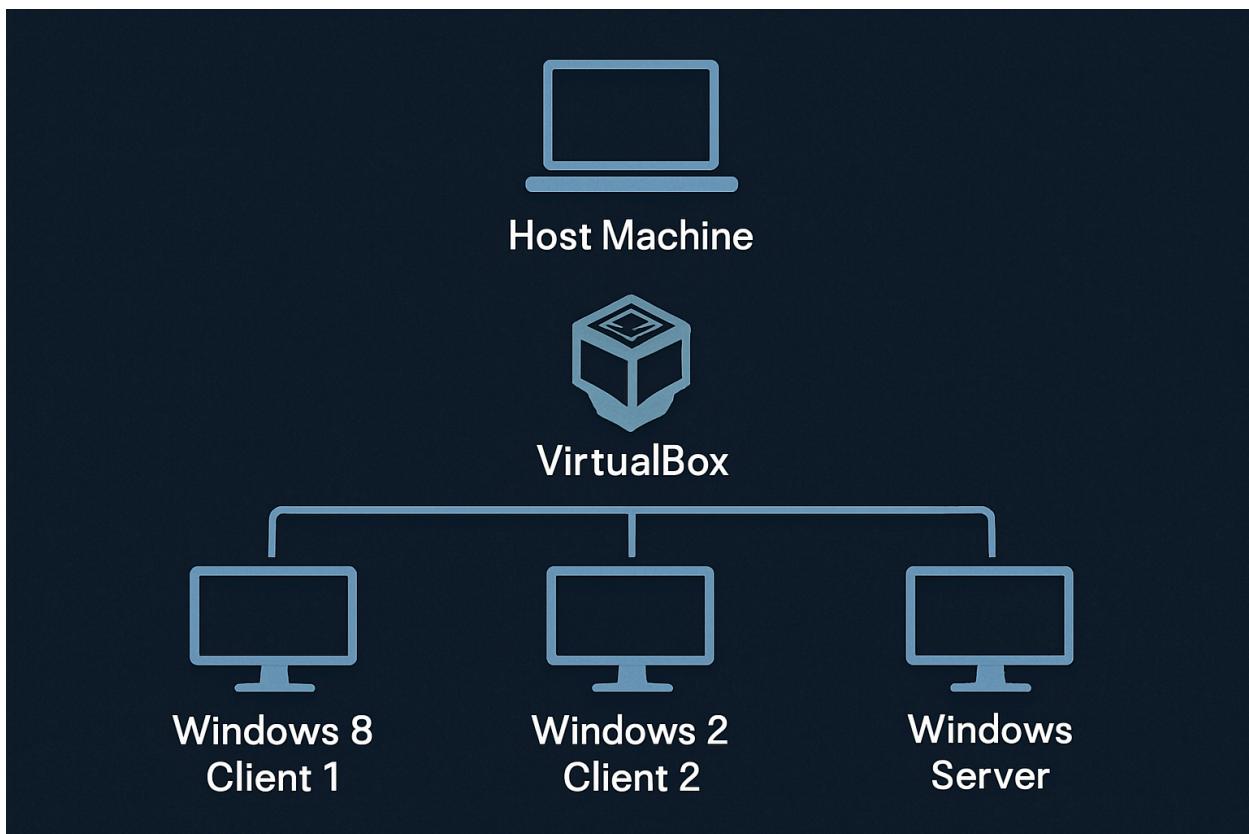


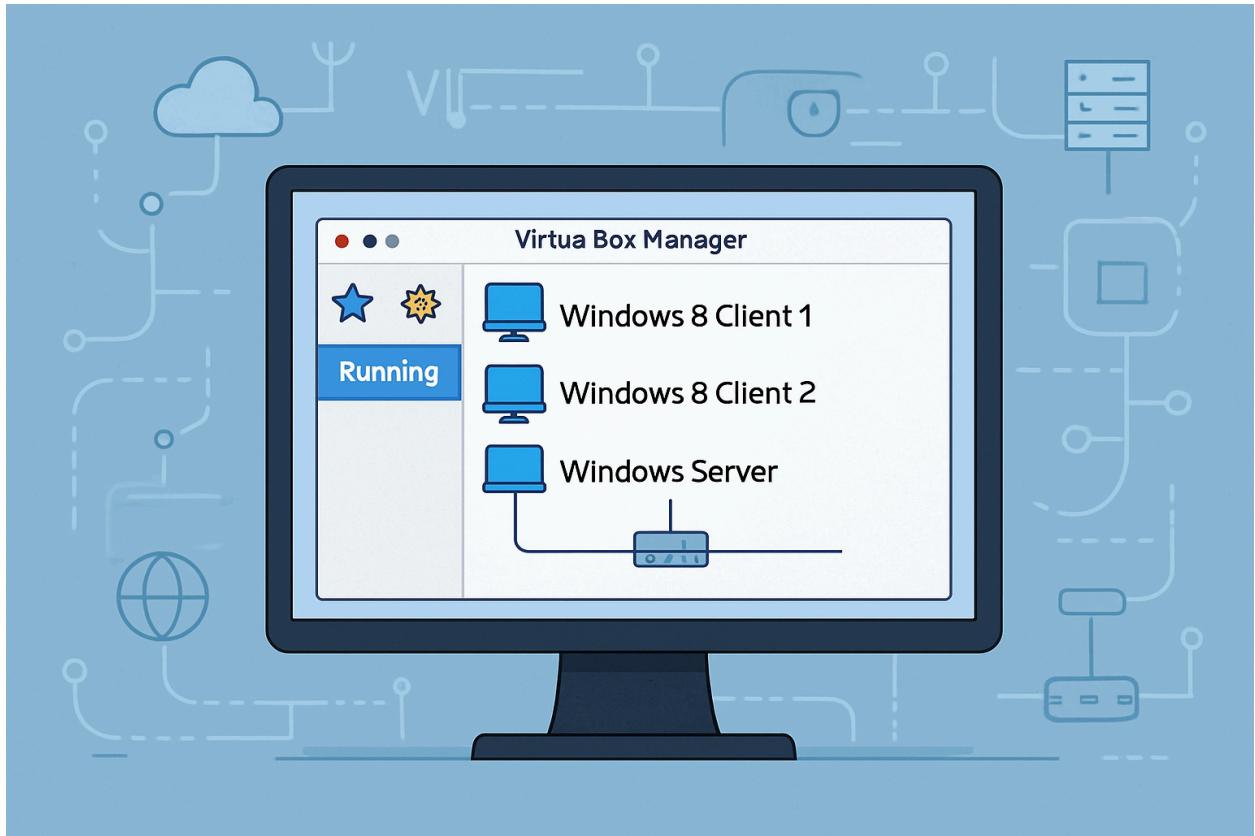
## **Setting Up the Foundational Virtual Network Lab:**

### **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.

## Powerful open source virtualization

For personal and enterprise use

VirtualBox is a general-purpose full virtualization software for x86\_64 hardware (with version 7.1 additionally for macOS/Arm and with version 7.2 also for Windows/Arm), targeted at laptop, desktop, server and embedded use.

### Get Started

[Download](#)

Download VirtualBox binaries and platform packages

#### Community

Become a part of the VirtualBox community. Discuss and solve problems in the forums, access test builds, and more.



#### Documentation

Learn from a variety of resources including user manuals, end-user and technical documentation, the source code repository timeline, or the changelog.



#### Training

Access labs, tutorials, and videos to learn how to use VirtualBox. Quizzes are available to test your learning.



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

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.

#### VirtualBox Platform Packages

- VirtualBox 7.2.4 platform packages
- [Windows hosts](#)
- [macOS / Intel hosts](#)
- [macOS / Apple Silicon hosts](#)
- [Linux distributions](#)
- [Solaris hosts](#)
- [Solaris 11 IPS hosts](#)

Platform packages are released under the terms of the [GPL version 3](#)

#### VirtualBox Extension Pack

VirtualBox 7.2.4 Extension Pack

This VirtualBox Extension Pack Personal Use and Educational License governs your access to and use of the VirtualBox Extension Pack. It does not apply to the VirtualBox base package and/or its source code, which are licensed under version 3 of the GNU General Public License "GPL".

See our [FAQ](#) for answers to common questions.

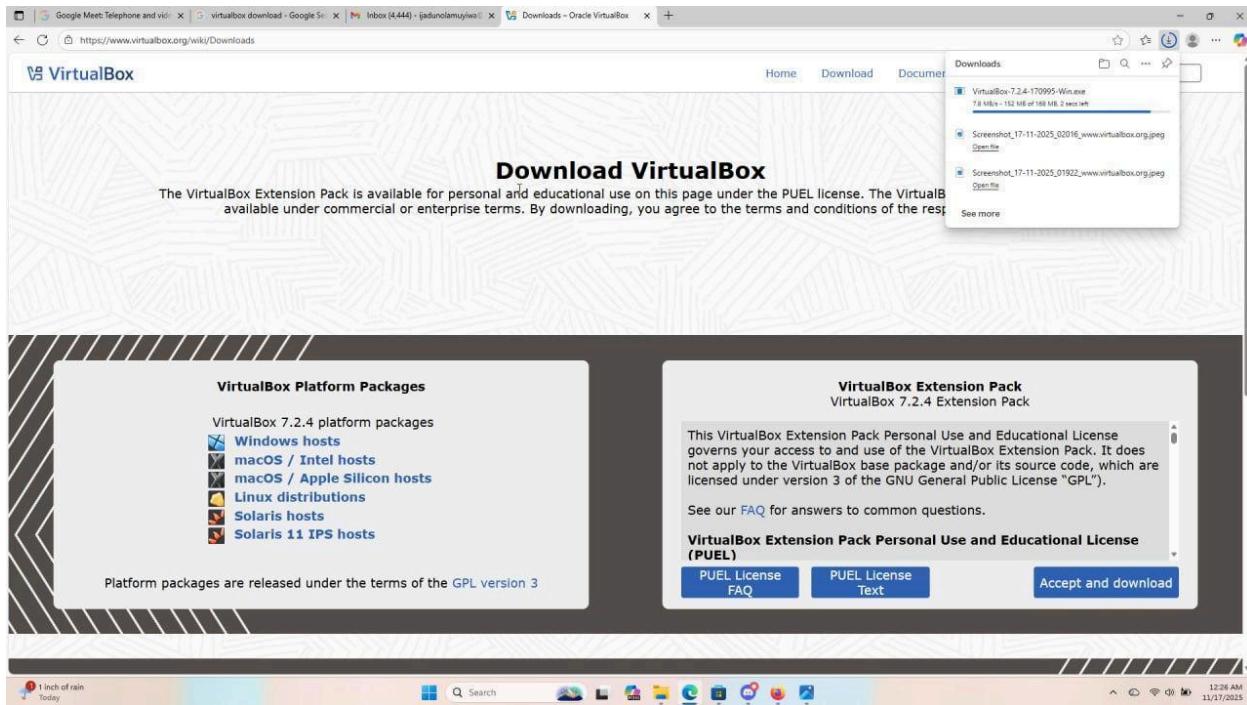
#### VirtualBox Extension Pack Personal Use and Educational License (PUEL)

[PUEL License FAQ](#)

