

Домашняя работа № 4

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Подготовка к работе

```
# В левом терминале  
script typescript1.txt
```

```
# В правом терминале  
script typescript2.txt
```

```
vagrant@ubuntu:~$ script typescript1.txt  
Script started, output log file is 'typescript1.txt'.  
vagrant@ubuntu:~$  
  
vagrant@ubuntu:~$ script typescript2.txt  
Script started, output log file is 'typescript2.txt'.  
vagrant@ubuntu:~$  
  
[0] 0:vagrant* "pc-mnj" 20:36 02-июн-25
```

```
485 ? 00:00:00 kworker/u4:5-events_unbound  
489 ? 00:00:00 kworker/u4:6-writeback  
582 ? 00:00:00 systemd-network  
584 ? 00:00:00 systemd-resolve  
622 ? 00:00:00 dbus-daemon  
626 ? 00:00:00 irqbalance  
627 ? 00:00:00 networkd-dispat  
628 ? 00:00:00 rsyslogd  
631 ? 00:00:01 snapd  
635 ? 00:00:00 systemd-logind  
647 ? 00:00:00 cron  
656 ttys0 00:00:00agetty  
658 ttys1 00:00:00agetty  
661 ? 00:00:00sshd  
702 ? 00:00:00unattended-upgr  
716 ? 00:00:00polkitd  
839 ? 00:00:00kworker/1:3-events  
888 ? 00:00:00systemd  
889 ? 00:00:00(sd-pam)  
1199 ? 00:00:00sshd  
1249 ? 00:00:00sshd  
1250 pts/0 00:00:00bash  
1300 ? 00:00:00sshd  
1349 ? 00:00:00sshd  
1350 pts/1 00:00:00bash  
1360 pts/0 00:00:00script  
1361 pts/2 00:00:00bash  
1368 pts/1 00:00:00script  
1369 pts/3 00:00:00bash  
1383 ? 00:00:00kworker/0:2-events  
1384 pts/2 00:00:00ps  
vagrant@ubuntu:~$  
  
[0] 0:vagrant* "pc-mnj" 20:37 02-июн-25
```

```
vagrant@ubuntu:~$ ps -ef
vagrant@ubuntu:~$ script typescript2.txt
Script started, output log file is 'typescript2.txt'.
vagrant@ubuntu:~$
```

```
root      485      2  0 17:31 ?    00:00:00 [kworker/u4:5-events_unbound]
root      489      2  0 17:31 ?    00:00:00 [kworker/u4:6-writeback]
systemd+  582      1  0 17:31 ?    00:00:00 /lib/systemd/systemd-networkd
systemd+  584      1  0 17:31 ?    00:00:00 /lib/systemd/systemd-resolved
message+ 622      1  0 17:31 ?    00:00:00 @dbus-daemon --system --address=systemd: --
root     626      1  0 17:31 ?    00:00:00 /usr/sbin/irqbalance --foreground
root     627      1  0 17:31 ?    00:00:00 /usr/bin/python3 /usr/bin/networkd-dispatch
syslog   628      1  0 17:31 ?    00:00:00 /usr/sbin/rsyslogd -n -NONE
root     631      1  0 17:31 ?    00:00:01 /usr/lib/snapd/snapd
root     635      1  0 17:31 ?    00:00:01 /lib/systemd/systemd-login
root     647      1  0 17:31 ?    00:00:01 /usr/sbin/cron -f -P
root     656      1  0 17:31 ttyS0  00:00:01 /sbin/agetty -o -p -- \u --keep-baud 115200
root     658      1  0 17:31 tty1  00:00:01 /sbin/agetty -o -p -- \u --noclear tty1 lin
root     661      1  0 17:31 ?    00:00:01 sshd: /usr/sbin/sshd -D [[listener]] 0 of 10-
root     702      1  0 17:31 ?    00:00:01 /usr/bin/python3 /usr/share/unattended-upgr
root     716      1  0 17:31 ?    00:00:01 /usr/libexec/polkitd --no-debug
root     839      2  0 17:31 ?    00:00:01 [kworker/1:3-events]
Vagrant  888      1  0 17:31 ?    00:00:00 /lib/systemd/systemd --user
vagrant  889      888  0 17:31 ?    00:00:00 (sd-pam)
root    1199      661  0 17:31 ?    00:00:00 sshd: vagrant [priv]
vagrant 1249      1199  0 17:31 ?    00:00:00 sshd: vagrant@pts/0
vagrant 1250      1249  0 17:31 pts/0  00:00:00 -bash
root    1300      661  0 17:32 ?    00:00:00 sshd: vagrant [priv]
vagrant 1349      1300  0 17:32 ?    00:00:00 sshd: vagrant@pts/1
vagrant 1350      1349  0 17:32 pts/1  00:00:00 -bash
vagrant 1360      1250  0 17:35 pts/0  00:00:00 script typescript1.txt
vagrant 1361      1360  0 17:35 pts/2  00:00:00 bash -i
vagrant 1368      1350  0 17:36 pts/1  00:00:00 script typescript2.txt
vagrant 1369      1368  0 17:36 pts/3  00:00:00 bash -i
root    1383      2  0 17:37 ?    00:00:00 [kworker/0:2-events]
vagrant 1385      1361  0 17:38 pts/2  00:00:00 ps -ef
vagrant@ubuntu:~$
```

```
vagrant@ubuntu:~$ ps -ef
vagrant@ubuntu:~$ script typescript2.txt
Script started, output log file is 'typescript2.txt'.
vagrant@ubuntu:~$
```

```
Cp 2 ячейки 20:38
vagrant@ubuntu:~$ script typescript2.txt
Script started, output log file is 'typescript2.txt'.
vagrant@ubuntu:~$
```

root 485 2 0 0 0 1 17:31 ? 0:00:00 [kworker/u4:5-events_unbound
root 489 2 0 0 0 0 17:31 ? 0:00:00 [kworker/u4:6-writeback]
systemd+ 582 1 0 4032 8084 0 17:31 ? 0:00:00 /lib/systemd/systemd-network
systemd+ 584 1 0 6583 13412 1 17:31 ? 0:00:00 /lib/systemd/systemd-resolv
message+ 622 1 0 2156 4708 1 17:31 ? 0:00:00 @ibus-daemon --system --add
root 626 1 0 20675 4100 1 17:31 ? 0:00:00 /usr/sbin/irqbalance --force
root 627 1 0 8267 19036 0 17:31 ? 0:00:00 /usr/bin/python3 /usr/bin/n
syslog 628 1 0 55601 5520 0 17:31 ? 0:00:00 /usr/sbin/rsyslogd -n -iNONE
root 631 1 0 462897 36464 1 17:31 ? 0:00:01 /usr/lib/snapd/snapd
root 635 1 0 5890 7784 1 17:31 ? 0:00:00 /lib/systemd/systemd-logind
root 647 1 0 1822 2764 0 17:31 ? 0:00:00 /usr/sbin/cron -f -P
root 656 1 0 1555 1128 0 17:31 ttyS0 0:00:00 /sbin/agetty -0 -p -- \u --
root 658 1 0 1544 1096 1 17:31 ttysl 0:00:00 /sbin/agetty -0 -p -- \u --
root 661 1 0 3860 9200 0 17:31 ? 0:00:00 sshd: /usr/sbin/sshd -D [li
root 702 1 0 27534 12180 1 17:31 ? 0:00:00 /usr/bin/python3 /usr/share
root 716 1 0 58869 8216 0 17:31 ? 0:00:00 /usr/libexec/polkitd --no-d
root 839 2 0 0 0 1 17:31 ? 0:00:00 [kworker/1:3-events]
vagrant 888 1 0 4272 9380 1 17:31 ? 0:00:00 /lib/systemd/systemd --user
vagrant 889 888 0 25906 3680 1 17:31 ? 0:00:00 (sd-pam)
root 1199 661 0 4231 10800 1 17:31 ? 0:00:00 sshd: [priv]
vagrant 1249 1199 0 4367 8268 1 17:31 ? 0:00:00 sshd: vagrant@pts/0
vagrant 1250 1249 0 2300 5300 1 17:31 pts/0 0:00:00 -bash
root 1300 661 0 4231 10692 0 17:32 ? 0:00:00 sshd: vagrant [priv]
vagrant 1349 1300 0 4367 8308 1 17:32 ? 0:00:00 sshd: vagrant@pts/1
vagrant 1350 1349 0 2300 5176 0 17:32 pts/1 0:00:00 -bash
vagrant 1360 1250 0 1552 1092 1 17:35 pts/0 0:00:00 script typescript1.txt
vagrant 1361 1360 0 2272 5196 1 17:35 pts/2 0:00:00 bash -i
vagrant 1368 1350 0 1552 1088 1 17:36 pts/1 0:00:00 script typescript2.txt
vagrant 1369 1368 0 2272 5208 1 17:36 pts/3 0:00:00 bash -i
root 1383 2 0 0 0 0 17:37 ? 0:00:00 [kworker/0:2-events]
vagrant 1386 1361 0 2616 3272 0 17:38 pts/2 0:00:00 ps -eF

