



# GESTIÓN DE PROCESOS EN LINUX:

## *PRÁCTICA1- PROCESOS*

Unidade Didáctica 8  
SISTEMAS OPERATIVOS MONOPOSTO

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Curso: 1SMR  
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REALIZA AS SEGUINTE OPERACIÓNS DENDE O TERMINAL DE COMANDOS.

CONDICIÓNS DE TRABALLO:



As imaxes nas que non se vexa o usuario co teu nome, non serán válidas e puntuaranse cun 0.

**O primeiro: crear o teu usuario de traballo!**

1. *Crear un usuario con estes datos seguindo o exemplo da imaxe cos datos:*

- *Nome de usuario: o teu nome de usuarios*
- *Resto dos datos: calquera. Valen os do exemplo,*

```
Terminal - alumno@debianUD4: ~
Ficheiro  Editar  Ver  Terminal  Tabs  Axuda
root@debianUD4:~# adduser alumno
Adding user `alumno' ...
Adding new group `alumno' (1001) ...
Adding new user `alumno' (1001) with group `alumno' ...
Creating home directory `/home/alumno' ...
Copying files from `/etc/skel' ...
New password:
Retype new password:
passwd: o contrasinal actualizouse con éxito
A cambiar a información de usuario de alumno
Introduza o novo valor ou prema Intro para o valor por defecto
Nome completo []: Alumno
Número de cuarto []: 1SMR
Teléfono do traballo []: 888888888
Teléfono da casa []: 888888888
Outro []:
Is the information correct? [Y/n] Y
root@debianUD4:~# login alumno
Password:
Linux debianUD4 4.19.0-12-amd64 #1 SMP Debian 4.19.152-1 (2020-10-18) x86_64

The programs included with the Debian GNU/Linux system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

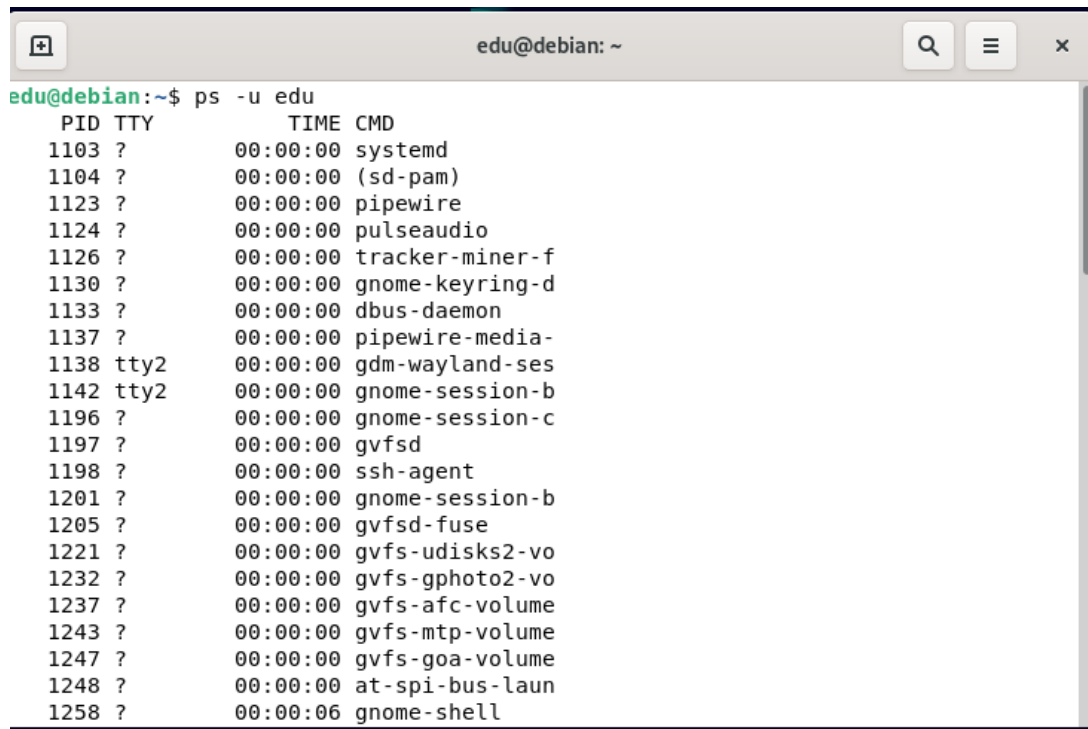
Debian GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the extent
permitted by applicable law.
alumno@debianUD4:~$
```

