

1. System Based Commands

uname	Displays Linux system information
uname -r	Displays kernel release information
uptime	Displays how long the system has been running including load average
hostname	Shows the system hostname
hostname -i	Displays the IP address of the system
last reboot	Shows system reboot history
date	Displays current system date and time
timedatectl	Query and change the System clock
cal	Displays the current calendar month and day

w	Displays currently logged in users in the system
whoami	Displays who you are logged in as
finger username	Displays information about the user

2. Hardware Based Commands

dmesg	Displays bootup messages
cat /proc/cpuinfo	Displays more information about CPU e.g model, model name, cores, vendor id
cat /proc/meminfo	Displays more information about hardware memory e.g. Total and Free memory
lshw	Displays information about system's hardware configuration
lsblk	Displays block devices related information

free -m	Displays free and used memory in the system (-m flag indicates memory in MB)
lspci -tv	Displays PCI devices in a tree-like diagram
lsusb -tv	Displays USB devices in a tree-like diagram
dmidecode	Displays hardware information from the BIOS
hdparm -i /dev/xda	Displays information about disk data
hdparm -tT /dev/xda <:code>	Conducts a read speed test on device xda
badblocks -s /dev/xda	Tests for unreadable blocks on disk

3. Users Management Commands

id	Displays the details of the active user e.g. uid, gid, and groups
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last	Shows the last logins in the system
who	Shows who is logged in to the system
groupadd "admin"	Adds the group 'admin'
adduser "Sam"	Adds user Sam
userdel "Sam"	Deletes user Sam
usermod	Used for changing / modifying user information

4. File Commands

<code>ls -al</code>	Lists files - both regular & hidden files and their permissions as well.
<code>pwd</code>	Displays the current directory file path
<code>mkdir 'directory_name'</code>	Creates a new directory
<code>rm file_name</code>	Removes a file
<code>rm -f filename</code>	Forcefully removes a file
<code>rm -r directory_name</code>	Removes a directory recursively
<code>rm -rf directory_name</code>	Removes a directory forcefully and recursively
<code>cp file1 file2</code>	Copies the contents of file1 to file2
<code>cp -r dir1 dir2</code>	Recursively Copies dir1 to dir2. dir2 is created if it does not exist
<code>mv file1 file2</code>	Renames file1 to file2

<code>ln -s /path/to/file_name link_name</code>	Creates a symbolic link to file_name
<code>touch file_name</code>	Creates a new file
<code>cat > file_name</code>	Places standard input into a file
<code>more file_name</code>	Outputs the contents of a file
<code>head file_name</code>	Displays the first 10 lines of a file
<code>tail file_name</code>	Displays the last 10 lines of a file
<code>gpg -c file_name</code>	Encrypts a file
<code>gpg file_name.gpg</code>	Decrypts a file
<code>wc</code>	Prints the number of bytes, words and lines in a file
<code>xargs</code>	Executes commands from standard input

5. PROCESS RELATED COMMANDS

ps	Display currently active processes
ps aux grep 'telnet'	Searches for the id of the process 'telnet'
pmap	Displays memory map of processes
top	Displays all running processes
kill pid	Terminates process with a given pid
killall proc	Kills / Terminates all processes named proc
pkill process-name	Sends a signal to a process with its name
bg	Resumes suspended jobs in the background
fg	Brings suspended jobs to the foreground

fg n	job n to the foreground
lsof	Lists files that are open by processes
renice 19 PID	makes a process run with very low priority
pgrep firefox	find Firefox process ID
pstree	visualizing processes in tree model

6. File Permission Commands

chmod octal filename	Change file permissions of the file to octal
Example	

chmod 777 /data/test.c	Set rwx permissions to owner, group and everyone (everyone else who has access to the server)
chmod 755 /data/test.c	Set rwx to the owner and r_x to group and everyone
chmod 766 /data/test.c	Sets rwx for owner, rw for group and everyone
chown owner user-file	Change ownership of the file
chown owner-user:owner-group file_name	Change owner and group owner of the file
chown owner-user:owner-group directory	Change owner and group owner of the directory

7. Network Commands

<code>ip addr show</code>	Displays IP addresses and all the network interfaces
<code>ip address add 192.168.0.1/24 dev eth0</code>	Assigns IP address 192.168.0.1 to interface eth0
<code>ifconfig</code>	Displays IP addresses of all network interfaces
<code>ping host</code>	ping command sends an ICMP echo request to establish a connection to server / PC
<code>whois domain</code>	Retrieves more information about a domain name
<code>dig domain</code>	Retrieves DNS information about the domain
<code>dig -x host</code>	Performs reverse lookup on a domain
<code>host google.com</code>	Performs an IP lookup for the domain name
<code>hostname -i</code>	Displays local IP address

<code>wget file_name</code>	Downloads a file from an online source
<code>netstat -pnltu</code>	Displays all active listening ports

8. Compression/Archives Commands

<code>tar -cf home.tar home<:code></code>	Creates archive file called 'home.tar' from file 'home'
<code>tar -xf files.tar</code>	Extract archive file 'files.tar'
<code>tar -zcvf home.tar.gz source-folder</code>	Creates gzipped tar archive file from the source folder
<code>gzip file</code>	Compression a file with .gz extension

9. Install Packages Commands

<code>rpm -i pkg_name.rpm</code>	Install an rpm package
<code>rpm -e pkg_name</code>	Removes an rpm package
<code>dnf install pkg_name</code>	Install package using dnf utility

10. Install Source (Compilation)

<code>./configure</code>	Checks your system for the required software needed to build the program. It will build the Makefile containing the instructions required to effectively build the project
<code>make</code>	It reads the Makefile to compile the program with the required operations. The process may take some time, depending on your system and the size of the program
<code>make install</code>	The command installs the binaries in the default/modified paths after the compilation

11. Search Commands

<code>grep 'pattern' files</code>	Search for a given pattern in files
<code>grep -r pattern dir</code>	Search recursively for a pattern in a given directory
<code>locate file</code>	Find all instances of the file
<code>find /home/ -name "index"</code>	Find file names that begin with 'index' in /home folder
<code>find /home -size +10000k</code>	Find files greater than 10000k in the home folder

12. Login Commands

<code>ssh user@host</code>	Securely connect to host as user
<code>ssh -p port_number user@host</code>	Securely connect to host using a specified port
<code>ssh host</code>	Securely connect to the system via SSH default port 22
<code>telnet host</code>	Connect to host via telnet default port 23

13. File Transfer Commands

<code>scp file1.txt server2/tmp</code>	Securely copy file1.txt to server2 in /tmp directory
<code>rsync -a /home/apps /backup/</code>	Synchronize contents in /home/apps directory with /backup directory

14. Disk Usage Commands

<code>df -h</code>	Displays free space on mounted systems
<code>df -i</code>	Displays free inodes on filesystems
<code>fdisk -l</code>	Shows disk partitions, sizes, and types
<code>du -sh</code>	Displays disk usage in the current directory in a human-readable format
<code>findmnt</code>	Displays target mount point for all filesystems
<code>mount device-path mount-point</code>	Mount a device

15. Directory Traverse Commands

<code>cd ..</code>	Move up one level in the directory tree structure
<code>cd</code>	Change directory to \$HOME directory
<code>cd /test</code>	Change directory to /test directory