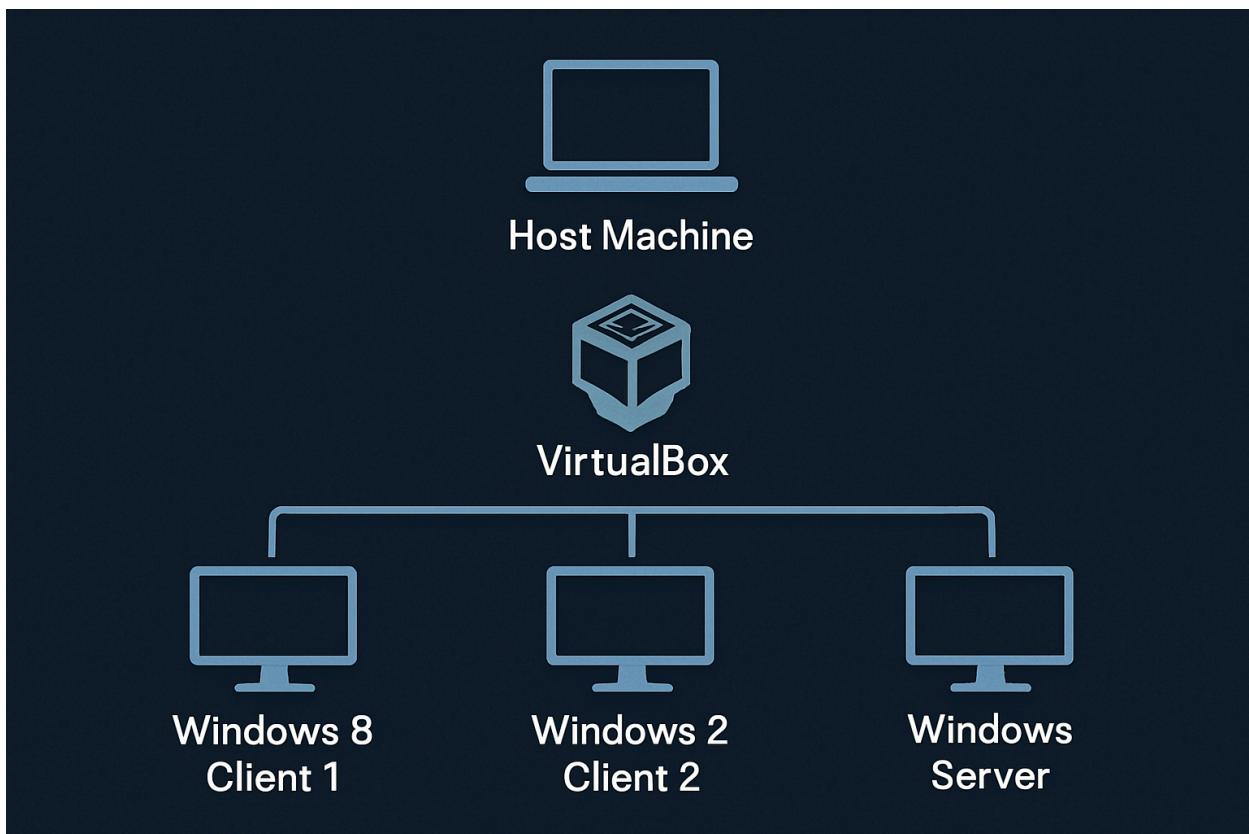


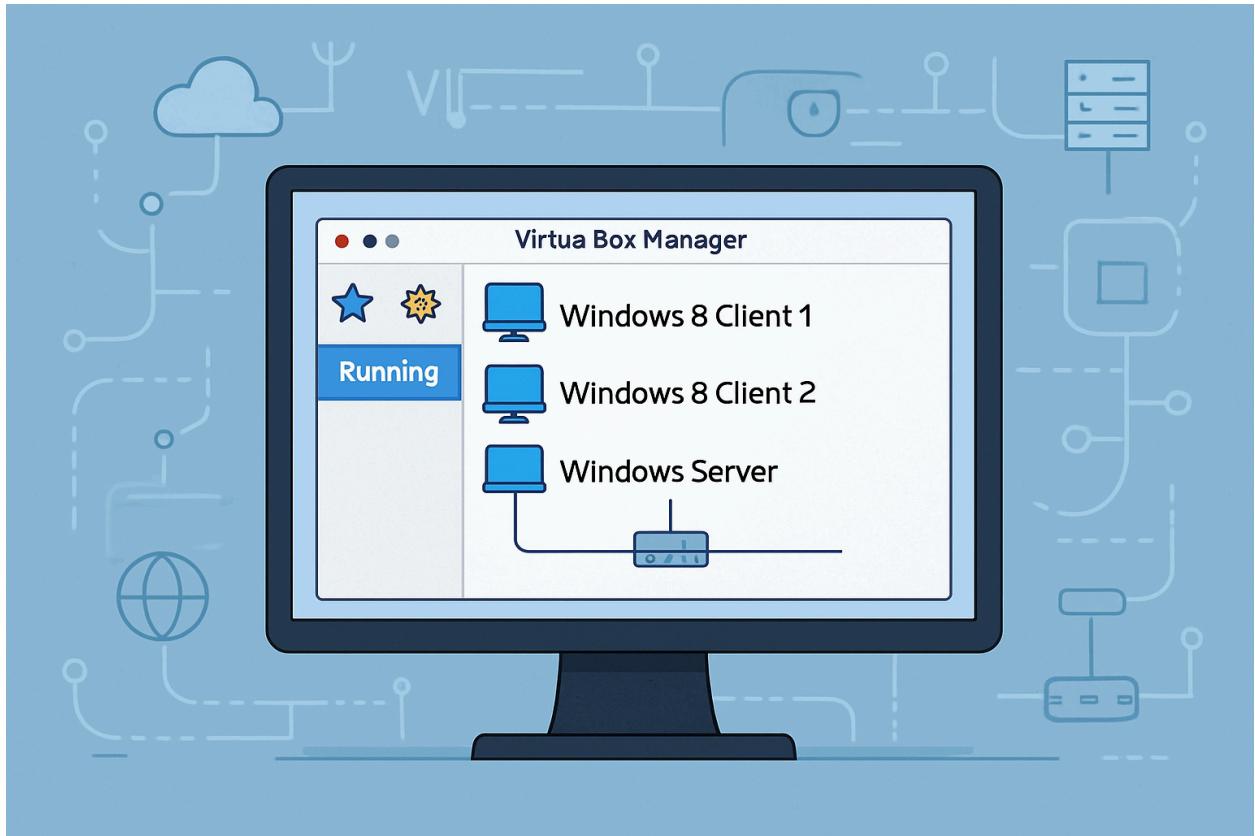
## **Setting Up the Foundational Virtual Network Lab:**

### **Overview**

I am currently working on the initial stage of building a fully functional virtual network lab to support hands-on cybersecurity training. This lab provides a controlled and safe environment for practicing security concepts and system monitoring.

The environment is built using VirtualBox for virtual machine management. At this stage, I have successfully deployed three core systems: two Windows 8 workstations and one Windows Server. The next phase involves integrating these systems into a single virtual network, replicating a basic office network setup to better understand system communication, access control, and network behavior.





Let me walk you through how the downloads and installations were done;

### **Phase 1: Downloading the VirtualBox Platform Package**

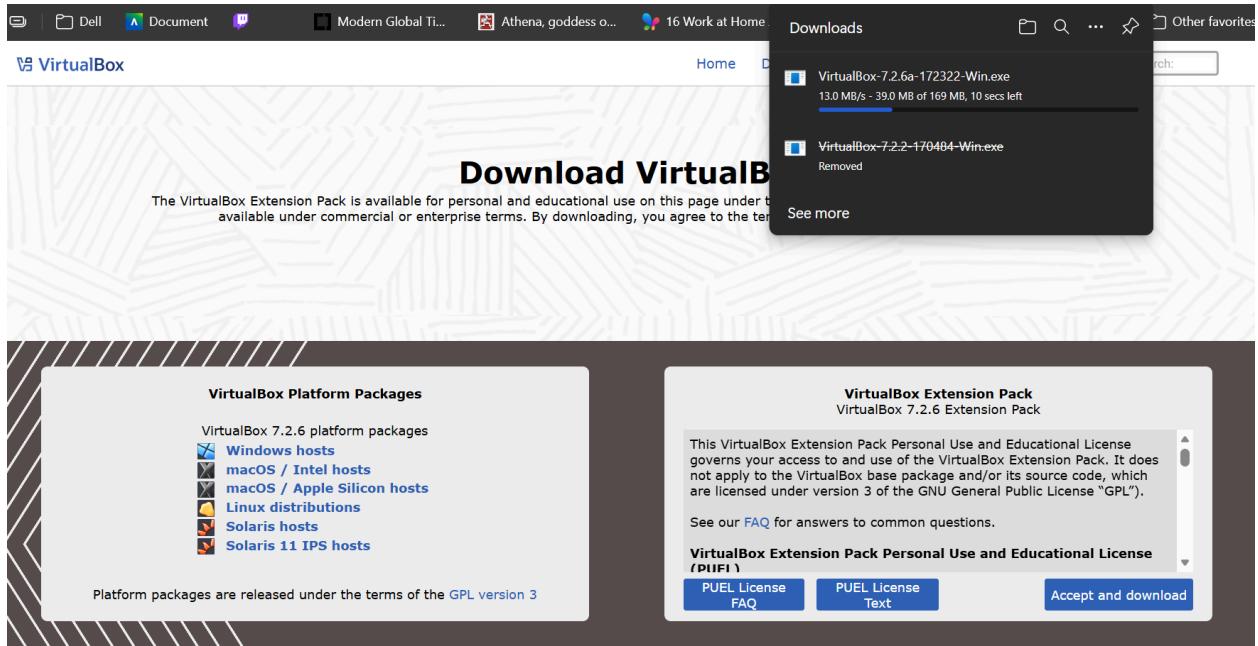
The first step is to visit the official VirtualBox download page and select the appropriate platform package.

