(Unit-3)

Installing and Configuring OS

Department of Information Science & Library Management (ISLM)
University of Rajshahi, Rajshahi-6205, Bangladesh

Unit-1: Operating System Overview: Introduction to OS. Operating system functions, evaluation of O.S., Different types of O.S.: batch, multi-programmed, time-sharing, real-time, distributed, parallel.

Unit-2: System Structure: Computer system operation, I/O structure, storage structure, storage hierarchy, different types of protections, operating system structure (simple, layered, virtual machine), O/S services, system calls.

Unit-3: Installing and Configuring OS: Introduction to Installation and Media Types, Performing a Custom OS Installation, Run Levels and the Startup/Shutdown Sequence, Logging In and Out of a Operating System.

Unit-4: Process Management: Processes- Concept of processes, process scheduling, operations on processes, co-operating processes, interprocess communication, Threads- overview, benefits of threads, user and kernel threads., CPU scheduling, process synchronization, deadlocks- system model, deadlock characterization, methods for handling deadlocks, deadlock prevention, deadlock avoidance, deadlock detection, recovery from deadlock.

Unit-6: Storage Management: Memory Management- background, logical vs. physical address space, swapping, contiguous memory allocation, paging, segmentation, segmentation with paging, Virtual Memory- background, demand paging, performance, page replacement, page replacement algorithms (FCFS, LRU), allocation of frames, thrashing, File Systems, I/O Management, Disk Management.

Unit-7: Distributed OS and File System: Motivation, Types of Network-based OS, Network structure, Distributed File System- Background, Naming and transparency, Remote File Access, State full and Stateless services. Distributed Synchronization: Event Ordering, Mutual Exclusion, Atomicity, Concurrency Control, Deadlock Handling, Election algorithm and Reaching agreement.

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https://www.wikihow.com/Install-an-Operating-System-on-a-Brand-New-Computer

How to install windows 10 in a Brand new PC……

Youtube-Bangla

https://www.youtube.com/watch?v=wcsf4tdx80&ab_channel=PCbank

Text:

https://www.wikihow.com/Install-an-Operating-System-on-a-Brand-New-Computer

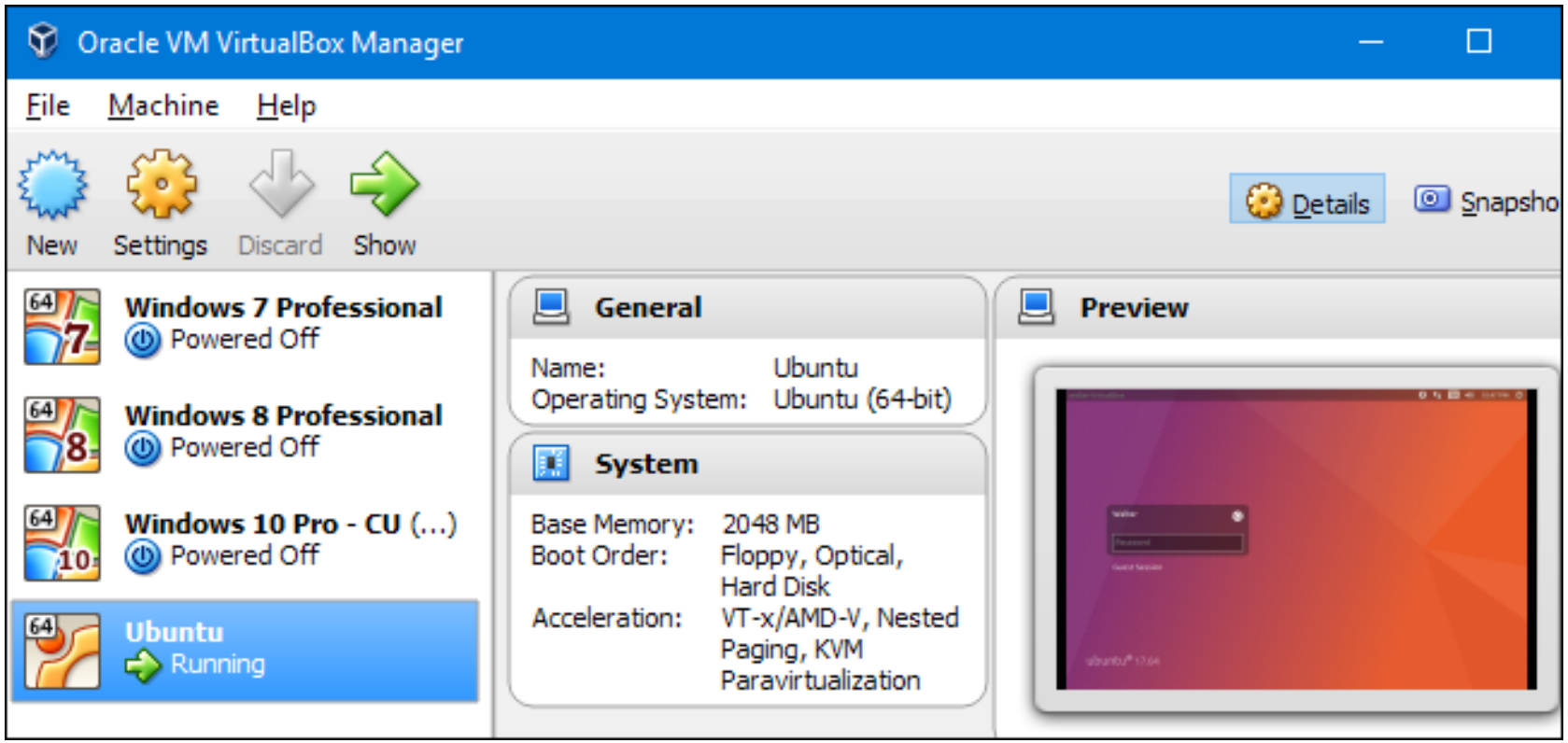
What is Virtual Machine?

A virtual machine is a program that acts as a virtual computer. It runs on your current operating system (the host operating system) and provides virtual hardware to guest operating systems. The guest OS runs in a window on your host OS, just like any other program on your computer.

There are several different virtual machine programs you can choose from:

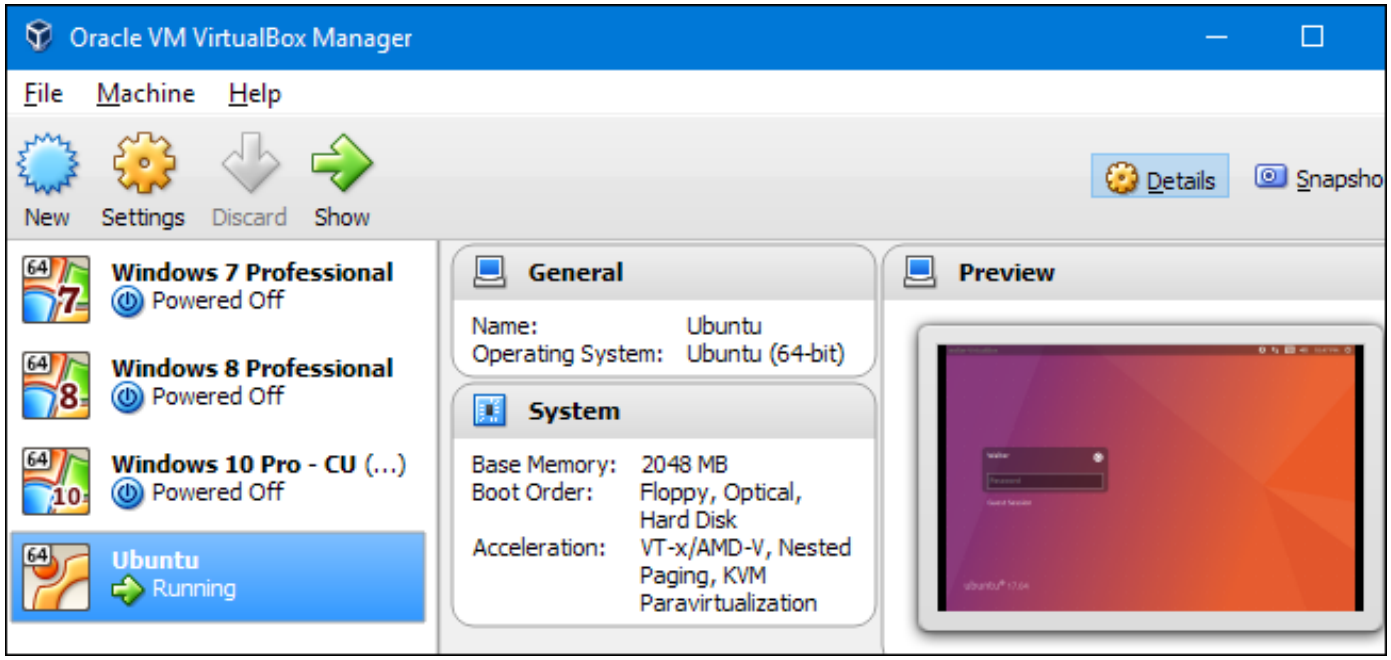
- Virtualbox
- Vmware Player
- Vmware Fusion
- Parallels Desktop

What is Virtual Machine?



