

Feb 4 4:19 PM

m309@m309-BY-OEM: ~

```

m309      3356  0.0  0.5 843752 41816 ?        Ssl  15:35   0:00 /usr/libexec/xdg-deskto
m309      3372  0.0  0.3 417220 25284 ?        Ssl  15:35   0:00 /usr/libexec/xdg-deskto
m309      3379  0.2  0.8 2946740 66772 ?        Sl   15:35   0:00 gjs /usr/share/gnome-sh
m309      3408  0.0  0.1  39136 11940 ?        Ss   15:35   0:00 /snap/snapd-desktop-int
m309      3492  0.0  0.3 429628 30988 ?        Sl   15:35   0:00 /snap/snapd-desktop-int
m309      3508  0.0  0.0 236304  6588 ?        Ssl  15:35   0:00 /usr/libexec/gvfsd-meta
root      3611  0.0  0.0      0      0 ?        I    15:35   0:00 [kworker/1:4]
m309      3819  0.0  0.3 568156 30992 ?        Sl   15:36   0:00 /usr/bin/update-notifie
m309      4620  0.2  0.2  31900 19168 ?        S    15:39   0:00 /usr/bin/python3 /usr/b
m309      4623  0.5  0.3 458392 28012 ?        Sl   15:39   0:00 /usr/bin/gnome-terminal
m309      4629  2.8  0.6 553464 52716 ?        Ssl  15:39   0:00 /usr/libexec/gnome-term
m309      4639  0.0  0.0  11024  5272 pts/0    Ss   15:39   0:00 bash
root      4692  1.3  0.0  17280  7472 ?        Ss   15:39   0:00 /usr/lib/systemd/system
root      4695  2.7  0.0   2892  1716 ?        Ss   15:39   0:00 /bin/sh /snap/cups/1142
root      4747  0.0  0.0   3212  1992 ?        S    15:39   0:00 sleep 1
m309      4748 100  0.0  14972  5500 pts/0    R+   15:39   0:00 ps -aux

```

```
m309@m309-BY-OEM:~$ pkill firefox
```

```
m309@m309-BY-OEM:~$ killall firefox
```

```
firefox: no process found
```

```
m309@m309-BY-OEM:~$ ps -aux | grep firefox
```

```
m309      4982  0.0  0.0   9144  2268 pts/0    S+   15:40   0:00 grep --color=auto firefox
```

```
m309@m309-BY-OEM:~$ kill 2345
```

```
bash: kill: (2345) - No such process
```

```
m309@m309-BY-OEM:~$ kill -9 2345
```

```
bash: kill: (2345) - No such process
```

```
m309@m309-BY-OEM:~$ nano orphan.c
```

```
m309@m309-BY-OEM:~$ gcc orphan.c -o orphan
```

```
In function '':
```

```
warning: implicit declaration of function 'getpaid'; did you mean 'getpaid'? [-Wimplicit
```

```
declaration]
```

```
14 | printf("Child Process ID: %d\n",getpaid());
```



