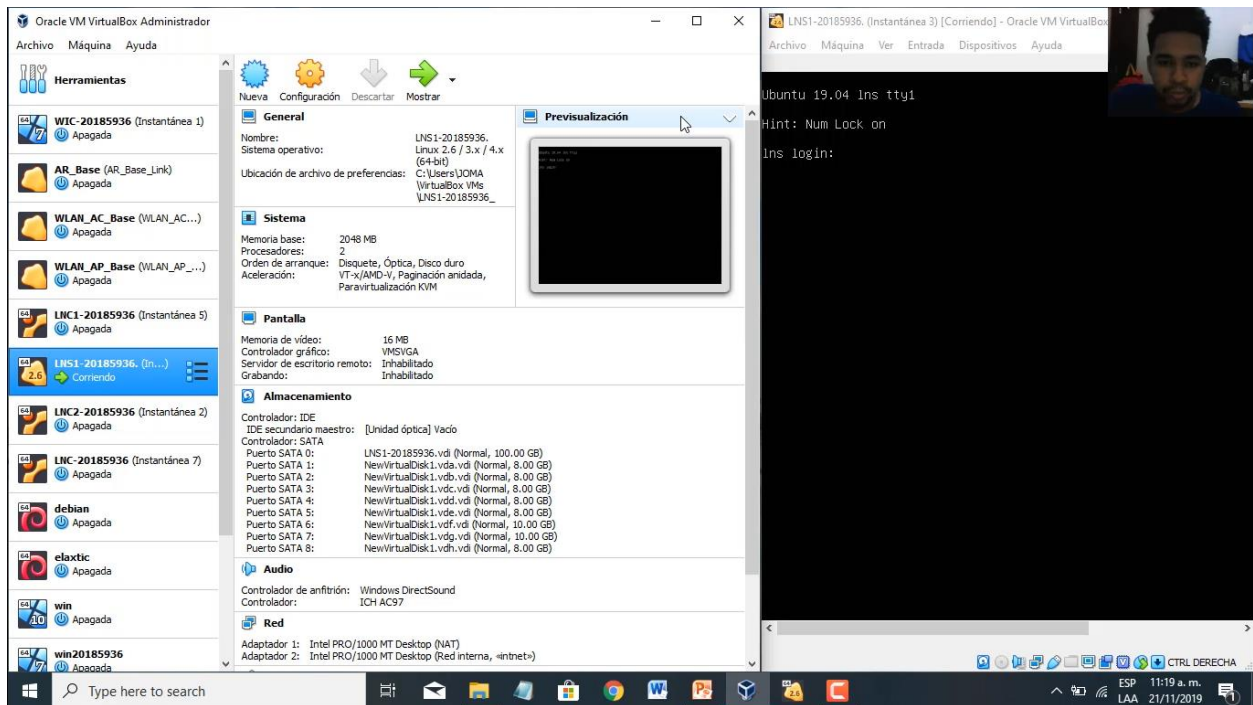




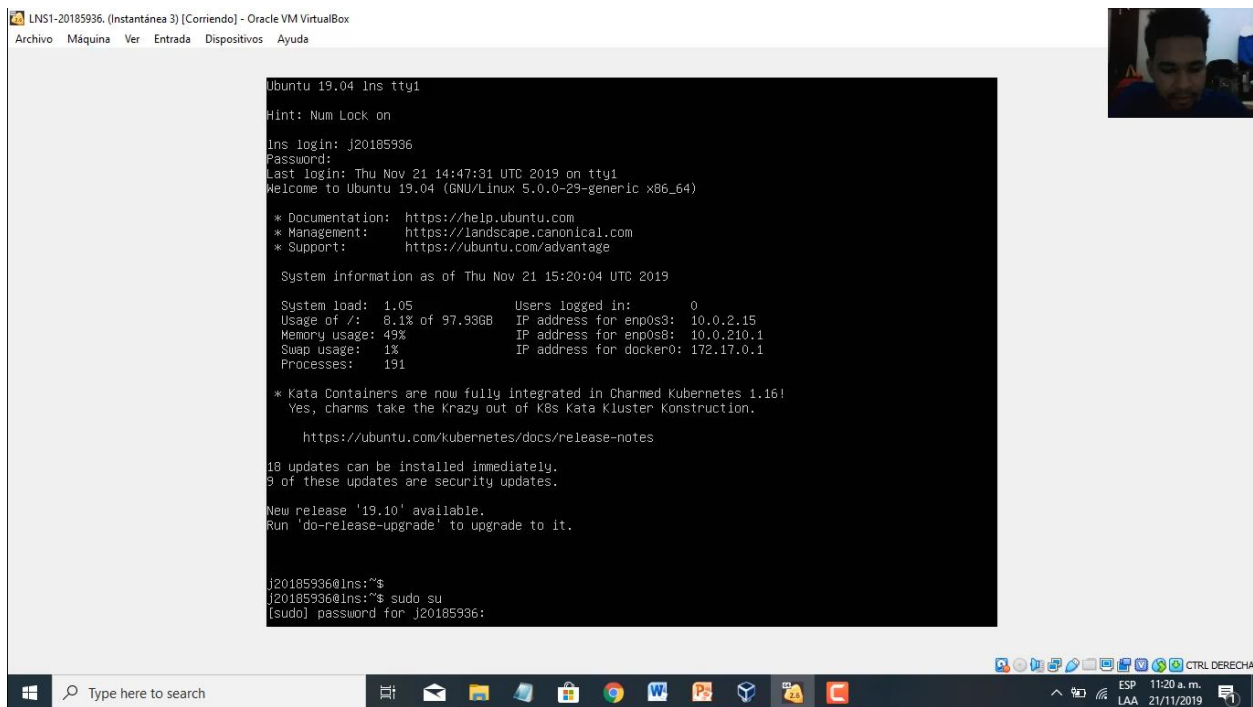
Nombre: Jomar Rafael Castillo valdez

Matricula 20185936

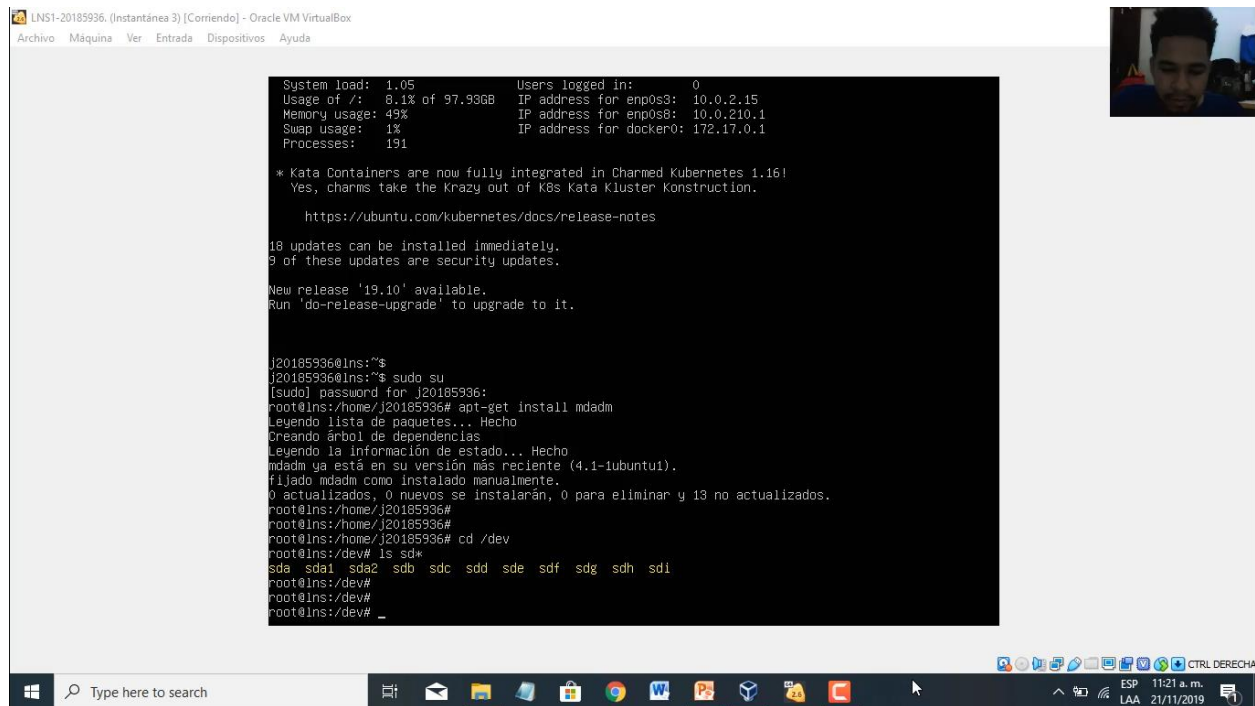
Link del video <https://youtu.be/kerjnGimXyM>



Primero agregamos diferentes conjuntos de disco para así implementar lo que es el raid



Iniciamos sesión en nuestro servidor



System load: 1.05 Users logged in: 0
Usage of /: 8.1% of 97.93GB IP address for enp0s3: 10.0.2.15
Memory usage: 49% IP address for enp0s8: 10.0.210.1
Swap usage: 1% IP address for docker0: 172.17.0.1
Processes: 191

* Kata Containers are now fully integrated in Charmed Kubernetes 1.16!
Yes, charms take the Krazy out of K8s Kata Kluster Konstruktion.