The screenshot shows the official VirtualBox website. At the top, there's a navigation bar with links for Home, Download, Documentation, Community, and a search bar. The main heading is "Powerful open source virtualization" with the subtitle "For personal and enterprise use". Below this, a text block describes VirtualBox as a general-purpose full virtualization software for x86\_64 hardware, targeting laptop, desktop, server, and embedded use. To the right, a prominent blue-bordered box contains the "Get Started" heading and a large "Download" button, with a smaller text below it reading "Download VirtualBox binaries and platform packages". At the bottom of the page, there are three cards: "Community" (with a people icon), "Documentation" (with a book icon), and "Training" (with a person icon). The status bar at the bottom right shows the time as 8:33 AM.

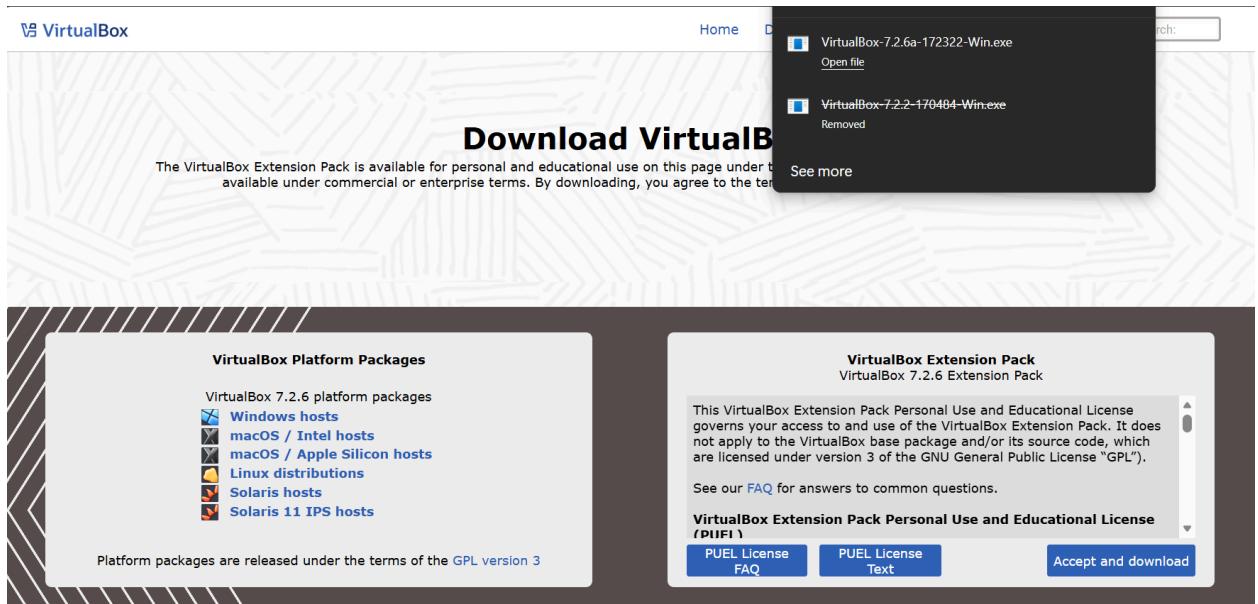
And scroll down the page to select the installer that matches my primary computer.

The screenshot shows the "VirtualBox Extension Pack" page. The top banner states: "The VirtualBox Extension Pack is available for personal and educational use on this page under the PUEL license. The VirtualBox Extension Pack is also available under commercial or enterprise terms. By downloading, you agree to the terms and conditions of the respective license." Below this, there are two main sections: "VirtualBox Platform Packages" on the left and "VirtualBox Extension Pack" on the right. The "VirtualBox Platform Packages" section lists "VirtualBox 7.2.4 platform packages" including "Windows hosts", "macOS / Intel hosts", "macOS / Apple Silicon hosts", "Linux distributions", "Solaris hosts", and "Solaris 11 IPS hosts". It also notes that "Platform packages are released under the terms of the GPL version 3". The "VirtualBox Extension Pack" section details the "VirtualBox 7.2.4 Extension Pack" and its "Personal Use and Educational License (PUEL)". It includes a "FAQ", "Text", and a "Accept and download" button. A small note at the bottom right of the "VirtualBox Extension Pack" section says "See our FAQ for answers to common questions."

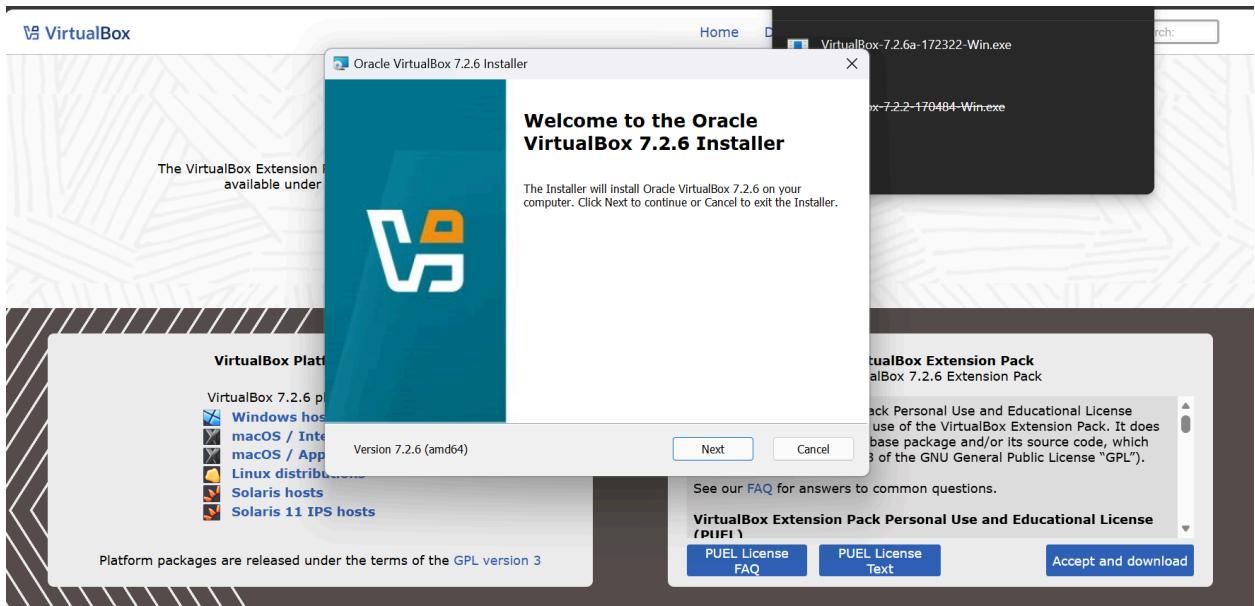
I selected the **Windows hosts** option, which initiated the download of the VirtualBox executable (.exe) file. This package serves as the core component for building my virtual lab environment.



