File Transfer with SSH

To complete the lab experiment reports, the student is first required to upload the report templates from the course website to his OIT UNIX account home area. From there he has to download the files necessary for his lab report to his desktop, modify them and finally transfer them back to into the appropriate directory in his UNIX account.

1). Installation of SSH (Secure Shell):

For Windows operating systems, SSH can be downloaded to your computer via the course websites. Follow the link at "Technical Help", or download from here. Next double-click the file to start the installation process. The setup will install two new icons on your desktop, one for the SSH Secure Shell Client (Terminal), and one for the SSH Secure File Transfer Client (FTP).

2).   Transferring files using SSH:

Double-click the SSH Secure File Transfer Client icon on your desktop window. This will start the SSH GUI (see Figure 1).
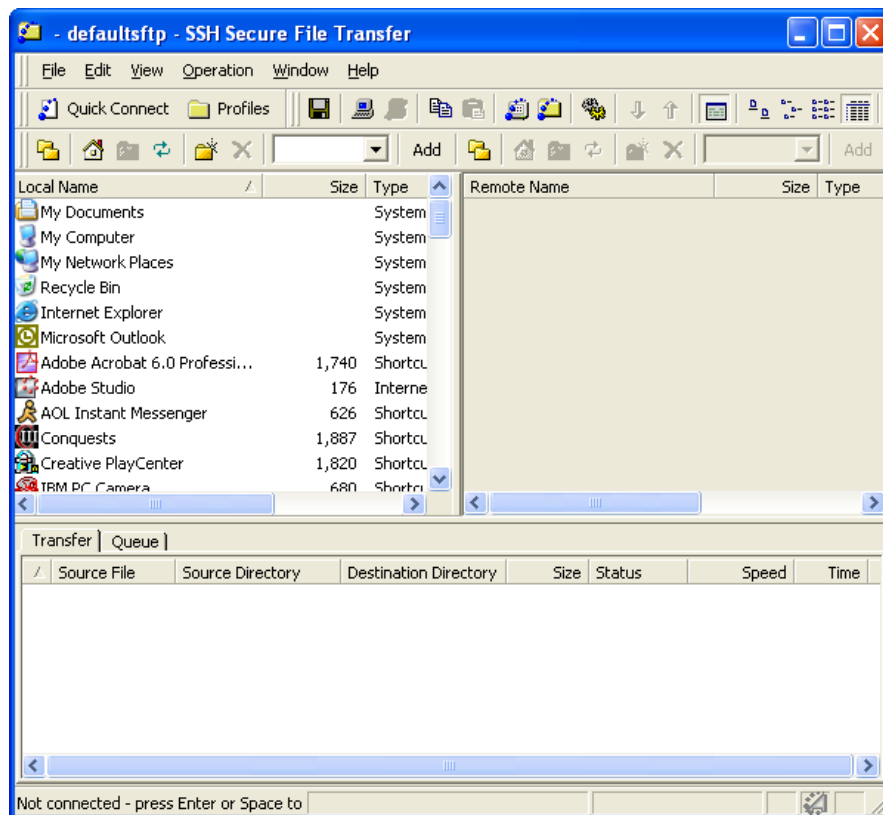

Figure 1. SSH Secure File Transfer GUI

Next click on "Quick Connect" in the third menu bar from above. A new window comes up in which you have to enter the host machine you want to connect to, as well as you username for your OIT Unix account (Figure 2). The username/password combination should be the same as your NetID (see your UTK e-mail). If you do not have an OIT Unix account, you need to get one.

