

mem.pdf



PruebaAlien



Ingeniería de Servidores



3º Grado en Ingeniería Informática



Escuela Técnica Superior de Ingenierías Informática y de Telecomunicación
Universidad de Granada

BURN
ENERGY DRINK

**GANA UN FIAT 500
CON BURN ENERGY**
1 LATA = 1 PARTICIPACIÓN



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Consulta al Kernel:

-Consulta de procesos

```
ub-server (Instantánea 1) [Comando] - Oracle VM VirtualBox
Archivo  Máquina  Ver  Entrada  Dispositivos  Ayuda

root      508      2  0 17:15 ?      00:00:00 [iprt-VBoxQueue]
root      699      1  0 17:15 ?      00:00:00 /sbin/mdadm --monitor --scan
root      709      2  0 17:15 ?      00:00:00 [kfsd]
root      710      2  0 17:15 ?      00:00:00 [kmpath_rdacd]
root      711      2  0 17:15 ?      00:00:00 [kmpathd]
root      712      2  0 17:15 ?      00:00:00 [kmpath_handlerd]
root      713      1  0 17:15 ?      00:00:00 /sbin/multipathd -d -s
root      724      2  0 17:15 ?      00:00:00 [loop0]
root      725      2  0 17:15 ?      00:00:00 [jbd2/md126p1-8]
root      727      2  0 17:15 ?      00:00:00 [ext4-rsv-conver]
root      728      2  0 17:15 ?      00:00:00 [loop1]
root      731      2  0 17:15 ?      00:00:00 [loop2]
root      732      2  0 17:15 ?      00:00:00 [jbd2/dm-9-8]
root      735      2  0 17:15 ?      00:00:00 [ext4-rsv-conver]
root      734      2  0 17:15 ?      00:00:00 [loop3]
root      736      2  0 17:15 ?      00:00:00 [loop4]
root      737      2  0 17:15 ?      00:00:00 [loop5]
systemd+ 756      1  0 17:15 ?      00:00:00 /lib/systemd/systemd-timesyncd
systemd+ 790      1  0 17:15 ?      00:00:00 /lib/systemd/systemd-networkd
systemd+ 792      1  0 17:15 ?      00:00:00 /lib/systemd/systemd-resolved
root      806      1  0 17:15 ?      00:00:00 /usr/lib/accounts-service/accounts-daemon
root      811      1  0 17:15 ?      00:00:00 /usr/sbin/cron -f
message+ 812      1  0 17:15 ?      00:00:00 /usr/bin/dbus-daemon --system --address=systemd:
root      825      1  0 17:15 ?      00:00:00 /usr/bin/python3 /usr/bin/networkd-dispatcher --
syslog    825      1  0 17:15 ?      00:00:00 /usr/sbin/rsyslogd -n -iNONE
root      827      1  5 17:15 ?      00:00:01 /usr/lib/snapd/snapd
root      833      1  0 17:15 ?      00:00:00 /lib/systemd/systemd-logind
daemon    836      1  0 17:15 ?      00:00:00 /usr/sbin/atd -f
root      839      2  0 17:15 ?      00:00:00 [kworker/0:4-events]
root      866      1  0 17:15 tty1    00:00:00 /bin/login -p --
root      872      1  0 17:15 ?      00:00:00 /usr/lib/policykit-1/polkitd --no-debug
root      879      1  0 17:15 ?      00:00:00 /usr/bin/python3 /usr/share/unattended-upgrades/
Juanma    1121      1  3 17:15 ?      00:00:00 /lib/systemd/systemd --user
Juanma    1122      1121  0 17:15 ?      00:00:00 (sd-pam)
Juanma    1127      866  0 17:15 tty1    00:00:00 -bash
Juanma    1136      1127  0 17:15 tty1    00:00:00 ps -ef

Juanma@Juanma:~$ ps -ef_
```