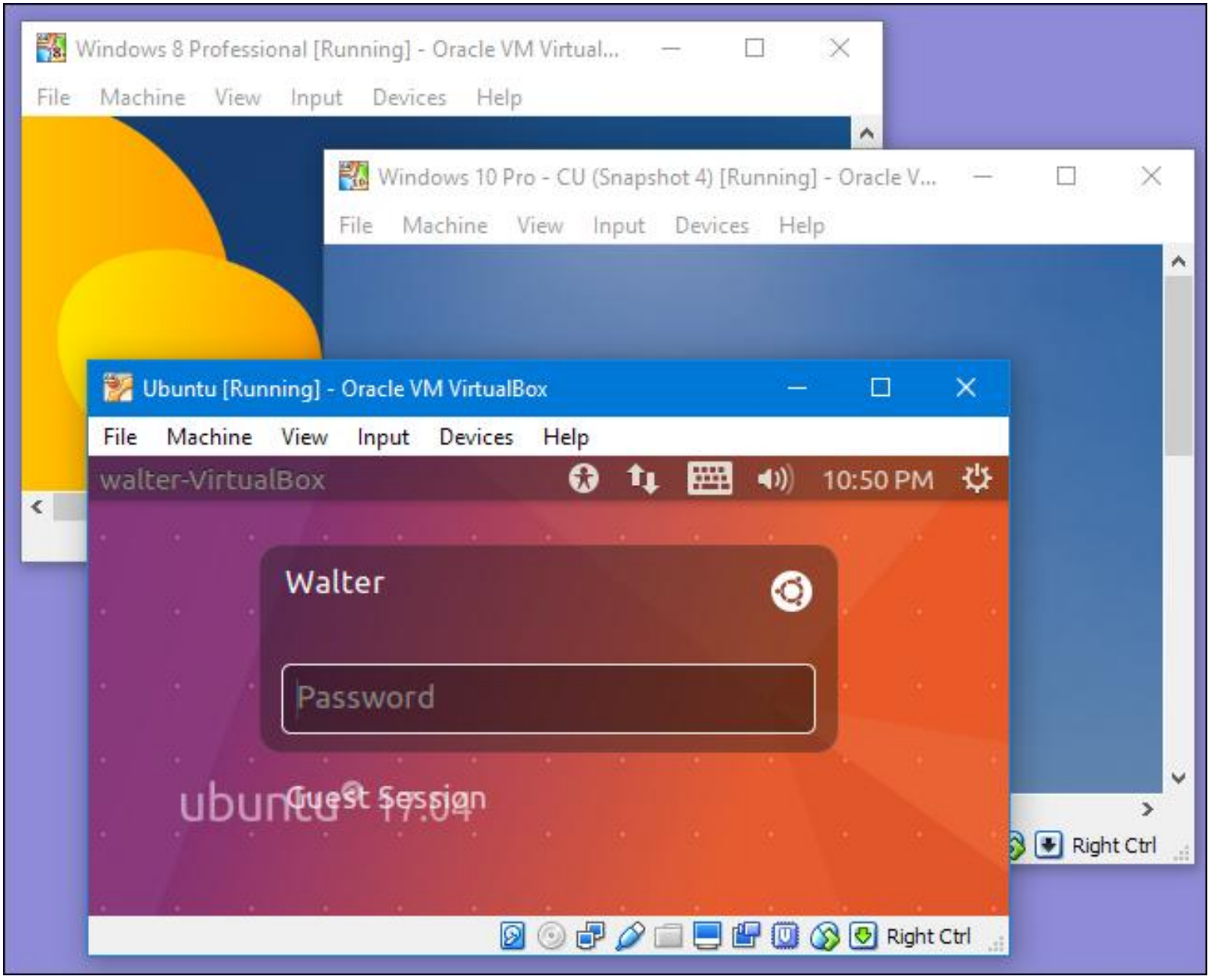
- You can have several virtual machines installed on your system.
- You're only limited by the amount of storage you have available for them.

What is Virtual Machine?



- Once you've installed several operating systems, you can open your virtual machine program and choose which virtual machine you want to boot.
- The guest operating system starts up and runs in a window on your host operating system, although you can also run it in full-screen mode.

What is Virtual Machine?



Reasons to Start Using a VM

- **Test new versions of operating systems**:

You can try out Windows 10 on your Windows 7 computer if you aren't willing to upgrade yet.

- **Experiment with other operating systems:**

Installing various distributions of Linux in a virtual machine lets you experiment with them and learn how they work.

- **Use software requiring an outdated operating system:**

If you've got an important application that only runs on Windows XP, you can install XP in a virtual machine and run the application there.

Reasons to Start Using a VM

- **Run software designed for another operating systems:**

Mac and Linux users can run Windows in a virtual machine to use Windows software on their computers without compatibility headache.

- **Test software on multiple platforms:**

If you need to test whether an application works on multiple operating systems, you can install each in a virtual machine

- **Consolidate servers:**

For businesses running multiple servers, they can place some into virtual machines and run them on a single computer. Each virtual machine is an isolated container, so this doesn't introduce the security headaches involved with running different servers on the same operating system.

Steps to Setting Up a Virtual Machine

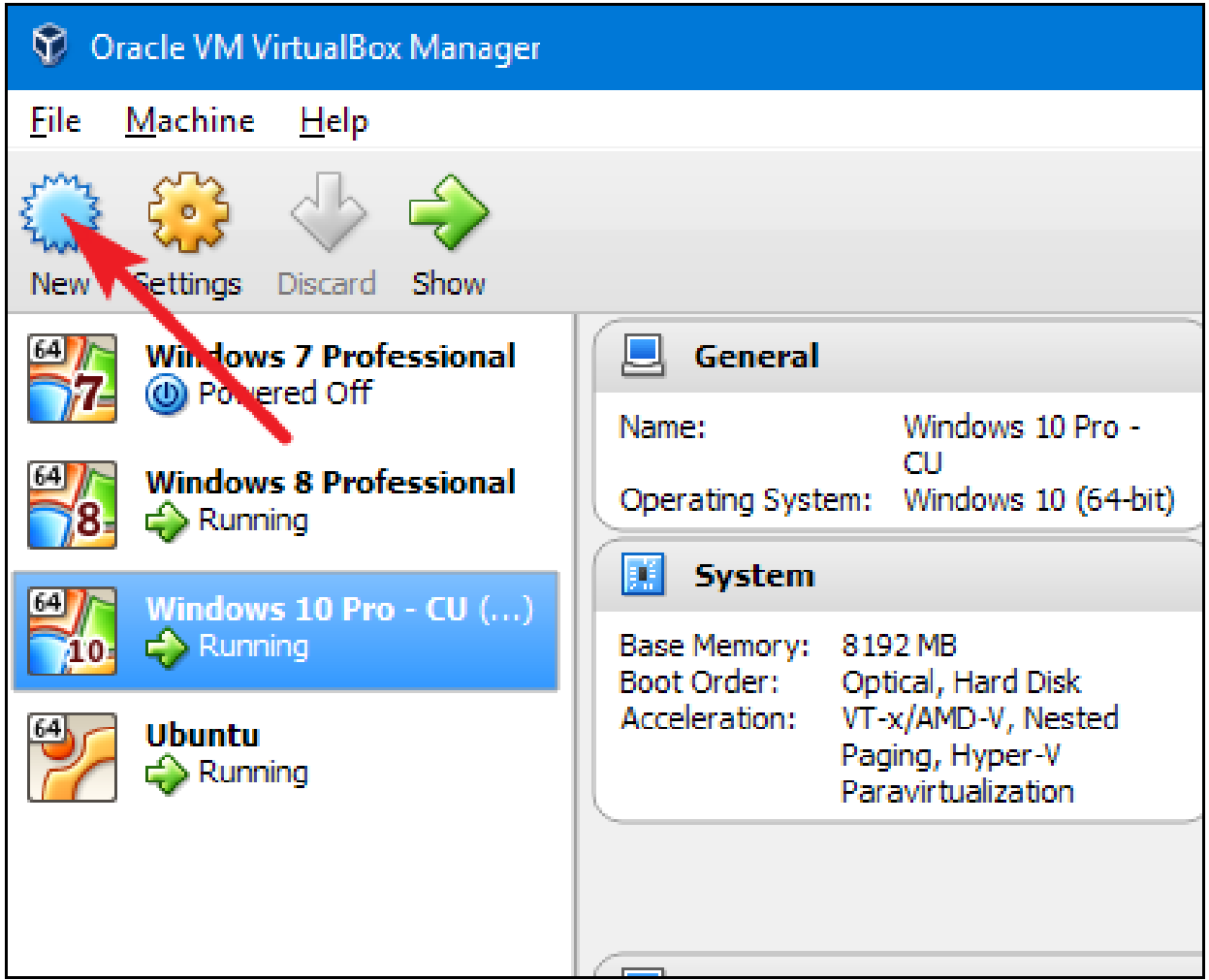
- Once you've decided on a VM program and gotten it installed, setting up a VM is actually pretty easy.
- Here, we're going to run through the basic process in VirtualBox, but most other program handle creating a VM the same way.