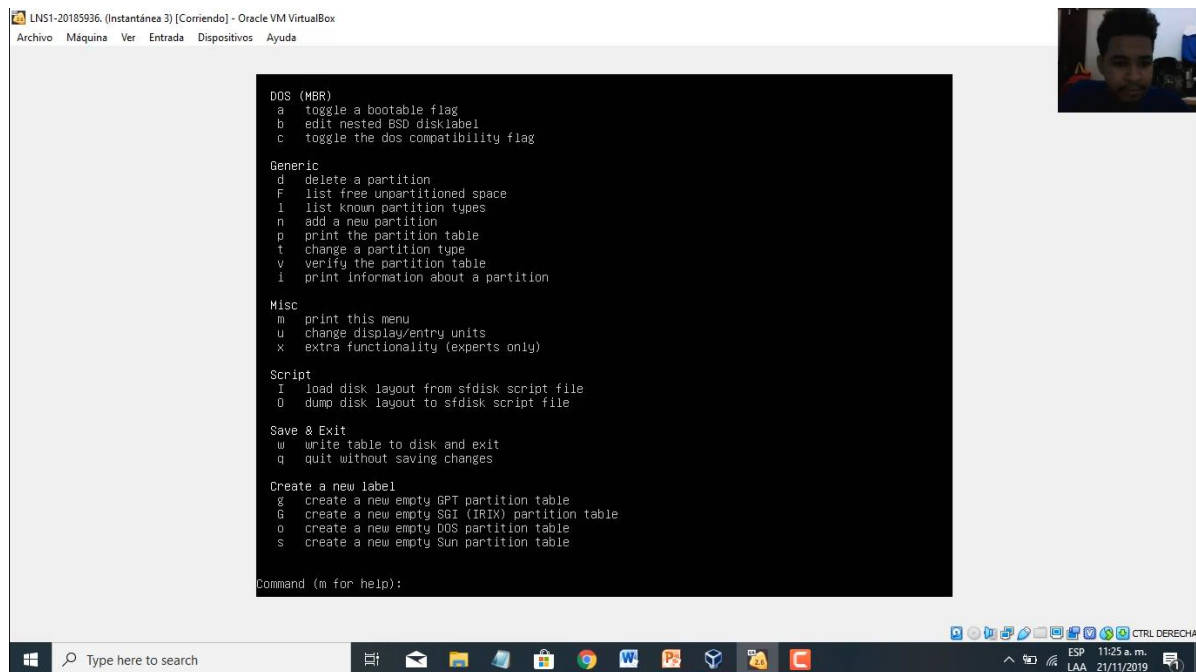
<https://ubuntu.com/kubernetes/docs/release-notes>

18 updates can be installed immediately.
9 of these updates are security updates.

New release '19.10' available.
Run 'do-release-upgrade' to upgrade to it.

