Ubuntu Configuration - VMware

This is the guide for using **VMware Workstation Player (Win10)** and **Ubuntu 16.04.5** as the visualization platform. Please follow the guide and configure your machine properly before the first assignment.

One significant thing for computer system learning is that **GOOGLE IT FIRST!** Since there are so many details scattered, we as your TA may be less useful than Google. Try to find the answer yourself and you should gain a deeper view on your problem. The process of poking holes in your system is fun.

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1. Pre-Install

- Recommend: You can find all the software materials on their official websites online as provided in following context.
- We provide (part of) the package on Blackboard. Some of them are too large to be uploaded.

1.1 VMware

- VMware have given out free community virtualization software since recent years, we recommend you using VMware for more stable interaction and better performance.
- **For MacOS User**, download VMware Fusion Package from Download VMware Fusion | VMware and choose Fusion 12 Player for macOS 10.15+. Note that you need to register a personal **license** and then you can download the software for free.

1.2 Ubuntu 16.04.5 Image (Ubuntu)

- Download Ubuntu from: ubuntu-16.04.5-desktop-amd64.iso.

  You can also download the image from other source as long as they are the same setup. If your are interested, try to find out what does **desktop**, **amd64**, and **.iso** means.

  - Or just download it from Blackboard.

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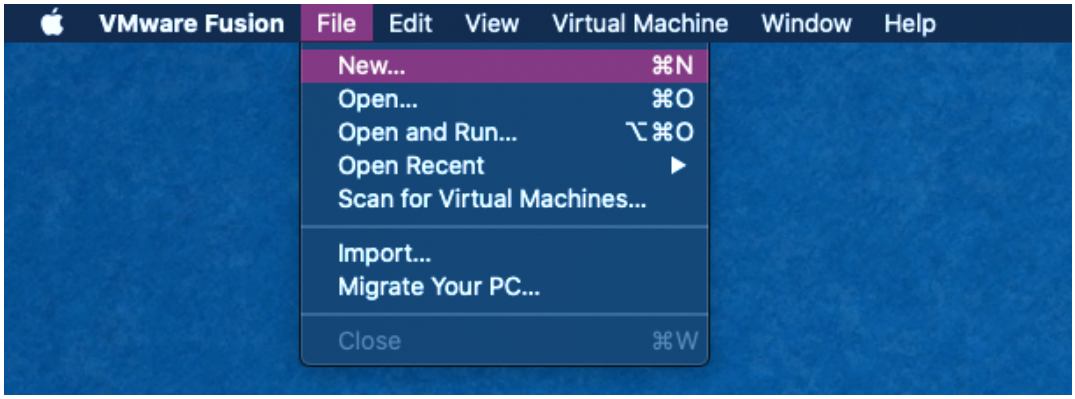
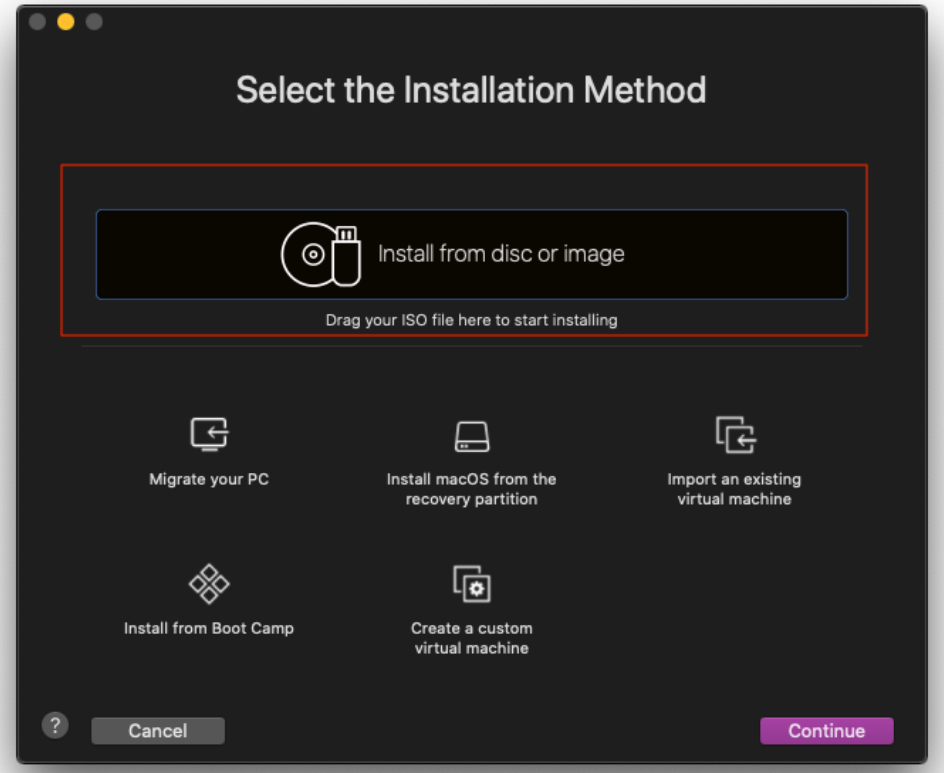
2. Configure Virtual Machine (Win10)

