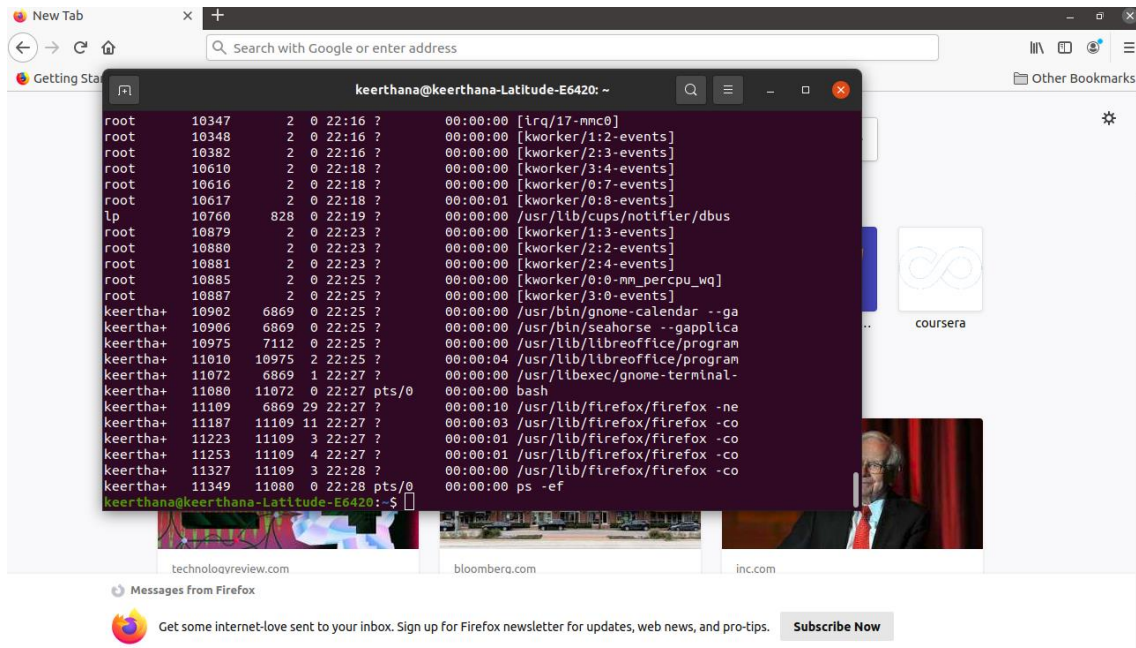


Maintain Efficient Process Utilization on Linux

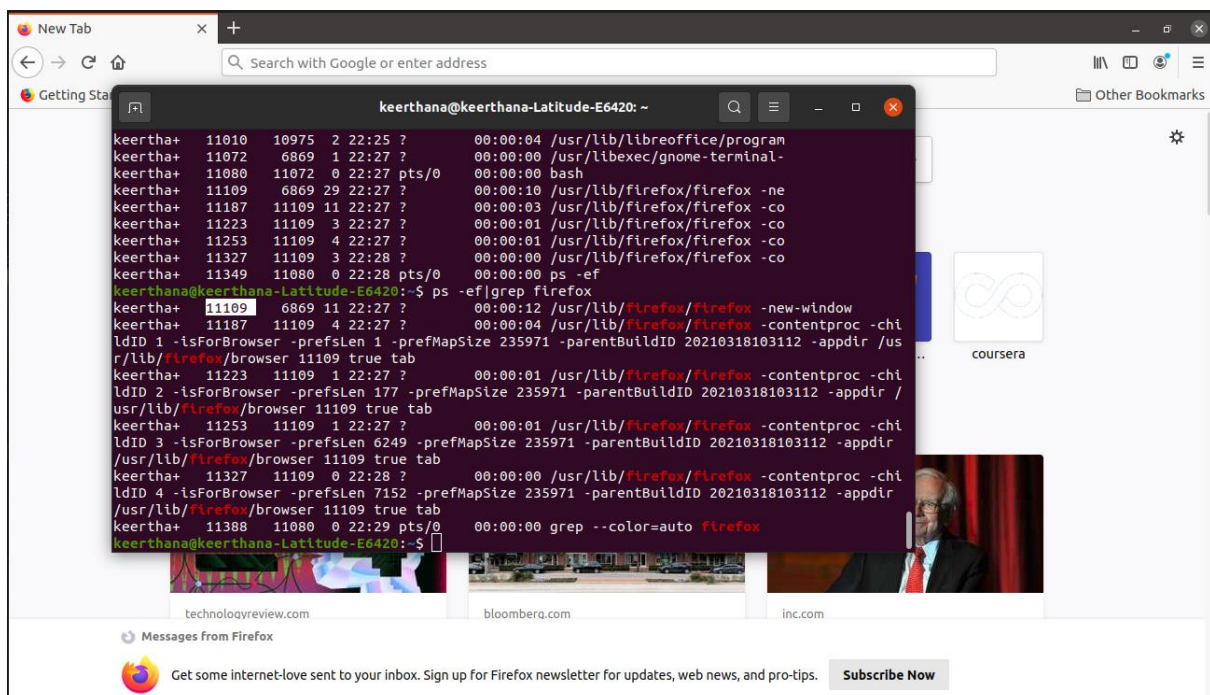
Terminate a specific process

- `ps -ef` : command is used to list all the process in running in the system currently using standard syntax.



```
root      10347      2  0 22:16 ?        00:00:00 [irq/17-mmc0]
root      10348      2  0 22:16 ?        00:00:00 [kworker/1:2-events]
root      10382      2  0 22:16 ?        00:00:00 [kworker/2:3-events]
root      10610      2  0 22:18 ?        00:00:00 [kworker/3:4-events]
root      10616      2  0 22:18 ?        00:00:00 [kworker/0:7-events]
root      10617      2  0 22:18 ?        00:00:01 [kworker/0:8-events]
lp        10760    828  0 22:19 ?        00:00:00 /usr/lib/cups/notifier/dbus
root      10879      2  0 22:23 ?        00:00:00 [kworker/1:3-events]
root      10880      2  0 22:23 ?        00:00:00 [kworker/2:2-events]
root      10881      2  0 22:23 ?        00:00:00 [kworker/2:4-events]
root      10885      2  0 22:25 ?        00:00:00 [kworker/0:0-mm_percpu_wq]