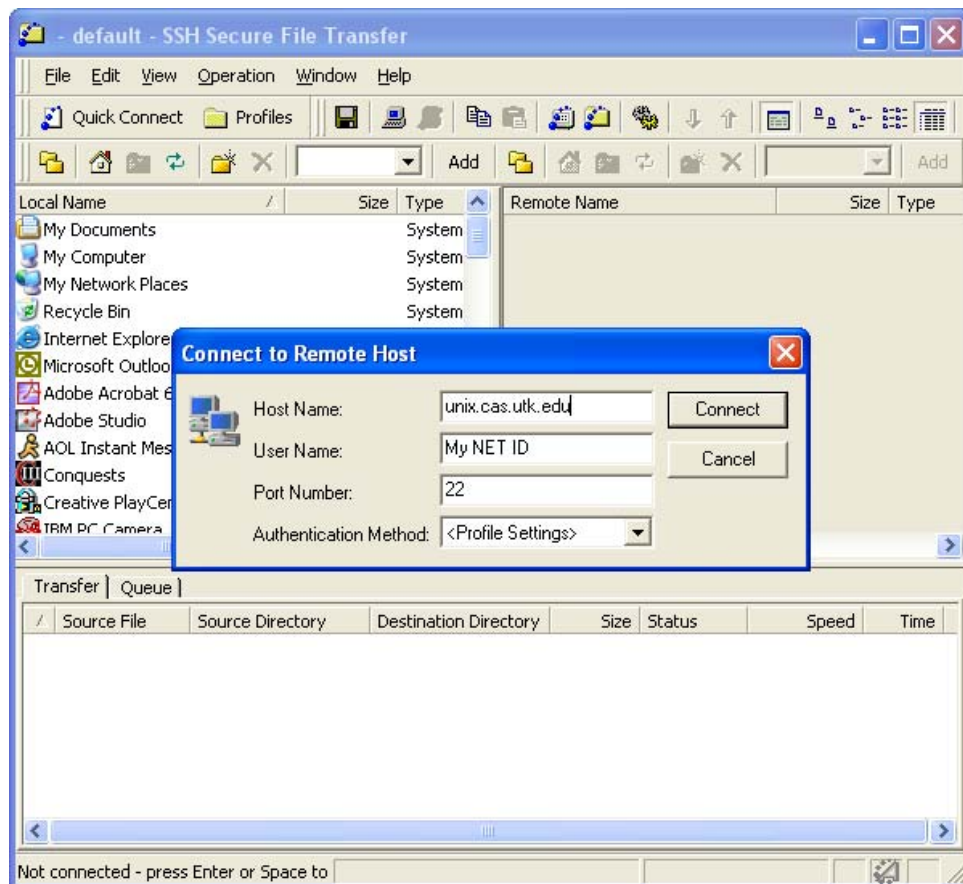Enter the host name of the public OIT Unix server, *unix.cas.utk.edu*, your Net ID and then press "Connect".

Figure 2. Quick Connect

If this is the first time you connect to that machine, you will be ask if you want to save the fingerprint of that new host to the local SSH database (see Figure 3). Press "Yes".
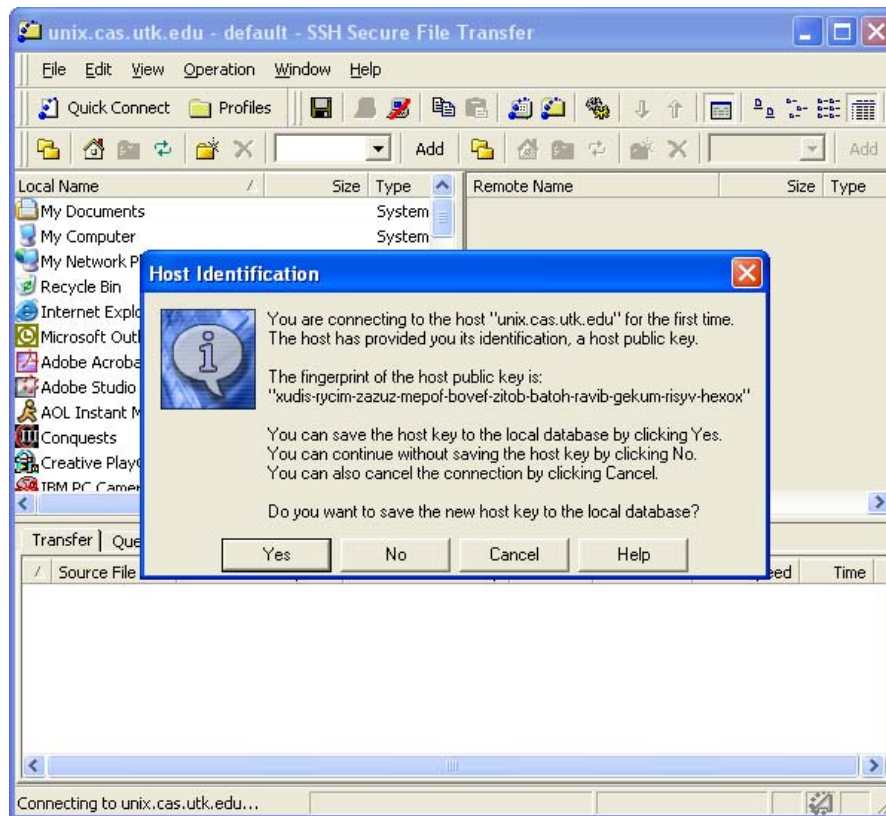
Figure 3. Host Identification