-Consulta de archivos de procesos:

```
ub-server (Instantánea 1) [Comando] - Oracle VM VirtualBox
Archivo  Máquina  Ver  Entrada  Dispositivos  Ayuda

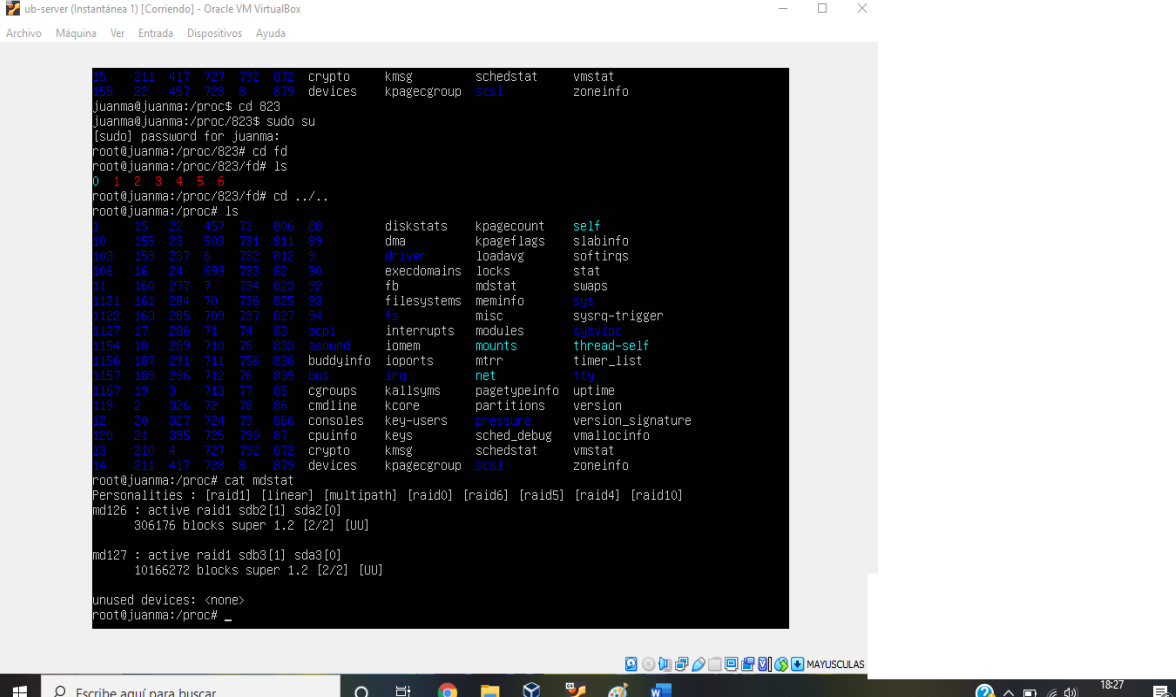
daemon    836      1  0 17:15 ?      00:00:00 /usr/sbin/atd -f
root      839      2  0 17:15 ?      00:00:00 [kworker/0:4-events]
root      866      1  0 17:15 tty1    00:00:00 /bin/login -p --
root      872      1  0 17:15 ?      00:00:00 /usr/lib/policykit-1/polkitd --no-debug
root      879      1  0 17:15 ?      00:00:00 /usr/bin/python3 /usr/share/unattended-upgrades/
Juanma    1121      1  3 17:15 ?      00:00:00 /lib/systemd/systemd --user
Juanma    1122      1121  0 17:15 ?      00:00:00 (sd-pam)
Juanma    1127      866  0 17:15 tty1    00:00:00 -bash
Juanma    1136      1127  0 17:15 tty1    00:00:00 ps -ef

Juanma@Juanma:~$ cd /proc
-bash: cd: /proc: No such file or directory
Juanma@Juanma:~$ cd /proc
Juanma@Juanma:/proc$ ls
0      157  23  5  73  806  89      diskstats  kpagecount  self
10     159  237 503 731 811  89      dma         kpageflags  slabinfo
103    16  24  6  732 812  9      driver      loadavg     softirqs
106    160 277 699 733 82  90      execdomains locks       stat
11     161 284 7  734 823  92     fb          mdstat     swaps
1121   153 285 70 736 825  93     filesystems meminfo     sys
1122   17 286 709 737 827  94     fs          misc       sysrq-trigger
1127   18 289 71 74  83  acpi        interrupts modules     sysvipc
1153   187 291 710 75 833  expand     ionem      mounts     thread-self
119    189 296 711 756 836  buddyinfo ioports    mtrr
12     19  3  712 76 839  bvs        fs         net        tty
120    2  326 713 77 85  cgroups    kallsyms   pagetypeinfo uptime
13     20 327 72 78  86  cmdline   kcore      partitions version
14     21 335 724 79 856  consoles  key-users  version_signature
142    210 4  725 790 87  cpuinfo    kexec      sched_debug vmallocinfo
15     211 417 727 792 872  crypto    kmsg       schedstat  vmstat
155    22 457 728 8  873  devices   kpagecgroup scsi        zoneinfo

Juanma@Juanma:/proc$ cd /823
Juanma@Juanma:/proc/823$ sudo su
[sudo] password for Juanma:
root@Juanma:/proc/823# cd fd
root@Juanma:/proc/823/fd# ls
0  1  2  3  4
root@Juanma:/proc/823/fd#
```

Reservados todos los derechos. No se permite la explotación económica ni la transformación de esta obra. Queda permitida la impresión en su totalidad.

