

## Computational Physics – Operational Instruction Sheet

If we had our way, you would all sit at the server terminal and do all of your work (and homework submission) right there on the server, using the server's editors, gcc compiler, gnuplot data plotting routine, etc. But, that would be a mess if everyone tried doing that. So the idea is to enable you to connect to the server *remotely*, or, at the very least, have access to the server come time for you to submit your work. The following scenarios are all possible ways of operating in our class – pick the one that best describes your setup.

### **Are you working on a lab computer in *Linux*?**

This is the simplest scenario. Here, you do all of your work in the “/home/CompPhys/CompPhys/” *local* directory from a terminal window. The only time you should log onto the server is to save your work for access outside of lab or to submit your assignments. To access the server, just use “*ssh*” to execute command line functions such as “*submit assignment.c*” and use “*sftp*” to transfer data files back and forth. See the sheet titled “Server communications in a nutshell”, attached, for more info. As a reminder, log onto the server via ssh using:

```
ssh comp1.phys.appstate.edu -l userid
```

and sftp using:

```
sftp userid@comp1.phys.appstate.edu
```

where *userid* is your 7-character appstate student email address (or staff email).

### **Are you working on a lab or remote personal computer in *Windows*?**

Here, you need to gain access to a *linux* system which is available to you as our server. Your windows machine will act as a “dummy terminal” and all of your actual work will be done on the server. You can still transfer files back and forth between the server and your windows machine, but be warned, do not edit your files on your windows machine and then put them back to the server for compilation – most windows systems use a *non-ascii* editor (such as *Wordpad*) which embeds weird characters into your file, causing the gcc compiler on the server to spit out unwanted errors. Command line (ssh) and file transfers (sftp) can be achieved in one of two ways:

1. Log onto the server using PUTTY.EXE, a Windows *ssh* client that you can download from:

<http://www.chiark.greenend.org.uk/~sgtatham/putty/download.html>

Do all of your file transfers via WinSCP, a Windows sftp client, that you can download from:

<http://winscp.net/eng/download.php>

(select WinSCP 4.0.3 Installation Package).

2. To run any application that requires a GUI (graphical user interface)- serviced through a linux *Xterm* - , you will need to install *Xming* onto your computer. *Xming* replaces “ssh” as your command line vehicle but also provides the GUI support needed to run things like *gnuplot*. You will still need WinSCP to do sftp file transfers (see part (1.) above). See the “*Xming* install instructions”, attached.

Finally, reference “Server communications in a nutshell” for more info.

### **Are you working on an Apple/Mac personal computer?**

If you’re running OS-X (if you have a relatively recent Apple machine, then you are), you are actually running a form of *linux* whether you realize it or not. However, you will likely need to download and install the *emacs* editor, the *gcc* compiler, and the *gnuplot* plotting routine before you can work independently of the server. To get *gcc*, go to:

[http://www.tech-recipes.com/mac\\_system\\_administration\\_tips726.html](http://www.tech-recipes.com/mac_system_administration_tips726.html)

which has links and simple instructions. To get *gnuplot for Mac*, go to

<http://www.gnuplot.info/>

and to get *emacs for Mac*, go to

<http://www.webweavertech.com/ovidiu/emacs.html>.

### **...once you’re on the server via “ssh” or PUTTY.EXE, here are some helpful hints.**

Do all of your work in your */Users/userid/Comphys/* folder (you may need to *mkdir Comphys*). If you’re only running *ssh* (or *PUTTY.EXE*), you can not execute *gnuplot* or any other application that requires graphics. Also, you must run an *ascii editor*. However, you can do all of your file management (*cp*, *mv*, *rm*, *mkdir*, etc...) and you can submit your assignments via *submit assignment.c*. If you’re running *Xming*, you can do anything you like, including run *gnuplot* and *emacs* (or *xemacs*).

Common files that everyone will want access to on the server can be found in the */Users/Shared* folder. Please don’t fiddle around here, just “*cp*” files *from* here to your working directory.