



# Vidyavardhini's College of Engineering and Technology

## Department of Artificial Intelligence & Data Science

Experiment No. 1
Explore the internal commands of Linux.
Date of Performance:
Date of Submission:
Marks:
Sign:



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**Aim:** Explore the internal commands of Linux.

**Objective:**

Execute various internal commands of linux

**Theory:**

ps - report a snapshot of the current processes. ps displays information about a selection of the active processes.

cal — displays a calendar and the date of Easter

date - print or set the system date and time ,Display the current time in the given FORMAT, or set the system date.

rm - remove files or directories

mkdir - make directories , Create the DIRECTORY(ies), if they do not already exist. rmdir - remove empty directories

cat - concatenate files and print on the standard output

wc - print newline, word, and byte counts for each file, Print newline, word, and byte counts for each FILE, and a total line if more than one FILE is specified.

ls - list

directory

contents ls

[OPTION]...

[FILE]...



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List information about the FILES (the current directory by default). Sort entries alphabetically.

-l: use a long

listing format

chmod - change

file mode bits

chmod changes the file mode bits of each given file according to mode, which can be either a symbolic representation of changes to make, or an octal number

representing the bit pattern for

the new mode bits. chown -

change file owner and group

chown changes the user and/or group ownership of each given file. If only an owner (a user name or numeric user ID) is given, that user is made the owner of each given file, and the files' group is not changed. If the owner is followed by a colon and a group name (or numeric group ID), with no spaces between them, the group ownership of the files is changed as well.

pwd - print name of current/working directory.

Print the full filename of the current working directory.

umask - set file mode creation mask , umask() sets the calling process's file mode creation mask (umask) to mask & 0777 (i.e., only the file permission bits of mask are used),



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and returns the previous value of the mask.

Commands :

File Management:

ls: List directory contents.

Example: ls -l

cp: Copy files and directories.

Example: cp file1.txt file2.txt

mv: Move or rename files and directories.

Example: mv file1.txt new\_directory/

rm: Remove files or directories.

Example: rm file1.txt

cat: Concatenate and display file content.

Example: cat file1.txt

head: Display the beginning of a file.

Example: head file1.txt

tail: Display the end of a file.

Example: tail file1.txt

touch: Create an empty file or update file timestamp.

Example: touch new\_file.txt

Directory Management:

mkdir: Create directories.

Example: mkdir new\_directory

rmdir: Remove empty directories.

Example: rmdir empty\_directory



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cd: Change the current working directory.

Example: cd new\_directory

pwd: Print the current working directory.

Example: pwd

Process Management:

ps: Display information about active processes.

Example: ps aux

top: Display real-time system resource usage.

Example: top

kill: Terminate processes by PID (Process ID).

Example: kill <PID>

killall: Terminate processes by name.

Example: killall firefox

bg: Put a process in the background.

Example: bg <PID>

fg: Bring a background process to the foreground.

Example: fg <PID>

System Calls:

open: Opens or creates a file.

Example: open("filename.txt", O\_RDWR);

read: Reads data from an open file.

Example: read(fd, buffer, sizeof(buffer));

write: Writes data to an open file.

Example: write(fd, buffer, strlen(buffer));



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close: Closes an open file descriptor.

Example: `close(fd);`

fork: Creates a new process by duplicating the calling process.

Example: `pid = fork();`

exec: Replaces the current process image with a new process image.

Example: `execvp("ls", argv);`

wait: Suspends execution of the calling process until one of its children terminates

Example: `wait(&status);`

exit: Terminates the calling process.

Example: `exit(0);`

These are some basic Linux commands and system calls for file, directory, and process management. They are essential for navigating and manipulating files, directories, and processes in a Linux environment.

## Output:

The image shows two screenshots of a Linux terminal window. The top screenshot shows the output of the `pwd` command, which returns `/home/b17`. The bottom screenshot shows the output of the `ls` command, which lists the contents of the `/home/b17` directory: `Desktop Downloads os_lab Public Templates Documents Music Pictures snap Videos`.

```
b17@b17-HP-Pro-Tower-400-G9-PCI-Desktop-PC: ~  
b17@b17-HP-Pro-Tower-400-G9-PCI-Desktop-PC: ~$ pwd  
/home/b17  
b17@b17-HP-Pro-Tower-400-G9-PCI-Desktop-PC: ~$  
  
b17@b17-HP-Pro-Tower-400-G9-PCI-Desktop-PC: ~  
b17@b17-HP-Pro-Tower-400-G9-PCI-Desktop-PC: ~$ pwd  
/home/b17  
b17@b17-HP-Pro-Tower-400-G9-PCI-Desktop-PC: ~$ dir  
Desktop Downloads os_lab Public Templates  
Documents Music Pictures snap Videos  
b17@b17-HP-Pro-Tower-400-G9-PCI-Desktop-PC: ~$ ls  
Desktop Downloads os_lab Public Templates  
Documents Music Pictures snap Videos  
b17@b17-HP-Pro-Tower-400-G9-PCI-Desktop-PC: ~$
```