2. *Inciciar sesión na máquina co usuario de traballo creado.*

- **Para as prácticas usar o usuario creado sen privilexios**
- *Engadir imaxe da execución dos comandos solicitados (admítese que cada imaxe inclúa máis dunha operación.)*

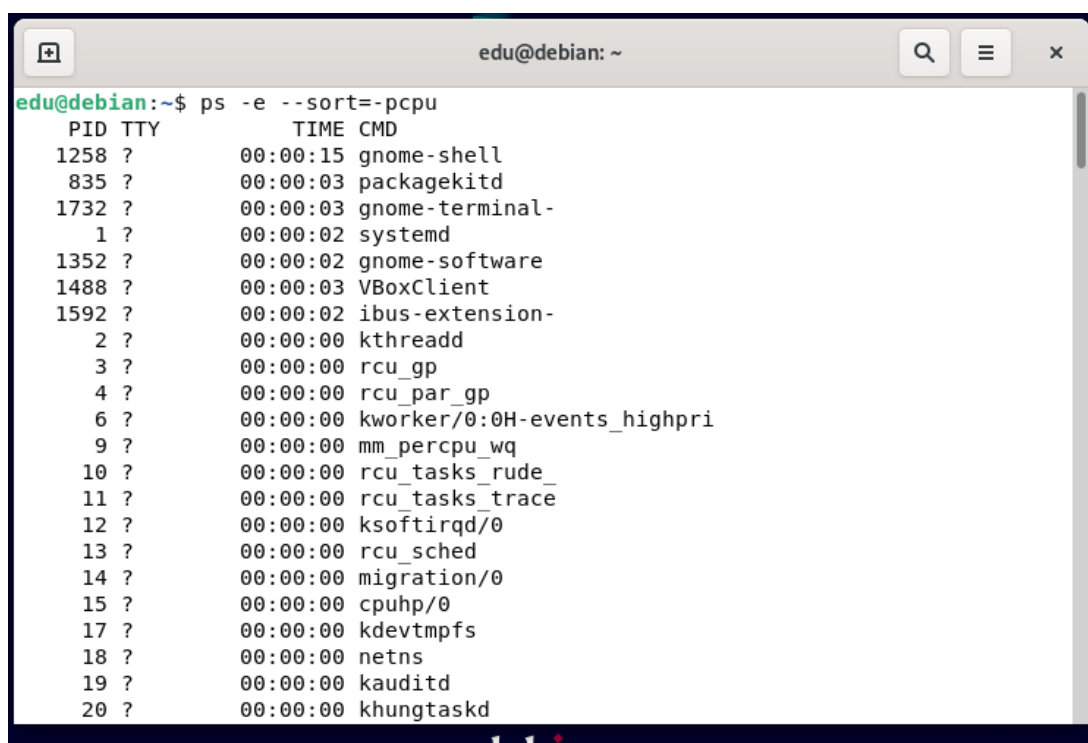
## OPERACIÓNS A REALIZAR SOBRE LINUX

1. Mostrar os procesos executados polo teu usuario.



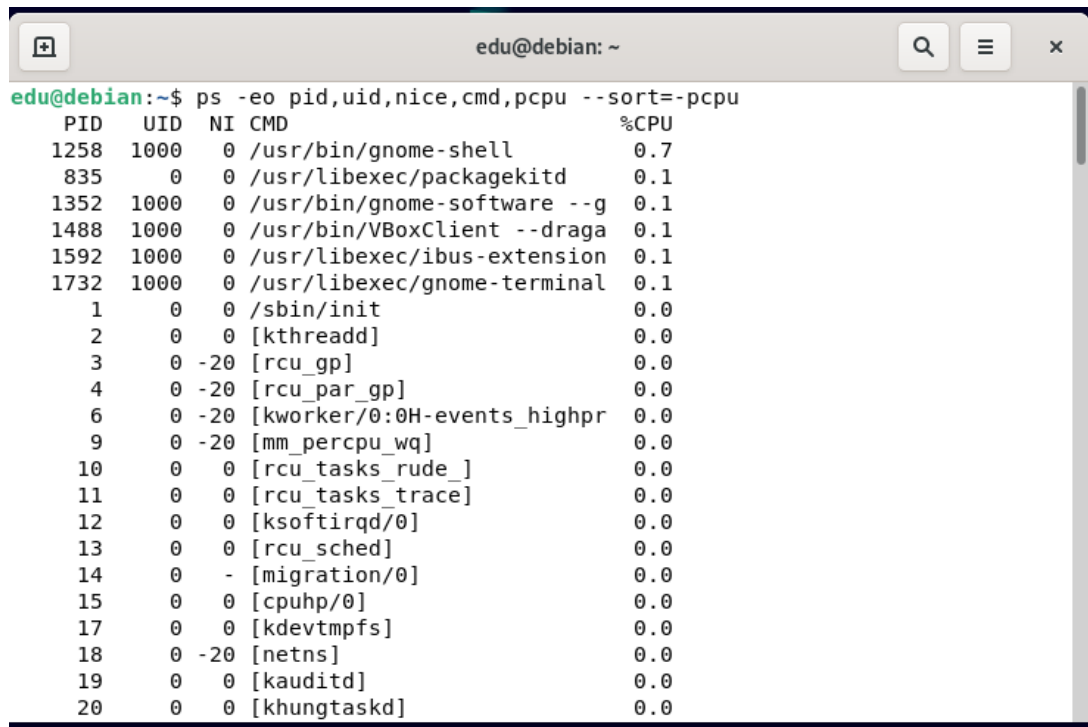
```
edu@debian: ~  
edu@debian:~$ ps -u edu  
  PID TTY          TIME CMD  
 1103 ?        00:00:00 systemd  
 1104 ?        00:00:00 (sd-pam)  
 1123 ?        00:00:00 pipewire  
 1124 ?        00:00:00 pulseaudio  
 1126 ?        00:00:00 tracker-miner-f  
 1130 ?        00:00:00 gnome-keyring-d  
 1133 ?        00:00:00 dbus-daemon  
 1137 ?        00:00:00 pipewire-media-  
 1138 tty2      00:00:00 gdm-wayland-ses  
 1142 tty2      00:00:00 gnome-session-b  
 1196 ?        00:00:00 gnome-session-c  
 1197 ?        00:00:00 gvfsd  
 1198 ?        00:00:00 ssh-agent  
 1201 ?        00:00:00 gnome-session-b  
 1205 ?        00:00:00 gvfsd-fuse  
 1221 ?        00:00:00 gvfs-udisks2-vo  
 1232 ?        00:00:00 gvfs-gphoto2-vo  
 1237 ?        00:00:00 gvfs-afc-volume  
 1243 ?        00:00:00 gvfs-mtp-volume  
 1247 ?        00:00:00 gvfs-goa-volume  
 1248 ?        00:00:00 at-spi-bus-laun  
 1258 ?        00:00:06 gnome-shell
```

2. Mostrar todos os procesos ordenados por uso da CPU.



```
edu@debian: ~  
edu@debian:~$ ps -e --sort=-pcpu  
  PID TTY          TIME CMD  
 1258 ?        00:00:15 gnome-shell  
   835 ?        00:00:03 packagekitd  
 1732 ?        00:00:03 gnome-terminal-  
    1 ?        00:00:02 systemd  
 1352 ?        00:00:02 gnome-software  
 1488 ?        00:00:03 VBoxClient  
 1592 ?        00:00:02 ibus-extension-  
    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  
    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  
   17 ?        00:00:00 kdevtmpfs  
   18 ?        00:00:00 netns  
   19 ?        00:00:00 kauditd  
   20 ?        00:00:00 khungtaskd
```

