Getting started with virtual machines

Virtual Machines

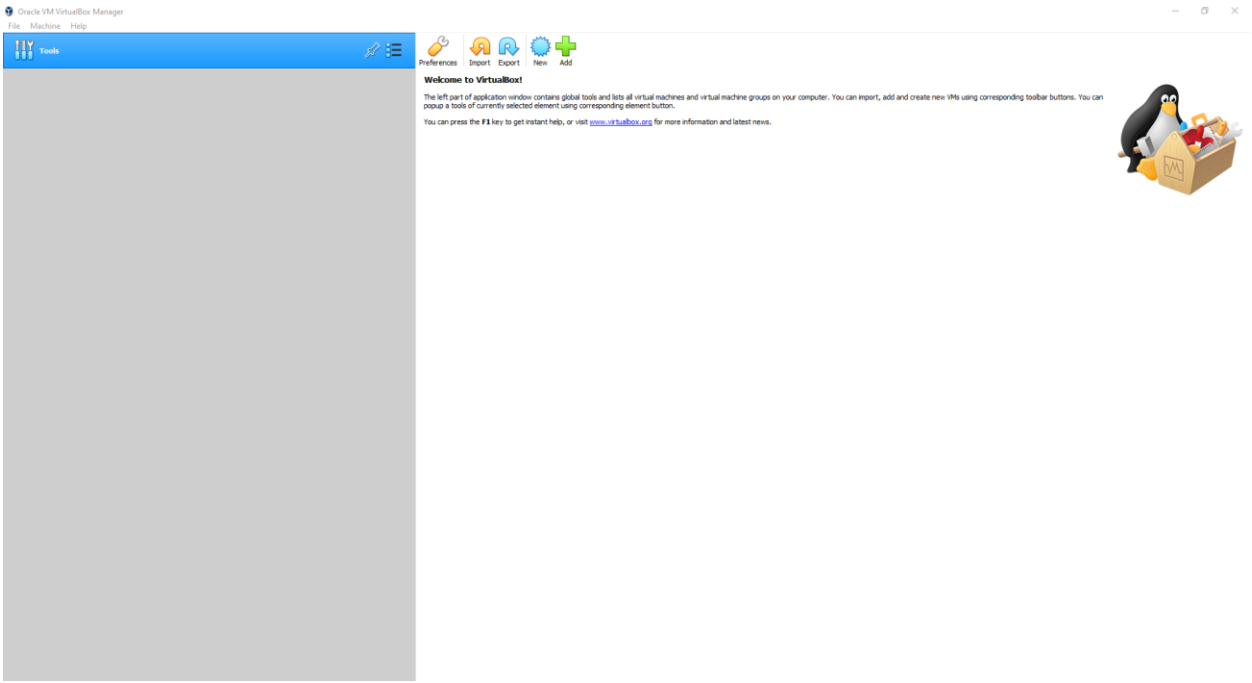
Virtual machines (VMs) are virtual computers that resides on top your hosting Operating System (OS). While your host OS is running, the VMs will borrow a specified amount of CPU, RAM, and hard drive space.

Here are some reasons why VMs are beneficial:

- As VMs are hosted on top of that means you can run multiple OS at the same time.
- VMs are computer files, known as images, which means whatever happens in the VM will not affect the host OS.
- The ability to clone and backup VMs enables us to:
    - preform actions with few worries that the VM may become corrupted or damaged.
    - share VM environments with others for learning, testing, or to get them started.
- VM would cost less in comparison to hosting it as the main OS on new hardware
- The process to create a VM is easy for those new to VMs

Virtual Machine Manager

To begin, download VirtualBox.
There are other virtual machine managers, but VirtualBox is free and has a simple interface for beginners to learn. Once downloaded and installed, you are greeted by this screen:

