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Virtual Machine First-time Setup

Prerequisites

Understanding in the following concepts are assumed:

- Accessing websites and downloading files through an internet browser.

- How to identify the operating system a computer is running.

- Locating and running applications downloaded from the internet.

What is a Virtual Machine?

- A virtual machine is an environment that functions as a computer separate from the one it is running on.

- A computer that contains a virtual machine cannot be affected by the operations performed in the virtual machine.

- Virtual machines commonly use operating systems different from the computers containing them to run programs and perform tasks not possible on the system running them.

Downloading VirtualBox

- Oracle VM VirtualBox is virtualization software that allows users to setup and run their own virtual machines.

- Navigate the internet browser to https://www.virtualbox.org/wiki/Downloads to download the latest version of VirtualBox.

- Click the download link associated with your operating system *(options shown in the red box to the right)*.

Installing VirtualBox

- Open the downloaded file and follow the prompts to install VirtualBox.

- Open the application titled <u>"VirtualBox"</u> found in the location designated in the installer setup menu.

- The window that opens should look like the image on the right.

Downloading an ISO Image

- To create a virtual machine through VirtualBox, a file ending in .iso, called an ISO image, that contains the desired operating system for the machine must be provided.

- An ISO image for Windows 11 can be downloaded at https://www.microsoft.com/software-download/windows11 under "Download Windows 11 Disk Image (ISO)".

- **Only download ISO images from the websites belonging to the official providers of the operating system (*www.microsoft.com* for Windows, *www.ubuntu.com* for Ubuntu Linux distribution, etc.) to avoid potentially malicious files.**

Virtual Machine Name and Operating System

- In the VirtualBox application, click the icon labeled "New" to create a new virtual machine.

- In the window that appears, the name for the virtual machine, which can be anything, should be entered.

- The folder of where the virtual machine is created can be changed using the associated dropdown menu.

- The ISO image for the virtual machine must be specified using the associated dropdown menu.
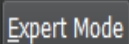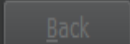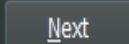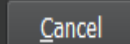
- If the "Skip Unattended Installation" checkbox is available, make sure to click it so a checkmark appears.

Virtual Machine Hardware: Base Memory

- In the window titled "Hardware", the amount of RAM given to the virtual machine while running can be changed with the slider labeled "Base Memory".

- Microsoft recommends 4 GB (*4096 MB*) minimum for running Windows 11.

- The amount of RAM given can be changed later in the settings, so it is best to start at the operating system's recommended minimum and increase gradually if the virtual machine is running slow.

- Giving most or all the available RAM (*marked by orange and red*) to the virtual machine can cause the computer running it to freeze constantly when using it.
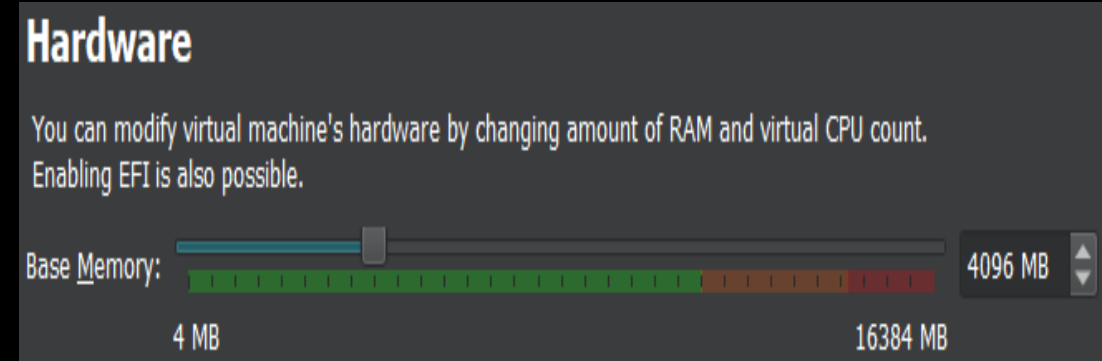
Virtual Machine Hardware: Processors

- The number of CPU cores given to the virtual machine can also be changed in the "Hardware" window with the slider labeled "Processors".

- VirtualBox documentation recommends giving less than half the available cores (*marked by green*), otherwise the virtual machine's containing computer may slow down when running it.

- The number of CPU cores given can be changed later in the settings, so it is best to start at a small number and gradually increase if the virtual machine is running slow while multitasking.