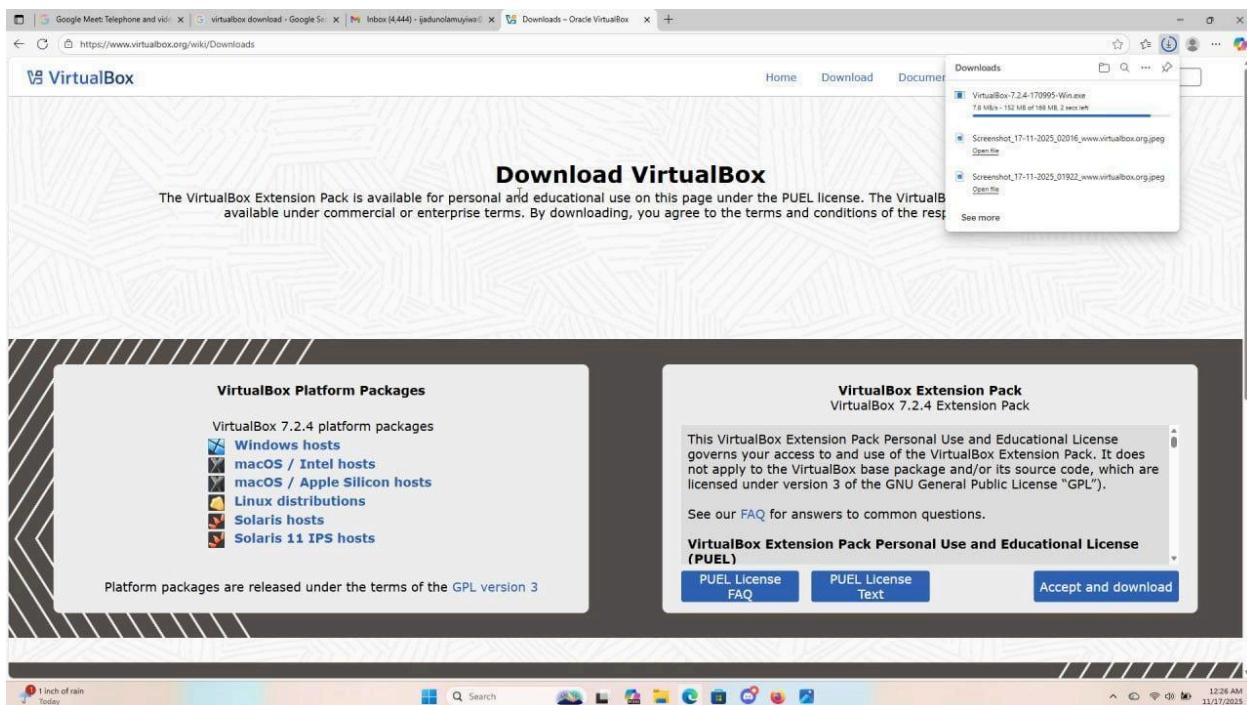
[PUEL License Text](#)

[Accept and download](#)

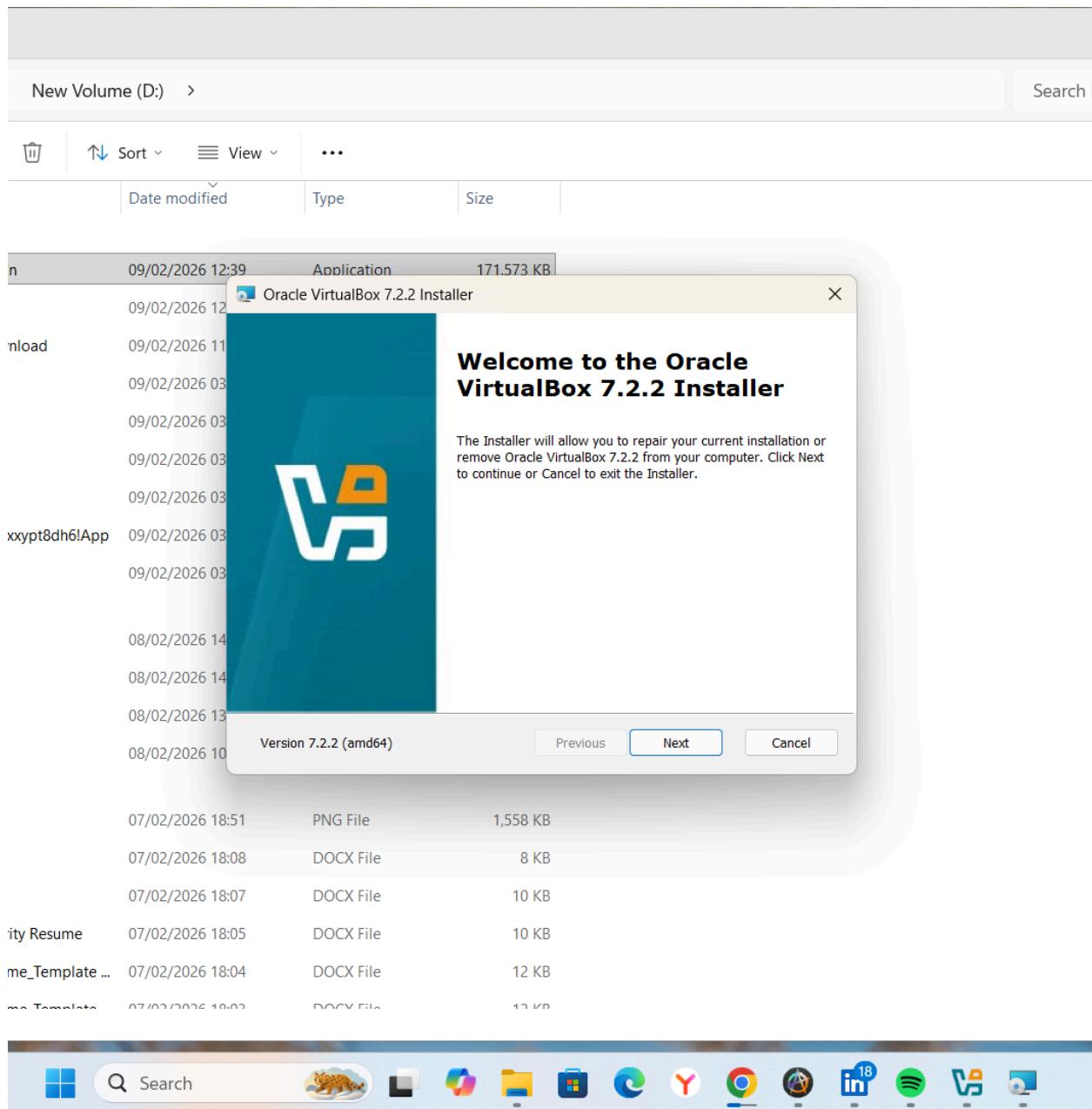
I selected the **Windows hosts** option, which initiated the download of the VirtualBox executable (.exe) file. This package serves as the core component for building my virtual lab environment.



