# Quick Reference Sheet

## Commands used in this manual

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| --- | --- | --- |
| ***Command*** | ***Function*** | ***Syntax/example usage*** |
| *Navigation* | | |
| ls | list contents | ls [OPTIONS] DIRECTORY |
| pwd | print working directory | pwd |
| cd | change directory | cd ~ or cd *#home directory*  cd .. *#previous (parent directory)* |
| *File/Directory operations* | | |
| mkdir | make directory | mkdir DIRECTORY |
| cp | copy files/directories | cp SOURCE DESTINATION |
| man | manual page (help) | man COMMAND |
| mv | move files/directories | mv SOURCE DESTINATION |
| touch | create file | touch FILE |
| nano | edit file | nano FILE |
| less | view file (with more options) | less FILE |
| more | view file (with less options) | more FILE |
| cat | catalog file contents | cat FILE |
| head | show first few lines of a file | head FILE |
| tail | show last few lines of a file | tail FILE |
| rmdir | remove empty directory | rmdir DIRECTORY |
| rm | remove file(s) | rm FILE |
| *Compression/archiving* | | |
| zip | zip compress | zip OUTFILE.zip INFILE.txt  zip -r OUTDIR.zip DIRECTORY |
| unzip | decompress zipped file | unzip ANYTHING.zip |
| tar | archive and compress files/directories | tar -czvf OUTFILE.tar.gz DIRECTORY *#compress*  tar -xzvf OUTFILE.tar.gz *# extract* |
| gzip | gzip files | gzip SOMEFILE |
| gunzip | decompress gzipped files | gunzip SOMEFILE.gz |
| *File permissions* | | |
| chmod | change permissions for files/directories | chmod [OPTIONS] RELATIONS[+/-]PERMISSIONS FILE |
| *File manipulations* | | |
| grep | search a pattern | grep [OPTIONS] "PATTERN" FILENAME |
| sed | stream edit a file | sed 's/search/replace/g' FILENAME |
| awk | multi-purpose command | awk 'PATTERN {ACTION}' FILENAME |
| tr | translate or transliterate a file | tr [OPTIONS] "STRING1" "STRING2" <INFILE |
| wc | word count | wc FILENAME |
| sort | sort files | sort FILE1 > SORTED\_FILE1 |
| uniq | display unique lines | uniq [OPTIONS] INFILE > OUTFILE |
| diff | display difference | diff [OPTIONS] FILE1 FILE2 |
| comm | display common lines among files | comm [OPTIONS] FILE1 FILE2 |
| cut | break files vertically based on fields | cut –d "DELIMITER" –f NUMBER FILE |
| split | break files horizontally | split [OPTIONS] FILENAME |
| paste | combine files side by side | paste FILE1 FILE2 > FILE3 |
| join | join files based on common field | join -t'DELIMITER' -1 N -2 N FILE1 FILE2 |

### Additional commands

|  |  |
| --- | --- |
| ***Command*** | ***Function*** |
| du –sh DIR | show directory size |
| whoami | display username |
| date | system date/time |
| cal | calendar |
| find . –name FILE | find a file/directory |
| which CMD | display default cmd path |
| whereis CMD | show possible locations of cmd |
| locate FILE | find instances of a file |
| clear | clear screen |
| sleep 5 | pause 5 (any) seconds |
| top | current running processes |
| ps | current running processes |
| wget URL | download specified URL |

### Nano shortcuts

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| --- | --- |
| ***Commands*** | ***Function*** |
| ctrl+r | read/insert file |
| ctrl+o | save file |
| ctrl+x | close file |
| alt+a | start selecting text |
| ctrl+k | cut selection |
| ctrl+u | uncut (paste) selection |
| alt+/ | go to end of the file |
| ctrl+a | go to start of the line |
| ctrl+e | go to end of the line |
| ctrl+c | show line number |
| ctrl+\_ | go to line number |
| ctrl+w | find matching word |
| alt+w | find next match |
| ctrl+\ | find and replace |

### Pre-declared variables

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| --- | --- |
| ***Variables\**** | ***Description*** |
| $USER | username |
| $HOME | home path |
| $PWD | working directory path |
| $PATH | path for executables |
| $HOSTNAME | machine name |
| $SHELL | current shell |
| $SSH\_CLIENT | local client's IP address |
| $TERM | type of terminal |
| *\** env *command lists all the assigned variables* | |

### Shortcuts

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| --- | --- |
| ***Commands*** | ***Function*** |
| TAB | autocomplete names |
| UP/DOWN | browse previous commands |
| ctrl+c | interrupt/kill anything |
| ctrl+l | clear screen |
| ctrl+d | quit, exit |
| ctrl+z | suspend (use fg to restore) |
| !! | repeat last command |
| alt+. | last argument of previous cmd |
| ctrl+insert | copy selection |
| shift+insert | paste copied text |
| ctrl+a | go to start of the line |
| ctrl+e | go to end of the line |
| ctrl+r | reverse search history |
| cd ~ | go to home |

### Pipes, redirects

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| --- | --- |
| ***Redirects*** | ***Function*** |
| cmd < file | use file as input |
| cmd > file | write output to file |
| cmd >> file | append output to file |
| cmd 2> stderr | error output to file |
| cmd 1>&2 file | send output and error to file |
| cmd1 | cmd2 | send output of cmd1 to cmd2 |

### HPC-Cluster specific commands

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| --- | --- | --- |
| ***Command*** | ***Function*** | ***Syntax/example usage*** |
| qstat | lists current jobs on queues | qstat –an1 queue *# current jobs in specified queue*  qstat –u username *# current jobs by the user*  qstat –f jobid *# information about the job (id#)*  qstat -q *# list all queues*  qstat -a *# list all jobs*  qstat –r *# list running jobs*  qstat -Qf queue *# information about the 'queue'* |
| qdel | delete job from the queue | qdel jobid |
| qsub | submit job to the queue | qsub submissionfile.sub |
| qhold | hold job in queue | qhold jobid |
| qrls | release job for running | qrls jobid |
| qnodes | details about the nodes | qnodes |
| module | use preinstalled programs | module load PROGRAM *# loads program for use*  module list *# lists all loaded modules*  module avail *# lists available modules*  module unload PROGRAM *# unloads module* |