PROCESSES STATUS COMMAND

PS (**processes status**) is a native Unix/Linux utility for viewing information concerning a selection of running processes on a system: it reads this information from the virtual files in the /proc filesystem. It is one of the important utilities for system administration specifically under process monitoring, to help you understand what's is going on in a Linux system.

Displays processes for the current shell

```
[root@vivek ~]# ps
    PID TTY          TIME CMD
   1803 pts/0    00:00:00 bash
   2863 pts/0    00:00:00 ps
```

Display every active process on a Linux system in generic

```
[root@vivek ~]# ps -A
    PID TTY          TIME CMD
      1 ?        00:00:01 systemd
      2 ?        00:00:00 kthreadd
      3 ?        00:00:00 rcu_gp
      4 ?        00:00:00 rcu_par_gp
```

```
[root@vivek ~]# ps -e
    PID TTY          TIME CMD
      1 ?        00:00:01 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
```

Display all processes in BSD format

```
[root@vivek ~]# ps -au
USER        PID %CPU %MEM    VSZ   RSS TTY      STAT START   TIME COMMAND
root       1757  0.0  0.2  26684  5176 tty1     Ss+  Feb20   0:00 -bash
root       1803  0.0  0.2  26688  5432 pts/0    Ss   Feb20   0:00 -bash
root       2935  0.0  0.2  57820  3884 pts/0    R+   01:09   0:00 ps -au
[root@vivek ~]# ps -axu
USER        PID %CPU %MEM    VSZ   RSS TTY      STAT START   TIME COMMAND
root          1  0.0  0.7 179712 14036 ?        Ss   Feb20   0:01 /usr/lib/systemd/systemd --switched-root --system --deserialize 18
root          2  0.0  0.0      0     0 ?        S    Feb20   0:00 [kthreadd]
root          3  0.0  0.0      0     0 ?        I<   Feb20   0:00 [rcu_gp]
root          4  0.0  0.0      0     0 ?        I<   Feb20   0:00 [rcu_par_gp]
root          6  0.0  0.0      0     0 ?        I<   Feb20   0:00 [kworker/0:0H-kblockd]
root          8  0.0  0.0      0     0 ?        I<   Feb20   0:00 [mm_percpu_wq]
root          9  0.0  0.0      0     0 ?        S    Feb20   0:00 [ksoftirqd/0]
```

To perform a full-format listing

```
[root@vivek ~]# ps -ef
UID          PID    PPID  C STIME TTY          TIME CMD
root           1       0  0 Feb20 ?        00:00:01 /usr/lib/systemd/systemd --switched
root           2       0  0 Feb20 ?        00:00:00 [kthreadd]
root           3       2  0 Feb20 ?        00:00:00 [rcu_gp]
root           4       2  0 Feb20 ?        00:00:00 [rcu_par_gp]
root           6       2  0 Feb20 ?        00:00:00 [kworker/0:0H-kblockd]
root           8       2  0 Feb20 ?        00:00:00 [mm_percpu_wq]
root           9       2  0 Feb20 ?        00:00:00 [ksoftirqd/0]
root          10       2  0 Feb20 ?        00:00:00 [rcu_sched]
```


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PROCESSES STATUS COMMAND

select all processes owned

```
[root@vivek ~]# ps -x
    PID TTY      STAT   TIME COMMAND
      1 ?        Ss     0:01 /usr/lib/systemd/systemd --switched-root --s
      2 ?        S      0:00 [kthreadd]
      3 ?        I<     0:00 [rcu_gp]
      4 ?        I<     0:00 [rcu_par_gp]
      6 ?        I<     0:00 [kworker/0:0H-kblockd]
```

To print a process tree

```
[root@vivek ~]# pstree
systemd─┬─ModemManager───2*[{ModemManager}]
        ├─NetworkManager───2*[{NetworkManager}]
        ├─VGAuthService
        ├─alsactl
        ├─atd
        ├─auditd─┬─sedispatch
        │        └─2*[{auditd}]
        ├─avahi-daemon───avahi-daemon
```

```
[root@vivek ~]# ps -e --forest
    PID TTY          TIME CMD
      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
```

To get info about threads

```
[root@vivek ~]# ps -eLf
UID          PID    PPID     LWP  C NLWP STIME TTY          TIME CMD
root           1       0       1  0    1 00:01 ?        00:00:01 /usr/lib/systemd/syste
root           2       0       2  0    1 00:01 ?        00:00:00 [kthreadd]
root           3       2       3  0    1 00:01 ?        00:00:00 [rcu_gp]
root           4       2       4  0    1 00:01 ?        00:00:00 [rcu_par_gp]
root           6       2       6  0    1 00:01 ?        00:00:00 [kworker/0:0H-kblockd]
root           8       2       8  0    1 00:01 ?        00:00:00 [mm_percpu_wq]
```

```
[root@vivek ~]# ps axms
  UID    PID        PENDING        BLOCKED        IGNORED        CAUGHT STAT TTY      TIME COMMAND
    0      1 0000000000000000           -              -              --  ?        0:01 /usr/lib/systemd/systemd --switched-root --system --deserialize 18
    0      - 0000000000000000 7be3c0fe28014a03 0000000000001000 00000001800004ec Ss   -        0:01 -
    0      2 0000000000000000           -              -              --  ?        0:00 [kthreadd]
    0      - 0000000000000000 0000000000000000 ffffffffffffffff 0000000000000000 S    -        0:00 -
    0      3 0000000000000000           -              -              --  ?        0:00 [rcu_gp]
    0      - 0000000000000000 0000000000000000 ffffffffffffffff 0000000000000000 I<   -        0:00 -
```

