

EE4204 Computer Networks I (Part 1)

Socket Programming Assignment

Install Ubuntu on Oracle VirtualBox (Prepared by Amogh P.C., Ex-Graduate Assistant)

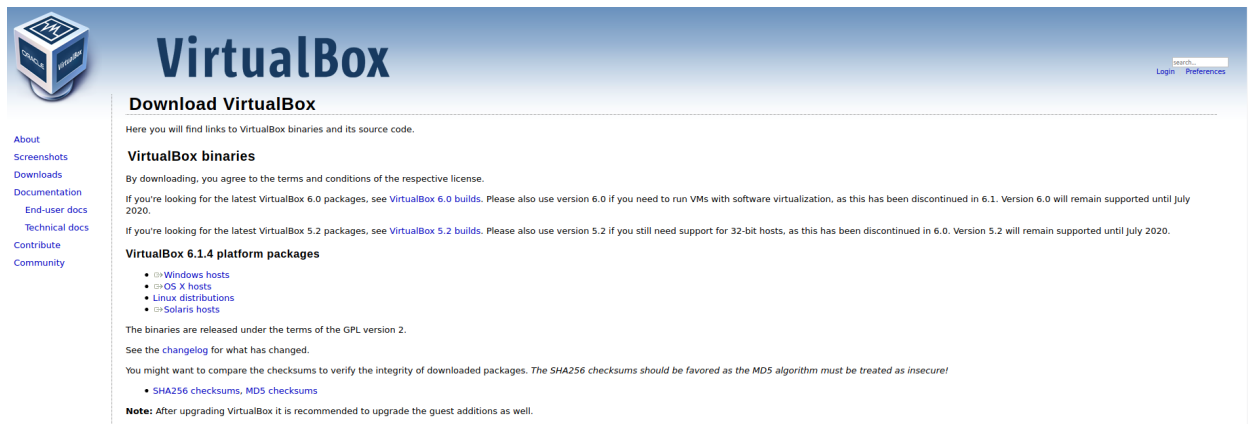
Lecturer : Assoc. Prof. Mohan Gurusamy, elegm@nus.edu.sg

Install Ubuntu on Oracle VirtualBox

Download oracle virtual box and ubuntu OS

Oracle VirtualBox

- 1) Go to <https://www.virtualbox.org/wiki/Downloads>
- 2) Download [VirtualBox](#) latest version (currently 6.1.4) platform packages for Windows or OS X (MAC users)
- 3) Run the executable file. Continue with the installation of VirtualBox with the defaults. This will open VirtualBox at the end of the installation.



Ubuntu Desktop

Download the latest version of Ubuntu from <https://ubuntu.com/download/desktop>

Ubuntu 19.10

The latest version of the Ubuntu operating system for desktop PCs and laptops, Ubuntu 19.10 comes with nine months, until July 2020, of security and maintenance updates.

Recommended system requirements are the same as for Ubuntu 18.04.4 LTS.

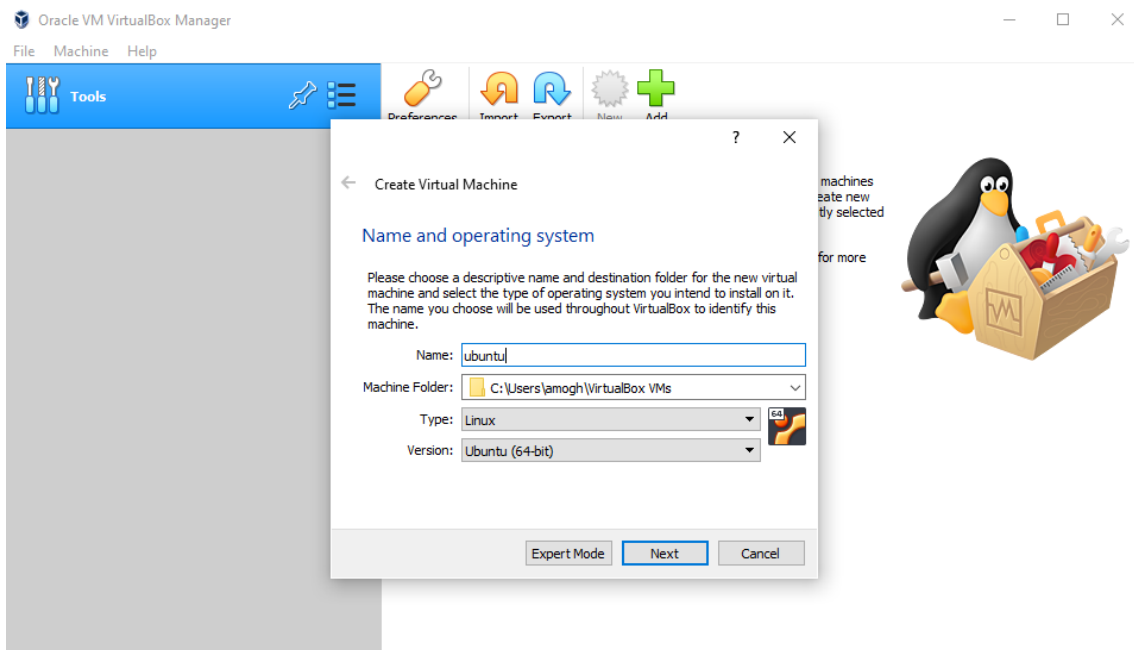
[Ubuntu 19.10 release notes](#)

