

Лабораторная работа 6

Управление пользователями и группами

Накова А. М.

17 февраля 2025

Российский университет дружбы народов, Москва, Россия

Цель работы

Целью данной работы является получение навыков управления процессами операционной системы.

шаг 1



```
[nakova@localhost ~]$ su nakova
Пароль:
[nakova@localhost ~]$ sleep 3600 &
[1] 37580
[nakova@localhost ~]$ dd if=/dev/zero of=/dev/null &
[2] 37592
[nakova@localhost ~]$ sleep 7200
```

```
^Z
[3]+  Остановлен   sleep 7200
[nakova@localhost ~]$ jobs
[1]  Запущен       sleep 3600 &
[2]-  Запущен       dd if=/dev/zero of=/dev/null &
[3]+  Остановлен   sleep 7200
[nakova@localhost ~]$ bg 3
[3]+ sleep 7200 &
[1]  Завершён      sleep 3600
```

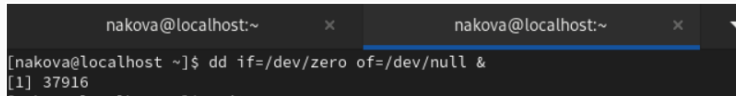
```
[nakova@localhost ~]$ ^C
[nakova@localhost ~]$ jobs
[2]-  Запущен       dd if=/dev/zero of=/dev/null &
[3]+  Запущен       sleep 7200 &
```

```
[nakova@localhost ~]$ fg 2
dd if=/dev/zero of=/dev/null
^C2654830860+0 записей получено
2654830860+0 записей отправлено
1359273400320 байт (1,4 TB, 1,2 TiB) скопирован, 3707,25 s, 367 MB/s
```

```
[nakova@localhost ~]$ jobs
[3]+  Запущен       sleep 7200 &
[nakova@localhost ~]$ fg 3
sleep 7200
^C
[nakova@localhost ~]$ jobs
```

шаг 2





A terminal window with a dark background. The title bar shows two tabs, both labeled 'nakova@localhost:~'. The first tab is active and highlighted with a blue underline. The terminal content shows a command being executed: '[nakova@localhost ~]\$ dd if=/dev/zero of=/dev/null &'. Below the command, the output '[1] 37916' is displayed. The prompt character is a dollar sign, and the user's name is 'nakova'.

```
nakova@localhost:~  
[nakova@localhost ~]$ dd if=/dev/zero of=/dev/null &  
[1] 37916
```

Рис. 2: шаг 2

шаг 3




```
top - 22:01:22 up 20:07, 2 users, load average: 0,64, 0,78, 0,78
Tasks: 217 total, 2 running, 215 sleeping, 0 stopped, 0 zombie
%Cpu(s): 0,0 us, 0,3 sy, 0,0 ni, 99,4 id, 0,0 wa, 0,0 hi, 0,3 si, 0,0 st
MiB Mem : 3659,7 total, 264,1 free, 1707,8 used, 1980,9 buff/cache
MiB Swap: 4044,0 total, 4038,2 free, 5,8 used. 1951,9 avail Mem
```

| PID | USER | PR | NI | VIRT | RES | SHR | S | %CPU | %MEM | TIME+ | COMMAND |
|--------------|---------------|-----------|----------|---------------|-------------|-------------|----------|-------------|------------|----------------|------------|
| 37916 | nakova | 20 | 0 | 220988 | 1792 | 1792 | R | 92,3 | 0,0 | 0:44.89 | dd |
| 1247 | nakova | 20 | 0 | 4124644 | 402520 | 136212 | S | 0,6 | 10,7 | 21:21.60 | gnome-s+ |
| 1657 | root | 20 | 0 | 240744 | 9984 | 8704 | S | 0,3 | 0,3 | 0:37.33 | sssd_kcm |
| 37710 | root | 20 | 0 | 0 | 0 | 0 | I | 0,3 | 0,0 | 0:01.76 | kworker+ |
| 37852 | root | 20 | 0 | 0 | 0 | 0 | I | 0,3 | 0,0 | 0:00.09 | kworker+ |
| 37932 | nakova | 20 | 0 | 225884 | 4224 | 3456 | R | 0,3 | 0,1 | 0:00.15 | top |
| 1 | root | 20 | 0 | 174480 | 18432 | 10932 | S | 0,0 | 0,5 | 0:12.81 | systemd |
| 2 | root | 20 | 0 | 0 | 0 | 0 | S | 0,0 | 0,0 | 0:00.39 | kthreadd |
| 3 | root | 0 | -20 | 0 | 0 | 0 | I | 0,0 | 0,0 | 0:00.00 | rcu_gp |

```
Tasks: 217 total, 7 running, 210 sleeping, 0 stopped, 0 zombie
%Cpu(s): 0,0 us, 0,3 sy, 0,0 ni, 99,7 id, 0,0 wa, 0,0 hi, 0,0 si, 0,0 st
MiB Mem : 3659,7 total, 263,9 free, 1708,1 used, 1980,9 buff/cache
MiB Swap: 4044,0 total, 4038,2 free, 5,8 used. 1951,6 avail Mem
```

