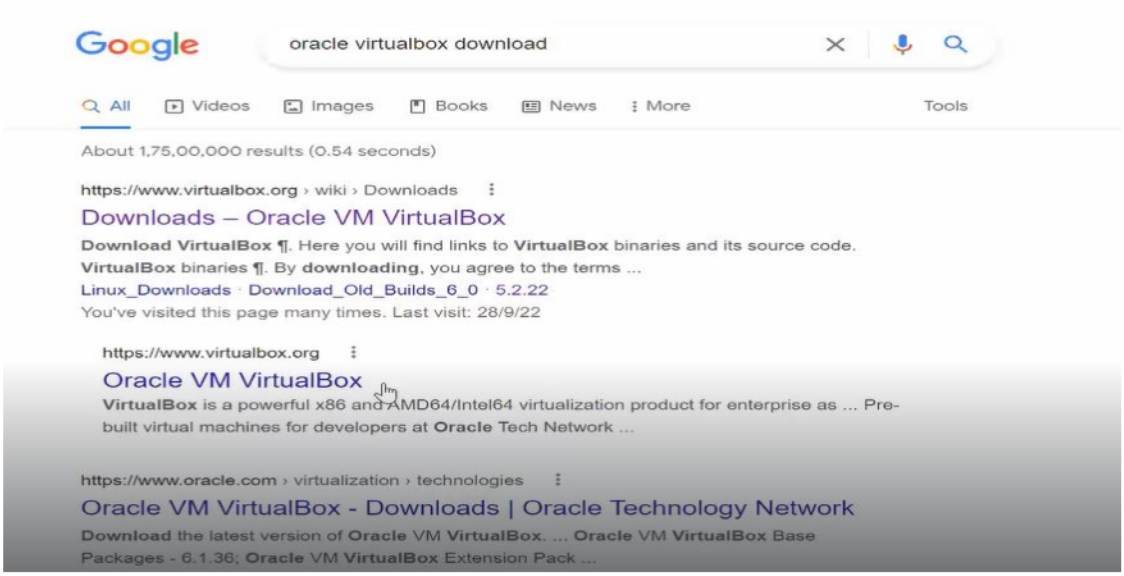
RHEL9

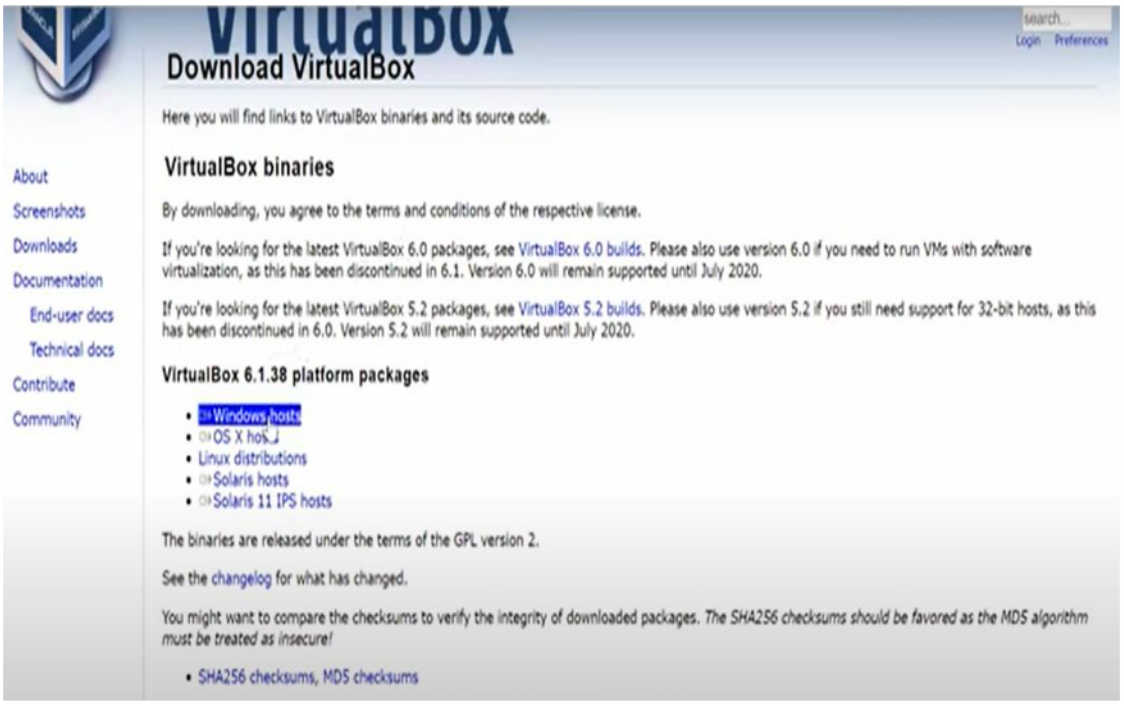
Session 1 – 8th October 2022 SUMMARY

Detailed Discussion on below points –

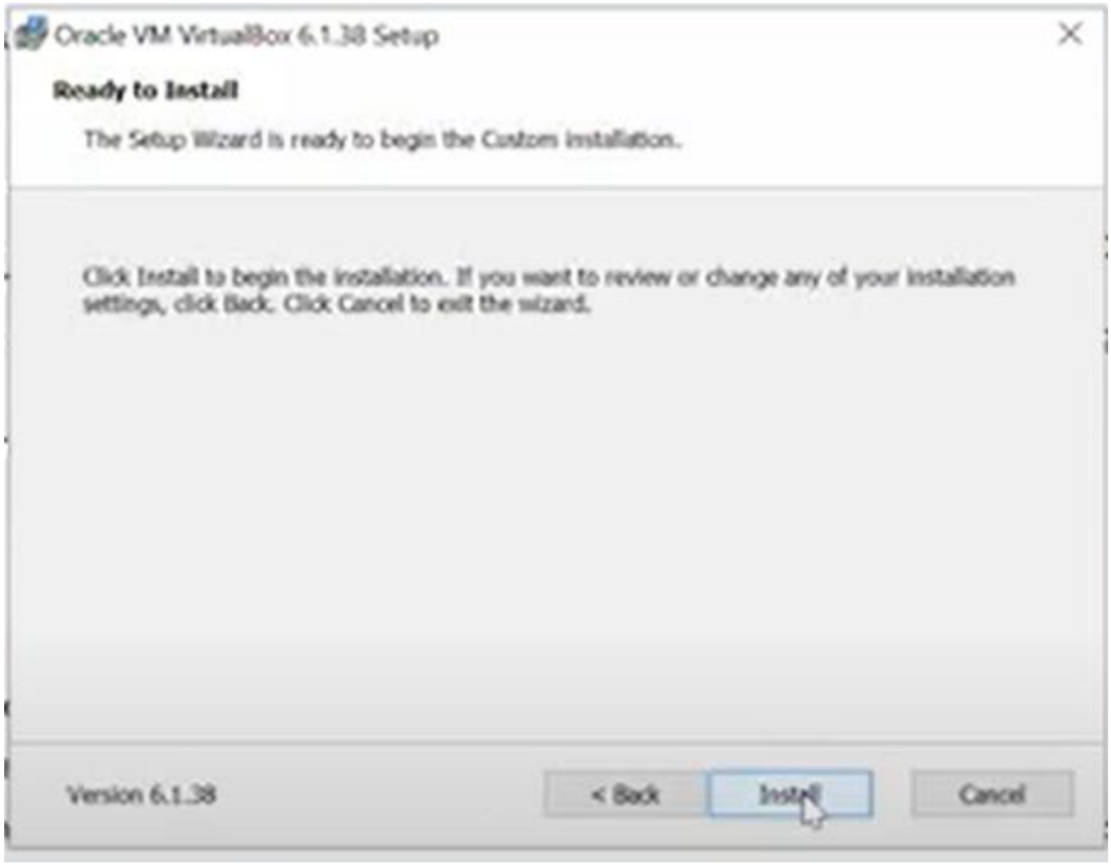
- The use case of OS (Operating System) – for one single purpose – to run the program (VLC Player, Notepad, Browser etc)
- Program is written in some kind of programming language (C++, JAVA, Python etc) that is Code or Program File or Command.
- The three main components in a system is
  - RAM
  - CPU
  - Hard Disk
- To store data
  - Permanent or Persistent – Hard Disk is used
  - Temporary – RAM is used
- The only way to store data in a Hard Disk is to put the data in a file
- To create a file, first we have to create a folder or directory
- To interact with OS, we have to run or execute the program file or command
- When we run a command, its loaded from Hard Disk into RAM and becomes a process
- Most of the companies in the world in their data centers use Linux OS

- The four different ways to install OS
  - Directly on the Hardware(Laptop, Server) - Baremetal
  - Cloud Computing Platform(Azure, AWS)
  - Containerization Technology(Docker, Kubernetes)
  - Virtualization Concept – Install Linux OS on Base OS(windows, MAC)
- The product to implement Virtualization concept is the Oracle Virtual Box

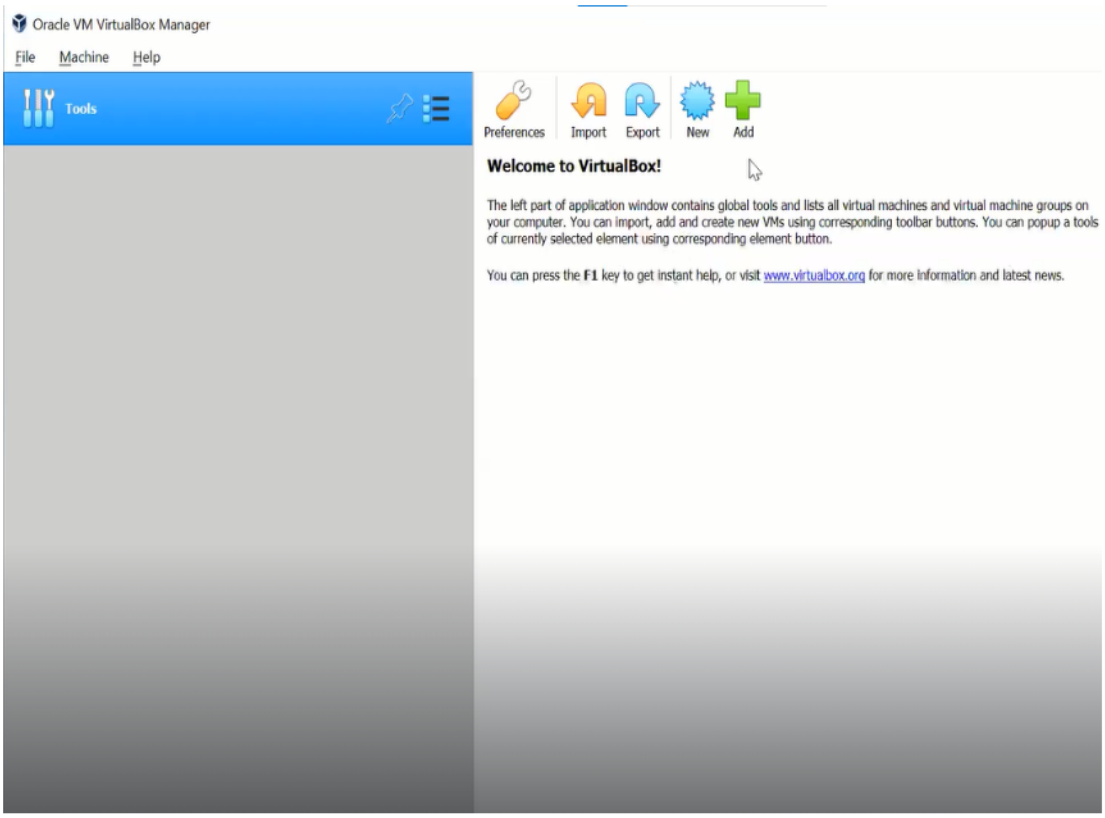




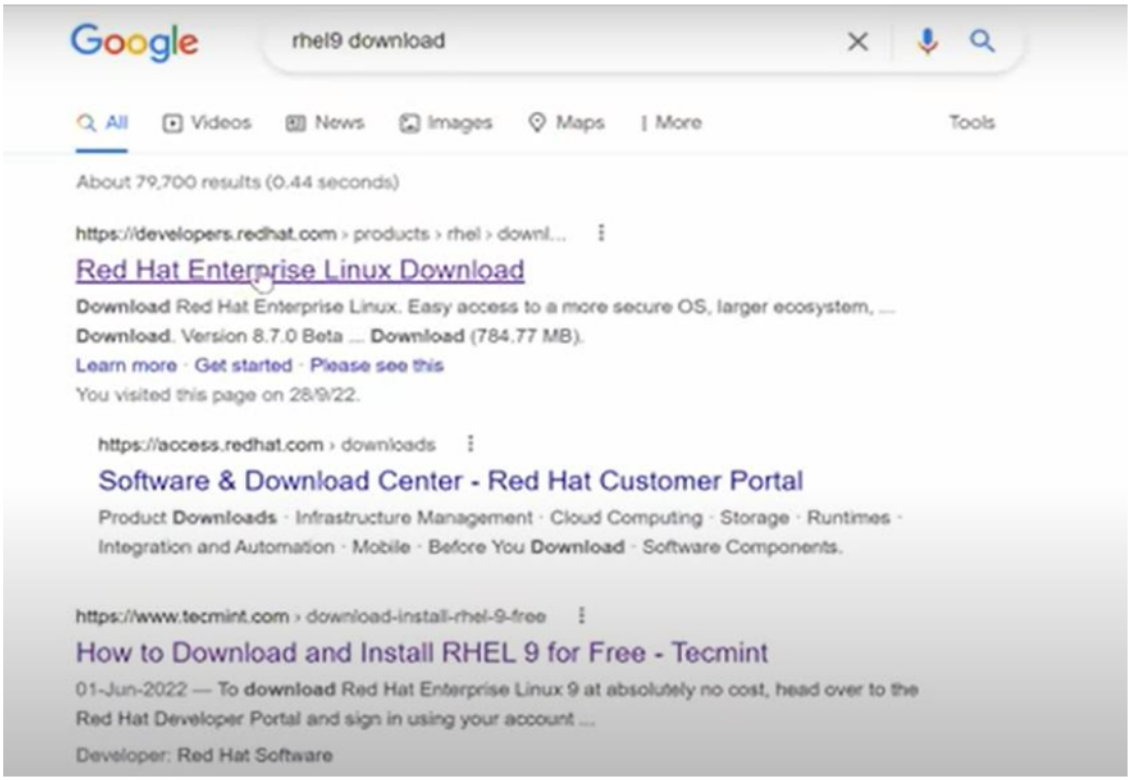

Oracle VM VirtualBox 6.1.38 Setup
Welcome to the Oracle VM VirtualBox 6.1.38 Setup Wizard
The Setup Wizard will install Oracle VM VirtualBox 6.1.38 on your computer. Click Next to continue or Cancel to exit the Setup Wizard.
Version 6.1.38
Next >
Cancel

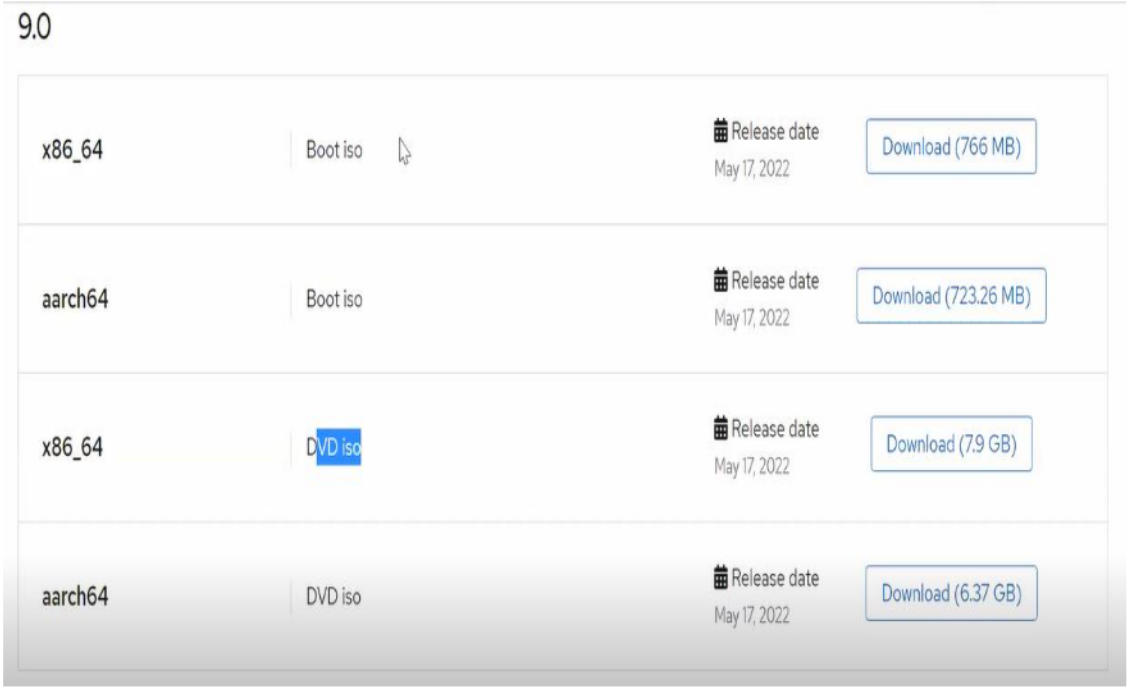

Oracle VM VirtualBox 6.1.38 Setup
Ready to Install
The Setup Wizard is ready to begin the Custom installation.
Click Install to begin the installation. If you want to review or change any of your installation settings, click Back. Click Cancel to exit the wizard.
Version 6.1.38
< Back
Install
Cancel

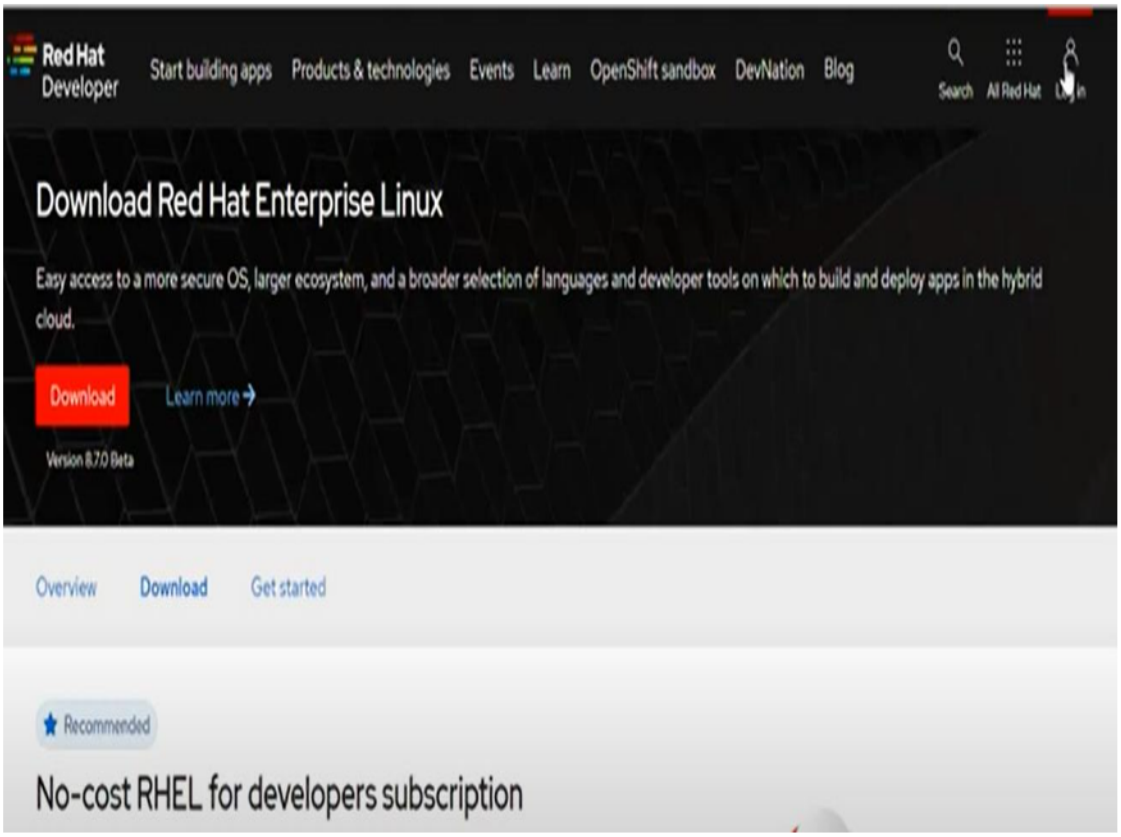

Oracle VM VirtualBox 6.1.38 Setup
Oracle VM VirtualBox 6.1.38 Setup Wizard was interrupted
Oracle VM VirtualBox 6.1.38 setup was interrupted. Your system has not been modified. To install this program at a later time, please run the installation again.
Click the Finish button to exit the Setup Wizard.
Version 6.1.38
< Back
Finish
Cancel


Oracle VM VirtualBox Manager
File
Machine
Help
Tools
Preferences
Import
Export
New
Add
Welcome to VirtualBox!
The left part of application window contains global tools and lists all virtual machines and virtual machine groups on your computer. You can import, add and create new VMs using corresponding toolbar buttons. You can popup a tools of currently selected element using corresponding element button.
You can press the F1 key to get instant help, or visit www.virtualbox.org for more information and latest news.

