

SETTING UP A VIRTUAL HOME LAB

I created a virtual IT home lab from the ground up using open-source software on my personal computer. In the early 2000s, building an IT lab typically involved purchasing physical servers or repurposing old hardware. While this provided valuable hands-on experience, advancements in technology now offer a more efficient and cost-effective solution: setting up a virtualized IT lab using free tools and resources.

CONTENT

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- Installing VirtualBox
- Configuring a Virtual Network
- Creating Virtual Machines
- Downloading OS ISOs (Windows 8, Windows Server, Kali Linux)
- Installing Operating Systems on Virtual Machines
- Conclusion



Types of Virtualizations

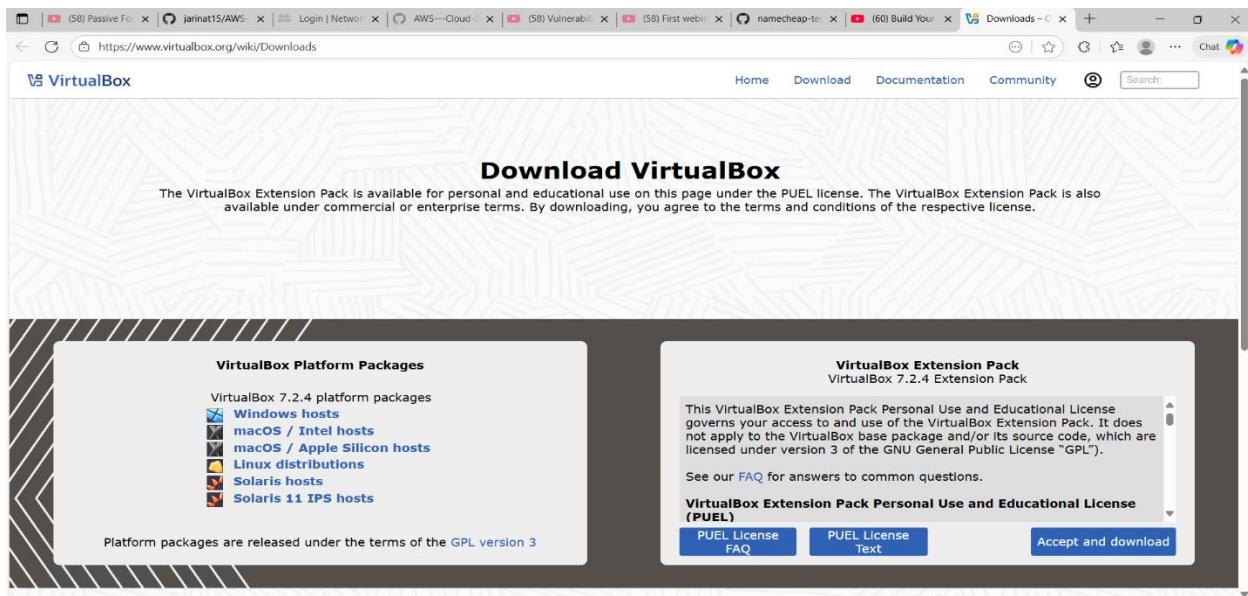
There are several types of virtualizations, each serving a specific purpose.

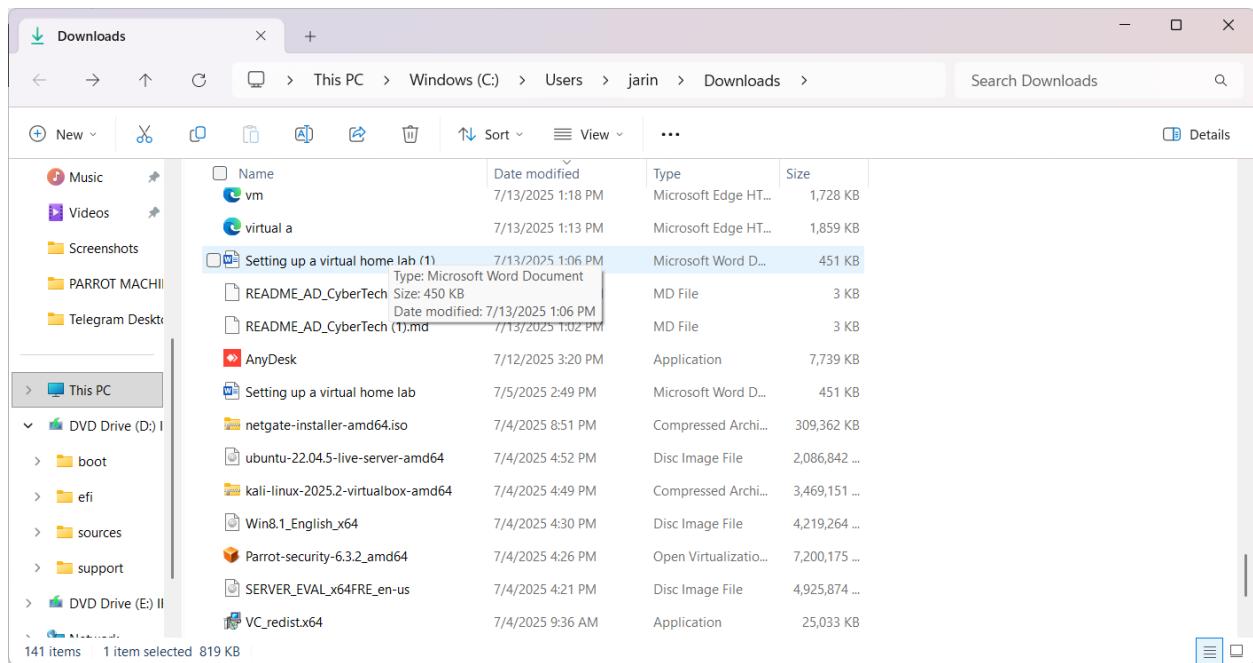
- Windows Server Virtualization Enables multiple server instances to run on a single physical server, improving resource utilization and reducing hardware costs.