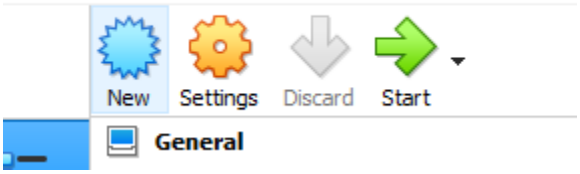


Creating a virtual machine

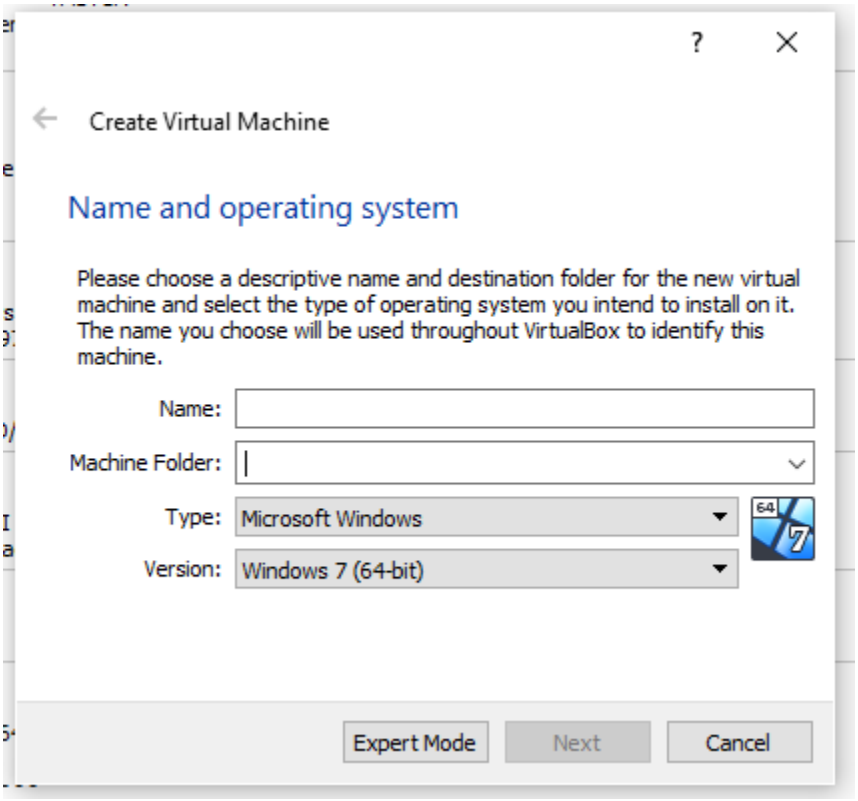
Before we continue with VirtualBox, you should determine which OS your VM will run. Each OS has their own appeals which assist users with their desired task. To download the OS for VM, I suggest downloading the ISO file or an existing Image file.

If you obtained an Image file, then you can simply import it and jump here for the next steps. Whereas the ISO will need some configurations:

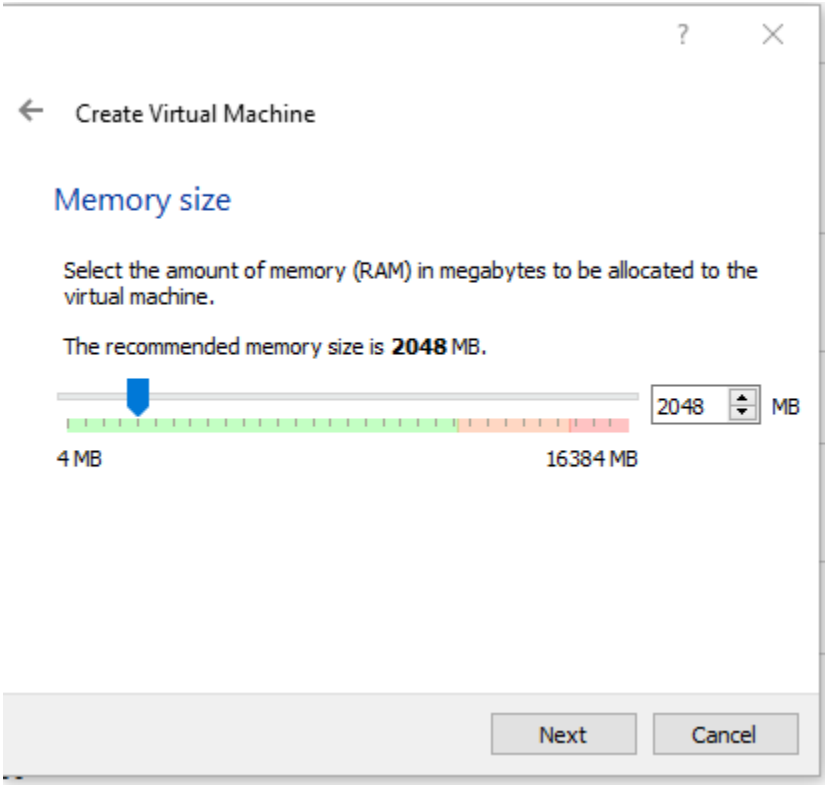
1. First create a new VM



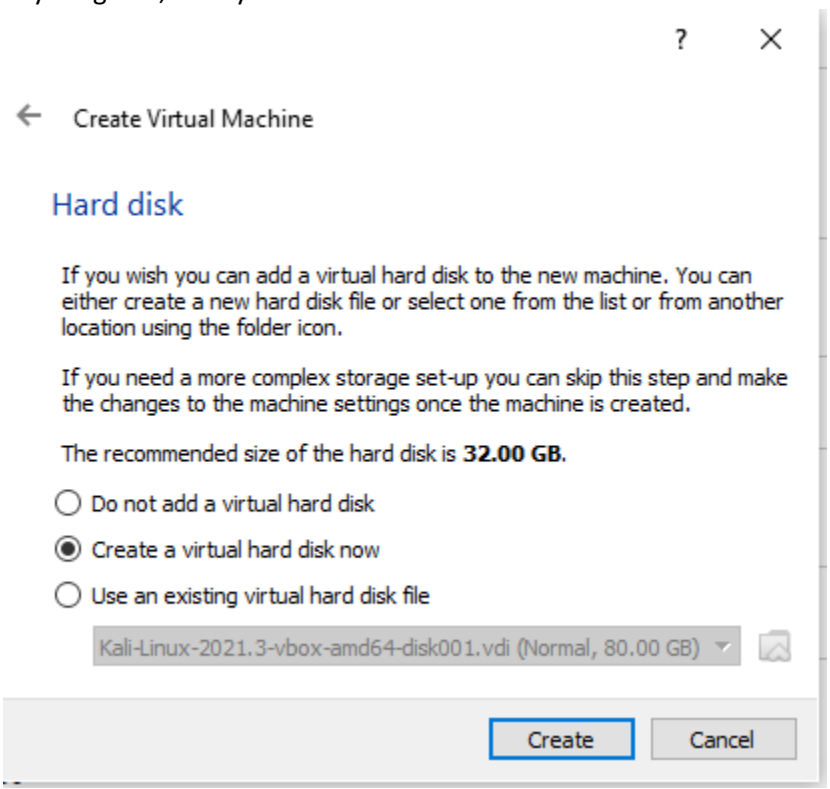
2. Create a name for your new VM and determine the location in which the VM will reside. You'll also state which OS it is and which version your OS is.



