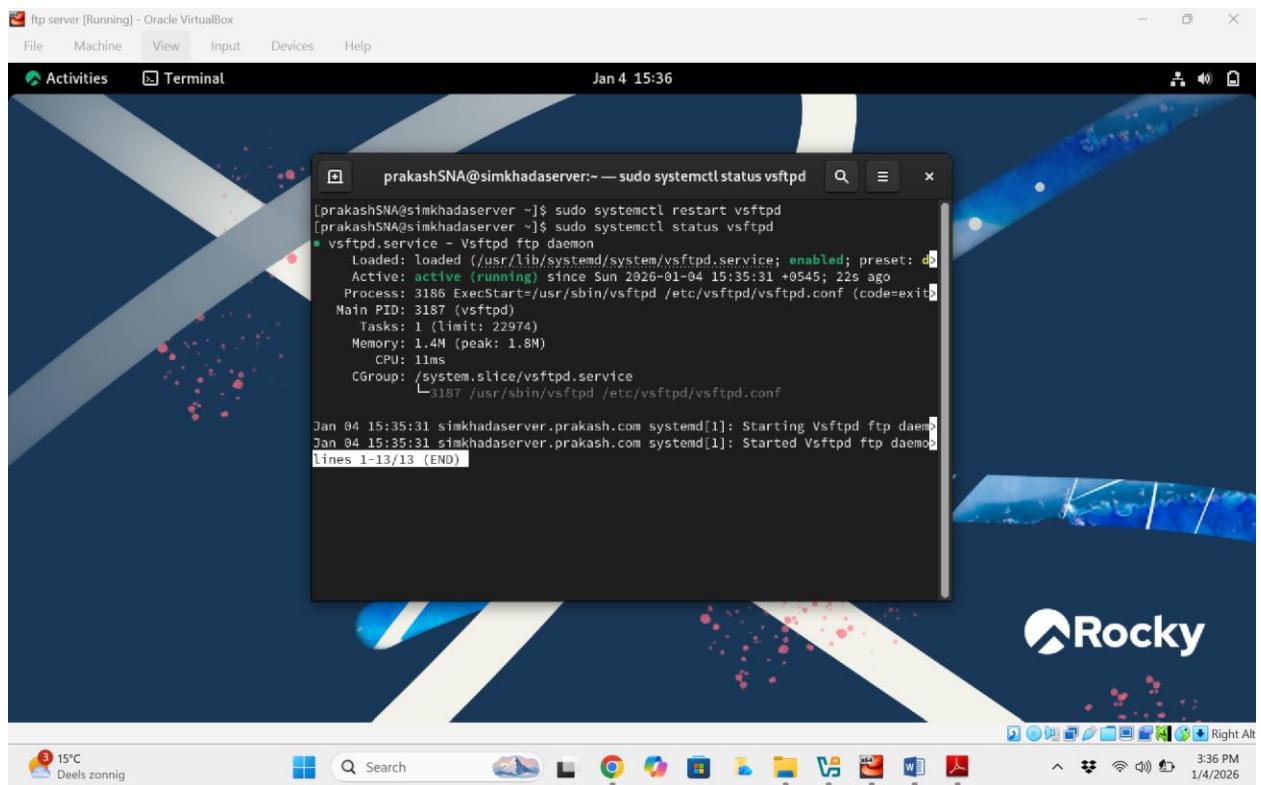
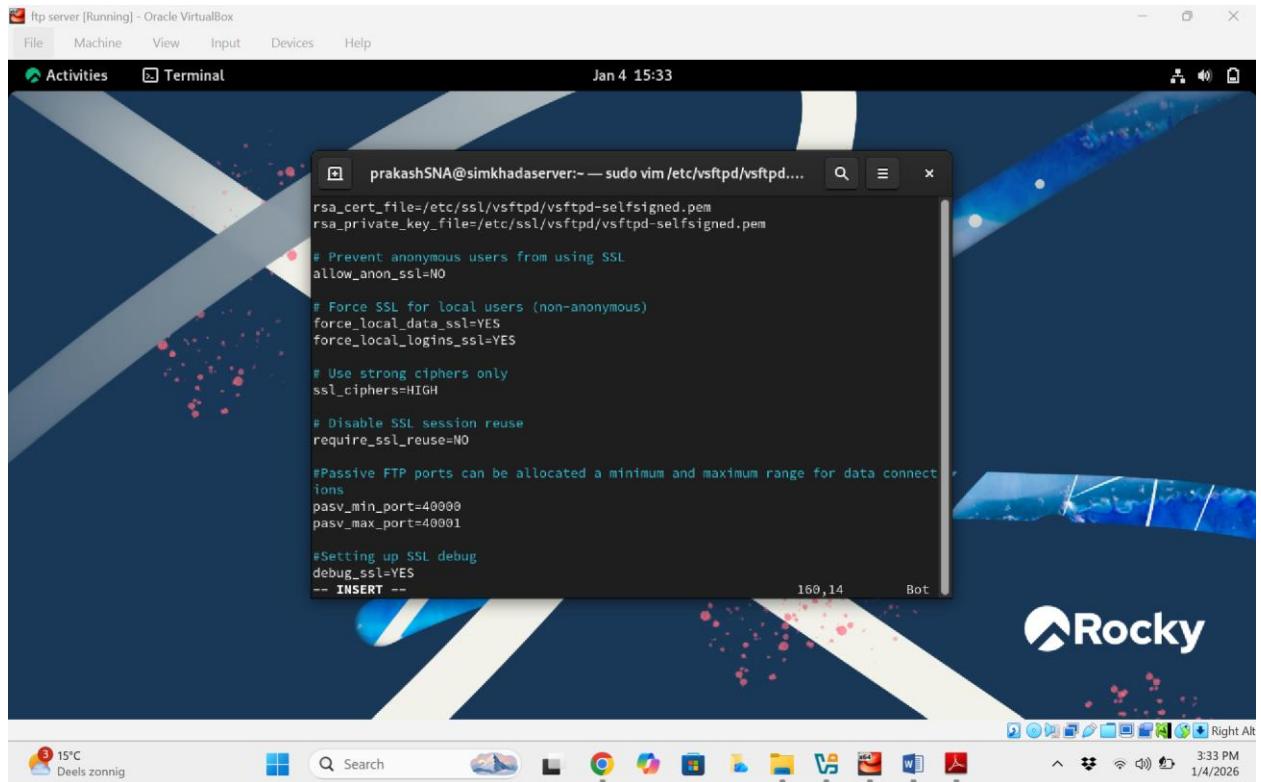
```
12°C Onbewolkt 6:26 PM 1/2/2026
```

## *SFTP server ScreenShots*



```
----  
You are about to be asked to enter information that will be incorporated  
into your certificate request.  
What you are about to enter is what is called a Distinguished Name or a DN.  
There are quite a few fields but you can leave some blank  
For some fields there will be a default value,  
If you enter '.', the field will be left blank.  
----  
Country Name (2 letter code) [XX]:NP  
State or Province Name (full name) []:Bagmati  
Locality Name (eg, city) [Default City]:Kathmandu  
Organization Name (eg, company) [Default Company Ltd]:lbef  
Organizational Unit Name (eg, section) []:IT  
Common Name (eg, your name or your server's hostname) []:simkahadaserver.prakash.com  
Email Address []:root@prakash.com  
[prakashSNA@simkhadaserver ~]$   
  
[prakashSNA@simkhadaserver ~]$ sudo cd /etc/ssl/vsftpd  
[prakashSNA@simkhadaserver ~]$ cd /etc/ssl/vsftpd  
[prakashSNA@simkhadaserver vsftpd]$ ls  
vsftpd-selfsigned.pem  
[prakashSNA@simkhadaserver vsftpd]$   
  
[prakashSNA@simkhadaserver ~]$ 9:13 AM  
1/4/2026  
  
[prakashSNA@simkhadaserver ~]$ sudo vim /etc/vsftpd/vsftpd.conf  
[prakashSNA@simkhadaserver ~]$   
  
[prakashSNA@simkhadaserver ~]$ 9:21 AM  
1/4/2026  
  
Email Address [root@prakash.com]  
[prakashSNA@simkhadaserver ~]$ sudo vim /etc/vsftpd/vsftpd.conf  
[prakashSNA@simkhadaserver ~]$   
  
[prakashSNA@simkhadaserver ~]$ 9:15 AM  
1/4/2026  
  
Activities Terminal Jan 4 15:25  
  
prakashSNA@simkhadaserver:~ — sudo vim /etc/vsftpd/vsftpd....  
listen=NO  
#  
# This directive enables listening on IPv6 sockets. By default, listening  
# on the IPv6 "any" address (:) will accept connections from both IPv6  
# and IPv4 clients. It is not necessary to listen on *both* IPv4 and IPv6  
# sockets. If you want that (perhaps because you want to listen on specific  
# addresses) then you must run two copies of vsftpd with two configuration  
# files.  
# Make sure, that one of the listen options is commented !!  
listen_ipv6=YES  
  
pam_service_name=vsftpd  
userlist_enable=YES  
local_root=public_html  
use_localtime=YES  
seccomp_sandbox=NO  
  
#ssl configuration tls v.2  
ssl_enable=YES  
ssl_tlsv1_2=YES  
ssl_tlsv1_3=NO  
ssl_sslv2=NO  
ssl_sslv3=NO  
"/etc/vsftpd/vsftpd.conf" 137L, 5222B 135,14 Bot  
  
Rocky  
  
16°C Deels zonnig 3:25 PM  
1/4/2026
```





ftp server [Running] - Oracle VirtualBox

File Machine View Input Devices Help

```
[prakashSNA@simkhadaserver ~]$ sudo firewall-cmd --permanent --add-port=990/tcp
sudo firewall-cmd --permanent --add-port=40000-40001/tcp
sudo firewall-cmd --reload
[sudo] password for prakashSNA:
success
success
success
[prakashSNA@simkhadaserver ~]$
```