Download

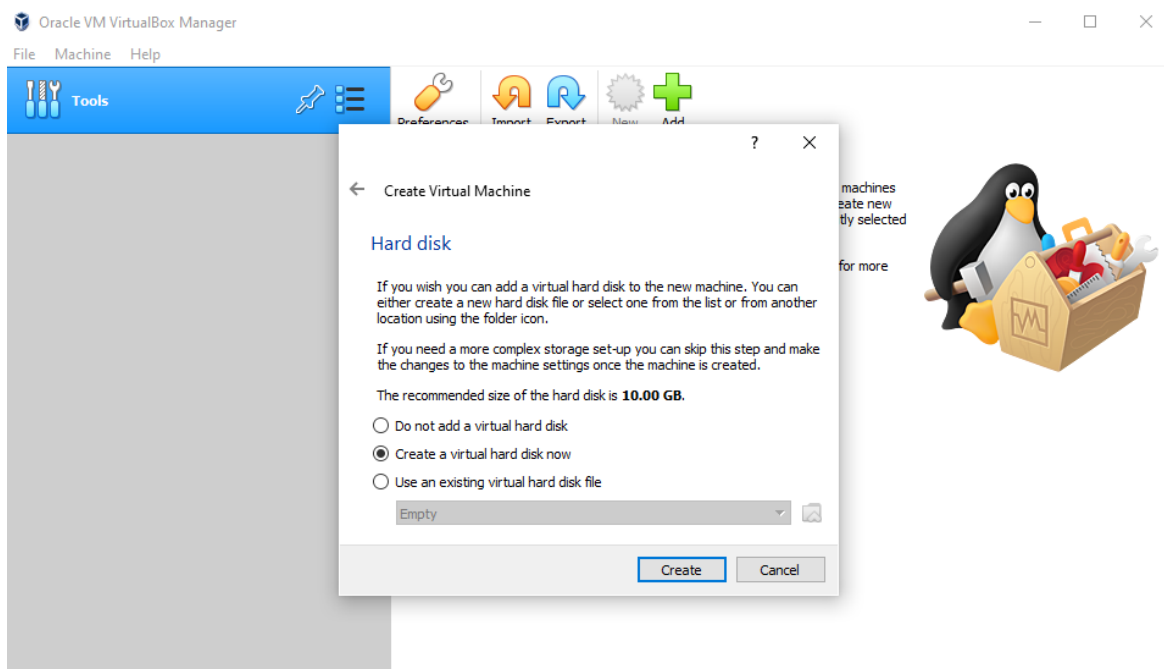
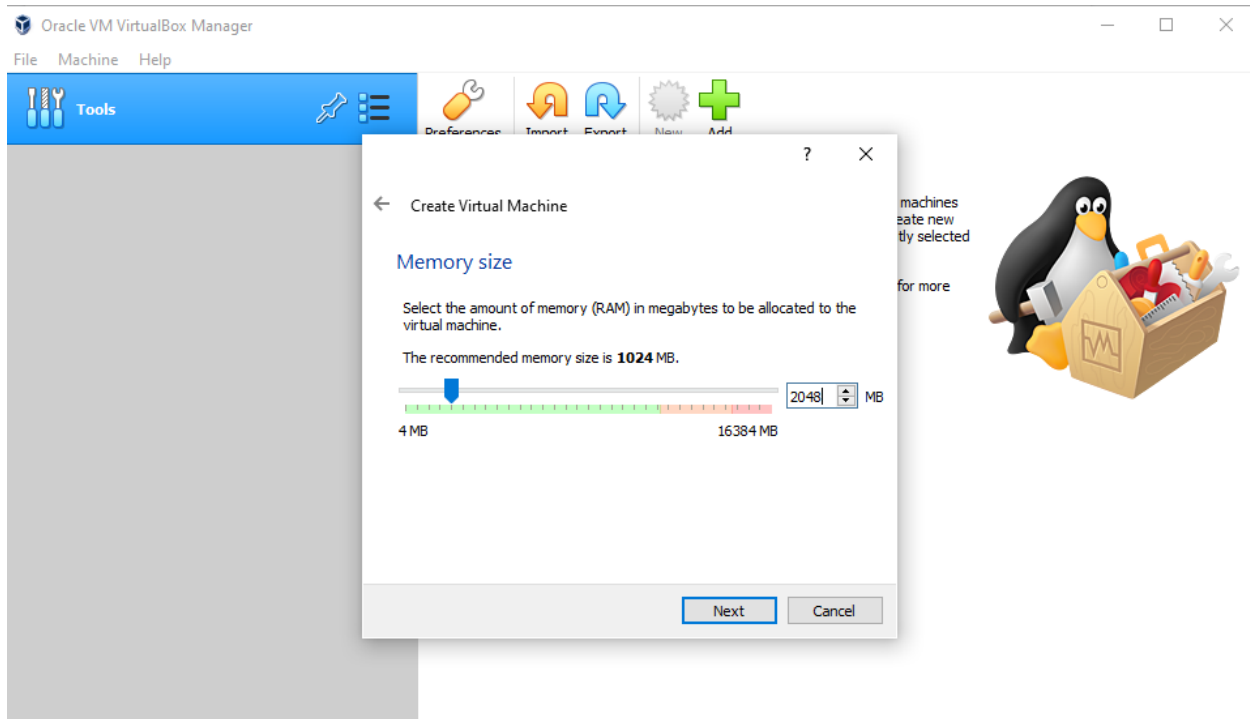
[Alternative downloads and torrents](#)

