

Basic unix commands that everyone should know

(Even if you have a 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.

<code>mkdir ./something</code>	- make it
<code>cd ./something</code>	- go there
<code>ls</code>	- 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+rw 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