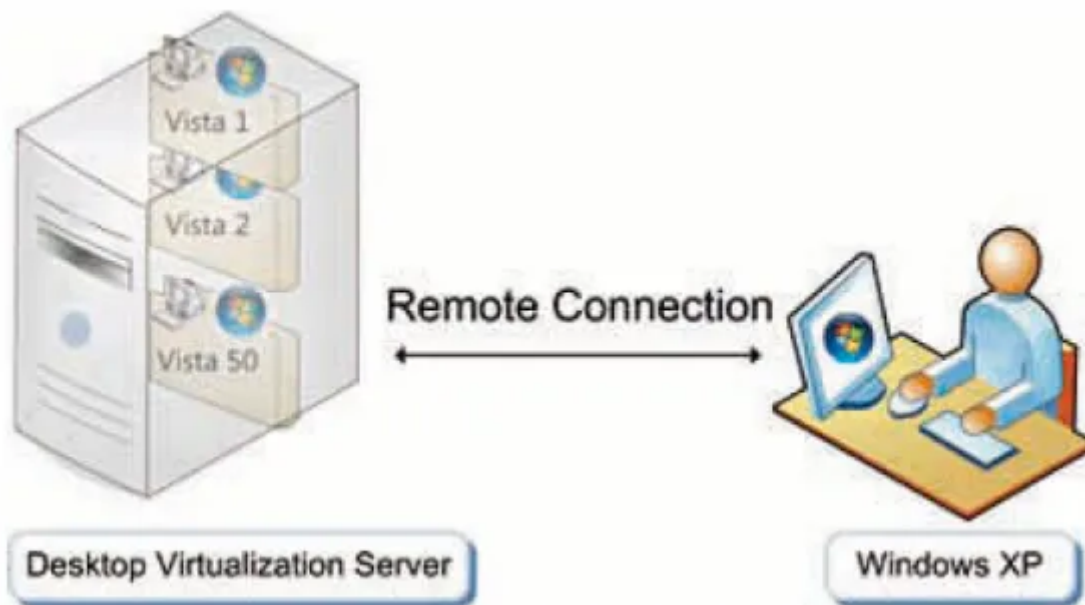


## What is Virtualization?

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Virtualization is a type of computer technology that replicates actual hardware capabilities in order to construct software-based IT services such as applications, servers, storage, and networks. Virtualization allows businesses to cut hardware expenses and boost productivity by producing a virtual version of a resource or device (such as a desktop computer) from a single computer system.



## VirtualBox

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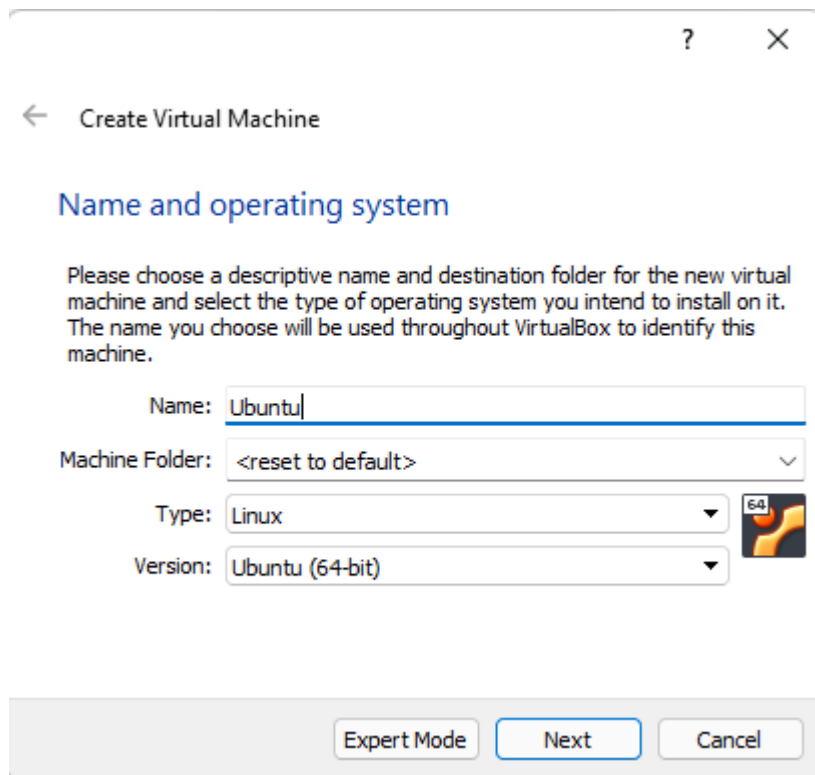
VirtualBox is a robust x86 and AMD64/Intel64 virtualization tool that can be used in both the workplace and at home. VirtualBox is not only a feature-rich, high-performance product for corporate clients, but it is also the only professional solution that is freely accessible as Open Source Software.

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### How to install VirtualBox in Windows 10.

1. Download the installer from this link [Virtualbox](#).
  2. Start Installer.
  3. Once Installer is done, Install extension path from this link [ExtesionPath](#)
- 

### How to create a Virtual Machine 1. open VirtualBox! [icons](virtualbox2.png) 2. click on "New" ![New] (New.png) 3. Fill out form **\*\*Name:\*\*** Ubuntu (it can be any name you want) **\*\*Machine Folder:\*\*** Here you can choose the driver where you want to install the virtual machine **\*\*Type:\*\*** Linux **\*\*Version:\*\*** Ubuntu 64-bit




← 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.