[0] 0:vagrant* "pc-mnj" 20:38 02-июн-25

```
Cp 2 ячейки 20:42
vagrant@ubuntu:~$ ps -ely
vagrant@ubuntu:~$ script typescript2.txt
Script started, output log file is 'typescript2.txt'.
vagrant@ubuntu:~$
```

[0] 0:vagrant* "pc-mnj" 20:42 02-июн-25

```
Cp 2 ячейки 20:42
vagrant@ubuntu:~$ script typescript2.txt
Script started, output log file is 'typescript2.txt'.
vagrant@ubuntu:~$
```

I 0 485 2 0 80 0 0 0 - ? 0:00:00 kworker/u4:5-events_unbound
I 0 489 2 0 80 0 0 0 - ? 0:00:00 kworker/u4:6-events_unbound
S 100 582 1 0 80 0 8084 4032 - ? 0:00:00 systemd-network
S 101 584 1 0 80 0 13412 6583 - ? 0:00:00 systemd-resolve
S 102 622 1 0 80 0 4708 2156 - ? 0:00:00 dbus-daemon
S 0 626 1 0 80 0 4100 20675 - ? 0:00:00 irqbalance
S 0 627 1 0 80 0 19036 8267 - ? 0:00:00 networkd-dispatcher
S 104 628 1 0 80 0 5520 55601 - ? 0:00:00 rsyslogd
S 0 631 1 0 80 0 35724 462897 - ? 0:00:01 snapd
S 0 635 1 0 80 0 7784 5890 - ? 0:00:00 systemd-logind
S 0 647 1 0 80 0 2764 1822 - ? 0:00:00 cron
S 0 656 1 0 80 0 1128 1555 - ttyS0 0:00:00 getty
S 0 658 1 0 80 0 1096 1544 - ttysl 0:00:00 getty
S 0 661 1 0 80 0 9200 3860 - ? 0:00:00 sshd
S 0 702 1 0 80 0 21280 27534 - ? 0:00:00 unattended-upgr
S 0 716 1 0 80 0 8216 58869 - ? 0:00:00 polkitd
I 0 839 2 0 80 0 0 0 - ? 0:00:00 [kworker/1:3-mpt_poll_0]
S 1000 888 1 0 80 0 9380 4272 ep_pol - ? 0:00:00 systemd
S 1000 889 889 0 80 0 3680 25906 - ? 0:00:00 (sd-pam)
S 0 1199 661 0 80 0 10800 4231 - ? 0:00:00 sshd
R 1000 1249 1199 0 80 0 8268 4367 - ? 0:00:00 sshd
S 1000 1250 1249 0 80 0 5300 2300 do_wai pts/0 0:00:00 bash
S 0 1300 661 0 80 0 10692 4231 - ? 0:00:00 sshd
S 1000 1349 1300 0 80 0 8308 4367 - ? 0:00:00 sshd
S 1000 1350 1349 0 80 0 5176 2300 do_wai pts/1 0:00:00 bash
S 1000 1360 1250 0 80 0 1092 1552 do_pol pts/0 0:00:00 script
S 1000 1361 1360 0 80 0 5196 2272 do_wai pts/2 0:00:00 bash
S 1000 1368 1350 0 80 0 1088 1552 do_pol pts/1 0:00:00 script
S 1000 1369 1368 0 80 0 5208 2272 do_sel pts/3 0:00:00 bash
I 0 1383 2 0 80 0 0 0 - ? 0:00:00 [kworker/0:2-events]
R 1000 1388 1361 0 80 0 1592 2616 - pts/2 0:00:00 ps

[0] 0:vagrant* "pc-mnj" 20:42 02-июн-25

```
vagrant@ubuntu:~$ ps ax
vagrant@ubuntu:~$ script typescript2.txt
Script started, output log file is 'typescript2.txt'.
vagrant@ubuntu:~$
```

```
ps aux 2045
vagrant@ubuntu:~$ script typescript2.txt
Script started, output log file is 'typescript2.txt'.
vagrant@ubuntu:~$
```

PPID	PID	STATE	COMMAND
485	489	R	[kworker/u4:5-events_unbound]
489	490	T	[kworker/u4:6-events_unbound]
582	583	Ss	/lib/systemd/systemd-networkd
584	585	Ss	/lib/systemd/systemd-resolved
622	623	Ss	@dbus-daemon --system --address=systemd: --nofork --nopidfile --sys
626	627	Ssl	/usr/sbin/irqbalance --foreground
627	628	Ss	/usr/bin/python3 /usr/bin/networkd-dispatcher --run-startup-trig
628	629	Ssl	/usr/sbin/rsyslogd -n -INONE
631	632	Ssl	/usr/lib/snapd/snapd
635	636	Ss	/lib/systemd/systemd-logind
647	648	Ss	/usr/sbin/cron -f -P
656	657	Ss+	/sbin/agetty -o -p -- \u --keep-baud 115200,57600,38400,9600 ttyS0
658	659	Ss+	/sbin/agetty -o -p -- \u --noclear ttyl linux
661	662	Ss	sshd: /usr/sbin/sshd -D [listener] 0 of 10-100 startups
702	703	Ssl	/usr/bin/python3 /usr/share/unattended-upgrades/unattended-upgrade
716	717	Ssl	/usr/libexec/polkitd --no-debug
839	840	I	[kworker/1:3-mpt_poll_0]
888	889	Ss	/lib/systemd/systemd--user
889	890	S	(sd-pam)
1199	1200	Ss	0:00 sshd: vagrant [priv]
1249	1250	S	0:00 sshd: vagrant@pts/0
1250	1251	Ss	0:00 -bash
1300	1301	Ss	0:00 sshd: vagrant [priv]
1349	1350	S	0:00 sshd: vagrant@pts/1
1350	1351	Ss	0:00 -bash
1360	1361	S+	0:00 script typescript1.txt
1361	1362	Ss	0:00 bash -i
1368	1369	S+	0:00 script typescript2.txt
1369	1370	Ss	0:00 bash -i
1383	1384	I	[kworker/0:2-events]
1391	1392	R+	0:00 ps ax

```
vagrant@ubuntu:~$ ps axu
vagrant@ubuntu:~$ script typescript2.txt
Script started, output log file is 'typescript2.txt'.
vagrant@ubuntu:~$
```

```

Cp 2 wechs 20:45
vagrant@ubuntu:~$ script typescript2.txt
Script started, output log file is 'typescript2.txt'.
vagrant@ubuntu:~$ 

[0] 0:vagrant* "pc-mnj" 20:45 02-июн-25

