

UNIX/LINUX Command Reference Sheet

File Commands

cat - concatenates and displays files
cat > file - places standard input into *file*
cd - change current directory
cmp - compares two files
cp - copies a file or a directory
cut - removes columns or fields from the specified file(s)
diff - displays line-by-line differences between two text files
head - displays the first lines of the specified file(s)
join - joins two files
jot - print sequential or random data
ln - make hard or symbolic links to files
ls -al - formatted listing with hidden files
ls - directory listing
mkdir dir - create a directory *dir*
more/less - output the contents of the specified file(s) in pages
mv - rename or move a file
nl - put line numbers on a file
od - sequentially copies each file to standard output, displaying it according to the specified arguments; for example, in hexadecimal (often useful in conjunction with **diff**)
paste - merge same lines of several files or subsequent lines of one file
pr - produces a printed listing of one or more files suitable for printing
pwd - print current working directory
rm - remove the specified file(s); using the **-rf** flag allows a directory to be removed¹
sort - sort, merge or sequence check text files
split - split a file into pieces
tail - displays the last lines of the specified file(s)
tail -f file - output the contents of *file* as it grows, starting with the last 10 lines
touch - change file access and modification times; can be used to create a new 0-byte (empty) file
tr - translate characters from one string to another
uniq - report or filter out repeated lines in a file
wc - display a count of lines, words and characters in a file

SSH & Secure File Copying

scp - copies files between hosts on a network
sftp - an interactive file transfer program
ssh user@host - connect to *host* as *user*
ssh-copy-id user@host - add your key to *host* for *user* to enable a keyed or passwordless login

Process Management

at/batch - execute commands at a later time
bg - lists stopped or background jobs; resume a stopped job in the background
cron - clock daemon that executes commands at specified dates and times
crontab - modifies the user's crontab file, which is used by **cron**
fg - brings the specified job to foreground
kill pid - kill process id *pid*
killall proc - kill all processes named *proc*¹
nice - invoke a command with an altered scheduling priority
ps - display your currently active processes
renice - alter priority of running processes
top - display all running processes

File & Group Permissions

chmod octal file - change the permissions of *file* to *octal*, which can be found separately for user, group, and world by adding:

- 4 - read (r)
- 2 - write (w)
- 1 - execute (x)

Examples:

chmod 777 - read, write, execute for all
chmod 755 - **rw**x for owner, **rx** for group and world
For more options, see **man chmod**.
chgrp - change the group-ID of the specified files or directories
groups - show group memberships

Searching

grep - search for a pattern in the specified files
command | grep pattern - search for *pattern* in the output of *command*
find file - find all instances of *file* (UNIX)
locate file - find all instances of *file*
xargs - construct argument lists and invoke utility

Compression

You can find a number of compression and decompression utilities. Check the man pages for **tar**, **compress/uncompress**, **gzip/gunzip** and **zip/unzip**. Others are also available.

tar cf file.tar files - create a tar named *file.tar* containing *files*
tar xf file.tar - extract the *files* from *file.tar*
gzip file - compresses *file* and renames it to *file.gz*
gunzip file.gz - decompresses *file.gz* back to *file*

¹ Use with extreme caution!

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Version Control

See the manual pages for `cvs`, `svn` or `rcs`.

System Information

`absolute` - (CSCF/MFCF only) convert file names to absolute path names
`absolute `which app`` - (CSCF/MFCF only) show the full path to the `app` that will be run by default
`cal` - show this month's calendar
`chfn` - change the user's finger information
`date` - show the current date and time
`diskquota` - (CSCF/MFCF only) display the user's disk quota
`du` - show disk usage of each file, recursively
`finger user` - display information about `user`
`history` - displays the list of recently entered commands
`hostselect` - consult a configuration file to return an optimal host name based upon the specified attribute
`lpr` - submit a print request
`lpq` - display the contents of a print queue
`man command` - show the manual for `command`
`mesg` - permit or deny messages
`passwd` - change the user's password
`uptime` - show current uptime of other hosts
`uname -a` - show kernel information
`uptime` - show current uptime
`w` - display who is online
`whereis app` - show possible locations of `app`
`which app` - show which `app` will be run by default
`whoami` - who you are logged in as

Compilation & Debugging

`ddd` - graphical front end to `gdb`
`gcc` - GNU project C and C++ compiler
`g++` - front-end to `gcc` to explicitly compile C++ code
`gdb` - GNU debugger
`gmake` - GNU version of `make`
`make` - utility to maintain groups of programs
`xxgdb` - graphical front end to `gdb`; exists on `cpu-linux`

Generally Useful Tools

`MFCF_FAQ` - located at
http://webtest.mfcf.uwaterloo.ca/wiki/index.php/MFCF_FAQ
<http://www.cs.uwaterloo.ca/cscf/student/hosts> - a list of the servers available in the undergraduate environment, highlighting the round-robin server names (recommended for access to a particular server type)

`.snapshot` - (CSCF/MFCF only) A backup system is in place in the `student.math` and `student.cs` environments where hourly, daily, weekly and monthly backups are made. See
<http://webtest.mfcf.uwaterloo.ca/wiki/index.php/Snapshots>
`alias` - create a pseudonym for a command or series of commands
`apropos` - locate commands by keyword lookup
`clear` - clear the terminal screen, if possible
`dos2unix` - convert text file from DOS format to ISO format
`init_home` - (CSCF/MFCF only) reinitialize your home directory
`ispell` - interactive spelling checking
`lock` - lock a terminal when you are away
`man ascii` - displays the map of the ASCII character set
`oed` - look things up in the Oxford English Dictionary
`script` - makes a typescript of everything printed on your terminal.
`scriptfix` - clean up script output files
`spell` - outputs words from the named documents that are not in the spelling list nor derivable from words in the spelling list
`unalias` - remove a pseudonym for a command or series of commands
`unix2dos` - convert text file from ISO format to DOS format
`xlock` - locks the local X display until a password is entered

Shortcuts

`Ctrl+C` - halts the current command
`Ctrl+Z` - stops the current command, resume with `fg` in the foreground or `bg` in the background
`Ctrl+D` - log out of current session, similar to `exit`; used to signal end-of-file when running an application that reads from standard input
`Ctrl+W` - erases one word in the current line
`Ctrl+U` - erases the whole line
`Ctrl+R` - type to bring up a recent command
`^pre1^pre2` - repeats the last command with leading text `pre1` replaced with `pre2`
`!:gs/pre1/pre2` - repeats the last command with all occurrences of text `pre1` replaced with `pre2`
`!!` - repeats the last command
`!com` - repeats the most recent command entered that can be uniquely identified as starting with `com`
`!num` - repeats the command numbered `num`
`exit` - log out of current session