EXPERIMENT NO.:03

Title: Installing two Virtual Machines on VirtualBox and let them communicate with each other

Solution:

1. **Virtualization:**

Virtualization is technology that lets you create useful IT services using resources that are traditionally bound to hardware. It allows you to use a physical machine's full capacity by distributing its capabilities among many users or environments.

Type of Virtualizations:

- Data Virtualization
- Desktop Virtualization
- Server Virtualization
- Operating System Virtualization
- Networks Functions Virtualization

2. **Virtual Machine:**

A virtual machine (VM) is a virtual environment that functions as a virtual computer system with its own CPU, memory, network interface, and storage, created on a physical hardware system (located off- or on-premises). Software called a hypervisor separates the machine's resources from the hardware and provisions them appropriately so they can be used by the VM.

How do virtual machines work?

The virtual machine runs as a process in an application window, similar to any other application, on the operating system of the physical machine. Key files that make up a virtual machine include a log file, NVRAM setting file, virtual disk file and configuration file.

Advantages of virtual machines

Virtual machines are easy to manage and maintain, and they offer several advantages over physical machines:

- VMs can run multiple operating system environments on a single physical computer, saving physical space, time and management costs.
- Virtual machines support legacy applications, reducing the cost of migrating to a new operating system. For example, a Linux virtual machine running a distribution of Linux as the guest operating system can exist on a host server that is running a non-Linux operating system, such as Windows.
- VMs can also provide integrated disaster recovery and application provisioning options.

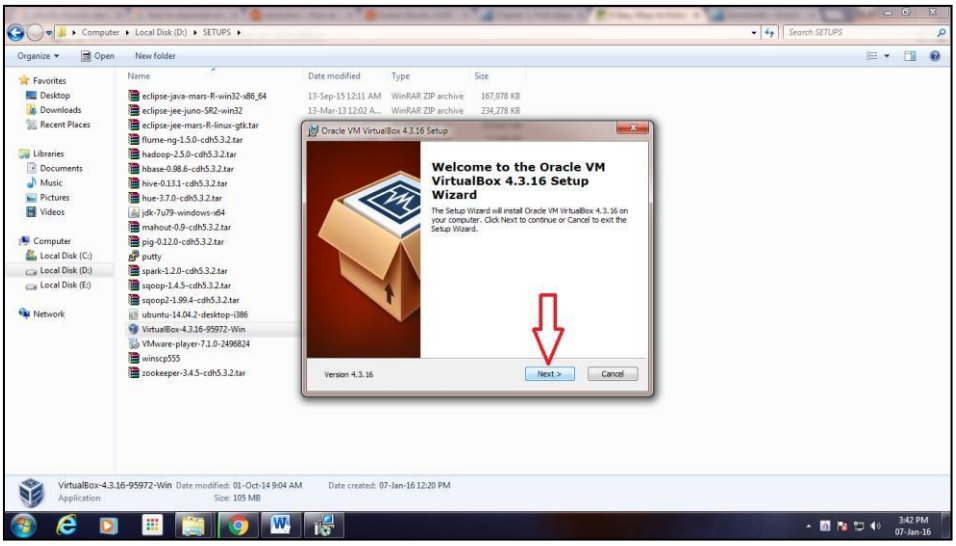
The two types of virtual machines

Users can choose from two different types of virtual machines—process VMs and system VMs:

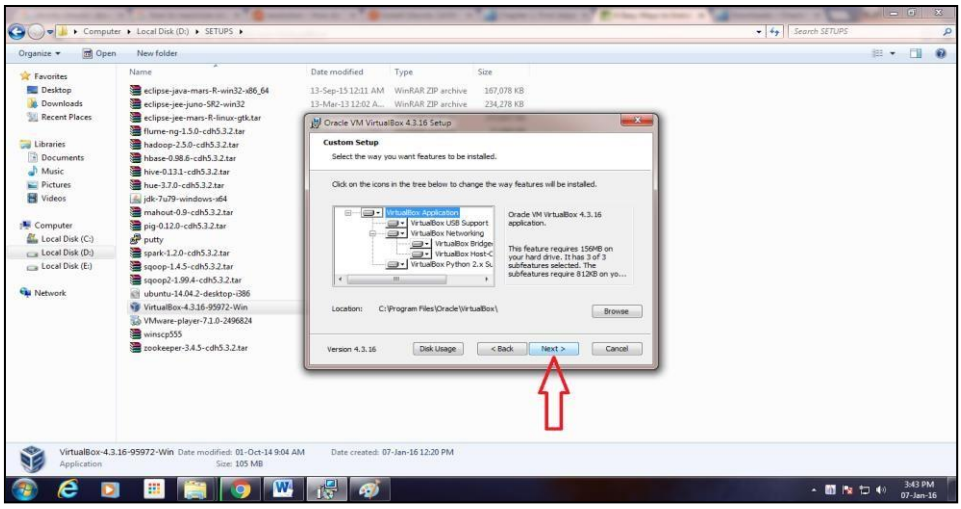
- **A process virtual machine** allows a single process to run as an application on a host machine, providing a platform-independent programming environment by masking the information of the underlying hardware or operating system. An example of a process VM is the Java Virtual Machine, which enables any operating system to run Java applications as if they were native to that system.
- **A system virtual machine** is fully virtualized to substitute for a physical machine. A system platform supports the sharing of a host computer's physical resources between multiple virtual machines, each running its own copy of the operating system. This virtualization process relies on a hypervisor, which can runon bare hardware, such as VMware ESXi, or on top of an operating system.

Step Of Installation of Virtual Machine:

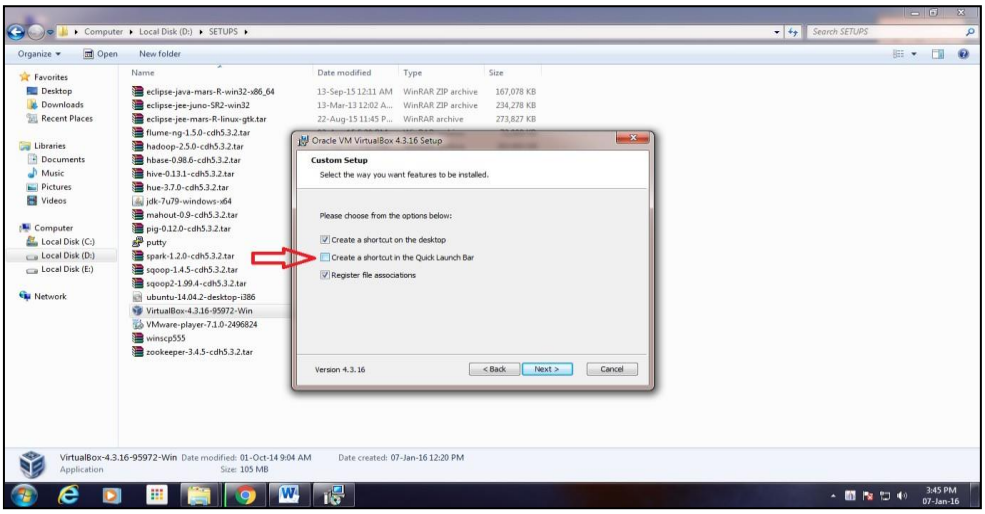
Step 1.



