Linux Terminal: The Ultimate Cheat Sheet

linux terminal beginners

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If you're a Linux user, the Terminal is probably the most powerful tool you would ever have. But the thing

about the Terminal is that you need to learn how to use it if you want to benefit from it. # # #
For the last few months, I've been playing with the Terminal a lot, and I came up with a long list of useful commands that I use regularly. Please let me know if I missed something important so I can add it to future posts.

TL;DR

Basic commands

Zoom in ➜ [CTRL] + [+]

Zoom out ➜ [CTRL] + [-]

Print working directory ➜ pwd

Clear the terminal ➜ [CTRL] + [l] or clear

Assign an alias ➜ alias [alias-name]="[command-to-run]"

Source a file ➜ source [name-of-the-file-to-read-and-execute]

Change directory command (cd)

Move to a specific directory ➜ cd [name-of-your-directory]

Move to the parent directory ➜ cd ..

Move to the home directory ➜ cd or cd ~

Move to the last directory yo were in ➜ cd -

List command (ls)

List all visible files and directories ➜ ls

List all files and directories (include hidden files) ➜ ls -a

Long Listed Format ➜ ls -l

Human Readable Format ➜ ls -lh

Combining arguments: Human Readable Format + Hidden files ➜ ls -lah

Learn more about the ls command ➜ man ls

Search

Locate the binary for a program ➜ which [name-of-the-program]

Locate the binary, source and user manual for a program ➜ whereis [name-of-the-program]

Locate files and directories by name ➜ find [path-to-search] -iname [name-of-the-file-you-want-to-search]

Learn more about the find command ➜ man find

Get a brief description for a command ➜ whatis [command-name]

History

Get previous commands (one by one) ➜ Use the Up Arrow key ⬆ to navigate your history

Get previous commands (full list) ➜ history.

Repeat commands from history (bang command) ➜ history ➜![number-of-the-command-to-repeat]

Repeat last command (bang-bang command) ➜!!

Working with files and directories

Create a new file (without open it) ➜ touch [name-of-your-file]

Create a new file using a text editor ➜ vim [name-of-your-file] or nano [name-of-your-file] Copy a file ➜ cp [source-path-of-your-file] [destination-path-for-your-file]

Create a new directory ➜ mkdir [new-directory-name]

Remove an empty directory ➜ rmdir [name-of-the-directory-you-want-to-remove]

Remove command (rm)

Remove a file ➜ rm [name-of-your-file]

Remove a directory recursively (use with caution) ➜ rm -rf [name-of-your-
directory]

Concatenate command (cat)

View a single file ➜ cat [name-of-your-file]

View a single file including the line numbers ➜ cat -n [name-of-your-file]

Copy the content of one file to another file ➜ cat [filename-whose-contents-is-to-be-copied] > [destination-filename]

Learn more about the cat command ➜ man cat

Move command (mv)

Move

a file

➜

mv

[source-path-of-your-file] [destination-path-for-your-file]

Rename a file ➜ mv [name-of-your-file] [new name-of-your-file]

Basic commands

Zoom in

Type [CTRL] + [+]

Zoom out

Type [CTRL] + [-]

pwd: Print Working Directory command

It prints the working directory path, starting from the root directory.

Clear command

Type clear or [CTRL] + [l] to clear the entire terminal screen and get a clean terminal to keep working.

mauro_codes@DESKTOP-HIQ7662:~$ pwd
/home/mauro_codes

mauro_codes@DESKTOP-HIQ7662:~/projects$ pwd
/home/mauro_codes/projects

Alias command

If you usually run a long command regularly and want to save time, you can assign a shorter alias for that command. Type alias [alias-name]="[command-to-run]" to assign a new alias:

Note that this alias won't be persisted for future uses. If you want to persist your aliases, add them at the end of your .bashrc file located in your home directory.

