

ROS - Virtualizing Ubuntu Linux with Virtual Box

ME 4140 - Introduction to Robotics - Fall 2019

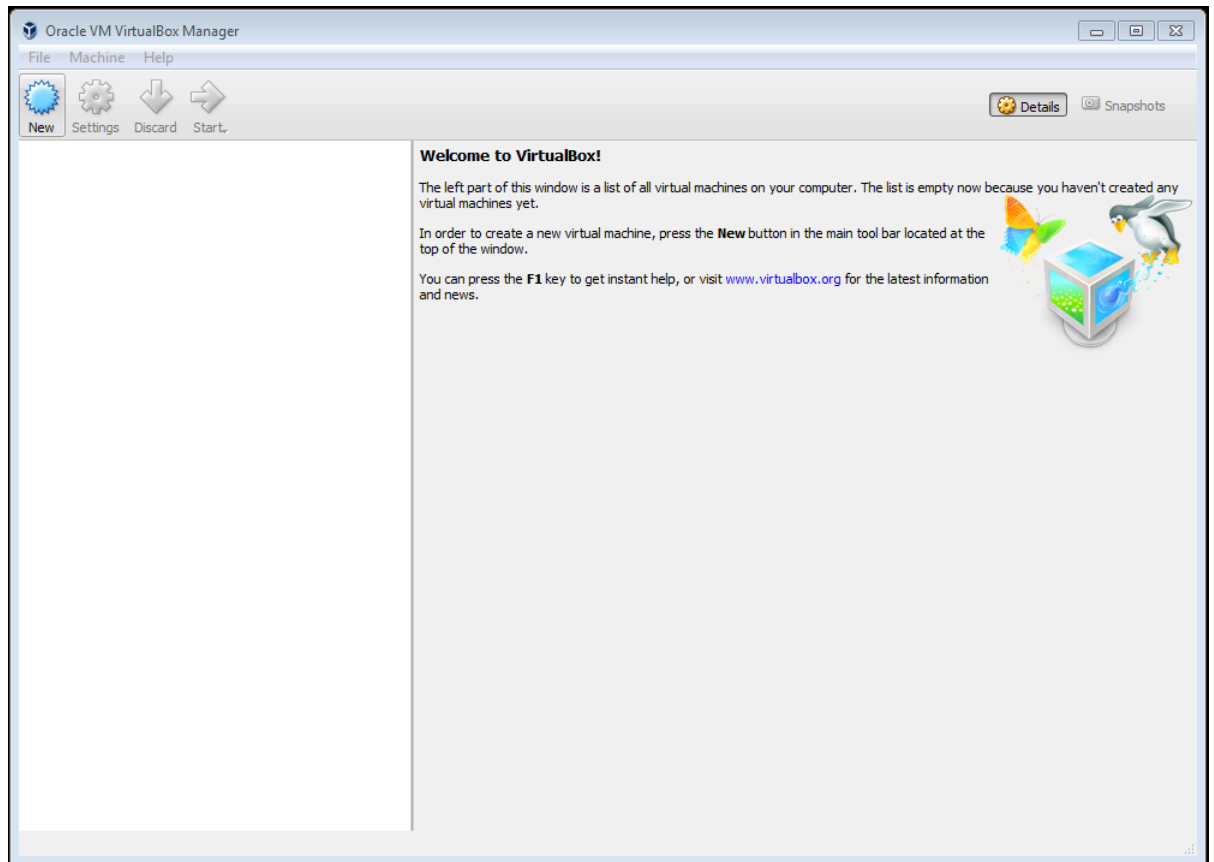
What is a [Virtual Machine](#) ? :



- A VM is an Operating System that is *virtualized* in your native operating system
- this is very useful for experimenting and learning
- not perfect for permanent use
- can be resource intensive
- [VirtualBox](#) is a popular application used for this process

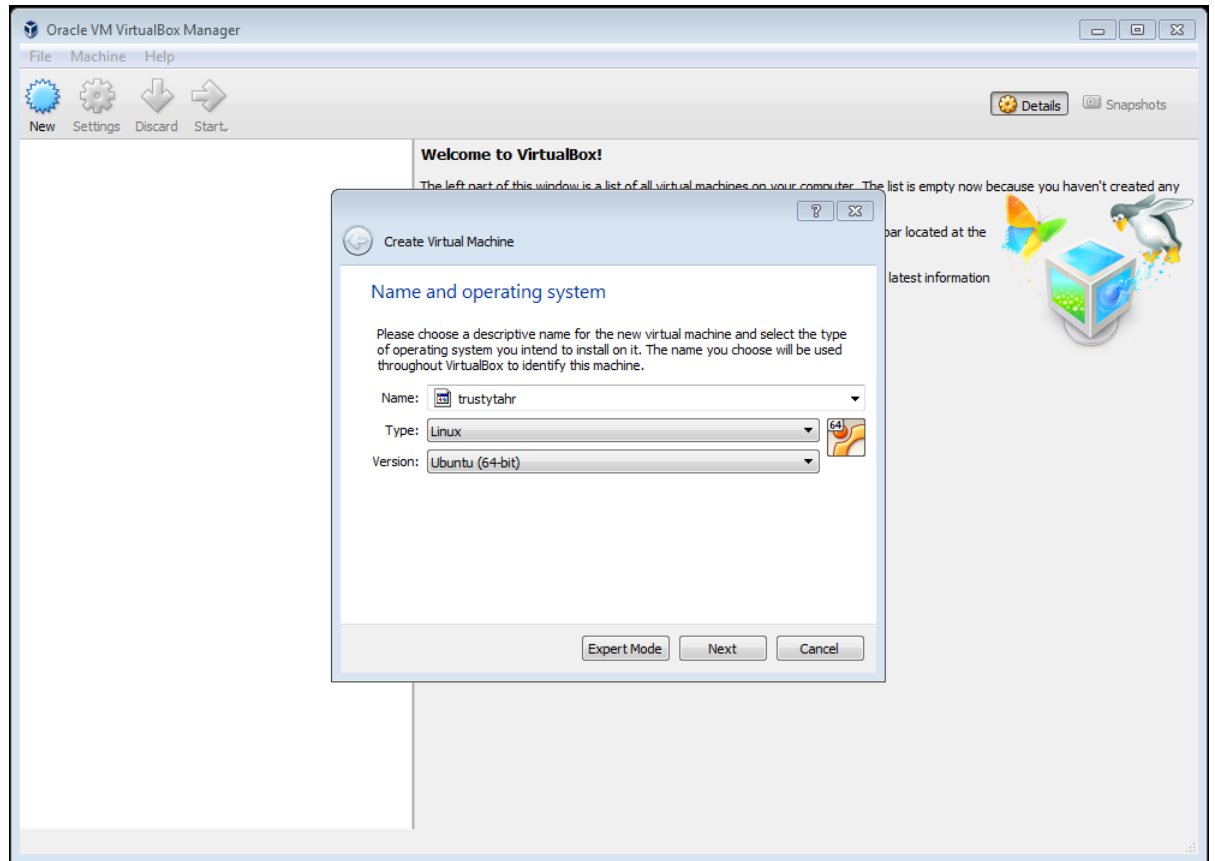
VirtualBox Installation and Setup :

