

Operating systems laba 5

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16 декабря 2023 г.

1 Задание 1. Мониторинг производительности системы.

- 1.1 Выполните проверку системы при помощи команды `top`. Отсортируйте процессы по: объему используемой памяти `%MEM` (`shift+M`); времени работы `TIME+` (`shift+T`); идентификатору `PID` (`shift+N`); проценту использования времени процессора `%CPU` (`shift+P`). - соответствующие скрины (`top` и дальше все необходимые вариации)

```
varfolomeeva@fedora:~ — top
top - 19:43:45 up 1:10, 1 user, load average: 0.73, 0.71, 0.56
Tasks: 359 total, 1 running, 358 sleeping, 0 stopped, 0 zombie
%Cpu(s): 0.7 us, 2.2 sy, 0.0 ni, 97.1 id, 0.0 wa, 0.0 hi, 0.0 si, 0.0 st
MiB Mem : 7609.1 total, 272.2 free, 3661.0 used, 3675.9 buff/cache
MiB Swap: 7609.0 total, 7511.7 free, 97.2 used. 2812.9 avail Mem

  PID USER      PR  NI   VIRT   RES   SHR  S  %CPU  %MEM     TIME+ COMMAND
 6226 varfolo+  20   0 225056   3968   3072 R   6.2   0.1   0:00.02 top
    1 root      20   0 172940  17772 10852 S   0.0   0.2   0:01.37 systemd
    2 root      20   0     0     0     0 S   0.0   0.0   0:00.01 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
    5 root       0 -20     0     0     0 I   0.0   0.0   0:00.00 slub_flushwq
    6 root       0 -20     0     0     0 I   0.0   0.0   0:00.00 netns
    8 root       0 -20     0     0     0 I   0.0   0.0   0:00.00 kworker/0:0H-event+
   11 root       0 -20     0     0     0 I   0.0   0.0   0:00.00 mm_percpu_wq
   13 root      20   0     0     0     0 I   0.0   0.0   0:00.00 rcu_tasks_kthread
   14 root      20   0     0     0     0 I   0.0   0.0   0:00.00 rcu_tasks_rude_kth+
   15 root      20   0     0     0     0 I   0.0   0.0   0:00.00 rcu_tasks_trace_kt+
   16 root      20   0     0     0     0 S   0.0   0.0   0:00.33 ksoftirqd/0
   17 root      20   0     0     0     0 I   0.0   0.0   0:00.97 rcu_preempt
   18 root      rt    0     0     0     0 S   0.0   0.0   0:00.00 migration/0
   19 root     -51   0     0     0     0 S   0.0   0.0   0:00.00 idle_inject/0
   20 root      20   0     0     0     0 S   0.0   0.0   0:00.00 cpuhp/0
```

```

varfolomeeva@fedora:~ — top
top - 19:33:57 up 1:01, 1 user, load average: 0.58, 0.46, 0.34
Tasks: 361 total, 1 running, 360 sleeping, 0 stopped, 0 zombie
%Cpu(s): 0.9 us, 0.4 sy, 0.0 ni, 98.4 id, 0.1 wa, 0.1 hi, 0.1 si, 0.0 st
MiB Mem : 7609.1 total, 270.0 free, 3641.9 used, 3697.2 buff/cache
MiB Swap: 7609.0 total, 7511.7 free, 97.2 used. 2931.9 avail Mem

  PID USER      PR  NI    VIRT    RES    SHR S  %CPU  %MEM    TIME+  COMMAND
 3891 varfolo+  20   0  181.2g 488648 177220 S   0.0   6.3   0:23.01 Telegram
 4099 varfolo+  20   0 1738160 409244 161704 S   0.0   5.3   0:05.38 soffice.bin
 2807 varfolo+  20   0   33.0g 387252 218708 S   1.7   5.0   0:48.39 chrome
 1282 root       20   0   871380 361828 23240 S   0.0   4.6   0:05.59 packagekitd
 3285 varfolo+  20   0 1133.9g 306584 131988 S   1.3   3.9   0:16.17 chrome
 3171 varfolo+  20   0 1131.9g 261972 147428 S   0.7   3.4   0:15.27 chrome
 3180 varfolo+  20   0 1131.8g 261928 118736 S   0.3   3.4   0:16.03 chrome
 3371 varfolo+  20   0 1131.8g 255700 124888 S   0.0   3.3   0:14.96 chrome
 1960 varfolo+  20   0 5422584 246064 138708 S   1.0   3.2   0:43.52 gnome-shell
 3838 varfolo+  20   0 1135.9g 243136 133808 S   0.0   3.1   0:14.64 chrome
 3023 varfolo+  20   0 1131.8g 215648 105880 S   0.0   2.8   0:10.29 chrome
 2191 varfolo+  20   0 1247832 215560 57544 S   0.0   2.8   0:02.93 gnome-software
 2908 varfolo+  20   0   33.4g 208744 133928 S   0.3   2.7   0:51.77 chrome
 4539 varfolo+  20   0 1131.8g 195436 116908 S   0.7   2.5   0:01.73 chrome
 4426 varfolo+  20   0 1133.9g 185416 120196 S   0.0   2.4   0:03.41 chrome
 3391 varfolo+  20   0 1133.9g 184488 121136 S   0.0   2.4   0:03.23 chrome
 3478 varfolo+  20   0 1131.8g 162800 117464 S   0.0   2.1   0:01.78 chrome

```

```

varfolomeeva@fedora:~ — top
top - 19:36:05 up 1:03, 1 user, load average: 1.27, 0.70, 0.44
Tasks: 354 total, 1 running, 353 sleeping, 0 stopped, 0 zombie
%Cpu(s): 1.2 us, 0.5 sy, 0.0 ni, 98.0 id, 0.0 wa, 0.2 hi, 0.1 si, 0.0 st
MiB Mem : 7609.1 total, 396.6 free, 3522.3 used, 3690.2 buff/cache
MiB Swap: 7609.0 total, 7511.7 free, 97.2 used. 3091.1 avail Mem

  PID USER      PR  NI    VIRT    RES    SHR S  %CPU  %MEM    TIME+  COMMAND
 2908 varfolo+  20   0   33.4g 208948 133796 S   0.3   2.7   0:56.35 chrome
 2807 varfolo+  20   0   32.9g 387536 218776 S   2.0   5.0   0:55.16 chrome
 1960 varfolo+  20   0 5418284 247620 138964 S   4.3   3.2   0:54.31 gnome-shell
 3306 varfolo+  20   0 1131.7g 128800 104832 S   0.0   1.7   0:34.67 chrome
 3838 varfolo+  20   0 1135.9g 248220 134056 S   0.0   3.2   0:25.34 chrome
 3891 varfolo+  20   0  181.2g 488776 177348 S   0.0   6.3   0:23.03 Telegram
 3285 varfolo+  20   0 1131.8g 267568 131944 S   0.0   3.4   0:16.93 chrome
 3180 varfolo+  20   0 1131.8g 263332 118736 S   0.0   3.4   0:16.34 chrome
 3171 varfolo+  20   0 1131.9g 256412 141184 S   0.3   3.3   0:16.12 chrome
 2910 varfolo+  20   0   32.6g 135612 104164 S   0.7   1.7   0:15.75 chrome
 3371 varfolo+  20   0 1133.9g 251696 124672 S   0.0   3.2   0:15.59 chrome
 3023 varfolo+  20   0 1131.8g 215616 105880 S   0.0   2.8   0:10.43 chrome
 2841 varfolo+  20   0 887492 81432 52420 S   0.3   1.0   0:08.10 Xwayland
 818 systemd+  20   0  16656 7936 7040 S   0.3   0.1   0:07.06 systemd-oomd
 3034 varfolo+  20   0 1131.8g 141428 107128 S   0.3   1.8   0:06.66 chrome
 4099 varfolo+  20   0 1738160 410140 162600 S   0.0   5.3   0:06.19 soffice.bin
 1282 root       20   0   871380 361828 23240 S   0.0   4.6   0:05.59 packagekitd

