

FIT 100: Lab 1

Files and Directory Structures I

Introduction

For many of you this course is an introduction to a variety of new concepts, tools and technologies. Labs for FIT 100 are designed to help you learn the use of these tools in a logical and structured fashion.

What you learn in today's lab will show you how to store documents in your remote account (Dante). Here are some good reasons to back up your work to Dante instead of a floppy disk:

- A larger storage space for lab and project work (each student receives 100 MB of file space, a floppy disk is 2 MB)
- You don't have to carry around a disk or be physically located at a machine holding your work. You can work at a different machine each time as long as you have an Internet connection and the SSH client.
- Your floppy may be damaged carrying it in your backpack!!!!!!
- Backup! A lifesaver if your computer dies....!

For today's lab you should already have your email account up and running.

Remember: Directory = Folder

Reading

Read the full lab, especially the [Reference](#) section

Objectives

- To become comfortable with the concept of navigating directory structures to get to files stored in different locations.
- To create a folder (directory) on the local machine in a specific location.
- To create a folder (directory) on the remote machine (Dante) that is holding your user account using SSH.
- To move files (documents, etc) from a folder on the local machine to a folder inside of your Dante account and vice-versa

To Do

- 1. Create a directory on your local computer**
- 2. Connecting to your remote account using a file transfer graphical interface**
- 3. Create a directory remotely using a GUI**
- 4. Transfer files and folders between local and remote computers**

To Submit

To check out for this lab, be able to show your TA the folders you have created within your Dante account.

Details

1. Create a directory on your local computer (see [Reference on Directories](#))

1.1. Navigate to and create a directory (folder) locally using Windows Explorer

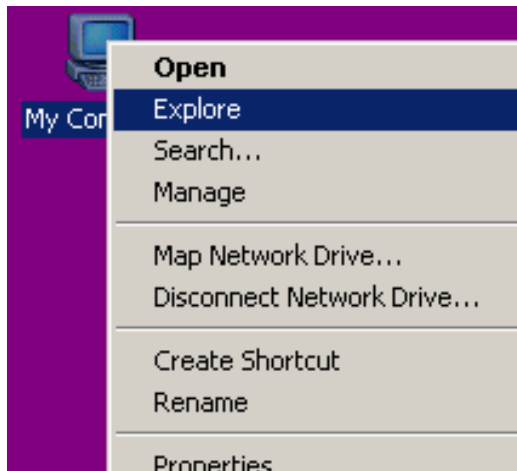
Windows Explorer is NOT Internet Explorer. Windows Explorer is the program on the Windows operating system that allows the user to create directories and organize and search for files.

1.2. Open **Windows Explorer**

1.2.1. Press <Window key> + <e> key [Your TA will demonstrate]

OR

1.2.2. Move your mouse over the My Computer icon, right click and select Explore



OR

1.2.3. Go to the Start button in the lower left of the screen:

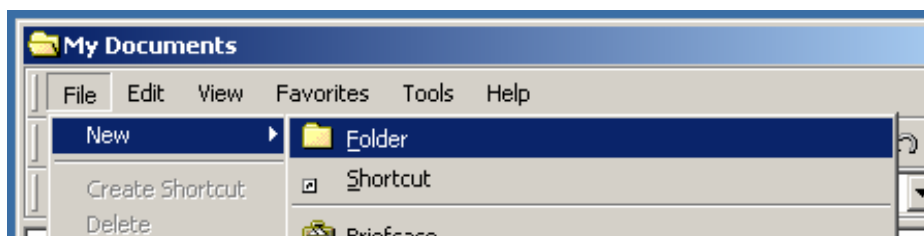
Start>Programs>Windows Explorer

1.3. Create a directory called **EraseMe** in this location:

C:\Documents\EraseMe\.

If there is no Documents folder on the C Drive, then go to **My Documents**.