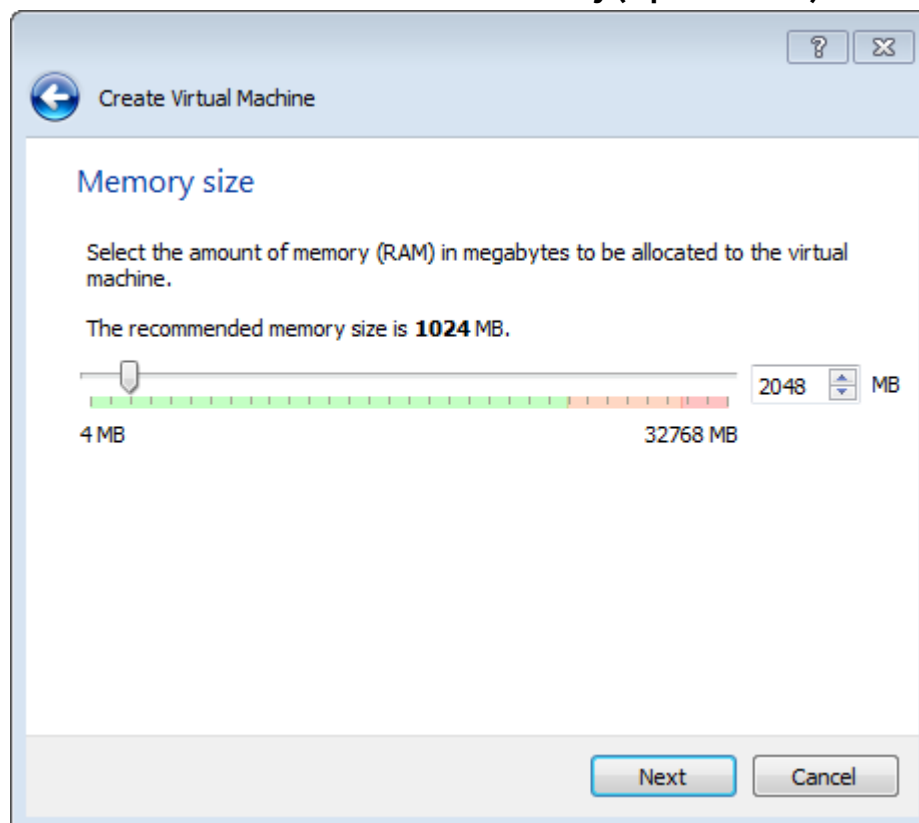
Name:

Machine Folder:

Type:  

Version:

#### 4. Allocate a Minimum of "2048" MB of Memory (equal to 2 GiB)



← Create Virtual Machine

### Memory size

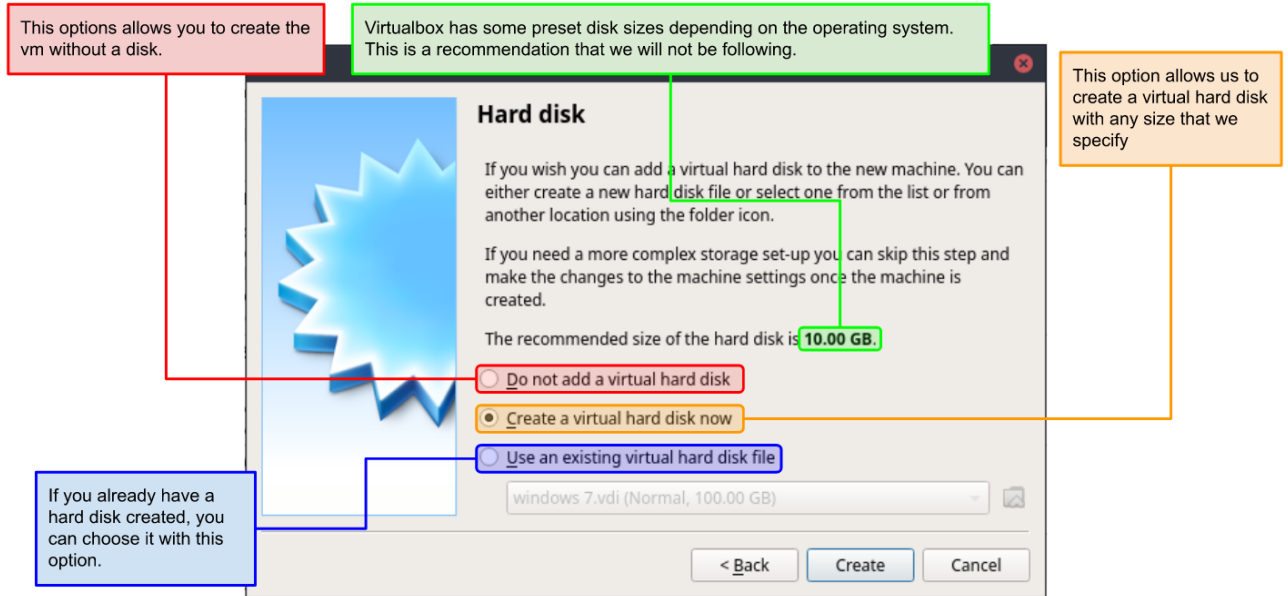
Select the amount of memory (RAM) in megabytes to be allocated to the virtual machine.

The recommended memory size is **1024 MB**.