```

```

varfolomeeva@fedora:~ — top
top - 19:37:40 up 1:04, 1 user, load average: 0.97, 0.76, 0.49
Tasks: 355 total, 1 running, 354 sleeping, 0 stopped, 0 zombie
%Cpu(s): 1.7 us, 0.7 sy, 0.0 ni, 97.2 id, 0.1 wa, 0.2 hi, 0.1 si, 0.0 st
MiB Mem : 7609.1 total, 356.4 free, 3533.4 used, 3719.3 buff/cache
MiB Swap: 7609.0 total, 7511.7 free, 97.2 used. 3060.2 avail Mem

  PID USER      PR  NI    VIRT    RES    SHR S  %CPU  %MEM    TIME+  COMMAND
  4658 root        20   0       0        0        0 I   0.0   0.0   0:00.00 kworker/7:2-events
  4642 root        20   0       0        0        0 I   0.0   0.0   0:00.00 kworker/3:1
  4641 root        20   0   16700    6784   5888 S   0.0   0.1   0:00.00 systemd-userwor
  4640 root        20   0   16700    6912   6016 S   0.0   0.1   0:00.00 systemd-userwor
  4627 varfolo+    20   0 1131.7g   69868  54528 S   0.0   0.9   0:00.00 chrome
  4615 root        20   0   16700    6912   6016 S   0.0   0.1   0:00.00 systemd-userwor
  4579 root        20   0       0        0        0 I   0.0   0.0   0:00.00 kworker/5:0-cgroup+
  4573 root        20   0       0        0        0 I   0.0   0.0   0:00.00 kworker/0:3
  4539 varfolo+    20   0 1131.8g  185784 121544 S   4.3   2.4   0:04.77 chrome
  4528 root        20   0       0        0        0 I   0.0   0.0   0:00.01 kworker/2:0-mm_per+
  4452 varfolo+    20   0   40.8g   48368  35456 S   0.0   0.6   0:00.02 chrome
  4437 root         0 -20       0        0        0 I   0.3   0.0   0:00.60 kworker/u17:1-i915+
  4411 root        20   0       0        0        0 I   0.0   0.0   0:00.00 kworker/7:0-mm_per+
  4382 root        20   0       0        0        0 I   0.0   0.0   0:00.04 kworker/1:0-mm_per+
  4376 root        20   0       0        0        0 I   0.0   0.0   0:00.00 kworker/6:0
  4367 varfolo+    20   0 529184   9088    8064 S   0.0   0.1   0:00.01 gvfsd-dnssd
  4346 varfolo+    20   0 601040   8576    7680 S   0.0   0.1   0:00.01 gvfsd-network

```

```

varfolomeeva@fedora:~ — top
top - 19:42:27 up 1:09, 1 user, load average: 0.41, 0.64, 0.52
Tasks: 358 total, 1 running, 357 sleeping, 0 stopped, 0 zombie
%Cpu(s): 1.2 us, 0.4 sy, 0.0 ni, 98.1 id, 0.1 wa, 0.2 hi, 0.1 si, 0.0 st
MiB Mem : 7609.1 total, 284.1 free, 3697.0 used, 3627.9 buff/cache
MiB Swap: 7609.0 total, 7511.7 free, 97.2 used. 2797.0 avail Mem

  PID USER      PR  NI    VIRT    RES    SHR S  %CPU  %MEM    TIME+  COMMAND
  6088 varfolo+    20   0 1131.9g  264236 148288 S   4.0   3.4   0:03.65 chrome
  1960 varfolo+    20   0 5426780  249780 139092 S   2.7   3.2   1:22.35 gnome-shell
  2807 varfolo+    20   0   33.0g   392268 219152 S   2.0   5.0   1:25.08 chrome
  1922 varfolo+     9 -11  329300   15560   8940 S   0.7   0.2   0:00.65 pipewire
  2841 varfolo+    20   0   872296   81228   52216 S   0.7   1.0   0:13.67 Xwayland
  3171 varfolo+    20   0 1131.9g  257820 141184 S   0.7   3.3   0:18.67 chrome
  2908 varfolo+    20   0   33.4g   214960 133932 S   0.3   2.8   1:23.52 chrome
  3891 varfolo+    20   0  181.2g  488624 177348 S   0.3   6.3   0:23.11 Telegram
  4222 varfolo+    20   0   767692   52584   41124 S   0.3   0.7   0:02.70 gnome-terminal-
    1 root        20   0  172940   17772  10852 S   0.0   0.2   0:01.37 systemd
    2 root        20   0       0        0        0 S   0.0   0.0   0:00.01 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
    5 root         0 -20       0        0        0 I   0.0   0.0   0:00.00 slub_flushwq
    6 root         0 -20       0        0        0 I   0.0   0.0   0:00.00 netns
    8 root         0 -20       0        0        0 I   0.0   0.0   0:00.00 kworker/0:0H-event+
   11 root         0 -20       0        0        0 I   0.0   0.0   0:00.00 mm_percpu_wq