```

Output of the 'ps' command:

```

root      485  0.0  0.0      0   0 ?          I    17:31  0:00 [kworker/u4:5-events_unbound
root      489  0.0  0.0      0   0 ?          I    17:31  0:00 [kworker/u4:6-events_unbound
systemd+  582  0.0  0.4 16128  8084 ?          Ss   17:31  0:00 /lib/systemd/systemd-network
systemd+  584  0.0  0.6 26332 13412 ?          Ss   17:31  0:00 /lib/systemd/systemd-resolve
message+  622  0.0  0.2  8624  4708 ?          Ss   17:31  0:00 @dbus-daemon --system --addr...
root      626  0.0  0.2 82700  4100 ?          SsL  17:31  0:00 /usr/sbin/lmbalance --foreg...
root      627  0.0  0.9 33068 19036 ?          Ss   17:31  0:00 /usr/bin/python3 /usr/bin/ne...
syslog+  628  0.0  0.2 222404  5520 ?          SsL  17:31  0:00 /usr/sbin/rsyslogd -n -INONE
root      631  0.1  1.7 1848388 35724 ?          SsL  17:31  0:01 /usr/lib/snapd/snapd
root      635  0.0  0.3 23560  7784 ?          Ss   17:31  0:00 /lib/systemd/systemd-logind
root      647  0.0  0.1  7288  2764 ?          Ss   17:31  0:00 /usr/sbin/cron -f -P
root      656  0.0  0.0  6220 1128 ttyS0  S+   17:31  0:00 /sbin/agetty -o -p -- \u --k...
root      658  0.0  0.2  6176 1096 ttys1  S+   17:31  0:00 /sbin/agetty -o -p -- \u --n...
root      661  0.0  0.4 15440  9200 ?          Ss   17:31  0:00 sshd: /usr/sbin/sshd -D [lis...
root      702  0.0  1.0 110136 21280 ?          SsL  17:31  0:00 /usr/bin/python3 /usr/share...
root      716  0.0  0.4 235476  8216 ?          SsL  17:31  0:00 /usr/libexec/polkitd --no-de...
root      839  0.0  0.0      0   0 ?          I    17:31  0:00 [kworker/1:3-events]
vagrant+ 888  0.0  0.4 17088  9380 ?          Ss   17:31  0:00 /lib/systemd/systemd --user...
vagrant+ 889  0.0  0.1 103624  3680 ?          S   17:31  0:00 (sd-pam)
root     1199  0.0  0.5 16924 10800 ?          Ss   17:31  0:00 sshd: vagrant [priv]
vagrant+ 1249  0.0  0.4 17468  8268 ?          S   17:31  0:00 sshd: vagrant@pts/0
vagrant+ 1250  0.0  0.2  9200  5300 pts/0  Ss   17:31  0:00 bash
root     1300  0.0  0.5 16924 10692 ?          Ss   17:32  0:00 sshd: vagrant [priv]
vagrant+ 1349  0.0  0.4 17468  8308 ?          S   17:32  0:00 sshd: vagrant@pts/1
vagrant+ 1350  0.0  0.2  9200  5176 pts/1  Ss   17:32  0:00 bash
vagrant+ 1360  0.0  0.0  6208 1092 pts/0  R+  17:35  0:00 script typescript1.txt
vagrant+ 1361  0.0  0.2  9088  5320 pts/2  Ss   17:35  0:00 bash -l
vagrant+ 1368  0.0  0.0  6208 1088 pts/1  S+  17:36  0:00 script typescript2.txt
vagrant+ 1369  0.0  0.2  9088  5208 pts/3  Ss+ 17:36  0:00 bash -l
root     1383  0.0  0.0      0   0 ?          I    17:37  0:00 [kworker/0:2-events]
vagrant+ 1392  0.0  0.1 10464  3272 pts/2  R+  17:45  0:00 ps aux
vagrant@ubuntu:~$ 

```

```

Cp 2 wechs 20:46
vagrant@ubuntu:~$ ps -ejh
vagrant@ubuntu:~$ script typescript2.txt
Script started, output log file is 'typescript2.txt'.
vagrant@ubuntu:~$ 

[0] 0:vagrant* "pc-mnj" 20:46 02-июн-25

```

```

Cp 2 wechs 20:46
vagrant@ubuntu:~$ script typescript2.txt
Script started, output log file is 'typescript2.txt'.
vagrant@ubuntu:~$ 

[0] 0:vagrant* "pc-mnj" 20:46 02-июн-25

```

Output of the 'ps' command:

```

374  374  374 ?  00:00:00  systemd-journal
407  407  407 ?  00:00:00  multipathd
408  408  408 ?  00:00:00  systemd-udevd
442  442  442 ?  00:00:00  systemd-timesyn
582  582  582 ?  00:00:00  systemd-network
584  584  584 ?  00:00:00  systemd-resolve
622  622  622 ?  00:00:00  dbus-daemon
626  626  626 ?  00:00:00  lmbalance
627  627  627 ?  00:00:00  networkd-dispat...
628  628  628 ?  00:00:00  rsyslogd
631  631  631 ?  00:00:01  snapd
635  635  635 ?  00:00:00  systemd-logind
647  647  647 ?  00:00:00  cron
656  656  656 ttyS0  00:00:00  getty
658  658  658 ttys1  00:00:00  getty
661  661  661 ?  00:00:00  sshd
1199 1199 1199 ?  00:00:00  sshd
1249 1199 1199 ?  00:00:00  sshd
1250 1250 1250 pts/0  00:00:00  bash
1360 1360 1250 pts/0  00:00:00  script
1361 1361 1361 pts/2  00:00:00  bash
1393 1393 1361 pts/2  00:00:00  ps
1300 1300 1300 ?  00:00:00  sshd
1349 1300 1300 ?  00:00:00  sshd
1350 1350 1350 pts/1  00:00:00  bash
1368 1368 1350 pts/1  00:00:00  script
1369 1369 1369 pts/3  00:00:00  bash
702  702  702 ?  00:00:00  unattended-upgr...
716  716  716 ?  00:00:00  polkitd
888  888  888 ?  00:00:00  systemd
889  888  888 ?  00:00:00  (sd-pam)
vagrant@ubuntu:~$ 

```

```
vagrant@ubuntu:~$ ps axjf
vagrant@ubuntu:~$ script typescript2.txt
Script started, output log file is 'typescript2.txt'.
vagrant@ubuntu:~$
```

```
1 374 374 374 ? -1 S<s 0 0:00 /lib/systemd/systemd-journal
1 407 407 407 ? -1 Slsl 0 0:00 /sbin/multipathd -d -s
1 408 408 408 ? -1 Ss 0 0:00 /lib/systemd/systemd-udevd
1 442 442 442 ? -1 Ssl 103 0 0:00 /lib/systemd/systemd-timesyncd
1 582 582 582 ? -1 Ss 100 0:00 /lib/systemd/systemd-network
1 584 584 584 ? -1 Ss 101 0:00 /lib/systemd/systemd-resolve
1 622 622 622 ? -1 Ss 102 0:00 @dnus-daemon --system --addr
1 626 626 626 ? -1 Ssl 0 0:00 /usr/sbin/lrqlbalance --foreg
1 627 627 627 ? -1 Ss 0 0:00 /usr/bin/python3 /usr/bin/ne
1 628 628 628 ? -1 Ssl 104 0:00 /usr/sbin/rsyslogd -n -iNONE
1 631 631 631 ? -1 Ssl 0 0:01 /usr/lib/snapd/snapd
1 635 635 635 ? -1 Ss 0 0:00 /lib/systemd/systemd-logind
1 647 647 647 ? -1 Ss 0 0:00 /usr/sbin/cron -f -P
1 656 656 656 pts/0 656 Ss+ 0 0:00 /sbin/agetty -o -p --l u --k
1 658 658 658 pts/1 658 Ss+ 0 0:00 /sbin/agetty -o -p --l u --n
1 661 661 661 ? -1 Ss 0 0:00 sshd: /usr/sbin/sshd -D [lis
661 1199 1199 1199 ? -1 Ss 0 0:00 \_ sshd: vagrant [priv]
1199 1249 1199 1199 ? -1 S 1000 0:00 | \_ sshd: vagrant@pts/0
1249 1250 1250 1250 pts/0 1360 Ss 1000 0:00 | \_ bash
1250 1360 1360 1250 pts/0 1360 S+ 1000 0:00 | \_ script types
1360 1361 1361 1361 pts/2 1396 Ss 1000 0:00 | \_ bash -i
1361 1396 1396 1361 pts/2 1396 R+ 1000 0:00 | \_ ps a
661 1300 1300 1300 ? -1 Ss 0 0:00 \_ sshd: vagrant [priv]
1300 1349 1300 1300 ? -1 S 1000 0:00 \_ sshd: vagrant@pts/1
1349 1350 1350 1350 pts/1 1368 Ss 1000 0:00 \_ bash
1350 1368 1368 1356 pts/1 1368 S+ 1000 0:00 \_ script types
1368 1369 1369 1369 pts/3 1369 Ss+ 1000 0:00 \_ bash -i
1 702 702 702 ? -1 Ssl 0 0:00 /usr/bin/python3 /usr/share/
1 716 716 716 716 ? -1 Ssl 0 0:00 /usr/libexec/polkitd --no-de
1 888 888 888 888 ? -1 Ss 1000 0:00 /lib/systemd/systemd --user
888 889 889 888 888 ? -1 S 1000 0:00 \_ (sd-pam)
vagrant@ubuntu:~$
```

```
vagrant@ubuntu:~$ ps -eLf
vagrant@ubuntu:~$ script typescript2.txt
Script started, output log file is 'typescript2.txt'.
vagrant@ubuntu:~$
```

```

root      631      1    735  0  9 17:31 ?  00:00:00 /usr/lib/snapd/snapd
root      631      1    763  0  9 17:31 ?  00:00:00 /usr/lib/snapd/snapd
root      631      1    766  0  9 17:31 ?  00:00:00 /usr/lib/snapd/snapd
root      631      1    834  0  9 17:31 ?  00:00:00 /usr/lib/snapd/snapd
root      631      1    845  0  9 17:31 ?  00:00:00 /usr/lib/snapd/snapd
root      635      1    635  0  1 17:31 ?  00:00:00 /lib/systemd/systemd-logind
root      647      1    647  0  1 17:31 ?  00:00:00 /usr/sbin/cron -f -P
root      656      1    656  0  1 17:31 tty50  00:00:00 /sbin/getty -o -p -- /u --kee
root      658      1    658  0  1 17:31 tty1  00:00:00 /sbin/getty -o -p -- /u --noc
root      661      1    661  0  1 17:31 ?  00:00:00 sshd: /usr/sbin/sshd -D [liste
root      702      1    702  0  2 17:31 ?  00:00:00 /usr/bin/python3 /usr/share/un
root      702      1    721  0  2 17:31 ?  00:00:00 /usr/bin/python3 /usr/share/un
root      716      1    716  0  3 17:31 ?  00:00:00 /usr/libexec/polkitd --no-debu
root      716      1    717  0  3 17:31 ?  00:00:00 /usr/libexec/polkitd --no-debu
root      716      1    719  0  3 17:31 ?  00:00:00 /usr/libexec/polkitd --no-debu
root      839      2    839  0  1 17:31 ?  00:00:00 [kworker/1:3-events]
vagrant   888      1    888  0  1 17:31 ?  00:00:00 /lib/systemd/systemd --user
vagrant   889      1    889  0  1 17:31 ?  00:00:00 (sd-pam)
root      1199     661  1199  0  1 17:31 ?  00:00:00 sshd: vagrant [priv]
vagrant   1249     1199  1249  0  1 17:31 ?  00:00:00 sshd: vagrant@pts/0
vagrant   1250     1249  1250  0  1 17:31 pts/0  00:00:00 -bash
root      1300     661  1300  0  1 17:32 ?  00:00:00 sshd: vagrant [priv]
Vagrant   1349     1300  1349  0  1 17:32 ?  00:00:00 sshd: vagrant@pts/1
vagrant   1350     1349  1350  0  1 17:32 pts/1  00:00:00 -bash
vagrant   1360     1250  1360  0  1 17:35 pts/0  00:00:00 script typescript1.txt
vagrant   1361     1360  1361  0  1 17:35 pts/2  00:00:00 bash -l
vagrant   1368     1350  1368  0  1 17:36 pts/1  00:00:00 script typescript2.txt
vagrant   1369     1368  1369  0  1 17:36 pts/3  00:00:00 bash -1
root      1383     2    1383  0  1 17:37 ?  00:00:00 [kworker/0:2-events]
root      1395     2    1395  0  1 17:46 ?  00:00:00 [kworker/1:0-events]
vagrant   1400     1361  1400  0  1 17:48 pts/2  00:00:00 ps -eLf

