Unix Tutorial

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Introduction

This guide is intended to help you with the Unix[1] command line. It assumes a working knowledge of a GUI-based operating system (Windows or OSX), but no knowledge of a command-line operating system (Unix or MS-DOS).

Typography

Commands to be entered will appear like this:

```
$ command arg1 arg2 arg3 ...
```

Note that the leading $ is not part of the command and should not be typed.

Connecting

USF students may request an account on the CIRCE[2] cluster. Visit the Cluster Web Access site at `http://cwa.rc.usf.edu` for more information.

A CIRCE account also allows you access to the C4 lab PCs. You may access these machines either via their console (in ENB 220) or via Secure Shell ("SSH"). The latter method is discussed here.

To access a remote computer via SSH, you need a SSH client.

- If you use Linux or OSX as your local OS, you can open a terminal (OSX: `/Applications/Utilities/Terminal.app`) and type:

  ```
  $ ssh yournetid@circe.rc.usf.edu
  ```

  (replacing "yournetid" with your actual NetID), then press Enter.

  When prompted, type your NetID password.

- If you use Windows, you need a third-party SSH client. My recommendation is PuTTY, which can be found at `http://www.chiark.greenend.org.uk/~sgtatham/putty/download.html`.

[1] "UNIX" (capitalized) is a trademark of The Open Group. The term "Unix" (mixed-case) is used here to refer to both UNIX and so-called "Unix-like" operating systems, such as Linux and OSX.

[2] Central Instructional and Research Computing Environment

Upon launching PuTTY, you will see a dialog box similar to figure 1. Enter `circe.rc.usf.edu` into the "Host Name" box and click "Open".

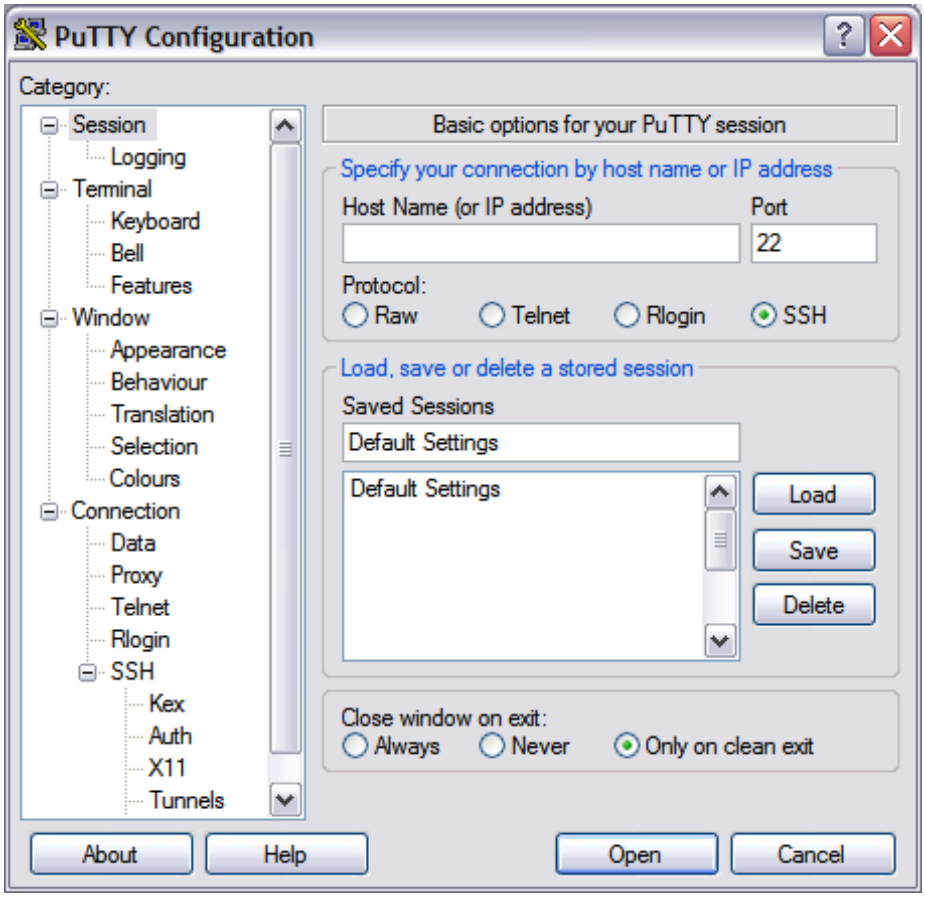

Figure 1: PuTTY's connection dialog box.

You will be prompted for your username and password; enter your NetID credentials.

Assuming your credentials are accepted, you'll see a screen similar to figure 2; this is the *shell*. The last line of output will end with a dollar sign ($). The dollar sign is the default Unix prompt[3]; it's the shell's way of telling you that it's ready for input.

[3]This tutorial assumes that the Unix system uses a variant of the Bourne shell, which is true for the vast majority of Unix machines. If you see another character, particularly a percent sign (%), then ask the local administrator for assistance.

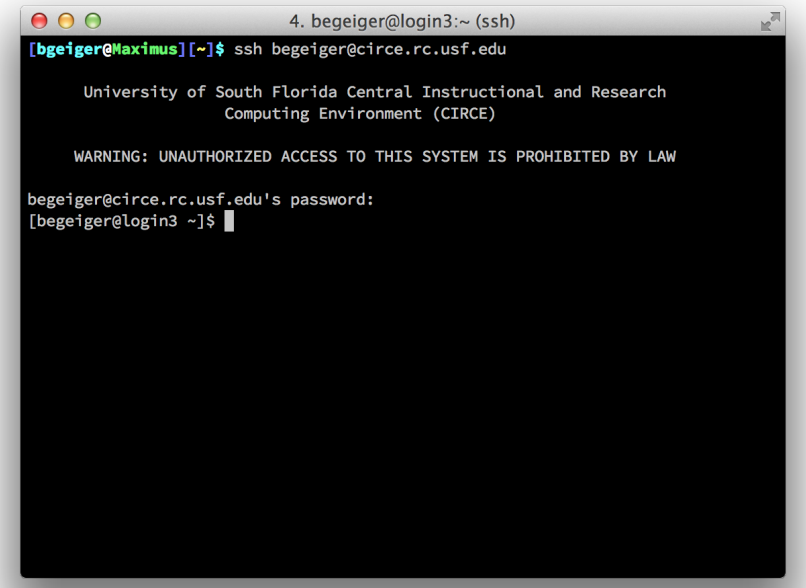

Figure 2: CIRCE's default prompt.

Looking Around

Unix, like other operating systems, keeps data in *files*, which are contained in *directories* ("folders" in some other operating systems). Unlike some other operating systems, all folders in Unix are in a single hierarchy, starting at the "root directory", designated by a single slash (`/`). Inside the root directory are other directories (`/usr`, `/etc`, `/home`, etc.); those directories themselves contain directories (`/usr` contains `lib`, for example).

A directory name is a list of all directories from the root directory, separated by slashes: `/usr/lib` or `/home/b/begeiger/Courses/MachineLearning`.

Command line environments, such as the Unix shell, have the concept of the *current directory*. Every shell can be considered to be "in" a certain directory.

To specify your current directory, type

```
$ pwd
```

and it will print the current directory as an absolute path from the root directory.