Source a file

You can use the source command to read and execute the content of a file line by line. Type source

Running the ls command
mauro_codes@DESKTOP-HIQ7662:~$ ls
projects

Assign an alias, so we don't need to add the arguments every time we need to list something mauro_codes@DESKTOP-HIQ7662:~$ alias ls="ls -lah"

Running ls again (we get the result of `ls -lah`)
mauro_codes@DESKTOP-HIQ7662:~$ ls
total 16K
drwxr-xr-x 1 mauro_codes mauro_codes 512 Jan 22 17:41 .
drwxr-xr-x 1 root root 512 Jan 22 10:38 ..
- rw------- 1 mauro_codes mauro_codes 3.0K Jan 22 23:58 .bash_history
- rw-r--r-- 1 mauro_codes mauro_codes 220 Jan 22 10:38 .bash_logout
- rw-r--r-- 1 mauro_codes mauro_codes 3.7K Jan 22 17:32 .bashrc
- rw-r--r-- 1 mauro_codes mauro_codes 807 Jan 22 10:38 .profile
drwxr-xr-x 1 mauro_codes mauro_codes 512 Jan 22 12:55 projects

[name-of-the-file-to-read-and-execute]:

Change Directory command (cd)

Move to a specific directory

Type cd [name-of-your-directory]:

Print the content of the script.txt file (contains two commands) mauro_codes@DESKTOP-HIQ7662:~/projects/landing-page$ cat script.txt echo "hello world" ## Print a hello message
cal ## Print a calendar

Source the script.txt to run each command inside mauro_codes@DESKTOP-HIQ7662:~/projects/landing-page$ source script.txt hello world

January 2021
Su Mo Tu We Th Fr Sa
1 2
3 4 5 6 7 8 9
10 11 12 13 14 15 16
17 18 19 20 21 22 23
24 25 26 27 28 29 30
31

Check current directory
mauro_codes@DESKTOP-HIQ7662:~$ pwd

Move to the parent directory

Type cd ..:

Move to the home directory

Type cd ~ or just cd as an alternative

/home/mauro_codes

Change directory
mauro_codes@DESKTOP-HIQ7662:~$ cd projects/

Check new working directory mauro_codes@DESKTOP-HIQ7662:~/projects$ pwd /home/mauro_codes/projects

Check current directory
mauro_codes@DESKTOP-HIQ7662:~/projects$ pwd /home/mauro_codes/projects

Move to the parent directory mauro_codes@DESKTOP-HIQ7662:~/projects$ cd ..

Check new working directory mauro_codes@DESKTOP-HIQ7662:~$ pwd
/home/mauro_codes

Move to the last directory you were in

Type cd - to navigate to the previous directory you were in

Check current directory
mauro_codes@DESKTOP-HIQ7662:~/projects/awesome-app$ pwd /home/mauro_codes/projects/awesome-app

Move to the home directory mauro_codes@DESKTOP-HIQ7662:~/projects/awesome-app$ cd ~

Check new working directory mauro_codes@DESKTOP-HIQ7662:~$ pwd
/home/mauro_codes

Check the current directory mauro_codes@DESKTOP-HIQ7662:~/projects/landing-page$ pwd /home/mauro_codes/projects/landing-page

Move to another directory mauro_codes@DESKTOP-HIQ7662:~/projects/landing-page$ cd /home/mauro_codes/

Check the new directory
mauro_codes@DESKTOP-HIQ7662:~$ pwd
/home/mauro_codes

Go back to the previus directory you were in

List command (ls)

Lists the content of the directory you're currently in.

List all visible files and directories

Type ls without any additional argument to get all the files and directories (this command will exclude hidden files like the dotfiles).

List all files and directories

Type ls -a to get all the files and directories (including the hidden files)

mauro_codes@DESKTOP-HIQ7662:~$ cd -
/home/mauro_codes/projects/landing-page

Check the working directory
mauro_codes@DESKTOP-HIQ7662:~/projects$ pwd
/home/mauro_codes/projects

List the content for the working directory
mauro_codes@DESKTOP-HIQ7662:~/projects$ ls
awesome-app landing-page nextjs-tailwindcss-blog-starter personal-blog

Check the working directory
mauro_codes@DESKTOP-HIQ7662:~/projects$ pwd

Long Listed Format

Type ls -l to get all the visible files and directories including additional metadata like permissions, owner, size and modified date and time.

Human Readable Format

Type ls -lh to get all the visible files and directories in long-listed format, but with a Human Readable Format (User-friendly file size).