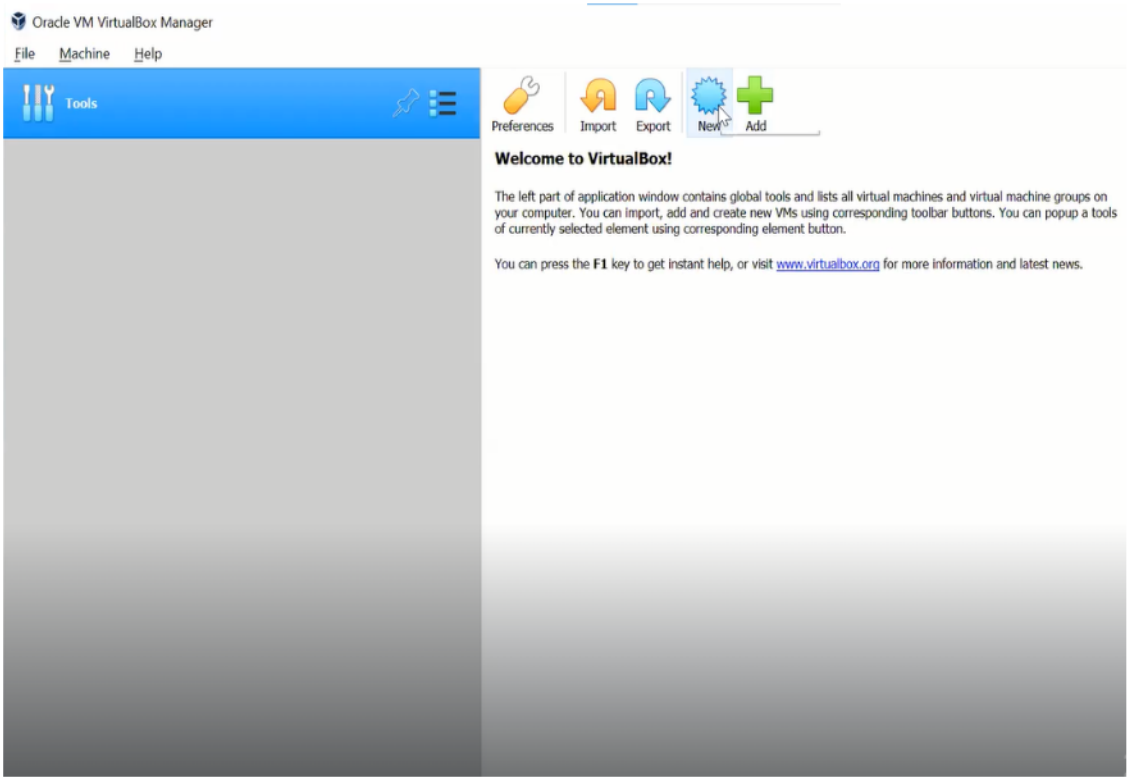
- To install any OS, the minimum requirement is the image or bootable image or set-up file or OS Image
- To download set-up image for RedHat 9 (RHEL9) -

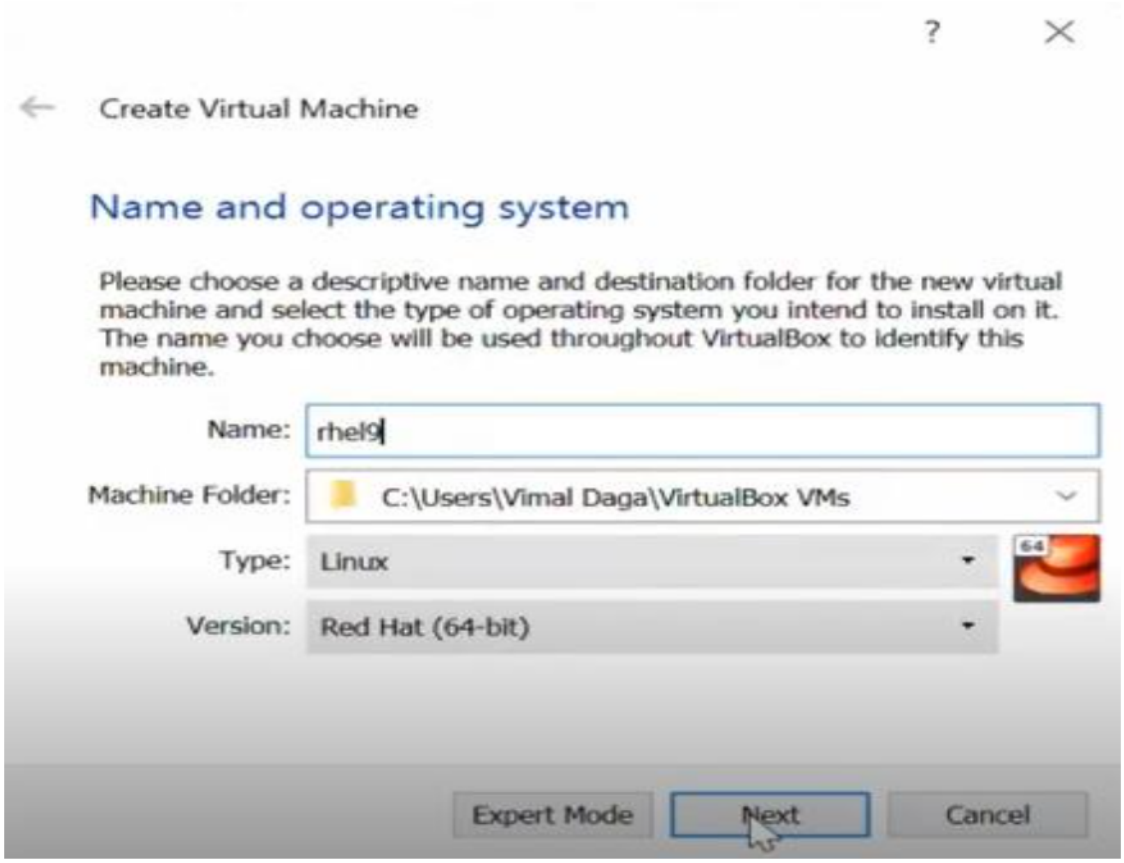


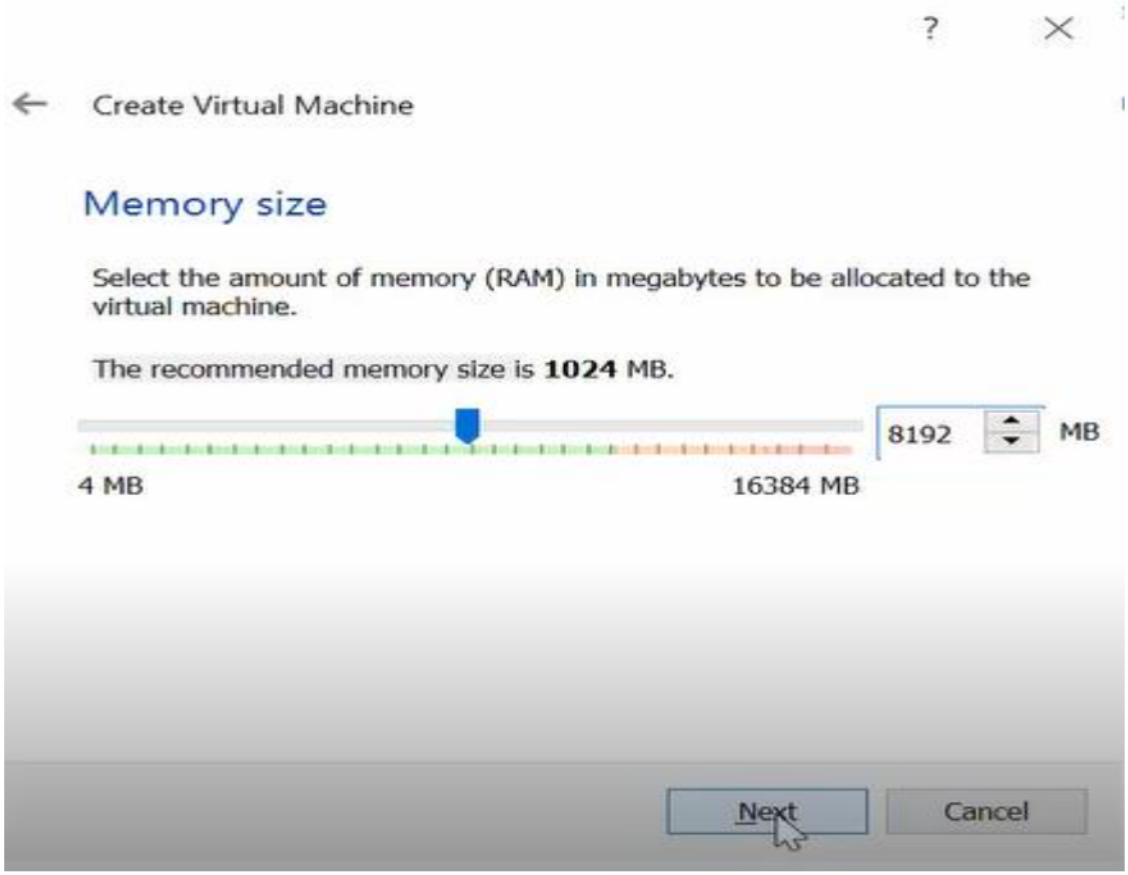


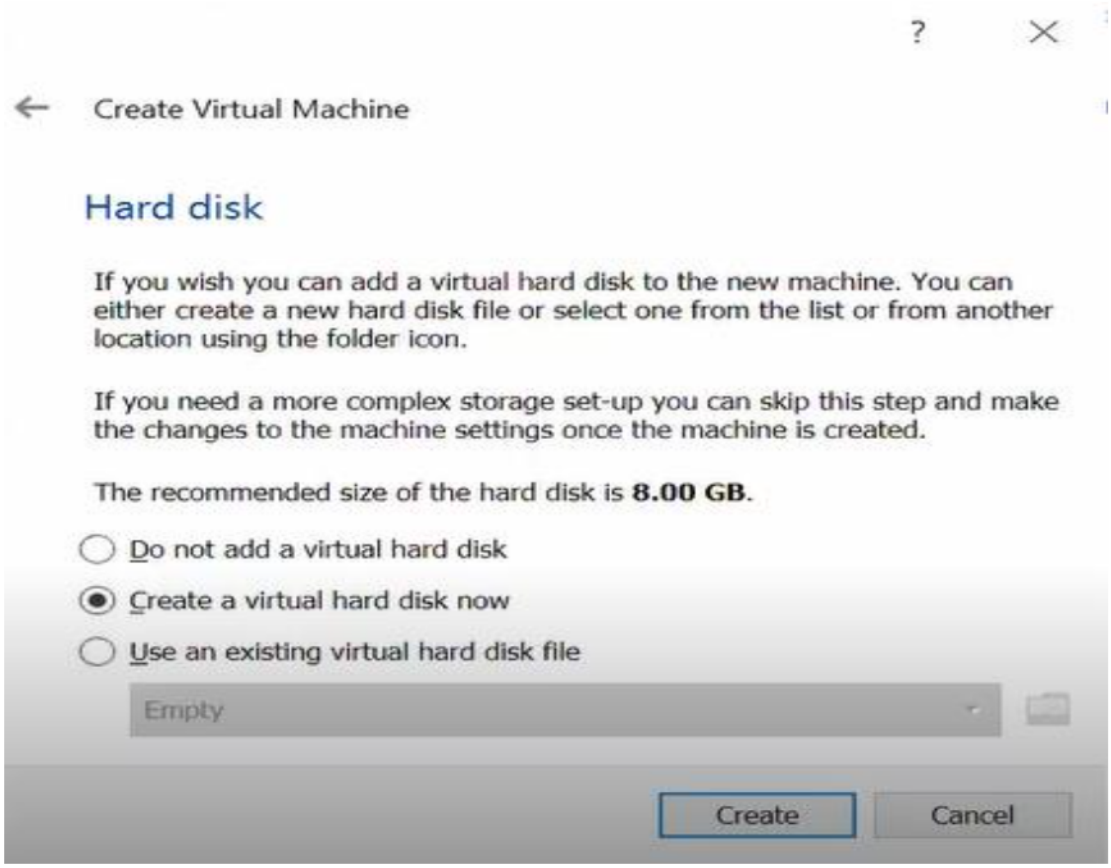


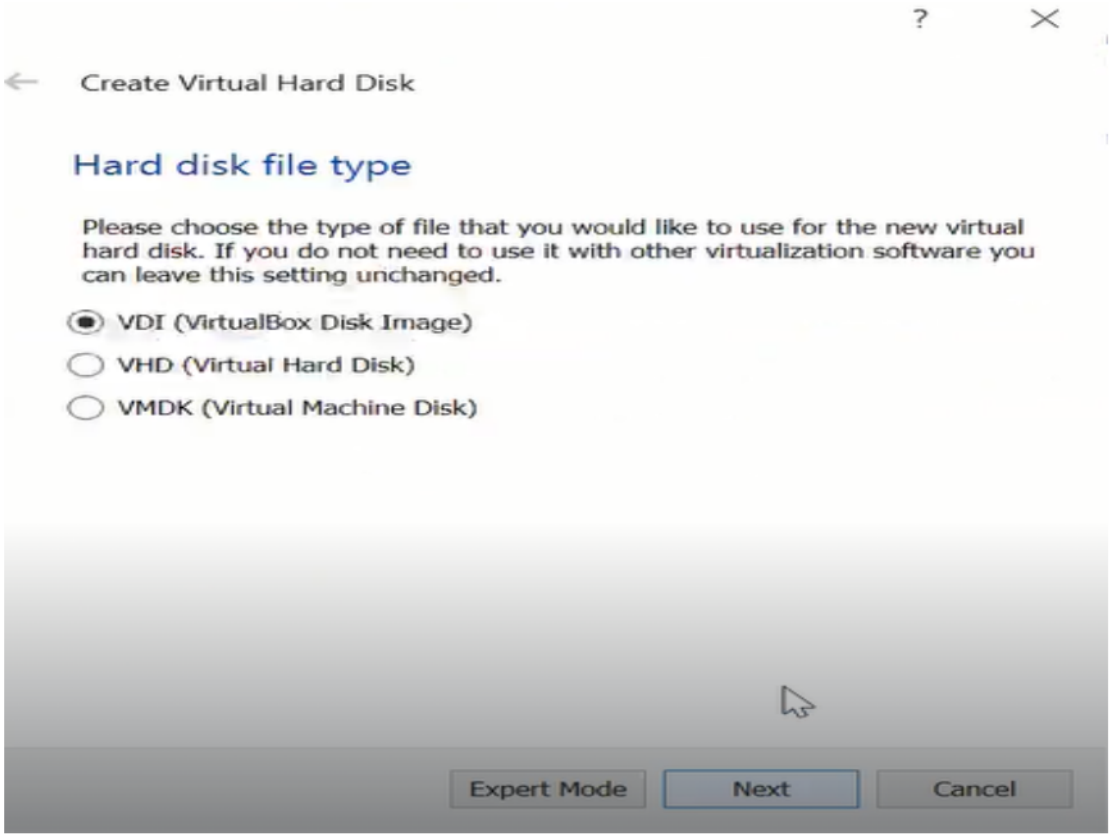
- To install the set- up image – click on New

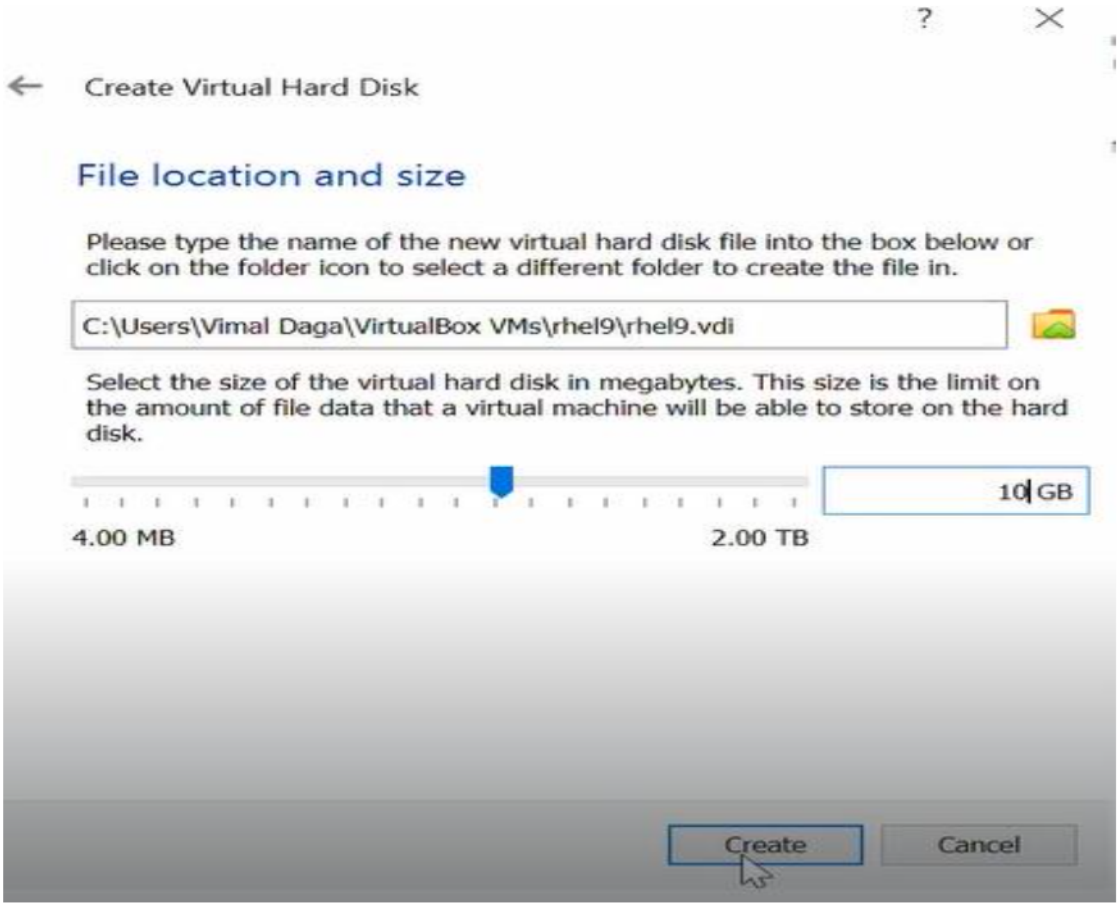



Create Virtual Machine
Name and operating system
Please choose a descriptive name and destination folder for the new virtual machine and select the type of operating system you intend to install on it. The name you choose will be used throughout VirtualBox to identify this machine.
Name: rhel9
Machine Folder: C:\Users\Vimal Daga\VirtualBox VMs
Type: Linux
Version: Red Hat (64-bit)
Expert Mode
Next
Cancel

