Using Keil software with Linux via VirtualBox

Introduction

The Keil UVision software used to develop programs for ARM based microprocessor systems is designed to run on Microsoft Windows operating systems. For CPTR-215 class we will be using the Keil software running under the Microsoft XP operating system on a virtual PC created using software called VirtualBox (made by Oracle). We will be running VirtualBox (vbox for short) on a PC using the Linux operating system (A Redhat distribution of Linux). We use Redhat Linux, a commercially supported distribution of Linux, because we use commercially created software that is checked out, debugged, and supported on this operating system. There are many different people or groups putting together Linux distributions for which the most visible and significant differences tend to involve the graphical user interface (GUI). The underlying kernel of the operating system likely differs little, but for those of you accustom to using other Linux distributions there will be differences in the graphical user interface. I'm sorry that we can't provide everyone's favorite GUI.

Some setup is required before you can use VirtualBox and the Keil software. I have created a vbox configuration that contains MS windows XP with the Keil software installed. Oracle calls this an "appliance". The next section describes how to start Virtual Box, install this "appliance", and configure it.

Logging into WWU Linux computers

In what historically was referred to as the "Sun lab" (at one time the computers in this lab were ones made by Sun Microsystems), now the Linux lab, are a set of Dell computers on which RedHat Linux is installed. While each computer has its own hard drive for local use, user files are all kept on a central server. Thus you can log into any computer and you will have exactly the same view of your files. A characteristic of Unix, and now Linux operating systems, is that they were designed to support multiple users from day one. Hence, when you configure the features of a program or change the way the graphical user interface is configured those characteristics are saved for each user and when you come back to work the next time, on any machine, the configuration that will be used is the one you set up during your earlier session.

When not in use, the video output to the monitor is muted. Move the mouse or press a key on the keyboard to cause the login screen to be displayed.

The user name for the Linux machines is the same as that which you use on other campus computers or web pages, i.e. your first_name.last_name, and the password is the same. (This is accomplished using what is referred to as Active Directory. Thus even if you have not previously logged into the Linux computers you should be able to do so and an account and file tree will be created for you).

Getting started with Linux

After successfully logging in there should be a screen that looks something like this:
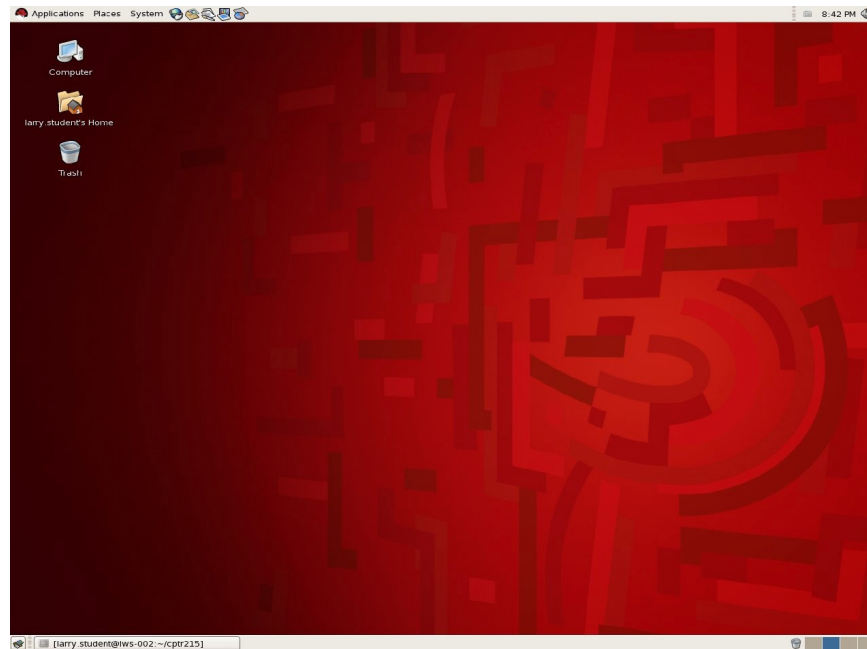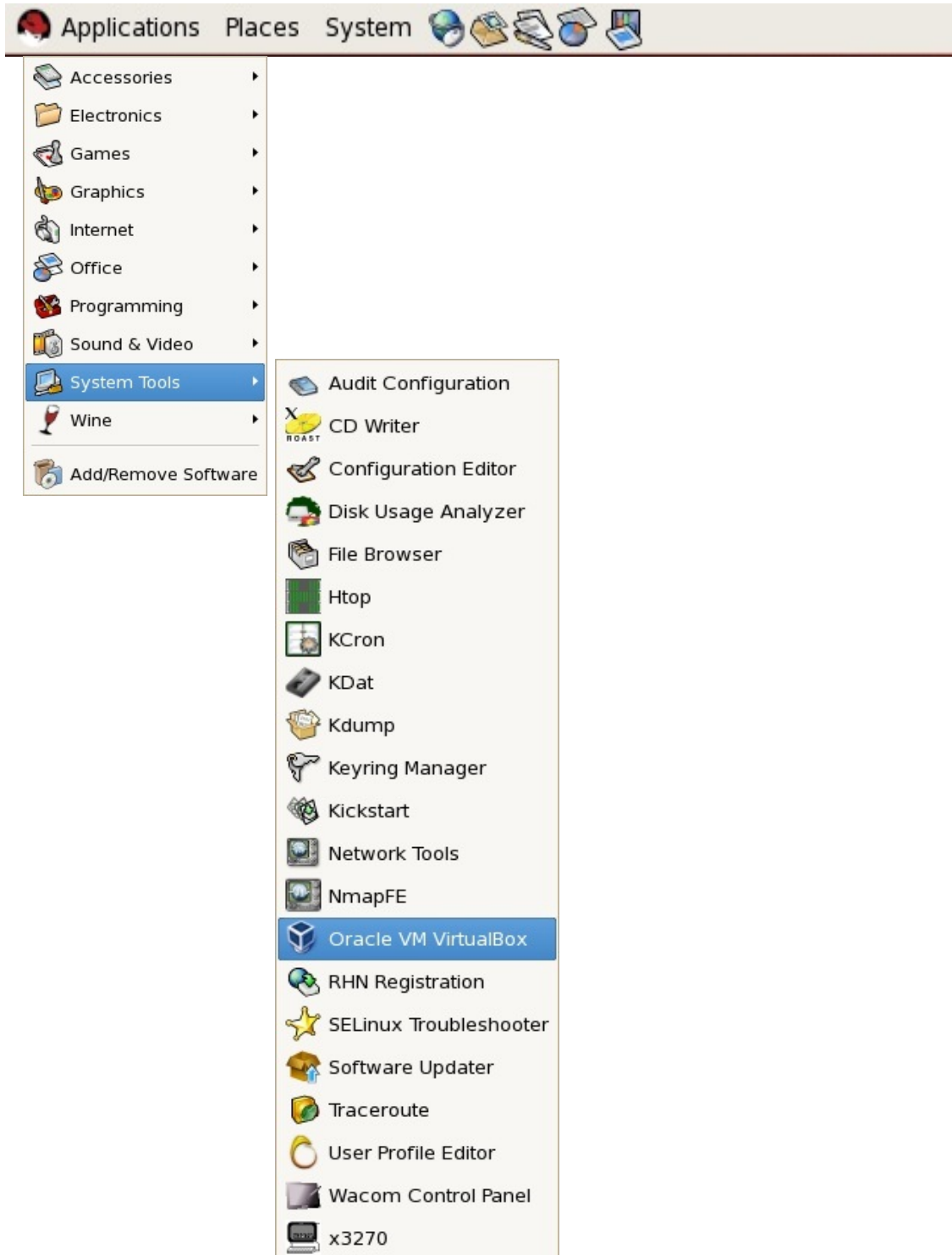
Here is the upper left corner of the screen in more detail. To log off, click System on the tool bar.