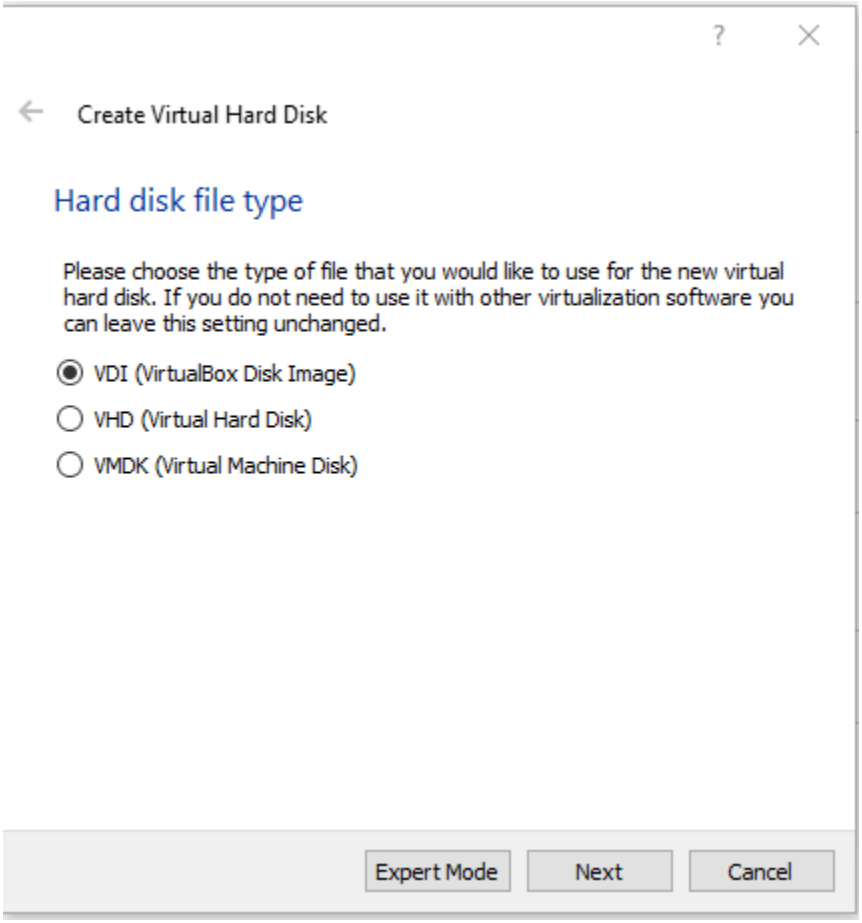
3. Select how much RAM the VM will borrow. For now, leave it at default and I'll explain it later.