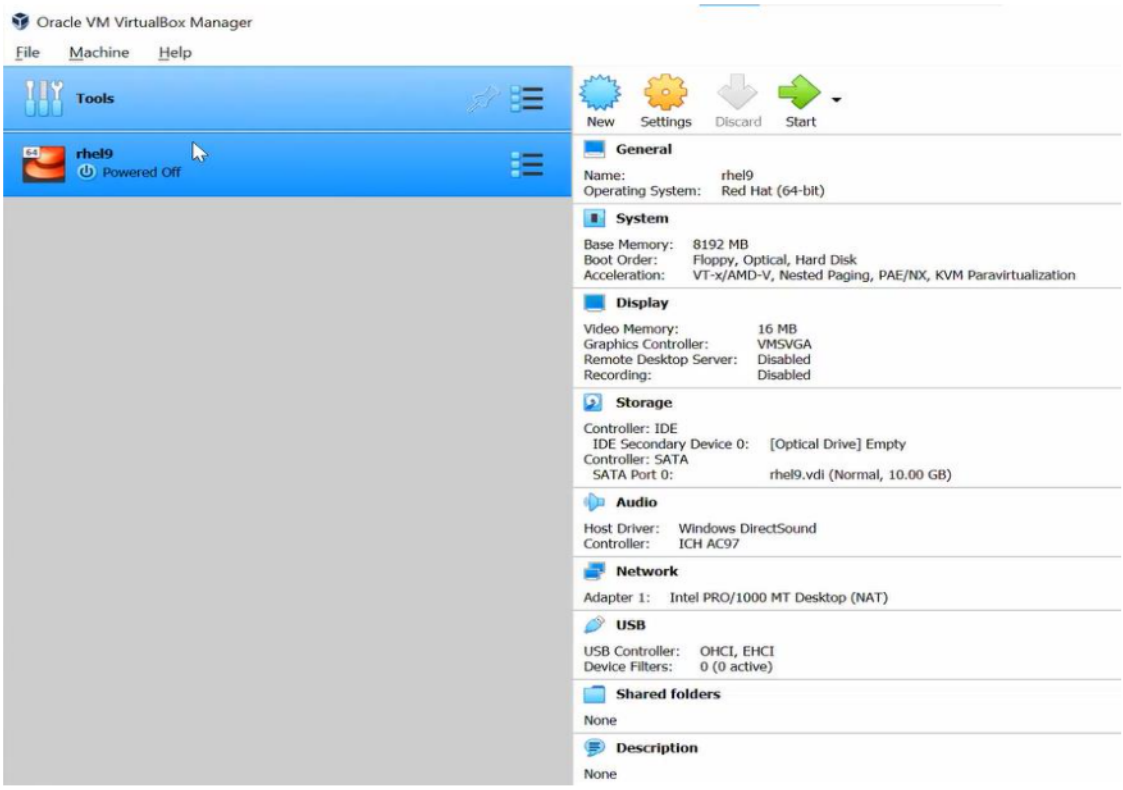

Create Virtual Machine
Memory size
Select the amount of memory (RAM) in megabytes to be allocated to the virtual machine.
The recommended memory size is 1024 MB.
8192
MB
4 MB
16384 MB
Next
Cancel


Create Virtual Machine
Hard disk
If you wish you can add a virtual hard disk to the new machine. You can either create a new hard disk file or select one from the list or from another location using the folder icon.
If you need a more complex storage set-up you can skip this step and make the changes to the machine settings once the machine is created.
The recommended size of the hard disk is 8.00 GB.
Do not add a virtual hard disk
Create a virtual hard disk now
Use an existing virtual hard disk file
Empty
Create
Cancel

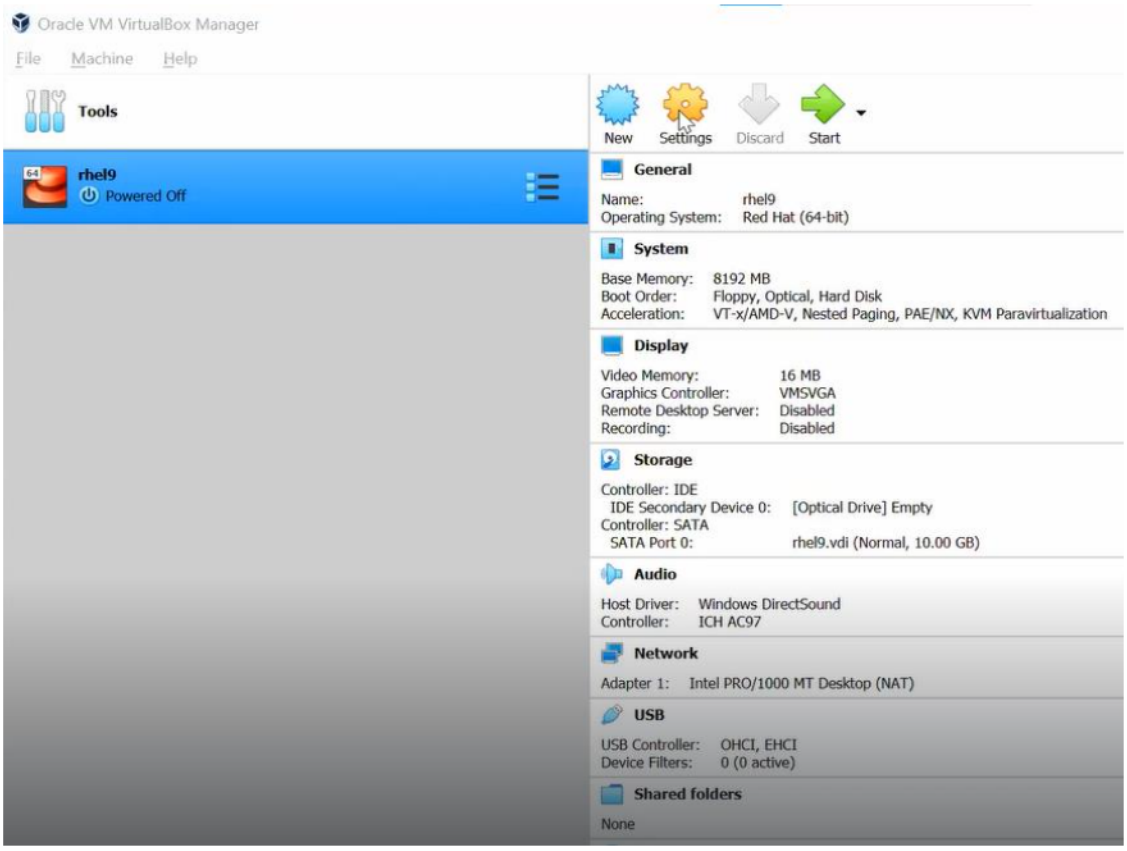

Create Virtual Hard Disk
Hard disk file type
Please choose the type of file that you would like to use for the new virtual hard disk. If you do not need to use it with other virtualization software you can leave this setting unchanged.
VDI (VirtualBox Disk Image)
VHD (Virtual Hard Disk)
VMDK (Virtual Machine Disk)
Expert Mode
Next
Cancel

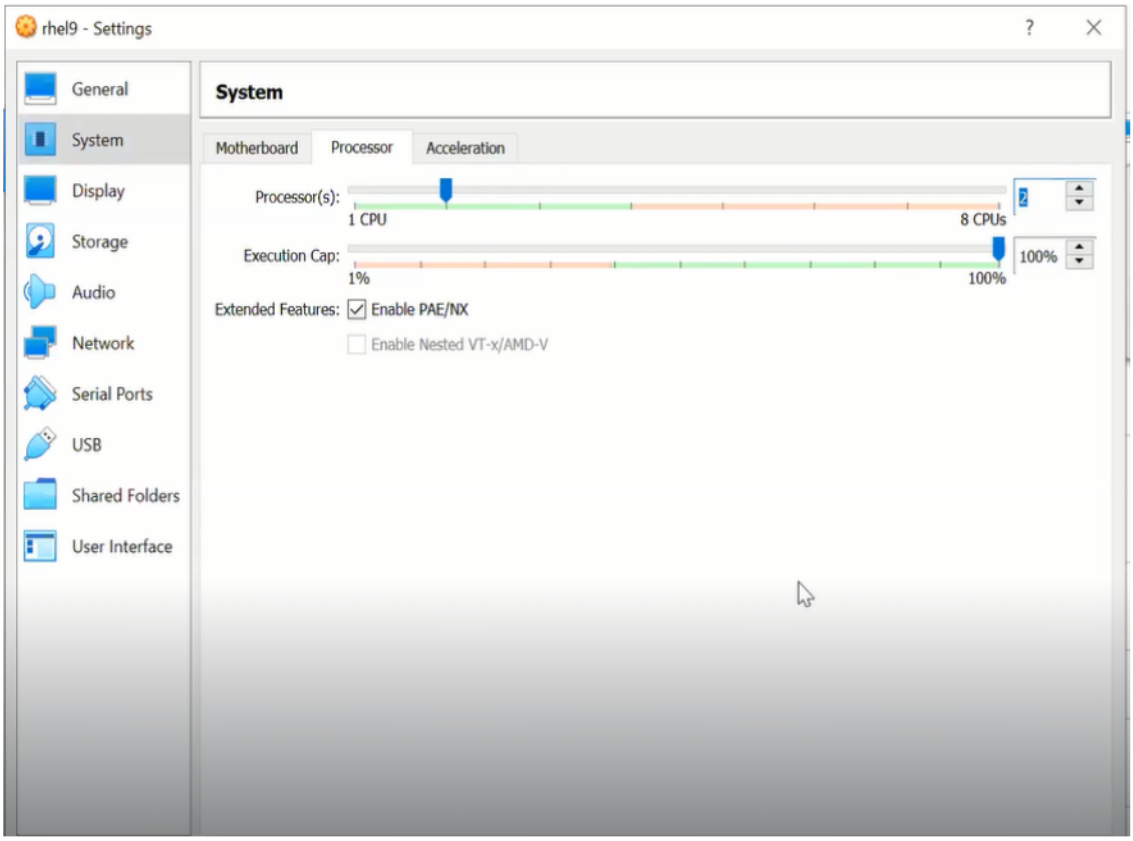


- A new virtual machine created –

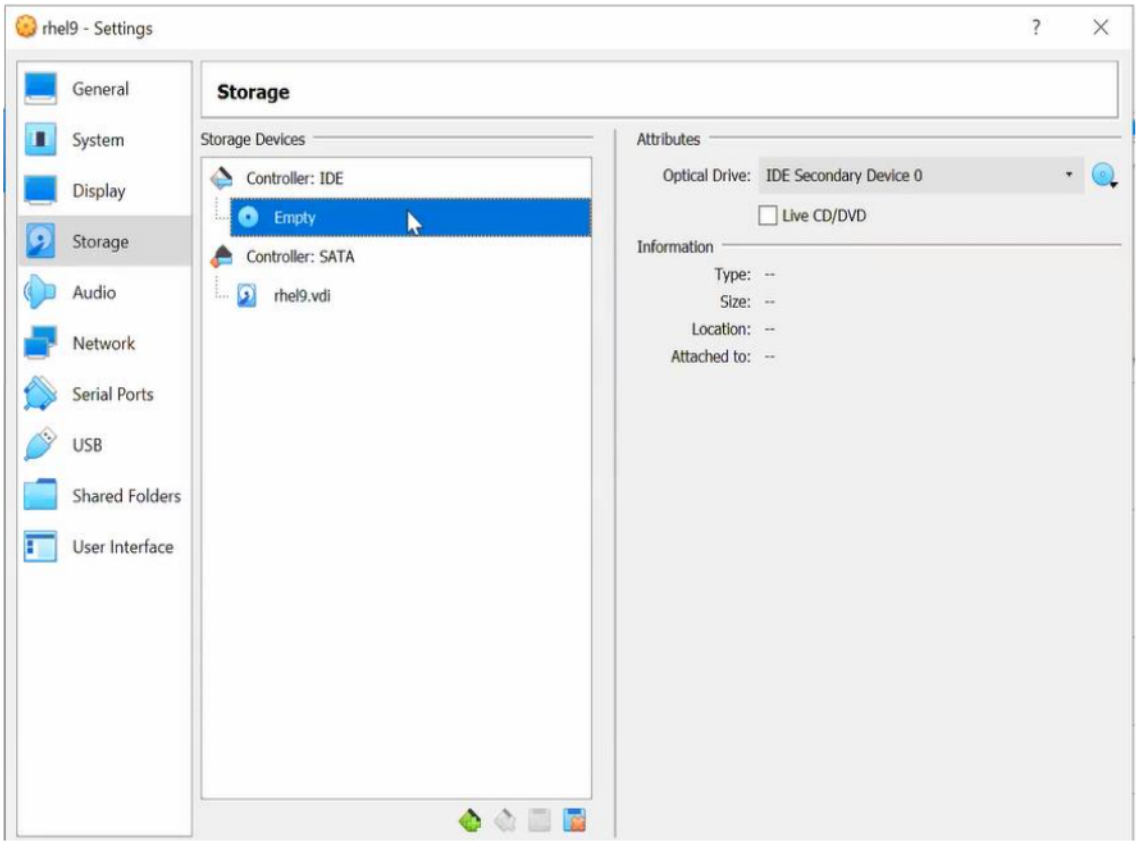


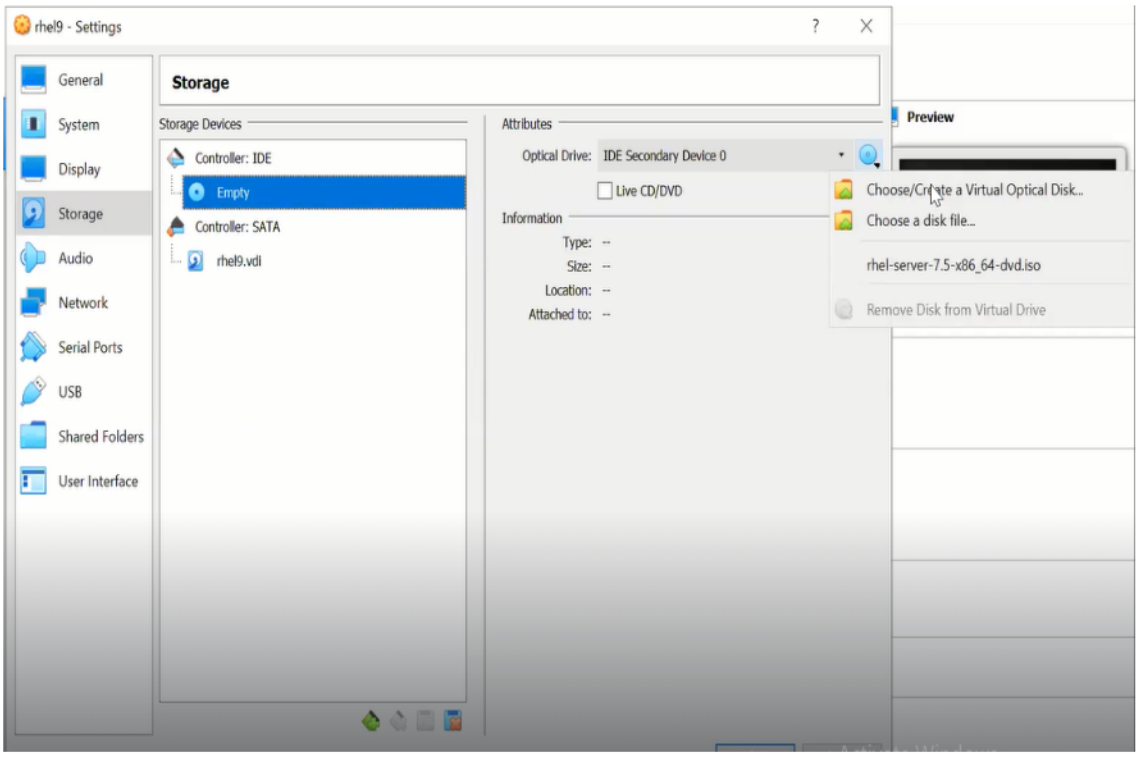
- To improve the performance – click on Settings

