



Mawlana Bhashani Science and Technology University

Lab-Report

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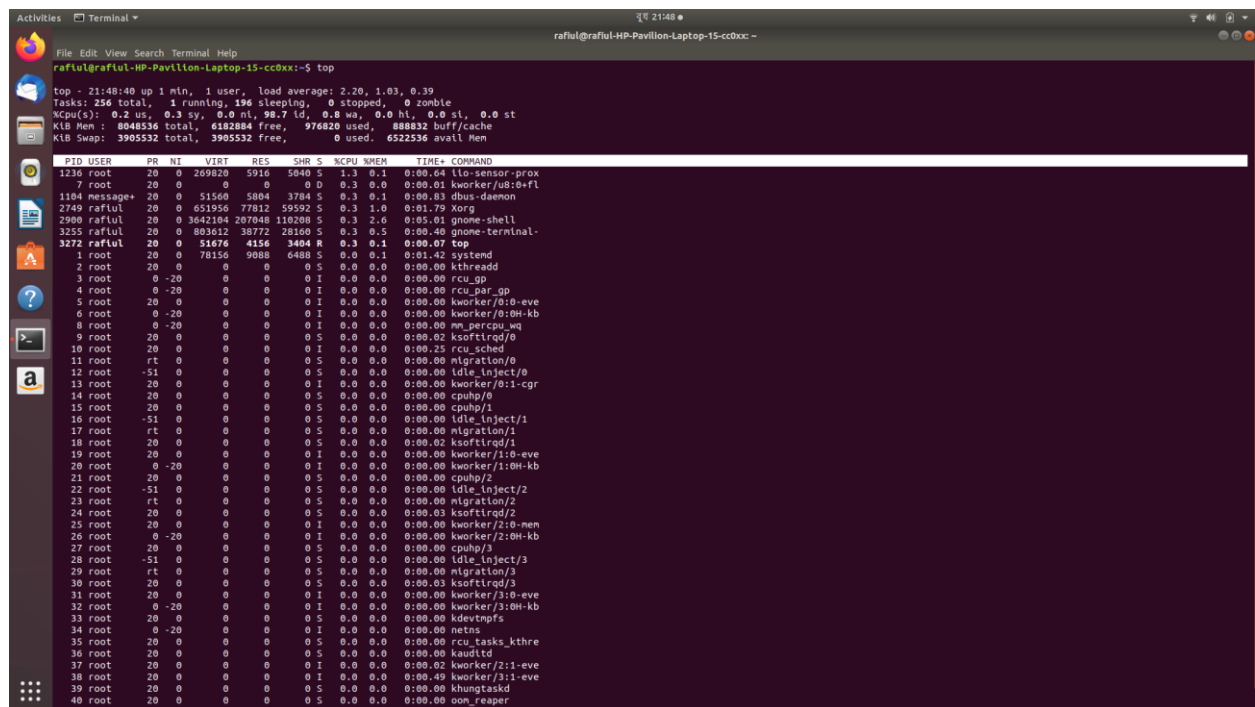
Experiment no : 06

