Running the CSE 232 Virtual Machine

1. Get VMWare
   As a CSE student you get the product from VMWare for free. Let's download it:
   1. Go to http://msdn.cse.msu.edu
   2. Top of the page, under "Computer Science and Engineering", follow the link VMWare
   3. Top of the page, small print, is a Sign In link. Under Your Account/Orders
      a. Log in with your CSE password. Not your MSU password, your CSE password.
   4. You need to get the right product for your computer.
      a. For Windows: VMWare Workstation 11
      b. For Mac: VMWare Fusion 7
   5. Part of the process should get you an activation key as well. Might be sent to your email, but you can always go back to the top of the page, click on Your Account/Orders, click on View Details of your order and get it.
   6. With your key, install the program

2. Get an Image
   There is a virtual image, a small copy of the operating system, on the file system of each computer in the 232 labs. You need to get that image (a big file) and that, in combination with VMWare, will allow you to run a version of the lab software on your local computer.

   If you prefer, you can download the image from the internet at http://www.cse.msu.edu/cse-vmware/. However, it is a big file and to make it possible to do a transfer the file has been "zipped". You must "unzip" the file before you can use it. If you need a utility for that, then take a look on the internet for a free tool that will do it. Likely though, if you click on the zipped image it will unzip it for you.

   Get the image:
   1. The best way to get the image, by far, is off of any of the lab machines.
      a. get a USB stick. You can get away with a 4Gb stick, but if you get one now days you probably get an 8Gb at least. More is better!
      b. Try to make it a USB 3.0 stick, things will go faster
      c. Put your USB stick into the USB slot on the front of any lab machine
      d. If a window doesn't pop up, open the Places location (top left bar), open Computer. You should see your USB stick there.
      e. Open another Places window (you should have two now) and go to Computer/scratch
      f. Copy the entire directory on /scratch to your USB stick.
         i. It's big, just under 4 Gb. It will take a few minutes
When it is done, right click on the USB stick directory, first **Eject** then **Safely Remove Drive**

2. **Setup the Image**

   **BIOS, Windows Only Machines**

   It turns out that many Windows computers ship with a vital element turned off in their BIOS (the startup program). If you get a message about "64 bit operation not being possible", you need to fix your BIOS. This varies between manufacturers, but hopefully this is a general guide.

   1. Reboot your machine and watch carefully the startup. Some message will appear briefly about holding the F2 key or the Delete key to start the BIOS.
   2. Once you get the BIOS screen up, you need to find some general machine settings. The one you are looking for is "Intel VT-X". This needs to be turned on so the VM will run.
   3. Save the BIOS (something like F12), then reboot.

   You should be set to run VMWare.

   **Copy the image to your machine**

   You need to copy the whole directory on your USB stick to your local machine or download the file from the internet (remember to unzip after an internet download)

   **Startup**

   Let’s setup VMWare to run the 232 Virtual Machine image you got.

   I have had the best luck doing the following on both Windows and a Mac:

   1. There is a directory structure (if not, did you unzip your file). Open up folders until you find a 232virt directory. Now open that directory.
   2. In the image your directory that you copied, there is a file named (exactly) **232.vmx**. On the windows machine the file is described as "Virtual Machine Configuration". The suffix .vmx is important as there are many files with the same name but a different suffix. Make sure you are looking at the correct one.
   3. **Right click** on 232.vmx. Select "Open with” VM-Fusion(Mac)/VM-Workstation(Win).
   4. When it comes up, it asks a question. Say "copied from"
   5. Off you go.

3. **Try/Run the Image**

   From then on, you should be able to start VMWare and see your image in the VMWare window. Start it from there.

   User name: user, password: nullptr
   Root password: NULLPTR
**Windows getting a bigger window**
On windows if you make the window bigger the "image" window may not get bigger. Go to Edit ->Preferences->Display. Select "Autofit window" AND "Autofit Guest". Change the window size and the inner Linux screen should scale as well.