

Sistemas Operacionais
Trabalho T1 – Processos em Linux

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1.a)

PID – ID do processo da linha

TTY – nome do terminal de controle do processo

TIME – tempo de CPU que o processo já utilizou

COMMAND – comando que inicializou o processo

b) São adicionadas algumas colunas no para cada linha, que mostram a árvore dos processos.

c) Não, o processo '/usr/sbin/rsyslogd' criado por 'syslog'

d) 'ps – ef | grep terminology' verifica se o processo 'terminology' está sendo executado.

e) Alguns dos processos em execução:

PID	TTY	TIME	CMD
1	?	00:00:02	systemd
2	?	00:00:00	kthreadd
3	?	00:00:00	rcu_gp
4	?	00:00:00	rcu_par_gp
6	?	00:00:00	kworker/0:0H-events_highpri
7	?	00:00:00	kworker/0:1-events
9	?	00:00:00	mm_percpu_wq
10	?	00:00:00	rcu_tasks_rude_
11	?	00:00:00	rcu_tasks_trace
12	?	00:00:00	ksoftirqd/0
13	?	00:00:00	rcu_sched
14	?	00:00:00	migration/0
15	?	00:00:00	cpuhp/0
16	?	00:00:00	cpuhp/1
17	?	00:00:00	migration/1
18	?	00:00:00	ksoftirqd/1
20	?	00:00:00	kworker/1:0H-events_highpri
21	?	00:00:00	cpuhp/2
22	?	00:00:00	migration/2
23	?	00:00:00	ksoftirqd/2

PID	TTY	TIME	CMD
1173	?	00:00:00	systemd
1174	?	00:00:00	(sd-pam)
1193	?	00:00:00	pipewire
1194	?	00:00:00	pulseaudio
1197	?	00:00:00	tracker-miner-f
1200	?	00:00:00	dbus-daemon
1216	?	00:00:00	pipewire-media-
1218	?	00:00:00	gvfsd
1223	?	00:00:00	gvfsd-fuse
1230	?	00:00:00	gvfs-udisks2-vo
1236	?	00:00:00	gvfs-afc-volume
1241	?	00:00:00	gvfs-mtp-volume
1245	?	00:00:00	gvfs-gphoto2-vo
1249	?	00:00:00	gvfs-goa-volume
1253	?	00:00:00	goa-daemon
1260	?	00:00:00	goa-identity-se
1262	?	00:00:00	gnome-keyring-d
1275	tty2	00:00:00	gdm-x-session
1277	tty2	00:00:08	Xorg
1299	tty2	00:00:00	gnome-session-b

2. O processo que mais está utilizando CPU é 'epiphany'

PID	USER	PR	NI	VIRT	RES	SHR	S	%CPU	%MEM	TIME+	COMMAND
1666	bodhi	23	3	98.863g	63556	14380	S	1.7	6.3	0:36.16	epiphany
1787	bodhi	23	3	82.180g	32364	15764	S	1.3	3.2	0:01.40	WebKitWebP+
1907	bodhi	23	3	518976	32696	19208	S	1.3	3.2	0:04.26	terminology
1068	root	20	0	647680	26660	7156	S	0.7	2.6	0:03.54	Xorg
1060	bodhi	23	2	41790	2668	2000	D	0.2	0.4	0:00.20	top

3.

a) Como a listagem é muito longa, segue print de uma parte dela:

```
(host@root)-[~]
$ ls /proc -all
total 4
dr-xr-xr-x 258 root      root      0 Apr 19 12:36 .
drwxr-xr-x  19 root      root      4096 Apr  2 17:29 ..
dr-xr-xr-x   9 root      root      0 Apr 19 12:36 1
dr-xr-xr-x   9 root      root      0 Apr 19 12:36 10
dr-xr-xr-x   9 root      root      0 Apr 19 12:37 1009
dr-xr-xr-x   9 root      root      0 Apr 19 12:37 1013
dr-xr-xr-x   9 root      root      0 Apr 19 12:36 11
dr-xr-xr-x   9 colord    colord    0 Apr 19 12:37 1127
dr-xr-xr-x   9 root      host      0 Apr 19 12:38 1162
dr-xr-xr-x   9 host      host      0 Apr 19 12:38 1173
dr-xr-xr-x   9 host      host      0 Apr 19 12:38 1174
dr-xr-xr-x   9 host      host      0 Apr 19 12:38 1193
dr-xr-xr-x   9 host      host      0 Apr 19 12:38 1194
dr-xr-xr-x   9 host      host      0 Apr 19 12:38 1197
dr-xr-xr-x   9 root      root      0 Apr 19 12:36 12
dr-xr-xr-x   9 host      host      0 Apr 19 12:38 1200
dr-xr-xr-x   9 host      host      0 Apr 19 12:38 1216
dr-xr-xr-x   9 host      host      0 Apr 19 12:38 1218
dr-xr-xr-x   9 host      host      0 Apr 19 12:38 1223
dr-xr-xr-x   9 host      host      0 Apr 19 12:38 1230
dr-xr-xr-x   9 host      host      0 Apr 19 12:38 1236
dr-xr-xr-x   9 root      root      0 Apr 19 12:36 124
dr-xr-xr-x   9 host      host      0 Apr 19 12:38 1241
dr-xr-xr-x   9 host      host      0 Apr 19 12:38 1245
dr-xr-xr-x   9 host      host      0 Apr 19 12:38 1249
dr-xr-xr-x   9 host      host      0 Apr 19 12:38 1253
dr-xr-xr-x   9 host      host      0 Apr 19 12:38 1260
dr-xr-xr-x   9 host      host      0 Apr 19 12:38 1262
dr-xr-xr-x   9 host      host      0 Apr 19 12:38 1275
dr-xr-xr-x   9 host      host      0 Apr 19 12:38 1277
dr-xr-xr-x   9 host      host      0 Apr 19 12:38 1299
dr-xr-xr-x   9 root      root      0 Apr 19 12:36 13
```

