



1. Basic Navigation and File Operations



Directory Navigation

Command	Description	Example
<code>pwd</code>	Print Working Directory (shows where you are).	<code>pwd</code>
<code>ls</code>	List files and directories.	<code>ls -l</code> , <code>ls -a</code>
<code>cd</code>	Change directory.	<code>cd /var/log</code>
<code>cd ..</code>	Move one directory up.	<code>cd ..</code>
<code>cd ~</code>	Go to your home directory.	<code>cd ~</code>



File and Directory Management

Command	Description	Example
<code>mkdir</code>	Create a new directory.	<code>mkdir projects</code>
<code>rmdir</code>	Remove an empty directory.	<code>rmdir test_dir</code>
<code>rm</code>	Remove files or directories.	<code>rm file.txt</code> , <code>rm -r folder/</code>
<code>cp</code>	Copy files or directories.	<code>cp file1.txt /backup/</code>
<code>mv</code>	Move or rename files/directories.	<code>mv old.txt new.txt</code>
<code>touch</code>	Create an empty file or update timestamp.	<code>touch notes.txt</code>
<code>cat</code>	View contents of a file.	<code>cat /etc/os-release</code>
<code>less</code> / <code>more</code>	View file page by page.	<code>less bigfile.log</code>
<code>head</code> / <code>tail</code>	View beginning or end of file.	<code>head -n 10 file.txt</code> , <code>tail -f logs.txt</code>

File Search and Manipulation

Command	Description	Example
<code>find</code>	Find files by name or pattern.	<code>find /home -name "*.txt"</code>
<code>locate</code>	Quickly find files using database.	<code>locate passwd</code>
<code>grep</code>	Search inside files for text patterns.	<code>grep "error" logfile.txt</code>
<code>wc</code>	Count lines, words, and characters.	<code>wc -l file.txt</code>
<code>sort</code>	Sort file content alphabetically or numerically.	<code>sort names.txt</code>
<code>uniq</code>	Remove duplicate lines.	<code>uniq sorted.txt</code>
<code>diff</code>	Compare two files line by line.	<code>diff old.txt new.txt</code>

2. System Information and Monitoring

System Info

Command	Description	Example
<code>uname -a</code>	Show system and kernel details.	<code>uname -a</code>
<code>hostnamectl</code>	Show or set hostname.	<code>hostnamectl</code>
<code>uptime</code>	Display system uptime and load average.	<code>uptime</code>
<code>whoami</code>	Show current logged-in user.	<code>whoami</code>
<code>id</code>	Show user and group IDs.	<code>id</code>
<code>date</code>	Show or set system date/time.	<code>date</code>
<code>cal</code>	Display calendar.	<code>cal 2025</code>

Hardware & Disk

Command	Description	Example
<code>lsblk</code>	List block storage devices.	<code>lsblk</code>
<code>lscpu</code>	Show CPU information.	<code>lscpu</code>
<code>free -h</code>	Display RAM usage.	<code>free -h</code>
<code>df -h</code>	Show disk usage for mounted filesystems.	<code>df -h</code>
<code>du -sh</code>	Show directory size summary.	<code>du -sh /var/log</code>
<code>top</code>	Real-time system performance monitor.	<code>top</code>
<code>htop</code>	Interactive process viewer (if installed).	<code>htop</code>

3. Network Management

Command	Description	Example
<code>ip addr</code>	Show network interfaces and IP addresses.	<code>ip addr show</code>
<code>ping</code>	Check connectivity to a host.	<code>ping google.com</code>
<code>traceroute</code>	Trace route to a destination.	<code>traceroute google.com</code>
<code>netstat -tulnp</code>	Show open ports and listening services.	<code>sudo netstat -tulnp</code>
<code>ss -tuln</code>	Modern alternative to netstat.	<code>ss -tuln</code>
<code>curl</code>	Fetch or send data over HTTP/S.	<code>curl -I https://example.com</code>
<code>wget</code>	Download files from web.	<code>wget https://example.com/file.zip</code>
<code>scp</code>	Securely copy files between systems.	<code>scp file.txt user@192.168.1.5:/tmp</code>

Command	Description	Example
<code>ssh</code>	Connect to remote system securely.	<code>ssh user@192.168.1.10</code>
<code>nmcli</code>	NetworkManager CLI for managing connections.	<code>nmcli device status</code>



4. File Permissions and Ownership

Command	Description	Example
<code>chmod</code>	Change file permissions.	<code>chmod 755 script.sh</code>
<code>chown</code>	Change file owner and group.	<code>sudo chown user:group file.txt</code>
<code>chgrp</code>	Change only group ownership.	<code>sudo chgrp developers file.txt</code>
<code>umask</code>	View or set default permission mask.	<code>umask 022</code>
<code>ls -l</code>	View file permissions in long format.	<code>ls -l</code>
<code>getfacl</code> / <code>setfacl</code>	Manage Access Control Lists.	<code>setfacl -m u:john:rwX file.txt</code>



5. Package Management

For Debian/Ubuntu:

Command	Description	Example
<code>apt update</code>	Refresh repository cache.	<code>sudo apt update</code>
<code>apt upgrade</code>	Upgrade installed packages.	<code>sudo apt upgrade</code>
<code>apt install</code>	Install new package.	<code>sudo apt install nginx</code>

Command	Description	Example
<code>apt remove</code>	Uninstall package.	<code>sudo apt remove nginx</code>
<code>dpkg -l</code>	List installed packages.	<code>dpkg -l</code>

For RHEL/CentOS/Fedora:

Command	Description	Example
<code>yum update</code>	Update packages.	<code>sudo yum update</code>
<code>yum install</code>	Install package.	<code>sudo yum install httpd</code>
<code>dnf</code>	Modern replacement for yum.	<code>sudo dnf upgrade</code>

6. Process Management

Command	Description	Example
<code>ps</code>	Show running processes.	<code>ps aux</code>
<code>top</code>	Interactive process monitor.	<code>top</code>
<code>kill</code>	Terminate process by PID.	<code>kill 1234</code>
<code>pkill</code>	Kill process by name.	<code>pkill firefox</code>
<code>jobs</code>	Show background jobs.	<code>jobs</code>
<code>bg</code> , <code>fg</code>	Move job to background or foreground.	<code>fg %1</code>
<code>nohup</code>	Run process immune to hangups.	<code>nohup python3 script.py &</code>

7. Disk and Storage

Command	Description	Example
<code>mount</code>	Mount filesystem.	<code>sudo mount /dev/sdb1 /mnt/data</code>
<code>umount</code>	Unmount filesystem.	<code>sudo umount /mnt/data</code>
<code>fdisk -l</code>	List and manage disk partitions.	<code>sudo fdisk -l</code>
<code>mkfs.ext4</code>	Format partition.	<code>sudo mkfs.ext4 /dev/sdb1</code>
<code>blkid</code>	Show block device attributes (UUID, type).	<code>sudo blkid</code>
<code>tune2fs -l</code>	Display ext filesystem parameters.	<code>sudo tune2fs -l /dev/sda1</code>
<code>fsck</code>	Check and repair filesystem.	<code>sudo fsck /dev/sda1</code>



8. Compression and Archiving

Command	Description	Example
<code>tar</code>	Archive multiple files.	<code>tar -cvf backup.tar /home/user/</code>
<code>tar -xvf</code>	Extract tar archive.	<code>tar -xvf backup.tar</code>
<code>gzip</code> / <code>gunzip</code>	Compress / Decompress files.	<code>gzip data.log</code>
<code>zip</code> / <code>unzip</code>	Compress and extract zip files.	<code>zip backup.zip file.txt</code> , <code>unzip backup.zip</code>



9. User Management

Command	Description	Example
<code>adduser</code>	Create a new user.	<code>sudo adduser john</code>
<code>deluser</code>	Delete a user.	<code>sudo deluser john</code>

Command	Description	Example
<code>passwd</code>	Change user password.	<code>sudo passwd john</code>
<code>usermod</code>	Modify user properties.	<code>sudo usermod -aG sudo john</code>
<code>groups</code>	Show user groups.	<code>groups john</code>
<code>who</code>	List logged-in users.	<code>who</code>
<code>last</code>	Show login history.	<code>last</code>

10. System Services and Logs

Command	Description	Example
<code>systemctl status <service></code>	Check service status.	<code>sudo systemctl status ssh</code>
<code>systemctl start/stop/restart</code>	Manage services.	<code>sudo systemctl restart nginx</code>
<code>journalctl -xe</code>	View system logs.	<code>sudo journalctl -xe</code>
<code>dmesg</code>	<code>tail`</code>	View kernel messages.
<code>service --status-all</code>	List all running services.	<code>service --status-all</code>

11. Intermediate Shell Operations

Command	Description	Example
<code>echo</code>	Print to terminal.	<code>echo "Hello Linux"</code>
<code>alias</code>	Create command shortcut.	<code>alias ll='ls -aF'</code>
<code>history</code>	Show command history.	<code>history</code>
<code>!!</code>	Repeat last command.	<code>!!</code>

Command	Description	Example
> / >>	Redirect output (overwrite / append).	ls > list.txt , echo hi >> log.txt
,	,	Pipe output to another command.
&&	Run multiple commands sequentially.	mkdir test && cd test

12. File Transfer & Permissions in Networking Context

Command	Description	Example
scp	Secure copy between systems.	scp file.txt user@remote:/tmp/
rsync	Sync files between local and remote.	rsync -avz /src/ user@host:/backup/
chmod	Modify file permissions.	chmod 644 file.txt
chown	Change file ownership.	chown user:group file.txt

13. Quick Summary Table

Category	Commands
File Management	ls , cd , cp , mv , rm , find
System Info	uname , uptime , top , df , du
Network	ping , ip addr , ss , curl , ssh
Process	ps , kill , jobs , nohup
Disk	fdisk , mount , mkfs , fsck
Permissions	chmod , chown , setfacl

Category	Commands
Packages	apt , yum , dnf
Services	systemctl , journalctl