- Desktop Virtualization Allows users to access a desktop environment remotely, often used in virtual desktop infrastructure (VDI) setups.
- Storage Virtualization Combines physical storage from multiple devices into a single, centralized virtual storage pool.
- Network Virtualization Creates virtual networks that function independently of the underlying physical network, enhancing flexibility and security. Benefits of Virtualization
- Cost Savings Reduces the need for physical hardware, lowering capital and operational expenses.
- Improved Efficiency Maximizes hardware utilization by running multiple workloads on a single system.
- Scalability Easily add or remove virtual machines based on demand, supporting dynamic workloads.
- Isolation Each virtual machine operates independently, enhancing system stability and security.

Virtualization Software

There are numerous virtualization platforms available, and choosing the right one depends on your operating system and specific needs. There is no single “best” option each has its strengths. For this setup, we will use Oracle VM VirtualBox, a free and open-source virtualization tool that supports both Windows and Linux. However, you are free to use any virtualization software you prefer, as the setup steps are similar across platforms.





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Oracle VirtualBox Manager

File Machine Help

Tools Preferences Import Export New Add

Welcome to VirtualBox!

The left part of application window contains global tools and lists all virtual machines and virtual machine groups on your computer. You can import, add and create new VMs using corresponding toolbar buttons. You can pop up a tools of currently selected element using corresponding element button.

You can press the F1 key to get instant help, or visit www.virtualbox.org for more information and latest news.

Please choose Experience Model

By default, the VirtualBox GUI is hiding some options, tools and wizards.

The **Basic Mode** is intended for those users who are not interested in advanced functionality and prefer a simpler, cleaner interface.

The **Expert Mode** is intended for experienced users who wish to utilize all VirtualBox functionality.

You can choose whether you are a beginner or experienced user by selecting required option at the right. This choice can always be changed in Global Preferences or Machine Settings windows.

In this article

Visual Studio 2015, 2017, 2019, and 2022

Latest Microsoft Visual C++ Redistributable version

Visual Studio 2013 (VC++ 12.0) (no longer supported)

Visual Studio 2012 (VC++ 11.0) Update 4 (no longer supported)

Visual Studio 2010 (VC++ 10.0) SP1 (no longer supported)

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Visual Studio 2005 (VC++ 8.0) SP1 (no longer supported)

