LINUX

Navigation

To use the Linux system we have Graphical user interface and it works completely fine but while working with command line interface we need to know commands to move around and use them to do our work.
Using command also increase the work speed

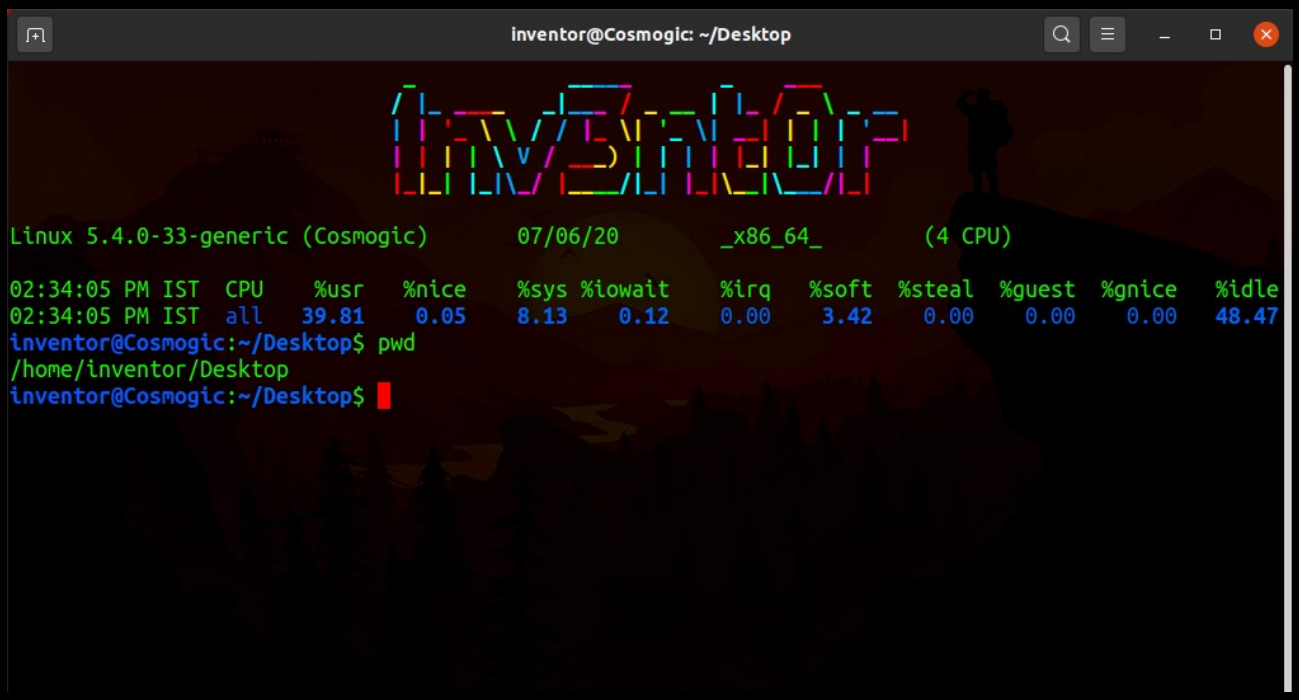
The basic command used to move around the system are :

- pwd
- ls
- cd

PWD :- pwd stands for print working directory and as the name suggest it print the location where user is currently present .
pwd is builtin command of shell and also present as the external command in / usr / bin / pwd .

Internal and external command
The command built into the shell are known as internal command and are comparatively faster then other commands as shell don't have to provide path for the same . And the command which aren't built into the shell are known as external command they are usually stored in /bin or / usr/bin .

