



Vidyavardhini's College of Engineering & Technology
Department of Computer Engineering

Experiment No.1
Explore the internal and external commands of Linux.
Date of Performance:09/01/2024
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Aim: Explore the internal and external commands of Linux.

Objective: The Linux command is a utility of the Linux operating system. All basic and advanced tasks can be done by executing commands.

Theory:

They are grouped into two categories:

- **Internal Commands :** Commands which are built into the shell. For all the shell built-in commands, execution of the same is fast in the sense that the shell doesn't have to search the given path for them in the PATH variable, and also no process needs to be spawned for executing it.
Examples: source, cd, fg, etc.
- **External Commands :** Commands which aren't built into the shell. When an external command has to be executed, the shell looks for its path given in the PATH variable, and also a new process has to be spawned and the command gets executed. They are usually located in /bin or /usr/bin. For example, when you execute the "cat" command, which usually is at /usr/bin, the executable /usr/bin/cat gets executed.
Examples: ls, cat etc.

pwd : It gives absolute path to your current location i.e. current working directory.

```
napster@napster-Veriton-Series:~$ pwd
/home/napster
```

mkdir: It creates new directory/ folder.

```
napster@napster-Veriton-Series:~$ mkdir TRIAL
```

cd: It is used to change directory.

```
napster@napster-Veriton-Series:~$ cd TRIAL
```

cd .. : To come back to previous directory.

cd \ : Return to root directory.

touch: To create new files.

```
napster@napster-Veriton-Series:~/TRIAL$ touch hello.txt
```

To verify hello.txt is created or not:

```
napster@napster-Veriton-Series:~/TRIAL$ ls
Hello.txt
```

6) **ls:** It lists the contents of files and directories.

```
napster@napster-Veriton-Series:~/TRIAL$ ls
```



hello.txt TRIAL2

cat : 1) It can also use to create new file with content as shown below.

```
cat> hello.txt
```

```
hello from Shamika
```

2) It can also use to append the data into existing file as shown below.

```
cat>>hello.txt
```

```
How are you?
```

3) It is used to concatenate files.

```
napster@napster-Veriton-Series:~/TRIAL$ cat hello.txt hi.txt
```

```
hello from Shamika
```

```
How are you?
```

```
Welcome to Os Lab.
```

mv: To rename a file from source to destination and To move file from one location to other location.

```
napster@napster-Veriton-Series:~/TRIAL$ mv hi.txt how.txt
```

grep: It searches all text files in the current directory for lines containing “hello”

```
napster@napster-Veriton-Series:~/TRIAL$ grep hello *.txt
```

```
hello from Shamika
```

rm: remove / delete files.

```
napster@napster-Veriton-Series:~/TRIAL/TRIAL2$ rm how.txt
```

date: Print or set the system date and time ,Display the current time in the given

FORMAT, or set the system date.

```
b1@comp:~$ date
```

```
Fri Feb 16 15:43:44 IST 2018
```

time: Displays time of the system.

free: Shows amount of RAM In use.

echo: Echoes output on the screen.

clear: Clears the screen.

exit: Exit from the terminal.



man : (man commandname) Gives description about the command.

gedit: To open text editor.

ps : Report a snapshot of the current processes. ps displays information about a selection of the active processes.

cal : Displays a calendar.

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.

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.

