

Linux

CHEAT SHEET

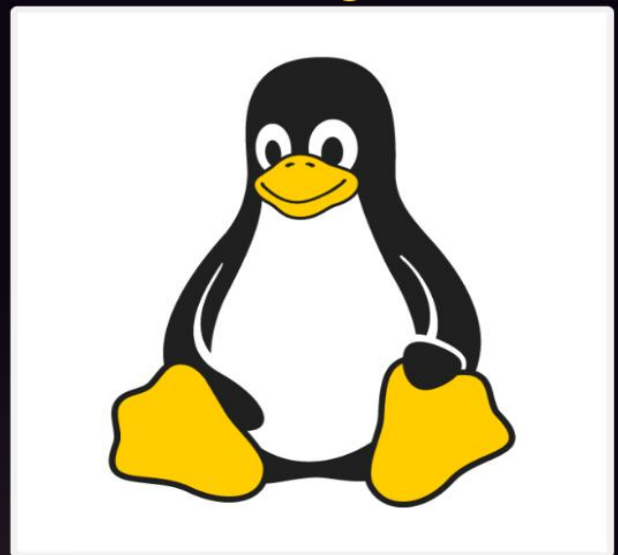


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LINUX CHEAT SHEET

1. Basic Commands

- **pwd** – Print current working directory
- **ls** – List files and directories
 - **ls -l** – Long format listing
 - **ls -a** – Show hidden files
 - **ls -lh** – Human-readable sizes
- **cd <directory>** – Change directory
 - **cd ..** – Move up one directory
 - **cd -** – Go to previous directory
- **mkdir <dir>** – Create a directory
- **rmdir <dir>** – Remove an empty directory
- **rm -r <dir>** – Remove a directory and its contents
- **touch <file>** – Create an empty file
- **cp <source> <destination>** – Copy files/directories
 - **cp -r <dir1> <dir2>** – Copy a directory recursively
- **mv <old> <new>** – Move/rename files or directories
- **rm <file>** – Delete a file
- **cat <file>** – View file contents
- **less <file>** – View file with navigation

- **head <file>** – Show the first 10 lines of a file
- **tail <file>** – Show the last 10 lines of a file
 - **tail -f <file>** – Live update file output

2. File Permissions & Ownership

- **ls -l** – View file permissions
- **chmod 755 <file>** – Change file permissions
 - **chmod u+x <file>** – Grant execute permission to user
 - **chmod g-w <file>** – Remove write permission from group
 - **chmod o+r <file>** – Add read permission to others
- **chown <user>:<group> <file>** – Change ownership
- **chown -R <user>:<group> <dir>** – Change ownership recursively

3. File Searching

- **find <dir> -name "<pattern>"** – Find files by name
- **find <dir> -type d -name "<pattern>"** – Find directories by name
- **find <dir> -type f -size +100M** – Find files larger than 100MB
- **locate <file>** – Find file using index
- **updatedb** – Update the **locate** database

4. File Compression & Archiving

- **tar -cvf archive.tar <files>** – Create a tar archive



- **tar -xvf archive.tar** – Extract a tar archive
- **tar -czvf archive.tar.gz <files>** – Create a compressed archive
- **tar -xzvf archive.tar.gz** – Extract a compressed archive
- **zip archive.zip <files>** – Create a zip archive
- **unzip archive.zip** – Extract a zip archive

5. Process Management

- **ps aux** – List running processes
- **top** – Show real-time system processes
- **htop** – Interactive process viewer (requires installation)
- **kill <PID>** – Terminate a process
- **kill -9 <PID>** – Force kill a process
- **pkill <name>** – Kill process by name
- **nohup <command> &** – Run process in background
- **jobs** – List background processes
- **fg %1** – Bring background job to foreground
- **bg %1** – Resume a background job

6. Disk Usage

- **df -h** – Show disk usage in human-readable format
- **du -sh <dir>** – Show directory size
- **du -h --max-depth=1 <dir>** – Show size of each subdirectory

- **lsblk** – Show block devices
- **mount /dev/sdX /mnt** – Mount a partition
- **umount /dev/sdX** – Unmount a partition

7. User Management

- **whoami** – Show current user
- **who** – Show logged-in users
- **id** – Show user ID (UID) and group ID (GID)
- **adduser <username>** – Add a user
- **passwd <username>** – Change password
- **usermod -aG <group> <user>** – Add user to group
- **deluser <username>** – Delete a user
- **groups <user>** – Show user groups