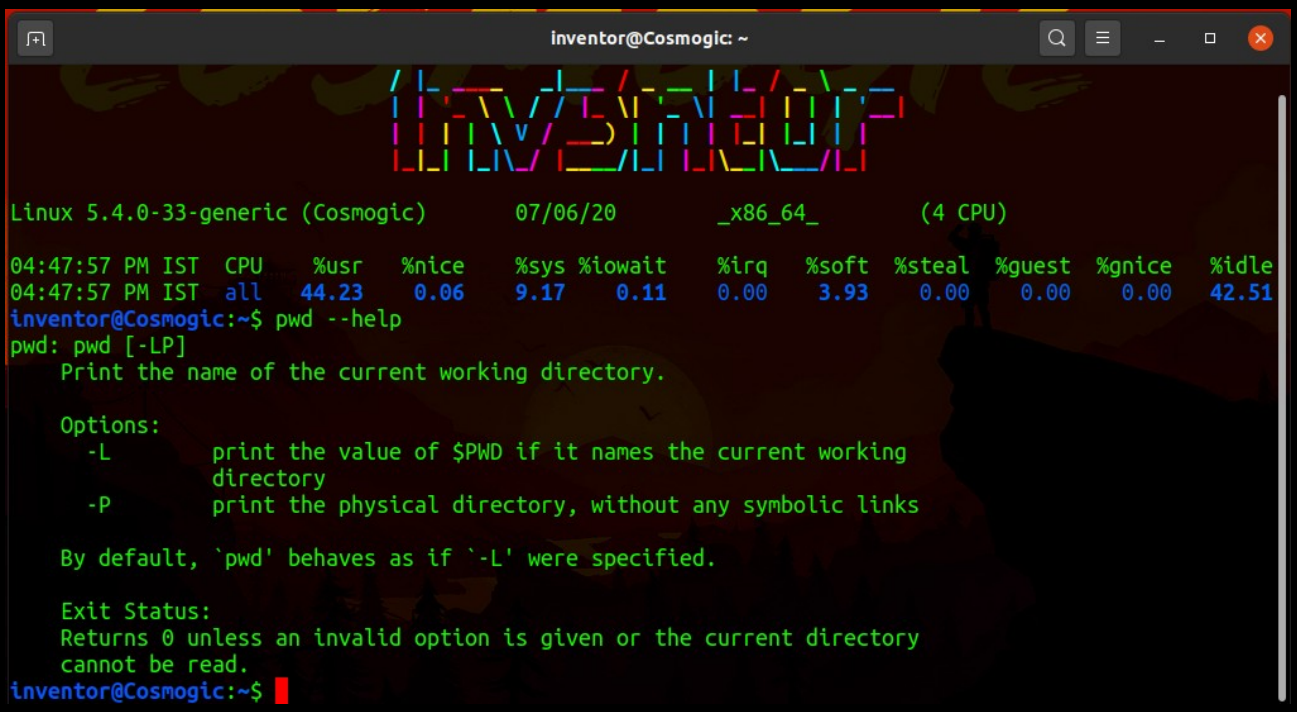
To know our location we simply type pwd and we get out location.
For ex :-



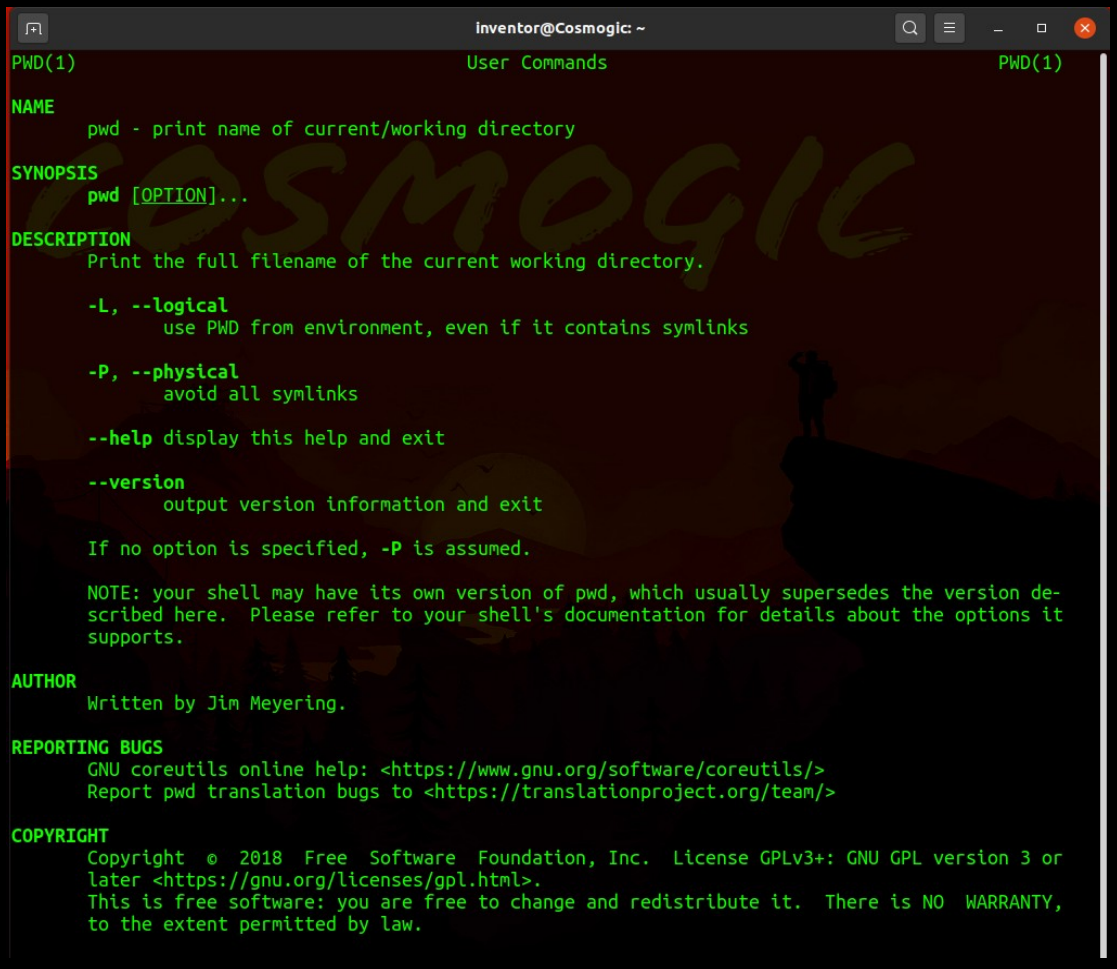
The pwd command told me my location
root > home > inventor >Desktop