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m309@m309-BY-OEM: ~

USER	PID	%CPU	%MEM	VSZ	RSS	TTY	TIME	COMMAND
m309	3286	0.0	0.1	609444	9188	?	Sl 15:35	0:00 /usr/libexec/gvfsd-tras
m309	3319	0.0	0.2	734480	23544	?	SNsl 15:35	0:00 /usr/libexec/tracker-mi
m309	3340	0.0	0.3	2588956	27020	?	Sl 15:35	0:00 /usr/bin/gjs -m /usr/sh
m309	3351	0.0	0.1	701624	14444	?	Ssl 15:35	0:00 /usr/libexec/xdg-deskto
m309	3356	0.0	0.5	843752	41816	?	Ssl 15:35	0:00 /usr/libexec/xdg-deskto
m309	3372	0.0	0.3	417220	25284	?	Ssl 15:35	0:00 /usr/libexec/xdg-deskto
m309	3379	0.2	0.8	2946740	66772	?	Sl 15:35	0:00 gjs /usr/share/gnome-sh
m309	3408	0.0	0.1	39136	11940	?	Ss 15:35	0:00 /snap/snapd-desktop-int
m309	3492	0.0	0.3	429628	30988	?	Sl 15:35	0:00 /snap/snapd-desktop-int
m309	3508	0.0	0.0	236304	6588	?	Ssl 15:35	0:00 /usr/libexec/gvfsd-meta
root	3611	0.0	0.0	0	0	?	I 15:35	0:00 [kworker/1:4]
m309	3819	0.0	0.3	568156	30992	?	Sl 15:36	0:00 /usr/bin/update-notifie
m309	4620	0.2	0.2	31900	19168	?	S 15:39	0:00 /usr/bin/python3 /usr/b
m309	4623	0.5	0.3	458392	28012	?	Sl 15:39	0:00 /usr/bin/gnome-terminal
m309	4629	2.8	0.6	553464	52716	?	Ssl 15:39	0:00 /usr/libexec/gnome-term
m309	4639	0.0	0.0	11024	5272	pts/0	Ss 15:39	0:00 bash
root	4692	1.3	0.0	17280	7472	?	Ss 15:39	0:00 /usr/lib/systemd/system
root	4695	2.7	0.0	2892	1716	?	Ss 15:39	0:00 /bin/sh /snap/cups/1142
root	4747	0.0	0.0	3212	1992	?	S 15:39	0:00 sleep 1
m309	4748	100	0.0	14972	5500	pts/0	R+ 15:39	0:00 ps -aux

m309@m309-BY-OEM:~\$ pkill firefox

m309@m309-BY-OEM:~\$ killall firefox

firefox: no process found

m309@m309-BY-OEM:~\$ ps -aux | grep firefox

USER	PID	%CPU	%MEM	VSZ	RSS	TTY	TIME	COMMAND
m309	4982	0.0	0.0	9144	2268	pts/0	S+ 15:40	0:00 grep --color=auto firefox