Lets Starts

Steps to Setting Up a Virtual Machine

Step-1: Create a New VM

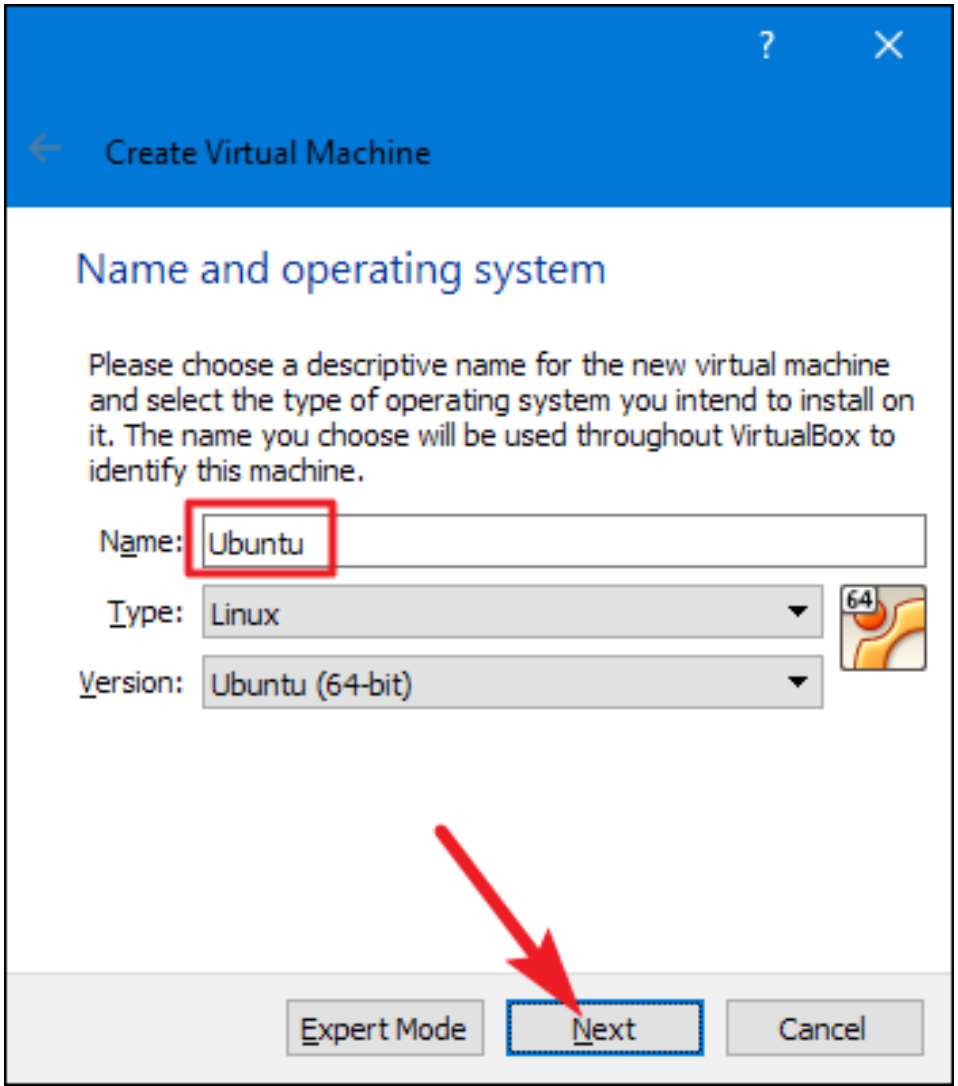
After installation the VM, VM program should be Open and click the NEW button to create a new virtual machine.



Steps to Setting Up a Virtual Machine

Step-2: Choose System Type

- Write your system Name for example Ubuntu
- Select Type: Linux.
- Select Version: Ubuntu.



