LINUX PROGRAMMING
WEEK 6

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COURSE CODE : SWE4009

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1. Debug the user created and standard shell scripts

AIM:

To debug the creation of a new user account and debug some standard shell scripts regarding the process.

PROCEDURE:

We first create a new user, by means of the command **adduser.** Then, we set a password for the newly created user.

Then the following process commands are executed :

- **ps** a snapshot of current processes to the user
- **ps -e** to see all processes on system, using standard syntax
- **ps -ejH** to print a process tree
- **pidof chrome** used to give pid of a process(here, chrome) to the user
- **ps -ef** used to provide information about threads
- **ps -eo euser,f,comm,label** used to get security information
- **ps -U root -u** used to check all process running as root
- **ps -eo pid,tid,class** used to see all process in a user defined format
- **ps -C bash -o pid=** used to print PID of bash
- **ps -q 2 -o comm=** used to print only name of PID 2

OUTPUT:

1. New user :

```
kailash@18mis1074:~/Linux/Week6$ cat newuser.sh
#!/bin/bash
sudo adduser lab6
kailash@18mis1074:~/Linux/Week6$
```

Execution:

```
kailash@18mis1074:~/Linux/Week6$ ./newuser.sh
Adding user `lab6' ...
Adding new group `lab6' (1001) ...
Adding new user `lab6' (1001) with group `lab6' ...
The home directory `/home/lab6' already exists.  Not copying from `/etc/sk
el'.
New password:
Retype new password:
passwd: password updated successfully
Changing the user information for lab6
Enter the new value, or press ENTER for the default
        Full Name []:
        Room Number []:
        Work Phone []:
        Home Phone []:
        Other []:
Is the information correct? [Y/n] y
```

2. Process execution :
   Script -

```
kailash@18mis1074:~/Linux/Week6$ cat proc.sh
#!/bin/bash
echo -e "\e[31;1m***** Process List *****\e[0m"
ps
echo -e "\e[31;1m***** See using standard syntax *****\e[0m"
ps -e
echo -e "\e[31;1m***** Process Tree *****\e[0m"
ps -ejH
echo -e "\e[31;1m***** PID of particular process *****\e[0m"
pidof chrome
echo -e "\e[31;1m***** Thread Information *****\e[0m"
ps -ef
echo -e "\e[31;1m***** Security information *****\e[0m"
ps -eo euser,f,comm,label
echo -e "\e[31;1m***** All processes as root *****\e[0m"
ps -U root -u
echo -e "\e[31;1m***** User defined format list of process*****\e[0m"
ps -eo pid,tid,class
echo -e "\e[31;1m***** PID of bash *****\e[0m"
ps -C bash -o pid=
echo -e "\e[31;1m***** Name of PID 2 *****\e[0m"
ps -q 2 -o comm=
```

Execution - <since output is very long, truncating the screenshot>

```
kailash@18mis1074:~/Linux/Week6$ ./proc.sh
***** Process List *****
    PID TTY          TIME CMD
  12664 pts/0    00:00:00 bash
  13762 pts/0    00:00:00 proc.sh
  13763 pts/0    00:00:00 ps
```

```
***** See using standard syntax *****
    PID TTY          TIME CMD
      1 ?        00:00:02 systemd
      2 ?        00:00:00 kthreadd
      3 ?        00:00:00 rcu_gp
      4 ?        00:00:00 rcu_par_gp
      6 ?        00:00:00 kworker/0:0H-kblockd
      9 ?        00:00:00 mm_percpu_wq
     10 ?        00:00:02 ksoftirqd/0
     11 ?        00:00:12 rcu_sched
     12 ?        00:00:00 migration/0
     13 ?        00:00:00 idle_inject/0
     14 ?        00:00:00 cpuhp/0
     15 ?        00:00:00 cpuhp/1
     16 ?        00:00:00 idle_inject/1
     17 ?        00:00:00 migration/1
     18 ?        00:00:00 ksoftirqd/1
     20 ?        00:00:00 kworker/1:0H-kblockd
     21 ?        00:00:00 kdevtmpfs
     22 ?        00:00:00 netns
     23 ?        00:00:00 rcu_tasks_kthre
     24 ?        00:00:00 rcu_tasks_rude_
     25 ?        00:00:00 rcu_tasks_trace
     26 ?        00:00:00 kauditd
     27 ?        00:00:00 khungtaskd
     28 ?        00:00:00 oom_reaper
     29 ?        00:00:00 writeback
     30 ?        00:00:00 kcompactd0
```