m309@m309-BY-OEM:~\$ kill 2345

bash: kill: (2345) - No such process

m309@m309-BY-OEM:~\$ kill -9 2345

bash: kill: (2345) - No such process

m309@m309-BY-OEM:~\$ nano orphan.c

m309@m309-BY-OEM:~\$

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m309@m309-BY-OEM: ~

root	51	0.0	0.0	0	0 ?	SN	15:34	0:00	[ksmd]
root	52	0.0	0.0	0	0 ?	SN	15:34	0:00	[khugepaged]
root	53	0.0	0.0	0	0 ?	I<	15:34	0:00	[kworker/R-kintegrityd]
root	54	0.0	0.0	0	0 ?	I<	15:34	0:00	[kworker/R-kblockd]
root	55	0.0	0.0	0	0 ?	I<	15:34	0:00	[kworker/R-blkcg_punt_b
root	56	0.0	0.0	0	0 ?	I	15:34	0:00	[kworker/1:1-cgroup_des
root	57	0.0	0.0	0	0 ?	S	15:34	0:00	[irq/9-acpi]
root	58	0.0	0.0	0	0 ?	I	15:34	0:00	[kworker/2:1-cgroup_des
root	59	0.0	0.0	0	0 ?	I<	15:34	0:00	[kworker/R-tpm_dev_wq]
root	60	0.0	0.0	0	0 ?	I<	15:34	0:00	[kworker/R-ata_sff]
root	61	0.0	0.0	0	0 ?	I<	15:34	0:00	[kworker/R-md]
root	62	0.0	0.0	0	0 ?	I<	15:34	0:00	[kworker/R-md_bitmap]
root	63	0.0	0.0	0	0 ?	I<	15:34	0:00	[kworker/R-edac-poller]
root	64	0.0	0.0	0	0 ?	I<	15:34	0:00	[kworker/R-devfreq_wq]
root	65	0.0	0.0	0	0 ?	S	15:34	0:00	[watchdogd]
root	66	0.0	0.0	0	0 ?	I<	15:34	0:00	[kworker/1:1H-kblockd]
root	67	0.0	0.0	0	0 ?	S	15:34	0:00	[kswapd0]
root	68	0.0	0.0	0	0 ?	S	15:34	0:00	[ecryptfs-kthread]
root	69	0.0	0.0	0	0 ?	I<	15:34	0:00	[kworker/R-kthrotld]
root	70	0.0	0.0	0	0 ?	S	15:34	0:00	[irq/121-aerdrv]
root	71	0.0	0.0	0	0 ?	I<	15:34	0:00	[kworker/R-acpi_thermal
root	72	0.0	0.0	0	0 ?	I<	15:34	0:00	[kworker/R-mld]
root	73	0.0	0.0	0	0 ?	I<	15:34	0:00	[kworker/R-ipv6_addrcon
root	75	0.0	0.0	0	0 ?	I	15:34	0:00	[kworker/u16:3-loop7]
root	81	0.0	0.0	0	0 ?	I<	15:34	0:00	[kworker/R-kstrp]
root	82	0.0	0.0	0	0 ?	I	15:34	0:00	[kworker/3:1-events]
root	84	0.0	0.0	0	0 ?	D<	15:34	0:00	[kworker/u17:0+i915_fli
root	97	0.0	0.0	0	0 ?	I<	15:34	0:00	[kworker/R-charger_mana
root	98	0.0	0.0	0	0 ?	I<	15:34	0:00	[kworker/0:1H-kblockd]
root	99	0.0	0.0	0	0 ?	I	15:34	0:00	[kworker/2:2-i915-unord
root	122	0.0	0.0	0	0 ?	I<	15:34	0:00	[kworker/3:1H-kblockd]

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m309@m309-BY-OEM: ~

```
m309 3286 0.0 0.1 609444 9188 ? Sl 15:35 0:00 /usr/libexec/gvfsd-tras
m309 3319 0.0 0.2 734480 23544 ? Sssl 15:35 0:00 /usr/libexec/tracker-mi
m309 3340 0.0 0.3 2588956 27020 ? Sl 15:35 0:00 /usr/bin/gjs -m /usr/sh
m309 3351 0.0 0.1 701624 14444 ? Sssl 15:35 0:00 /usr/libexec/xdg-deskto
m309 3356 0.0 0.5 843752 41816 ? Sssl 15:35 0:00 /usr/libexec/xdg-deskto
m309 3372 0.0 0.3 417220 25284 ? Sssl 15:35 0:00 /usr/libexec/xdg-deskto
m309 3379 0.2 0.8 2946740 66772 ? Sl 15:35 0:00 gjs /usr/share/gnome-sh
m309 3408 0.0 0.1 39136 11940 ? Ss 15:35 0:00 /snap/snapd-desktop-int
m309 3492 0.0 0.3 429628 30988 ? Sl 15:35 0:00 /snap/snapd-desktop-int
m309 3508 0.0 0.0 236304 6588 ? Sssl 15:35 0:00 /usr/libexec/gvfsd-meta
root 3611 0.0 0.0 0 0 ? I 15:35 0:00 [kworker/1:4]
m309 3819 0.0 0.3 568156 30992 ? Sl 15:36 0:00 /usr/bin/update-notifie
m309 4620 0.2 0.2 31900 19168 ? S 15:39 0:00 /usr/bin/python3 /usr/b
m309 4623 0.5 0.3 458392 28012 ? Sl 15:39 0:00 /usr/bin/gnome-terminal
m309 4629 2.8 0.6 553464 52716 ? Sssl 15:39 0:00 /usr/libexec/gnome-term
m309 4639 0.0 0.0 11024 5272 pts/0 Ss 15:39 0:00 bash
root 4692 1.3 0.0 17280 7472 ? Ss 15:39 0:00 /usr/lib/systemd/system
root 4695 2.7 0.0 2892 1716 ? Ss 15:39 0:00 /bin/sh /snap/cups/1142
root 4747 0.0 0.0 3212 1992 ? S 15:39 0:00 sleep 1
m309 4748 100 0.0 14972 5500 pts/0 R+ 15:39 0:00 ps -aux
m309@m309-BY-OEM:~$ pkill firefox
m309@m309-BY-OEM:~$ killall firefox
firefox: no process found
m309@m309-BY-OEM:~$ ps -aux | grep firefox
m309 4982 0.0 0.0 9144 2268 pts/0 S+ 15:40 0:00 grep --color=auto firefox
m309@m309-BY-OEM:~$ kill 2345
bash: kill: (2345) - No such process
m309@m309-BY-OEM:~$ kill -9 2345
bash: kill: (2345) - No such process
m309@m309-BY-OEM:~$ nano orphan.c
m309@m309-BY-OEM:~$
```



