



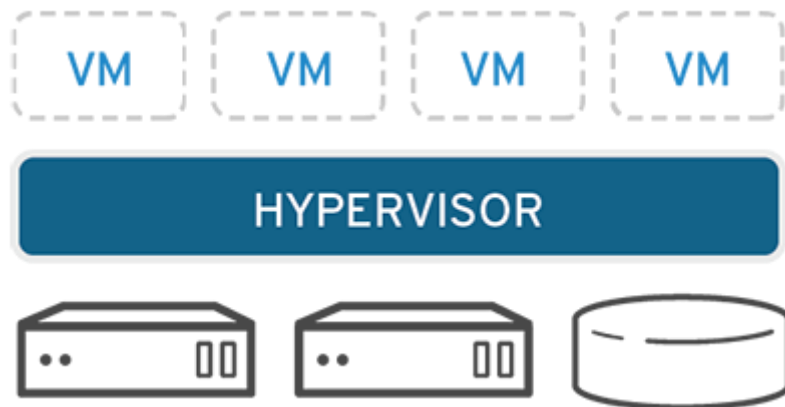
### Experiment No. 4

**Aim:** To study and implement virtualization through installation of Ubuntu on VirtualBox

**Theory:**

Virtualization is technology that you can use to create virtual representations of servers, storage, networks, and other physical machines. Virtual software mimics the functions of physical hardware to run multiple virtual machines simultaneously on a single physical machine.

Software called hypervisors separate the physical resources from the virtual environments—the things that need those resources. Hypervisors can sit on top of an operating system (like on a laptop) or be installed directly onto hardware (like a server), which is how most enterprises virtualize. Hypervisors take your physical resources and divide them up so that virtual environments can use them.



Types of virtualization:

- Server virtualization
- Storage virtualization
- Network virtualization
- Data virtualization
- Application virtualization
- Desktop virtualization

Steps of implementation:

1. Installation of virtual box
2. Installation of ubuntu on virtual box

Virtual box:



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VirtualBox is a powerful x86 and AMD64/Intel64 [virtualization](#) product for enterprise as well as home use. Not only is VirtualBox an extremely feature rich, high performance product for enterprise customers, it is also the only professional solution that is freely available as Open Source Software

### Steps:

step 1: Download VirtualBox

The first step in installing VirtualBox is to download the latest version of the software from the official website: <https://www.virtualbox.org/wiki/Downloads>.

Step 2: Launch the Installation Wizard

Once the download is complete, double-click the installer file to launch the installation wizard. Click "Next" to proceed through the introduction screens.

Step 3: Accept the License Agreement

Review the license agreement and click "I Agree" to accept it.

Step 4: Select shortcuts to create

Next, select the shortcut you want to create and click "Next."

Step 5: Choose the Installation Location.

Choose the installation location for VirtualBox and click "Next."

Step 6: Begin the Installation

Click "Install" to begin the installation process. Wait for the installation to complete.

Step 7: Finish the Installation

When the installation is complete, click "Finish" to complete the installation and launch VirtualBox.

### How to Install Ubuntu on VirtualBox?

Step 1: Download Ubuntu.

Next, you'll need to download the Ubuntu installation ISO file. You can download the latest version of Ubuntu from the official website: <https://ubuntu.com/download/desktop>.

Step 2: Create a New Virtual Machine

With VirtualBox installed and the Ubuntu ISO file downloaded, it's time to create a new virtual machine. Launch VirtualBox and click the "New" button in the top menu to do this. Give your virtual machine a name, select "Linux" as the type and "Ubuntu (64-bit)" as the version, and click "Next."

Step 3: Assign Memory to the Virtual Machine

Next, you'll need to assign some memory (RAM) to the virtual machine. The amount of memory you need will depend on the version of Ubuntu you're installing and the applications you plan to run. You should allocate at least 512MB of memory to the virtual machine. Click "Next" when you're done.



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### Step 4: Create a Virtual Hard Disk

Next, you'll need to create a virtual hard disk for the virtual machine. This is where the virtual machine will store its files and data. Select "Create a virtual hard disk now" and click "Create." In the next screen, select "VDI (VirtualBox Disk Image)" as the file type and click "Next." Step

### 5: Allocate Disk Space

Next, you'll need to allocate some disk space to the virtual machine. The amount of space you need will depend on the version of Ubuntu you're installing and the applications you plan to run. You should allocate at least 20GB of disk space to the virtual machine. Click "Create" when you're done.