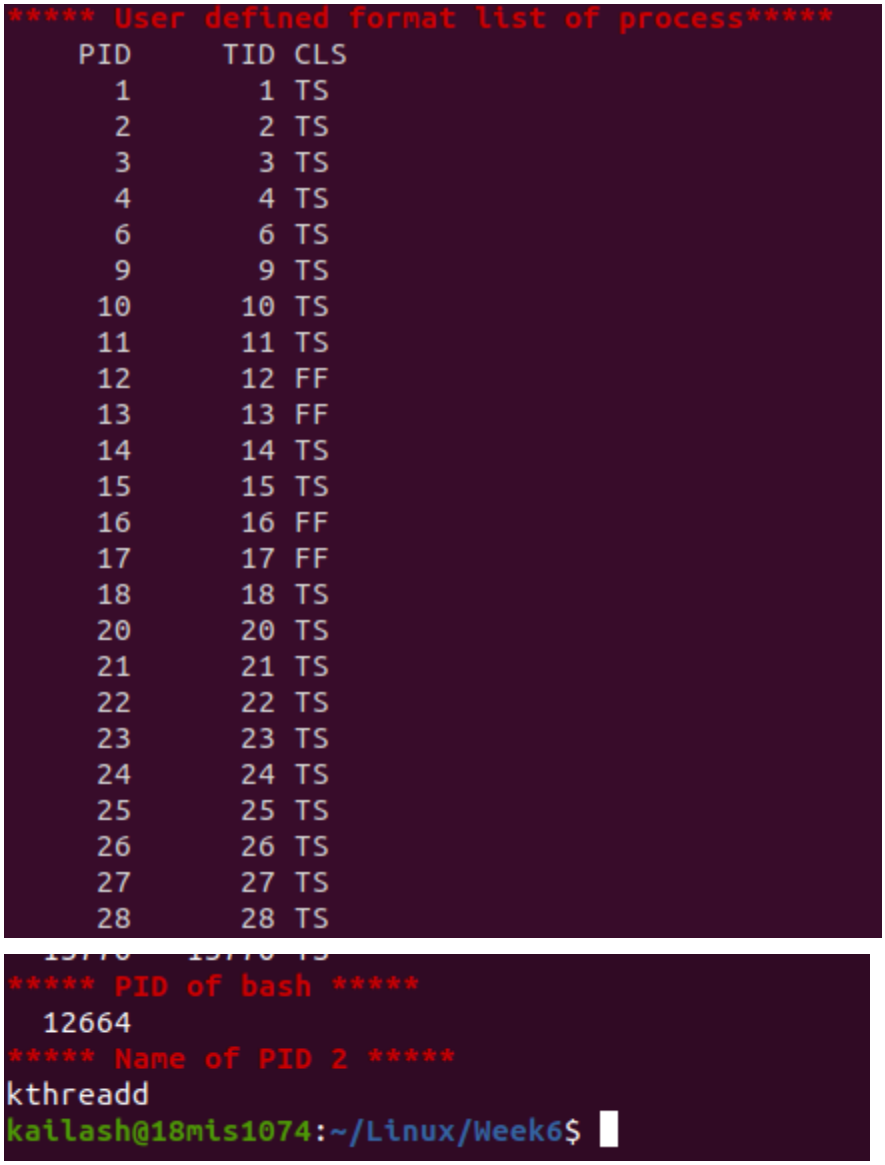
```
***** Process Tree *****
    PID    PGID     SID TTY          TIME CMD
      2       0       0 ?        00:00:00 kthreadd
      3       0       0 ?        00:00:00   rcu_gp
      4       0       0 ?        00:00:00   rcu_par_gp
      6       0       0 ?        00:00:00   kworker/0:0H-kblockd
      9       0       0 ?        00:00:00   mm_percpu_wq
     10       0       0 ?        00:00:02   ksoftirqd/0
     11       0       0 ?        00:00:12   rcu_sched
     12       0       0 ?        00:00:00   migration/0
     13       0       0 ?        00:00:00   idle_inject/0
     14       0       0 ?        00:00:00   cpuhp/0
     15       0       0 ?        00:00:00   cpuhp/1
     16       0       0 ?        00:00:00   idle_inject/1
     17       0       0 ?        00:00:00   migration/1
```

```
***** PID of particular process *****
13467 13244 13087 12534 10060 9754 9590 9000 4068 2954 2862 2835 2829 2803
 2799 2798 2776
```

```
***** Thread Information *****
UID          PID    PPID  C STIME TTY          TIME CMD
root           1       0  0 12:52 ?        00:00:02 /sbin/init splash
root           2       0  0 12:52 ?        00:00:00 [kthreadd]
root           3       2  0 12:52 ?        00:00:00 [rcu_gp]
root           4       2  0 12:52 ?        00:00:00 [rcu_par_gp]
root           6       2  0 12:52 ?        00:00:00 [kworker/0:0H-kblockd]
root           9       2  0 12:52 ?        00:00:00 [mm_percpu_wq]
root          10       2  0 12:52 ?        00:00:02 [ksoftirqd/0]
root          11       2  0 12:52 ?        00:00:12 [rcu_sched]
root          12       2  0 12:52 ?        00:00:00 [migration/0]
root          13       2  0 12:52 ?        00:00:00 [idle_inject/0]
root          14       2  0 12:52 ?        00:00:00 [cpuhp/0]
root          15       2  0 12:52 ?        00:00:00 [cpuhp/1]
root          16       2  0 12:52 ?        00:00:00 [idle_inject/1]
root          17       2  0 12:52 ?        00:00:00 [migration/1]
root          18       2  0 12:52 ?        00:00:00 [ksoftirqd/1]
root          20       2  0 12:52 ?        00:00:00 [kworker/1:0H-kblockd]
root          21       2  0 12:52 ?        00:00:00 [kdevtmpfs]
root          22       2  0 12:52 ?        00:00:00 [netns]
root          23       2  0 12:52 ?        00:00:00 [rcu_tasks_kthre]
root          24       2  0 12:52 ?        00:00:00 [rcu_tasks_rude_]
root          25       2  0 12:52 ?        00:00:00 [rcu_tasks_trace]
```

```
***** Security information *****
EUSER     F COMMAND          LABEL
root      4 systemd          unconfined
root      1 kthreadd         unconfined
root      1 rcu_gp           unconfined