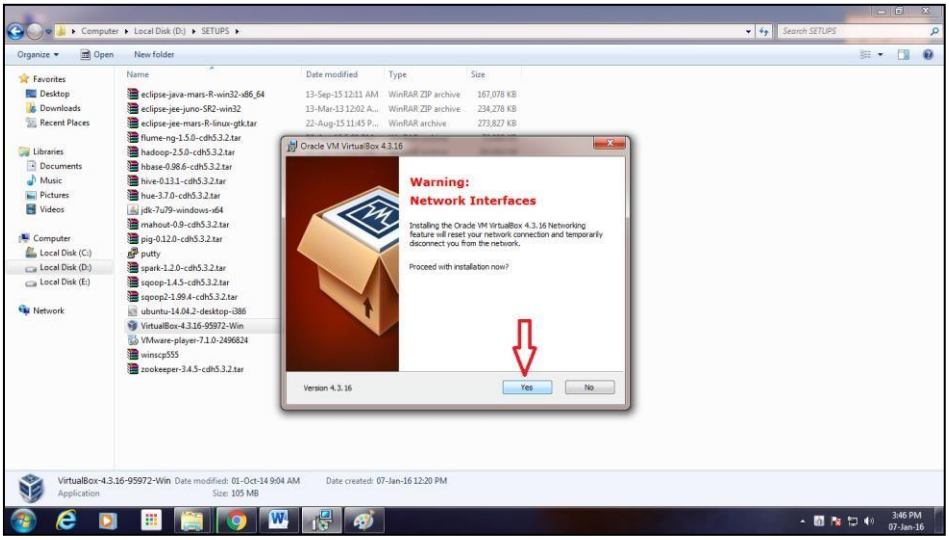
Step 2.



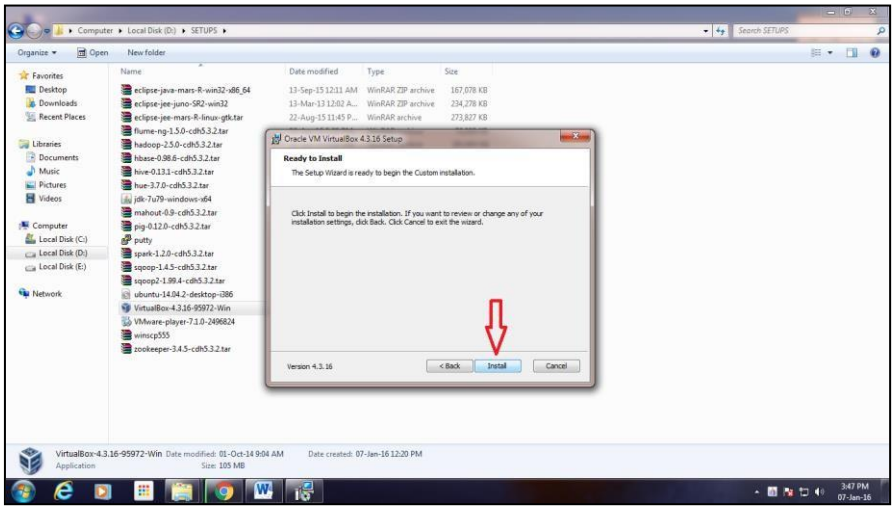
Step 3.


Oracle VM VirtualBox 4.3.16 Setup
Custom Setup
Select the way you want features to be installed.
Please choose from the options below:
Create a shortcut on the desktop
Create a shortcut in the Quick Launch Bar
Register file associations
Version 4.3.16
< Back
Next >
Cancel

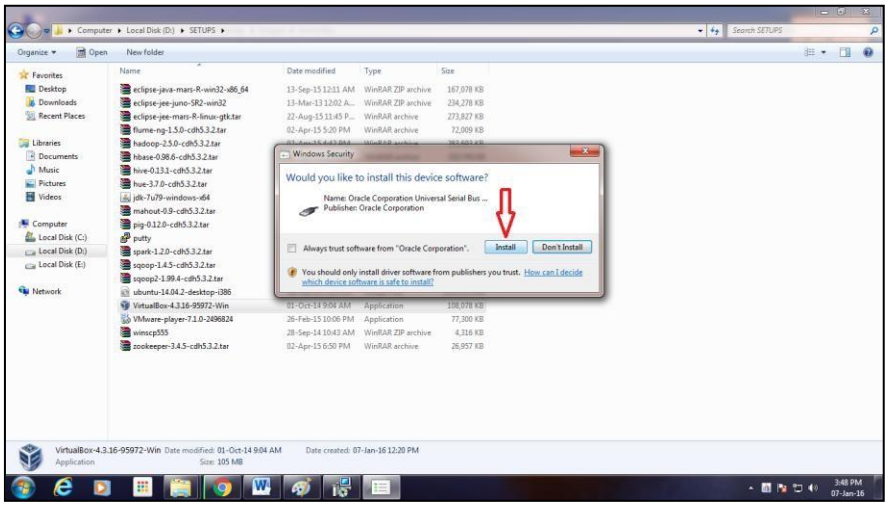
Step 4.


Oracle VM VirtualBox 4.3.16
Warning:
Network Interfaces
Installing the Oracle VM VirtualBox 4.3.16 Networking feature will reset your network connection and temporarily disconnect you from the network.
Proceed with installation now?
Version 4.3.16
Yes
No

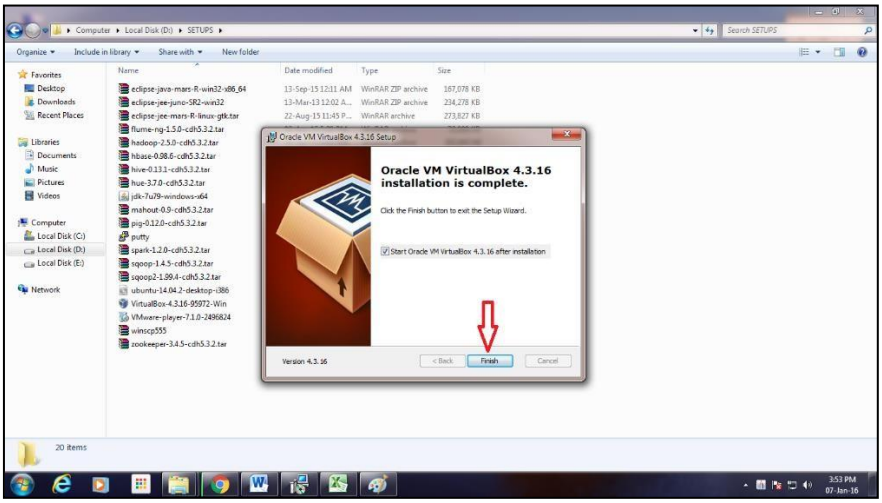
Step 5.


Oracle VM VirtualBox 4.3.16 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 4.3.16
< Back
Install
Cancel

Step 6.

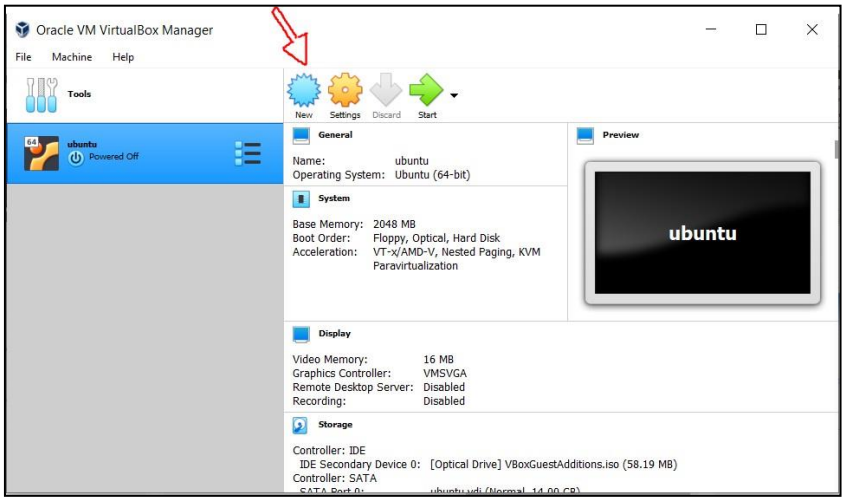

Windows Security
Would you like to install this device software?
Name: Oracle Corporation Universal Serial Bus ...
Publisher: Oracle Corporation
Always trust software from "Oracle Corporation".
Install
Don't Install
You should only install driver software from publishers you trust. How can I decide which device software is safe to install?