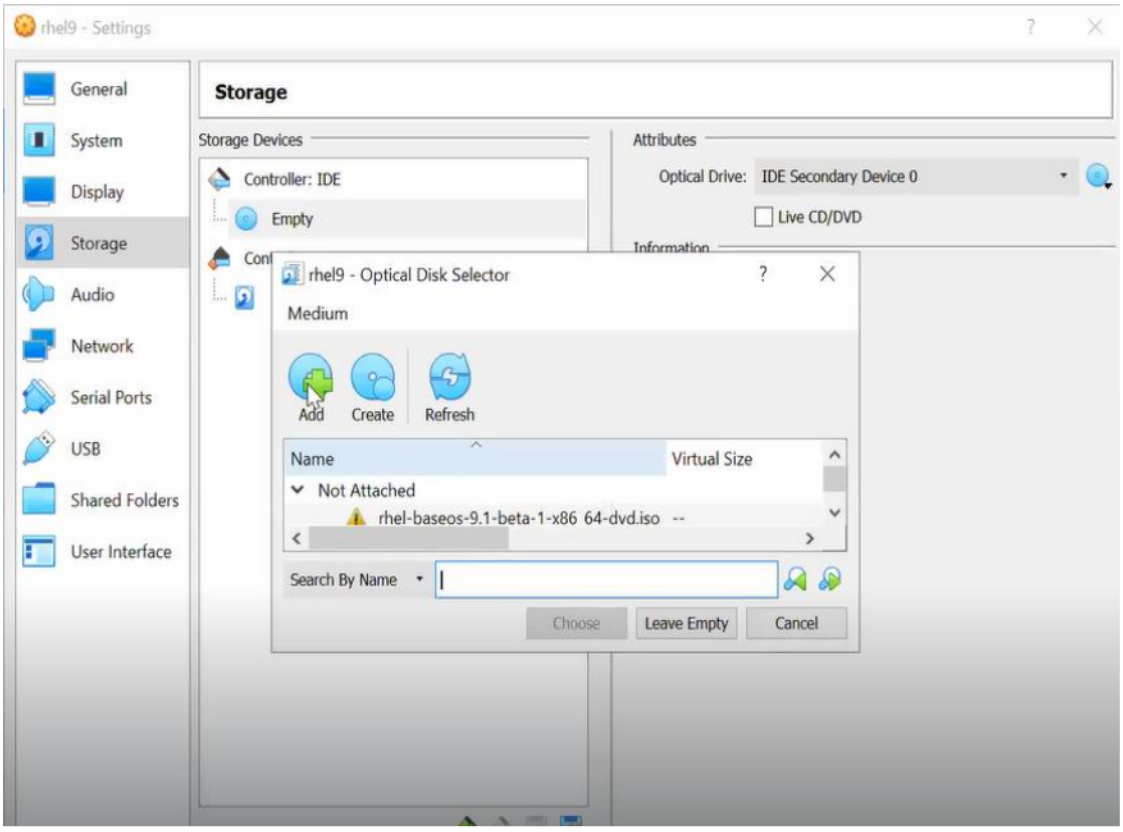


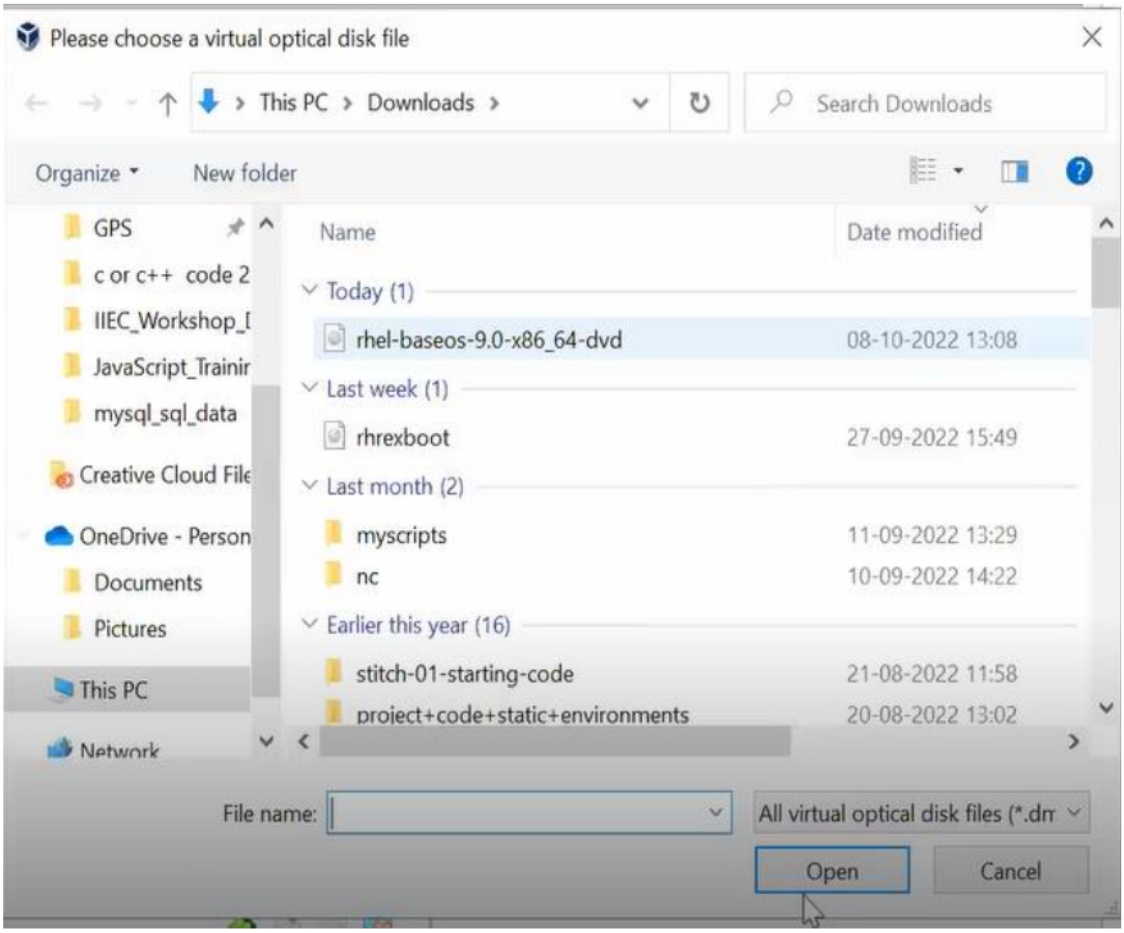


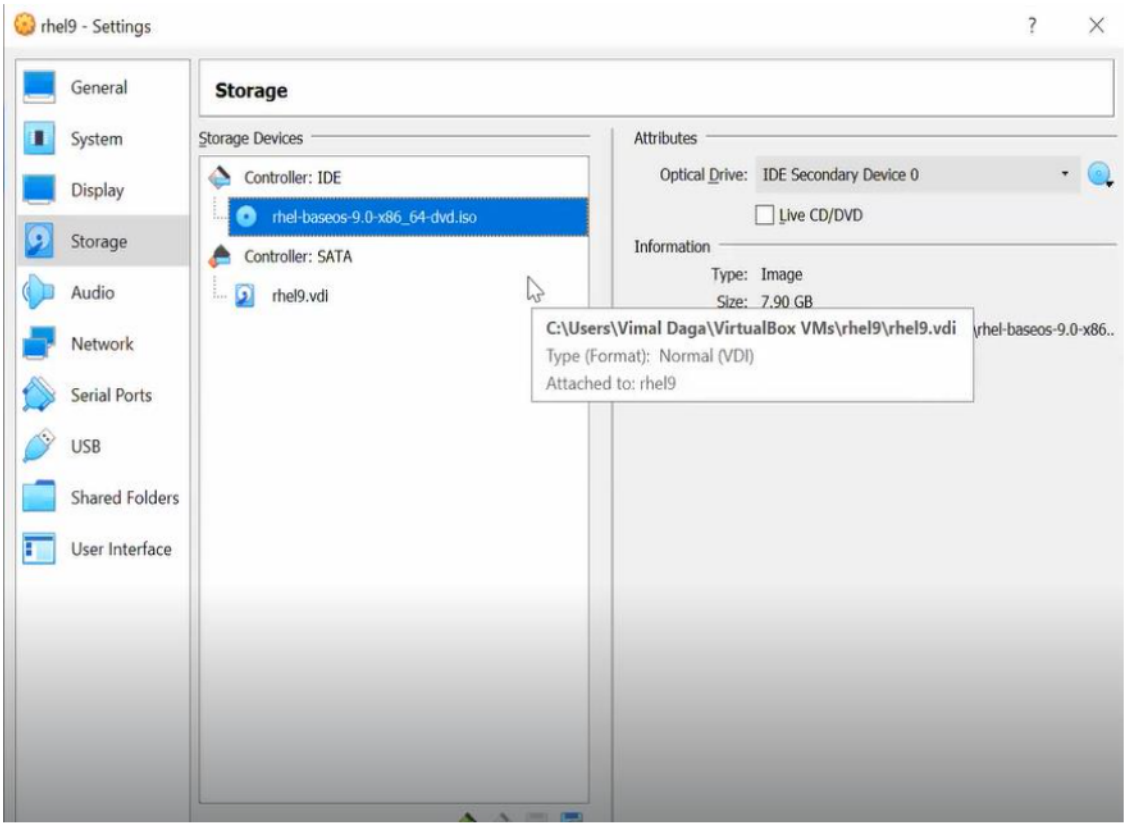
➢ To attach the image



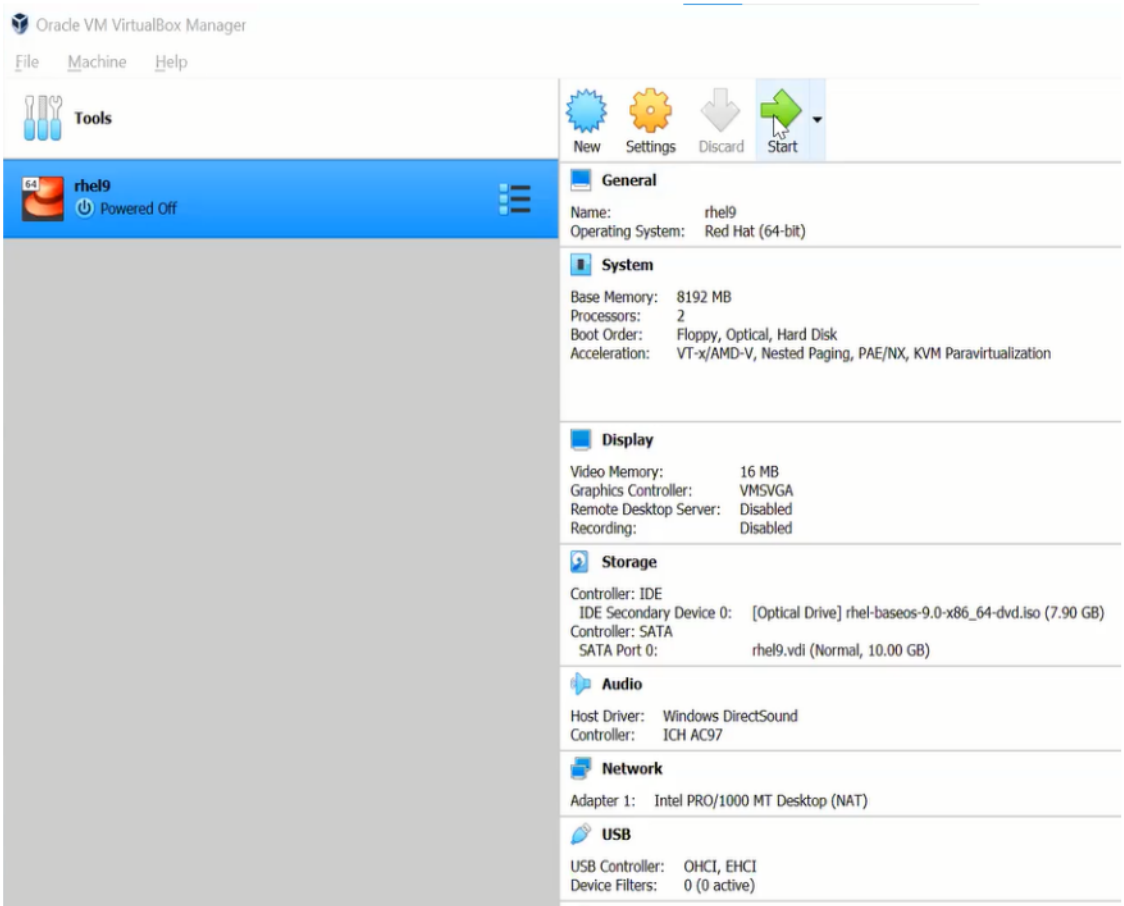



rhel9 - Settings
General
System
Display
Storage
Audio
Network
Serial Ports
USB
Shared Folders
User Interface
Storage
Storage Devices
Controller: IDE
Empty
Attributes
Optical Drive: IDE Secondary Device 0
Live CD/DVD
Information
rhel9 - Optical Disk Selector
Medium
Add
Create
Refresh
Name
Virtual Size
Not Attached
rhel-baseos-9.1-beta-1-x86 64-dvd.iso --
Search By Name
Choose
Leave Empty
Cancel

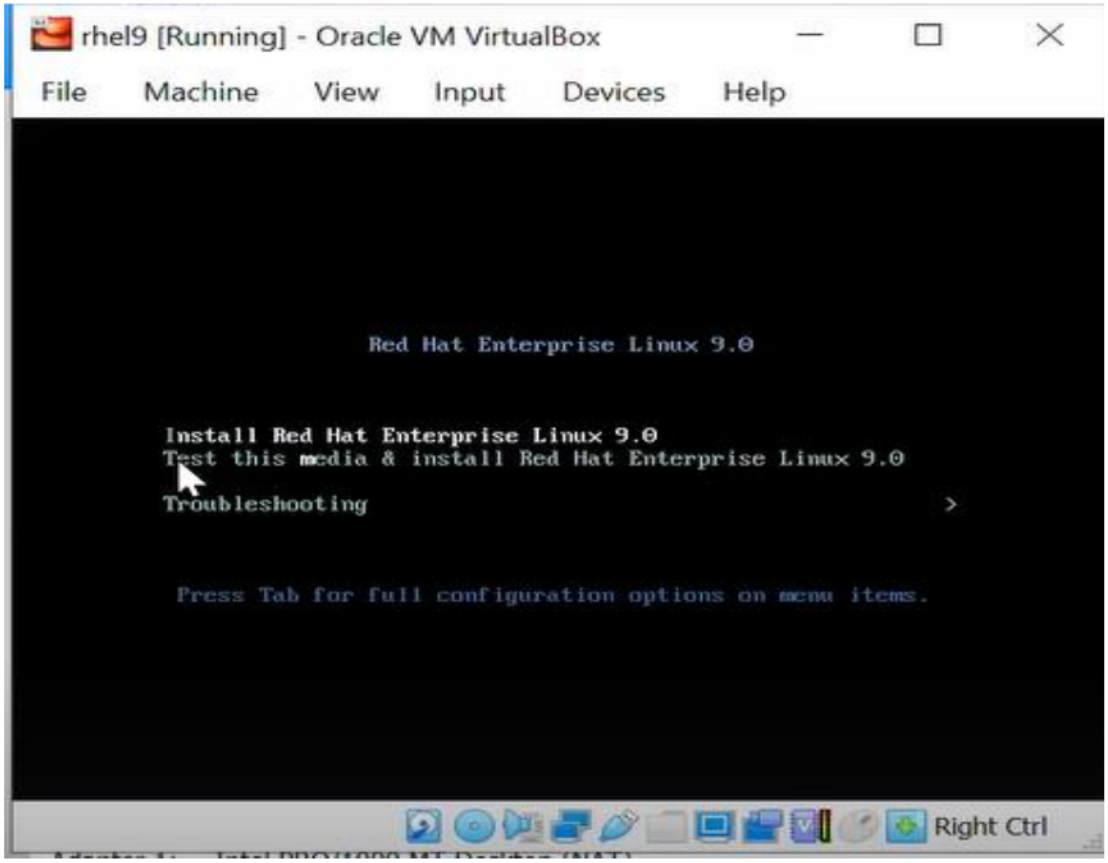

Please choose a virtual optical disk file
This PC
Downloads
Search Downloads
Organize
New folder
GPS
c or c++ code 2
IIEC_Workshop_I
JavaScript_Trainir
mysql_sql_data
Creative Cloud File
OneDrive - Person
Documents
Pictures
This PC
Network
Name
Date modified
Today (1)
rhel-baseos-9.0-x86_64-dvd
08-10-2022 13:08
Last week (1)
rhrexboot
27-09-2022 15:49
Last month (2)
myscripts
11-09-2022 13:29
nc
10-09-2022 14:22
Earlier this year (16)
stitch-01-starting-code
21-08-2022 11:58
project+code+static+environments
20-08-2022 13:02
File name:
All virtual optical disk files (*.dr
Open
Cancel

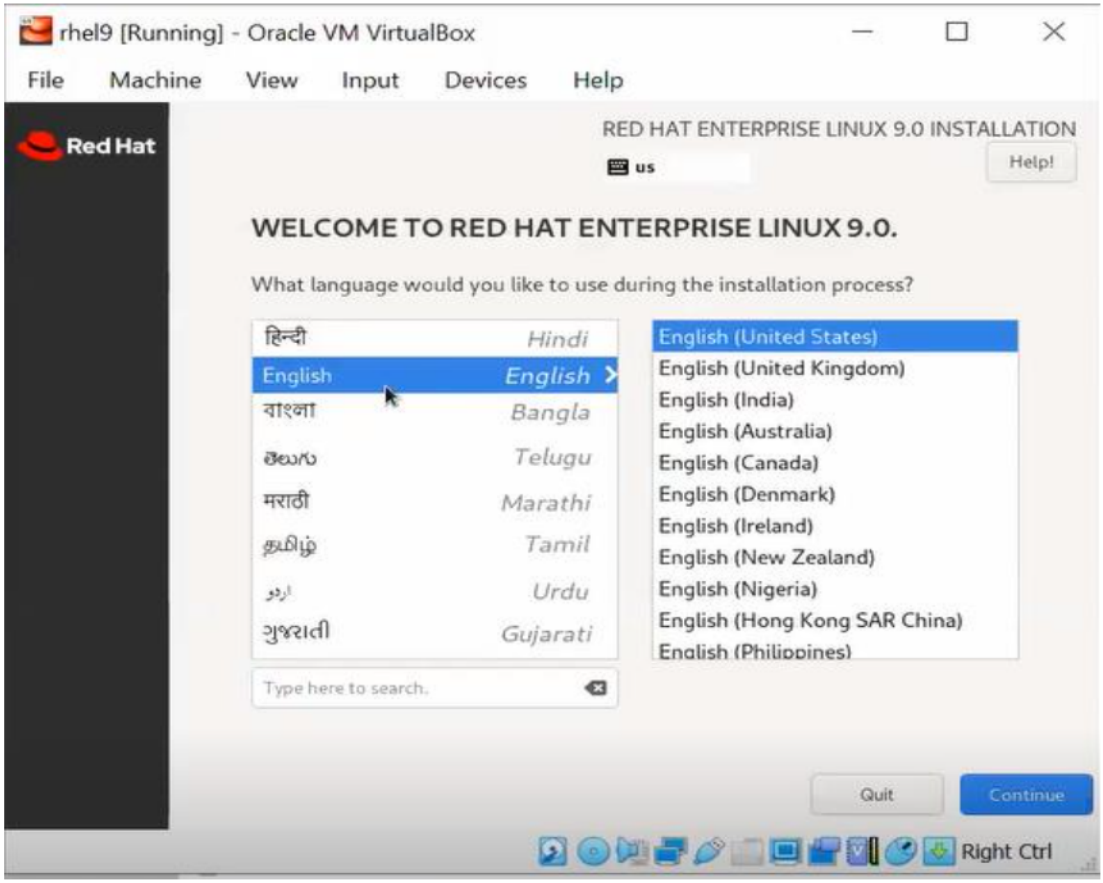


- Click on Start

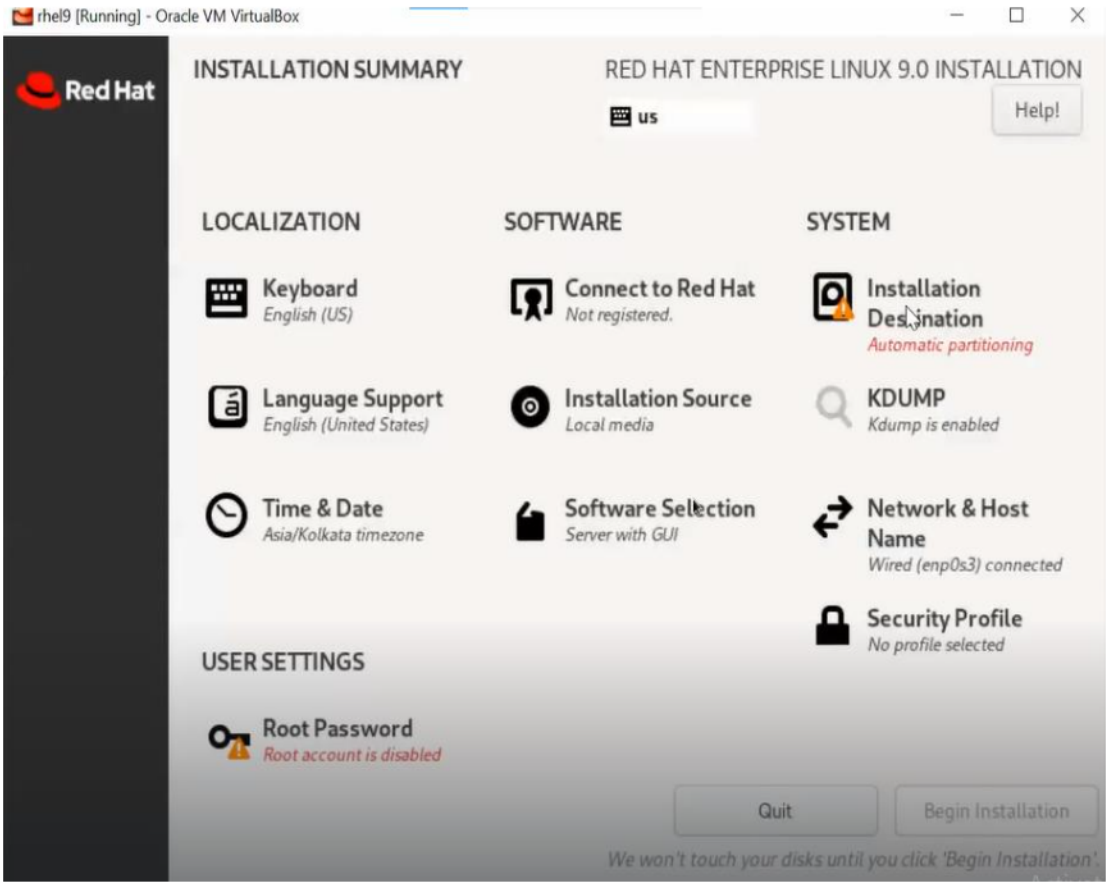


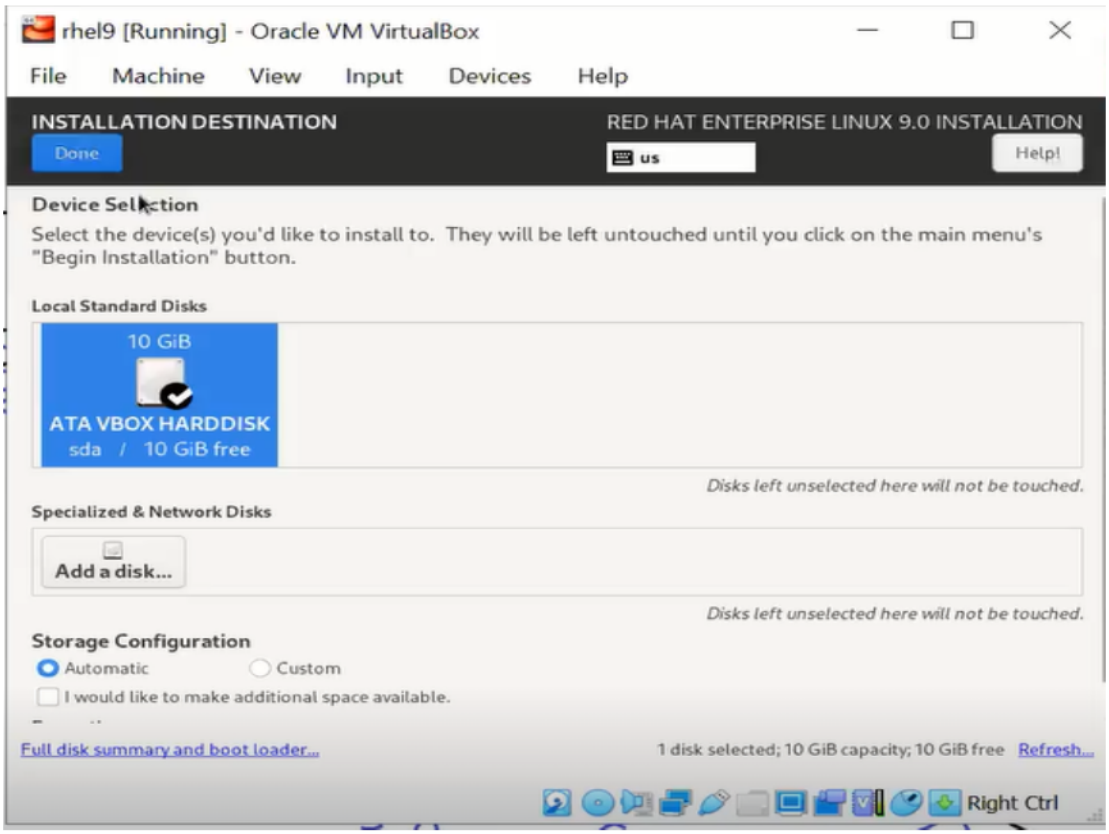
- Use up arrow key – select RHEL 9.0 and Enter key