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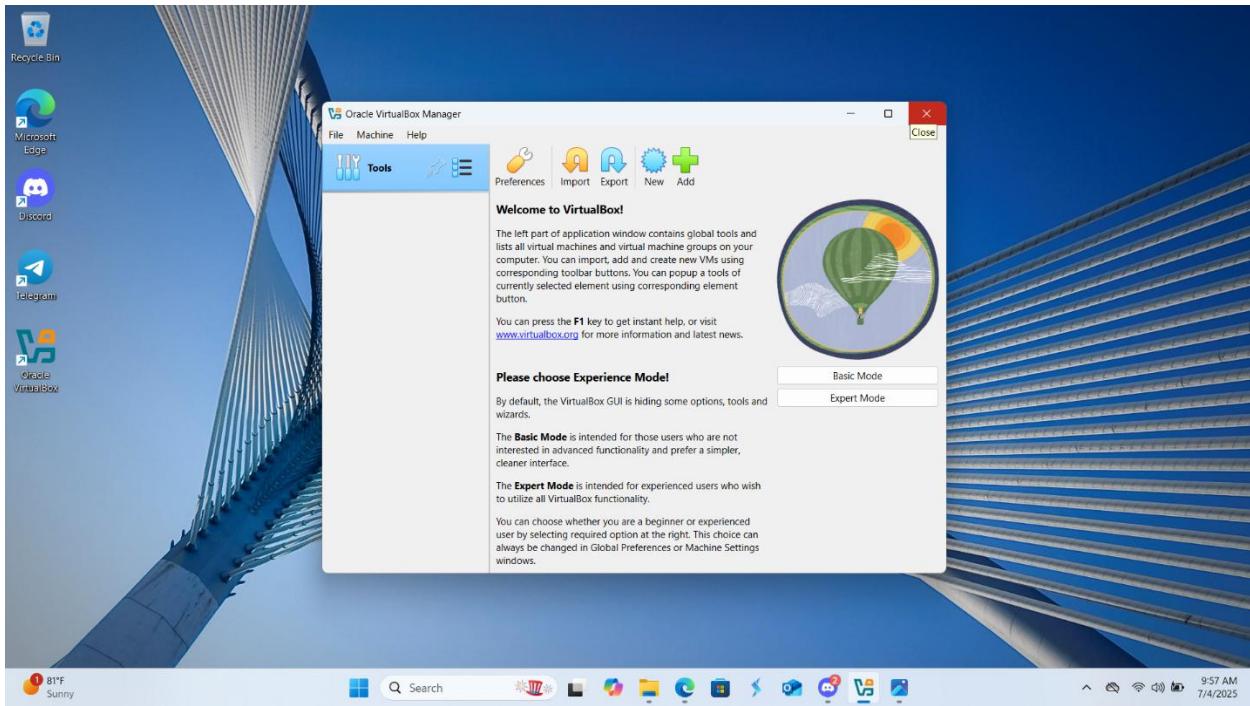
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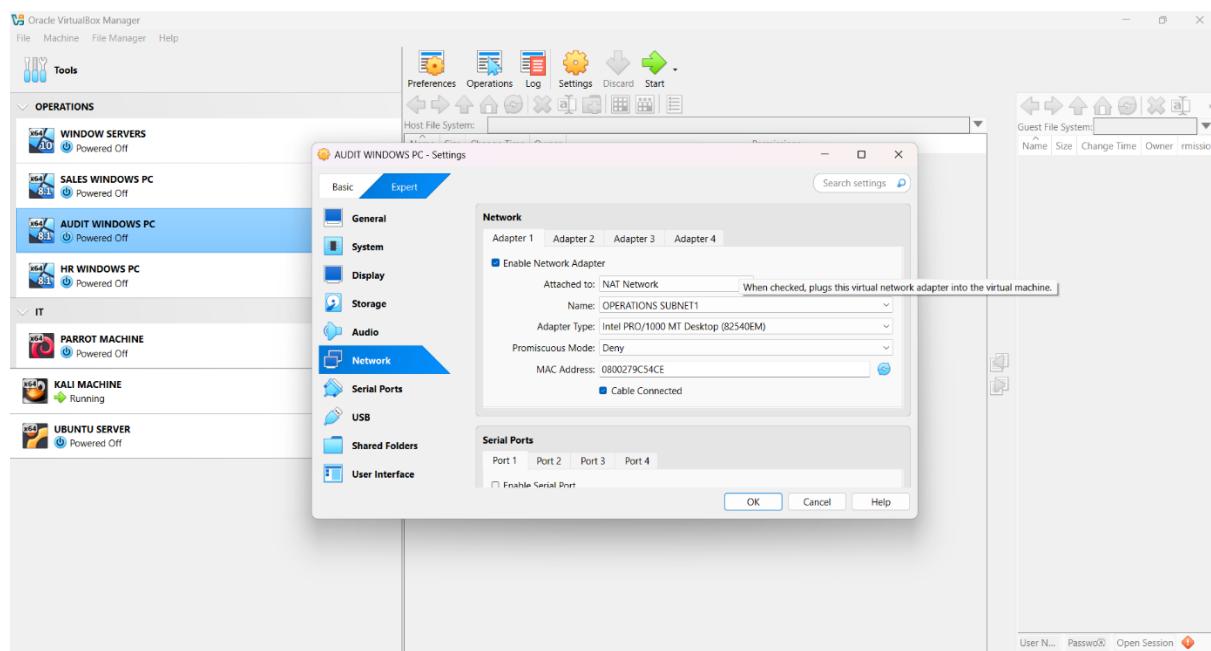
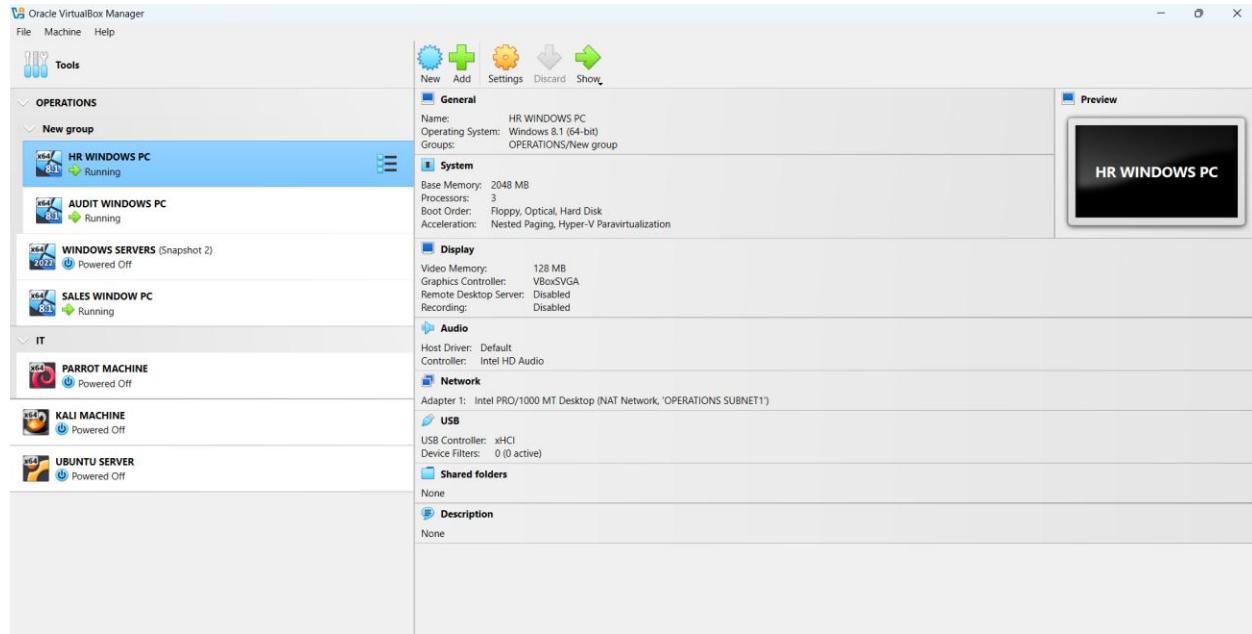