We have option while executing pwd ,they are
-L Prints the symbolic path
-P prints the actual path

We can write pwd --help ,to view the options

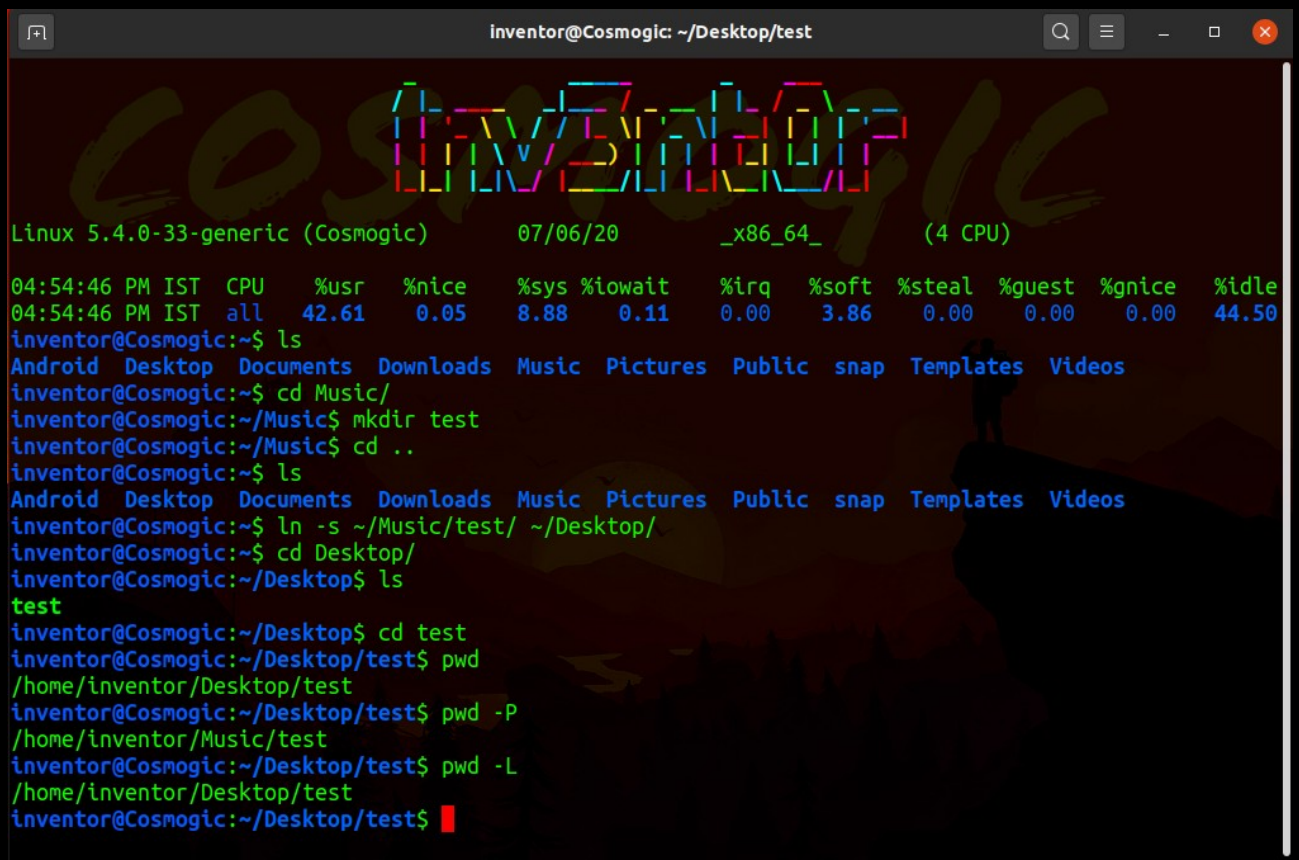


And man pwd to view manual of pwd command



A symbolic link, also termed a soft link, is a special kind of file that points to another file, much like a shortcut in Windows or a Macintosh alias. Unlike a hard link, a symbolic link does not contain the data in the target file. It simply points to another entry somewhere in the file system

