

## SISTEMAS OPERACIONAIS - 04/11/2020

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ra: 02201000

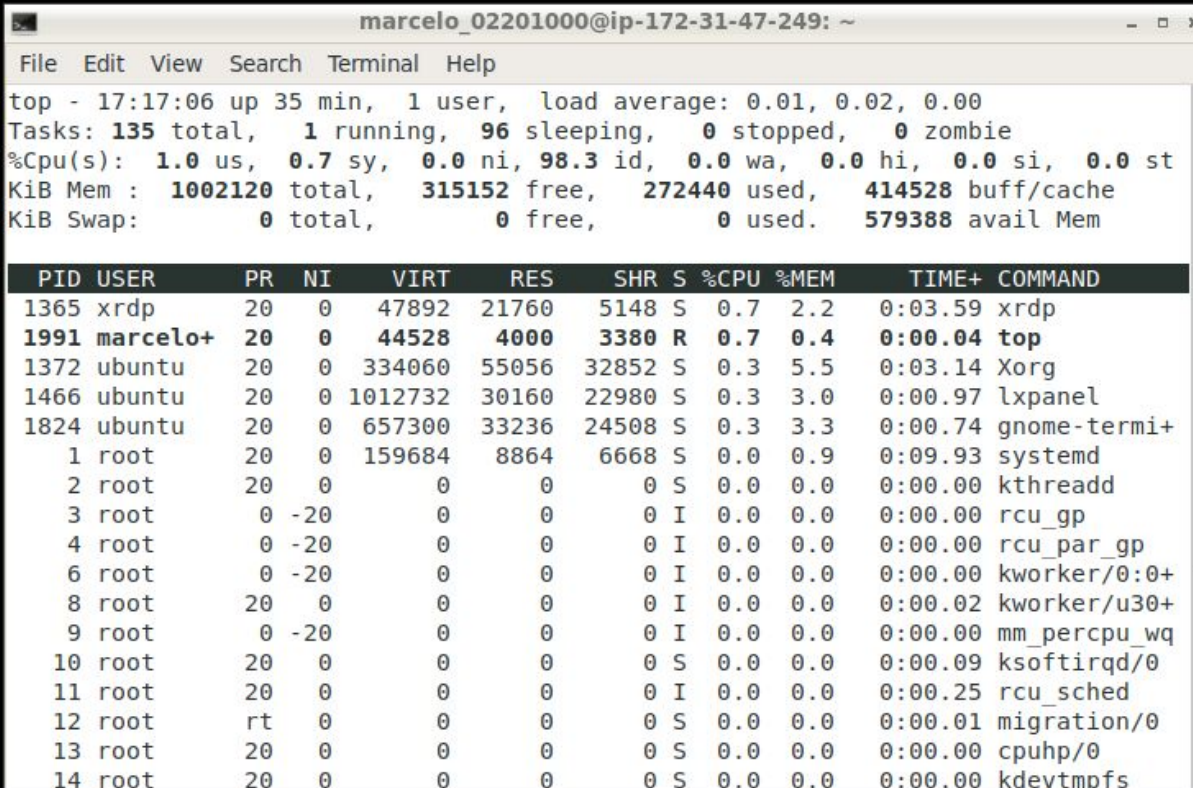
Turma: CCO

### Atividade de Gerenciamento de Processos

#### Primeira parte

top

marcelo\_02201000@ip-172-31-47-249:~\$ top



```
marcelo_02201000@ip-172-31-47-249: ~
File Edit View Search Terminal Help
top - 17:17:06 up 35 min, 1 user, load average: 0.01, 0.02, 0.00
Tasks: 135 total, 1 running, 96 sleeping, 0 stopped, 0 zombie
%Cpu(s): 1.0 us, 0.7 sy, 0.0 ni, 98.3 id, 0.0 wa, 0.0 hi, 0.0 si, 0.0 st
KiB Mem : 1002120 total, 315152 free, 272440 used, 414528 buff/cache
KiB Swap: 0 total, 0 free, 0 used. 579388 avail Mem
```