Result:

```
ubuntu@ubuntu-HP-Elite-Tower-600-G9-Desktop-PC: $ pwd
/home/ubuntu
ubuntu@ubuntu-HP-Elite-Tower-600-G9-Desktop-PC: $ ls
Desktop Documents Downloads Music Pictures Public snap Templates Videos
ubuntu@ubuntu-HP-Elite-Tower-600-G9-Desktop-PC: $ ls -l
total 36
drwxr-xr-x 2 ubuntu ubuntu 4096 Mar  8  2023 Desktop
drwxr-xr-x 2 ubuntu ubuntu 4096 Mar  8  2023 Documents
drwxr-xr-x 2 ubuntu ubuntu 4096 Mar  8  2023 Downloads
drwxr-xr-x 2 ubuntu ubuntu 4096 Mar  8  2023 Music
drwxr-xr-x 3 ubuntu ubuntu 4096 Sep 25 10:18 Pictures
drwxr-xr-x 2 ubuntu ubuntu 4096 Mar  8  2023 Public
drwx----- 4 ubuntu ubuntu 4096 Mar 28  2023 snap
drwxr-xr-x 2 ubuntu ubuntu 4096 Mar  8  2023 Templates
drwxr-xr-x 2 ubuntu ubuntu 4096 Mar  8  2023 Videos
ubuntu@ubuntu-HP-Elite-Tower-600-G9-Desktop-PC: $ ls -a
. .bash_history .bashrc .config Documents .gnupg Music .profile snap .sudo_as_admin_success
.. .bash_logout .cache Desktop Downloads .local Pictures Public .ssh Templates
ubuntu@ubuntu-HP-Elite-Tower-600-G9-Desktop-PC: $ date
Wednesday 10 January 2024 02:49:21 PM IST
ubuntu@ubuntu-HP-Elite-Tower-600-G9-Desktop-PC: $ time
real    0m0.000s
user    0m0.000s
sys     0m0.000s
ubuntu@ubuntu-HP-Elite-Tower-600-G9-Desktop-PC: $ cal
Command 'cal' not found, but can be installed with:
sudo apt install ncal
```



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```
ubuntu@ubuntu-HP-Elite-Tower-600-G9-Desktop-PC:~$ ls
a Desktop doc Documents Downloads Music Pictures Public snap Templates TRIAL Videos
ubuntu@ubuntu-HP-Elite-Tower-600-G9-Desktop-PC:~$ touch abc
ubuntu@ubuntu-HP-Elite-Tower-600-G9-Desktop-PC:~$ ls
a abc Desktop doc Documents Downloads Music Pictures Public snap Templates TRIAL Videos
ubuntu@ubuntu-HP-Elite-Tower-600-G9-Desktop-PC:~$ cat hello.txt
cat: hello.txt: No such file or directory
ubuntu@ubuntu-HP-Elite-Tower-600-G9-Desktop-PC:~$ touch hello.txt
ubuntu@ubuntu-HP-Elite-Tower-600-G9-Desktop-PC:~$ cat hello.txt
cat: hello.txt: No such file or directory
ubuntu@ubuntu-HP-Elite-Tower-600-G9-Desktop-PC:~$ touch hello.txt
ubuntu@ubuntu-HP-Elite-Tower-600-G9-Desktop-PC:~$ cat hello.txt
ubuntu@ubuntu-HP-Elite-Tower-600-G9-Desktop-PC:~$ ls
a abc Desktop doc Documents Downloads hello.txt hello.txt Music Pictures Public snap Templates TRIAL Videos
ubuntu@ubuntu-HP-Elite-Tower-600-G9-Desktop-PC:~$ cat>hello.txt
How are you?
Where are you?
^C
ubuntu@ubuntu-HP-Elite-Tower-600-G9-Desktop-PC:~$ TRIAL$cathello.txthi.txt
TRIAL.txthi.txt: command not found
ubuntu@ubuntu-HP-Elite-Tower-600-G9-Desktop-PC:~$ TRIAL$cathello.txthitxt
TRIAL.txthitxt: command not found
ubuntu@ubuntu-HP-Elite-Tower-600-G9-Desktop-PC:~$ TRIAL$ cat hello.txt hi.txt
TRIAL$: command not found
ubuntu@ubuntu-HP-Elite-Tower-600-G9-Desktop-PC:~$ free
              total        used        free      shared  buff/cache   available
Mem:           7805760      1092760      4972760       453656      1740240      6000756
Swap:          2097148           0       2097148
ubuntu@ubuntu-HP-Elite-Tower-600-G9-Desktop-PC:~$ echo