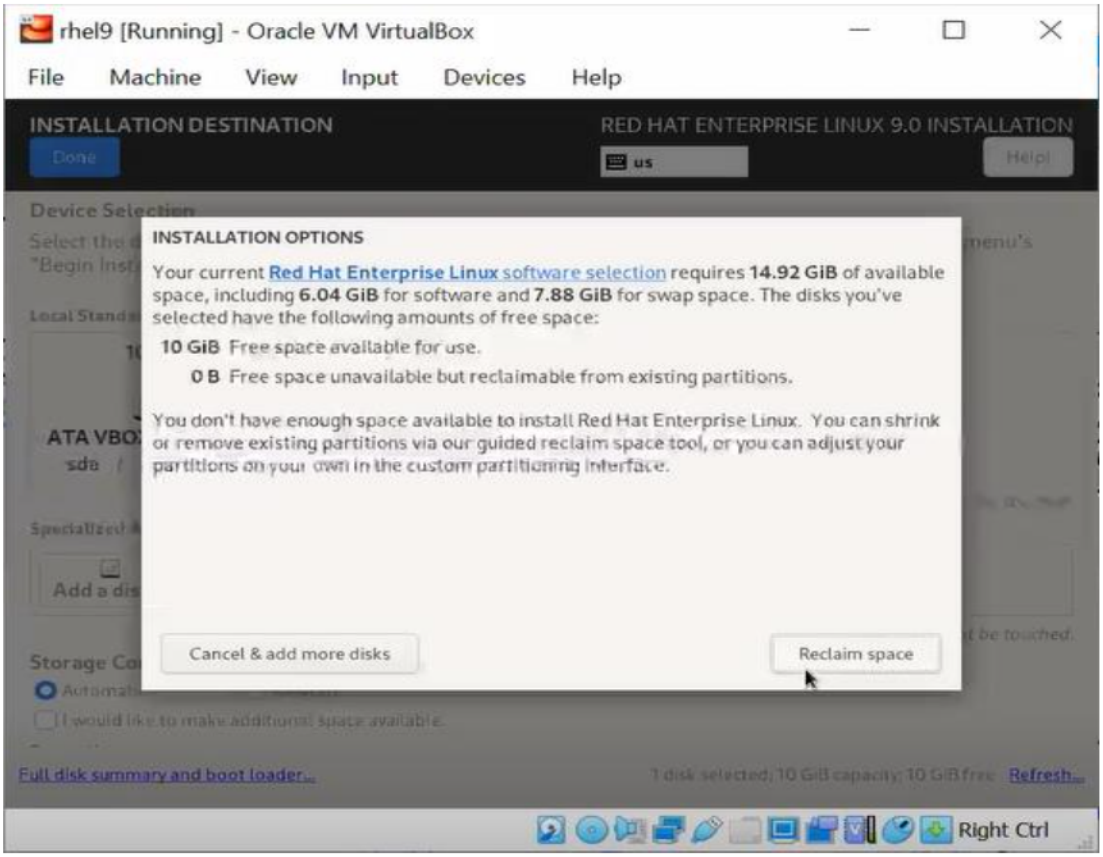


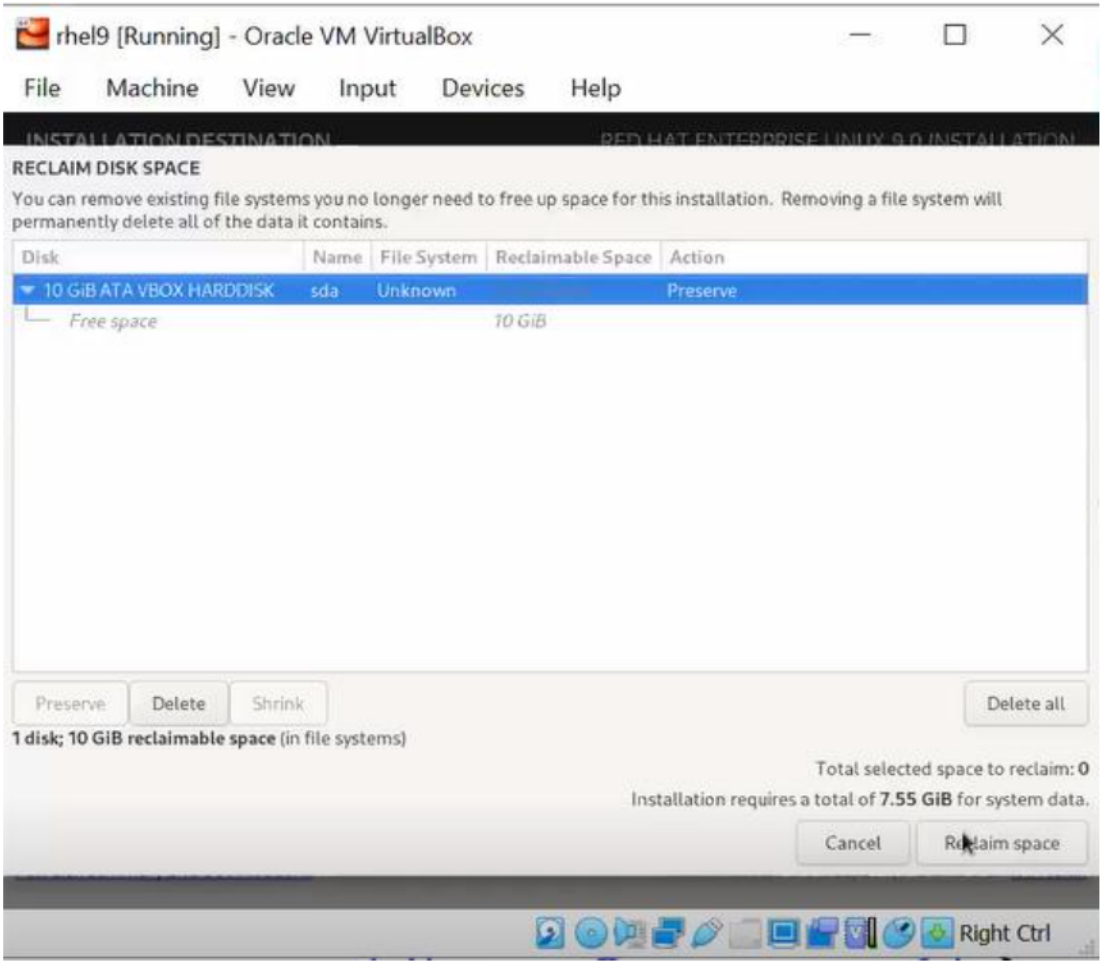


- Click on Installation Destination

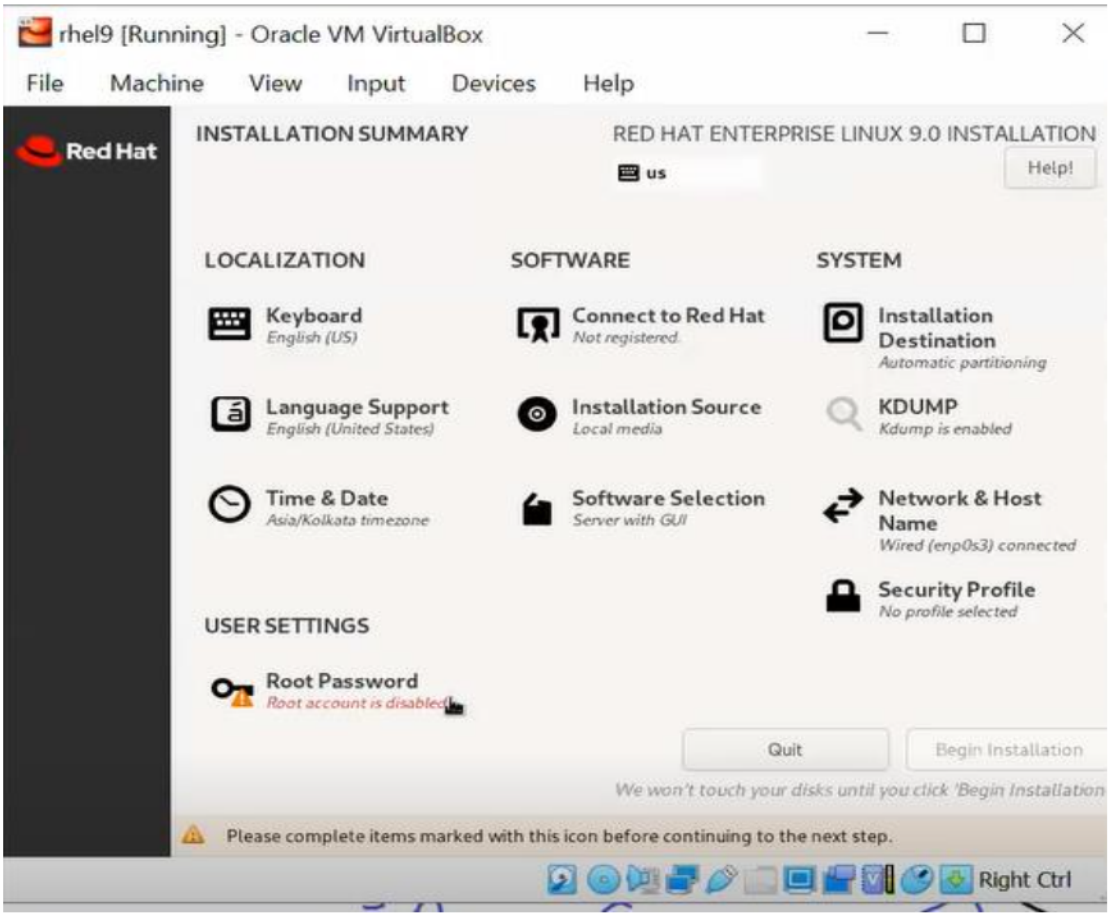


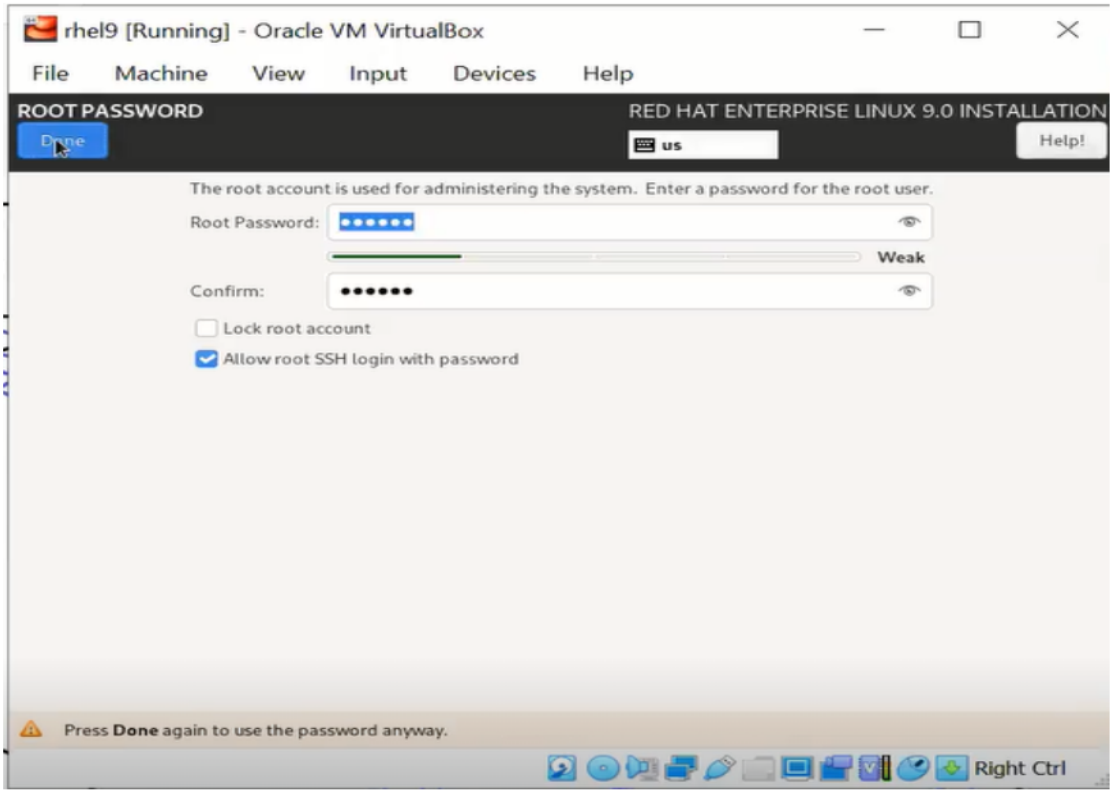



rhel9 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
INSTALLATION DESTINATION
RED HAT ENTERPRISE LINUX 9.0 INSTALLATION
Done
us
Help!
Device Selection
INSTALLATION OPTIONS
Your current Red Hat Enterprise Linux software selection requires 14.92 GiB of available space, including 6.04 GiB for software and 7.88 GiB for swap space. The disks you've selected have the following amounts of free space:
10 GiB Free space available for use.
0 B Free space unavailable but reclaimable from existing partitions.
You don't have enough space available to install Red Hat Enterprise Linux. You can shrink or remove existing partitions via our guided reclaim space tool, or you can adjust your partitions on your own in the custom partitioning interface.
Cancel & add more disks
Reclaim space
Storage Co
Full disk summary and boot loader...
Refresh...
Right Ctrl

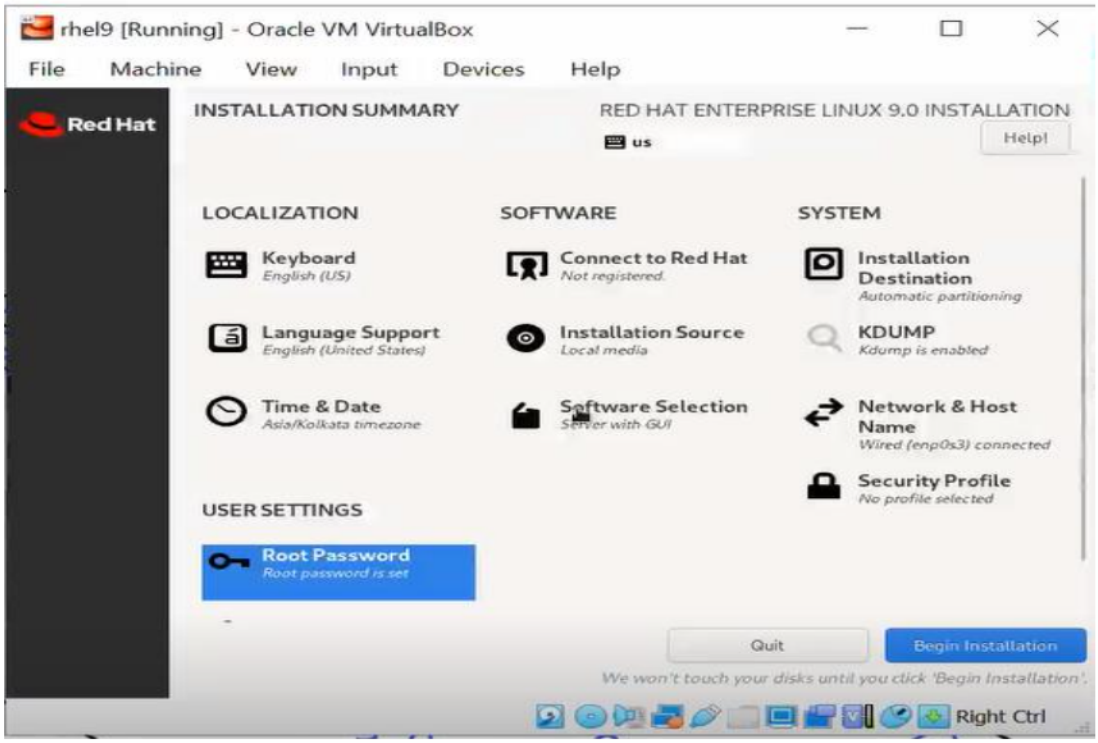

rhel9 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
RECLAIM DISK SPACE
You can remove existing file systems you no longer need to free up space for this installation. Removing a file system will permanently delete all of the data it contains.
Disk
Name
File System
Reclaimable Space
Action
10 GiB ATA VBOX HARDDISK
sda
Unknown
Preserve
Free space
10 GiB
Preserve
Delete
Shrink
Delete all
1 disk; 10 GiB reclaimable space (in file systems)
Total selected space to reclaim: 0
Installation requires a total of 7.55 GiB for system data.
Cancel
Reclaim space
Right Ctrl

