

PRACTICAL 4

Kill process by name

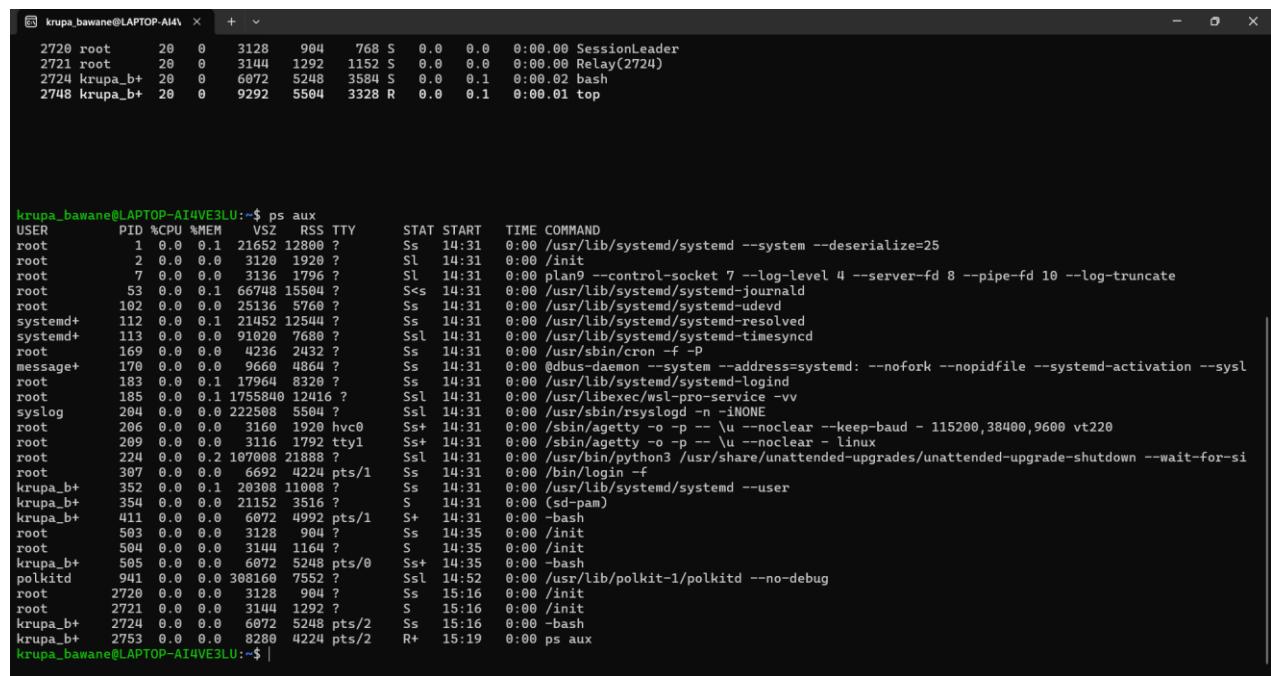
Kill a process based on the process name