- **Leave the "Enable EFI" checkbox checked.**
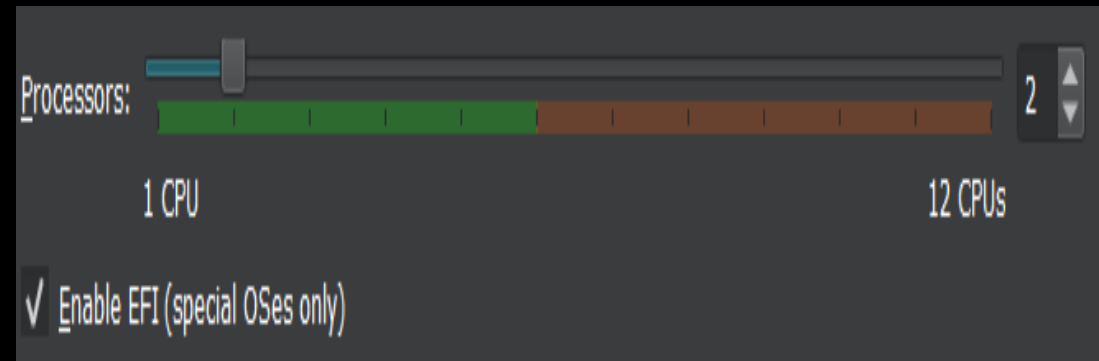
Creating a Virtual Hard Disk

- In the window titled "Virtual Hard Disk", make sure that the "Create a Virtual Hard Disk Now" option is selected.

- The virtual hard disk will store the operating system, files, and programs installed on the virtual machine.

- Microsoft recommends 64 GB minimum for the Windows 11 operating system, but a little more than that should be given to store personal files and programs.

- The space available to the virtual hard disk can be changed later in the settings.

- **Leave the "Pre-allocate Full Size" checkbox unchecked.**
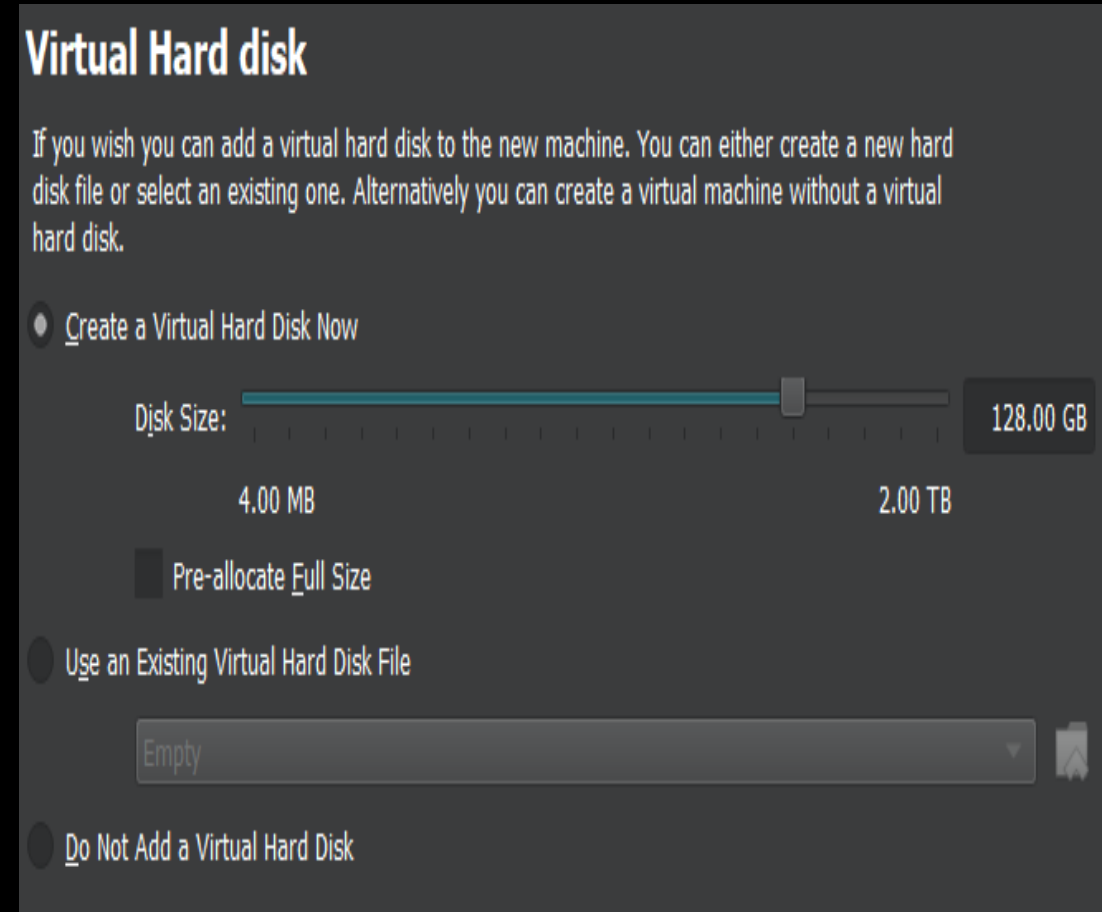
Reviewing the Virtual Machine Configuration

- The details about the virtual machine which will be created are given in the "Summary" window.

- If something shown needs to be changed, the "Back" button can be pressed to navigate through the previous configuration windows.