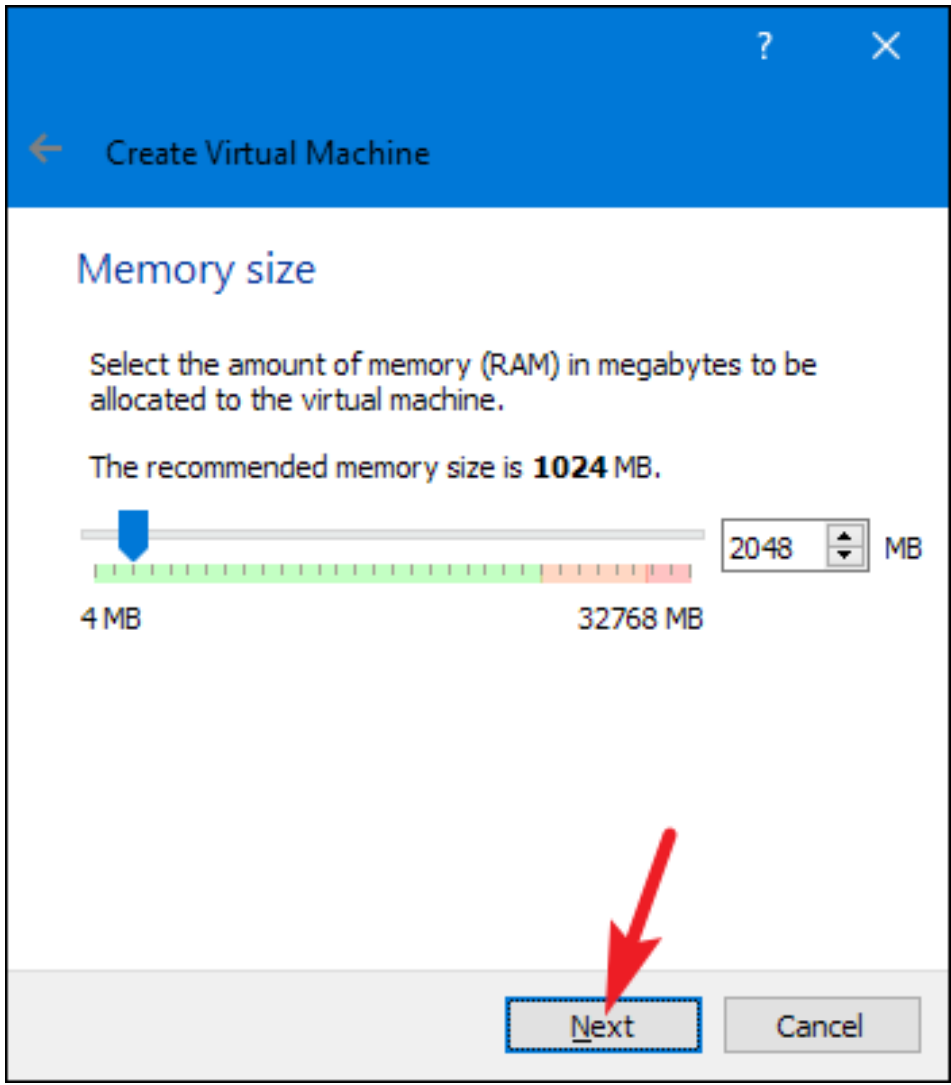
Steps to Setting Up a Virtual Machine

Step-3: Select the Amount of RAM

Here select the amount of RAM

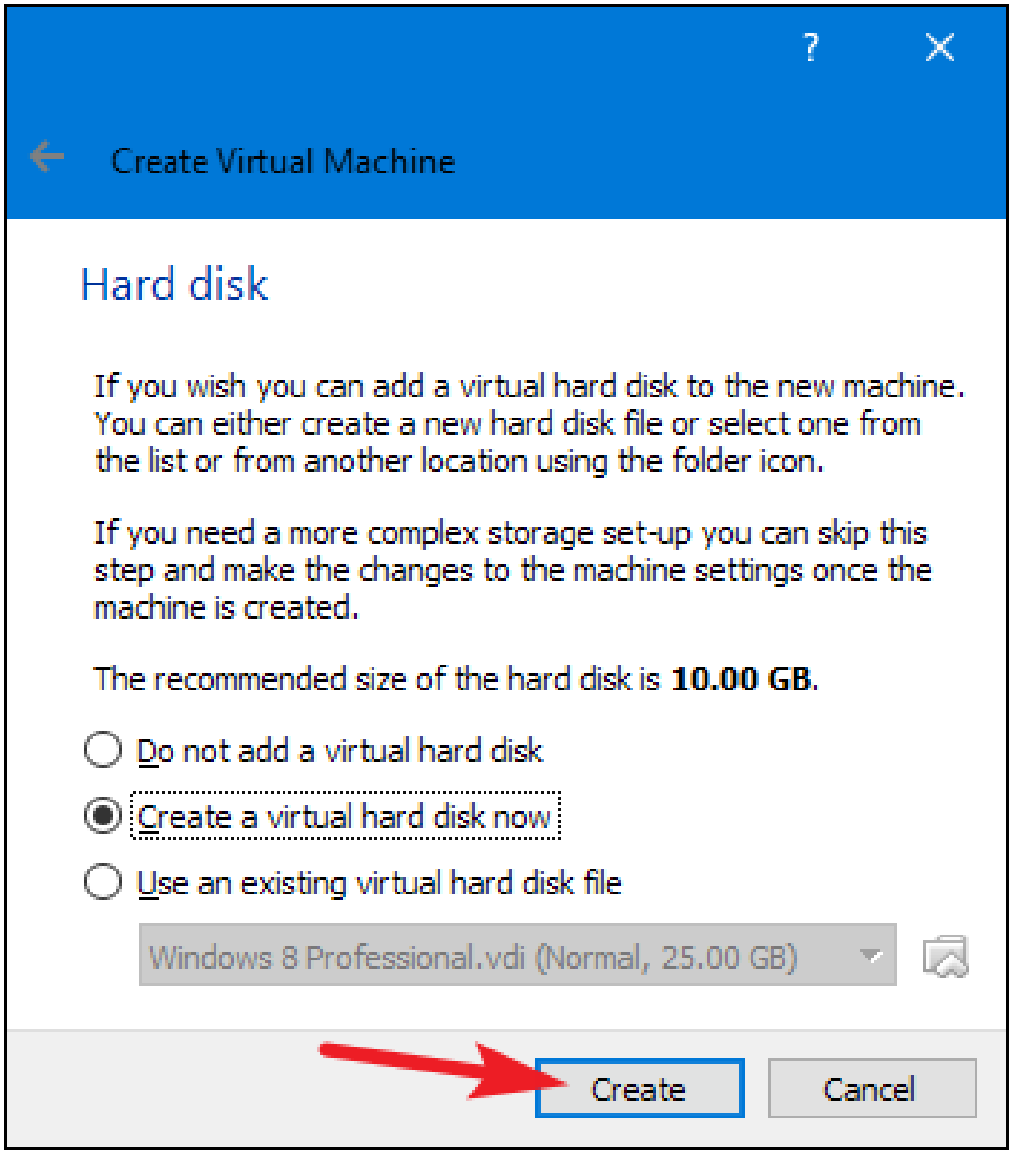
For example:

1024 MB = 1 GB
2048 MB = 2 GB



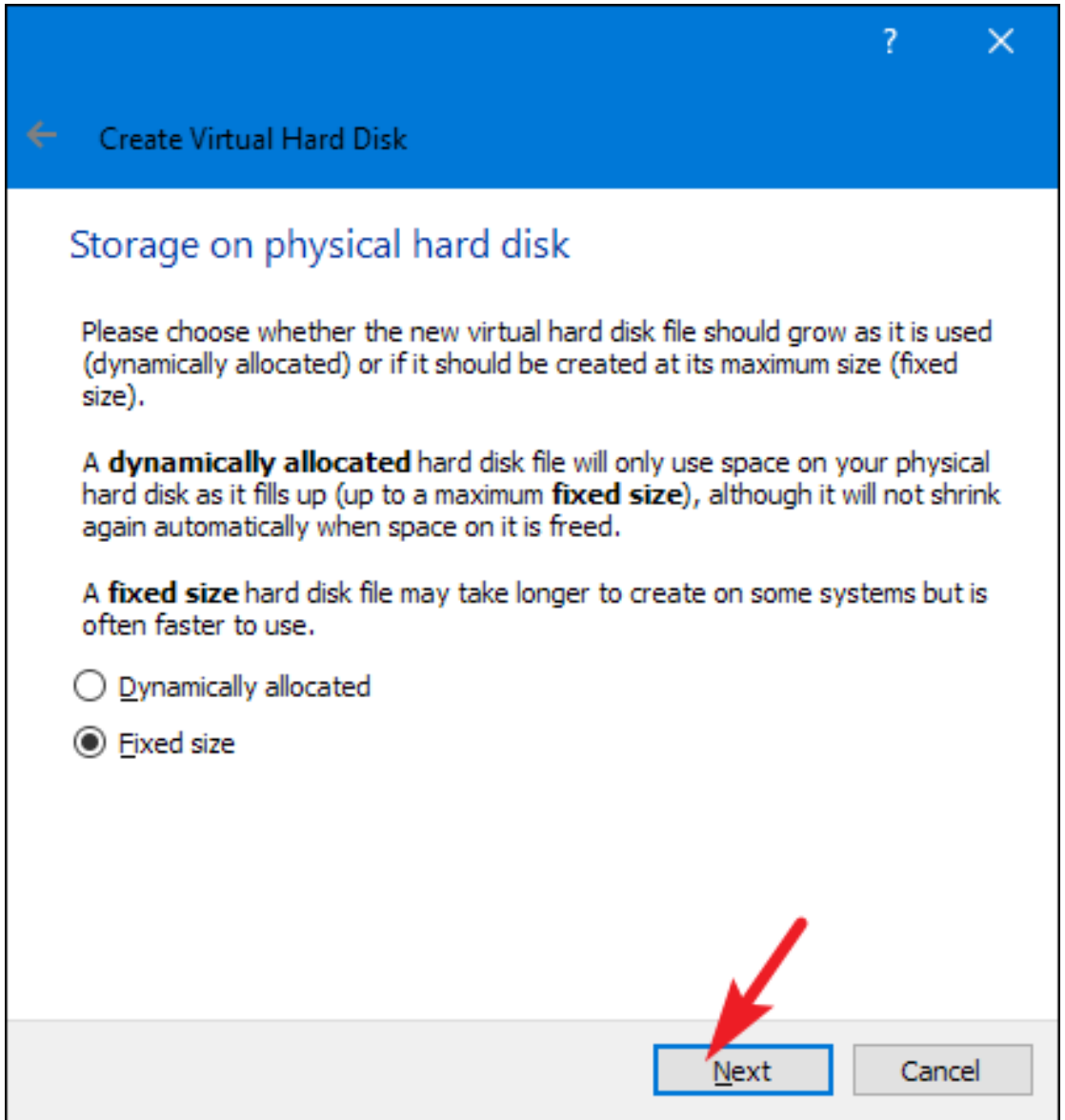
Steps to Setting Up a Virtual Machine

Step-4: Hard Drive Setting



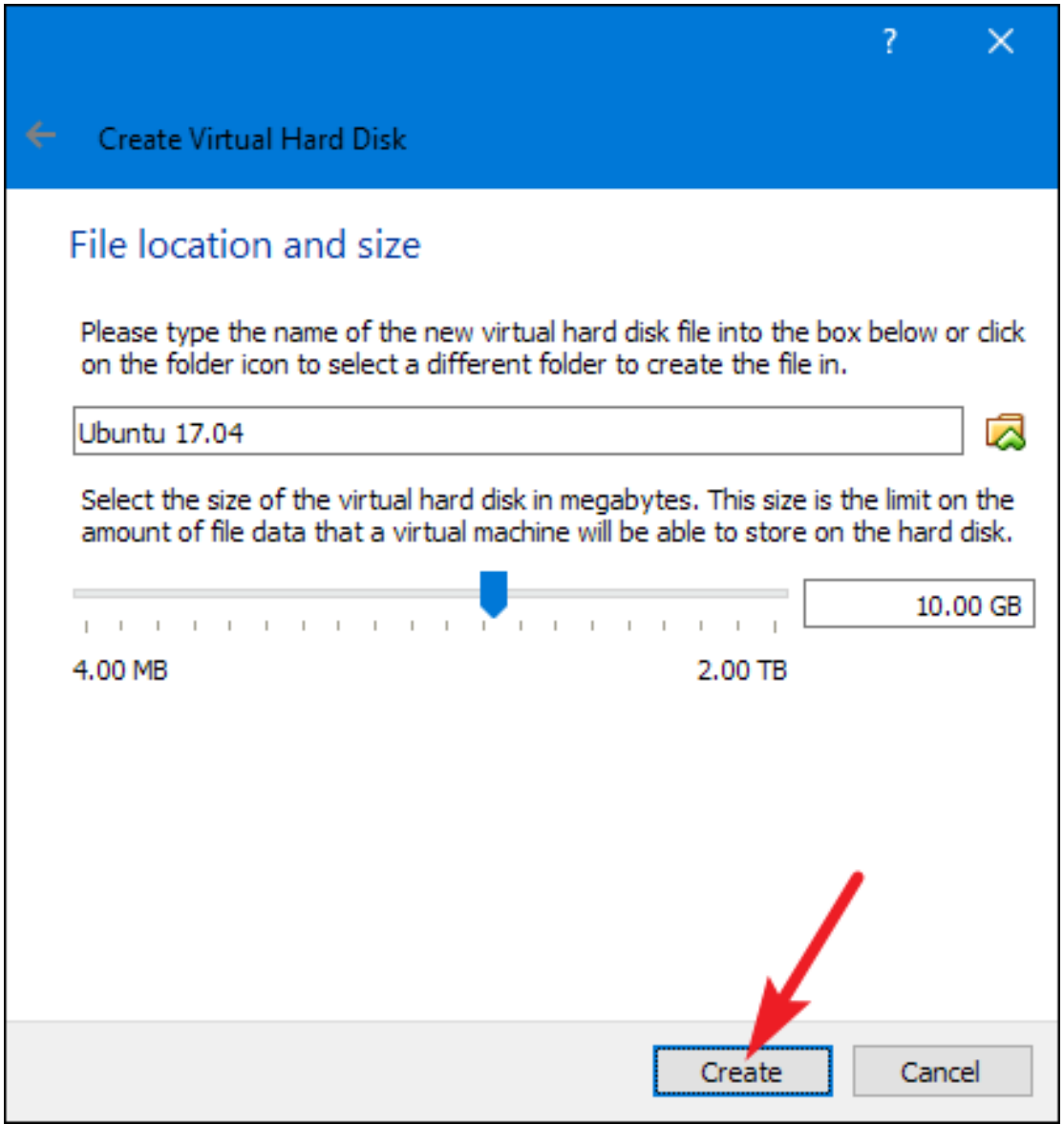
Steps to Setting Up a Virtual Machine

Step-5: Storage on Physical Hard Disk



Steps to Setting Up a Virtual Machine

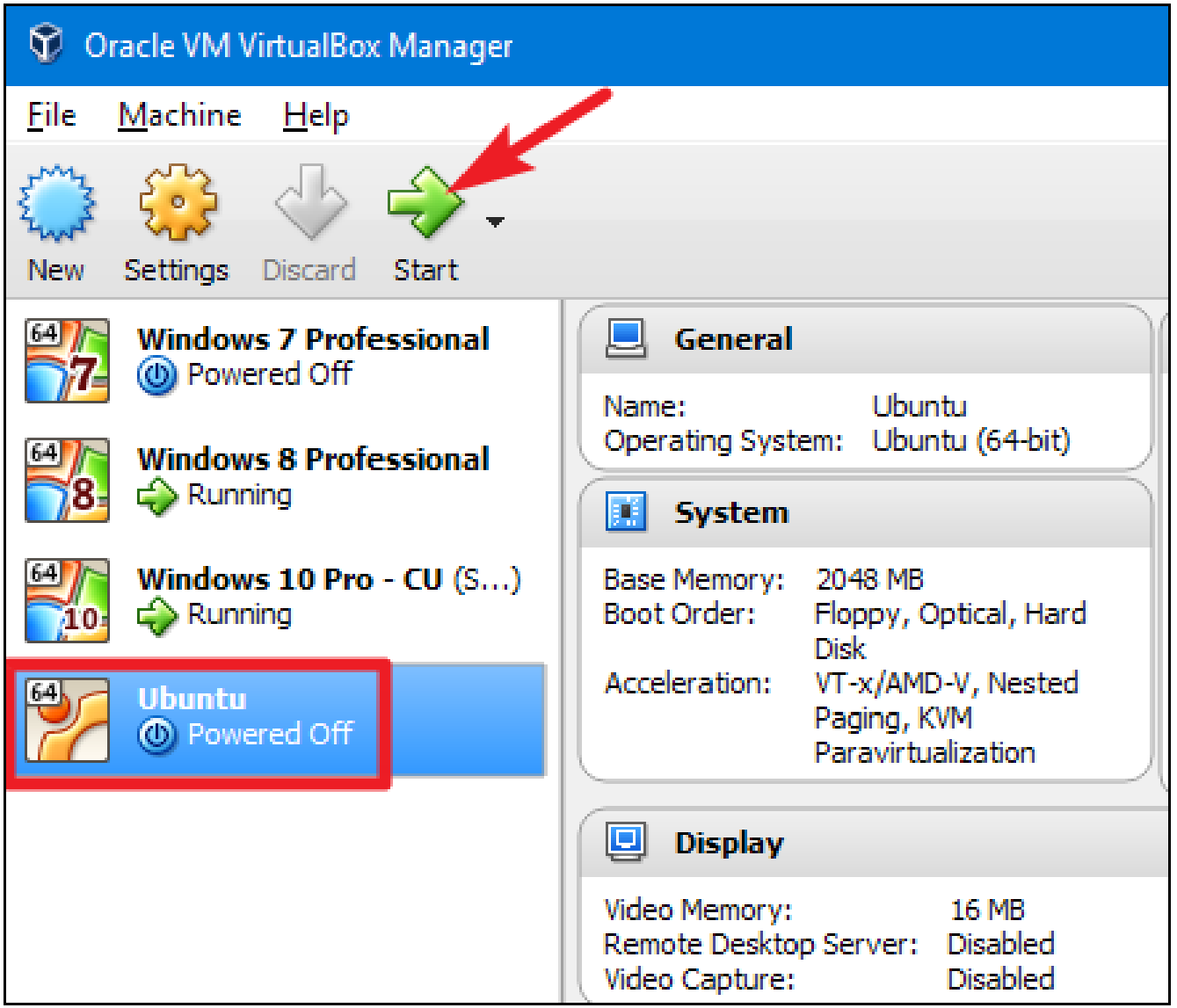
Step-6: File Location and Size



Now we have done from hardware setting.

