

Linux Cheat Sheet

Basic Commands

- `pwd`: Print the current working directory.
- `ls`: List files and directories in the current directory.
 - `ls -l`: Long listing format.
 - `ls -a`: List all files including hidden files.
- `cd [directory]`: Change the current directory.
 - `cd ..`: Move up one directory level.
 - `cd ~`: Change to the home directory.
- `mkdir [directory]`: Create a new directory.
- `rmdir [directory]`: Remove an empty directory.
- `rm [file]`: Remove a file.
 - `rm -r [directory]`: Remove a directory and its contents recursively.
- `cp [source] [destination]`: Copy files or directories.
 - `cp -r [source_directory] [destination]`: Copy directories recursively.
- `mv [source] [destination]`: Move or rename files or directories.

File Viewing and Editing

- `cat [file]`: View the contents of a file.
- `less [file]`: View the contents of a file one screen at a time.
- `head [file]`: View the first 10 lines of a file.
 - `head -n [number] [file]`: View the first `n` lines of a file.
- `tail [file]`: View the last 10 lines of a file.
 - `tail -n [number] [file]`: View the last `n` lines of a file.
- `nano [file]`: Edit a file using the Nano text editor.
- `vim [file]`: Edit a file using the Vim text editor.
- Recommend something like Microsoft VS Code for “hard core” code editing.

File Permissions

- `chmod [permissions] [file]`: Change the permissions of a file.
 - `chmod +x [file]`: Make a file executable.
- `chown [owner]:[group] [file]`: Change the owner and group of a file.
- `ls -l`: View file permissions and ownership.

System Information

- `uname -a`: Display all system information.
- `df -h`: Show disk usage in human-readable format.
- `du -sh [directory]`: Show the size of a directory.
- `top`: Display running processes and system resource usage.
- `ps aux`: List all running processes.
- `free -h`: Display memory usage in human-readable format.

Network Commands

- `ifconfig`: Display network interfaces (may need to be installed on some systems).
- `ip addr`: Show IP addresses.
- `ping [host]`: Send ICMP ECHO_REQUEST packets to network hosts.
- `wget [url]`: Download files from the web.
- `curl [url]`: Transfer data from or to a server.

File Compression

- `tar -cvf [archive.tar] [directory]`: Create a tar archive.
- `tar -xvf [archive.tar]`: Extract a tar archive.
- `gzip [file]`: Compress a file using gzip.
- `gunzip [file.gz]`: Decompress a gzip file.

Useful Shortcuts

- **Ctrl+C**: Cancel the current command.
- **Ctrl+Z**: Suspend the current command.
- **Ctrl+R**: Search command history.
- **Tab**: Auto-complete file and directory names.

Miscellaneous

- **echo [text]**: Print text to the terminal.
- **man [command]**: Display the manual page for a command.
- **history**: Show command history.
- **alias [name]='[command]'**: Create an alias for a command.
- **date**: Display the current date and time.

Additional Topics

Environment Variables

- **export VAR=value**: Set an environment variable.
- **echo \$VAR**: Display the value of an environment variable.
- **env**: List all environment variables.

Redirection and Piping

- **command > file**: Redirect command output to a file.
- **command >> file**: Append command output to a file.
- **command < file**: Use a file as input to a command.
- **command1 | command2**: Pipe the output of **command1** to **command2**.

Searching and Finding Files

- **find [directory] -name [name]**: Search for files by name.
- **grep [pattern] [file]**: Search for a pattern in a file.
 - **grep -r [pattern] [directory]**: Recursively search for a pattern in a directory.
- **locate [name]**: Find files by name quickly (requires **updatedb**).

Disk Usage and Storage

- **df -h**: Display disk space usage in human-readable format.
- **du -sh [directory]**: Display the size of a directory and its contents.
- **mount [device] [directory]**: Mount a filesystem.
- **umount [directory]**: Unmount a filesystem.

Process Management

- **ps aux**: List all running processes.
- **top**: Display active processes.
- **kill [PID]**: Terminate a process by its PID.
- **killall [process_name]**: Terminate all processes with the specified name.
- **bg**: Resume a suspended job in the background.
- **fg**: Bring a background job to the foreground.

Scheduling Tasks

- **crontab -e**: Edit the cron jobs for the current user.
- **crontab -l**: List the cron jobs for the current user.
- **at [time]**: Schedule a command to run once at a specified time.
- **atq**: List pending at jobs.
- **atrm [job_number]**: Remove a pending at job.

SSH and Remote Access

- `ssh user@host`: Connect to a remote host via SSH.
- `scp [source] [user@host:destination]`: Copy files to a remote host.
- `rsync -av [source] [user@host:destination]`: Synchronize files to a remote host.
- `sftp user@host`: Securely transfer files over SSH.

Text Processing

- `sort [file]`: Sort the lines in a file.
- `uniq [file]`: Remove duplicate lines from a file.
- `wc [file]`: Count lines, words, and characters in a file.
- `cut -d [delimiter] -f [fields] [file]`: Extract specific fields from a file.
- `awk '{print $1}' [file]`: Process and analyze text files.
- `sed 's/[pattern]/[replacement]/' [file]`: Stream editor for filtering and transforming text.

Backup and Restore

- `tar -cvzf [backup.tar.gz] [directory]`: Create a compressed tar archive for backup.
- `tar -xvzf [backup.tar.gz]`: Extract a compressed tar archive.
- `rsync -av --delete [source] [destination]`: Synchronize files and directories for backup.
- `dd if=[source] of=[destination]`: Copy and convert files at a low level, useful for disk cloning.