root      1 rcu_par_gp       unconfined
root      1 kworker/0:0H-kb  unconfined
root      1 mm_percpu_wq     unconfined
root      1 ksoftirqd/0      unconfined
root      1 rcu_sched        unconfined
root      1 migration/0      unconfined
root      5 idle_inject/0    unconfined
root      1 cpuhp/0          unconfined
root      5 cpuhp/1          unconfined
root      5 idle_inject/1    unconfined
root      1 migration/1      unconfined
root      1 ksoftirqd/1      unconfined
root      1 kworker/1:0H-kb  unconfined
root      5 kdevtmpfs        unconfined
root      1 netns            unconfined
root      1 rcu_tasks_kthre  unconfined
root      1 rcu_tasks_rude_  unconfined
root      1 rcu_tasks_trace  unconfined
root      1 kauditd          unconfined
root      1 khungtaskd       unconfined
root      1 oom_reaper       unconfined
```

```
***** All processes as root *****
USER         PID %CPU %MEM    VSZ   RSS TTY      STAT START   TIME COMMAND
root           1  0.0  0.1 168168 12184 ?        Ss   12:52   0:02 /sbin/i
root           2  0.0  0.0      0     0 ?        S    12:52   0:00 [kthrea
root           3  0.0  0.0      0     0 ?        I<   12:52   0:00 [rcu_gp
root           4  0.0  0.0      0     0 ?        I<   12:52   0:00 [rcu_pa
root           6  0.0  0.0      0     0 ?        I<   12:52   0:00 [kworke
root           9  0.0  0.0      0     0 ?        I<   12:52   0:00 [mm_per
root          10  0.0  0.0      0     0 ?        S    12:52   0:02 [ksofti
root          11  0.1  0.0      0     0 ?        I    12:52   0:12 [rcu_sc
root          12  0.0  0.0      0     0 ?        S    12:52   0:00 [migrat
root          13  0.0  0.0      0     0 ?        S    12:52   0:00 [idle_i
root          14  0.0  0.0      0     0 ?        S    12:52   0:00 [cpuhp/
root          15  0.0  0.0      0     0 ?        S    12:52   0:00 [cpuhp/
root          16  0.0  0.0      0     0 ?        S    12:52   0:00 [idle_i
root          17  0.0  0.0      0     0 ?        S    12:52   0:00 [migrat
root          18  0.0  0.0      0     0 ?        S    12:52   0:00 [ksofti
root          20  0.0  0.0      0     0 ?        I<   12:52   0:00 [kworke
root          21  0.0  0.0      0     0 ?        S    12:52   0:00 [kdevtm
root          22  0.0  0.0      0     0 ?        I<   12:52   0:00 [netns]
root          23  0.0  0.0      0     0 ?        S    12:52   0:00 [rcu_ta
root          24  0.0  0.0      0     0 ?        S    12:52   0:00 [rcu_ta
```



RESULT:

Thus, a new user was created (lab6) and the process script was executed, which contained the variations of ps command, such as the security listing, pidof, and other commands. Customised user listing of the processes was also seen.