Browser

Logout here

System menu
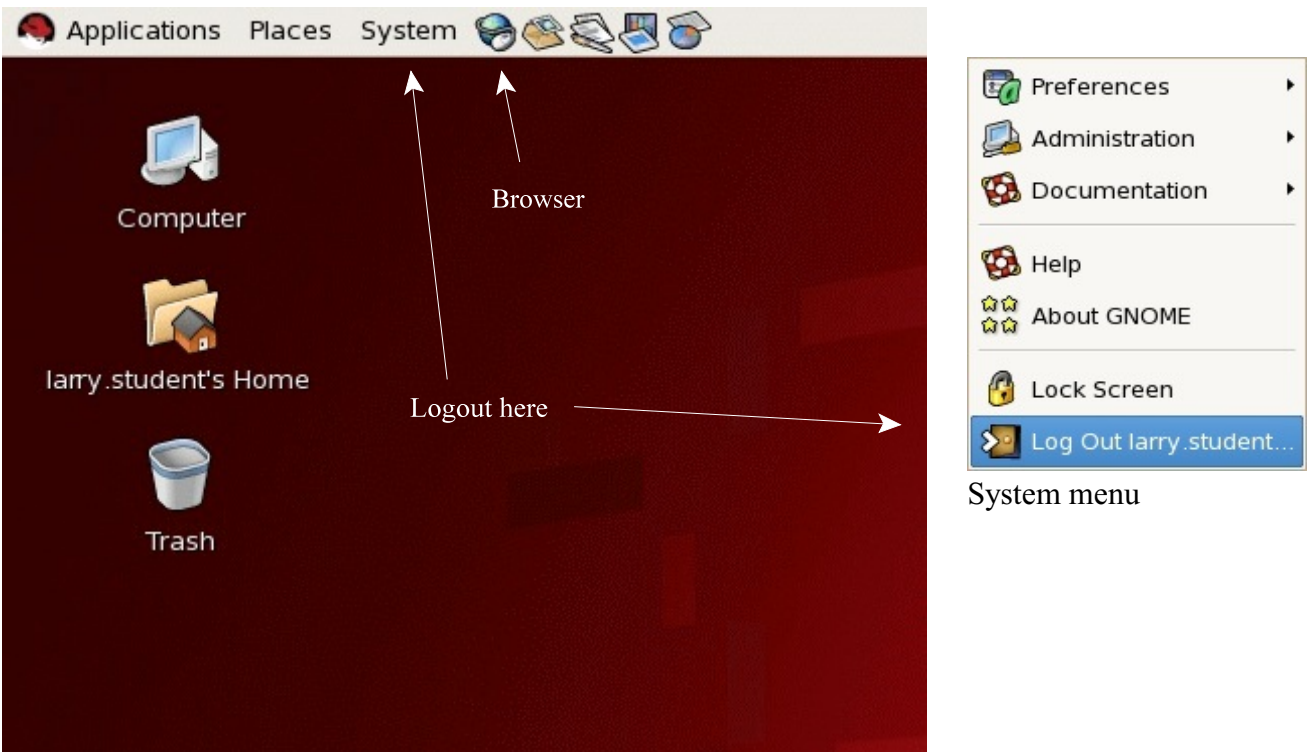
Loading the pre-configured Virtual PC & Keil software

1)   To start Vbox, click on **Applications** at the left end of the tool bar at the top of the screen

2)   On the drop-down menu find **System Tools**, and on that submenu select
         Oracle VM Virtual Box.