```

- 1.2 Запустите новый процесс в системе, найдите его в выводе команды (в середине скрина - процесс 2920). Измените приоритет запущенного процесса командой `nice` и убедитесь, что изменения отражены в выводе `top`. (на третьем скрине последняя команда)

```
varfolomeeva@fedora:~ — top
(base) [varfolomeeva@fedora ~]$ top | grep chrome
 2908 varfolo+  20    0   33.5g 225892 139368 S   6.2   2.9   2:09.00 chrome
 3838 varfolo+  20    0  1135.9g 278280 138568 S   2.3   3.6   1:45.20 chrome
 2807 varfolo+  20    0   33.0g 399336 221620 S   1.3   5.1   2:08.41 chrome
 3171 varfolo+  20    0  1131.9g 260552 141184 S   0.7   3.3   0:28.39 chrome
 2910 varfolo+  20    0   32.6g 137372 105284 S   0.3   1.8   0:32.21 chrome
 2920 varfolo+  20    0   32.9g  64836  45032 S   0.3   0.8   0:01.19 chrome
 6960 varfolo+  20    0  1131.8g 294388 138788 S   0.3   3.8   0:05.73 chrome
 2807 varfolo+  20    0   33.0g 399208 221492 S   1.0   5.1   2:08.44 chrome
 3171 varfolo+  20    0  1131.9g 260680 141184 S   1.0   3.3   0:28.42 chrome
 2910 varfolo+  20    0   32.6g 138012 105284 S   0.3   1.8   0:32.22 chrome
 3180 varfolo+  20    0  1131.8g 254512 118832 S   0.3   3.3   0:22.27 chrome
 3838 varfolo+  20    0  1135.9g 278280 138568 S   0.3   3.6   1:45.21 chrome
 6974 varfolo+  20    0  1133.8g 126828 100828 S   0.3   1.6   0:00.18 chrome
```

```
(base) [varfolomeeva@fedora ~]$ renice 17 -p 2920
2920 (process ID) old priority 0, new priority 17
(base) [varfolomeeva@fedora ~]$
```

```
(base) [varfolomeeva@fedora ~]$ top | grep chrome
 2807 varfolo+  20    0   33.0g 400688 221404 S   0.7   5.1   2:23.35 chrome
 2908 varfolo+  20    0   33.4g 222612 136284 S   0.3   2.9   2:23.41 chrome
 3171 varfolo+  20    0  1131.9g 260628 141184 S   0.3   3.3   0:31.40 chrome
 7228 varfolo+  20    0  1131.9g 195060 129308 S   0.3   2.5   0:06.21 chrome
 2910 varfolo+  20    0   32.6g 137952 105264 S   1.0   1.8   0:35.87 chrome
 2807 varfolo+  20    0   33.0g 400688 221404 S   0.7   5.1   2:23.37 chrome
 3171 varfolo+  20    0  1131.9g 259932 141184 S   0.7   3.3   0:31.42 chrome
 3180 varfolo+  20    0  1131.8g 258828 118832 S   0.7   3.3   0:23.31 chrome
 2920 varfolo+  37   17   32.9g  65096  45160 S   0.3   0.8   0:01.36 chrome
```

- 1.3 С помощью команд `atop` и `atoprsar` выведите сортировку процессов по общей нагрузке (минимум по трем параметрам).

Сначала скачаем `atop` и запустим его чтобы он сохранял метрики

```
(base) [varfolomeeva@fedora ~]$ sudo dnf install atop
[sudo] password for varfolomeeva:
Last metadata expiration check: 0:36:29 ago on Wed 13 Dec 2023 19:41:04 MSK.
Package atop-2.9.0-1.fc37.x86_64 is already installed.
Dependencies resolved.
Nothing to do.
Complete!
```

```
(base) [varfolomeeva@fedora ~]$ service atop start
Redirecting to /bin/systemctl start atop.service
(base) [varfolomeeva@fedora ~]$
```

atop -p - количество процессов и тредов

NPROCS	SYSCPU	USRCPU	VSIZE	RSIZE	PSIZE	LOCKSZ	SWAPSZ	RDOSK	WRDSK	RNET	SNET	CPU	CMD	1/18
38	2m49s	11m52s	33.4T	6.0G	0B	16.0K	10.9M	0B	0B	0	0	12%	chrome	
1	58.04s	3m06s	5.2G	258.1M	0B	0.0K	0B	0B	0B	0	0	3%	gnome-shell	
1	19.92s	18.23s	854.5M	79.1M	0B	0.0K	0B	0B	0B	0	0	1%	Xwayland	
1	8.60s	15.36s	181.2G	476.7M	0B	0.0K	0B	0B	0B	0	0	0%	Telegram	
1	8.62s	20.86s	1.7G	405.8M	0B	0.0K	0B	0B	0B	0	0	0%	soffice.bin	
3	2.79s	14.12s	3.5G	176.9M	0B	0.0K	0B	0B	0B	0	0	0%	xdg-desktop-po	
1	10.95s	5.07s	16.3M	7.8M	0B	0.0K	0B	0B	0B	0	0	0%	systemd-oomd	
1	0.51s	9.80s	845.2M	99.9M	0B	0.0K	0B	0B	0B	0	0	0%	evince	
1	1.54s	7.89s	516.6M	13.2M	0B	0.0K	0B	0B	0B	0	0	0%	ibus-daemon	
1	8.61s	6.43s	153.2M	54.8M	0B	0.0K	0B	0B	0B	0	0	0%	gnome-terminal	
1	4.34s	2.25s	253.7M	29.2M	0B	0.0K	0B	0B	0B	0	0	0%	sssd.kcm	
1	0.94s	4.85s	851.6M	340.0M	0B	0.0K	10.6M	0B	0B	0	0	0%	packagekitd	
1	4.26s	0.00s	0B	0B	0B	0.0K	0B	0B	0B	0	0	0%	btrfs-transact	
1	3.53s	0.43s	4.5M	2.5M	0B	0.0K	0B	0B	0B	0	0	0%	cgroupify	
1	0.42s	3.18s	585.1M	33.9M	0B	0.0K	0B	0B	0B	0	0	0%	ibus-extension	
1	3.37s	0.00s	0B	0B	0B	0.0K	0B	0B	0B	0	0	0%	kworker/0:1-19	
1	0.24s	2.84s	1.2G	202.5M	0B	0.0K	0B	0B	0B	0	0	0%	gnome-software	
2	1.37s	1.44s	190.9M	31.3M	0B	0.0K	0B	0B	0B	0	0	0%	systemd	
1	1.87s	0.74s	445.6M	10.2M	0B	0.0K	0B	0B	0B	0	0	0%	thermald	
1	0.49s	2.00s	366.7M	6.8M	0B	0.0K	0B	0B	0B	0	0	0%	ibus-engine-si	
1	2.38s	0.02s	0B	0B	0B	0.0K	0B	0B	0B	0	0	0%	kcompactd0	