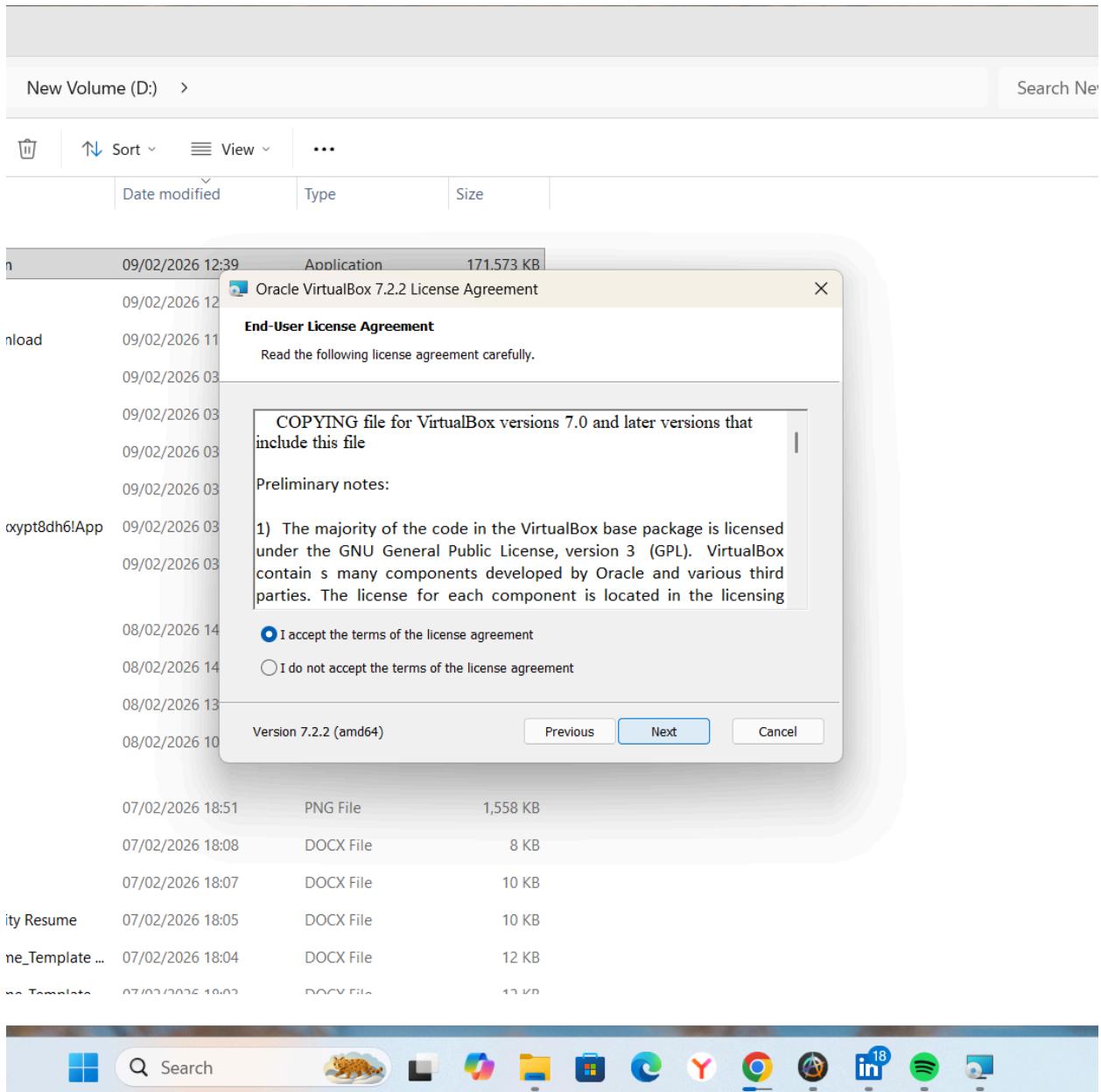
Once the download is complete,



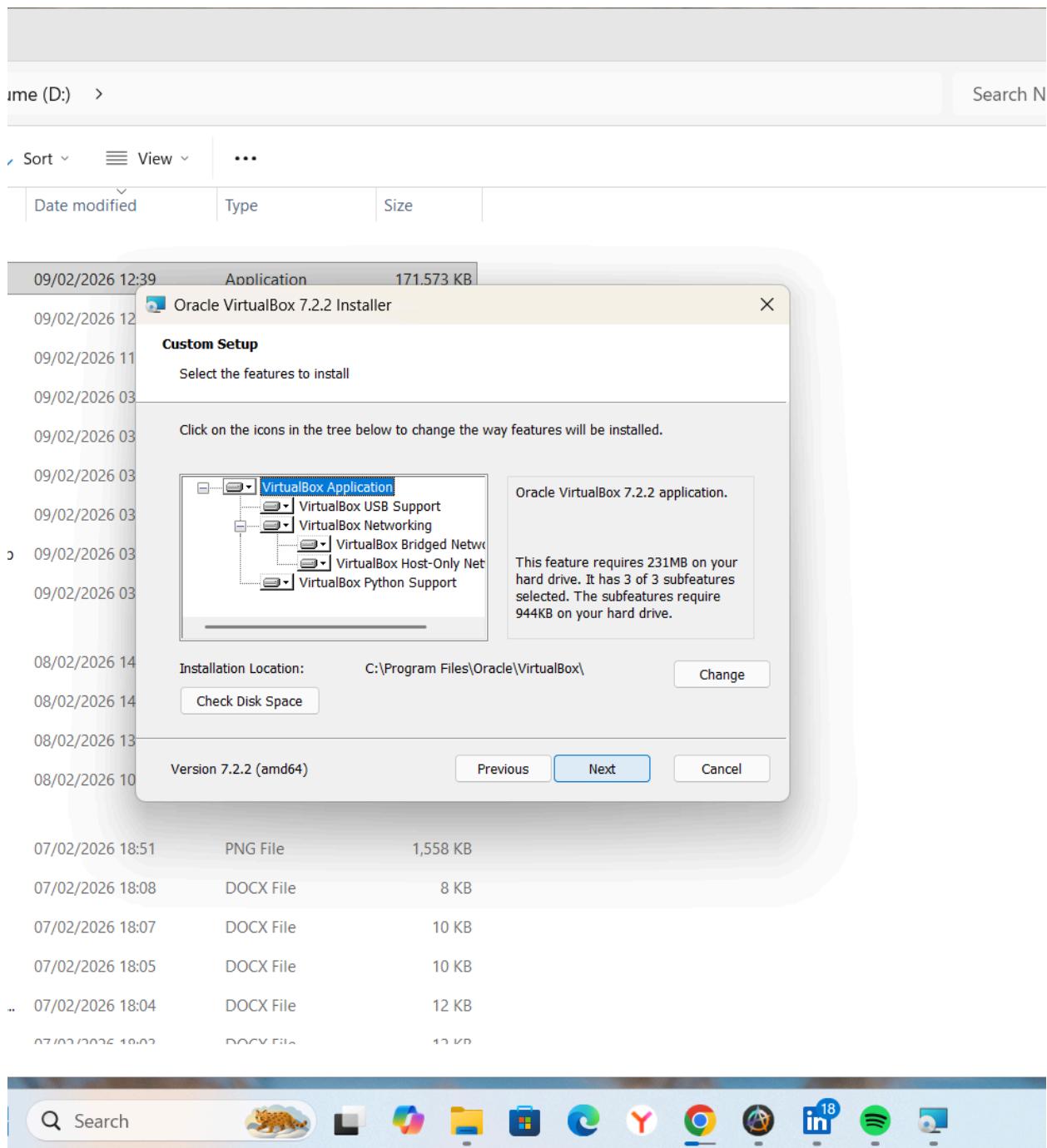
I launched the executable to begin the installation process, which opened the screen titled “Welcome to the Oracle VM VirtualBox Setup Wizard.”



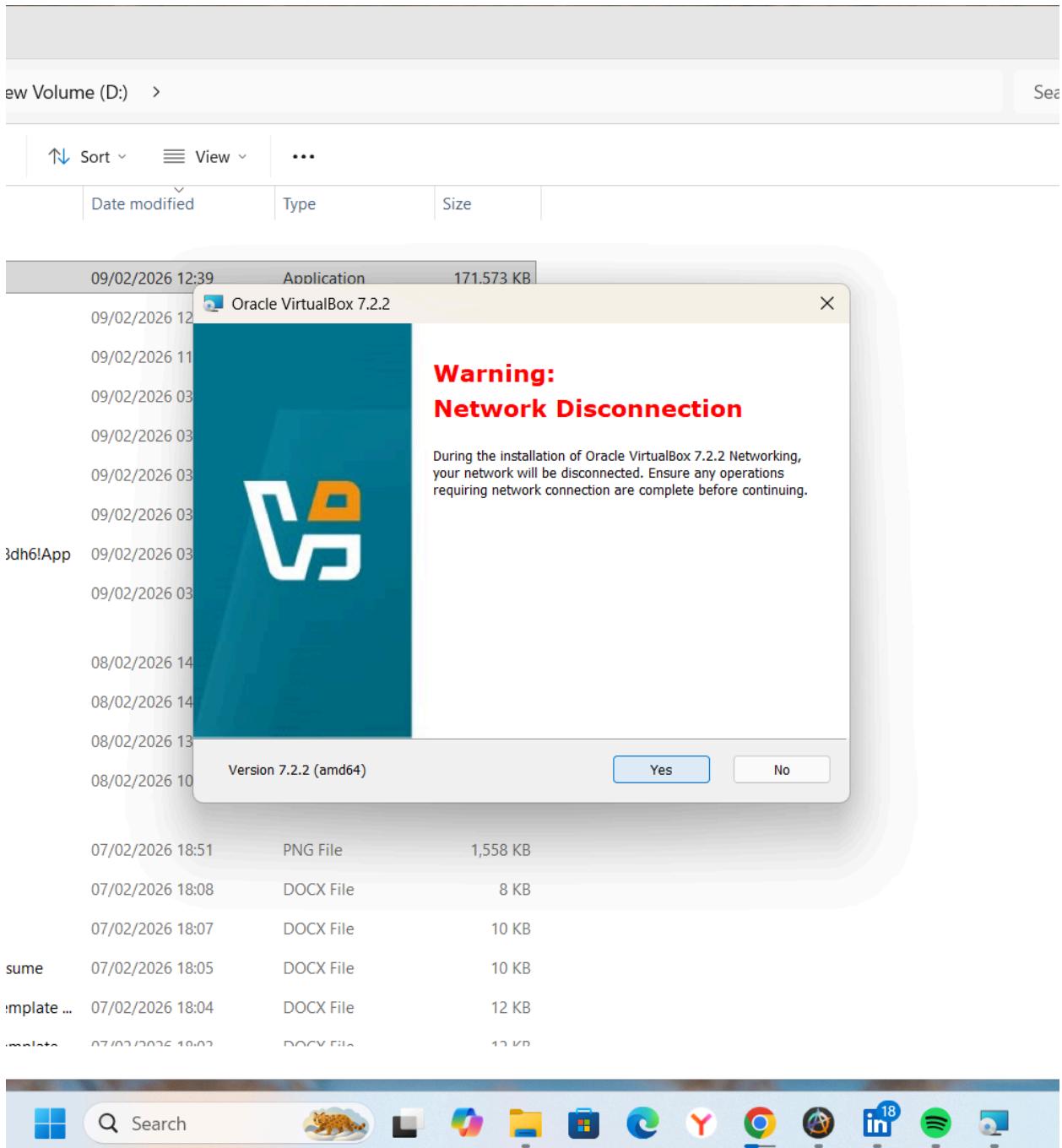
Then, I clicked next and I got the license agreement page.



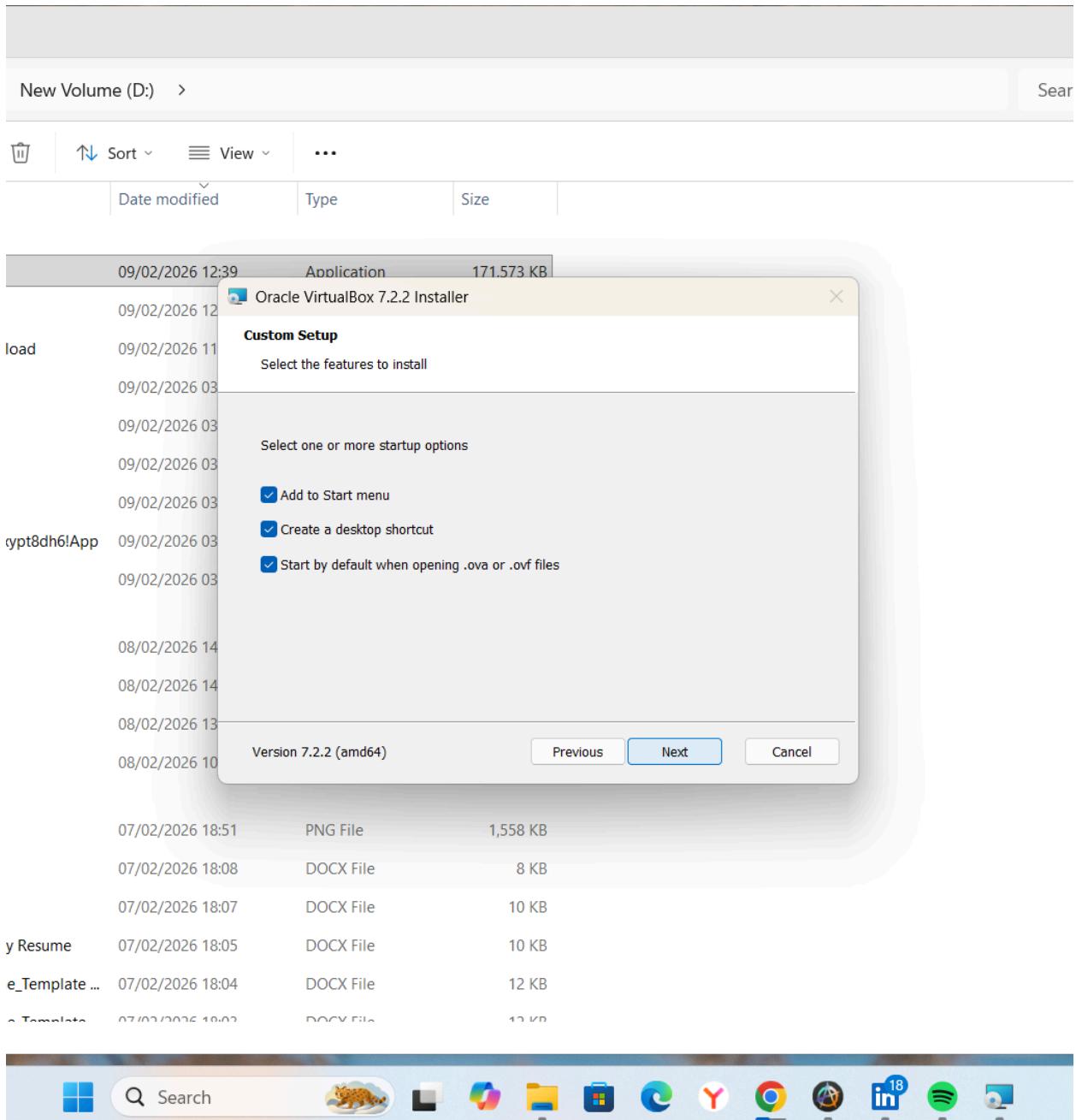
I accepted the prompt and proceeded by clicking **Next**. On the following screen, I was given the option to change the installation directory, but I kept the default location and continued by selecting **Next** again.