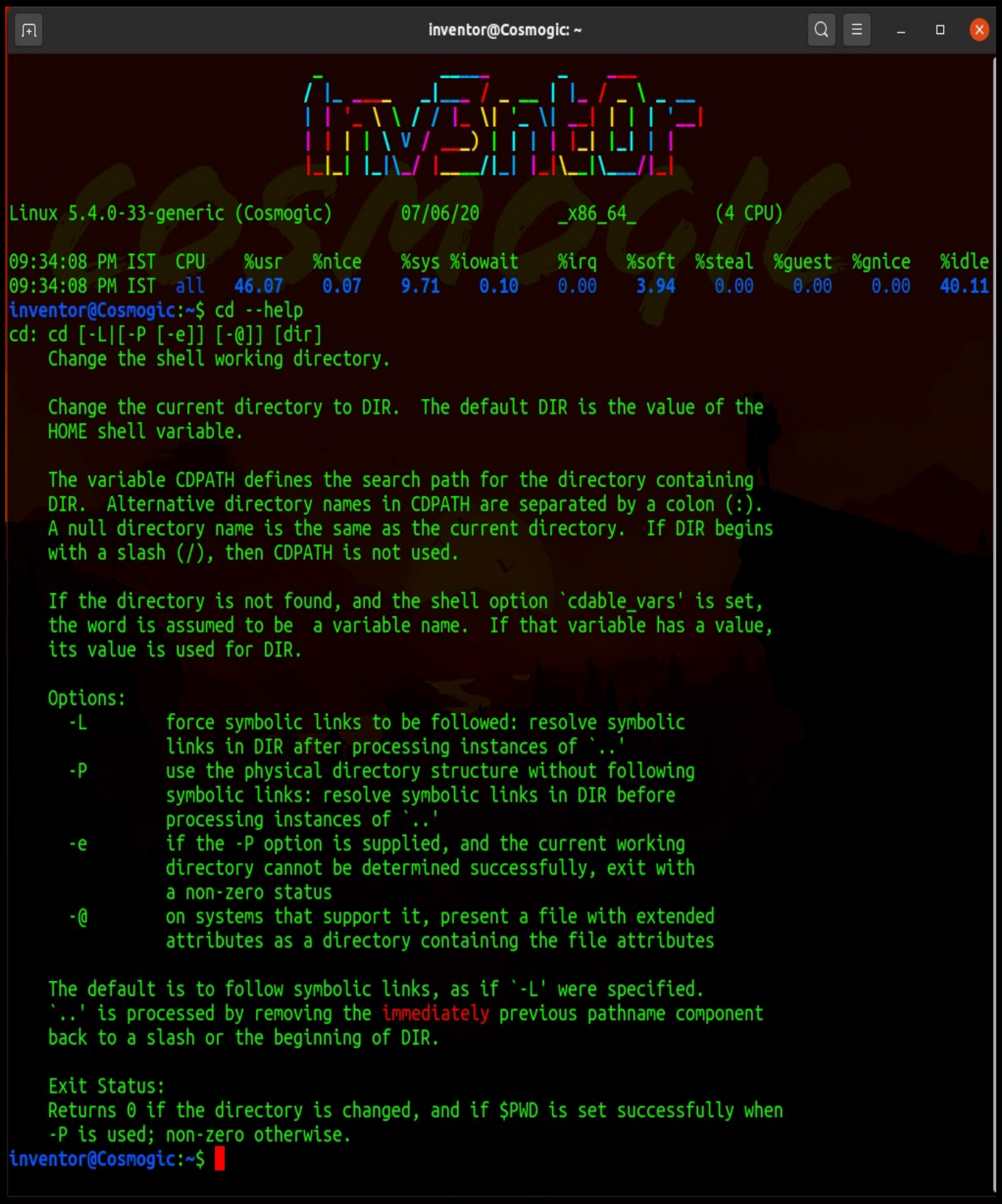
to create a symbolic link
ln -s ~(full location of file of which link has to be created) ~(location where we want new file)
now we use -L and -P to get location as per our need



CD :- cd stands for change directory and as it's name suggest it's used to move from one directory to another
It's builtin shell command and might slightly differ from shell to shell .
It uses the shell environment variable to determine necessary information for its execution.