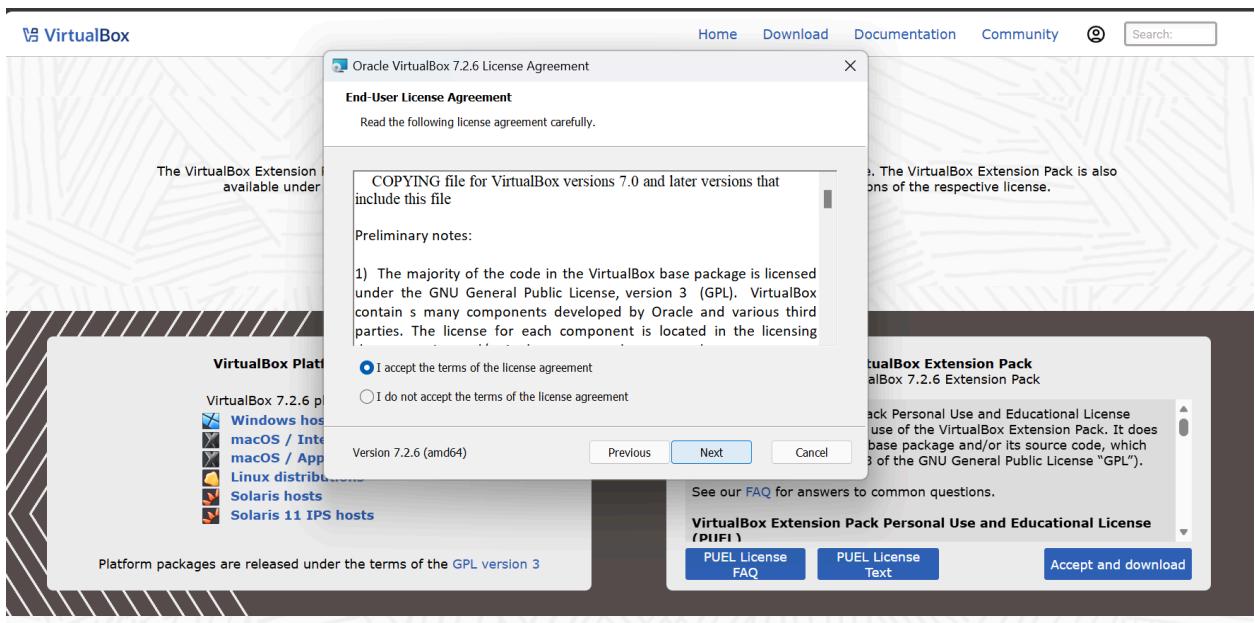
Once the download is complete,



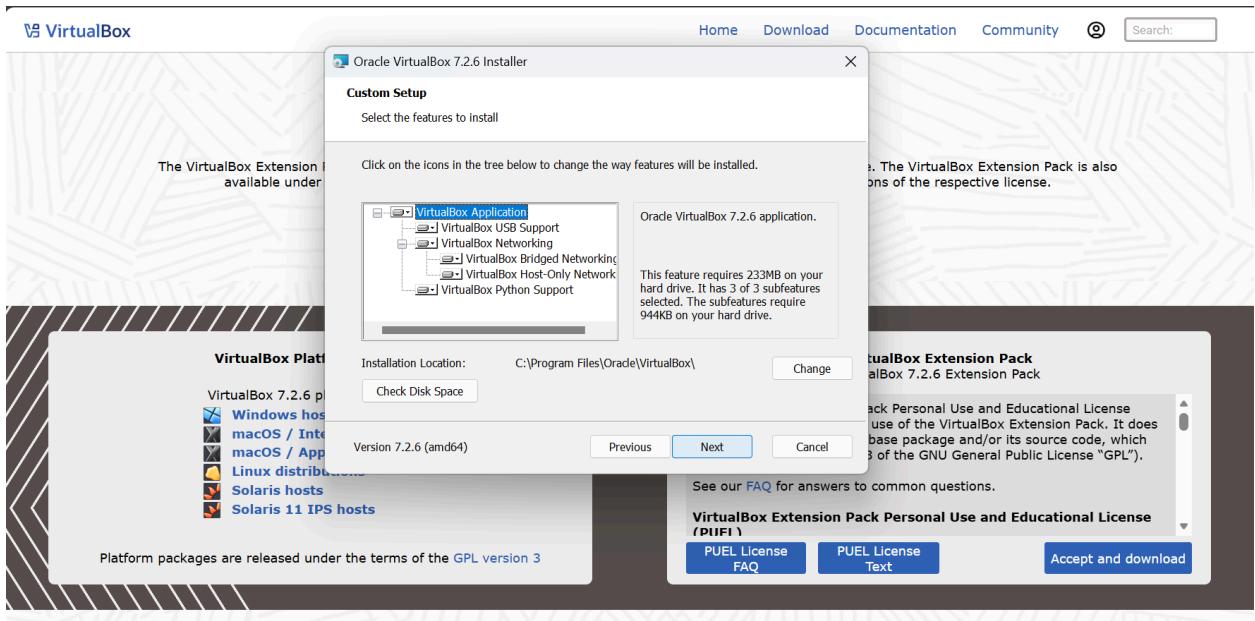
I launched the executable to begin the installation process, which opened the screen titled **“Welcome to the Oracle VM VirtualBox Setup Wizard.”**



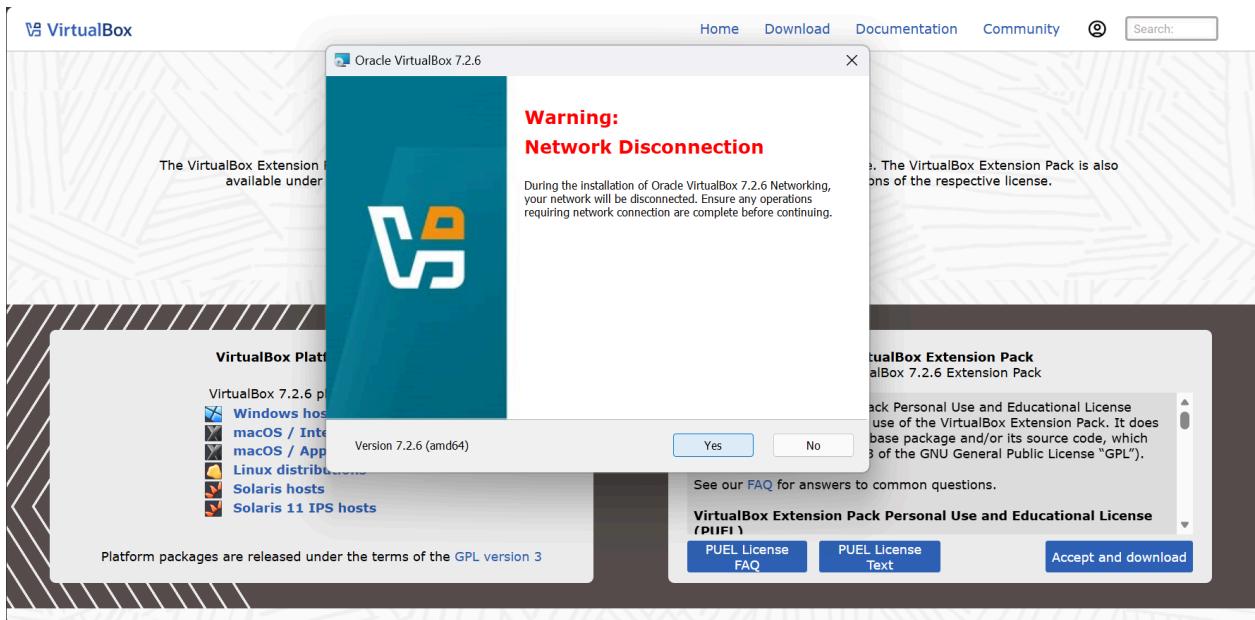
Then, I clicked next and I got the license agreement page.



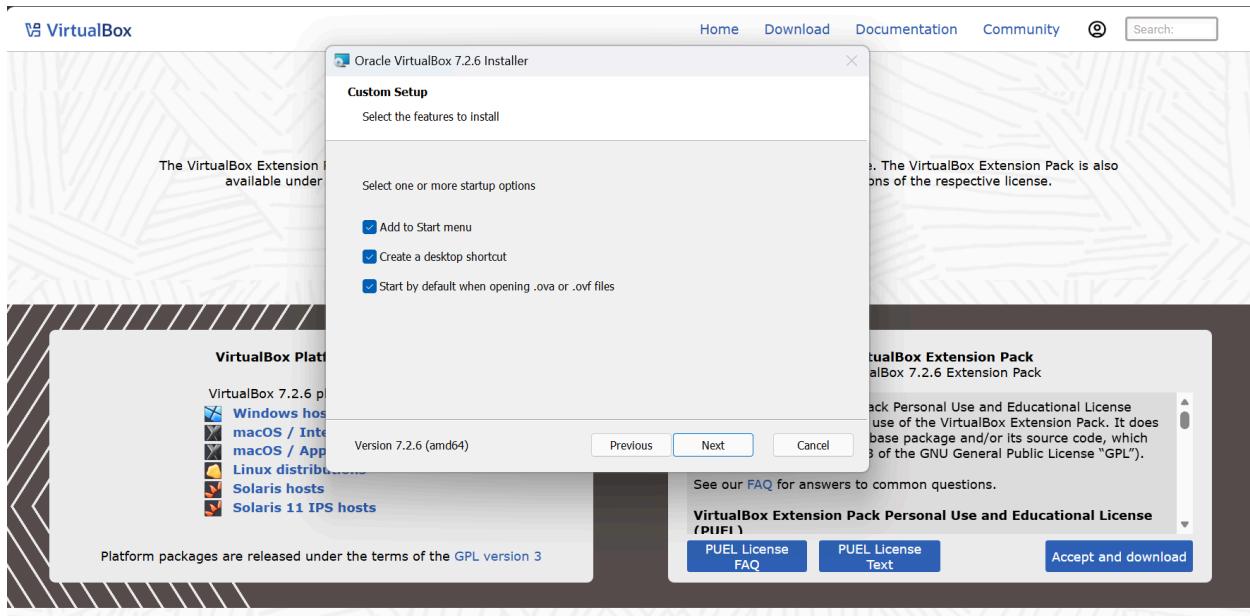
I accepted the prompt and proceeded by clicking **Next**. On the following screen, I was given the option to change the installation directory, but I kept the default location and continued by selecting **Next** again.