- Otherwise, if everything looks correct, press the "Finish" button.

- Remember, most of the configuration settings can be changed later after the machine has been created.

Summary

The following table summarizes the configuration you have chosen for the new virtual machine. When you are happy with the configuration press Finish to create the virtual machine. Alternatively you can go back and modify the configuration.

Machine Name and OS Type

Machine Name	Win11_VM
Machine Folder	C:/Users/Owner/VirtualBox VMs/Win11_VM
ISO Image	C:/Users/Owner/Downloads/Win11_22H2_English_x64v1.iso
Guest OS Type	Windows 11 (64-bit)
Skip Unattended Install	true

Hardware

Base Memory	4096
Processor(s)	2
EFI Enable	true

Disk

Disk Size	128.00 GB
Pre-allocate Full Size	false

Back   Finish   Cancel

Running the New Virtual Machine

- After finishing all the configuration prompts, the virtual machine should appear on the left in the main window.

- To run it, select the name of the virtual machine and click the "Start" button.

- Follow the prompts to install the operating system.

- The virtual machine can now be operated like any other personal computer.

- If the configuration for the virtual machine ever needs to be changed, select the virtual machine to the left of the main window and click the "Settings" button.
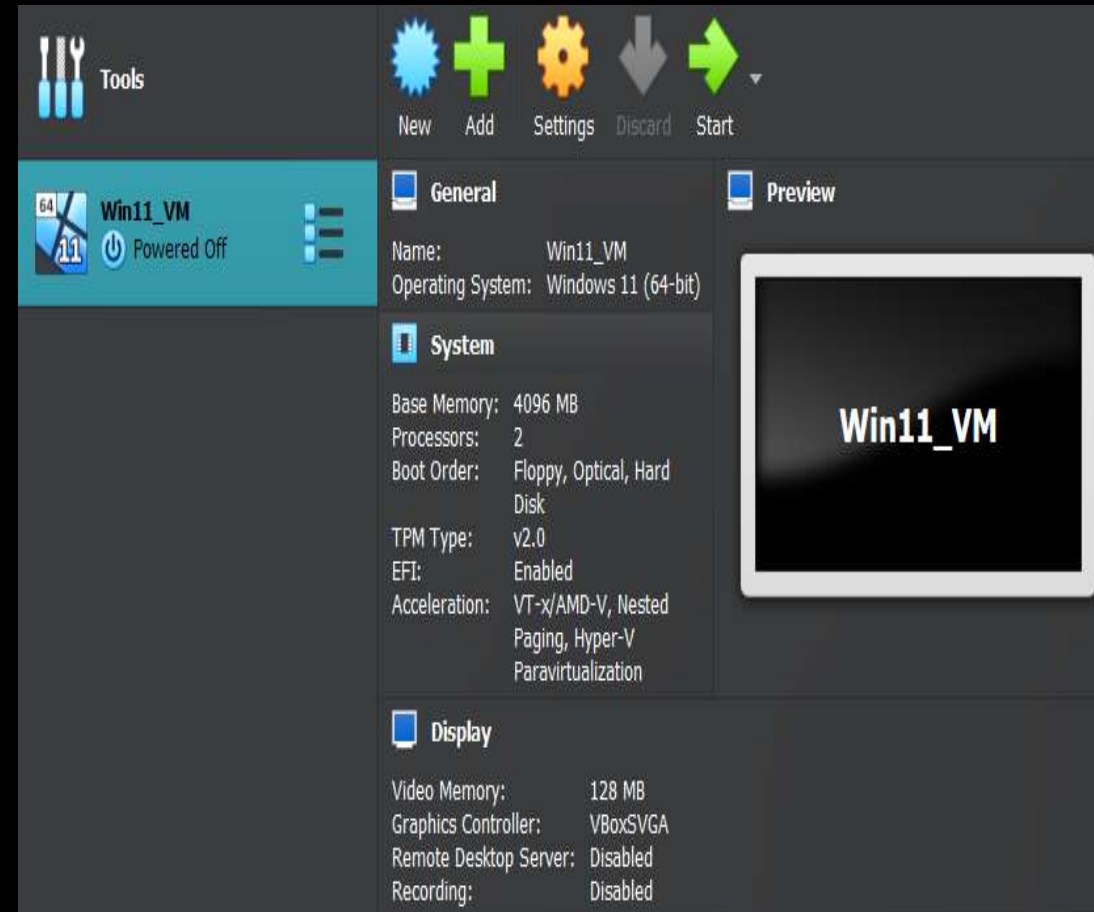
Wrapping Up

- The process of downloading an ISO image, configuring the hardware, and running can be repeated unlimited times to create many virtual machines with unique purposes.

- For example, a virtual machine using a Linux-based operating system can be used solely for computer programming.

- If any errors are encountered, the complete user manual for VirtualBox can be found online at https://docs.oracle.com/en/virtualization/virtualbox/7.0/user/index.html