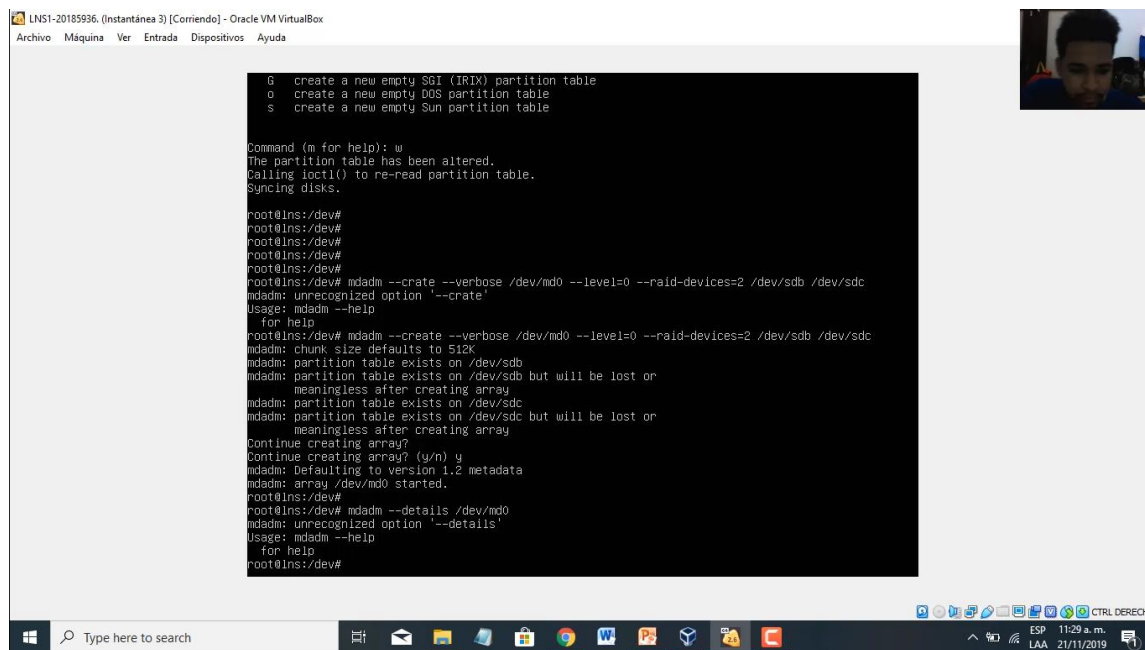
```
j20185936@ins:~$  
j20185936@ins:~$ sudo su  
[sudo] password for j20185936:  
root@ins:/home/j20185936# apt-get install mdadm  
Leyendo lista de paquetes... Hecho  
Creando árbol de dependencias  
Leyendo la información de estado... Hecho  
mdadm ya está en su versión más reciente (4.1-1ubuntu1).  
Fijado mdadm como instalado manualmente.  
0 actualizados, 0 nuevos se instalarán, 0 para eliminar y 13 no actualizados.  
root@ins:/home/j20185936#  
root@ins:/home/j20185936#  
root@ins:/home/j20185936# cd /dev  
root@ins:/dev# ls sd*  
sda sda1 sda2 sdb sdc sdd sde sdf sdg sdh sdi  
root@ins:/dev#  
root@ins:/dev#  
root@ins:/dev# _
```

Vemos si los discos estan activos en el direcrorio dev + ls sd*



```
DOS (MBR)  
a toggle a bootable flag  
b edit nested BSD disklabel  
c toggle the dos compatibility flag  
  
Generic  
d delete a partition  
F list free unpartitioned space  
l list known partition types  
n add a new partition  
p print the partition table  
t change a partition type  
v verify the partition table  
i print information about a partition  
  
Misc  
m print this menu  
U change display/entry units  
x extra functionality (experts only)  
  
Script  
I load disk layout from sfdisk script file  
O dump disk layout to sfdisk script file  
  
Save & Exit  
w write table to disk and exit  
q quit without saving changes  
  
Create a new label  
g create a new empty GPT partition table  
G create a new empty SGI (IRIX) partition table  
o create a new empty DOS partition table  
s create a new empty Sun partition table  
  
Command (m for help):
```

Con la opcion fdisk convertiremos nuestros discos en particiones dinamicas que utilizaremos mas adelante.

