

In the beginning

There was command line

*Neal
Stephenson –
The
Cryptonomicon

By Clay Morris
Broad Institute

What is command line?

- Command Interpreter
- Shell Access
- Interactive
- Non-interactive
- Scripting languages

Basic Commands

- ls
- mkdir
- cp
- mv
- grep
- sudo
- rm
- cat
- less/more
- head/tail
- find
- su

ls – What is it?

Wait, what was in that directory?

Is that it?

Who owns it?

What size is it?

Wow, a command! But how do I use it?

- Typical breakdown of a command:
 - `<command> <options> <arguments>`
 - `ls -la </path>`

Man Pages

- How to find help on a command
- man pages?
 - man <command>
 - Searching through man pages /<search term>
 - What commands are available and documented?

man ls

```
root@scooter:~ (ssh)  man  2. man
LS(1)                  BSD General Commands Manual                LS(1)

NAME
    ls -- list directory contents

SYNOPSIS
    ls [-ABCFGHLOPRSTUW@abcdeghiklmnopqrstuwod1] [file ...]

DESCRIPTION
    For each operand that names a file of a type other than directory, ls displays its name as well as any requested, associated information. For each operand that names a file of type directory, ls displays the names of files contained within that directory, as well as any requested, associated information.

    If no operands are given, the contents of the current directory are displayed. If more than one operand is given, non-directory operands are displayed first; directory and non-directory operands are sorted separately and in lexicographical order.

    The following options are available:

    -@      Display extended attribute keys and sizes in long (-l) output.

    -1      (The numeric digit ``one'') Force output to be one entry per line. This is the default when output is not to a terminal.

    -A      List all entries except for . and ... Always set for the super-user.

    -a      Include directory entries whose names begin with a dot (.).

    -B      Force printing of non-printable characters (as defined by ctype(3) and current locale settings) in file names as \xxx, where xxx is the numeric value of the character in octal.

    -b      As -B, but use C escape codes whenever possible.
```

mkdir

- mkdir – makes top level directory
- mkdir -p makes parent level directory with nested
- mkdir -p </path/{folder1,folder2,folder3...}>
makes multiple folders under <path>

mv

- move command
- Move files and directories
- Usually attempts to retain permissions

cp

- Copies files
- `cp -vrfp` useful when duplicating directories
 - `v` – verbose
 - `r` – recursive
 - `f` – “force” option
 - `p` – “Cause cp to preserve the following attributes of each source file in the copy: modification time, access time, file flags, file mode, user ID, and group ID, as allowed by permissions. Access Control Lists (ACLs) and Extended Attributes (EAs), including resource forks, will also be preserved.” – man page

rm

- rm – removes files
- rm -rf – removes directories without prompting for confirmation
use_with_caution

cat

- Not a pet :)
- Great for small files
- Outputs text to screen only
- Useful when piping to other commands

less/more

- Great for larger files that tend to scroll off the screen
- Opens files read only
- Searchable

head/tail

- Need to know what is only at the top?
- Need to only know what is at the bottom?
- Need to actively scroll a log file while it is being written?

find

- Where is that darn file?
- Very powerful search tool
- Finds by size and much, much more.

sudo

- Most used commands
- Most dangerous command
- Highly configureable

su

- Substitute user
- Can assume many roles including user accounts

grep

- Extremely powerful tool for searching in files
- Can locate expressions in more than one file

Output Redirection

- Standard out (stdout)
- Standard Error (stderr)
- Mail
- File
- Some combination of the above
- `&>1 | tee outfile`

My Best Friend

- `find / -size +15M -mtime +19 | xargs rm -rf`
- Can be redirected to file
- Can be redirect to mail

ssh

- Ties it all together....