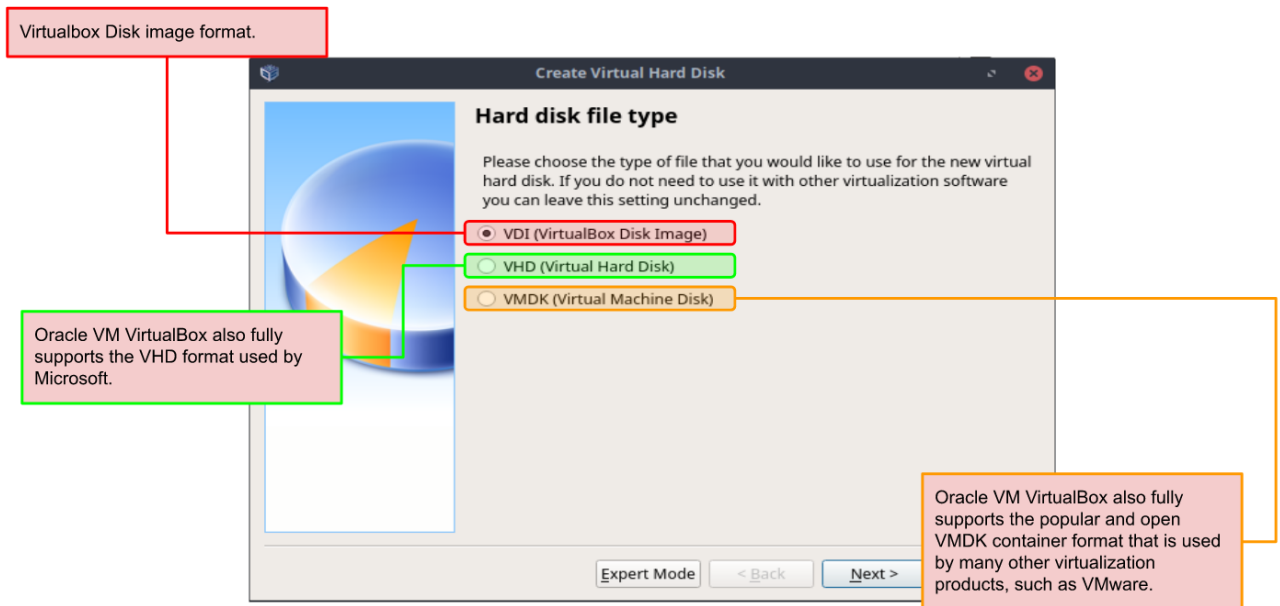
MB

4 MB 32768 MB

## 5. Use "Create a virtual hard disk now" for the Hard disk



## 6. Use "VDI" to create a virtual hard disk



## 7. Choose "Dynamically allocated"

**Choosing "Dynamically Allocated"**

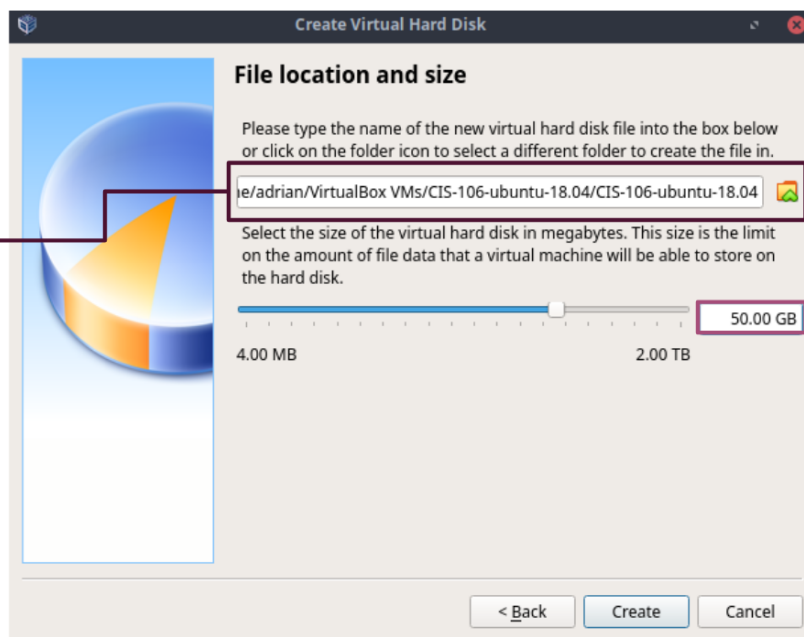
This will initially be very small and not occupy any space for unused virtual disk sectors, but will grow every time a disk sector is written to for the first time, until the drive reaches the maximum capacity chosen

**Choosing "Fixed Size"**

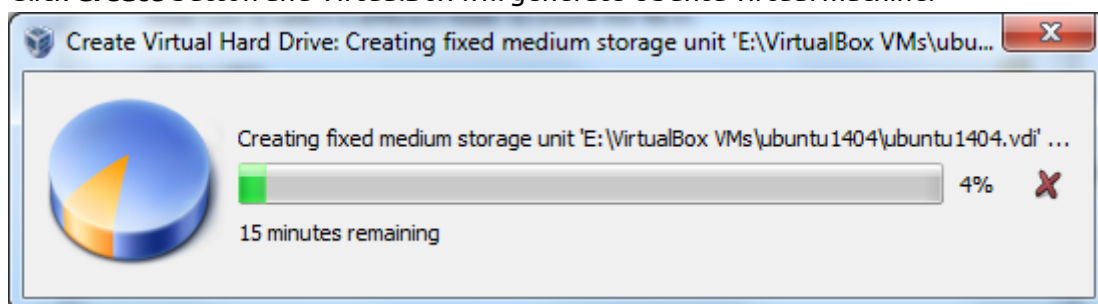
If you create a fixed-size image, an image file will be created on your host system which has roughly the same size as the virtual disk's capacity. So, for a 10 GB disk, you will have a 10 GB file.

