THE 2011 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 permisions.  
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.