Step 7.

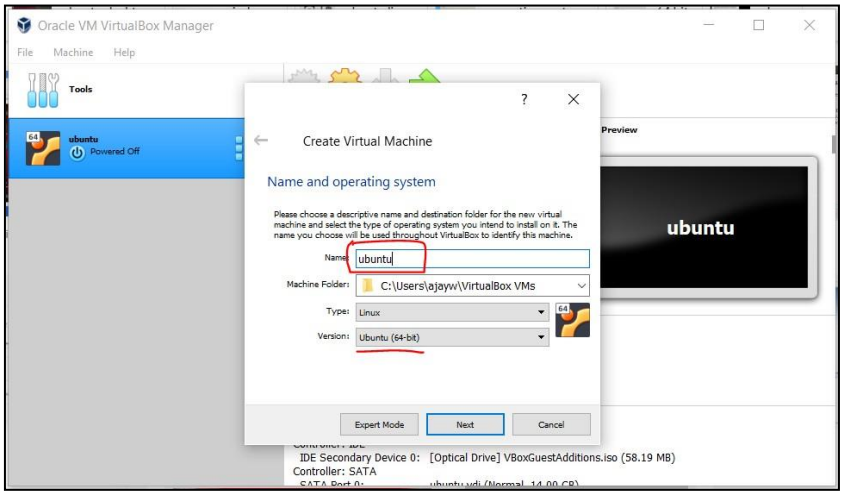


An ISO file is **an image file of a CD/DVD or other disc**. It contains all the files from the disc, neatly packed into a single. iso file. This allows users to burn new copies of the disc, or they can open the ISO file to browse and copy its contents to their system.

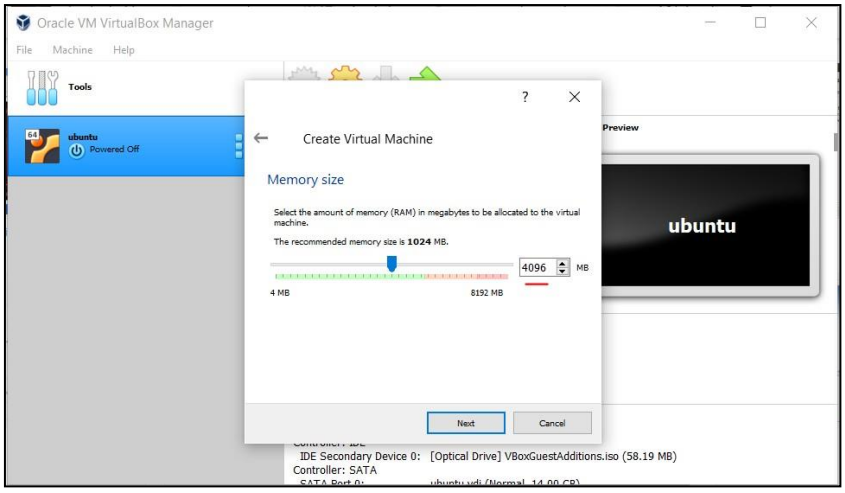
Step 8.



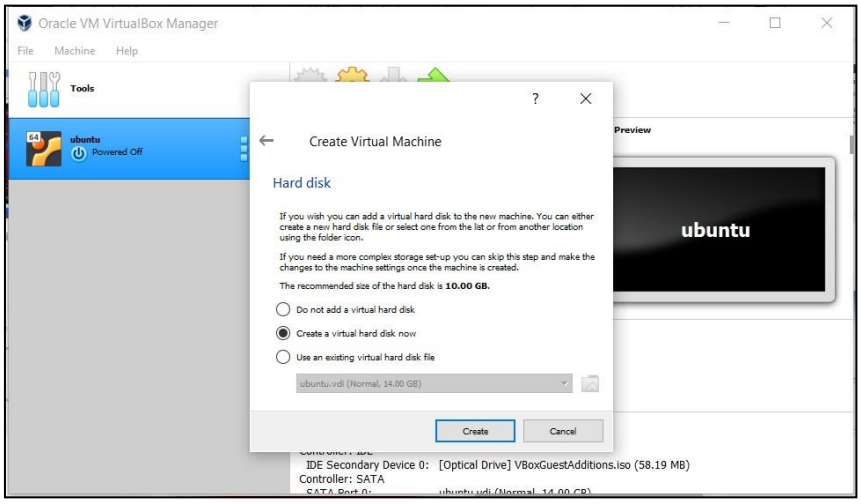
Step 9.



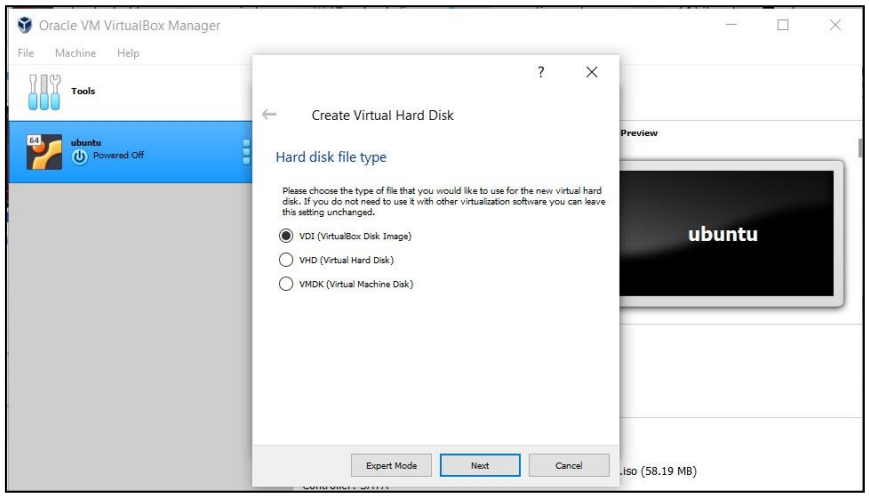
Step 10.



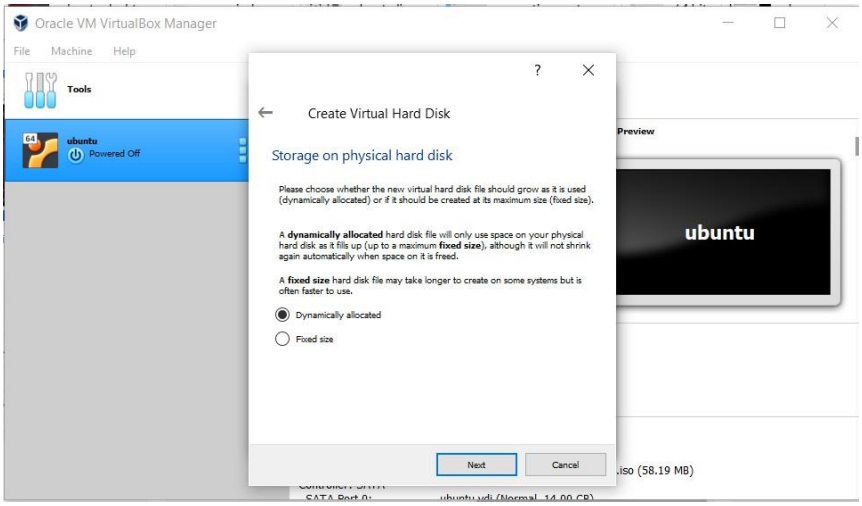
Step 11.



