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## 1. Introduction:

A Virtual box is an open-source virtualization software developed by oracle that allows users to run multiple operating system on a single physical machine (mini computers on the main computer). VirtualBox is classified as virtualization software. Specifically, it is a "Type 2 hypervisor," meaning it operates on top of a host operating system rather than directly on hardware. VirtualBox achieves concurrent OS operation by creating virtual hardware environments for each virtual machine. Each VM runs as if it were on its own physical hardware, enabling multiple operating systems to coexist and operate independently on the same host machine.

Virtual machine is easy to build in virtual box, first of all make sure you have compatible OS installer also called as iso file for VirtualBox, start virtual box and start it to make new virtual machines. The process of setting virtual machines is as it as setting up a new laptop as virtual machine is a mini computer inside a computer. Select your favorable setting, install Essential Dependencies for Linux (e.g. Ubuntu) complete the installation rules, make an account and all set to start a virtual machine. Virtual Box is freely available and used by everyone, it is mostly used by IT professionals, software developers, Hackers. It is used by developers who want to check programs in various conditions without using many computers. VirtualBox is beneficial in fields like software development, where developers need multiple OS platforms for testing, in education for teaching operating systems, and in IT for system administration and network simulation. Its utility spans various professional and academic fields.

Virtual box uses some of the parts of computers like CPU, RAM, Storage (Disk Space), Graphics and GPU and so on. Virtual box divides the resources to new virtual environment. Virtual machine works as another computer is established. User need to divide how much these resources are given to it. Nowadays developers, testers like virtual Box because it is very easy to build and support virtual machines without specific hardware. Apart from that fact is Virtual Box is efficient, robust, cross platforms, and high performance in nature, it is also free, which make this product convincing.

## **2. Objective of Virtual Box**

The primary objective of VirtualBox is to provide a seamless virtualization solution that can work across multiple host operating systems (such as Windows, macOS, and Linux) and support a wide variety of guest operating systems. VirtualBox enables developers, testers, and system administrators to run isolated instances of various OSs on a single machine.

## **3.Tools and Resources for Virtual Box**

**Compatible Host System:** A computer running Windows, macOS, Linux, or Solaris OS with sufficient CPU and RAM to support virtualized environments. The more resources available, the better the performance for multiple VMs.

**Operating System (ISO files):** VirtualBox requires ISO files or installation media for the guest operating systems that users need to run.

**Oracle VM VirtualBox Extension Pack:** This optional pack enhances the software's functionality, adding support for USB devices, remote desktop protocol (RDP), and disk encryption.

**Visualization Software:** it includes VMware workstation or VMware ESXI .in next step, oracle virtual box.

## **4. Steps for installing window server 2022**

### **I. Download and install virtualization software**

**Select Oracle Virtual Box or VMware workstation according to your choice.**

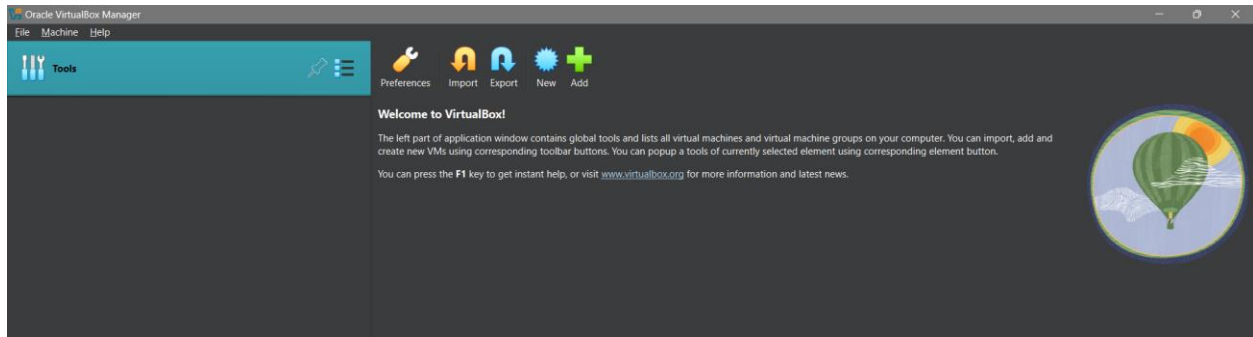


Figure 1: open virtual box

ii. Download the iso file for Microsoft server 2022.

iii. Name the Virtual Machine, find new button at the top right corner of virtual box and give it a suitable work-related name.