The following window will open:
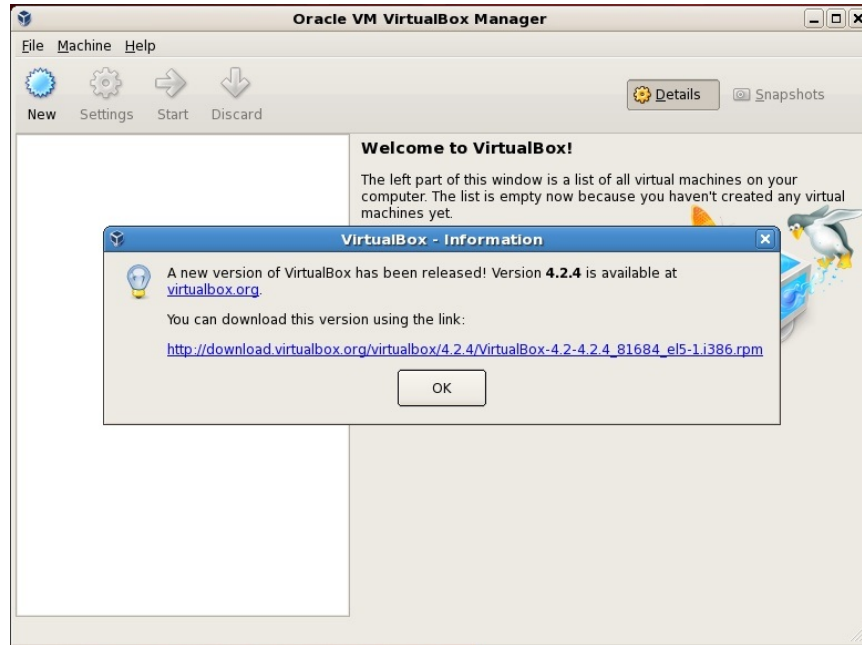
Sometimes there will be notices regarding new versions. Don't download these. Just click OK.

3) Click on **File** at the left of the tool bar.
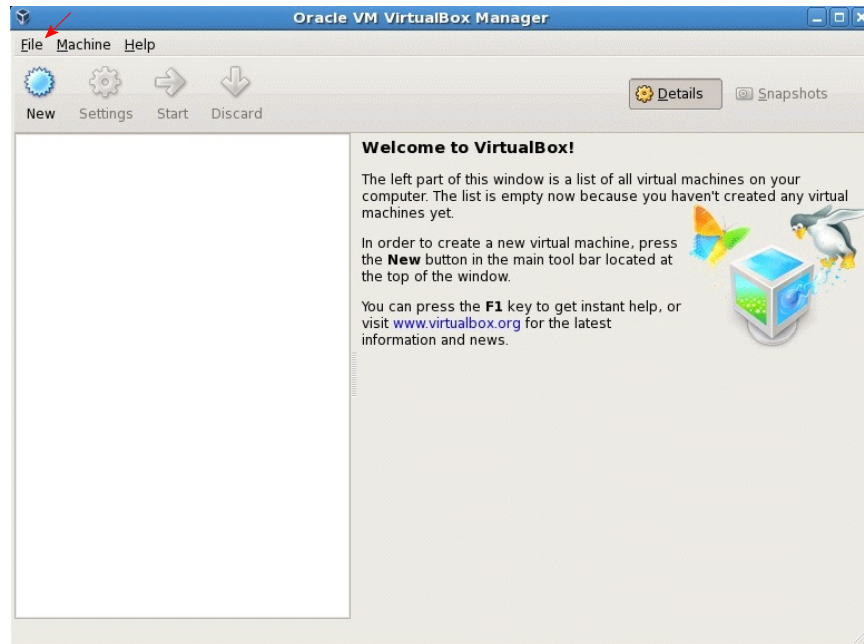
On the drop-down box select Import

The import Wizard should appear:

Click **Choose**. The following window will open. If you have copied the cptr215.ova file from the /home/classes/cptr215 folder to your own account the screen should look something like this. Click on cptr215.ova and then click Open.
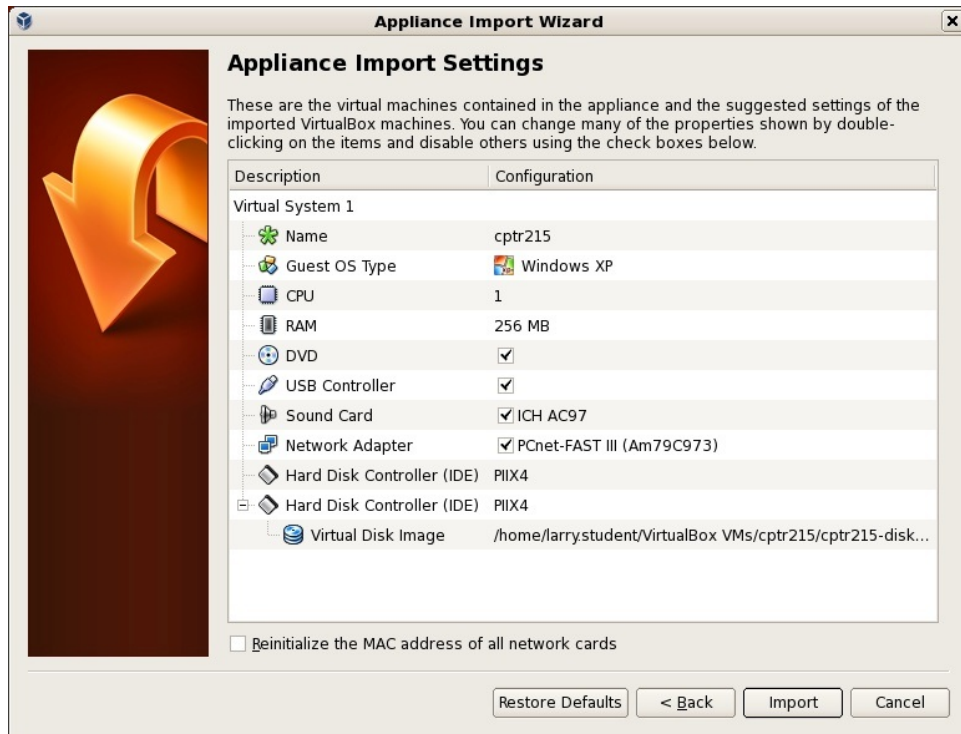
