

A comprehensive list of the **250 most-used Linux commands**, along with their definitions and real-world relevance, is a valuable resource—especially for sysadmins, developers, DevOps engineers, and tech learners. Provided by MTSCCLASS.

Getting Started with Basic Commands

Before jumping into the full list, let's cover a few essentials. These commands will help you navigate the system, create files, and manage directories. Use the [sandbox environment](#) to practice; hands-on experience is the best way to get comfortable. Once you're able to move around, create, and view files or directories, the rest of the guide will feel much easier to follow.

Basic Linux Commands Reference

1. touch

Description:

Creates empty files or updates the timestamp of an existing file.

Syntax:

`touch filename`

Common Use Cases:

- Creating a new empty file.
- Updating the last modified timestamp of a file.

Most Used Flags/Options:

- `-c` → Do not create a file if it doesn't exist.
- `-t <timestamp>` → Set a specific timestamp for the file.

Examples:

```
touch myfile.txt    # Create a new file
touch myfile.txt    # Update the timestamp of an existing file
```

2. pwd

Description:

Prints the current working directory.

Syntax:

```
pwd
```

Common Use Cases:

- Checking the current directory location in the terminal.

Example:

```
pwd  
# Output: /home/user/documents
```

3. cd

Description:

Changes the current working directory.

Syntax:

```
cd [directory]
```

Common Use Cases:

- Navigating between directories.
- Returning to the home directory.

Examples:

```
cd /home/user/documents # Move to a specific directory  
cd ..                    # Move up one directory  
cd                       # Return to the home directory
```

4. ls

Description:

Lists files and directories in the current directory.

Syntax:

`ls [options] [directory]`

Common Use Cases:

- Listing files in a directory.
- Viewing hidden files.
- Showing detailed file information.

Most Used Flags/Options:

- `-l` → Long listing format.
- `-a` → Show hidden files.
- `-h` → Human-readable sizes.

Examples:

```
ls -la # List all files, including hidden ones
```

5. echo

Description:

Prints text to the terminal.

Syntax:

`echo [options] "text"`

Common Use Cases:

- Displaying messages in scripts.
- Redirecting output to a file.

Most Used Flags/Options:

- `-e` → Enable interpretation of escape characters.
- `-n` → Do not add a new line at the end.

Examples:

```
echo "Hello, World!"  
echo -e "Line1\nLine2"
```

6. mkdir

Description:

Creates directories.

Syntax:

```
mkdir [options] directory_name
```

Common Use Cases:

- Creating a single or multiple directories.
- Creating nested directories.

Most Used Flags/Options:

- -p → Create parent directories if they do not exist.

Examples:

```
mkdir new_folder      # Create a single directory  
mkdir -p parent/child/grandchild # Create nested directories
```

7. rm

Description:

Removes files or directories.

Syntax:

```
rm [options] filename
```

Common Use Cases:

- Deleting files.
- Deleting directories recursively.

Most Used Flags/Options:

- -r → Remove directories and their contents recursively.

- -f → Force deletion without confirmation.

Examples:

```
rm myfile.txt    # Remove a single file
rm -rf mydir     # Remove a directory and its contents
```

8. rmdir

Description:

Removes empty directories.

Syntax:

```
rmdir directory_name
```

Common Use Cases:

- Removing directories that are empty.

Example:

```
rmdir empty_folder
```

9. cp

Description:

Copies files and directories.

Syntax:

```
cp [options] source destination
```

Common Use Cases:

- Copying files or directories.

Most Used Flags/Options:

- -r → Copy directories recursively.
- -i → Ask before overwriting.
- -v → Verbose output.

Examples:

```
cp file1.txt file2.txt # Copy a file
cp -r dir1 dir2      # Copy a directory
```

10. Mv

Description:

Moves or renames files and directories.

Syntax:

```
mv [options] source destination
```

Common Use Cases:

- Moving files.
- Renaming files.

Example:

```
mv oldname.txt newname.txt # Rename a file
```

Another great resource for learning basic commands can be found [here](#). Now that you've got a solid grasp of the fundamentals, let's move on to a comprehensive list of the **250 most used** Linux commands.