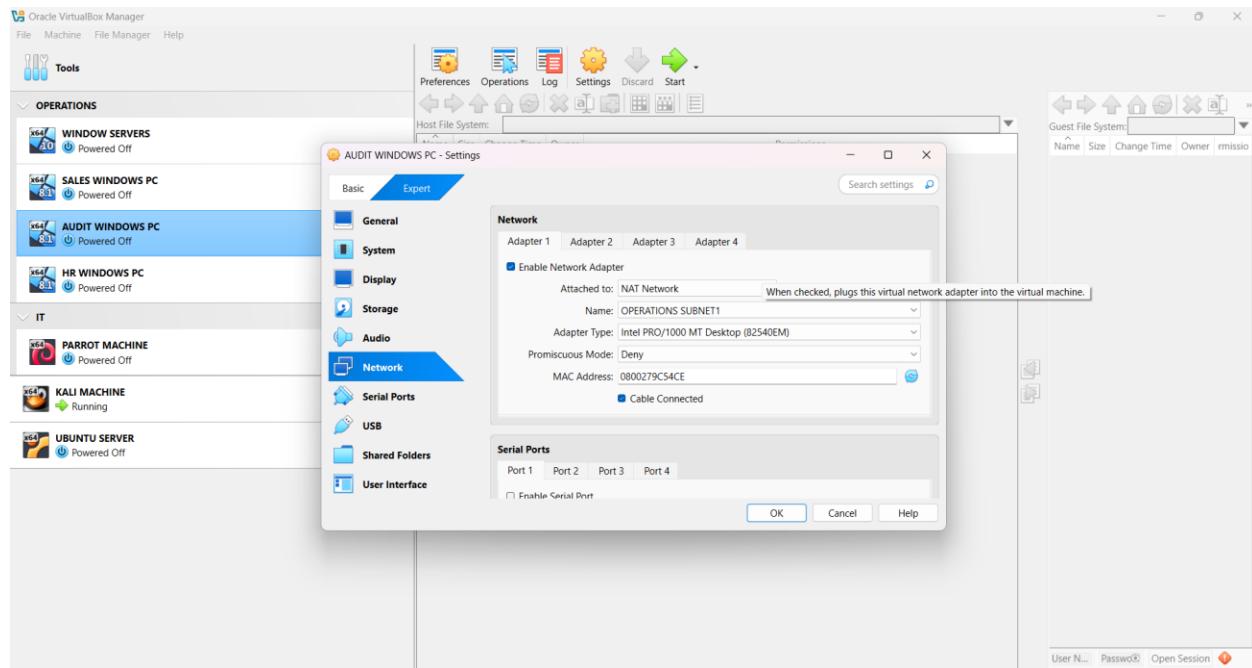
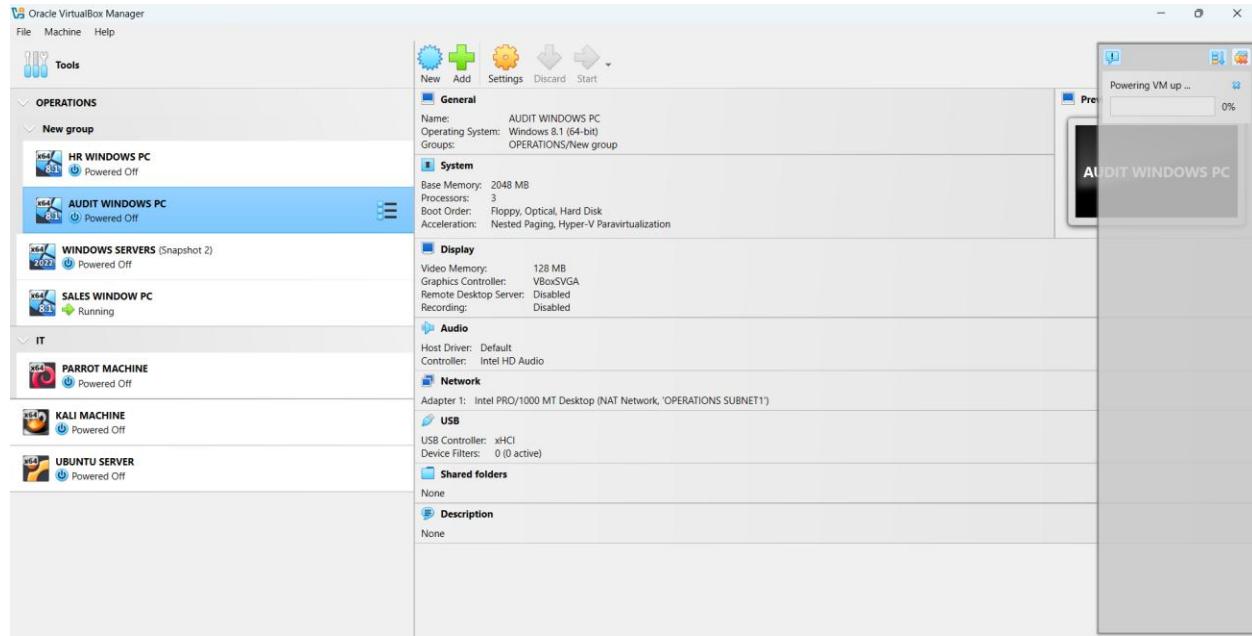
Creating a Virtual Machine

