1/09/2022

Kamal Gurung

CSCI-340 (WINTER)

Prof. Dr. Simina Fluture.

Zombie snapshots

Before the execution of zombie process,

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top - 21:49:15 up 145 days, 11:36, 22 users,  load average: 2.02, 2.02, 2.00
Tasks: 1214 total,   3 running, 1209 sleeping,   2 stopped,   0 zombie
%Cpu(s):  1.2 us,  1.8 sy,  0.0 ni, 97.0 id,  0.0 wa,  0.0 hi,  0.0 si,  0.0 st
MiB Mem : 515176.3 total, 190926.2 free,  13363.1 used, 310887.0 buff/cache
MiB Swap:   4096.0 total,   4067.1 free,     28.9 used. 494906.5 avail Mem

    PID USER      PR  NI    VIRT    RES    SHR S  %CPU  %MEM     TIME+ COMMAND
 916954 gadi8984  20   0    8640   1164   1052 R 100.0   0.0  45373:21 out.exe
1472830 shmu7349  20   0   35816   8024   5220 R 100.0   0.0  72102:05 vim
 167008 guka4106  20   0   55564   5796   3684 R   5.9   0.0   0:00.02 top
      1 root      20   0  240756  13464   8364 S   0.0   0.0  33:49.27 systemd
      2 root      20   0       0      0      0 S   0.0   0.0   0:22.38 kthreadd
      3 root       0 -20       0      0      0 I   0.0   0.0   0:00.00 rcu_gp
      4 root       0 -20       0      0      0 I   0.0   0.0   0:00.00 rcu_par_gp
      6 root       0 -20       0      0      0 I   0.0   0.0   0:00.00 kworker/0:0H-events_highpri
     10 root       0 -20       0      0      0 I   0.0   0.0   0:00.00 mm_percpu_wq
     11 root      20   0       0      0      0 S   0.0   0.0   0:00.00 rcu_tasks_rude_
     12 root      20   0       0      0      0 S   0.0   0.0   0:00.00 rcu_tasks_trace
     13 root      20   0       0      0      0 S   0.0   0.0   0:22.32 ksoftirqd/0
     14 root      20   0       0      0      0 I   0.0   0.0  58:33.86 rcu_sched
     15 root      rt   0       0      0      0 S   0.0   0.0   0:00.26 migration/0
     16 root      rt   0       0      0      0 S   0.0   0.0   0:02.32 watchdog/0
     17 root      20   0       0      0      0 S   0.0   0.0   0:00.00 cpuhp/0
     18 root      20   0       0      0      0 S   0.0   0.0   0:00.00 cpuhp/1
     19 root      rt   0       0      0      0 S   0.0   0.0   0:05.28 watchdog/1
     20 root      rt   0       0      0      0 S   0.0   0.0   0:00.37 migration/1
     21 root      20   0       0      0      0 S   0.0   0.0   0:15.39 ksoftirqd/1
     23 root       0 -20       0      0      0 I   0.0   0.0   0:00.00 kworker/1:0H-events_highpri
     25 root      20   0       0      0      0 S   0.0   0.0   0:00.00 cpuhp/2
     26 root      rt   0       0      0      0 S   0.0   0.0   0:04.81 watchdog/2
     27 root      rt   0       0      0      0 S   0.0   0.0   0:00.26 migration/2
     28 root      20   0       0      0      0 S   0.0   0.0   0:09.81 ksoftirqd/2
     30 root       0 -20       0      0      0 I   0.0   0.0   0:00.00 kworker/2:0H-events_highpri
     31 root      20   0       0      0      0 S   0.0   0.0   0:00.00 cpuhp/3
     32 root      rt   0       0      0      0 S   0.0   0.0   0:06.62 watchdog/3
     33 root      rt   0       0      0      0 S   0.0   0.0   0:00.53 migration/3
     34 root      20   0       0      0      0 S   0.0   0.0   0:10.65 ksoftirqd/3
     36 root       0 -20       0      0      0 I   0.0   0.0   0:00.00 kworker/3:0H-events_highpri
     37 root      20   0       0      0      0 S   0.0   0.0   0:00.00 cpuhp/4
     38 root      rt   0       0      0      0 S   0.0   0.0   0:05.79 watchdog/4
     39 root      rt   0       0      0      0 S   0.0   0.0   0:00.18 migration/4
     40 root      20   0       0      0      0 S   0.0   0.0   0:06.74 ksoftirqd/4
     42 root       0 -20       0      0      0 I   0.0   0.0   0:00.00 kworker/4:0H-events_highpri
     43 root      20   0       0      0      0 S   0.0   0.0   0:00.00 cpuhp/5
     44 root      rt   0       0      0      0 S   0.0   0.0   0:07.37 watchdog/5
     45 root      rt   0       0      0      0 S   0.0   0.0   0:00.34 migration/5
     46 root      20   0       0      0      0 S   0.0   0.0   0:13.74 ksoftirqd/5
     48 root       0 -20       0      0      0 I   0.0   0.0   0:00.00 kworker/5:0H-events_highpri
     49 root      20   0       0      0      0 S   0.0   0.0   0:00.00 cpuhp/6
     50 root      rt   0       0      0      0 S   0.0   0.0   0:05.74 watchdog/6
     51 root      rt   0       0      0      0 S   0.0   0.0   0:00.42 migration/6
     52 root      20   0       0      0      0 S   0.0   0.0   0:05.88 ksoftirqd/6
     54 root       0 -20       0      0      0 I   0.0   0.0   0:00.00 kworker/6:0H-events_highpri
     55 root      20   0       0      0      0 S   0.0   0.0   0:00.00 cpuhp/7
     56 root      rt   0       0      0      0 S   0.0   0.0   0:06.77 watchdog/7
     57 root      rt   0       0      0      0 S   0.0   0.0   0:00.44 migration/7
```

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   44 root       rt   0        0        0       0 S    0.0    0.0    0:07.37 watchdog/5
   45 root       rt   0        0        0       0 S    0.0    0.0    0:00.34 migration/5
   46 root       20   0        0        0       0 S    0.0    0.0    0:13.74 ksoftirqd/5
   48 root        0 -20        0        0       0 I    0.0    0.0    0:00.00 kworker/5:0H-events_highpri
   49 root       20   0        0        0       0 S    0.0    0.0    0:00.00 cpuhp/6
   50 root       rt   0        0        0       0 S    0.0    0.0    0:05.74 watchdog/6
   51 root       rt   0        0        0       0 S    0.0    0.0    0:00.42 migration/6
   52 root       20   0        0        0       0 S    0.0    0.0    0:05.88 ksoftirqd/6
   54 root        0 -20        0        0       0 I    0.0    0.0    0:00.00 kworker/6:0H-events_highpri
   55 root       20   0        0        0       0 S    0.0    0.0    0:00.00 cpuhp/7
[guka4106@venus ~]$ ps
   PID TTY          TIME CMD
 161887 pts/28   00:00:00 tcsh
 166192 pts/28   00:00:00 top
 167009 pts/28   00:00:00 ps
[guka4106@venus ~]$ gcc kamalgurung_zombie.c -o zombie
```

