



Linux & Git cheat sheet

File Operations:

- **ls**: Lists all files and directories in the present working directory
- **ls -R**: Lists files in sub-directories as well
- **ls -a**: Shows hidden files
- **ls -al**: Lists files and directories with detailed information 📄📁
- **cd directoryname**: Changes the directory 📁
- **cd ..**: Moves one level up ↗
- **pwd**: Displays the present working directory 📄
- **cat > filename**: Creates a new file 📄✍
- **cat filename**: Displays the file content 📄👁
- **touch filename**: Creates or modifies a file 🛠📄
- **rm filename**: Deletes a file ✖📄
- **cp source destination**: Copies files from source to destination ➡📄
- **mv source destination**: Moves files from source to destination 🔄📄
- **find / -name filename**: Finds a file or a directory by its name 🔍📄📁
- **file filename**: Determines the file type 📄?
- **less filename**: Views the file content page by page 📄📄
- **head filename**: Views the first ten lines of a file 📄⬆TOP
- **tail filename**: Views the last ten lines of a file 📄⬆END
- **du -h --max-depth=1**: Shows the size of each directory 📁📏

Directory Operations:

- **mkdir directoryname**: Creates a new directory 📁NEW
- **rmdir directoryname**: Deletes a directory ✖📁
- **cp -r source destination**: Copies directories recursively ➡📁
- **mv olddir newdir**: Renames directories 🔄📁
- **find / -type d -name directoryname**: Finds a directory starting from root 🔍📁

Process Operations:

- **ps**: Displays your currently active processes 🔄
- **top**: Displays all running processes 🔄
- **kill pid**: Kills the process with given pid ✖🔄

- **pkill name:** Kills the process with the given name ❌🔄
- **bg:** Resumes suspended jobs without bringing them to foreground ▶🔄
- **fg:** Brings the most recent job to foreground ▶
- **renice +n [pid]:** Change the priority of a running process 🔄⚙️
- **&>filename:** Redirects both the stdout and the stderr to the file 🔄📄
- **1>filename:** Redirect the stdout to file 🔄📄
- **2>filename:** Redirect stderr to file 🔄📄

🔒 File Permissions:

- **chmod octal filename:** Change the permissions of file to octal 🗝️📄
- **chown ownername filename:** Change file owner 👤📄
- **chgrp groupname filename:** Change group owner 👤📄

🔗 Networking:

- **ping host:** Ping a host and outputs results 🌐
- **netstat -pnltu:** Display various network related information 🔍🌐
- **ssh user@host:** Remote login into the host as user 🌐
- **wget url:** Download files from the web 🌐⬇️
- **curl url:** Sends a request to a URL and returns the response 🌐🔄

📁 Archives and Compression:

- **tar cf file.tar files:** Create a tar named file.tar containing files 📦📄
- **tar xf file.tar:** Extract the files from file.tar 📦📄
- **gzip file:** Compresses file and renames it to file.gz 📄➡️📄.gz
- **gzip -d file.gz:** Decompresses file.gz back to file 📄.gz➡️📄
- **zip -r file.zip files:** Create a zip archive named file.zip 📦📄
- **unzip file.zip:** Extract the contents of a zip file 📦📄

🔍 Text Processing:

- **grep pattern files:** Search for pattern in files 🔍📄
- **grep -r pattern dir:** Search recursively for pattern in dir 🔍📁
- **echo 'text':** Prints text 🗣️
- **sed 's/string1/string2/g' filename:** Replaces string1 with string2 in filename 🔄📄
- **diff file1 file2:** Compares two files and shows the differences ↔️📄
- **wc filename:** Count lines, words, and characters in a file 📄📊
- **awk:** A versatile programming language for working on files 📄🐱
- **sed -i 's/string1/string2/g' filename:** Replace string1 with string2 in filename 🔄📄 (In-place edit)
- **cut -d':' -f1 /etc/passwd:** Cut out the first field of each line in /etc/passwd, using colon as a field delimiter 🔪📄

💾 Disk Usage:

- **df:** Shows disk usage 📊🗑️
- **du:** Shows directory space usage 📁🗑️
- **free:** Show memory and swap usage 📈🔄

- **whereis app:** Show possible locations of app 🔍📁

💻 System Info:

- **date:** Show the current date and time 📅🕒
- **cal:** Show this month's calendar 📅
- **uptime:** Show current uptime 🕒
- **w:** Display who is online 👤
- **uname -a:** Show kernel information 🖥️🔍

📦 Package Installations:

- **sudo apt-get update:** Updates package lists for upgrades 🔄📦
- **sudo apt-get upgrade:** Upgrades all upgradable packages 🔄📦
- **sudo apt-get install pkgname:** Install pkgname 📦
- **sudo apt-get remove pkgname:** Removes pkgname 📦❌

🔧 Others (mostly used in scripts):

- **command | grep pattern:** Pipe the output of command to grep for searching ▶️🔍

🔍 Search and Find:

- **locate filename:** Find a file by its name 🔍📄
- **whereis programname:** Locate the binary, source, and manual page files for a command 🔍📁
- **which commandname:** Shows the full path of (shell) commands 🔍🚀

📦 Compression / Archives:

- **tar -cvf archive.tar dirname/:** Create a tar archive 📦📁
- **tar -xvf archive.tar:** Extract a tar archive 📦📄
- **tar -jcvf archive.tar.bz2 dirname/:** Create a compressed bz2 archive 📦📁
- **tar -jxvf archive.tar.bz2:** Extract a bz2 archive 📦📄