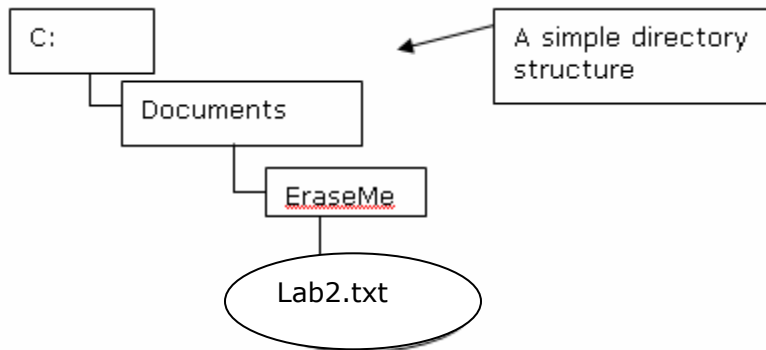
You will first move to the **C drive**, then to the **Documents** folder. Once there, go the file menu in the upper left of the screen. From the options select **New>Folder**. Name your folder **EraseMe**.



- 1.4. Open Notepad and create a new document called **Lab2.txt** (type in a few lines of text, then save). Save Lab2.txt to the following location:

C:\Documents\EraseMe\Lab2.txt

C is the top of the structure in this path, the **root** of the directory.

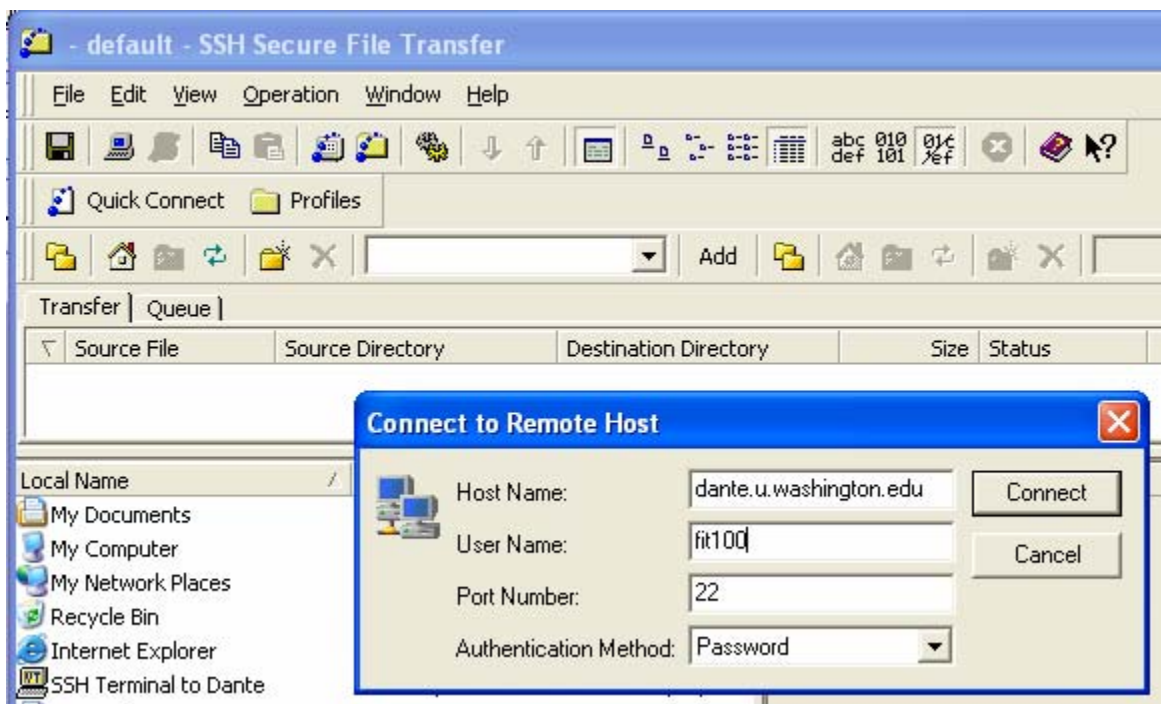


You will need the file Lab2.txt in a few steps.