-Consulta de los raid instalados con mdstat



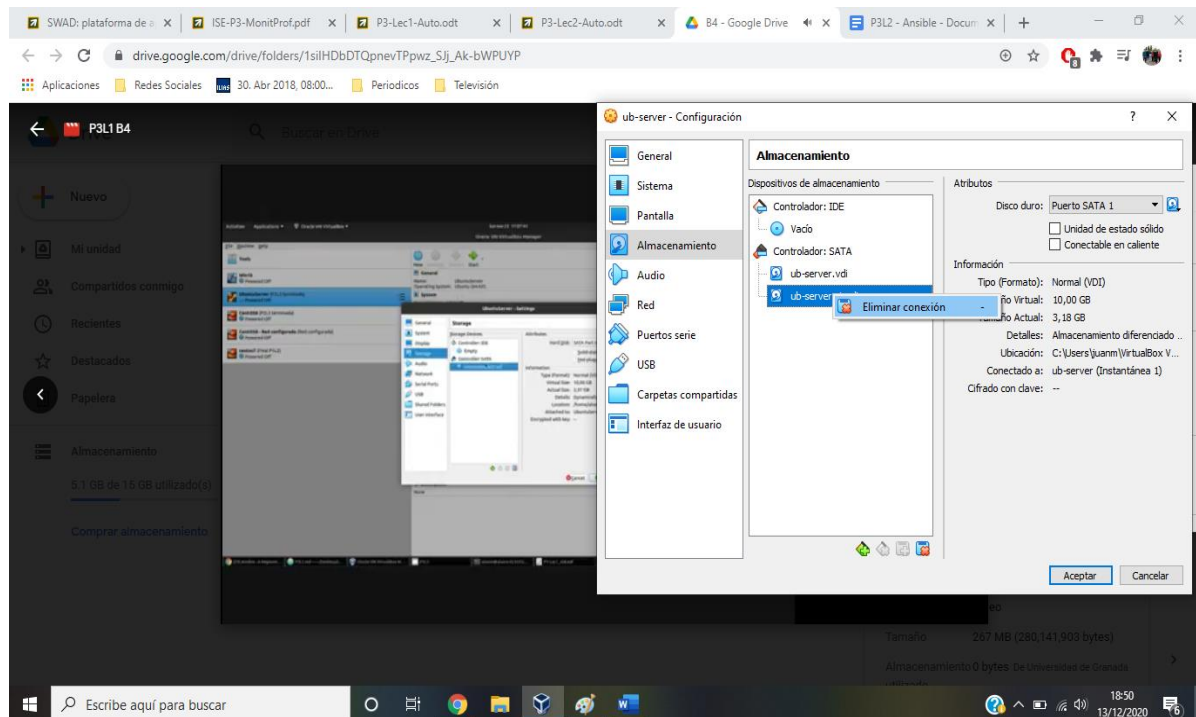
```
15 211 417 727 792 872 crypto kmsg schedstat vmstat
155 22 457 728 8 879 devices kpagecgroup scsi zoneinfo
juanma@juanma:/proc$ cd 823
juanma@juanma:/proc/823$ sudo su
[sudo] password for juanma:
root@juanma:/proc/823# cd fd
root@juanma:/proc/823/fd# ls
0 1 2 3 4 5
root@juanma:/proc/823/fd# cd ../../
root@juanma:/proc# ls
15 22 457 73 806 88 diskstats kpagecount self
10 155 23 503 731 811 89 dma kpageflags slabinfo
103 159 237 6 732 812 9 driver loadavg softirqs
106 16 24 699 733 82 90 execdomains locks stat
11 160 277 7 734 823 92 fb mdstat swaps
1121 161 284 70 736 825 93 filesystems meminfo sys
1122 163 285 709 737 827 94 fs misc sysrq-trigger
1127 17 286 71 74 83 acpi interrupts modules sysvipc
1154 18 289 710 75 833 asound iomem mounts thread-self
1156 187 291 711 756 836 buddyinfo ioports mtrr timer_list
1157 189 296 712 76 839 bus irq net tty
1167 19 3 713 77 85 cgroups kallsyms pagetypeinfo uptime
119 2 326 78 86 cmdline kcore partitions version
12 20 327 784 79 866 consoles key-users pressure version_signature
120 21 395 735 790 87 cpuinfo keys sched_debug vmallocinfo
13 210 4 727 792 872 crypto kmsg schedstat vmstat
14 211 417 728 8 879 devices kpagecgroup scsi zoneinfo
root@juanma:/proc# cat mdstat
Personalities : [raid1] [linear] [multipath] [raid0] [raid6] [raid5] [raid4] [raid10]
md126 : active raid1 sdb2[1] sda2[0]
      306176 blocks super 1.2 [2/2] [UU]

md127 : active raid1 sdb3[1] sda3[0]
      10166272 blocks super 1.2 [2/2] [UU]

unused devices: <none>
root@juanma:/proc#
```

Monitoizar un Raid caído:

-Caída de un disco duro:



Exámenes, preguntas, apuntes.



