

1 раздел

1.

```
root@eltex-practice2-pgl-v7:~# su - user1
Warning: your password will expire in 5 days.
user1@eltex-practice2-pgl-v7:~$ whoami
user1
```

2.

```
user1@eltex-practice2-pgl-v7:~$ ps -eLo pid,nlwp | awk 'NR>1 && $2 > 1 {count++}
END {print count}'
41
```

3.

```
top - 08:06:30 up 6 days, 15 min,  2 users,  load average: 0.00, 0.00, 0.00
Tasks: 110 total,   1 running, 109 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 :  1959.5 total,   187.3 free,   533.0 used,   1531.2 buff/cache
MiB Swap:  3185.0 total,  3184.7 free,    0.3 used.  1426.5 avail Mem
```

PID	USER	PR	NI	VIRT	RES	SHR	S	%CPU	%MEM	TIME+	COMMAND
1	root	20	0	22472	13824	9600	S	0.0	0.7	0:13.06	systemd
2	root	20	0	0	0	0	S	0.0	0.0	0:00.08	kthreadd
3	root	20	0	0	0	0	S	0.0	0.0	0:00.00	pool_wor
4	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	kworker+
5	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	kworker+
6	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	kworker+
7	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	kworker+
10	root	0	-20	0	0	0	I	0.0	0.0	0:00.91	kworker+
12	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	kworker+
13	root	20	0	0	0	0	I	0.0	0.0	0:00.00	rcu_tas+
14	root	20	0	0	0	0	I	0.0	0.0	0:00.00	rcu_tas+
15	root	20	0	0	0	0	I	0.0	0.0	0:00.00	rcu_tas+
16	root	20	0	0	0	0	S	0.0	0.0	0:00.19	ksoftir+
17	root	20	0	0	0	0	I	0.0	0.0	0:04.56	rcu_pre+
18	root	rt	0	0	0	0	S	0.0	0.0	0:01.98	migrati+
19	root	-51	0	0	0	0	S	0.0	0.0	0:00.00	idle_in+
20	root	20	0	0	0	0	S	0.0	0.0	0:00.00	cpuhp/0

```

* PID      = Process  PGRP      = Process  OOMs      = OOMEM S  RSS      = Res Mem
* USER     = Effecti  TTY       = Control  ENVIRON    = Environ  PSS      = Proport
* RUSER    = Real Us  TPGID   = Tty Pro  vMj       = Major F  PSan     = Proport
* PR       = Priorit  SID      = Session  vMn       = Minor F  PSfd     = Proport
* NI       = Nice Va  nTH     = Number   USED      = Res+Swa  PSsh     = Proport
VIRT      = Virtual  P        = Last Us  nsIPC     = IPC nam  USS      = Unique
RES       = Residen  TIME     = CPU Tim  nsMNT     = MNT nam  ioR      = I/O Byt
SHR       = Shared  SWAP     = Swapped  nsNET     = NET nam  ioRop    = I/O Rea
* S        = Process  CODE     = Code Si  nsPID     = PID nam  ioW      = I/O Byt
* %CPU     = CPU Usa  DATA    = Data+St  nsUSER    = USER na  ioWop    = I/O Wri
* %MEM     = Memory  nMaj     = Major P  nsUTS     = UTS nam  AGID     = Autogro
* TIME+    = CPU Tim  nMin     = Minor P  LXC       = LXC con  AGNI     = Autogro
* COMMAND  = Command  nDRT     = Dirty P  RSan      = RES Ano  STARTED  = Start T
PPID      = Parent  WCHAN    = Sleepin RStd      = RES Fil  ELAPSED  = Elapsed
UID       = Effecti  Flags    = Task Fl  RSlk     = RES Loc  %CUU     = CPU Uti
RUID      = Real Us  CGROUPS  = Control  RSsh     = RES Sha  %CUC     = Utiliza
SUID      = Saved U  SUPGIDS  = Supp Gr  CGNAME    = Control  nsCGROUP = CGRP na
SUSER     = Saved U  SUPGRPS  = Supp Gr  NU        = Last Us  nsTIME   = TIME na
GID       = Group I  TGID     = Thread  LOGID     = Login U
GROUP     = Group N  OOMa     = OOMEM A  EXE       = Executa

```

```

top - 08:10:01 up 6 days, 18 min,  2 users,  load average: 0.00, 0.00, 0.00
Tasks: 113 total,  1 running, 112 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 : 1954.6 total,  192.8 free,  522.5 used,  1531.3 buff/cache
MiB Swap: 3185.0 total,  3184.7 free,    0.3 used.  1432.1 avail Mem