Next the program will ask you for the password (Figure 4). Insert the password that is connected to your OIT Unix account.
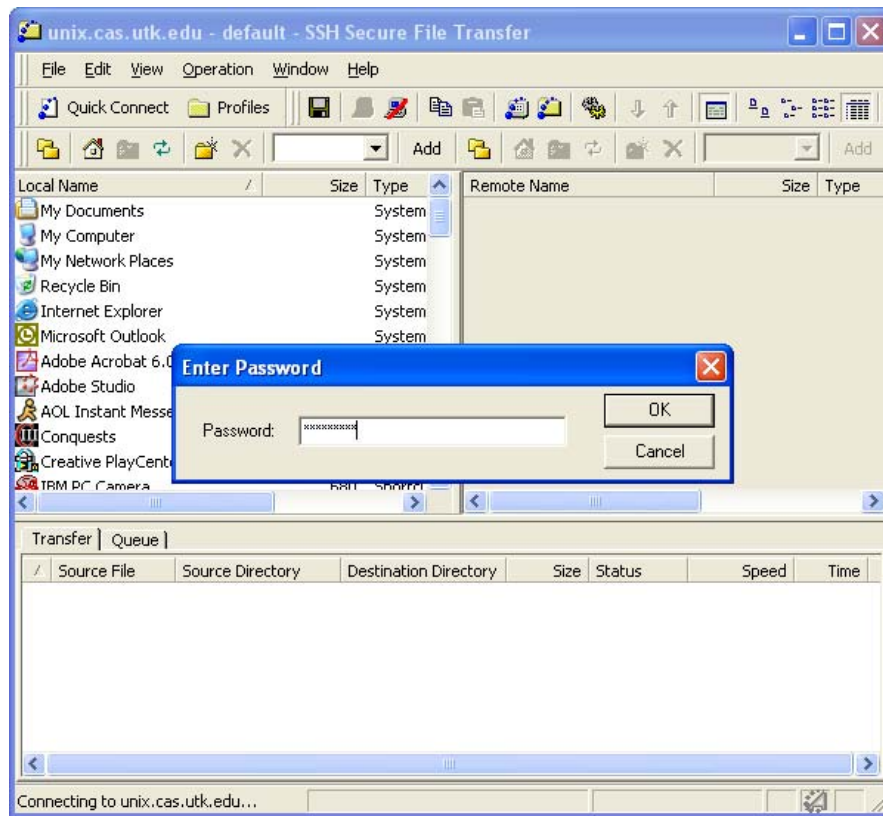
Figure 4. Password window