Installation screenshots

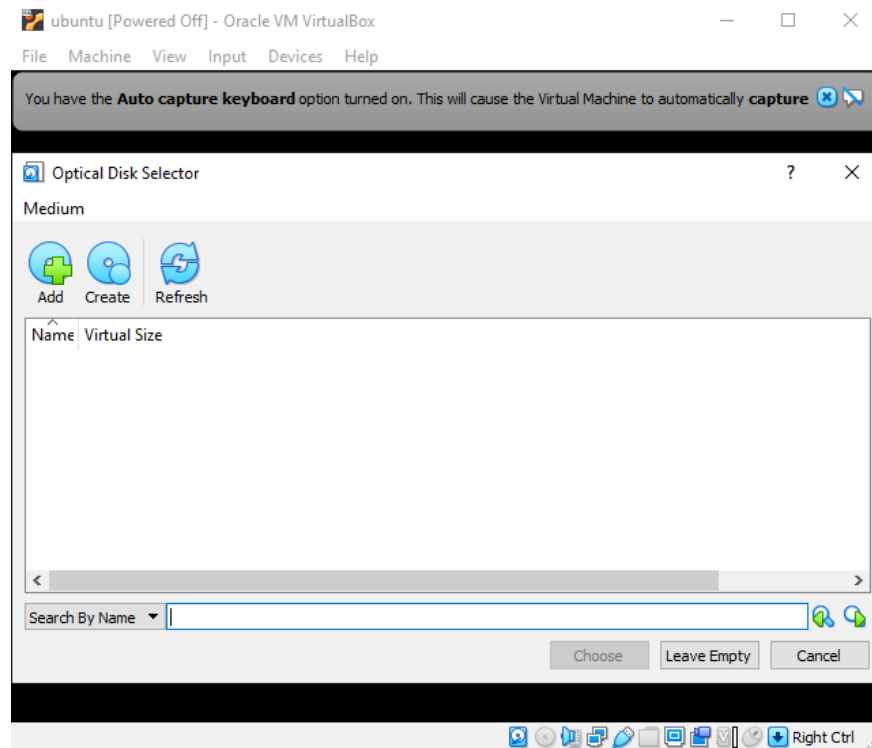
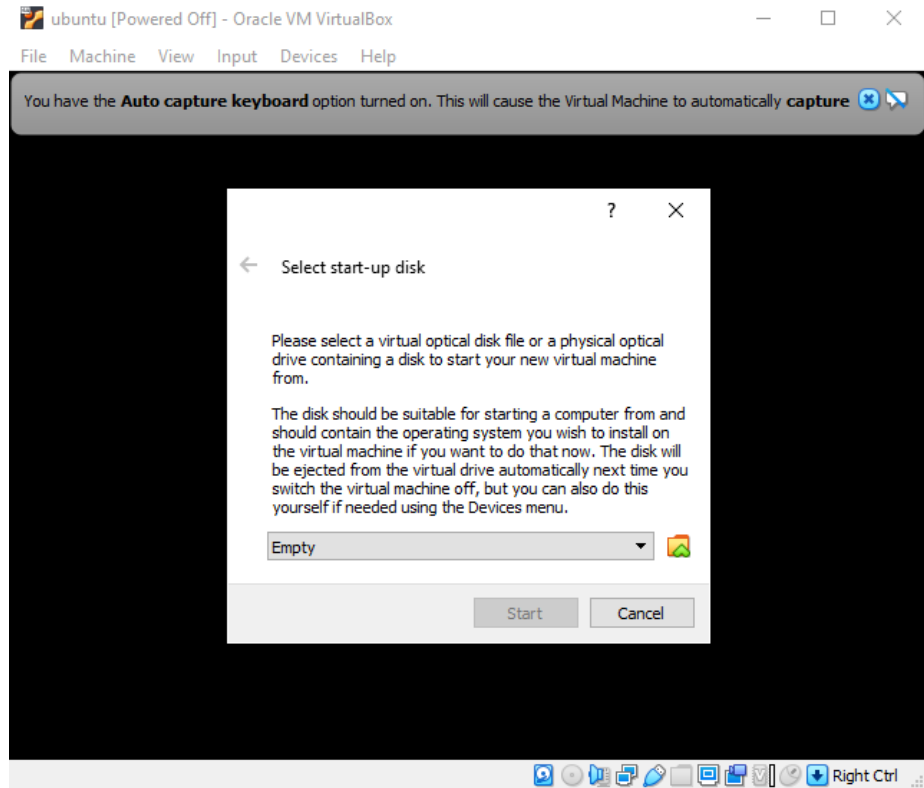
Open Oracle VirtualBox