b)

Processo escolhido: Nautilus

```
(host@root)-[~]
$ ps -ef | grep nautilus
host      3474      1173   2 14:05 ?        00:00:00 /usr/bin/nautilus --gapplication-service
host      3495      1871   0 14:05 pts/0    00:00:00 grep --color=auto nautilus
```

Diretórios encontrados:

```
(host@root)-[~]
$ ls /proc
1      1241  1431  1581  1641  179   2398  3190  35   50   80
10     1245  1436  1588  1649  18    2498  32    3501 500  82
1009   1249  1474  16    165   180   25    325   3502 501  83
1013   1253  1478  1601  1656  181   2536  33    3503 504  84
11     1260  1496  1602  166   182   2587  3314  3510 505  849
1127   1262  15    161   1665  1820  259   3317  352   507  85
1162   1275  150   1611  1667  1845  26    3324  36    51   9
1173   1277  1515  1622  1670  1846  27    333   37    52   94
1174   1299  152   1624  1674  1864  274   3339  38    577  97
1193   13    1543  1627  1676  1871  275   334   385   6    98
1194   1377  1547  1629  168   1896  28    3374  4     602  acpi
1197   1379  1548  163   1685  193   2930  3375  40    612  asound
12     1389  155   1631  17    2     2955  3376  44    62   buddyinfo
1200   1390  1550  1632  170   20    2972  3377  45    72   bus
1216   1396  1553  1633  1711  21    3     3378  46    73   cgroups
1218   1398  156   1635  172   22    30    3408  47    737  cmdline
1223   14    1564  1637  174   225   31    3409  48    74   consoles
1230   1401  1568  1639  1759  227   3124  3410  49    75   cpuinfo
1236   1402  1573  164   176   229   3187  3426  498   76   crypto
124    1408  158   1640  178   23    3189  3474  499   777  devices
```

Listagem dos diretórios:

/proc/3474 (listagem igual para todos)

```
(host@root)-[~]
$ ls /proc/3474
arch_status  comm      fd        maps      numa_maps  projid_map  smaps_rollback  timens_offsets
attr         coredump_filter  fdinfo     mem       oom_adj    root        stack           timers
autogroup    cpu_resctrl_groups  gid_map    mountinfo oom_score  sched       stat            timerslack_ns
auxv         cpuset      io         mounts    oom_score_adj  schedstat  statm          uid_map
cgroup       cwd         limits     mountstats  pagemap    sessionid  status         wchan
clear_refs   environ     loginuid   net        patch_state  setgroups  syscall
cmdline      exe         map_files  ns         personality  smaps      task
```

Funcionalidade de alguns arquivos:

- comm: armazena o nome do processo;
- limits: limitações para o uso do hardware pelo processo;
- maps: listagem de diretórios necessários para o funcionamento do processo;

4.

d) Estado do job: 'Running'

```
bodhi@bodhi:~$ jobs
[1]+  Running                  ping localhost > /dev/null &
```

e)

```
bodhi@bodhi:~$ jobs
[1]-  Running                  ping localhost > /dev/null &
[2]+  Running                  ping localhost > /dev/null &
```

g)

Estado do job 1: 'Stopped'

Estado do job 2: 'Running'

```
bodhi@bodhi:~$ jobs
[1]+  Stopped                  ping localhost > /dev/null
[2]-  Running                  ping localhost > /dev/null &
```

h) Job 1 voltou a ser executado

```
bodhi@bodhi:~$ jobs
[1]-  Running                  ping localhost > /dev/null &
[2]+  Running                  ping localhost > /dev/null &
```

i) Job 1 foi terminado

```
bodhi@bodhi:~$ jobs
[1]-  Terminated              ping localhost > /dev/null
[2]+  Running                  ping localhost > /dev/null &
```

j) Job 2 foi terminado

```
bodhi@bodhi:~$ jobs
[2]+  Terminated              ping localhost > /dev/null
```