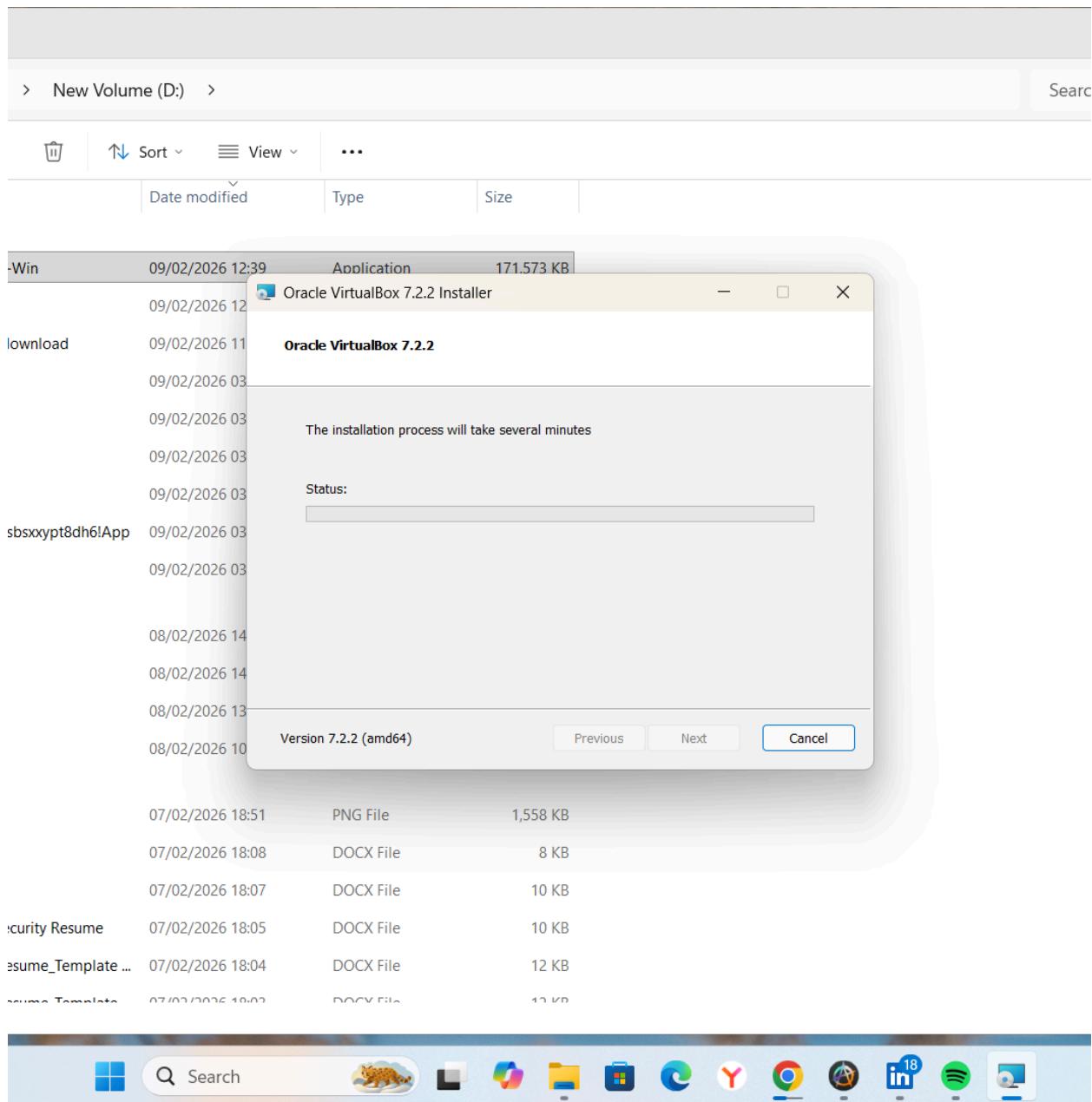
I got the warning page and after going through it, I clicked yes.



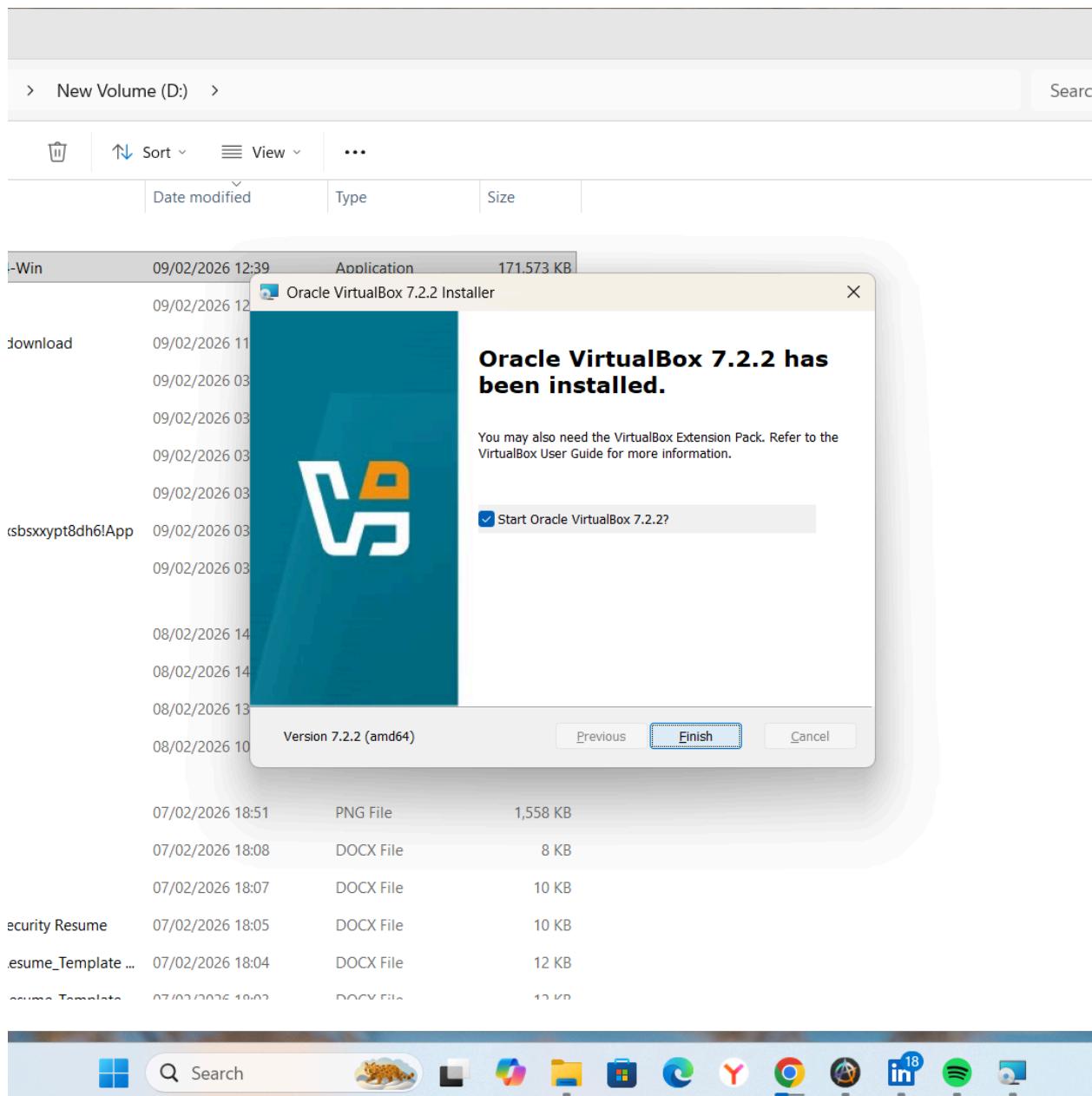
The next screen appeared, and after reviewing the information, I selected **Yes** to allow the installation of the required dependencies.



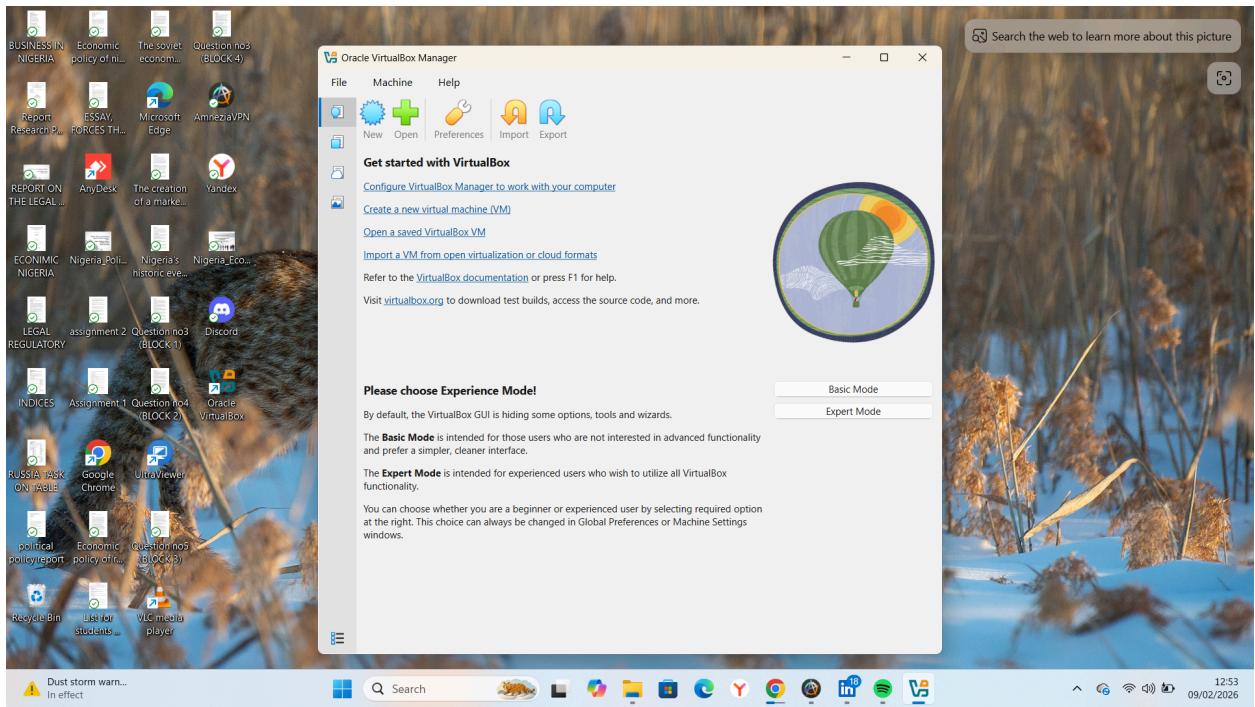
I was then taken to the final installation screen, where I clicked **Install** to begin the setup process.



I clicked next and the installation began



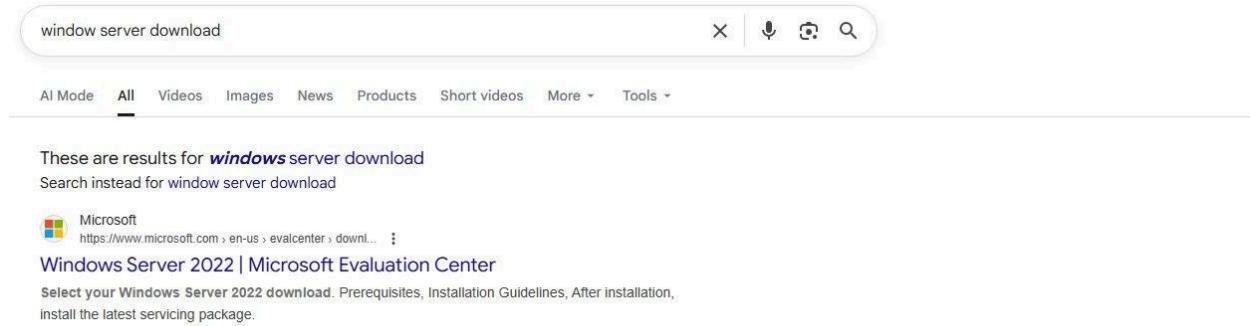
Then the installation of the VirtualBox was completed and I clicked finish.