/home/mauro_codes/projects

List the content for the working directory (including hidden files) mauro_codes@DESKTOP-HIQ7662:~/projects$ ls -a
. . . . config .configu awesome-app landing-page nextjs-tailwindcss-blog-starter personal-b

Check the working directory mauro_codes@DESKTOP-HIQ7662:~/projects/nextjs-tailwindcss-blog-starter$ pwd /home/mauro_codes/projects/nextjs-tailwindcss-blog-starter

List the content for the working directory (using the long listed format) mauro_codes@DESKTOP-HIQ7662:~/projects/nextjs-tailwindcss-blog-starter$ ls -l
total 140
- rw-r--r-- 1 mauro_codes mauro_codes 4487 Jan 22 12:55 README.md
drwxr-xr-x 1 mauro_codes mauro_codes 512 Jan 22 12:55 components
- rw-r--r-- 1 mauro_codes mauro_codes 1068 Jan 22 12:55 config.ts
drwxr-xr-x 1 mauro_codes mauro_codes 512 Jan 22 12:55 helpers

Combining arguments

Type ls -lah to get all the files and directories (including hidden files) in Human Readable Format.

Check the working directory mauro_codes@DESKTOP-HIQ7662:~/projects/nextjs-tailwindcss-blog-starter$ pwd /home/mauro_codes/projects/nextjs-tailwindcss-blog-starter

List the content for the working directory (using the long listed format + human readable fo mauro_codes@DESKTOP-HIQ7662:~/projects/nextjs-tailwindcss-blog-starter$ ls -lh
total 140K
- rw-r--r-- 1 mauro_codes mauro_codes 4.4K Jan 22 12:55 README.md
drwxr-xr-x 1 mauro_codes mauro_codes 512 Jan 22 12:55 components
- rw-r--r-- 1 mauro_codes mauro_codes 1.1K Jan 22 12:55 config.ts
drwxr-xr-x 1 mauro_codes mauro_codes 512 Jan 22 12:55 helpers

Check the working directory mauro_codes@DESKTOP-HIQ7662:~/projects/nextjs-tailwindcss-blog-starter$ pwd /home/mauro_codes/projects/nextjs-tailwindcss-blog-starter

List the content for the working directory (include hidden files + human readable format) mauro_codes@DESKTOP-HIQ7662:~/projects/nextjs-tailwindcss-blog-starter$ ls -lah
total 140K
drwxr-xr-x 1 mauro_codes mauro_codes 512 Jan 22 13:08 .
drwxr-xr-x 1 mauro_codes mauro_codes 512 Jan 22 12:55 ..
drwxr-xr-x 1 mauro_codes mauro_codes 512 Jan 22 12:55 .git
- rw-r--r-- 1 mauro_codes mauro_codes 362 Jan 22 12:55 .gitignore

Learn more about the ls command

There are dozens of arguments that you can use with the ls command. If you want to dig dipper, type man ls in your terminal to display the user manual for the ls command.

Search

Locate the binary for a program

If you want to locate where the binary (executable) for a specific command or program is located. You can use the which command:

Locate the binary, source, and user manual for a program

- rw-r--r-- 1 mauro_codes mauro_codes 4.4K Jan 22 12:55 README.md
drwxr-xr-x 1 mauro_codes mauro_codes 512 Jan 22 12:55 components

- rw-r--r-- 1 mauro_codes mauro_codes 1.1K Jan 22 12:55 config.ts
drwxr-xr-x 1 mauro_codes mauro_codes 512 Jan 22 12:55 helpers

Locate binary for the ls command
mauro_codes@DESKTOP-HIQ7662:~/projects/landing-page$ which ls
/usr/bin/ls
Locate binary for git
mauro_codes@DESKTOP-HIQ7662:~/projects/landing-page$ which git
/usr/bin/git

You can use the whereis command to locate the binary, source, and user manual for a program. You can use the -b, -m, and -s arguments to limit the results to binaries, manual and source, respectively

Locate files and directories by name

Type find [path-to-search] -iname [name-of-the-file-you-want-to-search] to find any file or directory that contain the given name in their title.

The path to search is optional. If it is not specified, the find command will run on your current working directory (and its descendants)

The -iname argument means that our search will be case insensitive.