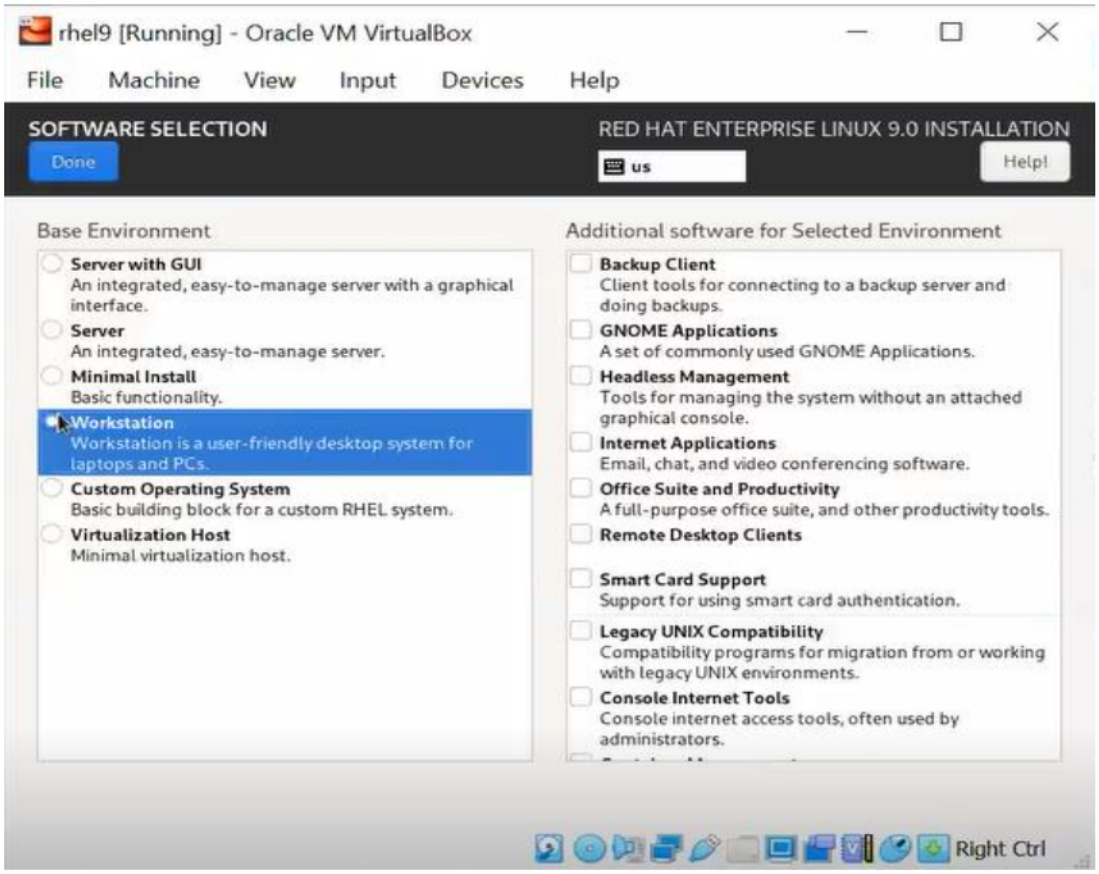
- Login to OS, we need an account- Admin account – in Linux the name is Root – with unlimited power



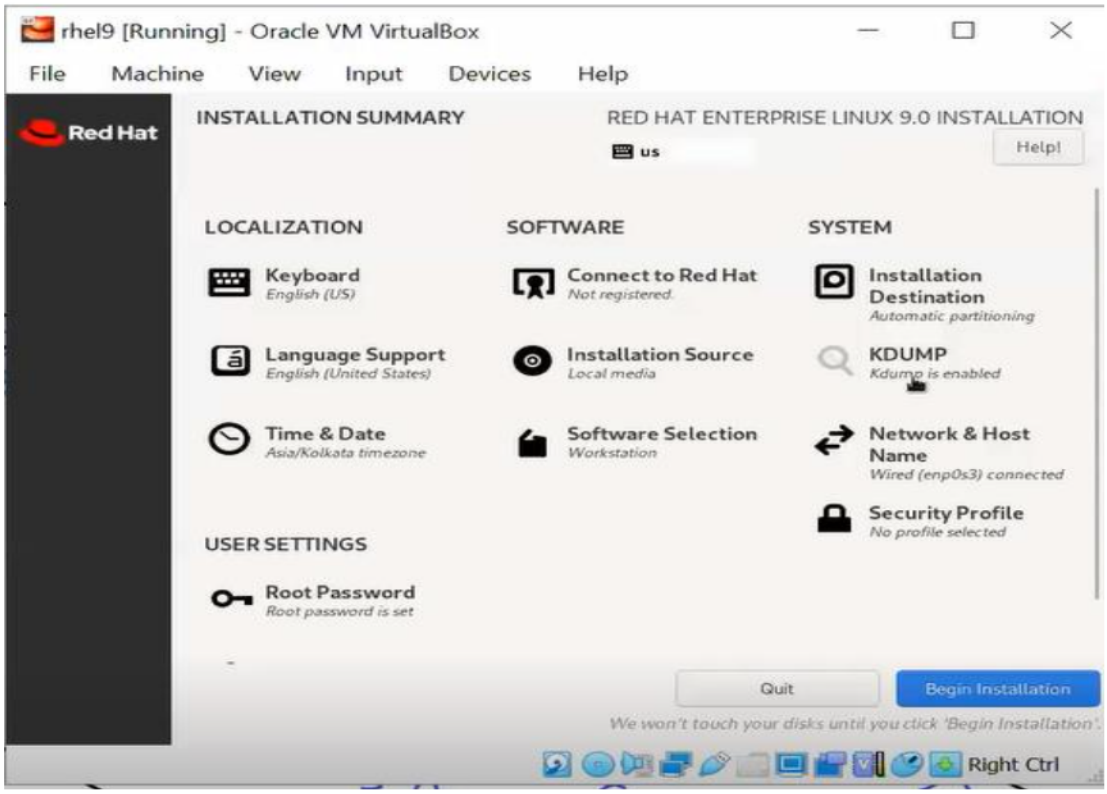


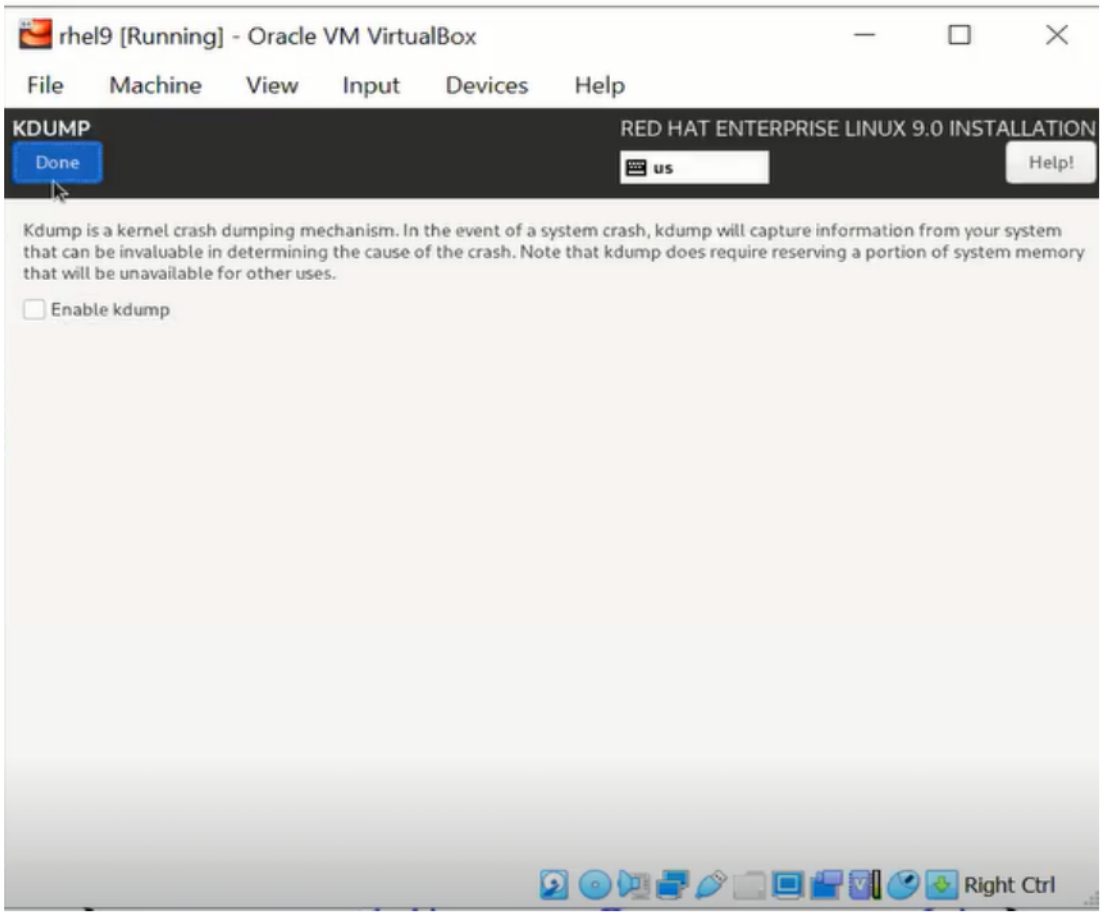
- Click on software selection

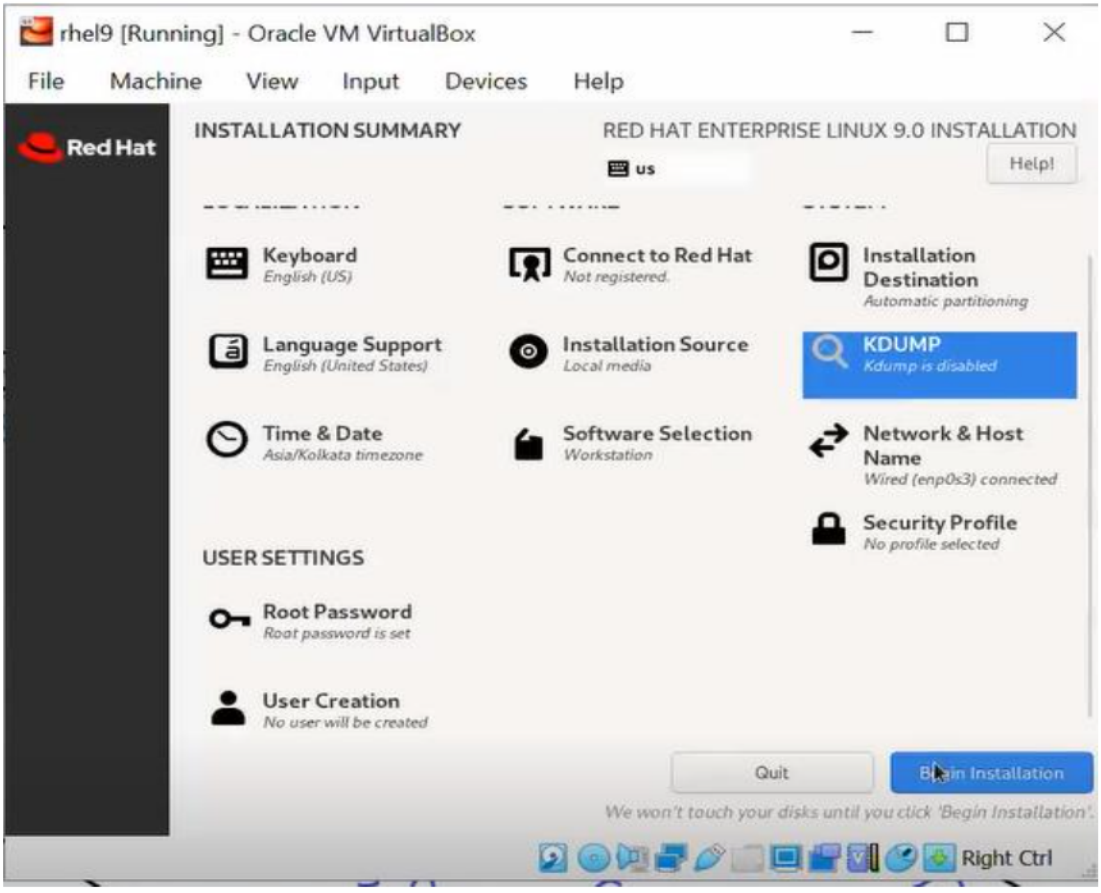


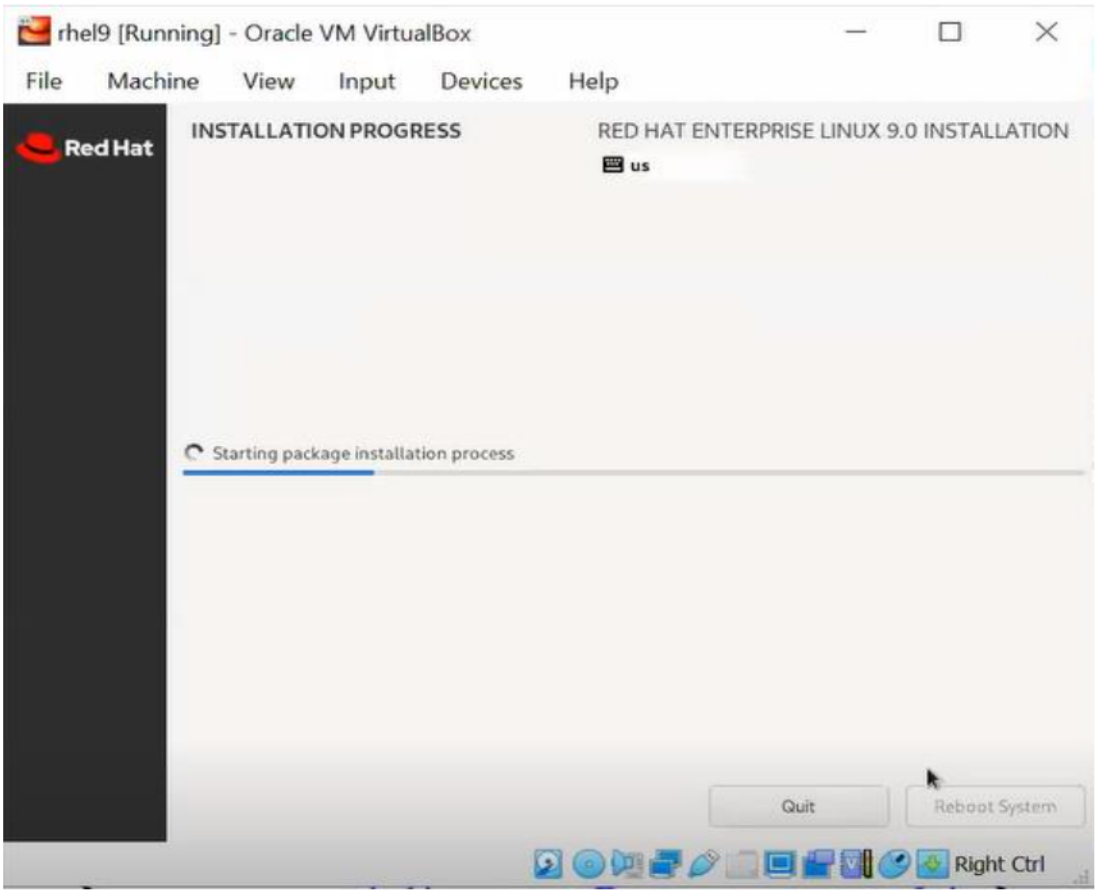


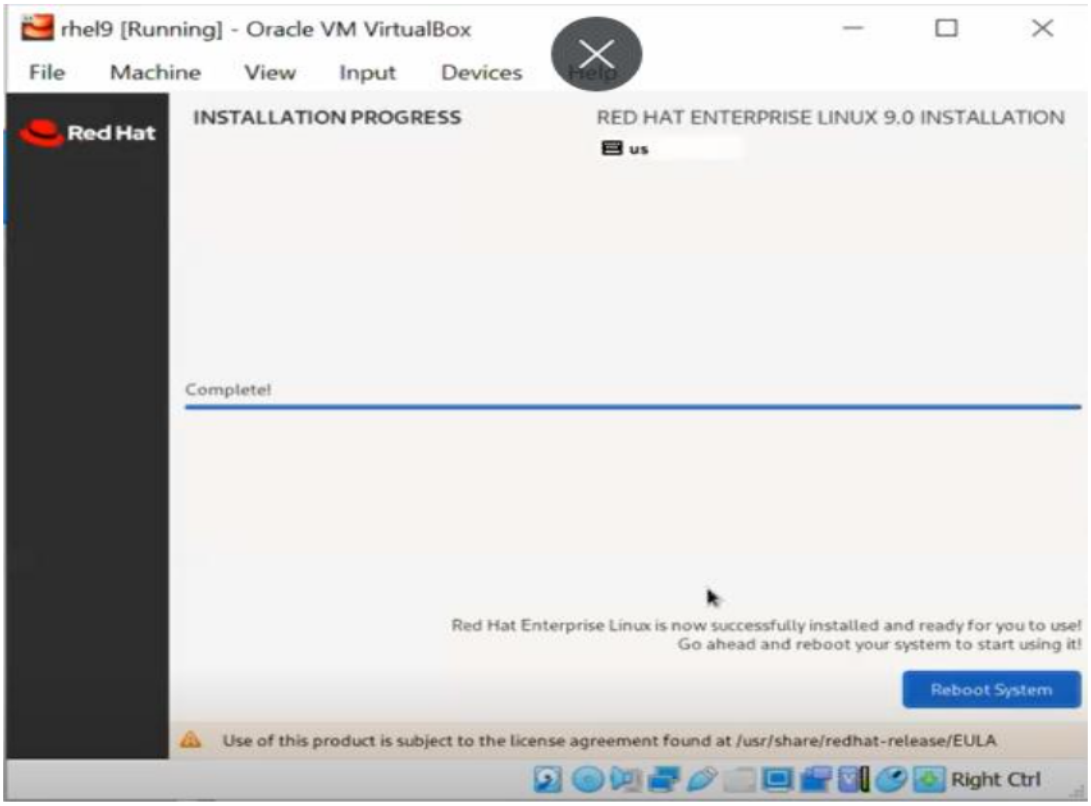
- Click on KDUMP – to save some of the memory space

