

# **Linux Cheat Sheet**

# **File and Directory Management**

**1. ls** - Lists directory contents.

- ls - Basic list.
- ls -l - List with details.
- Example: ls -la Directory

**2. cd** - Change the current directory.

- cd Directory - Changes to "Directory".
- Example: cd /home

**3. pwd** - Print the current directory path.

- pwd - Outputs the current directory.
- Example: pwd

**4. mkdir** - Create a new directory.

- mkdir Directory - Creates "Directory".
- Example: mkdir /home/Directory

**5. rmdir** - Remove an empty directory.

- rmdir Directory - Deletes "Directory".
- Example: rmdir /home/Directory

## 6. **rm** - Delete files and directories.

- **rm file** - Deletes "file".
- **rm -r Directory** - Deletes "Directory" recursively.
- Example: `rm -rf /home/Directory`

## 7. **cp** - Copy files or directories.

- **cp file new\_file** - Copies "file" to "new\_file".
- **cp -r Directory new\_directory** - Copies "Directory" recursively.
- Example: `cp -r Directory /backup/`

## 8. **mv** - Move or rename files and directories.

- **mv file new\_file** - Renames "file" to "new\_file".
- Example: `mv file /home/Directory/`

## 9. **touch** - Create an empty file.

- **touch file** - Creates "file".
- Example: `touch /home/Directory/newfile`

## 10. **cat** - Concatenate and display file contents.

- **cat file** - Shows contents of "file".
- Example: `cat file`

11. **less** - View file content interactively.
  - less file - Opens "file" in viewer.
  - Example: less file
12. **more** - View file content page-by-page.
  - more file - Views file with paging.
  - Example: more file
13. **head** - Show the first few lines of a file.
  - head -n 5 file - Shows first 5 lines.
  - Example: head file
14. **tail** - Show the last few lines of a file.
  - tail -n 5 file - Shows last 5 lines.
  - tail -f file - Shows last lines with live updates.
  - Example: tail -f /var/log/syslog
15. **find** - Search for files and directories.
  - find Directory -name "\*.txt" - Searches for .txt files.
  - Example: find /home -type f -name "\*.sh"
16. **locate** - Find files by name (needs mlocate package).
  - locate file - Searches for "file".
  - Example: locate file

17. **du** - Disk usage of files and directories.
  - du -sh Directory - Shows size of "Directory".
  - Example: du -h Directory
18. **df** - Display disk space usage.
  - df -h - Disk usage in human-readable format.
  - Example: df -h
19. **stat** - Display detailed file or directory status.
  - stat file - Shows stats of "file".
  - Example: stat file
20. **tree** - Show directory structure in tree format.
  - tree Directory - Displays "Directory" structure.
  - Example: tree /home

## File Permissions and Ownership

21. **chmod** - Change file permissions.
  - chmod 755 file - Sets permissions for "file".
  - Example: chmod +x script.sh
22. **chown** - Change file ownership.
  - chown user file - Changes owner to "user".
  - Example: chown root file
23. **chgrp** - Change group ownership.
  - chgrp group file - Changes group to "group".
  - Example: chgrp admin file
24. **umask** - Set default permissions for new files.
  - umask 022 - Default file permissions.
  - Example: umask

## Process Management

25. **ps** - Show active processes.
  - ps aux - Shows all processes.
  - Example: ps aux | grep nginx
26. **top** - Monitor system processes in real time.
  - top - Live view of processes.
  - Example: top
27. **htop** - Enhanced process viewer (requires htop).
  - htop - Interactive process viewer.
  - Example: htop
28. **kill** - Terminate a process by ID.
  - kill 1234 - Ends process with PID 1234.
  - Example: kill 1234
29. **killall** - Kill processes by name.
  - killall firefox - Kills all "firefox" processes.
  - Example: killall nginx
30. **pkill** - Kill processes by pattern.
  - pkill -u user - Kills all processes for "user".
  - Example: pkill -u john

## **Networking**

31. **ping** - Check network connectivity.
  - ping google.com - Sends ping requests.
  - Example: ping -c 4 google.com
32. **ifconfig** - Display network configuration (deprecated).
  - ifconfig - Shows network interfaces.
  - Example: ifconfig
33. **traceroute** - Track packet route to destination.
  - traceroute google.com - Shows route to "google.com".
  - Example: traceroute google.com
34. **nslookup** - Query DNS records.
  - nslookup google.com - DNS lookup for "google.com".
  - Example: nslookup example.com
35. **netstat** - Network connections, routing tables.
  - netstat -tuln - Lists open ports.
  - Example: netstat -an