After the execution of zombie process.

```
top - 21:49:52 up 145 days, 11:36, 22 users,  load average: 2.01, 2.01, 2.00
Tasks: 1216 total,   3 running, 1210 sleeping,   2 stopped,   1 zombie
%Cpu(s):  1.1 us,  1.9 sy,  0.0 ni, 97.0 id,  0.0 wa,  0.0 hi,  0.0 si,  0.0 st
MiB Mem : 515176.3 total, 190926.4 free,  13362.6 used, 310887.2 buff/cache
MiB Swap:   4096.0 total,   4067.1 free,     28.9 used. 494906.9 avail Mem

   PID USER      PR  NI    VIRT    RES    SHR S  %CPU  %MEM     TIME+ COMMAND
916954 gadi8984  20   0    8640   1164   1052 R  88.9   0.0  45373:58 out.exe
1472830 shmu7349 20   0   35816   8024   5220 R  88.9   0.0  72102:42 vim
167025 guka4106  20   0   55564   5652   3620 R   5.6   0.0   0:00.02 top
     1 root      20   0  240756  13464   8364 S   0.0   0.0  33:49.27 systemd
     2 root      20   0       0      0      0 S   0.0   0.0   0:22.38 kthreadd
     3 root       0 -20       0      0      0 I   0.0   0.0   0:00.00 rcu_gp
     4 root       0 -20       0      0      0 I   0.0   0.0   0:00.00 rcu_par_gp
     6 root       0 -20       0      0      0 I   0.0   0.0   0:00.00 kworker/0:0H-events_highpri
    10 root       0 -20       0      0      0 I   0.0   0.0   0:00.00 mm_percpu_wq
    11 root      20   0       0      0      0 S   0.0   0.0   0:00.00 rcu_tasks_rude_
    12 root      20   0       0      0      0 S   0.0   0.0   0:00.00 rcu_tasks_trace
    13 root      20   0       0      0      0 S   0.0   0.0   0:22.32 ksoftirqd/0
    14 root      20   0       0      0      0 I   0.0   0.0  58:33.86 rcu_sched
    15 root      rt   0       0      0      0 S   0.0   0.0   0:00.26 migration/0
    16 root      rt   0       0      0      0 S   0.0   0.0   0:02.32 watchdog/0
    17 root      20   0       0      0      0 S   0.0   0.0   0:00.00 cpuhp/0
    18 root      20   0       0      0      0 S   0.0   0.0   0:00.00 cpuhp/1
    19 root      rt   0       0      0      0 S   0.0   0.0   0:05.28 watchdog/1
    20 root      rt   0       0      0      0 S   0.0   0.0   0:00.37 migration/1
    21 root      20   0       0      0      0 S   0.0   0.0   0:15.39 ksoftirqd/1
    23 root       0 -20       0      0      0 I   0.0   0.0   0:00.00 kworker/1:0H-events_highpri
    25 root      20   0       0      0      0 S   0.0   0.0   0:00.00 cpuhp/2
    26 root      rt   0       0      0      0 S   0.0   0.0   0:04.81 watchdog/2
    27 root      rt   0       0      0      0 S   0.0   0.0   0:00.26 migration/2
    28 root      20   0       0      0      0 S   0.0   0.0   0:09.81 ksoftirqd/2
    30 root       0 -20       0      0      0 I   0.0   0.0   0:00.00 kworker/2:0H-events_highpri
    31 root      20   0       0      0      0 S   0.0   0.0   0:00.00 cpuhp/3
    32 root      rt   0       0      0      0 S   0.0   0.0   0:06.62 watchdog/3
    33 root      rt   0       0      0      0 S   0.0   0.0   0:00.53 migration/3
