

Raid en centos

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Este tutorial es un extracto del siguiente video:

<https://youtu.be/OyyguvrslC8>

RAID 0

Con **fdisk** particionamos los discos para RAID, ejecutando el comando **fdisk** con el disco que vamos a particionar, y colocamos las opciones **n** para una nueva partición, **p** para crear una partición primaria, y dejamos las opciones por defecto para utilizar el disco completo, para elegir la partición usamos **t**, y seleccionamos **fd** para Raid, para concluir podemos ver las opciones usadas con **p**, y guardarlas con **w**.
luego repetimos el proceso con los demás discos

**General**

Name: centosServer-20186748
 Operating System: Red Hat (64-bit)
 Settings File Location: C:\Users\jp135\VirtualBox VMs\Centos\centosServer
 Groups: Centos

System

Base Memory: 1024 MB
 Boot Order: Floppy, Optical, Hard Disk
 Acceleration: VT-x/AMD-V, Nested Paging, PAE/NX, KVM Paravirtualization

Display

Video Memory: 16 MB
 Graphics Controller: VMSVGA
 Remote Desktop Server: Disabled
 Recording: Disabled

Storage

Host Driver: Windows DirectSound
 Controller: ICH AC97

Network

Adapter 1: Intel PRO/1000 MT Desktop (Bridged Adapter, Intel(R) Dual Band identifier: 0x562c8add
 Adapter 4: Intel PRO/1000 MT Desktop (Internal Network, 'intnet')

USB

USB Controller: OHCI, EHCI
 Device Filters: 0 (0 active)

Shared folders

None

Description

None

```
centosServer-20186748 (Genisys) [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help

c W95 FAT32 (LBA) 52 CP/M      a0 IBM Thinkpad hi eb BeOS fs
e W95 FAT16 (LBA) 53 OnTrack DM6 Aux  a5 FreeBSD ee GPT
f W95 Ext'd (LBA) 54 OnTrackDM6   a6 OpenBSD ef EFI (FAT-12/16/
18 OPUS      55 EZ-Drive       a7 NeXTSTEP f0 LinuxxPA-RISC b
11 Hidden FDT12 56 Golden Bow    a8 Darwin UFS f1 SpeedStor
12 Compaq diagnost 5c Priam Edisk a9 NetBSD f4 SpeedStor
14 Hidden FDT16 <3 61 SpeedStor  ab Darwin boot f2 DOS secondary
16 Hidden FDT16 63 GNU HURD or Sys af HFS / HFS+ fb VMware VMFS
17 Hidden HPFS/NTF 64 Novell Netware b7 BSDI fs fc VMware VMRCORE
18 AST SmartSleep 65 Novell Netware b8 BSDI swap fd Linux raid auto
1b Hidden W95 FAT3 70 DiskSecure Mult bb Boot Wizard hid fe LANstep
1c Hidden W95 FAT3 75 FC/IX      be Solaris boot ff BBT
1e Hidden W95 FAT1 80 Old Minix

Command (m for help): t
Selected partition 1
Hex code (type L to list all codes): fd
Changed type of partition 'Linux' to 'Linux raid autodetect'

Command (m for help): p
Disk /dev/sdb: 8589 MB, 8589934592 bytes, 16777216 sectors
Units = sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
Disk label type: dos

Device Boot Start End Blocks Id System
/dev/sdb1      2048 16777215 8387584 fd Linux raid autodetect

Command (m for help): w
The partition table has been altered!

Calling ioctl(0) to re-read partition table.
Syncing disks.
[root@raid-28186748 ~]# _
```



File Machine Help

**General**

Name: centosServer-20186748
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 Acceleration: VT-x/AMD-V, Nested Paging, PAE/NX, KVM Paravirtualization

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Video Memory: 16 MB
 Graphics Controller: VMSVGA
 Remote Desktop Server: Disabled
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Storage

Host Driver: Windows DirectSound
 Controller: ICH AC97

Network

Adapter 1: Intel PRO/1000 MT Desktop (Bridged Adapter, Intel(R) Dual Band Wireless-AC 7265)
 Adapter 4: Intel PRO/1000 MT Desktop (Internal Network, 'intnet')

USB

USB Controller: OHCI, EHCI
 Device Filters: 0 (0 active)