ubuntu@ubuntu-HP-Elite-Tower-600-G9-Desktop-PC:~$ cd TRIAL
ubuntu@ubuntu-HP-Elite-Tower-600-G9-Desktop-PC:~/TRIAL$ cat hrlllo.txt hi.txt
cat: hrlllo.txt: No such file or directory
cat: hi.txt: No such file or directory
ubuntu@ubuntu-HP-Elite-Tower-600-G9-Desktop-PC:~/TRIAL$ cd -
ubuntu@ubuntu-HP-Elite-Tower-600-G9-Desktop-PC:~$ cd TRIAL
ubuntu@ubuntu-HP-Elite-Tower-600-G9-Desktop-PC:~/TRIAL$ touch hello.txt
ubuntu@ubuntu-HP-Elite-Tower-600-G9-Desktop-PC:~/TRIAL$ touc hi.txt
Command 'touc' not found, did you mean:
  command 'touch' from deb coreutils (8.32-4.1ubuntu1)
Try: sudo apt install <deb name>
ubuntu@ubuntu-HP-Elite-Tower-600-G9-Desktop-PC:~/TRIAL$ touch hi.txt
ubuntu@ubuntu-HP-Elite-Tower-600-G9-Desktop-PC:~/TRIAL$ cat hello.txt hi.txt
ubuntu@ubuntu-HP-Elite-Tower-600-G9-Desktop-PC:~/TRIAL$ cat>hello.txt hi.txt
ubuntu@ubuntu-HP-Elite-Tower-600-G9-Desktop-PC:~/TRIAL$
```

```
ubuntu@ubuntu-HP-Elite-Tower-600-G9-Desktop-PC:~$ mkdir
mkdir: missing operand
Try 'mkdir --help' for more information.
ubuntu@ubuntu-HP-Elite-Tower-600-G9-Desktop-PC:~$ mkdir doc
ubuntu@ubuntu-HP-Elite-Tower-600-G9-Desktop-PC:~$ mkdir TRIAL
ubuntu@ubuntu-HP-Elite-Tower-600-G9-Desktop-PC:~$ cd TRIAL
ubuntu@ubuntu-HP-Elite-Tower-600-G9-Desktop-PC:~/TRIAL$ cd ..
cd..: command not found
ubuntu@ubuntu-HP-Elite-Tower-600-G9-Desktop-PC:~/TRIAL$ cd /
bash: cd /: No such file or directory
ubuntu@ubuntu-HP-Elite-Tower-600-G9-Desktop-PC:~/TRIAL$ cd /
ubuntu@ubuntu-HP-Elite-Tower-600-G9-Desktop-PC:~$ cd \
>
ubuntu@ubuntu-HP-Elite-Tower-600-G9-Desktop-PC:~$ touch a
ubuntu@ubuntu-HP-Elite-Tower-600-G9-Desktop-PC:~$ ls
a Desktop doc Documents Downloads Music Pictures Public snap Templates TRIAL Videos
ubuntu@ubuntu-HP-Elite-Tower-600-G9-Desktop-PC:~$ touch abc
ubuntu@ubuntu-HP-Elite-Tower-600-G9-Desktop-PC:~$ ls
a abc Desktop doc Documents Downloads hello.txt hello.txt Music Pictures Public snap Templates TRIAL Videos
ubuntu@ubuntu-HP-Elite-Tower-600-G9-Desktop-PC:~$ cat hello.txt
cat: hello.txt: No such file or directory
ubuntu@ubuntu-HP-Elite-Tower-600-G9-Desktop-PC:~$ touch hello.txt
ubuntu@ubuntu-HP-Elite-Tower-600-G9-Desktop-PC:~$ cat hello.txt
cat: hello.txt: No such file or directory
ubuntu@ubuntu-HP-Elite-Tower-600-G9-Desktop-PC:~$ touch hello.txt
ubuntu@ubuntu-HP-Elite-Tower-600-G9-Desktop-PC:~$ cat hello.txt
ubuntu@ubuntu-HP-Elite-Tower-600-G9-Desktop-PC:~$ ls
a abc Desktop doc Documents Downloads hello.txt hello.txt Music Pictures Public snap Templates TRIAL Videos
ubuntu@ubuntu-HP-Elite-Tower-600-G9-Desktop-PC:~$ cat>hello.txt
How are you?
Where are you?
^C
ubuntu@ubuntu-HP-Elite-Tower-600-G9-Desktop-PC:~$ TRIAL$cathello.txthi.txt
TRIAL.txthi.txt: command not found
ubuntu@ubuntu-HP-Elite-Tower-600-G9-Desktop-PC:~$ TRIAL$cathello.txthitxt
TRIAL.txthitxt: command not found
ubuntu@ubuntu-HP-Elite-Tower-600-G9-Desktop-PC:~$ TRIAL$ cat hello.txt hi.txt
TRIAL$: command not found
ubuntu@ubuntu-HP-Elite-Tower-600-G9-Desktop-PC:~$ free
              total        used        free      shared  buff/cache   available
Mem:           7805760      1092760      4972760       453656      1740240      6000756
Swap:          2097148           0       2097148
ubuntu@ubuntu-HP-Elite-Tower-600-G9-Desktop-PC:~$ echo