Kill a single process at a time with the given process ID



```
krupa_bawane@LAPTOP-AI4VE3LU:~$ top
top - 15:18:12 up 47 min, 1 user, load average: 0.00, 0.03, 0.00
Tasks: 27 total, 1 running, 26 sleeping, 0 stopped, 0 zombie
%Cpu(s): 0.0 us, 0.0 sy, 0.0 ni, 100.0 id, 0.0 wa, 0.0 hi, 0.0 si, 0.0 st
MiB Mem : 7778.2 total, 7227.9 free, 534.1 used, 173.9 buff/cache
MiB Swap : 2048.0 total, 2048.0 free, 0.0 used. 7244.1 avail Mem

PID USER      PR  NI    VIRT   RES   SHR S %CPU %MEM TIME+ COMMAND
 1 root      20   0 21652 12800 9472 S  0.0  0.2 0:00.81 systemd
 2 root      20   0  3128 1920 1920 S  0.0  0.0 0:00.01 init-systemd(Up)
 7 root      20   0  3136 1796 1792 S  0.0  0.0 0:00.00 init
53 root     19 -1 66748 15504 14480 S  0.0  0.2 0:00.33 systemd-journal
102 root     20   0 25136 5760 4864 S  0.0  0.1 0:00.43 systemd-udevd
112 systemd+ 20   0 21452 12541 10368 S  0.0  0.2 0:00.13 systemd-resolve
113 systemd+ 20   0 91020 7680 6784 S  0.0  0.1 0:00.11 systemd-timesyncd
169 root     20   0  4236 2432 2304 S  0.0  0.0 0:00.00 cron
170 message+ 20   0  9660 4864 4352 S  0.0  0.1 0:00.15 dbus-daemon
183 root     20   0 17964 8320 7424 S  0.0  0.1 0:00.12 systemd-logind
185 root     20   0 1755840 12416 10368 S  0.0  0.2 0:00.15 wsl-pro-service
204 syslog   20   0 222508 5504 4352 S  0.0  0.1 0:00.10 rsyslogd
206 root     20   0  3168 1920 1792 S  0.0  0.0 0:00.01 agetty
209 root     20   0  3116 1792 1664 S  0.0  0.0 0:00.00 agetty
224 root     20   0 107008 21888 12928 S  0.0  0.3 0:00.13 unattended-upgr
307 root     20   0  6692 4224 3584 S  0.0  0.1 0:00.01 login
352 krupa_b+ 20   0 20368 11008 9088 S  0.0  0.1 0:00.09 systemd
354 krupa_b+ 20   0 21152 3516 1792 S  0.0  0.0 0:00.00 (sd-pam)
411 krupa_b+ 20   0  6072 4992 3456 S  0.0  0.1 0:00.00 bash
503 root     20   0  3128  904  768 S  0.0  0.0 0:00.00 SessionLeader
504 root     20   0  3144 1164 1024 S  0.0  0.0 0:00.00 Relay(505)
505 krupa_b+ 20   0  6072 5248 3584 S  0.0  0.1 0:00.03 bash
941 polkitd  20   0 308160 7552 6784 S  0.0  0.1 0:00.03 polkitd
2720 root     20   0  3128  904  768 S  0.0  0.0 0:00.00 SessionLeader
2721 root     20   0  3144 1292 1152 S  0.0  0.0 0:00.00 Relay(2724)
2724 krupa_b+ 20   0  6072 5248 3584 S  0.0  0.1 0:00.02 bash
2748 krupa_b+ 20   0  9292 5504 3328 R  0.0  0.1 0:00.00 top
```



```
krupa_bawane@LAPTOP-AI4VE3LU:~$ ps aux
 2720 root      20   0  3128  904  768 S  0.0  0.0 0:00.00 SessionLeader
 2721 root      20   0  3144 1292 1152 S  0.0  0.0 0:00.00 Relay(2724)
 2748 krupa_b+ 20   0  6072 5248 3584 S  0.0  0.1 0:00.02 bash
 2748 krupa_b+ 20   0  9292 5504 3328 R  0.0  0.1 0:00.01 top

krupa_bawane@LAPTOP-AI4VE3LU:~$ ps aux
USER      PID %CPU %MEM   VSZ   RSS TTY      STAT START   TIME COMMAND
root      1  0.0  0.1 21652 12800 ?        Ss 14:31 0:00 /usr/lib/systemd/systemd --system --deserialize=25
root      2  0.0  0.0  3128 1920 ?        SL 14:31 0:00 /init
root      7  0.0  0.0  3136 1796 ?        SL 14:31 0:00 plan9 --control-socket 7 --log-level 4 --server-fd 8 --pipe-fd 10 --log-truncate
root     53  0.0  0.1 66748 15504 ?        Ss 14:31 0:00 /usr/lib/systemd/systemd-journal
root    102  0.0  0.0 25136 5760 ?        Ss 14:31 0:00 /usr/lib/systemd/systemd-udevd
systemd+ 112  0.0  0.1 21452 12544 ?        Ss 14:31 0:00 /usr/lib/systemd/systemd-resolved
systemd+ 113  0.0  0.0 91020 7680 ?        Ssl 14:31 0:00 /usr/lib/systemd/systemd-timesyncd
root    169  0.0  0.0  4236 2432 ?        Ss 14:31 0:00 /usr/sbin/cron -f -
message+ 170  0.0  0.0  9660 4864 ?        Ss 14:31 0:00 /dbus-daemon --system --address=systemd: --nofork --nopidfile --systemd-activation --sysl
root    183  0.0  0.1 17964 8320 ?        Ss 14:31 0:00 /usr/lib/systemd/systemd-logind
root    185  0.0  0.1 1755840 12416 ?       Ssl 14:31 0:00 /usr/libexec/wsl-pro-service -vv
syslog   204  0.0  0.0 222508 5504 ?       Ssl 14:31 0:00 /usr/sbin/rsyslogd -n -iNONE
root    206  0.0  0.0  3168 1920 hvc0    S+ 14:31 0:00 /sbin/agetty -o -p -- \u --noclear --keep-baud - 115200,38400,9600 vt220
root    209  0.0  0.0  3116 1792 ttys1  S+ 14:31 0:00 /sbin/agetty -o -p -- \u --noclear - linux
root    224  0.0  0.2 107008 21888 ?      Ssl 14:31 0:00 /usr/bin/python3 /usr/share/unattended-upgrades/unattended-upgrade-shutdown --wait-for-si
root    307  0.0  0.0  6692 4224 pts/1   Ss 14:31 0:00 /bin/login -f
krupa_b+ 352  0.0  0.1 20308 11008 ?      Ss 14:31 0:00 /usr/lib/systemd/systemd --user
krupa_b+ 354  0.0  0.0 21152 3516 ?      S 14:31 0:00 (sd-pam)
krupa_b+ 411  0.0  0.0  6072 4992 pts/1   S+ 14:31 0:00 -bash
root    503  0.0  0.0  3128  904 ?      Ss 14:35 0:00 /init
root    504  0.0  0.0  3144 1164 ?      S 14:35 0:00 /init
krupa_b+ 505  0.0  0.0  6072 5248 pts/0   Ss+ 14:35 0:00 -bash
polkitd  941  0.0  0.0 308160 7552 ?      Ssl 14:52 0:00 /usr/lib/polkit-1/polkitd --no-debug
root    2720  0.0  0.0  3128  904 ?      Ss 15:16 0:00 /init
root    2721  0.0  0.0  3144 1292 ?      S 15:16 0:00 /init
krupa_b+ 2724  0.0  0.0  6072 5248 pts/2   Ss 15:16 0:00 -bash
krupa_b+ 2753  0.0  0.0  8288 4224 pts/2   R+ 15:19 0:00 ps aux
```

