LINUX COMMANDS CATEGORIES

FILE MANAGEMENT

- ls
- cd
- cp
- mv
- rm
- mkdir

TEXT PROCESSING

- cat
- sed
- grep
- awk

SYSTEM INFORMATION

- uname
- top
- free
- date

USER MANAGEMENT

- useradd
- sudo
- passwd
- su

PROCESS MANAGEMENT

- ps
- kill
- htop
- nice

PACKAGE MANAGEMENT

- apt
- dnf
- dpkg
- rpm

NETWORKING

- ping
- ifconfig
- netstat
- ssh

COMPRESSION/ARCHIVING

- tar
- gzip
- zip
- unzip

ESSENTIAL TOOLKIT

Linux Complete Commands

Navigation

- `pwd` — print working directory.
- `ls` — list directory contents.
- `ls -la` — list all files with details.
- `cd /path` — change to path.
- `cd ..` — go to parent directory.
- `cd ~` — go to home directory.
- `tree` — display directories as a tree.

Files and directories

- `touch file.txt` — create an empty file or update timestamp.
- `mkdir dir` — create a directory.
- `mkdir -p a/b/c` — create nested directories.
- `cp src dst` — copy a file or directory.
- `cp -r dir1 dir2` — copy a directory recursively.
- `mv old new` — move or rename a file or directory.
- `rm file` — remove a file.
- `rm -rf dir` — remove a directory tree (use with caution).
- `rmdir emptydir` — remove an empty directory.
- `stat file` — show file metadata and timestamps.

- `basename /path/file` — print filename from path.
- `dirname /path/file` — print directory path from filename.

Viewing and paging

- `cat file` — print file contents.
- `tac file` — print file contents in reverse.
- `head -n 20 file` — show first 20 lines.
- `tail -n 20 file` — show last 20 lines.
- `tail -f logfile` — follow file updates (logs).
- `less file` — page through a file with search.
- `more file` — basic pager for files.
- `nl file` — number lines while viewing.
- `wc -l file` — count lines in a file.

Search and text processing

- `grep "pattern" file` — search pattern in a file.
- `grep -ri "pattern" dir/` — recursive, case-insensitive search.
- `sort file` — sort lines in a file.
- `uniq file` — omit repeated adjacent lines.
- `cut -d ':' -f 1 file` — select delimited fields.
- `awk '{print $1}' file` — print the first column.

- `sed -i 's/old/new/g' file` — in-place find and replace.
- `tr 'a-z' 'A-Z'` — translate characters (lower to upper).
- `paste file1 file2` — merge lines side by side.
- `tee out.txt` — write output to file and stdout.

Permissions and ownership

- `chmod 644 file` — set rw-r--r-- permissions.
- `chmod 755 file` — set rwxr-xr-x permissions.
- `chmod +x script.sh` — make a file executable.
- `chown user:group file` — change owner and group.
- `chgrp group file` — change group ownership.
- `umask 022` — set default permissions mask.
- `getfacl file` — view file ACLs.
- `setfacl -m u:user:rwx file` — set ACL for a user.

Processes and jobs

- `ps aux` — list all processes with details.
- `top` — interactive process viewer.
- `htop` — enhanced process viewer (if installed).
- `pgrep name` — find PIDs by process name.
- `pkill name` — send signals by process name.
- `kill PID` — terminate a process by PID.

- `killall name` — terminate processes by name.
- `nice -n 10 cmd` — start with adjusted priority.
- `renice -n 10 -p PID` — change priority of running process.
- `jobs` — list shell jobs.
- `bg %1` — resume job in background.
- `fg %1` — bring job to foreground.
- `nohup command &` — ignore hangups and run in background.
- `time command` — measure execution time.
- `watch -n 1 free` — rerun a command at intervals.

System info and logs

- `uname -a` — kernel and system information.
- `hostnamectl` — view or set hostname.
- `uptime` — show load averages and uptime.
- `free -h` — memory and swap usage.
- `vmstat` — virtual memory statistics.
- `iostat` — CPU and I/O statistics.
- `mpstat` — per-CPU usage statistics.
- `pidstat` — per-process statistics.
- `lscpu` — CPU architecture details.
- `lsusb` — list USB devices.

- `lspci` — list PCI devices.
- `lshw` — hardware inventory.
- `dmesg` — kernel ring buffer messages.
- `journalctl -xe` — view recent critical system logs.
- `journalctl -u nginx` — view logs for a systemd unit.

Disks, partitions, and filesystems

- `df -h` — mounted filesystem disk usage.
- `du -sh dir/` — directory size summary.
- `lsblk` — list block devices.
- `blkid` — print block device attributes.
- `fdisk -l` — list partition tables.
- `parted -l` — list partitions with parted.
- `mkfs.ext4 /dev/sdX1` — create an ext4 filesystem.
- `fsck /dev/sdX1` — check and repair filesystem.
- `mount /dev/sdX1 /mnt` — mount a partition.
- `umount /mnt` — unmount a filesystem.
- `cat /etc/fstab` — view persistent mount table.

