

# UNIX SHELL ESSENTIALS

## FILE AND DIRECTORY COMMANDS

Command	Description	Options	Examples
<b>ls</b>	List files and directories	<ul style="list-style-type: none"><li>• <b>-l</b>: Long format listing</li><li>• <b>-a</b>: Include hidden files hidden ones</li><li>• <b>-h</b>: Human-readable file sizes</li></ul>	<ul style="list-style-type: none"><li>• <b>ls -l</b> displays files and directories with detailed information.</li><li>• <b>ls -a</b> shows all files and directories, including hidden ones</li><li>• <b>ls -lh</b> displays file sizes in a human-readable format</li></ul>
<b>cd</b>	Change directory		<ul style="list-style-type: none"><li>• <b>cd /path/to/directory</b> changes the current directory to the specified path</li></ul>
<b>mkdir</b>	Create a new directory		<ul style="list-style-type: none"><li>• <b>mkdir my_directory</b> creates a new directory named "my_directory"</li></ul>
<b>rm</b>	Remove files and directories	<ul style="list-style-type: none"><li>• <b>-r</b>: Remove directories recursively</li><li>• <b>-f</b>: Force removal without confirmation</li></ul>	<ul style="list-style-type: none"><li>• <b>rm file.txt</b> deletes the file named "file.txt"</li><li>• <b>rm -r my_directory</b> deletes the directory "my_directory" and its contents</li><li>• <b>rm -f file.txt</b> forcefully deletes the file "file.txt" without confirmation</li></ul>
<b>cp</b>	Copy files and directories	<ul style="list-style-type: none"><li>• <b>-r</b>: Copy directories recursively</li></ul>	<ul style="list-style-type: none"><li>• <b>cp -r directory destination</b> copies the directory "directory" and its contents to the specified destination</li><li>• <b>cp file.txt destination</b> copies the file "file.txt" to the specified destination</li></ul>
<b>mv</b>	Move/rename files and directories.		<ul style="list-style-type: none"><li>• <b>mv file.txt new_name.txt</b> renames the file "file.txt" to "new_name.txt"</li><li>• <b>mv file.txt directory</b> moves the file "file.txt" to the specified directory</li></ul>
<b>touch</b>	Create an empty file or update file timestamps		<ul style="list-style-type: none"><li>• <b>touch file.txt</b> creates an empty file named "file.txt"</li></ul>
<b>cat</b>	View the contents of a file		<ul style="list-style-type: none"><li>• <b>cat file.txt</b> displays the contents of the file "file.txt"</li></ul>
<b>head</b>	Display the first few lines of a file	<ul style="list-style-type: none"><li>• <b>-n</b>: Specify the number of lines to display</li></ul>	<ul style="list-style-type: none"><li>• <b>head file.txt</b> shows the first 10 lines of the file "file.txt"</li><li>• <b>head -n 5 file.txt</b> displays the first 5 lines of the file "file.txt"</li></ul>
<b>tail</b>	Display the last few lines of a file.	<ul style="list-style-type: none"><li>• <b>-n</b>: Specify the number of lines to display</li></ul>	<ul style="list-style-type: none"><li>• <b>tail file.txt</b> shows the last 10 lines of the file "file.txt"</li><li>• <b>tail -n 5 file.txt</b> displays the last 5 lines of the file "file.txt"</li></ul>

Command	Description	Options	Examples
<b>find</b>	Search for files and directories	<ul style="list-style-type: none"> <li>• <b>-name:</b> Search by filename</li> <li>• <b>-type:</b> Search by file type</li> </ul>	<ul style="list-style-type: none"> <li>• <b>find /path/to/search -name "*.txt"</b> searches for all files with the extension ".txt" in the specified directory</li> </ul>

## OTHER COMMANDS

<b>chmod</b>	Change file permissions	<ul style="list-style-type: none"> <li>• <b>u:</b> User/owner permissions</li> <li>• <b>+</b>: Add permissions</li> <li>• <b>-</b>: Remove permissions</li> </ul>	<ul style="list-style-type: none"> <li>• <b>chmod u+rw file.txt</b> grants read, write, and execute permissions to the owner of the file</li> </ul>
<b>top</b>	Monitor system processes in real-time		<ul style="list-style-type: none"> <li>• <b>top</b> displays a dynamic view of system processes and their resource usage</li> </ul>
<b>kill</b>	Terminate a process	<ul style="list-style-type: none"> <li>• <b>-9:</b> Forcefully kill a process</li> </ul>	<ul style="list-style-type: none"> <li>• <b>kill PID</b> terminates the process with the specified process ID</li> </ul>
<b>grep</b>	Used to search for specific patterns or regular expressions in text files or streams and display matching lines	<ul style="list-style-type: none"> <li>• <b>-i:</b> Ignore case distinctions while searching</li> <li>• <b>-r or -R:</b> Recursively search directories for matching patterns</li> </ul>	<ul style="list-style-type: none"> <li>• <b>grep -i "hello" file.txt</b> In these example we are extracting our desired output from filename (file.txt)</li> </ul>
<b>history</b>	Show the last commands used		<ul style="list-style-type: none"> <li>• <b>history</b> display the last commands used</li> </ul>

## IMPORTANT THINGS TO KNOW

- It is possible to use the **up and down arrows** to scroll through the history of commands entered in the shell
- UNIX shell is **case sensitive**
- The **sudo** (super user do) command is used before other commands to perform operations by obtaining temporary root (i.e., administrator) privileges.
- There are some special commands called redirection commands that are used to redirect the standard input or output. An example is the **pipe (|)** command that is used to combine two or more commands, and in this, the output of one command acts as input to another command, and this command's output may act as input to the next command, and so on.

Example: **ls | grep file.txt**

In this first we are using **`ls`** to list all file and directories in the current directory, then passing its output to **`grep`** command and searching for file name **`file.txt`**. The output of the ls command is sent to the input of the grep command, and the result is a list of files that match the search term.