| PID | USER | PR | NI | VIRT | RES | SHR | S | %CPU | %MEM | TIME+ | COMMAND |
|--------------|---------------|-----------|----------|---------------|-------------|-------------|----------|-------------|------------|----------------|------------|
| 37916 | nakova | 20 | 0 | 220988 | 1792 | 1792 | R | 91,7 | 0,0 | 1:25.85 | dd |
| 1247 | nakova | 20 | 0 | 4124644 | 402520 | 136212 | S | 0,3 | 10,7 | 21:21.99 | gnome-s+ |
| 37852 | root | 20 | 0 | 0 | 0 | 0 | I | 0,3 | 0,0 | 0:00.11 | kworker+ |
| 37937 | nakova | 20 | 0 | 225884 | 4352 | 3584 | R | 0,3 | 0,1 | 0:00.04 | top |
| 1 | root | 20 | 0 | 174480 | 18432 | 10932 | S | 0,0 | 0,5 | 0:12.81 | systemd |
| 2 | root | 20 | 0 | 0 | 0 | 0 | S | 0,0 | 0,0 | 0:00.39 | 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+ |
| 5 | root | 0 | -20 | 0 | 0 | 0 | I | 0,0 | 0,0 | 0:00.00 | slub_fl+ |

шаг 4



```

nakova@localhost:~ x nakova@localhost:~ — top x
top - 22:02:45 up 20:08, 2 users, load average: 0,85, 0,81, 0,79
Tasks: 217 total, 2 running, 215 sleeping, 0 stopped, 0 zombie
%Cpu(s): 3,9 us, 12,2 sy, 0,0 ni, 83,9 id, 0,0 wa, 0,0 hi, 0,0 si, 0,0 st
MiB Mem : 3659,7 total, 260,5 free, 1711,5 used, 1981,0 buff/cache
MiB Swap: 4044,0 total, 4038,2 free, 5,8 used. 1948,2 avail Mem

  PID USER      PR  NI   VIRT   RES   SHR  S  %CPU  %MEM    TIME+  COMMAND
 37916 nakova    20   0  220988   1792   1792 R   92,2    0,0   2:01.60 dd
 37968 nakova    20   0  225884   4224   3456 R    0,7    0,1   0:00.06 top
 37824 root       20   0      0      0      0 I    0,3    0,0   0:00.27 kworker+
 37852 root       20   0      0      0      0 I    0,3    0,0   0:00.12 kworker+
    1 root       20   0  174480  18432  10932 S    0,0    0,5   0:12.81 systemd
    2 root       20   0      0      0      0 S    0,0    0,0   0:00.39 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+
    5 root        0 -20      0      0      0 I    0,0    0,0   0:00.00 slab_fl+

```

```

nakova@localhost:~ x nakova@localhost:~ x
top - 22:03:21 up 20:09, 2 users, load average: 0,74, 0,78, 0,79
Tasks: 215 total, 2 running, 213 sleeping, 0 stopped, 0 zombie
%Cpu(s): 1,6 us, 4,3 sy, 0,0 ni, 94,1 id, 0,0 wa, 0,0 hi, 0,1 si, 0,0 st
MiB Mem : 3659,7 total, 256,3 free, 1715,6 used, 1981,1 buff/cache
MiB Swap: 4044,0 total, 4038,2 free, 5,8 used. 1944,1 avail Mem

  PID USER      PR  NI   VIRT   RES   SHR  S  %CPU  %MEM    TIME+  COMMAND
 1247 nakova    20   0  4120600 402512 136204 S    0,8   10,7   21:25.17 gnome-s+
 37365 nakova    20   0  836080  51092  37876 S    0,1    1,4   0:05.44 gnome-t+
 37968 nakova    20   0  225884   4224   3456 R    0,1    0,1   0:00.14 top
   947 nakova    20   0  23620  14580  10752 S    0,1    0,4   0:02.17 systemd
 36997 root       20   0      0      0      0 I    0,1    0,0   0:06.61 kworker+
 37710 root       20   0      0      0      0 I    0,1    0,0   0:01.85 kworker+
 37852 root       20   0      0      0      0 I    0,1    0,0   0:00.13 kworker+
    1 root       20   0  174480  18432  10932 S    0,0    0,5   0:12.81 systemd
    2 root       20   0      0      0      0 S    0,0    0,0   0:00.39 kthreadd