Locate binary, manual, and source for git mauro_codes@DESKTOP-HIQ7662:~/projects/landing-page$ whereis git
git: /usr/bin/git /mnt/c/Program Files/Git/cmd/git.exe /usr/share/man/man1/git.1.gz
Locate only binary and manual for Git, and only the manual for ls command mauro_codes@DESKTOP-HIQ7662:~/projects/landing-page$ whereis -bm git -m ls
git: /usr/bin/git /mnt/c/Program Files/Git/cmd/git.exe /usr/share/man/man1/git.1.gz
ls: /usr/share/man/man1/ls.1.gz

- If you want to learn more about this command, type `man find` to display the user manual. ## Check current working directory
mauro_codes@DESKTOP-HIQ7662:~/projects$ pwd
/home/mauro_codes/projects

Find files that contain "posts" on my current working directory and its descendants

Get a brief description for a command

If you don't know what a certain command does, Type whatis [command-name] like this:

History

Get previous commands (one by one)

You can access your recent command by pressing the Up Arrow key ⬆. This is very useful if you want to repeat your last command. Let's say we move to a specific directory, and then we check our working directory like this:

mauro_codes@DESKTOP-HIQ7662:~/projects$ find -iname posts
. /nextjs-tailwindcss-blog-starter/pages/posts
. /nextjs-tailwindcss-blog-starter/posts
Find files that contain "posts" on a specific directory and its descendants mauro_codes@DESKTOP-HIQ7662:~/projects$ find ./nextjs-tailwindcss-blog-starter/pages/ -iname pos
. /nextjs-tailwindcss-blog-starter/pages/posts

Asking about the cat command
mauro_codes@DESKTOP-HIQ7662:~/projects$ whatis cat
cat (1) - concatenate files and print on the standard output
Asking about the find command
mauro_codes@DESKTOP-HIQ7662:~/projects$ whatis find
find (1) - search for files in a directory hierarchy

⬆ We'll get the pwd command

⬆⬆ We'll get the cd projects/awesome-app command

Repeat previous commands (full list)

Type history to get a numerated list containing the previous commands you run. Then, type ![number-of-the-command-to-repeat] to repeat that command

Move to a specific directory
mauro_codes@DESKTOP-HIQ7662:~$ cd projects/awesome-app/

Check the working directory
mauro_codes@DESKTOP-HIQ7662:~/projects/awesome-app$ pwd
/home/mauro_codes/projects/awesome-app

Get the history list
mauro_codes@DESKTOP-HIQ7662:~$ history
1 ls
2 clear
3 pwd
4 mkdir projects
5 cd projects

Run command number 1 (ls)
mauro_codes@DESKTOP-HIQ7662:~$!1
projects

Repeat the last command

Type !! (bang-bang command) to repeat the last command. This is especially useful when you forgot to add sudo on your last command:

Working with files and directories

Create a new file (without open it)

Running update without sudo (Permission denied)
mauro_codes@DESKTOP-HIQ7662:~$ apt update
Reading package lists... Done
E: Could not open lock file /var/lib/apt/lists/lock - open (13: Permission denied)
E: Unable to lock directory /var/lib/apt/lists/
W: Problem unlinking the file /var/cache/apt/pkgcache.bin - RemoveCaches (13: Permission denied W: Problem unlinking the file /var/cache/apt/srcpkgcache.bin - RemoveCaches (13: Permission deni

Using the bang-bang command to append the last command after sudo mauro_codes@DESKTOP-HIQ7662:~$ sudo!!
sudo apt update
[sudo] password for mauro_codes:
Get:1 http://security.ubuntu.com/ubuntu focal-security InRelease [109 kB]
Hit:2 http://archive.ubuntu.com/ubuntu focal InRelease
Get:3 http://archive.ubuntu.com/ubuntu focal-updates InRelease [114 kB]

. . .

Type touch [name-of-your-file] to create a new file without open it on a text editor. This is useful if you just want to create an empty file but don't need to change it right now.

Create a new file using a text editor

Type nano [name-of-your-file] to create a new file and open it using the text editor nano. If you want to learn more about nano, you can Type man nano on your terminal to display the nano user manual.

