Basic unix commands

Linux or mac

What the ~*&?!

~	“tilde” indicates your home directory: `/home/you`
*	“star”: wildcard, matches anything
?	wildcard, matches any one character
!	History substitution, do not use
&	run a job in the background, or redirect errors
# %	special characters for most crystallography programs
` \ ([‘’’	back-quote, backslash, etc. special to shell
_	underscore, use this instead of spaces!!!

Where am I?

`pwd`

Print name of the “current working directory”

This is the default directory/folder where the shell program will look first for programs, files, etc. It is “where you are” in Unix space.

What is a directory?

`/home/yourname/whatever`

Directories are places you put files. They are represented as words connected by the "/" character. On Windows, they use a "\", just to be different. On Mac, they are called "folders". Whatever you do…

DO NOT PUT SPACES

In directory/file names!

What have we here?

`ls`

List contents of the current working directory

`ls -l` - long listing, with dates, owners, etc.

`ls -lrt` - above, but sorted by time

`ls -lrt /home/yourname/something`

- long-list a different directory

Go somewhere else?

cd

Change the current working directory

`cd /tmp/yourname/`
- go to your temporary directory

`cd -`
- go back to where you just were

`cd`
- no arguments, go back “home”

“home” is where your login starts

A new beginning…

`mkdir`

Create a new directory.

`mkdir ./something`	- make it
`cd ./something`	- go there
`ls`	- check its is empty

How do I get help?

`man`

Display the manual for a given program

`man ls` - see manual for the "`ls`" command
`man tcsh` - learn about the C shell
`man bash` - learn about that other shell
`man man` - read the manual for the manual

to return to the command prompt, type "`q`"

Move it!

mv

Move or rename a file. If you think about it, these are the same thing.

```
mv stupidname.txt bettername.txt
```
- change name

```
mv stupidplace/file.txt ../betterplace/file.txt
```
- same name, different directory

```
mv stupidname_*.img bettername_*.img
```
Will not work! Never ever do this!

Copy machine

`cp`

Copy a file. This is just like "`mv`" except it does not delete the original.

```
cp stupidname.txt bettername.txt
```

- change name, keep original

```
rm stupidname.txt
```

- now this is the same as "`mv`"

“Permission denied” !?

chmod

Change the “permission” of a file.

`chmod a+r filename.txt`

- make it so everyone can read it

`chmod u+rwx filename.txt`

- make it you can read/write/execute it

`chmod -R u+rw /some/random/place`

- make it so you can read/write everything under a directory

Destroy! Destroy!

`rm`

Remove a file forever. There is no “trash” or “undelete” in unix.

`rm unwanted_file.txt`

- delete file with that name

`rm -f /tmp/yourname/*`

- forcefully remove everything in your temporary directory.

Will not prompt for confirmation!

less is more

`more`

Display the contents of a text file, page by page

`more filename.txt` – display contents

`less filename.txt` – many installs now have a replacement for "`more`" called "less" which has nicer search features.

to return to the command prompt, type "`q`"

After the download…

`gunzip`

File compression and decompression

`gunzip ~/Downloads/whatever.tar.gz`

- decompress

`gzip ~/Downloads/whatever.tar`

- compress, creates file with `.gz` extension

Where the %$#& is it?

`find`

Search through directories, find files

`find ./ -name 'important*.txt'`

- look at everything under current working directory with name starting with "`important`" and ending in "`.txt`"

`find / -name 'important*.txt'`

- will always find it, but take a very long time!

Did I run out of disk space?

df du

Check how much space is left on disks

`df` - look at space left on all disks

`df .` - look at space left in the current working directory

```
du -sk . | sort -g
```

- add up space taken up by all files and subdirectories, list biggest hog last

Why so slow?

ps top

Look for programs that may be eating up CPU or memory.

`top` - list processes in order of CPU usage

`jobs` - list jobs running in background of current terminal

`ps -fHu yourname`

- list jobs belonging to your account in order of what spawned what

Die Die Die!

`kill`

Stop jobs that are running in the background

`kill %1` - kill job [1], as listed in "`jobs`"

`kill 1234` - kill job listed as 1234 by "`ps`" or "`top`"

`kill -9 1234` - that was not a suggestion!

`kill -9 -g 1234` – seriously kill that job and the program that launched it