💻 Shell Scripting:

- **#!/bin/bash:** Shebang line to specify the script interpreter 🔄▼
- **\$0, \$1, ..., \$9, \${10}, \${11}:** Script arguments 🔄₁₂₃₄
- **if [condition]; then ... fi:** if statement in bash scripts 🔄🔒
- **for i in {1..10}; do ... done:** for loop in bash scripts 🔄🔄
- **while [condition]; do ... done:** while loop in bash scripts 🔄🔄
- **function name() {...}:** Define a function 🔄🎯

🔧 Environment Variables:

- **env:** Display all environment variables 🌐🔧
- **echo \$VARIABLE:** Display the value of an environment variable 👤🔧
- **export VARIABLE=value:** Set the value of an environment variable 🔄🔧
- **alias new_command='old_command options':** Create a new command that executes the old command with the specified options 📄NEW🔧

- **echo \$PATH:** Print the PATH environment variable 🗑️🔑
- **export PATH=\$PATH:/new/path:** Add /new/path to the PATH 🔄🗑️🔑

🔄 Others (mostly used in scripts):

- **command1 ; command2:** Run command1 and then command2 🔄🔄
- **command1 && command2:** Run command2 if command1 is successful 🔄✅
- **command1 || command2:** Run command2 if command1 is not successful 🔄❌
- **command &:** Run command in background 🔄🕒

Remember, you can always use the **man command** (e.g., **man ls**) to get more information about each command. Happy coding! 🚀

💻 System Monitoring and Performance:

- **iostat:** Reports Central Processing Unit (CPU) statistics and input/output statistics for devices, partitions, and network filesystems 🔄📈
- **vmstat:** Reports information about processes, memory, paging, block IO, traps, disks, and CPU activity 🔄📈
- **htop:** An interactive process viewer for Unix systems 🔄💻

💿 Disk Usage:

- **dd if=/dev/zero of=/tmp/output.img bs=8k count=256k:** Create a file of a certain size for testing disk speed 🗑️🔑
 - This command will create a file named output.img in the /tmp directory with a size of approximately 2 GB (8 KB * 256 KB). It will be filled with zeros.

example:

```
$ dd if=/dev/zero of=/tmp/output.img bs=8k count=256k
262144+0 records in
262144+0 records out
```

2147483648 bytes (2.1 GB, 2.0 GiB) copied, 2.18953 s, 981 MB/s

Note: The output of the dd command may vary based on your system's performance.

- **hdparm -Tt /dev/sda:** Measure the read speed of your hard drive 🗑️📶
 - This command will measure the read speed of your hard drive (/dev/sda) and display the result in MB/sec.

example:

```
$ sudo hdparm -Tt /dev/sda
```

/dev/sda:

Timing cached reads: 20124 MB in 2.00 seconds = 10076.39 MB/sec

Timing buffered disk reads: 588 MB in 3.01 seconds = 195.47 MB/sec

💡 Others:

- **yes > /dev/null &:** Use this command to push a system to its limit 💡🚩
 - Running this command will continuously print the letter "y" and redirect the output to /dev/null, which discards it. The process will run in the background.
- **example:**

\$ **yes > /dev/null &**

[1] 12345

The number in brackets [1] and the PID 12345 represent the background job's ID and process ID, respectively.

- **:(){ :|:& };:** A fork bomb – handle with care. Do not run this command on a production system 💣🚫
 - **:(){ :|:& };:**
Warning: Do not run this command on a production system or any system you care about. It is a fork bomb and can quickly consume system resources, causing the system to become unresponsive or crash.

A fork bomb is a self-replicating program that creates a large number of child processes, overwhelming the system. It can be executed as follows:

\$ **:(){ :|:& };:**

If you accidentally run this command, you may need to restart your system to recover from its effects.


📅 Cron Jobs:


- **crontab -l:** List all your cron jobs 📄👤
- **crontab -e:** Edit your cron jobs 📄✎
- **crontab -r:** Remove all your cron jobs ✖📄
- **crontab -v:** Display the last time you edited your cron jobs 🕒📄
- **crontab file:** Install a cron job from a file 📄🔄
- **@reboot command:** Schedule a job to run at startup 📄🕒🔄


Git Cheat sheet


🔄 Git Commands:


- **git init:** Initialize a local git repository 🔄📁
- **git clone url:** Create a local copy of a remote repository 🔄🔗📁


git add filename: Add a file to the staging area +


git commit -m "Commit message": Commit changes with a message 


git status: Check the status of the working directory 


git pull: Pull latest changes from the remote repository 


git push: Push changes to the remote repository 


git branch: List all local branches 


git branch branchname: Create a new branch +


git checkout branchname: Switch to a branch ↔


git merge branchname: Merge a branch into the active branch 


git stash: Stash changes in a dirty working directory 

git stash apply: Apply changes from a stash 


git log: View commit history 

git reset: Reset your HEAD pointer to a previous commit ←
BACK

git rm filename: Remove a file from version control 

git rebase: Reapply commits on top of another base tip 

Version Control (Git commands):

git revert: Create a new commit that undoes all of the changes made in a particular commit, then apply it to the current branch ←
BACK

git cherry-pick commitID: Apply the changes introduced by some existing commits 