Check the working directory
mauro_codes@DESKTOP-HIQ7662:~/projects/landing-page$ pwd /home/mauro_codes/projects/landing-page

List the content for the working directory mauro_codes@DESKTOP-HIQ7662:~/projects/landing-page$ ls
README.md

Create an empty js file
mauro_codes@DESKTOP-HIQ7662:~/projects/landing-page$ touch main.js

List the content for the working directory (including your new file) mauro_codes@DESKTOP-HIQ7662:~/projects/landing-page$ ls
README.md main.js

Check the working directory
mauro_codes@DESKTOP-HIQ7662:~/projects/landing-page$ pwd /home/mauro_codes/projects/landing-page

After running the last command, you'll be able to edit the file using nano:

Copy a file

You can use the cp (Copy) command to copy files and directories
Type cp [source-path-of-your-file] [destination-path-for-your-file] to copy a file into a new destination.

List the content for the working directory

mauro_codes@DESKTOP-HIQ7662:~/projects/landing-page$ ls
README.md main.js

mauro_codes@DESKTOP-HIQ7662:~/projects/landing-page$ nano index.html

List the content for the working directory mauro_codes@DESKTOP-HIQ7662:~/projects/landing-page$ ls
README.md index.html main.js temp

Copy the README.md file into the temp directory mauro_codes@DESKTOP-HIQ7662:~/projects/landing-page$ cp README.md temp/README.md

List the content for the working directory and check that your file is still there. mauro_codes@DESKTOP-HIQ7662:~/projects/landing-page$ ls
README.md index.html main.js temp

List the temp directory's content and check if your file was copied. mauro_codes@DESKTOP-HIQ7662:~/projects/landing-page$ ls temp/
README.md index-copy.html

Create a new directory

Type mkdir [new-directory-name] to create a new directory in your current working directory

Remove an empty directory

Type rmdir [name-of-the-directory-you-want-to-remove] to remove an empty directory. Please note that this command will only work with empty directories.

List the content for the working directory mauro_codes@DESKTOP-HIQ7662:~/projects/landing-page$ ls
README.md index-empty-copy.html index.html main.js

Create a new directory called "scripts"
mauro_codes@DESKTOP-HIQ7662:~/projects/landing-page$ mkdir scripts

List the content to check if our new directory was created mauro_codes@DESKTOP-HIQ7662:~/projects/landing-page$ ls
README.md index-empty-copy.html index.html main.js scripts

List the content for the working directory mauro_codes@DESKTOP-HIQ7662:~/projects/landing-page$ ls
README.md index.html main.js temp

Remove the "temp" empty directory
mauro_codes@DESKTOP-HIQ7662:~/projects/landing-page$ rmdir temp

Remove command (rm)

Remove a file

Type rm [name-of-your-file] to remove a file

Remove a directory recursively

Type rm -rfi [name-of-your-directory] to recursively remove a directory with all its files and sub-directories.

List the content and check that the directory was removed

mauro_codes@DESKTOP-HIQ7662:~/projects/landing-page$ ls
README.md index.html main.js

List the content for the working directory mauro_codes@DESKTOP-HIQ7662:~/projects/landing-page/temp$ ls
README.md index-copy.html

Remove the index-copy.html file mauro_codes@DESKTOP-HIQ7662:~/projects/landing-page/temp$ rm index-copy.html

List the content for the working directory and check that the file was removed mauro_codes@DESKTOP-HIQ7662:~/projects/landing-page/temp$ ls
README.md

Please be careful! This is one of the most dangerous commands you can run. If you run rm -rfi /, you'll erase your entire root partition. Be sure to specify the path for the directory you want to delete. In this example, In this example, I include the -i argument to ask for confirmation.