Steps to Setting Up a Virtual Machine

Step-7: Start



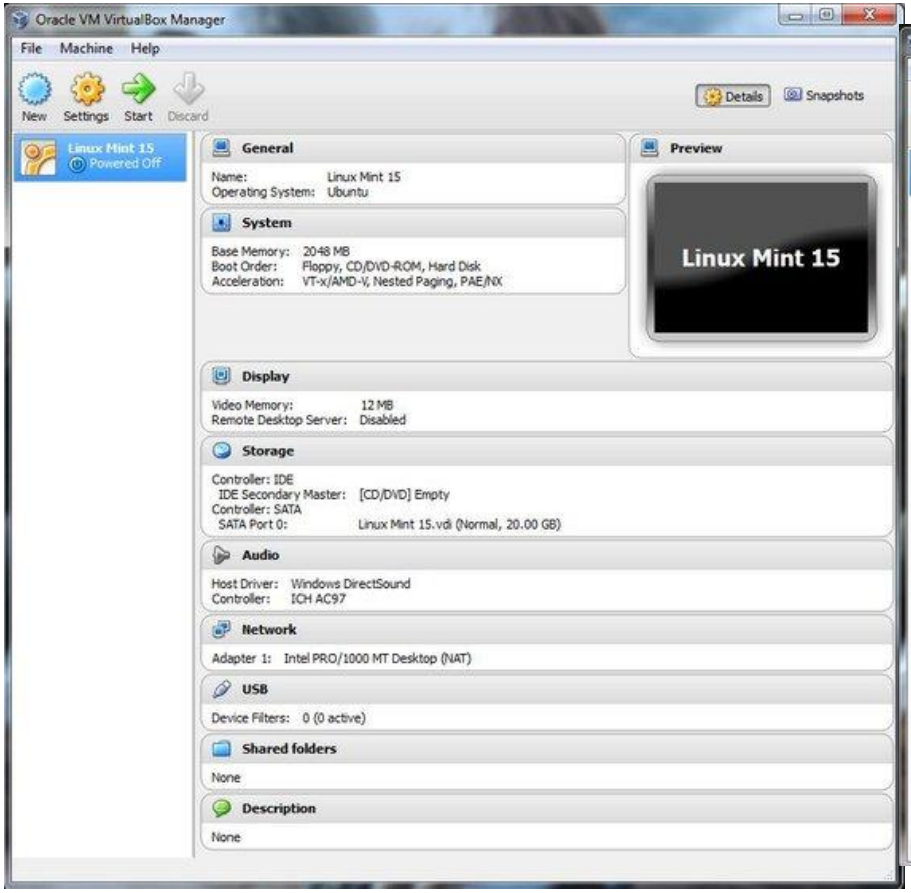
Steps to Setting Up a Virtual Machine

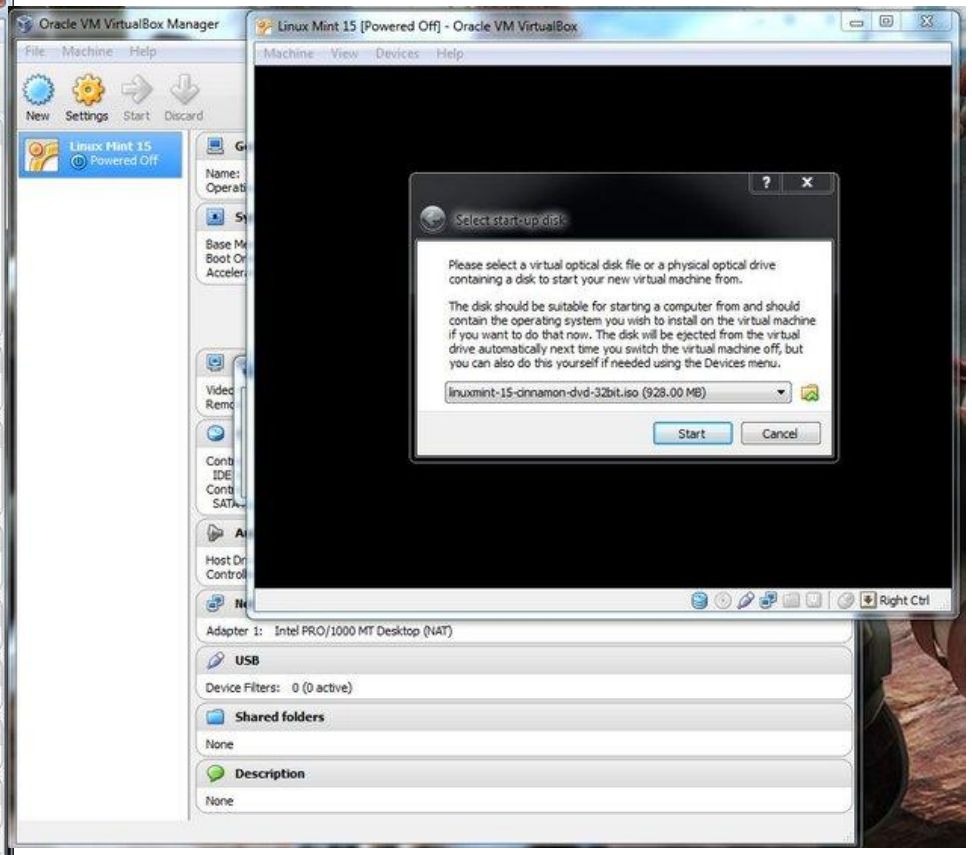
Step-8:Choose Liunx ISO File

- Click **Start** to launch system.

- Choose your system iso file from your computer.

for example my system iso file is (**ubuntu-16-04-32-bit.iso**)