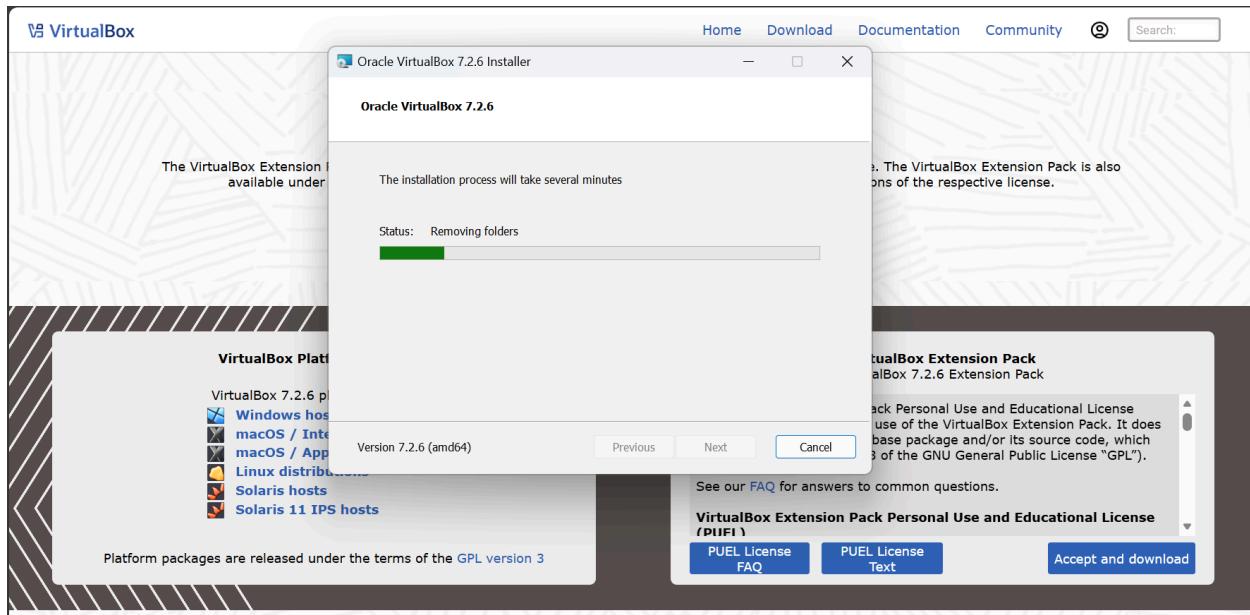
I got the warning page and after going through it, I clicked yes.



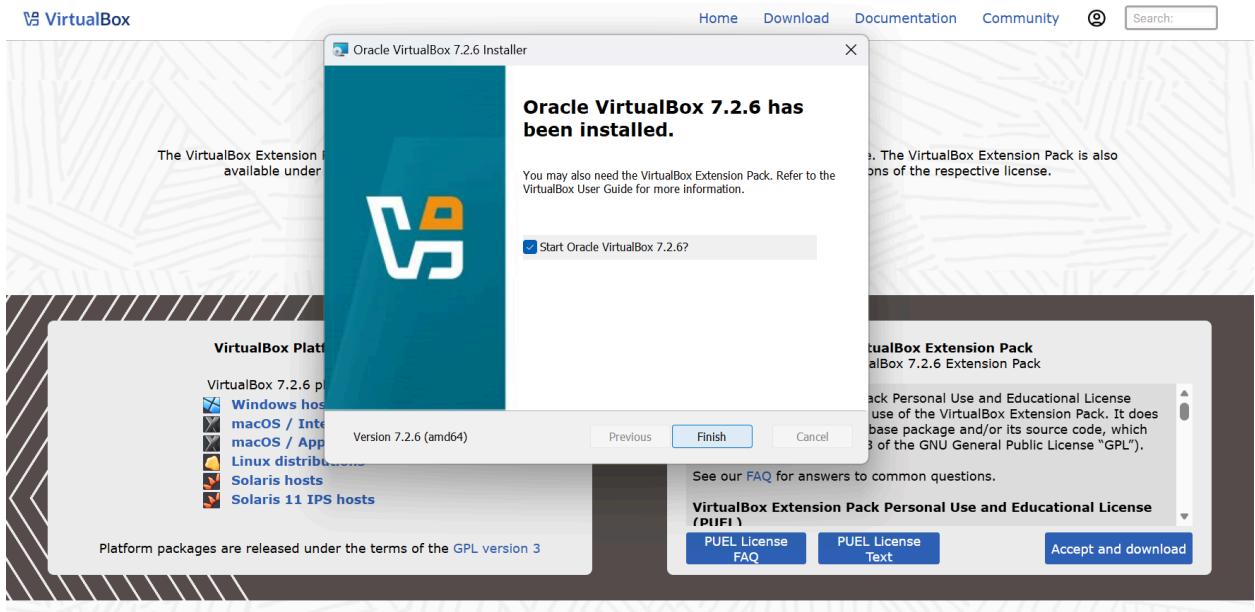
The next screen appeared, and after reviewing the information, I selected Yes to allow the installation of the required dependencies.



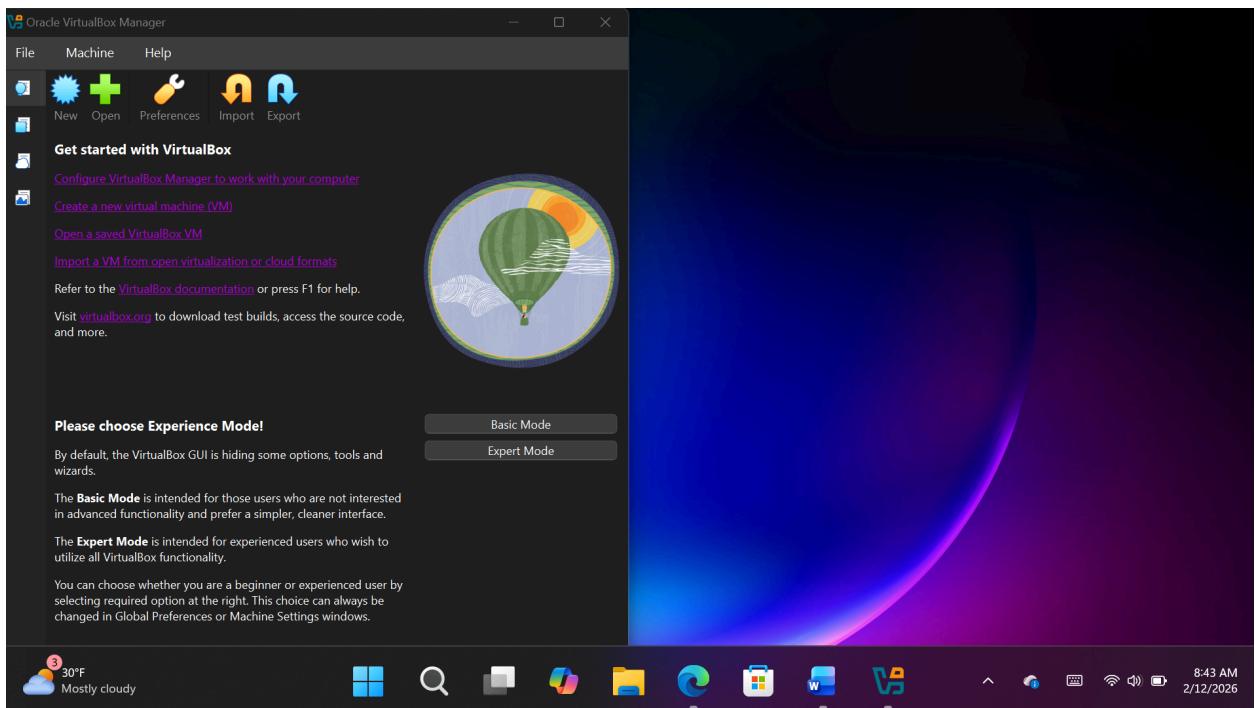
I was then taken to the final installation screen, where I clicked **Install** to begin the setup process.



I clicked next and the installation began



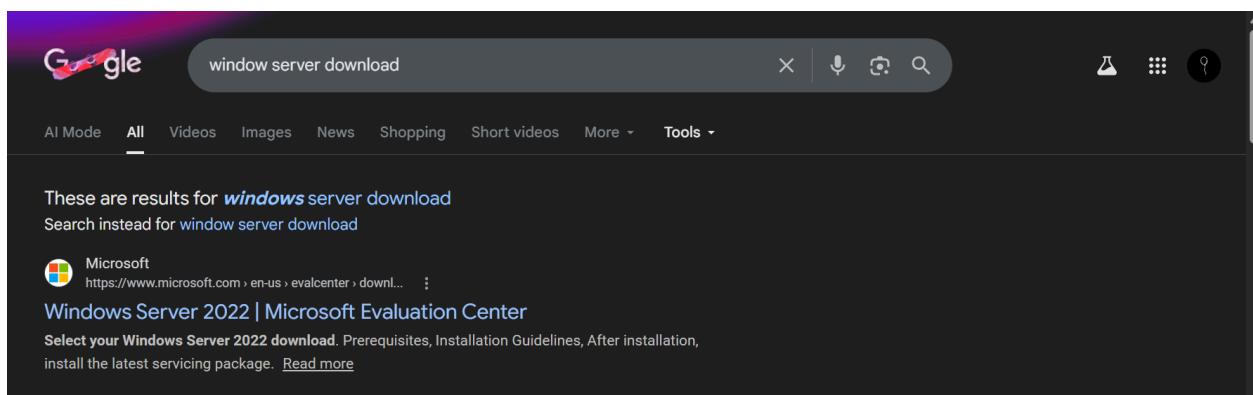
Then the installation of the VirtualBox was completed and I clicked finish.



This was the preview after launching the software.

## Phase 2: downloading and installing the Windows Server on the VM

Stage 1: I utilized Google Search to find the installation media for a modern, relevant operating system, selecting Windows Server 2022.



Upon reaching the download page,

## Please select your Windows Server 2022 download

English (United States)	<a href="#">ISO downloads 64-bit edition &gt;</a>	<a href="#">VHD download 64-bit edition &gt;</a>	<a href="#">Try on Azure Learn more &gt;</a>	<a href="#">Create a VM in Azure Learn more &gt;</a>
Chinese (Simplified)	<a href="#">ISO downloads 64-bit &lt; ... &gt;</a>			

I selected the 64-bit edition.