```

PID	USER	RUSER	PR	NI	S	%CPU	%MEM	TIME+	COMMAND
26290	root	root	20	0	S	0.3	0.2	3:24.46	qemu-ga
1	root	root	20	0	S	0.0	0.7	0:13.07	systemd
2	root	root	20	0	S	0.0	0.0	0:00.08	kthreadd
3	root	root	20	0	S	0.0	0.0	0:00.00	pool_workqueue_relea+
4	root	root	0	-20	I	0.0	0.0	0:00.00	kworker/R-rcu_g
5	root	root	0	-20	I	0.0	0.0	0:00.00	kworker/R-rcu_p
6	root	root	0	-20	I	0.0	0.0	0:00.00	kworker/R-slub_
7	root	root	0	-20	I	0.0	0.0	0:00.00	kworker/R-netns
10	root	root	0	-20	I	0.0	0.0	0:00.91	kworker/0:0H-kblockd
12	root	root	0	-20	I	0.0	0.0	0:00.00	kworker/R-mm_pe
13	root	root	20	0	I	0.0	0.0	0:00.00	rcu_tasks_kthread
14	root	root	20	0	I	0.0	0.0	0:00.00	rcu_tasks_rude_kthre+
15	root	root	20	0	I	0.0	0.0	0:00.00	rcu_tasks_trace_kthr+
16	root	root	20	0	S	0.0	0.0	0:00.19	ksoftirqd/0
17	root	root	20	0	I	0.0	0.0	0:04.56	rcu_preempt
18	root	root	rt	0	S	0.0	0.0	0:01.98	migration/0
19	root	root	-51	0	S	0.0	0.0	0:00.00	idle_inject/0

4.

```

user1@eltex-practice2-pgl-v7:~$ whoami
user1
user1@eltex-practice2-pgl-v7:~$ passwd
Changing password for user1.
Current password:

```

5.

```
top - 08:40:01 up 6 days, 48 min, 2 users, load average: 0.00, 0.00, 0.00
Tasks: 114 total, 1 running, 113 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 : 1977.3 total, 221.3 free, 516.7 used, 1531.3 buff/cache
MiB Swap: 3185.0 total, 3184.7 free, 0.3 used. 1460.7 avail Mem
```

PID	USER	PR	NI	VIRT	RES	SHR	S	%CPU	%MEM	TIME+	COMMAND
60041	user1	20	0	8664	5504	3840	S	0.0	0.3	0:00.01	bash
60152	user1	20	0	8664	5504	3840	S	0.0	0.3	0:00.00	bash
60163	user1	20	0	11936	6016	3840	R	0.0	0.3	0:00.00	top

```
user1@eltex-practice2-pgl-v7:~$ ps -ef | grep passwd
root      60100   60041  0 08:11 pts/1    00:00:00 passwd
user1     60190   60179  0 08:42 pts/0    00:00:00 grep --color=auto passwd
```

PID	USER	RUSER	PR	NI	S	%CPU	%MEM	TIME+	COMMAND
60040	root	root	20	0	S	0.0	0.2	0:00.00	su
60041	user1	user1	20	0	S	0.0	0.3	0:00.01	bash
60100	root	user1	20	0	S	0.0	0.2	0:00.00	passwd

ОТ ИМЕНИ root

```
user1@eltex-practice2-pgl-v7:~$ kill -15 60100
user1@eltex-practice2-pgl-v7:~$ kill -2 60100
user1@eltex-practice2-pgl-v7:~$ kill -3 60100
user1@eltex-practice2-pgl-v7:~$ kill -9 60100
```

```
user1@eltex-practice2-pgl-v7:~$ passwd
Changing password for user1.
Current password: Killed
user1@eltex-practice2-pgl-v7:~$
```

6.

```
~/file_task3.txt [New] ^Z 0,0-1 All
[1]+ Stopped vim ~/file_task3.txt
user1@eltex-practice2-pgl-v7:~$
```

7.

```
user1@eltex-practice2-pgl-v7:~$ sleep 600
^Z
[2]+ Stopped sleep 600
user1@eltex-practice2-pgl-v7:~$ jobs
[1]- Stopped vim ~/file_task3.txt
[2]+ Stopped sleep 600
```

8.

```
user1@eltex-practice2-pgl-v7:~$ bg %2
[2]+ sleep 600 &
user1@eltex-practice2-pgl-v7:~$ jobs
[1]+  Stopped                  vim ~/file_task3.txt
[2]-  Running                  sleep 600 &
```