NP070568-ubuntu-client-pc [Running] - Oracle VirtualBox

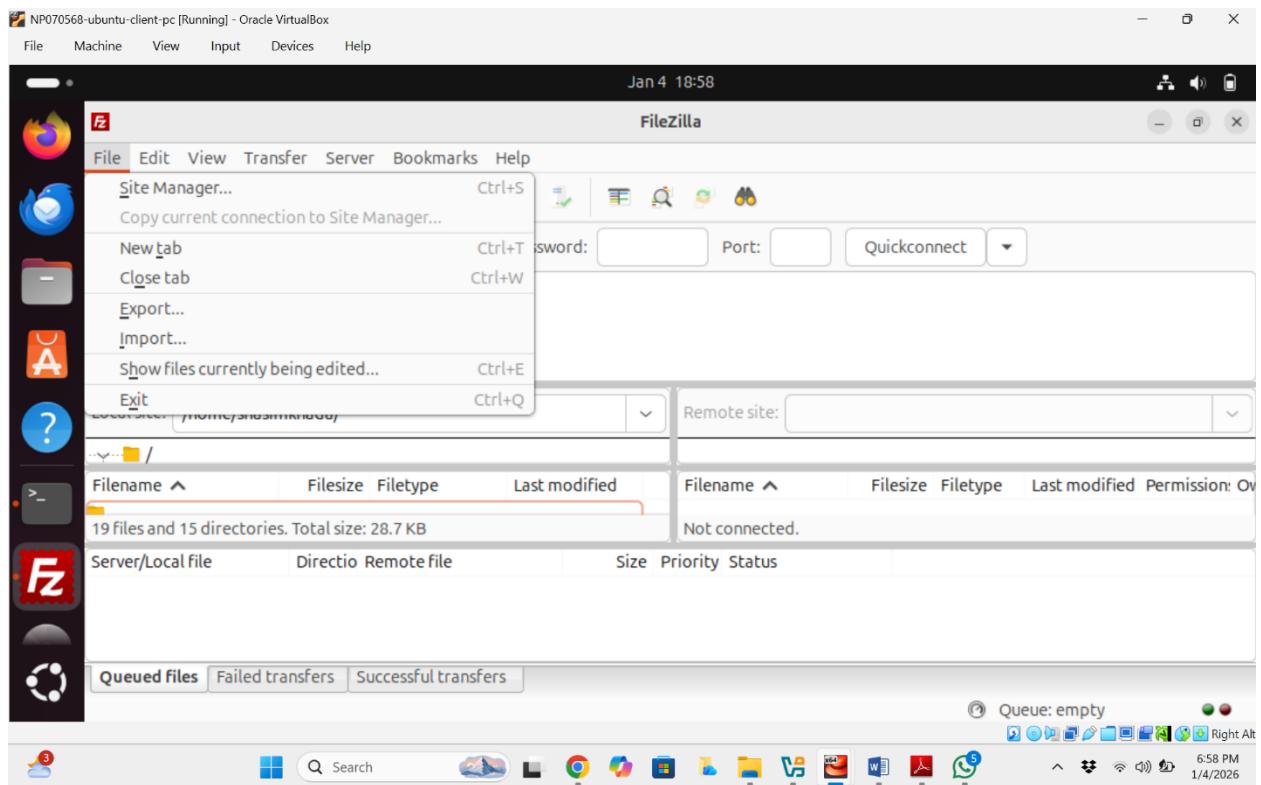
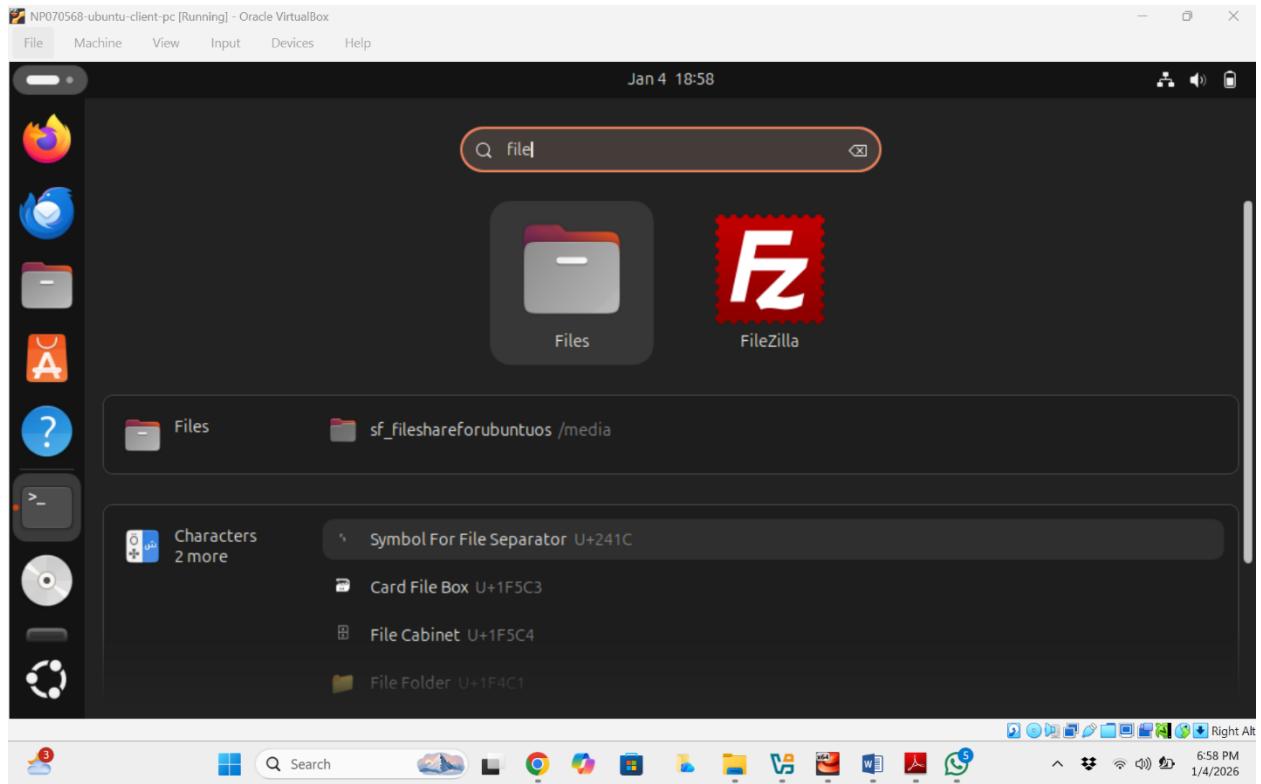
File Machine View Input Devices Help