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m309@m309-BY-OEM: ~

Q ≡ - □ ×

```

m309      4629  2.8  0.6 553464 52716 ?      Ssl  15:39   0:00 /usr/libexec/gnome-term
m309      4639  0.0  0.0 11024  5272 pts/0    Ss   15:39   0:00 bash
root      4692  1.3  0.0 17280  7472 ?      Ss   15:39   0:00 /usr/lib/systemd/system
root      4695  2.7  0.0  2892  1716 ?      Ss   15:39   0:00 /bin/sh /snap/cups/1142
root      4747  0.0  0.0  3212  1992 ?      S    15:39   0:00 sleep 1
m309      4748 100  0.0 14972 5500 pts/0    R+   15:39   0:00 ps -aux

```

```
m309@m309-BY-OEM:~$ pkill firefox
```

```
m309@m309-BY-OEM:~$ killall firefox
```

```
firefox: no process found
```

```
m309@m309-BY-OEM:~$ ps -aux | grep firefox
```

```
m309      4982  0.0  0.0  9144 2268 pts/0    S+   15:40   0:00 grep --color=auto firefox
```

```
m309@m309-BY-OEM:~$ kill 2345
```

```
bash: kill: (2345) - No such process
```

```
m309@m309-BY-OEM:~$ kill -9 2345
```

```
bash: kill: (2345) - No such process
```

```
m309@m309-BY-OEM:~$ nano orphan.c
```

```
m309@m309-BY-OEM:~$ gcc orphan.c -o orphan
```

```
In function '':
```

```
warning: implicit declaration of function 'getpaid'; did you mean 'getpid' [-Wimplicit]
```

```
cit-function-declaration]
```

```
14 | printf("Child Process ID: %d\n",getpaid());
```

```
getpid
```

```
/usr/bin/ld: /tmp/cc3sMs59.o: in function 'main':
```

```
orphan.c:(.text+0x47): undefined reference to 'getpaid'
```

```
/usr/bin/ld: orphan.c:(.text+0x67): undefined reference to 'getpaid'
```

```
collect2: error: ld returned 1 exit status
```

```
m309@m309-BY-OEM:~$ ./orphan
```

```
bash: ./orphan: No such file or directory
```

```
m309@m309-BY-OEM:~$ nano zombie.c
```

```
m309@m309-BY-OEM:~$
```



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m309@m309-BY-OEM: ~

GNU nano 7.2

fork.c *

```
#include<stdio.h>
#include<unistd.h>

int main()
{
    int pid = fork();

    if(pid == 0)
    {
        printf("Child Process\n");
        printf("PID: %d\n", getpid());
        printf("PPID: %d\n", getpid());
    }
    else
    {
        printf("Parent Process\n");
        printf("PID: %d\n", getpid());
    }
    return 0;
}
```