PID	USER	PR	NI	VIRT	RES	SHR	S	%CPU	%MEM	TIME+	COMMAND
1365	xrdp	20	0	47892	21760	5148	S	0.7	2.2	0:03.59	xrdp
1991	marcelo+	20	0	44528	4000	3380	R	0.7	0.4	0:00.04	top
1372	ubuntu	20	0	334060	55056	32852	S	0.3	5.5	0:03.14	Xorg
1466	ubuntu	20	0	1012732	30160	22980	S	0.3	3.0	0:00.97	lxpanel
1824	ubuntu	20	0	657300	33236	24508	S	0.3	3.3	0:00.74	gnome-termi+
1	root	20	0	159684	8864	6668	S	0.0	0.9	0:09.93	systemd
2	root	20	0	0	0	0	S	0.0	0.0	0:00.00	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
6	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	kworker/0:0+
8	root	20	0	0	0	0	I	0.0	0.0	0:00.02	kworker/u30+
9	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	mm_percpu_wq
10	root	20	0	0	0	0	S	0.0	0.0	0:00.09	ksoftirqd/0
11	root	20	0	0	0	0	I	0.0	0.0	0:00.25	rcu_sched
12	root	rt	0	0	0	0	S	0.0	0.0	0:00.01	migration/0
13	root	20	0	0	0	0	S	0.0	0.0	0:00.00	cpuhp/0
14	root	20	0	0	0	0	S	0.0	0.0	0:00.00	kdevtmpfs

vi

marcelo\_02201000@ip-172-31-47-249:~\$ vi

ctrl + z

```
marcelo_02201000@ip-172-31-47-249: ~
File Edit View Search Terminal Help
marcelo_02201000@ip-172-31-47-249:~$ vi

[1]+  Stopped                  vi
marcelo_02201000@ip-172-31-47-249:~$
```

```
marcelo_02201000@ip-172-31-47-249: ~
File Edit View Search Terminal Help
top - 17:22:13 up 40 min,  1 user,  load average: 0.00, 0.00, 0.00
Tasks: 136 total,  1 running,  96 sleeping,  1 stopped,  0 zombie
%Cpu(s):  0.7 us,  0.3 sy,  0.0 ni, 99.0 id,  0.0 wa,  0.0 hi,  0.0 si,  0.0 st
KiB Mem : 1002120 total,  312876 free,  274776 used,  414468 buff/cache
KiB Swap:  0 total,  0 free,  0 used.  577176 avail Mem

  PID USER      PR  NI   VIRT   RES   SHR  S  %CPU  %MEM    TIME+  COMMAND
 1365 xrdp        20   0   47892   21760  5148  S   0.3   2.2   0:03.91 xrdp
 1824 ubuntu    20   0 698868   35196 26232  S   0.3   3.5   0:01.09 gnome-termi+
    1 root      20   0 159684    8864  6668  S   0.0   0.9   0:03.41 systemd
    2 root      20   0     0     0     0  S   0.0   0.0   0:00.00 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
    6 root      0 -20     0     0     0  I   0.0   0.0   0:00.00 kworker/0:0+
    8 root      20   0     0     0     0  I   0.0   0.0   0:00.03 kworker/u30+
    9 root      0 -20     0     0     0  I   0.0   0.0   0:00.00 mm_percpu_wq
   10 root      20   0     0     0     0  S   0.0   0.0   0:00.09 ksoftirqd/0
   11 root      20   0     0     0     0  I   0.0   0.0   0:00.25 rcu_sched
   12 root      rt    0     0     0     0  S   0.0   0.0   0:00.01 migration/0
   13 root      20   0     0     0     0  S   0.0   0.0   0:00.00 cpuhp/0
   14 root      20   0     0     0     0  S   0.0   0.0   0:00.00 kdevtmpfs
   15 root      0 -20     0     0     0  I   0.0   0.0   0:00.00 netns
   16 root      20   0     0     0     0  S   0.0   0.0   0:00.00 rcu_tasks_k+
   17 root      20   0     0     0     0  S   0.0   0.0   0:00.00 kauditd
```

```
nice -n 20 top
```

```
marcelo_02201000@ip-172-31-47-249:~$ nice -n20 top
```

```
marcelo_02201000@ip-172-31-47-249: ~
File Edit View Search Terminal Help
top - 17:43:05 up 1:01, 1 user, load average: 0.00, 0.00, 0.00
Tasks: 139 total, 1 running, 96 sleeping, 4 stopped, 0 zombie
%Cpu(s): 1.7 us, 0.7 sy, 0.0 ni, 97.7 id, 0.0 wa, 0.0 hi, 0.0 si, 0.0 st
KiB Mem : 1002120 total, 295892 free, 291048 used, 415180 buff/cache
KiB Swap: 0 total, 0 free, 0 used. 560640 avail Mem
```