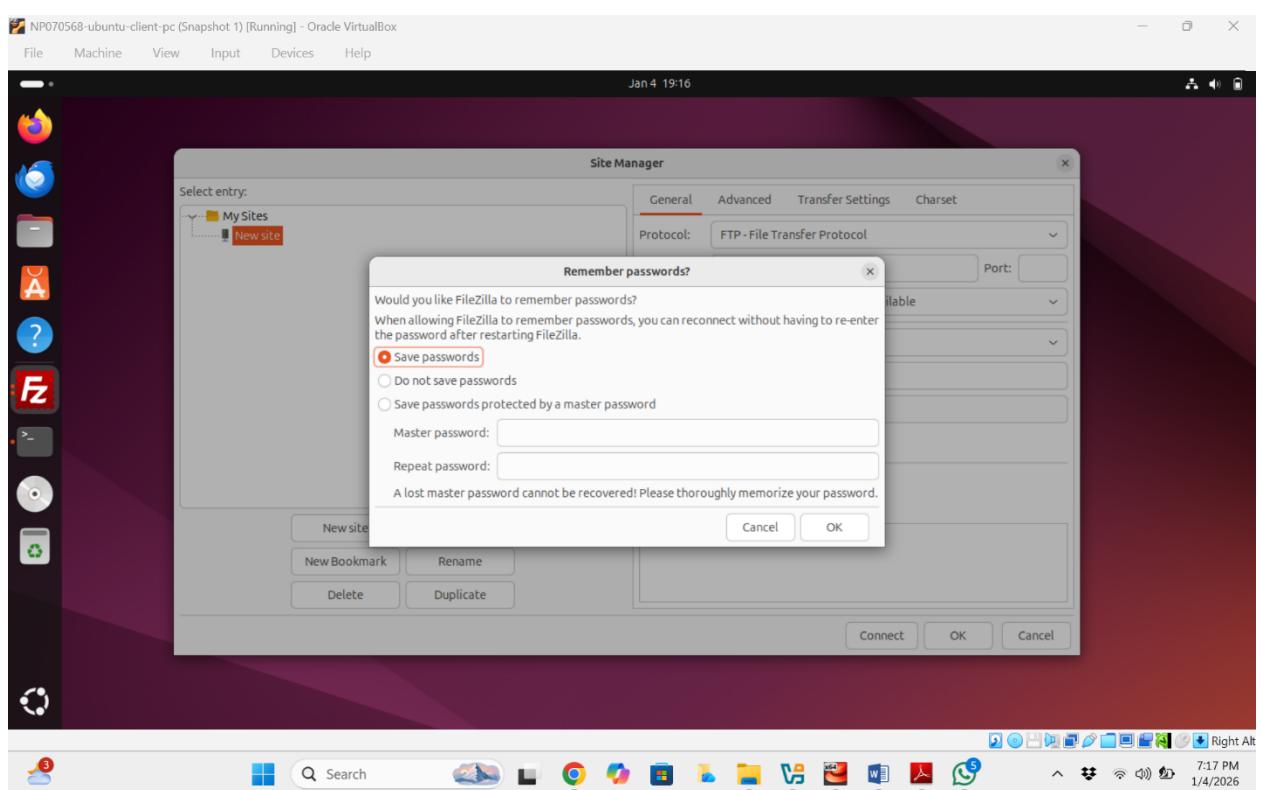
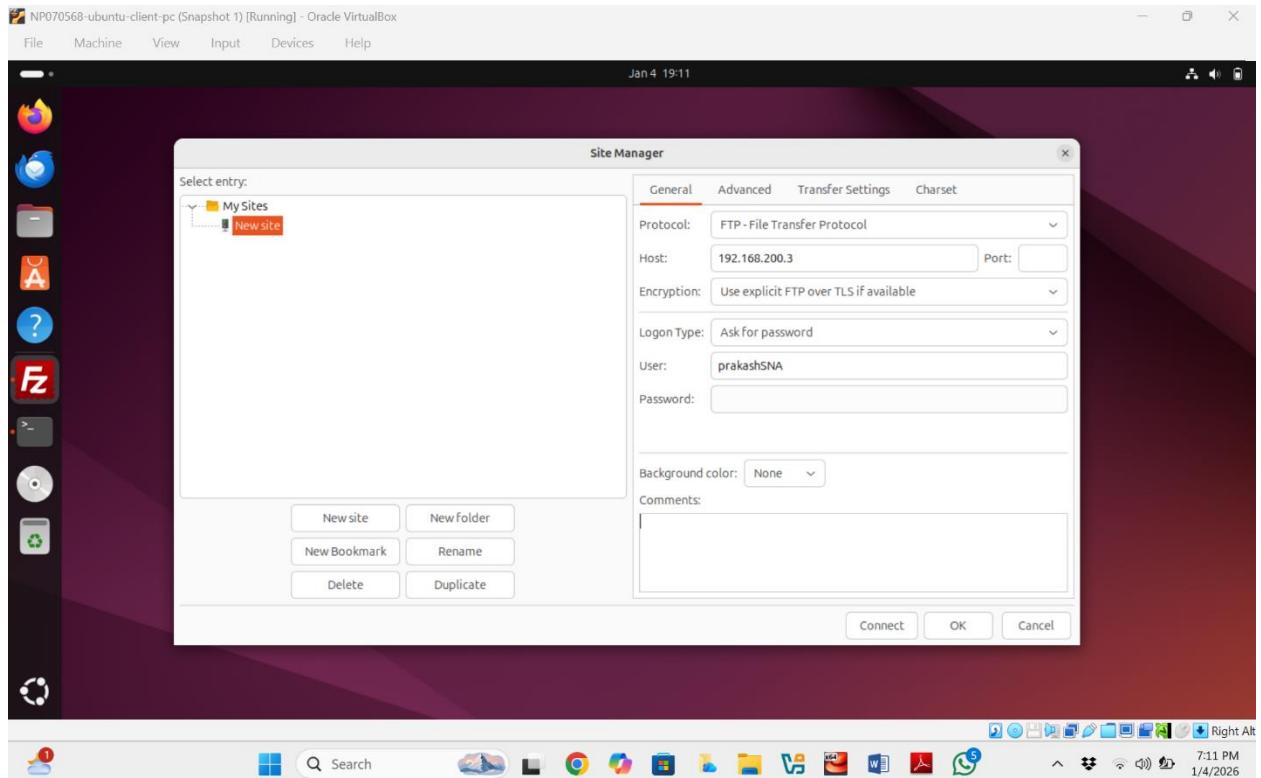
Jan 4 18:57

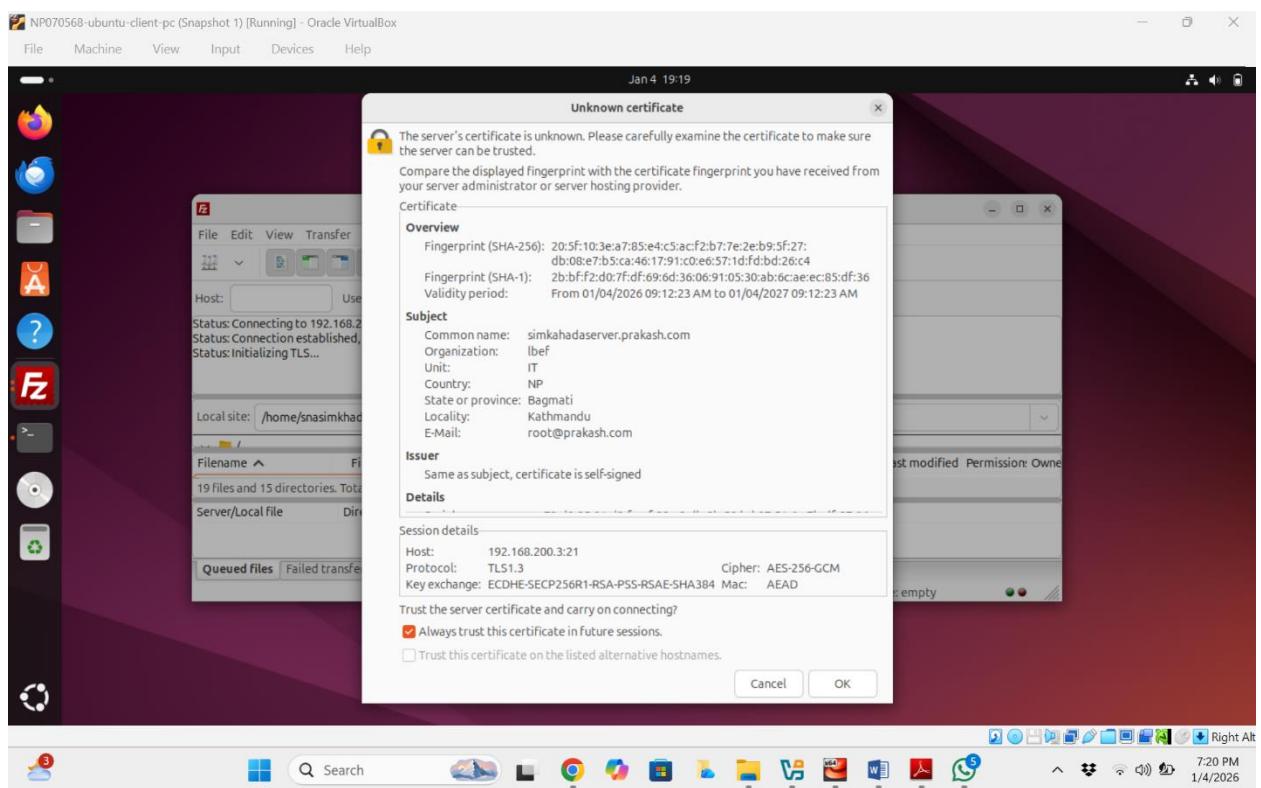
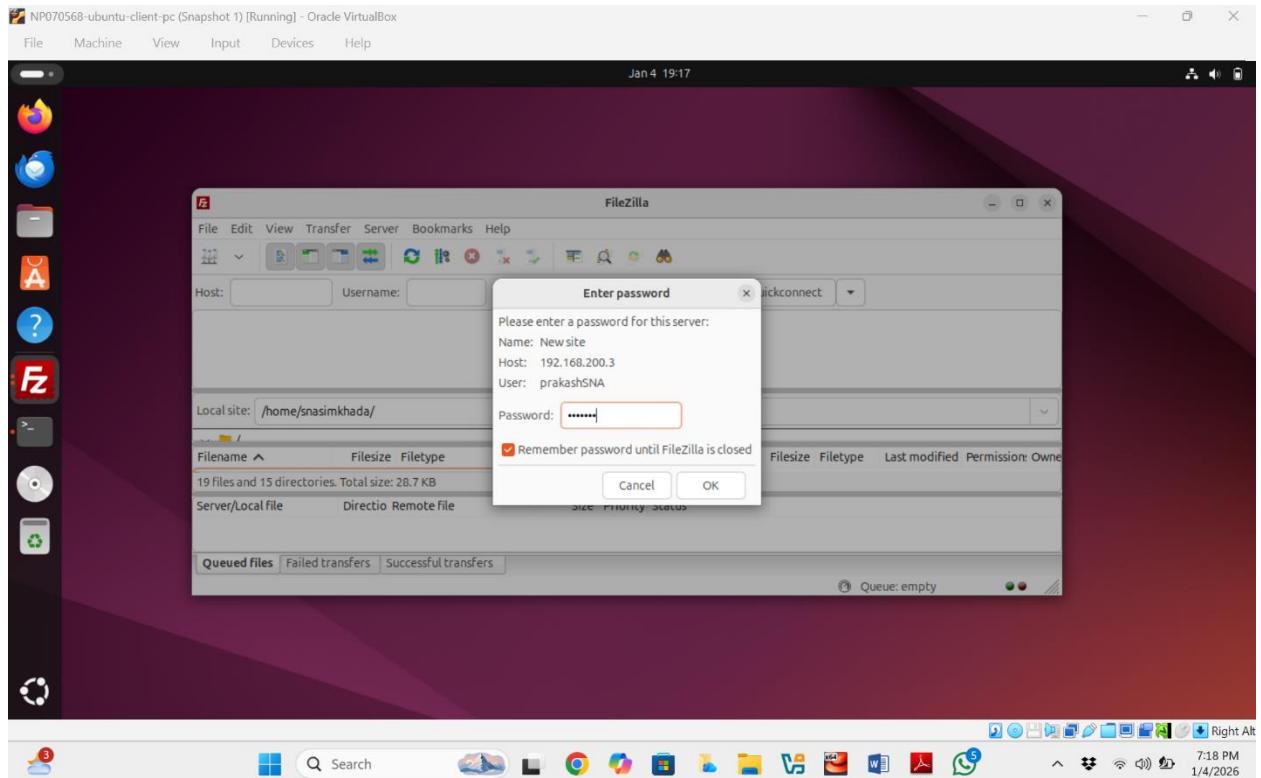
```
snasimkhada@simkhadaclient:~
```