3. Mostrar todos os procesos indicando o PID, UID, memoria utilizada, prioridade e comando completo.



A terminal window titled 'edu@debian: ~' showing the output of the command 'ps -eo pid,uid,nice,cmd,pcpu --sort=-pcpu'. The output lists system processes sorted by CPU usage. The first few lines show user processes like gnome-shell, packagekitd, and gnome-software. The rest of the list shows kernel processes like init, kthreadd, rcu\_gp, and various rcu tasks.

```
edu@debian:~$ ps -eo pid,uid,nice,cmd,pcpu --sort=-pcpu
  PID   UID  NI  CMD                                %CPU
 1258  1000   0  /usr/bin/gnome-shell                0.7
   835    0   0  /usr/libexec/packagekitd            0.1
 1352  1000   0  /usr/bin/gnome-software --g         0.1
 1488  1000   0  /usr/bin/VBoxClient --draga         0.1
 1592  1000   0  /usr/libexec/ibus-extension         0.1
 1732  1000   0  /usr/libexec/gnome-terminal         0.1
     1    0   0  /sbin/init                          0.0
     2    0   0  [kthreadd]                          0.0
     3    0  -20  [rcu_gp]                            0.0
     4    0  -20  [rcu_par_gp]                        0.0
     6    0  -20  [kworker/0:0H-events_highpr]        0.0
     9    0  -20  [mm_percpu_wq]                      0.0
    10    0   0  [rcu_tasks_rude_]                   0.0
    11    0   0  [rcu_tasks_trace]                   0.0
    12    0   0  [ksoftirqd/0]                       0.0
    13    0   0  [rcu_sched]                         0.0
    14    0   -  [migration/0]                      0.0
    15    0   0  [cpuhp/0]                           0.0
    17    0   0  [kdevtmpfs]                         0.0
    18    0  -20  [netns]                             0.0
    19    0   0  [kauditd]                           0.0
    20    0   0  [khungtaskd]                        0.0
```

4. Cantos procesos ten correndo e cantos durmindo o teu user?

```
edu@debian: ~  
top - 21:10:50 up 42 min, 1 user, load average: 0,06, 0,05, 0,05  
Tasks: 173 total, 1 running, 172 sleeping, 0 stopped, 0 zombie  
%Cpu(s): 0,3 us, 0,0 sy, 0,0 ni, 99,7 id, 0,0 wa, 0,0 hi, 0,0 si, 0,0 st  
MiB Mem : 976,5 total, 103,2 free, 530,9 used, 342,3 buff/cache  
MiB Swap: 976,0 total, 906,5 free, 69,5 used. 297,5 avail Mem
```

PID	USER	PR	NI	VIRT	RES	SHR	S	%CPU	%MEM	TIME+	COMMAND
1258	edu	20	0	3651312	202980	96672	S	1,7	20,3	0:17.52	gnome-s+
1488	edu	20	0	152640	2384	2048	S	0,3	0,2	0:04.38	VBoxCli+
1732	edu	20	0	401464	45736	36164	S	0,3	4,6	0:04.23	gnome-t+
2084	edu	20	0	10092	3600	3112	R	0,3	0,4	0:00.01	top
1	root	20	0	164192	10004	7268	S	0,0	1,0	0:02.20	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+
6	root	0	-20	0	0	0	I	0,0	0,0	0:00.00	kworker+
9	root	0	-20	0	0	0	I	0,0	0,0	0:00.00	mm_perc+
10	root	20	0	0	0	0	S	0,0	0,0	0:00.00	rcu_tas+
11	root	20	0	0	0	0	S	0,0	0,0	0:00.00	rcu_tas+
12	root	20	0	0	0	0	S	0,0	0,0	0:00.09	ksoftir+
13	root	20	0	0	0	0	I	0,0	0,0	0:00.15	rcu_sch+
14	root	rt	0	0	0	0	S	0,0	0,0	0:00.02	migrati+
15	root	20	0	0	0	0	S	0,0	0,0	0:00.00	cpuhp/0
17	root	20	0	0	0	0	S	0,0	0,0	0:00.00	kdevtmp+

5. Desde cando leva encendida a máquina? (comando *uptime*)

```
edu@debian: ~  
edu@debian:~$ uptime  
21:11:18 up 43 min, 1 user, load average: 0,04, 0,05, 0,05  
edu@debian:~$
```

6. Realiza as seguintes operacións:

- (a) Executar o comando `sleep 1000`
- (b) Suspendelo e poñelo a traballar en segundo plano;
- (c) Volveo a traer a primeiro plano;
- (d) Por último, cancelao