## **Compression and Archiving**

37. **tar** - Archive multiple files.
  - `tar -cvf archive.tar Directory` - Creates a tar archive.
  - Example: `tar -xvf archive.tar`
38. **zip** - Compress files into a zip archive.
  - `zip archive.zip file1 file2` - Creates "archive.zip".
  - Example: `zip -r archive.zip Directory`
39. **unzip** - Extract files from a zip archive.
  - `unzip archive.zip` - Extracts "archive.zip".
  - Example: `unzip archive.zip`
40. **gzip** - Compress a file.
  - `gzip file` - Compresses "file" as "file.gz".
  - Example: `gzip -d file.gz`
41. **bzip2** - Compress with bzip2.
  - `bzip2 file` - Compresses "file".
  - Example: `bzip2 -d file.bz2`

## **System Information**

42. **uname** - Display system information.
  - `uname -a` - Full system details.
  - Example: `uname -r`
43. **uptime** - Show system uptime.
  - `uptime` - Outputs how long system has been up.
  - Example: `uptime`
44. **free** - Memory usage.
  - `free -h` - Shows memory in human-readable form.
  - Example: `free`
45. **dmesg** - Print or control kernel messages.
  - `dmesg | less` - Shows boot logs.
  - Example: `dmesg | grep error`
46. **df** - Disk space usage of filesystems.
  - `df -h` - Human-readable format.
  - Example: `df /home`

## User Management

47. **useradd** - Create a new user.
  - useradd username - Adds "username".
  - Example: useradd admin
48. **usermod** - Modify user accounts.
  - usermod -aG sudo user - Adds "user" to "sudo" group.
  - Example: usermod -aG docker user
49. **passwd** - Change user password.
  - passwd user - Changes password for "user".
  - Example: passwd root
50. **whoami** - Display the current logged-in user.
  - whoami - Shows username.
  - Example: whoami

## Data Manipulation

51. **awk** - Pattern scanning and processing.
  - awk '{print \$1}' file - Prints first column.
  - Example: awk '{print \$2}' file
52. **sed** - Stream editor for modifying files.
  - sed 's/old/new/' file - Replace text.
  - Example: sed -i 's/foo/bar/g' file
53. **sort** - Sort file content.
  - sort file - Sorts file lines.
  - Example: sort file
54. **uniq** - Report or omit repeated lines.
  - uniq file - Removes duplicates.
  - Example: uniq -c file
55. **grep** - Search within files.
  - grep "pattern" file - Searches for "pattern".
  - Example: grep -i error file

## File and Directory Management (Continued)

56. **wc** - Count lines, words, and characters in a file.

- **Usage:** wc file - Displays line, word, and character counts for "file".
- **Example:** wc -l file - Counts lines in "file".

57. **ln** - Create links between files.

- **Usage:** ln file link\_name - Creates a hard link.
- ln -s file link\_name - Creates a symbolic (soft) link.
- **Example:** ln -s /path/to/file symlink\_name

58. **alias** - Create command shortcuts.

- **Usage:** alias ll='ls -la' - Creates an alias for ls -la.
- **Example:** alias dir='ls -d \*/'

59. **unalias** - Remove an alias.

- **Usage:** unalias ll - Removes the alias "ll".
- **Example:** unalias dir

60. **rename** - Rename multiple files.

- **Usage:** rename 's/old/new/' \*.txt - Renames files by replacing "old" with "new" in .txt files.
- **Example:** rename 's/2023/2024/' \*.log

## **Process Management (Continued)**

61. **bg** - Run a job in the background.
  - **Usage:** bg - Resumes a paused job in the background.
  - **Example:** bg %1 - Backgrounds job number 1.
62. **fg** - Bring a job to the foreground.
  - **Usage:** fg %1 - Brings job number 1 to the foreground.
  - **Example:** fg %2
63. **jobs** - List all active jobs.
  - **Usage:** jobs - Displays active jobs with their statuses.
  - **Example:** jobs -l
64. **nice** - Run a command with adjusted priority.
  - **Usage:** nice -n 10 command - Runs a command with priority 10.
  - **Example:** nice -n 15 ./script.sh
65. **renice** - Change the priority of a running process.
  - **Usage:** renice -n 5 -p PID - Changes the priority of process "PID".
  - **Example:** renice -n 10 -p 1234

66. **nohup** - Run a command immune to hangups.

- **Usage:** nohup command & - Executes command, ignoring hangups.
- **Example:** nohup ./script.sh &

67. **pgrep** - Find processes by name.

- **Usage:** pgrep process\_name - Finds process IDs with the specified name.
- **Example:** pgrep nginx

68. **pmap** - Display memory map of a process.

- **Usage:** pmap PID - Shows memory details of process "PID".
  - **Example:** pmap 1234
69. **uptime** - Display system uptime and load.
- **Usage:** uptime - Shows system uptime and average load.
  - **Example:** uptime

## **Networking (Continued)**

70. **curl** - Transfer data to/from a server.

- **Usage:** curl URL - Fetches data from URL.
- **Example:** curl -O https://example.com/file.txt

71. **wget** - Download files from the internet.