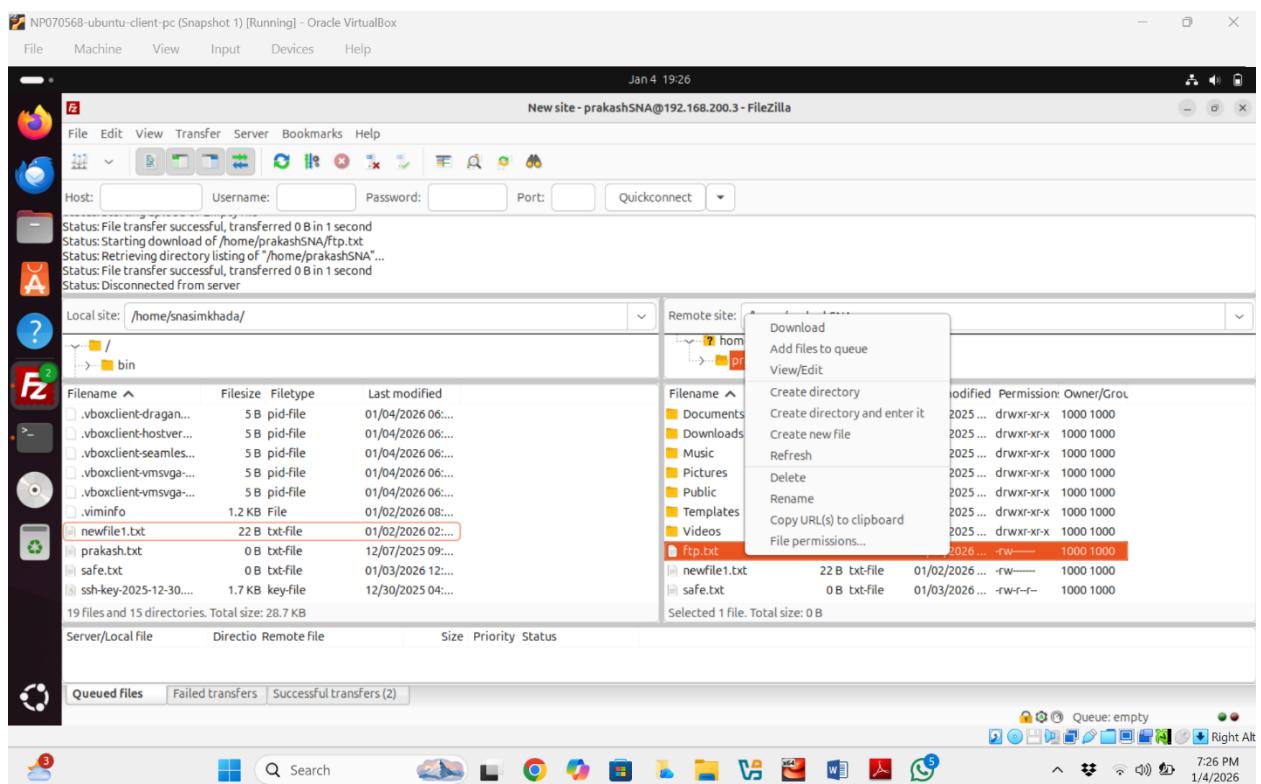
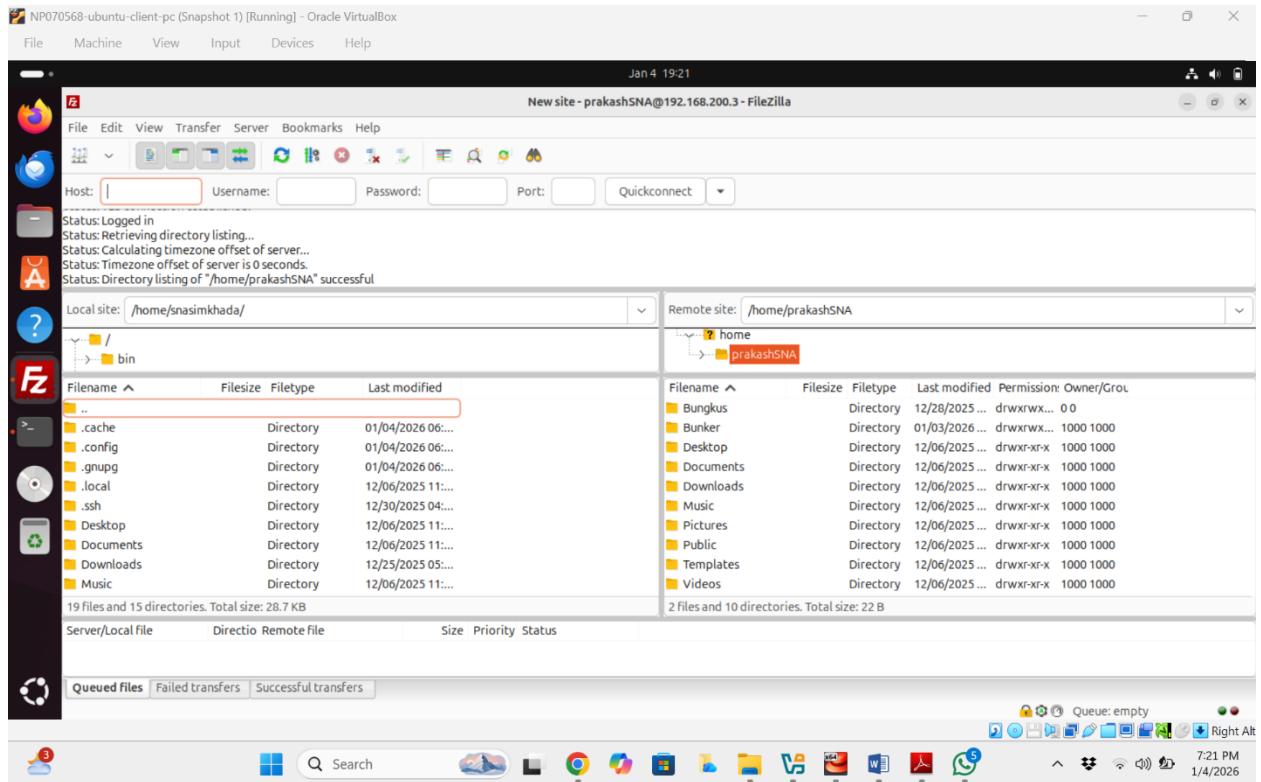
snasimkhada@simkhadaclient:~