### Step 6: Configure the Virtual Machine

With the virtual machine created, it's time to configure it. Click the "Settings" button in the top menu and select the "System" tab. In the "Motherboard" section, make sure the "Extended Features" options are checked. This will allow you to boot from the Ubuntu ISO file in the next step.

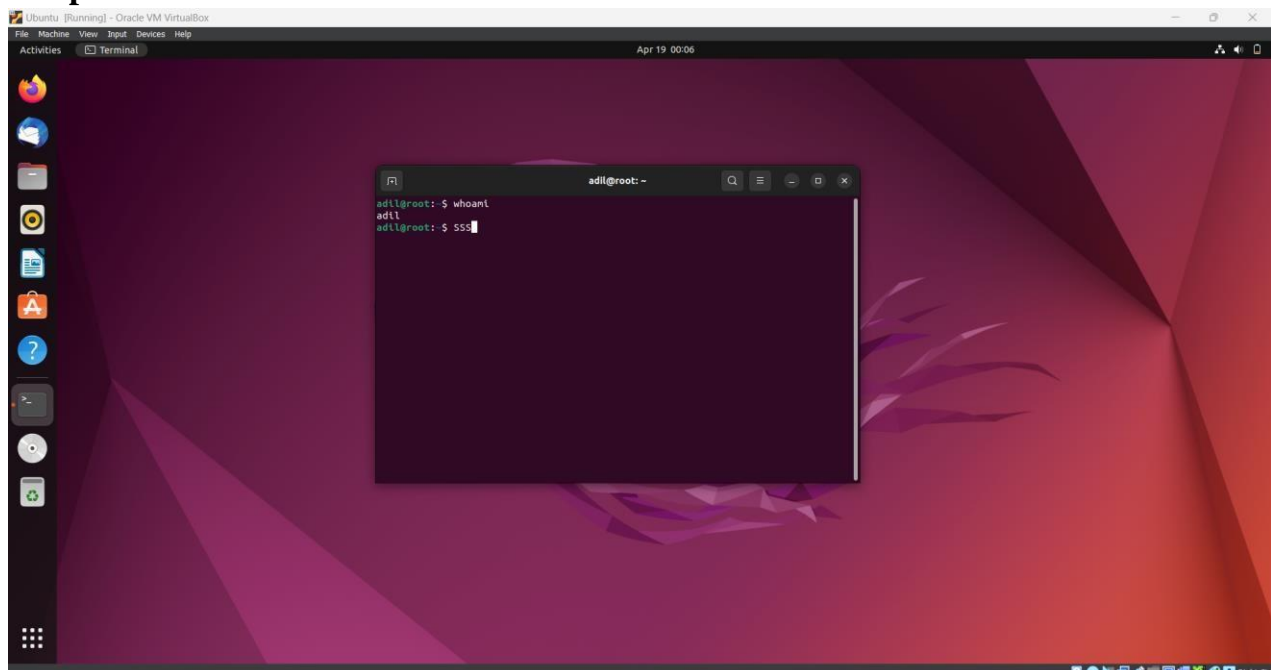
### Step 7: Boot from the Ubuntu ISO

With the virtual machine configured, it's time to boot from the Ubuntu ISO file. When prompted, click the "Start" button in the top menu and select the Ubuntu ISO file. The virtual machine will boot from the ISO file and begin the Ubuntu installation process.

### Step 8: Install Ubuntu.

Follow the prompts to install Ubuntu on the virtual machine. The installation process is straightforward and should only take a few minutes. When installing, click "Restart Now" to boot into your new Ubuntu virtual machine.

### Output/Observation:





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### **Conclusion:**

Full virtualization is the kind of virtualization that was utilized to install Ubuntu on VirtualBox. Because of this, Ubuntu can operate on a virtual machine as a guest operating system, creating a separate environment from the host OS. Complete virtualization guarantees resource management and compatibility, enabling the Ubuntu virtual machine to make effective use of its physical resources. This configuration is perfect for running numerous operating systems at once as well as for testing and development reasons.