9, 10.

```
user1@eltex-practice2-pgl-v7:~$ renice -n 10 -p $(pgrep sleep)
60234 (process ID) old priority 0, new priority 10
user1@eltex-practice2-pgl-v7:~$ ps -l -p $(pgrep sleep)
F S  UID      PID     PPID  C PRI  NI ADDR SZ WCHAN  TTY          TIME CMD
0 S  1001    60234    60205  0  90   10 -  142l do_sys pts/0    00:00:00 sleep
user1@eltex-practice2-pgl-v7:~$
```

11.

```
~
^C
^C
^C
^C
```

```
[2]-  Done                    sleep 600
user1@eltex-practice2-pgl-v7:~$
```

12.

```
user1@eltex-practice2-pgl-v7:~$ kill -15 60234
-bash: kill: (60234) - No such process
user1@eltex-practice2-pgl-v7:~$ jobs
user1@eltex-practice2-pgl-v7:~$ ps -ef | grep sleep
user1      60253    60205  0 09:16 pts/0    00:00:00 grep --color=auto sleep
```

13.

```
user1@eltex-practice2-pgl-v7:~$ trap 'echo "Меня гольями руками не возьмешь!"'
GINT SIGQUIT
user1@eltex-practice2-pgl-v7:~$ echo $$
60041
```

```
user1@eltex-practice2-pgl-v7:~$ ps -ef | grep bash | grep user1
user1      60041    60040  0 08:05 pts/1    00:00:00 -bash
user1      60289    60288  0 09:36 pts/0    00:00:00 -bash
user1      60303    60289  0 09:38 pts/0    00:00:00 grep --color=auto bash
```

```
user1@eltex-practice2-pgl-v7:~$ kill -2 60041
user1@eltex-practice2-pgl-v7:~$ kill -3 60041
user1@eltex-practice2-pgl-v7:~$
```

```
Меня голыми руками не возьмешь! ^C
Меня голыми руками не возьмешь! ^\
```

## 2 Раздел

1.

```
#!/bin/bash

# check name script
if [[ $(basename "$0") == "template_task.sh" ]]; then
    echo "я бригадир, сам не работаю"
    exit 1
fi

# name script
SCRIPT_NAME=$(basename "$0" .sh)
WRITE_FILE="report_${SCRIPT_NAME}.log"
PID_TASK=$$

# start script
echo "Скрипт запущен: [$PID_TASK] $(date '+%Y-%m-%d %H:%M:%S') " >> "$WRITE_FILE"
echo "Запись о запуске сделана"

# random number
min=30
max=1800
TIME_WORK=$(( RANDOM % (max - min + 1) + min ))

# sleep
echo "Будем ждать $TIME_WORK секунд"
sleep $TIME_WORK
echo "Sleep завершен"

# sleep min
MINUTES_WORK=$(( TIME_WORK / 60 ))

# end script
echo "Скрипт [$PID_TASK] $(date '+%Y-%m-%d %H:%M:%S') завершен, работал $MINUTES_WORK минут" >> "$WRITE_FILE"
echo "Запись о завершении сделана"
```

```
user1@eltex-practice2-pgl-v7:~$ ./template_task.sh
я бригадир, сам не работаю
user1@eltex-practice2-pgl-v7:~$ ./worker_script.sh
Запись о запуске сделана
Будем ждать 635 секунд
Sleep завершен
Запись о завершении сделана
```

```
-rw-rw---- 1 user1 user1 289 Oct 22 03:56 report_worker_script.log
-rwxrwx--- 1 user1 user1 870 Oct 22 03:45 template_task.sh
-rw----- 1 user1 user1 11143 Oct 22 03:45 .viminfo
-rwxrwx--- 1 user1 user1 870 Oct 22 03:45 worker_script.sh
```

```
Скрипт запущен: [62211] 2025-10-22 03:45:34
Скрипт [62211] 2025-10-22 03:56:09 завершен, работал 10 минут
```