```

[0] 0:vagrant* "pc-mnj" 20:48 02-июн-25

```

vagrant@ubuntu:~$ ps axms

```

[0] 0:vagrant* "pc-mnj" 20:48 02-июн-25

```

vagrant@ubuntu:~$ ps axms

```

[0] 0:vagrant* "pc-mnj" 20:50 02-июн-25

```
vagrant@ubuntu:~$ ps -eo euser,ruser,suser,f,comm,label
vagrant@ubuntu:~$ script typescript2.txt
Script started, output log file is 'typescript2.txt'.
vagrant@ubuntu:~$
```

```
systemd+ systemd+ systemd+ systemd+ 4 systemd-network unconfined
systemd+ systemd+ systemd+ systemd+ 4 systemd-resolve unconfined
message+ message+ message+ message+ 4 dbus-daemon unconfined
root root root root 4 irqbalance unconfined
root root root root 4 networkd-dispat unconfined
syslog syslog syslog syslog 4 rsyslogd unconfined
root root root root 4 snapd unconfined
root root root root 4 systemd-logind unconfined
root root root root 4 cron unconfined
root root root root 4 getty unconfined
root root root root 4 getty unconfined
root root root root 4 sshd unconfined
root root root root 4 unattended-upgr unconfined
root root root root 4 polkitd unconfined
root root root root 1 kworker/1:3-eve unconfined
vagrant vagrant vagrant vagrant 4 systemd unconfined
vagrant vagrant vagrant vagrant 5 (sd-pam) unconfined
root root root root 4 sshd unconfined
vagrant vagrant vagrant vagrant 5 sshd unconfined
vagrant vagrant vagrant vagrant 0 bash unconfined
root root root root 4 sshd unconfined
vagrant vagrant vagrant vagrant 5 sshd unconfined
vagrant vagrant vagrant vagrant 0 bash unconfined
vagrant vagrant vagrant vagrant 0 script unconfined
vagrant vagrant vagrant vagrant 0 bash unconfined
vagrant vagrant vagrant vagrant 0 script unconfined
vagrant vagrant vagrant vagrant 0 bash unconfined
root root root root 1 kworker/0:2-eve unconfined
root root root root 1 kworker/1:0-eve unconfined
root root root root 1 kworker/u4:0+ev unconfined
vagrant vagrant vagrant vagrant 0 ps unconfined
vagrant@ubuntu:~$
```

```
vagrant@ubuntu:~$ ps axZ
vagrant@ubuntu:~$ script typescript2.txt
Script started, output log file is 'typescript2.txt'.
vagrant@ubuntu:~$
```

```
qunconfined          582 ?      Ss   0:00 /lib/systemd/systemd-networkd
unconfined          584 ?      Ss   0:00 /lib/systemd/systemd-resolved
unconfined          622 ?      Ss   0:00 @dbus-daemon --system --address=sy
unconfined          626 ?      Ssl  0:00 /usr/sbin/irqbalance --foreground
unconfined          627 ?      Ss   0:00 /usr/bin/python3 /usr/bin/networkd
unconfined          628 ?      Ssl  0:00 /usr/sbin/rsyslogd -n -INONE
unconfined          631 ?      Ssl  0:01 /usr/lib/snapd/snapd
unconfined          635 ?      Ss   0:00 /lib/systemd/systemd-logind
unconfined          647 ?      Ss   0:00 /usr/sbin/cron -f -P
unconfined          656 ttyS0  Ss+  0:00 /sbin/agetty -p -- \u00a9 --keep-ba
unconfined          658 ttym1 Ss+  0:00 /sbin/agetty -p -- \u00a9 --noclear
unconfined          661 ?      Ss   0:00 sshd: /usr/sbin/sshd -D [listener]
unconfined          702 ?      Ssl  0:00 /usr/bin/python3 /usr/share/unatte
unconfined          716 ?      Ssl  0:00 /usr/libexec/polkitd --no-debug
unconfined          839 ?      I    0:00 [kworker/1:3-mpt_poll_0]
unconfined          888 ?      Ss   0:00 /lib/systemd/systemd --user
unconfined          889 ?      S    0:00 (sd-pam)
unconfined          1199 ?      Ss   0:00 sshd: vagrant [priv]
unconfined          1249 ?      R    0:00 sshd: vagrant@pts/0
unconfined          1250 pts/0  Ss   0:00 -bash
unconfined          1300 ?      Ss   0:00 sshd: vagrant [priv]
unconfined          1349 ?      S    0:00 sshd: vagrant@pts/1
unconfined          1350 pts/1  Ss   0:00 -bash
unconfined          1360 pts/0  S+   0:00 script typescript1.txt
unconfined          1361 pts/2  Ss   0:00 bash -i
unconfined          1368 pts/1  S+   0:00 script typescript2.txt
unconfined          1369 pts/3  Ss+  0:00 bash -i
unconfined          1383 ?      I    0:00 [kworker/0:2-events]
unconfined          1395 ?      I    0:00 [kworker/1:0-events]
unconfined          1404 ?      I    0:00 [kworker/u4:0-events_unbound]
unconfined          1406 pts/2  R+   0:00 ps axZ
vagrant@ubuntu:~$
```

```
vagrant@ubuntu:~$ ps -eM
vagrant@ubuntu:~$ script typescript2.txt
Script started, output log file is 'typescript2.txt'.
vagrant@ubuntu:~$
```

```
Q_2.mnw 20:53  
vagrant@ubuntu:~$ script typescript2.txt  
Script started, output log file is 'typescript2.txt'.  
vagrant@ubuntu:~$  
  
unconfined 582 ? 00:00:00 systemd-network  
unconfined 584 ? 00:00:00 systemd-resolve  
unconfined 622 ? 00:00:00 dbus-daemon  
unconfined 626 ? 00:00:00 irqbalance  
unconfined 627 ? 00:00:00 networkd-dispat  
unconfined 628 ? 00:00:00 rsyslogd  
unconfined 631 ? 00:00:01 snapd  
unconfined 635 ? 00:00:00 systemd-logind  
unconfined 647 ? 00:00:00 cron  
unconfined 656 ttyS0 00:00:00agetty  
unconfined 658 tty1 00:00:00agetty  
unconfined 661 ? 00:00:00 sshd  
unconfined 702 ? 00:00:00 unattended-upgr  
unconfined 716 ? 00:00:00 polkitd  
unconfined 839 ? 00:00:00 kworker/1:3-mpt_poll_0  
unconfined 888 ? 00:00:00 systemd  
unconfined 889 ? 00:00:00 (sd-pam)  
unconfined 1199 ? 00:00:00 sshd  
unconfined 1249 ? 00:00:00 sshd  
unconfined 1250 pts/0 00:00:00 bash  
unconfined 1300 ? 00:00:00 sshd  
unconfined 1349 ? 00:00:00 sshd  
unconfined 1350 pts/1 00:00:00 bash  
unconfined 1360 pts/0 00:00:00 script  
unconfined 1361 pts/2 00:00:00 bash  
unconfined 1368 pts/1 00:00:00 script  
unconfined 1369 pts/3 00:00:00 bash  
unconfined 1383 ? 00:00:00 kworker/0:2-events  
unconfined 1395 ? 00:00:00 kworker/1:0-events  
unconfined 1404 ? 00:00:00 kworker/u4:0-events_unbound  
unconfined 1407 pts/2 00:00:00 ps  
vagrant@ubuntu:~$ [0] 0;vagrant*
```

```
Cp 2 окт 20:53  
vagrant@ubuntu:~$ ps -U root -u root u  
vagrant@ubuntu:~$ script typescript2.txt  
Script started, output log file is 'typescript2.txt'.  
vagrant@ubuntu:~$
```

```
[0] 0:vagrant* "pc-mnj" 20:53 02-июн-25  
Cp 2 окт 20:53  
vagrant@ubuntu:~$ ps -U root -u root u  
vagrant@ubuntu:~$ script typescript2.txt  
Script started, output log file is 'typescript2.txt'.  
vagrant@ubuntu:~$
```

