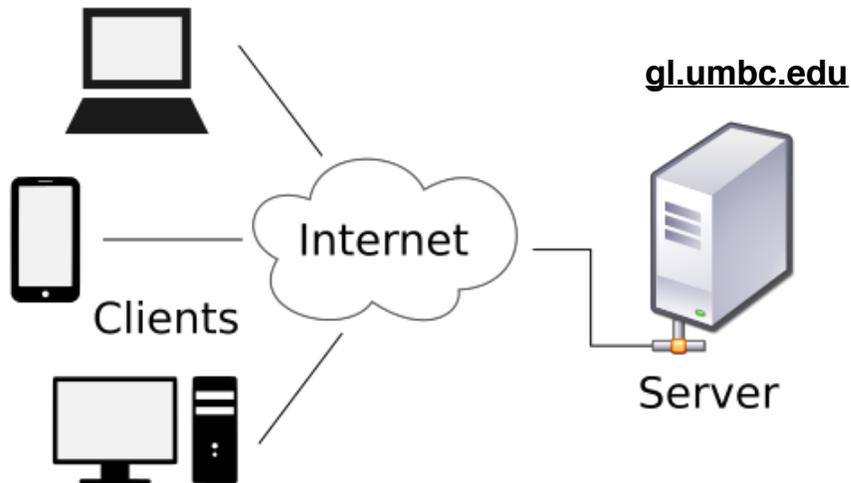


## What software do I need to access GL?



(Image from Wikipedia; LGPL)

The GL Linux servers are sitting in a room somewhere on campus (I don't know where); to use the servers, you must be able to connect to them over the Internet.

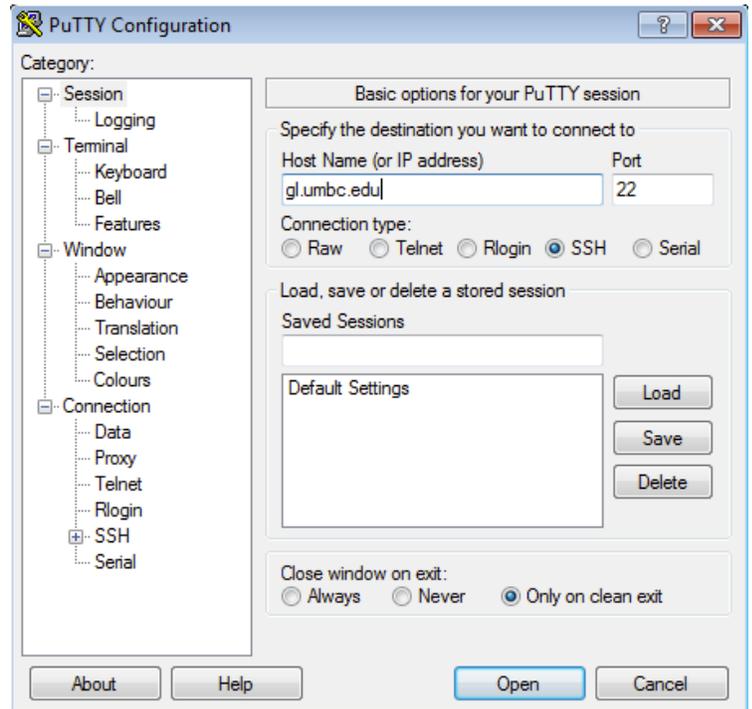
There are two things you need to be able to do to use GL to work on and submit your projects:

1. Interact with the GL Linux servers using a *secure shell (SSH) client*. This software allows you to interact with the computer as though you were sitting at a terminal directly connected to the server.
2. Move files between your computer and the GL Linux servers. This is done using a *file transfer program*.

Exactly which software you need depends on the operating system (Windows, Mac, or Linux) on your computer.

# Windows

For Windows, I recommend the PuTTY SSH client. The software can be obtained from [putty.org](http://putty.org). Once PuTTY is installed, run it and enter [gl.umbc.edu](http://gl.umbc.edu) in the "Host Name" box. Click the "Open" button.