PID	USER	PR	NI	VIRT	RES	SHR	S	%CPU	%MEM	TIME+	COMMAND
1365	xrdp	20	0	47892	22024	5148	S	0.7	2.2	0:06.10	xrdp
1372	ubuntu	20	0	338100	59140	33024	S	0.7	5.9	0:05.41	Xorg
1468	ubuntu	20	0	69640	5216	4532	S	0.3	0.5	0:00.89	xscreensaver
1824	ubuntu	20	0	702732	37720	26740	S	0.3	3.8	0:02.99	gnome-termi+
2106	marcelo+	39	19	44528	4112	3488	R	0.3	0.4	0:00.04	top
1	root	20	0	159684	8864	6668	S	0.0	0.9	0:03.42	systemd
2	root	20	0	0	0	0	S	0.0	0.0	0:00.00	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
6	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	kworker/0:0+
8	root	20	0	0	0	0	I	0.0	0.0	0:00.07	kworker/u30+
9	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	mm_percpu_wq
10	root	20	0	0	0	0	S	0.0	0.0	0:00.11	ksoftirqd/0
11	root	20	0	0	0	0	I	0.0	0.0	0:00.27	rcu_sched
12	root	rt	0	0	0	0	S	0.0	0.0	0:00.02	migration/0
13	root	20	0	0	0	0	S	0.0	0.0	0:00.00	cpuhp/0
14	root	20	0	0	0	0	S	0.0	0.0	0:00.00	kdevtmpfs

```
jobs
```

```
marcelo_02201000@ip-172-31-47-249:~$ jobs
```

```
marcelo_02201000@ip-172-31-47-249: ~
File Edit View Search Terminal Help
marcelo_02201000@ip-172-31-47-249:~$ jobs
[1] Stopped vi
[2] Stopped nice -n -20 vi
[3]- Stopped vi running
[4]+ Stopped nice -n20 vi
marcelo_02201000@ip-172-31-47-249:~$
```

```
jobs -l
```

```
marcelo_02201000@ip-172-31-47-249:~$ jobs -l
```

```
marcelo_02201000@ip-172-31-47-249: ~
File Edit View Search Terminal Help
marcelo_02201000@ip-172-31-47-249:~$ jobs -l
[1] 2007 Stopped vi
[2] 2013 Stopped nice -n -20 vi
[3]- 2015 Stopped vi running
[4]+ 2022 Stopped nice -n20 vi
marcelo_02201000@ip-172-31-47-249:~$
```



jobs -s

marcelo\_02201000@ip-172-31-47-249:~\$ jobs -s

```
marcelo_02201000@ip-172-31-47-249: ~
File Edit View Search Terminal Help
marcelo_02201000@ip-172-31-47-249:~$ jobs -s
[1]  Stopped                  vi
[2]  Stopped                  nice -n -20 vi
[3]- Stopped                  vi running
[4]+ Stopped                  nice -n20 vi
marcelo_02201000@ip-172-31-47-249:~$
```