## 8. Allocate at Minimum 25 GB (recommended 50 or more)

This is the path (location) where your virtual machine will be stored in the host computer

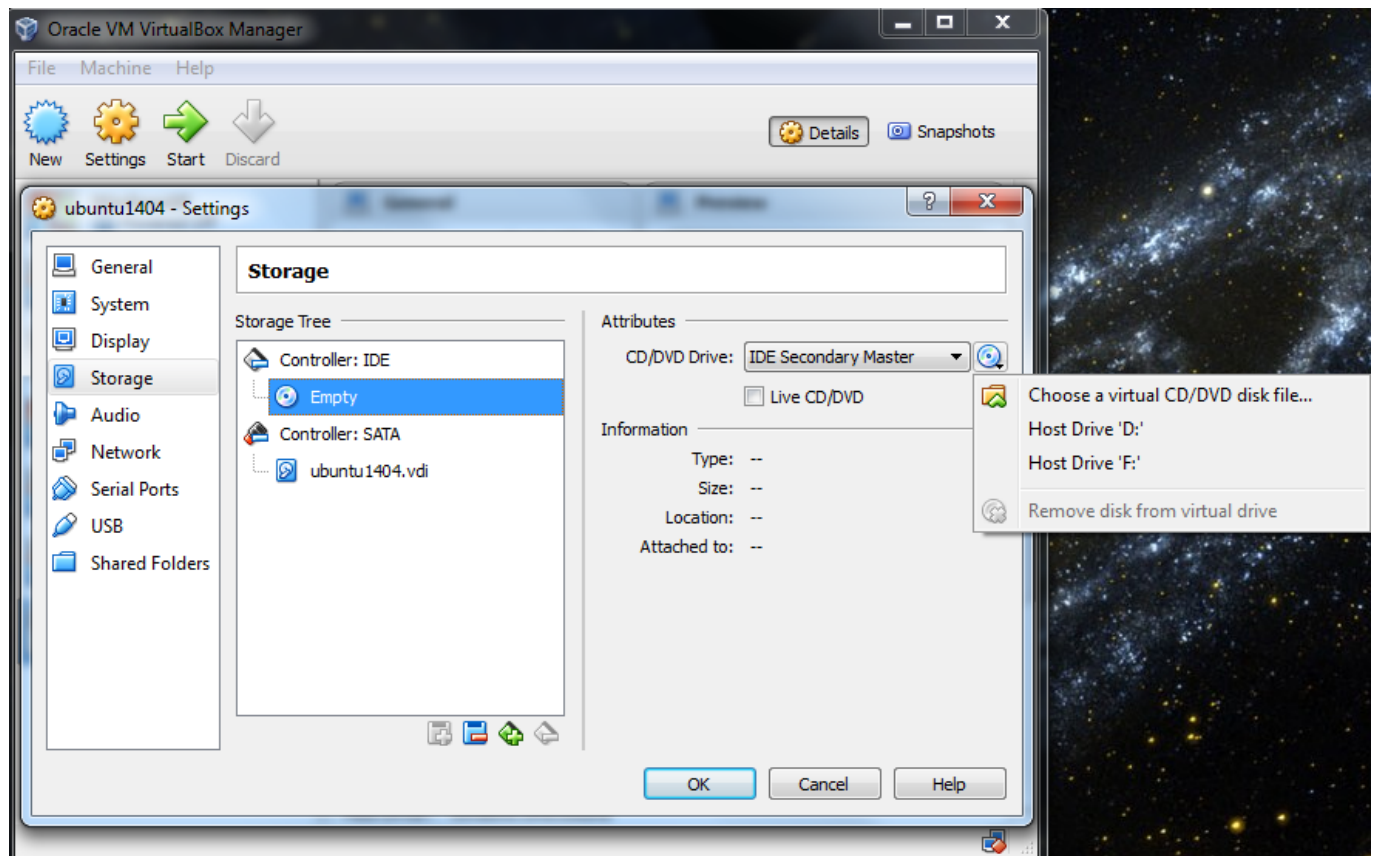


Ubuntu takes about 25 GB of disk space, but since you will be installing additional software and updates, it is good to double that space.

9. Click **Create** button and VirtualBox will generate Ubuntu virtual machine.10. **Note** that if you have not downloaded 64-bit Ubuntu ISO file, you can download from the publisher page [ubuntu](#) or use this link to download automatically [ubuntuiso](#). When downloading Ubuntu ISO

