100 Essential Linux Commands (with Examples)

📁 1. File and Directory Management

Command	Description	Example
pwd	Show current directory	pwd
ls	List files	ls -l
cd	Change directory	cd /etc
mkdir	Create directory	mkdir new_folder
rmdir	Remove empty directory	rmdir test_dir
rm	Remove files/directories	rm -rf temp/
cp	Copy files/directories	cp file.txt backup.txt
mv	Move/rename files	mv old.txt new.txt
touch	Create empty file	touch test.txt
file	Identify file type	file script.sh

📝 2. File Content Operations

Command	Description	Example
cat	View file content	cat notes.txt
less	View long file (paged)	less syslog
more	View file (paged)	more test.txt
head	Show first lines	head -n 5 file.txt
tail	Show last lines	tail -n 10 file.txt
tail -f	Follow file in real-time	tail -f /var/log/syslog
wc	Count words/lines	wc -l data.txt
sort	Sort lines	sort names.txt

Command	Description	Example
uniq	Remove duplicates	uniq sorted.txt
cut	Cut sections from text	cut -d ':' -f1 /etc/passwd

🔍 3. Searching

Command	Description	Example
grep	Search in files	grep "main" app.py
find	Find files	find . -name "*.sh"
locate	Fast file search	locate nginx.conf
which	Show binary location	which python3
whereis	Find binary & source	whereis ls
basename	Get file name	basename /home/user/test.txt
dirname	Get directory name	dirname /home/user/test.txt
xargs	Pass output as arguments	`ls
diff	Compare files	diff file1 file2
cmp	Byte-wise compare	cmp file1 file2

🔧 4. File Permissions & Ownership

Command	Description	Example
chmod	Change permissions	chmod +x script.sh
chown	Change ownership	chown user:group file.txt
chgrp	Change group	chgrp dev file.txt
umask	Set default permissions	umask 022
stat	File info	stat file.txt

👤 5. User Management

Command	Description	Example
whoami	Show current user	whoami
id	Show UID, GID	id
adduser	Add user	sudo adduser devops
useradd	Add user (manual)	sudo useradd -m test
passwd	Set/change password	passwd user
usermod	Modify user	usermod -aG sudo devops
userdel	Delete user	userdel -r test
groupadd	Create group	groupadd admins
groups	List user groups	groups aditya
who	List logged in users	who

🧠 6. System Info

Command	Description	Example
uname	System info	uname -a
hostname	Show/set hostname	hostnamectl set-hostname dev-server
uptime	Show uptime	uptime
top	Task manager	top
htop	Enhanced top	htop
free	Memory info	free -h
vmstat	System stats	vmstat
dmesg	Boot logs	`dmesg
lscpu	CPU details	lscpu
lsblk	List block devices	lsblk

🧩 7. Disk & Filesystem

Command	Description	Example
df	Disk usage	df -h
du	Directory/file size	du -sh *
mount	Mount filesystem	mount /dev/sdb1 /mnt
umount	Unmount filesystem	umount /mnt
blkid	Show disk UUIDs	blkid
fdisk	Partition manager	fdisk /dev/sda
mkfs	Format partition	mkfs.ext4 /dev/sdb1
tune2fs	Tune FS parameters	tune2fs -l /dev/sda1
fsck	Check disk errors	fsck /dev/sda1
sync	Flush disk cache	sync

🌐 8. Networking

Command	Description	Example
ip a	Show interfaces	ip a
ifconfig	Legacy interface tool	ifconfig
ping	Check connectivity	ping google.com
curl	HTTP requests	curl example.com
wget	Download files	wget http://file.com/file.zip
netstat	Show connections	netstat -tuln
ss	Show sockets	ss -tuln
traceroute	Trace hops	traceroute google.com
host	DNS lookup	host google.com

Command	Description	Example
nslookup	DNS tool	nslookup github.com

📦 9. Package Management

Command	Description	Example
apt update	Update index	sudo apt update
apt install	Install package	sudo apt install nginx
apt remove	Uninstall package	sudo apt remove nginx
dpkg	Manage .deb files	dpkg -i package.deb
snap	Snap package manager	snap install code
yum	RHEL-based installer	yum install httpd
dnf	RHEL modern pkg mgr	dnf update
rpm	RedHat Package Manager	rpm -ivh pkg.rpm
apt list	List packages	apt list --installed
apt-cache	Package info	apt-cache search apache

🔄 10. Process Management

Command	Description	Example
ps aux	Show all processes	ps aux
kill	Kill process by PID	kill 1234
killall	Kill process by name	killall nginx
bg	Resume process in background	bg
fg	Bring job to foreground	fg
jobs	List background jobs	jobs
nice	Launch with priority	nice -n 10 ./script.sh

Command	Description	Example
renice	Change running process priority	renice 10 -p 1234
watch	Run command repeatedly	watch -n 2 free -h
strace	Trace system calls	strace ls

🔐 11. Superuser/Admin

Command	Description	Example
sudo	Run as root	sudo reboot
su	Switch user	su -
visudo	Edit sudoers safely	sudo visudo
whoami	Show current user	whoami
id	Show UID/GID	id

📁 12. Archiving & Compression

Command	Description	Example
tar	Archive files	tar -czvf backup.tar.gz folder/
gzip	Compress file	gzip logfile.txt
gunzip	Decompress	gunzip logfile.txt.gz
zip	Create zip file	zip data.zip *.csv
unzip	Extract zip	unzip data.zip

🧪 13. Shell & Scripting

Command	Description	Example

Command	Description	Example
echo	Print text	echo "Hello"
read	Take user input	read name
alias	Create shortcut	alias ll='ls -la'
export	Set environment variable	export PATH=$PATH:/opt/bin
source	Run file in current shell	source ~/.bashrc
.	Same as source	. script.sh