## Please select your Windows Server 2022 download

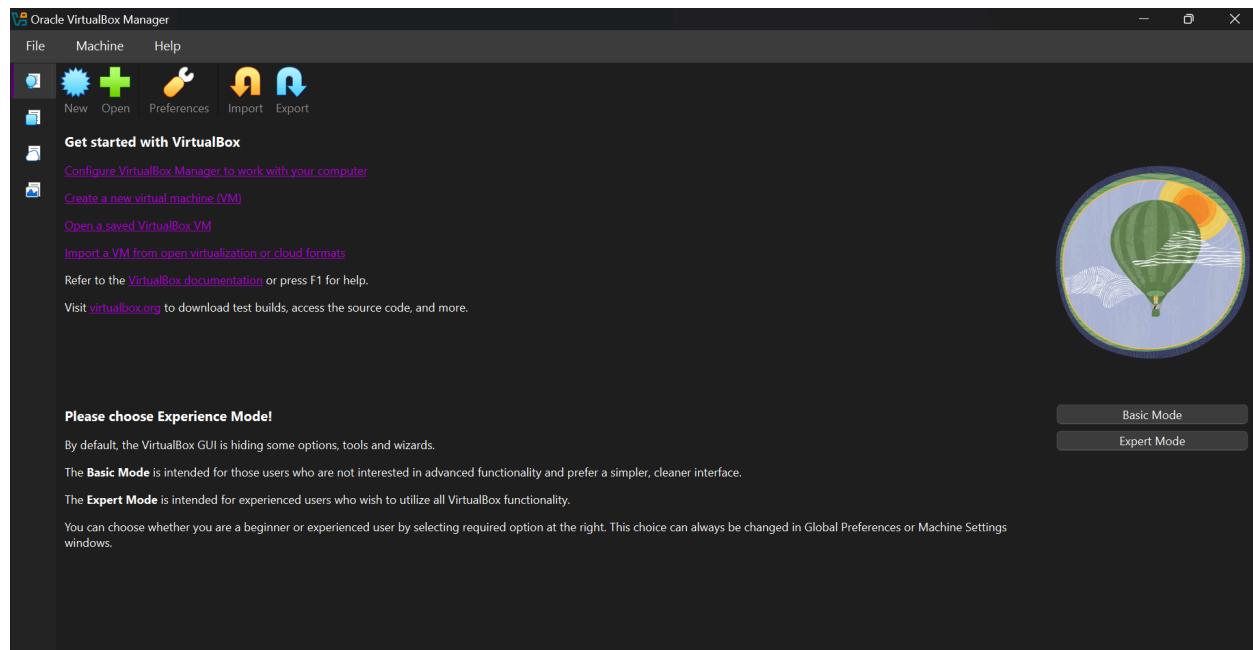
English (United States)	<a href="#">ISO downloads 64-bit edition &gt;</a>	<a href="#">VHD download 64-bit edition &gt;</a>	<a href="#">Try on Azure Learn more &gt;</a>	<a href="#">Create a VM in Azure Learn more &gt;</a>
Chinese (Simplified)	<a href="#">ISO downloads 64-bit &lt; ... &gt;</a>			

After confirming my selections, the download of the Windows Server 2022 ISO image began and completed successfully.

The screenshot shows the Microsoft Evaluation Center website. At the top, there are links for Windows, Windows Server, SQL Server, and System Center. Below the header, a large call-to-action button says "Please select your Windows Server 2022 download". To the right of this button is a download progress bar for "SERVER\_EVAL\_x64FRE\_en-us.iso" at 7.4 MB/s. Below the progress bar is a list of files: "VirtualBox-7.2.6a-172322-Win.exe" (Open file) and "VirtualBox-7.2.2-170404-Win.exe" (Removed). A "See more" link is also present.

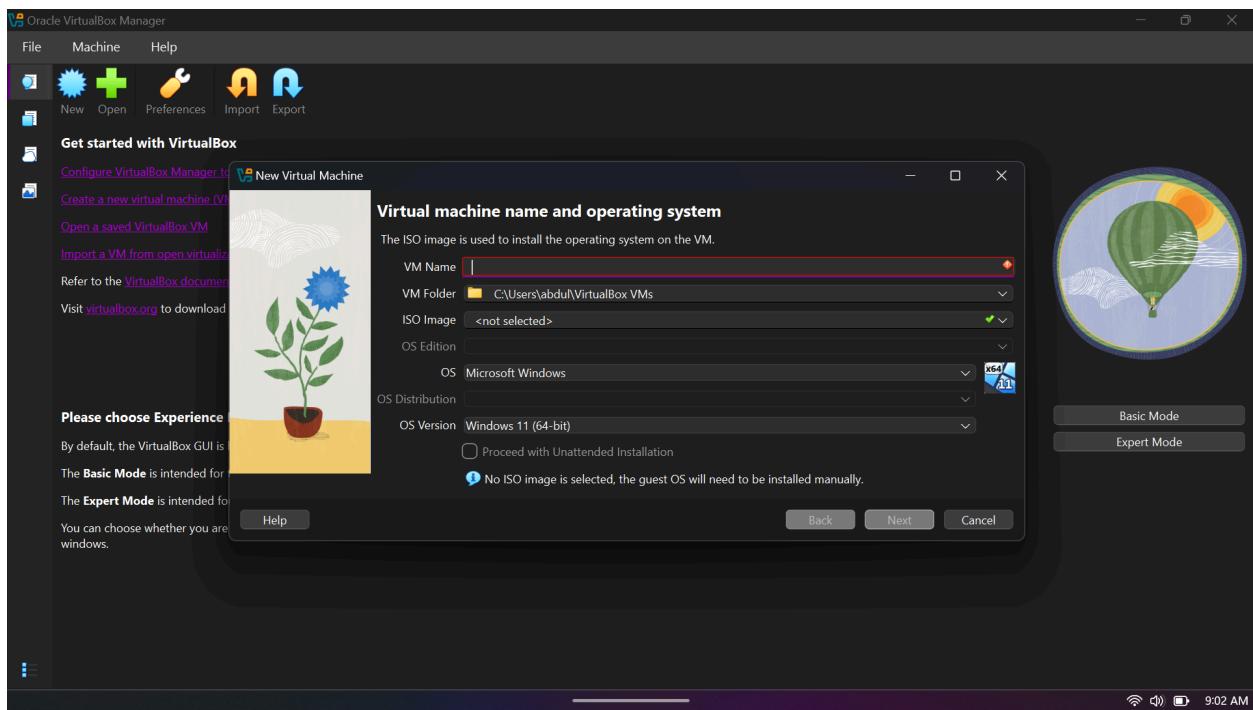
English (United States)	<b>ISO downloads</b> 64-bit edition >	<b>VHD download</b> 64-bit edition >	<b>Try on Azure</b> Learn more >	<b>Create a VM in Azure</b> Learn more >
Chinese (Simplified)	<b>ISO downloads</b> 64-bit >			

**Stage 2:** In this stage I mount the newly downloaded Windows Server 2022 ISO file. Mounting simply means attaching the ISO essentially to a virtual DVD to the virtual machine I created. This enables the VM to detect the operating system installer and begin the setup process once it is powered on.

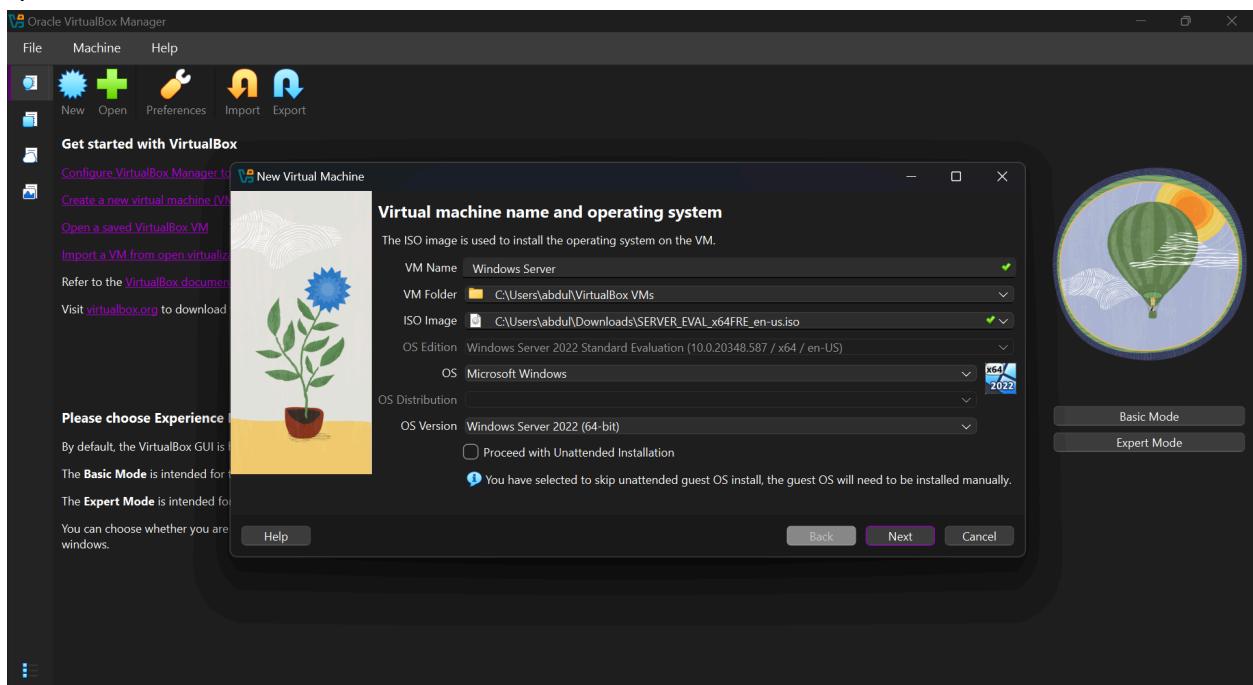


After clicking the “new”, I have a page that involves dedicating specific virtual hardware