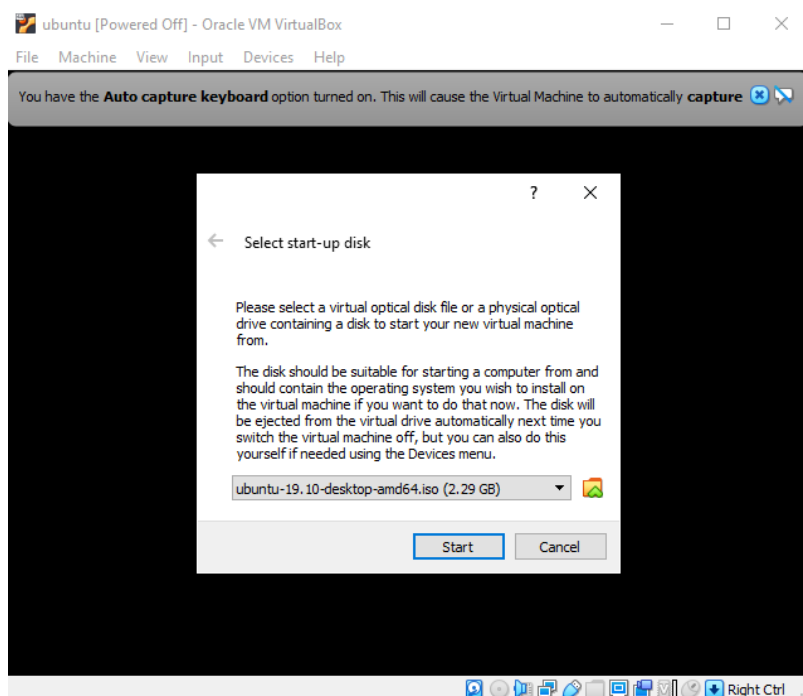
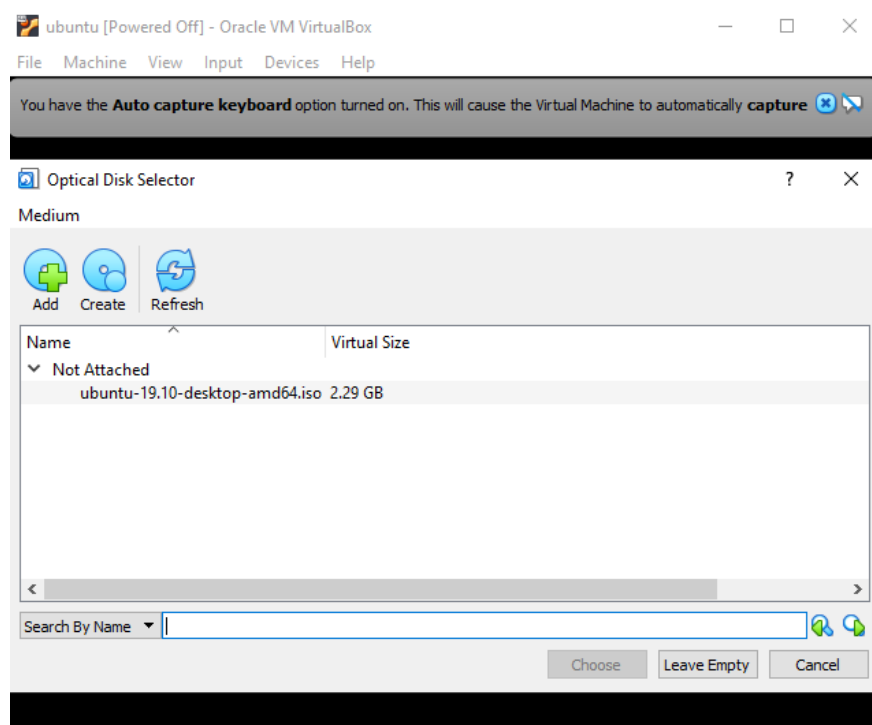
Keep memory around 4GB ~ 4096 (recommended)