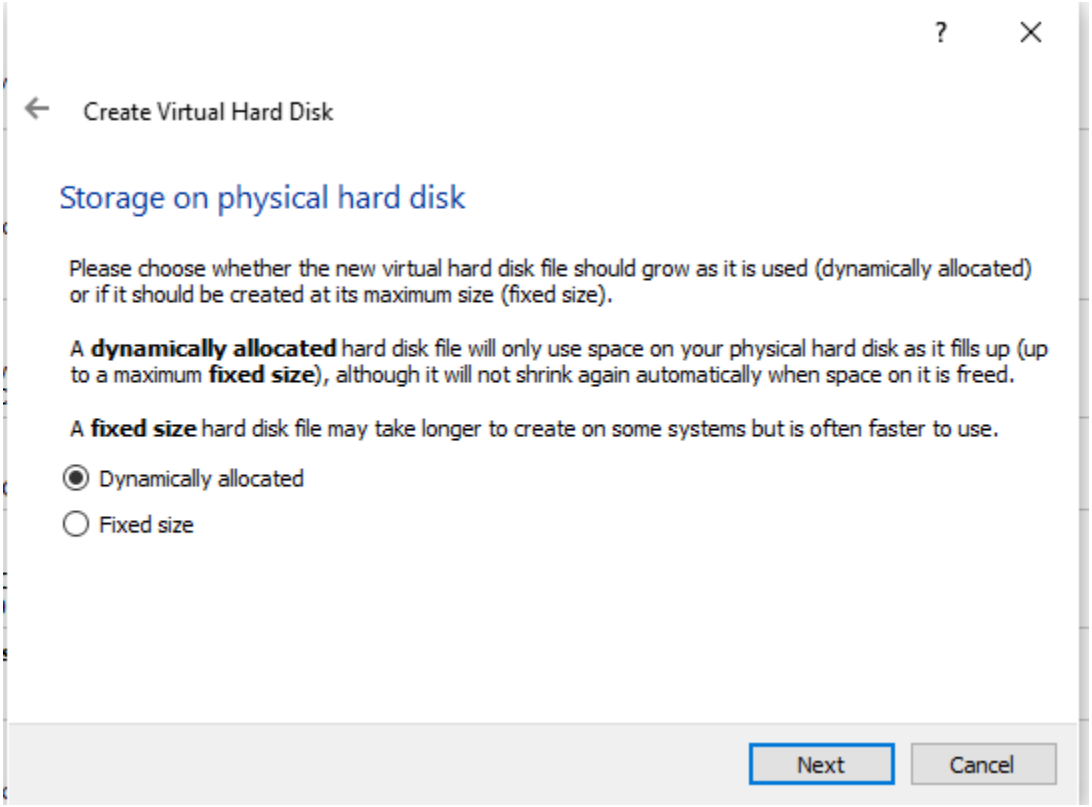
4. Next create a Virtual Hard disk. If you're playing around with the VM and do not plan on storing anything in it, then you can choose to not create one.



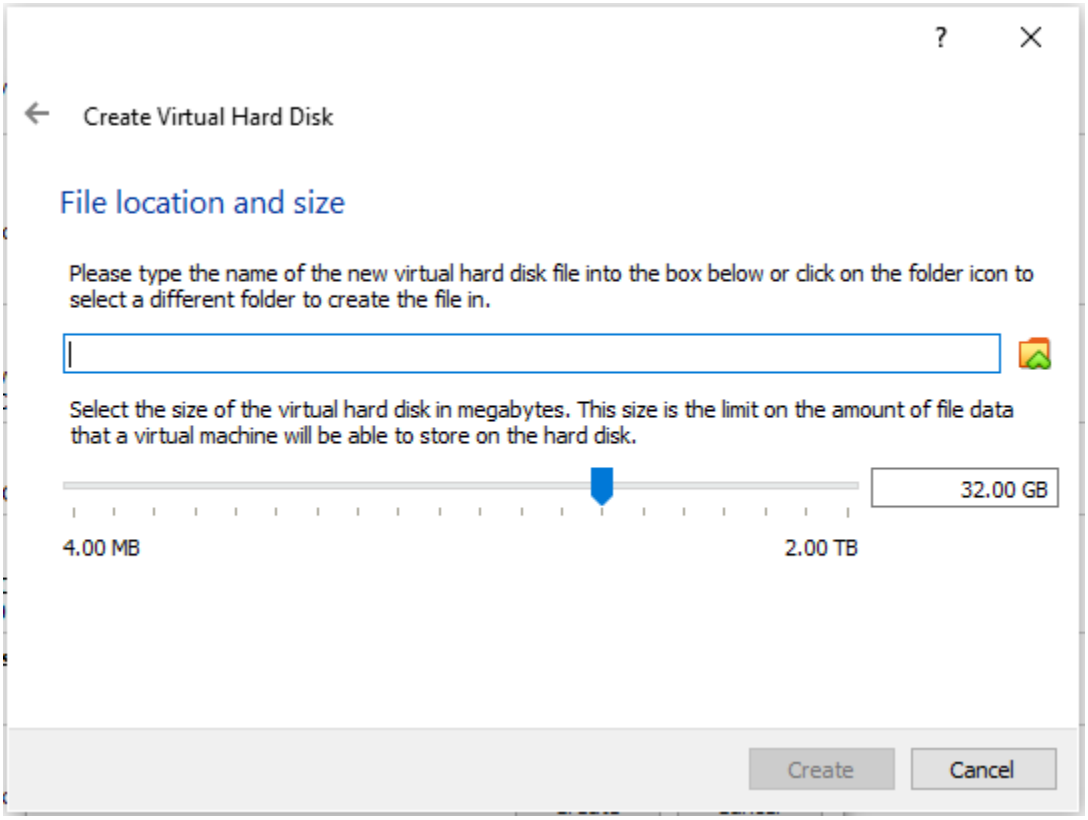
5. If you selected to create a Virtual hard disk, then you'll need to decide which type it will be. This option matters when you are planning on brining it over to other VM managers like VMware. For now, leave it at default.