To save time in the future you can now save all the login information in a so-called profile (Figure 5). This window will only stay open for several seconds. Enter the name you want to give the profile, e.g. OIT Unix, then press the "Add In Profiles" button. From now on, instead of using the "Quick Connect", just go to the "Profiles" button, and choose the profile you saved earlier. It automatically inserts all the required connection information and will only ask you for the password.
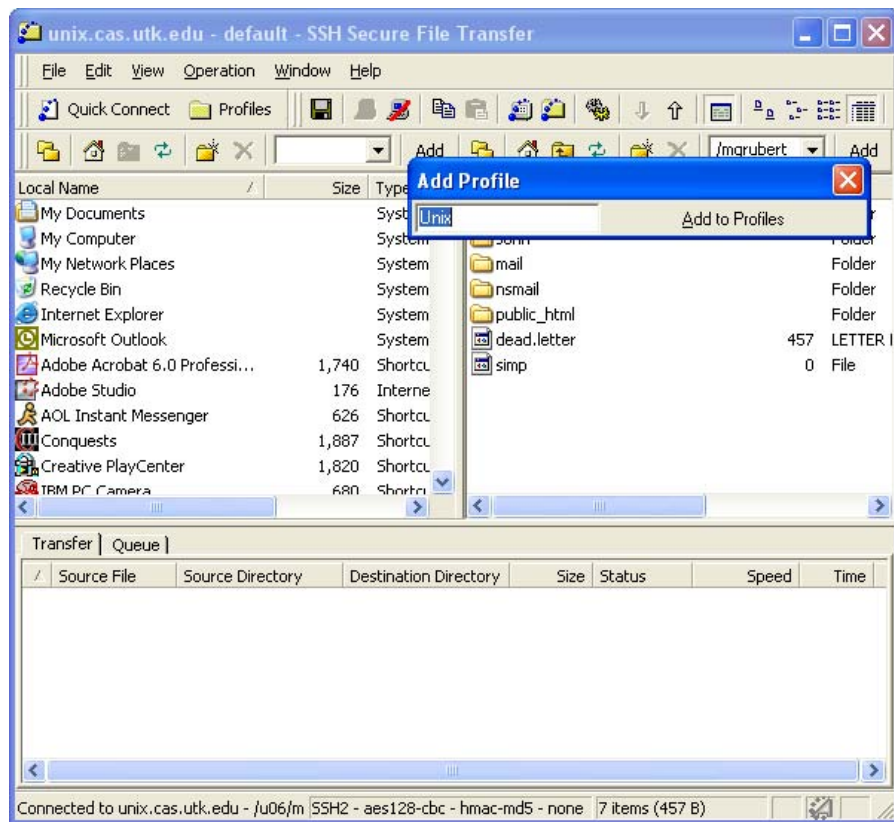
Figure 5. Add Profile

Files on the computer have certain permissions. Those limit or grant access to certain features of the file, e.g. how you can read them, change them, etc.
It is important that the report files you transfer stay world-readable, otherwise you will be the only one who can read them and the instructor will not be able to grade your work.

On the top menu bar, click on "Edit", then "Settings". Scroll down until you find "File Transfer" (see Figure 6). Click on the "Advanced" selection and make sure that in the paragraph labeled "Upload" the checkbox before "Preserve original destination permissions" has a marker. Then press "OK".
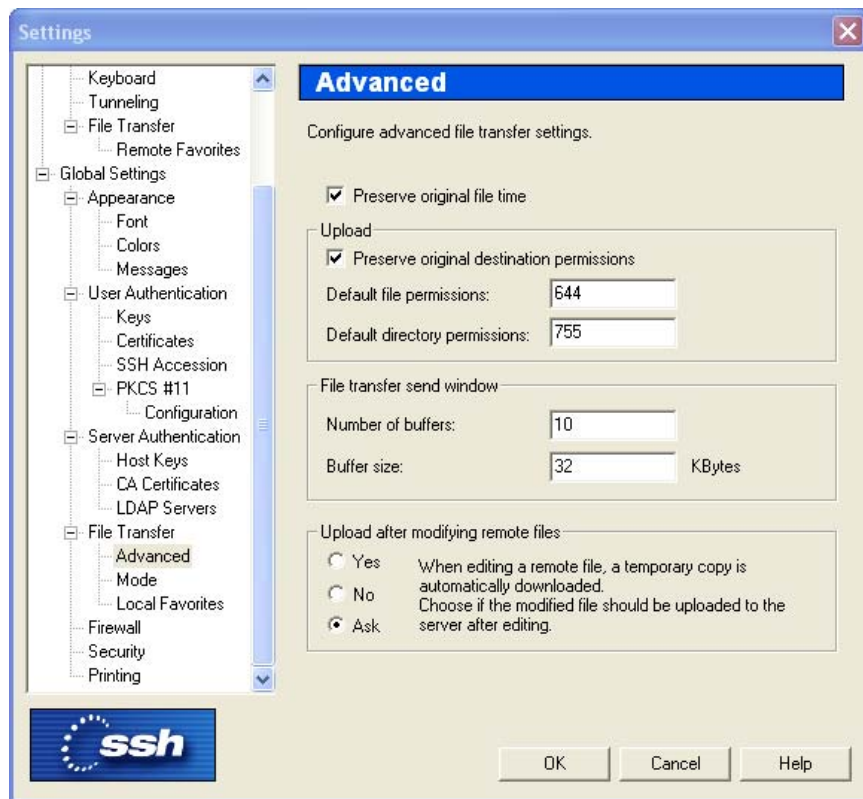
Figure 6. Settings for File Permissions