root      10887      2  0 22:25 ?        00:00:00 [kworker/3:0-events]
keerthas+ 10902    6869  0 22:25 ?        00:00:00 /usr/bin/gnome-calendar --ga
keerthas+ 10906    6869  0 22:25 ?        00:00:00 /usr/bin/seahorse --gapplica
keerthas+ 10975    7112  0 22:25 ?        00:00:00 /usr/lib/libreoffice/program
keerthas+ 11010   10975  2 22:25 ?        00:00:04 /usr/lib/libreoffice/program
keerthas+ 11072    6869  1 22:27 ?        00:00:00 /usr/libexec/gnome-terminal-
keerthas+ 11080   11072  0 22:27 pts/0    00:00:00 bash
keerthas+ 11109    6869 29 22:27 ?        00:00:10 /usr/lib/firefox/firefox -ne
keerthas+ 11187   11109 11 22:27 ?        00:00:03 /usr/lib/firefox/firefox -co
keerthas+ 11223   11109  3 22:27 ?        00:00:01 /usr/lib/firefox/firefox -co
keerthas+ 11253   11109  4 22:27 ?        00:00:01 /usr/lib/firefox/firefox -co
keerthas+ 11327   11109  3 22:28 ?        00:00:00 /usr/lib/firefox/firefox -co
keerthas+ 11349   11080  0 22:28 pts/0    00:00:00 ps -ef
keerthas+@keerthana-Latitude-E6420:~$
```