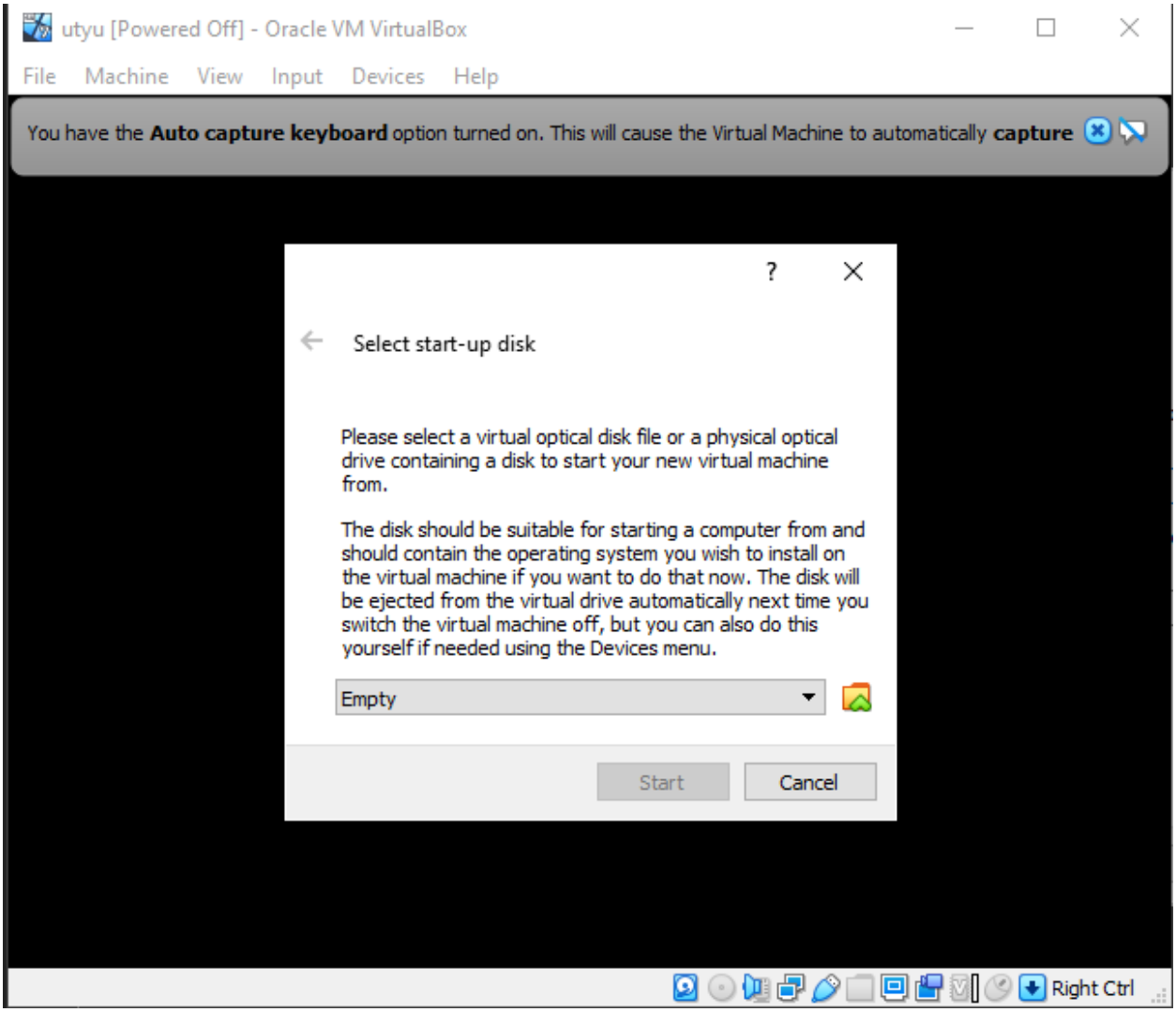
6. Select your preferred storage type.