- Note that we are using VMware Workstation Player as an example. Steps are basically the same for VMware Fusion.

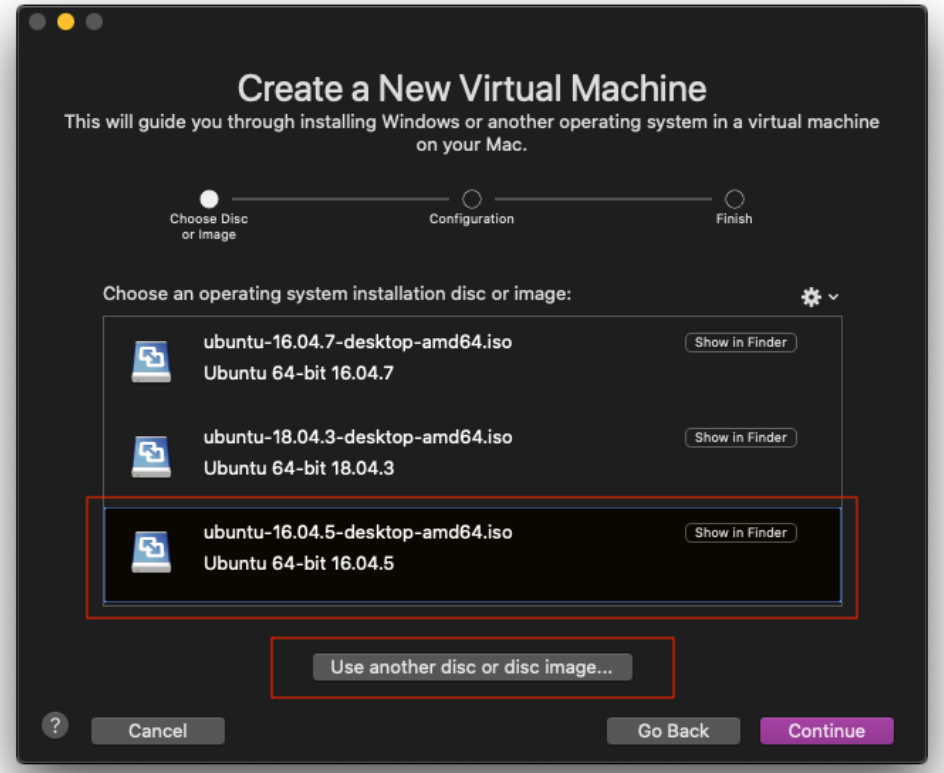
2.1 Create a Virtual Machine

1. Open the VMware Workstation Player and select **New** on the menu bar. Select **install from disk or image** or just drag the image there as the hint says.