root	182	0.0	0.0	0	0	?	I<	17:31	0:00	[cryptd]
root	184	0.0	0.0	0	0	?	I<	17:31	0:00	[mpt/0]
root	218	0.0	0.0	0	0	?	S	17:31	0:00	[scsi_eh_2]
root	219	0.0	0.0	0	0	?	I<	17:31	0:00	[scsi_tmf_2]
root	251	0.0	0.0	0	0	?	I<	17:31	0:00	[raid5wq]
root	298	0.0	0.0	0	0	?	S	17:31	0:00	[jbd2/sda1-8]
root	299	0.0	0.0	0	0	?	I<	17:31	0:00	[ext4-rsv-conver]
root	374	0.0	0.7	47992	14372	?	S<	17:31	0:00	/lib/systemd/systemd-journal
root	399	0.0	0.0	0	0	?	I<	17:31	0:00	[kalaid]
root	403	0.0	0.0	0	0	?	I<	17:31	0:00	[kmpath_rdacd]
root	405	0.0	0.0	0	0	?	I<	17:31	0:00	[kmpathd]
root	406	0.0	0.0	0	0	?	I<	17:31	0:00	[kmpath_handlerd]
root	407	0.0	1.3	354888	27100	?	Sls	17:31	0:00	/sbin/multipathd -d -s
root	408	0.0	0.3	23308	6604	?	Ss	17:31	0:00	/lib/systemd/systemd-udevd
root	489	0.0	0.0	0	0	?	I	17:31	0:00	[kworker/u4:6-events_unbound]
root	626	0.0	0.2	82700	4100	?	Ssl	17:31	0:00	/usr/sbin/irqbalance --foreg
root	627	0.0	0.9	33068	19036	?	Ss	17:31	0:00	/usr/bin/python3 /usr/bin/ne
root	631	0.1	1.7	1848388	35724	?	Ssl	17:31	0:01	/usr/lib/snapd/snapd
root	635	0.0	0.3	23560	7784	?	Ss	17:31	0:00	/lib/systemd/systemd-logind
root	647	0.0	0.1	7288	2764	?	Ss	17:31	0:00	/usr/sbin/cron -f -P
root	656	0.0	0.0	6220	1128	ttyS0	Ss+	17:31	0:00	/sbin/agetty -o +p -- \u --k
root	658	0.0	0.0	6176	1096	tty1	Ss+	17:31	0:00	/sbin/agetty -o +p -- \u --n
root	661	0.0	0.4	15440	9200	?	Ss	17:31	0:00	sshd: /usr/sbin/sshd -D [lis
root	702	0.0	1.0	110136	21280	?	Ssl	17:31	0:00	/usr/bin/python3 /usr/share/
root	716	0.0	0.4	235476	8216	?	Ssl	17:31	0:00	/usr/libexec/polkitd --no-die
root	839	0.0	0.0	0	0	?	I	17:31	0:00	[kworker/13:events]
root	1199	0.0	0.5	16924	10800	?	Ss	17:31	0:00	sshd: vagrant [priv]
root	1300	0.0	0.5	16924	10692	?	Ss	17:32	0:00	sshd: vagrant [priv]
root	1383	0.0	0.0	0	0	?	I	17:37	0:00	[kworker/0:2-events]
root	1395	0.0	0.0	0	0	?	I	17:46	0:00	[kworker/1:0-events]
root	1404	0.0	0.0	0	0	?	I	17:51	0:00	[kworker/u4:0-events_unbound]

```
[0] 0:vagrant* "pc-mnj" 20:54 02-июн-25  
Cp 2 окт 20:54  
vagrant@ubuntu:~$ ps -eo pid,tid,class,rtprio,ni,pri,psr,pcpu,stat,wchan:14,comm  
vagrant@ubuntu:~$ script typescript2.txt  
Script started, output log file is 'typescript2.txt'.  
vagrant@ubuntu:~$
```

```

vagrant@ubuntu:~$ ps aux
  PID TTY          TIME COMMAND
 582 582 TS      -  0 19  0 0.0 Ss -      systemd-network
 584 584 TS      -  0 19  1 0.0 Ss -      systemd-resolve
 622 622 TS      -  0 19  0 0.0 Ss -      dbus-daemon
 626 626 TS      -  0 19  0 0.0 Ssl -     irqbalance
 627 627 TS      -  0 19  0 0.0 Ss -     networkd-dispat
 628 628 TS      -  0 19  0 0.0 Ssl -     rsyslogd
 631 631 TS      -  0 19  1 0.1 Ssl -     snapd
 635 635 TS      -  0 19  0 0.0 Ss -     systemd-logind
 647 647 TS      -  0 19  0 0.0 Ss -     cron
 656 656 TS      -  0 19  0 0.0 Ss+ -    agetty
 658 658 TS      -  0 19  1 0.0 Ss+ -    agetty
 661 661 TS      -  0 19  0 0.0 Ss -     sshd
 702 702 TS      -  0 19  1 0.0 Ssl -     unattended-upgr
 716 716 TS      -  0 19  0 0.0 Ssl -     polkitd
 839 839 TS      -  0 19  1 0.0 I   -     kworker/1:3-mpt_poll_0
 888 888 TS      -  0 19  0 0.0 Ss ep_poll
 889 889 TS      -  0 19  1 0.0 S   -     (sd-pam)
1199 1199 TS      -  0 19  1 0.0 Ss -     sshd
1249 1249 TS      -  0 19  1 0.0 R   -     sshd
1250 1250 TS      -  0 19  1 0.0 Ss do_wait
1300 1300 TS      -  0 19  0 0.0 Ss -     bash
1349 1349 TS      -  0 19  1 0.0 S   -     sshd
1350 1350 TS      -  0 19  0 0.0 Ss do_wait
1360 1360 TS      -  0 19  1 0.0 R+ do_poll.constp script
1361 1361 TS      -  0 19  1 0.0 Ss do_wait
1368 1368 TS      -  0 19  1 0.0 S+ do_poll.constp script
1369 1369 TS      -  0 19  1 0.0 Ss+ do_select
1383 1383 TS      -  0 19  0 0.0 I   -     kworker/0:2-events
1395 1395 TS      -  0 19  1 0.0 I   -     kworker/1:0-events
1404 1404 TS      -  0 19  1 0.0 R   -     kworker/u4:0-events_unbound
1409 1409 TS      -  0 19  0 0.0 R+ -     ps
vagrant@ubuntu:~$ [0] 0:vagrant* "pc-mnj" 20:54 02-июн-25