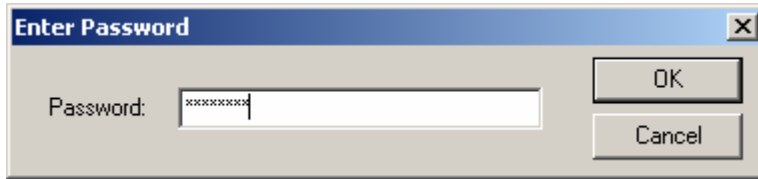
2. Connecting to your remote account using a file transfer GUI

A simple way to move files over the Internet between local and remote directories is by using a secure File Transfer Protocol (SFTP). This lab will demonstrate the secure application used for transferring files at the UW. It is called SSH Secure File Transfer.

- 2.1. Open SSH Secure File Transfer (the location may vary from lab to lab, your TA will direct you). Make sure the host computer name is **dante.u.washington.edu**:

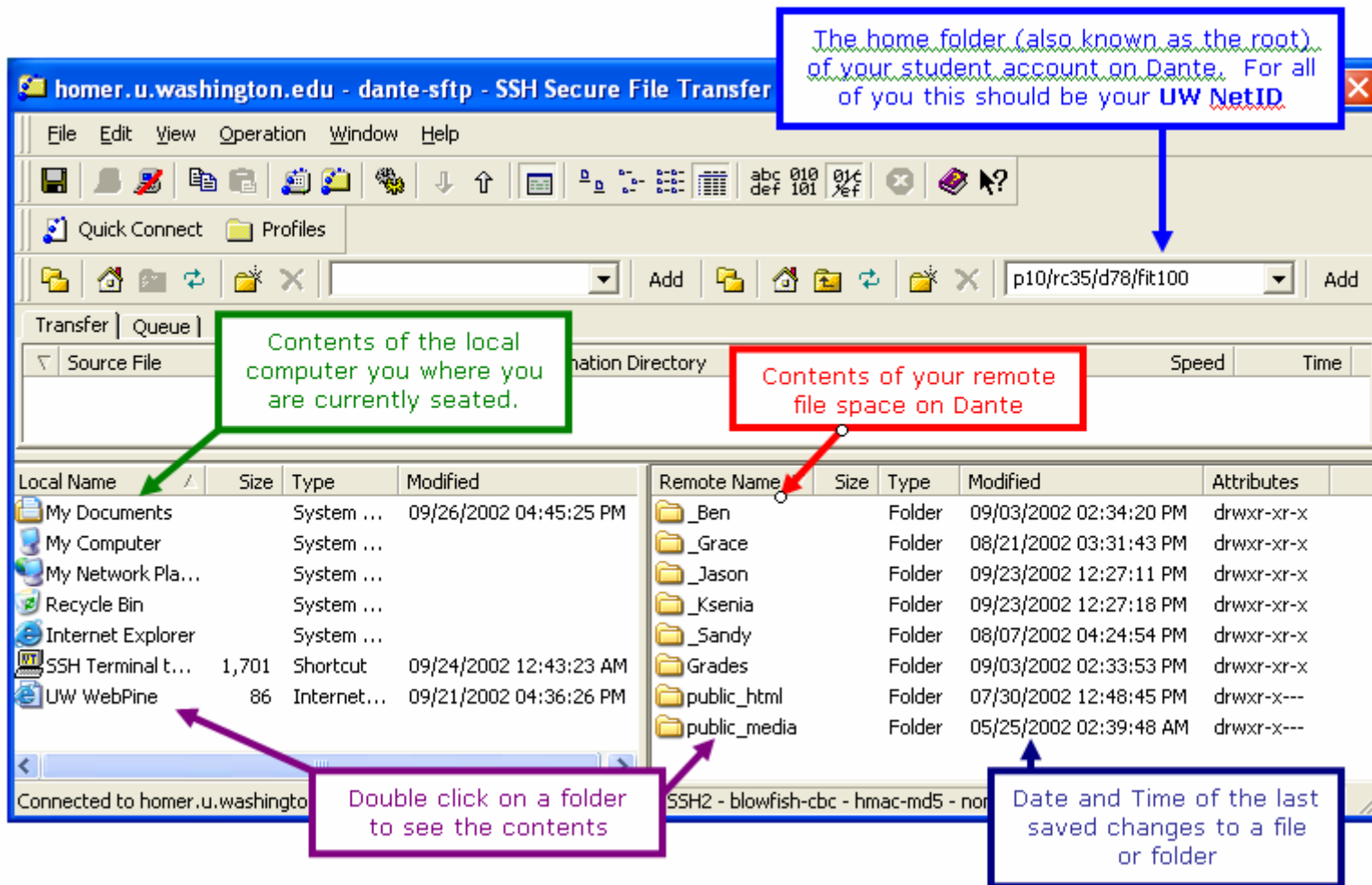


- 2.2. Enter your UserID (UW NetID) in the User Name text box and click the connect button.
- 2.3. If you have not used SSH Secure File Transfer on this machine before, you will be asked if you want to store the public key in a database. Simply click "Yes" and then enter your password on the next screen.



When you have completed entering your password, your home directory, known as the root directory, on Dante will be displayed on the right and the folders and programs from the desktop of the local computer will display on the left.