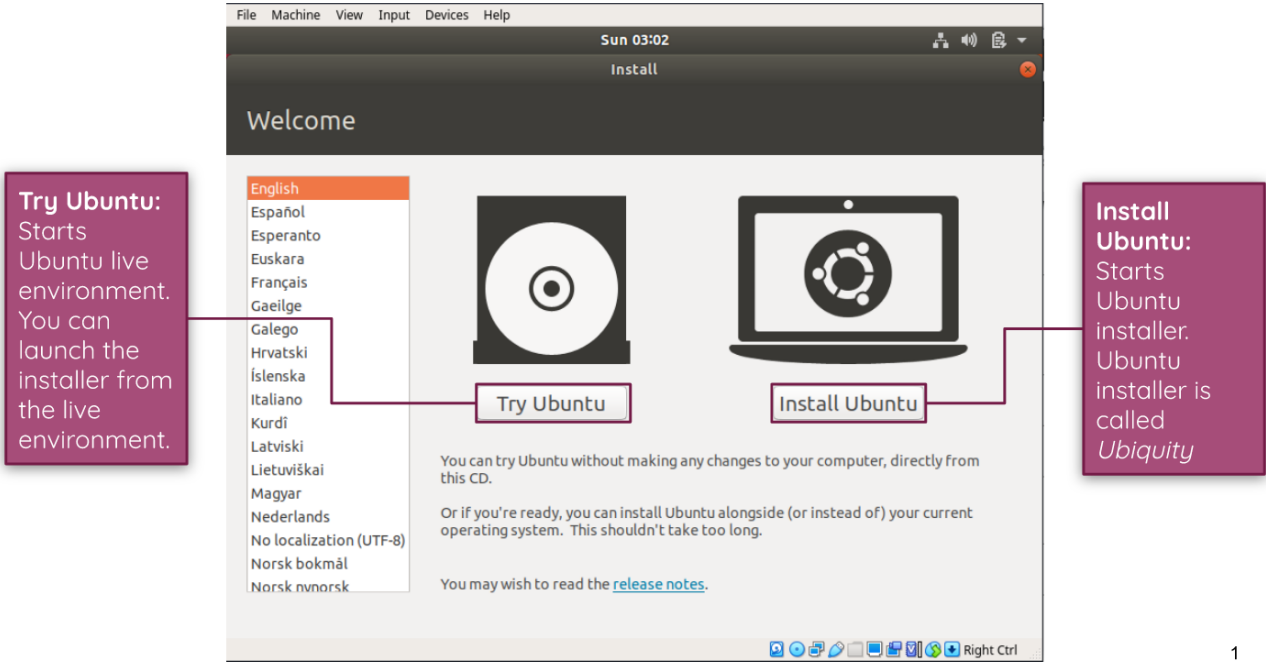
file, make sure to select 64-bit version. Also make sure the VT-x/Virtualization Technology has been enabled in your computer's BIOS/Basic Input Output System. In order to access BIOS on a Windows PC, you must press your BIOS key set by your manufacturer which could be F10, F2, F12, F1, or DEL.

11. Choose your ubuntu setting, details, storage, controller: IDE and the location where you download your iso and click ok



## Installing Ubuntu in Virtualbox

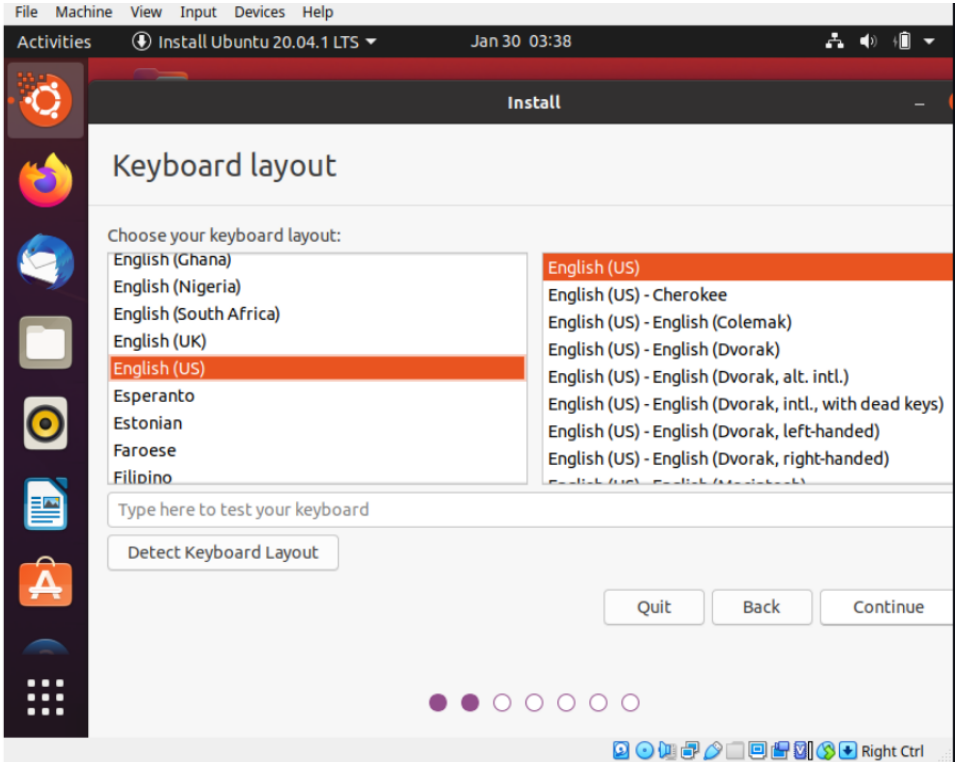
1. Back to Oracle VM VirtualBox Manager, click on the new Ubuntu virtual machine and hit 'Start' button. Now you shall see a 'Welcome' screen. Click 'Install Ubuntu' button.