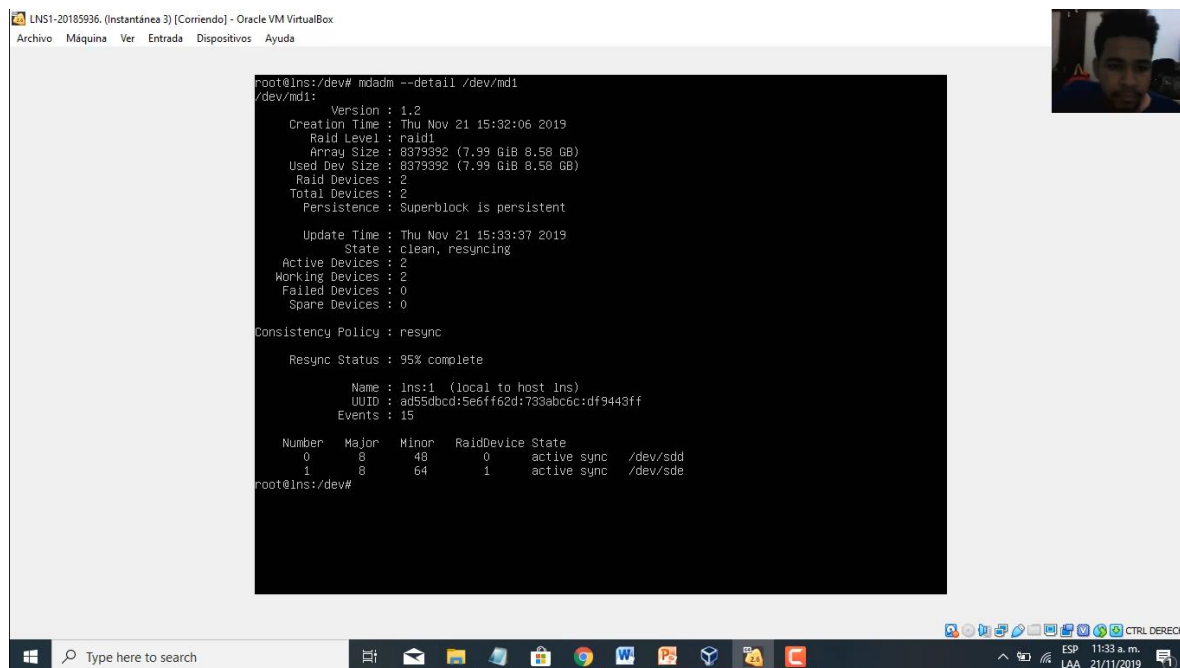


```
G create a new empty GFI (IRIX) partition table
o create a new empty DOS partition table
s create a new empty Sun partition table

Command (m for help): w
The partition table has been altered.
Calling ioctl() to re-read partition table.
Syncing disks.

root@ins:/dev#
root@ins:/dev#
root@ins:/dev#
root@ins:/dev#
root@ins:/dev#
root@ins:/dev# mdadm --create --verbose /dev/md0 --level=0 --raid-devices=2 /dev/sdb /dev/sdc
mdadm: unrecognized option '--create'
Usage: mdadm --help
    for help
root@ins:/dev# mdadm --create --verbose /dev/md0 --level=0 --raid-devices=2 /dev/sdb /dev/sdc
mdadm: chunk size defaults to 512K
mdadm: partition table exists on /dev/sdb
mdadm: partition table exists on /dev/sdb but will be lost or
      meaningless after creating array
mdadm: partition table exists on /dev/sdc
mdadm: partition table exists on /dev/sdc but will be lost or
      meaningless after creating array
Continue creating array? (y/n) y
mdadm: defaulting to version 1.2 metadata
mdadm: array /dev/md0 started.
root@ins:/dev#
root@ins:/dev# mdadm --details /dev/md0
mdadm: unrecognized option '--details'
Usage: mdadm --help
    for help
root@ins:/dev#
```

