

1. File & Directory Operations

Command	Description	Options	Examples
ls	List files and directories	-l long, -a hidden, -h human sizes	ls -lh
cd	Change directory	—	cd /path/to/dir
pwd	Show current directory	—	pwd
mkdir	Create directory	—	mkdir new_dir
rm	Remove files/dirs	-r recursive, -f force	rm -rf dir/
cp	Copy files/dirs	-r recursive	cp -r src/ dest/
mv	Move/rename	—	mv old.txt new.txt
touch	Create empty file / update timestamp	—	touch file.txt
cat	View file contents	—	cat file.txt
head	Show first lines	-n num of lines	head -n 5 file.txt
tail	Show last lines	-n num of lines	tail -n 20 file.txt
ln -s	Create symlink	—	ln -s src link_name
find	Search files	-name , -type	find . -name "*.log"

2. File Permission & Ownership

Command	Description	Example
chmod	Change permissions	chmod u+rw file.txt
chown	Change file owner	chown user file.txt
chgrp	Change group ownership	chgrp group file.txt
umask	Default permissions	umask 022



3. File Compression & Archiving

Command	Description	Example
<code>tar -czvf</code>	Create compressed tar.gz	<code>tar -czvf archive.tar.gz dir/</code>
<code>tar -xzvf</code>	Extract archive	<code>tar -xzvf archive.tar.gz</code>
<code>gzip</code>	Compress file	<code>gzip file.txt</code>
<code>gunzip</code>	Decompress file	<code>gunzip file.txt.gz</code>
<code>zip -r</code>	Create zip archive	<code>zip files.zip file1 file2</code>
<code>unzip</code>	Extract zip archive	<code>unzip files.zip</code>



4. Process Management

Command	Description	Example
<code>ps aux</code>	Show processes	<code>`ps aux</code>
<code>top</code>	Live process monitor	<code>top</code>
<code>kill PID</code>	Kill process by PID	<code>kill -9 1234</code>
<code>pkill name</code>	Kill by name	<code>pkill firefox</code>
<code>pgrep name</code>	Find PID by name	<code>pgrep nginx</code>



5. System Information

Command	Description	Example
<code>uname -a</code>	Kernel/system info	<code>uname -a</code>
<code>whoami</code>	Current user	<code>whoami</code>
<code>df -h</code>	Disk usage	<code>df -h</code>
<code>du -sh dir/</code>	Dir size	<code>du -sh /var/log</code>
<code>free -h</code>	Memory usage	<code>free -h</code>
<code>uptime</code>	System uptime	<code>uptime</code>
<code>lscpu</code>	CPU info	<code>lscpu</code>

Command	Description	Example
<code>lsusb</code>	USB devices	<code>lsusb</code>
<code>lspci</code>	PCI devices	<code>lspci</code>

6. Networking

Command	Description	Example
<code>ifconfig</code>	Network interfaces	<code>ifconfig</code>
<code>ping</code>	Test connectivity	<code>ping google.com</code>
<code>netstat -tuln</code>	Network stats	<code>netstat -tuln</code>
<code>ss -tuln</code>	Sockets info	<code>ss -tuln</code>
<code>ssh</code>	Remote login	<code>ssh user@host</code>
<code>scp</code>	Copy over SSH	<code>scp file.txt user@host:/path/</code>
<code>wget</code>	Download file	<code>wget http://site.com/file</code>
<code>curl</code>	Fetch URL	<code>curl http://site.com</code>

7. IO Redirection

- `cmd < file` → input from file
- `cmd > file` → output to file (overwrite)
- `cmd >> file` → append output
- `cmd 2> file` → redirect error
- `cmd &> file` → redirect stdout + stderr
- `cmd > /dev/null` → discard output

8. Environment Variables

Command	Description	Example
<code>export VAR=value</code>	Set variable	<code>export PATH=\$PATH:/opt/bin</code>

Command	Description	Example
<code>echo \$VAR</code>	Show variable	<code>echo \$HOME</code>
<code>env</code>	List variables	<code>env</code>
<code>unset VAR</code>	Remove variable	<code>unset JAVA_HOME</code>
<code>printenv</code>	Print variables	<code>printenv PATH</code>

9. User Management

Command	Description	Example
<code>who</code>	Who's logged in	<code>who</code>
<code>adduser</code>	Add new user	<code>sudo adduser bob</code>
<code>passwd user</code>	Change password	<code>sudo passwd bob</code>
<code>deluser</code>	Delete user	<code>sudo deluser bob</code>
<code>usermod -aG</code>	Add user to group	<code>sudo usermod -aG sudo bob</code>
<code>su - user</code>	Switch user	<code>su - bob</code>
<code>last</code>	Show login history	<code>last</code>

10. Shortcuts

◆ Bash Shortcuts

- `Ctrl + A` → Start of line
- `Ctrl + E` → End of line
- `Ctrl + R` → Reverse search history
- `Ctrl + C` → Kill current command
- `Ctrl + L` → Clear screen

◆ Nano Shortcuts

- `Ctrl + O` → Save
- `Ctrl + X` → Exit
- `Ctrl + W` → Search

- `Alt + W` → Replace
- `Ctrl + K` / `Ctrl + U` → Cut / Paste

◆ Vi Shortcuts

- `i` → Insert mode
- `dd` → Delete line
- `u` → Undo
- `:wq` → Save & quit
- `:q!` → Quit without saving

◆ Vim Shortcuts

- `v` → Visual mode
 - `yy` → Copy line
 - `p` → Paste
 - `:set number` → Show line numbers
 - `:s/old/new/g` → Replace all
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