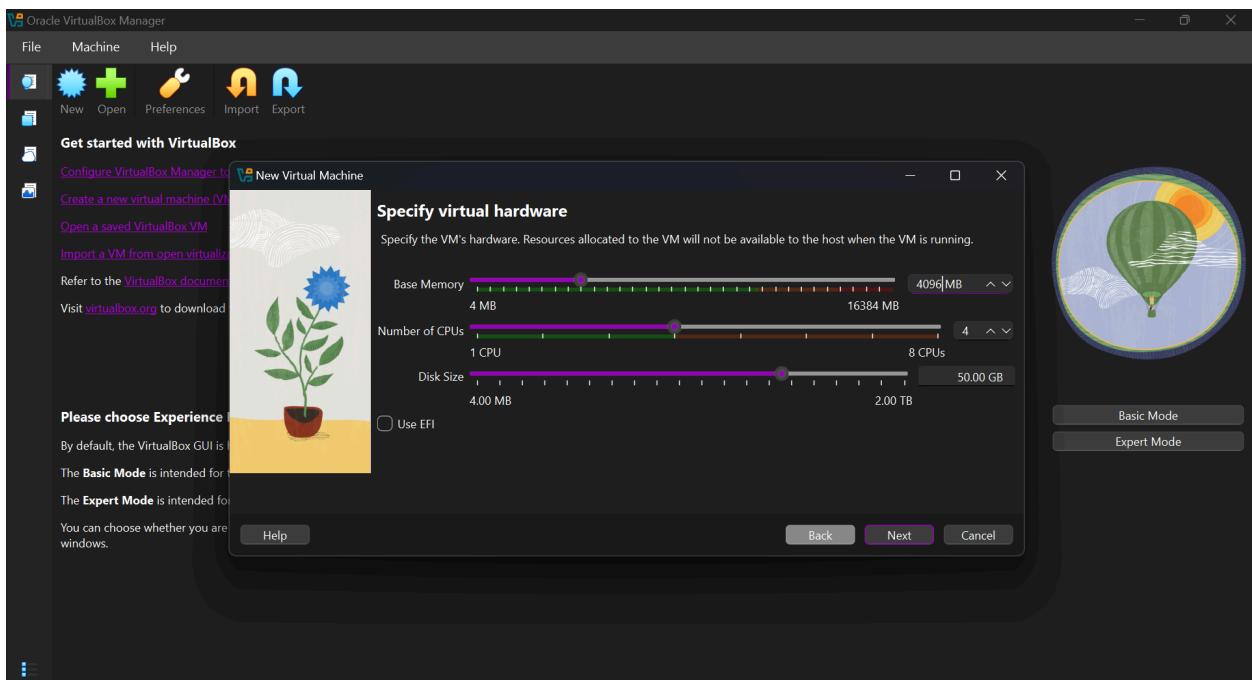
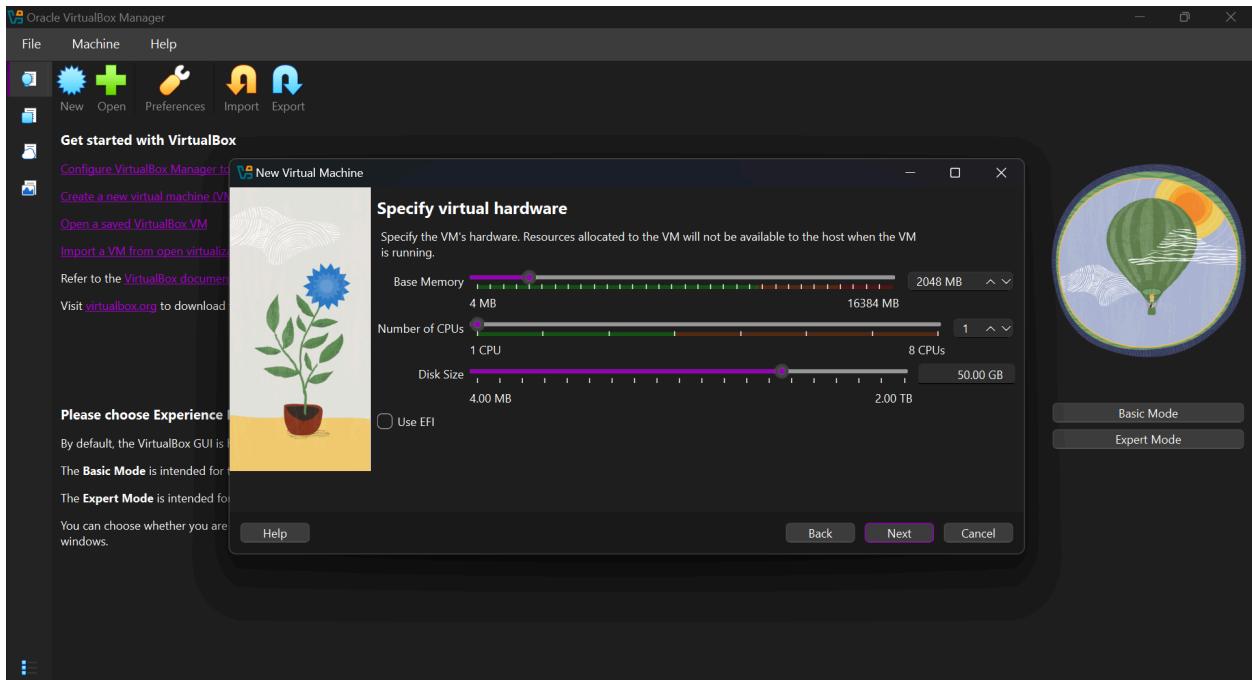
resources to the new server.

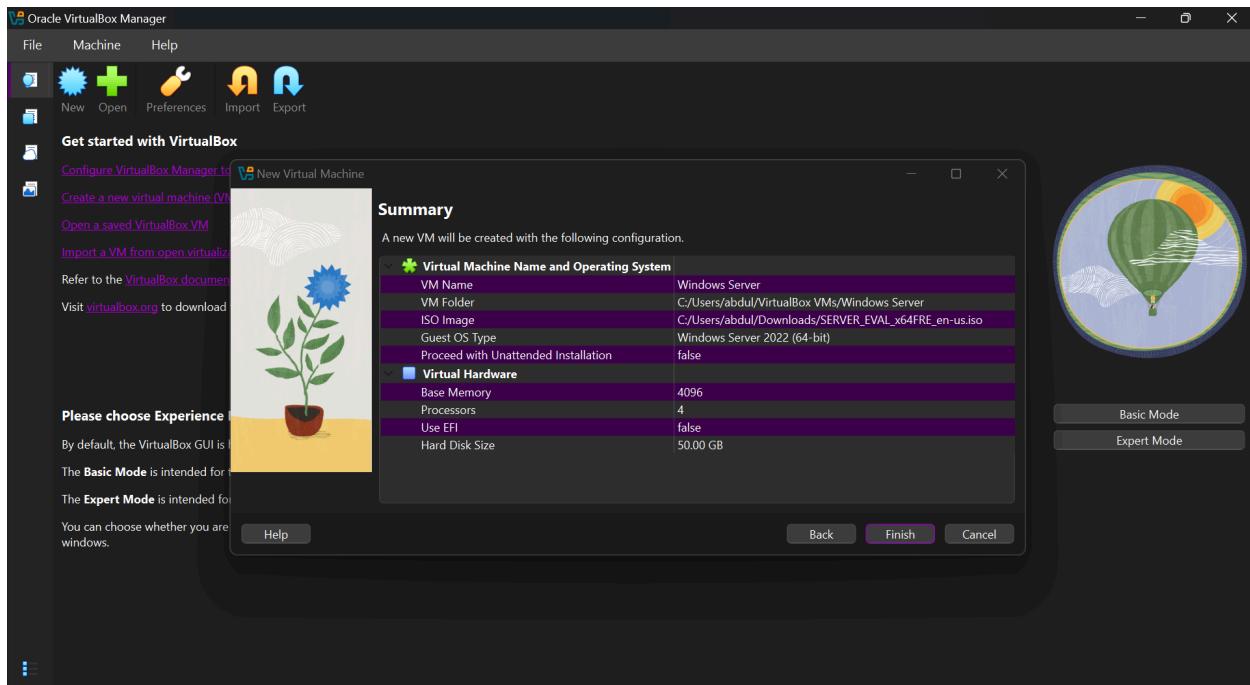


I started by assigning a logical name to the virtual machine, which I labeled “**Windows Server**”. I then selected the ISO Image option, located the file named “**SERVER\_EVAL\_x64FRE\_en-us (1)**” in my downloads folder, and attached it. I chose not to enable the unattended installation option.