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.



window server download

All Mode All Videos Images News Products Short videos More Tools

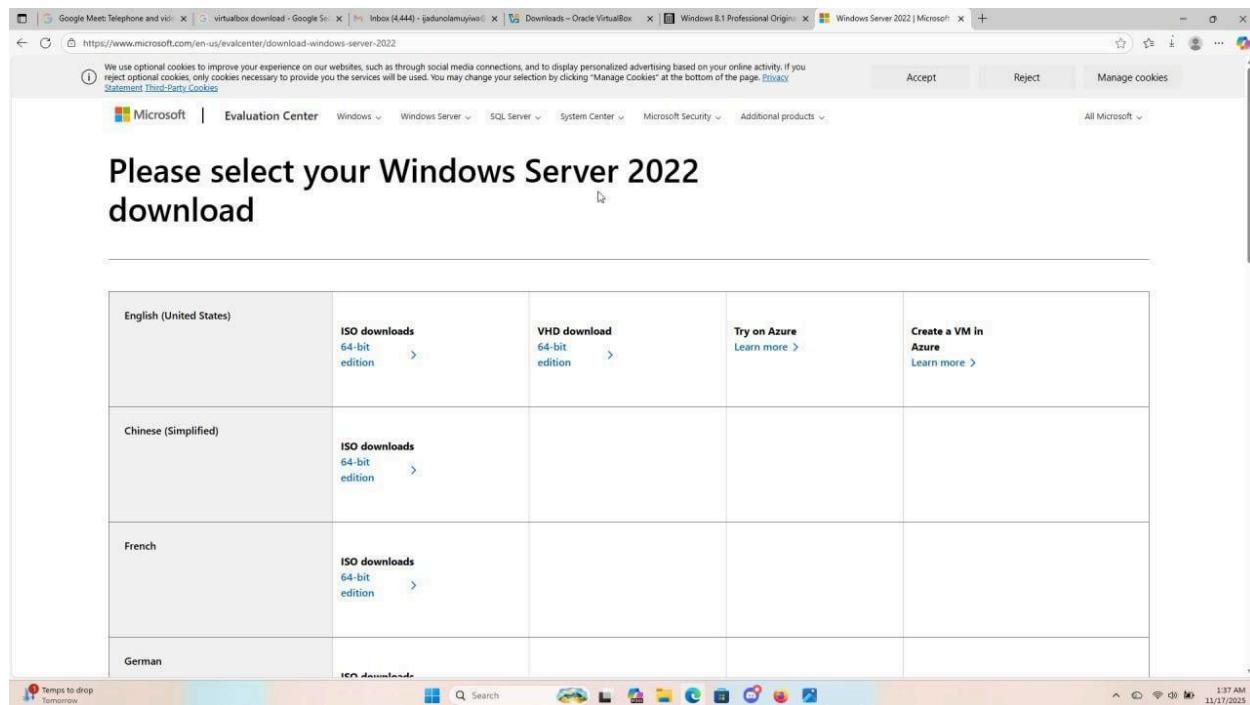
These are results for **windows** server download

Search instead for window server download

**Microsoft** https://www.microsoft.com/en-us/evalcenter/download... : Windows Server 2022 | Microsoft Evaluation Center

Select your Windows Server 2022 download. Prerequisites, Installation Guidelines, After installation, install the latest servicing package.

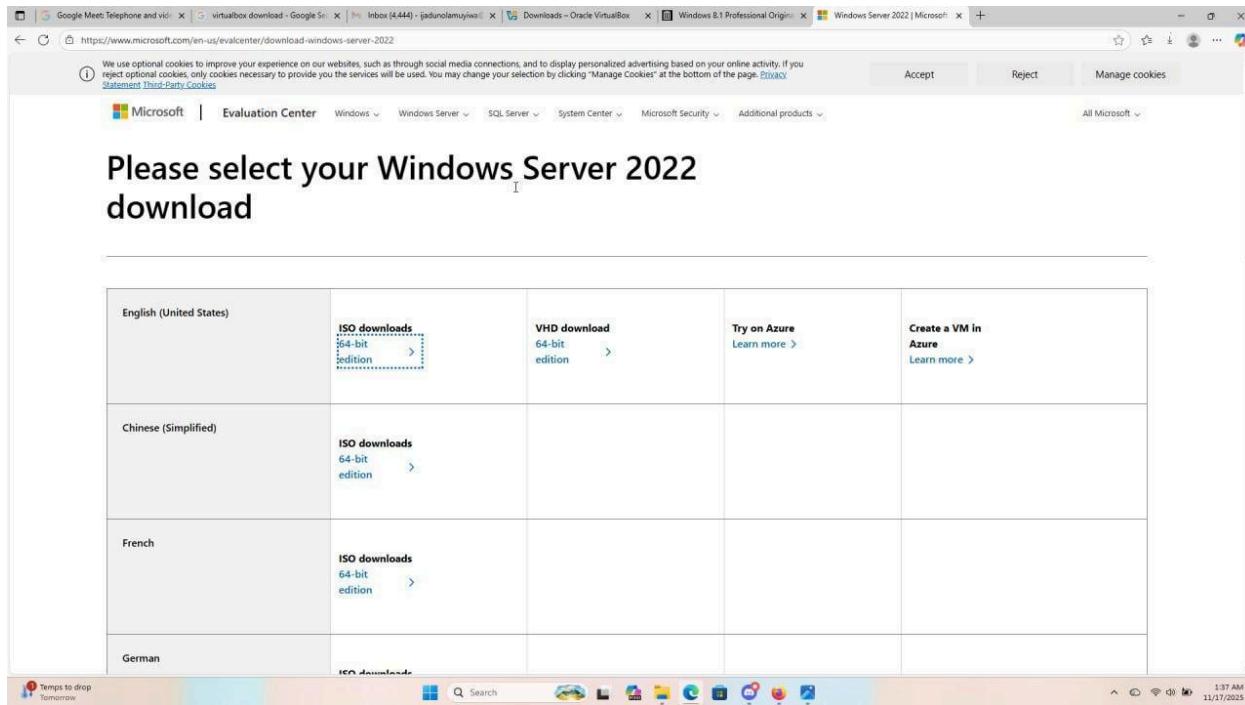
Upon reaching the download page,



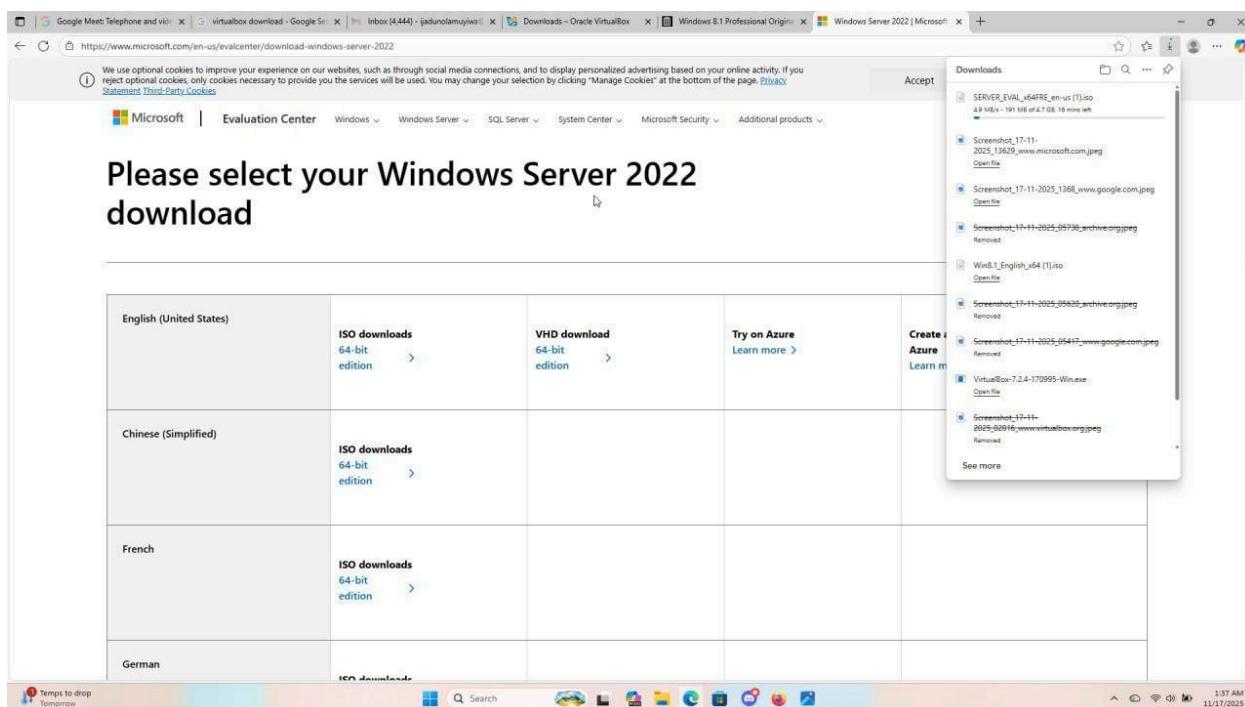
Please select your Windows Server 2022 download

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

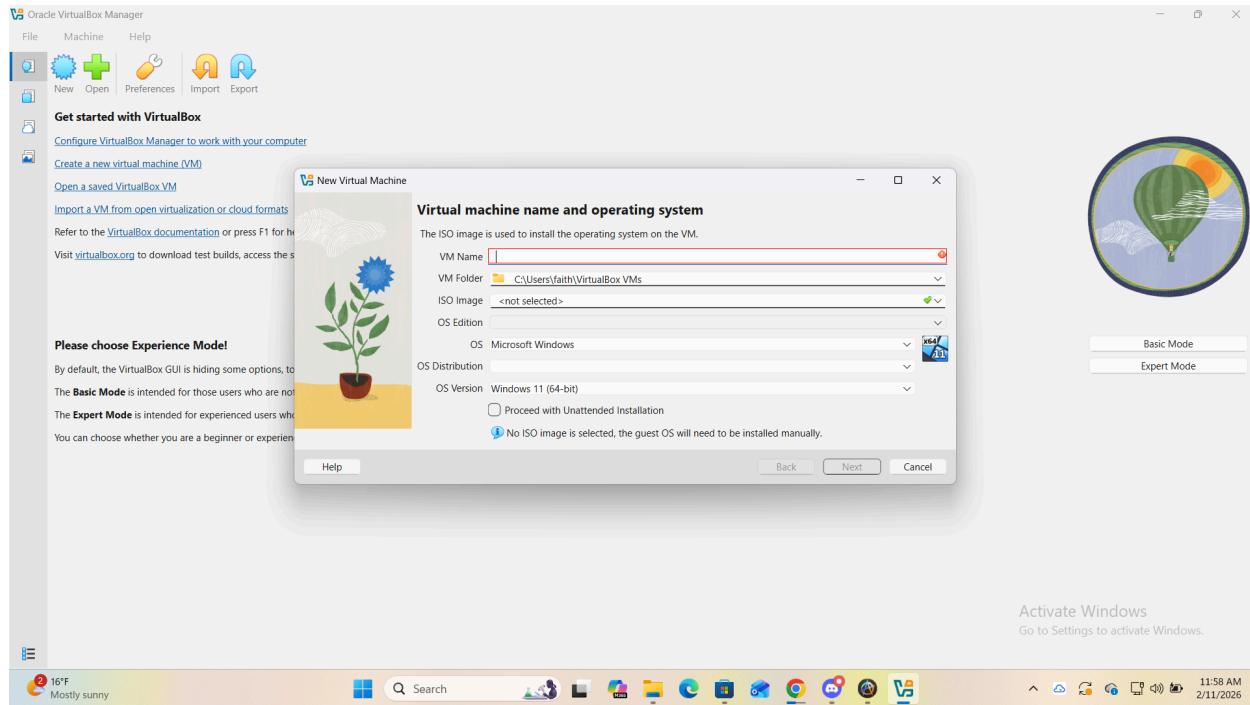
I selected the 64-bit edition.



