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# A Quick Guide To UNIX

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This is an introduction to the UNIX operating system. Unix may seem idiosyncratic, even impenetrable, to begin with but it has the virtue of minimising the number of keystrokes and so speeding up your access to the computer.

The commands listed here are common to different operating systems and shells. They include some of the most useful and frequently used commands in UNIX. The power and utility of most UNIX commands can be enhanced with switches or options preceded by a “-” sign.

More information on the options, the effects and how to use the commands is available by using the **man** command:

**man** gives manual information on a topic  
**man grep** displays the manual page about grep

Another useful source of information is the on-line EMBnet tutorial which includes a page on UNIX

**<http://biobase.dk/Embnetut/Universl/unixcmds.html>**

or equally

**<http://www.hgmp.mrc.ac.uk/Embnetut/Universl/unixcmds.html>**

The general format of this document is that anything in **bold type** is a command you can enter. Anything preceded by a hyphen “-” is an option which will modify the effects of a command. A general description of each command is followed by one or several examples of its use.

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## FILES

**ls** lists files in a directory  
**ls -alF** lists **-a** all files in **-l** long format  
**-F** identifies directories **/**, executable files **\***, and symbolic links **@**, in the current directory

**cat** concatenates and displays files  
**cat my.file** displays my.file on the screen

**chmod** modifies the read (r), write and delete (w), and execute (x) permissions of specified files and the search permissions of specified directories  
**chmod go-w my.file** stops anyone else changing or deleting my.file

**cp** copies files  
**cp orig.file copy.file**  
**cp file subdir/file**

**diff** compares two files and prints how they differ  
**diff file1 file2** prints differences to screen  
options include **-b** to ignore differences in blank space, and **-i** to ignore case.

**find** searches the directory tree for a file  
**find . -name lostfile -print** will search “.” (your current directory and any subdirectories) for lostfile

**grep** searches a file for a string  
**grep word file**  
**grep ‘two words’ file** options include **-i** to ignore case and **-n** to print line number

**head** prints the first few (default = 10) lines of a file  
**head oddfile**  
**head -20 oddfile** displays first twenty lines

**tail** displays last few lines of a file (see **head**)

**more** displays a file one screenful at a time:  
**more longfile**  
hit <spacebar> to see the next screen

**mv** moves/renames a file (or directory)  
**mv file1 file2**  
**mv file1 subdir/file1**

**rm** removes/deletes a file.  
**rm oldfile**  
**rm -i \*.file** option **-i** (interactive) advised if wildcards (\*) in use

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## OUTPUT REDIRECTION

**>** redirects output of a command to a file  
**diff file1 file2 > new.file** puts differences into new.file  
**cat one.file two.file > both.file** writes the output of the cat command into both.file (overwrites both.file)

**>>** appends a file to the bottom of another  
**cat three.file >> both.file** appends three.file to the bottom of both.file

**|** “pipe” - uses the output of the first command as the input of the second  
**grep string my.file | wc -l** finds how many lines on which “string” occurs (see **grep** and **wc**)

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## DIRECTORIES

**cd** changes current directory  
**cd /etc** go to /etc directory  
**cd ..** go up one level in directory tree  
**cd ../subdir2** go “sideways” to subdir2

**mkdir** creates a new subdirectory  
**mkdir subdir**

**rmdir** removes a directory - you must delete all the files in it first  
**rmdir subdir**

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## PROCESSES

<b>^c</b>	<b>&lt;ctrl&gt;-c</b> kills (definitely stops) current job
<b>^z</b>	<b>&lt;ctrl&gt;-z</b> suspends the current job. This can either be moved to the background or resumed in the foreground by using <b>bg</b> or <b>fg</b>
<b>bg</b>	moves the current process to the background
<b>fg</b>	moves a process to the foreground. (If more than one suspended job, use <b>jobs</b> to decide which you want to fg)
<b>fg 1</b>	moves process 1, as listed by <b>jobs</b> , to the foreground
<b>jobs</b>	lists background and suspended processes (created with <b>bg</b> or <b>^z</b> )
<b>jobs -l</b>	("el" not one) includes the pid (process id number)
<b>ps</b>	lists all your processes
<b>kill</b>	stops a process (use <b>ps</b> or <b>jobs</b> to find your processes)
<b>kill 2986</b>	kills off the process with pid 2986
<b>kill -KILL 2986</b>	<u>definitely</u> kills off pid 2986

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## MISCELLANEOUS

<b>wc</b>	word count
<b>wc long.file</b>	prints the number of lines, words and characters in long.file. Options include <b>-l</b> to count lines only, and <b>-c</b> to count characters only
<b>apropos</b>	lists all the <b>man(ual)</b> entries relating to a topic (same as <b>man -k</b> )
<b>apropos print</b>	
<b>date</b>	displays current date and time

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<b>passwd</b>	invokes a password changing program
<b>exit</b>	leaves the current shell (same as <b>^d</b> or <b>&lt;ctrl&gt;-d</b> ) usually = <b>logout</b>
<b>finger</b>	tells you who is logged on (see also <b>w</b> )
<b>history</b>	displays last several commands used
<b>!!</b>	re-executes the last command
<b>!51</b>	executes command 51 in the history list
<b>w</b>	shows information about logged in users <b>who</b> produces similar result (see <b>finger</b> )
<b>whoami</b>	for those having an identity crisis

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This document was written and designed by Aoife McLysaght and Andrew Lloyd(C) from the Irish EMBnet node and distributed by the Publications Committee of EMBnet.

EMBnet - European Molecular Biology Network - is a network of bioinformatics support centres situated primarily in Europe. Most countries have a national node which can provide training courses and other forms of help for users of bioinformatics software.

Further information about UNIX is available from your national node. You can find contact information about your national node from the EMBnet brochure:

<http://www.embnet.org/>

If you have found this publication useful, please let us know. If you have ideas for similar documents we'd like to hear from you: emb-pr@dl.ac.uk

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