Now you see the GUI for the file transfer client (Figure 7). It consists of two windows, the one on the left, which shows the directory structure on your home machine (the machine you are sitting in front of), and the one on the right, which shows the directory structure of your host machine (the one you logged in remotely at OIT, e.g. Unix.
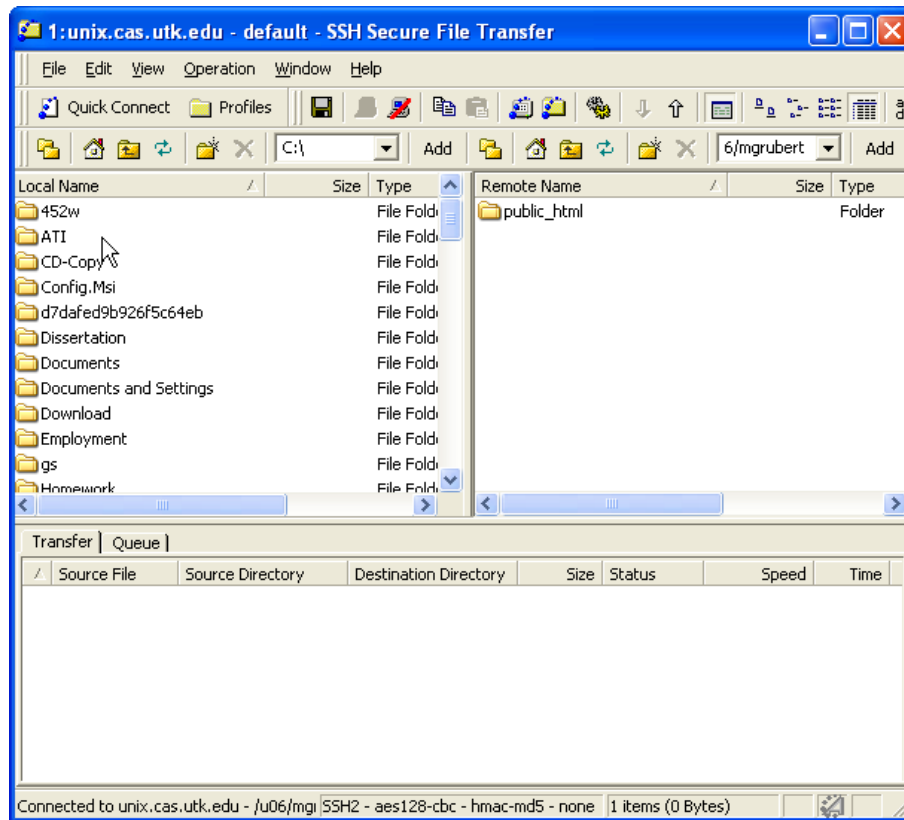
Figure 7. File Transfer Client

You will see a *public_html* folder in the right window. This is where all you publicly accessible files are stored, like websites and such. Click on the folder.