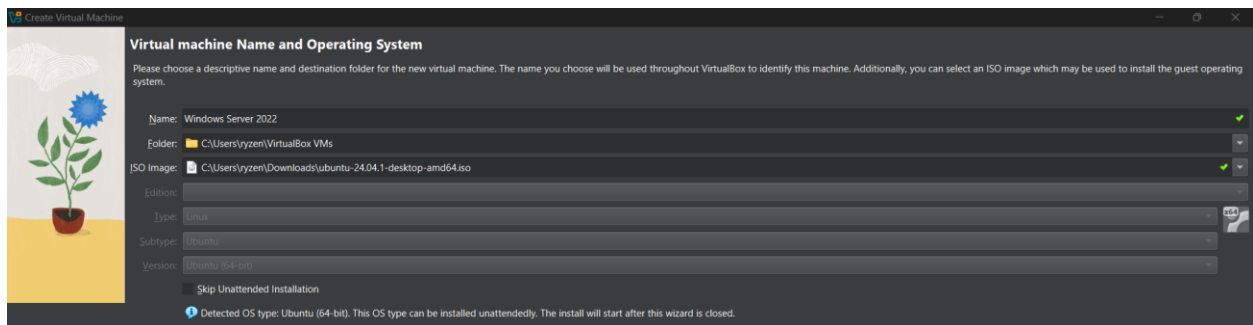


Figure 2: Naming the virtual machine.

#### iv. Upload the iso file

Find the select window server 2022 iso file on your computer and select it.

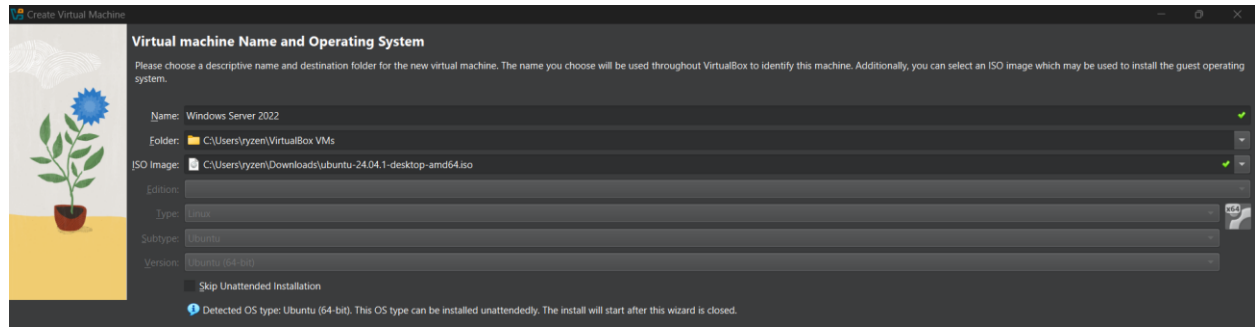
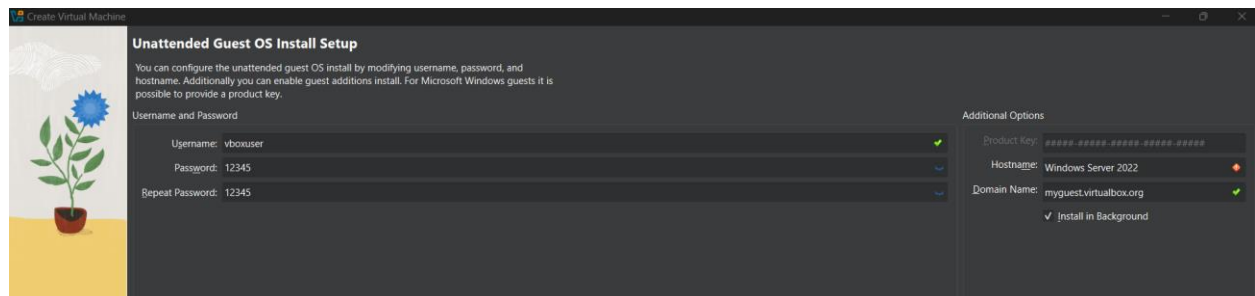


Figure 3: Uploading the iso file.