2.

```
#!/bin/bash

CONFIG_FILE="observer.conf"
LOG_FILE="observer.log"

# checking the process through /proc
check_process() {
    local script_name="$1"

    # search for all PID in the system
    for pid in /proc/[0-9]*; do
        if [[ -f "$pid/cmdline" ]]; then
            if grep -q "$script_name" "$pid/cmdline" 2>/dev/null; then
                return 0
            fi
        fi
    done

    return 1
}

# reading the config file
while IFS= read -r script; do
    # skip blank lines and comments
    [[ -z "$script" || "$script" =~ ^[:space:]*$ ]] && continue

    script=$(echo "$script" | xargs)
    script_name=$(basename "$script")

    if [[ "$script_name" == "template_task.sh" ]]; then
        echo "$(date '+%Y-%m-%d %H:%M:%S') [INFO] Скрипт $script_name - бригадир, не запускаем!" >> "$LOG_FILE"
        continue
    fi

    if check_process "$script_name"; then
        echo "$(date '+%Y-%m-%d %H:%M:%S') [INFO] Скрипт $script_name работает" >> "$LOG_FILE"
    else
        echo "$(date '+%Y-%m-%d %H:%M:%S') [ERROR] Скрипт $script_name не найден, запускаем." >> "$LOG_FILE"

        if [[ -f "$script" && -x "$script" ]]; then
            nohup "$script" > /dev/null 2>&1 &
            echo "$(date '+%Y-%m-%d %H:%M:%S') [INFO] Скрипт $script_name запущен (PID: $!)" >> "$LOG_FILE"
        else
            echo "$(date '+%Y-%m-%d %H:%M:%S') [ERROR] Скрипт $script_name не найден/не исполняемый." >> "$LOG_FILE"
        fi
    fi
done < "$CONFIG_FILE"
```

```
user1@eltex-practice2-pgl-v7:~$ ./observer.sh
user1@eltex-practice2-pgl-v7:~$ cat observer.log
2025-10-22 14:34:41 [ERROR] Скрипт worker_script.sh не найден, запускаем.
2025-10-22 14:34:41 [INFO] Скрипт worker_script.sh запущен (PID: 71019)
user1@eltex-practice2-pgl-v7:~$ ps aux | grep worker_script
user1      71019  0.0  0.0   7340  3712 pts/0    S   14:34   0:00 /bin/bash ./worker_script.sh
user1      71031  0.0  0.0   6676  2304 pts/0    S+  14:34   0:00 grep --color=auto worker_script
user1@eltex-practice2-pgl-v7:~$
```

```
user1@eltex-practice2-pgl-v7:~$ pkill -f worker_script.sh
user1@eltex-practice2-pgl-v7:~$ ps aux | grep worker_script
user1      71057  0.0  0.0   6676  2304 pts/0    S+  14:37   0:00 grep --color=auto worker_script
user1@eltex-practice2-pgl-v7:~$ ./observer.sh
user1@eltex-practice2-pgl-v7:~$ cat observer.log
2025-10-22 14:34:41 [ERROR] Скрипт worker_script.sh не найден, запускаем.
2025-10-22 14:34:41 [INFO] Скрипт worker_script.sh запущен (PID: 71019)
2025-10-22 14:37:46 [ERROR] Скрипт worker_script.sh не найден, запускаем.
2025-10-22 14:37:46 [INFO] Скрипт worker_script.sh запущен (PID: 71173)
user1@eltex-practice2-pgl-v7:~$ ./observer.sh
user1@eltex-practice2-pgl-v7:~$ cat observer.log
2025-10-22 14:34:41 [ERROR] Скрипт worker_script.sh не найден, запускаем.
2025-10-22 14:34:41 [INFO] Скрипт worker_script.sh запущен (PID: 71019)
2025-10-22 14:37:46 [ERROR] Скрипт worker_script.sh не найден, запускаем.
2025-10-22 14:37:46 [INFO] Скрипт worker_script.sh запущен (PID: 71173)
2025-10-22 14:38:11 [INFO] Скрипт worker_script.sh работает
user1@eltex-practice2-pgl-v7:~$ ps aux | grep worker_script
user1      71173  0.0  0.0   7340  3712 pts/0    S   14:37   0:00 /bin/bash ./worker_script.sh
user1      71290  0.0  0.0   6676  2304 pts/0    S+  14:38   0:00 grep --color=auto worker_script
```