Command	Definition	Industry Use
adduser	Adds a new user to the system.	Used in system administration to create user accounts for employees or services in enterprise environments.
alias	Creates an alias for a command.	Helps in customizing command line workflows, commonly used by developers and admins to simplify repetitive tasks.
apt	Package handling utility for Debian-based systems.	Essential for software installation and management in Ubuntu servers, widely used in cloud computing and DevOps.

apt-get	Advanced package tool for handling packages.	Used for installing, updating, and removing software in production servers, critical for maintaining system security.
at	Schedules commands to be executed at a specific time.	Employed in automation for one-time tasks like backups or reports in IT operations.
atop	An advanced interactive monitor for Linux systems.	Monitors system resources in real-time, used in performance tuning for high-availability servers.
awk	A programming language for text processing.	Processes data reports and logs, vital in data analysis and scripting in big data industries.
badblocks	Searches for bad blocks on a disk.	Used in hardware diagnostics to ensure data integrity in storage systems for enterprises.
bunzip2	Decompresses .bz2 files.	Handles compressed archives, common in data transfer and backup processes in IT.
bzip2	Compresses files using Burrows-Wheeler algorithm.	Reduces file sizes for storage and transfer, used in software distribution and backups.
cat	Concatenates and displays files.	Views file contents quickly, essential for log inspection in system administration.
cd	Changes the current working directory.	Fundamental for navigation in the file system, used daily by all Linux professionals.
chage	Changes user password expiry information.	Manages user account security policies, important in compliance-driven industries like finance.

chgrp	Changes group ownership of files.	Controls access permissions, used in multi-user environments for collaboration.
chmod	Changes file permissions.	Secures files and scripts, critical for security in web servers and applications.
chown	Changes file owner and group.	Manages file ownership, essential for access control in shared server environments.
chpasswd	Updates passwords in batch mode.	Automates password changes for multiple users, used in large-scale user management.
clear	Clears the terminal screen.	Improves readability during long sessions, common in command-line heavy roles.
cmp	Compares two files byte by byte.	Verifies file integrity, used in data validation processes in software development.
comm	Compares two sorted files line by line.	Identifies common and unique lines, useful in data comparison tasks.
cp	Copies files and directories.	Duplicates data, fundamental for backups and file management in operations.
crontab	Maintains crontab files for scheduling.	Automates recurring tasks like backups, widely used in DevOps for CI/CD.
curl	Transfers data with URLs.	Fetches data from APIs, essential for web development and monitoring services.
cut	Removes sections from each line of files.	Extracts specific fields from data, used in log parsing and scripting.
date	Displays or sets the system date and time.	Manages timestamps, important for logging and synchronization in networks.
df	Reports file system disk space usage.	Monitors storage, critical for preventing outages in server management.

diff	Compares files line by line.	Identifies changes, used in version control and configuration management.
dig	DNS lookup utility.	Queries DNS servers, essential for network troubleshooting in IT support.
dir	Lists directory contents (similar to ls).	Views files, used in file management tasks across industries.
dmidecode	Retrieves hardware information from BIOS.	Audits hardware, used in inventory management for data centers.
dnf	Package manager for RPM-based distributions.	Installs and manages software, common in Fedora and RHEL environments.
dnsdomainname	Shows the system's DNS domain name.	Identifies network configuration, used in domain management.
domainname	Shows or sets the system's NIS domain name.	Manages NIS domains, used in legacy network setups.
dpkg	Package manager for Debian.	Handles .deb packages, essential for Ubuntu server maintenance.
dstat	Versatile resource statistics tool.	Monitors system performance, used in diagnostics for servers.
du	Estimates file space usage.	Analyzes disk usage, vital for storage optimization in cloud services.
echo	Displays a line of text.	Outputs messages in scripts, fundamental for debugging and automation.
emacs	Extensible text editor.	Edits code and configs, used by developers in software engineering.

env	Prints environment or runs a command in a modified environment.	Manages variables, used in scripting for consistent executions.
exit	Exits the shell.	Closes terminal sessions, standard in workflow management.
export	Sets environment variables.	Configures environment for applications, essential in deployment scripts.
fdisk	Manipulates disk partition table.	Creates partitions, used in storage configuration for servers.
file	Determines file type.	Identifies file formats, useful in security scans and processing.
find	Searches for files in a directory hierarchy.	Locates files, critical for system maintenance and cleanup.
firewalld	Dynamic firewall manager.	Manages network security, used in enterprise firewalls.
free	Displays memory usage.	Monitors RAM, essential for performance optimization in hosting.
fsck	Checks and repairs file systems.	Maintains file system integrity, used in recovery operations.
ftp	File transfer protocol client.	Transfers files, used in legacy data exchange.
glances	System monitoring tool.	Provides overview of system resources, used in operations monitoring.
grep	Searches text using patterns.	Filters logs, indispensable for troubleshooting in IT.
groupadd	Creates a new group.	Manages user groups, used in access control systems.

groupdel	Deletes a group.	Removes unused groups, part of user management in admin roles.
groupmod	Modifies a group.	Updates group properties, used in security administration.
groups	Prints group memberships.	Views user groups, helpful for auditing access.
gunzip	Decompresses .gz files.	Extracts archives, common in software installation.
gzip	Compresses files.	Reduces file sizes, used in data compression for transfer.
halt	Halts the system.	Shuts down hardware, used in maintenance shutdowns.
hdparm	Gets/sets hard disk parameters.	Optimizes disk performance, used in storage tuning.
head	Outputs the first part of files.	Views beginning of logs, used in quick inspections.
help	Displays help for builtin commands.	Provides command info, used for quick references.
history	Displays command history.	Reviews past commands, useful for auditing and repetition.
host	DNS lookup utility.	Resolves hostnames, used in network diagnostics.
hostname	Shows or sets the system's host name.	Manages identity, essential for network configuration.
htop	Interactive process viewer.	Monitors processes, widely used in server administration.