7. Chose the side and location.
   You can leave the size to default.



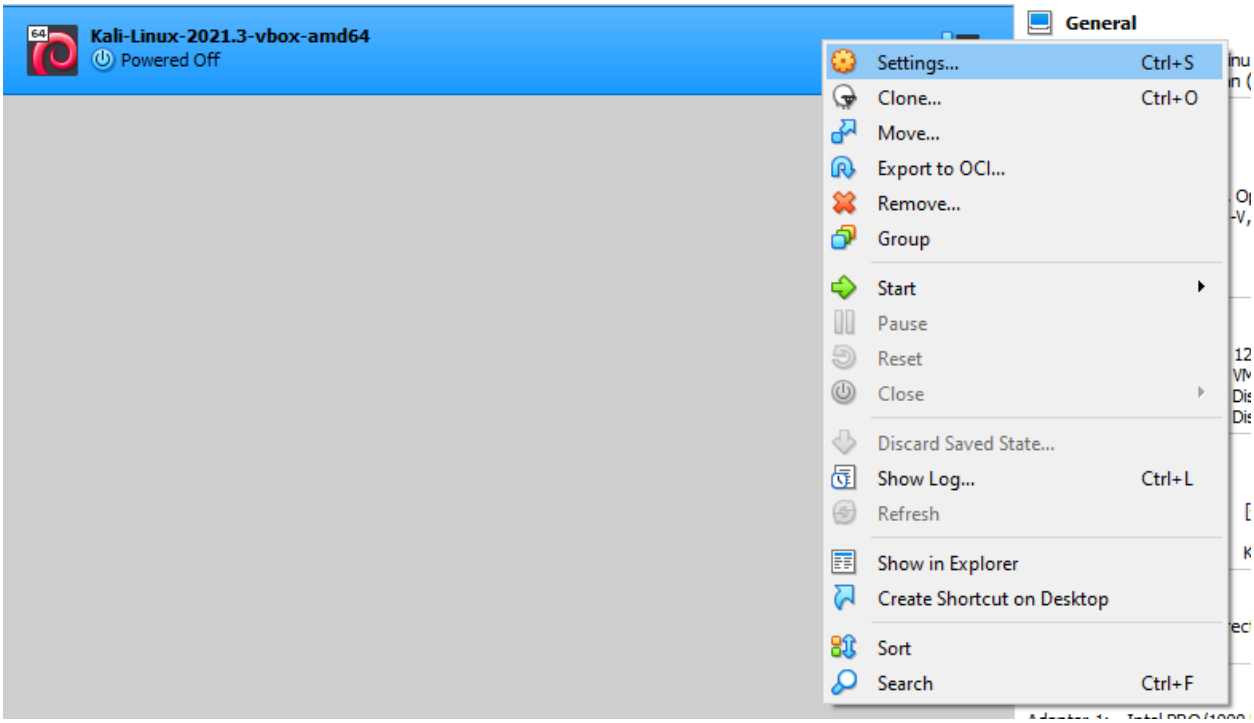
8. Start up your VM. There should be a pop-up that asks you to add the start-up disk. That would be the ISO file you downloaded.