1. Acquire Needed Files (VirtualBox + Ubuntu) :
2. Install VirtualBox Application:
3. Open VirtualBox:



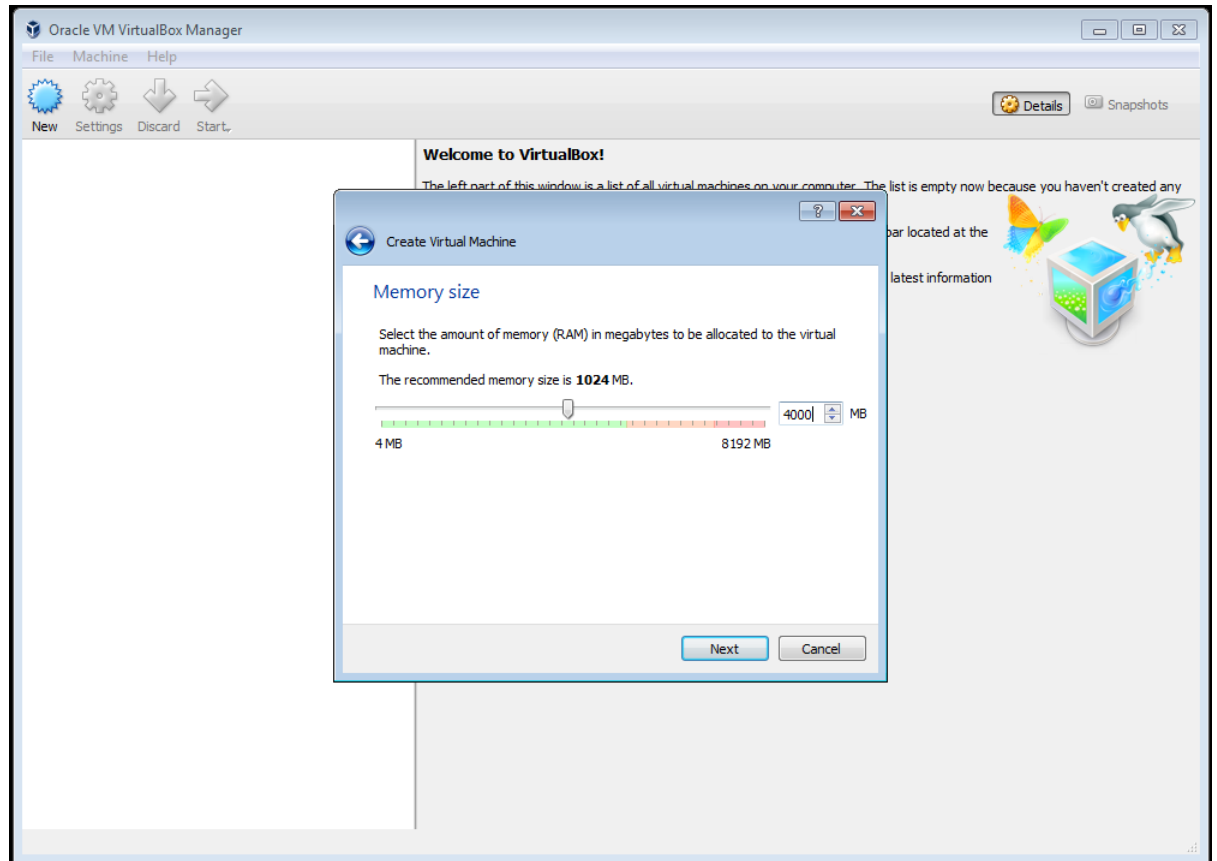
- if you have never used this before the list on the left should be empty
- before you start you should make sure you have an internet connection
- before you start you should make sure you have access to a power supply or battery

4. Create New Virtual Machine:



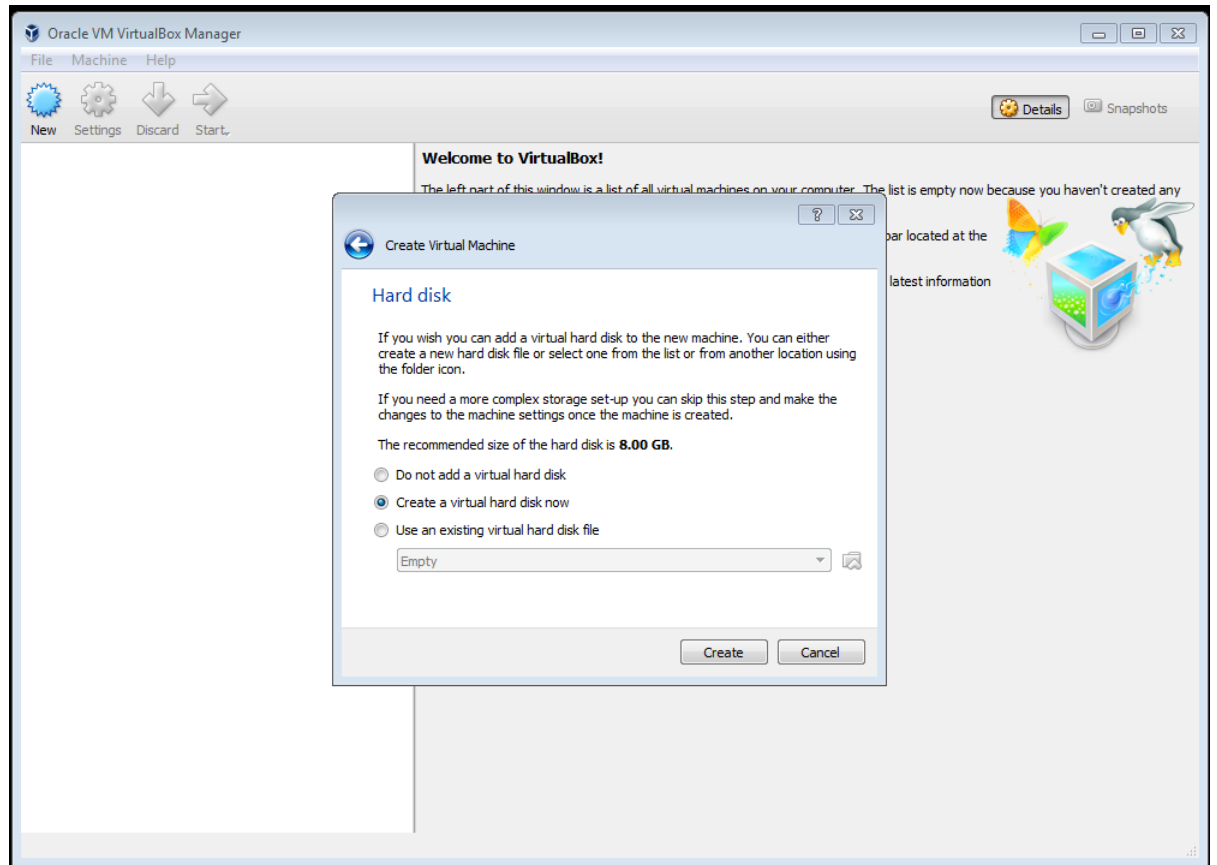
- press the **new** button
- choose a **computer name** (this is your choice but remember it!)
- choose an **operating system** type (Linux)
- choose a **version**, this depends on your physical machine This is probably Ubuntu 64-bit but possibly Ubuntu 32-bit)