jobs -p

marcelo\_02201000@ip-172-31-47-249:~\$ jobs -p

```
marcelo_02201000@ip-172-31-47-249: ~
File Edit View Search Terminal Help
marcelo_02201000@ip-172-31-47-249:~$ jobs -p
2007
2013
2015
2022
marcelo_02201000@ip-172-31-47-249:~$
```

ps

marcelo\_02201000@ip-172-31-47-249:~\$ ps

```
marcelo_02201000@ip-172-31-47-249:~$ ps
  PID TTY          TIME CMD
 1979 pts/1        00:00:00 bash
 2007 pts/1        00:00:00 vi
 2013 pts/1        00:00:00 vi
 2015 pts/1        00:00:00 vi
 2022 pts/1        00:00:00 vi
 2113 pts/1        00:00:00 ps
marcelo_02201000@ip-172-31-47-249:~$
```

ps -a

marcelo\_02201000@ip-172-31-47-249:~\$ ps -a

```
marcelo_02201000@ip-172-31-47-249:~$ ps -a
  PID TTY          TIME CMD
 1966 pts/1        00:00:00 su
 1979 pts/1        00:00:00 bash
 2007 pts/1        00:00:00 vi
 2013 pts/1        00:00:00 vi
 2015 pts/1        00:00:00 vi
 2022 pts/1        00:00:00 vi
 2114 pts/1        00:00:00 ps
marcelo_02201000@ip-172-31-47-249:~$
```

```
ps -u
```

```
marcelo_02201000@ip-172-31-47-249:~$ ps -u
```

```
marcelo_02201000@ip-172-31-47-249:~$ ps -u
```

USER	PID	%CPU	%MEM	VSZ	RSS	TTY	STAT	START	TIME	COMMAND
marcelo+	1979	0.0	0.5	23016	5112	pts/1	S	17:15	0:00	bash
marcelo+	2007	0.0	0.8	55536	8856	pts/1	T	17:20	0:00	vi
marcelo+	2013	0.0	0.8	55536	8836	pts/1	T	17:25	0:00	vi
marcelo+	2015	0.0	0.9	55688	9172	pts/1	T	17:29	0:00	vi running
marcelo+	2022	0.0	0.8	55536	8952	pts/1	TN	17:32	0:00	vi
marcelo+	2115	0.0	0.3	40088	3484	pts/1	R+	17:48	0:00	ps -u

```
marcelo_02201000@ip-172-31-47-249:~$
```

```
ps -x
```

```
marcelo_02201000@ip-172-31-47-249:~$ ps -x
```

```
marcelo_02201000@ip-172-31-47-249:~$ ps -x
```

PID	TTY	STAT	TIME	COMMAND
1967	?	Ss	0:00	/lib/systemd/systemd --user
1968	?	S	0:00	(sd-pam)
1979	pts/1	S	0:00	bash
2007	pts/1	T	0:00	vi
2013	pts/1	T	0:00	vi
2015	pts/1	T	0:00	vi running
2022	pts/1	TN	0:00	vi
2116	pts/1	R+	0:00	ps -x

```
marcelo_02201000@ip-172-31-47-249:~$
```

```
ps -l
```

```
marcelo_02201000@ip-172-31-47-249:~$ ps -l
```

```
marcelo_02201000@ip-172-31-47-249:~$ ps -l
```

F	S	UID	PID	PPID	C	PRI	NI	ADDR	SZ	WCHAN	TTY	TIME	CMD
4	S	1001	1979	1966	0	80	0	-	5754	wait	pts/1	00:00:00	bash
0	T	1001	2007	1979	0	80	0	-	13884	signal	pts/1	00:00:00	vi
0	T	1001	2013	1979	0	80	0	-	13884	signal	pts/1	00:00:00	vi
0	T	1001	2015	1979	0	80	0	-	13922	signal	pts/1	00:00:00	vi
0	T	1001	2022	1979	0	99	19	-	13884	signal	pts/1	00:00:00	vi
0	R	1001	2117	1979	0	80	0	-	7334	-	pts/1	00:00:00	ps

```
marcelo_02201000@ip-172-31-47-249:~$
```

```
ps -e
```

```
marcelo_02201000@ip-172-31-47-249:~$ ps -e
```

```
marcelo_02201000@ip-172-31-47-249: ~
File Edit View Search Terminal Help
marcelo_02201000@ip-172-31-47-249:~$ ps -e
```