krupa_bawane@LAPTOP-AI4VE3LU:~\$ ps aux

```

USER      PID %CPU %MEM    VSZ   RSS TTY      STAT START  TIME COMMAND
root      1  0.0  0.1 21652 12800 ?
root      2  0.0  0.0 3120 1920 ?
root      7  0.0  0.0 3136 1796 ?
root     53  0.0  0.1 66748 15504 ?
root    102  0.0  0.0 25136 5760 ?
systemd+ 112  0.0  0.1 21452 12544 ?
systemd+ 113  0.0  0.0 91820 7688 ?
root    169  0.0  0.0 4236 2432 ?
message+ 170  0.0  0.0 9660 4864 ?
root    183  0.0  0.1 17964 8320 ?
root    185  0.0  0.1 1755840 12416 ?
syslog   204  0.0  0.0 222588 5504 ?
root    206  0.0  0.0 3160 1920 hvc0
root    209  0.0  0.0 3116 1792 tt1
root    224  0.0  0.2 107008 21888 ?
root    307  0.0  0.0 6692 4224 pts/1
krupa_b+ 352  0.0  0.1 20398 11098 ?
krupa_b+ 354  0.0  0.0 21152 3516 ?
krupa_b+ 411  0.0  0.0 6972 4992 pts/1
root    503  0.0  0.0 3128 904 ?
root    504  0.0  0.0 3144 1164 ?
krupa_b+ 505  0.0  0.0 6972 5248 pts/0
polkitd  941  0.0  0.0 308160 7552 ?
root    2728  0.0  0.0 3128 904 ?
root    2721  0.0  0.0 3144 1292 ?
krupa_b+ 2724  0.0  0.0 6972 5248 pts/2
krupa_b+ 2753  0.0  0.0 8280 4224 pts/2
krupa_b+ 2759  0.0  0.0 4088 2048 pts/2
krupa_b+ 2759  0.0  0.0 4088 2048 pts/2
krupa_bawane@LAPTOP-AI4VE3LU:~$ ps aux | grep firefox
krupa_bawane@LAPTOP-AI4VE3LU:~$ kill 2759
-bash: kill: (2759) - No such process
krupa_bawane@LAPTOP-AI4VE3LU:~$ kill PID
-bash: kill: PID: arguments must be process or job IDs
krupa_bawane@LAPTOP-AI4VE3LU:~$ kill 2724
krupa_bawane@LAPTOP-AI4VE3LU:~$ pkill firefox
krupa_bawane@LAPTOP-AI4VE3LU:~$ |