- `ps -ef | grep firefox` : we pipe `ps -ef` with the `grep` command to list all the processes related to firefox



```
keerthas+ 11010   10975  2 22:25 ?        00:00:04 /usr/lib/libreoffice/program
keerthas+ 11072    6869  1 22:27 ?        00:00:00 /usr/libexec/gnome-terminal-
keerthas+ 11080   11072  0 22:27 pts/0    00:00:00 bash
keerthas+ 11109    6869 29 22:27 ?        00:00:10 /usr/lib/firefox/firefox -ne
keerthas+ 11187   11109 11 22:27 ?        00:00:03 /usr/lib/firefox/firefox -co
keerthas+ 11223   11109  3 22:27 ?        00:00:01 /usr/lib/firefox/firefox -co
keerthas+ 11253   11109  4 22:27 ?        00:00:01 /usr/lib/firefox/firefox -co
keerthas+ 11327   11109  3 22:28 ?        00:00:00 /usr/lib/firefox/firefox -co
keerthas+ 11349   11080  0 22:28 pts/0    00:00:00 ps -ef
keerthas+@keerthana-Latitude-E6420:~$ ps -ef|grep firefox
keerthas+ 11109    6869 11 22:27 ?        00:00:12 /usr/lib/firefox/firefox -new-window
keerthas+ 11187   11109  4 22:27 ?        00:00:04 /usr/lib/firefox/firefox -contentproc -chi
ldID 1 -isForBrowser -prefsLen 1 -prefMapSize 235971 -parentBuildID 20210318103112 -appdir /usr/lib/firefox/browser 11109 true tab
keerthas+ 11223   11109  1 22:27 ?        00:00:01 /usr/lib/firefox/firefox -contentproc -chi
ldID 2 -isForBrowser -prefsLen 177 -prefMapSize 235971 -parentBuildID 20210318103112 -appdir /usr/lib/firefox/browser 11109 true tab
keerthas+ 11253   11109  1 22:27 ?        00:00:01 /usr/lib/firefox/firefox -contentproc -chi
ldID 3 -isForBrowser -prefsLen 6249 -prefMapSize 235971 -parentBuildID 20210318103112 -appdir /usr/lib/firefox/browser 11109 true tab
keerthas+ 11327   11109  0 22:28 ?        00:00:00 /usr/lib/firefox/firefox -contentproc -chi
ldID 4 -isForBrowser -prefsLen 7152 -prefMapSize 235971 -parentBuildID 20210318103112 -appdir /usr/lib/firefox/browser 11109 true tab
keerthas+ 11388   11080  0 22:29 pts/0    00:00:00 grep --color=auto firefox
keerthas+@keerthana-Latitude-E6420:~$
```

- kill [PID]: kill with the PID(process id) command is used to kill a process. Here, the PID is 11109 for the new firefox browser window.

```

keerthana@keerthana-Latitude-E6420: ~
keerthana+ 11072 6869 1 22:27 ? 00:00:00 /usr/libexec/gnome-terminal-
keerthana+ 11080 11072 0 22:27 pts/0 00:00:00 bash
keerthana+ 11109 6869 29 22:27 ? 00:00:10 /usr/lib/firefox/firefox -ne
keerthana+ 11187 11109 11 22:27 ? 00:00:03 /usr/lib/firefox/firefox -co
keerthana+ 11223 11109 3 22:27 ? 00:00:01 /usr/lib/firefox/firefox -co
keerthana+ 11253 11109 4 22:27 ? 00:00:01 /usr/lib/firefox/firefox -co
keerthana+ 11327 11109 3 22:28 ? 00:00:00 /usr/lib/firefox/firefox -co
keerthana+ 11349 11080 0 22:28 pts/0 00:00:00 ps -ef
keerthana@keerthana-Latitude-E6420:~$ ps -ef|grep firefox
keerthana+ 11109 6869 11 22:27 ? 00:00:12 /usr/lib/firefox/firefox -new-window
keerthana+ 11187 11109 4 22:27 ? 00:00:04 /usr/lib/firefox/firefox -contentproc -chi
ldID 1 -isForBrowser -prefsLen 1 -prefMapSize 235971 -parentBuildID 20210318103112 -appdir /us
r/lib/firefox/browser 11109 true tab
keerthana+ 11223 11109 1 22:27 ? 00:00:01 /usr/lib/firefox/firefox -contentproc -chi
ldID 2 -isForBrowser -prefsLen 177 -prefMapSize 235971 -parentBuildID 20210318103112 -appdir /
usr/lib/firefox/browser 11109 true tab
keerthana+ 11253 11109 1 22:27 ? 00:00:01 /usr/lib/firefox/firefox -contentproc -chi
ldID 3 -isForBrowser -prefsLen 6249 -prefMapSize 235971 -parentBuildID 20210318103112 -appdir
/usr/lib/firefox/browser 11109 true tab
keerthana+ 11327 11109 0 22:28 ? 00:00:00 /usr/lib/firefox/firefox -contentproc -chi
ldID 4 -isForBrowser -prefsLen 7152 -prefMapSize 235971 -parentBuildID 20210318103112 -appdir
/usr/lib/firefox/browser 11109 true tab
keerthana+ 11388 11080 0 22:29 pts/0 00:00:00 grep --color=auto firefox
keerthana@keerthana-Latitude-E6420:~$ kill 11109
keerthana@keerthana-Latitude-E6420:~$

```

- ps -ef | grep firefox is used again to check if the process has been killed.