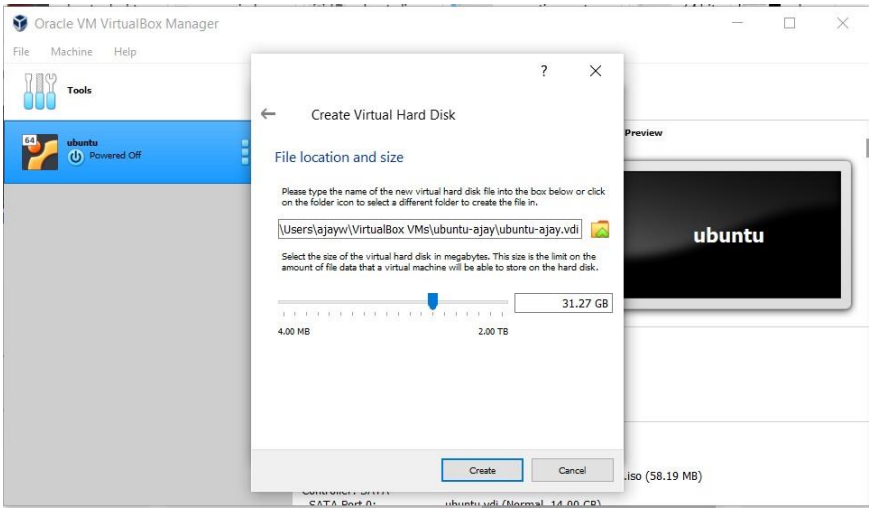
Step 12.



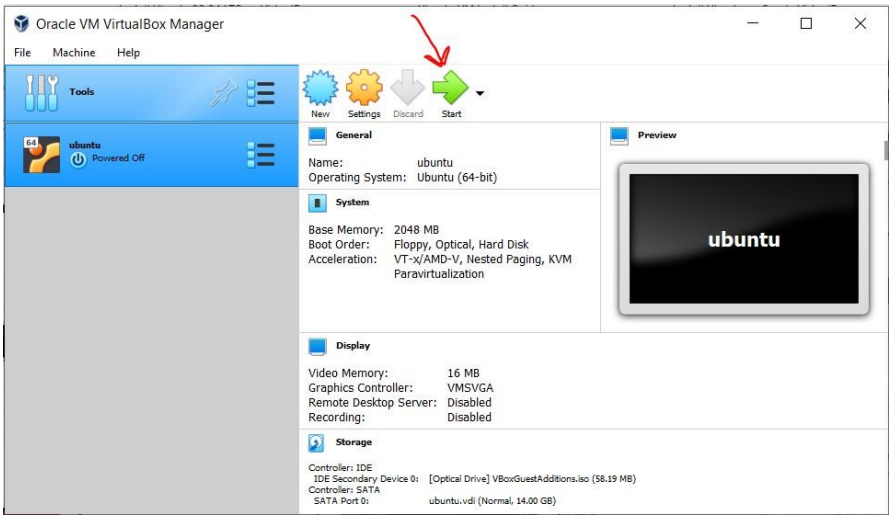
Step 13.



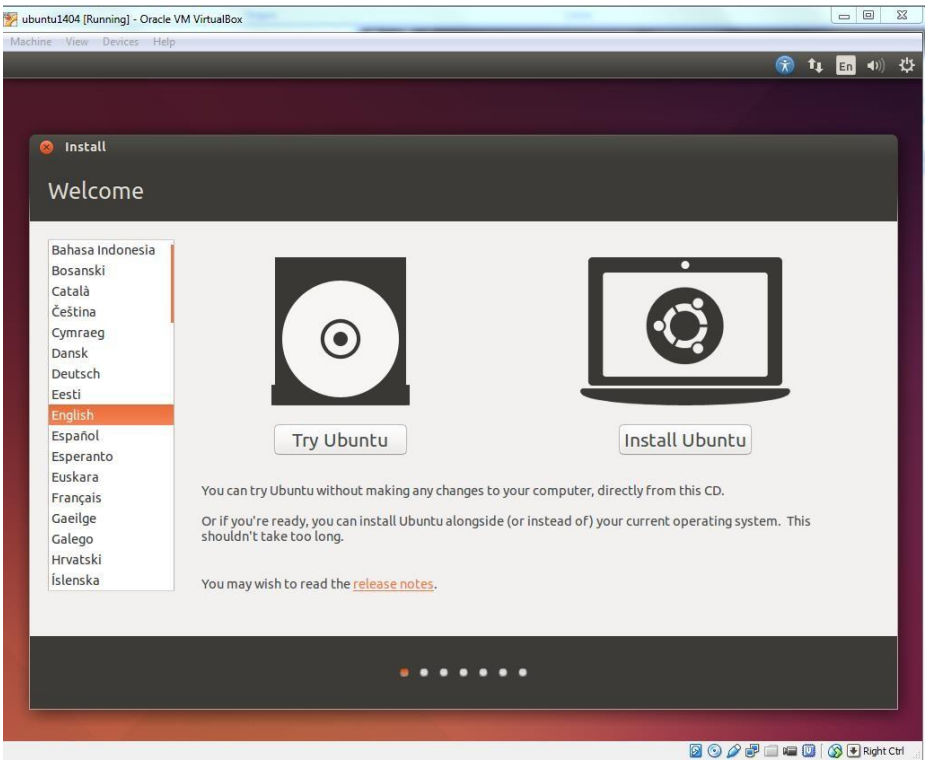
Step 14.



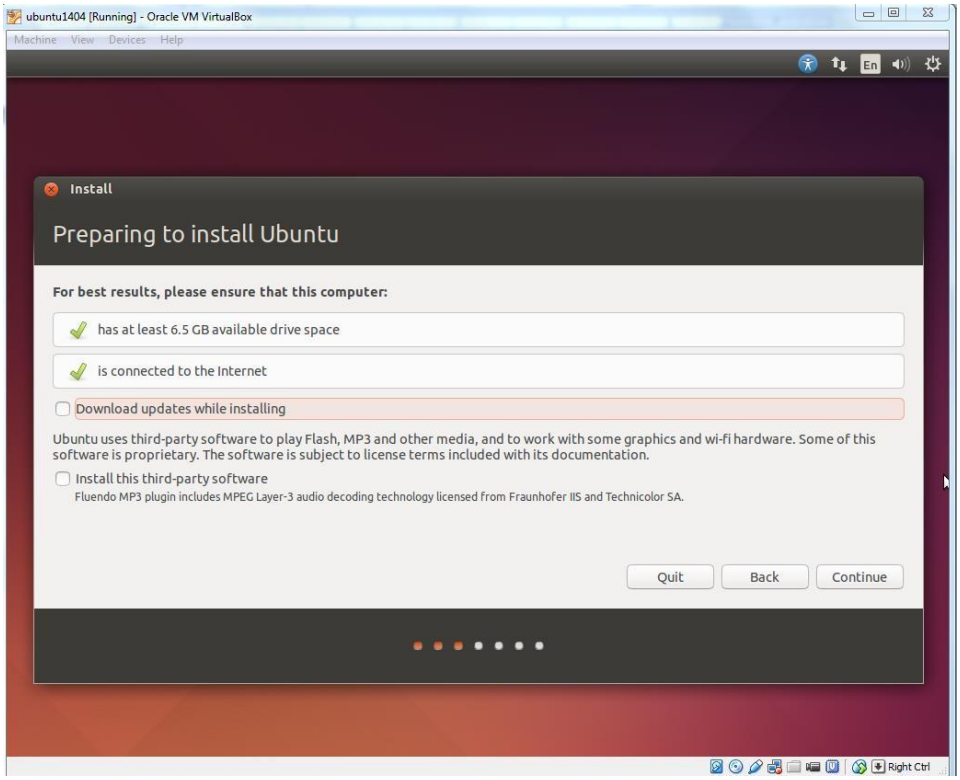
Step 15.



