

Unix Help Sheet

COMMON COMMANDS

Filesystem

cd	change directory
cp	copy file
chmod	change file permissions
chown	change file owner
chgrp	change file group
find	find file based on search term
ln -s	make symbolic link (shortcut)
ls	list files (-l long, -a all, -h human readable numbers: KB, MB, GB, etc)
mkdir	make directory
mv	move or rename a file
pwd	print working directory (where am I)
rmdir	remove directory
rm	remove/delete (USE WITH CARE! No undo!)

File display/editing

cat	(concatenate) display or join files
cut	get columns of data (-f field, -d delimiter)
echo	print something to STDOUT
grep/egrep	search and display or count (-c count, -v inverse)
head	display beginning of a file (-n number of lines)
less	view a file (ctrl-v page down, ctrl-b page up, > end, < beginning, / or ? search, q quit)
man	view help (controls same as less)
nano	simple file editor (ctrl-w: search, ctrl-v: page down, ctrl-y: page up, ctrl x: save/exit)
tail	display end of a file (-n number of lines)
vi	advanced file editor (:i edit (insert), esc stop edit, :w save, :q quit, :q! quit w/o saving)
wc	count characters, words and/or lines (-l lines, -w words, -c characters)

File compression

gzip	zip a single file (.gz)
gunzip	unzip a single file (.gz)
tar -czf	zip a directory or group of file (.tar.gz or .tgz)
tar -xzf	unzip a directory or group of file (.tar.gz or .tgz)
less	view a gzipped file
zcat	cat a gzipped file (use with pipes to do almost any unix operation)
zgrep	grep a gzipped file

IMPORTANT DIRECTORIES

/	root directory
/home/user	home directory
/usr/local	many software packages installed here
/tmp	temporary directory
/scratch	scratch directory (user responsible for removing files)

~/	shortcut to home directory (/home/username)
./	current directory
../	parent directory

REDIRECTION

>	save STDOUT in a new file (WARNING: would first delete any existing file of that name)
>>	append STDOUT to file (creates file if it doesn't exist)
2>	save STDERR to a new file (WARNING: would first delete any existing file of that name)
2>>	append STDERR to file (creates file if it doesn't exist)
	(pipe) send output to next command
-	symbol for STDIN (sometimes needed during piping)

SHORTCUTS

[up]	scroll through history
[down]	scroll through history
[tab]	autocomplete
[tab tab]	show autocomplete choices

FILENAME WILDCARDS

*	wildcard (one or multiple characters match anything)
?	wildcard (one character matches anything)
[ABC]	wildcard (one character matches A,B, or C)

Wildcard Examples:

file?.txt	matches file1.txt, fileA.txt, etc
file*	matches anything beginning with 'file'
fi*.txt	matches anything beginning with 'f' and ending in '.txt'
file[123].txt	matches file1.txt, file2.txt, or file3.txt

FILE PERMISSIONS:

rwxrwxrwx

r	readable (view) – 4
w	writable (edit) – 2
x	executable (run) – 1

first three	owner
middle three	group
last three	anyone

Permissions Examples:

rwx-----	only owner can read, write, or execute (700)
rwxr-x---	owner and group can read and execute; only owner can write (750)
rw-r--r--	anyone can read; only owner can edit (644)

TORQUE PBS**Common PBS Commands**

qstat	list current jobs (-aln long output)
pbsnodes	list nodes
qdel	delete job
qsub FILE	submit batch job
qsub -IVX	start interactive job

Common PBS qsub arguments

-N name	name of job
-V	transfer user settings to job
-q queueName	request a specific queue
-l nodes=1:ppn=4	use 4 processor cores on 1 node
-l walltime=10:00:00	request up to 10 hours of time on the cluster
-l cput=10:00:00	request up to 10 hours of cpu time on the cluster (e.g. 5 hours with 2 cores)

JARGON

path	variable (\$PATH) pointing to location where programs are installed
pipe	transfer the STDOUT from 1 command to the STDIN of another
STDIN	standard input (default: keyboard, can also be piped input)
STDERR	standard error (where errors are saved, default: screen)
STDOUT	standard output (where command results are printed; default: screen)
tarball	compressed files in .tar.gz format