9. Follow the instructions laid out on screen by the OS.

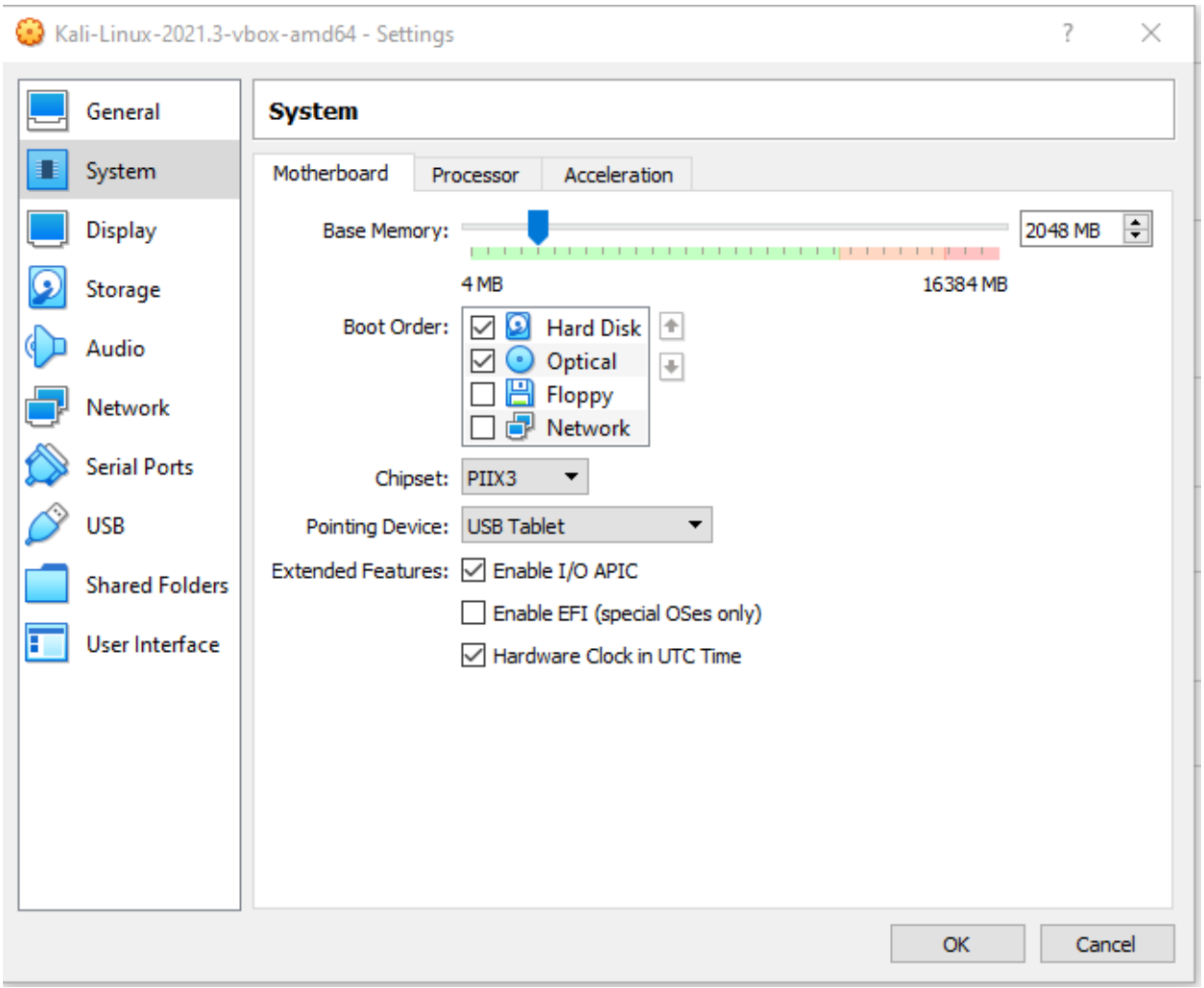
Additional settings

There may come a time in which you feel like your VM needs to borrow more from the host OS. Clicking on the VM's setting:


Kali-Linux-2021.3-vbox-amd64
Powered Off
General
Settings... Ctrl+S
Clone... Ctrl+O
Move...
Export to OCI...
Remove...
Group
Start
Pause
Reset
Close
Discard Saved State...
Show Log... Ctrl+L
Refresh
Show in Explorer
Create Shortcut on Desktop
Sort
Search Ctrl+F

Systems

Motherboard

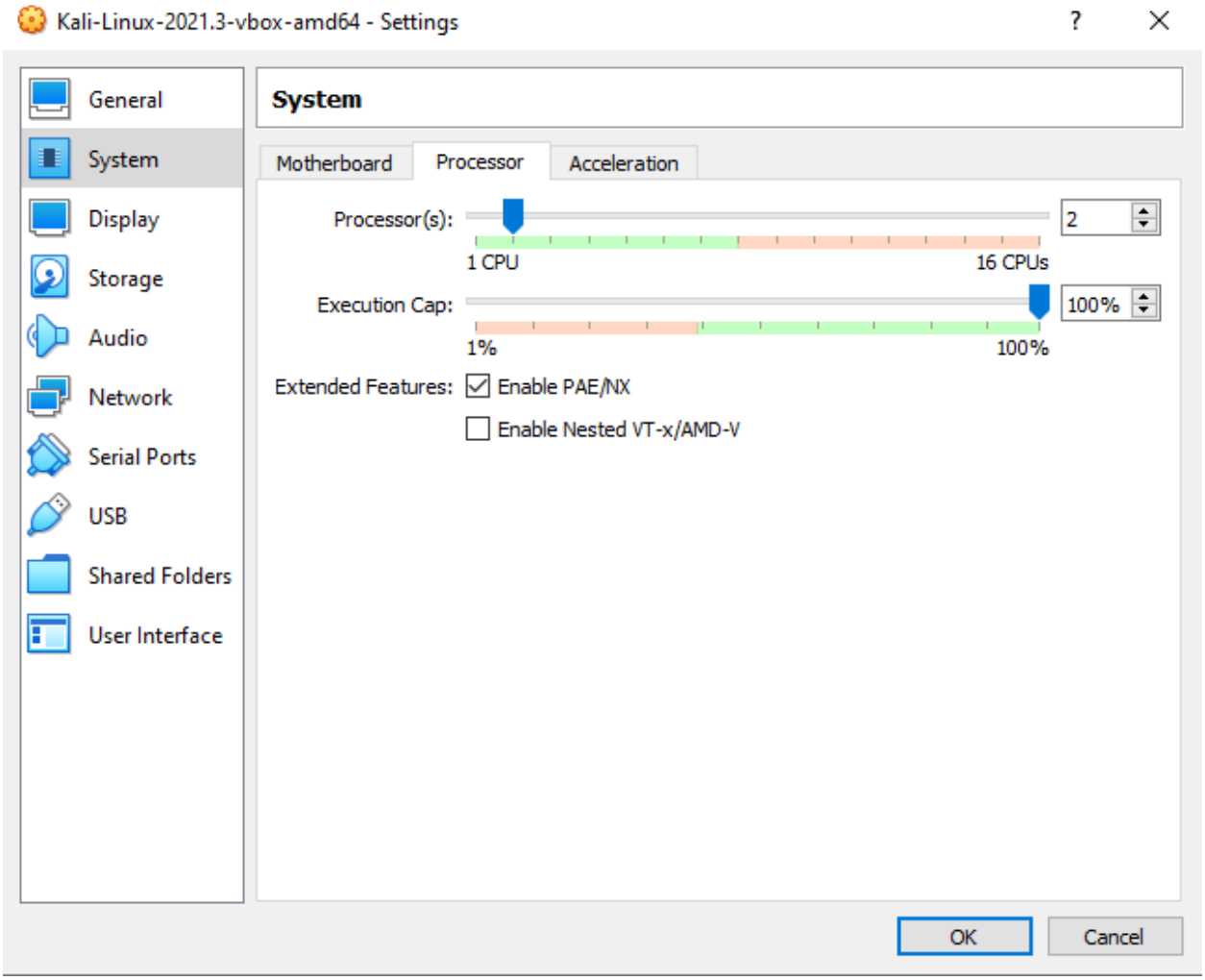


- **Base memory** is the amount of RAM your VM will borrow; By default, it is **2 GB** (2048 MB). RAM is temporary memory that is important for running applications. If there is insufficient RAM, applications will fight each other for what little RAM you have, leading to slow applications. If you are not planning to run many applications, then the default is sufficient. Otherwise, the highest amount of RAM I would usually put is **4 GB** (4096 MB).