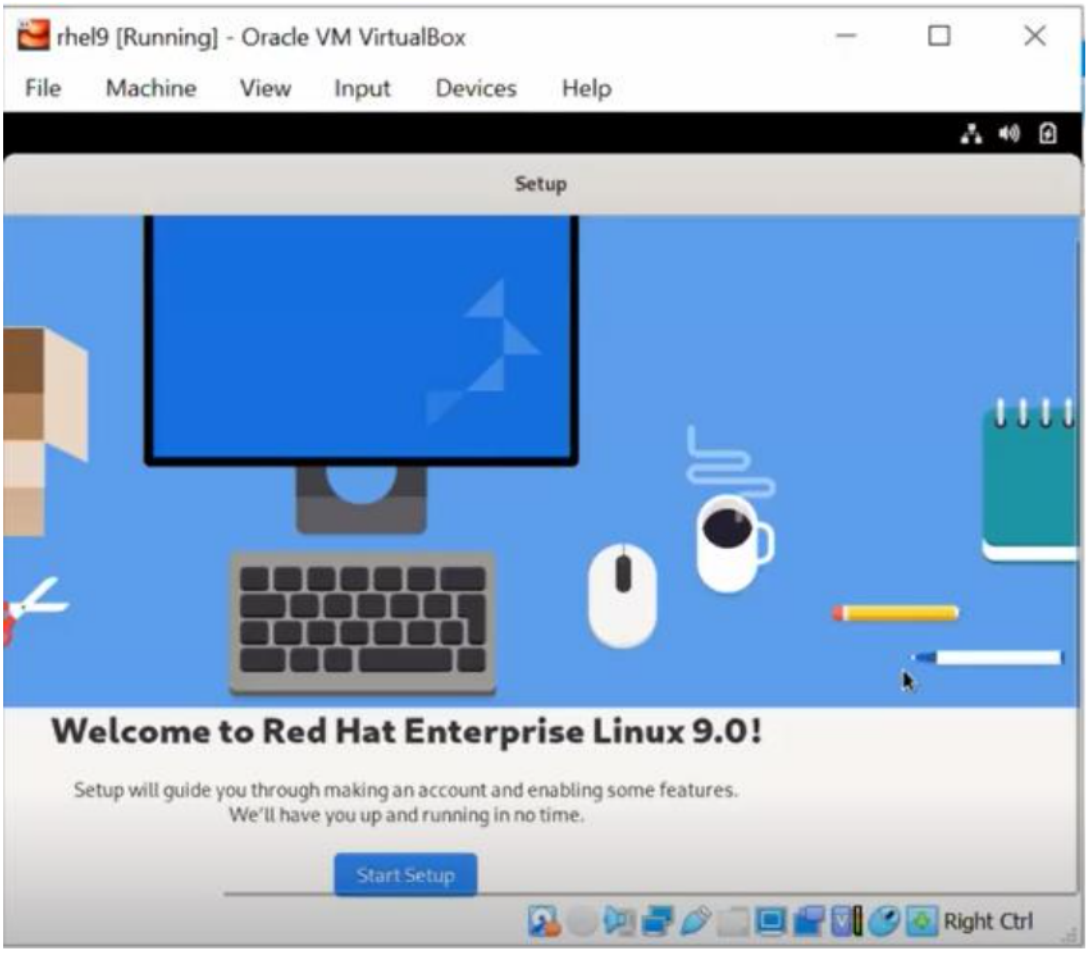


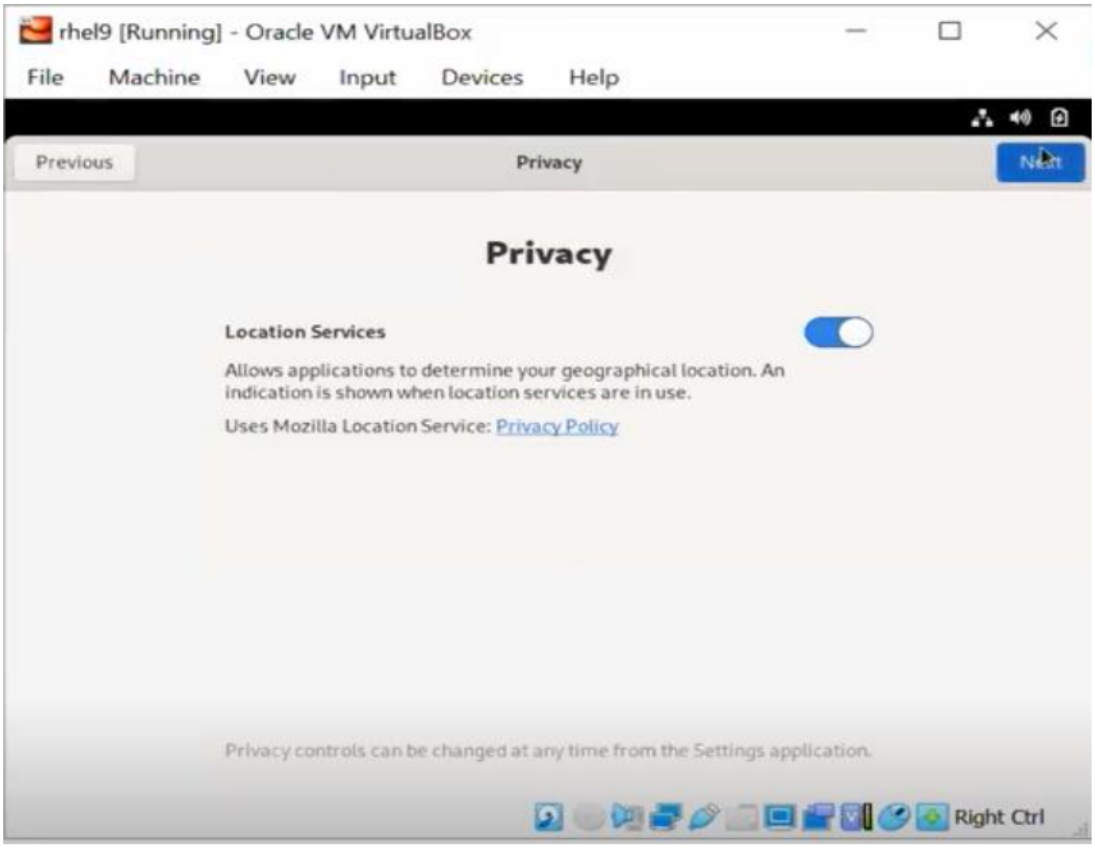


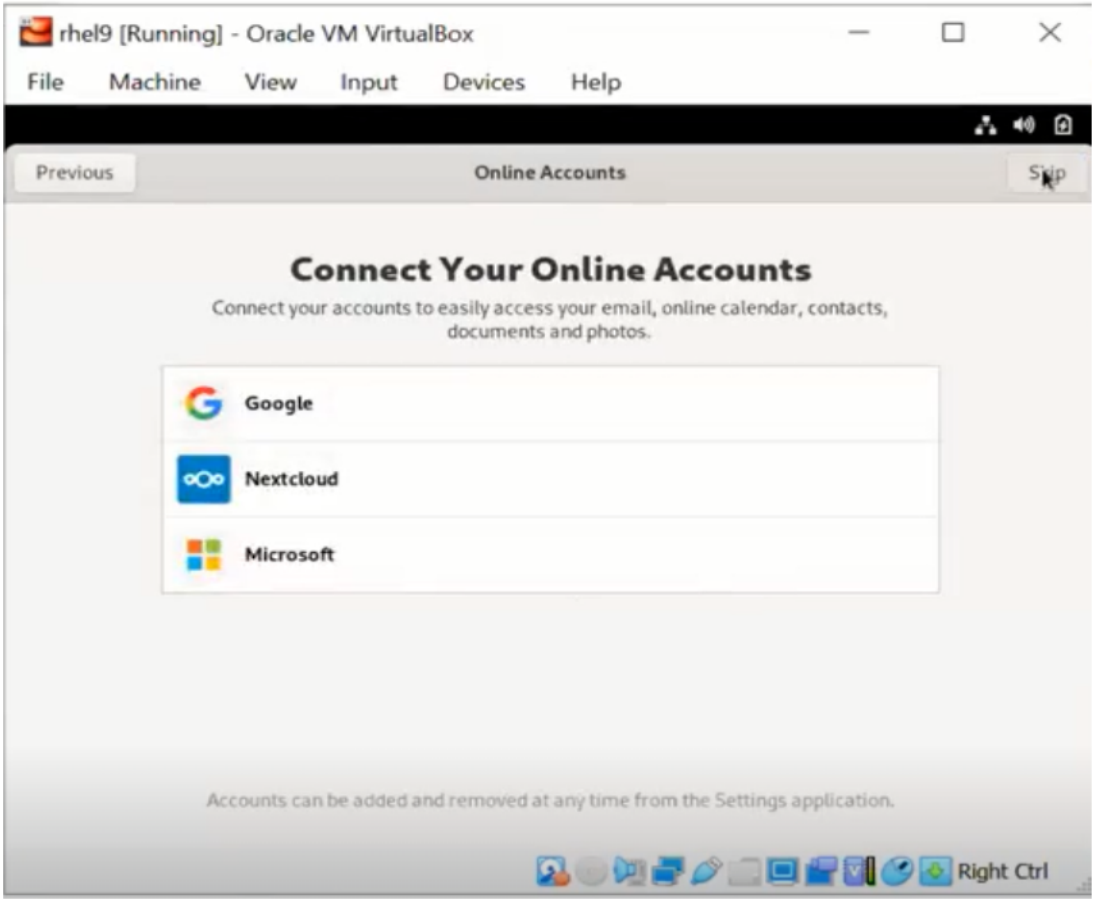

rhel9 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Red Hat
INSTALLATION SUMMARY
RED HAT ENTERPRISE LINUX 9.0 INSTALLATION
us
Help!
Keyboard
English (US)
Connect to Red Hat
Not registered.
Installation Destination
Automatic partitioning
Language Support
English (United States)
Installation Source
Local media
KDUMP
Kdump is disabled
Time & Date
Asia/Kolkata timezone
Software Selection
Workstation
Network & Host Name
Wired (enp0s3) connected
Security Profile
No profile selected
USER SETTINGS
Root Password
Root password is set
User Creation
No user will be created
Quit
Begin Installation
We won't touch your disks until you click 'Begin Installation'.
Right Ctrl

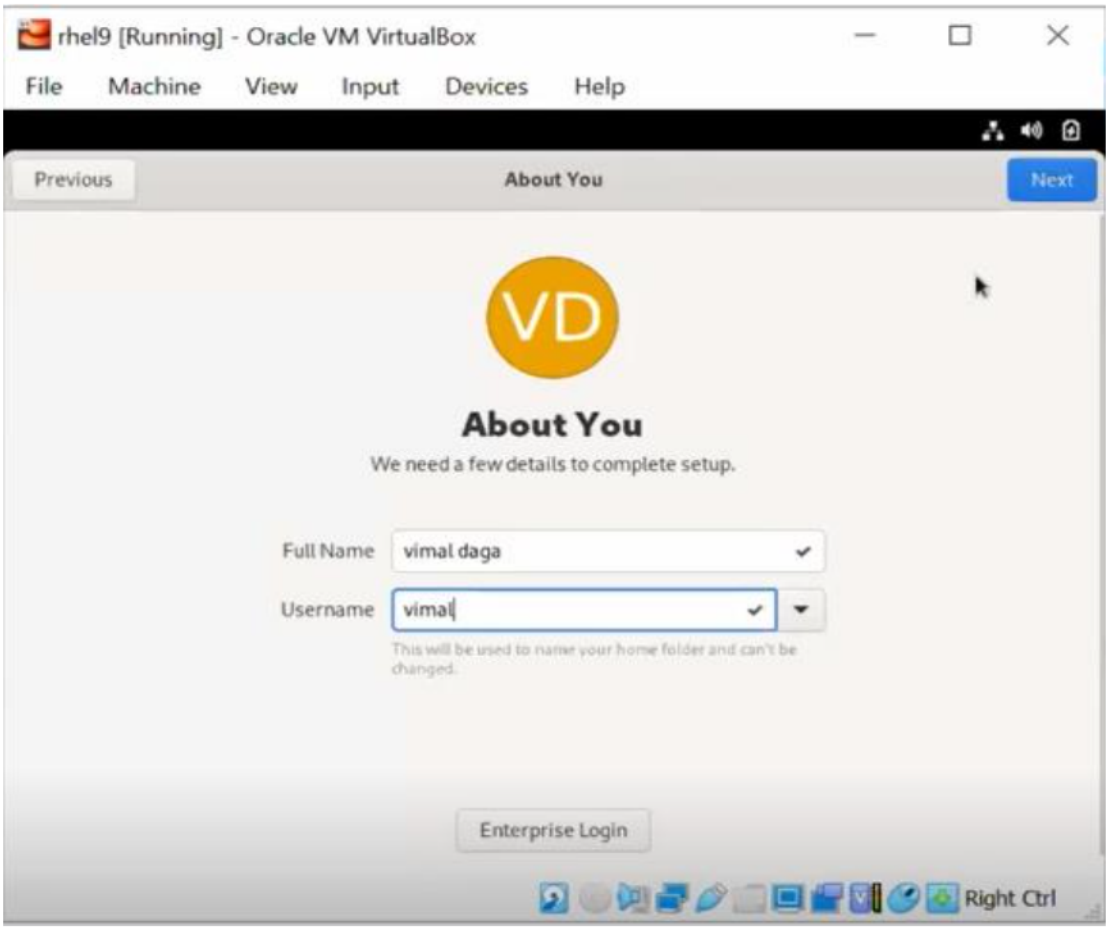

rhel9 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Red Hat
INSTALLATION PROGRESS
RED HAT ENTERPRISE LINUX 9.0 INSTALLATION
us
Starting package installation process
Quit
Reboot System
Right Ctrl

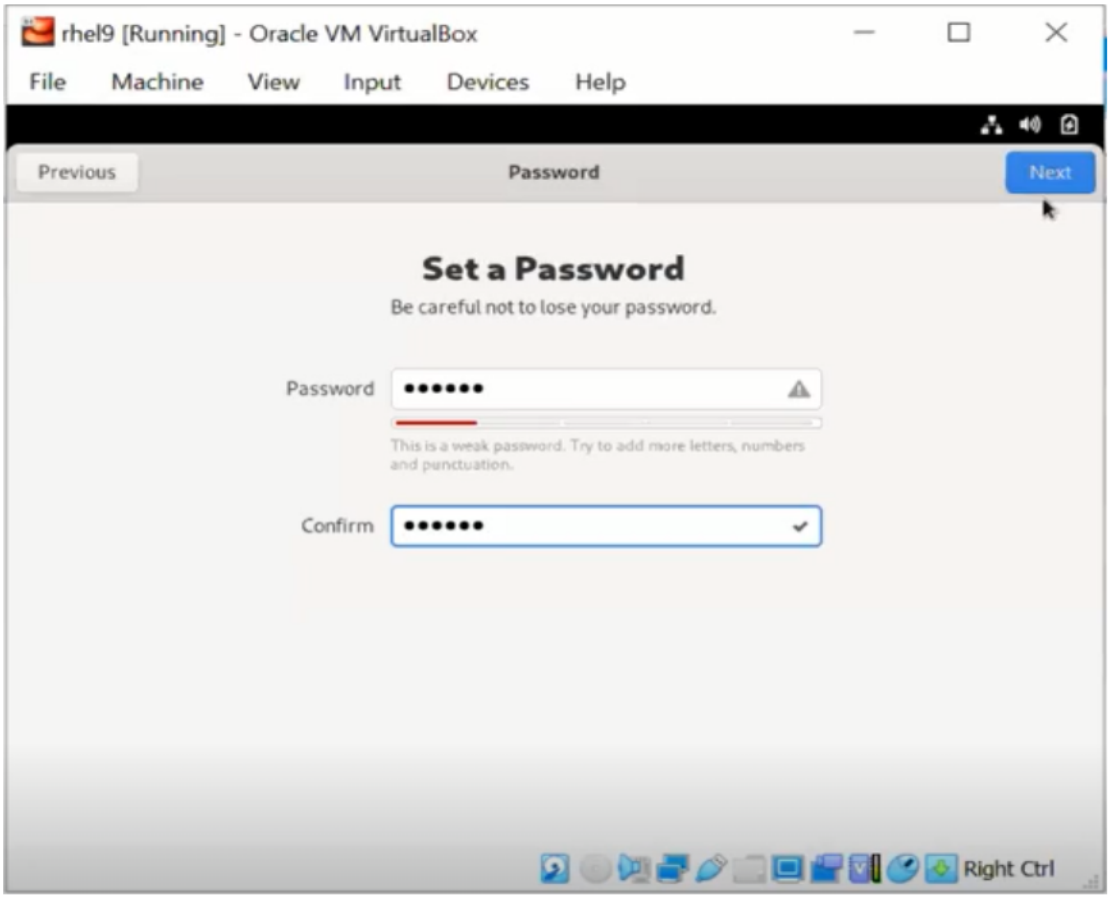

rhel9 [Running] - Oracle VM VirtualBox
File
Machine
View
Input
Devices
Help
Red Hat
INSTALLATION PROGRESS
RED HAT ENTERPRISE LINUX 9.0 INSTALLATION
us
Complete!
Red Hat Enterprise Linux is now successfully installed and ready for you to use!
Go ahead and reboot your system to start using it!
Reboot System
Use of this product is subject to the license agreement found at /usr/share/redhat-release/EULA
Right Ctrl

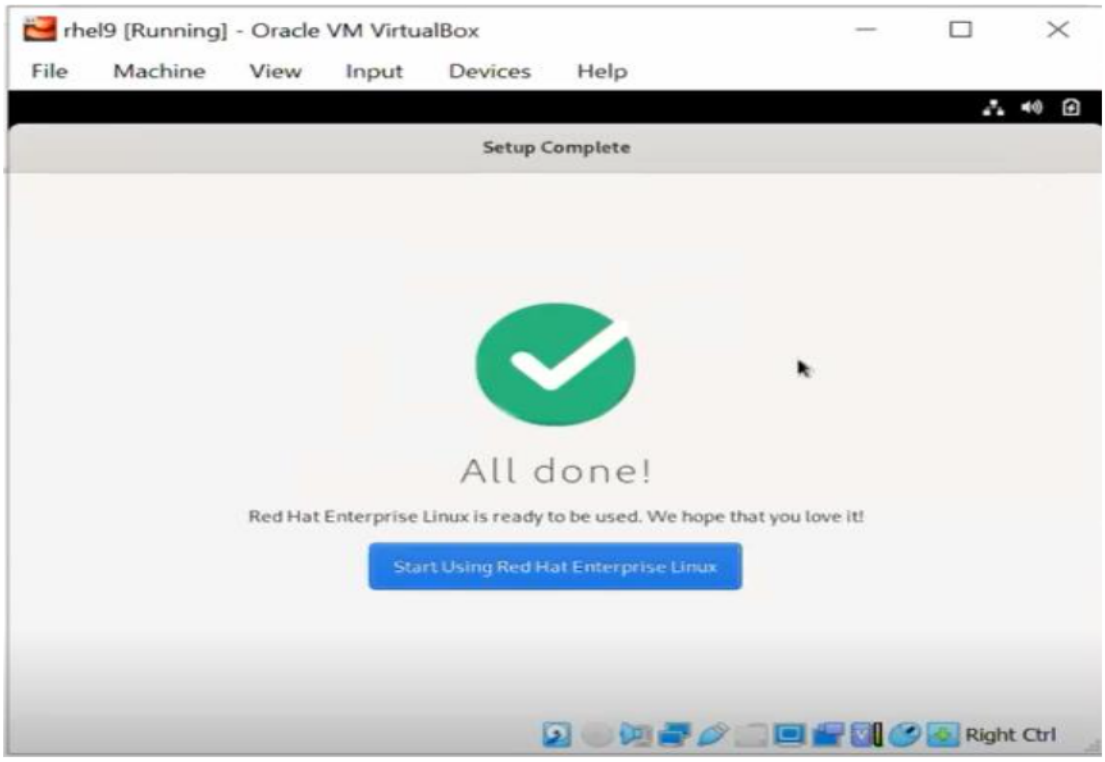

rhel9 [Running] - Oracle VM VirtualBox
File
Machine
View
Input
Devices
Help
Setup
Welcome to Red Hat Enterprise Linux 9.0!
Setup will guide you through making an account and enabling some features.
We'll have you up and running in no time.
Start Setup
Right Ctrl


rhel9 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Previous
Privacy
Next
Privacy
Location Services
Allows applications to determine your geographical location. An indication is shown when location services are in use.
Uses Mozilla Location Service: Privacy Policy
Privacy controls can be changed at any time from the Settings application.
Right Ctrl