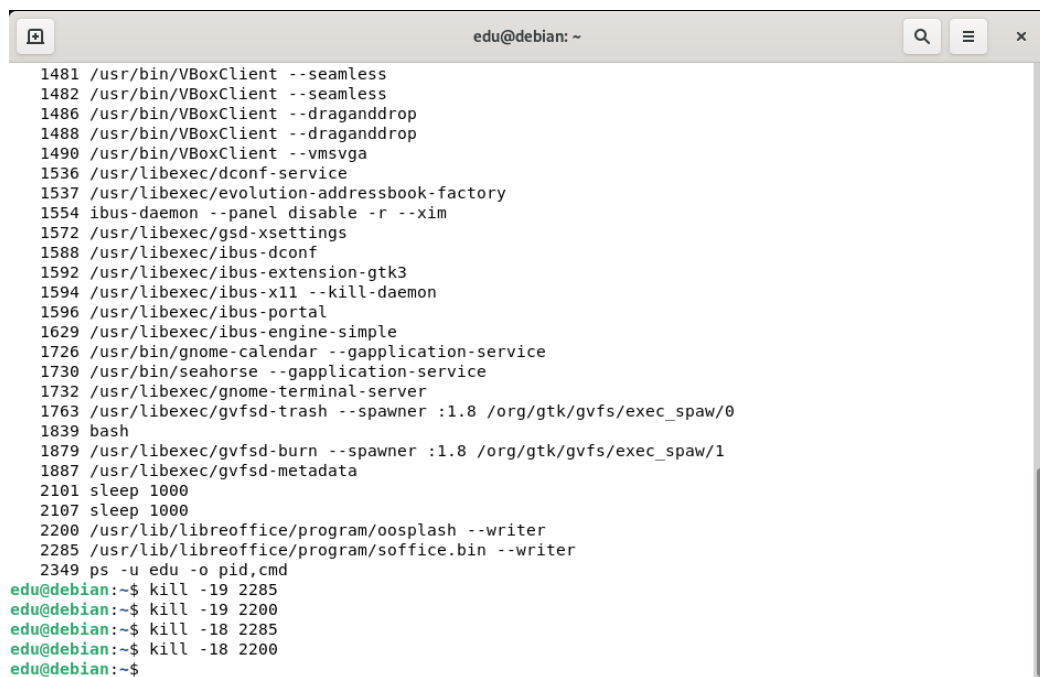
```
edu@debian: ~  
edu@debian:~$ sleep 1000  
^Z  
[1]+  Detenido          sleep 1000  
edu@debian:~$ sleep 1000 &  
[2] 2102  
edu@debian:~$ jobs  
[1]+  Detenido          sleep 1000  
[2]-  Ejecutando        sleep 1000 &  
edu@debian:~$ fg 2  
sleep 1000  
^C  
edu@debian:~$ █
```

7. Repetir o exercicio anterior pero sen o apartado c (haberá que matar o proceso que esté en segundo plano)




```
edu@debian:~$ sleep 1000  
^Z  
[2]+  Detenido          sleep 1000  
edu@debian:~$ sleep 1000 &  
[3] 2108  
edu@debian:~$ kill %3  
edu@debian:~$ jobs  
[1]-  Detenido          sleep 1000  
[2]+  Detenido          sleep 1000  
[3] Terminado         sleep 1000  
edu@debian:~$ █
```