The left side of the interface displayed above shows:

- the directories (folders) that are on the local computer (usually what you see on the desktop)
- the size and data type of the folder or file
- the last time the folder or file was modified (changed and saved)

The right side displays:

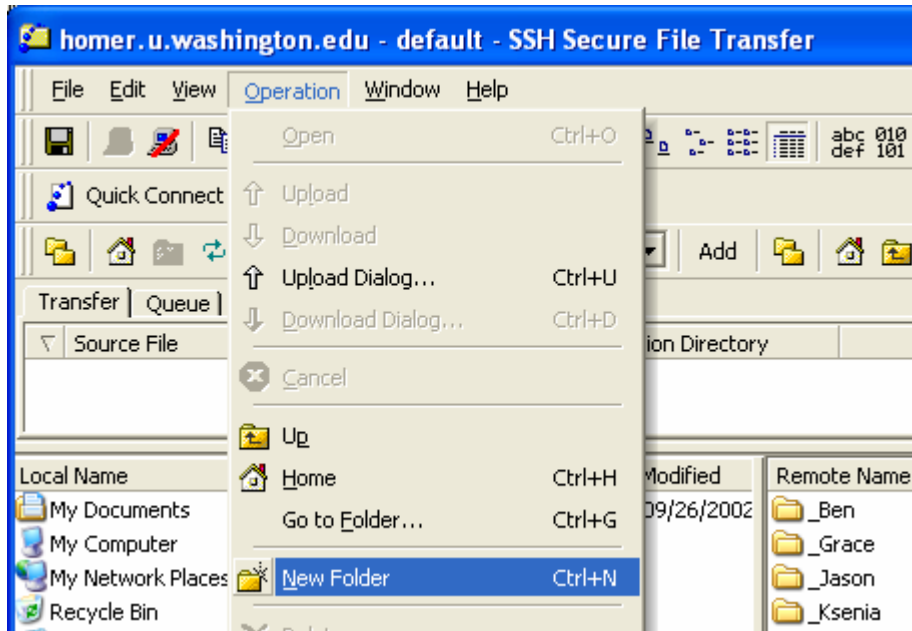
- The contents of your remote file space. The name given to this space is the same as your UW NetID. Inside of this root directory many of you will not have any directory (folder) other than your public_html folder.
- The last time the folder or file was modified
- What the size and data type the folder or file is
- The permissions that are currently set on the folder or file

3. Create a directory remotely using a GUI

3.1. Go to the Operation item of the menu bar up on top.

3.1.1. Select New Folder and make a directory called **fit100work** inside of your root directory.

(**HINT:** you are placed in the root when you first enter your account, so what you see on the right side of the SFTP window is inside the root.)