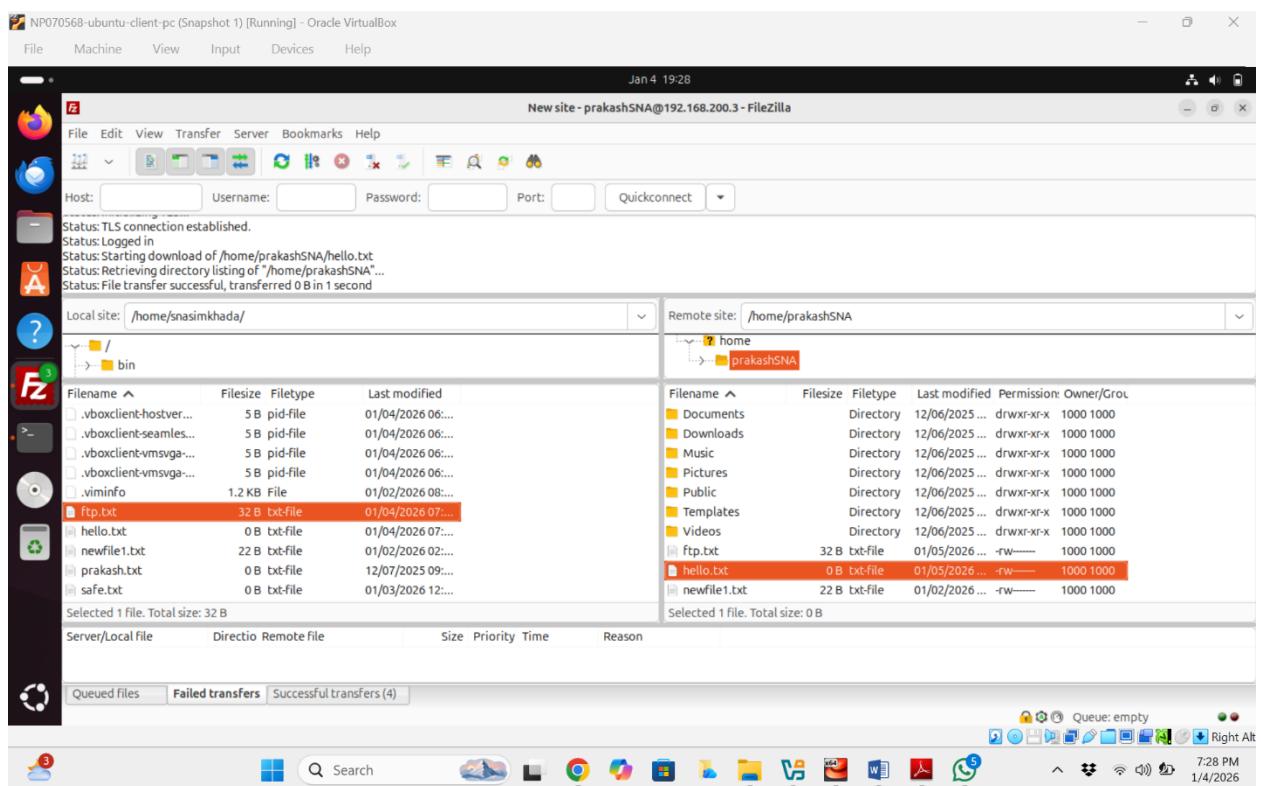
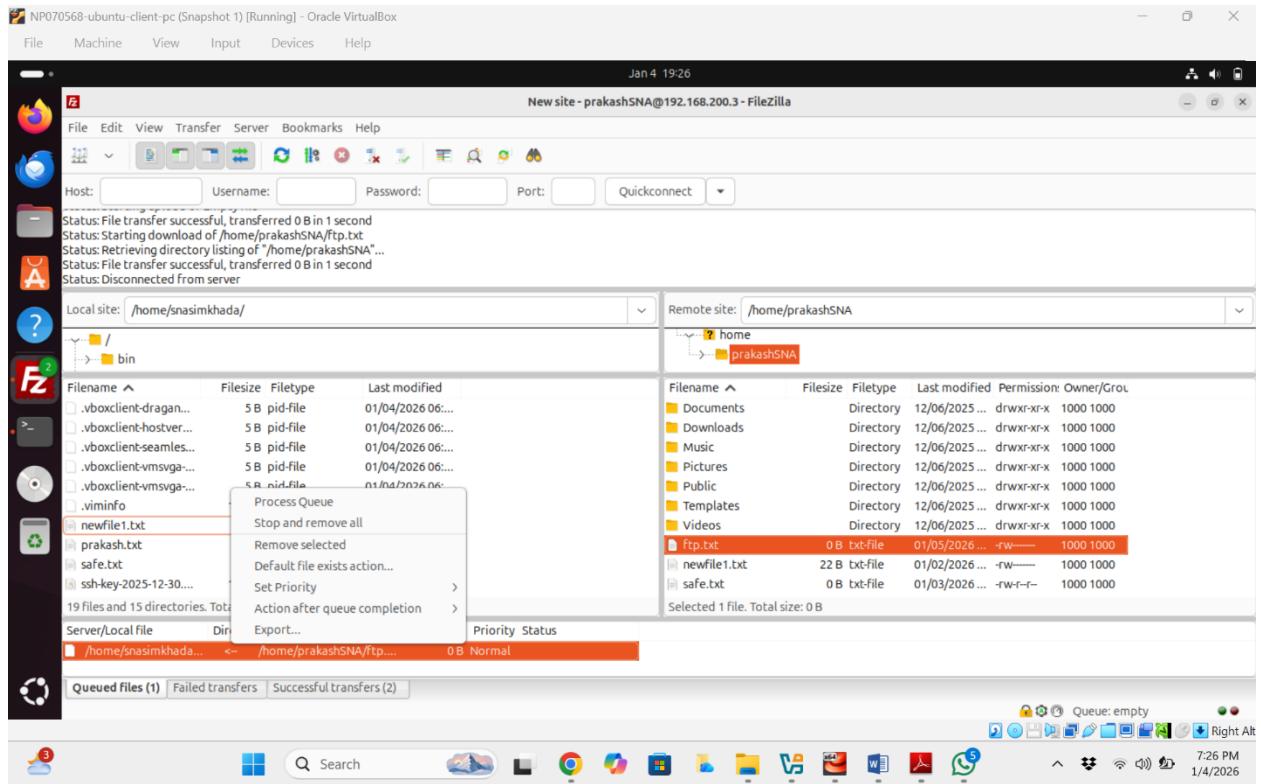
```
snasimkhada@simkhadaclient:~$ sudo apt install filezilla
[sudo] password for snasimkhada:
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following package was automatically installed and is no longer required:
 liblomm19
Use 'sudo apt autoremove' to remove it.
The following additional packages will be installed:
 filezilla-common libfilezilla-common libfilezilla42t64 libpugixml1v5 libwxbase3.2-1t64
 libwxgtk3.2-1t64
The following NEW packages will be installed:
 filezilla filezilla-common libfilezilla-common libfilezilla42t64 libpugixml1v5 libwxbase3.2-1t64
 libwxgtk3.2-1t64
0 upgraded, 7 newly installed, 0 to remove and 0 not upgraded.
Need to get 10.2 MB of additional disk space will be used.
Do you want to continue? [Y/n]
Get:1 http://np.archive.ubuntu.com/ubuntu noble/universe amd64 filezilla-common all 3.66.5-2build2 [2
,396 kB]
Get:2 http://np.archive.ubuntu.com/ubuntu noble-updates/universe amd64 libfilezilla-common all 0.46.0
```











## **TASK 8: NFS CONFIGURATION**

### **Objective**

To configure Network File System for file sharing.

### **Steps**

1. Installed NFS server on Rocky Linux.
2. Edited /etc/exports.
3. Started NFS service.
4. Mounted share on Ubuntu client.

### **Verification**

Client successfully accessed shared folder.

## NFS configuration and mount screenshots

**Screenshot 1: NFS Server [Running] - Oracle VirtualBox**

```
[prakashSNA@simkhadaserver ~]$ sudo dnf install nfs-utils
[sudo] password for prakashSNA:
Extra Packages for Enterprise Linux 9 - x86_64
Extra Packages for Enterprise Linux 9 - x86_64
Rocky Linux 9 - BaseOS
Rocky Linux 9 - AppStream
Rocky Linux 9 - Extras
Dependencies resolved.
=====
Transaction Summary
=====
Installing:
  nfs-utils           x86_64        1:2.5.4-38.el9
Installing dependencies:
  gssproxy            x86_64        0.8.4-7.el9
  libbev              x86_64        4.33-6.el9
  libnfsidmap         x86_64        1:2.5.4-38.el9
  libverto-libbev     x86_64        0.3.2-3.el9
  rpcbind             x86_64        1.2.6-7.el9
  sssd-nfs-idmap      x86_64        2.9.7-4.el9_7.1
=====
Total download size: 757 k
Installed size: 1.9 M
Is this ok [y/N]: y
Downloading Packages:
(1/7): libnfsidmap-2.5.4-38.el9.x86_64.rpm          5.4 kB/s | 60 kB   00:11
(2/7): gssproxy-0.8.4-7.el9.x86_64.rpm               9.2 kB/s | 108 kB  00:11
[MIRROR] libbev-4.33-6.el9.x86_64.rpm: Curl error (28): Timeout was reached for https://ftp.jaist.ac.jp/pub/Linux/rocky/9.7/BaseOS/x86_64/os/Packages/l/libbev-4
.33-6.el9.x86_64.rpm [Operation too slow. Less than 1000 bytes/sec transferred the last 30 seconds]
(3/7): libverto-libbev-0.3.2-3.el9.x86_64.rpm        587 B/s | 13 kB   00:22
(4/7): libverto-libbev-0.3.2-3.el9.x86_64.rpm        1.5 kB/s | 51 kB  00:35
=====
4°C Deels bewolkt Search 7:20 AM 1/6/2026
```