Experiment Name: Process Handling in Linux

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.



```
raful@raful-HP-Pavilion-Laptop-15-cb0xx:~$ top
top - 21:48:40 up 1 min, 1 user, load average: 2.20, 1.03, 0.39
Tasks: 256 total, 1 running, 196 sleeping, 0 stopped, 0 zombie
Cpu(s): 0.2 us, 0.3 sy, 0.0 ni, 98.7 id, 0.0 wa, 0.0 hi, 0.0 si, 0.0 st
Mem: 8048536 total, 6182884 free, 976820 used, 888832 buff/cache
Mem Swap: 3905532 total, 3905532 free, 0 used, 6522536 avail Mem

  PID USER      PR  NI   VIRT   RES   SHR  S  %CPU  %MEM     time+ COMMAND
 1236 root        20   0 269820   5916  5840  S   1.3   0.1   0:00.04 ltsensor-prox
    7 root         0   0      0      0      0  S   0.3   0.0   0:00.01 kworker/u8:0-fl
1104 message+ 20   0 51560   5804  3784  S   0.3   0.1   0:00.83 dbus-daemon
2749 raful      20   0 651956 77812 59592  S   0.3  1.0   0:01.79 Xorg
2900 raful      20   0 3642104 207040 118208  S   0.3  2.6   0:05:01 gnome-shell
3255 raful      20   0 803612 38772 28160  S   0.3  0.5   0:00.40 gnome-terminal
3272 raful      20   0 51676   4156  3404  M   0.3  0.1   0:00.07 top
    1 root        20   0 78156   9088  6488  S   0.0  0.1   0:01.42 systemd
    2 root        20   0      0      0      0  S   0.0  0.0   0:00.00 kthreadd
    3 root        20  -20      0      0      0  S   0.0  0.0   0:00.00 rcu_gp
    4 root        20  -20      0      0      0  S   0.0  0.0   0:00.00 rcu_par_gp
    5 root        20   0      0      0      0  S   0.0  0.0   0:00.00 kworker/8:0-eve
    6 root        20  -20      0      0      0  S   0.0  0.0   0:00.00 kworker/8:0-kb
    8 root        20  -20      0      0      0  S   0.0  0.0   0:00.00 mm_percpu_wq
    9 root        20   0      0      0      0  S   0.0  0.0   0:00.02 ksoftirqd/0
   10 root        20   0      0      0      0  S   0.0  0.0   0:00.25 rcu_sched
   11 root        20   0      0      0      0  S   0.0  0.0   0:00.00 migration/0
   12 root       -51   0      0      0      0  S   0.0  0.0   0:00.00 idle_inject/0
   13 root        20   0      0      0      0  S   0.0  0.0   0:00.00 kworker/8:1-cgr
   14 root        20   0      0      0      0  S   0.0  0.0   0:00.00 cpuhp/0
   15 root        20   0      0      0      0  S   0.0  0.0   0:00.00 cpuhp/1
   16 root       -51   0      0      0      0  S   0.0  0.0   0:00.00 idle_inject/1
   17 root        20   0      0      0      0  S   0.0  0.0   0:00.00 migration/1
   18 root        20   0      0      0      0  S   0.0  0.0   0:00.02 ksoftirqd/1
   19 root        20   0      0      0      0  S   0.0  0.0   0:00.00 kworker/1:0-eve
   20 root        20  -20      0      0      0  S   0.0  0.0   0:00.00 kworker/1:0H-kb
   21 root        20   0      0      0      0  S   0.0  0.0   0:00.00 cpuhp/2
   22 root       -51   0      0      0      0  S   0.0  0.0   0:00.00 idle_inject/2
   23 root        20   0      0      0      0  S   0.0  0.0   0:00.00 migration/2
   24 root        20   0      0      0      0  S   0.0  0.0   0:00.03 ksoftirqd/2
   25 root        20   0      0      0      0  S   0.0  0.0   0:00.00 kworker/2:0-mem
   26 root        20  -20      0      0      0  S   0.0  0.0   0:00.00 kworker/2:0H-kb
   27 root        20   0      0      0      0  S   0.0  0.0   0:00.00 cpuhp/3
   28 root       -51   0      0      0      0  S   0.0  0.0   0:00.00 idle_inject/3
   29 root        20   0      0      0      0  S   0.0  0.0   0:00.00 migration/3
   30 root        20   0      0      0      0  S   0.0  0.0   0:00.03 ksoftirqd/3
   31 root        20   0      0      0      0  S   0.0  0.0   0:00.00 kworker/3:0-eve
   32 root        20  -20      0      0      0  S   0.0  0.0   0:00.00 kworker/3:0H-kb
   33 root        20   0      0      0      0  S   0.0  0.0   0:00.00 ksoftirqd/4
   34 root        20  -20      0      0      0  S   0.0  0.0   0:00.00 netns
   35 root        20   0      0      0      0  S   0.0  0.0   0:00.00 rcu_tasks_kthre
   36 root        20   0      0      0      0  S   0.0  0.0   0:00.00 kauditd
   37 root        20   0      0      0      0  S   0.0  0.0   0:00.02 kworker/3:1-eve
   38 root        20   0      0      0      0  S   0.0  0.0   0:00.49 kworker/3:1H-eve
   39 root        20   0      0      0      0  S   0.0  0.0   0:00.00 khungtaskd
   40 root        20   0      0      0      0  S   0.0  0.0   0:00.00 con_reaper
   41 root        20   0      0      0      0  S   0.0  0.0   0:00.00 kthreadd
```