```

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Orphan Process:

krupa_bawane@LAPTOP-AI4VE3LU:~\$ nano orphan.c

```

#include <stdio.h>
#include <stdlib.h>
#include <unistd.h>
#include <sys/types.h>
int main(){
pid_t pid = fork();
if(pid==0){
printf("Parent existing...\n");
exit(0);
}
else if(pid==0){
sleep(5);
printf("Child is now an Orphan Process. PID:%d\n",getpid());
}
return 0;
}

```

[Read 17 lines]

GNU nano 7.2

^G Help ^O Write Out ^W Where Is ^K Cut ^C Location M-U Undo ^A Set Mark ^M-J To Bracket
^X Exit ^R Read File ^V Replace ^P Paste ^J Justify ^G Go To Line M-E Redo ^M-C Copy ^Q Where Was

```

krupa_bawane@LAPTOP-AI4V:~$ ps aux | grep firefox
root      1  0.0  0.1 21652 12800 ?        Ss   14:31  0:00 /usr/lib/systemd/systemd --system --deserialize=25
root      2  0.0  0.0 3120 1920 ?        SL 14:31  0:00 /init
root      7  0.0  0.0 3136 1796 ?        SL 14:31  0:00 plan9 --control-socket 7 --log-level 4 --server-fd 8 --pipe-fd 10 --log-truncate
root     53  0.0  0.1 66748 15504 ?       S<s 14:31  0:00 /usr/lib/systemd/systemd-journald
root    102  0.0  0.0 25136 5760 ?       Ss 14:31  0:00 /usr/lib/systemd/systemd-udevd
systemd+ 112  0.0  0.1 21452 12544 ?       Ss 14:31  0:00 /usr/lib/systemd/systemd-resolved
systemd+ 113  0.0  0.0 91820 7680 ?      Ssl 14:31  0:00 /usr/lib/systemd/systemd-timesyncd
root    169  0.0  0.0 4236 2432 ?       Ss 14:31  0:00 /usr/sbin/cron -f -p
message+ 170  0.0  0.0 9660 4864 ?       Ss 14:31  0:00 @dbus-daemon --system --address=systemd: --nofork --nopidfile --systemd-activation --sysl
root    183  0.0  0.1 17964 8320 ?       Ss 14:31  0:00 /usr/lib/systemd/systemd-logind
root    185  0.0  0.1 1755848 12416 ?      Ssl 14:31  0:00 /usr/libexec/wsl-pro-service -vv
syslog   204  0.0  0.0 222508 5504 ?      Ssl 14:31  0:00 /usr/sbin/rsyslogd -n -iNONE
root    206  0.0  0.0 3160 1920 hvc0      Ss+ 14:31  0:00 /sbin/agetty -o -p --u --keep-baud - 115200,38400,9600 vt220
root    209  0.0  0.0 3116 1792 tty1      Sst+ 14:31  0:00 /sbin/agetty -o -p --u --noclear - linux
root    224  0.0  0.0 107008 21888 ?      Ssl 14:31  0:00 /usr/bin/python3 /usr/share/unattended-upgrades/unattended-upgrade-shutdown --wait-for-si
root    307  0.0  0.0 6692 4224 pts/1      Ss 14:31  0:00 /bin/login -f
krupa_b+ 352  0.0  0.1 20308 11008 ?      Ss 14:31  0:00 /usr/lib/systemd/systemd --user
krupa_b+ 354  0.0  0.0 21152 3516 ?       S 14:31  0:00 (sd-pam)
krupa_b+ 411  0.0  0.0 6072 4992 pts/1      S+ 14:31  0:00 -bash
root    503  0.0  0.0 3128 904 ?       Ss 14:35  0:00 /init
root    504  0.0  0.0 3144 1164 ?       S 14:35  0:00 /init
krupa_b+ 505  0.0  0.2 107008 2048 pts/0      Ss+ 14:35  0:00 -bash
polkitd  941  0.0  0.0 308160 7552 ?      Ssl 14:52  0:00 /usr/lib/polkit-1/polkitd --no-debug
root    2720  0.0  0.0 3128 904 ?       Ss 15:16  0:00 /init
root    2721  0.0  0.0 3144 1292 ?       S 15:16  0:00 /init
krupa_b+ 2724  0.0  0.0 6072 5248 pts/2      Ss 15:16  0:00 -bash
krupa_b+ 2753  0.0  0.0 8280 4224 pts/2      R+ 15:19  0:00 ps aux
krupa_bawane@LAPTOP-AI4VE3LU:~$ ps aux | grep firefox
krupa_b+ 2759  0.0  0.0 4088 2048 pts/2      S+ 15:20  0:00 grep --color=auto firefox
krupa_bawane@LAPTOP-AI4VE3LU:~$ kill 2759
-bash: kill: (2759) - No such process
krupa_bawane@LAPTOP-AI4VE3LU:~$ kill PID
-bash: kill: PID: arguments must be process or job IDs
krupa_bawane@LAPTOP-AI4VE3LU:~$ kill 2724
krupa_bawane@LAPTOP-AI4VE3LU:~$ pkill firefox
krupa_bawane@LAPTOP-AI4VE3LU:~$ nano orphan.c
krupa_bawane@LAPTOP-AI4VE3LU:~$ gcc orphan.c -o orphan
krupa_bawane@LAPTOP-AI4VE3LU:~$ ./orphan
Parent existing...
krupa_bawane@LAPTOP-AI4VE3LU:~$ Child is now an Orphan Process. PID:2775
|