Next you have to download the Lab report templates from the course website, or directly from here, to your desktop. Extract the compressed file. Depending on the program or web browser you use, the file content might be extracted in a sub-folder. Figure 8 shows the desired directory structure for your OIT Unix account. If the extraction of the file was successful, you should see a folder labeled *452w* on your desktop. You can double-click on the folder to make sure that the directory structure is the same as in Figure 8.
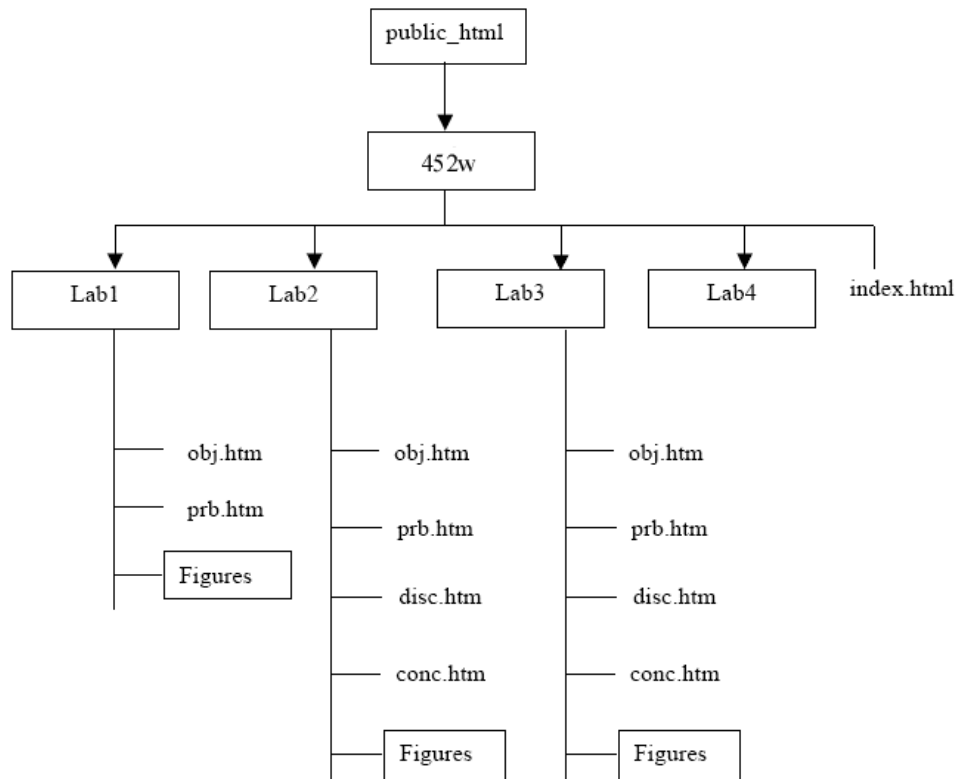
Figure 8. Lab report directory structure

Now drag the folder *452w* over to the right window of your SSH GUI. This will upload the *452w* folder under the *public_html* directory on your OIT Unix account (see Figure 9), hence makes it accessible for everybody to see as a webpage.
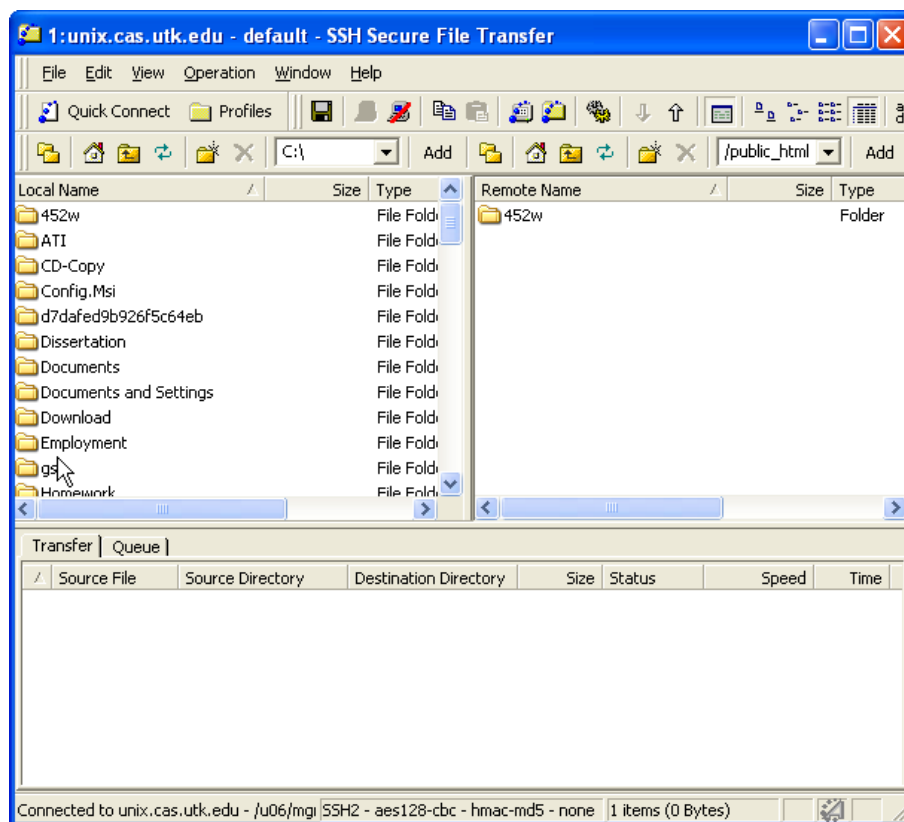
Figure 8. 452w lab reports installed in *public_html* area