- **Boot Order** contains the options in which the OS will boot from. Once your VM is set-up, then the OS will reside in the Hard disk. Optical is what we had used to set up our VM from the ISO file. Unless you plan on replacing the OS, this boot order can stay at default.

- The rest should stay at default unless your OS specifies otherwise.

Processor

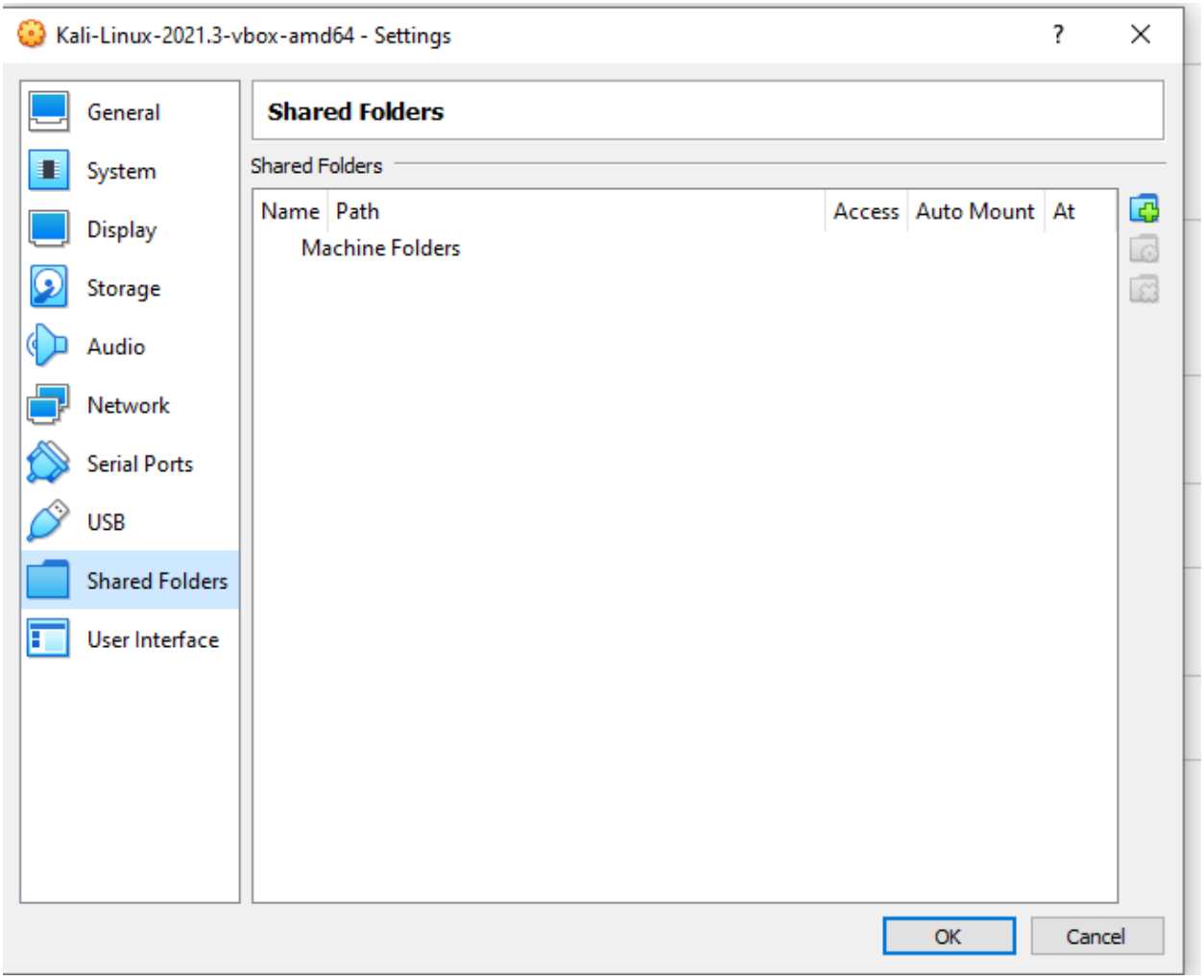


In all your devices, there resides a chip called the CPU. The CPU is the brain of your computer; it receives instructions from your hardware and performs actions based on those instructions.

- **Processor** is the number of logical processors you would like your VM to borrow. The more processors, the quicker your VM will be at processing calculations and instructions. The default is sufficient (2 CPUs). If you need your VM to run faster, 4 CPU is the maximum I would lend.

- The rest can stay at default.

Shared Folder



Shared folder allows us to designate a directory on our host OS to share with the VM. This is useful for carrying over things like scripts for quick testing.