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:

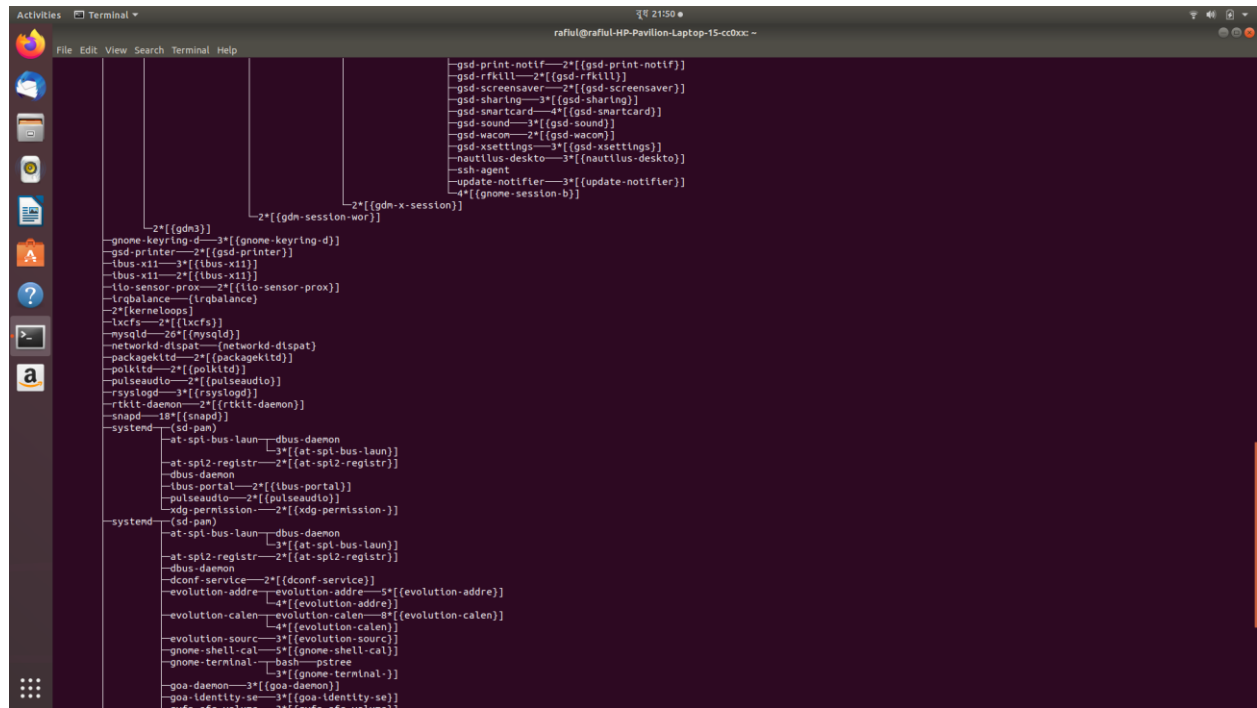
```
Activities Terminal
rafu@rafu:HP-Pavilion-Laptop-15-cd0xx -
Tasks: 141, 350 thr: 1 running
Load average: 1.35 1.01 0.43
Uptime: 00:02:12
1.38G/7.68G
OK/3.72G

PID USER      PRI  NI  VIRT   RES   SHR  S CPU% MEM%   TIME+  Command
1110 rafu      20    0 1136    128    128  S   0.0  0.0  0:00.00 /usr/bin/python3 /usr/bin/networkd-dispatcher --run-startup-triggers
1236 root      20    0 163M   916   1040  S   1.3  0.1  0:01.51 /usr/sbin/lto-sensor-proxy
2900 rafu      20    0 356M   225M  180M  S   1.3  2.9  0:07.76 /usr/bin/gnome-shell
1104 messagebu 20    0 1632   964   3784  S   0.7  0.1  0:01.01 /usr/bin/dbus-daemon --system --address=systemd: --nofork --nopidfile --systemd-activation --syslog-only
2295 rafu      20    0 129M   15M   107M  S   0.7  1.9  0:00.20 /usr/lib/plymouth-shell
3255 rafu      20    0 785M  11160  33316  S   0.7  0.5  0:01.58 /usr/lib/gnome-terminal/gnome-terminal-server
1 root      0    0 156M   9180  6552  S   0.0  0.1  0:01.50 /sbin/init splash
325 root     19    0 1048  1324  13252  S   0.0  0.2  0:00.44 /lib/systemd/systemd-journald
356 root     20    0 1128   468   3228  S   0.0  0.1  0:03.55 /lib/systemd/systemd-udevd
1047 systemd-t 20    0 142M   3280  2716  S   0.0  0.0  0:00.00 /lib/systemd/systemd-timesyncd
948 systemd-t 20    0 142M   3280  2716  S   0.0  0.0  0:00.03 /lib/systemd/systemd-timesyncd
949 systemd-r 20    0 1624   5032  4472  S   0.0  0.1  0:00.04 /lib/systemd/systemd-resolved
1158 root     20    0 424M   9440  8028  S   0.0  0.1  0:00.00 /usr/sbin/ModemManager --filter-policy=strict
1187 root     20    0 424M   9440  8028  S   0.0  0.1  0:00.01 /usr/sbin/ModemManager --filter-policy=strict
1085 root     20    0 424M   9440  8028  S   0.0  0.1  0:00.10 /usr/sbin/ModemManager --filter-policy=strict