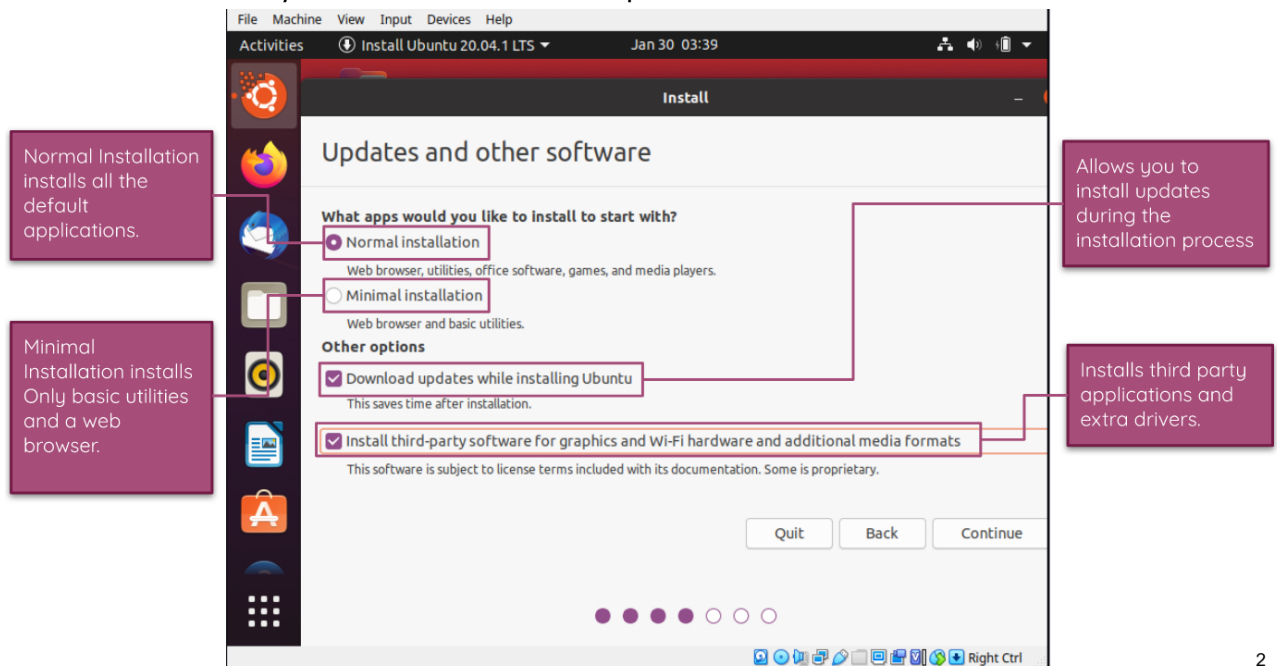
1  
9

2.Choose your Keyboard layout

Ubiquity’s keyboard layout screen will automatically detect your keyboard. However, if the default selection is not correct, you can use the “Detect Keyboard Layout” button to start a keyboard detection wizard.

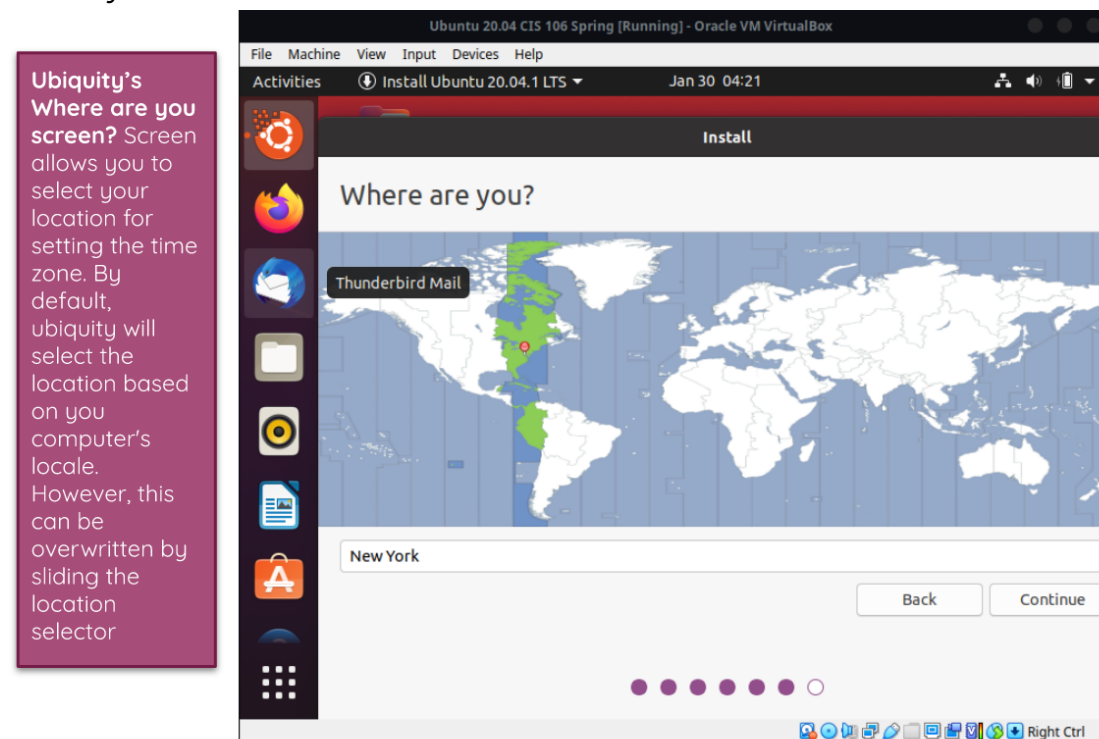


### 3. Choose Normal install/check both box on other option.



2  
^

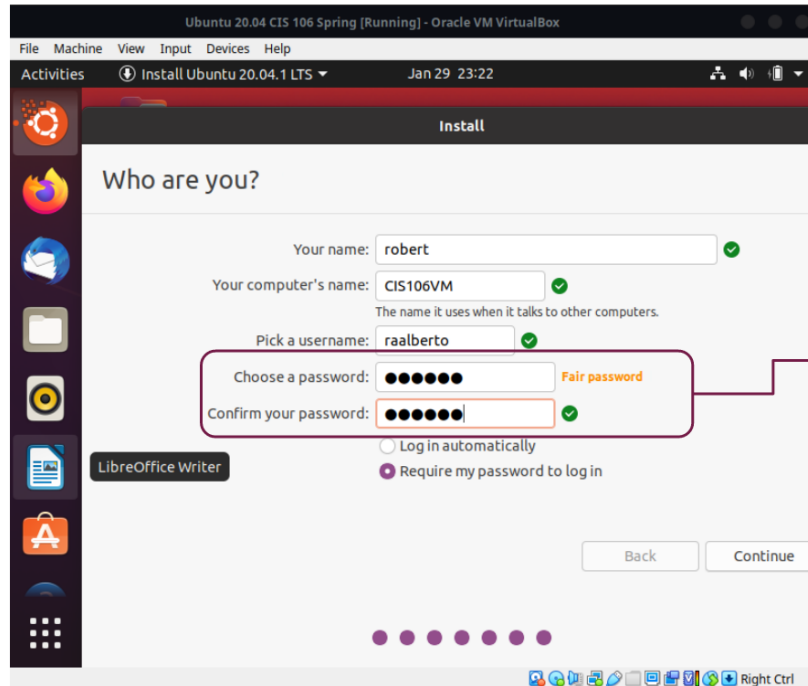
### 4. Choose your time zone.