atop -c - нагрузка на процессор, отдельно по каждому ядру

PID	TID	% CPU	COMMAND-LINE (horizontal scroll with <- and -> keys)	1/18
1960	-	3%	/usr/bin/gnome-shell	
3838	-	3%	/opt/google/chrome/chrome --type=renderer --crashpad-handler-pid=2817 --enable-crash-reporter=fe4a1ae8-52a2-4719-a7f6-61f76e07a08c, --disable-nacl --origin-trial-disabled-feat	
2807	-	3%	/opt/google/chrome/chrome --type=renderer --crashpad-handler-pid=2817 --enable-crash-reporter=fe4a1ae8-52a2-4719-a7f6-61f76e07a08c, --disable-nacl --origin-trial-disabled-feat	
2908	-	3%	/opt/google/chrome/chrome --type=renderer --crashpad-handler-pid=2817 --enable-crash-reporter=fe4a1ae8-52a2-4719-a7f6-61f76e07a08c, --disable-nacl --origin-trial-disabled-feat	
2910	-	3%	/opt/google/chrome/chrome --type=renderer --crashpad-handler-pid=2817 --enable-crash-reporter=fe4a1ae8-52a2-4719-a7f6-61f76e07a08c, --disable-nacl --origin-trial-disabled-feat	
3171	-	1%	/opt/google/chrome/chrome --type=renderer --crashpad-handler-pid=2817 --enable-crash-reporter=fe4a1ae8-52a2-4719-a7f6-61f76e07a08c, --disable-nacl --origin-trial-disabled-feat	
2841	-	1%	/usr/bin/Xwayland -D --rootless --noreset --access=core --auth /run/user/1000/mutter-Xwaylandauth.60F3F2 --listenfd 4 --listenfd 5 --displayfd 6 --initfd 7	
3306	-	0%	/opt/google/chrome/chrome --type=renderer --crashpad-handler-pid=2817 --enable-crash-reporter=fe4a1ae8-52a2-4719-a7f6-61f76e07a08c, --extension-process --disable-nacl --origin	
3180	-	0%	/opt/google/chrome/chrome --type=renderer --crashpad-handler-pid=2817 --enable-crash-reporter=fe4a1ae8-52a2-4719-a7f6-61f76e07a08c, --disable-nacl --origin-trial-disabled-feat	
3285	-	0%	/opt/google/chrome/chrome --type=renderer --crashpad-handler-pid=2817 --enable-crash-reporter=fe4a1ae8-52a2-4719-a7f6-61f76e07a08c, --disable-nacl --origin-trial-disabled-feat	
3891	-	0%	/home/varfolomeeva/Downloads/tsetup.4.6.5/Telegram/Telegram	
3371	-	0%	/opt/google/chrome/chrome --type=renderer --crashpad-handler-pid=2817 --enable-crash-reporter=fe4a1ae8-52a2-4719-a7f6-61f76e07a08c, --disable-nacl --origin-trial-disabled-feat	
4009	-	0%	/usr/lib64/libexec/soffice.bin --writer file:///home/varfolomeeva/Downloads/Telegram Desktop/Laboratory_Rabota_5.doc --splash-pixmap	
3034	-	0%	/opt/google/chrome/chrome --type=renderer --crashpad-handler-pid=2817 --enable-crash-reporter=fe4a1ae8-52a2-4719-a7f6-61f76e07a08c, --extension-process --disable-nacl --origin	
3023	-	0%	/opt/google/chrome/chrome --type=renderer --crashpad-handler-pid=2817 --enable-crash-reporter=fe4a1ae8-52a2-4719-a7f6-61f76e07a08c, --extension-process --disable-nacl --origin	
7804	-	0%	/opt/google/chrome/chrome --type=renderer --crashpad-handler-pid=2817 --enable-crash-reporter=fe4a1ae8-52a2-4719-a7f6-61f76e07a08c, --disable-nacl --origin-trial-disabled-feat	
2443	-	0%	/usr/libexec/xdg-desktop-portal-gnome	
818	-	0%	/usr/lib/systemd/systemd-oomd	
6960	-	0%	/opt/google/chrome/chrome --type=renderer --crashpad-handler-pid=2817 --enable-crash-reporter=fe4a1ae8-52a2-4719-a7f6-61f76e07a08c, --disable-nacl --origin-trial-disabled-feat	
4006	-	0%	/usr/lib64/libexec/soffice.bin --writer file:///home/varfolomeeva/Downloads/Telegram Desktop/Лаба_5_Барабеев А.pdf	
2154	-	0%	/usr/bin/ibus-daemon --panel disable	

atop -m - нагрузка на оперативную память и swap

PID	TID	MINFLT	MAJFLT	VTEXT	VSLIBS	VDATA	VSTACK	LOCKSZ	VSIZE	RSIZE	PSIZE	VGROW	RGROW	SWAPSZ	RUID	EUID	MEM	CMD	1/18
3891	-	411463	75	96.9M	95.8M	761.3M	280.0K	0.0K	181.2G	476.7M	0B	181.2G	476.7M	0B	varfolom	varfolom	6%	Telegram	
4099	-	96251	417	4.0K	117.6M	312.9M	132.0K	0.0K	1.7G	405.8M	0B	1.7G	405.8M	0B	varfolom	varfolom	5%	soffice.bin	
2807	-	118763	152	171.6M	37.4M	550.9M	132.0K	16.0K	33.6G	400.1M	0B	33.6G	400.1M	0B	varfolom	varfolom	5%	chrome	
1282	-	176511	22	176.0K	18.7M	368.6M	132.0K	0.0K	851.0M	340.6M	0B	851.0M	340.6M	10.6M	root	root	4%	packagekitd	
3838	-	169963	27	171.6M	26.3M	480.6M	160.0K	0.0K	1.1T	330.3M	0B	1.1T	330.3M	0B	varfolom	varfolom	4%	chrome	
3285	-	432117	2	171.6M	26.3M	472.1M	208.0K	0.0K	1.1T	259.9M	0B	1.1T	259.9M	0B	varfolom	varfolom	3%	chrome	
1960	-	131333	20	8.0K	127.1M	298.0M	296.0K	0.0K	5.2G	259.6M	0B	5.2G	259.6M	0B	varfolom	varfolom	3%	gnome-shell	
6960	-	232190	1	171.6M	26.3M	426.9M	176.0K	0.0K	1.1T	259.1M	0B	1.1T	259.1M	0B	varfolom	varfolom	3%	chrome	
3171	-	201485	9	171.6M	26.3M	376.5M	160.0K	0.0K	1.1T	253.8M	0B	1.1T	253.8M	0B	varfolom	varfolom	3%	chrome	
3180	-	481669	1	171.6M	26.3M	380.8M	196.0K	0.0K	1.1T	250.1M	0B	1.1T	250.1M	0B	varfolom	varfolom	3%	chrome	
3371	-	422577	8	171.6M	26.3M	392.7M	180.0K	0.0K	1.1T	249.9M	0B	1.1T	249.9M	0B	varfolom	varfolom	3%	chrome	
3023	-	779362	3	171.6M	26.3M	342.5M	160.0K	0.0K	1.1T	237.8M	0B	1.1T	237.8M	0B	varfolom	varfolom	3%	chrome	
2908	-	231663	32	171.6M	102.7M	405.9M	144.0K	0.0K	33.5G	220.6M	0B	33.5G	220.6M	4.8M	varfolom	varfolom	3%	chrome	
2191	-	70633	48	444.0K	45.4M	241.1M	732.0K	0.0K	1.2G	202.5M	0B	1.2G	202.5M	0B	varfolom	varfolom	3%	gnome-software	
7804	-	126914	0	171.6M	26.3M	299.4M	160.0K	0.0K	1.1T	200.3M	0B	1.1T	200.3M	0B	varfolom	varfolom	3%	chrome	
6088	-	95510	7	171.6M	26.3M	312.2M	172.0K	0.0K	1.1T	199.1M	0B	1.1T	199.1M	0B	varfolom	varfolom	3%	chrome	
3301	-	142523	3	171.6M	26.3M	280.1M	164.0K	0.0K	1.1T	181.5M	0B	1.1T	181.5M	0B	varfolom	varfolom	2%	chrome	
6435	-	29191	1	171.6M	26.3M	254.9M	160.0K	0.0K	1.1T	168.7M	0B	1.1T	168.7M	640.0K	varfolom	varfolom	2%	chrome	
3478	-	43460	1	171.6M	26.3M	236.6M	176.0K	0.0K	1.1T	158.4M	0B	1.1T	158.4M	1.1M	varfolom	varfolom	2%	chrome	
3340	-	32214	0	171.6M	26.3M	246.9M	160.0K	0.0K	1.1T	156.7M	0B	1.1T	156.7M	0B	varfolom	varfolom	2%	chrome	
3400	-	35671	1	171.6M	26.3M	253.3M	192.0K	0.0K	1.1T	155.5M	0B	1.1T	155.5M	1.4M	varfolom	varfolom	2%	chrome	