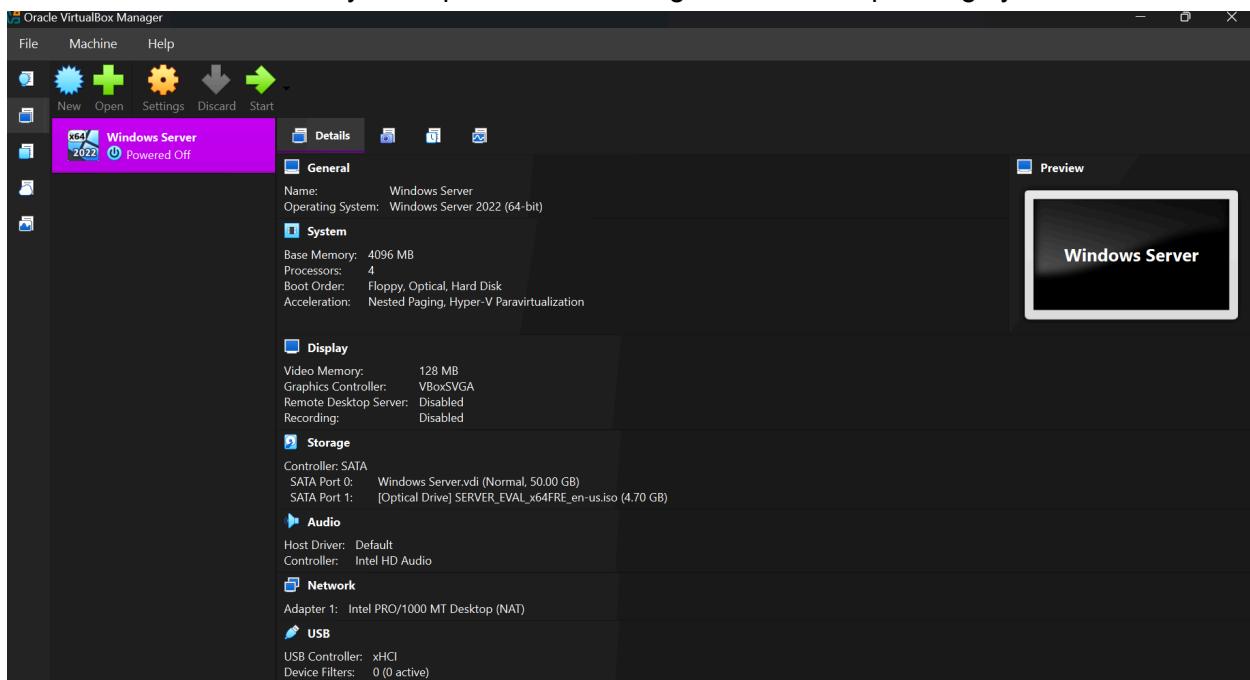


Next is configuration of the virtual hardware parameters, where I assigned 4096 GB (Gigabytes), for the Virtual Processors (CPUs), I assigned 4 processors, for the Virtual Hard Disk: I allocated 50 GB of virtual storage,





After Completion: By clicking "Finish," the definition of the Windows Server VM was complete, and the machine was ready to be powered on to begin the formal operating system installation.



### Phase 3: Downloading and installing the Windows 8 file on VMs

This phase focuses on acquiring and configuring the standard client operating systems.

## Stage 1: Downloading of Windows 8 file

I initiated a search to find the iso file for Windows 8.

The screenshot shows the Internet Archive website. At the top, there is a navigation bar with links for WEB, TEXTS, VIDEO, AUDIO, SOFTWARE, and IMAGES. On the right side of the top bar are links for SIGN UP | LOG IN, UPLOAD, and a search bar. Below the top bar, there is a secondary navigation bar with links for ABOUT, BLOG, EVENTS, PROJECTS, HELP, DONATE, CONTACT, JOBS, and VOLUNTEER. The main content area has a large black background with white text. In the center, it says "THERE IS NO PREVIEW AVAILABLE FOR THIS ITEM". Below this, it says "This item does not appear to have any files that can be experienced on Archive.org. Please download files in this item to interact with them on your computer." A blue button labeled "Show all files" is centered below the text. To the right of the "Show all files" button are three small rectangular buttons for Favorite, Share, and Flag. Below the central text, there is a listing for "Windows 8.1 Professional Original ISOs with Update 3 (x64 and x86)" by Microsoft. The listing includes publication date (2013-10-17), topics (windows 8.1 iso), language (English), and item size (7.0G). It also includes a note about Microsoft taking down the download link. To the right of the listing is a box showing statistics: 350,057 Views, 92 Favorites, and 67 Reviews.

Upon locating the download source, I ensured the selection was the 64-bit edition. Then I clicked download

The screenshot shows the Internet Archive website again. The top navigation bar and secondary navigation bar are identical to the previous screenshot. The main content area has a black background with white text. In the center, it says "THERE IS NO PREVIEW AVAILABLE FOR THIS ITEM". Below this, it says "This item does not appear to have any files that can be experienced on Archive.org. Please download files in this item to interact with them on your computer." A blue button labeled "Show all files" is centered below the text. To the right of the "Show all files" button are three small rectangular buttons for Favorite, Share, and Flag. Below the central text, there is a listing for "Windows 8.1 Professional Original ISOs with Update 3 (x64 and x86)" by Microsoft. The listing includes publication date (2013-10-17). To the right of the listing is a list of files available for download:

- Win8.1\_English\_x64.iso (3.1 MB/s - 54.7 MB of 4.0 GB, 22 mins left)
- SERVER\_EVAL\_x64FRE\_en-us.iso (Open file)
- VirtualBox-7.2.6a-172322-Win.exe (Open file)
- VirtualBox-7.2.2-170404-Win.exe (Removed)

Below the file list is a "See more" link. At the bottom of the page, there is a section for the "Windows 8.1 Professional Original ISOs with Update 3 (x64 and x86)" listing, which includes the same information as the first screenshot: a green icon, the title, the author (Microsoft), and three small rectangular buttons for Favorite, Share, and Flag.

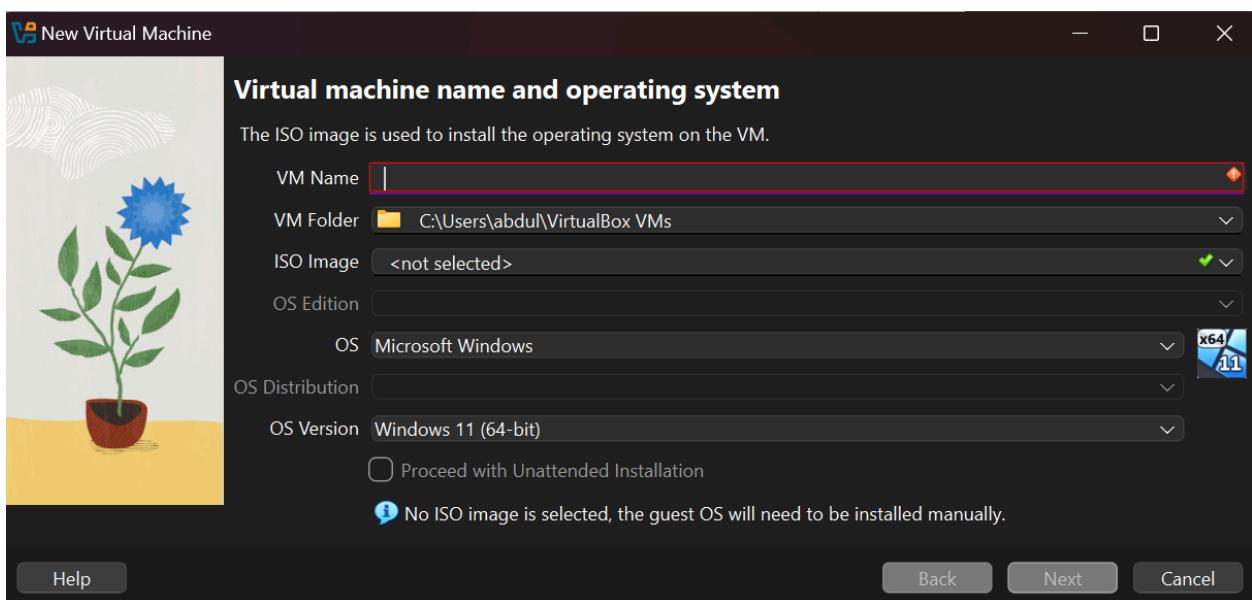
The process concluded with the successful download of the Windows 8 image file (the ISO file), making the software ready for use in VirtualBox.