^G Help
^X Exit

^O Write Out
^R Read File

^W Where Is
^_ Replace

^K Cut
^U Paste

^T Execute
^J Justify

^C Location
^_ Go To Line

M-U Undo
M-E Redo



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m309@m309-BY-OEM: ~

```
bash: kill: (2345) - No such process
m309@m309-BY-OEM:~$ nano orphan.c
m309@m309-BY-OEM:~$ gcc orphan.c -o orphan
warning: implicit declaration of function 'getpaid'; did you mean 'getpid' [-Wimplicit-function-declaration]
14 |         printf("Child Process ID: %d\n",getpaid());
    |                                         ^~~~~~
    |                                         getpid
/usr/bin/ld: /tmp/cc3sMs59.o: in function 'main':
orphan.c:(.text+0x47): undefined reference to 'getpaid'
/usr/bin/ld: orphan.c:(.text+0x67): undefined reference to 'getpaid'
collect2: error: ld returned 1 exit status
m309@m309-BY-OEM:~$ ./orphan
bash: ./orphan: No such file or directory
m309@m309-BY-OEM:~$ nano zombie.c
m309@m309-BY-OEM:~$ gcc zombie.c -o zombie
m309@m309-BY-OEM:~$ ./zombie
Child Exit
m309@m309-BY-OEM:~$ ps -aux | grep Z
USER      PID %CPU %MEM    VSZ   RSS TTY      STAT START   TIME COMMAND
m309      11583  0.0  0.0   9144  2272 pts/0    S+   16:09   0:00 grep --color=auto Z
m309@m309-BY-OEM:~$ nano fork.c
m309@m309-BY-OEM:~$ gcc fork.c -o fork
m309@m309-BY-OEM:~$ ./fork
Child Process
PID: 13291
PPID: 13291
Parent Process
PID: 13290
m309@m309-BY-OEM:~$
```

Feb 4 4:16 PM

m309@m309-BY-OEM: ~

GNU nano 7.2

fork.c *

```
#include<stdio.h>
#include<unistd.h>

int main()
{
    int pid = fork();

    if(pid == 0)
    {
        printf("Child Process\n");
        printf("PID: %d\n", getpid());
        printf("PPID: %d\n", getpid());
    }
    else
    {
        printf("Parent Process\n");
        printf("PID: %d\n", getpid());
    }
    return 0;
}
```