atop -i - нагрузка на интерфейс

(base) [varfolomeeva@fedora ~]\$ atop -i									
fedora 6.5.12-100.fc37.x86_64 #1 SMP PREEMPT_DYNAMIC Mon Nov 20 22:28:44 UTC 2023 x86_64 2023/12/13									
----- analysis date: 2023/12/13 -----									
21:20:02 interf busy ipack/s opack/s iKbyte/s oKbyte/s imbps ombps maxmbps_if_									
21:30:02 lo ? 0.0 0.0 0 0 0 0 0									
0s20f3 0% 6.9 6.1 2 2 0 0 780 h									

atopsar -d — нагрузка на каждый диск отдельно

```
(base) [varfolomeeva@fedora ~]$ atopsar -d

fedora 6.5.12-100.fc37.x86_64 #1 SMP PREEMPT_DYNAMIC Mon Nov 20 22:28:44 UTC 2
023 x86_64 2023/12/13

----- analysis date: 2023/12/13 -----

21:20:02 disk busy read/s KB/read writ/s KB/writ avque avserv _dsk_
21:30:02 sda 0% 0.0 0.0 0.0 0.0 0.0 0.00000 ms
nvme0n1 2% 32.8 17.8 57.9 15.6 1.7 0.20498 ms
```

atopsar -m — нагрузка на оперативную память и swap

```
(base) [varfolomeeva@fedora ~]$ atopsar -m

fedora 6.5.12-100.fc37.x86_64 #1 SMP PREEMPT_DYNAMIC Mon Nov 20 22:28:44 UTC 2
023 x86_64 2023/12/13

----- analysis date: 2023/12/13 -----

21:20:02 memtotal memfree buffers cached dirty slabmem swptotal swpfree _mem_
21:30:02 7609M 309M 0M 3235M 1M 593M 7608M 6251M
```

1.4 При помощи команды mpstat и опции P выведите информацию по: определенному процессору; всем процессорам.

Скачиваем нужные пакеты

```
(base) [varfolomeeva@fedora ~]$ sudo dnf install sysstat
[sudo] password for varfolomeeva:
Last metadata expiration check: 2:11:35 ago on Wed 13 Dec 2023 19:41:04 MSK.
Package sysstat-12.6.2-2.fc37.x86_64 is already installed.
Dependencies resolved.
Nothing to do.
Complete!
```

5 процессор

```
(base) [varfolomeeva@fedora ~]$ mpstat -P 5
Linux 6.5.12-100.fc37.x86_64 (fedora) 13/12/23 _x86_64_ (8 CPU)

21:48:34 CPU %usr %nice %sys %iowait %irq %soft %steal %guest
%gnice %idle
21:48:34 5 1.98 0.01 0.64 0.10 0.13 0.08 0.00 0.00
0.00 97.06
```

Все процессоры


```
(base) [varfolomeeva@fedora ~]$ mpstat -P ALL
Linux 6.5.12-100.fc37.x86_64 (fedora) 13/12/23 _x86_64_ (8 CPU)
```

21:47:31	CPU	%usr	%nice	%sys	%iowait	%irq	%soft	%steal	%guest
	%gnice	%idle							
21:47:31	all	2.01	0.01	0.66	0.09	0.17	0.10	0.00	0.00
	0.00	96.96							
21:47:31	0	2.16	0.01	0.76	0.09	0.33	0.18	0.00	0.00
	0.00	96.47							
21:47:31	1	1.98	0.01	0.67	0.09	0.20	0.17	0.00	0.00
	0.00	96.88							
21:47:31	2	2.01	0.01	0.70	0.09	0.15	0.10	0.00	0.00
	0.00	96.94							
21:47:31	3	2.01	0.01	0.63	0.09	0.13	0.07	0.00	0.00
	0.00	97.06							
21:47:31	4	2.03	0.01	0.62	0.09	0.16	0.08	0.00	0.00
	0.00	97.02							
21:47:31	5	1.98	0.01	0.64	0.10	0.13	0.08	0.00	0.00
	0.00	97.07							
21:47:31	6	2.00	0.00	0.61	0.10	0.13	0.07	0.00	0.00
	0.00	97.08							
21:47:31	7	1.95	0.01	0.62	0.10	0.13	0.07	0.00	0.00
	0.00	97.12							

- 1.5 Выполните проверку системы при помощи команды `pidstat`. Выведите по четыре отчета статистики использования процессора для каждой активной задачи в системе с интервалом в три секунды.

```
(base) [varfolomeeva@fedora ~]$ pidstat
Linux 6.5.12-100.fc37.x86_64 (fedora) 13/12/23 _x86_64_ (8 CPU)
```

