Module 1: terminal commands

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Module 1: Terminal first steps

- Using terminal on the raspberry pi:
- Start with ping:
- **ping** sends a data packet to a machine on the internet, and tells you how long it takes to return, like sonar
- try pinging 10.14.0.1 Time listed will be in milliseconds, so 1000 ms means one second
- **ping** www.apple.com
- Notice different ping times

Stopping stuff:

- **ctrl-c** means cancel
- **ctrl-z** means halt (stop everything, not gracefully)

Tracing around the internet:

traceroute www.apple.com (note hops and delays)

Evil stuff: ping flood attack:

ping flood, only use here as a test

sudo ping -f (notice that you have to use sudo, which means "superuser do" or treat me like computer god for this)

What's going on in your terminal:

- **who** also whoami
- **last** last command, also the up arrow
- **top** lists all processes, useful with kill (see later)
- **history**: shows recent commands like this, useful for retracing your steps or seeing who might have been in your machine:
  - 1 ping 10.14.0.1
  - 2 ping www.hpa.edu
  - 3 traceroute
  - 4 traceroute www.hpa.edu
  - 5 ifconfig
  - 6 ping 10.14.252.22
  - 7 sudo ping -f 10.14.252.22
  - 8 last
  - 9 who
  - 10 ping 10.14.252.47
  - 11 history
  - 12 ssh pi@10.14.252.47
  - 13 netstat
  - 14 man netstat
  - 15 man ping
  - 16 history

navigation commands:

- **cd** change directory, usually followed by a directory name, like "cd var/www/html/"
- **ls** list directory, see also ls -l which lists all files in long form. Try also ls -lh *human long form"
- **ls -la** lists even invisible files (the -a flag means "all") You can also hide files by adding . to the beginning
- **pwd** print working directory, shows where you are in the file system (directory)

Try navigating to the desktop this way:

- **pwd** (print working directory, "where am I")
- **ls** (shows what is at this level)
- **cd** or **cd ..** (cd to a directory, cd .. means one level up)
- Here is where your desktop is: /home/pi/Desktop

Shortcut:

cd /home/pi/Desktop

try ls and see what is there, should be nothing.

Creating a directory:

- mkdir creates a directory
- mkdir test
- This should create a folder on your desktop called "test"
- click on this to see a directory browser, go nuts

Permissions

- **ls -la** will show you permissions in the format drwx, for directory, read, write and execute
- read is 1, write is 2, execute is 4, so all added up 1+2+4 =7
- chmod change "mod" or permissions of file, 777 is everything, see drwx format below and the 421 rule
- You may also find this under **chmod u+x** on a file, which means make the file or program executable

Manual pages:

- man pages are manual pages, so "man ping" would give you manual pages on the ping command
- less means look into a file (contrast with "more")
- * means wild card, so if you want to see all files ending in jpg, you would say *.jpg

Secure shell login:

ssh means secure shell login, like ssh pi@10.14.88.81

Mac specific commands:

- fsck -yf after command-s startup (single user mode)
- say command after ssh login

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