^O Help
^X Exit

^O Write Out
^R Read File

^W Where Is
^R Replace

^K Cut
^U Paste

^T Execute
^J Justify

^C Location
^_ Go To Line

^M ^U Undo
^M ^R Redo



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m309@m309-BY-OEM: ~

m309@m309-BY-OEM:~\$ ps -aux

USER	PID	%CPU	%MEM	VSZ	RSS	TTY	STAT	START	TIME	COMMAND
root	1	0.5	0.1	23652	14748	?	Ss	15:34	0:01	/sbin/init splash
root	2	0.0	0.0	0	0	?	S	15:34	0:00	[kthreadd]
root	3	0.0	0.0	0	0	?	S	15:34	0:00	[pool_workqueue_release
root	4	0.0	0.0	0	0	?	I<	15:34	0:00	[kworker/R-rcu_gp]
root	5	0.0	0.0	0	0	?	I<	15:34	0:00	[kworker/R-sync_wq]
root	6	0.0	0.0	0	0	?	I<	15:34	0:00	[kworker/R-kvfree_rcu_r
root	7	0.0	0.0	0	0	?	I<	15:34	0:00	[kworker/R-slub_flushwq
root	8	0.0	0.0	0	0	?	I<	15:34	0:00	[kworker/R-netns]
root	9	0.0	0.0	0	0	?	I	15:34	0:00	[kworker/0:0-rcu_gp]
root	10	0.0	0.0	0	0	?	I<	15:34	0:00	[kworker/0:0H-events_hi
root	11	0.0	0.0	0	0	?	I	15:34	0:00	[kworker/0:1-cgroup_des
root	12	0.0	0.0	0	0	?	I	15:34	0:00	[kworker/u16:0-loop11]
root	13	0.0	0.0	0	0	?	I<	15:34	0:00	[kworker/R-mm_percpu_wq
root	14	0.0	0.0	0	0	?	I	15:34	0:00	[rcu_tasks_kthread]
root	15	0.0	0.0	0	0	?	I	15:34	0:00	[rcu_tasks_rude_kthread
root	16	0.0	0.0	0	0	?	I	15:34	0:00	[rcu_tasks_trace_kthrea
root	17	0.0	0.0	0	0	?	S	15:34	0:00	[ksoftirqd/0]
root	18	0.0	0.0	0	0	?	I	15:34	0:00	[rcu_preempt]
root	19	0.0	0.0	0	0	?	S	15:34	0:00	[rcu_exp_par_gp_kthread
root	20	0.0	0.0	0	0	?	S	15:34	0:00	[rcu_exp_gp_kthread_wor
root	21	0.0	0.0	0	0	?	S	15:34	0:00	[migration/0]
root	22	0.0	0.0	0	0	?	S	15:34	0:00	[idle_inject/0]
root	23	0.0	0.0	0	0	?	S	15:34	0:00	[cpuhp/0]
root	24	0.0	0.0	0	0	?	S	15:34	0:00	[cpuhp/1]
root	25	0.0	0.0	0	0	?	S	15:34	0:00	[idle_inject/1]
root	26	0.0	0.0	0	0	?	S	15:34	0:00	[migration/1]
root	27	0.0	0.0	0	0	?	S	15:34	0:00	[ksoftirqd/1]
root	28	0.0	0.0	0	0	?	I	15:34	0:00	[kworker/1:0-events]
root	29	0.0	0.0	0	0	?	I<	15:34	0:00	[kworker/1:0H-events_hi

```

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m309@m309-BY-OEM: ~
m309      4623  0.5  0.3  458392 28012 ?      Sl   15:39   0:00 /usr/bin/gnome-terminal
m309      4629  2.8  0.6  553464 52716 ?      Ssl  15:39   0:00 /usr/libexec/gnome-term
m309      4639  0.0  0.0   11024  5272 pts/0   Ss   15:39   0:00 bash
root      4692  1.3  0.0   17280  7472 ?      Ss   15:39   0:00 /usr/lib/systemd/system
root      4695  2.7  0.0    2892  1716 ?      Ss   15:39   0:00 /bin/sh /snap/cups/1142
root      4747  0.0  0.0    3212  1992 ?      S    15:39   0:00 sleep 1
m309      4748 100  0.0   14972 5500 pts/0   R+   15:39   0:00 ps -aux
m309@m309-BY-OEM:~$ pkill firefox
m309@m309-BY-OEM:~$ killall firefox
firefox: no process found
m309@m309-BY-OEM:~$ ps -aux | grep firefox
m309      4982  0.0  0.0    9144  2268 pts/0   S+   15:40   0:00 grep --color=auto firefox
m309@m309-BY-OEM:~$ kill 2345
bash: kill: (2345) - No such process
m309@m309-BY-OEM:~$ kill -9 2345
bash: kill: (2345) - No such process
m309@m309-BY-OEM:~$ nano orphan.c
m309@m309-BY-OEM:~$ gcc orphan.c -o orphan
In function '':
warning: implicit declaration of function 'getpaid'; did you mean 'getpgid'? [-Wimplicit-function-declaration]
14 | printf("Child Process ID: %d\n",getpaid());
    |                                ^~~~~~
    |                                getpgid
/usr/bin/ld: /tmp/cc3sMs59.o: in function 'main':
orphan.c:(.text+0x47): undefined reference to 'getpaid'
/usr/bin/ld: orphan.c:(.text+0x67): undefined reference to 'getpaid'
collect2: error: ld returned 1 exit status
m309@m309-BY-OEM:~$ ./orphan
bash: ./orphan: No such file or directory
m309@m309-BY-OEM:~$

```