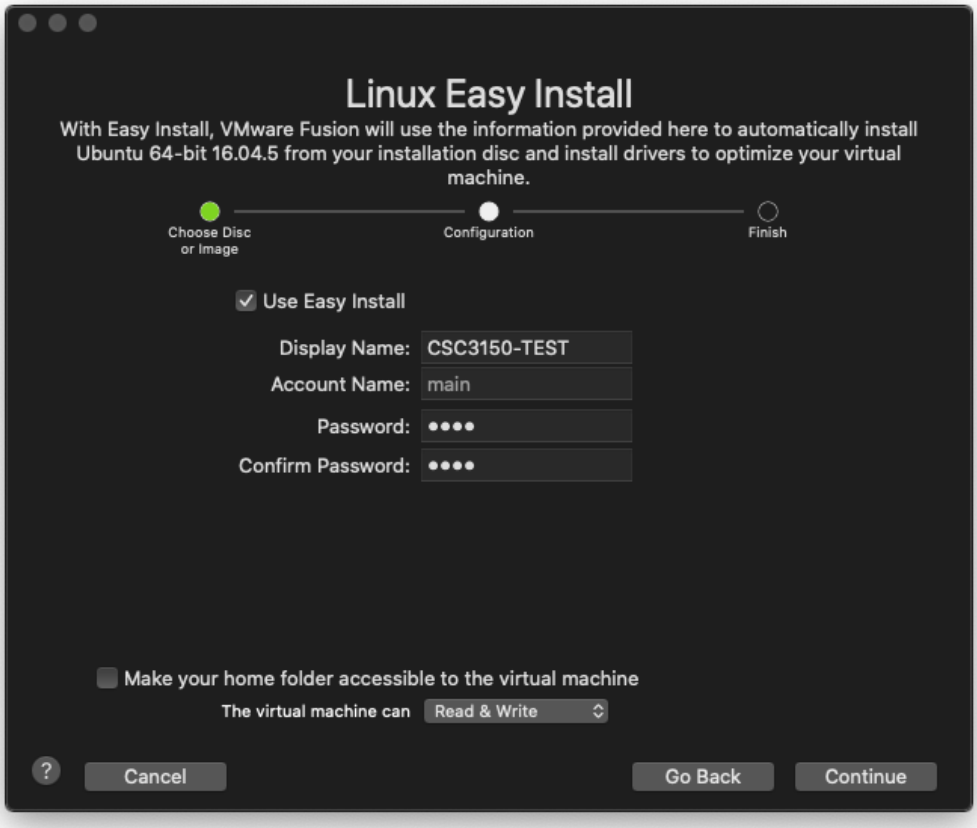




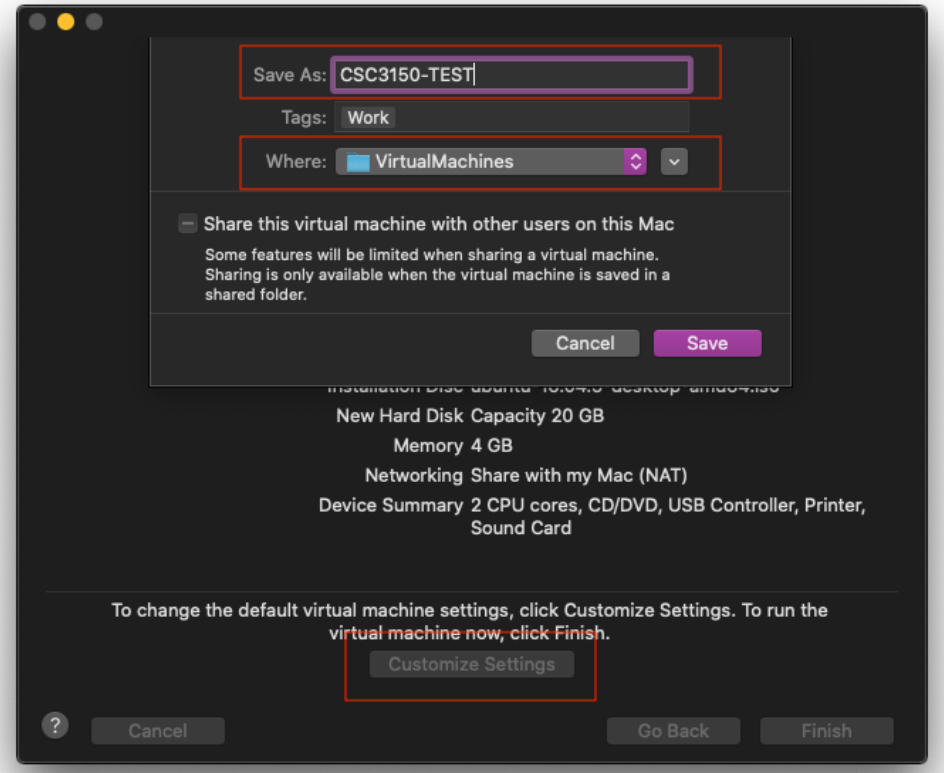
2. If you don't want to drag and wish to add the image using the old fashion way. Click **Use another disc or disc image** and browse it using `Finder` . Then, Choose it as the pic shows.