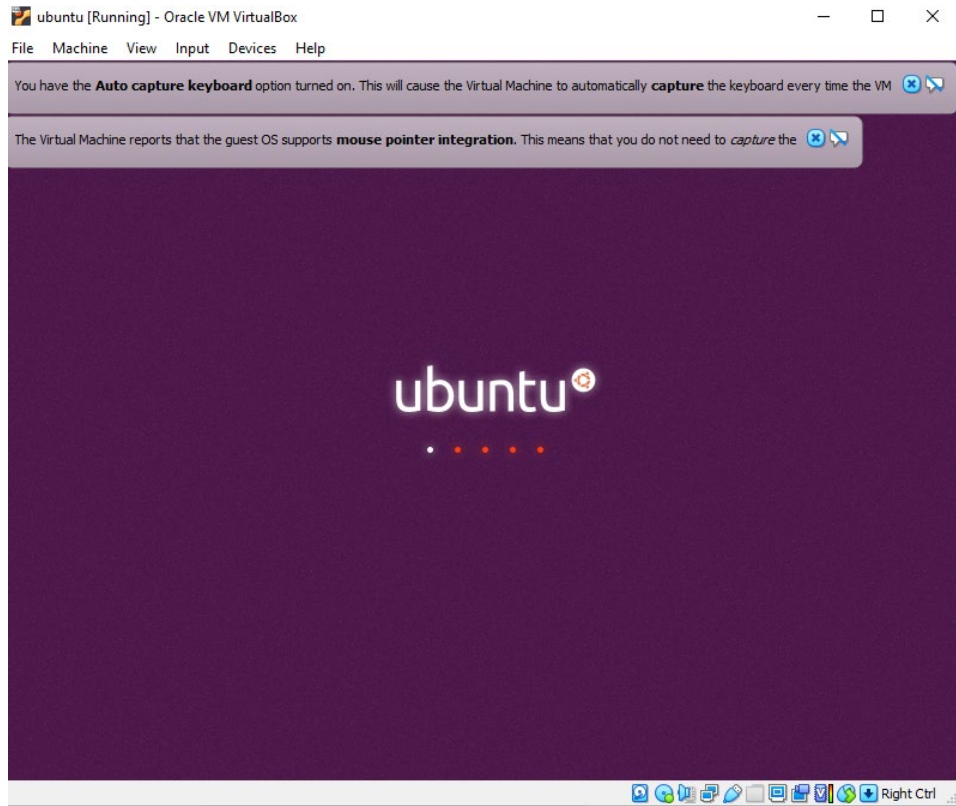
Select the ubuntu image



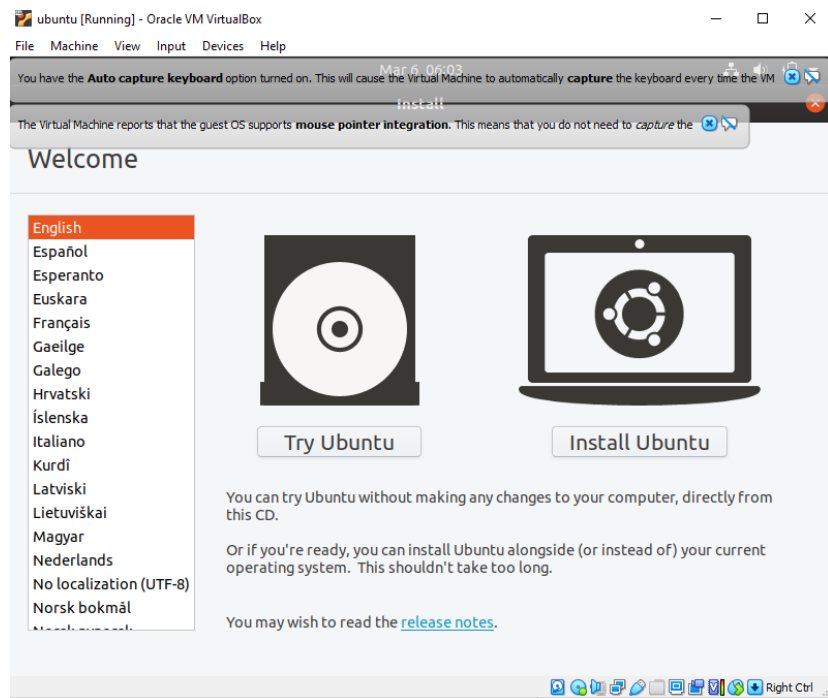
Click add and Choose the ubuntu .iso image downloaded



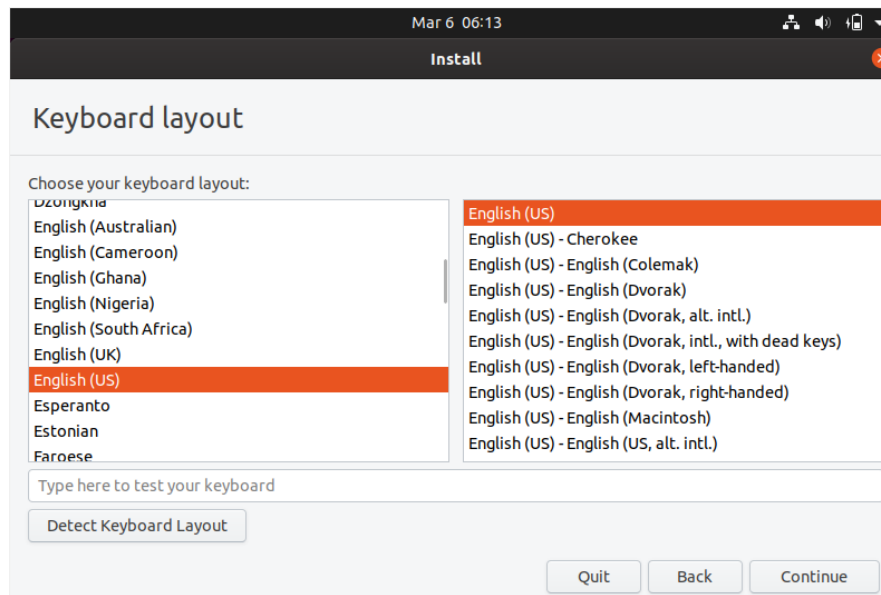
Click start installation of ubuntu starts form there