21:50:01	UID	PID	%usr	%system	%guest	%wait	%CPU	CPU	Command
21:50:01	0	1	0.01	0.01	0.00	0.00	0.02	6	systemd
21:50:01	0	2	0.00	0.00	0.00	0.00	0.00	4	kthreadd
21:50:01	0	16	0.00	0.01	0.00	0.01	0.01	0	ksoftirqd/0
21:50:01	0	17	0.00	0.03	0.00	0.01	0.03	2	rcu_preempt
21:50:01	0	18	0.00	0.00	0.00	0.00	0.00	0	migration/0
21:50:01	0	23	0.00	0.00	0.00	0.00	0.00	1	migration/1
21:50:01	0	24	0.00	0.00	0.00	0.00	0.00	1	ksoftirqd/1
21:50:01	0	29	0.00	0.00	0.00	0.00	0.00	2	migration/2
21:50:01	0	30	0.00	0.00	0.00	0.00	0.00	2	ksoftirqd/2
21:50:01	0	35	0.00	0.00	0.00	0.00	0.00	3	migration/3
21:50:01	0	36	0.00	0.00	0.00	0.00	0.00	3	ksoftirqd/3
21:50:01	0	41	0.00	0.00	0.00	0.00	0.00	4	migration/4
21:50:01	0	42	0.00	0.00	0.00	0.00	0.00	4	ksoftirqd/4
21:50:01	0	47	0.00	0.00	0.00	0.00	0.00	5	migration/5
21:50:01	0	48	0.00	0.00	0.00	0.00	0.00	5	ksoftirqd/5
21:50:01	0	53	0.00	0.00	0.00	0.00	0.00	6	migration/6
21:50:01	0	54	0.00	0.00	0.00	0.00	0.00	6	ksoftirqd/6

```
(base) [varfolomeeva@fedora ~]$ pidstat 3 4
Linux 6.5.12-100.fc37.x86_64 (fedora) 13/12/23 _x86_64_ (8 CPU)
```

	UID	PID	%usr	%system	%guest	%wait	%CPU	CPU	Command
21:56:22									
21:56:25	0	234	0.00	0.33	0.00	0.00	0.33	3	kworker/3:1H-events_highpri
21:56:25	999	818	0.00	0.33	0.00	0.00	0.33	3	systemd-oomd
21:56:25	1000	1960	5.96	2.98	0.00	0.33	8.94	6	gnome-shell
21:56:25	1000	2807	0.99	0.33	0.00	0.00	1.32	2	chrome
21:56:25	1000	2910	0.66	0.00	0.00	0.00	0.66	3	chrome
21:56:25	1000	3023	0.33	0.00	0.00	0.00	0.33	0	chrome
21:56:25	1000	3034	0.33	0.00	0.00	0.00	0.33	3	chrome
21:56:25	1000	3171	0.66	0.33	0.00	0.00	0.99	2	chrome
21:56:25	1000	3285	0.00	0.33	0.00	0.00	0.33	5	chrome
21:56:25	1000	4006	1.32	0.66	0.00	0.00	1.99	4	evince
21:56:25	1000	7035	1.66	0.66	0.00	0.00	2.32	2	gnome-terminal-
21:56:25	0	10787	0.00	0.33	0.00	0.00	0.33	3	kworker/u17:2-i915_flip
21:56:25	1000	11261	0.33	0.00	0.00	0.00	0.33	6	chrome
21:56:25	1000	11305	0.33	0.33	0.00	0.00	0.66	0	pidstat
	UID	PID	%usr	%system	%guest	%wait	%CPU	CPU	Command
21:56:28	999	818	0.00	0.33	0.00	0.00	0.33	3	systemd-oomd
21:56:28	0	891	0.00	0.33	0.00	0.00	0.33	1	thermald
21:56:28	1000	1960	2.67	1.67	0.00	0.00	4.33	1	gnome-shell
21:56:28	1000	2807	0.33	0.00	0.00	0.00	0.33	2	chrome
21:56:28	1000	2910	0.67	0.33	0.00	0.00	1.00	3	chrome
21:56:28	1000	3171	1.00	0.00	0.00	0.00	1.00	2	chrome
21:56:28	1000	3180	0.33	0.00	0.00	0.00	0.33	4	chrome
21:56:28	1000	7035	1.00	0.67	0.00	0.00	1.67	2	gnome-terminal-
21:56:28	0	8828	0.00	0.33	0.00	0.00	0.33	5	kworker/u16:0-flush-btrfs-1
21:56:28	0	10787	0.00	0.33	0.00	0.00	0.33	3	kworker/u17:2-i915_flip
21:56:28	1000	11261	0.67	0.00	0.00	0.00	0.67	6	chrome
21:56:28	1000	11305	0.00	0.33	0.00	0.00	0.33	0	pidstat
	UID	PID	%usr	%system	%guest	%wait	%CPU	CPU	Command
21:56:31	1000	1960	1.00	0.00	0.00	0.00	1.00	0	gnome-shell
21:56:31	0	2136	0.00	0.33	0.00	0.00	0.33	6	sssd_kcm
21:56:31	1000	2807	0.33	0.00	0.00	0.00	0.33	2	chrome
21:56:31	1000	2814	0.00	0.33	0.00	0.00	0.33	6	cgroupify
21:56:31	1000	2910	0.33	0.00	0.00	0.00	0.33	3	chrome
21:56:31	1000	3171	0.67	0.00	0.00	0.00	0.67	2	chrome
21:56:31	1000	3180	0.33	0.33	0.00	0.00	0.67	4	chrome
21:56:31	1000	6088	0.33	0.33	0.00	0.00	0.67	1	chrome