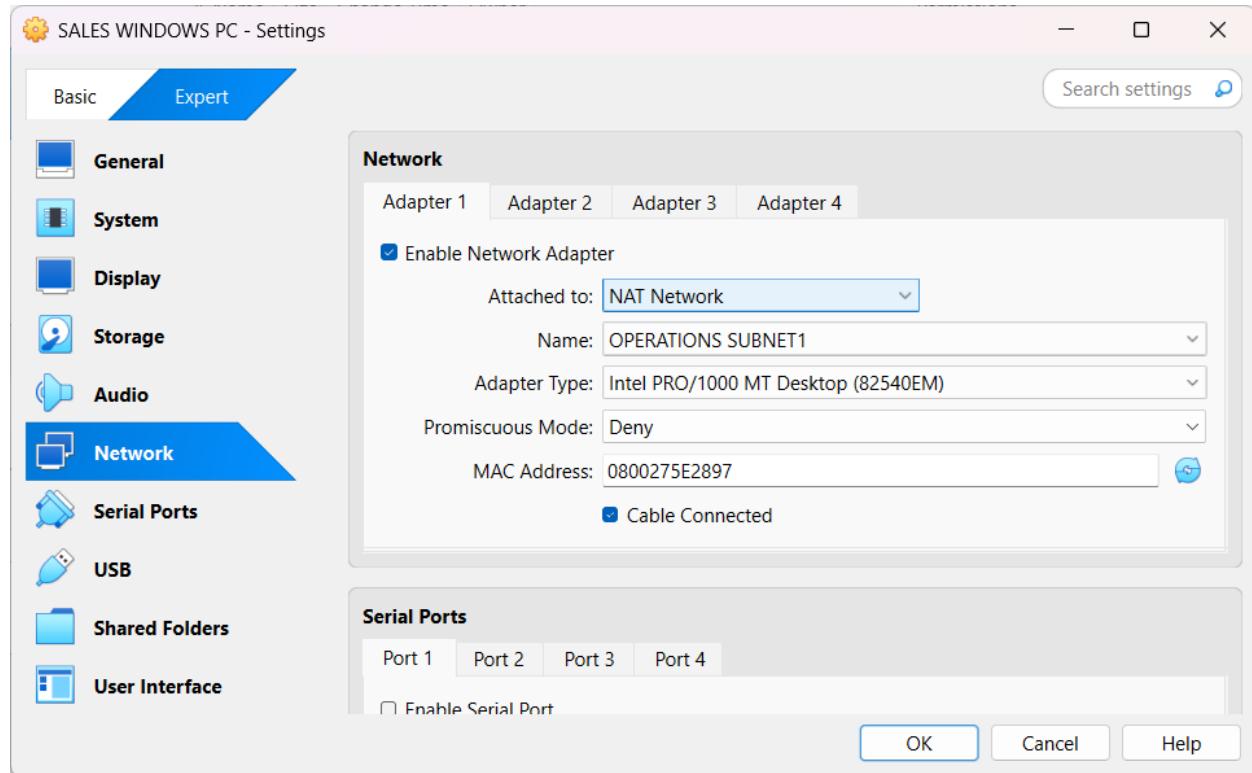
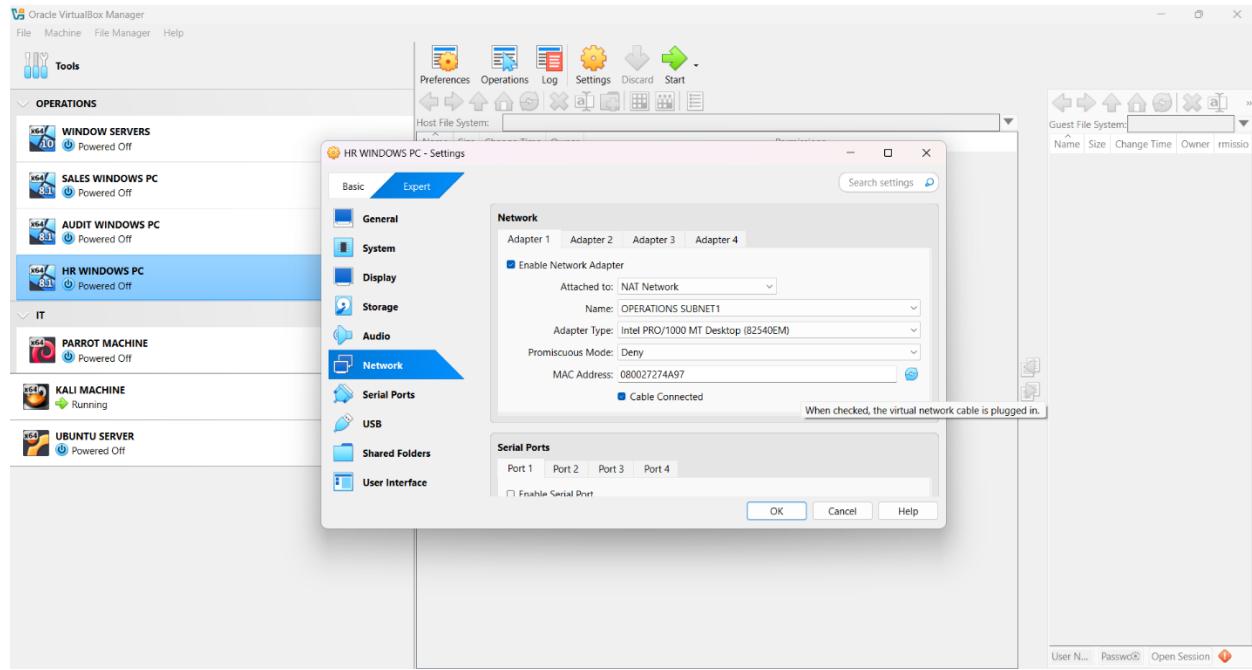
Once your virtual network is configured, you can proceed to create a Virtual Machine (VM) in VirtualBox. Follow these steps:

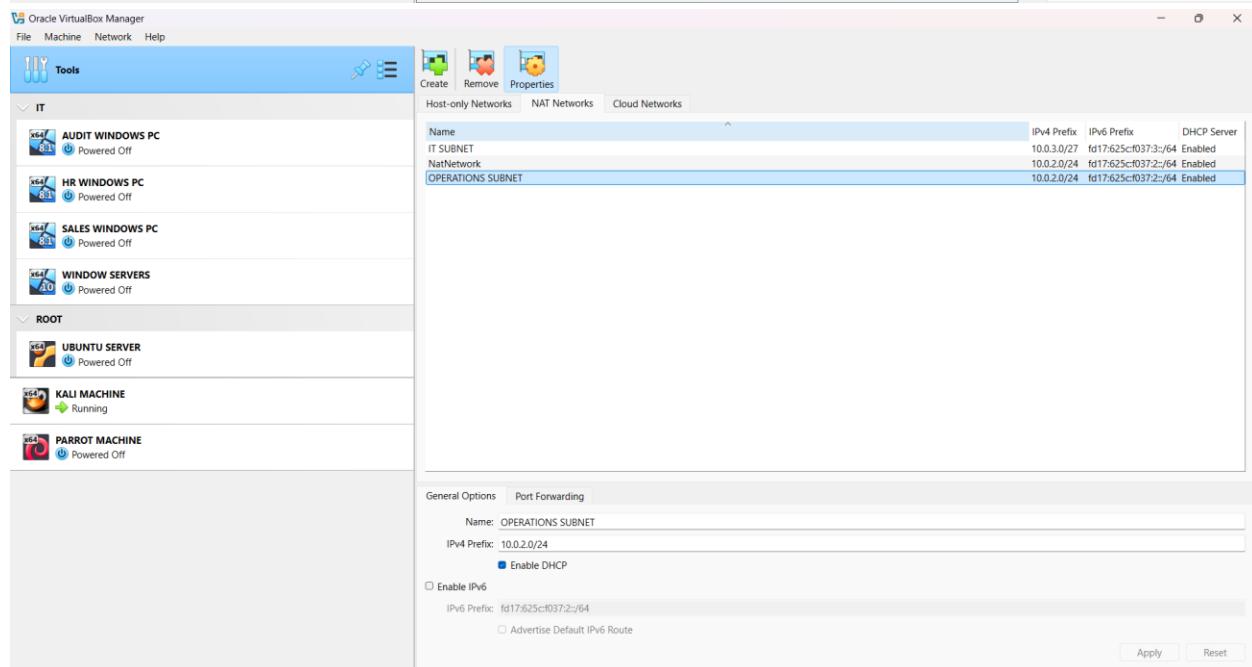
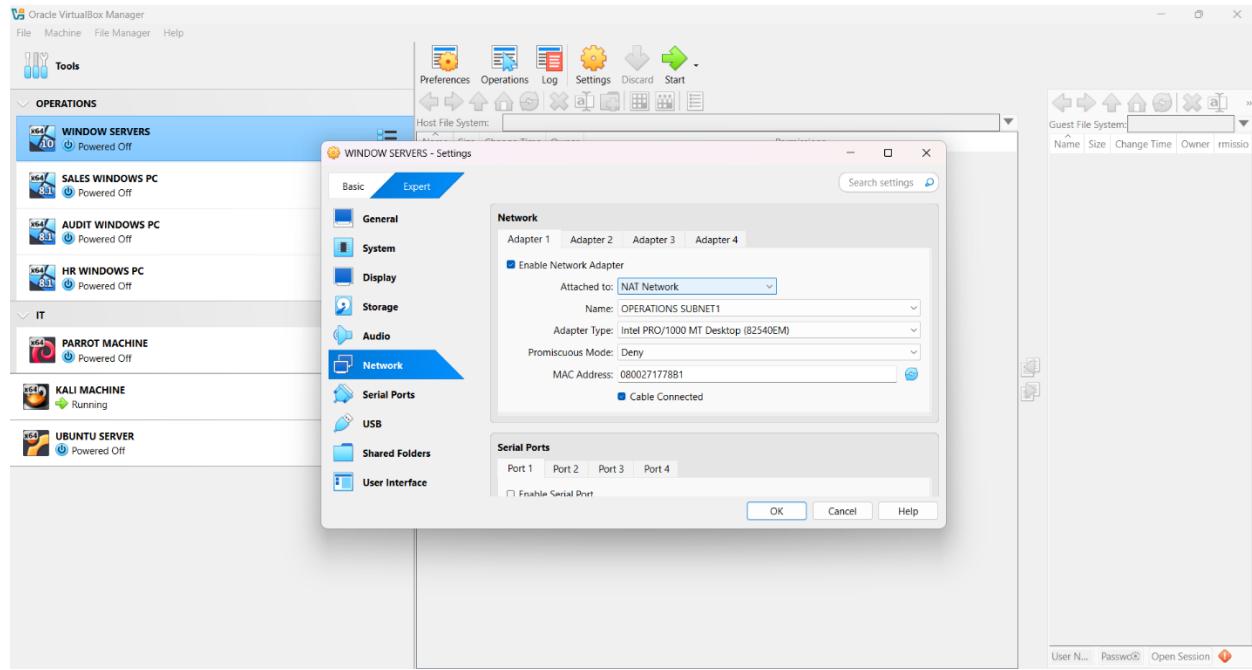
1. Open VirtualBox Manager.
2. Click the “New” button in the toolbar to begin the VM creation process.
3. Enter the VM name, select the operating system type and version.
4. Allocate memory (RAM) based on the requirements of the OS you plan to install.
5. Create a virtual hard disk or use an existing one, then configure its size and format.

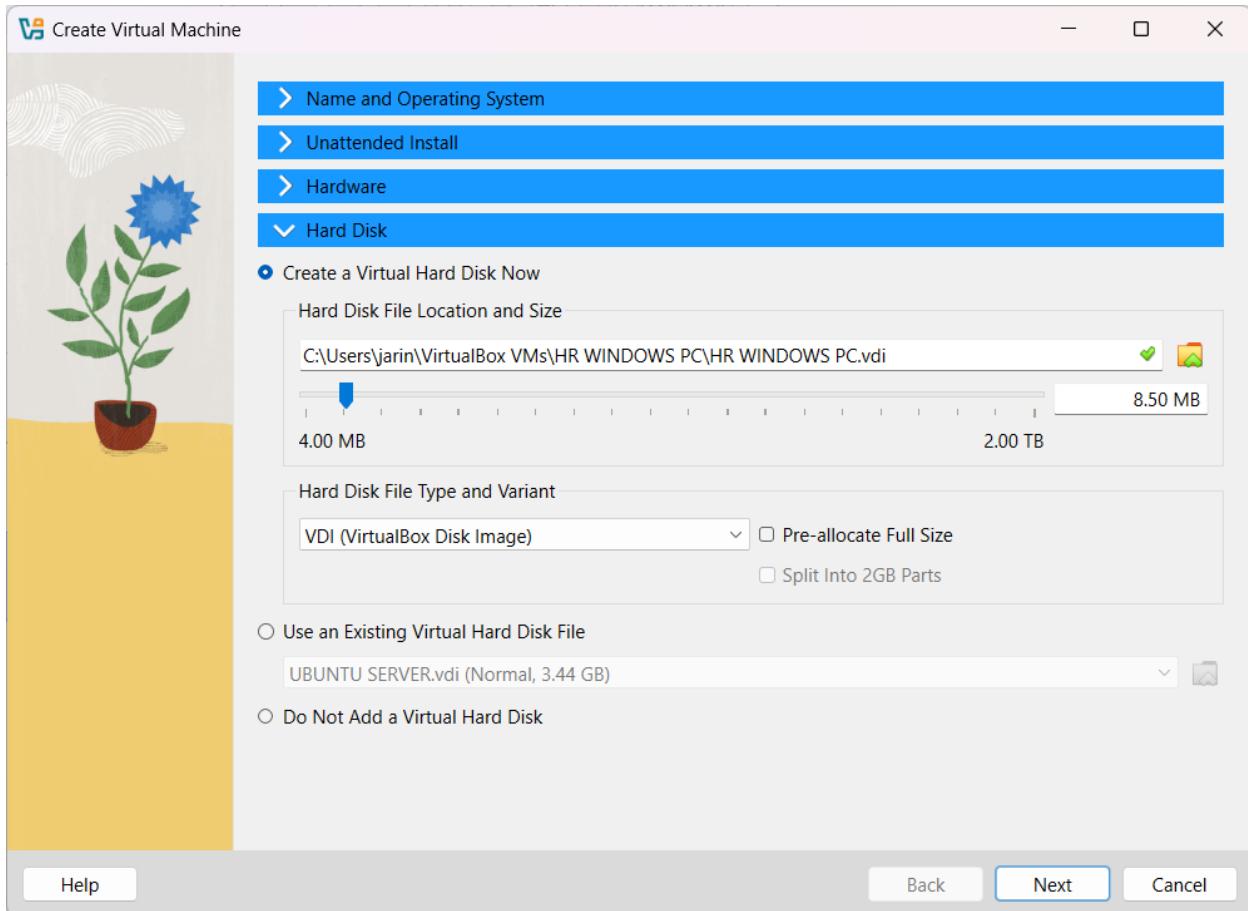
After completing these steps, your virtual machine will be ready for operating system installation.

