

## Basic Unix Commands

### Bash Commands

- `man <cmd>`
  - Shows manual for a command.
- `sudo <cmd>`
  - Execute a command as the superuser.

### File System Navigation

- `cd <path>`
  - Change current working directory.
- `ls [<opts>] [<path>]`
  - List the contents of a directory (current working directory by default).
  - Options:
    - `-l`: use a more detailed listing format.
    - `-a`: show hidden files and folders.
- `pwd`
  - Print name of the current working directory.

### File System Manipulation

- `mkdir <dirpath>`
  - Create a new directory, if it does not already exist..
- `rmdir <dirpath>`
  - Remove a directory, if it is empty.
- `mv <srcpath> <destpath>`
  - Move (rename) the file `<srcpath>` to `<destpath>`.
- `rm [<opts>] <path>`
  - Remove a file.
  - Options:
    - `-R`: remove directories and their contents recursively.
- `cp [<opts>] <srcpath> <destpath>`
  - Copy the file `<srcpath>` to `<destpath>`.
  - Options:
    - `-R`: copy directories and their contents recursively.
- `ln [<opts>] <target> <destpath>`
  - Create an hard link to file `<target>` in `<destpath>`.
  - Options:
    - `-s`: make symbolic links instead of hard links.

### Process Management

- `ps [<opts>]`
  - List active processes.

- o Options:
  - -e: list all processes.
  - -l: use a more detailed listing format.
- top
  - o Show a a dynamic real-time view of running processes.
- kill -<signum> <pid>
  - o Send the signal <signum> to the process specified by <pid>.
  - o Signals:
    - -9: terminate a process.
- <cmd> &
  - o Execute command in background.

### **File Operations**

- cat <filepath>
  - o Print file on the standard output.
- more <filepath> / less <filepath>
  - o Print file on the standard output page by page.
- sort [<opts>] <filepath>
  - o Sort lines of text files (alphabetically by default).
  - o Options:
    - -r: reverse order.
    - -n: use numerical order.
    - -k <key>: sort via key.
- cut [<opts>] <filepath>
  - o Remove sections from each line of a text file.
  - o Options:
    - -f <field1,field2,...fieldN>: specify fields to select.
    - -d <delim>: use <delim> instead of TAB for field delimiter.
- tr [<opts>] <set1> [<set2>]
  - o Translate standard input characters from <set1> to <set2>.
  - o Options:
    - -d: delete characters from <set1> instead of translating them.
- uniq [<opts>] <filepath>
  - o Omit repeated lines.
  - o Options:
    - -d: report only repeated lines instead of omitting them.
- grep [<opts>] <filepath>
  - o Print lines of a file matching a pattern.

- o Options:
  - -e <pattern>: specify a pattern to be matched.
  - -E <pattern>: specify extended regular expression pattern to be matched.
  - -H: print the file name for each match.
  - -n: print the line number for each match.
  - -i: ignore case.
  - -v: invert the sense of matching, to select non-matching lines.
  - --quiet, --silent, -l no output is produced.
  - --files-with-matches, -l print out only file names.

- wc [<opts>] <filepath>
  - o Print newline, word, and byte counts for a file.
  - o Options:
    - -l: print newline count only.
    - -w: print word count only.
    - -c: print byte count only.

## File Search

- find [<directory>] [<options>] [<actions>]
  - o Search for files in a directory hierarchy (with a specified root, i.e., <directory>).
  - o Options:
    - -name <pattern>: search files whose name matches the pattern.
    - -regex <pattern>: search files whose path matches a regular expression.
    - -regextype posix-extended: specify posix-extended format for regular expressions
    - -type <f|l|d>: search files of a specific type.
    - -mindepth <depth>: search files starting from the specified directory tree depth.
    - -maxdepth <depth>: search files up to the specified directory tree depth.
    - -size <[+,-]n[ckMG]>: search files whose size starts from (+) or goes up to (-) the specified size. (c=bytes, w=words, k=kilobytes, M=megabytes, G=gigabytes).
  - o Actions:
    - -exec <cmd>: execute command on each matched file.
      - \{} (or '{}') can be used as a placeholder for the file path.
      - The command must end with \; (or ';'').

## File Permissions Management

- chmod [<opts>] <mode> <file>
  - o Change file permissions. <mode> can be specified symbolically ([ugoa][+-][rwx]) or numerically (octal digits).
  - o Options:

- -R: change permissions of files and directories recursively.

### **String manipulation**

- basename path
  - Strip directory and suffix from path.
- dirname path
  - Strip last component from path.

### **Redirections**

- cmd1 | cmd2
  - Redirect standard output of cmd1 to standard input of cmd2.
- cmd < file
  - Redirect standard input of cmd from file.
- cmd > file
  - Redirect standard output of cmd to file.
- cmd 2> file
  - Redirect standard error of cmd to file.
- cmd &> file
  - Redirect standard output and standard error of cmd to file.
- cmd >> file
  - Append standard output of cmd to file.

### **Shortcuts**

- CTRL+C
  - Terminate the current foreground process.
- CTRL+Z
  - Stop the current foreground process.
- TAB
  - Autocompletion.