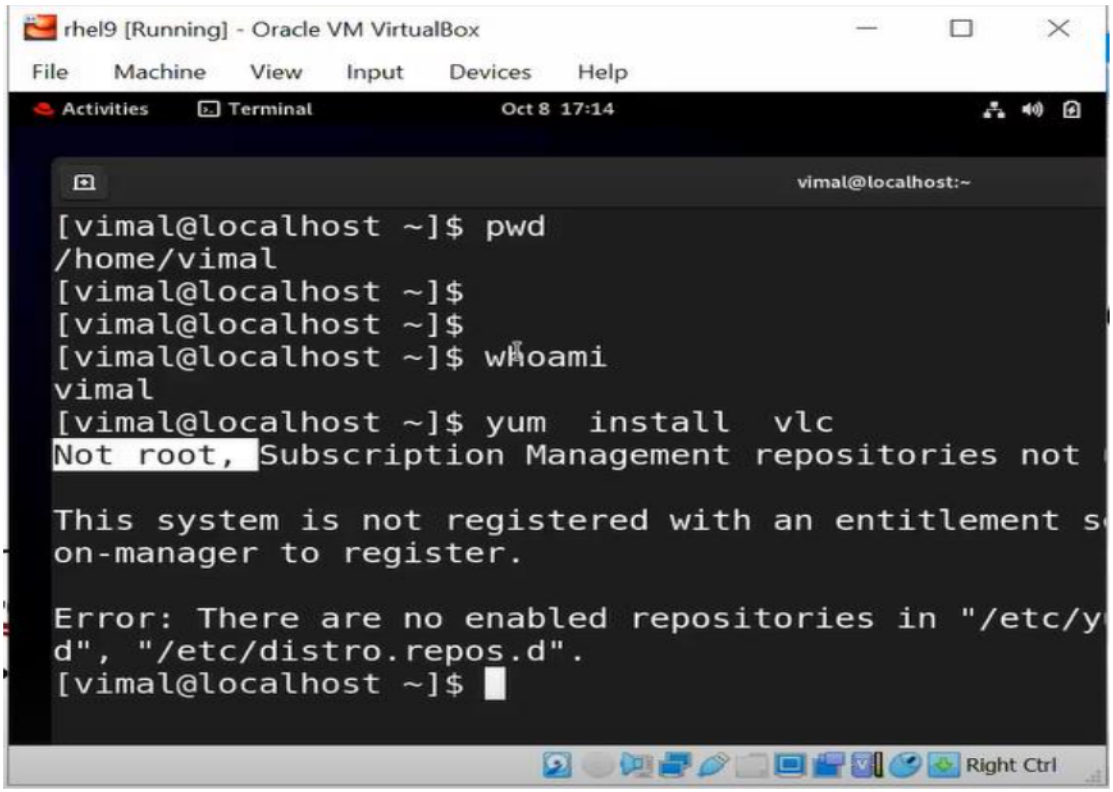

rhel9 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Previous
Online Accounts
Skip
Connect Your Online Accounts
Connect your accounts to easily access your email, online calendar, contacts, documents and photos.
Google
Nextcloud
Microsoft
Accounts can be added and removed at any time from the Settings application.
Right Ctrl


rhel9 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Previous
About You
Next
VD
About You
We need a few details to complete setup.
Full Name
vimal daga
Username
vimal
This will be used to name your home folder and can't be changed.
Enterprise Login
Right Ctrl

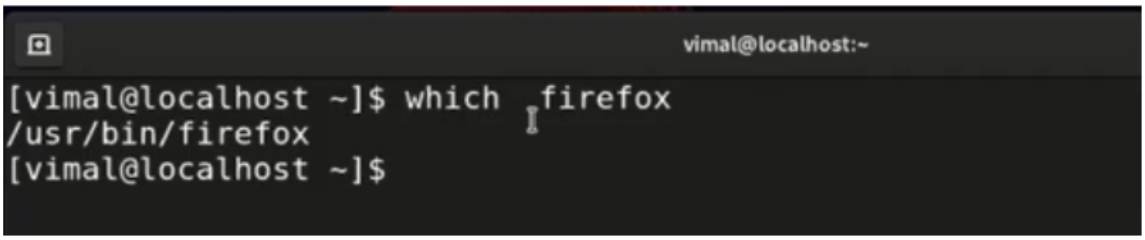

rhel9 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Previous
Password
Next
Set a Password
Be careful not to lose your password.
Password
This is a weak password. Try to add more letters, numbers and punctuation.
Confirm
Right Ctrl



- In Linux the users are
  - Root users – unlimited power
  - Non Root users – limited power
- As Non Root user – we cannot install software or add users



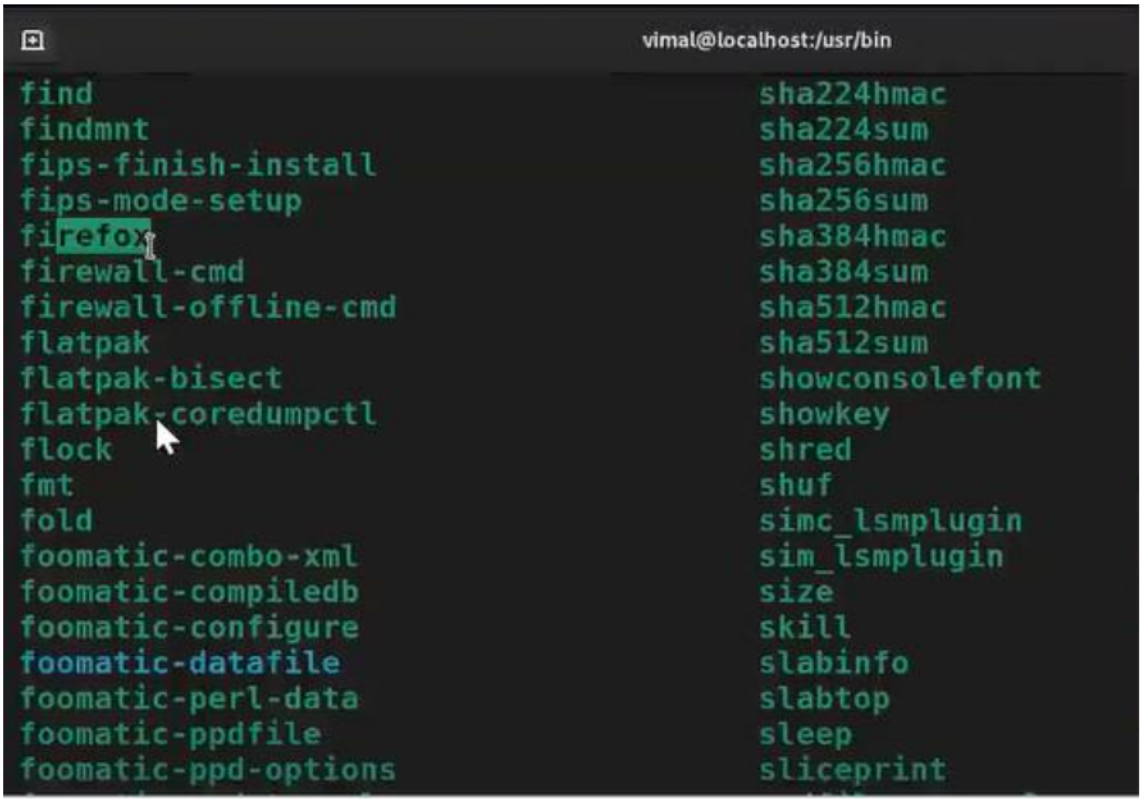
- Command to find the location of a program



- Command to change the directory

- Command to see the present working directory

- Command to list the files



- Command to open the file

```
vimal@localhost:/usr/bin
[vimal@localhost bin]$ gedit  firefox
```

firefox [Read-Only]
/usr/bin

```
57              echo "        $SECONDARY_LIB_DIR/firefox/$MOZ_FIREFOX_FILE not found"
58          fi
59          exit 1
60      fi
61      MOZ_LIB_DIR="$SECONDARY_LIB_DIR"
62  fi
63  MOZ_DIST_BIN="$MOZ_LIB_DIR/firefox"
64  MOZ_LANGPACKS_DIR="$MOZ_DIST_BIN/langpacks"
65  MOZ_EXTENSIONS_PROFILE_DIR="$HOME/.mozilla/extensions/{ec8030f7-
    c20a-464f-9b0e-13a3a9e97384}"
66  MOZ_PROGRAM="$MOZ_DIST_BIN/$MOZ_FIREFOX_FILE"
67  MOZ_LAUNCHER="$MOZ_DIST_BIN/run-mozilla.sh"
68
69  ##
70  ## Set MOZ_GRE_CONF
71  ##
72  MOZ_GRE_CONF=/etc/gre.d/gre.conf
73  if [ "$MOZ_LIB_DIR" == "/usr/lib64" ]; then
74    MOZ_GRE_CONF=/etc/gre.d/gre64.conf
75  fi
76  export MOZ_GRE_CONF
77
78  ##
79  ## Set MOZILLA_FIVE_HOME
80  ##
81  MOZILLA_FIVE_HOME="$MOZ_DIST_BIN"
82
```

sh Tab Width: 8 Ln 8, Col 14 INS

Right Ctrl

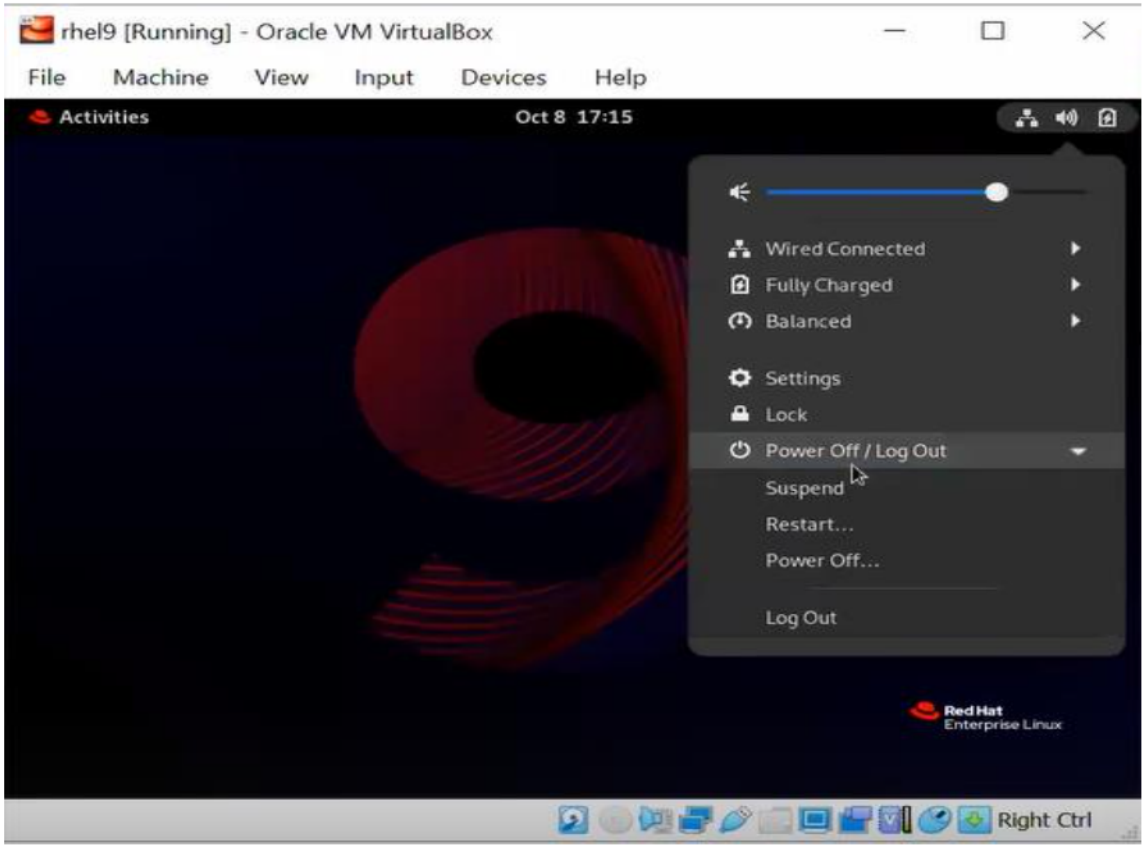
- The home directory of the user

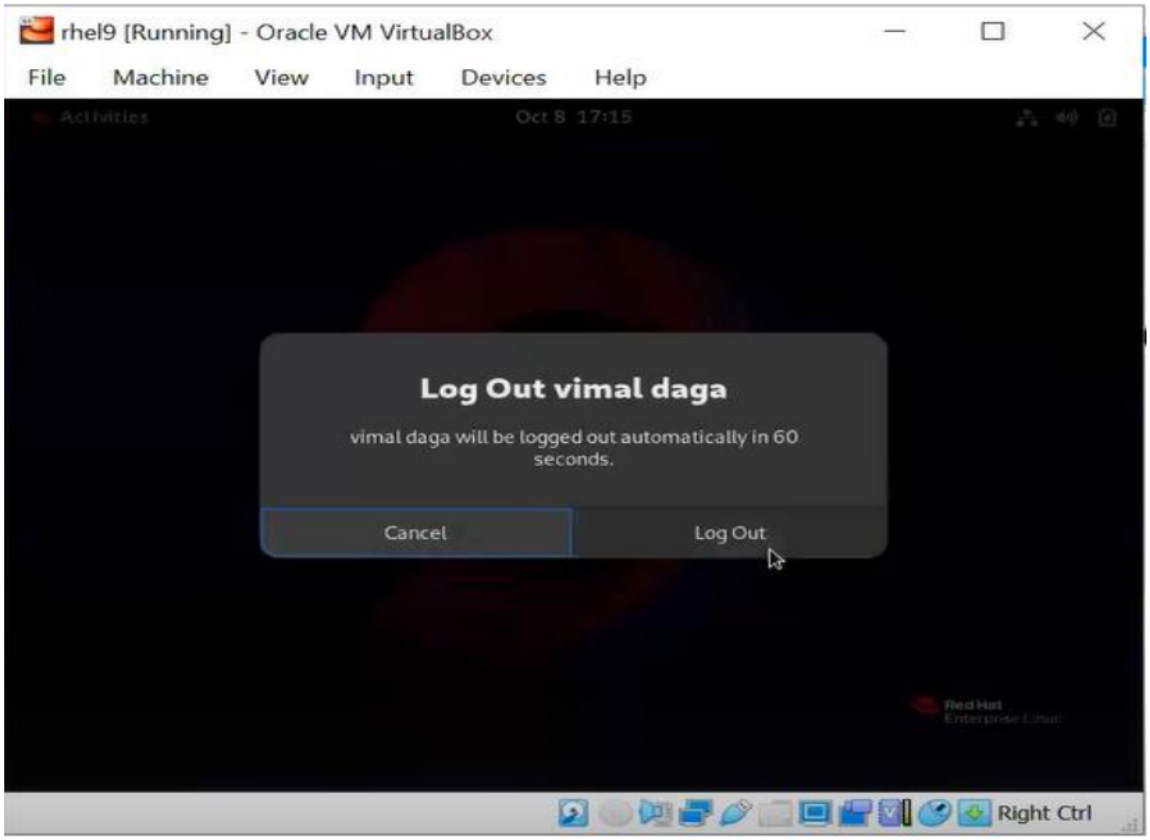
```
vimal@localhost:~
[vimal@localhost ~]$ pwd
/home/vimal
[vimal@localhost ~]$
```

- Command to check who has logged in

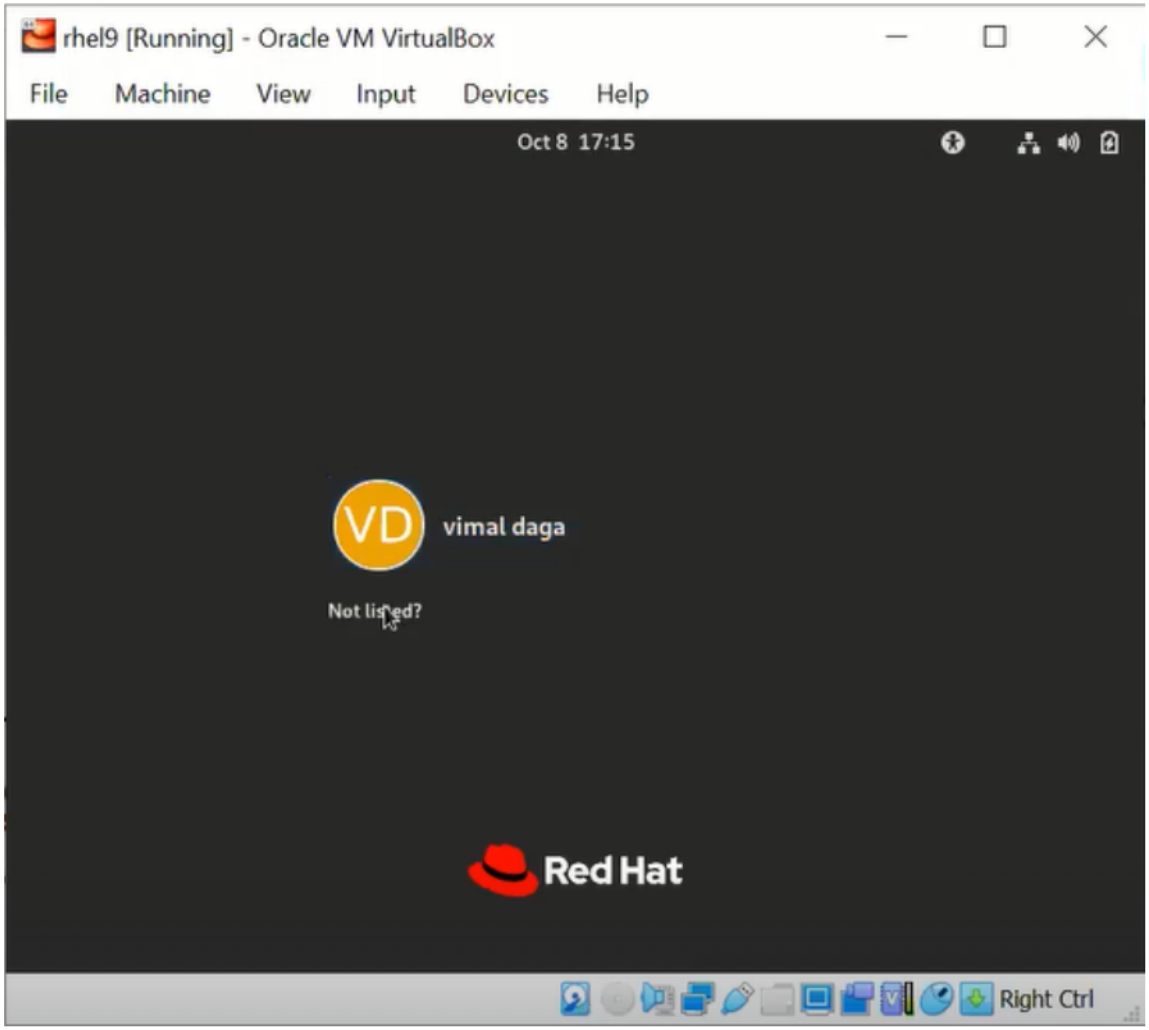
```
[vimal@localhost ~]$ whoami
vimal
[vimal@localhost ~]$
```

- From GUI – Logout





- Login as Root user -



- Command to create a new user

- Command to create a password

```
[root@localhost ~]# passwd   tom
Changing password for user tom.
New password:
BAD PASSWORD: The password is a palindrome
Retype new password:
passwd: all authentication tokens updated successfully.
[root@localhost ~]#
```

- Now RHEL9 is running inside the Oracle Virtual Box – two OS with one mouse
- Use the right side "ctrl" key to take the mouse out of Linux to Windows
- The three different ways to interact with OS
  - GUI (Graphical User Interface)
  - CLI (Command Line Interface)
  - WebUI (Web User Interface)
- In Linux we have multiuser facility – to switch between consoles or virtual terminals(VT's) – (left) ctrl + Alt + F
- The function key F2 is for GUI and F3 to F6 are for CLI
- Command to see the terminal number

```
[root@localhost ~]# tty
/dev/tty6
[root@localhost ~]#
[root@localhost ~]#
```

- Command to go to a particular terminal

```
[root@localhost ~]#
[root@localhost ~]# chvt   3
```

- Command to check who has logged in at what time and which terminal

```
[root@localhost ~]# who
root     tty2         2022-10-08 17:15 (tty2)
tom      tty3         2022-10-08 17:21
vimal    tty4         2022-10-08 17:21
root     tty6         2022-10-08 17:25
[root@localhost ~]#
```

- Command to see only the month

```
[root@localhost ~]# date    +%h
Oct
```

- Command to refer the manual

```
[root@localhost ~]# man  date
```

```
DATE(1)                    User Commands                    DATE(1)

NAME
       date - print or set the system date and time

SYNOPSIS
       date [OPTION]... [+FORMAT]
       date [-u|--utc|--universal] [MMDDhhmm[[CC]YY][.ss]]

DESCRIPTION
       Display  the current time in the given FORMAT, or set the sys-
       tem date.

       Mandatory arguments to long options are  mandatory  for  short
       options too.

       -d, --date=STRING
              display time described by STRING, not 'now'

       --debug
              annotate  the  parsed date, and warn about questionable
              usage to stderr
```