```

шаг 5



```
[2]+  Stopped                  yes > /dev/null  
[3]-  Running                  yes > /dev/null &
```

Рис. 5: шаг 5

шаг 6



| | | | | | | | | | | | |
|----|------|-----|-----|---|---|---|---|-----|-----|---------|-----------------|
| 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-e+ |
| 9 | root | 0 | -20 | 0 | 0 | 0 | I | 0.0 | 0.0 | 0:00.00 | mm_percpu_wq |
| 10 | root | 20 | 0 | 0 | 0 | 0 | S | 0.0 | 0.0 | 0:00.00 | rcu_tasks_kthre |
| 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 | 0:00.07 | ksoftirqd/0 |
| 14 | root | 20 | 0 | 0 | 0 | 0 | I | 0.0 | 0.0 | 0:00.12 | rcu_preempt |
| 15 | root | rt | 0 | 0 | 0 | 0 | S | 0.0 | 0.0 | 0:00.00 | migration/0 |
| 16 | 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 | kdevtmpfs |
| 19 | root | 0 | -20 | 0 | 0 | 0 | I | 0.0 | 0.0 | 0:00.00 | netns |
| 20 | root | 0 | -20 | 0 | 0 | 0 | I | 0.0 | 0.0 | 0:00.00 | inet_frag_wq |
| 21 | root | 20 | 0 | 0 | 0 | 0 | S | 0.0 | 0.0 | 0:00.00 | kauditd |
| 22 | root | 20 | 0 | 0 | 0 | 0 | S | 0.0 | 0.0 | 0:00.00 | khungtaskd |
| 23 | root | 20 | 0 | 0 | 0 | 0 | S | 0.0 | 0.0 | 0:00.00 | oom_reaper |
| 24 | root | 0 | -20 | 0 | 0 | 0 | I | 0.0 | 0.0 | 0:00.00 | writeback |
| 25 | root | 20 | 0 | 0 | 0 | 0 | S | 0.0 | 0.0 | 0:00.03 | kcompactd0 |
| 26 | root | 25 | 5 | 0 | 0 | 0 | S | 0.0 | 0.0 | 0:00.00 | ksmd |
| 27 | root | 39 | 19 | 0 | 0 | 0 | S | 0.0 | 0.0 | 0:00.12 | khugepaged |
| 28 | root | 0 | -20 | 0 | 0 | 0 | I | 0.0 | 0.0 | 0:00.00 | cryptd |
| 29 | root | 0 | -20 | 0 | 0 | 0 | I | 0.0 | 0.0 | 0:00.00 | kintegrityd |
| 30 | root | 0 | -20 | 0 | 0 | 0 | I | 0.0 | 0.0 | 0:00.00 | kblockd |
| 31 | root | 0 | -20 | 0 | 0 | 0 | I | 0.0 | 0.0 | 0:00.00 | blkcg_punt_bio |
| 32 | root | 0 | -20 | 0 | 0 | 0 | I | 0.0 | 0.0 | 0:00.00 | tpm_dev_wq |
| 33 | root | 0 | -20 | 0 | 0 | 0 | I | 0.0 | 0.0 | 0:00.00 | md |
| 34 | root | 0 | -20 | 0 | 0 | 0 | I | 0.0 | 0.0 | 0:00.00 | edac-poller |
| 35 | root | -51 | 0 | 0 | 0 | 0 | S | 0.0 | 0.0 | 0:00.00 | watchdogd |
| 37 | root | 0 | -20 | 0 | 0 | 0 | I | 0.0 | 0.0 | 0:00.03 | kworker/0:1H-k+ |
| 38 | root | 20 | 0 | 0 | 0 | 0 | S | 0.0 | 0.0 | 0:00.00 | kswapd0 |

шаг 8




```
yes > /dev/null &  
yes > /dev/null &  
yes > /dev/null &  
killall yes
```

Рис. 8: шаг 8

“ # Вывод

В ходе выполнения лабораторной работы были получены навыки управления процессами операционной системы.