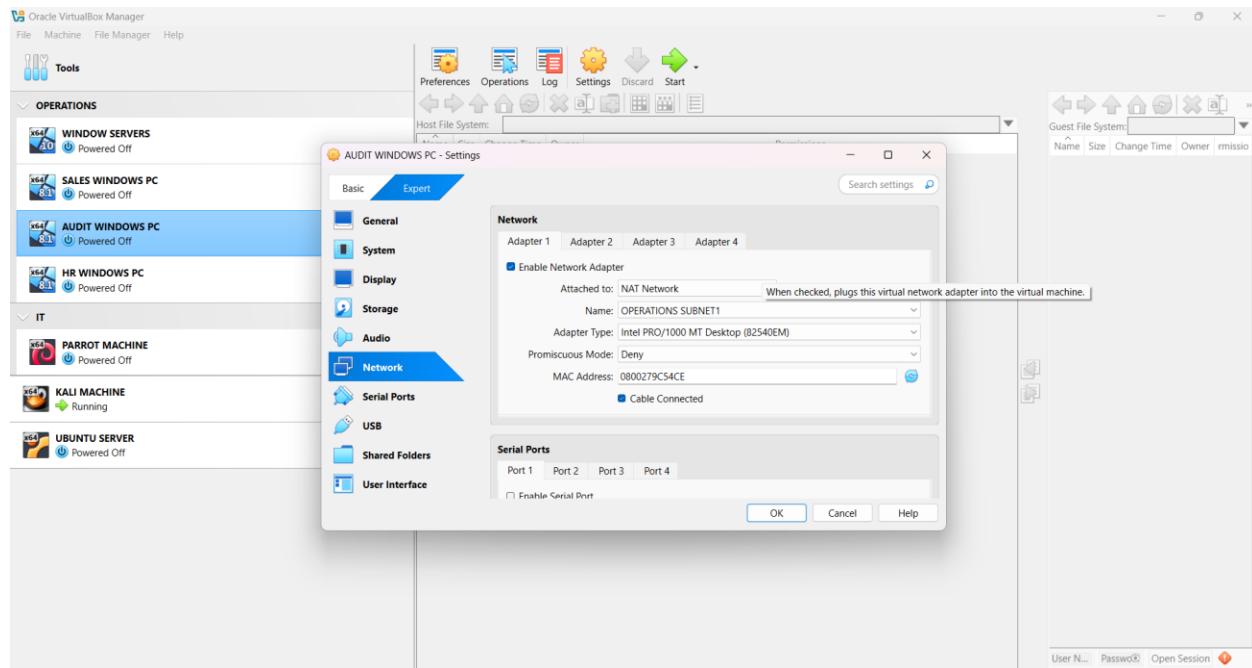
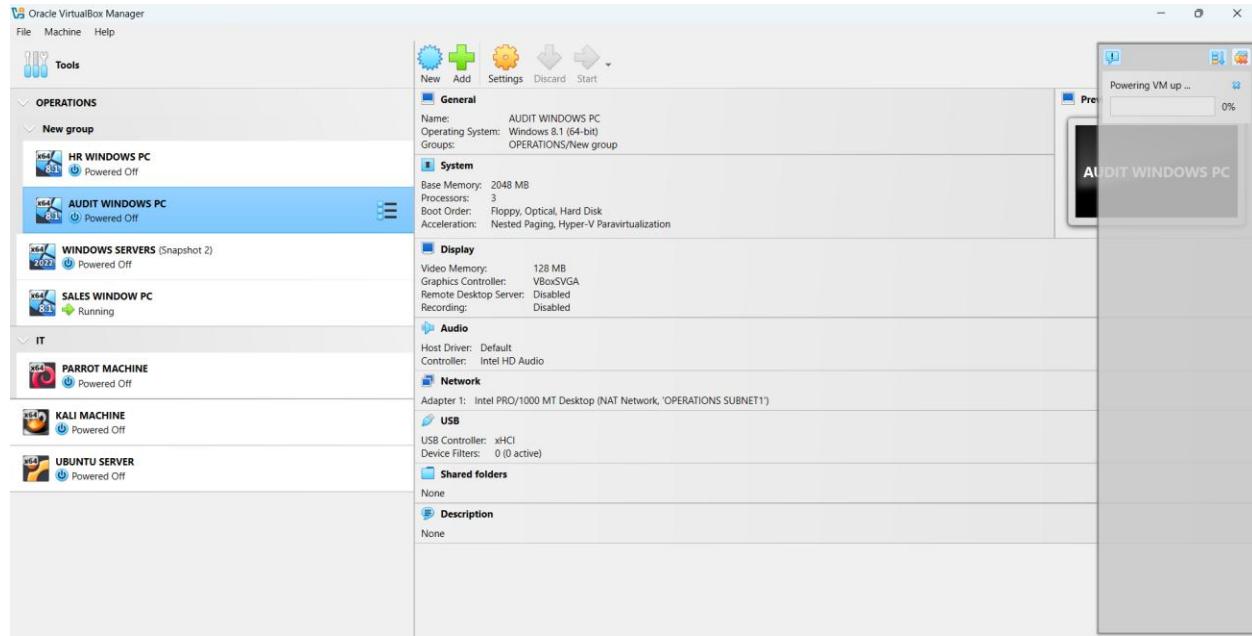


