Linux Command Cheatsheet

A quick reference for common Linux commands. Great for beginners or as a refresher.

Navigation

Command	Description	Example
`pwd`	Print current directory	`pwd` → `/home/user`
`ls`	List files	`ls`
`ls -la`	List all files with details	`ls -la`
`ls -lh`	List with human-readable sizes	`ls -lh`
`cd`	Change directory	`cd /var/log`
`cd ..`	Go up one directory	`cd ..`
`cd ~`	Go to home directory	`cd ~`
`cd -`	Go to previous directory	`cd -`

File Operations

Command	Description	Example
`touch`	Create empty file	`touch newfile.txt`
`cp`	Copy file	`cp file.txt backup.txt`
`cp -r`	Copy directory recursively	`cp -r folder/ backup/`
`mv`	Move or rename	`mv old.txt new.txt`
`rm`	Delete file	`rm file.txt`
`rm -r`	Delete directory	`rm -r folder/`
`rm -rf`	Force delete (careful!)	`rm -rf folder/`
`mkdir`	Create directory	`mkdir newfolder`

`mkdir -p`	Create nested directories	`mkdir -p a/b/c`
`rmdir`	Remove empty directory	`rmdir emptyfolder`

Viewing Files

Command	Description	Example
`cat`	Display entire file	`cat file.txt`
`less`	View file (scrollable)	`less file.txt`
`head`	Show first 10 lines	`head file.txt`
`head -n 20`	Show first 20 lines	`head -n 20 file.txt`
`tail`	Show last 10 lines	`tail file.txt`
`tail -f`	Follow file (live updates)	`tail -f /var/log/syslog`
`wc -l`	Count lines	`wc -l file.txt`

Searching

Command	Description	Example
`grep`	Search in file	`grep "error" log.txt`
`grep -i`	Case-insensitive search	`grep -i "error" log.txt`
`grep -r`	Search recursively	`grep -r "TODO" ./`
`grep -n`	Show line numbers	`grep -n "error" log.txt`
`find`	Find files by name	`find /home -name "*.txt"`
`find`	Find by type	`find . -type d` (directories)
`locate`	Quick file search (uses database)	`locate nginx.conf`
`which`	Find command location	`which python`

File Permissions

Command	Description	Example
`chmod`	Change permissions	`chmod 755 script.sh`
`chmod +x`	Make executable	`chmod +x script.sh`
`chmod -R`	Recursive permissions	`chmod -R 644 folder/`
`chown`	Change owner	`chown user:group file.txt`
`chown -R`	Recursive ownership	`chown -R www-data:www-data /var/www`

Permission Numbers

```
r = 4 (read)
w = 2 (write)
x = 1 (execute)

755 = rwxr-xr-x (owner: all, group/others: read+execute)
644 = rw-r--r-- (owner: read+write, group/others: read only)
700 = rwx------ (owner only)
```

System Information

Command	Description	Example
`uname -a`	System info	`uname -a`
`hostname`	Show hostname	`hostname`
`uptime`	System uptime	`uptime`
`whoami`	Current user	`whoami`
`id`	User and group IDs	`id`
`df -h`	Disk space	`df -h`
`du -sh`	Directory size	`du -sh /var/log`

`free -h`	Memory usage	`free -h`
`top`	Process monitor	`top`
`htop`	Better process monitor	`htop`

Process Management

Command	Description	Example
`ps aux`	List all processes	`ps aux`
`ps aux | grep`	Find specific process	`ps aux | grep nginx`
`kill`	Kill process by PID	`kill 1234`
`kill -9`	Force kill	`kill -9 1234`
`killall`	Kill by name	`killall nginx`
`bg`	Send to background	`bg`
`fg`	Bring to foreground	`fg`
`jobs`	List background jobs	`jobs`
`nohup`	Run immune to hangups	`nohup ./script.sh &`

Networking

Command	Description	Example
`ip a`	Show IP addresses	`ip a`
`ip r`	Show routing table	`ip r`
`ping`	Test connectivity	`ping google.com`
`curl`	HTTP request	`curl https://example.com`
`curl -I`	Headers only	`curl -I https://example.com`