Name	Date modified	Type
▼ Today		
Win8.1_English_x64.iso	2/12/2026 10:55 AM	Disc Image File
SERVER_EVAL_x64FRE_en-us.iso	2/12/2026 8:59 AM	Disc Image File
VirtualBox-7.2.6a-172322-Win.exe	2/12/2026 8:35 AM	Application

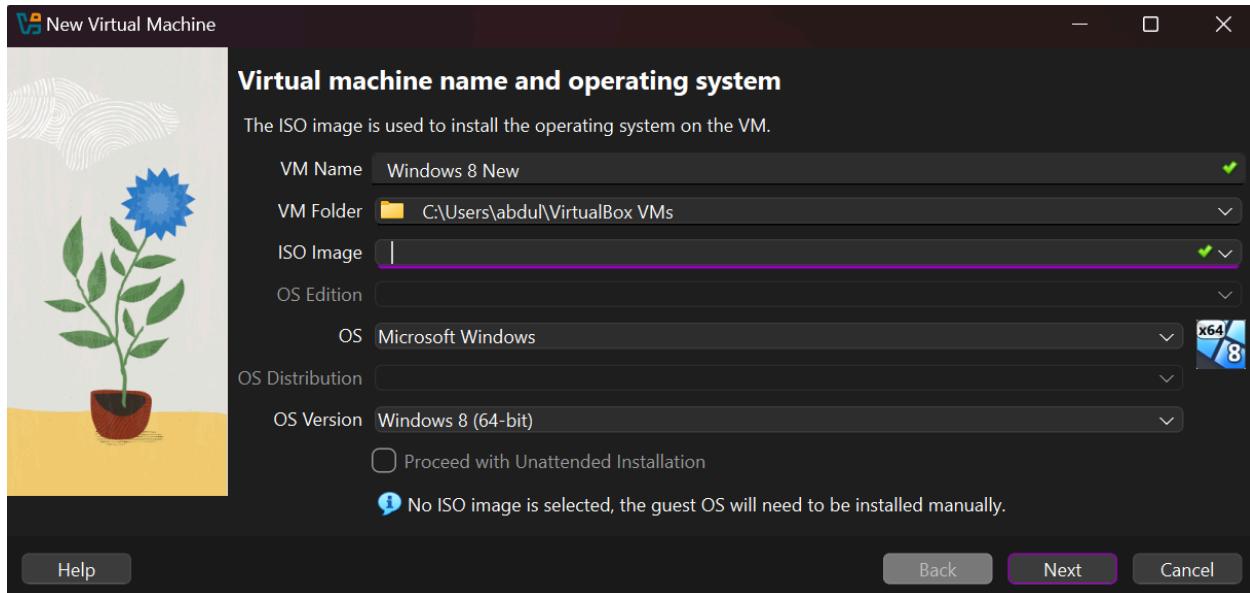
## Stage 2: Creating and Configuring the Windows 8 VM

With the Windows 8 software ready, you return to the VirtualBox Manager to define the machine that will run it. This process was then repeated for the second Windows 8 VM.

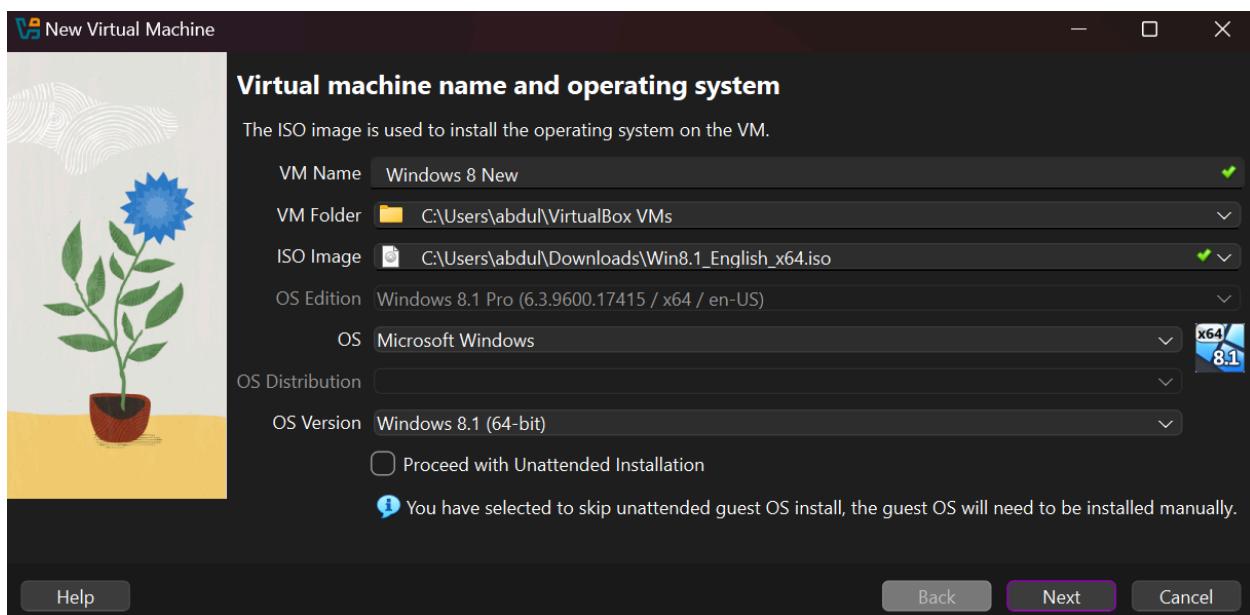
I clicked "New" in VirtualBox and initiated the setup process for the first window 8



I assigned a virtual Name for the first client to be “Windows 8



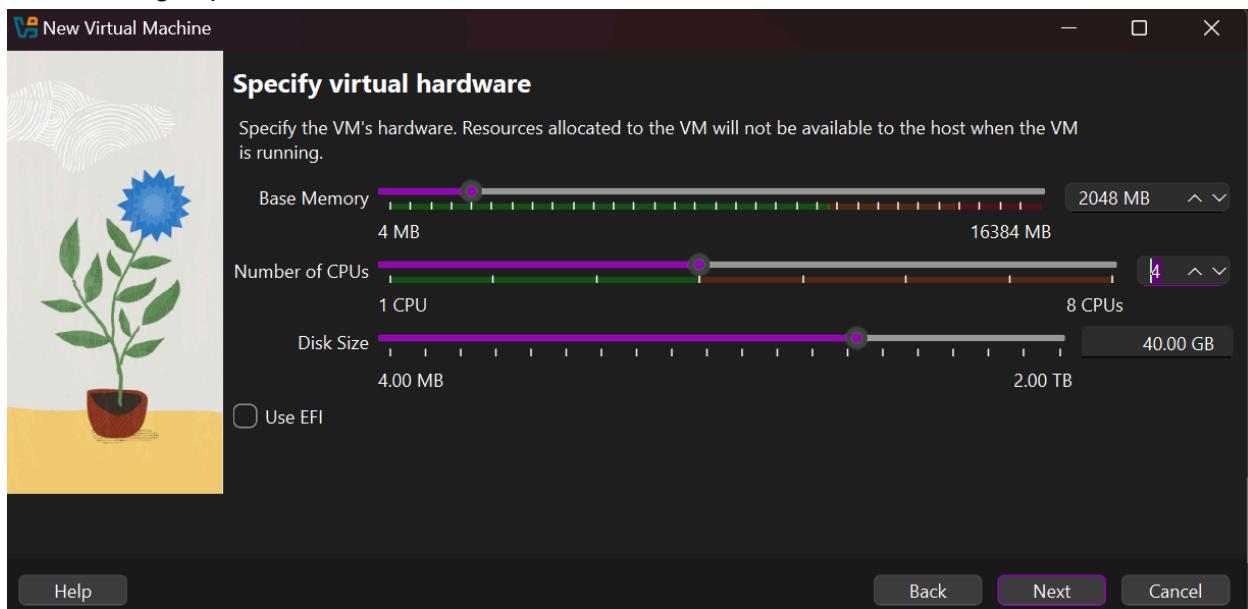
and successfully mounted (connected) the downloaded Windows 8 ISO file to the new virtual machine.



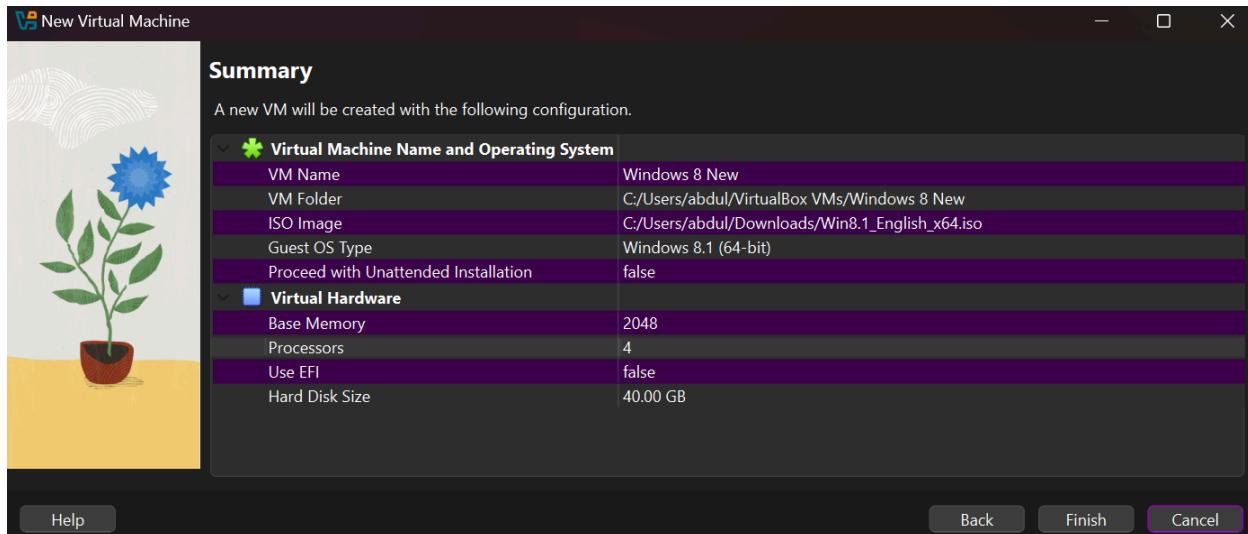
I correctly chose to Skip Unattended Installation to maintain full control over the setup.

I defined the robust virtual hardware settings for the client VM to ensure smooth operation. I allocated 1GB of RAM and 4 processors. And for the virtual hard disk, I allocated 40 GB of

virtual storage space.



By clicking "Next" and then "Finish," the configuration for the first Windows 8 VM was saved.



I repeated the whole process for the "Windows 8 machine ". I have now documented the successful acquisition and provisioning of all four virtual machines, Windows Server, and both Windows 8 clients.