Shared folders

None

Description

None

```
centosServer-20186748 (Genisys) [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help

Command (m for help): n
Partition type:
  p  primary (0 primary, 0 extended, 4 free)
  e  extended
Select (default p):
Using default response p

Partition number (1-4, default 1):
First sector (2048-16777215, default 2048):
Using default value 2048
Last sector, +sectors or +size{K,M,G} (2048-16777215, default 16777215):
Using default value 16777215
Partition 1 of type Linux and of size 8 GiB is set

Command (m for help): t
Selected partition 1
Hex code (type L to list all codes): fd
Changed type of partition 'Linux' to 'Linux raid autodetect'

Command (m for help): p
Disk /dev/sdc: 8589 MB, 8589934592 bytes, 16777216 sectors
Units = sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
Disk label type: dos

Device Boot Start End Blocks Id System
/dev/sdc1 2048 16777215 8387584 fd Linux raid autodetect

Command (m for help): w
The partition table has been altered!

Calling ioctl(0) to re-read partition table.
Syncing disks.
[root@raid-28186748 ~]#
```



Con la utilidad integrada en Centos **mdadm**, colocamos el comando
mdadm -C /dev/md0 -l raid0 -n 2 /dev/sd[rango de discos]1 para
crear el raid 0

[File](#) [Machine](#) [Help](#)

General

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Groups: Centos

System

Base Memory: 1024 MB
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Acceleration: VT-x/AMD-V, Nested Paging, PAE/NX, KVM Paravirtualization

Display

Video Memory: 16 MB
Graphics Controller: VMSVGA
Remote Desktop Server: Disabled
Recording: Disabled

Storage

Audio

Host Driver: Windows DirectSound
Controller: ICH AC97

Network

Adapter 1: Intel PRO/1000 MT Desktop (Bridged Adapter, Intel(R) Dual Band Wireless-AC 7265)
Adapter 4: Intel PRO/1000 MT Desktop (Internal Network, 'intnet')

USB

USB Controller: OHCI, EHCI
Device Filters: 0 (0 active)

Shared folders

None

Description

None

centosServer-20186748 (Genisys) [Running] - Oracle VM VirtualBox

File Machine View Input Devices Help

```
[root@raid-20186748 ~]# mdadm -C /dev/md0 -l raid0 -n 2 /dev/sdib-c11
mdadm: Defauling to version 1.2 metadata
mdadm: array /dev/md0 started.
[root@raid-20186748 ~]# _
```

Right Ctrl



Con el comando **mdadm --detail /dev/md0** verificamos que el raid 0 se encuentra activo



General

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Groups: Centos

System

Base Memory: 1024 MB
Boot Order: Floppy, Optical, Hard Disk
Acceleration: VT-x/AMD-V, Nested Paging, PAE/NX, KVM Paravirtualization

Display

Video Memory: 16 MB
Graphics Controller: VMSVGA
Remote Desktop Server: Disabled
Recording: Disabled

Storage

Host Driver: Windows DirectSound
Controller: ICH AC97

Network

Adapter 1: Intel PRO/1000 MT Desktop (Bridged Adapter, Intel(R) Dual Band Wireless-AC 7265)
Adapter 4: Intel PRO/1000 MT Desktop (Internal Network, 'intnet')

USB

USB Controller: OHCI, EHCI
Device Filters: 0 (0 active)

Shared folders

None

Description

None

centosServer-20186748 (Genisys) [Running] - Oracle VM VirtualBox

File Machine View Input Devices Help

```
[root@raid-20186748 ~]# mdadm -C /dev/md0 -l raid0 -n 2 /dev/sdib-c11
mdadm: Defaulting to version 1.2 metadata
mdadm: array /dev/md0 started.
[root@raid-20186748 ~]# mdadm --detail /dev/md0
bash: mdadm: command not found
[root@raid-20186748 ~]# mdadm --detail /dev/md0
/dev/md0:
      Version : 1.2
      Creation Time : Tue Nov 19 18:27:43 2019
      Raid Level : raid10
      Array Size : 16764928 (15.99 GiB 17.17 GB)
      Raid Devices : 2
      Total Devices : 2
      Persistence : Superblock is persistent

      Update Time : Tue Nov 19 18:27:43 2019
      State : clean
      Active Devices : 2
      Working Devices : 2
      Failed Devices : 0
      Spare Devices : 0

      Chunk Size : 512K

      Consistency Policy : none

      Name : raid-20186748:0  (local to host raid-20186748)
      UUID : 5823c9ac:94049c92:bde7705f:cb463a48
      Events : 0

      Number  Major  Minor  RaidDevice State
          0      8       17        0     active sync   /dev/sdb1
          1      8       33        1     active sync   /dev/sdc1

[root@raid-20186748 ~]#
```