After the file transfer is complete, click on the 452w folder in the right window of you SSH GUI. You should now see the different Lab folders, as well as an *index.html* file. This file is what you see when you go to the Student Labs link at the course website and click on a student name. It contains all the links to your different lab reports. Let's look what's in a Lab folder. If you click for example Lab 4, you can see a folder labeled *Figures* and several *.htm* files (see Figure 9). Those *.htm* files contain each a webpage for your lab report. The information you find in those pages is as following:

- obj.htm   Objective
- prb.htm   Problem Statement
- disc.htm   Discussion/Results
- conc.htm   Conclusion

For Lab 1 you will need to update the Objective (*obj.htm*) and the Problem Statement (*prb.htm*), for all the other labs you will need to update the Discussion/Results section (*disc.htm*) and the Conclusion (*conc.htm*).
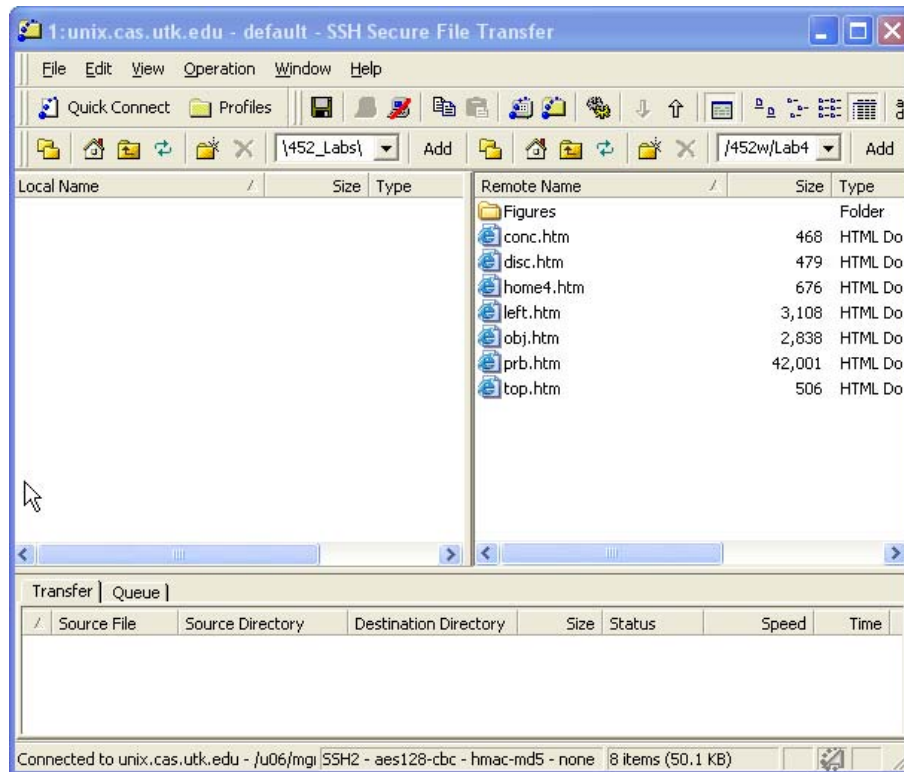
Figure 9. Lab 4 files

