[15-122] Linux Commands Quick Reference

More information: http://c0.typesafety.net/doc/c0-at-andrew.html

Basic Linux Commands

```
$ some_command --help    # Show help
$ man some_command       # Show manual
$ ls                     # List files
$ ls -lha                # Long listing, all
files, human readable
$ rm file.txt            # Remove file.txt
$ rmdir dir              # Remove empty dir
$ cp src dest            # Copy a file
$ mv src dest            # Move a file
$ pwd                    # Show present working
                           directory
$ mv src dest            # Move a file
$ cat file.txt           # Show file.txt
$ head file.txt          # First lines of file.txt
$ tail file.txt          # Last lines of file.txt
$ chmod u+rw file.txt    # Change permissions of
                           file.txt
$ chown file.txt         # Change owner of
                           file.txt
$ grep main file.txt     # Find occurrences of
                           'main' in file.txt
```
Beware of special "regex" characters in the pattern you search for. (See man pages or google around for more)

Filenames with special meaning

```
.                        Current directory
..                       Parent directory
```

Pipes and Redirects
```
# Redirect grep's stdout to "out.txt"
$ grep main file.txt > out.txt

# ...and redirect "file.txt" to grep's stdin
$ grep main < file.txt > out.txt

# Find 'main' in file.txt, then find 'int' in the
  stdout of the first grep. Write it to out.txt
$ grep main file.txt | grep int > out.txt

# Append file.txt to out.txt
$ cat file.txt >> out.txt
```

Command Line Keyboard Shortcuts
Try emacs shortcuts first. Most of them work in the shell, too!

```
Up/Down                  Previous/next command
Shift+PgUp/PgDown        Scroll up/down
```

Viewing images (this won't work if you SSHed in!)
```
$ display image.png
```

Remote machines
```
$ ssh machine.edu # Connect to machine.edu

# Copy file "~/file.txt" from remote
# machine to current machine in current
# directory
$ scp machine.edu:~/file.txt .
```

C0 Interpreter: coin
```
$ cp ~rjsimmon/public/gcd.c0 .
$ coin
--> int i = 12;
--> i = i + 1;
--> #quit
$ coin gcd.c0      # Load gcd.c0 first
--> gcd(15,25);
--> gcd(0,0);
--> #quit
$ coin -d gcd.c0  # Use contract checking
--> gcd(0,0);
```

C0 Compiler: cc0
```
# Compile into "gcd" w/ contract checking
$ cc0 -d gcd.c0 -o gcd
$ ./gcd
```

C0 Code stepper (in emacs)
```
Ctrl-c Ctrl-d    Invoke code stepper
?                Short help
h                Detailed help
<Return> or s    Take one step
n                Next (skip function calls)
q                Quit
e                Evaluate an expression
                 in the current environment
```

Assignment Handin
```
$ handin hw0 salute.c0 linux_ans.txt
```
You can go to https://autolab.cs.cmu.edu/15122-f12 to get the results of the autograder. You can also create your own tarball of the necessary files:
```
$ tar -cvf hand.tar salute.c0 linux_ans.txt
```
And submit it through the Autolab web interface.

Jon Clark, Rob Simmons, Aug 2012, Updated 8/29/2012