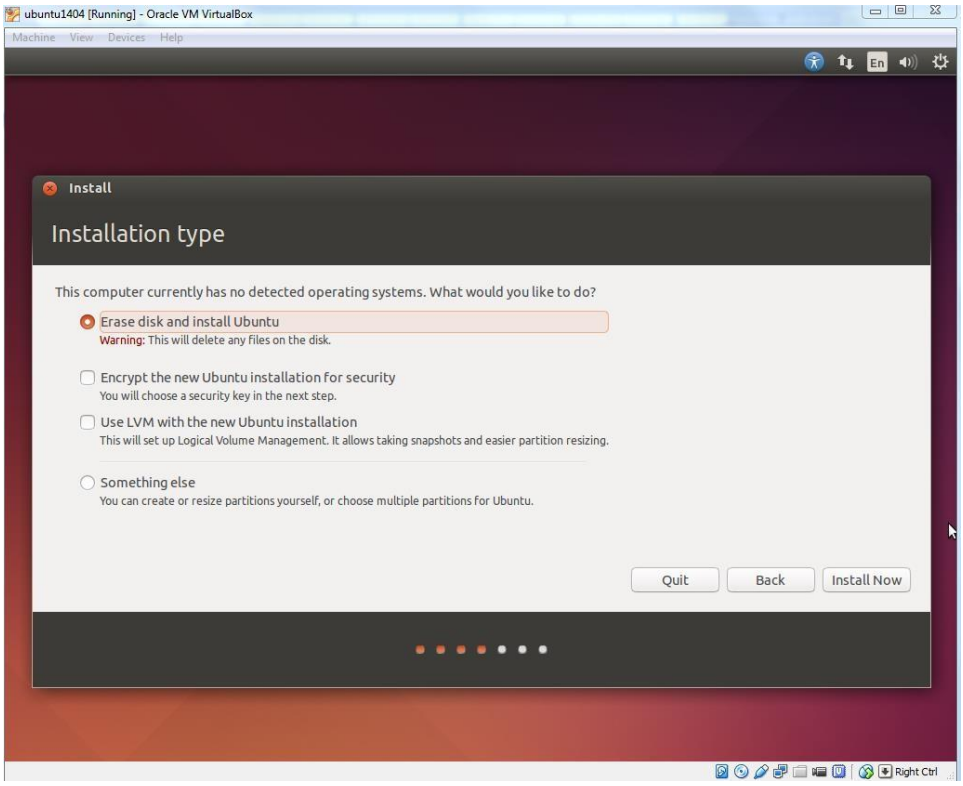
Step 16.



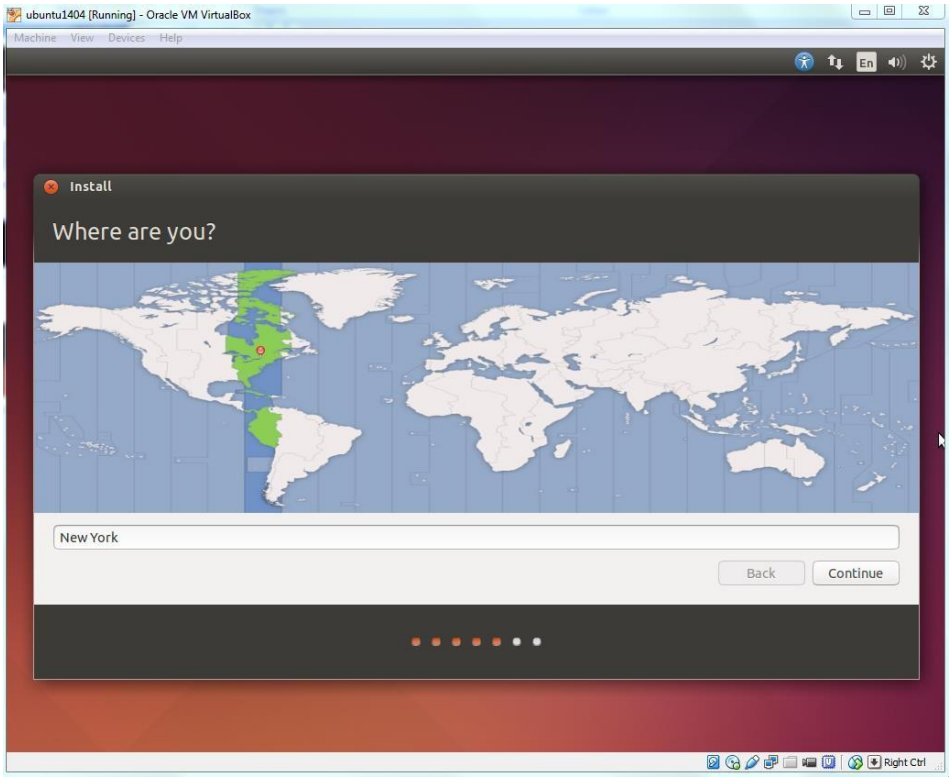
Step 17.



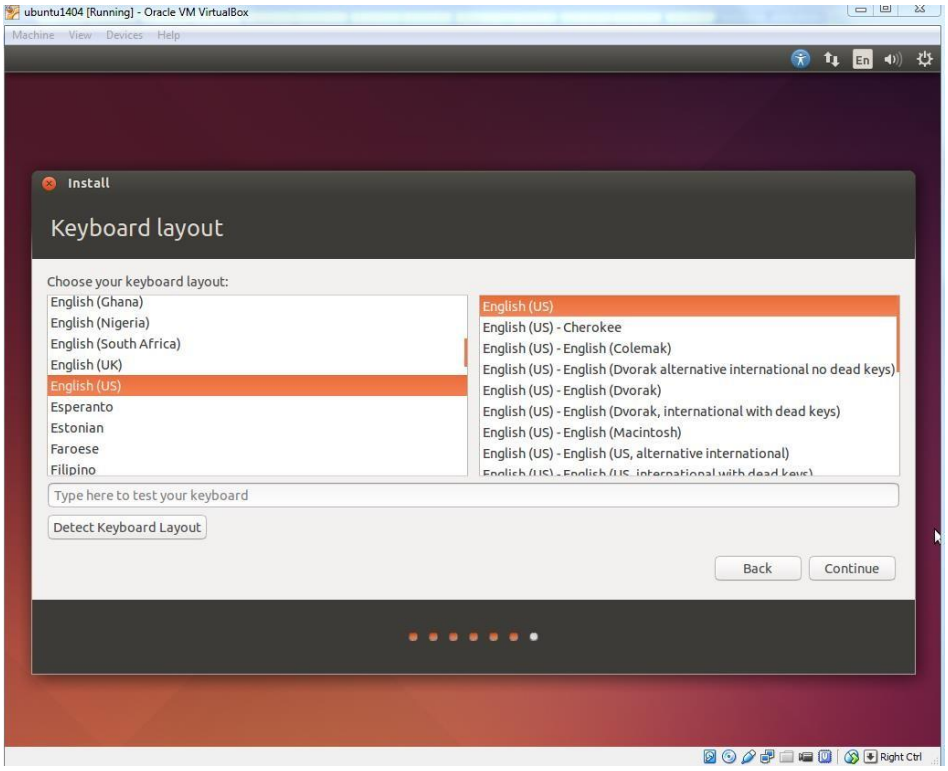
Step 18.