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```
Activities Terminal Feb 23 11:55
b17@b17-HP-Pro-Tower-400-G9-PCI-Desktop-PC: ~
b17@b17-HP-Pro-Tower-400-G9-PCI-Desktop-PC: $ pwd
/home/b17
b17@b17-HP-Pro-Tower-400-G9-PCI-Desktop-PC: $ dir
Desktop Downloads os_lab Public Templates
Documents Music Pictures snap Videos
b17@b17-HP-Pro-Tower-400-G9-PCI-Desktop-PC: $ ls
Desktop Downloads os_lab Public Templates
Documents Music Pictures snap Videos
b17@b17-HP-Pro-Tower-400-G9-PCI-Desktop-PC: $ cd
b17@b17-HP-Pro-Tower-400-G9-PCI-Desktop-PC: $
```

```
Activities Terminal Feb 23 11:56
b17@b17-HP-Pro-Tower-400-G9-PCI-Desktop-PC: ~
b17@b17-HP-Pro-Tower-400-G9-PCI-Desktop-PC: $ pwd
/home/b17
b17@b17-HP-Pro-Tower-400-G9-PCI-Desktop-PC: $ dir
Desktop Downloads os_lab Public Templates
Documents Music Pictures snap Videos
b17@b17-HP-Pro-Tower-400-G9-PCI-Desktop-PC: $ ls
Desktop Downloads os_lab Public Templates
Documents Music Pictures snap Videos
b17@b17-HP-Pro-Tower-400-G9-PCI-Desktop-PC: $ cd
b17@b17-HP-Pro-Tower-400-G9-PCI-Desktop-PC: $ touch bart
b17@b17-HP-Pro-Tower-400-G9-PCI-Desktop-PC: $
```

```
Activities Terminal Feb 23 11:56
```

```
Activities Terminal Feb 23 12:01
b17@b17-HP-Pro-Tower-400-G9-PCI-Desktop-PC: ~
182 sudo groupadd bart
183 sudo groupdel bart
184 pwd
185 dir
186 ls
187 cd
188 touch bart
189 cat bart
190 mkdir bart
191 mkdir bart
192 re bart
193 rm bart
194 cp bart
195 cd bart
196 cp
197 mv
198 head bart
199 head bart
200 cd..
201 cd
202 head bart
203 uname
204 history
b17@b17-HP-Pro-Tower-400-G9-PCI-Desktop-PC: $
```





```
Activities Terminal Feb 23 12:02
b17@b17-HP-Pro-Tower-400-G9-PCI-Desktop-PC: ~
MAN(1) Manual pager utils MAN(1)
NAME
man - an interface to the system reference manuals
SYNOPSIS
man [man options] [[section] page ...] ...
man -k [apropos options] regexp ...
man -k [man options] [section] term ...
man -f [whatIs options] page ...
man -l [man options] file ...
man -w|-W [man options] page ...
DESCRIPTION
man is the system's manual pager. Each page argument given to man is
normally the name of a program, utility or function. The manual page
associated with each of these arguments is then found and displayed. A
section, if provided, will direct man to look only in that section of
the manual. The default action is to search in all of the available
sections following a pre-defined order (see DEFAULTS), and to show only
the first page found, even if page exists in several sections.
The table below shows the section numbers of the manual followed by the
Manual page man(1) line 1 (press h for help or q to quit)
```

```
Activities Terminal Feb 23 12:02
b17@b17-HP-Pro-Tower-400-G9-PCI-Desktop-PC: ~
190 mkdir bart
191 mkdir bart
192 re bart
193 rm bart
194 cp bart
195 cd bart
196 cp
197 mv
198 head bart
199 head bart
200 cd ..
201 cd
202 head bart
203 uname
204 history
b17@b17-HP-Pro-Tower-400-G9-PCI-Desktop-PC: ~$ man
What manual page do you want?
For example, try 'man man'.
b17@b17-HP-Pro-Tower-400-G9-PCI-Desktop-PC: ~$ man man
b17@b17-HP-Pro-Tower-400-G9-PCI-Desktop-PC: ~$ ps
PID TTY TIME CMD
9653 pts/0 00:00:00 bash
10183 pts/0 00:00:00 ps
b17@b17-HP-Pro-Tower-400-G9-PCI-Desktop-PC: ~$
```

## Conclusion:

In conclusion, Linux internal commands are fundamental building blocks for interacting with the operating system from the command line. They provide essential functionality, integrate closely with the shell environment, and contribute to the efficiency and flexibility of Linux system administration and usage. Understanding these commands and their usage is key for becoming proficient in Linux command-line operations.