Aqui creamos el conjunto raid 0 con el comando `mdadm --create --verbose /dev/md0 --level=0 --raid-devices=2 /dev/sdb /dev/sdc` para agregan asi el nuevo volumen raid



```
root@ins:/dev# mdadm --detail /dev/md1
/dev/md1:
  Version : 1.2
  Creation Time : Thu Nov 21 15:32:06 2019
  Raid Level : raid0
  Array Size : 8379392 (7.99 GiB 8.58 GB)
  Used Dev Size : 8379392 (7.99 GiB 8.58 GB)
  Raid Devices : 2
  Total Devices : 2
  Persistence : Superblock is persistent

  Update Time : Thu Nov 21 15:33:37 2019
  State : clean, resyncing
  Active Devices : 2
  Working Devices : 2
  Failed Devices : 0
  Spare Devices : 0

  Consistency Policy : resync

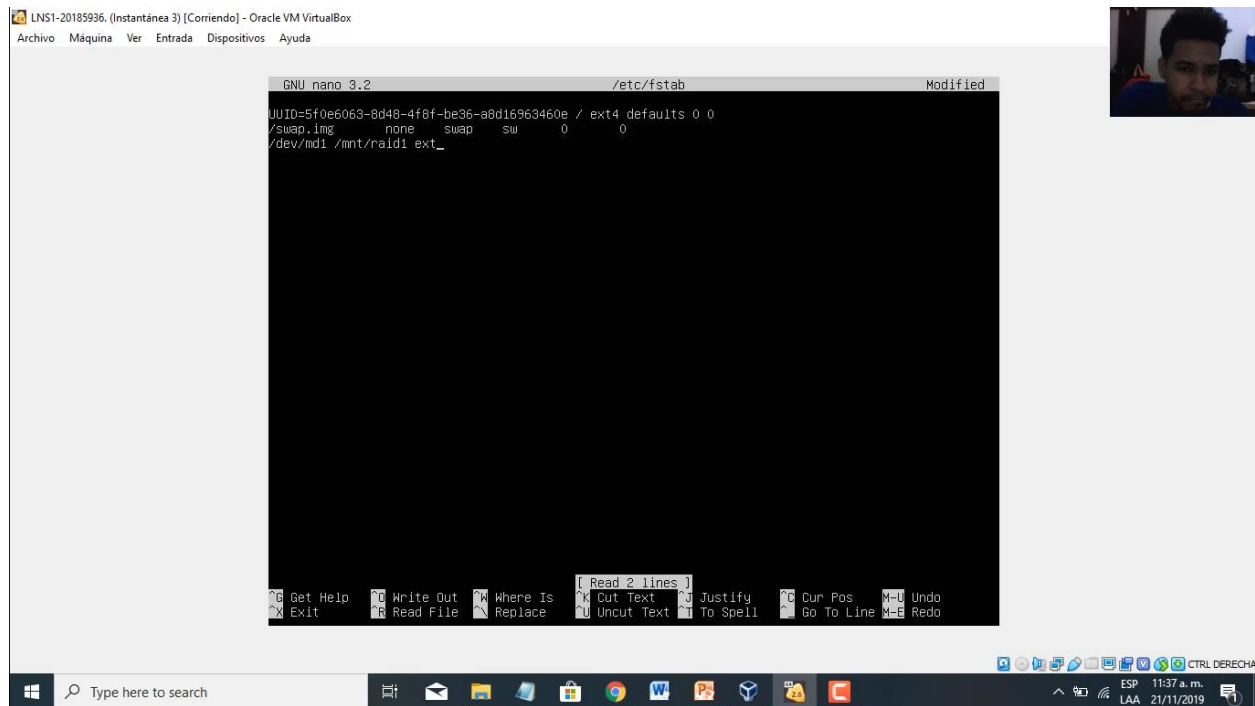
  Resync Status : 95% complete

  Name : ins:1 (local to host ins)
  UUID : ad55dbcd:5e6ff62d:733abc6c:df9443ff
  Events : 15

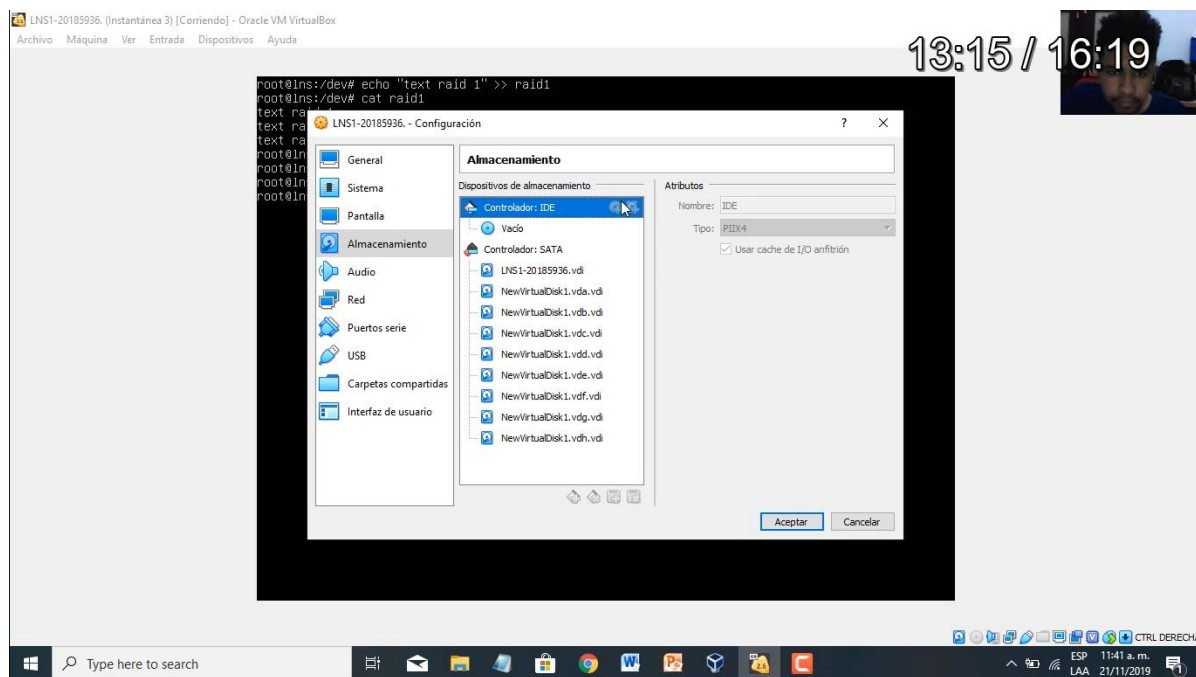
   Number Major Minor RaidDevice State
    0         8      48        0 active sync  /dev/sdd
    1         8      64        1 active sync  /dev/sde

root@ins:/dev#
```