3.

```
# m h dom mon dow   command
* * * * * /home/user1/observer.sh
-- INSERT --
```

```
"crontab.x3b4a8/crontab" 25L, 924B written
crontab: installing new crontab
```

```
user1@eltex-practice2-pgl-v7:~$ ps aux | grep worker_script
user1      71508  0.0  0.0   7340  3584 ?        S    15:08   0:00 /bin/bash ./worker_script.sh
user1      71755  0.0  0.0   6676  2304 pts/0    S+   15:10   0:00 grep --color=auto worker_script
user1@eltex-practice2-pgl-v7:~$ tail -f observer.log
2025-10-22 14:34:41 [ERROR] Скрипт worker_script.sh не найден, запускаем.
2025-10-22 14:34:41 [INFO] Скрипт worker_script.sh запущен (PID: 71019)
2025-10-22 14:37:46 [ERROR] Скрипт worker_script.sh не найден, запускаем.
2025-10-22 14:37:46 [INFO] Скрипт worker_script.sh запущен (PID: 71173)
2025-10-22 14:38:11 [INFO] Скрипт worker_script.sh работает
2025-10-22 15:08:01 [ERROR] Скрипт worker_script.sh не найден, запускаем.
2025-10-22 15:08:01 [INFO] Скрипт worker_script.sh запущен (PID: 71508)
2025-10-22 15:09:01 [INFO] Скрипт worker_script.sh работает
2025-10-22 15:10:01 [INFO] Скрипт worker_script.sh работает
2025-10-22 15:11:02 [INFO] Скрипт worker_script.sh работает
2025-10-22 15:12:01 [INFO] Скрипт worker_script.sh работает
^C
user1@eltex-practice2-pgl-v7:~$
```

4.

```
user1@eltex-practice2-pgl-v7:~$ ln -s template_task.sh task1.sh
user1@eltex-practice2-pgl-v7:~$ ln -s template_task.sh task2.sh
user1@eltex-practice2-pgl-v7:~$ ln -s template_task.sh task3.sh
user1@eltex-practice2-pgl-v7:~$ ls -la task*.sh
lrwxrwxrwx 1 user1 user1 16 Oct 22 15:29 task1.sh -> template_task.sh
lrwxrwxrwx 1 user1 user1 16 Oct 22 15:29 task2.sh -> template_task.sh
lrwxrwxrwx 1 user1 user1 16 Oct 22 15:29 task3.sh -> template_task.sh
```

```
user1@eltex-practice2-pgl-v7:~$ cat observer.conf
worker_script.sh
task1.sh
task2.sh
task3.sh
template_task.sh
```

```

user1@eltex-practice2-pgl-v7:~$ cat observer.log
2025-10-22 16:28:01 [INFO] Скрипт worker_script.sh работает
2025-10-22 16:28:01 [INFO] Скрипт task1.sh работает
2025-10-22 16:28:01 [INFO] Скрипт task2.sh работает
2025-10-22 16:28:01 [INFO] Скрипт task3.sh работает
2025-10-22 16:28:01 [INFO] Скрипт template_task.sh - бригадир, не запускаем!
2025-10-22 16:29:01 [INFO] Скрипт worker_script.sh работает
2025-10-22 16:29:01 [INFO] Скрипт task1.sh работает
2025-10-22 16:29:01 [INFO] Скрипт task2.sh работает
2025-10-22 16:29:01 [INFO] Скрипт task3.sh работает
2025-10-22 16:29:01 [INFO] Скрипт template_task.sh - бригадир, не запускаем!

```

5.

```

# m h dom mon dow   command
~

```

```

user1@eltex-practice2-pgl-v7:~$ ls -la report.tar.bz2
-rw-rw---- 1 user1 user1 2253 Oct 22 16:40 report.tar.bz2

```

```

user1@eltex-practice2-pgl-v7:~$ tar -tjvf report.tar.bz2
-rw-rw---- user1/user1    5173 2025-10-22 16:40 observer.log
-rw-rw-r-- user1/user1     897 2025-10-22 16:36 report_task1.log
-rw-rw-r-- user1/user1     931 2025-10-22 16:30 report_task2.log
-rw-rw-r-- user1/user1     348 2025-10-22 16:27 report_task3.log
-rw-rw---- user1/user1    1040 2025-10-22 16:34 report_worker_script.log
-rwxrwx--- user1/user1    1526 2025-10-22 16:26 observer.sh
lrwxrwxrwx user1/user1      0 2025-10-22 15:29 task1.sh -> template_task.sh
lrwxrwxrwx user1/user1      0 2025-10-22 15:29 task2.sh -> template_task.sh
lrwxrwxrwx user1/user1      0 2025-10-22 15:29 task3.sh -> template_task.sh
-rwxrwx--- user1/user1     870 2025-10-22 16:12 template_task.sh
-rwxrwx--- user1/user1     870 2025-10-22 03:45 worker_script.sh
-rw-rw---- user1/user1      61 2025-10-22 15:58 observer.conf

```