    34 root      20   0       0      0      0 S   0.0   0.0   0:10.65 ksoftirqd/3
    36 root       0 -20       0      0      0 I   0.0   0.0   0:00.00 kworker/3:0H-events_highpri
    37 root      20   0       0      0      0 S   0.0   0.0   0:00.00 cpuhp/4
    38 root      rt   0       0      0      0 S   0.0   0.0   0:05.79 watchdog/4
    39 root      rt   0       0      0      0 S   0.0   0.0   0:00.18 migration/4
    40 root      20   0       0      0      0 S   0.0   0.0   0:06.74 ksoftirqd/4
    42 root       0 -20       0      0      0 I   0.0   0.0   0:00.00 kworker/4:0H-events_highpri
    43 root      20   0       0      0      0 S   0.0   0.0   0:00.00 cpuhp/5
    44 root      rt   0       0      0      0 S   0.0   0.0   0:07.37 watchdog/5
    45 root      rt   0       0      0      0 S   0.0   0.0   0:00.34 migration/5
    46 root      20   0       0      0      0 S   0.0   0.0   0:13.74 ksoftirqd/5
    48 root       0 -20       0      0      0 I   0.0   0.0   0:00.00 kworker/5:0H-events_highpri
    49 root      20   0       0      0      0 S   0.0   0.0   0:00.00 cpuhp/6
    50 root      rt   0       0      0      0 S   0.0   0.0   0:05.74 watchdog/6
    51 root      rt   0       0      0      0 S   0.0   0.0   0:00.42 migration/6
    52 root      20   0       0      0      0 S   0.0   0.0   0:05.88 ksoftirqd/6
    54 root       0 -20       0      0      0 I   0.0   0.0   0:00.00 kworker/6:0H-events_highpri
    55 root      20   0       0      0      0 S   0.0   0.0   0:00.00 cpuhp/7
    56 root      rt   0       0      0      0 S   0.0   0.0   0:06.77 watchdog/7
    57 root      rt   0       0      0      0 S   0.0   0.0   0:00.44 migration/7
```

```
    44 root      rt   0      0      0      0 S   0.0   0.0   0:07.37 watchdog/5
    45 root      rt   0      0      0      0 S   0.0   0.0   0:00.34 migration/5
    46 root      20   0      0      0      0 S   0.0   0.0   0:13.74 ksoftirqd/5
    48 root       0 -20      0      0      0 I   0.0   0.0   0:00.00 kworker/5:0H-events_highpri
    49 root      20   0      0      0      0 S   0.0   0.0   0:00.00 cpuhp/6
    50 root      rt   0      0      0      0 S   0.0   0.0   0:05.74 watchdog/6
    51 root      rt   0      0      0      0 S   0.0   0.0   0:00.42 migration/6
    52 root      20   0      0      0      0 S   0.0   0.0   0:05.88 ksoftirqd/6
    54 root       0 -20      0      0      0 I   0.0   0.0   0:00.00 kworker/6:0H-events_highpri
    55 root      20   0      0      0      0 S   0.0   0.0   0:00.00 cpuhp/7
    56 root      rt   0      0      0      0 S   0.0   0.0   0:06.77 watchdog/7
    57 root      rt   0      0      0      0 S   0.0   0.0   0:00.44 migration/7
[[guka4106@venus ~]$ ps
    PID TTY          TIME CMD
 161887 pts/28   00:00:00 tcsh
 166192 pts/28   00:00:00 top
 167023 pts/28   00:00:00 zombie
 167024 pts/28   00:00:00 zombie <defunct>
 167029 pts/28   00:00:00 ps
[guka4106@venus ~]$
 Exitting Parent
```