

THE 2013 INTERNATIONAL WORKSHOP ON STATISTICAL METHODOLOGY FOR HUMAN GENOMIC STUDIES

UNIX cheat sheet – Sarah Medland

Help on any Unix command

`man {command}` Type **man ls** to read the manual for the **ls** command.
`which {command}` Find out where a program is installed
`whatis {command}` Give short description of command.

List a directory

`ls {path}`
`ls -l {path}` Long listing, with date, size and permissions.
`ls -R {path}` Recursive listing, with all subdirs.

Change to directory

`cd {dirname}` There must be a space between.
`cd ~` Go back to home directory, useful if you're lost.
`cd ..` Go back one directory.

Make a new directory

`mkdir {dirname}`

Remove a directory/file

`rmdir {dirname}` Only works if {dirname} is empty.
`rm {filespec}? and * wildcards work like DOS should. "?" is any character; "*" is any string of characters.`

Print working directory

`pwd` Show where you are as full path.

Copy a file or directory

`cp {file1} {file2}`
`cp -r {dir1} {dir2}` Recursive, copy directory and all subdirs.
`cat {newfile} >> {oldfile}` Append newfile to end of oldfile.

Move (or rename) a file

`mv {oldfile} {newfile}` Moving a file and renaming it are the same thing.

View a text file

`more {filename}` View file one screen at a time.
`less {filename}` Like **more**, with extra features.
`cat {filename}` View file, but it scrolls.
`page {filename}` Very handy with **ncftp**.
`nano {filename}` Use text editor.
`head {filename}` show first 10 lines
`tail {filename}` show last 10 lines

Compare two files

`diff {file1} {file2}` Show the differences.
`sdiff {file1} {file2}` Show files side by side.

Other text commands

`grep '{pattern}' {file}` Find regular expression in file.
`sort {file1} > {file2}` Sort file1 and save as file2.
`wc {file}` Count words in file.

Find files on system

`find {filespec}` Works with wildcards

Wildcards and Shortcuts

*Match any string of characters, eg **page*** gets page1, page10, and page.txt.
?Match any single character, eg **page?** gets page1 and page2, but not page10.
[...]Match any characters in a range, eg **page[1-3]** gets page1, page2, and page3.
~Short for your home directory, eg **cd ~** will take you home, and **rm -r ~** will destroy it.
. The current directory.
.. One directory up the tree, eg **ls ..**

Pipes and Redirection(You **pipe** a command to another command, and **redirect** it to a file.)

`{command} > {file}` Redirect output to a file, eg **ls > list.txt** writes directory to file.
`{command} >> {file}` Append output to an existing file, eg **cat update >> archive** adds update to end of archive.
`{command} < {file}` Get input from a file, eg **sort < file.txt**
`{command} < {file1} > {file2}` Get input from file1, and write to file2, eg **sort < old.txt > new.txt** sorts old.txt and saves as new.txt. `{command} | {command}` Pipe one command to another, eg **ls | more** gets directory and sends it to **more** to show it one page at a time.

Permissions, important and tricky!

Unix permissions concern who can **read** a file or directory, **write** to it, and **execute** it. Permissions are granted or withheld with a magic 3-digit number. The three digits correspond to the **owner** (you); the **group** (?); and the **world** (everyone else).

Think of each digit as a sum:

execute permission	= 1
write permission	= 2
write and execute (1+2)	= 3
read permission	= 4
read and execute (4+1)	= 5
read and write (4+2)	= 6
read, write and execute (4+2+1)	= 7

Add the number value of the permissions you want to grant each group to make a three digit number, one digit each for the owner, the group, and the world. Here are some useful combinations. Try to figure them out!

`chmod 600 {filespec}` You can read and write; the world can't. Good for files.

`chmod 700 {filespec}` You can read, write, and execute; the world can't. Good for scripts.

`chmod 644 {filespec}` You can read and write; the world can only read. Good for web pages.

`chmod 755 {filespec}` You can read, write, and execute; the world can read and execute. Good for programs you want to share, and your `public_html` directory.

Permissions, another way

You can also change file permissions with letters:

u = user (yourself) **g** = group **a** = everyone

r = read **w** = write **x** = execute

`chmod u+rw {filespec}` Give yourself read and write permission

`chmod u+x {filespec}` Give yourself execute permission.

`chmod a+rw {filespec}` Give read and write permission to everyone.