Also in Figure 9 you can see that each of the directory windows in the SSH GUI has a menu bar above them, which are identically and allow the user to change directories, create new folders, refresh the window, etc.
To transfer files you choose the destination folder in the left window, e.g. My Documents, or just create a new folder on your C: Drive, e.g. 452w_Labs. Then you drag the files you want to copy from the host machine to your local machine by holding the left mouse button over the file in the right window and moving it over to the left window. Alternatively you can just double-click the file in the right window.

Figure 10 shows the GUI after the files conc.htm and disc.htm have been successfully transferred to your local machine.
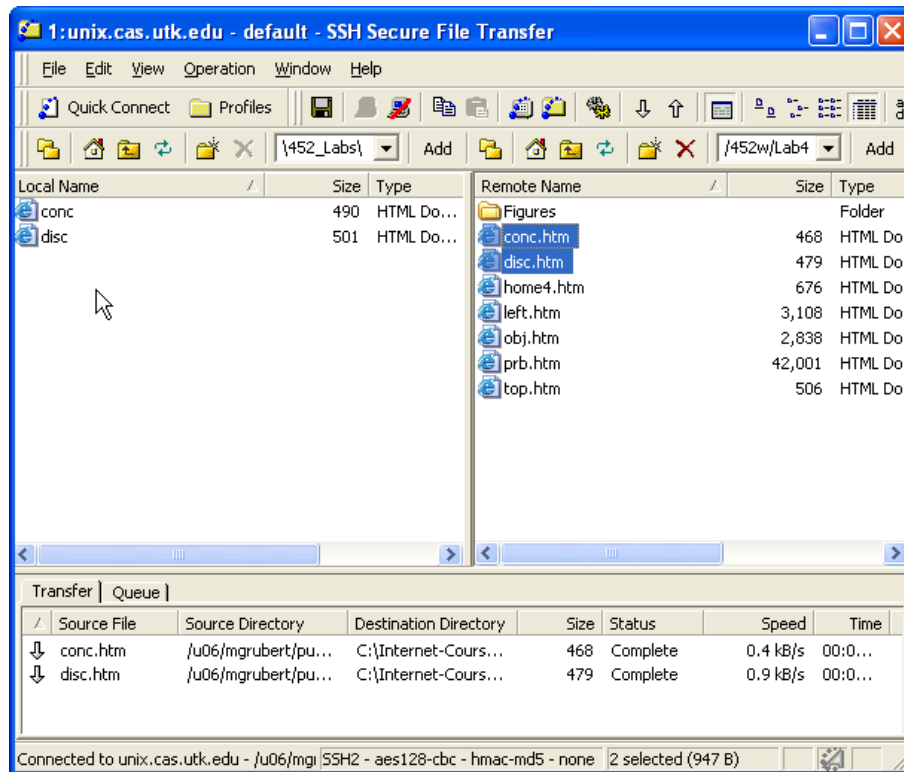
Figure 10. Successful transferred

3) Updating the files

Now you need to update the files you just transferred. To change the content in an *.htm* file, you can use Microsoft FrontPage, Microsoft Word or Dreamweaver. Most Windows computers have at least Microsoft Word.

Start the software and then open the files you transferred earlier. Write your lab reports and include pictures, tables and formulas, depending on the results. Note that if you include pictures or equations, there is a possibility that those are not being saved in the *.htm* file itself, but within a subfolder, e.g. *disc_files*. It is important that you copy this subfolder as well when you upload the corrected files to you OIT UNIX account. If you rename the folder, or move the files into a different folder, the pictures and equations will not show up in your uploaded report, since the computer will not be able to find the files in the specified locations.

When you are done with your work, click the "Refresh" button (green arrows) above the left window in your SSH GUI, then drag the updated files from the left over to the right window (host machine).

It is advisable to check your results afterwards by going to the Student Labs on the course website. Don't forget to send e-mail to Dr. Baker (ajbaker@utk.edu) to inform him that your lab report has been posted.