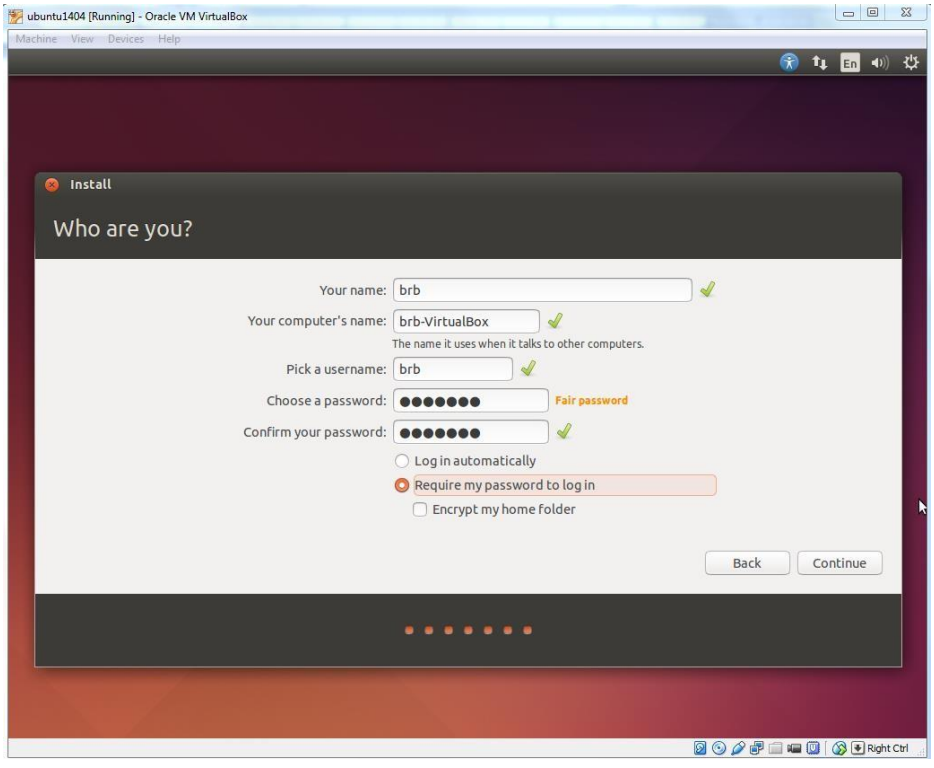
Step 19.



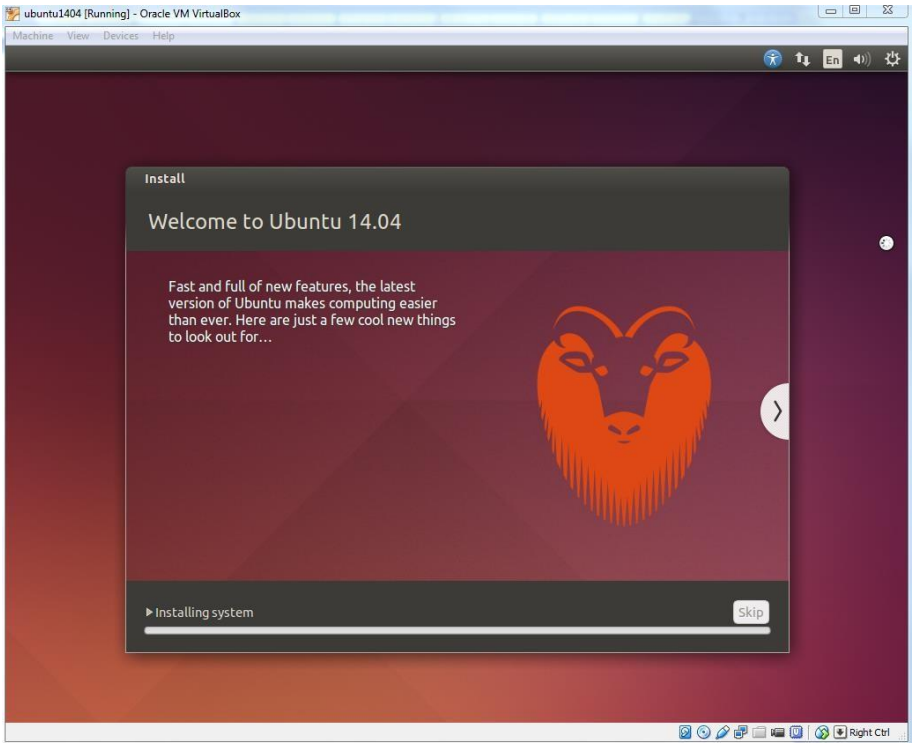
Step 20.



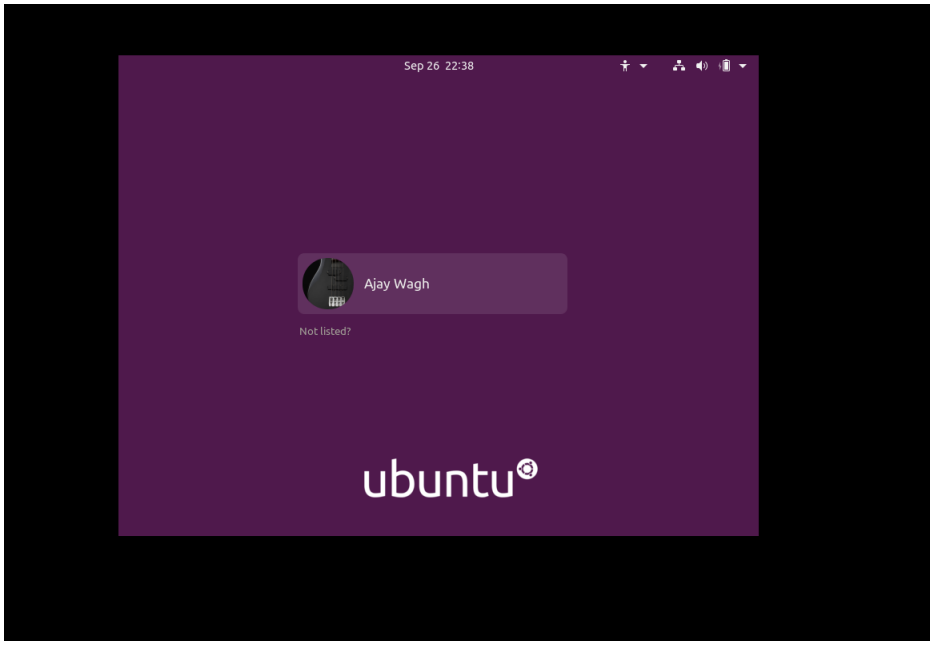
Step 21.