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



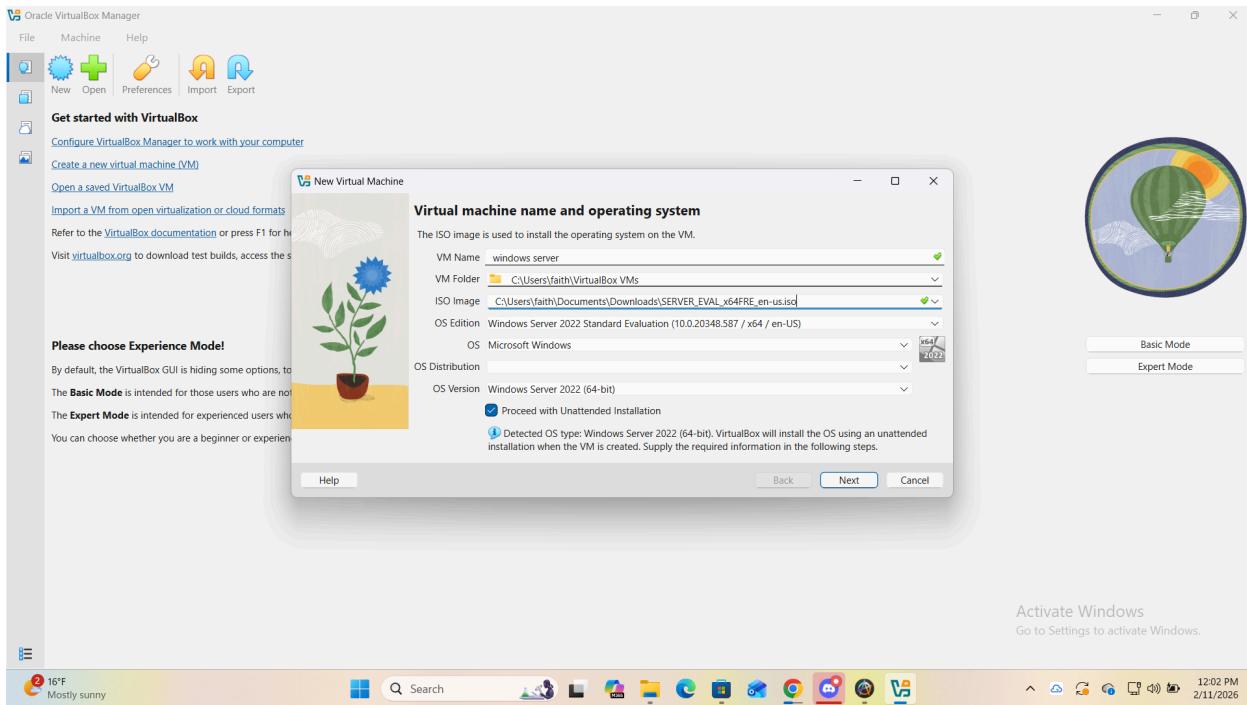
**Stage 2:** With the server software downloaded, the next step was to return to VirtualBox to create the virtual machine. In the VirtualBox Manager, I selected the “New” button, which initiated the setup process. From there, I began assigning virtual resources, including the amount of RAM and hard disk space needed for the new Windows Server system.



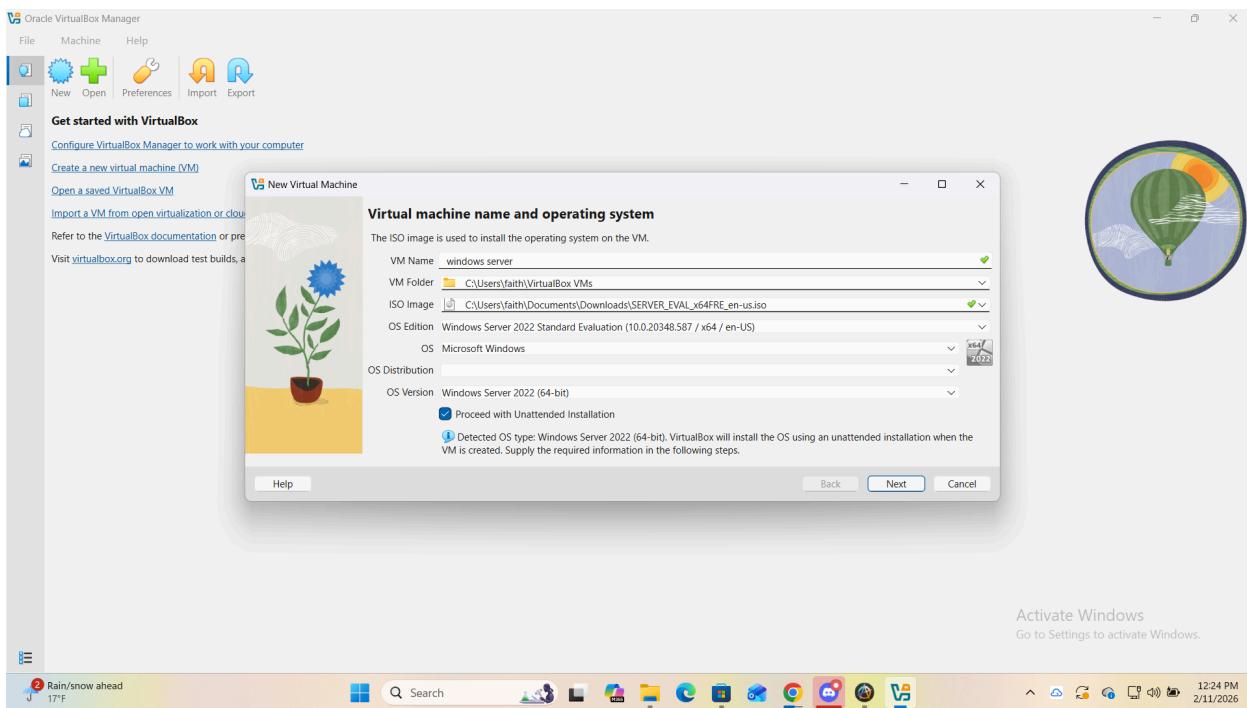
Here's a refined version:

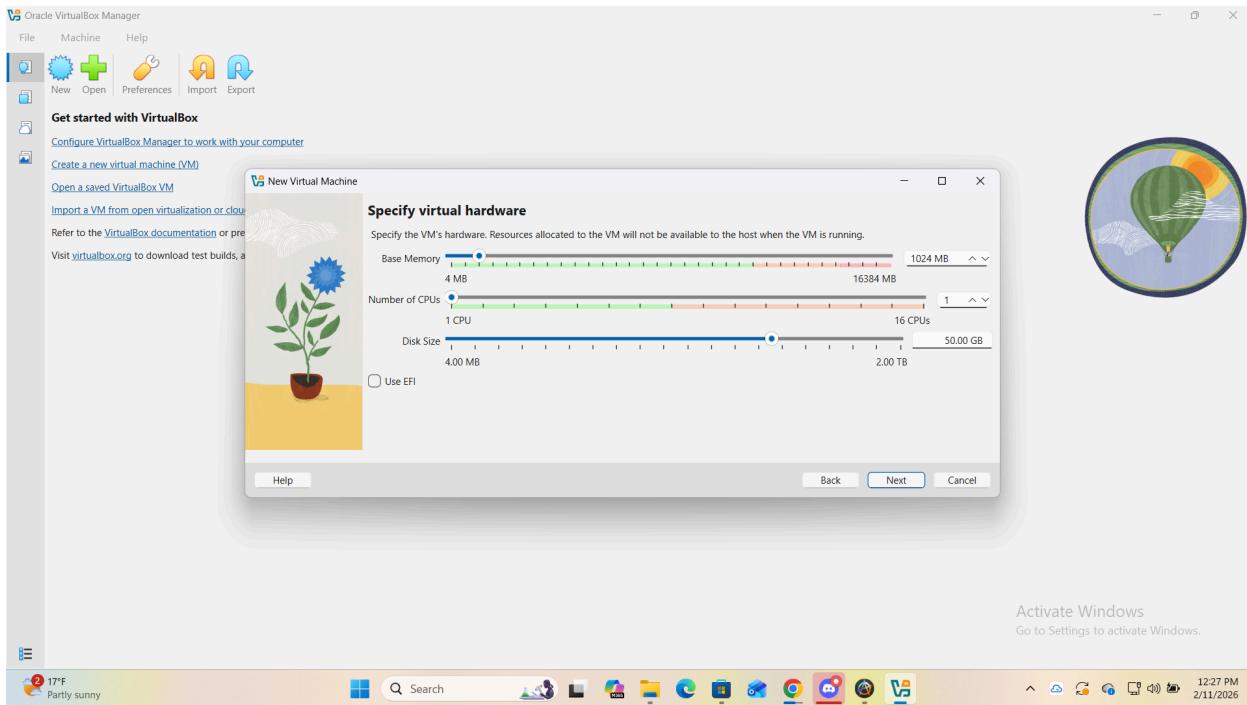
The final step in this stage was to mount the newly downloaded Windows Server 2022 ISO file. Mounting simply means attaching the ISO essentially to a virtual DVD to the virtual machine I created. This enables the VM to detect the operating system installer and begin the setup process once it is powered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