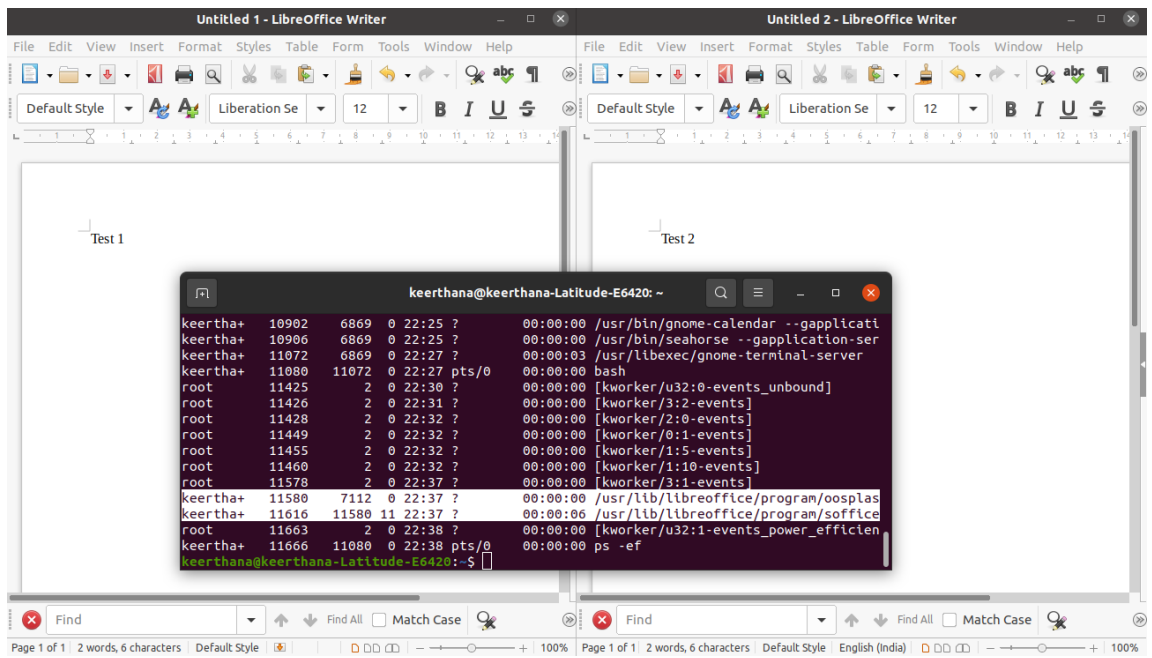
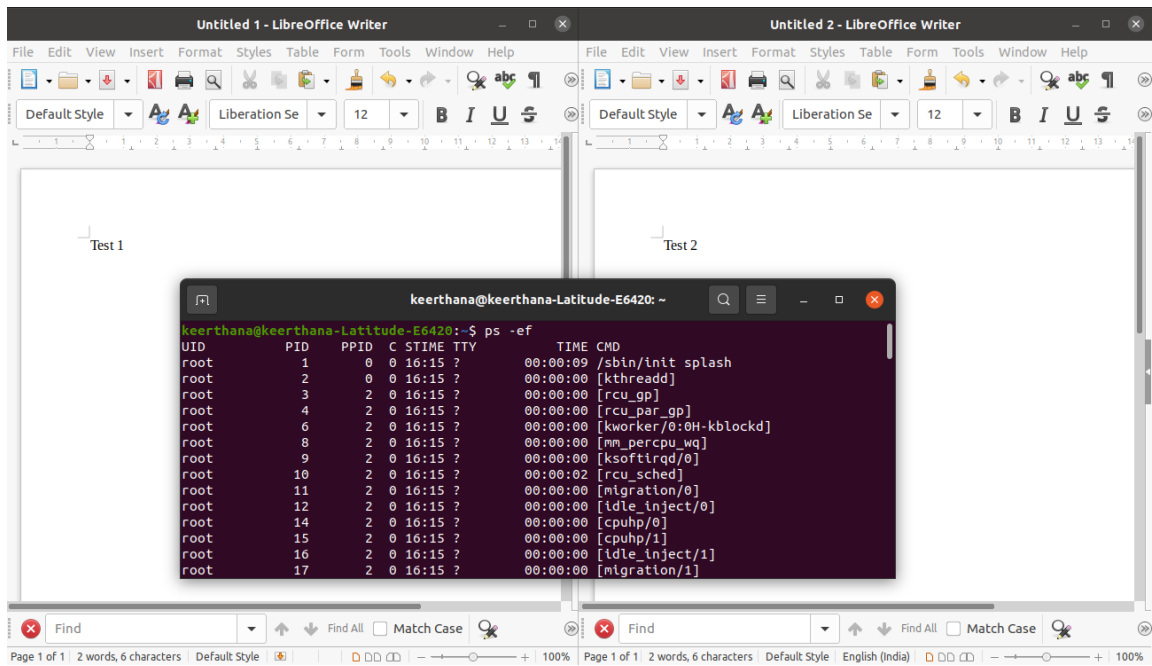
```

keerthana@keerthana-Latitude-E6420: ~
keerthana+ 11109 6869 29 22:27 ? 00:00:10 /usr/lib/firefox/firefox -ne
keerthana+ 11187 11109 11 22:27 ? 00:00:03 /usr/lib/firefox/firefox -co
keerthana+ 11223 11109 3 22:27 ? 00:00:01 /usr/lib/firefox/firefox -co
keerthana+ 11253 11109 4 22:27 ? 00:00:01 /usr/lib/firefox/firefox -co
keerthana+ 11327 11109 3 22:28 ? 00:00:00 /usr/lib/firefox/firefox -co
keerthana+ 11349 11080 0 22:28 pts/0 00:00:00 ps -ef
keerthana@keerthana-Latitude-E6420:~$ ps -ef|grep firefox
keerthana+ 11109 6869 11 22:27 ? 00:00:12 /usr/lib/firefox/firefox -new-window
keerthana+ 11187 11109 4 22:27 ? 00:00:04 /usr/lib/firefox/firefox -contentproc -chi
ldID 1 -isForBrowser -prefsLen 1 -prefMapSize 235971 -parentBuildID 20210318103112 -appdir /us
r/lib/firefox/browser 11109 true tab
keerthana+ 11223 11109 1 22:27 ? 00:00:01 /usr/lib/firefox/firefox -contentproc -chi
ldID 2 -isForBrowser -prefsLen 177 -prefMapSize 235971 -parentBuildID 20210318103112 -appdir /