```

```

vagrant@ubuntu:~$ ps axo stat,euid,ruid,tppid,ses,pgrp,ppid,pid,pcpu,comm
  PID  %CPU  %MEM  VSZ  RSS  TTY          STAT   TIME COMMAND
 582  0.0   0.0  582  582  1  S  0.0 0.0 systemd-network
 584  0.0   0.0  584  584  1  S  0.0 0.0 systemd-resolve
 622  0.0   0.0  622  622  1  S  0.0 0.0 dbus-daemon
 626  0.0   0.0  626  626  1  S  0.0 0.0 irqbalance
 628  0.0   0.0  628  628  1  S  0.0 0.0 rsyslogd
 631  0.1   0.0  631  631  1  S  0.1 0.0 snapd
 635  0.0   0.0  635  635  1  S  0.0 0.0 systemd-logind
 647  0.0   0.0  647  647  1  S  0.0 0.0 cron
 656  0.0   0.0  656  656  1  S  0.0 0.0 agetty
 658  0.0   0.0  658  658  1  S  0.0 0.0 agetty
 661  0.0   0.0  661  661  1  S  0.0 0.0 sshd
 702  0.0   0.0  702  702  1  S  0.0 0.0 unattended-upgr
 716  0.0   0.0  716  716  1  S  0.0 0.0 polkitd
 839  0.0   0.0  839  839  1  S  0.0 0.0 kworker/1:3-events
 888  0.0   0.0  888  888  1  S  0.0 0.0 systemd
 889  0.0   0.0  889  889  1  S  0.0 0.0 (sd-pam)
1199  0.0   0.0  1199 1199  661  S  0.0 0.0 sshd
1249  0.0   0.0  1249 1249  1249  S  0.0 0.0 sshd
1360  0.0   0.0  1360 1250 1250  S  0.0 0.0 bash
1361  0.0   0.0  1361 1300 1300  S  0.0 0.0 sshd
1368  0.0   0.0  1368 1300 1300  S  0.0 0.0 sshd
1369  0.0   0.0  1369 1369 1369  S  0.0 0.0 bash
1383  0.0   0.0  1383 1300 1300  S  0.0 0.0 kworker/0:2-events
1395  0.0   0.0  1395 1300 1300  S  0.0 0.0 kworker/1:0-events
1404  0.0   0.0  1404 1360 1360  S  0.0 0.0 kworker/u4:0-events_unbound
1410  0.0   0.0  1410 1361 1361  S  0.0 0.0 ps
vagrant@ubuntu:~$ [0] 0:vagrant* "pc-mnj" 20:54 02-июн-25

```

```

vagrant@ubuntu:~$ ps aux
  PID TTY          TIME COMMAND
 582 582 TS      -  0 19  0 0.0 Ss -      systemd-network
 584 584 TS      -  0 19  1 0.0 Ss -      systemd-resolve
 622 622 TS      -  0 19  0 0.0 Ss -      dbus-daemon
 626 626 TS      -  0 19  0 0.0 Ssl -     irqbalance
 627 627 TS      -  0 19  0 0.0 Ss -     networkd-dispat
 628 628 TS      -  0 19  0 0.0 Ssl -     rsyslogd
 631 631 TS      -  0 19  1 0.1 Ssl -     snapd
 635 635 TS      -  0 19  0 0.0 Ss -     systemd-logind
 647 647 TS      -  0 19  0 0.0 Ss -     cron
 656 656 TS      -  0 19  0 0.0 Ss+ -    agetty
 658 658 TS      -  0 19  1 0.0 Ss+ -    agetty
 661 661 TS      -  0 19  0 0.0 Ss -     sshd
 702 702 TS      -  0 19  1 0.0 Ssl -     unattended-upgr
 716 716 TS      -  0 19  0 0.0 Ssl -     polkitd
 839 839 TS      -  0 19  1 0.0 I   -     kworker/1:3-mpt_poll_0
 888 888 TS      -  0 19  0 0.0 Ss ep_poll
 889 889 TS      -  0 19  1 0.0 S   -     (sd-pam)
1199 1199 TS      -  0 19  1 0.0 Ss -     sshd
1249 1249 TS      -  0 19  1 0.0 R   -     sshd
1250 1250 TS      -  0 19  1 0.0 Ss do_wait
1300 1300 TS      -  0 19  0 0.0 Ss -     bash
1349 1349 TS      -  0 19  1 0.0 S   -     sshd
1350 1350 TS      -  0 19  0 0.0 Ss do_wait
1360 1360 TS      -  0 19  1 0.0 R+ do_poll.constp script
1361 1361 TS      -  0 19  1 0.0 Ss do_wait
1368 1368 TS      -  0 19  1 0.0 S+ do_poll.constp script
1369 1369 TS      -  0 19  1 0.0 Ss+ do_select
1383 1383 TS      -  0 19  0 0.0 I   -     kworker/0:2-events
1395 1395 TS      -  0 19  1 0.0 I   -     kworker/1:0-events
1404 1404 TS      -  0 19  1 0.0 R   -     kworker/u4:0-events_unbound
1409 1409 TS      -  0 19  0 0.0 R+ -     ps
vagrant@ubuntu:~$ [0] 0:vagrant* "pc-mnj" 20:54 02-июн-25

```

vagrant@ubuntu:~\$ ps -Ao pid,tt,user, fname, tmout, f, wchan

vagrant@ubuntu:~\$ script typescript2.txt
Script started, output log file is 'typescript2.txt'.
vagrant@ubuntu:~\$

[0] 0:vagrant* "pc-mnj" 20:55 02-июн-25

582 ? systemd+ systemd- - 4 -
584 ? systemd+ systemd- - 4 -
622 ? message+ dbus-dae - 4 -
626 ? root irgbalan - 4 -
627 ? root networkd - 4 -
628 ? syslog rsyslogd - 4 -
631 ? root snapd - 4 -
635 ? root systemd- - 4 -
647 ? root cron - 4 -
656 ttyS0 root getty - 4 -
658 tty1 root getty - 4 -
661 ? root sshd - 4 -
702 ? root unattended - 4 -
716 ? root polkitd - 4 -
839 ? root kworker/ - 1 -
888 ? vagrant systemd - 4 ep_poll
889 ? vagrant (sd-pam) - 5 -
1199 ? root sshd - 4 -
1249 ? Vagrant sshd - 5 -
1250 pts/0 vagrant bash - 0 do_wait
1300 ? root sshd - 4 -
1349 ? vagrant sshd - 5 -
1350 pts/1 vagrant bash - 0 do_wait
1360 pts/0 vagrant script - 0 do_poll.constprop.0
1361 pts/2 vagrant bash - 0 do_wait
1368 pts/1 vagrant script - 0 do_poll.constprop.0
1369 pts/3 vagrant bash - 0 do_select
1383 ? root kworker/ - 1 -
1395 ? root kworker/ - 1 -
1404 ? root kworker/ - 1 -
1411 pts/2 vagrant ps - 0 -

vagrant@ubuntu:~\$

[0] 0:vagrant* "pc-mnj" 20:55 02-июн-25

vagrant@ubuntu:~\$ ps -C systemd -o pid=

vagrant@ubuntu:~\$ script typescript2.txt
Script started, output log file is 'typescript2.txt'.
vagrant@ubuntu:~\$

[0] 0:vagrant* "pc-mnj" 20:58 02-июн-25

```
vagrant@ubuntu:~$ ps -C systemd -o pid=
 1
 888
vagrant@ubuntu:~$
```

```
vagrant@ubuntu:~$ script typescript2.txt
Script started, output log file is 'typescript2.txt'.
vagrant@ubuntu:~$
```