`wget`	Download file	`wget https://example.com/file.zip`
`netstat -tuln`	Show listening ports	`netstat -tuln`
`ss -tuln`	Show listening ports (modern)	`ss -tuln`
`nslookup`	DNS lookup	`nslookup example.com`
`dig`	DNS lookup (detailed)	`dig example.com`

Package Management

Debian/Ubuntu (apt)

```bash
sudo apt update          # Update package list
sudo apt upgrade         # Upgrade installed packages
sudo apt install nginx   # Install package
sudo apt remove nginx    # Remove package
sudo apt autoremove      # Remove unused dependencies
apt search nginx         # Search for package
```

RHEL/CentOS/Fedora (dnf/yum)

```bash
sudo dnf update          # Update packages
sudo dnf install nginx   # Install package
sudo dnf remove nginx    # Remove package
dnf search nginx         # Search for package
```

Arch (pacman)

```bash
sudo pacman -Syu         # Update system
sudo pacman -S nginx     # Install package
sudo pacman -R nginx     # Remove package
pacman -Ss nginx         # Search for package
```

Services (systemd)

Command	Description	Example
`systemctl start`	Start service	`sudo systemctl start nginx`
`systemctl stop`	Stop service	`sudo systemctl stop nginx`
`systemctl restart`	Restart service	`sudo systemctl restart nginx`
`systemctl status`	Check status	`systemctl status nginx`
`systemctl enable`	Enable at boot	`sudo systemctl enable nginx`
`systemctl disable`	Disable at boot	`sudo systemctl disable nginx`
`journalctl -u`	View service logs	`journalctl -u nginx`
`journalctl -f`	Follow system logs	`journalctl -f`

Archives & Compression

Command	Description	Example
`tar -cvf`	Create tar archive	`tar -cvf archive.tar folder/`
`tar -xvf`	Extract tar archive	`tar -xvf archive.tar`
`tar -czvf`	Create gzipped tar	`tar -czvf archive.tar.gz folder/`
`tar -xzvf`	Extract gzipped tar	`tar -xzvf archive.tar.gz`
`zip -r`	Create zip	`zip -r archive.zip folder/`
`unzip`	Extract zip	`unzip archive.zip`
`gzip`	Compress file	`gzip file.txt`
`gunzip`	Decompress file	`gunzip file.txt.gz`

Text Processing

Command	Description	Example

`sort`	Sort lines	`sort file.txt`
`uniq`	Remove duplicates	`sort file.txt | uniq`
`cut`	Extract columns	`cut -d',' -f1 data.csv`
`awk`	Pattern processing	`awk '{print $1}' file.txt`
`sed`	Stream editor	`sed 's/old/new/g' file.txt`
`tr`	Translate characters	`echo "hello" | tr 'a-z' 'A-Z'`
`diff`	Compare files	`diff file1.txt file2.txt`

Redirection & Pipes

Symbol	Description	Example
`>`	Redirect output (overwrite)	`echo "hello" > file.txt`
`>>`	Redirect output (append)	`echo "hello" >> file.txt`
`<`	Redirect input	`sort < unsorted.txt`
`|`	Pipe output to next command	`cat file.txt | grep "error"`
`2>`	Redirect errors	`command 2> errors.log`
`&>`	Redirect all output	`command &> all.log`

Useful Shortcuts

Shortcut	Description
`Ctrl + C`	Cancel current command
`Ctrl + Z`	Suspend current command
`Ctrl + D`	Exit shell / EOF
`Ctrl + L`	Clear screen

Ctrl + R	Search command history
Ctrl + A	Move to beginning of line
Ctrl + E	Move to end of line
Tab	Auto-complete
!!	Repeat last command
!$	Last argument of previous command

Quick Tips

```bash
# Run last command as sudo
sudo !!

# Create backup of file
cp file.txt{,.bak}

# Download and run script (careful!)
curl -fsSL https://example.com/script.sh | bash

# Watch command output (refresh every 2s)
watch -n 2 'df -h'

# Run command in background
./long-running-script.sh &

# Check if port is open
nc -zv localhost 80

# Generate random password
openssl rand -base64 16

# Get your public IP
curl ifconfig.me
```

Getting Help

bash

```
man <command>      # Manual page
<command> --help   # Quick help
info <command>     # Detailed info
tldr <command>     # Simplified examples (install tldr first)
```