- **Usage:** wget URL - Downloads file from the specified URL.
- **Example:** wget https://example.com/file.zip

72. **scp** - Securely copy files between hosts.

- **Usage:** scp source\_file user@remote:/path - Copies file to a remote server.
- **Example:** scp file.txt user@remote-server:/home/user

73. **rsync** - Synchronize files and directories.

- **Usage:** rsync -av source/ destination/ - Syncs source to destination.
- **Example:** rsync -avz Directory user@remote:/backup/

74. **telnet** - Connect to remote servers (insecure).

- **Usage:** telnet host port - Connects to a specified host and port.
- **Example:** telnet localhost 80

75. **netcat (nc)** - Network utility for debugging.

- **Usage:** nc -zv host port - Checks if port is open on the host.
- **Example:** nc -zv google.com 443

76. **ip route** - Display or manipulate IP routing table.

- **Usage:** ip route show - Shows the routing table.
- **Example:** ip route add 192.168.1.0/24 dev eth0

77. **dig** - DNS lookup tool.

- **Usage:** dig domain.com - Fetches DNS records for a domain.
- **Example:** dig +short google.com

78. **arp** - Display or manipulate ARP cache.

- **Usage:** arp -a - Lists the ARP table.
- **Example:** arp -d IP\_ADDRESS

## Text Processing

79. **echo** - Display a line of text.

- **Usage:** echo "Hello World" - Outputs text to the screen.
- **Example:** echo \$PATH

80. **tr** - Translate characters.

- **Usage:** echo "text" | tr 'a-z' 'A-Z' - Converts lowercase to uppercase.
- **Example:** echo "hello" | tr 'a-z' 'A-Z'

81. **cut** - Remove sections from lines.

- **Usage:** cut -d ' ' -f 1 file - Displays the first field from each line.
- **Example:** cut -d: -f1 /etc/passwd

82. **paste** - Merge lines of files.

- **Usage:** paste file1 file2 - Joins lines from two files.
- **Example:** paste file1 file2

83. **xargs** - Execute commands from standard input.

- **Usage:** cat file | xargs echo - Passes arguments to echo.
- **Example:** find . -name "\*.log" | xargs rm

84. **nl** - Number lines in a file.

- **Usage:** nl file - Numbers each line.
- **Example:** nl file

85. **sort** - Sort lines in a file.

- **Usage:** sort file - Sorts lines alphabetically.
- **Example:** sort -n file (numerical sort)

86. **uniq** - Filter out repeated lines.

- **Usage:** uniq file - Removes duplicate lines.
- **Example:** sort file | uniq

87. **tee** - Read from input and write to files.

- **Usage:** command | tee file - Writes output to file and displays it.
- **Example:** ls | tee file

## Scheduling and Automation

88. **cron** - Schedule regular tasks.
  - **Usage:** crontab -e - Opens the cron editor.
  - **Example:** 0 5 \* \* \* /path/to/script.sh (Runs script daily at 5 AM)
89. **at** - Schedule one-time tasks.
  - **Usage:** echo "command" | at time - Executes command at specified time.
  - **Example:** echo "backup.sh" | at 2:00 AM

## **System Monitoring and Information**

90. **vmstat** - Reports virtual memory statistics.

- **Usage:** vmstat - Shows memory usage.
- **Example:** vmstat 5 (updates every 5 seconds)

91. **iostat** - Reports CPU and I/O statistics.

- **Usage:** iostat - Shows CPU and disk I/O stats.
- **Example:** iostat -d 2

92. **lsof** - List open files.

- **Usage:** lsof - Shows open files and processes.
- **Example:** lsof | grep file

93. **ss** - Display socket statistics.

- **Usage:** ss -tuln - Shows listening ports and connections.
- **Example:** ss -s

94. **free** - Show memory usage.

- **Usage:** free -h - Memory stats in human-readable format.
- **Example:** free

95. **mpstat** - Display CPU usage.

- **Usage:** mpstat - Shows per-processor CPU usage.
- **Example:** mpstat -P ALL 1

96. **sar** - Collect and report system activity.

- **Usage:** sar -u 1 5 - CPU usage every second for 5 times.
- **Example:** sar -r (memory stats)

## **Security and Access Control**

97. **iptables** - Set up firewall rules.
  - **Usage:** iptables -L - Lists rules.
  - **Example:** iptables -A INPUT -p tcp --dport 22 -j ACCEPT
98. **chmod** - Change file permissions.
  - **Usage:** chmod 755 file - Sets permissions.
  - **Example:** chmod +x script.sh
99. **chown** - Change file ownership.
  - **Usage:** chown user:group file - Changes ownership.
  - **Example:** chown user file
100. **passwd** - Change user password. - **Usage:** passwd user - Sets a password for "user". -  
**Example:** passwd (for current user)

**Happy Learning**