Your root, or home directory, is the top level of your remote account on Dante. You can always get there by clicking on the Home icon on the right side of the tool bar.

3.2. When you finish, the new folder should appear on the right side. Double click on the folder, and an empty screen will appear on the right side. You are in the **fit100work** directory.

3.3. Create more folders in your remote account (Dante). These folders will hold your future projects. Place them *inside* your new **fit100work** folder for better organization for your class work:

3.3.1. Create 2 folders inside fit100work: **labs** and **projects**

3.3.2. Go into projects and create 3 more folders:

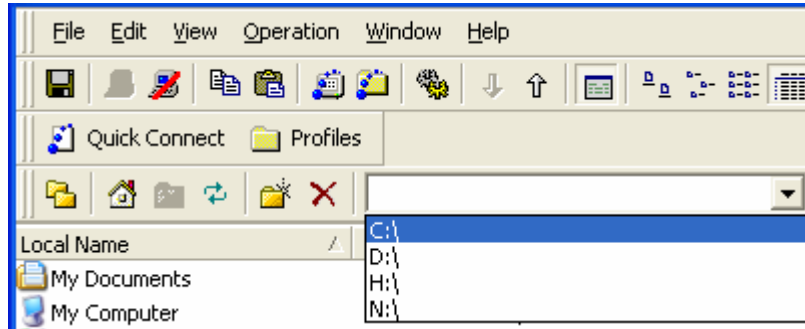
project1
project2
project3

NOTE: Do **NOT** use spaces, commas, or dashes in your folder names. Use **ONLY** letters, numbers and the underscore character.

Use these folders to store copies of your projects as you work on them from different locations on campus.

4. Transfer files and folders between local and remote computers

- 4.1. On the **right** side of your screen (your Dante account space), move into the **labs** folder you just created.
- 4.2. Use the **left** side of the SFTP window to navigate to the Lab2.txt file created on the local computer in Detail 1. You should go to the C Drive to begin.



- 4.3. Double click in the **Documents** folder and then on the **EraseMe** folder to find **Lab2.txt** file.

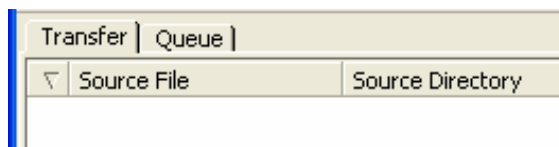
Dragging and Dropping Files

A simple way to download from **Dante** is by using the drag and drop method: left click on the file you want to download from your Dante account, hold down on the left mouse button and drag the icon to the local folder you want to place the file into. Release the mouse button and a copy of the file has been downloaded to your local directory.

- 4.4. Click once on Lab2.txt to highlight it and drag it over to the right side of the screen to upload.

There are other ways to upload files from your local computer to your remote space as well. Explore the SSH client window to try and find them.

- 4.5. A copy of Lab2.txt has now been sent to your Dante account and appears on the right. There is also a log kept of what files are uploaded or downloaded during your session. See the Transfer tab on the screen:



- 4.6. Using SSH Secure File Transfer, perform the following exercises:
 - 4.6.1. Rename the folder (directory) that you created in your remote account on Dante. Change the name from **fit100work** to **fit100**.
 - 4.6.2. Transfer the Lab2.txt file from your **fit100** folder to just inside the C drive using the Download Operation.

NOTE: This is not the same location as earlier.

You should always download a copy of the file to a local folder that you decide upon. Make changes, save it, then transfer (upload) it back to your Dante account.