PID	TTY	TIME	CMD
1	?	00:00:03	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-kb
8	?	00:00:00	kworker/u30:0-e
9	?	00:00:00	mm_percpu_wq
10	?	00:00:00	ksoftirqd/0
11	?	00:00:00	rcu_sched
12	?	00:00:00	migration/0
13	?	00:00:00	cpuhp/0
14	?	00:00:00	kdevtmpfs
15	?	00:00:00	netns
16	?	00:00:00	rcu_tasks_kthre
17	?	00:00:00	kauditd
18	?	00:00:00	xenbus
19	?	00:00:00	xenwatch
20	?	00:00:00	khungtaskd
21	?	00:00:00	oom_reaper
22	?	00:00:00	writeback
23	?	00:00:00	kcompactd0
24	?	00:00:00	ksmd



```
ps -aux
```

```
marcelo_02201000@ip-172-31-47-249:~$ ps -aux
```

```
marcelo_02201000@ip-172-31-47-249:~$ ps -aux
```

USER	PID	%CPU	%MEM	VSZ	RSS	TTY	STAT	START	TIME	COMMAND
root	1	0.0	0.8	159684	8864	?	Ss	16:41	0:03	/sbin/init
root	2	0.0	0.0	0	0	?	S	16:41	0:00	[kthreadd]
root	3	0.0	0.0	0	0	?	I<	16:41	0:00	[rcu_gp]
root	4	0.0	0.0	0	0	?	I<	16:41	0:00	[rcu_par_gp]
root	6	0.0	0.0	0	0	?	I<	16:41	0:00	[kworker/0:0H-k
root	8	0.0	0.0	0	0	?	I	16:41	0:00	[kworker/u30:0-
root	9	0.0	0.0	0	0	?	I<	16:41	0:00	[mm_percpu_wq]
root	10	0.0	0.0	0	0	?	S	16:41	0:00	[ksoftirqd/0]
root	11	0.0	0.0	0	0	?	I	16:41	0:00	[rcu_sched]
root	12	0.0	0.0	0	0	?	S	16:41	0:00	[migration/0]
root	13	0.0	0.0	0	0	?	S	16:41	0:00	[cpuhp/0]
root	14	0.0	0.0	0	0	?	S	16:41	0:00	[kdevtmpfs]
root	15	0.0	0.0	0	0	?	I<	16:41	0:00	[netns]
root	16	0.0	0.0	0	0	?	S	16:41	0:00	[rcu_tasks_kthr
root	17	0.0	0.0	0	0	?	S	16:41	0:00	[kauditd]
root	18	0.0	0.0	0	0	?	S	16:41	0:00	[xenbus]
root	19	0.0	0.0	0	0	?	S	16:41	0:00	[xenwatch]
root	20	0.0	0.0	0	0	?	S	16:41	0:00	[khungtaskd]
root	21	0.0	0.0	0	0	?	S	16:41	0:00	[oom_reaper]
root	22	0.0	0.0	0	0	?	I<	16:41	0:00	[writeback]
root	23	0.0	0.0	0	0	?	S	16:41	0:00	[kcompactd0]
root	24	0.0	0.0	0	0	?	SN	16:41	0:00	[ksmd]
root	25	0.0	0.0	0	0	?	SN	16:41	0:00	[khugepaged]
root	71	0.0	0.0	0	0	?	I<	16:41	0:00	[kintegrityd]
root	72	0.0	0.0	0	0	?	I<	16:41	0:00	[kblockd]
root	73	0.0	0.0	0	0	?	I<	16:41	0:00	[blkcg_punt_bio
root	74	0.0	0.0	0	0	?	I<	16:41	0:00	[tpm_dev_wq]
root	75	0.0	0.0	0	0	?	I<	16:41	0:00	[ata_sff]
root	76	0.0	0.0	0	0	?	I<	16:41	0:00	[md]
root	77	0.0	0.0	0	0	?	I<	16:41	0:00	[edac-poller]
root	78	0.0	0.0	0	0	?	I<	16:41	0:00	[devfreq_wq]
root	79	0.0	0.0	0	0	?	S	16:41	0:00	[watchdogd]
root	80	0.0	0.0	0	0	?	T	16:41	0:00	[kworker/u30:1