5. Define Virtual Machine Parameters:



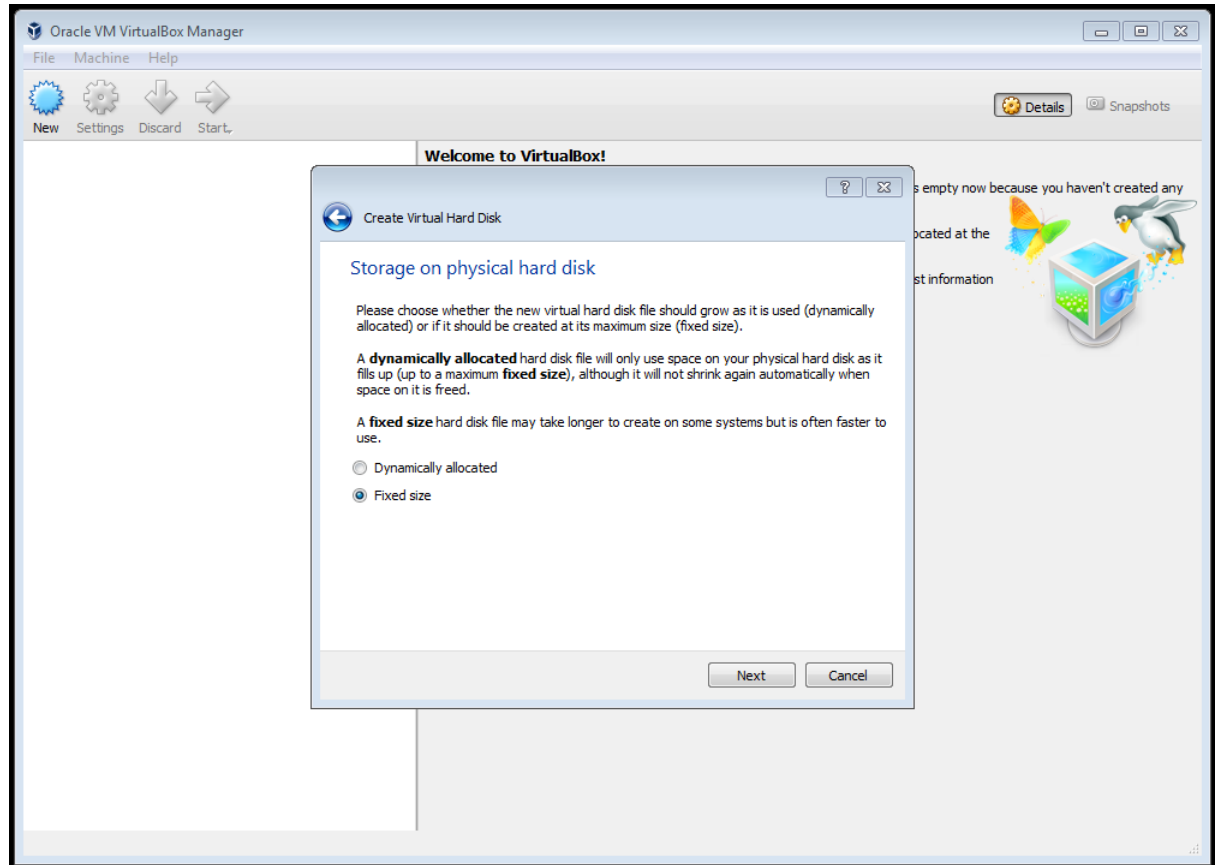
- Choose the amount of RAM you want to allocate to the VM
- This number is based on your available resources. More is better but it helps to leave some for windows. If your computer has 8GB total I suggest no more than 6GB for for VM.

6. Define Virtual Hard Drive Parameters:



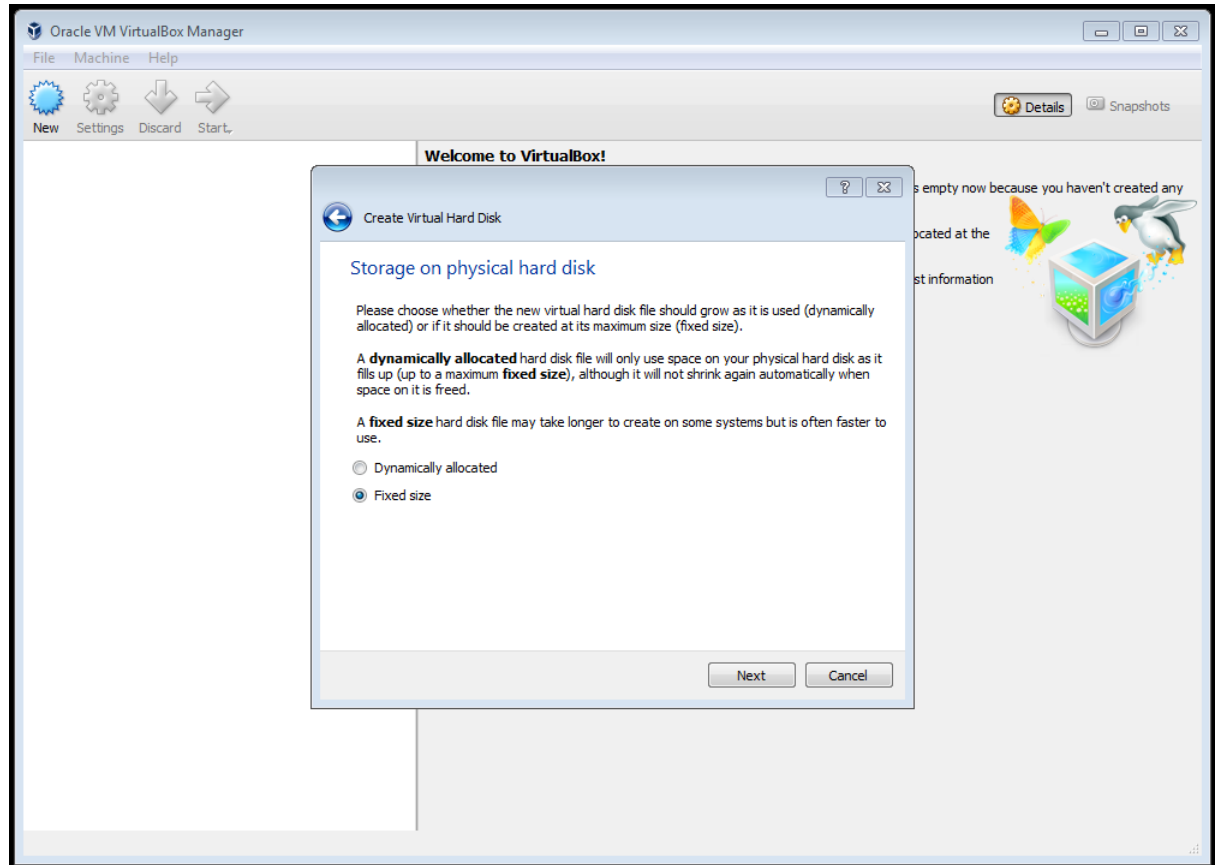
- You must have enough space on your hard drive to virtualize linux and install ROS.
- **create a virtual hard drive now**