id	Prints user and group information.	Verifies identities, used in security checks.
ifconfig	Configures network interfaces.	Manages network settings, common in legacy networking.
iftop	Displays bandwidth usage.	Monitors network traffic, used in bandwidth management.
info	Reads Info documents.	Views documentation, alternative to man pages.
insmod	Inserts a module into the kernel.	Loads kernel modules, used in hardware support.
iostat	Reports CPU and I/O statistics.	Analyzes performance, used in system tuning.
iotop	Shows I/O usage by processes.	Monitors disk activity, essential for storage troubleshooting.
ip	Shows/manipulates routing and devices.	Manages network, modern replacement for ifconfig.
iptables	Administration tool for IPv4 packet filtering.	Sets up firewalls, critical for security in networks.
jed	Lightweight text editor.	Edits files, used in minimal environments.
join	Joins lines of two files on a common field.	Merges data, used in data processing scripts.
journalctl	Queries systemd journal.	Views logs, essential for systemd-based systems.
kill	Sends a signal to a process.	Terminates processes, used in process management.
killall	Kills processes by name.	Stops multiple instances, useful in cleanup.

last	Shows last logins.	Audits user activity, used in security monitoring.
less	Pager for viewing text files.	Reads large files, common for log viewing.
lftp	Sophisticated file transfer program.	Transfers files, supports multiple protocols.
ln	Makes links between files.	Creates symlinks, used in file organization.
locate	Finds files by name.	Quick file search, used in large file systems.
logname	Prints user's login name.	Identifies session user, used in scripts.
ls	Lists directory contents.	Views files, fundamental for file exploration.
lsblk	Lists block devices.	Views disk layout, used in storage management.
lscpu	Displays CPU architecture information.	Checks hardware specs, used in optimization.
lshw	Lists hardware configuration.	Audits hardware, used in inventory.
lsmod	Shows loaded kernel modules.	Views modules, used in troubleshooting.
lsof	Lists open files.	Sees process files, critical for diagnostics.
lspci	Lists PCI devices.	Views hardware, used in driver management.
lsusb	Lists USB devices.	Views connected devices, used in hardware support.

mail	Sends and receives mail.	Handles email, used in automated notifications.
man	Displays manual pages.	References commands, essential for learning and troubleshooting.
mkdir	Creates directories.	Organizes files, basic for structure setup.
mkfs	Builds a file system.	Formats disks, used in storage preparation.
modinfo	Shows module information.	Views kernel module details, used in development.
modprobe	Adds/removes modules from kernel.	Manages modules, used in hardware configuration.
more	Pager for text files.	Views files page by page, used for reading docs.
mount	Mounts a file system.	Attaches storage, essential for disk access.
mtr	Network diagnostic tool.	Combines ping and traceroute, used in networking.
mutt	Text-based email client.	Manages email, used in server environments.
mv	Moves or renames files.	Reorganizes files, fundamental for management.
nano	Simple text editor.	Edits configs, common for quick changes.
ncdu	NCurses disk usage analyzer.	Analyzes storage, used for cleanup.
nethogs	Network bandwidth per process.	Monitors traffic, used in network optimization.
netstat	Displays network connections.	Views network stats, used in troubleshooting.

nice	Runs a program with modified priority.	Adjusts process priority, used in resource management.
nisdomainname	Shows NIS domain.	Manages legacy networks.
nmap	Network exploration tool.	Scans networks, used in security assessments.
nmon	System monitor tool.	Monitors performance, used in analysis.
nproc	Prints number of processing units.	Checks CPU cores, used in parallel processing.
nslookup	Queries name servers.	DNS troubleshooting, used in networking.
od	Dumps files in octal.	Views binary files, used in debugging.
pacman	Package manager for Arch Linux.	Manages software, used in Arch-based systems.
passwd	Changes user password.	Manages authentication, critical for security.
paste	Merges lines of files.	Combines data, used in scripting.
pgrep	Looks up processes by name.	Finds PIDs, used in automation.
pico	Simple text editor (part of pine).	Edits files, alternative to nano.
pidof	Finds PID of a program.	Locates processes, used in management.
ping	Sends ICMP echo requests.	Tests connectivity, fundamental for networking.
pkill	Kills processes by name.	Terminates by name, used in ops.
poweroff	Powers off the system.	Shuts down, used in remote management.