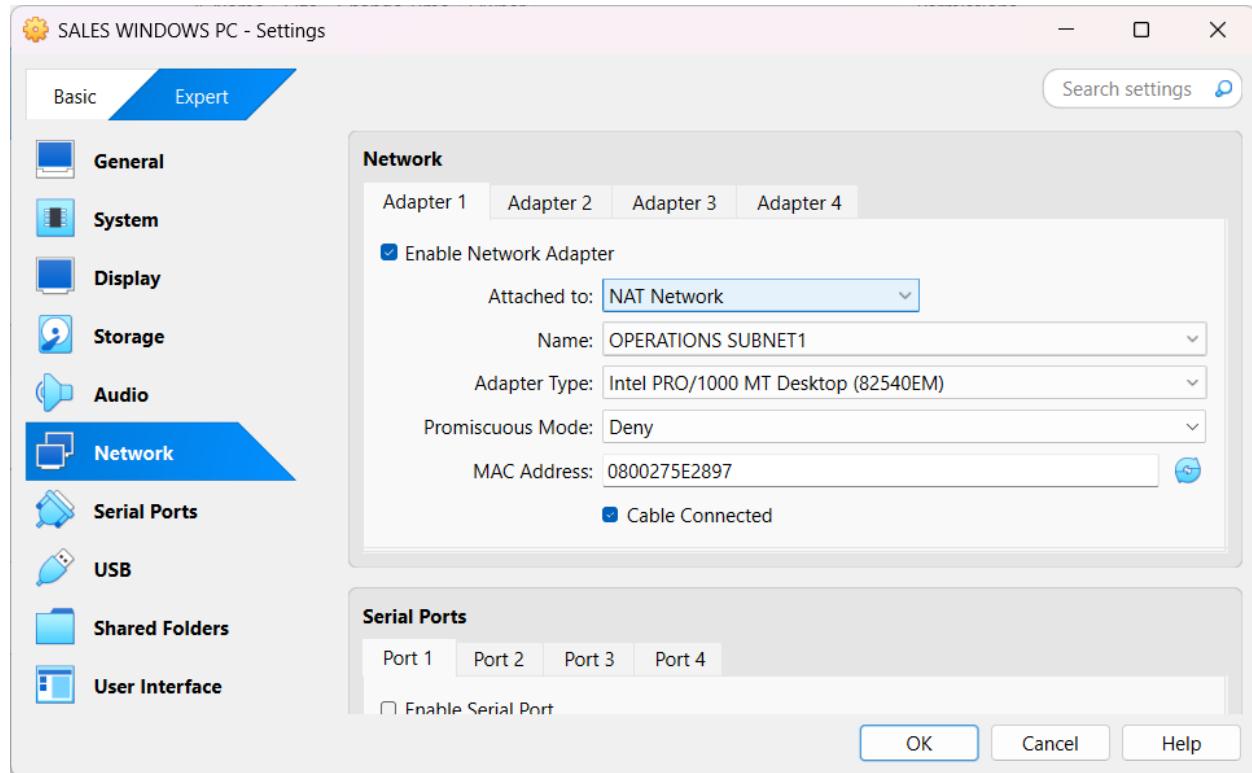
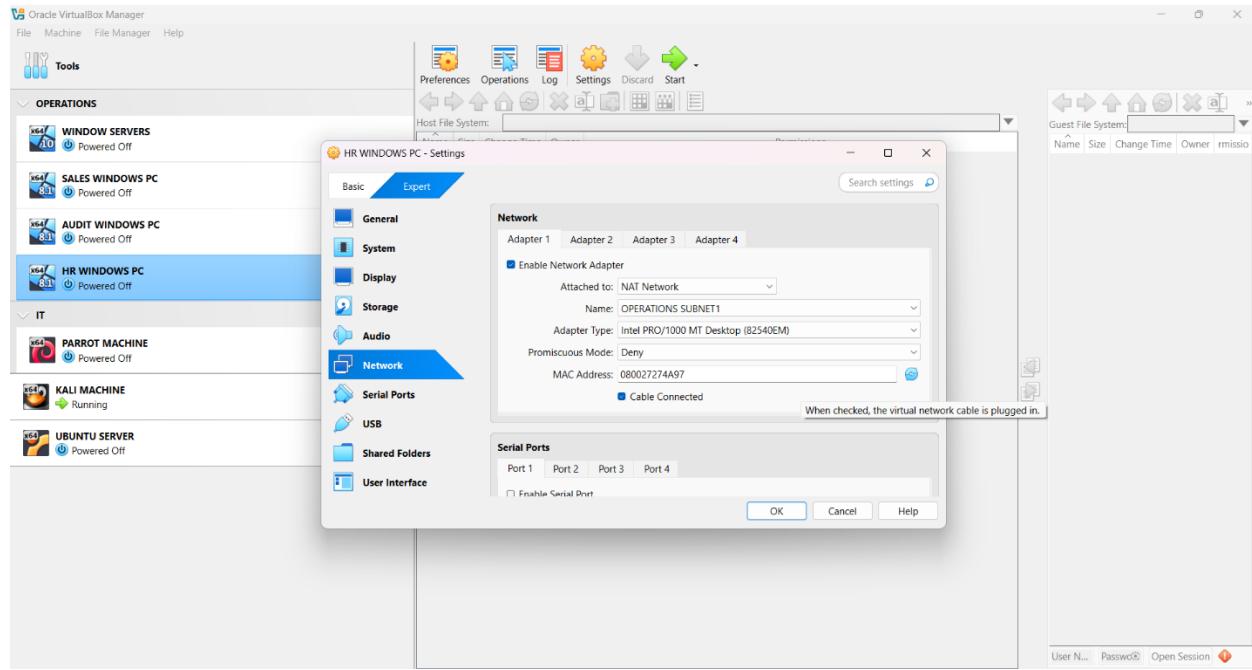












Now you will see WINDOWS SERVER listed on the VirtualBox dashboard/manager in the below diagram. Before we start the VM we can modify the settings of the VM if we want or you might want to assign more processors or change the networking adapters