Primero lo eliminamos

Segundos consultamos a mdadm si los discos están inactivos , lo que nos notificaría si se ha caído uno o varios de los discos:

```
sub-server (Instantánea 1) [Corriendo] - Oracle VM VirtualBox
Archivo Máquina Ver Entrada Dispositivos Ayuda
[ 2.362953] usbcore: registered new interface driver usbhid
[ 2.363653] usbhid: USB HID core driver
[ 2.373528] input: VirtualBox USB Tablet as /devices/pci0000:00/0000:00:06.0/usb1/1-1/1-1.0/0000:0000:0000:0000/input/input6
[ 2.378468] hid-generic 0003:80EE:0021.0001: Input,hidraw0: USB HID v1.10 Mouse [VirtualBox USB Tablet] on usb-0000:00:06.0-1/input0
[ 2.627260] ata4: SATA link down (SStatus 0 SControl 300)
[ 2.656061] e1000 0000:00:03:00 eth0: (PCI:33MHz:32-bit) 08:00:27:56:1e:8d
[ 2.656942] e1000 0000:00:03:00 eth0: Intel(R) PRO/1000 Network Connection
[ 2.660742] e1000 0000:00:03:00 enp0s3: renamed from eth0
[ 2.971147] raid6: avx2x4 gen() 18401 MB/s
[ 3.019377] raid6: avx2x4 xor() 11318 MB/s
[ 3.067187] raid6: avx2x2 gen() 15619 MB/s
[ 3.115906] raid6: avx2x2 xor() 8983 MB/s
[ 3.163315] raid6: avx2x1 gen() 12117 MB/s
[ 3.211162] raid6: avx2x1 xor() 8839 MB/s
[ 3.259453] raid6: sse2x4 gen() 7323 MB/s
[ 3.307282] raid6: sse2x4 xor() 4611 MB/s
[ 3.355619] raid6: sse2x2 gen() 6025 MB/s
[ 3.403436] raid6: sse2x2 xor() 4280 MB/s
[ 3.451207] raid6: sse2x1 gen() 5827 MB/s
[ 3.499110] raid6: sse2x1 xor() 3246 MB/s
[ 3.499750] raid6: using algorithm avx2x4 gen() 18401 MB/s
[ 3.500330] raid6: .... xor() 11318 MB/s, rmw enabled
[ 3.501019] raid6: using avx2x2 recovery algorithm
[ 3.504095] xor: automatically using best checksumming function avx
[ 3.506075] async_tx: api initialized (async)
(initramps) cat /proc/mdstat
Personalities : [linear] [multipath] [raid0] [raid1] [raid6] [raid5] [raid4] [raid10]
md126 : inactive sda2[0] (S)
306176 blocks super 1.2

md127 : inactive sda3[0] (S)
10166272 blocks super 1.2

unused devices: <none>
(initramps)
```

Ahora para poder reactivarlos utilizaremos mdadm -R en cada uno de los discos y comprobaremos que un disco esta activo pero que el otro esta caido

```
sub-server (Instantánea 1) [Corriendo] - Oracle VM VirtualBox
Archivo Máquina Ver Entrada Dispositivos Ayuda
deluser devmem df du dumpkmap echo egrep env expr false fbset
fgrep find fold fstrim grep gunzip gzio hostname hwclock ifconfig
ip kill ln loadfont loadkmap ls lzop mknod mkfifo mknod mksuap
mktemp modinfo more mount mv nuke openvt pidof printf ps pwd
readlink reboot reset rm rmdir run-init sed seq setkeycodes sh
sleep sort stat static-sh stty switch_root sync tail tee test
touch tr true tty umount uname uniq wc wget which yes
(initramps)
(initramps)
(initramps) cat /proc/mdstat
Personalities : [linear] [multipath] [raid0] [raid1] [raid6] [raid5] [raid4] [raid10]
md126 : inactive sda2[0] (S)
306176 blocks super 1.2

md127 : inactive sda3[0] (S)
10166272 blocks super 1.2

unused devices: <none>
(initramps) mdadm -R /dev/md126
[ 612.434529] md/raid1:md126: active with 1 out of 2 mirrors
[ 612.435129] md126: detected capacity change from 0 to 313524224
mdadm: started array /dev/md/md-boot
[ 612.444469] md126: p1
(initramps) mdadm -R /dev/md127
[ 619.068914] md/raid1:md127: active with 1 out of 2 mirrors
[ 619.068945] md127: detected capacity change from 0 to 10410262528
mdadm: started array /dev/md/md-lvm
(initramps) cat /proc/mdstat
Personalities : [linear] [multipath] [raid0] [raid1] [raid6] [raid5] [raid4] [raid10]
md126 : active (auto-read-only) raid1 sda2[0]
306176 blocks super 1.2 [2/1] [U_]

md127 : active (auto-read-only) raid1 sda3[0]
10166272 blocks super 1.2 [2/1] [U_]

unused devices: <none>
(initramps) _
```