8. Arrinca o libreoffice dende o teu usuario,
- (a) Como root, para o proceso `writer` e comproba o seu cambio de estado mediante a listaxe adecuada. Verás a aplicación bloqueada e non se pode traballar con ela.
- (b) Reinicia o proceso e comproba que volve estar operativo o documento.



```
edu@debian: ~  
1481 /usr/bin/VBoxClient --seamless  
1482 /usr/bin/VBoxClient --seamless  
1486 /usr/bin/VBoxClient --draganddrop  
1488 /usr/bin/VBoxClient --draganddrop  
1490 /usr/bin/VBoxClient --vmsvga  
1536 /usr/libexec/dconf-service  
1537 /usr/libexec/evolution-addressbook-factory  
1554 ibus-daemon --panel disable -r --xim  
1572 /usr/libexec/gsd-xsettings  
1588 /usr/libexec/ibus-dconf  
1592 /usr/libexec/ibus-extension-gtk3  
1594 /usr/libexec/ibus-x11 --kill-daemon  
1596 /usr/libexec/ibus-portal  
1629 /usr/libexec/ibus-engine-simple  
1726 /usr/bin/gnome-calendar --gaplication-service  
1730 /usr/bin/seahorse --gaplication-service  
1732 /usr/libexec/gnome-terminal-server  
1763 /usr/libexec/gvfsd-trash --spawner :1.8 /org/gtk/gvfs/exec_spaw/0  
1839 bash  
1879 /usr/libexec/gvfsd-burn --spawner :1.8 /org/gtk/gvfs/exec_spaw/1  
1887 /usr/libexec/gvfsd-metadata  
2101 sleep 1000  
2107 sleep 1000  
2200 /usr/lib/libreoffice/program/oosplash --writer  
2285 /usr/lib/libreoffice/program/soffice.bin --writer  
2349 ps -u edu -o pid,cmd  
edu@debian:~$ kill -19 2285  
edu@debian:~$ kill -19 2200  
edu@debian:~$ kill -18 2285  
edu@debian:~$ kill -18 2200  
edu@debian:~$
```

9. Indicar que tempo tarda o computador en buscar dentro do directorio de configuracións o ficheiro `dhclient.conf`. (*time*)



```
edu@debian: ~  
edu@debian:~$ su -  
Contraseña:  
root@debian:~# time find / -iname dhclient.conf  
find: '/run/user/1000/gvfs': Permisó denegado  
/etc/dhcp/dhclient.conf  
  
real    0m11,626s  
user    0m0,551s  
sys     0m0,736s  
root@debian:~#
```

10. Realiza unha listaxe que mostre a prioridade dos procesos dos usuarios. Que proceso ten maior prioridade e porqué?



```
edu@debian: ~  
edu@debian:~$ ps -eo pid,uid,cmd,nice --sort=-nice  
PID    UID  CMD                                NI  
3       0    [rcu_gp]                          -20  
4       0    [rcu_par_gp]                      -20  
6       0    [kworker/0:0H-events_highpr]     -20  
9       0    [mm_percpu_wq]                   -20  
18      0    [netns]                          -20  
22      0    [writeback]                      -20  
43      0    [kintegrityd]                   -20  
44      0    [kblockd]                       -20  
45      0    [blkcg_punt_bio]                 -20  
46      0    [edac-poller]                   -20  
47      0    [devfreq_wq]                    -20  
48      0    [kworker/0:1H-kblockd]           -20  
52      0    [kthrotld]                      -20  
53      0    [acpi_thermal_pm]               -20  
54      0    [ipv6_addrconf]                 -20  
64      0    [kstrp]                         -20  
67      0    [zswap-shrink]                  -20  
68      0    [kworker/u3:0]                  -20  
105     0    [ata_sff]                       -20  
107     0    [scsi_tmf_0]                    -20  
110     0    [scsi_tmf_1]                    -20  
111     0    [scsi_tmf_2]                    -20  
114     0    [scsi_tmf_3]                    -20  
121     0    [ttm_swap]                      -20  
169     0    [ext4-rsv-conver]               -20  
225     0    [rpciod]                        -20  
226     0    [xprtiod]                       -20  
283     0    [cryptd]                       -20  
383     0    [ext4-rsv-conver]               -20
```