If you have not copied the file to your own account (better not to), then navigate to /home/classes/cptr215 and select cptr215.ova. Then click **open**.
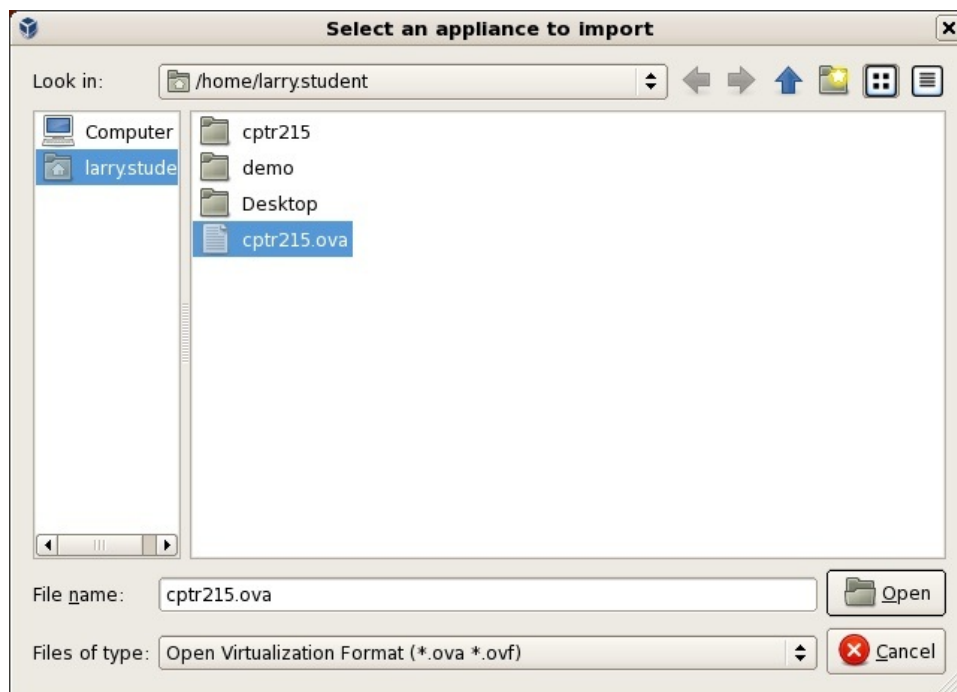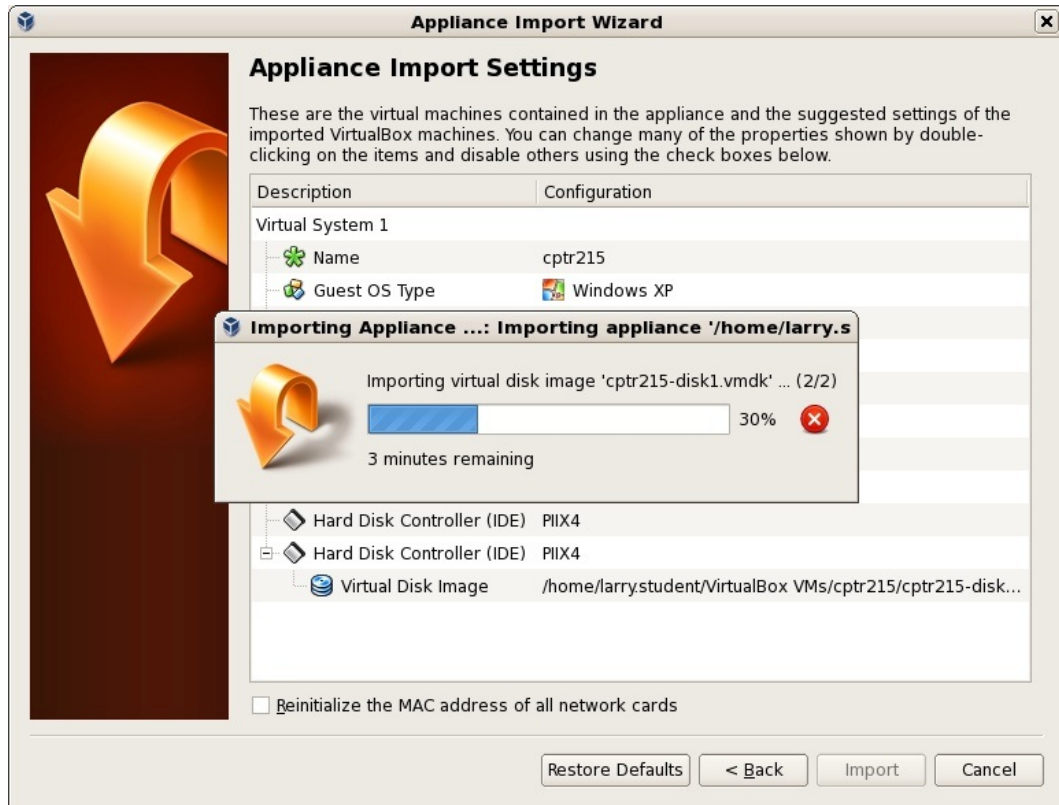
The path and file chosen will appear on this screen. Click **Next**.
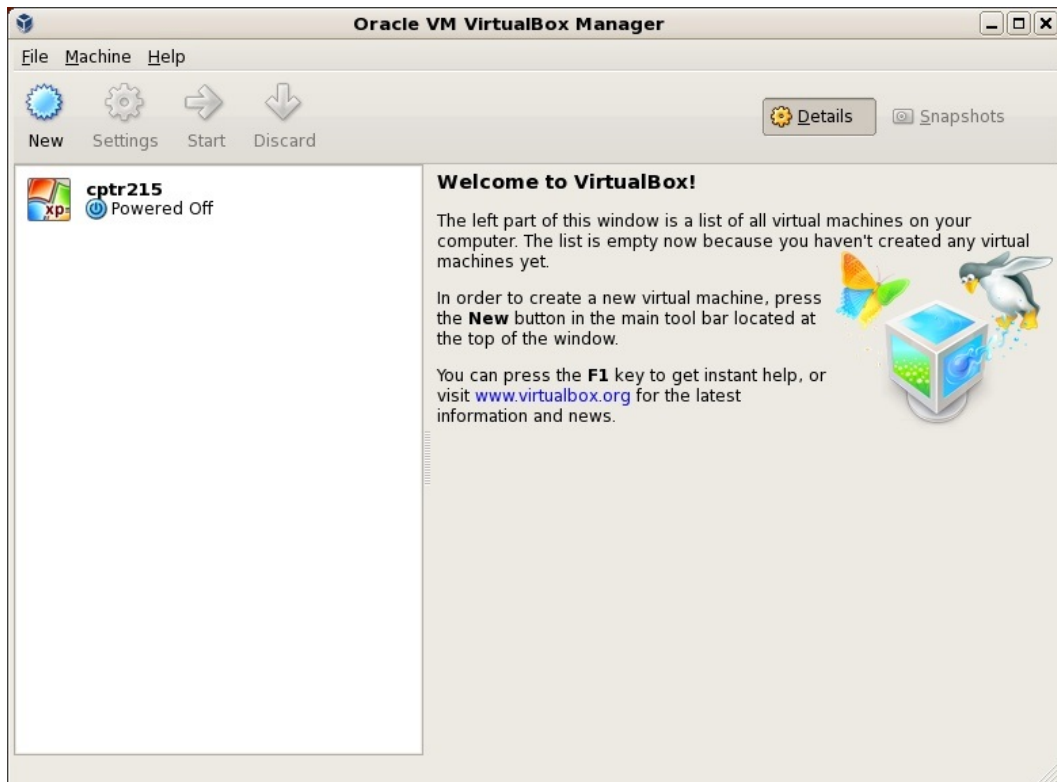