Выполнение процесса в основном и фоновом режимах

```
vagrant@ubuntu:~$ $ ( while true; do printf "AAA %d" $$ >> ~/test.out; sleep 1; done )  
vagrant@ubuntu:~$ tail -f ~/test.out
```

```
vagrant@ubuntu:~$ jobs
[1]+  Stopped                  ( while true; do
      printf "AAA %d" $$ >> ~/test.out; sleep 1;
done ) &
vagrant@ubuntu:~$ ps j
PPID   PID   PGID   SID TTY      TPGID STAT   UID   TIME COMMAND
1249  1250  1250  1250 pts/0    1360 Ss  1000  0:00  bash
1349  1350  1350  1350 pts/1    1368 Ss  1000  0:00  bash
1250  1360  1360  1250 pts/0    1360 R+  1000  0:00  script typescript1.txt
1360  1361  1361  1361 pts/2    1480 Ss  1000  0:00  bash -i
1350  1368  1368  1350 pts/1    1368 S+  1000  0:00  script typescript2.txt
1368  1369  1369  1369 pts/3    1427 Ss  1000  0:00  bash -i
1361  1415  1415  1361 pts/2    1480 T   1000  0:00  bash -i
1369  1427  1427  1369 pts/3    1427 S+  1000  0:00  tail -f /home/vagrant/test.o
1415  1477  1415  1361 pts/2    1480 T   1000  0:00  sleep 1
1361  1480  1480  1361 pts/2    1480 R+  1000  0:00  ps j
vagrant@ubuntu:~$ bg
[1]+  ( while true; do
      printf "AAA %d" $$ >> ~/test.out; sleep 1;
done ) &
vagrant@ubuntu:~$
```

[0] 0:vagrant* "pc-mpnj" 21:03 02-июл-25

```
0.2 mon 21:04
vagrant@ubuntu:~$ tail -f ~/test.out
vagrant@ubuntu:~$ bg
[1]+  ( while true; do
        printf "AAA %d " $$ >> ~/test.out; sleep 1;
done ) &
vagrant@ubuntu:~$ jobs
[1]+  Running                 ( while true; do
        printf "AAA %d " $$ >> ~/test.out; sleep 1;
done ) &
vagrant@ubuntu:~$ ps j
PPID   PID  PGID   SID TTY      TPGID STAT   UID    TIME COMMAND
1249  1250  1250  1250 pts/0    1360 Ss  1000  0:00  bash
1349  1350  1350  1350 pts/1    1368 Ss  1000  0:00  bash
1250  1360  1250  1250 pts/0    1360 R+  1000  0:00  script typescript1.txt
1360  1361  1361  1361 pts/2    1480 Ss  1000  0:00  bash -i
1350  1368  1368  1368 pts/1    1368 S+  1000  0:00  script typescript2.txt
1368  1369  1369  1369 pts/3    1427 Ss  1000  0:00  bash -i
1361  1415  1415  1361 pts/2    1480 T   1000  0:00  bash -i
1369  1427  1427  1369 pts/3    1427 S+  1000  0:00  tail -f /home/vagrant/test.o
1415  1477  1415  1361 pts/2    1480 T   1000  0:00  sleep 1
1361  1480  1480  1361 pts/2    1480 R+  1000  0:00  ps j
vagrant@ubuntu:~$ bg
[1]+  ( while true; do
        printf "AAA %d " $$ >> ~/test.out; sleep 1;
done ) &
vagrant@ubuntu:~$ jobs
[1]+  Running                 ( while true; do
        printf "AAA %d " $$ >> ~/test.out; sleep 1;
done ) &
vagrant@ubuntu:~$ ps j
PPID   PID  PGID   SID TTY      TPGID STAT   UID    TIME COMMAND
1249  1250  1250  1250 pts/0    1360 Ss  1000  0:00  bash
1349  1350  1350  1350 pts/1    1368 Ss  1000  0:00  bash
1250  1360  1250  1250 pts/0    1360 S+  1000  0:00  script typescript1.txt
1360  1361  1361  1361 pts/2    1518 Ss  1000  0:00  bash -i
1350  1368  1368  1368 pts/1    1368 S+  1000  0:00  script typescript2.txt
1368  1369  1369  1369 pts/3    1427 Ss  1000  0:00  bash -i
1361  1415  1415  1361 pts/2    1518 S   1000  0:00  bash -i
1369  1427  1427  1369 pts/3    1427 S+  1000  0:00  tail -f /home/vagrant/test.o
1415  1517  1415  1361 pts/2    1518 S   1000  0:00  sleep 1
1361  1518  1518  1361 pts/2    1518 R+  1000  0:00  ps j
vagrant@ubuntu:~$
```

[0] 0:vagrant* "pc-mn1" 21:06 02-июл-25

```
vagrant@ubuntu:~$ ( while true; do printf "UUU %d" $$ >> ~/test.out; sleep 1; done ) &
[2] 1622
vagrant@ubuntu:~$ jobs
[1]-+ Running                  ( while true; do
      printf "AAA %d" $$ >> ~/test.out; sleep 1;
done ) &
[2]+  Running                  ( while true; do
      printf "UUU %d" $$ >> ~/test.out; sleep 1;
done ) &
vagrant@ubuntu:~$
```

[0] 0:vagrant* "pc-mnj" 21:06 02-июл-25

[0] 0:vagrant* | 61 AAA 1361 000 1361 AAA 1361 AAA 1361 AAA 1361 000 1361 "pc-mnj" 21:07 02-июл-25

```
vagrant@ubuntu:~$ ( while true; do printf "UUU %d" $$ >> ~/test.out; sleep 1; done ) &
[2] 1622
vagrant@ubuntu:~$ jobs
[1]- Running                  ( while true; do
    printf "AAA %d" $$ >> ~/test.out; sleep 1;
done ) &
[2]+ Running                  ( while true; do
    printf "UUU %d" $$ >> ~/test.out; sleep 1;
done ) &
vagrant@ubuntu:~$ fg %1
( while true; do
    printf "AAA %d" $$ >> ~/test.out; sleep 1;
done )
^C
vagrant@ubuntu:~$
```

The terminal shows the execution of a script that prints 'UUU' to a file and then runs a fg %1 command. The output is a long string of 'UUU' characters.

```
vagrant@ubuntu:~$ ( while true; do printf "UUU %d" $$ >> ~/test.out; sleep 1; done ) &
[2] 1622
vagrant@ubuntu:~$ jobs
[1]- Running                  ( while true; do
    printf "AAA %d" $$ >> ~/test.out; sleep 1;
done ) &
[2]+ Running                  ( while true; do
    printf "UUU %d" $$ >> ~/test.out; sleep 1;
done ) &
vagrant@ubuntu:~$ fg %1
( while true; do
    printf "AAA %d" $$ >> ~/test.out; sleep 1;
done )
^C
vagrant@ubuntu:~$
```

The terminal shows the execution of a script that prints 'UUU' to a file and then runs a fg %1 command. The output is a long string of 'UUU' characters.

```
vagrant@ubuntu:~$ ( while true; do printf "UUU %d" $$ >> ~/test.out; sleep 1; done ) &
[2] 1622
vagrant@ubuntu:~$ jobs
[1]- Running                  ( while true; do
    printf "AAA %d" $$ >> ~/test.out; sleep 1;
done ) &
[2]+ Running                  ( while true; do
    printf "UUU %d" $$ >> ~/test.out; sleep 1;
done ) &
vagrant@ubuntu:~$ fg %1
( while true; do
    printf "AAA %d" $$ >> ~/test.out; sleep 1;
done )
^?C
vagrant@ubuntu:~$ jobs
vagrant@ubuntu:~$
```

The terminal shows the execution of a script that prints 'UUU' to a file and then runs a fg %1 command. The output is a long string of 'UUU' characters.