**Screenshot 2: NFS Server [Running] - Oracle VirtualBox**

```
[prakashSNA@simkhadaserver ~]$ sudo systemctl enable nfs-server --now
[sudo] password for prakashSNA:
Created symlink /etc/systemd/system/multi-user.target.wants/nfs-server.service → /usr/lib/systemd/system/nfs-server.service.
[prakashSNA@simkhadaserver ~]$ sudo systemctl start nfs-server
[prakashSNA@simkhadaserver ~]$ sudo systemctl status nfs-server
● nfs-server.service - NFS server and services
  Loaded: loaded (/usr/lib/systemd/system/nfs-server.service; enabled; preset: disabled)
  Active: active (exited) since Tue 2026-01-06 07:22:14 +0545; 51s ago
    Docs: man:rpc.nfsd(8)
           man:exportfs(8)
  Process: 6965 ExecStartPre=/usr/sbin/exportfs -r (code=exited, status=0/SUCCESS)
  Process: 6966 ExecStart=/usr/sbin/rpc.nfsd (code=exited, status=0/SUCCESS)
  Process: 6986 ExecStart=/bin/sh -c if systemctl -q is-active gssproxy; then systemctl reload gssproxy ; fi (code=exited, status=0/SUCCESS)
 Main PID: 6986 (code=exited, status=0/SUCCESS)
    CPU: 55ms

Jan 06 07:22:13 simkhadaserver.prakash.com systemd[1]: Starting NFS server and services...
Jan 06 07:22:14 simkhadaserver.prakash.com systemd[1]: Finished NFS server and services.
[prakashSNA@simkhadaserver ~]$
```

7:23 AM 1/6/2026

```
NFS Server [Running] - Oracle VirtualBox
File Machine View Input Devices Help
[prakashSNA@simkhadaserver ~]$ sudo mkdir /var/nfs/general -p
[sudo] password for prakashSNA:
[prakashSNA@simkhadaserver ~]$ sudo ls -dl /var/nfs/gerneral
[sudo] password for prakashSNA:
ls: cannot access '/var/nfs/gerneral': No such file or directory
[prakashSNA@simkhadaserver ~]$ sudo ls -dl /var/nfs/general
drwxr-xr-x. 2 root root 6 Jan 6 15:37 /var/nfs/general
[prakashSNA@simkhadaserver ~]$ sudo chown nobody:nobody /var/nfs/general
[prakashSNA@simkhadaserver ~]$ sudo vim /etc/exports
```

```
NFS Server [Running] - Oracle VirtualBox
File Machine View Input Devices Help
[prakashSNA@simkhadaserver ~]$ sudo exportfs -arv
[sudo] password for prakashSNA:
exportfs: No options for /var/nfs/general 192.168.200.5: suggest 192.168.200.5(sync) to avoid warning
exportfs: No host name given with /var/nfs/general (rw,, suggest *(rw, to avoid warning
exportfs: /etc/exports:1: syntax error: bad option list
exporting 192.168.200.5:/var/nfs/general
[prakashSNA@simkhadaserver ~]$ ^C
[prakashSNA@simkhadaserver ~]$
```

NFS Server [Running] - Oracle VirtualBox

File Machine View Input Devices Help

Activities Terminal Jan 9 07:27 prakashSNA@simkhadaserver:~

prakashSNA@simkhadaserver:~... x prakashSNA@simkhadaserver:~... x prakashSNA@simkhadaserver:~... x prakashSNA@simkhadaserver:/var... x

```
[prakashSNA@simkhadaserver ~]$ sudo exportfs -arv
exporting 192.168.200.3:/home
exporting 192.168.200.3:/var/nfs/general
[prakashSNA@simkhadaserver ~]$ sudo exportfts -s
sudo: exportfts: command not found
[prakashSNA@simkhadaserver ~]$ sudo exportfs -s
/var/nfs/general 192.168.200.3(sync,wdelay,hide,no_subtree_check,sec=sys,rw,secure,no_root_squash,no_all_squash)
/home 192.168.200.3(sync,wdelay,hide,no_subtree_check,sec=sys,rw,secure,no_root_squash,no_all_squash)
[prakashSNA@simkhadaserver ~]$ █
```

NFS Server [Running] - Oracle VirtualBox

File Machine View Input Devices Help

Activities Terminal Jan 9 07:28

```
prakashSNA@simkhadaserver:~ — sudo systemctl status nfs-server
[prakashSNA@simkhadaserver ~]$ sudo systemctl enable --now rpcbind nfs-server
sudo systemctl restart nfs-server
sudo systemctl status nfs-server
● nfs-server.service - NFS server and services
  Loaded: loaded (/usr/lib/systemd/system/nfs-server.service; enabled; preset: disabled)
  Drop-In: /run/systemd/generator/nfs-server.service.d
            └─order-with-mounts.conf
    Active: active (exited) since Fri 2026-01-09 07:28:11 +0545; 110ms ago
      Docs: man:rpc.nfsd(8)
             man:exportfs(8)
    Process: 4020 ExecStartPre=/usr/sbin/exportfs -r (code=exited, status=0/SUCCESS)
    Process: 4021 ExecStart=/usr/sbin/rpc.nfsd (code=exited, status=0/SUCCESS)
    Process: 4031 ExecStart=/bin/sh -c if systemctl -q is-active gssproxy; then systemctl reload gssprox>
      Main PID: 4031 (code=exited, status=0/SUCCESS)
        CPU: 49ms

Jan 09 07:28:11 simkhadaserver.prakash.com systemd[1]: Starting NFS server and services...
Jan 09 07:28:11 simkhadaserver.prakash.com systemd[1]: Finished NFS server and services.
Lines 1-15/15 (END)
```

NFS Server [Running] - Oracle VirtualBox

File Machine View Input Devices Help

Search 7:28 AM 1/9/2026

```
[prakashSNA@simkhadaserver ~]$ sudo firewall-cmd --add-service={nfs,nfs3,rpc-bind,mountd} --permanent
sudo firewall-cmd --reload
sudo firewall-cmd --zone=public --list-all
[sudo] password for prakashSNA:
success
success
public (active)
  target: default
  icmp-block-inversion: no
  interfaces: enp0s3
  sources:
  services: cockpit dhcpcv6-client ftp mountd nfs nfs3 rpc-bind ssh
  ports: 53/udp 53/tcp 990/tcp 40000-40001/tcp
  protocols:
  forward: yes
  masquerade: no
  forward-ports:
  source-ports:
  icmp-blocks:
  rich rules:
[prakashSNA@simkhadaserver ~]$
```



```
NFS Server [Running] - Oracle VirtualBox
File Machine View Input Devices Help
[prakashSNA@simkhadaserver ~]$ cd /var/nfs/general
[prakashSNA@simkhadaserver general]$ sudo touch ProjectDocfile{1..4}.txt
[prakashSNA@simkhadaserver general]$ ls - l
ls: cannot access '-': No such file or directory
ls: cannot access 'l': No such file or directory
[prakashSNA@simkhadaserver general]$ ls -l
total 0
drwxr-xr-x. 2 root root 6 Jan  9 07:38 lbef
-rw-r--r--. 1 root root 0 Jan  9 14:54 ProjectDocfile1.txt
-rw-r--r--. 1 root root 0 Jan  9 14:54 ProjectDocfile2.txt
-rw-r--r--. 1 root root 0 Jan  9 14:54 ProjectDocfile3.txt
-rw-r--r--. 1 root root 0 Jan  9 14:54 ProjectDocfile4.txt
[prakashSNA@simkhadaserver general]$ sudo showmount -e
Export list for simkhadaserver.prakash.com:
/home          192.168.200.3
/var/nfs/general 192.168.200.3
[prakashSNA@simkhadaserver general]$ sudo mkdir SNA
[prakashSNA@simkhadaserver general]$ ls
lbef          ProjectDocfile2.txt  ProjectDocfile4.txt
ProjectDocfile1.txt  ProjectDocfile3.txt  SNA
[prakashSNA@simkhadaserver general]$
```



```
NP070568-ubuntu-client-pc (Snapshot 1) [Running] - Oracle VirtualBox
File Machine View Input Devices Help
snasimkhada@simkhadaclient:~$ sudo apt install nfs-kernel-server -y
[sudo] password for snasimkhada:
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following package was automatically installed and is no longer required:
  libl1vm19
Use 'sudo apt autoremove' to remove it.
The following additional packages will be installed:
  keyutils libevent-core-2.1-7t64 nfs-common rpcbind
Suggested packages:
  open-iscsi watchdog
The following NEW packages will be installed:
  keyutils libevent-core-2.1-7t64 nfs-common nfs-kernel-server rpcbind
0 upgraded, 5 newly installed, 0 to remove and 0 not upgraded.
Need to get 612 kB of archives.
After this operation, 2,103 kB of additional disk space will be used.
Get:1 http://np.archive.ubuntu.com/ubuntu noble/main amd64 libevent-core-2.1-7t64 amd64 2
.1.12-stable-9ubuntu2 [91.3 kB]
Get:2 http://np.archive.ubuntu.com/ubuntu noble/main amd64 rpcbind amd64 1.2.6-7ubuntu2 [
46.5 kB]
Get:3 http://np.archive.ubuntu.com/ubuntu noble/main amd64 keyutils amd64 1.6.3-3build1 [1
1.5 kB]
Get:4 http://np.archive.ubuntu.com/ubuntu noble/main amd64 nfs-common amd64 1:2.6.4-3ubunt
u5.1 [1,004 kB]
Fetched 1,130 kB in 0s (1,804 kB/s)
Selecting previously unselected package libl1vm19:amd64.
(Reading database ... 1,000,000 files and directories currently installed.)
Preparing to unpack .../libl1vm19:amd64 ...
Unpacking libl1vm19:amd64 (1:2.6.4-3ubuntu5.1) ...
Selecting previously unselected package keyutils.
Preparing to unpack .../keyutils ...
Unpacking keyutils (1.6.3-3build1) ...
Selecting previously unselected package libevent-core-2.1-7t64:amd64.
Preparing to unpack .../libevent-core-2.1-7t64:amd64 ...
Unpacking libevent-core-2.1-7t64:amd64 (2.1.12-stable-9ubuntu2) ...
Selecting previously unselected package nfs-common.
Preparing to unpack .../nfs-common ...
Unpacking nfs-common (1:2.6.4-3ubuntu5.1) ...
Selecting previously unselected package nfs-kernel-server.
Preparing to unpack .../nfs-kernel-server ...
Unpacking nfs-kernel-server (1.0.0-1) ...
Selecting previously unselected package rpcbind.
Preparing to unpack .../rpcbind ...
Unpacking rpcbind (1.2.6-7ubuntu2) ...
Processing triggers for man-db (2.12.0-4build2) ...
Processing triggers for libc-bin (2.39-0ubuntu8.6) ...
snasimkhada@simkhadaclient:~$
```

```
NP070568-ubuntu-client-pc (Snapshot 1) [Running] - Oracle VirtualBox
File Machine View Input Devices Help
Created symlink /etc/systemd/system/multi-user.target.wants/nfs-server.service → /usr/lib
/systemd/system/nfs-server.service.
nfs-mountd.service is a disabled or a static unit, not starting it.
nfsdcl.d.service is a disabled or a static unit, not starting it.

Creating config file /etc/exports with new version

Creating config file /etc/default/nfs-kernel-server with new version
Processing triggers for man-db (2.12.0-4build2) ...
Processing triggers for libc-bin (2.39-0ubuntu8.6) ...
snasimkhada@simkhadaclient:~$ sudo apt install nfs-common
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
nfs-common is already the newest version (1:2.6.4-3ubuntu5.1).
nfs-common set to manually installed.
The following package was automatically installed and is no longer required:
  libl1vm19
Use 'sudo apt autoremove' to remove it.
0 upgraded, 0 newly installed, 0 to remove and 0 not upgraded.
snasimkhada@simkhadaclient:~$
```



```
NP070568-ubuntu-client-pc (Snapshot 1) [Running] - Oracle VirtualBox
File Machine View Input Devices Help
snasimkhada@simkhadaclient:~$ sudo mkdir /nfs/shared_from_server -p
```

```
NP070568-ubuntu-client-pc (Snapshot 1) [Running] - Oracle VirtualBox
File Machine View Input Devices Help
snasimkhada@simkhadaclient:~$ cd /nfs
snasimkhada@simkhadaclient:/nfs$ ls
shared_from_server
snasimkhada@simkhadaclient:/nfs$ sudo mount 192.168.200.3:/var/nfs/general /
nfs/Shared_From_Server/
mount.nfs: mount point /nfs/Shared_From_Server/ does not exist
snasimkhada@simkhadaclient:/nfs$ sudo mount 192.168.200.3:/var/nfs/general /
nfs/shared_from_server/
mount.nfs: access denied by server while mounting 192.168.200.3:/var/nfs/gen
eral
snasimkhada@simkhadaclient:/nfs$ cd
snasimkhada@simkhadaclient:~$ su -
Password:
root@simkhadaclient:~# sudo mount 192.168.200.3:/var/nfs/general /nfs/shared_
_from_server/
mount.nfs: access denied by server while mounting 192.168.200.3:/var/nfs/gen
eral
root@simkhadaclient:~#
```