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Ahora toca restaurar la partición:

-Para ello primero entramos como superusuarios y ejecutamos fdisk de el nuevo disco duro

```
ub-server (Instantánea 1) [Corriendo] - Oracle VM VirtualBox
Archivo  Máquina  Ver  Entrada  Dispositivos  Ayuda

deluser devmem df du dumpkmap echo egrep env expr false fsck
fgrep find fold fstrim grep gunzip gzip hostname hwclock ifconfig
ip kill in loadfont loadkmap ls lzop mknod mkfifo mknod mksuap
mktemp modinfo more mount mv nuke openvt pidof printf ps pwd
readlink reboot reset rm rmdir run-init sed sed setkeycodes sh
sleep sort stat static-sh stty switch_root sync tail tee test
touch tr true tty umount uname uniq wc wget which yes

(initrans)
(initrans)
(initrans) cat /proc/mdstat
Personalities : [linear] [multipath] [raid0] [raid1] [raid6] [raid5] [raid4] [raid10]
md126 : inactive sda2[0](S)
        306176 blocks super 1.2

md127 : inactive sda3[0](S)
        10166272 blocks super 1.2

unused devices: <none>
(initrans) mdadm -R /dev/md126
[ 612.434829] md/raid1:md126: active with 1 out of 2 mirrors
[ 612.435129] md126: detected capacity change from 0 to 313524224
mdadm: started array /dev/md/md-boot
[ 612.444469] md126: p1
(initrans) mdadm -R /dev/md127
[ 619.068914] md/raid1:md127: active with 1 out of 2 mirrors
[ 619.068945] md127: detected capacity change from 0 to 10410262528
mdadm: started array /dev/md/md-lvm
(initrans) cat /proc/mdstat
Personalities : [linear] [multipath] [raid0] [raid1] [raid6] [raid5] [raid4] [raid10]
md126 : active (auto-read-only) raid1 sda2[0]
        306176 blocks super 1.2 [2/1] [U_]
md127 : active (auto-read-only) raid1 sda3[0]
        10166272 blocks super 1.2 [2/1] [U_]

unused devices: <none>
(initrans) _
```