11. Modifica a prioridade dun proceso en execución e outro durmido e fai unha listaxe que verifique o cambio.

```
0 S 1000 2200 1258 0 80 0 - 23828 - ? 00:00:00 oosplash  
0 S 1000 2285 2200 0 80 0 - 228708 - ? 00:00:03 soffice.bin  
5 I 0 2334 2 0 80 0 - 0 - ? 00:00:01 kworker/u2:1-events_unbound  
1 I 0 2411 2 0 80 0 - 0 - ? 00:00:00 kworker/u2:2-events_unbound  
1 I 0 2438 2 0 80 0 - 0 - ? 00:00:00 kworker/0:0-ata_sff  
1 I 0 2445 2 3 80 0 - 0 - ? 00:00:01 kworker/u2:0-ext4-rsv-conversion  
1 I 0 2448 2 0 80 0 - 0 - ? 00:00:00 kworker/0:1-ata_sff  
0 S 1000 2449 1839 22 80 0 - 1324 - pts/0 00:00:04 yes  
1 I 0 2450 2 2 80 0 - 0 - ? 00:00:00 kworker/u2:3-flush-8:0  
0 S 1000 2452 1732 0 80 0 - 1968 - pts/1 00:00:00 bash  
0 R 1000 2455 2452 0 80 0 - 2405 - pts/1 00:00:00 ps  
edu@debian:~$ renice 7 2449  
2449 (process ID) prioridade anterior 0, nova prioridade 7  
edu@debian:~$ ps -el  
F S UID PID PPID C PRI NI ADDR SZ WCHAN TTY TIME CMD  
1 I 0 2445 2 3 80 0 - 0 - ? 00:00:00 kworker/u2:0-ext4-rsv-conversion  
1 I 0 2448 2 0 80 0 - 0 - ? 00:00:00 kworker/0:1-ata_sff  
0 R 1000 2449 1839 20 87 7 - 1324 - pts/0 00:00:22 yes  
1 I 0 2450 2 9 80 0 - 0 - ? 00:00:09 kworker/u2:3-ext4-rsv-conversion  
0 S 1000 2452 1732 0 80 0 - 1968 - pts/1 00:00:00 bash  
1 I 0 2456 2 0 80 0 - 0 - ? 00:00:00 kworker/u2:4  
0 R 1000 2458 2452 0 80 0 - 2405 - pts/1 00:00:00 ps  
edu@debian:~$
```

12. Identifica os seguintes servizos no directorio /etc/init.d:

- (a) O servizo asociado ao DNS
- (b) O servizo asociado á rede.
- (c) O servizo asociado á impresión



A terminal window titled 'edu@debian: /etc/init.d' showing the output of the 'ls' command. The output lists various system services and scripts in a grid-like format. The services include alsa-utils, anacron, apparmor, avahi-daemon, bluetooth, console-setup.sh, cron, dbus, gdm3, hwclock.sh, keyboard-setup.sh, kmod, networking, nfs-common, nmbd, plymouth, plymouth-log, procps, pulseaudio-enable-autospawn, rpcbind, rsyslog, samba-ad-dc, saned, smbd, speech-dispatcher, sudo, udev, unattended-upgrades, and x11-common.

```
edu@debian: /etc/init.d$ ls
alsa-utils      cron            networking      pulseaudio-enable-autospawn  speech-dispatcher
anacron         dbus            nfs-common      rpcbind          sudo
apparmor        gdm3           nmbd            rsyslog          udev
avahi-daemon    hwclock.sh     plymouth        samba-ad-dc      unattended-upgrades
bluetooth       keyboard-setup.sh  plymouth-log    saned            x11-common
console-setup.sh kmod            procps          smbd
```

13. Localiza na web a utilidade de netstat e Instalaa. *Aqui so debes reflexar o comando para a instalación.*

```
edu@debian:~$ su -  
Contraseña:  
root@debian:~# apt install net-tools  
Leyendo lista de paquetes... Hecho  
Creando árbol de dependencias... Hecho  
Leyendo la información de estado... Hecho  
Se instalarán los siguientes paquetes NUEVOS:  
  net-tools  
0 actualizados, 1 nuevos se instalarán, 0 para eliminar y 5 no actualizados.  
Se necesita descargar 250 kB de archivos.
```

14. O servizo SSH permite a conexión remota a un equipo. O cliente SSH ben instalado por defecto, pero nos imos instalar o servidor. *Aqui so debes reflexar o comando para a instalación.*