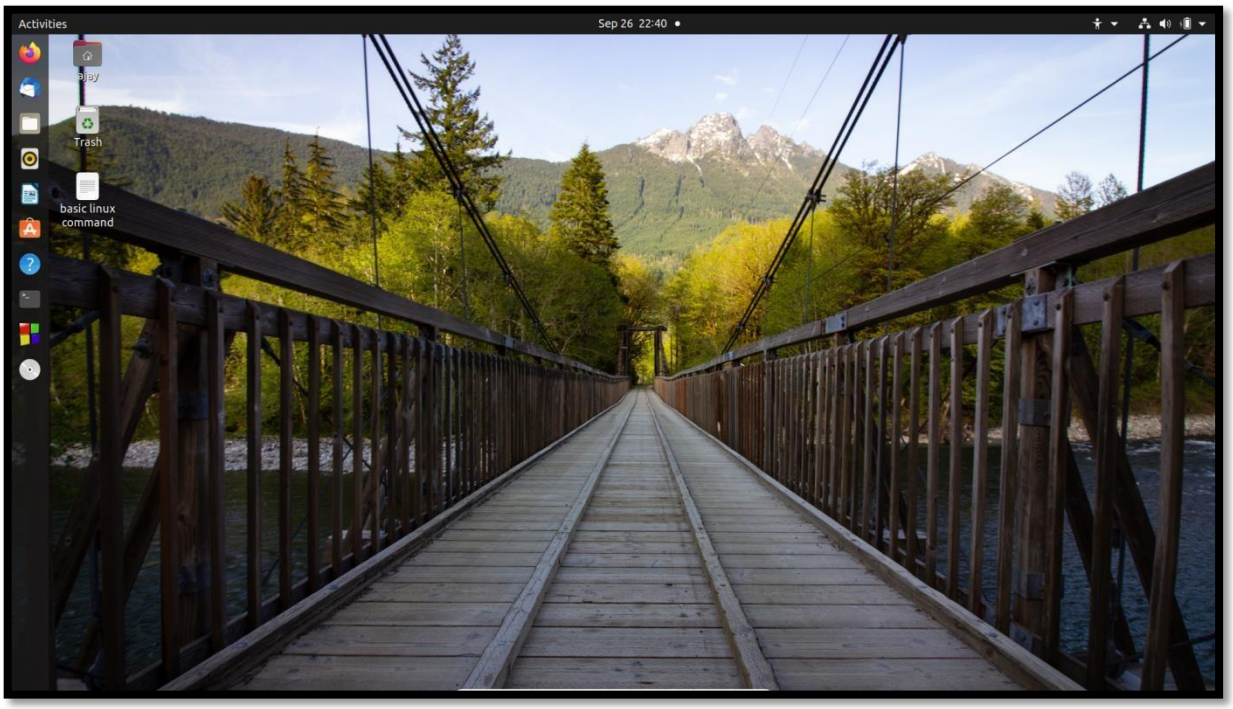
Step 22.



Step 23.



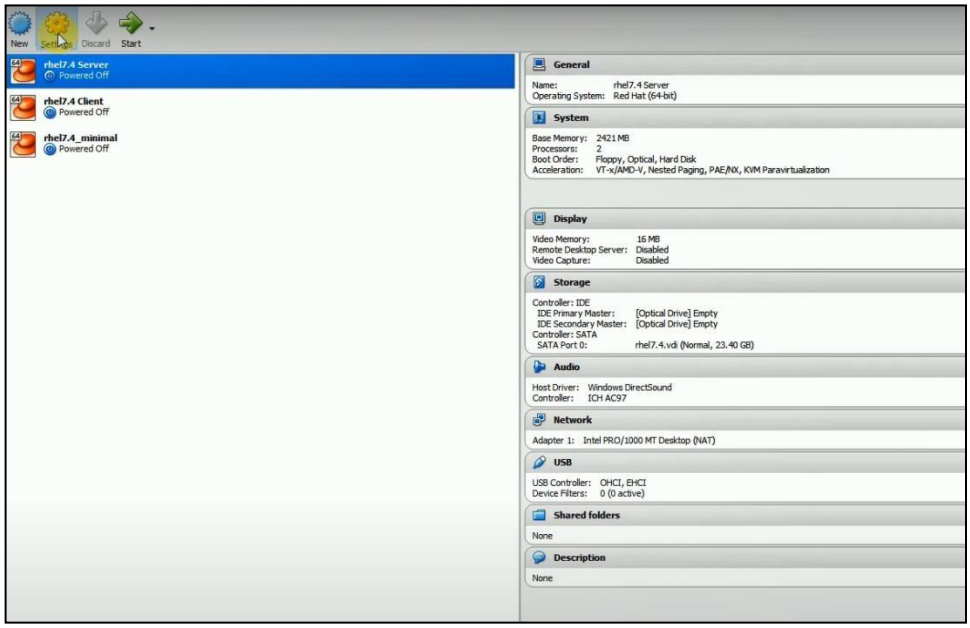
Ubuntu Run successfully in Virtual Machine.



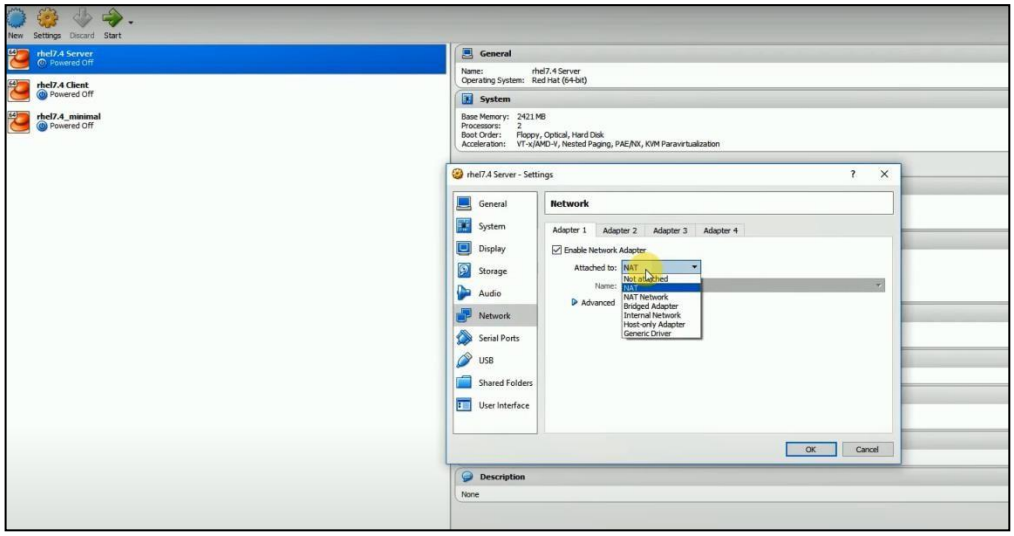
3. Communicate the Two Virtual Machine:

The VirtualBox graphical user interface supports only four network adapters for each VM. This limits the complexity of network scenarios you can create. Fortunately, VirtualBox really supports up to thirty-six network adapters per VM. These additional network adapters may be configured using the VirtualBox command-line interface.

Step 1: Go to VM Setting**.**



Step 2: Open Network tap and check the network adaptor with NAT Network are Available or Not.

