Ultimate Linux Commands Guide (Beginner to Advanced)

1. Basic Linux Commands

File and Directory Management:

ls - List directory contents

pwd - Print working directory

cd [directory] - Change directory

mkdir [directory] - Create a new directory

rmdir [directory] - Remove an empty directory

rm -r [directory] - Remove directory with files

cp [source] [destination] - Copy files and directories

mv [source] [destination] - Move/rename files

find [path] -name [filename] - Search for a file

locate [filename] - Locate a file

File Operations:

touch [filename] - Create an empty file

cat [filename] - View file contents

tac [filename] - View file in reverse order

more [filename] - View file contents page by page

less [filename] - Similar to more, but allows scrolling

head -n [number] [filename] - Show first n lines

tail -n [number] [filename] - Show last n lines

nano [filename] - Edit file using nano

vim [filename] - Edit file using Vim

2. User Management

whoami - Show current user

who - Show who is logged in

id [user] - Show user ID and group ID

adduser [username] - Add a new user

passwd [username] - Change user password

usermod -aG [group] [user] - Add user to a group

deluser [username] - Remove a user

groups [username] - Show groups of a user

3. Process Management

ps aux - Show all running processes

top - Display active processes

htop - Interactive process viewer (requires installation)

kill [PID] - Terminate a process by PID

killall [process_name] - Terminate a process by name

pkill [process_name] - Kill process using partial name

nice -n [priority] [command] - Start process with priority

renice [priority] [PID] - Change process priority

4. File Permissions and Ownership

ls -l - Show file permissions

chmod [mode] [file] - Change file permissions

chown [user]:[group] [file] - Change file ownership

chmod +x [file] - Make a file executable

5. Disk Management

df -h - Show disk usage

du -sh [directory] - Show directory size

fdisk -l - Show disk partitions

mount [device] [directory] - Mount a device

umount [device] - Unmount a device

6. Networking Commands

ip a - Show IP addresses

ifconfig - Show network interfaces (deprecated, use ip a)

ping [host] - Check network connectivity

netstat -tulnp - Show open ports (deprecated, use ss)

ss -tulnp - Show open ports

traceroute [host] - Show route to a host

wget [URL] - Download a file

curl [URL] - Fetch data from a URL

scp [source] [user@host:/path] - Secure copy files between servers

rsync -av [source] [destination] - Sync directories/files

7. Package Management

Debian-based (Ubuntu, Debian):

apt update - Update package list

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

RHEL-based (CentOS, Fedora):

yum update - Update all packages

yum install [package] - Install a package

yum remove [package] - Remove a package

rpm -ivh [package.rpm] - Install an .rpm package

Arch-based (Arch, Manjaro):

pacman -Syu - Update system

pacman -S [package] - Install a package

pacman -R [package] - Remove a package

8. System Monitoring & Logs

uptime - Show system uptime

free -h - Show memory usage

vmstat - Show system performance statistics

dmesg - Show boot logs

journalctl -xe - Show system logs

tail -f /var/log/syslog - View real-time logs

9. Shell Scripting & Automation

echo "Hello World" - Print message to terminal

alias ll='ls -la' - Create a shortcut command

unalias ll - Remove alias

history - Show command history

crontab -e - Edit scheduled jobs

chmod +x script.sh - Make script executable

./script.sh - Run script

10. Advanced Linux Commands

awk '{print $1}' file.txt - Process text data

sed 's/old/new/g' file.txt - Replace text in a file

grep "pattern" file.txt - Search for a pattern

tar -cvf archive.tar folder - Create a tar archive

tar -xvf archive.tar - Extract a tar archive

gzip file.txt - Compress file

gunzip file.txt.gz - Decompress file

zip archive.zip file.txt - Create a zip archive

unzip archive.zip - Extract a zip archive

11. Virtualization & Containers

Docker

docker ps - Show running containers

docker images - List Docker images

docker run -d [image] - Run a container in the background

docker stop [container] - Stop a container

docker rm [container] - Remove a container

docker rmi [image] - Remove an image

Kubernetes

kubectl get pods - List running pods

kubectl describe pod [pod] - Show pod details

kubectl logs [pod] - View pod logs

kubectl apply -f config.yaml - Apply Kubernetes configuration