

How to Babbage

Here we are going to try and work through some basics of the terminal and some tasks you might need to do.

Stuff you see that looks like this:

```
codey stuff  
more codey stuff
```

Means you enter it into the terminal, or that's what comes out

Baby steps

WHERE AM I!

`pwd` = print working directory

```
pwd  
/c/Users/Seth/Documents/GitHub
```

Where do I go?

`cd somedirectory` `cd` = change directory

`cd ..` : up a directory

Make friends with TAB

Start typing while you are changing directory and hit **TAB** to have the terminal try and autocomplete

Make a testFile or three

Make an empty file with not-at-all-creepyly-named command

```
touch testFile.txt  
touch testFile2.txt  
touch testFile.tab
```

Put something in the file

```
echo 'testeyteddyeyesty' >> testFile.txt  
echo 'blahblahblah' >> testFile.txt  
  
echo 'plerplerggggkl;jkljkl;' > testFile2.txt  
echo 'nimbynimby' > testFile2.txt
```

How did that work

```
head testFile.txt
```

```
head testFile2.txt
```

`>` is not the same as `>>`

`>` sends it to the file and replaces the whole file.

`>>` appends to the file (does not replace the file)

`cat` catenates 🐱

```
cat testFile.txt testFile2.txt > comboFile.txt
```


Looking at stuff

`head` shows the top of a file

`tail` is the bottom (surprise!).

`less` shows you more 🙄 (type `q` to exit)

What's here? list = ls

```
ls
```

ooh, that's kinda ugly

try `ls -l` (-l is the 'flag' for long)

try `ls -al` (... -a all)

try `ls -alh` (... -h human readable)

try `ls -alht` (... -t ordered by time)

try `ls *.txt` (just the .txt files)

Moving and ~~shaking~~ copying

OK, you made a mistake and want to rename something

```
mv oldname newname
```

`mv` = move, eg:

```
mv testFile.tab testTab.tab  
ls
```

Moving and ~~shaking~~ copying

Let's be safe and copy (`cp`) a file we want to mess around with

```
cp testTab.tab backupTab.tab  
ls
```

Removing files



Warning: terminal will do what you tell it. Even if that means delete everything. Proceed with caution and when in doubt test first. eg to come

`rm` = remove

```
rm backupTab.tab
```

You can use wildcards (eg. *.tab would be all .tab files) but it's dangerous. Dont' go throwing wildcards around until you are confident

If you want to use wildcards with deleting (rm) test first eg:

`ls *.tab` does that list only the files you want to remove? If so, go ahead and replace `ls` with `rm`. If not, stop!

Connect to the server

```
ssh barribeau@the.ip.address.from.jon
```

Tips and tricks

Open hidden file for ssh configuration in nano (text editor)

```
nano ~/.ssh/config
```

add the following (but with your deets obv):

```
Host babbage
    HostName the.ip.address.from.jon
    User barribeau

Host euler
    HostName the.euler.address.from.richard
    User seth
```

exit by typing `cntrl+x` and saying yes you'll save (`y enter`)

Now you can connect with easier to remember:

```
ssh babbage
```

Tadaaaah 

Getting stuff onto the server

Transfer with `scp`

with the shortcut

```
scp testFile.txt babbage:path/to/where/you/want/it/to/go
```

without the shortcut

```
scp testFile.txt barribeau@the.ip.address.from.jon:path/to/where/you/want/it/to/go
```

Getting stuff off the server

Transfer with `scp`

with the shortcut

```
scp babbage:path/to/where/your/file/is/testFile.txt path/to/put/it/on/your/computer
```

without the shortcut

```
scp barribeau@the.ip.address.from.jon:path/to/where/your/file/is/testFile.txt path/to/put/it/on/your/computer
```

Stuff that takes a long time

Use a `screen` . Screens allow you to start something and run it in the background. You can then connect to it later. This is very useful because

- Sometimes connections suck and you get cut off.
- You may need to use your computer for other stuff.
- Life happens
- Use `screen` it will save you tears and years.

make a new screen

```
screen -S myNewScreen
```

you now have a new screen running and you start your things.

To exit the screen you type `cntrl+a` then `cntrl+d` and you will be out of the screen.

To reconnect you just type

```
screen -r myNewScreen
```

When you are done, type `exit` to finish that screen.

Downloading stuff

`wget` or `curl` will download files.

e.g. you want to get [this data](#) from the SRA. You then click through to the [RUN ID](#) and see the download link under data access.

```
wget https://sra-download.ncbi.nlm.nih.gov/traces/sra0/SRR/012234/SRR12527928
```

Oh no, that's going to take for ever!

Cancel!

`cntrl+c`  you may use this a lot

get rid of that partial file

```
rm SRR12527928
```

Decompressing stuff

Downloaded files are usually compressed in one way or another. Which means you have to extract them. Which I always forget how to do. Remember your Google-fu

if it's `*.zip` then, you `gunzip randoFile.zip`

If it's some flavour of `tgz/tar.gz/etc...` Look it up but it will look a bit like this

```
tar -zxvf randoFile.tar.gz
```


It may seem scary, but you've got this