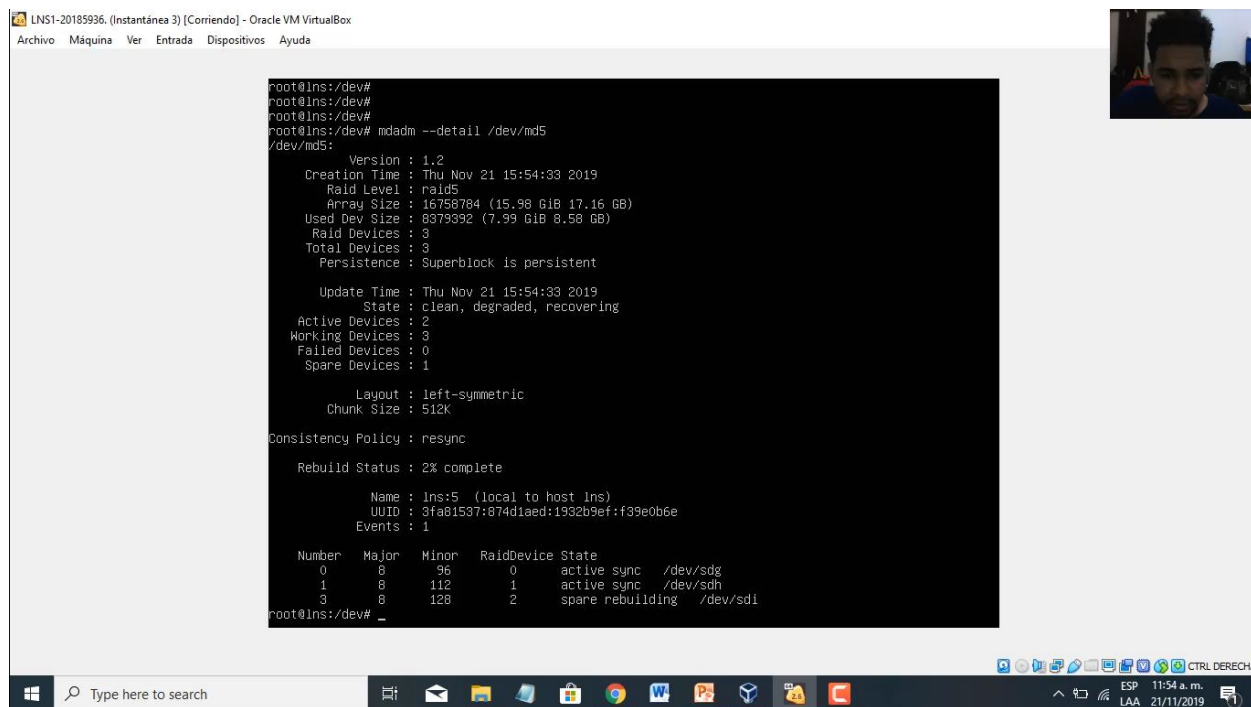
Aqui mediante el comando `mdadm --details /dev/md0` podemos ver los detalles del raid



Para ejecutarlos de manera de hardware y funcional utilizaremos agregaremos los discos al /etc/ftasb



