# **Linux Commands Cheat Sheet**

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| **Category** | **Command** | **Description** |
| **Basic Commands** | pwd | Print working directory. |
|  | ls | List files and directories. |
|  | cd <dir> | Change directory to <dir>. |
|  | mkdir <dir> | Create a new directory <dir>. |
|  | rmdir <dir> | Remove an empty directory <dir>. |
|  | rm <file> | Remove a file. |
|  | rm -r <dir> | Remove a directory and its contents recursively. |
|  | touch <file> | Create an empty file or update the timestamp of <file>. |
|  | cat <file> | Display the contents of a file. |
|  | echo <text> | Output the text to the terminal or a file. |
|  | man <command> | Show the manual (help) for a command. |
| **File Permissions** | chmod <permissions> <file> | Change the file permissions (e.g., chmod 755 file). |
|  | chown <user>:<group> <file> | Change the ownership of a file. |
|  | chgrp <group> <file> | Change the group ownership of a file. |
|  | ls -l | List files with detailed information including permissions. |
|  | umask | View or set the default file permissions. |
|  | stat <file> | Display detailed information about a file (permissions, size, last access time). |
| **File Management** | cp <source> <destination> | Copy files or directories. |
|  | mv <source> <destination> | Move or rename files or directories. |
|  | find <path> -name <name> | Search for files in a directory hierarchy. |
|  | grep <pattern> <file> | Search for a pattern in a file. |
|  | locate <file> | Find the location of files (requires updatedb to be run first). |
|  | tar -czf <archive.tar.gz> <dir> | Create a compressed archive of a directory. |
|  | tar -xzf <archive.tar.gz> | Extract a compressed archive. |
| **Process Management** | ps | Display current running processes. |
|  | top | Display real-time process information. |
|  | htop | Interactive process viewer (requires installation). |
|  | kill <PID> | Terminate a process by its Process ID (PID). |
|  | killall <process> | Kill all processes by name. |
|  | bg | Resume a job in the background. |
|  | fg | Bring a background job to the foreground. |
|  | jobs | List all current jobs. |
| **Disk Usage** | df | Display disk space usage. |
|  | du <dir> | Display disk usage for a directory. |
|  | lsblk | List all block devices (disks, partitions). |
|  | fdisk -l | List all partitions on the system. |
|  | mount <device> <mount\_point> | Mount a device to a directory. |
|  | umount <mount\_point> | Unmount a device. |
| **Networking** | ip a | Display network interfaces and IP addresses. |
|  | ifconfig | Display network interfaces (deprecated, use ip instead). |
|  | ping <host> | Send ICMP echo request to a host to check network connectivity. |
|  | traceroute <host> | Trace the route packets take to a network host. |
|  | netstat | Show active network connections and their states. |
|  | ss | Display network sockets (faster and more feature-rich than netstat). |
|  | wget <url> | Download a file from the web. |
|  | curl <url> | Transfer data from or to a server using various protocols. |
| **System Information** | uname -a | Display system information (kernel, OS, etc.). |
|  | uptime | Show how long the system has been running. |
|  | hostname | Display or set the system's hostname. |
|  | free | Show memory usage (RAM and swap). |
|  | top | Real-time system monitor for processes and resource usage. |
|  | dmesg | Show kernel ring buffer messages (boot logs). |
| **User Management** | whoami | Display the current logged-in user. |
|  | id | Display user and group information. |
|  | useradd <username> | Add a new user. |
|  | usermod -aG <group> <user> | Add a user to a group. |
|  | passwd <user> | Change the password for a user. |
|  | deluser <user> | Delete a user. |
|  | groupadd <group> | Create a new user group. |
| **Package Management** | apt-get install <package> | Install a package (Debian/Ubuntu-based systems). |
|  | yum install <package> | Install a package (Red Hat/CentOS-based systems). |
|  | dnf install <package> | Install a package (Fedora systems). |
|  | apt-get update | Update the package database (Debian/Ubuntu). |
|  | apt-get upgrade | Upgrade installed packages (Debian/Ubuntu). |
|  | dpkg -l | List installed packages (Debian/Ubuntu). |
|  | rpm -qa | List installed packages (Red Hat/CentOS). |
| **System Shutdown and Reboot** | reboot | Reboot the system. |
|  | shutdown | Shutdown the system. |
|  | halt | Immediately stop the system. |
|  | poweroff | Power off the system. |
| **Log Management** | tail -f <logfile> | Follow the contents of a log file in real time. |
|  | less <logfile> | View large log files (with paging). |
|  | journalctl | View system logs (on systems using systemd). |
| **Environment Variables** | export VAR=value | Set an environment variable. |
|  | echo $VAR | Print the value of an environment variable. |
|  | env | Display all environment variables. |
| **Text Processing** | cat <file> | Display file contents. |
|  | grep <pattern> <file> | Search for a pattern in a file. |
|  | sed 's/old/new/g' <file> | Replace occurrences of "old" with "new" in a file. |
|  | awk '{print $1}' <file> | Print the first column of a file (space-delimited). |
|  | sort <file> | Sort lines in a file. |
|  | wc <file> | Count lines, words, and characters in a file. |
| **Archiving & Compression** | tar -czf <archive.tar.gz> <dir> | Create a compressed tar archive of a directory. |
|  | tar -xzf <archive.tar.gz> | Extract a compressed tar archive. |
|  | gzip <file> | Compress a file using gzip. |
|  | gunzip <file.gz> | Decompress a .gz file. |

This cheat sheet contains the most commonly used Linux commands, categorized for easy reference.