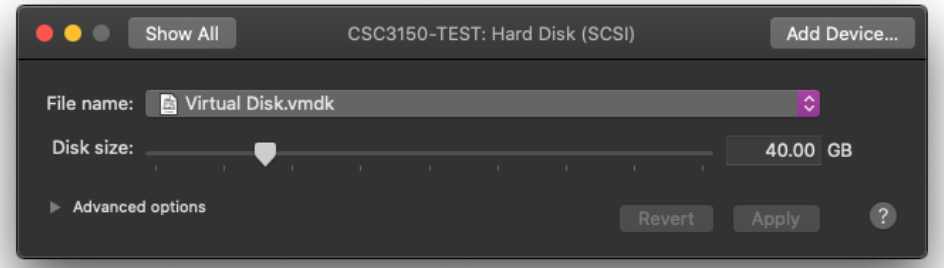
3. Set up your account and **DO NOT FORGET YOUR PASSWORD**.



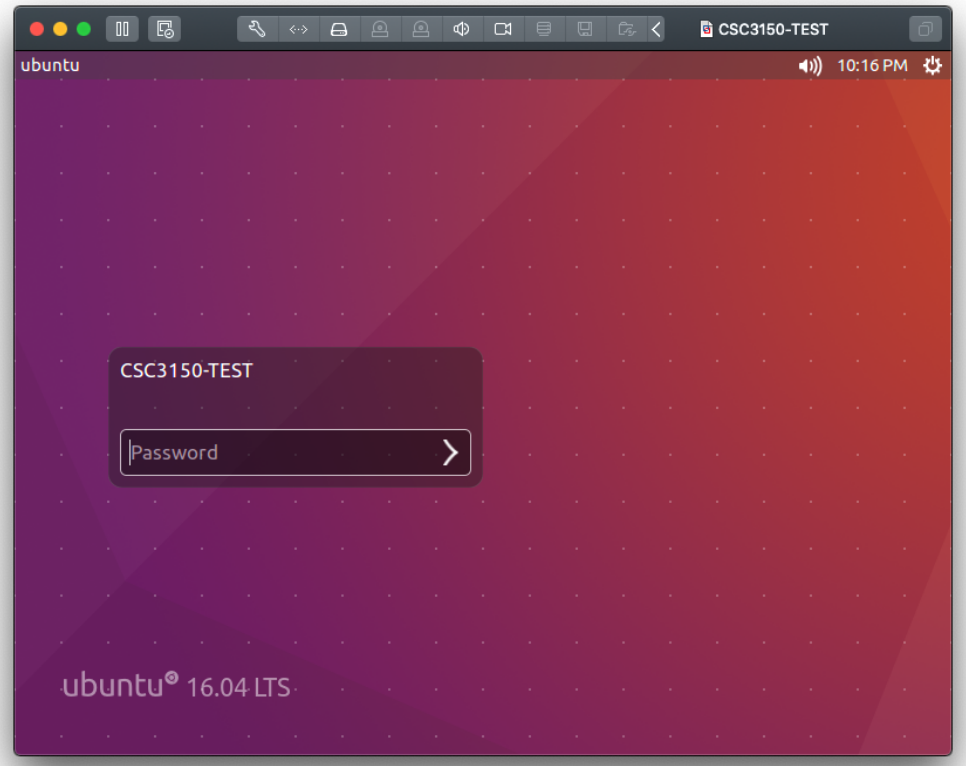
4. Click **Customize Settings**. Put the your virtual machine in a disk with sufficient free storage (>= 50GB is recommended). You could name your machine with any thing you like. **DO NOT START YOUR VM NOW**.



5. **DO NOT START YOUR VM NOW**. Go to the virtual machine setting and set your VM storage(>=40GB is recommended) You may configure your setup or you can just keep every thing as default.



6. Start the VM if you are pleased with the setup. The Ubuntu should start installing by itself. You should get something similar to the pic and login with the pass you set previously.
    - Please Install vmware toos if anything pop out. It's crucial to your VM experience.