7. Virtual Hard Drive Setup:



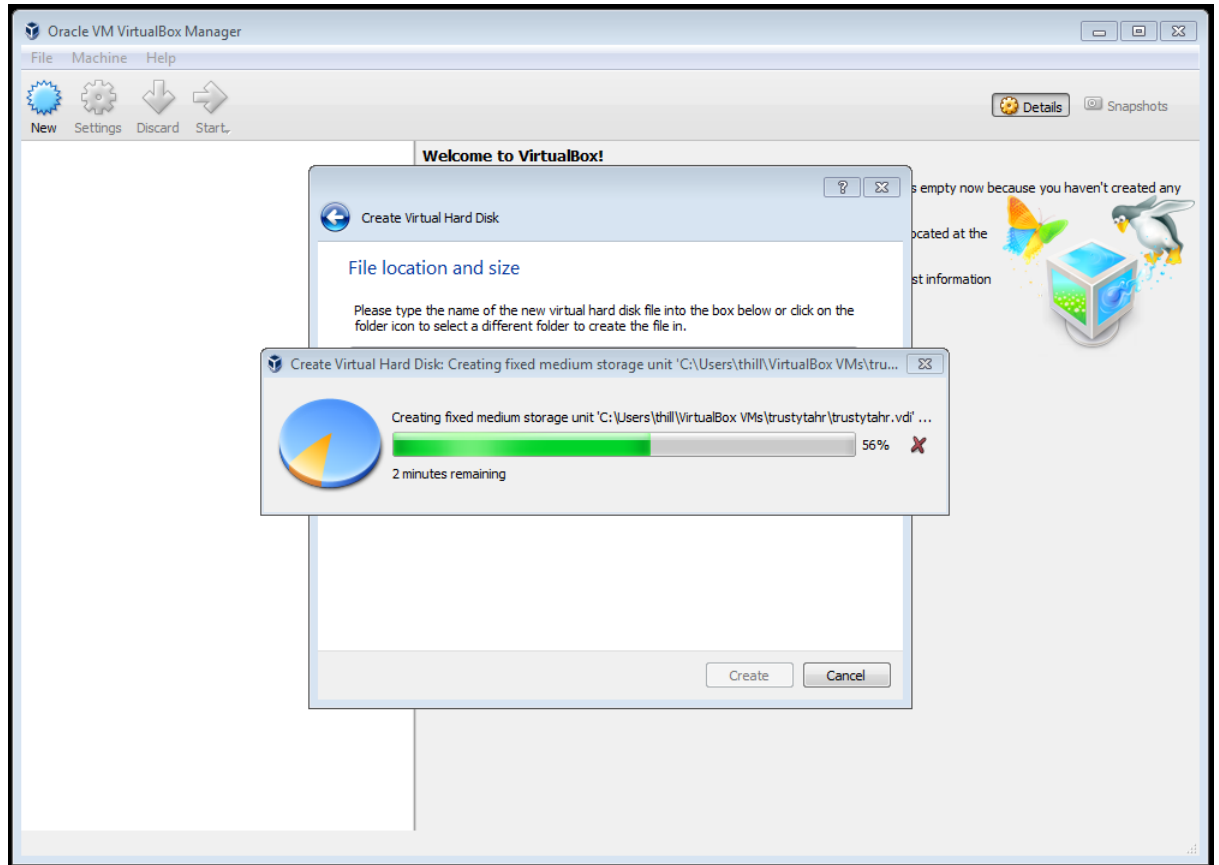
- Create a **fixed size** virtual hard drive.

8. Virtual Hard Drive Setup:



- Choose the virtual hard drive type.
- VDI is recommended.

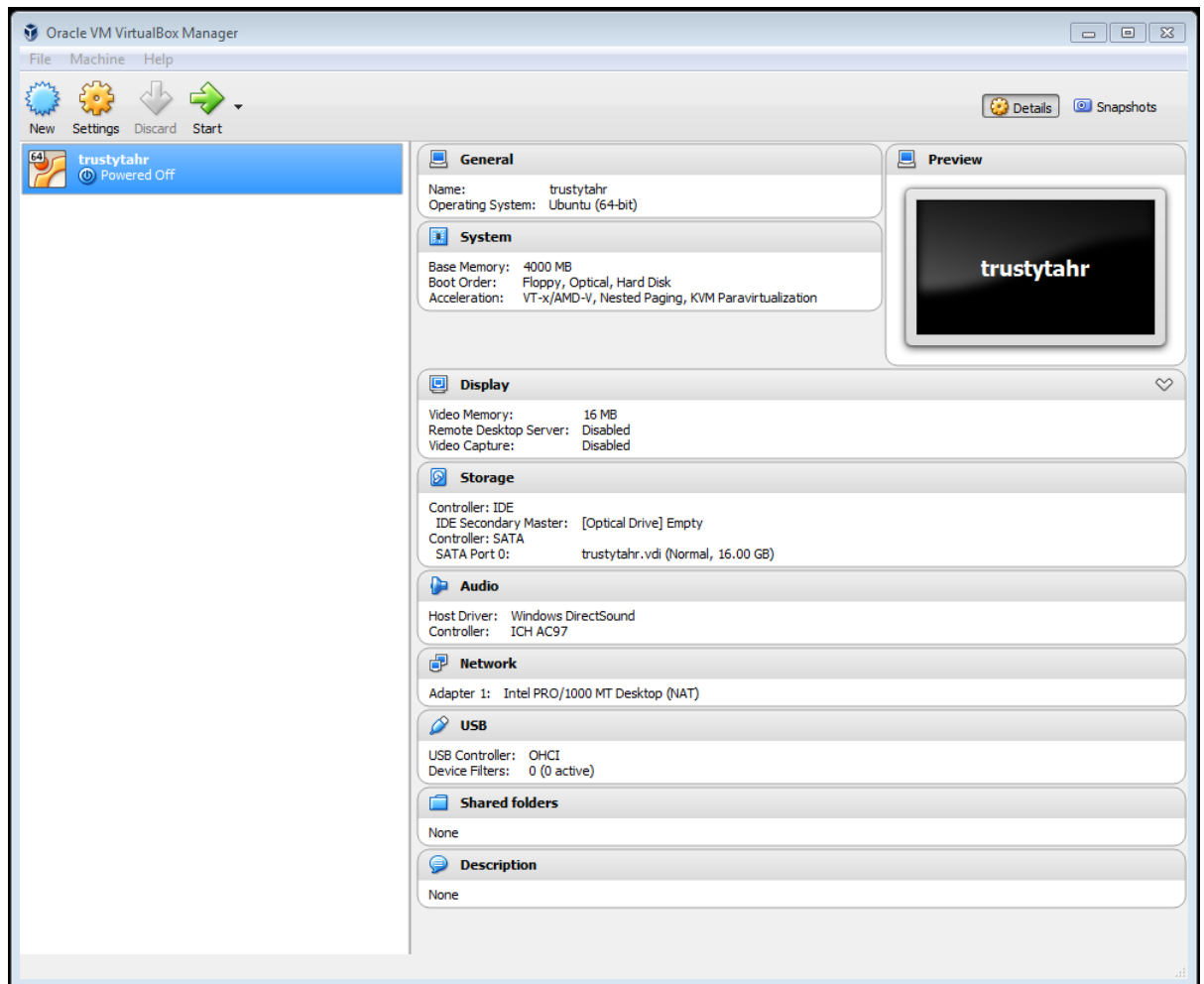
9. Virtual Hard Drive Setup :



- choose the size of your virtual hard drive
- to virtualize Ubuntu and install ROS it is recommended to make a 16 GB VDI
- you can experiment with 'lighter versions'
 - lubuntu
 - many more
 - I am working on this