The options available in cd command are :
-L :- force symbolic links to be followed: resolve symbolic links in DIR after processing instances of `..'
-P :- use the physical directory structure without following symbolic links: resolve symbolic links in DIR before processing instances of `..'
-e :- if the -P option is supplied, and the current working directory cannot be determined successfully, exit with a non-zero status
-@ :- on systems that support it, presents a file with extended attributes as a directory containing the file attributes

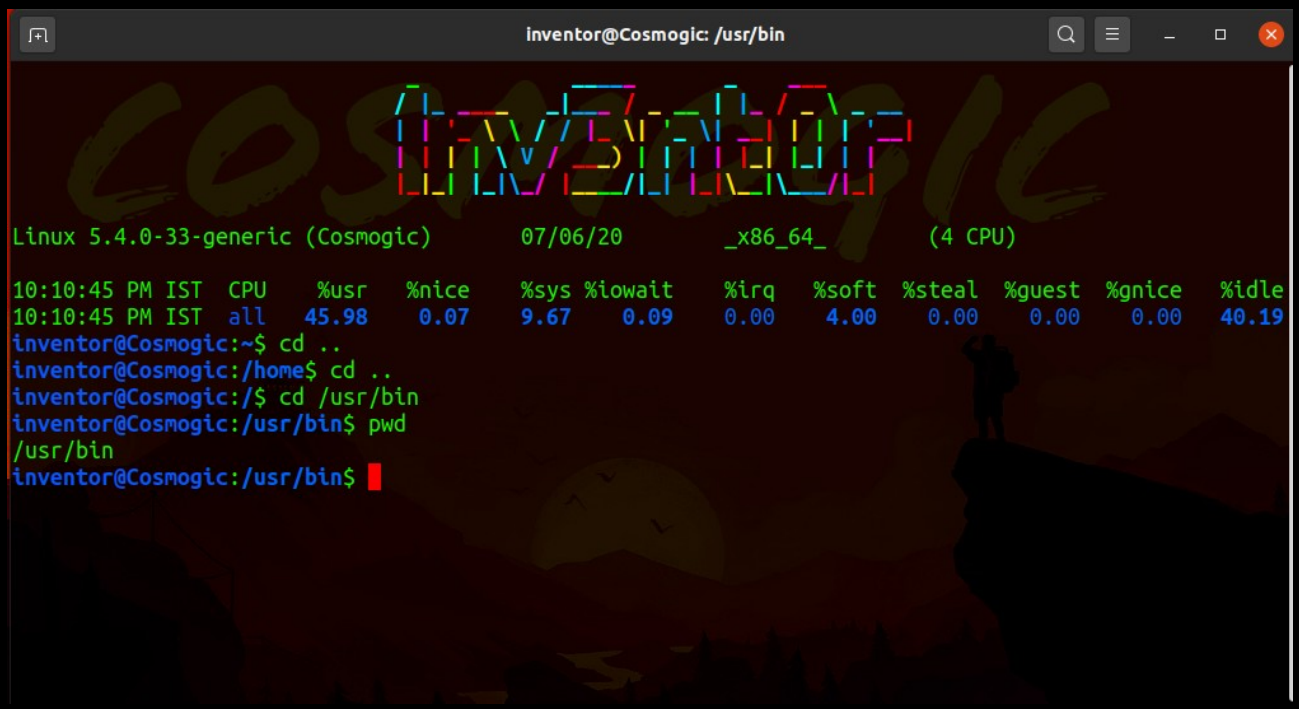
The same information can by gained by cd --help .