printf	Formats and prints data.	Outputs formatted text, used in scripts.
ps	Reports process status.	Views running processes, essential for monitoring.
pstree	Displays process tree.	Visualizes processes, used in analysis.
pwd	Prints working directory.	Shows current path, basic navigation.
reboot	Reboots the system.	Restarts server, used in maintenance.
renice	Alters priority of running processes.	Adjusts running priorities, used in tuning.
rm	Removes files or directories.	Deletes data, used with caution in cleanup.
rmdir	Removes empty directories.	Cleans up structure, part of file management.
rmmod	Removes kernel modules.	Unloads modules, used in configuration.
route	Shows/manipulates IP routing table.	Manages routes, used in networking.
rpm	RPM package manager.	Handles packages in Red Hat systems.
rsync	Synchronizes files remotely.	Backups and mirrors data, essential in DevOps.
scp	Secure copy over SSH.	Transfers files securely, used in remote ops.
sed	Stream editor for filtering text.	Edits text streams, used in automation.
service	Runs System V init scripts.	Manages services, used in legacy systems.

sftp	Secure file transfer program.	Transfers files over SSH, secure alternative to ftp.
shutdown	Brings the system down.	Graceful shutdown, used in admin.
sort	Sorts lines of text files.	Organizes data, used in processing.
source	Executes commands from a file.	Loads configs, used in environment setup.
ss	Investigates sockets.	Views network connections, modern netstat.
ssh	Secure shell client.	Remote access, fundamental for server management.
su	Switches user.	Changes user context, used for privilege escalation.
sudo	Executes command as another user.	Runs with elevated privileges, essential for admin.
sysctl	Configures kernel parameters at runtime.	Tunes system, used in optimization.
systemctl	Controls systemd system.	Manages services, core in modern Linux.
tail	Outputs the last part of files.	Monitors logs in real-time, used in debugging.
tar	Archives files.	Bundles files, used in backups and distribution.
tee	Reads from stdin and writes to stdout and files.	Logs output, used in scripting.
top	Displays system processes.	Monitors resources, basic for performance.

touch	Changes file timestamps or creates files.	Creates empty files, used in testing.
tr	Translates or deletes characters.	Modifies text, used in data cleaning.
traceroute	Prints route packets take to network host.	Diagnoses network paths, used in troubleshooting.
type	Displays command type.	Checks if command is builtin, used in scripting.
ufw	Uncomplicated Firewall.	Manages firewall, used in security.
umask	Sets file creation mask.	Controls default permissions, used in security.
umount	Unmounts file systems.	Detaches storage, used in management.
unalias	Removes command aliases.	Clears custom aliases, used in cleanup.
uname	Prints system information.	Views OS details, used in compatibility checks.
uniq	Reports or omits repeated lines.	Removes duplicates, used in data processing.
unset	Unsets shell variables.	Clears variables, used in scripting.
unxz	Decompresses .xz files.	Handles compression, used in archives.
unzip	Extracts compressed ZIP archives.	Unpacks files, common in software install.
updatedb	Updates locate database.	Refreshes file index, used for fast searches.
uptime	Shows how long system has been running.	Monitors availability, used in ops.

useradd	Creates a new user.	Adds accounts, basic user management.
userdel	Deletes a user account.	Removes users, part of offboarding.
usermod	Modifies a user account.	Updates user properties, used in admin.
vi	Visual text editor.	Edits files, standard in Unix environments.
vim	Improved vi editor.	Advanced editing, preferred by developers.
visudo	Edits sudoers file safely.	Configures sudo privileges, critical for security.
vmstat	Reports virtual memory statistics.	Monitors memory, used in performance.
w	Shows who is logged on.	Views users, used in multi-user systems.
watch	Executes a program periodically.	Monitors changes, used in real-time checks.
wc	Prints word, line counts.	Counts data, used in analysis.
wget	Retrieves files from the web.	Downloads, used in automation.
whatis	Displays one-line manual descriptions.	Quick command info, used for references.
whereis	Locates binary, source, man pages.	Finds command locations, used in troubleshooting.
which	Shows location of a command.	Locates executables, used in path issues.
who	Shows who is logged in.	Views current users, used in monitoring.
whoami	Prints effective userid.	Confirms current user, used in scripts.
whois	Queries whois databases.	Gets domain info, used in network admin.

xargs	Builds and executes commands from input.	Handles input lists, used in batch processing.
xz	Compresses or decompresses .xz files.	High compression, used in archives.
ypdomainname	Shows YP domain name.	Manages legacy NIS, rare but in old systems.
yum	Package manager for RPM.	Installs software in CentOS/RHEL, used in enterprise.
zip	Packages and compresses archives.	Creates ZIP files, common for cross-platform.
zypper	Package manager for openSUSE.	Manages software in SUSE systems, used in specific distros.