```

Zombie Process:

```

GNU nano 7.2                                     zombie.c
#include <stdio.h>
#include <unistd.h>
#include <stdlib.h>
int main(){
int pid = fork();
if(pid==0){
printf("Parent sleeping... Look for Zombie now!\n");
sleep(30);
}
else{
printf("Child dying...\n");
exit(0);
}
return 0;
}

2759  0.0  0.0 4088 2048 pts/2      S+ 15:20  0:00 grep --color=auto zombie.c
krupa_bawane@LAPTOP-AI4VE3LU:~$ kill 2759
-bash: kill: (2759) - No such process
krupa_bawane@LAPTOP-AI4VE3LU:~$ kill PID
-bash: kill: PID: arguments must be process or job IDs
krupa_bawane@LAPTOP-AI4VE3LU:~$ kill 2724
krupa_bawane@LAPTOP-AI4VE3LU:~$ pkill zombie.c
krupa_bawane@LAPTOP-AI4VE3LU:~$ nano zombie.c
krupa_bawane@LAPTOP-AI4VE3LU:~$ gcc zombie.c -o zombie
krupa_bawane@LAPTOP-AI4VE3LU:~$ ./zombie
Parent sleeping... Look for Zombie now!
[ Read 15 lines ]
^G Help          ^O Write Out      ^W Where Is      ^K Cut          ^T Execute      ^C Location      M-U Undo      M-A Set Mark      M-[ To Bracket
^X Exit          ^R Read File      ^\ Replace      ^U Paste         ^J Justify      ^/ Go To Line    M-E Redo      M-6 Copy       ^Q Where Was