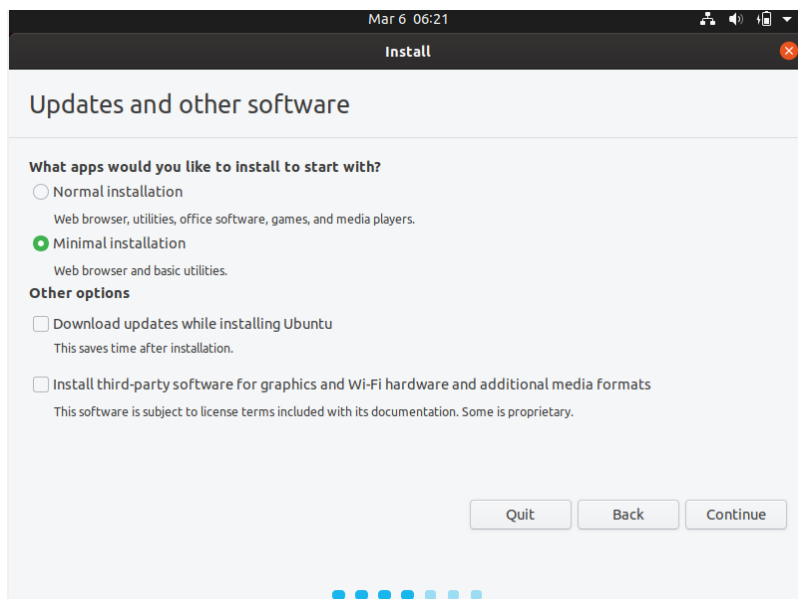
Choose install ubuntu

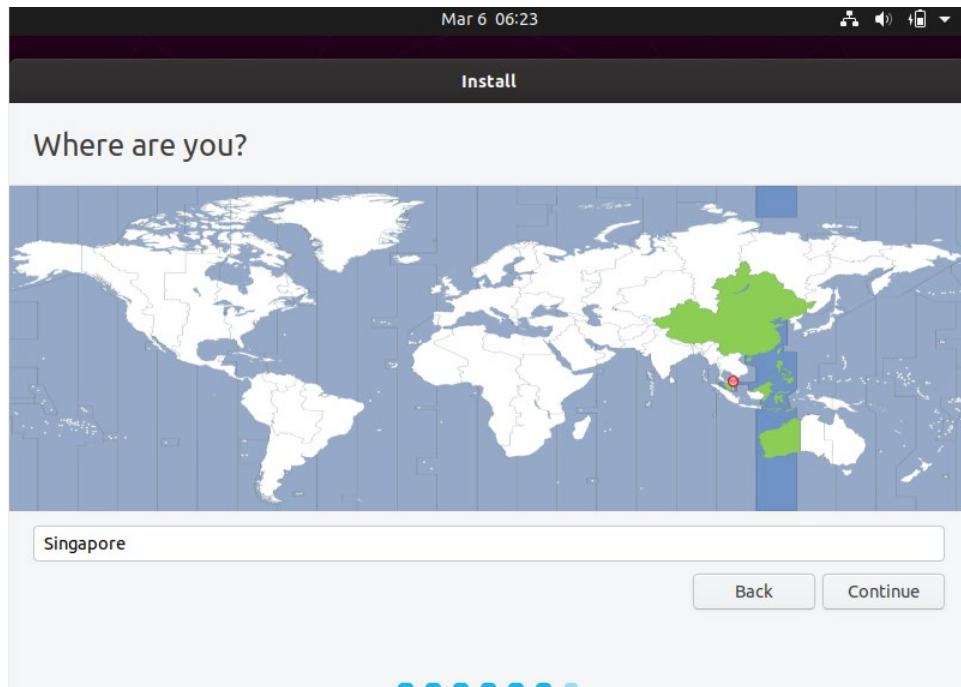
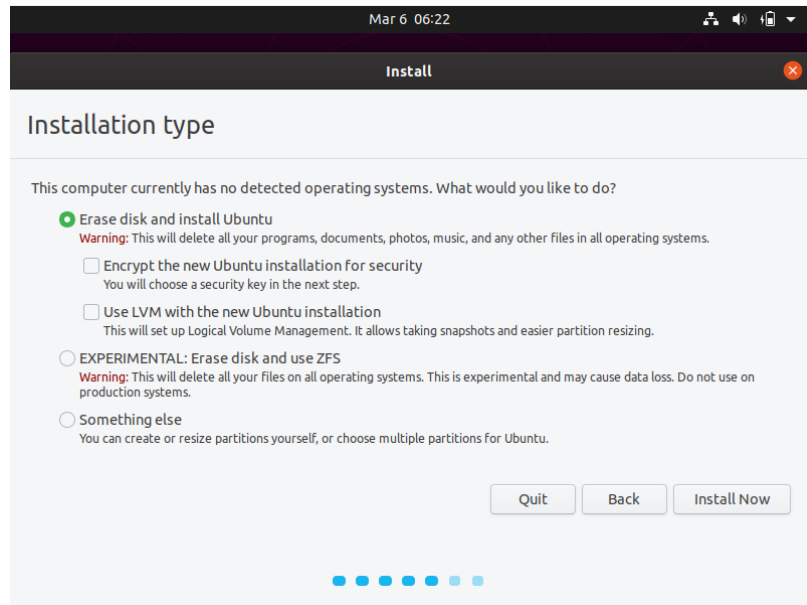


Use default keyboard settings



Choose minimal installation, We don't need any other default ubuntu softwares





Pick a username and password

Mar 6 14:24

Install

Who are you?

Your name: ✓

Your computer's name: ✓
The name it uses when it talks to other computers.