inventor@Cosmogic: ~
Linux 5.4.0-33-generic (Cosmogic) 07/06/20 _x86_64_ (4 CPU)
09:34:08 PM IST CPU %usr %nice %sys %iowait %irq %soft %steal %guest %gnice %idle
09:34:08 PM IST all 46.07 0.07 9.71 0.10 0.00 3.94 0.00 0.00 0.00 40.11
inventor@Cosmogic:~$ cd --help
cd: cd [-L|[-P [-e]] [-@]] [dir]
Change the shell working directory.
Change the current directory to DIR. The default DIR is the value of the
HOME shell variable.
The variable CDPATH defines the search path for the directory containing
DIR. Alternative directory names in CDPATH are separated by a colon (:).
A null directory name is the same as the current directory. If DIR begins
with a slash (/), then CDPATH is not used.
If the directory is not found, and the shell option `cdable_vars' is set,
the word is assumed to be a variable name. If that variable has a value,
its value is used for DIR.
Options:
-L force symbolic links to be followed: resolve symbolic
links in DIR after processing instances of `..'
-P use the physical directory structure without following
symbolic links: resolve symbolic links in DIR before
processing instances of `..'
-e if the -P option is supplied, and the current working
directory cannot be determined successfully, exit with
a non-zero status
-@ on systems that support it, present a file with extended
attributes as a directory containing the file attributes
The default is to follow symbolic links, as if `-L' were specified.
`..' is processed by removing the immediately previous pathname component
back to a slash or the beginning of DIR.
Exit Status:
Returns 0 if the directory is changed, and if $PWD is set successfully when
-P is used; non-zero otherwise.
inventor@Cosmogic:~$

we write cd (location where we want to go) to move to any directory or folder

we write cd .. to move out of the folder or directory

we can also specify the location where we want to move



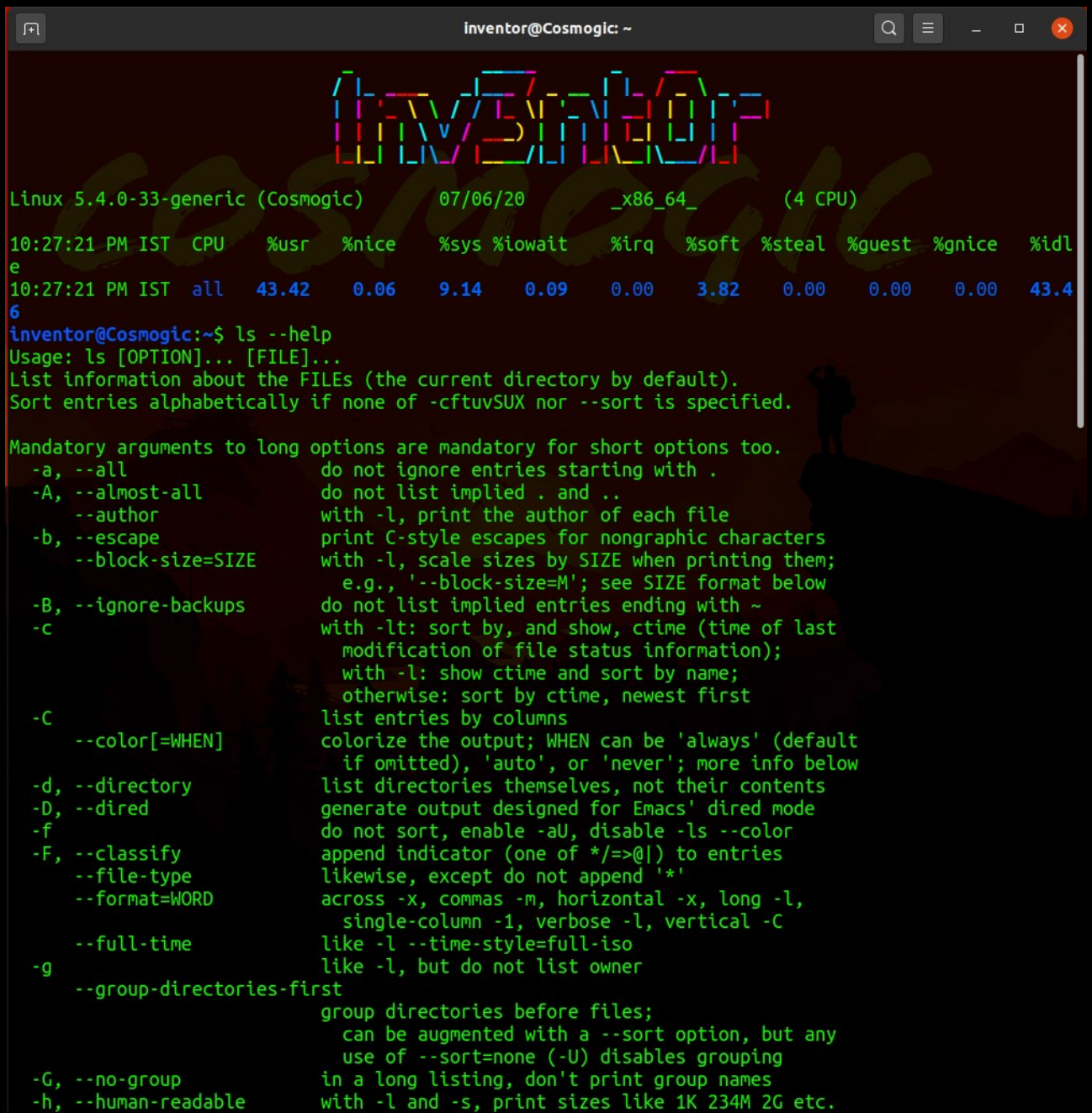
we can write cd test\ folder or cd "test folder" if any folder or directory have space between their name