4.7. Exit SSH Secure Shell.

4.8. Log off the machine before leaving.

You now can create folders and move their contents between locations on the local machine and your remote account on Dante. This is a very helpful resource when you need to be able to access and work on documents at a variety of locations but may not have a disk to transport the work.

Next lab we will focus on a different way of moving contents between remote and local machines: command line.

Reference

Copying Files Across the Network with SFTP

SFTP (short for Secure File Transfer Protocol) is a standard method of sending files between computers through a network. To send a file using SFTP, you identify yourself with a *user name* (also known as a *login*) and a *password*. In this lab, you will use SFTP to put your first file on the web, i.e., use SFTP to make a file publicly available via HTTP.

An SFTP server is a lot like a bank for files, i.e., a computer on the network with lots of hard disk space that offers individual users access to private storage. Just like with a hard disk on your own computer, you can copy, delete and rename files on an SFTP server, as well as maintain folders to keep your files organized. You use SFTP client software to connect with an SFTP server, just as you use a web browser (web client software) to connect with an HTTP server (web server).

Local vs. Remote Directories: "What's the difference?"

What is a directory?

A directory, or folder, is a container for files. Just like the folders in an office file cabinet hold documents, a directory on your computer or any other, can hold files of all types. A directory is a way to organize related files in a manner that allows for quick retrieval. If you have your work divided into the various areas they pertain to, you can use folders to hold them in a logical manner.

There are many ways to define **local directories**. For this lab, local directories are referred to as the folders that are located on the C drive on the PC physically in front of you. Documents placed in folders at this location cannot be accessed at other campus computers. They are local to the machine in front of you.

Remote directories are folders stored on remote computers (called servers) that can be accessed from various computer labs on campus and even from home, if you have a way to connect.

To access remote files within folders (directories) from home, use the UWICK software kit.

(UWICK) UW Internet Connectivity Kit Information
<http://www.washington.edu/computing/software/uwick/>

Download UWICK kit if you have an Internet Connection:
<http://www.washington.edu/computing/software/uwick/starter/>

Absolute versus Relative Paths when pointing (referring) to files or folders

A:\INFO100\MyFirstLab\myfile.txt
C:\My Documents\My Webs\images\

Consider the two lines just above. Both are path names that refer to the location of a file or folder. Now look at the two lines below. They refer to the same file and folder above, but are considered relative path names.

myfile.txt
images\

It's all LOCATION, LOCATION, LOCATION!!! An absolute path name shows the exact path to the file. Starting from the drive it is located on, right down to the name of the folder or file itself. It always gives the exact location.

The second set of path names are known as relative path names. They are named relative to the current folder. The name "myfile.txt" is only useful to me if it is a file name I am looking for within the current directory. It would not be as helpful to someone just sitting down at the computer who didn't know where to start looking.








This same reasoning will be used when you begin to build web pages next week.

File Formats

Although all programs save their data on disks as files, they often store them in a special *format*, a way of encoding information. (File format is also known as file *type* and is shown under this name in the Windows file Properties dialog.)

The simplest file format is plain text, the format that Notepad and other text editors use, and files of this type are conventionally named with the `txt` *filename extension*. In Windows, every file format has a corresponding filename extension. Each file is displayed with the *icon* (small image) associated with the program used for the file format, like the little spiral-bound notebook for Notepad.

Notepad cannot open word processor document files (for example, those in Microsoft Word format), because they are in a format different from plain text that includes data for text style, such as italicization and underlining, in addition to the text itself. The table below lists some common file formats and their corresponding icons, as displayed on most standard Windows PCs.

<i>extension</i>	<i>icon</i>	<i>description</i>
Txt		plain text
Doc		Microsoft Word document
Htm html		web page (HTML source)
Pdf		Portable Document Format (Adobe Acrobat)
Zip		compressed set of files
Gif		GIF image
bmp		Windows bitmap image