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

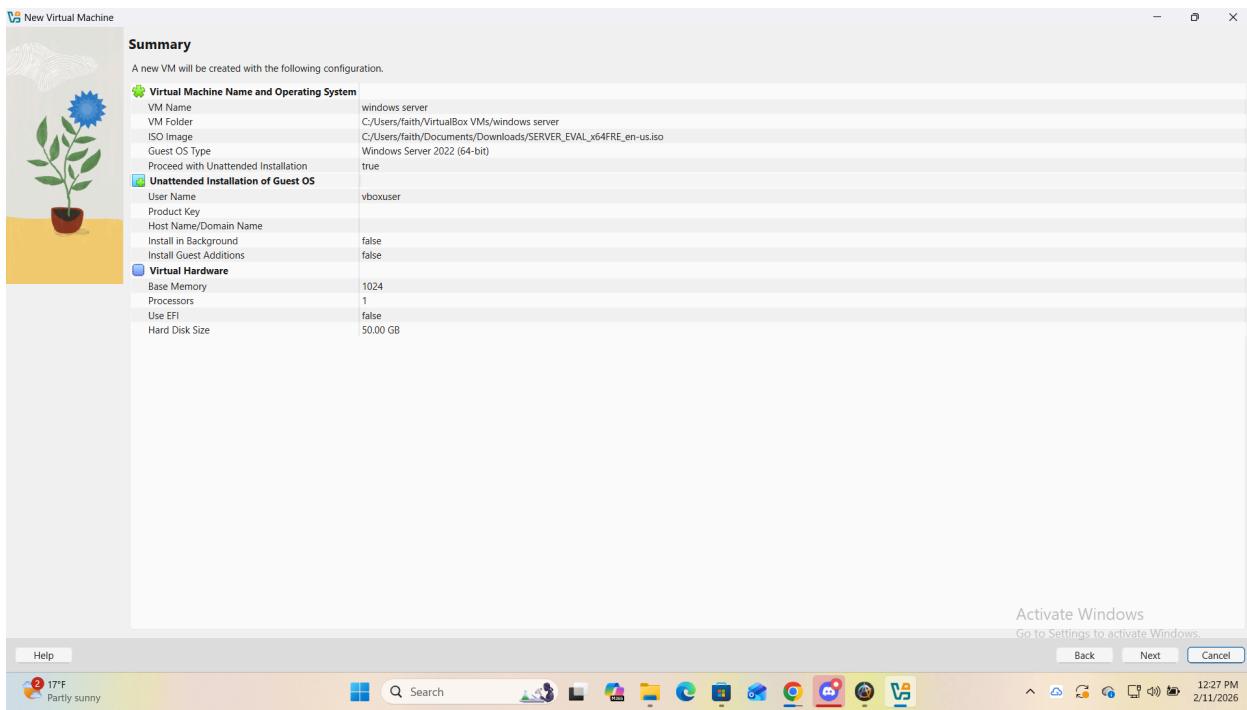


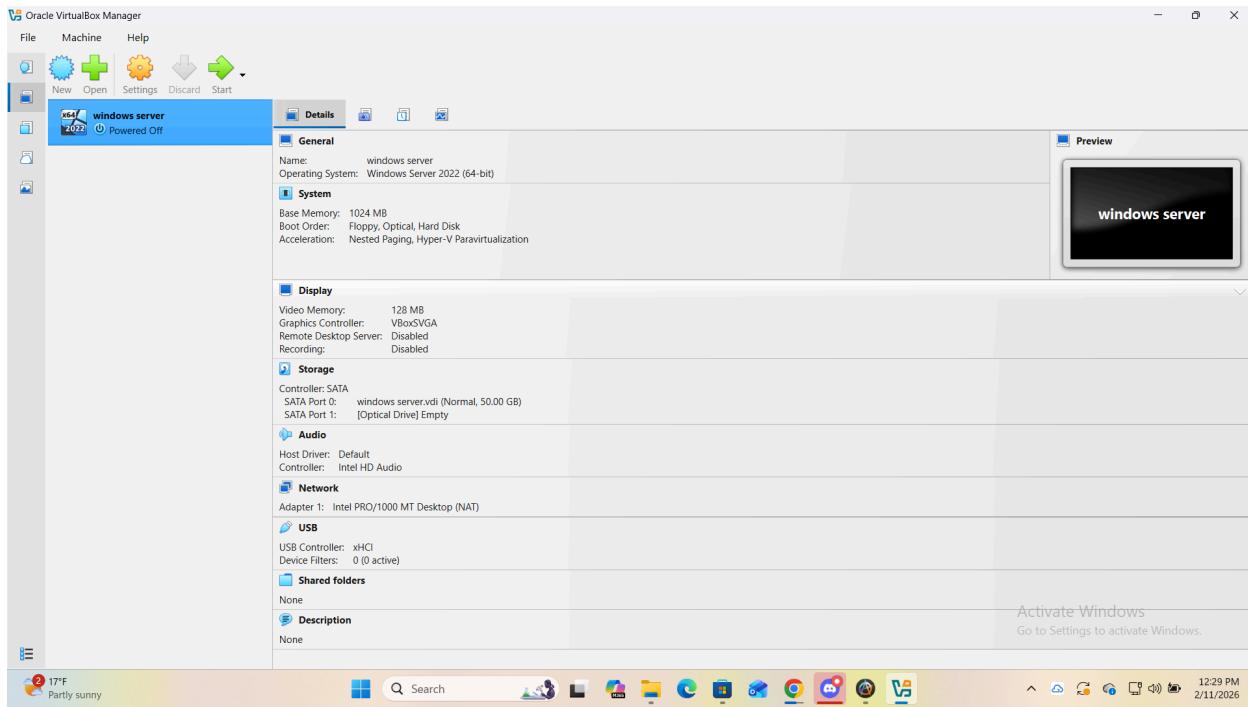
I started by assigning a logical name to the virtual machine, which I labeled “**Windows Server new.**” I then selected the ISO Image option, located the file named “**“SERVER\_EVAL\_x64FRE\_en-us (1)**” in my downloads folder, and attached it. I chose not to enable the unattended installation option.





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 with a search result for "Windows 8.1 Professional Original ISOs (x64 and x86)". The item is listed as "by Microsoft". Key details include:

- Publication date: 2013-10-17
- Topics: windows 8.1 iso
- Language: English
- Item Size: 7.0G
- Added date: 2014-06-16 17:06:47
- Collection added: vintagesoftware
- Identifier: win-8.1-english-x-64-x-86
- Scanner: Internet Archive HTML5 Uploader 1.7.0

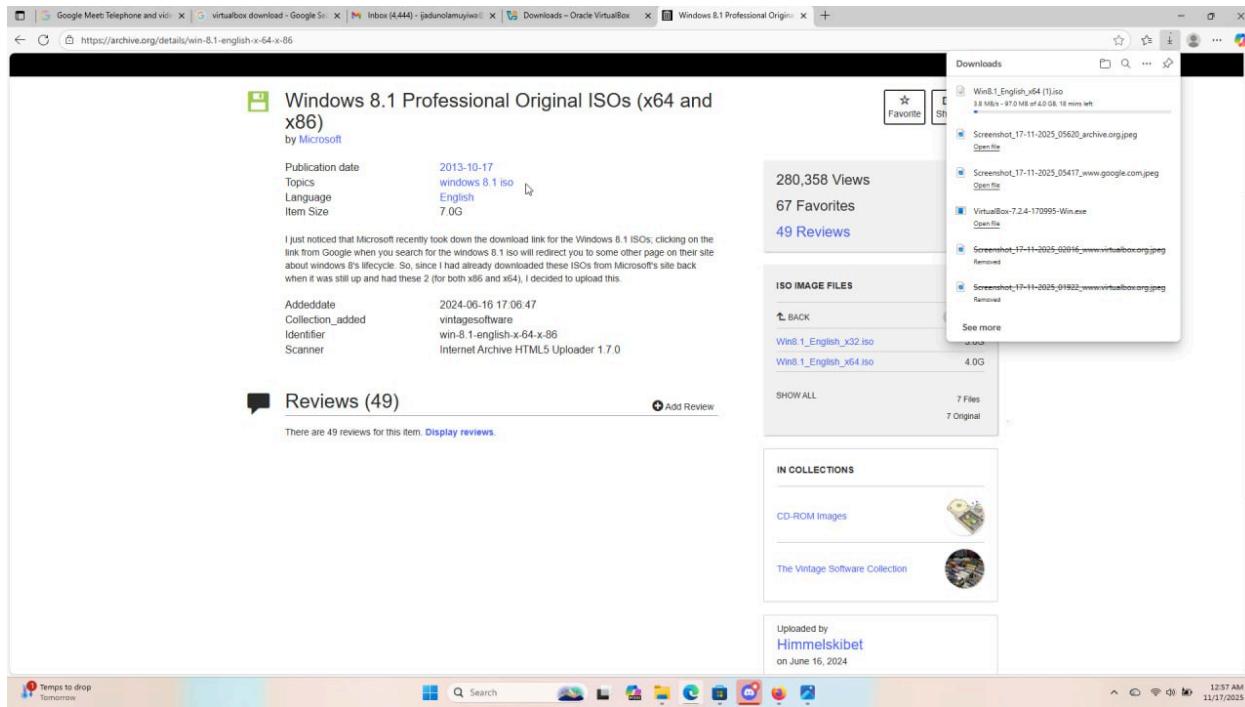
A note states: "I just noticed that Microsoft recently took down the download link for the Windows 8.1 ISOs; clicking on the link from Google when you search for the windows 8.1 iso will redirect you to some other page on their site about windows 8's lifecycle. So, since I had already downloaded these ISOs from Microsoft's site back when it was still up and had these 2 (for both x86 and x64), I decided to upload this."

The page shows 280,358 views, 67 favorites, and 49 reviews. The ISO IMAGE FILES section lists two files: Win8.1\_English\_x32.iso (3.0G) and Win8.1\_English\_x64.iso (4.0G). The IN COLLECTIONS section includes CD-ROM Images and The Vintage Software Collection. The item was uploaded by Himmelskibet on June 16, 2024.

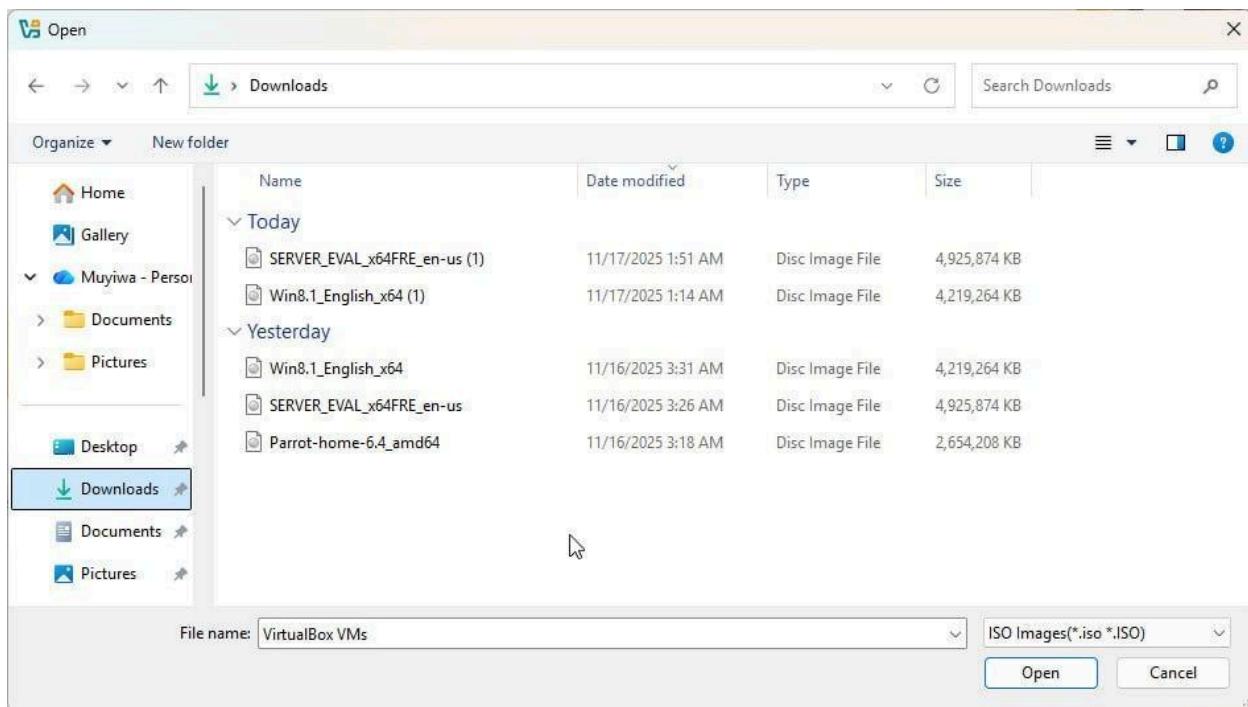
The screenshot shows a grid of similar items based on metadata, including:

- Windows 8.1 (English) by microsoft
- Win 8.1 English by microsoft
- Windows 7 ISO by microsoft
- Windows 8.1 Turkish ISO (x86 & x64) by microsoft
- Windows 8.1 x64 Fully Updated by microsoft
- Windows XP (x86 and x64) by microsoft
- Windows XP Professional x64 ISO by microsoft
- Windows 8.1 x64 & x86 (Official From Microsoft) by microsoft corporation
- Windows XP Professional SP3 x86 by microsoft

