CREATING A VIRTUAL PROGRAMMING ENVIRONMENT

We'd like to avoid platform-related problems for various courses, so we'll require that you install a virtual Linux environment which will essentially be a computer within your laptop. By using one consistent environment for the entire course we can avoid most of the boring problems and concentrate on the meat of the course instead. [1]

1. Install Virtual Box

First you'll need software that allows you to install Linux without erasing your existing operating system in the process. Although there are a variety of possible virtualization options, we highly recommend using Virtual Box. You can download it directly from https://www.virtualbox.org/ and follow the installation instructions provided there. Once Virtual Box is installed, you'll be able to set up the Linux environment for the course.

2. Download the Lubuntu Linux ISO File

Now that you have a virtual machine, you need to download the operating system to install on it. We highly recommend that you download the most recent long-term-support 64-bit version of Lubuntu from http://lubuntu.net/ for this course. Lubuntu is a light-weight version of Ubuntu that works great even on older hardware and in virtual machines. Check with your course instructor as to which version to downlaod if you're not sure.

3. Create a Virtual Machine for Lubuntu

Start Virtual Box and hit the "New" button to start the "New Virtual Machine Wizard" which will guide you through the creation of your virtual machine. Pick a relevant name for your machine. Select "Linux" as your operating system and "Ubuntu" as your version. Select at least "512 MB" as your memory size (provided your actual machine has that much memory). Create a new virtual VDI harddisk with a size of at least "8 GB" (provided your actual machine has that much disk space left). After a few more prompts you should be done and your shiny new virtual machine should appear in the list on the left side of the Virtual Box window.

4. Install Lubuntu

Select your named virtual machine and hit the "Settings" button. Select the "Storage" tab and then select the "Empty" CD-ROM icon. Far to the right there will be another CD-ROM icon with the popup help "Set up the virtual CD drive"; click that, then select "Choose a virtual CD disk file". A file dialog will pop up in which you should select the

[1] These instructions are based on a guide originally written by Peter Froehlich, with contributions by Scott Smith, Adam Teichert, Ben Mitchell and Joanne Selinski.

".iso" file you downloaded earlier in step 2. You should also select the "General" tab, followed by the "Advanced" tab on the right. This will allow you to enable copy/paste; set "Shared Clipboard" to bidirectional (note that there will be another step required later to make this work fully). Once you're done, hit "Okay" in the "Settings" window. Make sure that your named virtual machine is still selected and hit the "Start" button to boot it.

After you start the virtual machine, a number of warning messages may pop up that can usually be ignored safely. You should see a menu in which you can select the language you want to use for Lubuntu. You can change the language using the cursor keys and you'll make your selection by hitting the "Return" key. In the following we'll assume that you picked "English" as your language. In the next menu you should select "Try Lubuntu without Installing" to make sure that you configured the virtual machine correctly. Once the boot process finishes, you should have an empty Lubuntu desktop with a single icon "Install Lubuntu" in front of you. You can now play around with Lubuntu if you want, just remember that anything you change will not survive the next boot of your virtual machine. So eventually you must double-click the "Install Lubuntu" icon. You might just want to do this first and skip the trying-out step.

Select your preferred language (we'll assume English again) and hit "Continue". On the next screen select "Download updates while installing" as well as "Install this third-party software" and hit "Continue". On the next screen select "Erase disk and install Lubuntu" and hit "Continue". On the next screen your virtual "VBOX HARDDISK" should already be selected; if that's not the case, select the "VBOX HARDDISK" before hitting "Install Now" to start the actual installation process.

While the installation formats your disk and copies files, a number of additional screens will need filling out. First select your location. Then select your keyboard layout, probably "English (US)" but that depends on your actual keyboard more than anything else. Next fill in your name and the name for the virtual machine itself (the default is okay). Pick a decent password that you won't forget! Since you will probably be the only person working on your virtual machine, select "Login automatically" but do NOT select "Encrypt my home folder" as that could be trouble later and hit "Continue" one last time. Now you can sit back and watch the installation progress. Once the installation finishes, hit "Restart Now". Once the message "Please remove the installation media..." pops up, simply hit "Return" and watch your virtual machine reset and then boot into your shiny new Lubuntu system. If the "Restart Now" doesn't finish properly, then simply close the Lubuntu window and then click the "Start" button in VirtualBox to restart your new virtual machine.

The first thing that will probably happen is that the "Update Manager" wants you to update your Lubuntu system to the latest version of various applications. Simply click the "Install Updates" button and authenticate with your password, then watch the updates fly by as they are installed. Most likely you will need to restart again after all the updates, simply hit "Restart Now" if that's the case. Once this last reboot finishes, you have a completely up-to-date Lubuntu system to play with. Enjoy!

5. Shutting Down Properly

It's a really bad idea to quit your virtual Lubuntu machine by just closing the window or selecting "Quit" in the Virtual Box menu: That essentially means ripping the virtual power cord out of the virtual power plug, and hopefully you wouldn't do that to a real computer either. First type "exit" to close your terminal window. Then always use the "power button" in the lower right corner of the Lubuntu desktop to properly shutdown, otherwise you risk losing files or destroying your virtual machine entirely.