A screenshot of an Oracle VirtualBox window titled "NFS Server [Running] - Oracle VirtualBox". The window contains a terminal session with the following text:

```
[prakashSNA@simkhadaserver general]$ sudo vim /etc/exports
[sudo] password for prakashSNA:
[prakashSNA@simkhadaserver general]$ sudo vim /etc/exports
[prakashSNA@simkhadaserver general]$ █
```

The terminal prompt shows the user attempting to edit the "/etc/exports" file twice using the Vim editor under sudo privileges. The password entry field is visible between the two commands. The bottom of the screen shows the Windows taskbar with various pinned icons and the system tray.

```
NFS Server [Running] - Oracle VirtualBox
File Machine View Input Devices Help
[prakashSNA@simkhadaserver ~]$ sudo exportfs -s
/var/nfs/general 192.168.200.5(sync,wdelay,hide,no_subtree_check,sec=sys,rw,secure,root_squash,no_all_squash)
/home 192.168.200.5(sync,wdelay,hide,no_subtree_check,sec=sys,rw,secure,no_root_squash,no_all_squash)
[prakashSNA@simkhadaserver ~]$ sudo systemctl enable --now rpcbind nfs-server
sudo systemctl restart nfs-server
sudo systemctl status nfs-server
● nfs-server.service - NFS server and services
    Loaded: loaded (/usr/lib/systemd/system/nfs-server.service; enabled; preset: disabled)
    Drop-In: /run/systemd/generator/nfs-server.service.d
              └─order-with-mounts.conf
      Active: active (exited) since Fri 2026-01-09 15:26:22 +0545; 82ms ago
        Docs: man:rpc.nfsd(8)
               man:exportfs(8)
      Process: 3478 ExecStartPre=/usr/sbin/exportfs -r (code=exited, status=0/SUCCESS)
      Process: 3479 ExecStart=/usr/sbin/rpc.nfsd (code=exited, status=0/SUCCESS)
      Process: 3492 ExecStart=/bin/sh -c if systemctl -q is-active gssproxy; then systemctl>
     Main PID: 3492 (code=exited, status=0/SUCCESS)
       CPU: 54ms

Jan 09 15:26:22 simkhadaserver.prakash.com systemd[1]: Starting NFS server and services...
Jan 09 15:26:22 simkhadaserver.prakash.com systemd[1]: Finished NFS server and services.
```



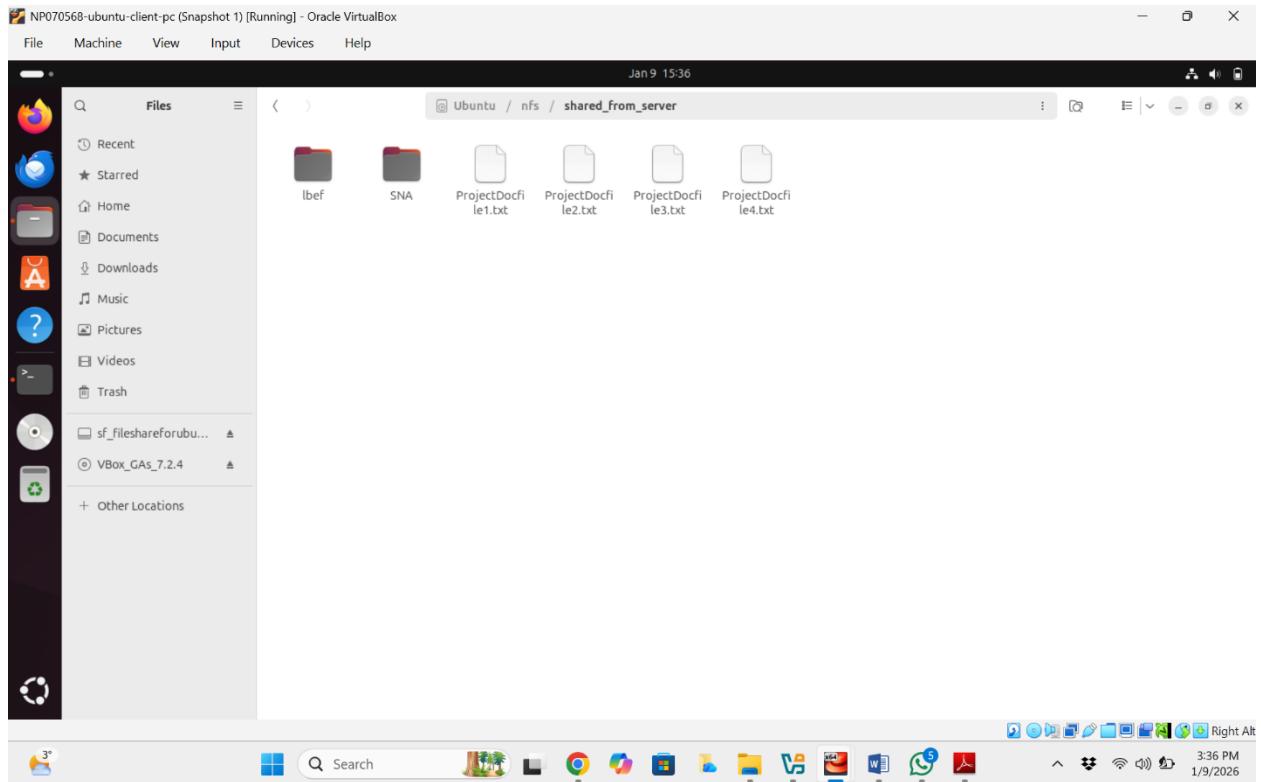
```
NFS Server [Running] - Oracle VirtualBox
File Machine View Input Devices Help
[prakashSNA@simkhadaserver ~]$ sudo systemctl daemon-reload
sudo systemctl restart nfs-server
[prakashSNA@simkhadaserver ~]$
```