Pick a username: ✓

Choose a password: Fair password

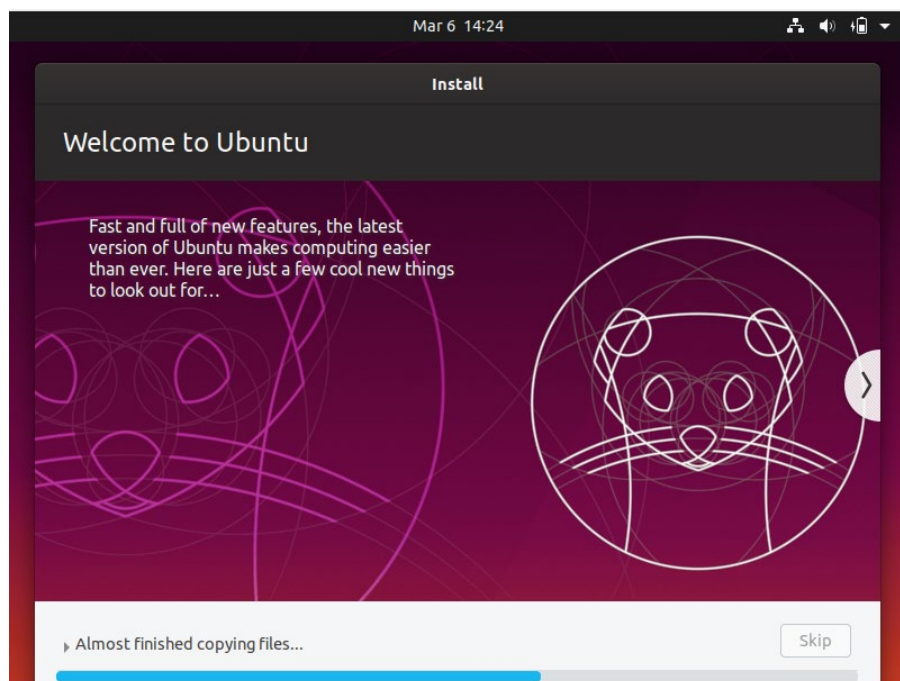
Confirm your password: ✓

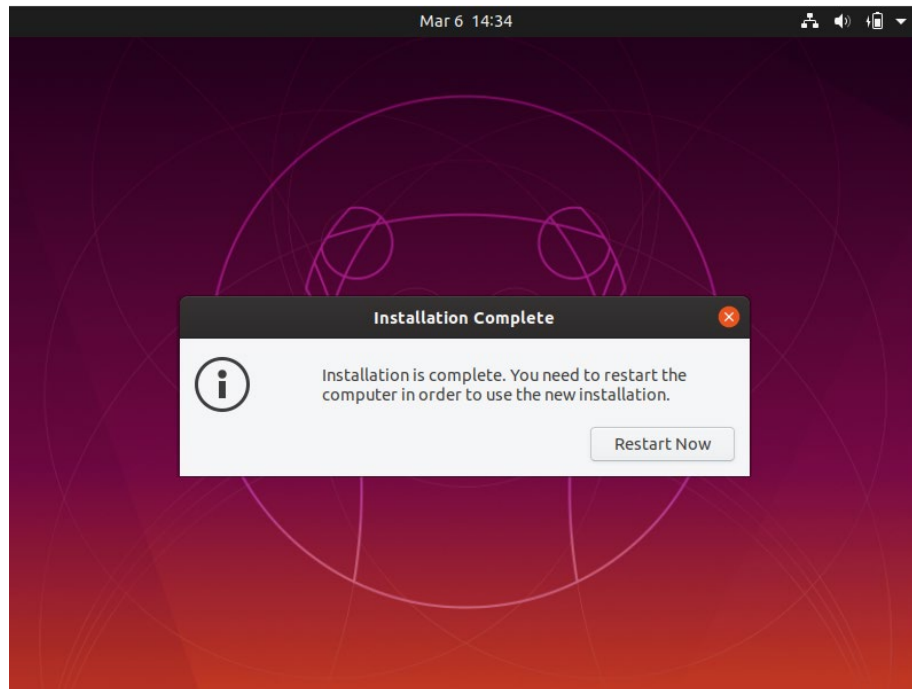
☐ Log in automatically

☒ Require my password to log in

Back Continue

• • • • • • • •



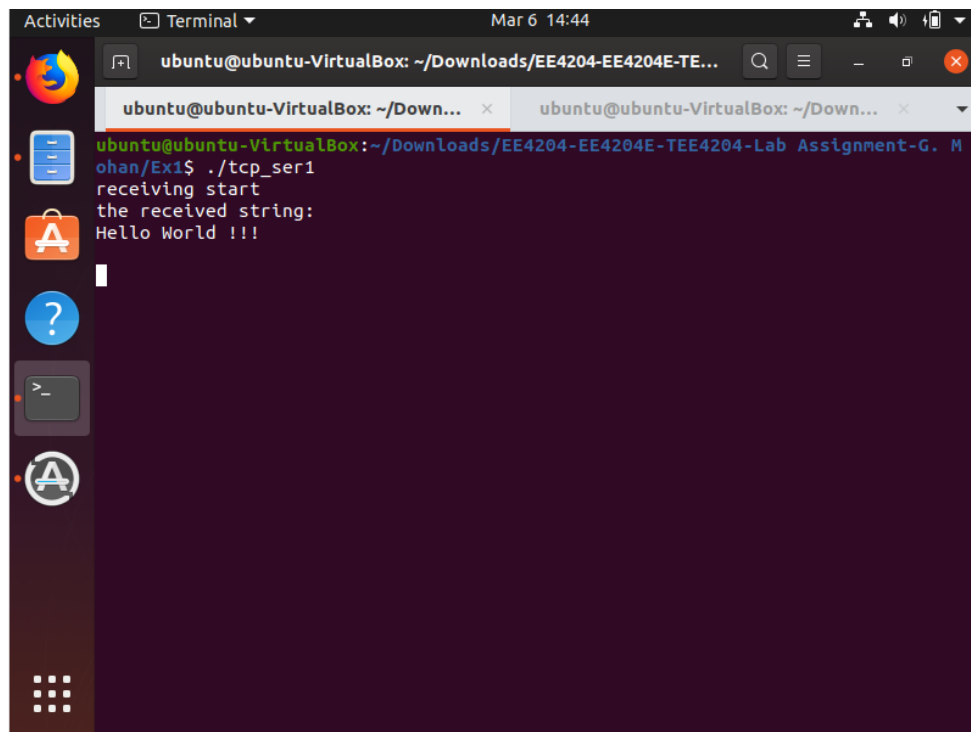


Done with the installation of ubuntu in oracle virtual box

Open the terminal and compile the both client and server programs

A screenshot of a terminal window in an Ubuntu virtual machine. The window title is "Terminal" and the date/time is "Mar 6 14:42". The terminal shows the user "ubuntu@ubuntu-VirtualBox" in the directory "~/Downloads/EE4204-EE4204E-TEE4204-Lab Assignment-G. M". The user has executed two commands: "gcc tcp_ser1.c -o tcp_ser1" and "gcc tcp_client1.c -o tcp_client1". The terminal output shows the user's prompt "ubuntu@ubuntu-VirtualBox: ~/Downloads/EE4204-EE4204E-TEE4204-Lab Assignment-G. M" followed by the command and the prompt "ohah/Ex1\$". The terminal window is part of a desktop environment with a sidebar on the left containing icons for Firefox, a file manager, and other applications. A "Show Applications" button is at the bottom left.