usr/lib/firefox/browser 11109 true tab
keerthana+ 11253 11109 1 22:27 ? 00:00:01 /usr/lib/firefox/firefox -contentproc -chi
ldID 3 -isForBrowser -prefsLen 6249 -prefMapSize 235971 -parentBuildID 20210318103112 -appdir
/usr/lib/firefox/browser 11109 true tab
keerthana+ 11327 11109 0 22:28 ? 00:00:00 /usr/lib/firefox/firefox -contentproc -chi
ldID 4 -isForBrowser -prefsLen 7152 -prefMapSize 235971 -parentBuildID 20210318103112 -appdir
/usr/lib/firefox/browser 11109 true tab
keerthana+ 11388 11080 0 22:29 pts/0 00:00:00 grep --color=auto Firefox
keerthana@keerthana-Latitude-E6420:~$ kill 11109
keerthana@keerthana-Latitude-E6420:~$ ps -ef|grep firefox
keerthana+ 11493 11080 0 22:33 pts/0 00:00:00 grep --color=auto Firefox
keerthana@keerthana-Latitude-E6420:~$

```

Terminate Multiple processes

- ps -ef : command is used to list all the process in running in the system currently using standard syntax.



- kill [PIDs]: kill with the PID (process id) command is used to kill a process. Here, the PIDs are 11580 and 11616 for the two libre office processes.