Ahora creamos una nueva partición

```
ub-server (Instantánea 1) [Corriendo] - Oracle VM VirtualBox
Archivo  Máquina  Ver  Entrada  Dispositivos  Ayuda

Juanma@Juanma:~$ sudo su
[sudo] password for juanma:
root@Juanma:/home/Juanma# fdisk /dev/sdb

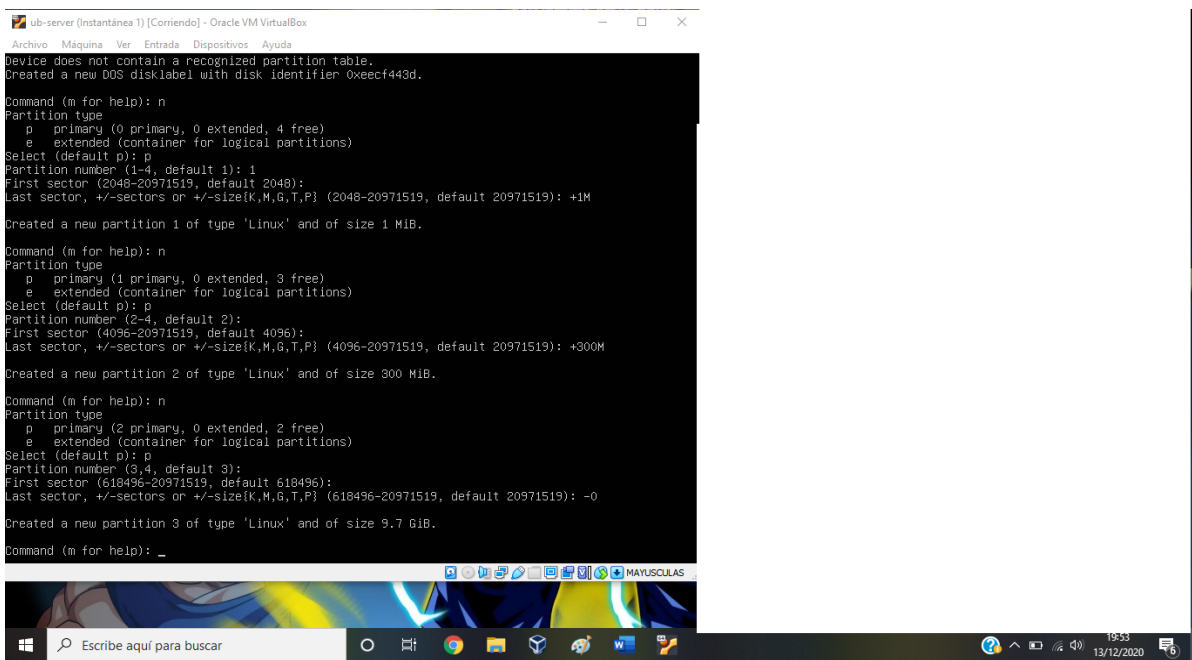
Welcome to fdisk (util-linux 2.34).
Changes will remain in memory only, until you decide to write them.
Be careful before using the write command.

Device does not contain a recognized partition table.
Created a new DOS disklabel with disk identifier 0xeecf443d.

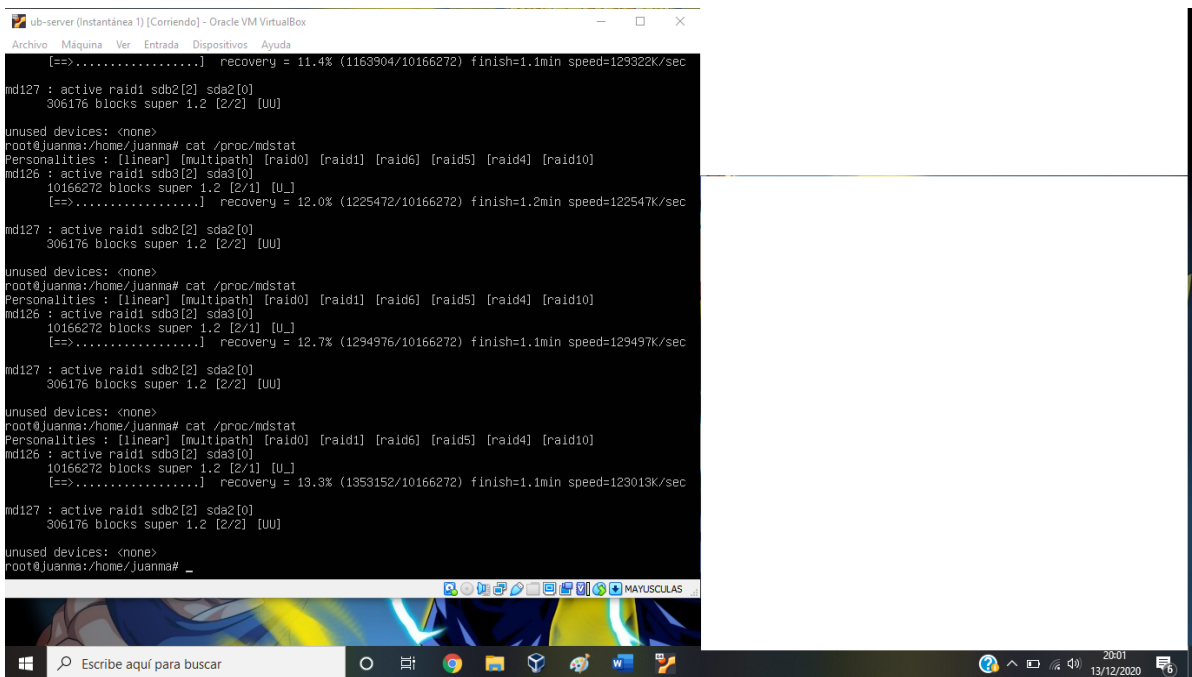
Command (m for help): n
Partition type:
   p   primary (0 primary, 0 extended, 4 free)
   e   extended (container for logical partitions)
Select (default p): p
Partition number (1-4, default 1): 1
First sector (2048-20971519, default 2048):
Last sector, +/-sectors or +/-size[K,M,G,T,P] (2048-20971519, default 20971519): +1M
Created a new partition 1 of type 'Linux' and of size 1 MiB.

Command (m for help): _
```