---

```
edu@debian:~$ su -  
Contraseña:  
root@debian:~# apt install openssh-server  
Leyendo lista de paquetes... Hecho  
Creando árbol de dependencias... Hecho  
Leyendo la información de estado... Hecho  
Se instalarán los siguientes paquetes adicionales:  
  openssh-sftp-server runit-helper  
Paquetes sugeridos:  
  molly-guard monkeysphere ssh-askpass ufw  
Se instalarán los siguientes paquetes NUEVOS:  
  openssh-server openssh-sftp-server runit-helper  
0 actualizados, 3 nuevos se instalarán, 0 para eliminar y 5 no actualizados.  
Se necesita descargar 446 kB de archivos.  
Se utilizarán 1.765 kB de espacio de disco adicional después de esta operación.  
¿Desea continuar? [S/n] █
```

## 15. Comproba o servizo de rede SSH:

## (a) Comproba o estado do servizo.+

```
edu@debian:~$ su -
Contraseña:
root@debian:~# sudo service ssh status
● ssh.service - OpenBSD Secure Shell server
   Loaded: loaded (/lib/systemd/system/ssh.service; enabled; vendor preset: enabled)
   Active: active (running) since Tue 2022-04-26 22:17:34 CEST; 2min 54s ago
     Docs: man:sshd(8)
           man:sshd_config(5)
   Process: 3265 ExecStartPre=/usr/sbin/sshd -t (code=exited, status=0/SUCCESS)
  Main PID: 3266 (sshd)
    Tasks: 1 (limit: 1117)
   Memory: 1.2M
      CPU: 26ms
   CGroup: /system.slice/ssh.service
           └─3266 sshd: /usr/sbin/sshd -D [listener] 0 of 10-100 startups

abr 26 22:17:34 debian systemd[1]: Starting OpenBSD Secure Shell server...
abr 26 22:17:34 debian sshd[3266]: Server listening on 0.0.0.0 port 22.
abr 26 22:17:34 debian sshd[3266]: Server listening on :: port 22.
abr 26 22:17:34 debian systemd[1]: Started OpenBSD Secure Shell server.
root@debian:~#
```

## (b) Empregando o comando netstat -putan indica a utilidade de cada unha das opcións do comando e o número de porto no que traballa o SSH.

## Puerto 22

```
root@debian:~# netstat -putan
Active Internet connections (servers and established)
Proto Recv-Q Send-Q Local Address           Foreign Address         State       PID/Program name
tcp        0      0 0.0.0.0:139            0.0.0.0:*               LISTEN      655/smbd
tcp        0      0 0.0.0.0:111            0.0.0.0:*               LISTEN      1/init
tcp        0      0 0.0.0.0:22             0.0.0.0:*               LISTEN      3266/sshd: /usr/sbi
tcp        0      0 0.0.0.0:445            0.0.0.0:*               LISTEN      655/smbd
tcp        0      0 10.0.2.15:37380        199.232.182.132:80     ESTABLISHED 3910/http
tcp        0      0 10.0.2.15:37382        199.232.182.132:80     ESTABLISHED 3911/http
tcp6       0      0 :::139                 :::*                   LISTEN      655/smbd
tcp6       0      0 :::111                 :::*                   LISTEN      1/init
tcp6       0      0 :::22                  :::*                   LISTEN      3266/sshd: /usr/sbi
tcp6       0      0 :::445                 :::*                   LISTEN      655/smbd
udp        0      0 0.0.0.0:111            0.0.0.0:*               1/init
udp        0      0 10.0.2.255:137         0.0.0.0:*               581/nmbd
udp        0      0 10.0.2.15:137         0.0.0.0:*               581/nmbd
udp        0      0 0.0.0.0:137           0.0.0.0:*               581/nmbd
udp        0      0 10.0.2.255:138        0.0.0.0:*               581/nmbd
udp        0      0 10.0.2.15:138         0.0.0.0:*               581/nmbd
udp        0      0 0.0.0.0:138           0.0.0.0:*               581/nmbd
udp        0      0 0.0.0.0:5353           0.0.0.0:*               414/avahi-daemon: r
udp        0      0 0.0.0.0:35147          0.0.0.0:*               414/avahi-daemon: r
udp        0      0 10.0.2.2.15:68        10.0.2.2:67           ESTABLISHED 417/NetworkManager
udp6       0      0 :::111                 :::*                   1/init
udp6       0      0 :::5353                :::*                   414/avahi-daemon: r
udp6       0      0 :::44398              :::*                   414/avahi-daemon: r
root@debian:~#
```