

Lab Report No:	06
Lab Report Name:	Linux command for process
ID:	IT-17037

Objective:- Learn the fundamentals of processes management on Linux. In this lab we will be introduced to the use of some fundamental tools that will help you accomplish that vital task.

Process Manage:- The Linux terminal has a number of useful commands that can display running processes, kill them, and change their priority level. This post lists the classic, traditional commands, as well as some more useful, modern ones.

Many of the commands here perform a single function and can be combined — that's the Unix philosophy of designing programs. Other programs, like htop, provide a friendly interface on top of the commands.

top

The **top** command is the traditional way to view your system's resource usage and see the processes that are taking up the most system resources. Top displays a list of processes, with the ones using the most CPU at the top.

```
top - 01:46:27 up 1 min,  1 user,  load average: 1.83, 1.14, 0.45
Tasks: 232 total,  1 running, 176 sleeping,  0 stopped,  0 zombie
%Cpu(s):  2.5 us,  0.4 sy,  0.0 ni, 97.1 id,  0.0 wa,  0.0 hi,  0.0 si,  0.0 st
KiB Mem : 3951092 total, 2407120 free,  854024 used,  689948 buff/cache
KiB Swap: 1998844 total, 1998844 free,    0 used. 2664044 avail Mem
```

PID	USER	PR	NI	VIRT	RES	SHR	S	%CPU	%MEM	TIME+	COMMAND
1439	rafatul	20	0	3767772	202248	108648	S	8.3	5.1	0:05.75	gnome-shell
1303	rafatul	20	0	418252	31748	20256	S	3.0	0.8	0:01.82	Xorg
1	root	20	0	225364	9252	6796	S	0.3	0.2	0:01.39	systemd
1756	rafatul	20	0	726728	37152	27896	S	0.3	0.9	0:00.59	gnome-termin
2	root	20	0	0	0	0	S	0.0	0.0	0:00.00	kthreadd
3	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	rcu_gp
4	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	rcu_par_gp
5	root	20	0	0	0	0	I	0.0	0.0	0:00.00	kworker/0:0-

eve

To exit top or htop, use the **Ctrl-C** keyboard shortcut. This keyboard shortcut usually kills the currently running process in the terminal.

htop

The **htop** command is an improved top. It's not installed by default on most Linux distributions — here's the command you'll need to install it on Ubuntu:

```
1  [ | 0.7%] Tasks: 144, 512 thr; 1 running
2  [ || 5.2%] Load average: 0.85 0.91 0.60
3  [ || 1.3%] Uptime: 00:12:27
4  [ 0.0%]
Mem[|||||||1.67G/3.77G]
Swp[ 0K/1.91G]

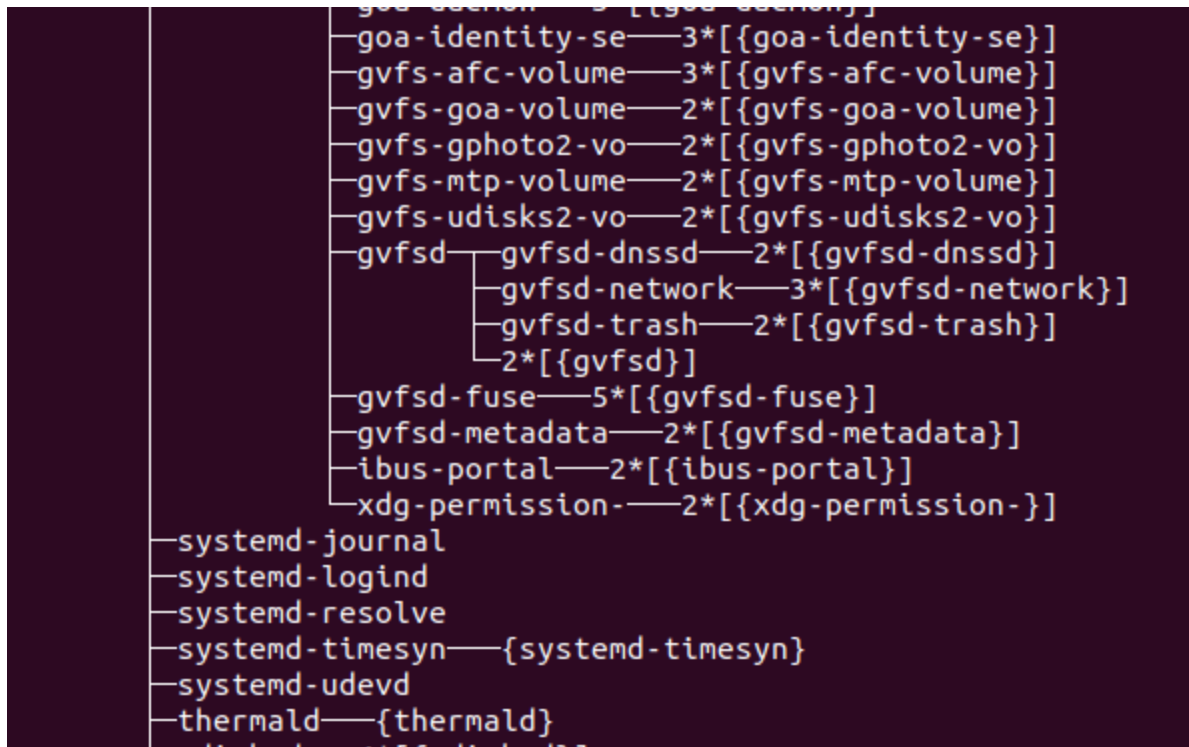
  PID USER      PRI  NI  VIRT   RES   SHR  S  CPU% MEM%   TIME+  Command
10616 rafatul    20   0 2899M 325M  143M S   3.3  8.4  0:27.64 /usr/lib/firefox/
18583 rafatul    20   0 41044 4820  3900 R   1.3  0.1  0:00.69 htop
   860 root        20   0  107M 3448  3132 S   1.3  0.1  0:00.06 /usr/sbin/irqbala
 1439 rafatul    20   0 3678M 212M  109M S   0.7  5.5  0:45.41 /usr/bin/gnome-sh
 1303 rafatul    20   0  450M 59256 43616 S   0.7  1.5  0:14.37 /usr/lib/xorg/Xor
 8957 rafatul    20   0 3134M 305M  152M S   0.7  7.9  0:29.60 /usr/lib/firefox/
 1312 rafatul    20   0  450M 59256 43616 S   0.7  1.5  0:02.41 /usr/lib/xorg/Xor
10655 rafatul    20   0 2899M 325M  143M S   0.7  8.4  0:00.76 /usr/lib/firefox/
 9415 rafatul    20   0 3134M 305M  152M S   0.0  7.9  0:03.69 /usr/lib/firefox/
 2193 rafatul    20   0  781M 37512 27492 S   0.0  0.9  0:01.29 /usr/lib/gnome-te
10677 rafatul    20   0 2899M 325M  143M S   0.0  8.4  0:00.44 /usr/lib/firefox/
11269 rafatul    20   0 3134M 305M  152M S   0.0  7.9  0:00.12 /usr/lib/firefox/
    1 root        20   0  220M 9252  6796 S   0.0  0.2  0:01.91 /sbin/init splash
 9288 rafatul    20   0 3134M 305M  152M S   0.0  7.9  0:00.82 /usr/lib/firefox/
F1Help F2Setup F3Search F4Filter F5Tree F6SortBy F7Nice -F8Nice +F9Kill F10Quit
```