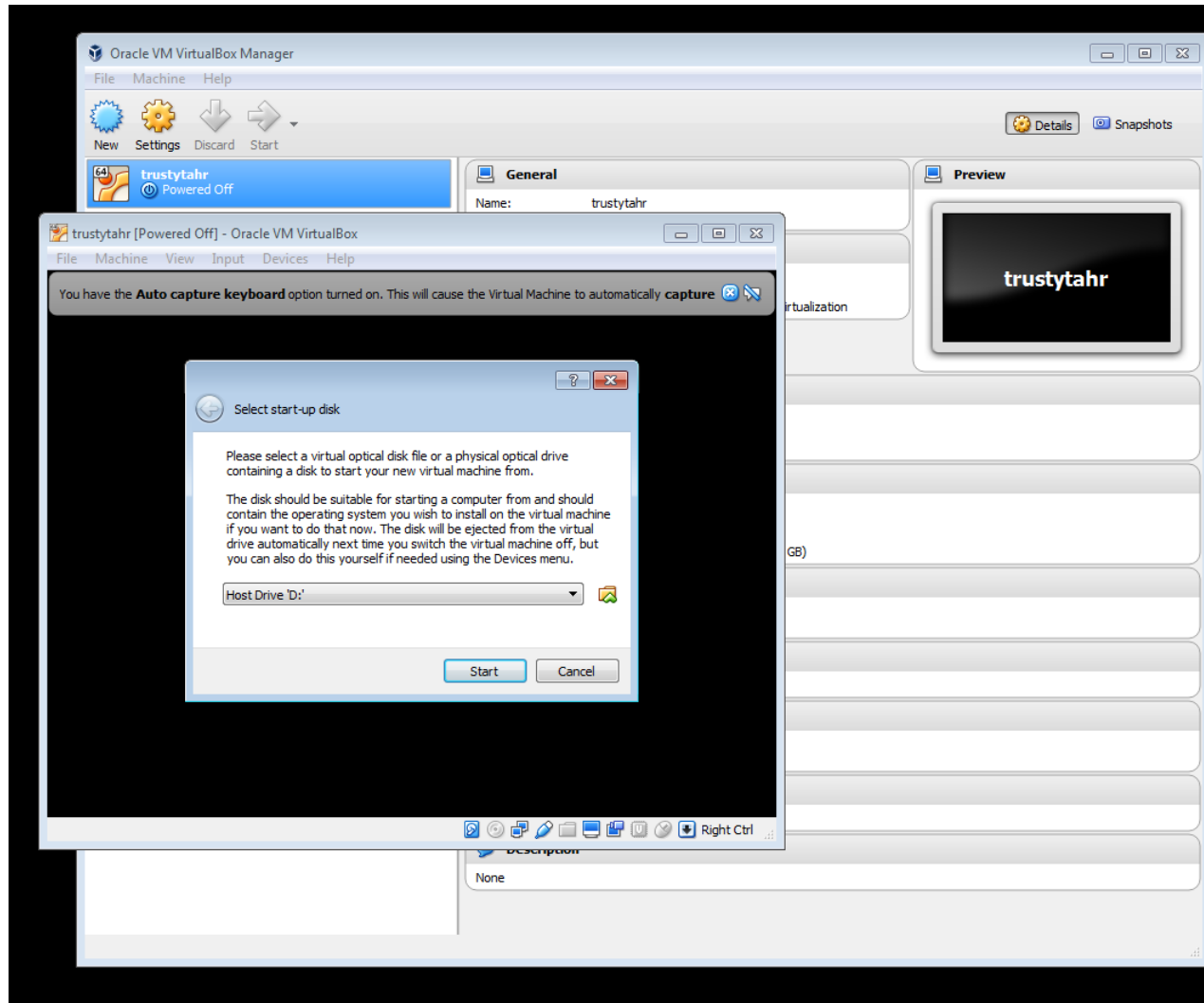
Ubuntu OS Installation and Setup :

1. Start the VM for the first time:

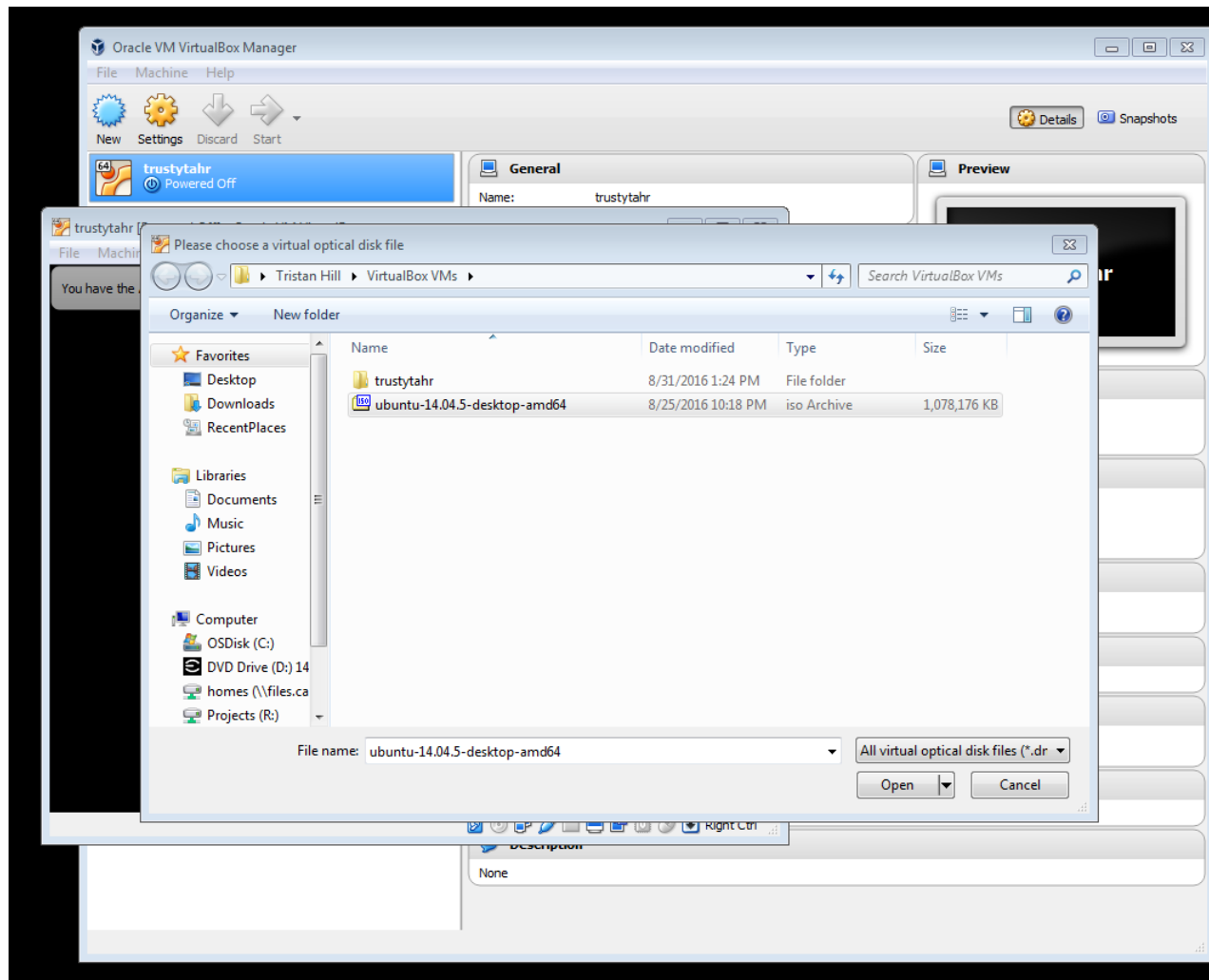


- select your newly created VM
- press the green start button
- wait for it...