To get security info

```
[root@vivek ~]# ps -eo euser,ruser,suser,fuser,f,comm,label
EUSER    RUSER    SUSER    FUSER    F COMMAND         LABEL
root     root     root     root     4 systemd         system_u:system_r:init_t:s0
root     root     root     root     1 kthreadd        system_u:system_r:kernel_t:s0
root     root     root     root     1 rcu_gp          system_u:system_r:kernel_t:s0
root     root     root     root     1 rcu_par_gp      system_u:system_r:kernel_t:s0
root     root     root     root     1 kworker/0:0H-kb system_u:system_r:kernel_t:s0
root     root     root     root     1 mm_percpu_wq    system_u:system_r:kernel_t:s0
root     root     root     root     1 ksoftirqd/0     system_u:system_r:kernel_t:s0
root     root     root     root     1 rcu_sched       system_u:system_r:kernel_t:s0
```


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PROCESSES STATUS COMMAND

To see every process running as root (real & effective ID) in user format

```
[root@vivek ~]# ps -U root -u root
    PID TTY          TIME CMD
      1 ?        00:00:01 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
      8 ?        00:00:00 mm_percpu_wq
```

list processes by PID

```
[root@vivek ~]#  ps -fp 1
UID          PID    PPID  C STIME TTY          TIME CMD
root           1       0  0 00:01 ?        00:00:01 /usr/lib/systemd/systemd
```

To select process by PPID, type

```
[root@vivek ~]# ps -f --ppid 1
UID          PID    PPID  C STIME TTY          TIME CMD
root         825       1  0 00:01 ?        00:00:00 /usr/lib/systemd/systemd-journald
root         857       1  0 00:01 ?        00:00:00 /usr/lib/systemd/systemd-udevd
rpc          959       1  0 00:01 ?        00:00:00 /usr/bin/rpcbind -w -f
root         961       1  0 00:01 ?        00:00:00 /sbin/auditd
root         991       1  0 00:01 ?        00:00:00 /usr/bin/VGAuthService -s
```

To select processes by tty

```
[root@vivek ~]# ps -t pts/0
    PID TTY          TIME CMD
   1803 pts/0    00:00:00 bash
   3409 pts/0    00:00:00 ps
[root@vivek ~]# ps -ft tty1
UID          PID    PPID  C STIME TTY          TIME CMD
root        1757    1506  0 00:03 tty1     00:00:00 -bash
```

To print all threads of a process

```
[root@vivek ~]# ps -fL -C sshd
UID          PID    PPID     LWP  C NLWP STIME TTY          TIME CMD
root        1088       1    1088  0    1 00:01 ?        00:00:00 /usr/sbin/sshd -D
root        1798    1088    1798  0    1 00:03 ?        00:00:00 sshd: root [priv]
root        1802    1798    1802  0    1 00:03 ?        00:00:00 sshd: root@pts/0
```

To list all format specifiers

```
[root@vivek ~]# ps L
%cpu           %CPU
%mem           %MEM
_left          LLLLLLLL
_left2         L2L2L2L2
_right         RRRRRRRR
_right2        R2R2R2R2
_unlimited     U
_unlimited2    U2
alarm          ALARM
```


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PROCESSES STATUS COMMAND

display all its child processes

```
[root@vivek ~]# ps -C sshd
    PID TTY          TIME CMD
   1088 ?        00:00:00 sshd
   1798 ?        00:00:00 sshd
   1802 ?        00:00:00 sshd
```

Check the execution time of a process

```
[root@vivek ~]# ps -eo comm,etime,user | grep sshd
sshd             02:41:57 root
sshd             02:39:58 root
sshd             02:39:54 root
```

The kill command is used to kill processes

```
[root@vivek ~]# kill -9 992
```

Executing a background job

```
[root@vivek ~]# top &
[1] 3631
[root@vivek ~]# jobs
[1]+  Stopped                 top
[root@vivek ~]#
```

```
[root@vivek ~]# bg
[1]+ top &
[root@vivek ~]# fdisk /dev/nvme0n1

Welcome to fdisk (util-linux 2.32.1).
Changes will remain in memory only, until you decide to write them.
Be careful before using the write command.


Command (m for help): ^Z
[1]-  Stopped                 top

[2]+  Stopped                 fdisk /dev/nvme0n1
[root@vivek ~]# bg
[2]+ fdisk /dev/nvme0n1 &
[root@vivek ~]#
[root@vivek ~]# bg 2
-bash: bg: job 2 already in background
[root@vivek ~]# fg 2
fdisk /dev/nvme0n1
^C
[root@vivek ~]# bg
[1]+ top &
[root@vivek ~]#
```

Listing a Specific Process

```
[root@vivek ~]# pgrep crond
1276
[root@vivek ~]# pidof crond
1276
```


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