## v. Filling up the information and details.



vi. Allocation of memory: it is best to put 4000 MB which means 4GB of RAM for Windows server 2022. It is best to use half of memory from full memory for best performance as high use of memory can crash the computer.

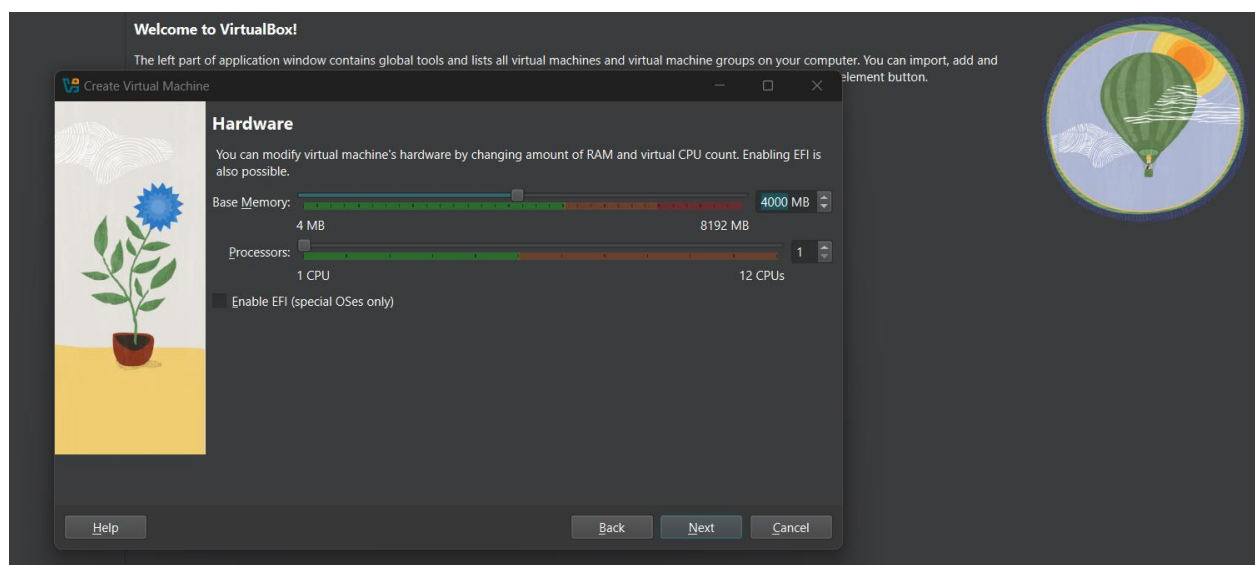


Figure 5: Allocation of Data

## vii. Finishing the setup process

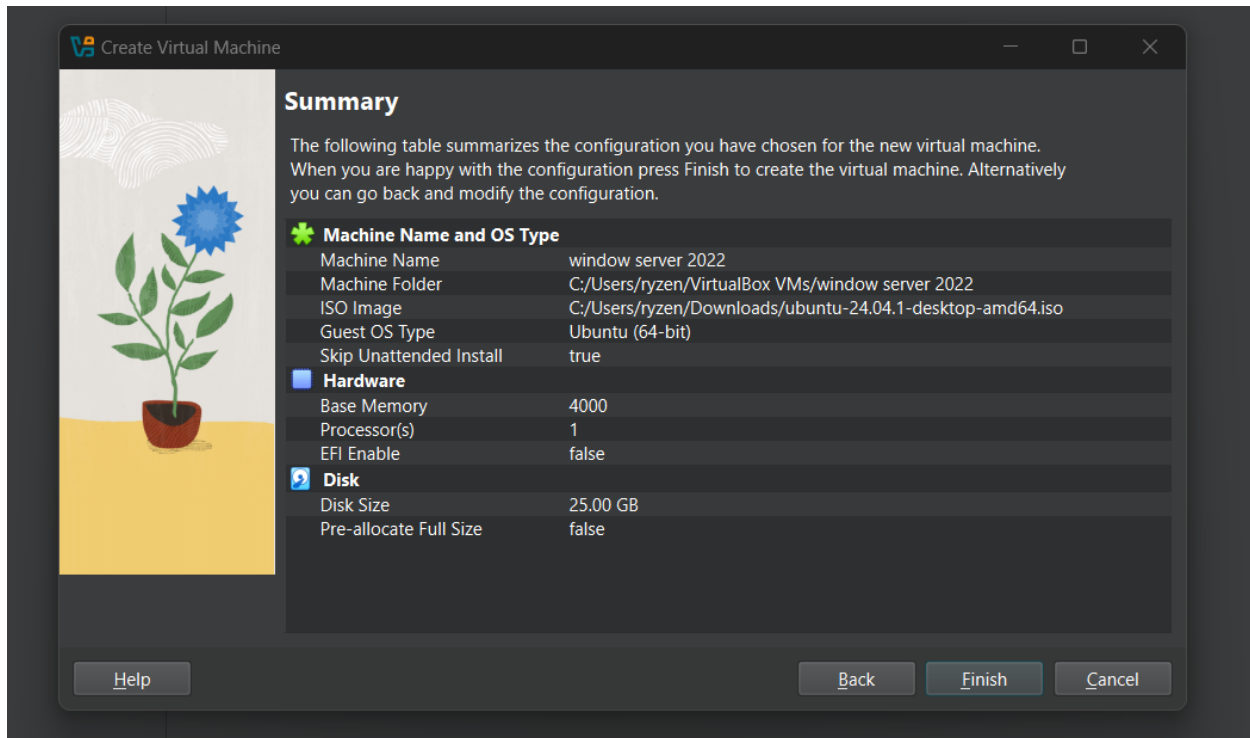


Figure: Finishing overall Process

## Viii. Running the virtual box

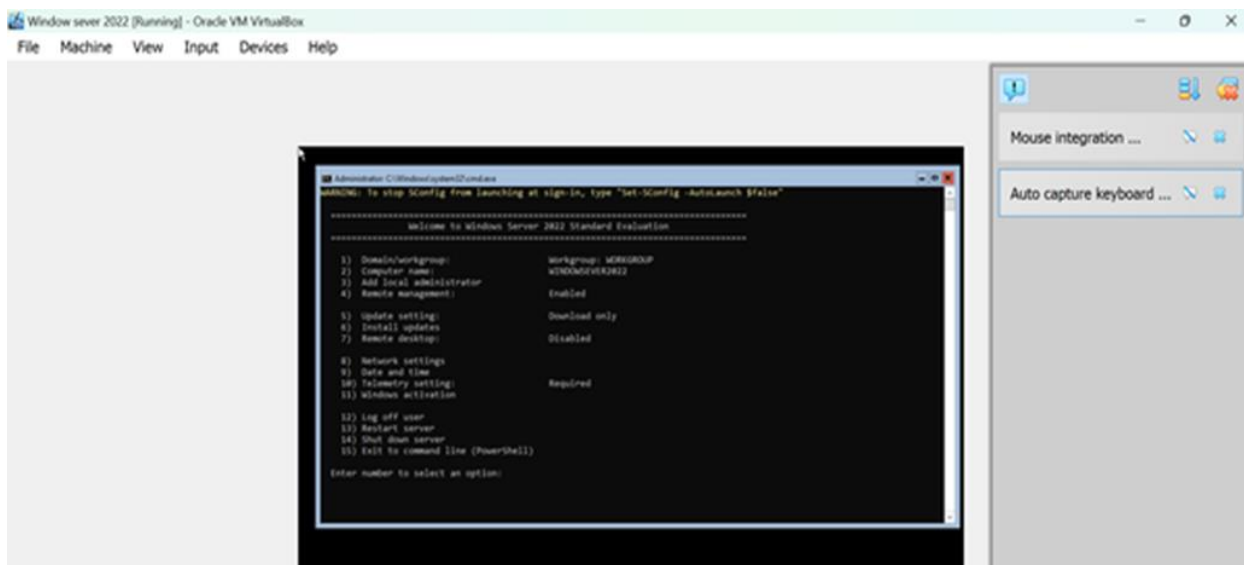




Figure 7: Running the virtual box

## **5.Conclusion**

In conclusion, VirtualBox is an essential tool for anyone needing a flexible virtualization solution. Its extensive features cater to both casual users and professionals, making it suitable for diverse use cases. By enabling the efficient use of hardware resources while providing a safe environment for experimentation and development, VirtualBox plays a crucial role in modern computing practices.

## **6.References**

"Virtualization Essentials" by Matthew Portnoy

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