2. Start the VM for the first time:

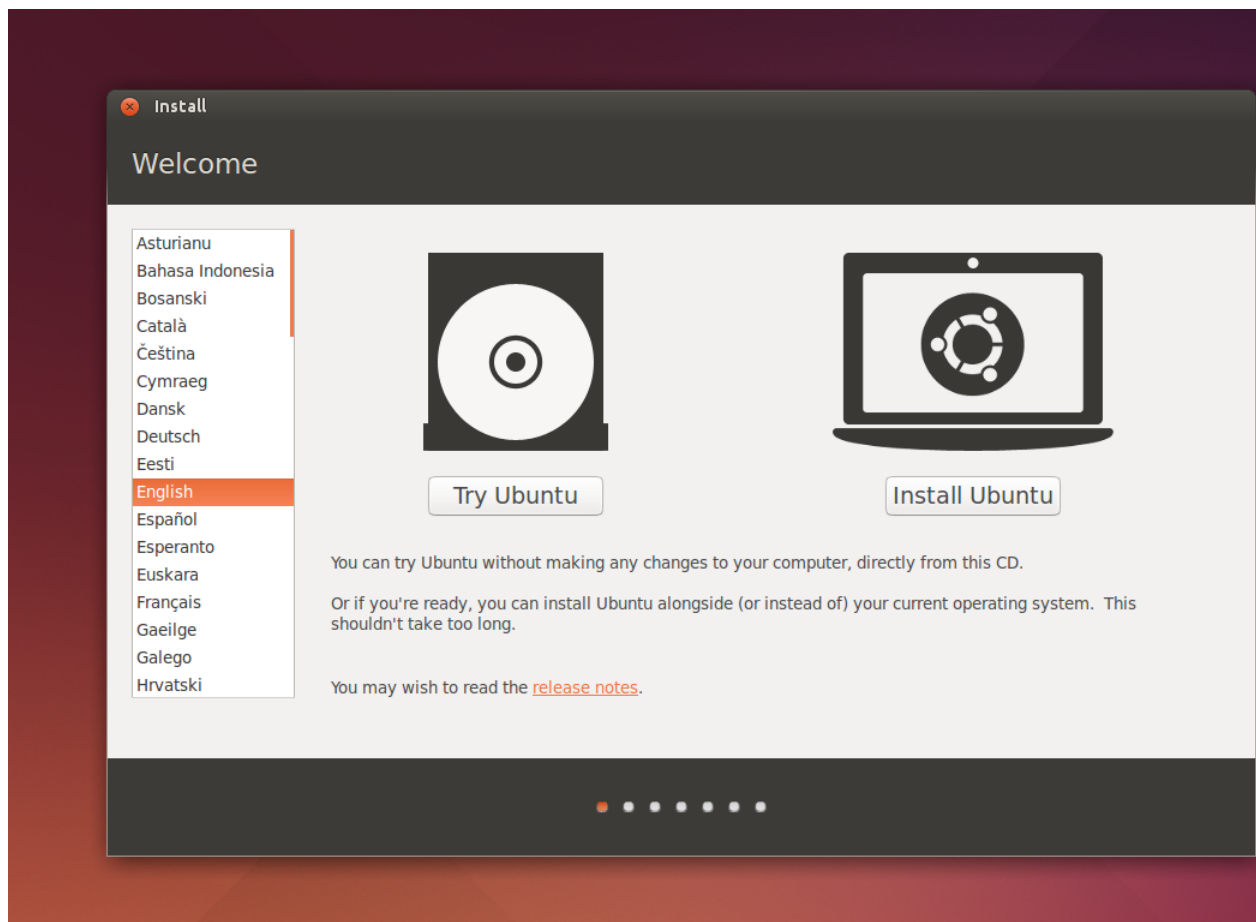


- choose to select media from a local folder
 - wait for it...
3. Start the VM for the first time:



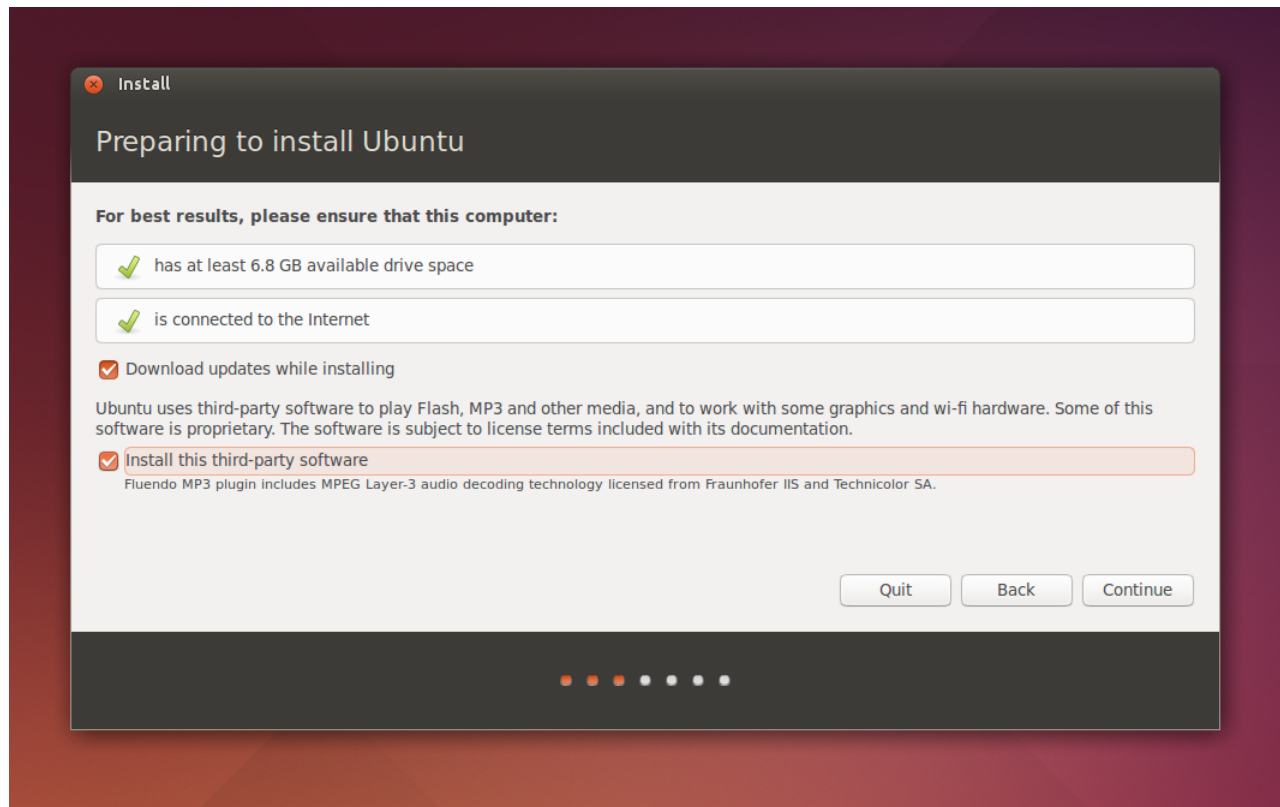
- choose the Ubuntu .iso file that you acquired
- it is recommended that the media is on the local machine
- wait for it...