8. Network Commands

- **ifconfig** – Show network interfaces (deprecated)
- **ip a** – Show IP addresses
- **ip r** – Show routing table
- **ping <host>** – Check connectivity
- **traceroute <host>** – Trace route to a host
- **netstat -tulnp** – Show listening ports
- **ss -tulnp** – Alternative to **netstat**
- **curl -I <url>** – Fetch HTTP headers
- **wget <url>** – Download a file

9. Package Management

Debian/Ubuntu:

- **apt update** – Update package lists
- **apt upgrade** – Upgrade installed packages
- **apt install <package>** – Install a package
- **apt remove <package>** – Remove a package
- **dpkg -i <package.deb>** – Install a **.deb** package
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RHEL/CentOS:

- **yum update** – Update packages
- **yum install <package>** – Install a package
- **yum remove <package>** – Remove a package
- **rpm -i <package.rpm>** – Install an **.rpm** package

Arch Linux:

- **pacman -Syu** – Update system
- **pacman -S <package>** – Install package
- **pacman -R <package>** – Remove package

10. Log Management

- **cat /var/log/syslog** – View system logs
- **cat /var/log/auth.log** – View authentication logs
- **dmesg** – Show boot messages
- **journalctl -xe** – View systemd logs
- **tail -f /var/log/syslog** – Monitor logs live

11. SSH & Remote Access

- `ssh user@host` – Connect to a remote server
- `ssh -i <key> user@host` – Connect using an SSH key
- `scp <file> user@host:/path` – Copy file to a remote server
- `scp user@host:/file .` – Copy file from remote server
- `rsync -av <src> <dest>` – Sync files locally or remotely

12. Text Processing

- `grep "pattern" <file>` – Search for a pattern in a file
- `grep -r "pattern" <dir>` – Search recursively in a directory
- `awk '{print $1}' <file>` – Print the first column
- `sed 's/old/new/g' <file>` – Replace text in a file
- `sort <file>` – Sort lines in a file
 `uniq <file>` – Remove duplicate lines
- `cut -d':' -f1 /etc/passwd` – Extract first field from file

13. Crontab (Task Scheduling)

- `crontab -e` – Edit crontab
- `crontab -l` – List crontab jobs
- Example cron job:
 - `0 * * * * /path/to/script.sh` (Runs every hour)
 - `@reboot /path/to/script.sh` (Runs on startup)
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14. System Monitoring

- **uptime** – Show system uptime
- **free -h** – Show memory usage
- **vmstat** – Show system performance
- **iostat** – Show CPU and disk I/O stats
- **sar -u 5 10** – CPU usage every 5 sec for 10 times

15. Miscellaneous

alias ll='ls -lah' – Create a command alias

- **unalias ll** – Remove alias
- **history** – Show command history
- **!!** – Repeat last command
- **!n** – Run command from history (e.g., **!100**)
- **echo \$PATH** – Show system PATH
- **which <command>** – Find command location
- **man <command>** – Show command manual

16. System Performance & Optimization

- **top** – Monitor system performance interactively
- **htop** – Advanced interactive process viewer (needs installation)
- **vmstat 1** – Show system performance every second
- **iostat -x 1** – Show disk I/O statistics

- **sar -r 5 10** – Monitor memory usage every 5 seconds for 10 times
- **free -m** – Show memory usage in MB
- **uptime** – Show system uptime and load average
- **watch -n 1 <command>** – Run a command every second

17. Firewall & Security

- **ufw status** – Check firewall status (Ubuntu)
- **ufw enable** – Enable UFW firewall
- **ufw allow <port>** – Allow incoming traffic on a port
- **ufw deny <port>** – Deny traffic on a port
- **iptables -L -v** – List firewall rules (RHEL/CentOS)
- **iptables -A INPUT -p tcp --dport 22 -j ACCEPT** – Allow SSH
- **iptables -A INPUT -p tcp --dport 80 -j ACCEPT** – Allow HTTP
- **iptables -D INPUT -p tcp --dport 80 -j ACCEPT** – Remove rule
- **fail2ban-client status** – Check Fail2Ban status (if installed)
- **passwd -l <user>** – Lock a user account
- **passwd -u <user>** – Unlock a user account