The next screen that appears shows key settings. Use them as shown.

Click **Import**

The import process will take several minutes and you will observe the remaining time value fluctuate up and down as the process proceeds. When import is complete the following should be displayed:

There are a couple configuration items to take care of before using the virtual machine. Click on **CPTR215** to select that virtual machine.
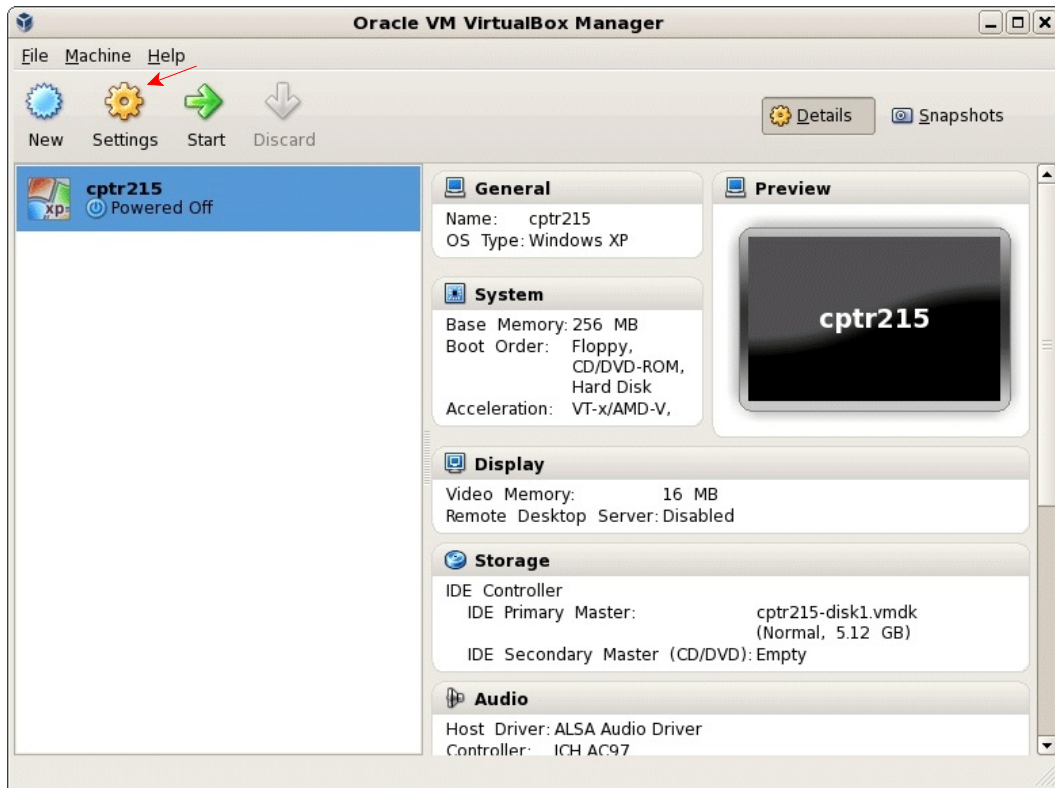