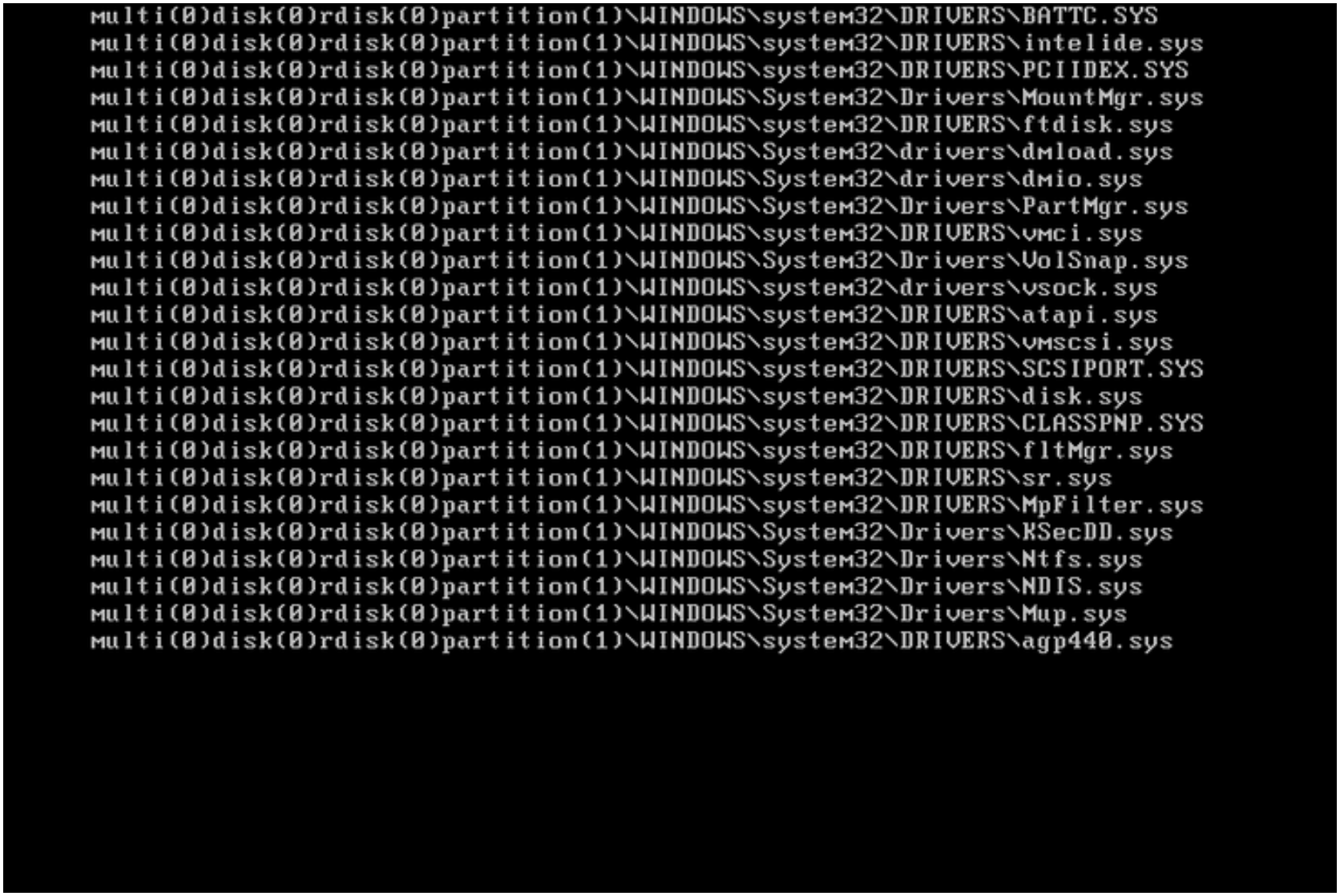


Steps to Setting Up a Virtual Machine

Step-9:Install Operating System

After selecting the installation media, the operating system installation will begin. Installation proceeds the same way it would as if you were installing the operating system on a regular computer.

What Does “Booting” Mean?



What Does “Booting” Mean?

- The term boot is used to describe the **PROCESS** taken by the computer when turned on, that loads the operating system and prepares the system for use.
- *Booting*, *boot up*, and *start up* are all synonymous terms and generally describe the long list of things that happen from the pressing of the power button to a fully-loaded and ready-to-use session of an operating system, like Windows.

What Goes on During Booting Process?

- The boot up process primarily starts when the power button on a CPU or computer system is manually pressed by a human operator.
- The computer is then activated and performs a series of boot time tests and checks before normal operations can be performed by the user.
- These checks include the power on self test (POST), which ensures that …..
    - the computer has enough electrical power to proceed,
    - a peripheral devices check, and
    - the initiation of the boot loader, which loads and executes the startup sequence and the operating system.

POST?

Power of Self Test (POST)?

- POST, short for *Power On Self Test*, is the initial set of diagnostic tests performed by the computer right after it's powered on, with the intent to check for any hardware related issues.
- Computers aren't the only devices that run a POST. Some appliances, medical equipment, and other devices also run very similar self-tests after being powered on.

Hard (Cold) Booting Versus Soft (Warm) Booting

- A cold boot is when the computer starts up from a completely dead state where the components were previously without any power at all.
- A cold boot is also characterized by the computer performing a Power-On-Self-Test, or POST.
- However, there are conflicting perspectives on what a cold boot really involves.
  - *For example, restarting a computer that's running Windows may make you think that it's performing a cold reboot because the system appears to turn off, but it may not actually shut down the power to the motherboard, in which case it would be applying a soft reboot.*
- Thus, Soft booting refers to restarting a computer that is already turned on via the operating system. Restarting it returns the computer to its initial state. A warm boot is sometimes necessary when a program encounters an error from which it cannot recover. On PCs, you can perform a warm boot by pressing the Control, Alt, and Delete keys simultaneously. On Macs, you can perform a warm boot by pressing the Restart button.

Boot Up Virtual Machine

- Once the operating system is installed, your virtual machine is ready to go.
- Simply double-click the name of your virtual machine in the left menu of the VirtualBox main page to start it up.
- The virtual computer will boot and load into the operating system that you installed.
- Your virtual machine will run in a window.
- Whenever the virtual machine window has focus, any keystrokes or mouse clicks will affect the virtual machine and not your physical computer.

Logging In Linux OS based system

To enter the system you need to identify yourself, what is known as logging in the Linux machine. How you do it depends on how you access the system and how it is configure.

- Logging In the system directly from a (text) terminal
  - If you do it in a text terminal, just type your user name at the prompt; you will be asked for your password; type it and you are in the system (if you did not do any mistake).

- Logging In the system directly from an X-windows session
  - To log on in a X-windows terminal you will find a small window with a "Logging" Type your user name, and then your password; you will then go to an X-windows session.

Logging Out Linux OS based system

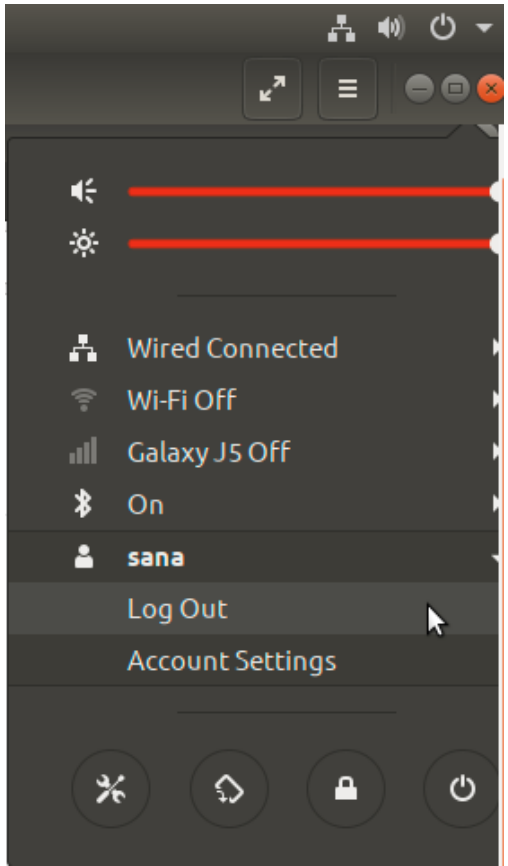
When any user ready to quit from Ubuntu system, that user can log out of his/her Ubuntu session by:

- Using the UI
- Using the Keyboard shortcut
- Through the application launcher search bar
- Through the Ubuntu command line, the Terminal

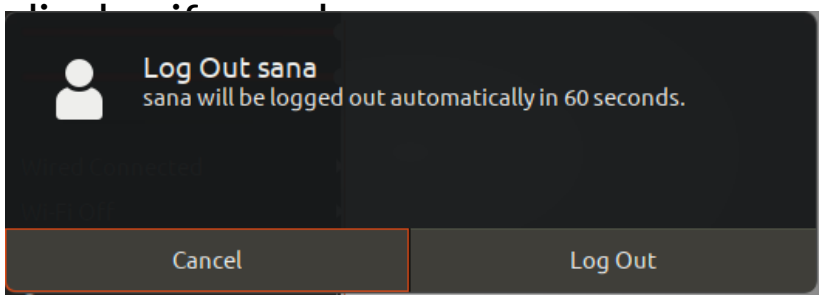
Logging Out Linux OS based system

Using the UI

One of the simple ways to log out of your Ubuntu session is to use the menu accessible through the downward arrow located at the top right corner of your Ubuntu screen. This is the menu you will see when you click this arrow:



Click your username and you will be able to see the following two main sub-menu items: Log Out and Account Settings. Click on the Log Out option in order to log out of your current Ubuntu session. The following dialog will