Посылка сигналов процессам

```
vagrant@ubuntu:~$ ( while true; do printf "AAA %d" $$ >> ~/test.out; sleep 1; done ) &
[1] 1879
vagrant@ubuntu:~$ ( while true; do printf "UUU %d" $$ >> ~/test.out; sleep 1; done ) &
[2] 1890
vagrant@ubuntu:~$ jobs
[1]- Running                  ( while true; do
    printf "AAA %d" $$ >> ~/test.out; sleep 1;
done ) &
[2]+ Running                  ( while true; do
    printf "UUU %d" $$ >> ~/test.out; sleep 1;
done ) &
vagrant@ubuntu:~$ ps j
PPID   PID   PGID   SID   TTY   TPGID   STAT   UID   TIME COMMAND
1249   1250   1250   1250 pts/0   1360 Ss   1000   0:00 -bash
1349   1350   1350   1350 pts/1   1368 Ss   1000   0:00 -bash
1250   1360   1360   1250 pts/0   1368 S+  1000   0:00 script typescript1.txt
1360   1361   1361   1361 pts/2   2039 Ss   1000   0:00 bash -l
1350   1368   1368   1350 pts/1   1368 S+  1000   0:00 script typescript2.txt
1368   1369   1369   1369 pts/3   1904 Ss   1000   0:00 bash -l
1361   1879   1879   1361 pts/2   2039 S   1000   0:00 bash -l
1361   1890   1890   1361 pts/2   2039 S   1000   0:00 bash -l
1369   1904   1904   1369 pts/3   1904 S+  1000   0:00 tail -f /home/vagrant/test.out
1879   2037   1879   1361 pts/2   2039 S   1000   0:00 sleep 1
1890   2038   1890   1361 pts/2   2039 S   1000   0:00 sleep 1
1361   2039   2039   1361 pts/2   2039 R+  1000   0:00 ps j
vagrant@ubuntu:~$
```

```

vagrant@ubuntu:~$ kill -SIGSTOP %2
[2]+  Stopped                  ( while true; do
    printf "UUU %d" $$ >> ~/test.out; sleep 1;
done )
vagrant@ubuntu:~$ jobs
[1]-  Stopped                  ( while true; do
    printf "AAA %d" $$ >> ~/test.out; sleep 1;
done )
[2]+  Stopped                  ( while true; do
    printf "UUU %d" $$ >> ~/test.out; sleep 1;
done )
Vagrant@ubuntu:~$ 

```

The terminal window shows a process dump. The output consists of two interleaved loops. The first loop writes 'AAA' followed by a process ID to a file named 'test.out'. The second loop writes 'UUU' followed by a process ID to the same file. Both loops have a sleep of 1 second between iterations.

```

vagrant@ubuntu:~$ kill -SIGSTOP %2
[2]+  Stopped                  ( while true; do
    printf "UUU %d" $$ >> ~/test.out; sleep 1;
done )
vagrant@ubuntu:~$ jobs
[1]-  Stopped                  ( while true; do
    printf "AAA %d" $$ >> ~/test.out; sleep 1;
done )
[2]+  Stopped                  ( while true; do
    printf "UUU %d" $$ >> ~/test.out; sleep 1;
done )
vagrant@ubuntu:~$ fg
( while true; do
    printf "UUU %d" $$ >> ~/test.out; sleep 1;
done )
^C
Vagrant@ubuntu:~$ 

```

This screenshot shows the same process dump as the previous one, but with a foreground process (the second loop) being terminated with a Ctrl-C. The foreground process exits, and the terminal returns to its previous state.

Изучение возможностей файловых систем procfs

```

vagrant@ubuntu:~$ cat /proc/version
Linux version 5.15.0-141-generic (buildd@lcy02-amd64-027) (gcc (Ubuntu 11.4.0-1ubuntu1~22.04
1.4.0, GNU ld (GNU Binutils for Ubuntu) 2.38) #151-Ubuntu SMP Sun May 18 21:35:19 UTC 2025
vagrant@ubuntu:~$ uname -a
Linux ubuntu 5.15.0-141-generic #151-Ubuntu SMP Sun May 18 21:35:19 UTC 2025 x86_64 x86_64 x86_64
_64 GNU/Linux
vagrant@ubuntu:~$ 

```

This terminal session demonstrates the use of the procfs file system. It first prints the kernel version from the '/proc/version' file. Then it runs the 'uname -a' command to show the full system configuration, including the kernel version, architecture, and distribution (Ubuntu).

```
vagrant@ubuntu:~$ cat /sys/devices/system/node/node0/meminfo
vagrant@ubuntu:~$ cat /proc/meminfo
```

```
vagrant@ubuntu:~$ cat /proc/meminfo
vagrant@ubuntu:~$ cat /proc/meminfo
```

```
vagrant@ubuntu:~$ free
vagrant@ubuntu:~$
```

```
vagrant@ubuntu:~$ cat /proc/cpuinfo
```

```
vagrant@ubuntu:~$ cat /proc/cpuinfo
```

```
cpu family    : 26
model        : 68
model name   : AMD Ryzen 9 9950X 16-Core Processor
stepping      : 0
microcode    : 0xb40400c
cpu MHz       : 4291.948
cache size    : 1024 KB
physical id  : 0
siblings      : 2
core id       : 1
cpu cores    : 2
apicid        : 1
initial apicid: 1
fpu          : yes
fpu_exception: yes
cpuid level  : 16
wp           : yes
flags         : fpu vme de pse tsc msr pae mce cx8 apic sep mtrr pge mca cmov pat pse36 clflush mmx fxsr sse2 ht syscall nx mmxext fxsr_opt rdtsscp lm constant_tsc rep_good nopl nonstop_tsc cpuid extd_apicid tsc_known_freq pn1 pclmulqdq ssse3 fma cx16 sse4_1 sse4_2 x2apic movbe p opnct aes xsave avx f16c rdrand hypervisor lahf_lm cmp_legacy cr8_legacy abm sse4a misalignsse 3dnnowprefetch ibpb vmmcall fsgsbase bm11 avx2 bm12 invpcid rdseed adx clflushopt sha_ni arat fl ush_llid sme
bugs          : fxsave_leak sysret_ss_attrs null_seg spectre_v1 spectre_v2 ibpb_no_ret
bogomips     : 8583.89
TLB size      : 192 4K pages
clflush size  : 64
cache_alignment: 64
address sizes : 46 bits physical, 48 bits virtual
power management:
```

```
vagrant@ubuntu:~$
```

```
vagrant@ubuntu:~$ grep -c processor /proc/cpuinfo
```

```
2
```

```
vagrant@ubuntu:~$
```

```
vagrant@ubuntu:~$ cat /proc/cpuinfo
```

```
cpu family    : 26
model        : 68
model name   : AMD Ryzen 9 9950X 16-Core Processor
stepping      : 0
microcode    : 0xb40400c
cpu MHz       : 4291.948
cache size    : 1024 KB
physical id  : 0
siblings      : 2
core id       : 1
cpu cores    : 2
apicid        : 1
initial apicid: 1
fpu          : yes
fpu_exception: yes
cpuid level  : 16
wp           : yes
flags         : fpu vme de pse tsc msr pae mce cx8 apic sep mtrr pge mca cmov pat pse36 clflush mmx fxsr sse2 ht syscall nx mmxext fxsr_opt rdtsscp lm constant_tsc rep_good nopl nonstop_tsc cpuid extd_apicid tsc_known_freq pn1 pclmulqdq ssse3 fma cx16 sse4_1 sse4_2 x2apic movbe p opnct aes xsave avx f16c rdrand hypervisor lahf_lm cmp_legacy cr8_legacy abm sse4a misalignsse 3dnnowprefetch ibpb vmmcall fsgsbase bm11 avx2 bm12 invpcid rdseed adx clflushopt sha_ni arat fl ush_llid sme
bugs          : fxsave_leak sysret_ss_attrs null_seg spectre_v1 spectre_v2 ibpb_no_ret
bogomips     : 8583.89
TLB size      : 192 4K pages
clflush size  : 64
cache_alignment: 64
address sizes : 46 bits physical, 48 bits virtual
power management:
```

```
vagrant@ubuntu:~$
```

```
vagrant@ubuntu:~$ cat /proc/uptime
3087.04 6159.29
vagrant@ubuntu:~$
```

```
vagrant@ubuntu:~$ uptime
18:22:51 up 51 min, 2 users, load average: 0.00, 0.00, 0.00
vagrant@ubuntu:~$
```

```
vagrant@ubuntu:~$ echo $$
1361
vagrant@ubuntu:~$ ls -l /proc/self
lrwxrwxrwx 1 root root 0 Jul 2 17:31 /proc/self --> 2139
vagrant@ubuntu:~$ ls -ld /proc/$$
dr-xr-xr-x 9 vagrant vagrant 0 Jul 2 17:37 /proc/1361
vagrant@ubuntu:~$
```

```
vagrant@ubuntu:~$ echo $$
1361
vagrant@ubuntu:~$ read pid tcomm state other < /proc/$$/stat
vagrant@ubuntu:~$ echo "Процесс $pid $tcomm находится в состоянии $state"
Процесс 1361 (bash) находится в состоянии R
vagrant@ubuntu:~$
```