18. Kernel & System Information

- **uname -r** – Show kernel version
- **uname -a** – Show full kernel details



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- `cat /etc/os-release` – Show OS details
 - `hostnamectl` – Show system hostname and details
 - `lsmod` – List loaded kernel modules
 - `modinfo <module>` – Show details of a kernel module
 - `dmesg | tail` – View recent kernel messages
 - `sysctl -a` – Show all system configurations

19. Mounting & Unmounting File Systems

- `mount` – Show mounted file systems
- `mount /dev/sdX /mnt` – Mount a device
- `umount /mnt` – Unmount a device
- `df -h` – Show available disk space
- `du -sh /directory` – Show directory size
- `fsck /dev/sdX` – Check and repair a filesystem
- `mkfs.ext4 /dev/sdX` – Format a partition as ext4

20. System Shutdown & Restart

- `shutdown -h now` – Shutdown immediately
- `shutdown -h +10` – Shutdown in 10 minutes
- `shutdown -r now` – Restart system immediately
- `reboot` – Reboot the system

- **poweroff** – Power off the system
- **halt** – Halt the system

21. Disk Partitioning

- **fdisk -l** – List all partitions
- **fdisk /dev/sdX** – Manage partitions on a disk
- **parted /dev/sdX** – Create and resize partitions
- **mkfs.ext4 /dev/sdX1** – Format partition as ext4
- **mount /dev/sdX1 /mnt** – Mount a partition

22. Environment Variables

- **echo \$PATH** – Show system PATH
- **export VAR=value** – Set an environment variable
- **printenv VAR** – Show variable value
- **unset VAR** – Remove a variable
- **env** – List all environment variables

23. Disk & Storage Management

- **lsblk** – List storage devices
- **blkid** – Show UUIDs of partitions



- `mount -o loop file.iso /mnt` – Mount an ISO file
- `lsdf /path/to/file` – Show processes using a file
- `tune2fs -m 5 /dev/sdX1` – Set reserved space on ext4

24. Service Management (Systemd & SysVinit)

Systemd (Ubuntu, CentOS 7+, RHEL 7+)

- `systemctl start <service>` – Start a service
- `systemctl stop <service>` – Stop a service
- `systemctl restart <service>` – Restart a service
- `systemctl status <service>` – Show service status
- `systemctl enable <service>` – Enable service at boot
- `systemctl disable <service>` – Disable service at boot

SysVinit (Older Systems)

- `service <service> start` – Start a service
- `service <service> stop` – Stop a service
- `chkconfig <service> on` – Enable service at boot
- `chkconfig <service> off` – Disable service at boot

25. File & Directory Permissions (Advanced)

- `chmod 777 <file>` – Full permissions (rwxrwxrwx)



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- `chmod 644 <file>` – Read/write for owner, read-only for others
 - `chmod 700 <dir>` – Full access for owner, no access for others
 - `chmod +x <file>` – Add execute permission
 - `chmod -w <file>` – Remove write permission
 - `chown user:group <file>` – Change ownership
 - `chown -R user:group <dir>` – Change ownership recursively

26. Advanced File Operations

- `ls -lt` – List files by modification time
- `ls -S` – List files by size
- `find / -type f -name "file.txt"` – Search for a file
- `find . -type d -empty` – Find empty directories
- `find . -mtime -1` – Find files modified in the last 24 hours
- `ln -s /path/to/original /path/to/link` – Create a symbolic link

27. Backup & Restore

- `tar -cvf backup.tar /path/to/dir` – Create a tar backup
- `tar -xvf backup.tar` – Extract a tar archive
- `rsync -av /source/ /destination/` – Sync files
- `dd if=/dev/sdX of=backup.img` – Create a disk image
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28. Performance Tuning

- **`nice -n 10 <command>`** – Run a command with lower priority
- **`renice -n 10 -p <PID>`** – Change priority of a running process
- **`ulimit -n 65535`** – Increase file descriptor limit
- **`sysctl vm.swappiness=10`** – Reduce swap usage

29. Debugging & Troubleshooting

- **`dmesg | tail -20`** – Show recent system messages
- **`journalctl -xe`** – View recent logs
- **`strace -p <PID>`** – Trace system calls of a process
- **`lsof -i :80`** – Show processes using port 80
- **`tcpdump -i eth0`** – Capture network packets

30. Kernel Module Management

- **`lsmod`** – List loaded modules
- **`modprobe <module>`** – Load a module
- **`rmmod <module>`** – Remove a module
- **`modinfo <module>`** – Show module details