Para el funcionamiento eliminamos un disco de nuestra particion y veremos como funciona este depende cual sea.



```
root@lins:/dev#
root@lins:/dev#
root@lins:/dev#
root@lins:/dev# mdadm --detail /dev/md5
/dev/md5:
    Version : 1.2
    Creation Time : Thu Nov 21 15:54:33 2019
    Raid Level : raid5
    Array Size : 16758784 (15.98 GiB 17.16 GB)
    Used Dev Size : 8379392 (7.99 GiB 8.58 GB)
    Raid Devices : 3
    Total Devices : 3
    Persistence : Superblock is persistent

    Update Time : Thu Nov 21 15:54:33 2019
    State : clean, degraded, recovering
    Active Devices : 2
    Working Devices : 3
    Failed Devices : 0
    Spare Devices : 1

    Layout : left-symmetric
    Chunk Size : 512K

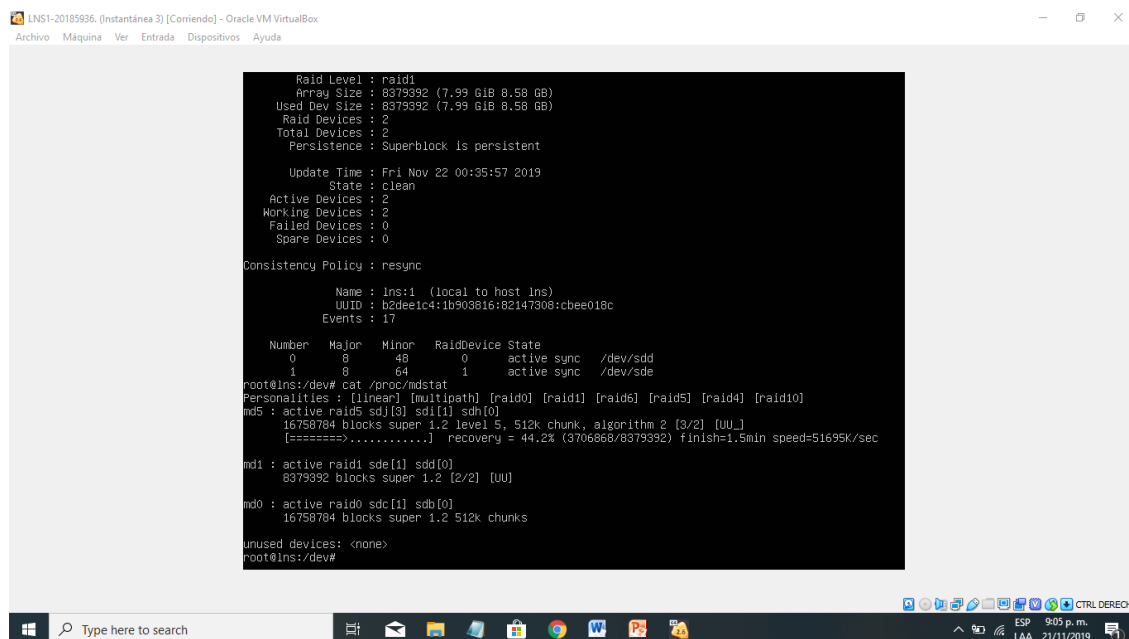
Consistency Policy : resync

Rebuild Status : 2% complete

    Name : lins:5 (local to host lins)
    UUID : 3fa81537:874d1aed:1932b9ef:f39e0b6e
    Events : 1

    Number Major Minor RaidDevice State
     0       8       96        0 active sync  /dev/sdg
     1       8      112        1 active sync  /dev/sdh
     2       8      128        2 spare rebuilding /dev/sdi
root@lins:/dev#
```

Vemos los detalles del raid 5 para ver los discos activos y ver si tras eliminar uno sigue todo en funcionamiento.



```
Raid Level : raid1
Array Size : 8379392 (7.99 GiB 8.58 GB)
Used Dev Size : 8379392 (7.99 GiB 8.58 GB)
Raid Devices : 2
Total Devices : 2
Persistence : Superblock is persistent

Update Time : Fri Nov 22 00:35:57 2019
State : clean
Active Devices : 2
Working Devices : 2
Failed Devices : 0
Spare Devices : 0

Consistency Policy : resync

    Name : lins:1 (local to host lins)
    UUID : b2dee1c4:1b903816:82147308:cbee018c
    Events : 17

    Number Major Minor RaidDevice State
     0       8       48        0 active sync  /dev/sdd
     1       8       64        1 active sync  /dev/sde
root@lins:/dev# cat /proc/mdstat
Personalities : [linear] [multipath] [raid0] [raid1] [raid6] [raid5] [raid4] [raid10]
md5 : active raid5 sdi[3] sdi[1] sdi[0]
      16758784 blocks super 1.2 level 5, 512k chunk, algorithm 2 [3/2] [UU_]
      [=====]..... recovery = 44.2% (3706868/8379392) finish=1.5min speed=51695K/sec

md1 : active raid1 sde[1] sdd[0]
      8379392 blocks super 1.2 [2/2] [UU]

md0 : active raid0 sdc[1] sdb[0]
      16758784 blocks super 1.2 512k chunks

unused devices: <none>
root@lins:/dev#
```

Ya por ultimo tenemos un resumen de todos los raid creados