

## Lab-Report

Report No: 06

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## Experiment no : 06

Experiment Name : Linux command for process.

### Theory :

A program/command when executed, a special instance is provided by the system to the process. This instance consists of all the services/resources that may be utilized by the process under execution. 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.

We have to execute these commands Top, Ps, kill, pgrep, pkill , killall, df, renice, free,glances.

### Working Process :

1. **top**: This command is used to show all the running processes within the working environment of Linux.

```
jui@DESKTOP-1T35KU2:~$ top
top - 19:43:14 up 2 min, 0 users, load average: 0.52, 0.58, 0.59
Tasks: 4 total, 1 running, 3 sleeping, 0 stopped, 0 zombie
%Cpu(s): 5.1 us, 9.3 sy, 0.0 ni, 84.2 id, 0.0 wa, 1.4 hi, 0.0 si, 0.0 st
MiB Mem : 3887.5 total, 498.5 free, 3165.0 used, 224.0 buff/cache
MiB Swap: 11776.0 total, 11522.3 free, 253.7 used. 591.9 avail Mem
```

| PID | USER | PR | NI | VIRT  | RES  | SHR  | S | %CPU | %MEM | TIME+   | COMMAND |
|-----|------|----|----|-------|------|------|---|------|------|---------|---------|
| 1   | root | 20 | 0  | 8328  | 148  | 124  | S | 0.0  | 0.0  | 0:00.09 | init    |
| 3   | root | 20 | 0  | 8328  | 144  | 108  | S | 0.0  | 0.0  | 0:00.01 | init    |
| 4   | jui  | 20 | 0  | 18084 | 3552 | 3444 | S | 0.0  | 0.1  | 0:00.14 | bash    |
| 62  | jui  | 20 | 0  | 18912 | 2124 | 1508 | R | 0.0  | 0.1  | 0:00.02 | top     |

2. **ps**: ps(Process status) can be used to see/list all the running processes.

```
jui@DESKTOP-1T35KU2:~$ ps
  PID TTY          TIME CMD
   4  tty1      00:00:00 bash
  17  tty1      00:00:00 ps
jui@DESKTOP-1T35KU2:~$
```

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

```
jui@DESKTOP-1T35KU2:~$ kill
kill: usage: kill [-s sigspec | -n signum | -sigspec] pid | jobspec ... or kill
-l [sigspec]
jui@DESKTOP-1T35KU2:~$
```

4. **pgrep:** Given a search term, `pgrep` returns the process IDs that match it.

```
jui@DESKTOP-1T35KU2:~$ pgrep
pgrep: no matching criteria specified
Try `pgrep --help' for more information.
jui@DESKTOP-1T35KU2:~$
```

5. **pkill:** This command can kill a process.

```
jui@DESKTOP-1T35KU2:~$ pkill ping
jui@DESKTOP-1T35KU2:~$ pkill gedit
jui@DESKTOP-1T35KU2:~$
```

6. **killall:** This command can kill all process.

```
jui@DESKTOP-1T35KU2:~$ killall
Usage: killall [ -Z CONTEXT ] [ -u USER ] [ -y TIME ] [ -o TIME ] [ -eIgiqrvw ]
        [ -s SIGNAL | -SIGNAL ] NAME...
        killall -l, --list
        killall -V, --version

-e,--exact          require exact match for very long names
-I,--ignore-case    case insensitive process name match
-g,--process-group  kill process group instead of process
-y,--younger-than   kill processes younger than TIME
-o,--older-than     kill processes older than TIME
-i,--interactive    ask for confirmation before killing
-l,--list           list all known signal names
-q,--quiet          don't print complaints
-r,--regex          interpret NAME as an extended regular expression
-s,--signal SIGNAL  send this signal instead of SIGTERM
-u,--user USER      kill only process(es) running as USER
-v,--verbose        report if the signal was successfully sent
-V,--version        display version information
-w,--wait           wait for processes to die
-n,--ns PID         match processes that belong to the same namespaces
                    as PID
-Z,--context REGEXP kill only process(es) having context
                    (must precede other arguments)

jui@DESKTOP-1T35KU2:~$
```

7. **df**: It shows the amount of available disk space being used by file systems

```
jui@DESKTOP-1T35KU2:~$ df
Filesystem      1K-blocks      Used Available Use% Mounted on
rootfs          136630268 135683780    946488 100% /
none            136630268 135683780    946488 100% /dev
none            136630268 135683780    946488 100% /run
none            136630268 135683780    946488 100% /run/lock
none            136630268 135683780    946488 100% /run/shm
none            136630268 135683780    946488 100% /run/user
C:              136630268 135683780    946488 100% /mnt/c
D:              210029564 15476576 194552988    8% /mnt/d
E:              210029564 46490520 163539044   23% /mnt/e
F:              210029564 5969836 204059728    3% /mnt/f
G:              158253052 7461608 150791444    5% /mnt/g

jui@DESKTOP-1T35KU2:~$
```

8. **renice**: To change the priority of an already running process renice is used.

```
jui@DESKTOP-1T35KU2:~$ sudo renice -n 10 -u 0
[sudo] password for jui:
0 (user ID) old priority 0, new priority 0
jui@DESKTOP-1T35KU2:~$
```

9. **free**: It shows the total amount of free and used physical and swap memory in the system, as well as the buffers used by the kernel.

```
jui@DESKTOP-1T35KU2:~$ free
              total        used        free      shared  buff/cache   available
Mem:           3980812       3128664        622796        17720       229352       718416
Swap:          12058624        330192       11728432
```

10. **glances**: There are lots of interesting options available in Glances as well. One of the main features we have seen in Glances is that we can set thresholds (**careful**, **warning** and **critical**) in configuration file and informations will be shown in colors which indicates the bottleneck in the system.

```
jui@DESKTOP-1T35KU2:~$ glances
```

```

DESKTOP-1T35KU2 - IP 192.168.0.103/24 Pub 103.153.52.56 Uptime: 0:01:12
CPU [ 20.9%] CPU \ 20.9% nice: 0.0% ctx_sw: 0 MEM - 75.4% SWAP - 2.9% LOAD 4-core
MEM [ 75.4%] user: 10.5% irq: 0.7% inter: 0 total: 3.80G total: 11.5G 1 min: 0.52
SWAP [ 2.9%] system: 9.7% iowait: 0.0% sw_int: 0 used: 2.86G used: 338M 5 min: 0.58
idle: 79.1% steal: 0.0% free: 957M free: 11.2G 15 min: 0.59

NETWORK Rx/s Tx/s TASKS 4 (4 thr), 1 run, 3 slp, 0 oth sorted automatically by memory consumption
lo 0b 0b
wifi0 0b 0b
CPU% MEM% VIRT RES PID USER TIME+ THR NI S R/s W/s Command
DefaultGateway 3.4 1.2 433M 47.7M 17 jui 0:02 1 0 R ? ? /usr/bin/pyt
0.0 0.1 17.7M 3.50M 4 jui 0:00 1 0 S ? ? -bash
0.0 0.0 8.13M 156K 1 root 0:00 1 0 S ? ? //init
0.0 0.0 8.13M 152K 3 root 0:00 1 0 S ? ? //init

High memory consumption
2020-09-27 20:42:01 STD 2020-09-27 20:41:18 (ongoing) - MEM (76.1)

```

### Discussion :

The terminal in Unix is a very powerful tool. With Linux terminal we'd get to execute commands pertaining to the shell we'd be using. We can easily execute our work and do our work faster by using this terminal and these easy commands.