



Navigation & File Management

Basic Navigation

pwd	Print Working Directory: Displays the current directory path.
cd	Change Directory: Navigates to the specified directory. cd .. - Move up one directory. cd ~ - Go to home directory. cd - - Go to previous directory.
ls	List Directory Contents: Shows files and directories in the current directory. ls -l - Long listing format (permissions, size, date). ls -a - Show all files, including hidden ones (starting with .). ls -t - Sort by modification time (newest first).
mkdir r	Make Directory: Creates a new directory. mkdir directory_name
rmdir r	Remove Directory: Deletes an empty directory. rmdir directory_name
touch h	Create an empty file or update the timestamp of an existing file. touch file_name

Searching & Redirection

Searching Files

find	Find files based on criteria. find . -name "*.txt" (find all .txt files in the current directory and its subdirectories). find / -name "important_file" (find 'important_file' in the entire system). find . -size +10M (find files larger than 10MB in the current directory).
grep	Search for patterns within files. grep 'pattern' file_name (search for 'pattern' in file_name). grep -i 'pattern' file_name (case-insensitive search). grep -r 'pattern' directory_name (recursive search in directory). grep -v 'pattern' file_name (find lines that do NOT contain the pattern).
which h	Locate the executable file associated with a command. which command_name
locate e	Find files by name using a pre-built index. Requires updatedb to update the index. locate file_name

File Operations

cp	Copy: Copies files or directories. cp source destination cp -r source_directory destination_directory (recursive copy for directories)
mv	Move/Rename: Moves files or directories, or renames them. mv old_name new_name mv file destination_directory
rm	Remove: Deletes files. rm file_name rm -r directory_name (recursive removal for directories) rm -f file_name (force removal, bypass prompts) rm -rf directory_name (force recursive removal)
ln	Create links between files. ln -s source_file symbolic_link (creates a symbolic link)
cat	Concatenate and display file content. cat file_name
les s	View file content page by page. less file_name Use arrow keys to navigate, q to quit.

Input/Output Redirection

>	Redirect output to a file (overwrites existing content). command > file.txt
>>	Append output to a file (adds to existing content). command >> file.txt
2>	Redirect standard error to a file. command 2> error.txt
&> or >&	Redirect both standard output and standard error to a file. command &> output.txt or command >& output.txt
 (pipe)	Pipe: Sends the output of one command as input to another. command1 command2
<	Redirect input from a file to a command. command < input.txt

System Information & Process Management

System Information

<code>uname</code>	Print system information. <code>uname -a</code> (all information). <code>uname -r</code> (kernel release).
<code>df</code>	Disk Free: Shows disk space usage. <code>df -h</code> (human-readable format).
<code>du</code>	Disk Usage: Shows disk space usage of files and directories. <code>du -sh directory_name</code> (summary in human-readable format). <code>du -h --max-depth=1 directory_name</code> (show usage for each subdirectory).
<code>free</code>	Display amount of free and used memory in the system. <code>free -m</code> (in MB). <code>free -g</code> (in GB).
<code>uptime</code>	Show how long the system has been running, current time, number of users, and system load average.
<code>date</code>	Display the current date and time.

User Management & Permissions

User Management

<code>whoami</code>	Display the current user's username.
<code>id</code>	Display user ID, group ID, and groups.
<code>w</code>	Show who is logged on and what they are doing.
<code>last</code>	List last logged-in users.
<code>passwd</code>	Change user password.
<code>su</code>	Switch user. <code>su username</code>

Process Management

<code>ps</code>	Process Status: Displays information about active processes. <code>ps aux</code> (show all processes). <code>ps -ef</code> (show all processes with full command lines).
<code>top</code>	Display real-time system processes, CPU usage, and memory usage. Press <code>q</code> to quit.
<code>kill</code>	Terminate a process. <code>kill process_id</code> (sends a TERM signal). <code>kill -9 process_id</code> (forcefully kills the process with a KILL signal).
<code>pkill</code>	Kill processes by name. <code>pkill process_name</code>
<code>bg</code>	Resume a stopped process in the background. <code>bg %job_id</code> (where job_id is the job number).
<code>fg</code>	Bring a background process to the foreground. <code>fg %job_id</code>

File Permissions

<code>chmod</code>	Change file permissions. <code>chmod 755 file_name</code> (rwxr-xr-x) <code>chmod +x file_name</code> (add execute permission for all) <code>chmod u+w file_name</code> (add write permission for the user) <code>chmod g-r file_name</code> (remove read permission for the group)
<code>chown</code>	Change file owner. <code>chown user file_name</code> <code>chown user:group file_name</code> (change owner and group)
<code>chgrp</code>	Change file group. <code>chgrp group file_name</code>
<code>umask</code>	Set default file permissions. <code>umask 022</code> (removes write permission for group and others)
<code>ls -l</code>	Shows permissions for the file. Example: <code>-rwxr-xr--</code> 1st character: <code>d</code> (directory), <code>-</code> (file), <code>l</code> (link) Next 3 characters: owner permissions (read, write, execute) Next 3 characters: group permissions Last 3 characters: others permissions