Next click on **Settings**.   And then in the left panel click on **Shared Folders**
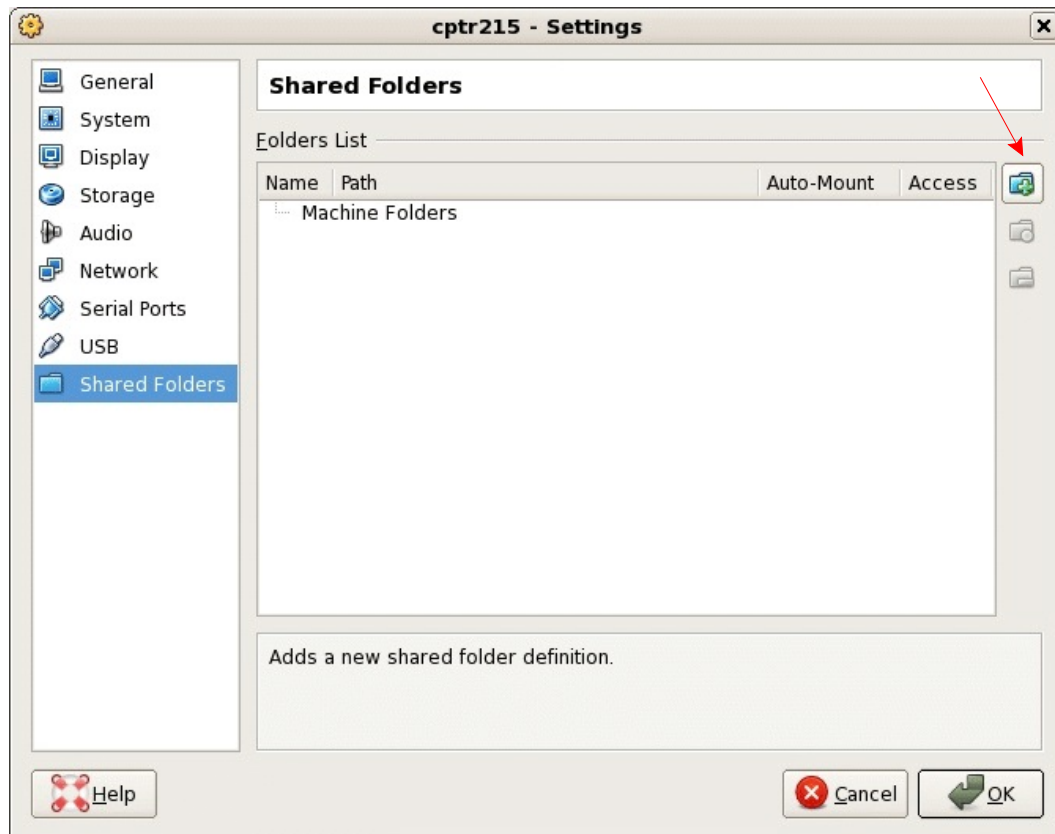
On the right side of the Shared Folders screen is a small green icon with a + in it. Click on that icon to add a path to the folders in your Linux account. You will want to keep your design files in your Linux folders rather than in folders in the virtual machine. That way you can access your files with programs outside the virtual machine.
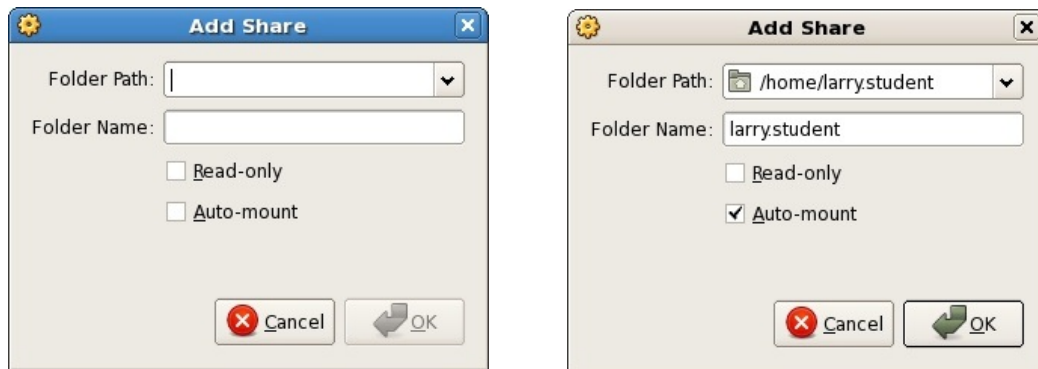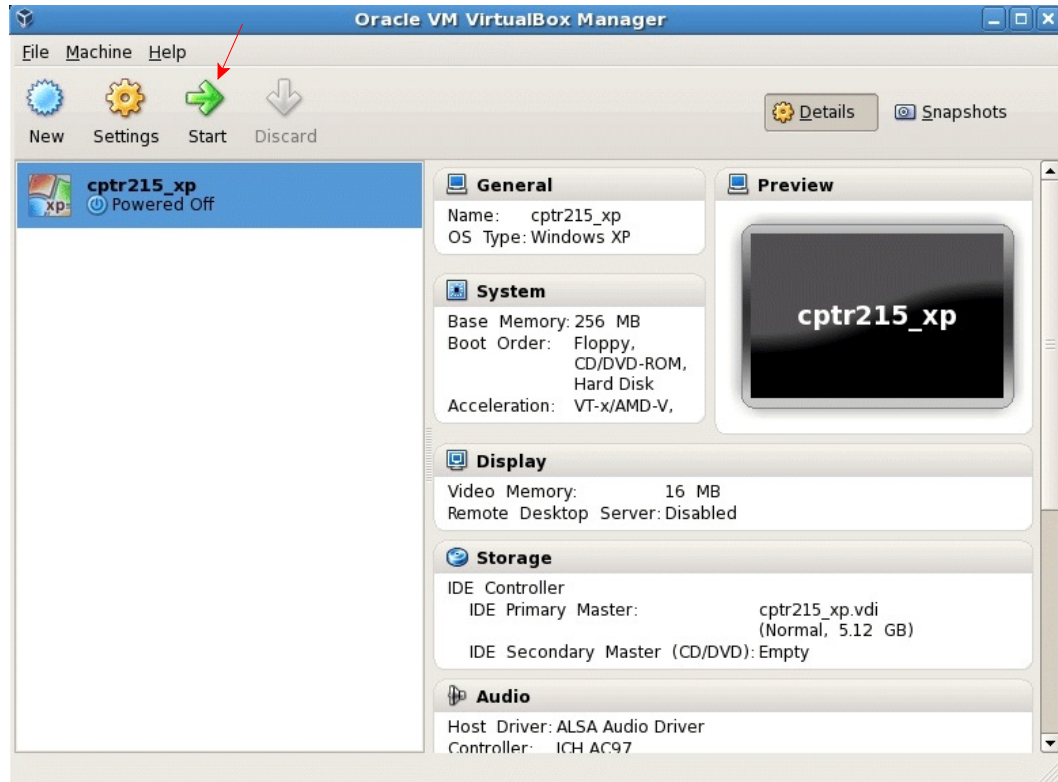