Right Ctrl



RAID 1

Con **fdisk** particionamos los discos para RAID, ejecutando el comando **fdisk** con el disco que vamos a particionar, y colocamos las opciones **n** para una nueva partición, **p** para crear una partición primaria, y dejamos las opciones por defecto para utilizar el disco completo, para elegir la partición usamos **t**, y seleccionamos **fd** para Raid, para concluir podemos ver las opciones usadas con **p**, y guardarlas con **w**.
luego repetimos el proceso con los demás discos

**General**

Name: centosServer-20186748
 Operating System: Red Hat (64-bit)
 Settings File Location: C:\Users\jp135\VirtualBox VMs\Centos\centosServer
 Groups: Centos

System

Base Memory: 1024 MB
 Boot Order: Floppy, Optical, Hard Disk
 Acceleration: VT-x/AMD-V, Nested Paging, PAE/NX, KVM Paravirtualization

Display

Video Memory: 16 MB
 Graphics Controller: VMSVGA
 Remote Desktop Server: Disabled
 Recording: Disabled

Storage

Host Driver: Windows DirectSound
 Controller: ICH AC97

Network

Adapter 1: Intel PRO/1000 MT Desktop (Bridged Adapter, Intel(R) Dual Band identifier: 0xe6ad0f95
 Adapter 4: Intel PRO/1000 MT Desktop (Internal Network, 'intnet')

USB

USB Controller: OHCI, EHCI
 Device Filters: 0 (0 active)

Shared folders

None

Description

None

```
centosServer-20186748 (Genisys) [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help

Command (m for help): n
Partition type:
  p  primary (0 primary, 0 extended, 4 free)
  e  extended
Select (default p):
Using default response p

Partition number (1-4, default 1):
First sector (2048-16777215, default 2048):
Using default value 2048
Last sector, +sectors or +size{K,M,G} (2048-16777215, default 16777215):
Using default value 16777215
Partition 1 of type Linux and of size 8 GiB is set

Command (m for help): t
Selected partition 1
Hex code (type L to list all codes): fd
Changed type of partition 'Linux' to 'Linux raid autodetect'

Command (m for help): p
Disk /dev/sdd: 8589 MB, 8589934592 bytes, 16777216 sectors
Units = sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
Disk label type: dos

Device Boot Start End Blocks Id System
/dev/sdd1 2048 16777215 8387584 fd Linux raid autodetect

Command (m for help): w
The partition table has been altered!

Calling ioctl(0) to re-read partition table.
Syncing disks.
[root@raid-28186748 ~]# 
```



**General**

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 Groups: Centos

System

Base Memory: 1024 MB
 Boot Order: Floppy, Optical, Hard Disk
 Acceleration: VT-x/AMD-V, Nested Paging, PAE/NX, KVM Paravirtualization

Display

Video Memory: 16 MB
 Graphics Controller: VMSVGA
 Remote Desktop Server: Disabled
 Recording: Disabled

Storage

Host Driver: Windows DirectSound
 Controller: ICH AC97

Network

Adapter 1: Intel PRO/1000 MT Desktop (Bridged Adapter, Intel(R) Dual Band identifier: 0x019218f?)
 Adapter 4: Intel PRO/1000 MT Desktop (Internal Network, 'intnet')

USB

USB Controller: OHCI, EHCI
 Device Filters: 0 (0 active)