4. Ubuntu Installation:



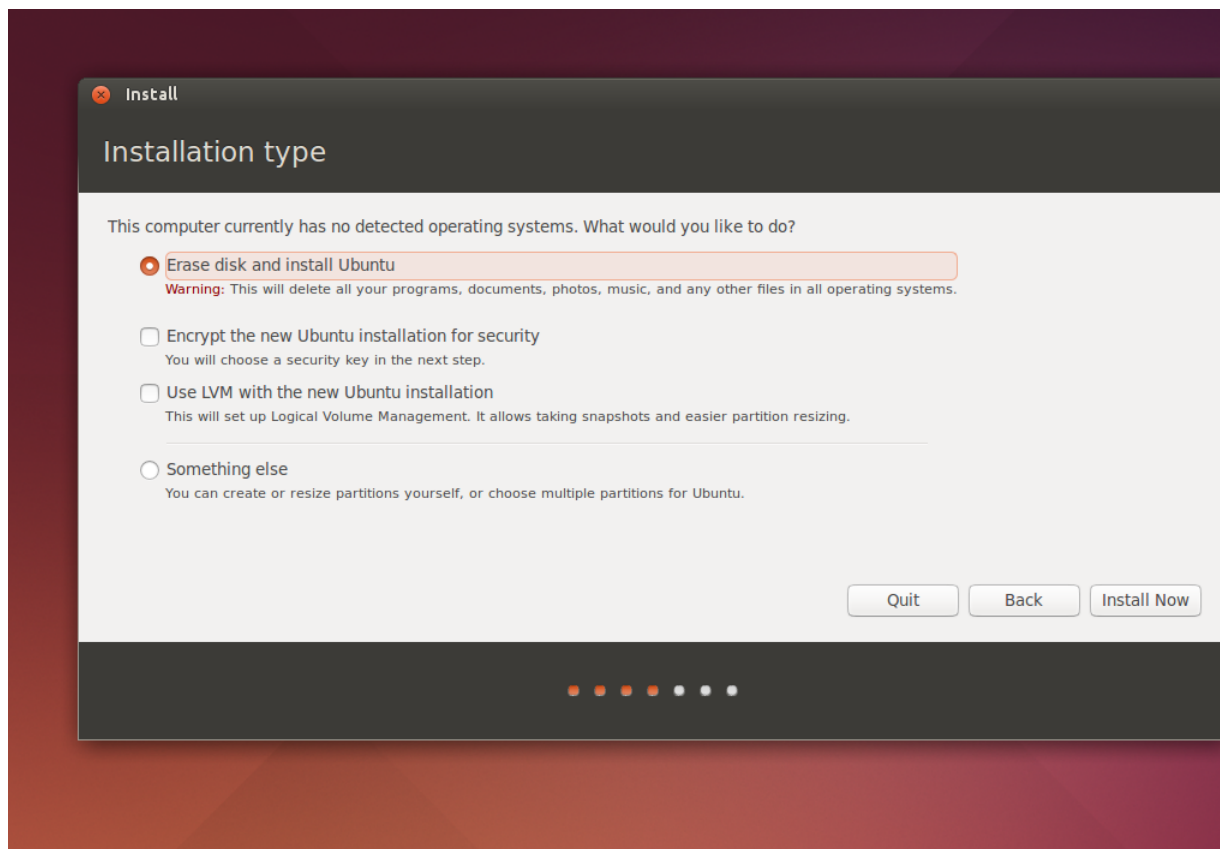
- **Install Ubuntu** (harmless if using VirtualBox)
- try is just temporary (single session)
- wait for it...

5. Ubuntu Installation:



- check that you meet the requirements
- click the two check boxes for proprietary drivers

6. Ubuntu Installation:

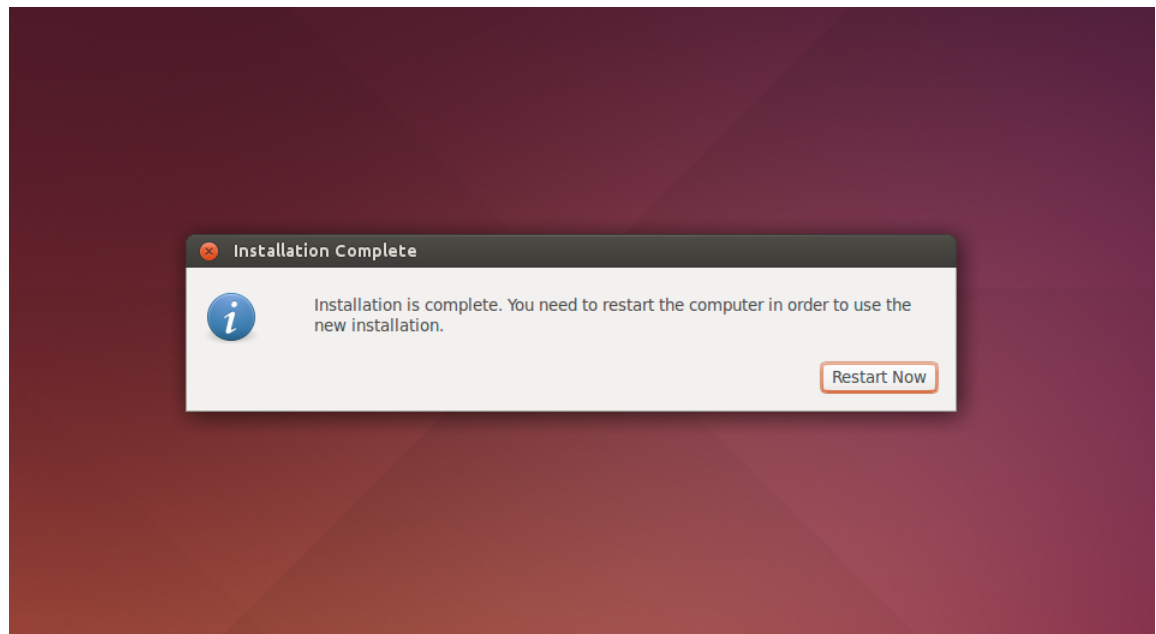


- **Erase Everything and Install Ubuntu** (harmless if using VirtualBox)
- DANGEROUS AND PERMANENT IF NOT USING VIRTUALBOX
- wait for it...