1088 root     20    0 1908   884   828  S   0.0  0.0  0:00.00 /usr/sbin/anacron -dsq
1093 root     20    0 155M   4000   236  S   0.0  0.1  0:00.01 /usr/sbin/cupsd -l
1100 root     20    0 36480  4604  4212  S   0.0  0.1  0:00.01 /usr/lib/bluetooth/bluetoothd
1189 root     20    0 38756  3336  3648  S   0.0  0.0  0:00.00 /usr/sbin/cron -f
1592 root     20    0 182M   9364  8552  S   0.0  0.1  0:00.08 /usr/sbin/thermald --no-daemon --dbus-enable
1191 root     20    0 182M   9364  8552  S   0.0  0.1  0:00.13 /usr/sbin/thermald --no-daemon --dbus-enable
1754 root     20    0 173M  17304  9368  S   0.0  0.2  0:00.00 /usr/bin/python3 /usr/bin/networkd-dispatcher --run-startup-triggers
1200 root     20    0 173M  17304  9368  S   0.0  0.2  0:00.22 /usr/bin/python3 /usr/bin/networkd-dispatcher --run-startup-triggers
1620 root     20    0 495M  15108  15684  S   0.0  0.2  0:00.00 /usr/sbin/NetworkManager --no-daemon
1635 root     20    0 495M  15108  15684  S   0.0  0.2  0:00.16 /usr/sbin/NetworkManager --no-daemon
1202 root     20    0 495M  15108  15684  S   0.0  0.2  0:00.00 /usr/sbin/NetworkManager --no-daemon
1356 root     20    0 505M  15144  18668  S   0.0  0.2  0:00.00 /usr/lib/udisks2/udisksd
1361 root     20    0 505M  15144  18668  S   0.0  0.2  0:00.02 /usr/lib/udisks2/udisksd
1512 root     20    0 505M  15144  18668  S   0.0  0.2  0:00.00 /usr/lib/udisks2/udisksd
1565 root     20    0 505M  15144  18668  S   0.0  0.2  0:00.00 /usr/lib/udisks2/udisksd
1212 root     20    0 505M  15144  18668  S   0.0  0.2  0:00.16 /usr/lib/udisks2/udisksd
1214 root     20    0 6492  7816   724  S   0.0  0.1  0:00.04 /sbin/wpa_supplicant -u -s -O /run/wpa_supplicant
1216 root     20    0 1548   836   772  S   0.0  0.0  0:00.01 /usr/sbin/acpid
1257 root     20    0 301M   6740  7680  S   0.0  0.1  0:00.02 /usr/lib/accounts-service/accounts-daemon