## Segunda parte

a) Na tela abaixo o que significa Ss e TN na coluna STAT, explique

```
root@DESKTOP-00I5LD3: ~
127 tty1 00:00:00 ps
root@DESKTOP-00I5LD3:~# ps -aux
```

USER	PID	%CPU	%MEM	VSZ	RSS	TTY	STAT	START	TIME	COMMAND
root	1	0.0	0.0	8324	152	?	Ss	14:38	0:00	/init
root	3	0.0	0.0	8328	152	tty1	Ss	14:38	0:00	/init
urubu100	4	0.0	0.0	15220	3740	tty1	S	14:38	0:00	-bash
urubu100	44	0.0	0.0	15160	3700	tty1	S	14:53	0:00	bash
urubu100	76	0.0	0.0	24688	6148	tty1	T	15:20	0:00	vi
urubu100	77	0.0	0.0	24452	5652	tty1	T	15:21	0:00	vi
root	81	0.0	0.0	14232	1844	tty1	S	15:22	0:00	su root
root	82	0.0	0.0	13808	2272	tty1	S	15:22	0:00	bash
root	92	0.0	0.0	24528	5760	tty1	T	15:22	0:00	vi
root	96	0.0	0.0	24512	5708	tty1	T	15:27	0:00	vi
root	117	0.0	0.0	24356	5656	tty1	TN	16:29	0:00	vi
root	119	0.0	0.0	15888	1932	tty1	T	16:30	0:00	top
root	120	0.0	0.0	24512	5744	tty1	TN	16:36	0:00	vi
root	121	0.1	0.0	15912	1976	tty1	T	16:36	0:01	top
root	128	0.0	0.0	15664	1860	tty1	R	17:00	0:00	ps -aux

```
root@DESKTOP-00I5LD3:~#
```

- S: Significa que o processo é interrompível (esperando a conclusão de um evento)
- s: É um líder de sessão
- T: Processo foi interrompido, seja por um sinal de controle de trabalho ou porque está sendo rastreado.
- N: Processo de baixa prioridade (bom p/ outros usuários)

**b) O que significa ADDR SZ e WCHAN na tela abaixo, explique**

```

For more details see ps(1).
root@DESKTOP-00I5LD3:~# ps -l
 F S      UID      PID  PPID  C  PRI  NI ADDR SZ  WCHAN  TTY          TIME CMD
 0 S      0         3      1   0   80   0  - 2082   -  tty1      00:00:00 init
 0 S      0        81      44   0   80   0  - 3558   -  tty1      00:00:00 su
 0 S      0        82      81   0   80   0  - 3452   -  tty1      00:00:00 bash
 0 T      0        92      82   0   80   0  - 6132   -  tty1      00:00:00 vi
 0 T      0        96      82   0   80   0  - 6128   -  tty1      00:00:00 vi
 0 T      0       117      82   0  100  20  - 6089   -  tty1      00:00:00 vi
 0 T      0       119      82   0   80   0  - 3972   -  tty1      00:00:00 top
 0 T      0       120      82   0   61 4294967277 - 6128 -  tty1      00:00:00 vi
 0 T      0       121      82   0   80   0  - 3978   -  tty1      00:00:01 top
 0 R      0       126      82   0   80   0  - 3844   -  tty1      00:00:00 ps
root@DESKTOP-00I5LD3:~#

```

ADDR: Endereço de memória do processo

SZ: Uso de memória virtual

WCHAN: Endereço de memória do evento que o processo está esperando