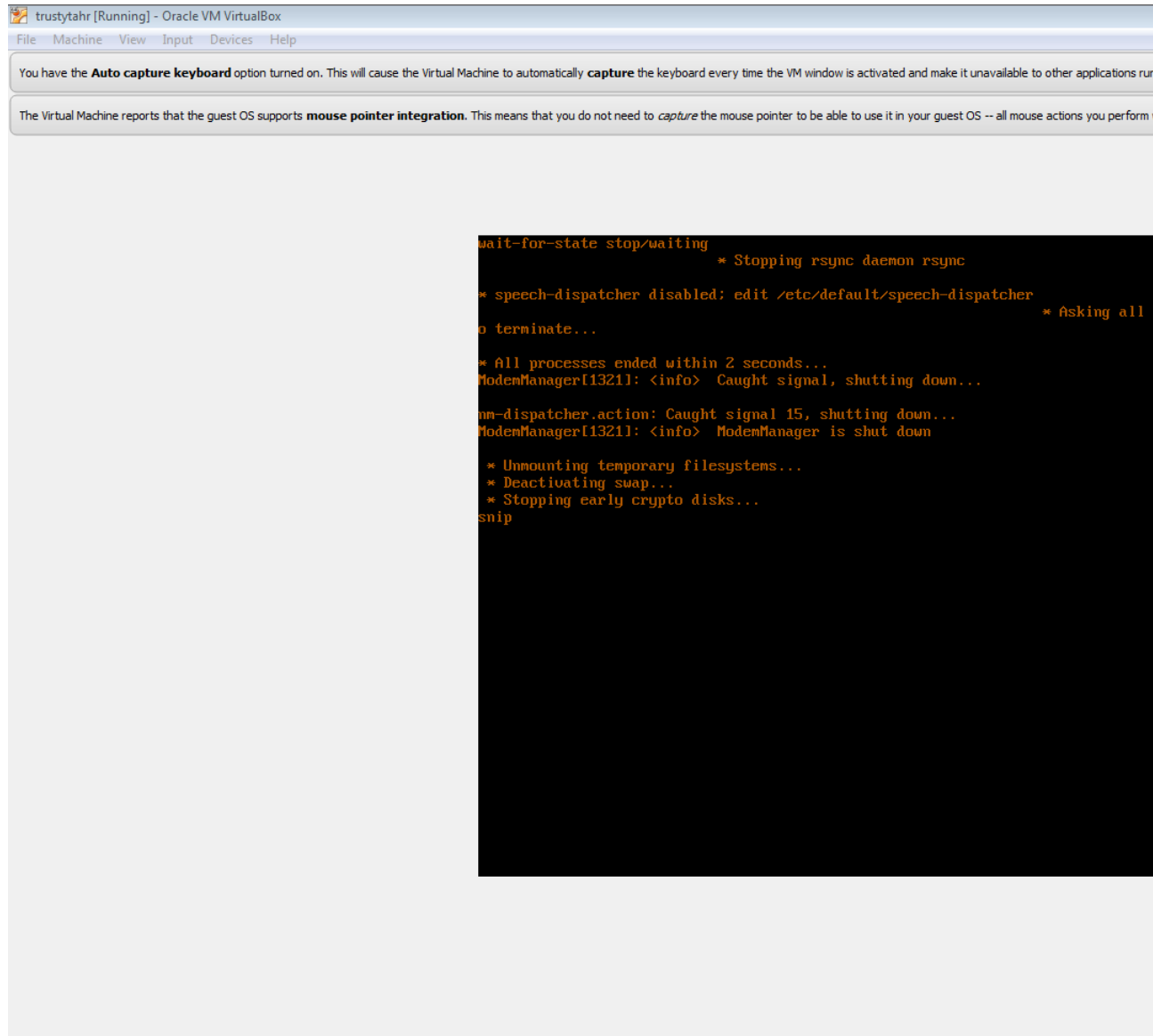
7. Wait Wait Wait:



8. Shut Down The VM:



9. Shut Down The VM:



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trustyahr [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help

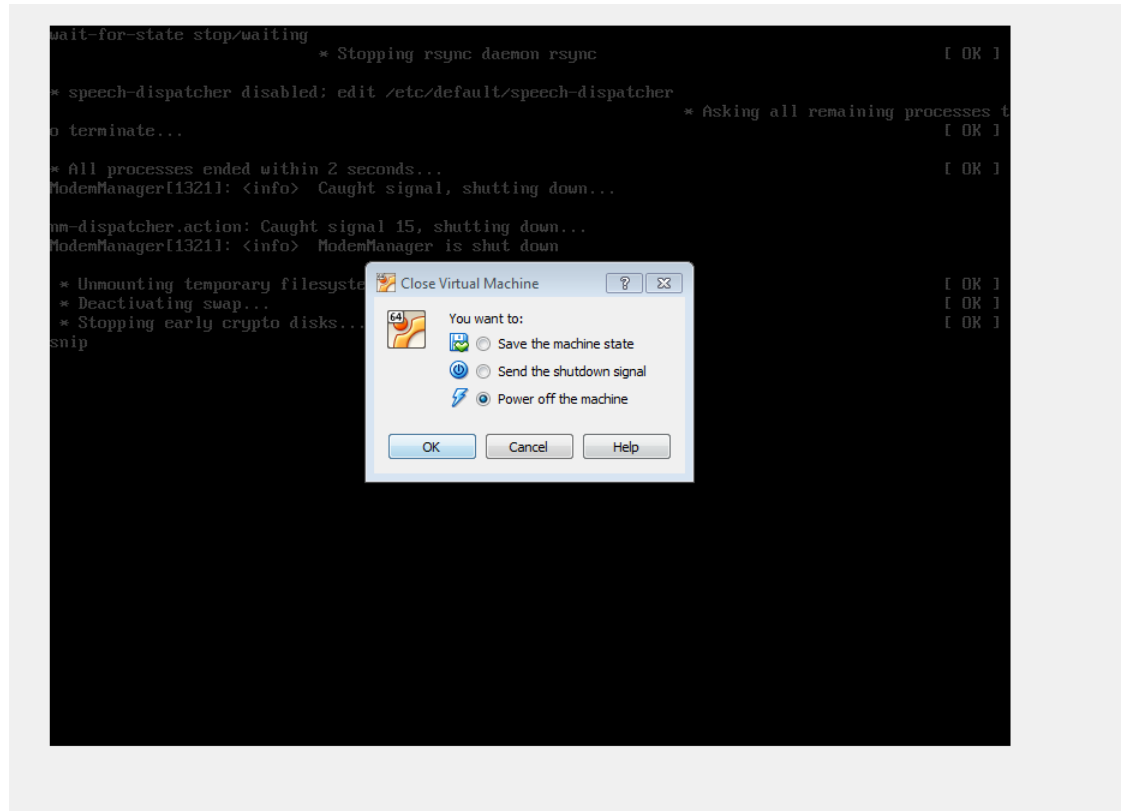
You have the Auto capture keyboard option turned on. This will cause the Virtual Machine to automatically capture the keyboard every time the VM window is activated and make it unavailable to other applications running in the host.

The Virtual Machine reports that the guest OS supports mouse pointer integration. This means that you do not need to capture the mouse pointer to be able to use it in your guest OS -- all mouse actions you perform will be sent directly to the guest OS.

wait-for-state stop/waiting
* Stopping rsync daemon rsync
* speech-dispatcher disabled; edit /etc/default/speech-dispatcher
o terminate... * Asking all
* All processes ended within 2 seconds...
ModemManager[1321]: <info> Caught signal, shutting down...
nm-dispatcher.action: Caught signal 15, shutting down...
ModemManager[1321]: <info> ModemManager is shut down
* Unmounting temporary filesystems...
* Deactivating swap...
* Stopping early crypto disks...
snip
```

- wait for it...
- after waiting a few moments you may have to close the window of the VM

10. Finally!:



- POWER OFF the Machine

11. Now restart the VM!!!:

- the VM you made should be in the left list
- select it and click start
- the Ubuntu OS should appear