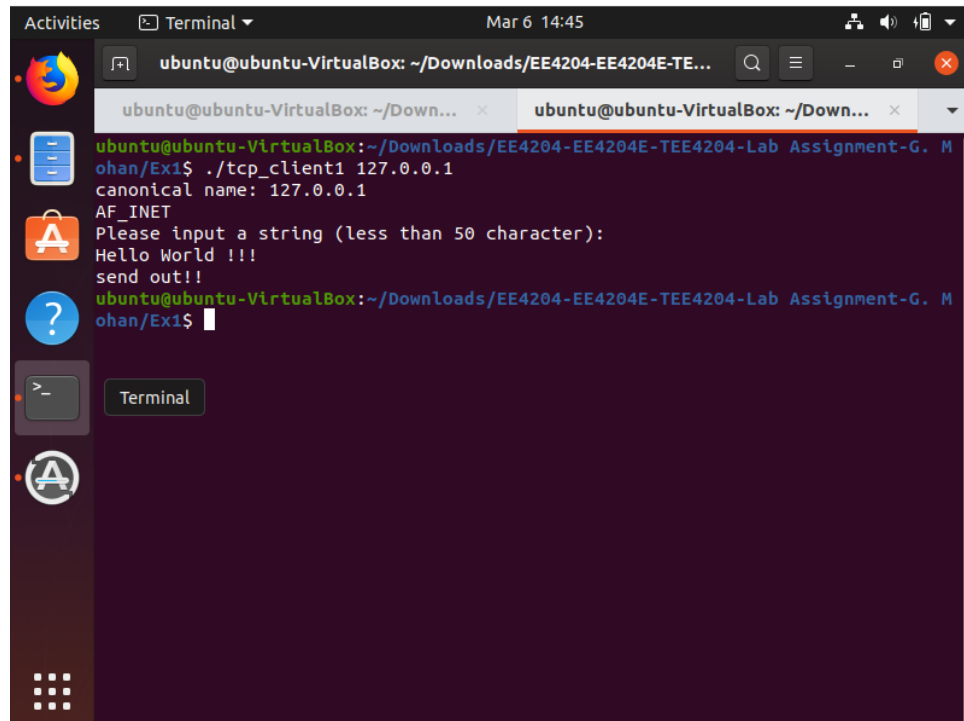
Run the server in Terminal 1



A screenshot of a terminal window titled 'Terminal' with a timestamp of 'Mar 6 14:44'. The terminal shows the user 'ubuntu@ubuntu-VirtualBox' in the directory '~/Downloads/EE4204-EE4204E-TEE4204-Lab Assignment-G. M'. The user runs the command `./tcp_ser1`. The output of the program is: 'receiving start', 'the received string:', and 'Hello World !!!'. The terminal has a dark purple background and a light blue prompt.

```
ubuntu@ubuntu-VirtualBox: ~/Downloads/EE4204-EE4204E-TEE4204-Lab Assignment-G. M
ohan/Ex1$ ./tcp_ser1
receiving start
the received string:
Hello World !!!
```

Run the client in another terminal with an argument as server ip (127.0.0.1) in Terminal 2

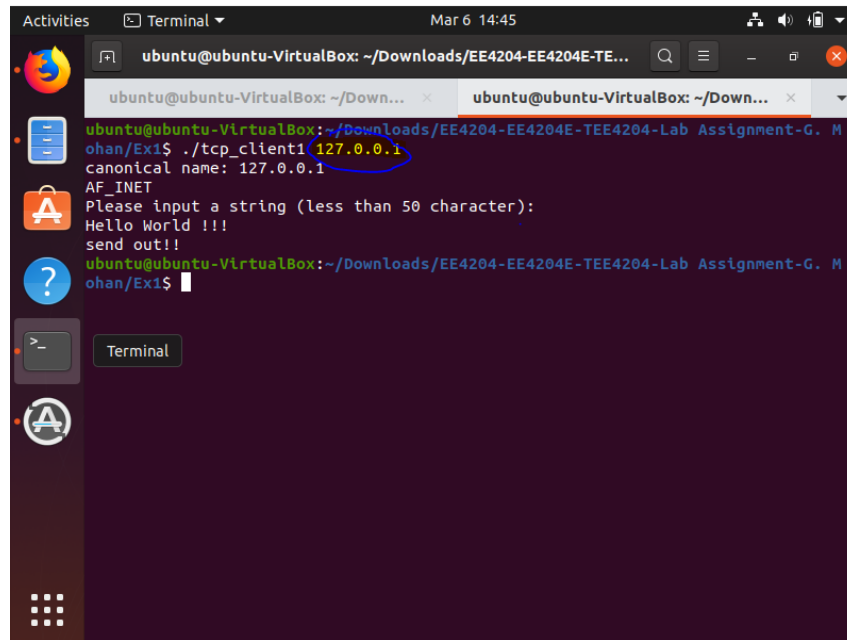


A screenshot of a terminal window titled 'Terminal' with a timestamp of 'Mar 6 14:45'. The terminal shows the user 'ubuntu@ubuntu-VirtualBox' in the directory '~/Downloads/EE4204-EE4204E-TEE4204-Lab Assignment-G. M'. The user runs the command `./tcp_client1 127.0.0.1`. The output of the program is: 'canonical name: 127.0.0.1', 'AF_INET', 'Please input a string (less than 50 character):', 'Hello World !!!', and 'send out!!'. The terminal has a dark purple background and a light blue prompt.

```
ubuntu@ubuntu-VirtualBox: ~/Downloads/EE4204-EE4204E-TEE4204-Lab Assignment-G. M
ohan/Ex1$ ./tcp_client1 127.0.0.1
canonical name: 127.0.0.1
AF_INET
Please input a string (less than 50 character):
Hello World !!!
send out!!
```

Please note as we are running both client and server in the same machine.

The IP address **127.0.0.1** a special-purpose IPv4 address called **localhost** or **loopback** address is used as servers IP



```
ubuntu@ubuntu-VirtualBox: ~/Downloads/EE4204-EE4204E-TEE4204-Lab Assignment-G. M
ohan/Ex1$ ./tcp_client1 127.0.0.1
canonical name: 127.0.0.1
AF_INET
Please input a string (less than 50 character):
Hello World !!!
send out!!
ubuntu@ubuntu-VirtualBox:~/Downloads/EE4204-EE4204E-TEE4204-Lab Assignment-G. M
ohan/Ex1$
```