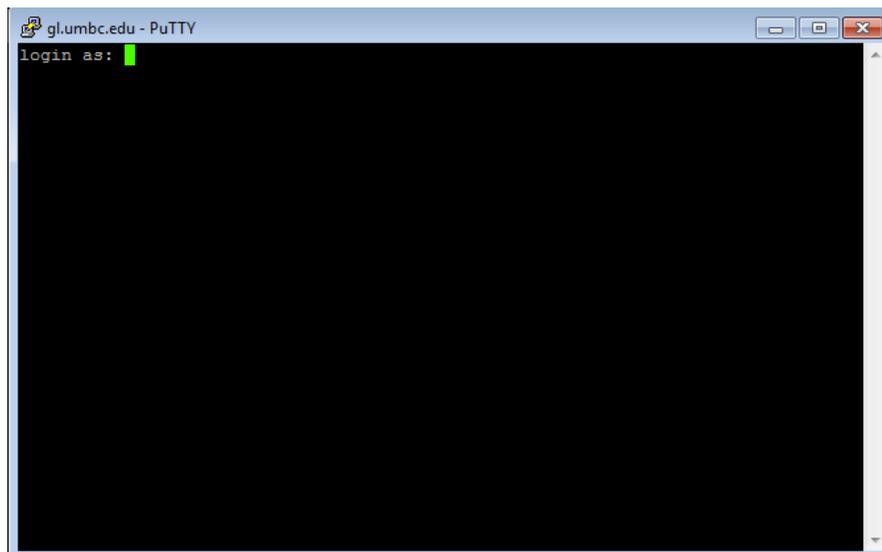


The first time you run PuTTY, you may see this window (or something similar). You can click the "Yes" button.



Next you will see the GL login prompt. Type your UMBC user name; when prompted for a password, enter your UMBC password.

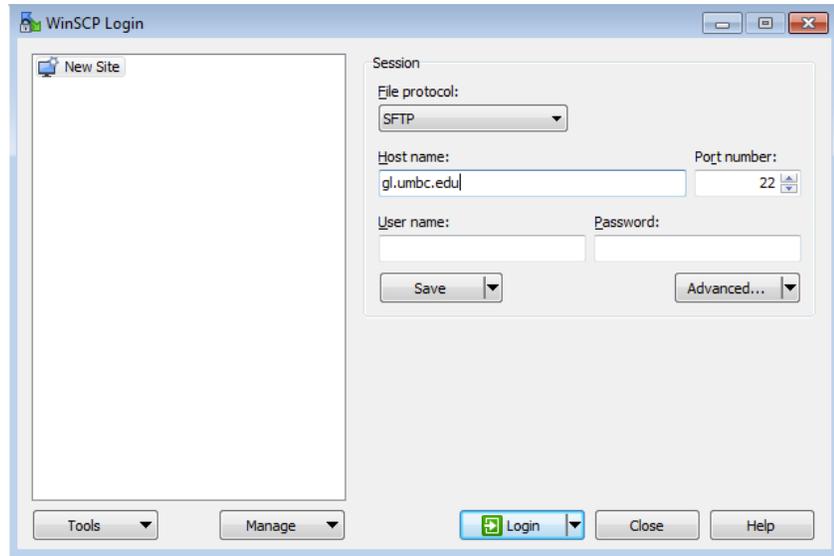
At this point, you are logged into GL and can start interacting with the Linux operating system.