to move back from multiple directory we write
cd .. / .. /

Or to come back to home we can write cd ~

LS :- ls command stands for list . It displays all the file,folder,directory present at that location

we can write ls --help to get the list of all the option available .



```
  -H, --dereference-command-line
                             follow symbolic links listed on the command line
      --dereference-command-line-symlink-to-dir
                             follow each command line symbolic link
                               that points to a directory
      --hide=PATTERN         do not list implied entries matching shell PATTERN
                               (overridden by -a or -A)
      --hyperlink[=WHEN]     hyperlink file names; WHEN can be 'always'
                               (default if omitted), 'auto', or 'never'
      --indicator-style=WORD  append indicator with style WORD to entry names:
                               none (default), slash (-p),
                               file-type (--file-type), classify (-F)
  -i, --inode                print the index number of each file
  -I, --ignore=PATTERN       do not list implied entries matching shell PATTERN
  -k, --kibibytes            default to 1024-byte blocks for disk usage;
                               used only with -s and per directory totals
  -l                         use a long listing format
  -L, --dereference          when showing file information for a symbolic
                               link, show information for the file the link
                               references rather than for the link itself
  -m                         fill width with a comma separated list of entries
  -n, --numeric-uid-gid      like -l, but list numeric user and group IDs
  -N, --literal              print entry names without quoting
  -o                         like -l, but do not list group information
  -p, --indicator-style=slash
                             append / indicator to directories
  -q, --hide-control-chars   print ? instead of nongraphic characters
      --show-control-chars   show nongraphic characters as-is (the default,
                               unless program is 'ls' and output is a terminal)
  -Q, --quote-name           enclose entry names in double quotes
      --quoting-style=WORD   use quoting style WORD for entry names:
                               literal, locale, shell, shell-always,
                               shell-escape, shell-escape-always, c, escape
                               (overrides QUOTING_STYLE environment variable)
  -r, --reverse              reverse order while sorting
  -R, --recursive            list subdirectories recursively
  -s, --size                 print the allocated size of each file, in blocks
  -S                         sort by file size, largest first
      --sort=WORD            sort by WORD instead of name: none (-U), size (-S),
                               time (-t), version (-v), extension (-X)
      --time=WORD            with -l, show time as WORD instead of default
                               modification time: atime or access or use (-u);
                               ctime or status (-c); also use specified time
                               as sort key if --sort=time (newest first)
  -r, --reverse              reverse order while sorting
  -R, --recursive            list subdirectories recursively
  -s, --size                 print the allocated size of each file, in blocks
  -S                         sort by file size, largest first
      --sort=WORD            sort by WORD instead of name: none (-U), size (-S),
                               time (-t), version (-v), extension (-X)
      --time=WORD            with -l, show time as WORD instead of default
                               modification time: atime or access or use (-u);
                               ctime or status (-c); also use specified time
                               as sort key if --sort=time (newest first)
      --time-style=TIME_STYLE  time/date format with -l; see TIME_STYLE below
  -t                         sort by modification time, newest first
  -T, --tabsize=COLS         assume tab stops at each COLS instead of 8
  -u                         with -lt: sort by, and show, access time;
                               with -l: show access time and sort by name;
                               otherwise: sort by access time, newest first
  -U                         do not sort; list entries in directory order
  -v                         natural sort of (version) numbers within text
  -w, --width=COLS           set output width to COLS.  0 means no limit
  -x                         list entries by lines instead of by columns
  -X                         sort alphabetically by entry extension
  -Z, --context              print any security context of each file
  -1                         list one file per line.  Avoid '\n' with -q or -b
      --help     display this help and exit
      --version  output version information and exit

The SIZE argument is an integer and optional unit (example: 10K is 10*1024).
Units are K,M,G,T,P,E,Z,Y (powers of 1024) or KB,MB,... (powers of 1000).

The TIME_STYLE argument can be full-iso, long-iso, iso, locale, or +FORMAT.
FORMAT is interpreted like in date(1).  If FORMAT is FORMAT1<newline>FORMAT2,
then FORMAT1 applies to non-recent files and FORMAT2 to recent files.
TIME_STYLE prefixed with 'posix-' takes effect only outside the POSIX locale.
Also the TIME_STYLE environment variable sets the default style to use.

Using color to distinguish file types is disabled both by default and
with --color=never.  With --color=auto, ls emits color codes only when
standard output is connected to a terminal.  The LS_COLORS environment
variable can change the settings.  Use the dircolors command to set it.

Exit status:
 0  if OK,
 1  if minor problems (e.g., cannot access subdirectory),
 2  if serious trouble (e.g., cannot access command-line argument).
```