```

```

krupa_bawane@LAPTOP-AI4V: ~ + %
root      169  0.0  0.0  4236  2432 ?      Ss  14:31  0:00 /usr/sbin/cron -f -P
message+  170  0.0  0.0  9660  4864 ?      Ss  14:31  0:00 @dbus-daemon --system --address=systemd: --nofork --nopidfile --systemd-activation --sysl
root      183  0.0  0.1  17964  8326 ?      Ss  14:31  0:00 /usr/lib/systemd/systemd-logind
root      185  0.0  0.1  1755840  12416 ?      Ssl 14:31  0:00 /usr/libexec/wsl-pro-service -vv
syslog    284  0.0  0.0  22508  5504 ?      Ss  14:31  0:00 /usr/sbin/rsyslogd -n -NONE
root      286  0.0  0.0  3160  1920 hvc0     Ss+ 14:31  0:00 /sbin/agetty -o -p -- \u -noclear --keep-baud - 115200,38400,9600 vt220
root      289  0.0  0.0  3116  1792 ttysl    Ss  14:31  0:00 /sbin/agetty -o -p -- \u -noclear - linux
root      224  0.0  0.2  107008  21888 ?      Ssl 14:31  0:00 /usr/bin/python3 /usr/share/unattended-upgrades/unattended-upgrade-shutdown --wait-for-si
root      307  0.0  0.0  6692  4224 pts/1    Ss  14:31  0:00 /bin/login -f
krupa_b+  352  0.0  0.1  20308  11008 ?      Ss  14:31  0:00 /usr/lib/systemd/systemd --user
krupa_b+  354  0.0  0.0  21152  3516 ?      S   14:31  0:00 (sd-pam)
krupa_b+  411  0.0  0.0  6072  4992 pts/1    S+  14:31  0:00 /bash
root      503  0.0  0.0  3128  904 ?       Ss  14:35  0:00 /init
root      504  0.0  0.0  3144  1164 ?       Ss  14:35  0:00 /init
krupa_b+  505  0.0  0.0  6072  5248 pts/0    Ss+ 14:35  0:00 /bash
polkitd   941  0.0  0.0  308168  7552 ?      Ssl 14:52  0:00 /usr/lib/polkit-1/polkitd --no-debug
root      2720  0.0  0.0  3128  904 ?       Ss  15:16  0:00 /init
root      2721  0.0  0.0  3144  1292 ?       Ss  15:16  0:00 /init
krupa_b+  2724  0.0  0.0  6072  5248 pts/2    Ss  15:16  0:00 /bash
krupa_b+  2753  0.0  0.0  8280  4224 pts/2    R+  15:19  0:00 ps aux
krupa_bawane@LAPTOP-AI4VE3LU:~$ ps aux | grep firefox
krupa_bawane@LAPTOP-AI4VE3LU:~$ kill 2759
krupa_bawane@LAPTOP-AI4VE3LU:~$ kill PID
-bash: kill: (2759) - No such process
krupa_bawane@LAPTOP-AI4VE3LU:~$ kill PID
-bash: kill: PID: arguments must be process or job IDs
krupa_bawane@LAPTOP-AI4VE3LU:~$ kill 2721
krupa_bawane@LAPTOP-AI4VE3LU:~$ pkill firefox
krupa_bawane@LAPTOP-AI4VE3LU:~$ nano orphan.c
krupa_bawane@LAPTOP-AI4VE3LU:~$ gcc orphan.c -o orphan
krupa_bawane@LAPTOP-AI4VE3LU:~$ ./orphan
Parent existing...
krupa_bawane@LAPTOP-AI4VE3LU:~$ Child is now an Orphan Process. PID:2775
krupa_bawane@LAPTOP-AI4VE3LU:~$ nano zombie.c
krupa_bawane@LAPTOP-AI4VE3LU:~$ nano zombie.c
krupa_bawane@LAPTOP-AI4VE3LU:~$ gcc zombie.c -o zombie
krupa_bawane@LAPTOP-AI4VE3LU:~$ ./zombie &
[1] 2792
krupa_bawane@LAPTOP-AI4VE3LU:~$ Child process existing...
|
```

```

krupa_bawane@LAPTOP-AI4V: ~ + %
[1]+ Done                  ./zombie
krupa_bawane@LAPTOP-AI4VE3LU:~$ ps - | grep Z
error: garbage option

Usage:
ps [options]

Try 'ps --help <simple|list|output|threads|misc|all>'
or 'ps --help <|-l|-o|-t|-a>'
for additional help text.

For more details see ps(1).
krupa_bawane@LAPTOP-AI4VE3LU:~$ nano zombie.c
krupa_bawane@LAPTOP-AI4VE3LU:~$ gcc zombie.c -o zombie
krupa_bawane@LAPTOP-AI4VE3LU:~$ ./zombie &
[1] 2809
krupa_bawane@LAPTOP-AI4VE3LU:~$ Parent sleeping... Look for Zombie now!
Child dying...
ps - | grep Z
error: garbage option

Usage:
ps [options]

Try 'ps --help <simple|list|output|threads|misc|all>'
or 'ps --help <|-l|-o|-t|-a>'
for additional help text.

For more details see ps(1).
krupa_bawane@LAPTOP-AI4VE3LU:~$ ps -el | grep Z
F S  UID      PID      PPID     C PRI  NI ADDR SZ WCHAN TTY          TIME CMD
[1]+ Done                  ./zombie
krupa_bawane@LAPTOP-AI4VE3LU:~$ ./zombie &
[1] 2821
krupa_bawane@LAPTOP-AI4VE3LU:~$ Parent sleeping... Look for Zombie now!
Child dying...
ps -el | grep Z
F S  UID      PID      PPID     C PRI  NI ADDR SZ WCHAN TTY          TIME CMD
1 Z  1000  2822  2821  0  80  0 -      0 -      pts/2    00:00:00 zombie
krupa_bawane@LAPTOP-AI4VE3LU:~|
```