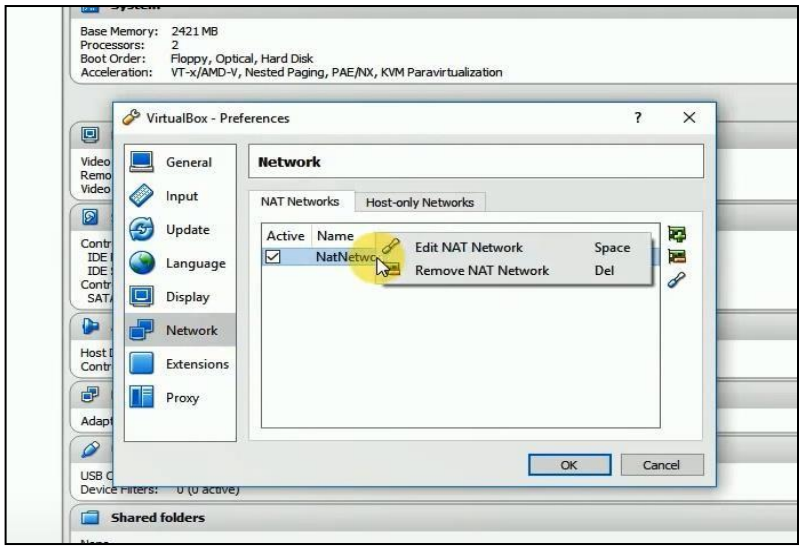


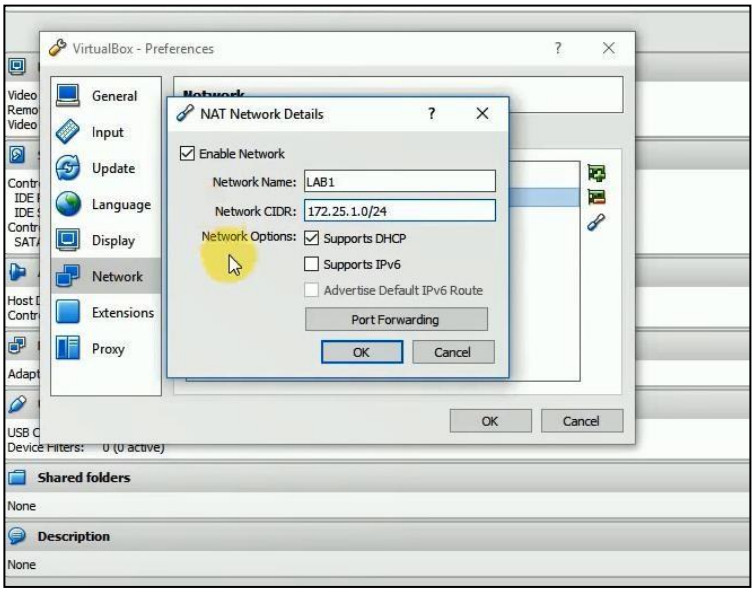
If Not Available Follow Step.

Step 3: click on File menu in VM select the **Preferences** or use Shortcut key (Ctrl + G). A new Windows are open. Select

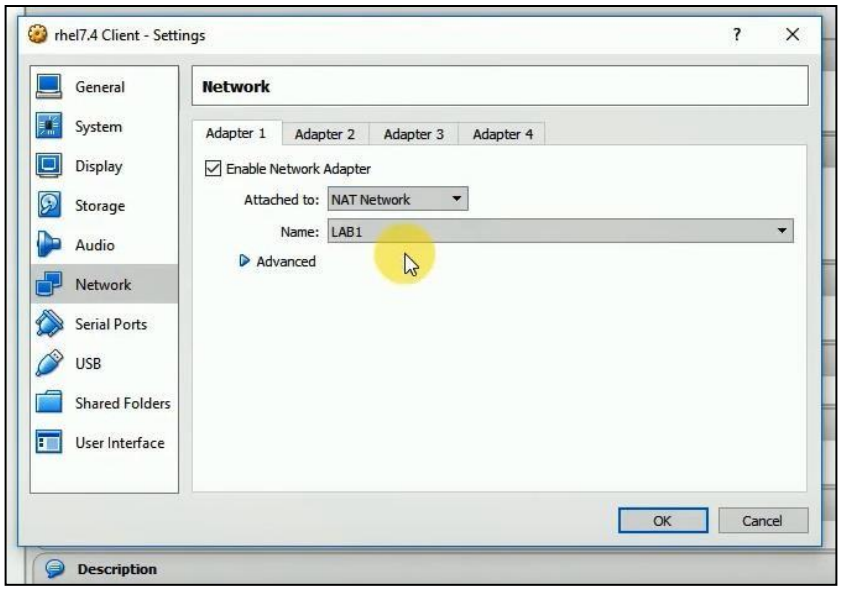
Network -> NAT Networks -> Add NAT Networks

One network is created. Click On given network and edit NAT network Details**.**





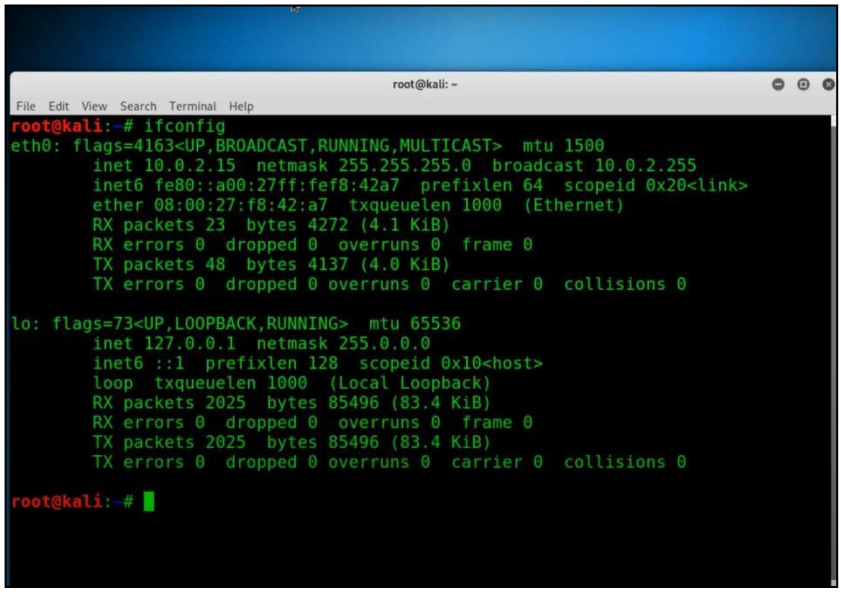
Step 4: Go to Both Virtual Machine Setting and Change the Network Adaptor with Created NAT Neworks.



Step 5: Start the Both Virtual Machine**.**

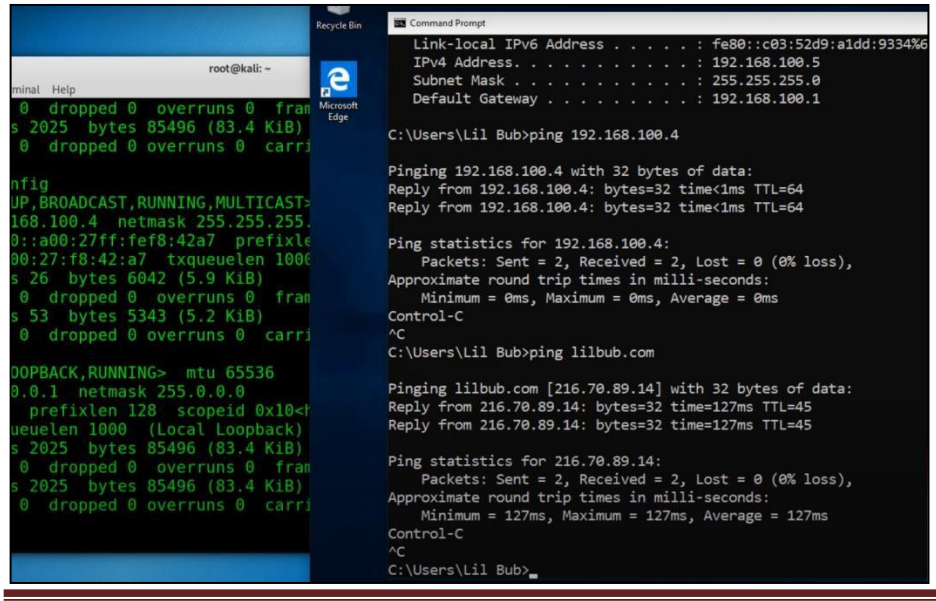
Step 6: Open Terminal and check IP address of both Virtual Machine using

~ifconfig Command



Step 7: Create the Communications between Two Virtual Machine using

$ ping <IP Address Other VM>



Step 8: Repeat the Step 7 for Other Virtual Machine.

Conclusion: Here we have installed two Virtual Machines on VirtualBox and they can communicate with each other over VM.