htop displays the same information with an easier-to-understand layout. It also lets you select processes with the arrow keys and perform actions, such as killing them or changing their priority, with the F keys.

pstree

The **ps**tree command is another way of visualizing processes. It displays them in tree format. So, for example, your X server and graphical environment would appear under the display manager that spawned them

```
rafatul@rafatul-HP-Notebook:~$ pstree
systemd├─ModemManager──2*[{ModemManager}]
│   └─NetworkManager─┬─dhclient
│                       └─2*[{NetworkManager}]
│   ├──accounts-daemon──2*[{accounts-daemon}]
│   ├──acpid
│   ├──avahi-daemon──avahi-daemon
│   ├──bluetoothd
│   ├──boltd──2*[{boltd}]
│   ├──colord──2*[{colord}]
│   ├──cron
│   ├──cups-browsed──2*[{cups-browsed}]
│   ├──cupsd
│   ├──dbus-daemon
│   ├──firefox┬─Web Content──32*[{Web Content}]
│              │ Web Content──21*[{Web Content}]
│              │ WebExtensions──25*[{WebExtensions}]
│              └─65*[{firefox}]
│   ├──fwupd──4*[{fwupd}]
│   └─gdm3┬─gdm-session-wor┬─gdm-wayland-ses┬─gnome-session-b┬─gnome-
│           │               │                 │                 │       └─gsd-a
│           │               │                 │                 │       └─gsd-c
│           │               │                 │                 │       └─gsd-c
```



kill

The **kill** command can kill a process, given its process ID. You can get this information from the **ps -A**, **top** or **pgrep** commands.

```
rafatul@rafatul-HP-Notebook:~$ kill firefox
bash: kill: firefox: arguments must be process or job IDs
```

Technically speaking, the **kill** command can send any signal to a process. You can use **kill -KILL** or **kill -9** instead to kill a stubborn process.

pgrep

Given a search term, **pgrep** returns the process IDs that match it. For example, you could use the following command to find Firefox's PID:

```
rafatul@rafatul-HP-Notebook:~$ pgrep firefox
8957
rafatul@rafatul-HP-Notebook:~$ kill $(pgrep firefox)
rafatul@rafatul-HP-Notebook:~$
```

pkill & killall

The **pkill** and **killall** commands can kill a process, given its name. Use either command to kill Firefox:

```
rafatul@rafatul-HP-Notebook:~$ killall firefox
rafatul@rafatul-HP-Notebook:~$ pkill firefox
rafatul@rafatul-HP-Notebook:~$
```

renice

The **renice** command changes the nice value of an already running process. The nice value determines what priority the process runs with. A value of **-19** is very high priority, while a value of **19** is very low priority. A value of **0** is the default priority.

The **renice** command requires a process's PID. The following command makes a process run with very low priority:

```
rafatul@rafatul-HP-Notebook:~$ pgrep firefox
20736
rafatul@rafatul-HP-Notebook:~$ renice 19 20736
20736 (process ID) old priority 0, new priority 19
rafatul@rafatul-HP-Notebook:~$
```

xkill

The **xkill** command is a way of easily killing graphical programs. Run it and your cursor will turn into an **x** sign. Click a program's window to kill that program. If you don't want to kill a program, you can back out of xkill by right-clicking instead.

```
rafatul@rafatul-HP-Notebook:~$ xkill
Select the window whose client you wish to kill with button 1....
```

You don't have to run this command from a terminal — you can also press Alt-F2, type **xkill** and press Enter to use it from a graphical desktop.

Conclusion: In this lab, we have discussed few commands for the file management in Linux terminal. At first, we have discussed the commands for listing the files, then the commands to change the directory, thirdly, we have seen the commands to remove the files/ directories. Then we observed how to copy and move the files from one location to another. The next part contains commands to make new directories. Later we discussed how to change the file permissions and how to create empty files in Linux command line.