NP070568-ubuntu-client-pc (Snapshot 1) [Running] - Oracle VirtualBox

File Machine View Input Devices Help

```
root@simkhadaclient:~# ls -l /nfs/shared_from_server
total 0
drwxr-xr-x 2 root root 6 Jan  9 07:38 lbef
-rw-r--r-- 1 root root 0 Jan  9 14:54 ProjectDocfile1.txt
-rw-r--r-- 1 root root 0 Jan  9 14:54 ProjectDocfile2.txt
-rw-r--r-- 1 root root 0 Jan  9 14:54 ProjectDocfile3.txt
-rw-r--r-- 1 root root 0 Jan  9 14:54 ProjectDocfile4.txt
drwxr-xr-x 2 root root 6 Jan  9 14:55 SNA
root@simkhadaclient:~#
```



```
total 0
drwxr-xr-x 2 root root 6 Jan  9 07:38 lbef
-rw-r--r-- 1 root root 0 Jan  9 14:54 ProjectDocfile1.txt
-rw-r--r-- 1 root root 0 Jan  9 14:54 ProjectDocfile2.txt
-rw-r--r-- 1 root root 0 Jan  9 14:54 ProjectDocfile3.txt
-rw-r--r-- 1 root root 0 Jan  9 14:54 ProjectDocfile4.txt
drwxr-xr-x 2 root root 6 Jan  9 14:55 SNA
root@simkhadaclient:~# touch /nfs/shared_from_server/Rat.txt
root@simkhadaclient:~# ls -l /nfs/shared_from_server
total 0
drwxr-xr-x 2 root    root    6 Jan  9 07:38 lbef
-rw-r--r-- 1 root    root    0 Jan  9 14:54 ProjectDocfile1.txt
-rw-r--r-- 1 root    root    0 Jan  9 14:54 ProjectDocfile2.txt
-rw-r--r-- 1 root    root    0 Jan  9 14:54 ProjectDocfile3.txt
-rw-r--r-- 1 root    root    0 Jan  9 14:54 ProjectDocfile4.txt
-rw-r--r-- 1 nobody nogroup 0 Jan  9 15:41 Rat.txt
drwxr-xr-x 2 root    root    6 Jan  9 14:55 SNA
root@simkhadaclient:~#
```

The terminal window shows the user navigating to a shared NFS directory and listing its contents. The user then creates a new file named "Rat.txt". The terminal window has a dark background and is located below the desktop environment.

```
NFS Server [Running] - Oracle VirtualBox
File Machine View Input Devices Help
[prakashSNA@simkhadaserver ~]$ cd
[prakashSNA@simkhadaserver ~]$ cd /var/nfs/general
[prakashSNA@simkhadaserver general]$ ls
lbef ProjectDocfile2.txt ProjectDocfile4.txt
ProjectDocfile1.txt ProjectDocfile3.txt SNA
[prakashSNA@simkhadaserver general]$ ls -l
total 0
drwxr-xr-x. 2 root root 6 Jan 9 07:38 lbef
-rw-r--r--. 1 root root 0 Jan 9 14:54 ProjectDocfile1.txt
-rw-r--r--. 1 root root 0 Jan 9 14:54 ProjectDocfile2.txt
-rw-r--r--. 1 root root 0 Jan 9 14:54 ProjectDocfile3.txt
-rw-r--r--. 1 root root 0 Jan 9 14:54 ProjectDocfile4.txt
drwxr-xr-x. 2 root root 6 Jan 9 14:55 SNA
[prakashSNA@simkhadaserver general]$ ls -l
total 0
drwxr-xr-x. 2 root root 6 Jan 9 07:38 lbef
-rw-r--r--. 1 root root 0 Jan 9 14:54 ProjectDocfile1.txt
-rw-r--r--. 1 root root 0 Jan 9 14:54 ProjectDocfile2.txt
-rw-r--r--. 1 root root 0 Jan 9 14:54 ProjectDocfile3.txt
-rw-r--r--. 1 root root 0 Jan 9 14:54 ProjectDocfile4.txt
-rw-r--r--. 1 nobody nobody 0 Jan 9 15:41 Rat.txt
drwxr-xr-x. 2 root root 6 Jan 9 14:55 SNA
[prakashSNA@simkhadaserver general]$
```



```
[prakashSNA@simkhadaserver general]$ cd /var/nfs/general
[prakashSNA@simkhadaserver general]$ ls
lbef ProjectDocfile2.txt ProjectDocfile4.txt SNA
ProjectDocfile1.txt ProjectDocfile3.txt Rat.txt
[prakashSNA@simkhadaserver general]$ sudo mkdir USA
[sudo] password for prakashSNA:
[prakashSNA@simkhadaserver general]$ ls
lbef ProjectDocfile2.txt ProjectDocfile4.txt SNA
ProjectDocfile1.txt ProjectDocfile3.txt Rat.txt USA
[prakashSNA@simkhadaserver general]$
```



```
NP070568-ubuntu-client-pc (Snapshot 1) [Running] - Oracle VirtualBox
File Machine View Input Devices Help
drwxr-xr-x 2 root root 6 Jan 9 07:38 lbef
-rw-r--r-- 1 root root 0 Jan 9 14:54 ProjectDocfile1.txt
-rw-r--r-- 1 root root 0 Jan 9 14:54 ProjectDocfile2.txt
-rw-r--r-- 1 root root 0 Jan 9 14:54 ProjectDocfile3.txt
-rw-r--r-- 1 root root 0 Jan 9 14:54 ProjectDocfile4.txt
-rw-r--r-- 1 nobody nogroup 0 Jan 9 15:41 Rat.txt
drwxr-xr-x 2 root root 6 Jan 9 14:55 SNA
root@simkhadaclient:~# ls -l /nfs/shared_from_server
total 0
drwxr-xr-x 2 root root 6 Jan 9 07:38 lbef
-rw-r--r-- 1 root root 0 Jan 9 14:54 ProjectDocfile1.txt
-rw-r--r-- 1 root root 0 Jan 9 14:54 ProjectDocfile2.txt
-rw-r--r-- 1 root root 0 Jan 9 14:54 ProjectDocfile3.txt
-rw-r--r-- 1 root root 0 Jan 9 14:54 ProjectDocfile4.txt
-rw-r--r-- 1 nobody nogroup 0 Jan 9 15:41 Rat.txt
drwxr-xr-x 2 root root 6 Jan 9 14:55 SNA
drwxr-xr-x 2 root root 6 Jan 9 15:44 USA
root@simkhadaclient:~# █
```



```
NP070568-ubuntu-client-pc (Snapshot 1) [Running] - Oracle VirtualBox
File Machine View Input Devices Help
snasimkhada@simkhadaclient:~$ sudo vim /etc/fstab
snasimkhada@simkhadaclient:~$
```



```
# /etc/fstab: static file system information.
#
# Use 'blkid' to print the universally unique identifier for a
# device; this may be used with UUID= as a more robust way to name devices
# that works even if disks are added and removed. See fstab(5).
#
# <file system> <mount point> <type> <options> <dump> <pass>
# / was on /dev/sda2 during curtin installation
/dev/disk/by-uuid/f3de6b4f-2ac8-4370-9a52-3a2686b417d0 / ext4 defaults 0 1
/swap.img none swap sw 0 0
192.168.200.3:/var/nfs/general /nfs/Shared_From_Server nfs auto,nofail,noatime,nolock,intr,tcp,actimeo=1800 0 0
```

```
snasimkhada@simkhadaclient:~$ sudo vim /etc/fstab
snasimkhada@simkhadaclient:~$ sudo mount -a
mount.nfs: mount point /nfs/Shared_From_Server does not exist
mount: (hint) your fstab has been modified, but systemd still uses
      the old version; use 'systemctl daemon-reload' to reload.
snasimkhada@simkhadaclient:~$ sudo vim /etc/fstab
snasimkhada@simkhadaclient:~$
```

NP070568-ubuntu-client-pc (Snapshot 1) [Running] - Oracle VirtualBox

File Machine View Input Devices Help

```
snasimkhada@simkhadaclient:~$ sudo vim /etc/fstab
snasimkhada@simkhadaclient:~$ sudo mount -a
mount.nfs: mount point /nfs/Shared_From_Server does not exist
mount: (hint) your fstab has been modified, but systemd still uses
      the old version; use 'systemctl daemon-reload' to reload.
snasimkhada@simkhadaclient:~$ sudo vim /etc/fstab
snasimkhada@simkhadaclient:~$ sudo mount -a
snasimkhada@simkhadaclient:~$ reboot
```

NP070568-ubuntu-client-pc (Snapshot 1) [Running] - Oracle VirtualBox

File Machine View Input Devices Help

```
snasimkhada@simkhadaclient:~$ ls -l /nfs/shared_from_server
total 0
drwxr-xr-x 2 root root 6 Jan 9 07:38 lbef
-rw-r--r-- 1 root root 0 Jan 9 14:54 ProjectDocfile1.txt
-rw-r--r-- 1 root root 0 Jan 9 14:54 ProjectDocfile2.txt
-rw-r--r-- 1 root root 0 Jan 9 14:54 ProjectDocfile3.txt
-rw-r--r-- 1 root root 0 Jan 9 14:54 ProjectDocfile4.txt
-rw-r--r-- 1 nobody nogroup 0 Jan 9 15:41 Rat.txt
drwxr-xr-x 2 root root 6 Jan 9 14:55 SNA
drwxr-xr-x 2 root root 6 Jan 9 15:44 USA
snasimkhada@simkhadaclient:~$
```



