Background:

ROS works best in a Linux environment, but sometime has trouble due to programs being out of data or different from what it expects. To avoid needing to reformat your hard drive to add a Linux partition it is suggested you install Ubuntu on a virtual machine. Since it is a new installation is should not have problems caused by other programs.

 A virtual machine (VM) is a program that can run a different OS inside itself. For instance you can run Ubuntu while your real machine is running windows and vice-versa. Programs in virtual machines are a little slower, but this should be tolerable for these assignments. It is suggested you use Virtual Box http://www.virtualbox.org/. You will also need to download an Ubuntu installation from http://www.ubuntu.com/getubuntu/download. This installation requires plenty of free hard drive space, so ensure you at least 5 GB free.

One weakness with this method is that it may not support some of the 3D applications. This should not be a problem with the HW, but will mean you can't use ROS's 3D simulator Gazebo. You can enable 3D acceleration in Virtual Box, but ROS may still give you problems with Gazebo.

Fastest Option:

If you come to office hours I will have an image already prepared that can be run on Virtual Box with Ubuntu and ROS pre-installed. It also already has guest additions set up. This will save you the couple hours that installing these from scratch requires. I will also update this if an option becomes available to let you download this through the web. The main issue is the over 1GB file size. Once you get these files you can import them into virtual box. The password if it's needed at any point is cs4758. You may need to enable 3D acceleration to get stage to run. This is done by shutting down the virtual machine and going to settings then display.

Installing Ubuntu on Virtual Box:

First install Virtual Box. Once this is done, run Virtual Box and click new. Name the VM and select Linux as the OS type. Next you need to tell Virtual Box what hardware your VM should be given. For memory size choose at least 512 MB. Next tell it to create a new disk. Choose dynamically expanding then choose at least 8 GB as the hard drive size. The VM shouldn't actually take up 8 GB choosing dynamically expanding means that it will grow as needed up to the size specified here. Once you are finished run the newly created VM. In the wizard it will ask you for a Media Source for the OS. Click the folder icon and hit add. Then choose the ISO file you downloaded of Ubuntu.

Choose to install Ubuntu and go through the installation. It should be self explanatory, but allow it to partition the whole hard drive since it only uses the hard drive file you created. To allow your mouse to exit the VM window you may need to press the right Ctrl key. Once you are done you may want to install the Guest Additions http://www.mydigitallife.info/2009/11/25/how-to-install-virtualbox-guest-additions-in-linux-ubuntu-debian-fedora-opensuse-red-hat-and-more/ . This will allow the mouse to leave the window seamlessly and makes some other interactions easier. You can install updates to

Ubuntu if you want, but they shouldn't be necessary. Once the install is done you can delete the Ubuntu ISO.

Moving Files Between Windows and Ubuntu:

There are a couple ways to transfer files to and from the virtual machine. You can use firefox on the VM and download the file from the internet or your email. You could put the files on a thumb drive and go to devices to mount it in the VM. You can share a folder with you VM, but that is a little trickier. It does work the best once set up though http://www.giannistsakiris.com/index.php/2008/04/09/virtualbox-access-windows-host-shared-folders-from-ubuntu-guest/ .

Installing ROS:

Instructions for installing ROS can be found here http://www.ros.org/wiki/ROS/Installation. You will need to have some familiarity with Linux to follow these steps and you will need to be connected to the internet. When you have the choice you should do the kitchen sink install. After you are done you should run "`export ROS_IP=127.0.0.1`" to let ROS know that you're running on your local IP address.

Trouble:

If you are having trouble running stage or you get an error about 3D acceleration you may need to enable 3D acceleration in virtual box. This is done by shutting down the virtual machine and going to settings then display. You need to have guest additions installed for this.

If you have any trouble or questions please contact me at net ID jmd242