1259 root     20    0 301M   6740  7680  S   0.0  0.1  0:00.04 /usr/lib/accounts-service/accounts-daemon
1228 root     20    0 301M   6740  7680  S   0.0  0.1  0:00.12 /usr/lib/accounts-service/accounts-daemon
1523 root     20    0 157M  1684  1552  S   0.0  0.0  0:00.00 /usr/bin/lsxfs /var/lib/lsxfs/
1524 root     20    0 157M  1684  1552  S   0.0  0.0  0:00.00 /usr/bin/lsxfs /var/lib/lsxfs/
1230 root     20    0 157M  1684  1552  S   0.0  0.0  0:00.00 /usr/bin/lsxfs /var/lib/lsxfs/
1232 root     20    0 10700  9980  1192  S   0.0  0.1  0:00.29 /lib/systemd/systemd-logind
1276 root     20    0 107M   468  1136  S   0.0  0.0  0:00.00 /usr/sbin/lrqlbalance --foreground
1234 root     20    0 107M   468  1136  S   0.0  0.0  0:00.01 /usr/sbin/lrqlbalance --foreground
1410 syslogd  20    0 256M   472  1436  S   0.0  0.1  0:00.04 /usr/sbin/rsyslogd -n
1411 syslogd  20    0 256M   472  1436  S   0.0  0.1  0:00.00 /usr/sbin/rsyslogd -n
1412 syslogd  20    0 256M   472  1436  S   0.0  0.1  0:00.05 /usr/sbin/rsyslogd -n
F1 F2 F3 F4 F5 F6 F7 F8 F9 F10
```

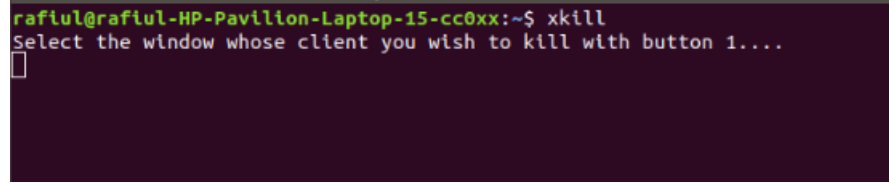
htop displays the same information with an easier-to-understand layout. It also lets you select processes with the arrow keys and perform actions, such as killing them or changing their priority, with the F keys.

ps tree

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.



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.

A terminal window with a dark purple background. The prompt is 'rafiul@rafiul-HP-Pavilion-Laptop-15-cc0xx:~\$'. The command 'xkill' has been entered. Below the command, a message says 'Select the window whose client you wish to kill with button 1...'. A small white cursor box is visible on the line below the message.

```
rafiul@rafiul-HP-Pavilion-Laptop-15-cc0xx:~$ 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.