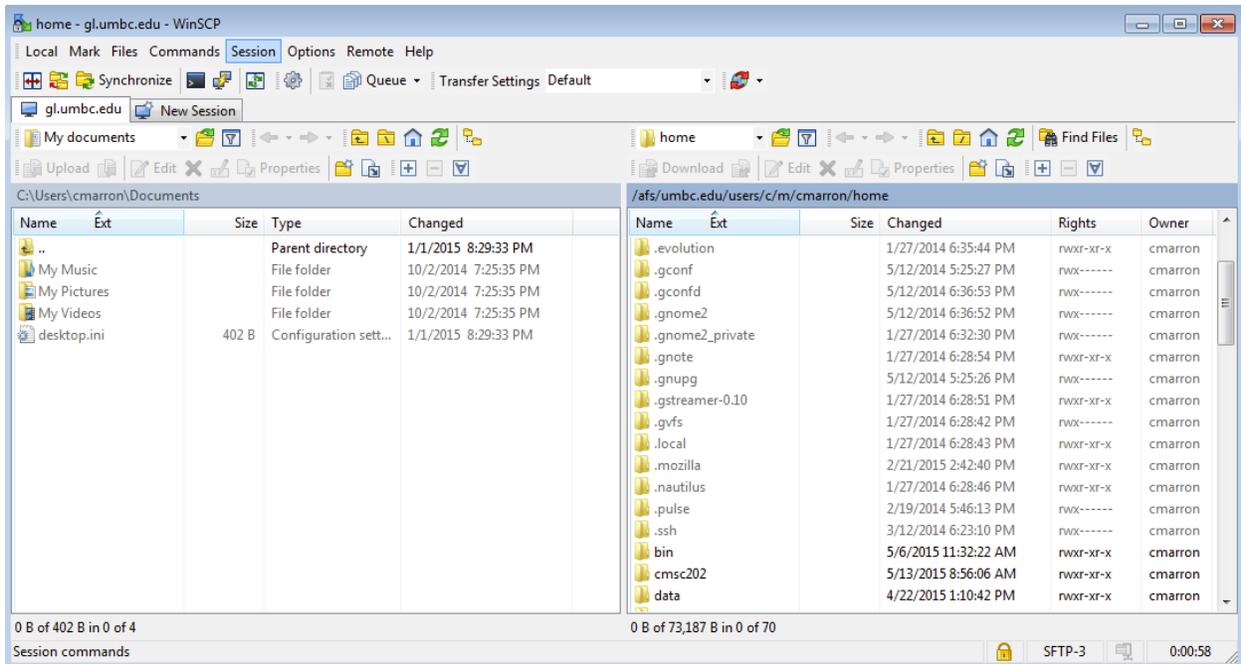
For file transfer on Windows, I recommend WinSCP (Windows Secure Copy). The software can be obtained from [winscp.net](http://winscp.net). Once it is installed, run it, and you should see something like the following:

Enter [gl.umbc.edu](http://gl.umbc.edu) in the "Host name" box. Click the "Login" button and you will be prompted to enter your UMBC user name and password.

After you enter your user name and password, the WinSCP browser window will appear.



In the browser, the left pane shows the file system on *your computer* and the right pane shows the file system in *your account on GL*. You can transfer files between your computer and GL by dragging and dropping files between the left and right panes.



**Alternatives:** TeraTerm is an alternative SSH client; there is also the SSH app for Chrome. The FireFTP file transfer tool is a Firefox extension that can be used on Windows, Mac, and Linux. Instructions for installing these applications are on the Resources section of the course website.

## Mac

You do not need to install any software to use your Mac to connect to GL, but you do need to open a Terminal window. The Terminal program is probably in the Utilities sub-folder of the Applications folder.

In a Terminal window, type the command

```
ssh username@gl.umbc.edu
```

where *username* is your UMBC user name. You will be prompted to enter your UMBC password. The first time you use ssh to connect to GL, you may receive a message about trusting the host key — you can just answer "yes" to the prompt. At this point you will be logged in to GL and can start interacting with the Linux operating system.

For file transfer on the Mac, you can use the secure copy (scp) command. As with ssh, you will need to open a Terminal window. To copy a file from your computer to GL, you would enter

```
scp localfile username@gl.umbc.edu:remotefile
```

where *localfile* is the name of the file on your computer that you wish to copy to GL, *username* is your UMBC user name, and *remotefile* is the name (and optional path) to which the file should be copied on GL. For example, to copy the file proj0.cpp from my current directory on my Mac to my cmisc202 directory on GL, I would enter the command

```
scp proj0.cpp cmarron@gl.umbc.edu:cmisc202/proj0.cpp
```

To copy a file from GL to my local machine, I reverse the arguments. For example, to copy Makefile from my home directory on GL to my current directory on my Mac, I would enter the command

```
scp cmarron@gl.umbc.edu:Makefile .
```

**Note:** "." is shorthand for the current directory.

Be careful with scp; as with the cp Linux command, it is possible to overwrite existing files. If you get the arguments in the wrong order, you could overwrite a new version of a program with an old version, losing hours of work.

If you prefer a graphical file transfer tool similar to WinSCP, there are a number to choose from on the App Store (or by download from the developer).

## Linux

If you're running Linux on your computer, you probably already know how to use ssh and scp; if not, see the instructions for the Mac.