### 5. In 'Who are you?' dialog, enter your preferred name, username and password. Note that this user will have root/sudo privilege. Click 'Continue' button.



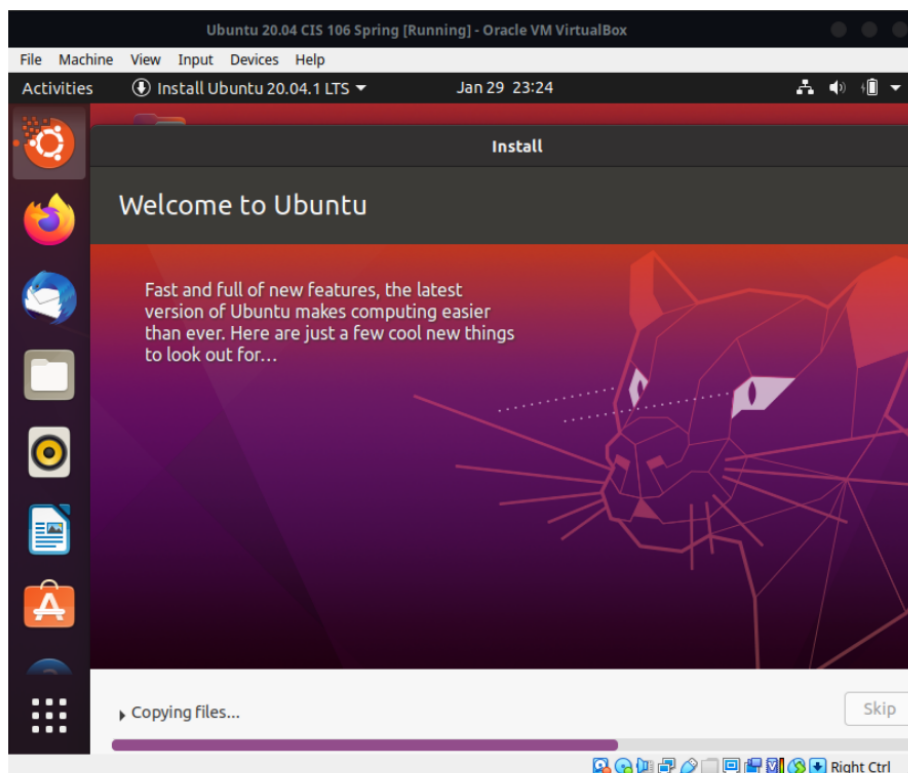
**Ubiquity's Who are you?**  
Screen allows you to enter your computer's information. Refer to slide 10 where you wrote down you username and password. To view this information you can click on machine > Settings > Details.



Notice that Ubiquity notifies you of the strength of your password.

2

6.The installation will continue until it is finished.



During the installation, ubiquity will display a slideshow with useful information about Ubuntu

## Updating Ubuntu

1. To update ubuntu first you need to open your terminal by pressing `ctrl + alt+ t`. This will launch the terminal or you can search on the show application button. Next enter the command `sudo apt`



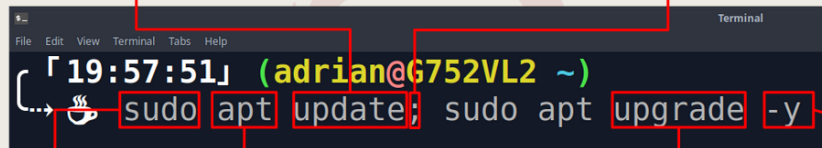
`update; sudo apt upgrade -y` this command will update the whole ubuntu ios and apps.

- To update any Debian distro:

Update is used to download package information from all configured sources.

By terminating every command with a ; you can run multiple commands in a single line.