21:56:31	1000	6088	0.33	0.33	0.00	0.00	0.67	1	chrome
21:56:31	1000	7035	0.33	0.00	0.00	0.00	0.33	3	gnome-terminal-
21:56:31	1000	11146	0.33	0.00	0.00	0.00	0.33	1	chrome
21:56:31	0	11251	0.00	0.33	0.00	0.00	0.33	1	kworker/1:2-events
21:56:31	UID	PID	%usr	%system	%guest	%wait	%CPU	CPU	Command
21:56:34	0	503	0.00	0.67	0.00	0.00	0.67	2	btrfs-transaction
21:56:34	999	818	0.00	0.33	0.00	0.00	0.33	3	systemd-oomd
21:56:34	1000	1960	0.33	0.33	0.00	0.00	0.67	0	gnome-shell
21:56:34	1000	2807	0.33	0.33	0.00	0.00	0.67	2	chrome
21:56:34	1000	2910	0.33	0.00	0.00	0.00	0.33	3	chrome
21:56:34	1000	3171	1.00	0.00	0.00	0.00	1.00	3	chrome
21:56:34	1000	3400	0.00	0.33	0.00	0.00	0.33	5	chrome
21:56:34	1000	7035	0.33	0.00	0.00	0.00	0.33	2	gnome-terminal-
21:56:34	0	10480	0.00	0.33	0.00	0.00	0.33	0	kworker/0:2-mm_percpu_wq
21:56:34	1000	11305	0.00	0.33	0.00	0.00	0.33	0	pidstat
Average:	UID	PID	%usr	%system	%guest	%wait	%CPU	CPU	Command
Average:	0	234	0.00	0.08	0.00	0.00	0.08	-	kworker/3:1H-events_highpri
Average:	0	503	0.00	0.17	0.00	0.00	0.17	-	btrfs-transaction
Average:	999	818	0.00	0.25	0.00	0.00	0.25	-	systemd-oomd
Average:	0	891	0.00	0.08	0.00	0.00	0.08	-	thermald
Average:	1000	1960	2.50	1.25	0.00	0.08	3.74	-	gnome-shell
Average:	0	2136	0.00	0.08	0.00	0.00	0.08	-	sssd_kcm
Average:	1000	2807	0.50	0.17	0.00	0.00	0.67	-	chrome
Average:	1000	2814	0.00	0.08	0.00	0.00	0.08	-	cgroupify
Average:	1000	2910	0.50	0.08	0.00	0.00	0.58	-	chrome
Average:	1000	3023	0.08	0.00	0.00	0.00	0.08	-	chrome
Average:	1000	3034	0.08	0.00	0.00	0.00	0.08	-	chrome
Average:	1000	3171	0.83	0.08	0.00	0.00	0.92	-	chrome
Average:	1000	3180	0.17	0.08	0.00	0.00	0.25	-	chrome
Average:	1000	3285	0.00	0.08	0.00	0.00	0.08	-	chrome
Average:	1000	3400	0.00	0.08	0.00	0.00	0.08	-	chrome
Average:	1000	4006	0.33	0.17	0.00	0.00	0.50	-	evince
Average:	1000	6088	0.08	0.08	0.00	0.00	0.17	-	chrome
Average:	1000	7035	0.83	0.33	0.00	0.00	1.16	-	gnome-terminal-
Average:	0	8828	0.00	0.08	0.00	0.00	0.08	-	kworker/u16:0-flush-btrfs-1
Average:	0	10480	0.00	0.08	0.00	0.00	0.08	-	kworker/0:2-mm_percpu_wq
Average:	0	10787	0.00	0.17	0.00	0.00	0.17	-	kworker/u17:2-i915_flip
Average:	1000	11146	0.08	0.00	0.00	0.00	0.08	-	chrome
Average:	0	11251	0.00	0.08	0.00	0.00	0.08	-	kworker/1:2-mm_percpu_wq
Average:	1000	11261	0.25	0.00	0.00	0.00	0.25	-	chrome
Average:	1000	11305	0.08	0.25	0.00	0.00	0.33	-	pidstat

2 Задание 2. Создание скрипта для получения статистики.

Напишите скрипт, осуществляющий сбор статистики использования процессоров и статистики работы процессов средствами mpstat и pidstat, выводящий данные в текстовый файл с именем уууу-мм-дд_х:м:с_syslog. В отчет включите текст скрипта, содержимое файла лога и вывод команды ls -l для директории сохранения логов скрипта.

Создаем и даем права скрипт-файлу:

```
(base) [varfolomeeva@fedora ~]$ nano laba5.sh
(base) [varfolomeeva@fedora ~]$ chmod +x laba5.sh
(base) [varfolomeeva@fedora ~]$ ./laba5.sh

Содержимое директории логов скрипта:
total 104
-rw-r--r--. 1 varfolomeeva varfolomeeva 37139 Dec 14 00:35 2023-12-14_00:35:18_syslog.log
-rw-r--r--. 1 varfolomeeva varfolomeeva 30483 Dec 14 00:47 2023-12-14_00:47:34_syslog.log
-rw-r--r--. 1 varfolomeeva varfolomeeva 30069 Dec 14 00:49 2023-12-14_00:49:17_syslog.log
(base) [varfolomeeva@fedora ~]$
```

Содержимое скрипта:

```
varfolomeeva@fedora:~ — nano ./laba5.sh
GNU nano 6.4 ./laba5.sh
#!/bin/bash

# Создание директории, если она не существует
mkdir -p "./log_dir"

# Создание имени файла на основе текущей даты и времени
log_file="./log_dir/${date +%Y-%m-%d_%H:%M:%S_syslog'}.log"

# Начало лог-файла
echo "Скрипт для сбора информации о процессах" > "$log_file"
cat "$0" >> "$log_file"

# Запись команд mpstat и pidstat в лог-файл
echo "Результат mpstat:" >> "$log_file"
mpstat >> "$log_file"
echo ""
echo "Результат pidstat:" >> "$log_file"
pidstat -ur >> "$log_file"

# Вывод информации о директории сохранения логов скрипта
echo "Содержимое директории логов скрипта:"
ls -l "./log_dir"
```

Вывод `ls -l`:

```
(base) [varfolomeeva@fedora log_dir]$ ls -l
total 104
-rw-r--r--. 1 varfolomeeva varfolomeeva 37139 Dec 14 00:35 2023-12-14_00:35:18_syslog.log
-rw-r--r--. 1 varfolomeeva varfolomeeva 30483 Dec 14 00:47 2023-12-14_00:47:34_syslog.log
-rw-r--r--. 1 varfolomeeva varfolomeeva 30069 Dec 14 00:49 2023-12-14_00:49:17_syslog.log
```

Содержимое лог-файла:

```
(base) [varfolomeeva@fedora log_dir]$ head -40 2023-12-14_00:49:17_syslog.log
Скрипт для сбора информации о процессах
#!/bin/bash

# Создание директории, если она не существует
mkdir -p "./log_dir"

# Создание имени файла на основе текущей даты и времени
log_file="./log_dir/$(date +%Y-%m-%d_%H:%M:%S_syslog').log"

# Начало лог-файла
echo "Скрипт для сбора информации о процессах" > "$log_file"
cat "$0" >> "$log_file"

# Запись команд mpstat и pidstat в лог-файл
echo "Результат mpstat:" >> "$log_file"
mpstat >> "$log_file"
echo ""
echo "Результат pidstat:" >> "$log_file"
pidstat -ur >> "$log_file"

# Вывод информации о директории сохранения логов скрипта
echo "Содержимое директории логов скрипта:"
ls -l "./log_dir"
Результат mpstat:
Linux 6.5.12-100.fc37.x86_64 (fedora) 14/12/23 _x86_64_ (8 CPU)

00:49:17 CPU %usr %nice %sys %iowait %irq %soft %steal %guest %gnice %idle
00:49:17 all 4.02 0.02 1.39 0.25 0.23 0.14 0.00 0.00 0.00 93.95
Результат pidstat:
Linux 6.5.12-100.fc37.x86_64 (fedora) 14/12/23 _x86_64_ (8 CPU)

00:49:17 UID PID %usr %system %guest %wait %CPU CPU Command
00:49:17 0 1 0.14 0.17 0.00 0.02 0.31 7 systemd
00:49:17 0 10 0.00 0.09 0.00 0.01 0.09 6 kworker/u16:0-btrfs-end
00:49:17 0 12 0.00 0.13 0.00 0.01 0.13 0 kworker/u16:1-btrfs-end
00:49:17 0 16 0.02 0.00 0.00 0.02 0.02 0 ksoftirqd/0
00:49:17 0 17 0.04 0.00 0.00 0.05 0.04 4 rcu_preempt
00:49:17 0 23 0.00 0.01 0.00 0.00 0.01 1 migration/1
00:49:17 0 24 0.00 0.00 0.00 0.00 0.00 1 ksoftirqd/1
00:49:17 0 25 0.00 0.01 0.00 0.01 0.01 1 kworker/1:0-events
(base) [varfolomeeva@fedora log_dir]$
```

3 Задание 3. Создание автозапускаемой службы.

