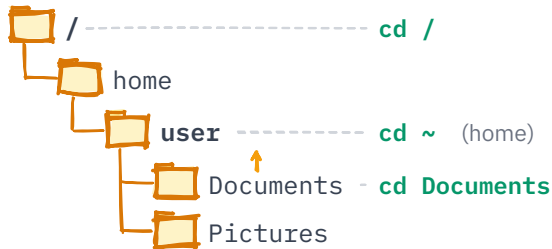




Working with files

> Find your way around



cd .. goes up one level (Documents to user)

pwd Show where you are

cd Documents Go into a directory

cd .. Go up one level

cd - Go back to the previous directory

cd ~ Go to your home directory

cd /home/user/projects Go to an absolute path

> List what is inside

ls List the current directory

ls Documents
List another directory without moving

ls -a Include hidden files

ls -l Show permissions, size and date

ls -R app List every level below

> Compress and extract

tar -czf archive.tar.gz src/
Pack and compress

tar -tf backup.tar.gz
List contents before extracting

tar -xzf backup.tar.gz Extract

> Create and delete

touch memo.txt Create an empty file

mkdir projects Create a directory

mkdir -p app/src/components
Create nested directories at once

rm trash.txt Delete a file !

rm -r old_project
Delete a directory and everything in it !

rmdir empty_dir
Delete an empty directory

ln -s documents/important.txt
shortcut
Create a symbolic link

> Move and copy

mv memo.txt docs Move into a directory

mv old.txt new.txt Rename

mv -n file02.txt projects
Skip if the name is taken

cp data.txt data.txt.bak Copy a file

cp -r photos photos_backup
Copy a directory and its contents

cp -i data.txt data.txt.bak
Ask before overwriting

> Read files

cat index.html Print the whole file

head log.txt Show the first lines

tail -n 5 log.txt Show the last 5 lines

less readme.txt Read page by page

Space next **G** end **q** quit

> Search and inspect

find . -name "*.txt"
Find files by name

find . -type d Find directories only

find . -size +100M
Find files over 100 MB

grep "ERROR" server.log
Show lines containing text

grep -i "error" server.log
Ignore upper and lower case

grep -r "TODO" src/
Search a whole directory

wc -l server.log Count lines

diff config.yml config.yml.bak
Compare two files



Using the shell

> Keyboard shortcuts

Ctrl+W

\$ echo hello world

Ctrl+A line start
Ctrl+E line end

Ctrl+U

Ctrl+K

Tab

Complete a name

↑

Bring back the previous command

Ctrl+A

Ctrl+E

Jump to start / end of line

Ctrl+K

Delete to the end of the line

Ctrl+U

Delete to the start of the line

Ctrl+W

Delete the previous word

Ctrl+Y

Paste what you just deleted

Ctrl+C

Stop the running command

> Use your history



history List the commands you ran

!! Run the last command again

clear Clear the screen

> Match many files at once

What the symbols match

***** Any number of characters

? Exactly one character

[abc] One of a, b or c

{1..5} Expands to 1 2 3 4 5

mv *.txt backup Move every .txt file

ls report_?.txt Names differing by one character

ls report_[abc].txt
Names with one of the listed characters

touch log_{1..5}.txt
Create numbered files at once

cat "project/my notes.txt"
Quote names that contain spaces

> Pipes and redirection



| to the next command > write a file >> append

grep "ERROR" server.log | sort
Send the output to the next command

grep "ERROR" server.log | sort > errors.txt

Write the output to a file (overwrite)

grep "WARN" server.log >> errors.txt
Append to the end of a file

> Make the shell your own



echo \$SHELL Show which shell you use

alias rm="rm -i"
Create a shortcut (alias)

alias List your aliases

\rm notes.txt
Run a command without its alias

echo 'alias rm="rm -i"' >> ~/.zshrc

Save it in your config file

source ~/.zshrc Reload the config

PS1=">> " Change the prompt

KEY=val

export EDITOR=vim
Set an environment variable

printenv EDITOR Show its value

echo \$PATH
Show where commands are looked up

> Permissions

ls -l shows **-rwxr-xr-x** → **chmod 755**

Owner

Group

Others

r w x

r - x

r - x

4+2+1 = 7

4+0+1 = 5

4+0+1 = 5

ls -l Check permissions

chmod 755 deploy.sh You: all; others: read and run

chmod 644 index.html

You: read and write; others: read

chmod 600 id_rsa Only you can read and write



Managing a server

> Superuser and users

**sudo cat /etc/hostname**

Run as the superuser

id Show your user and groups**sudo useradd alice** Create a user**sudo usermod -aG developers alice**
Add to a group (keep the others)**groups alice**

Show which groups a user is in

sudo userdel alice Delete a user !

> Install software

**sudo apt update** Refresh the package list**apt search nginx** Search for a package**sudo apt install nginx** Install**sudo apt remove tree** Remove**sudo apt upgrade**
Upgrade what is installed**apt list --installed**
List what is installed

> Schedule jobs

**crontab -l** List scheduled jobs**crontab backup-cron.txt**
Install jobs from a file**crontab -r** Delete all scheduled jobs !

> Processes and services

**ps aux** List every running process**ps aux | grep python3** Find a process**kill 3456** Stop a process !**lsof -i :80** Find what uses a port**systemctl status nginx**

Check a service

sudo systemctl start nginx

Start a service

sudo systemctl enable nginx

Start it automatically at boot

journalctl -u nginx Read its logs

> Web and APIs

**curl https://example.com**

Fetch a page or API

curl -I https://example.com

Show the response headers only

curl -O**https://example.com/data.json**

Download as a file

curl -X POST -H 'Content-Type: application/json' -d '{"name": "carol"}'**https://api.example.com/users**
POST JSON to an API

> Check the system

**uname -a** OS and kernel version**df -h** Disk usage**du -sh /var/log** Total size of a directory**free -h** Memory usage

> Networking

You
localhostRouter
find it with ip routeRemote server
webterm.app**hostname** Show the machine name**ip addr** Show IP addresses**ip route** Show the route out (the router)**ping -c 3 webterm.app**
Check that a host is reachable

> Connect with SSH



You: private key

ssh-copy-id registers your key

ssh logs in, no password



Server: public key

ssh-keygen -t ed25519 Create a key pair**cat ~/.ssh/id_ed25519.pub** Show your public key**ssh-copy-id user@server.example.com**
Register your key on the server**ssh user@server.example.com**
Connect to the server**exit** Disconnect