Using fork() system:

Child Process creation

Parent process creation

PPID AND PID

The screenshot shows a terminal window titled "GNU nano 7.2" with the file "zombie.c" open. The code implements a simple fork-based zombie process. It includes headers for stdio.h, unistd.h, and stdlib.h. In the main function, it creates a child process using fork(). If the process ID (pid) is 0, it sleeps for 30 seconds and then prints "Parent sleeping... Look for Zombie now!". Otherwise, it prints "Child dying..." and exits. The terminal window also displays various keyboard shortcuts for the nano editor.

```
#include <stdio.h>
#include <unistd.h>
#include <stdlib.h>
int main()
{
    pid_t pid = fork();
    if(pid==0){
        printf("Parent sleeping... Look for Zombie now!\n");
        sleep(30);
    }
    else{
        printf("Child dying...\n");
        exit(0);
    }
    return 0;
}
```

The screenshot shows a terminal window with the command "ps(1)" output. It details the execution of the "zombie" program. The user runs "gcc zombie.c -o zombie", then "./zombie &". The process ID is 289. The user then runs "ps - | grep Z" to find the zombie process. The output shows a process with PID 289 and PPID 2836, both labeled as "zombie". The user then runs "ps -el | grep Z" to get more detailed information, showing the same process with additional columns: F S, UID, PID, PRI, NI, ADDR, SZ, WCHAN, TTY, TIME, and CMD. The user then runs "nano zombie.c" and "./zombie" again. The terminal then displays a series of "Parent Process" and "Child Process" messages, indicating the creation of a child process with PID 2837 from Parent PID 2836. Finally, the user runs "gcc fork.c -o fork" and "./fork", which creates a child process with PID 2837 from Parent PID 2836.

```
For more details see ps(1).
krupa_bawane@LAPTOP-AI4VE3LU:~$ nano zombie.c
krupa_bawane@LAPTOP-AI4VE3LU:~$ gcc zombie.c -o zombie
krupa_bawane@LAPTOP-AI4VE3LU:~$ ./zombie &
[1] 289
krupa_bawane@LAPTOP-AI4VE3LU:~$ Parent sleeping... Look for Zombie now!
Child dying...
ps - | grep Z
error: garbage option

Usage:
ps [options]

Try 'ps --help <simple|list|output|threads|misc|all>'
or 'ps --help <[l|o|t|m|a>' for additional help text.

For more details see ps(1).
krupa_bawane@LAPTOP-AI4VE3LU:~$ ps -el | grep Z
F S  UID     PID   PPID  C PRI  NI ADDR SZ WCHAN  TTY          TIME CMD
[1]+  Done      ./zombie
krupa_bawane@LAPTOP-AI4VE3LU:~$ ./zombie &
[1] 2821
krupa_bawane@LAPTOP-AI4VE3LU:~$ Parent sleeping... Look for Zombie now!
Child dying...
ps -el | grep Z
F S  UID     PID   PPID  C PRI  NI ADDR SZ WCHAN  TTY          TIME CMD
1 Z  1600  2822  2821  0  80  0 -  0 -      pts/2    00:00:00 zombie
krupa_bawane@LAPTOP-AI4VE3LU:~$ nano fork.c
[1]+  Done      ./zombie
krupa_bawane@LAPTOP-AI4VE3LU:~$ gcc fork.c -o fork
krupa_bawane@LAPTOP-AI4VE3LU:~$ ./fork
Parent Process
Parent PID:2836
Child Process
Child PID:2837
Parent PID:2837
krupa_bawane@LAPTOP-AI4VE3LU:~$ nano fork.c
krupa_bawane@LAPTOP-AI4VE3LU:~$ nano orphan.c
krupa_bawane@LAPTOP-AI4VE3LU:~$ nano zombie.c
krupa_bawane@LAPTOP-AI4VE3LU:~$ |
```