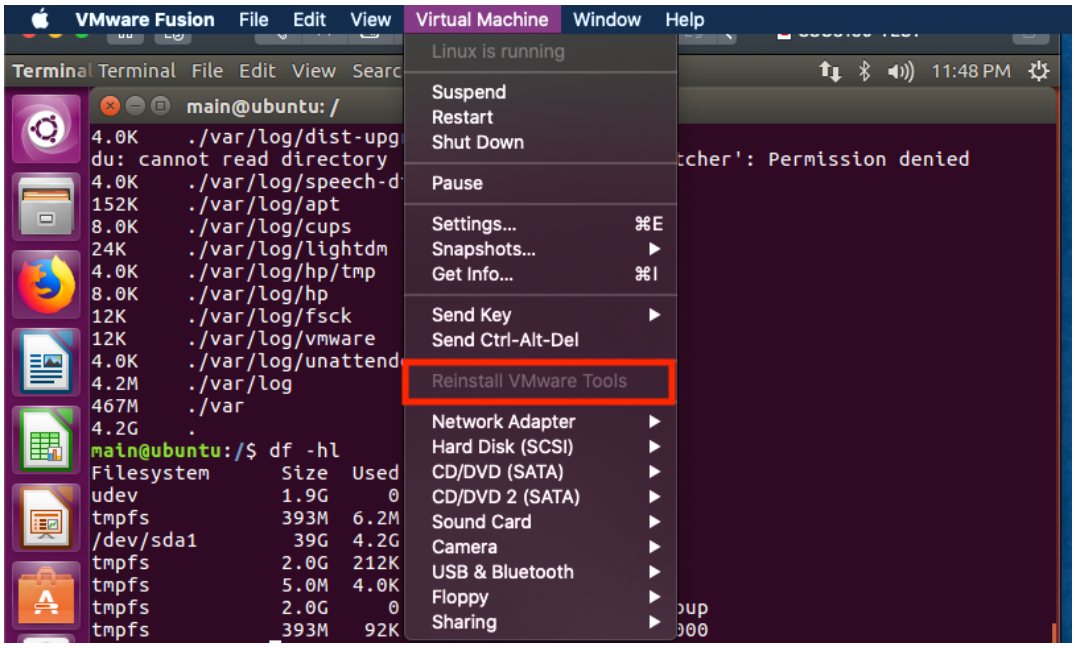


7. You may want to check if you have successfully resized your hard disk storage by typing the following command in Terminal. In my case, I got the output below.

```
 main@ubuntu:/$ df -hl
Filesystem      Size  Used Avail Use% Mounted on
 udev            1.9G     0  1.9G   0% /dev
tmpfs           393M  6.2M  386M   2% /run
 /dev/sda1        39G  4.2G   33G  12% /
tmpfs           2.0G  212K  2.0G   1% /dev/shm
 tmpfs           5.0M  4.0K  5.0M   1% /run/lock
tmpfs           2.0G     0  2.0G   0% /sys/fs/cgroup
 tmpfs           393M   92K  393M   1% /run/user/1000
```

2.2 Setup VMware Tools

1. This tool provides some great feature like resolution auto adapting, drag & drop file transfer, clipboard sharing. On VMware Fusion Player case, the tool should be set up automatically and the status shoule be **"Reinstall VMware Tools"** but not "Install VMware Tools" in the red rectangle area as the pic shows.



   If not, follow the following guide on installing the vmware tools on Linux.

   [Manually Installing VMware Tools on a Linux Virtual Machine using VMWare Fusion]

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3. Useful Setup

- These are some useful advice to use your Ubuntu more smoothly. You should go over this part. Although the setup below is optional, your life would be easier with these setup.

2.1 Change `apt` source

- Try to use different `apt` source other than the official source. Due to well known reason, the official source is either too slow or unreachable.

2.2 Install `vim`

- try to use `vim` or some simple editing using terminal. It's light and fast. You can custom it from a very fundamental perspective.

2.3 Install `htop`

- An upgrade of `top`, which displays all the processes, CPU utilization, memory consumption, etc.

2.4 C/C++ Development Kit

```
sudo apt-get update
sudo apt-get install build-essential
```

Final Tips

- **If your laptop is without enough free storage (40G) to install the Linux OS in Virtual Box, you could use the Mobile Hard Disk Driver (HDD).**