С помощью утилиты systemd зарегистрируйте свою службу по сбору статистики, запускающую скрипт из задания 2 при старте системы. Запустите службу и проверьте ее работу.

```
varfolomeeva@DESKTOP-IGOR:/etc/systemd/system$ sudo systemctl daemon-reload
varfolomeeva@DESKTOP-IGOR:/etc/systemd/system$ sudo systemctl enable laba5.service
Created symlink /etc/systemd/system/default.target.wants/laba5.service → /etc/systemd/system/laba5.service.
varfolomeeva@DESKTOP-IGOR:/etc/systemd/system$ sudo systemctl start laba5.service
varfolomeeva@DESKTOP-IGOR:/etc/systemd/system$ sudo systemctl status laba5.service
o laba5.service - stat service
   Loaded: loaded (/etc/systemd/system/laba5.service; enabled; vendor preset: enabled)
   Active: inactive (dead) since Sat 2023-12-16 02:34:11 MSK; 7s ago
   Process: 1135 ExecStart=/home/varfolomeeva/laba5.sh (code=exited, status=0/SUCCESS)
   Main PID: 1135 (code=exited, status=0/SUCCESS)
```

Содержание файла laba5.service

```

varfolomeeva@DESKTOP-IGOR:/etc/systemd/system$ head laba5.service
[Unit]
Description=stat service

[Service]
Type=simple
ExecStart=/home/varfolomeeva/laba5.sh

[Install]
WantedBy=default.target
varfolomeeva@DESKTOP-IGOR:/etc/systemd/system$ |

```

В отчете приведите снимок экрана с выводом команды `ls -l` для директории сохранения логов скрипта

```

varfolomeeva@DESKTOP-IGOR:/etc/systemd/system$ ls -l /home/varfolomeeva/log_dir
total 8
-rw-rw-r-- 1 varfolomeeva varfolomeeva 6662 Dec 16 02:18 2023-12-16_02:18:27_syslog.log

```

и статистику выполнения службы

```

varfolomeeva@DESKTOP-IGOR:/etc/systemd/system$ sudo systemctl stop laba5.service
varfolomeeva@DESKTOP-IGOR:/etc/systemd/system$ sudo systemctl status laba5.service
o laba5.service - stat service
   Loaded: loaded (/etc/systemd/system/laba5.service; enabled; vendor preset: enabled)
   Active: inactive (dead) since Sat 2023-12-16 02:34:11 MSK; 10min ago
     Process: 1135 ExecStart=/home/varfolomeeva/laba5.sh (code=exited, status=0/SUCCESS)
    Main PID: 1135 (code=exited, status=0/SUCCESS)

Dec 16 02:34:11 DESKTOP-IGOR systemd[1]: Started stat service.
Dec 16 02:34:11 DESKTOP-IGOR laba5.sh[1135]: Содержимое директории логов скрипта:
Dec 16 02:34:11 DESKTOP-IGOR laba5.sh[1141]: total 8
Dec 16 02:34:11 DESKTOP-IGOR laba5.sh[1141]: -rw-r--r-- 1 root root 6993 Dec 16 02:34 2023-12-16_02:34:11_syslog.log
Dec 16 02:34:11 DESKTOP-IGOR systemd[1]: laba5.service: Deactivated successfully.

```

4 Дополнительное задание

Создайте таймер для запуска созданной службы каждую минуту, запустите таймер и проверьте его статус.

```

varfolomeeva@DESKTOP-IGOR:/etc/systemd/system$ sudo systemctl start laba5.timer
varfolomeeva@DESKTOP-IGOR:/etc/systemd/system$ sudo systemctl status laba5.timer
● laba5.timer - Logs some system statistics
   Loaded: loaded (/etc/systemd/system/laba5.timer; disabled; vendor preset: enabled)
   Active: active (waiting) since Sat 2023-12-16 02:53:22 MSK; 11s ago
     Trigger: Sat 2023-12-16 02:54:00 MSK; 26s left
    Triggers: ● laba5.service

```

Содержание файла `laba5.timer`

```

varfolomeeva@DESKTOP-IGOR:/etc/systemd/system$ head laba5.timer
[Unit]
Description=Logs some system statistics
Requires=laba5.service
[Timer]
Unit=laba5.service
OnCalendar=*-*-* *:*:00
[Install]
WantedBy=timers.target

```

После нескольких (5-7) минут работы, остановите таймер. Отрадите в отчете результат работы таймера (снимок экрана со статистикой работы таймера и вывод команды `ls -l` для директории сохранения логов скрипта).

```

varfolomeeva@DESKTOP-IGOR:/etc/systemd/system$ sudo systemctl status laba5.timer
● laba5.timer - Logs some system statistics
   Loaded: loaded (/etc/systemd/system/laba5.timer; disabled; vendor preset: enabled)
   Active: active (waiting) since Sat 2023-12-16 02:53:22 MSK; 8min ago
   Trigger: Sat 2023-12-16 03:02:00 MSK; 1s left
   Triggers: ● laba5.service

Dec 16 02:53:22 DESKTOP-IGOR systemd[1]: Started Logs some system statistics.
varfolomeeva@DESKTOP-IGOR:/etc/systemd/system$ sudo systemctl stop laba5.timer
varfolomeeva@DESKTOP-IGOR:/etc/systemd/system$ sudo systemctl status laba5.timer
○ laba5.timer - Logs some system statistics
   Loaded: loaded (/etc/systemd/system/laba5.timer; disabled; vendor preset: enabled)
   Active: inactive (dead)
   Trigger: n/a
   Triggers: ● laba5.service

Dec 16 02:53:22 DESKTOP-IGOR systemd[1]: Started Logs some system statistics.
Dec 16 03:02:11 DESKTOP-IGOR systemd[1]: laba5.timer: Deactivated successfully.
Dec 16 03:02:11 DESKTOP-IGOR systemd[1]: Stopped Logs some system statistics.
varfolomeeva@DESKTOP-IGOR:/etc/systemd/system$ |

```

```

varfolomeeva@DESKTOP-IGOR:/etc/systemd/system$ ls -l /home/varfolomeeva/log_dir
total 8
-rw-rw-r-- 1 varfolomeeva varfolomeeva 6662 Dec 16 02:18 2023-12-16_02:18:27_syslog.log
varfolomeeva@DESKTOP-IGOR:/etc/systemd/system$ |

```