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



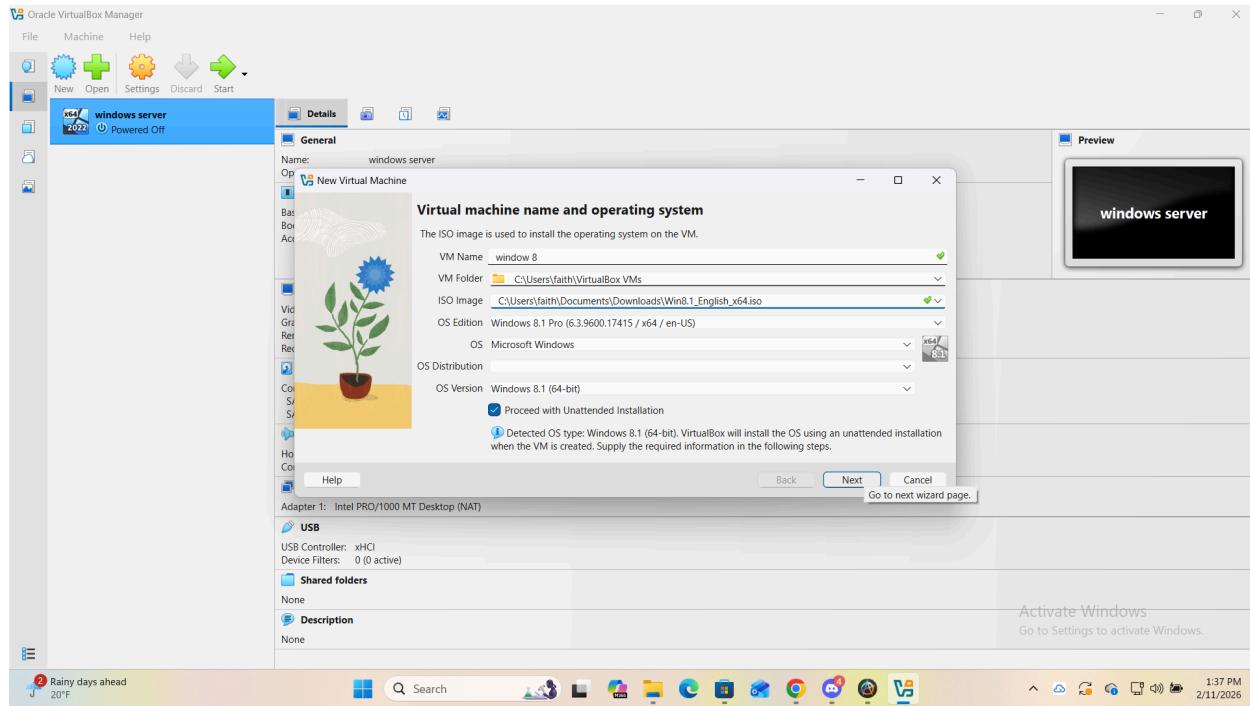
The process concluded with the successful download of the Windows 8 image file (the ISO file), making the software ready for use in VirtualBox.



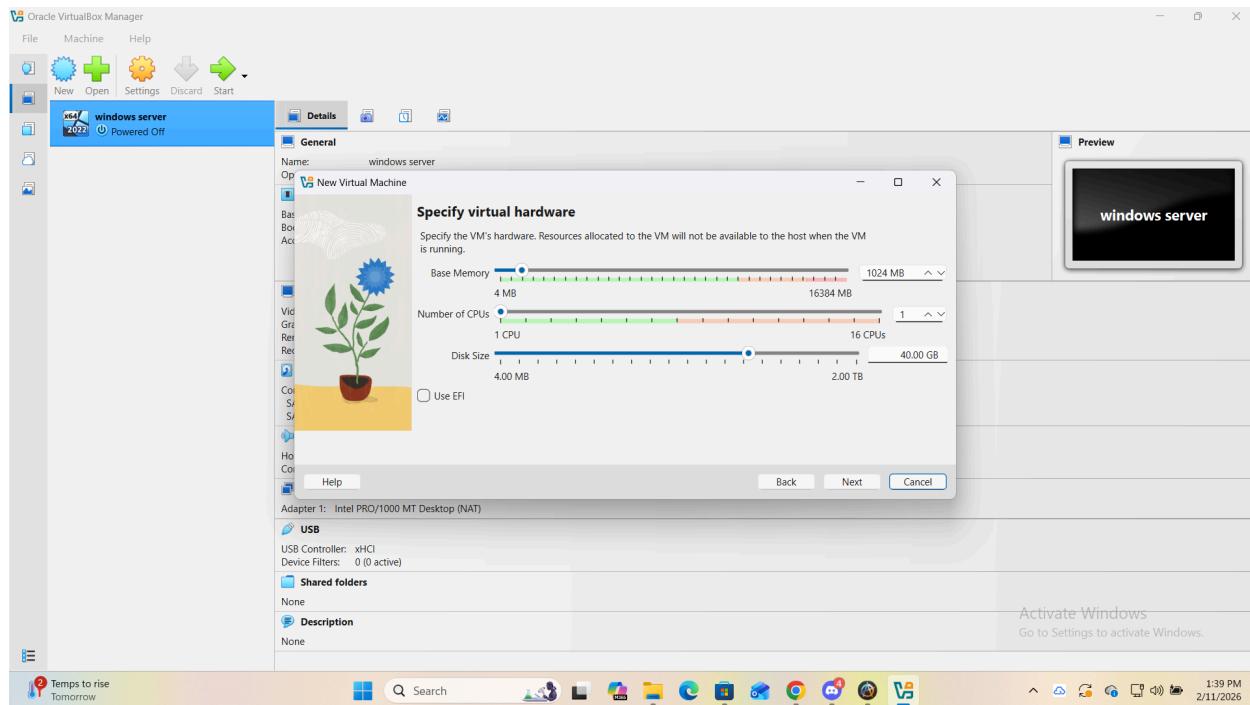
## Stage 2: Creating and Configuring the Windows 8 VM

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"

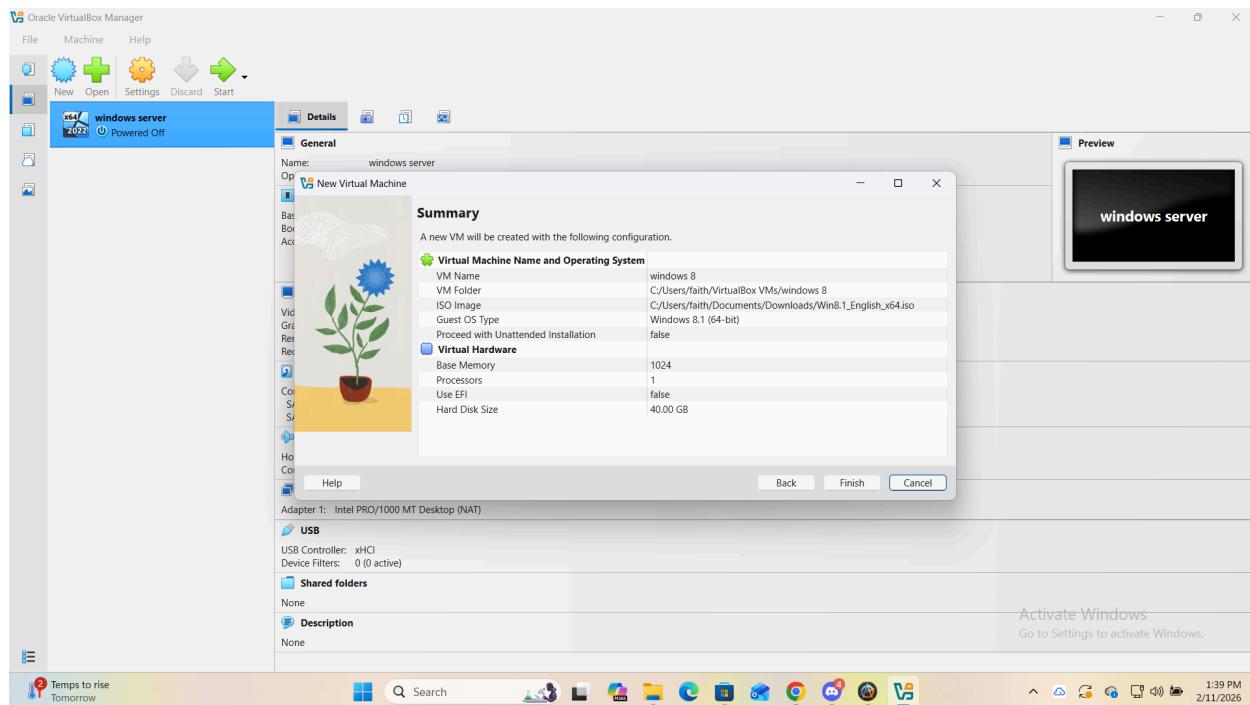


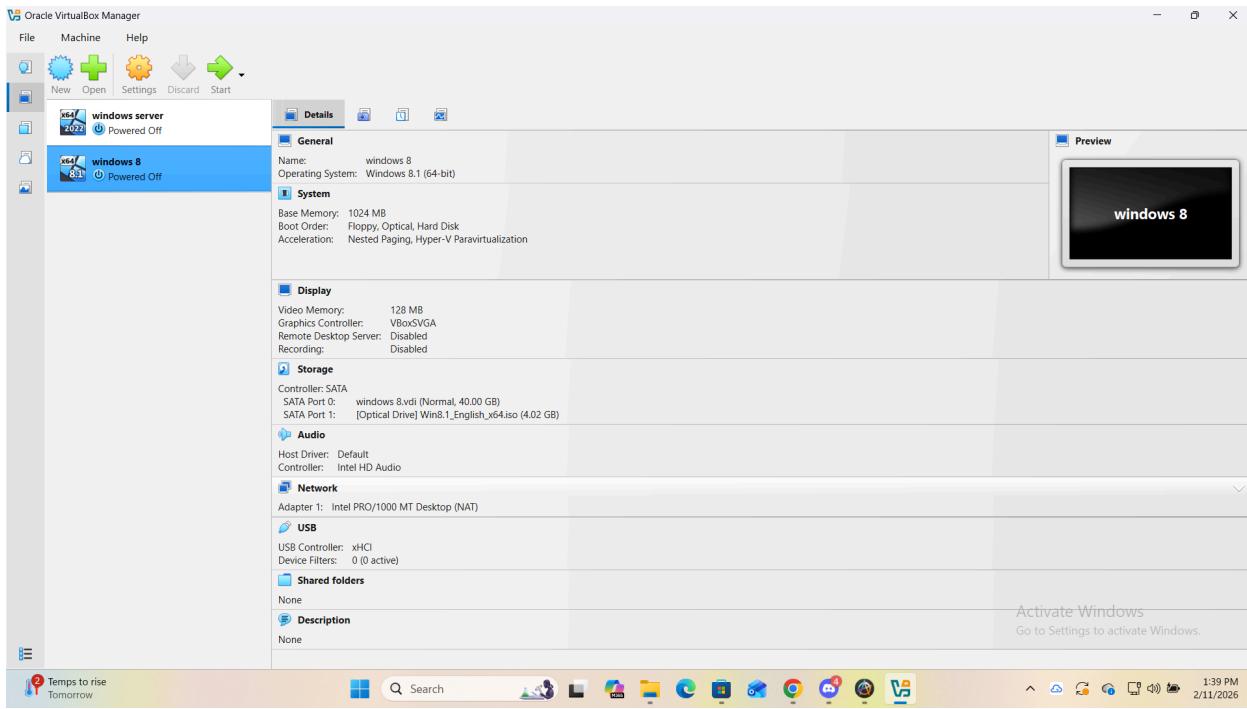
and successfully mounted (connected) the downloaded Windows 8 ISO file to the new virtual machine.

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.