Concatenate command (cat)

You can use the cat (concatenate) command to read data from a file and print their content as output

View a single file

Type cat [name-of-your-file]:

List the content of the temp folder (It has one file) mauro_codes@DESKTOP-HIQ7662:~/projects/landing-page$ ls temp/
total 0
drwxr-xr-x 1 mauro_codes mauro_codes 512 Jan 24 19:45 .
drwxr-xr-x 1 mauro_codes mauro_codes 512 Jan 24 19:44 ..
- rw-r--r-- 1 mauro_codes mauro_codes 8 Jan 24 19:45 file.txt

Recursively remove the temp folder mauro_codes@DESKTOP-HIQ7662:~/projects/landing-page$ rm -rf temp/

Check that the temp folder was removed mauro_codes@DESKTOP-HIQ7662:~/projects/landing-page$ ls temp/
ls: cannot access 'temp/': No such file or directory

Check the working directory mauro_codes@DESKTOP-HIQ7662:~/projects/landing-page$ pwd

View a single file including the line numbers

Type cat -n [name-of-your-file]:

/home/mauro_codes/projects/landing-page

Print the content of the index.html file mauro_codes@DESKTOP-HIQ7662:~/projects/landing-page$ cat index.html <!DOCTYPE html>
<html lang="en">
<head>
<meta charset="utf-8" />
<meta http-equiv="x-ua-compatible" content="ie=edge" />
<meta name="viewport" content="width=device-width, initial-scale=1" />

<title>My Website</title>
</head>

<body>
<script src="js/main.js"></script>
</body>
</html>

Check the working directory mauro_codes@DESKTOP-HIQ7662:~/projects/landing-page$ pwd /home/mauro_codes/projects/landing-page

Print the content of the index.html file mauro_codes@DESKTOP-HIQ7662:~/projects/landing-page$ cat -n index.html
1 <!DOCTYPE html>

Copy the content of one file to another file

Type cat [filename-whose-contents-is-to-be-copied] > [destination-filename]:

2 <html lang="en">
3 <head>

4 <meta charset="utf-8" />
5 <meta http-equiv="x-ua-compatible" content="ie=edge" />
6 <meta name="viewport" content="width=device-width, initial-scale=1" />
7

8 <title>My Website</title>
9 </head>
10

11 <body>
12 <script src="js/main.js"></script>
13 </body>
14 </html>

Create an empty file called index-empty-copy.html mauro_codes@DESKTOP-HIQ7662:~/projects/landing-page$ touch index-empty-copy.html

Copy the content of index.html to index-empty-copy.html mauro_codes@DESKTOP-HIQ7662:~/projects/landing-page$ cat index.html > index-empty-copy.html

Print the content of the index-empty-copy.html file mauro_codes@DESKTOP-HIQ7662:~/projects/landing-page$ cat index-empty-copy.html
<!DOCTYPE html>
<html lang="en">
<head>
<meta charset="utf-8" />

Learn more about the cat command

Type man cat to display the user manual for the cat command

Move command (mv)

You can use the mv (move) command for moving and renaming files

Move a file

Type mv [source-path-of-your-file] [destination-path-for-your-file] to move a file into a new directory

<meta http-equiv="x-ua-compatible" content="ie=edge" />
<meta name="viewport" content="width=device-width, initial-scale=1" />

<title>My Website</title>
</head>

<body>
<script src="js/main.js"></script>
</body>
</html>

List the content for the working directory mauro_codes@DESKTOP-HIQ7662:~/projects/landing-page$ ls
README.md index-empty-copy.html index.html main.js temp

Rename a file

Type mv [name-of-your-file] [new name-of-your-file] to rename a file

Final words

Move the index-empty-copy.html file to the temp directory mauro_codes@DESKTOP-HIQ7662:~/projects/landing-page$ mv index-empty-copy.html temp/index-empty-c

List the content again and check that the file is no longer in the current working directory mauro_codes@DESKTOP-HIQ7662:~/projects/landing-page$ ls
README.md index.html main.js temp

List the temp folder and check that the file is now there. mauro_codes@DESKTOP-HIQ7662:~/projects/landing-page$ ls temp/
index-empty-copy.html

List the content for the working directory mauro_codes@DESKTOP-HIQ7662:~/projects/landing-page/temp$ ls
index-empty-copy.html

Rename the index-empty-copy.html file mauro_codes@DESKTOP-HIQ7662:~/projects/landing-page/temp$ mv index-empty-copy.html index-copy.ht

List the content for the working directory (check if your file's name was updated) mauro_codes@DESKTOP-HIQ7662:~/projects/landing-page/temp$ ls
index-copy.html