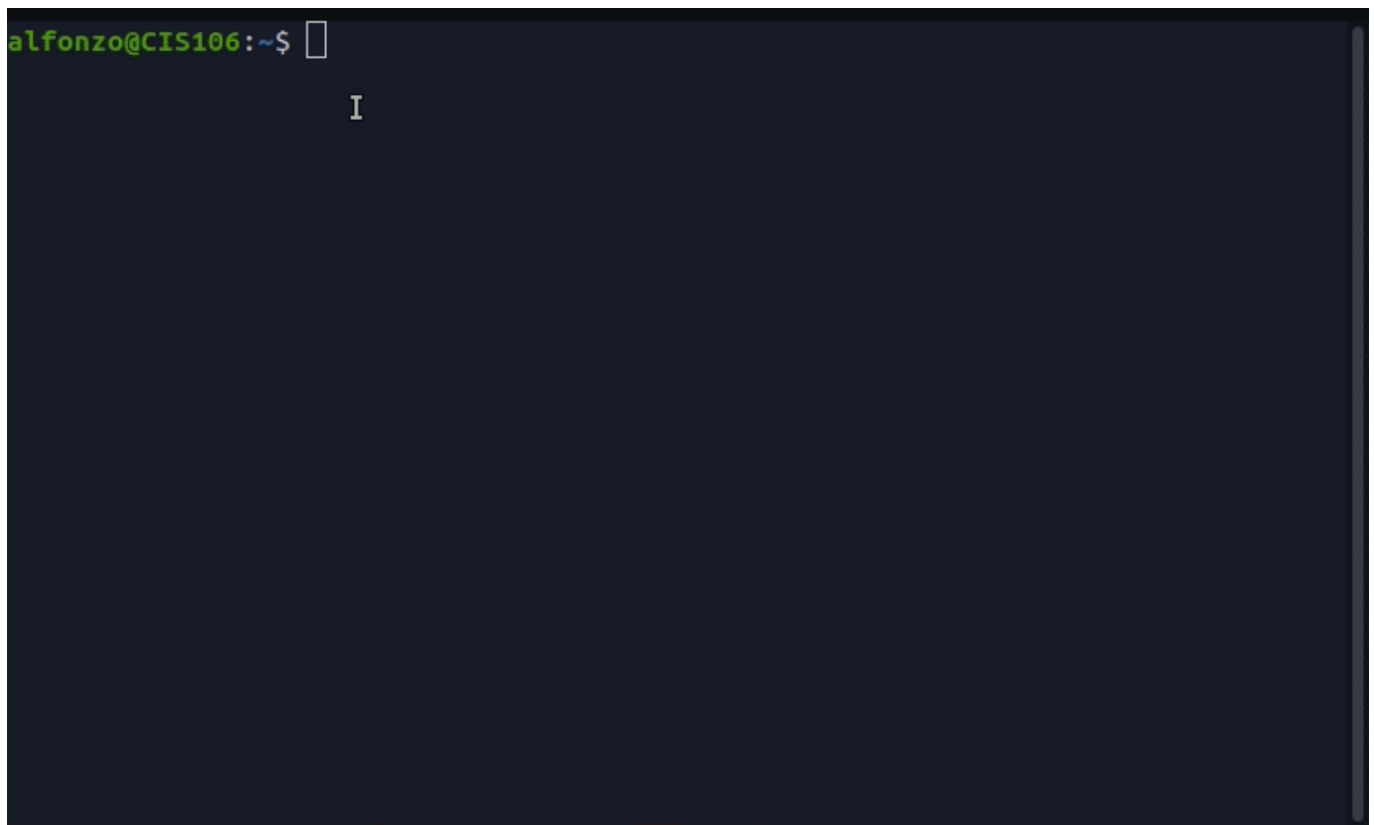
Managing software and updates requires root privileges. Sudo allows you to run any command as the root user.



Apt is the program that we are using to manage software and updates.

upgrade is used to install available upgrades of all packages currently installed on the system from the sources configured via sources.list

The -y option passes a yes answer to any question. Without this option apt will ask you if you want to install the upgrade. Using -y is optional and you should use it only if you are 100% sure about the upgrade.



## Installing Software in Ubuntu

- installation command Example
  - `sudo + apt + install + name of package`
- for example:

- `sudo apt install airstrike` this will install 2d game call airstrike.

```
alfonzo@CIS106:~$
```

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- Searching for Software.
  - `apt search "games"` this command will look for available games to install.
- Deleting Software
  - `sudo + apt + remove + name of package` for example :
    - `sudo apt remove airstrike -y` this would remove the game airstrike will previously download.

---

## Basic Linux Command

### Navigating the file system

#### **pwd**

- Description : used for displaying your current working directory
- usage: `pwd`

- Example:

```
alfonzo@CIS106:~$
```

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## cd

- Description : Use to change current working directory
- usage: `cd + Destination`
- Example : move from Home directory to Downloads folder.
- `cd Downloads`

```
alfonzo@CIS106:~$ pwd  
/home/alfonzo  
alfonzo@CIS106:~$
```

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## ls

- Description: used to display all files inside a give directory.
- usage: `ls + file/directory`
- Example: this will show all the files in the folder Downloads.
- `ls /Downloads.`



```
alfonzo@CIS106:~/Downloads$
```

---

## Managin files and directories

- **mkdir**
  - Description: use for creating directories
  - usage: `mkdir + option + new directory path`
  - Example:
    - Create a directory in the present working directory.
    - `mkdir Wallpaper/`
    - Create a parent directory and child directory.

- `mkdir Wallpaper/cars/new`

```
alfonzo@CIS106:~$ █ I
```

## touch

- Description : use to create files.
- usage : `touch + file name .`
- Example:
- Create a file in the `Wallpaper/cars/new/` directory.
- `touch Wallpaper/cars/new/BMW.png` this will create a image png file.

```
alfonzo@CIS106:~$ █
```

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## rm

- Description : Remove files
- usage : `rm + file name`

- Example:
- remove a file
  - `rm file.txt`

```
alfonzo@CIS106:~$ touch file.txt
alfonzo@CIS106:~$
```

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## mv


- Description : move and rename directories
- usage : `mv + source + destination`
- Example:
- to move and rename a file in the same command
- `mv Download/BMW.png Documents/BMW.png`

```
alfonzo@CIS106:~$ mv Downloads/BMW.png Documents/BMW.png
```

I

## cp

- Description: Copy files/directories from a source to a destination
- usage: `cp + files to copy + destination`
- Example:
- to copy a file
- `cp Documents/BMW.png Picture/`

A terminal window with a dark blue background. The prompt is 'alfonzo@CIS106:~\$' in green. The command 'cp Documents/BMW.png Pictures/' is entered in white, followed by a white cursor. The rest of the terminal is empty.

```
alfonzo@CIS106:~$ cp Documents/BMW.png Pictures/
```