

Linux Commands Cheat Sheet - Extended

File and Directory Management

ls	- List directory contents
ls -l	- Long listing format
ls -a	- Show hidden files
pwd	- Print current directory
cd [dir]	- Change directory
cd ~	- Go to home directory
cd ..	- Move one directory up
mkdir [dir]	- Create new directory
rmdir [dir]	- Remove empty directory
rm -r [dir]	- Remove directory and contents
touch [file]	- Create empty file
rm [file]	- Remove file
cp [src] [dest]	- Copy file or folder
mv [src] [dest]	- Move or rename file or folder
find [dir] -name [name]	- Find files in directory tree
tree	- View directory tree (requires `tree` package)

File Viewing and Editing

cat [file]	- Show file content
less [file]	- View file content (scrollable)
more [file]	- View file (scroll with space/enter)
head [file]	- Show first 10 lines
tail [file]	- Show last 10 lines
tail -f [file]	- Follow file in real-time
nano [file]	- Open file in nano editor
vim [file]	- Open file in vim editor
echo "text"	- Print text to terminal
echo "text" > file.txt	- Write text to file (overwrite)
echo "text" >> file.txt	- Append text to file

Package Management (Debian/Ubuntu)

apt update	- Update package index
apt upgrade	- Upgrade installed packages
apt install [pkg]	- Install package
apt remove [pkg]	- Remove package
apt purge [pkg]	- Remove package and config
apt autoremove	- Remove unused dependencies

User Management

whoami	- Show current user
id	- Show user ID and groups
adduser [name]	- Add new user
passwd [user]	- Change password
su [user]	- Switch user
sudo [command]	- Run command as root
userdel [user]	- Delete user
groupadd [group]	- Add group
usermod -aG [group] [user]	- Add user to group

Permissions & Ownership

chmod [mode] [file]	- Change file permissions
chown [owner] [file]	- Change file owner
chgrp [group] [file]	- Change file group
ls -l	- Show file permissions
umask	- Show default permissions

Archive and Compression

tar -cvf file.tar dir/	- Create tar archive
tar -xvf file.tar	- Extract tar archive
tar -czvf file.tar.gz dir/	- Create compressed archive
tar -xzvf file.tar.gz	- Extract compressed archive
gzip file	- Compress file
gunzip file.gz	- Decompress file
zip file.zip file	- Create zip file

unzip file.zip - Extract zip file

Networking

ping [host] - Ping host

ifconfig - Show network interfaces (deprecated)

ip a - Show IP addresses

netstat -tuln - Show listening ports

ss -tuln - Show open ports (modern)

curl [url] - Fetch URL

wget [url] - Download file

host [domain] - DNS lookup

dig [domain] - DNS query

traceroute [host] - Trace route to host

scp file user@host:/path - Copy file over SSH

Process and System Monitoring

top - Show running processes

htop - Interactive process viewer (install it first)

ps aux - Show all processes

kill [PID] - Kill process by ID

killall [name] - Kill process by name

uptime - Show system uptime

free -h - Show memory usage

df -h - Show disk usage

du -sh [dir] - Show dir size

vmstat - System performance info

iostat - CPU/disk I/O info (needs `sysstat`)

System Information

uname -a - Show system info

hostname - Show system hostname

lsblk - Show block devices

lscpu - Show CPU info

lsusb - Show USB devices

lspci	- Show PCI devices
who	- Show who is logged in
date	- Show date and time
cal	- Show calendar
env	- Show environment variables

Disk & Mounting

mount	- Show mounted systems
mount /dev/sdX /mnt	- Mount device
umount /mnt	- Unmount device
df -h	- Disk space info
fsck /dev/sdX	- File system check
blkid	- Show device UUIDs

Miscellaneous

history	- Show command history
alias ll='ls -la'	- Create alias
clear	- Clear terminal screen
reboot	- Reboot system
shutdown now	- Shutdown immediately
man [command]	- Show manual
which [command]	- Show path to command
whereis [command]	- Locate binary/source/man
xargs	- Build and execute command lines
tee	- Read & write simultaneously
crontab -e	- Edit scheduled jobs
at	- Run command at a scheduled time

Advanced Process Management

nice -n 10 [command]	- Run command with adjusted priority
renice -n 5 -p [PID]	- Change priority of running process
strace [command]	- Trace system calls and signals
lsof -i	- List open files and ports
bg	- Resume a suspended job in background

fg - Bring background job to foreground
jobs - List current jobs

Advanced Networking

iptables -L - List firewall rules
iptables -A INPUT -p tcp --dport 22 -j ACCEPT - Allow SSH via iptables
ssh user@host - Connect to remote server
ssh -i key.pem user@host - SSH using a private key
rsync -avz src/ dest/ - Efficient file copy/sync
netcat -lvp 1234 - Listen on port with netcat
telnet [host] [port] - Test network connection

Advanced Disk and Filesystem Management

fdisk -l - List partitions
mkfs.ext4 /dev/sdX1 - Format partition as ext4
mount /dev/sdX1 /mnt - Mount filesystem manually
umount /mnt - Unmount filesystem
parted /dev/sdX - Partition a disk
df -Th - Show filesystem type and usage

Shell Scripting Basics

#!/bin/bash - Shebang for bash scripts
\$0, \$1, \$2... - Script name, first arg, second arg...
if [condition]; then ... fi - Basic if statement
for var in list; do ... done - For loop
while [condition]; do ... done - While loop
function myfunc() { ... } - Define a function

Security & SSH

chmod 600 ~/.ssh/id_rsa - Secure private key file
ssh-copy-id user@host - Copy SSH key to server
ufw allow 22 - Allow SSH via UFW firewall
ufw enable - Enable UFW firewall
fail2ban-client status - Check Fail2ban status (needs install)

System Performance Tuning

- sysctl -a - View kernel parameters
- sysctl -w vm.swappiness=10 - Tune swappiness for less swap usage
- iotop - Monitor disk IO usage (needs install)
- sar -u 1 5 - CPU usage statistics over time (needs sysstat)
- free -m - View memory in MB

Package Management Advanced

- dpkg -i package.deb - Install .deb package manually
- dpkg -r package - Remove installed package
- rpm -i package.rpm - Install .rpm package (RedHat/CentOS)
- yum install package - Install package via yum
- dnf install package - Install package via dnf (Fedora)

Visual Examples

Scheduling with crontab

Example:

```
30 2 * * * /home/user/backup.sh
```

(Run backup.sh every day at 2:30 AM)

SSH key authentication

Example:

```
ssh-keygen -t rsa
```

```
ssh-copy-id user@server
```

Basic Bash Script

Example:

```
#!/bin/bash
```

```
for file in *.txt; do
```

```
    echo "Processing $file"
```

```
done
```

Creating a simple tar.gz archive

Example:

```
tar -czvf backup.tar.gz /home/user/folder
```