De un modo muy similar creamos 2 particiones mas



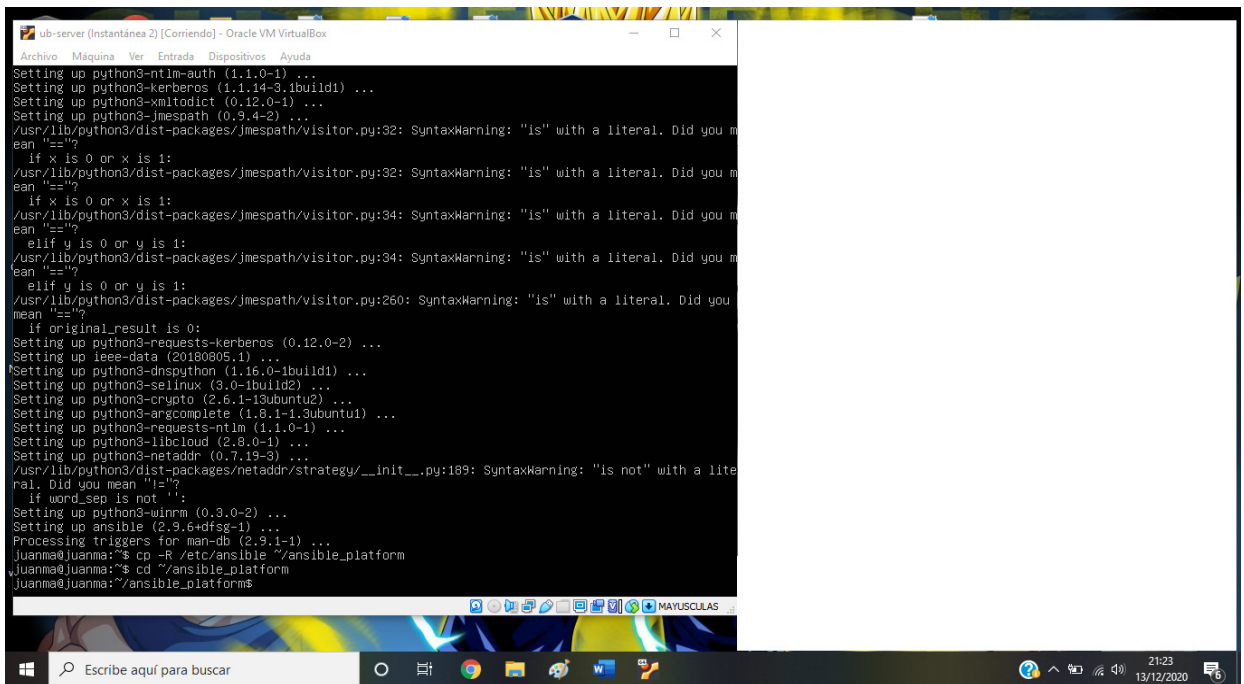
Ahora añadimos las copias al nuevo disco y comprobamos que se estén copiando



Segunda parte: Instalación y uso de ansible

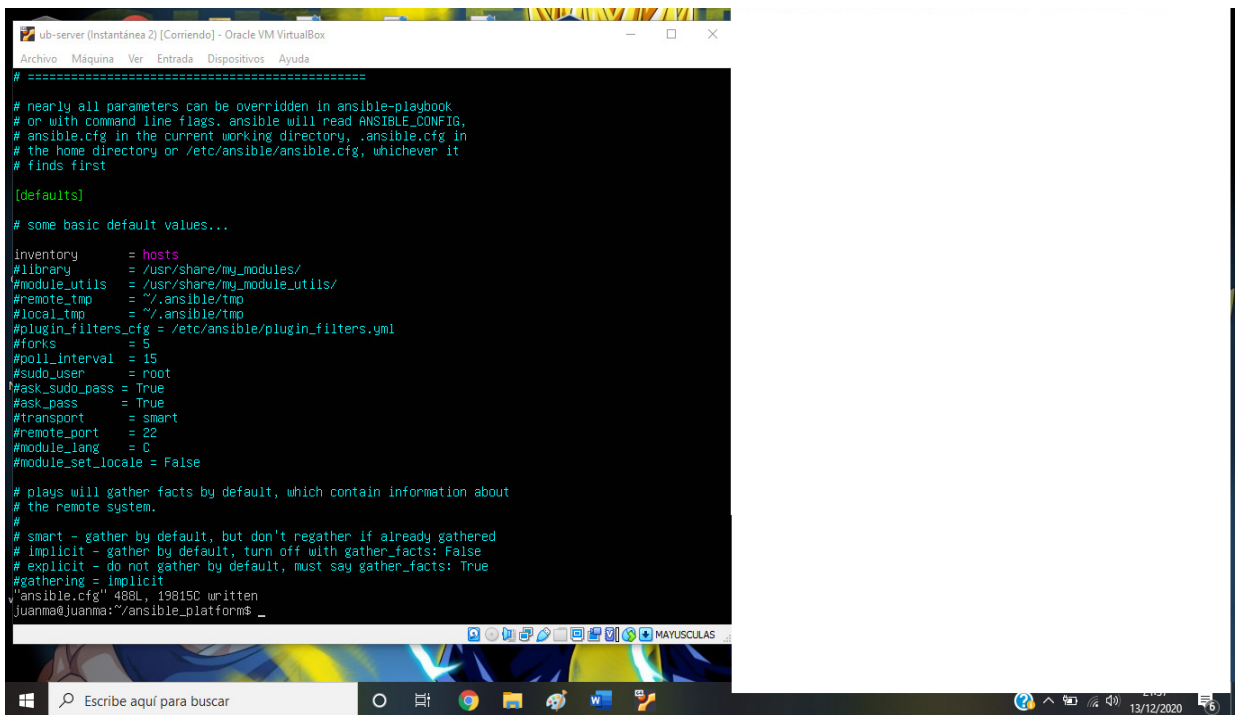
Para instalarlo solo tenemos que ejecutar `sudo apt install ansible`

