Using Linux

Tom Kelliher, CS 220

Sept. 12, 2007

The purpose of this lab is to get you up to speed quickly on the basics of Linux — enough to get started. Becoming a Linux guru requires years of devotion to the "one true way." For more information, refer to the plethora of links on the class home page. I can also give recommendations for Linux books to those interested.

GUI Connection to Phoenix

In any of the labs, look for *Start X @ Phoenix* on the *Start* menu to get a GUI login to phoenix.

Once logged in, open the *Applications* menu followed by the *System Tools* menu to start a terminal (shell/command prompt). From the *Accessories* menu (beneath the *Applications* menu), you can open a text editor (gedit). Double-click the home directory icon on your desktop to open the file browser.

To logout, open the *Actions* menu and choose *Log Out*.

SSH'ing to Phoenix

On the lab machines, look under the Programs menu for the SSH Secure Shell entry and choose Secure Shell Client. Click "Quick Connect," set the host name to phoenix.goucher.edu, fill in your user name, and click "Connect." You will then be asked to enter your password.

To access phoenix from your own computer, you'll need to install an SSH client. Follow the SSH link on my home page for various SSH client options.

Changing your password

The password I've given you is one only a computer could love. Well, it was generated by a computer, so what do you expect? You'll probably want to change it. Use this command from a command prompt: `passwd`. (Uh, that period ends the sentence, it's not a part of the command. Watch out for this in the following examples, too. OK?)

Editing Files

Three editors are available for shell users: nano, vi, and emacs. Nano is the easiest to use. It will remind you of wordpad. It's the least powerful of the three, meaning you'll quickly outgrow it and you will then curse it the rest of your miserable days. Discriminating users use either vi or emacs. The enlightened use emacs. Actually, "Pish!" to anyone who uses vi.

Files, Directories and Navigating the Filesystem

You always start out in your home directory when you log in. The command `ls` is used to list the files in your current directory. `ls -l` will give you details. The `cd` command is used to change your current directory. For instance, the web server looks in your `public_html` directory for web-related files. To enter that directory, type `cd public_html`. System configuration files are in `/etc`. To go there just type `cd /etc`. To go back home from anywhere (yes, you can go home again) just type `cd`.

If you create a web-related file and the web server gives you "Permission denied" errors, you'll need to change the access permissions on the file using `chmod`: `chmod go+r <file>` (where `<file>` is replaced with the actual file name, but you already knew that).

To create a new directory, use `mkdir <directory_name>` Use `chmod go+rx <directory_name>` to allow others access to a directory you just created. Use `rmdir <directory_name>` to delete a directory.

Use `rm <file>` to delete a file. Once a file is deleted, it can't be brought back again, so be careful!

Printing Files

Type `lpr <file>`, then run to the printer in either HS 149 or the X Lab (the default printing location). If you want to print to your own printer from phoenix first install Linux and then come see me. To print to a specific printer you can use the `-P` switch:

```
lpr -P hs149ps <file>
```

The printer in the X Lab is named `hs123ps`.

Exercise

1. Using the `mkdir` command, create a sub-directory within your home directory for this lab: `linux1`. It is a good idea to create a new directory each time you start a new assignment or project, so that you don't clutter up your home directory.

2. `cd` to `~kelliher/pub/cs240/linuxlab1` and use `cp` to copy the file `addn.spim` there to the directory (`~/linux1`) you just created. Note that after typing the `l` in `linuxlab1`, if you press the `Tab` key, the rest of the directory name is filled-in for you. This is the shell's file completion feature. emacs has a similar feature. You can use the `ls` command to list the files in my directory.

3. You should now be in the directory you created. Using `lpr`, print the file `addn.spim`.

   Again, **if you want to save some walking,** you can print to the printer in HS 149 using this command:

   ```
   lpr -P hs149ps <fileName>
   ```

4. Use `less` to read through the file you copied. If necessary, see the `man` page for help on `less`.

5. Start SPIM:

   ```
   spim
   ```

6. Type `?` at the SPIM command line to get a list of available commands.

7. Load `addn.spim` into SPIM.

8. Run `addn.spim`.

9. Quit SPIM.

10. Use an editor to modify the prompt strings in `addn.spim` and re-run the program.

11. Remember to use `logout` to log out of phoenix.