An easy way to specify the folder path is to type it in as shown above on the right, but change *larry.student* to your user name. Select **Auto-mount** so that every time you start up Vbox it will automatically connect to your Linux folders.

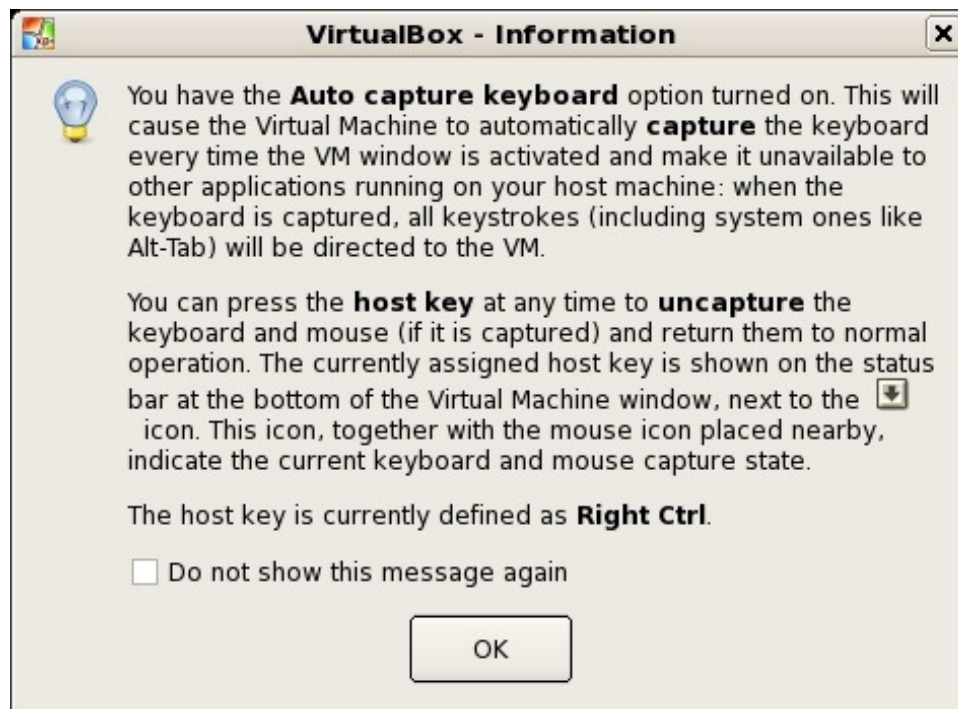Click **OK** and here is what you should see (only with your user name):
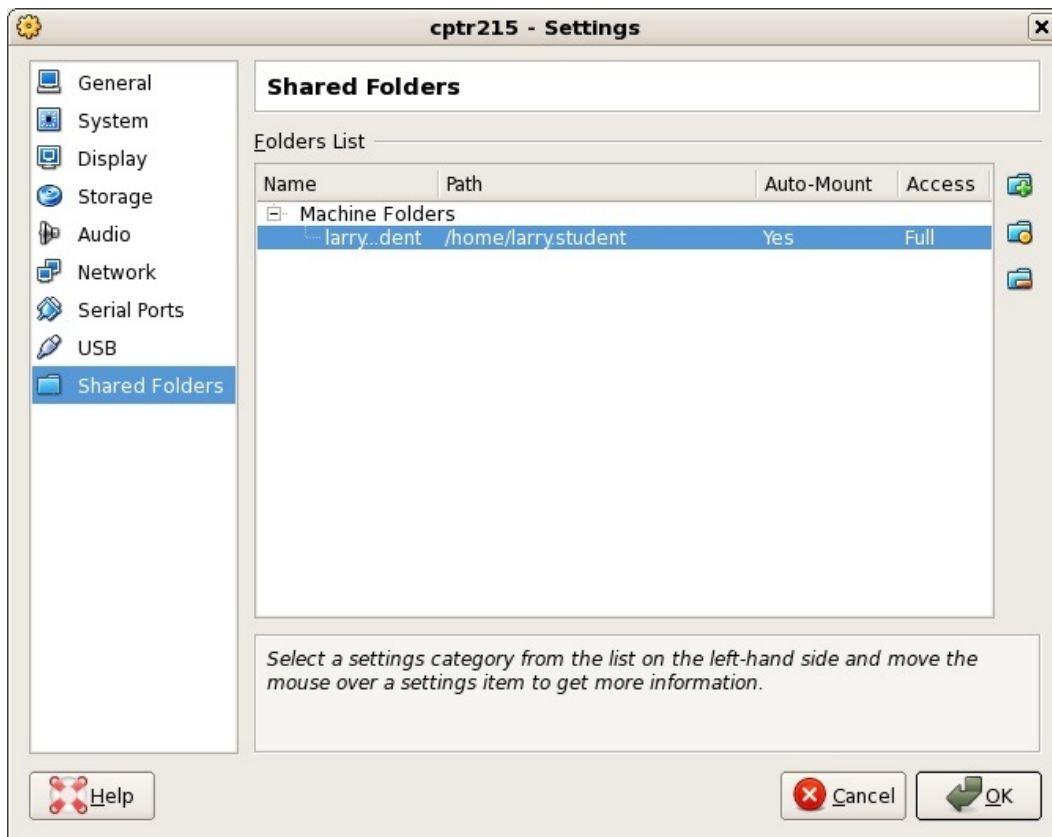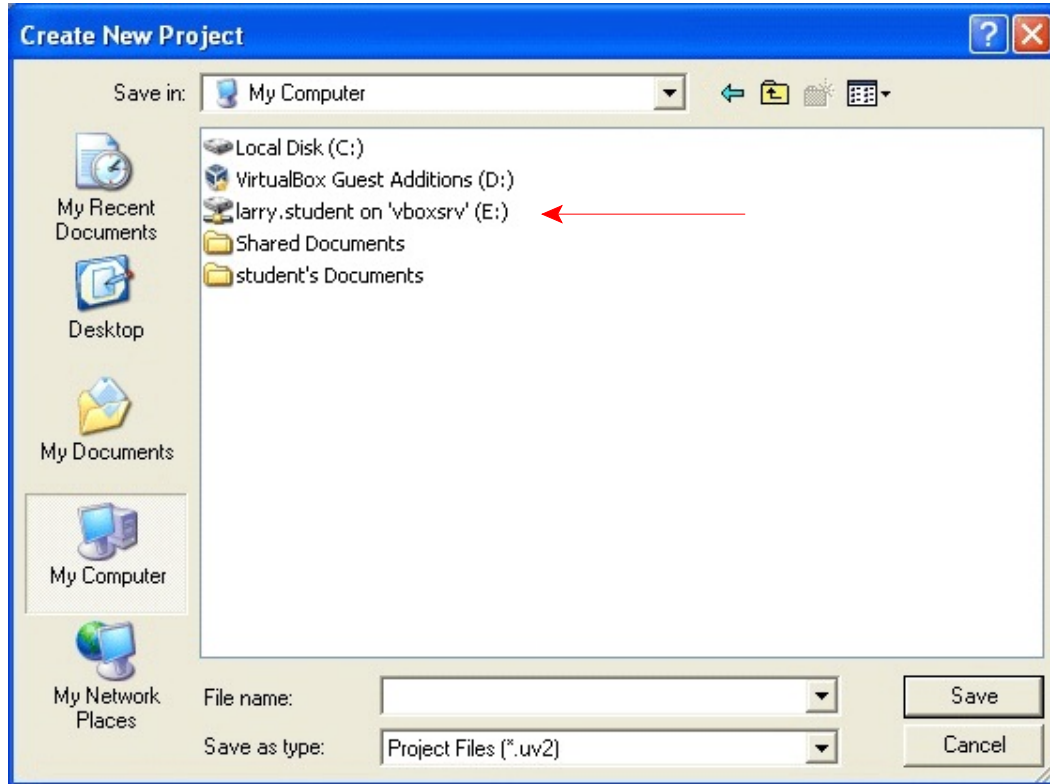

Click **OK**.

Starting a Virtual Machine

Click on **Start** to start the virtual machine. You may see a screen like that below. Click **OK**

After you have started up the virtual PC, click on the Keil icon and start the Keil software. Using the Keil software you will need to create a project and the screen may look something like this:

Note that there is a drive E. That is the path to the Linux files and that is where you should create your projects and save your programs (of course the user name will be yours).