Una vez instalado vamos a copiar los ficheros de configuración para tener mas flexibilidad al usarlos:



```
Setting up python3-ntlm-auth (1.1.0-1) ...
Setting up python3-kerberos (1.1.14-3.1build1) ...
Setting up python3-xmltodict (0.12.0-1) ...
Setting up python3-jmespath (0.9.4-2) ...
/usr/lib/python3/dist-packages/jmespath/visitor.py:32: SyntaxWarning: "is" with a literal. Did you mean "=="?
    if x is 0 or x is 1:
/usr/lib/python3/dist-packages/jmespath/visitor.py:32: SyntaxWarning: "is" with a literal. Did you mean "=="?
    if x is 0 or x is 1:
/usr/lib/python3/dist-packages/jmespath/visitor.py:34: SyntaxWarning: "is" with a literal. Did you mean "=="?
    elif y is 0 or y is 1:
/usr/lib/python3/dist-packages/jmespath/visitor.py:34: SyntaxWarning: "is" with a literal. Did you mean "=="?
    elif y is 0 or y is 1:
/usr/lib/python3/dist-packages/jmespath/visitor.py:260: SyntaxWarning: "is" with a literal. Did you mean "=="?
    if original_result is 0:
Setting up python3-requests-kerberos (0.12.0-2) ...
Setting up ieee-data (20180805.1) ...
Setting up python3-dnspython (1.16.0-1build1) ...
Setting up python3-selinux (3.0-1build2) ...
Setting up python3-crypto (2.6.1-13ubuntu2) ...
Setting up python3-argcomplete (1.8.1-1.3ubuntu1) ...
Setting up python3-requests-ntlm (1.1.0-1) ...
Setting up python3-libcloud (2.8.0-1) ...
Setting up python3-netaddr (0.7.19-3) ...
/usr/lib/python3/dist-packages/netaddr/strategy/__init__.py:189: SyntaxWarning: "is not" with a literal. Did you mean "!="?
    if word_sep is not '':
Setting up python3-winrm (0.3.0-2) ...
Setting up ansible (2.9.6+dfsg-1) ...
Processing triggers for man-db (2.9.1-1) ...
Juanma@Juanma:~$ cp -R /etc/ansible ~/.ansible_platform
Juanma@Juanma:~$ cd ~/.ansible_platform
Juanma@Juanma:~/.ansible_platform$
```

Ahora descomentamos la línea inventory para trabajar con host



```
# -----
# nearly all parameters can be overridden in ansible-playbook
# or with command line flags. ansible will read ANSIBLE_CONFIG,
# ansible.cfg in the current working directory, .ansible.cfg in
# the home directory or /etc/ansible/ansible.cfg, whichever it
# finds first

[defaults]
# some basic default values...

inventory      = hosts
#library       = /usr/share/my_modules/
#module_utils  = /usr/share/my_module_utils/
#remote_tmp    = ~/.ansible/tmp
#local_tmp     = ~/.ansible/tmp
#plugin_filters_cfg = /etc/ansible/plugin_filters.yml
#forks         = 5
#poll_interval = 15
#sudo_user     = root
#ask_sudo_pass = True
#ask_pass      = True
#transport     = smart
#remote_port   = 22
#module_lang   = C
#module_set_locale = False

# plays will gather facts by default, which contain information about
# the remote system.
#
# smart - gather by default, but don't regather if already gathered
# implicit - gather by default, turn off with gather_facts: False
# explicit - do not gather by default, must say gather_facts: True
#gather_facts = implicit
"ansible.cfg" 489L, 19015C written
Juanma@Juanma:~/.ansible_platform$
```

Crear un palybook:

Primero vamos a crear el rol vi

~/ansible_platform/roles/init_config/tasks/main.yml

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Ahora vamos a configurar el rol de la siguiente manera

```
name: "Installing vim"
package: name=vim state=present
name: "Installing git"
package: name=git state=present_
```

Por ultimo creamos un playbook simple con el comando

`vi ~/ansible_platform/playbook.yml`

Y ponemos lo siguiente:

```
host: all
become: true
roles:
  - init_config
```

Para ejecutarlo solo hay que usar `ansible-playbook playbook.yml -K`