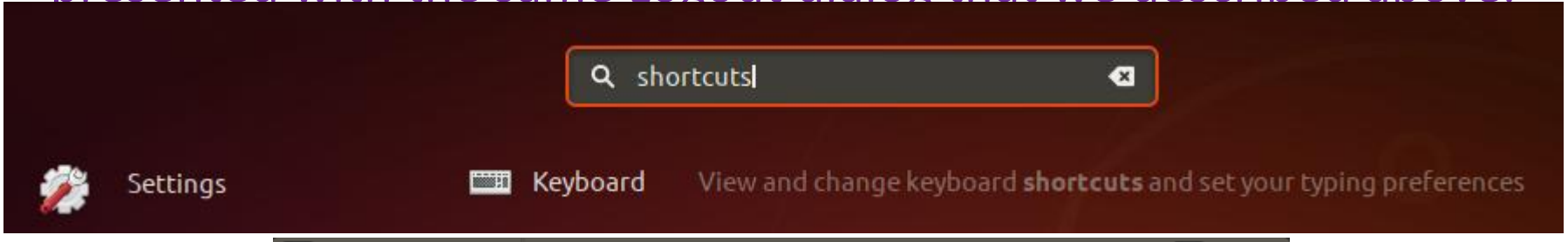


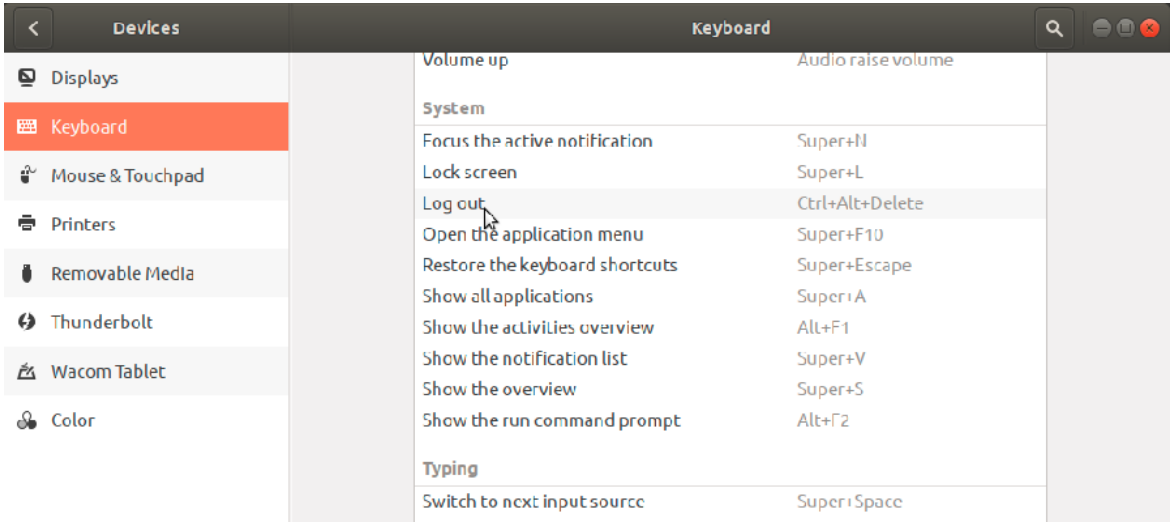
This dialog lets you log out right then by clicking the Log Out button. Otherwise, the system automatically ends your session after 60 seconds unless you press the Cancel button.

Logging Out Linux OS based system

Log Out Using Keyboard Shortcut

- Ubuntu comes with a number of default keyboard shortcuts that let you perform frequently used Ubuntu operations by using key combinations from your keyboard.
- Log out, being a very frequent operation is also assigned such a shortcut. When you hit the **Ctrl+Alt+Delete** key combination, you are presented with the same Logout dialog that we described above.





Logging Out Linux OS based system

Log Out Using the Application Launcher Search

- Another quick method to logout of your session is to use the very useful application launcher search bar. This bar can be accessed by hitting the Super/Windows key on your keyboard.
- Enter the keyword “logout” in this search bar and you will see the Log Out utility in the search result as follows:

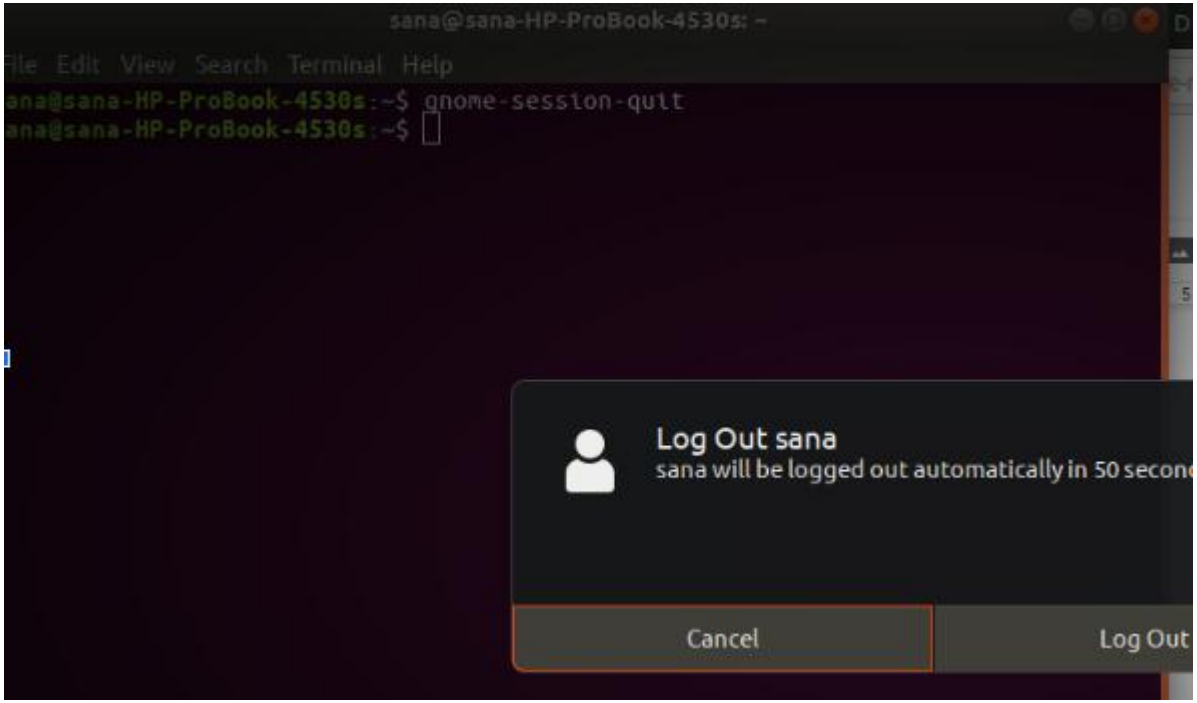
Click on the Log Out search result and you will be presented the same Log Out dialog that we described above.

Logging Out Linux OS based system

Log Out Using the Terminal

- Open the Ubuntu command line, the Terminal, either through the application launcher search or the Ctrl+Alt+T shortcut.
- Then enter the following command in order to end the current user's login session:

  $ gnome-session-quit



Shut Down Virtual Machine

We have a couple of different options when closing our virtual machine, and each will affect the machine slightly differently. When you click the "X" in the upper-right corner of the window, you will be presented with several options:

Save the machine state - This will save the virtual machine in exactly the state that it's in when you close it. Any programs you are running will be saved in their current state, and everything will be restored when you start the machine again.

Send the shutdown signal - This will send a power-down signal to the virtual machine, and it will shut down as if the power button was pressed on a physical computer.

Power off the machine - This will power down the machine as if power was cut to the computer. Nothing will be saved.

Supported host operating systems

Windows hosts:

- Windows Server 2008 (64-bit)
- Windows Server 2008 R2 (64-bit)
- Windows 7 (32-bit and 64-bit)
- Windows 8 (32-bit and 64-bit)
- Windows 8.1 (32-bit and 64-bit)
- Windows 10 RTM build 10240 (32-bit & 64-bit)
- Windows Server 2012 (64-bit)
- Windows Server 2012 R2 (64-bit)
- Windows Server 2016 (64-bit)

Mac OS X hosts (64-bit):

- 10.10 (Yosemite)
- 10.11 (El Capitan)
- 10.12 (Sierra)
- 10.13 (High Sierra)

Linux hosts (32-bit and 64-bit)

- Ubuntu 14.04 LTS, 16.04 LTS, and 17.04
- Debian GNU/Linux 7 ("Wheezy"), 8 ("Jessie") and 9 ("Stretch")
- Oracle Enterprise Linux 5, Oracle Linux 6 and 7
- Redhat Enterprise Linux 5, 6 and 7
- Fedora 25 and 26
- Gentoo Linux
- openSUSE 13.2