We can write man ls to read the manual of ls command

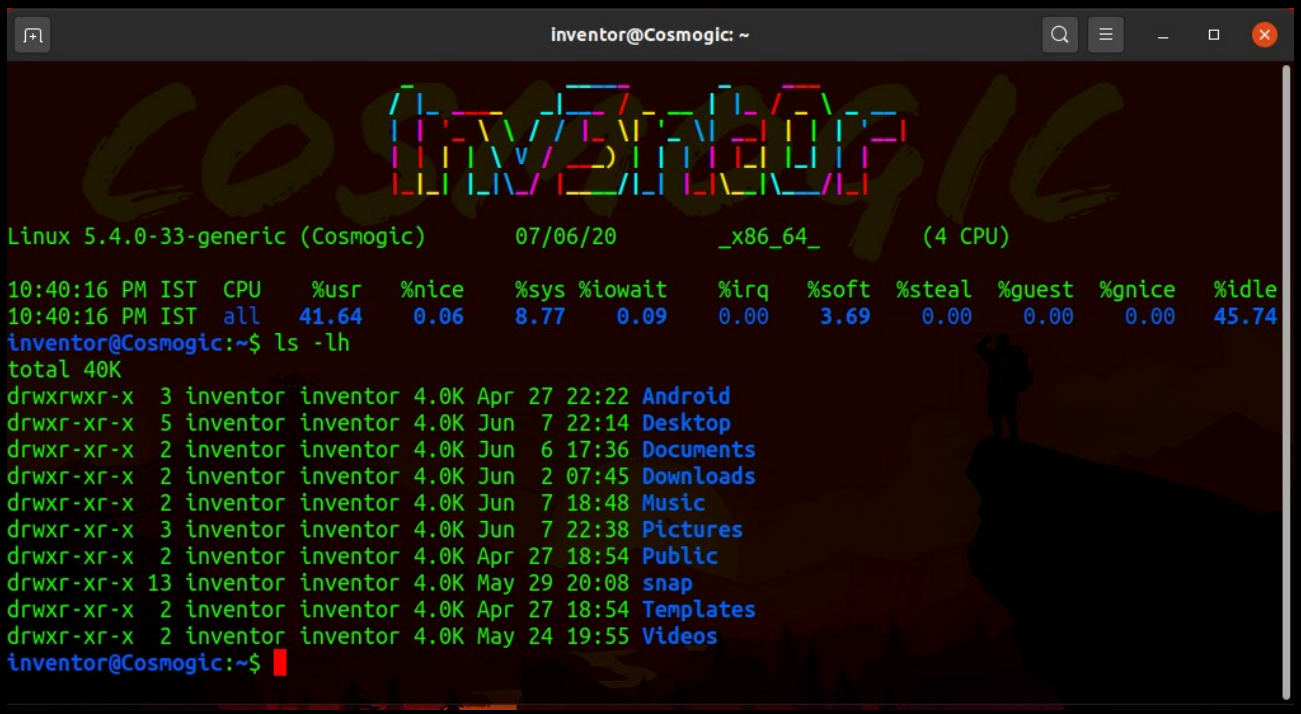
ls :- to display every thing present

ls -l :-to show files with their permissions

ls -a :-to view hidden files

we can write two option in combination like ls -la to get all files permission

ls -lh :-to get size of files in human readable format



ls -R :-to get directory tree

try it in home directory it will give all details

ls -i :-to get inode of all file

There are more option in ls you can try it and explore more .

These are the basic command with their options to navigate across the Linux .

Anyone interested to know more about the command here is the link to it's source code

PWD

→ https://github.com/coreutils/coreutils/blob/master/src/pwd.c

CD

as cd is part of bash → http://ftp.gnu.org/gnu/bash/

LS

→ https://github.com/coreutils/coreutils/blob/master/src/ls.c

Thank you

—1nv3ntor