

## File and Directory Management

- **ls**: List directory contents
- **cd**: Change current directory
- **pwd**: Print working directory
- **mkdir**: Create directories
- **rmdir**: Remove empty directories
- **cp**: Copy files/directories
- **mv**: Move/rename files
- **rm**: Remove files/directories
- **touch**: Create empty file/update timestamp
- **find**: Search for files
- **tree**: List contents recursively
- **du**: Disk usage of files
- **df**: Report file system usage

## File Content Inspection

- **cat**: Concatenate and view files
- **less**: Paginate file view
- **more**: Another paginator viewer
- **head**: First lines of file
- **tail**: Last lines of file
- **grep**: Pattern search in text
- **awk**: Pattern scanning and processing
- **sed**: Stream editor
- **cut**: Remove sections of lines
- **sort**: Sort lines of text
- **diff**: Compare files line-by-line
- **wc**: Count words, lines, bytes

## Disk and File System Management

- **df**: Free space on file systems
- **du**: Estimate file space usage
- **fdisk**: Partition table manipulator
- **lsblk**: List block devices
- **mount**: Mount file system

- **umount**: Unmount file system
- **mkfs**: Create a file system
- **fsck**: File system check/repair
- **tune2fs**: Adjust ext2/3/4 params
- **blkid**: Locate block device attributes
- **dd**: Convert and copy data

## Process and System Monitoring

- **ps**: Report process status
- **top**: Dynamic process viewer
- **htop**: Interactive process viewer
- **atop**: Advanced system monitor
- **vmstat**: Virtual memory statistics
- **iostat**: CPU and I/O stats
- **sar**: System activity report
- **pidof**: Find PID of program
- **pgrep**: Pattern search for processes
- **pstree**: Display process tree
- **free**: Memory usage
- **uptime**: System running time
- **lsof**: List open files
- **watch**: Execute command periodically

## Package Management

- **apt**: Debian package manager
- **yum**: RPM package manager
- **dnf**: Fedora package manager
- **pacman**: Arch package manager
- **zypper**: openSUSE package tool
- **snap**: Universal Linux packages
- **flatpak**: Sandboxed application manager
- **rpm**: RPM package tool
- **dpkg**: Debian package tool

## User and Group Management

- **useradd**: Add new user

- **usermod**: Modify user account
- **userdel**: Delete user
- **passwd**: Change user password
- **groupadd**: Add new group
- **groupmod**: Modify group
- **groupdel**: Delete group
- **id**: Show user and group IDs
- **chage**: Change user password expiry
- **su**: Switch user
- **sudo**: Execute as another user

## Permissions and Ownership

- **chmod**: Change file modes
- **chown**: Change file owner
- **chgrp**: Change group ownership
- **umask**: Set default permissions
- **getfacl**: Get file ACL
- **setfacl**: Set file ACL
- **ls -l**: Long listing with perms

## Networking

- **ip**: IP configuration utility
- **ifconfig**: Configure network interfaces
- **ping**: Send ICMP echo requests
- **traceroute**: Trace packet route
- **netstat**: Network statistics
- **ss**: Socket statistics
- **nslookup**: Query DNS
- **dig**: DNS lookup utility
- **route**: Show/manipulate route table
- **arp**: Manage ARP cache
- **ethtool**: Ethernet device settings
- **curl**: Transfer data URLs
- **wget**: Retrieve files via HTTP/FTP
- **scp**: Secure copy over SSH
- **ssh**: Secure shell remote login
- **sftp**: Secure FTP over SSH
- **nmap**: Network mapper/scanner

## System Boot and Services

- **systemctl**: Control systemd services
- **service**: Legacy service control
- **systemd**: System and service manager
- **init**: Parent of all processes
- **reboot**: Reboot the system
- **shutdown**: Shutdown system
- **poweroff**: Power off machine
- **grub-mkconfig**: Generate GRUB config
- **update-grub**: Update GRUB config
- **journalctl**: Query systemd logs

## Logs and Troubleshooting

- **journalctl**: Read systemd journal
- **dmesg**: Kernel ring buffer
- **tail -f**: Follow log output
- **logrotate**: Rotate log files
- **rsyslog**: Syslog daemon
- **syslog**: System log protocol
- **strace**: Trace system calls
- **ltrace**: Trace library calls
- **tcpdump**: Network packet capture

## Environment and Shell Configuration

- **echo**: Display messages/vars
- **export**: Set environment variable
- **env**: Show environment
- **set**: Set shell options
- **unset**: Unset variables
- **alias**: Create command alias
- **source**: Read file into shell
- **chsh**: Change login shell
- **bashrc**: User shell init file
- **profile**: Systemwide init file
- **which**: Locate command binary
- **whereis**: Locate binaries/ docs
- **type**: Indicate command type

## Job Scheduling and Background Tasks

- **cron**: Daemon to execute jobs
- **crontab**: Schedule cron jobs
- **at**: Execute command once
- **batch**: Schedule when load low
- **nohup**: Run ignoring hangup
- **screen**: Terminal multiplexer
- **tmux**: Modern multiplexer
- **disown**: Remove job from shell
- **&**: Run job in background
- **jobs**: List active jobs
- **bg**: Resume job in background
- **fg**: Bring job to foreground
- **kill**: Send signal to process
- **nice**: Start with priority
- **renice**: Alter priority

## Compression and Archiving

- **tar**: Archive files
- **gzip**: Compress files
- **gunzip**: Decompress gzip
- **bzip2**: Compress with bzip2
- **bunzip2**: Decompress bzip2
- **xz**: Compress with xz
- **unzip**: Extract zip files
- **zip**: Create zip archives
- **7z**: 7-zip archiver
- **rar**: RAR archiver

## System Information

- **uname**: System information
- **lsb\_release**: LSB version info
- **hostnamectl**: Query/ change hostname
- **lscpu**: CPU architecture info
- **lsusb**: List USB devices
- **lspci**: List PCI devices
- **dmidecode**: Dump hardware info

- **free**: Memory usage
- **df**: Disk space usage
- **uptime**: Run time and load
- **cat /proc/cpuinfo**: CPU details
- **cat /proc/meminfo**: Memory details

## Security and Firewall Management

- **sudo**: Run command as root
- **su**: Switch user context
- **passwd**: Set user password
- **ssh-keygen**: Generate SSH keys
- **ufw**: Uncomplicated Firewall
- **iptables**: Packet filter rules
- **firewalld**: Dynamic firewall manager
- **selinux**: Security Enhanced Linux
- **chroot**: Run command with root
- **fail2ban**: Ban IP on attacks
- **auditctl**: Control audit daemon
- **apparmor**: Mandatory access control