ubuntu@ubuntu-HP-Elite-Tower-600-G9-Desktop-PC:~$
```




```
ubuntu@ubuntu-MP-Eltis-Tower-600-G9-Desktop-PC:~$ cat Music
cat: Music: is a directory
ubuntu@ubuntu-MP-Eltis-Tower-600-G9-Desktop-PC:~$ sudo apt install ncal
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following NEW packages will be installed:
  ncal
0 upgraded, 1 newly installed, 0 to remove and 479 not upgraded.
Need to get 20.2 kB of archives.
After this operation, 69.6 kB of additional disk space will be used.
Ign:1 http://in.archive.ubuntu.com/ubuntu janny/universe amd64 ncal amd64 12.1.7+nmu3ubuntu2
Ign:1 http://in.archive.ubuntu.com/ubuntu janny/universe amd64 ncal amd64 12.1.7+nmu3ubuntu2
Ign:1 http://in.archive.ubuntu.com/ubuntu janny/universe amd64 ncal amd64 12.1.7+nmu3ubuntu2
Err:1 http://in.archive.ubuntu.com/ubuntu janny/universe amd64 ncal amd64 12.1.7+nmu3ubuntu2
  Temporary failure resolving 'in.archive.ubuntu.com'
E: Failed to fetch http://in.archive.ubuntu.com/ubuntu/pool/universe/b/bsdncalutils/ncal_12.1.7%2bnmu3
.com'
E: Unable to fetch some archives, maybe run apt-get update or try with --fix-missing?
ubuntu@ubuntu-MP-Eltis-Tower-600-G9-Desktop-PC:~$ nk dtr
nk: command not found
ubuntu@ubuntu-MP-Eltis-Tower-600-G9-Desktop-PC:~$ nkdlr
nkdlr: missing operand
Try 'nkdlr --help' for more information.
ubuntu@ubuntu-MP-Eltis-Tower-600-G9-Desktop-PC:~$ nkdlr doc
ubuntu@ubuntu-MP-Eltis-Tower-600-G9-Desktop-PC:~$ nkdlr TRIAL
ubuntu@ubuntu-MP-Eltis-Tower-600-G9-Desktop-PC:~$ cd TRIAL
ubuntu@ubuntu-MP-Eltis-Tower-600-G9-Desktop-PC:~/TRIAL$ cd..
cd..: command not found.
ubuntu@ubuntu-MP-Eltis-Tower-600-G9-Desktop-PC:~/TRIAL$ cd/
bash: cd/: No such file or directory
ubuntu@ubuntu-MP-Eltis-Tower-600-G9-Desktop-PC:~/TRIAL$ cd /
ubuntu@ubuntu-MP-Eltis-Tower-600-G9-Desktop-PC:/$ cd\
```