Networking and DNS

- `ip addr` — show IP addresses.
- `ip route` — show routing table.
- `ping -c 4 host` — test connectivity.
- `traceroute host` — trace network path.
- `ss -tuln` — list listening sockets and ports.
- `netstat -tuln` — legacy sockets and ports list.
- `nslookup example.com` — DNS query.
- `dig example.com` — detailed DNS query.
- `curl -I https://example.com` — HTTP request.
- `wget https://example.com/file` — download a file.
- `ssh user@host` — connect via SSH.
- `scp file user@host:/path/` — copy file over SSH.
- `sftp user@host` — interactive file transfer over SSH.
- `nc -l -p 1234` — listen on TCP port.
- `nc host 80` — connect to TCP port.
- `tcpdump -i eth0 port 443` — capture packets.
- `nmap -sS host` — scan ports with SYN.
- `ufw enable` — enable uncomplicated firewall.
- `ufw allow 22` — allow SSH.
- `iptables -L` — list firewall rules.
- `firewall-cmd --list-all` — show firewalld config.

Archiving, compression, and sync

- `tar -czf archive.tar.gz dir/` — create gzip tarball.
- `tar -xzf archive.tar.gz` — extract gzip tarball.
- `tar -cf archive.tar dir/` — create tar archive.
- `tar -xf archive.tar` — extract tar archive.
- `zip -r archive.zip dir/` — create zip archive.
- `unzip archive.zip` — extract zip archive.
- `gzip file` — compress with gzip.
- `gunzip file.gz` — decompress gzip file.
- `bzip2 file` — compress with bzip2.
- `bunzip2 file.bz2` — decompress bzip2 file.
- `xz file` — compress with xz.
- `unxz file.xz` — decompress xz file.
- `rsync -avz src/ dest/` — sync files locally.
- `rsync -avz -e ssh src/ user@host:/dest/` — sync over SSH.
- `cpio -ov < filelist > archive.cpio` — create cpio archive.

Package management (Debian/Ubuntu)

- `apt-get update` — refresh package lists.
- `apt-get install nginx` — install a package.
- `apt-get upgrade` — upgrade installed packages.
- `apt-get remove pkg` — remove a package.
- `apt-cache search nginx` — search packages.
- `apt-cache show pkg` — show package details.
- `dpkg -i pkg.deb` — install a .deb file.
- `dpkg -r pkg` — remove a .deb package.

Package management (RHEL/CentOS/Fedora)

- `yum install pkg` — install a package.
- `yum update` — update packages.
- `yum remove pkg` — remove a package.
- `dnf install pkg` — install with dnf.
- `dnf update` — update with dnf.
- `rpm -i pkg.rpm` — install an RPM.
- `rpm -e pkg` — erase an RPM.

Services and scheduling

- `systemctl start nginx` — start a service.
- `systemctl stop nginx` — stop a service.
- `systemctl restart nginx` — restart a service.
- `systemctl status nginx` — check service status.
- `systemctl enable nginx` — enable at boot.
- `systemctl disable nginx` — disable at boot.
- `service nginx start` — legacy start command.
- `service nginx status` — legacy status command.
- `crontab -e` — edit cron jobs.
- `crontab -l` — list cron jobs.
- `crontab -r` — remove all cron jobs.
- `at 09:00` — schedule one-time job.
- `batch` — run when load is low.
- `sleep 5s` — delay for five seconds.

Environment and shell

- `env` — print environment variables.
- `echo $VAR` — print a variable value.
- `export VAR=value` — set an environment variable.
- `which command` — show command path.
- `history` — show command history.
- `alias ll='ls -la'` — create a command alias.
- `unalias ll` — remove an alias.

Containers and orchestration

- `docker run image` — run a container.
- `docker ps` — list running containers.
- `docker ps -a` — list all containers.
- `docker exec -it container bash` — open a shell in a container.
- `docker logs container` — show container logs.
- `docker build -t image .` — build an image.
- `docker rmi image` — remove an image.
- `docker-compose up` — start multi-container app.
- `docker-compose down` — stop and remove app.
- `kubectl get pods` — list pods.
- `kubectl get nodes` — list nodes.

- `kubectl get services` — list services.
- `kubectl apply -f file.yaml` — apply configuration.
- `kubectl logs pod` — view pod logs.
- `kubectl exec -it pod -- bash` — exec into a pod.
- `kubectl describe pod podname` — describe a pod.
- `kubectl scale deployment name --replicas=3` — scale a deployment.
- `kubectl rollout restart deployment name` — restart a deployment.
- `helm install release chart` — install a Helm chart.
- `helm upgrade release chart` — upgrade a release.
- `helm list` — list releases.
- `helm delete release` — delete a release.

Cloud CLIs

- `aws configure` — set up AWS CLI credentials.
- `aws s3 cp file s3://bucket/` — upload a file to S3.
- `aws ec2 describe-instances` — list EC2 instances.
- `az login` — authenticate Azure CLI.
- `az vm list` — list Azure VMs.
- `gcloud auth login` — authenticate gcloud.
- `gcloud compute instances list` — list GCP instances.

Shutdown and reboot

- `shutdown -h now` — power off immediately.
- `shutdown -r now` — reboot immediately.
- `shutdown -h +10` — schedule power off in 10 minutes.
- `reboot` — restart the system.
- `poweroff` — power off the system.
- `halt` — halt the system.
- `init 0` — switch to shutdown runlevel.
- `init 6` — switch to reboot runlevel.