Shared folders

None

Description

None

```
centosServer-20186748 (Genisys) [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help

Command (m for help): n
Partition type:
  p  primary (0 primary, 0 extended, 4 free)
  e  extended
Select (default p):
Using default response p

Partition number (1-4, default 1):
First sector (2048-16777215, default 2048):
Using default value 2048
Last sector, +sectors or +size{K,M,G} (2048-16777215, default 16777215):
Using default value 16777215
Partition 1 of type Linux and of size 8 GiB is set

Command (m for help): t
Selected partition 1
Hex code (type L to list all codes): fd
Changed type of partition 'Linux' to 'Linux raid autodetect'

Command (m for help): p
Disk /dev/sde: 8589 MB, 8589934592 bytes, 16777216 sectors
Units = sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
Disk label type: dos

Device Boot Start End Blocks Id System
/dev/sde1 2048 16777215 8387584 fd Linux raid autodetect

Command (m for help): w
The partition table has been altered!

Calling ioctl(0) to re-read partition table.
Syncing disks.
[rooot@raid-20186748 ~]#
```



Colocamos el comando **mdadm -C /dev/md1 -I raid1 -n 2 /dev/sd[rango de discos]1** para crear el raid 1

[File](#) [Machine](#) [Help](#)

General

Name: centosServer-20186748
Operating System: Red Hat (64-bit)
Settings File Location: C:\Users\jp135\VirtualBox VMs\Centos\centosServer
Groups: Centos

System

Base Memory: 1024 MB
Boot Order: Floppy, Optical, Hard Disk
Acceleration: VT-x/AMD-V, Nested Paging, PAE/NX, KVM Paravirtualization

Display

Video Memory: 16 MB
Graphics Controller: VMSVGA
Remote Desktop Server: Disabled
Recording: Disabled

Storage

Audio

Host Driver: Windows DirectSound
Controller: ICH AC97

Network

Adapter 1: Intel PRO/1000 MT Desktop (Bridged Adapter, Intel(R) Dual Band Wireless-AC 7265)
Adapter 4: Intel PRO/1000 MT Desktop (Internal Network, 'intnet')

USB

USB Controller: OHCI, EHCI
Device Filters: 0 (0 active)

Shared folders

None

Description

None

centosServer-20186748 (Genisys) [Running] - Oracle VM VirtualBox

File Machine View Input Devices Help

```
Iroot@raid-20186748 ~# mdadm -C /dev/md1 -l raid1 -n 2 /dev/sdId-e11
mdadm: Note: this array has metadata at the start and
      may not be suitable as a boot device. If you plan to
      store '/boot' on this device please ensure that
      your boot-loader understands md/v1.x metadata, or use
      --metadata=0.90
Continue creating array? y
mdadm: Defaulting to version 1.2 metadata
mdadm: array /dev/md1 started.
Iroot@raid-20186748 ~# _
```

Right Ctrl



Con el comando **mdadm --detail /dev/md1** verificamos que el raid 1 se encuentra activo

**General**

Name: centosServer-20186748
 Operating System: Red Hat (64-bit)
 Settings File Location: C:\Users\jp135\VirtualBox VMs\Centos\centosServer
 Groups: Centos

System

Base Memory: 1024 MB
 Boot Order: Floppy, Optical, Hard Disk
 Acceleration: VT-x/AMD-V, Nested Paging, PAE/NX, KVM Paravirtualization

Display

Video Memory: 16 MB
 Graphics Controller: VMSVGA
 Remote Desktop Server: Disabled
 Recording: Disabled

Storage**Audio**

Host Driver: Windows DirectSound
 Controller: ICH AC97

Network

Adapter 1: Intel PRO/1000 MT Desktop (Bridged Adapter, Intel(R) Dual Band Wireless-AC 7265)
 Adapter 4: Intel PRO/1000 MT Desktop (Internal Network, 'Intnet')

USB

USB Controller: OHCI, EHCI
 Device Filters: 0 (0 active)

Shared folders

None

Description

None

centosServer-20186748 (Genisys) [Running] - Oracle VM VirtualBox

```
may not be suitable as a boot device. If you plan to
store '/boot' on this device please ensure that
your boot-loader understands md/v1.x metadata, or use
--metadata=0.90
Continue creating array? y
mdadm: Defaulting to version 1.2 metadata
mdadm: array /dev/mdi started.
[root@raid-20186748 ~]# mdadm --detail /dev/mdi
/dev/mdi:
      Version : 1.2
      Creation Time : Tue Nov 19 18:34:07 2019
                  State : clean, resyncing
      Raid Level : raid1
      Array Size : 8382464 (7.99 GiB 8.58 GB)
      Used Dev Size : 8382464 (7.99 GiB 8.58 GB)
      Raid Devices : 2
      Total Devices : 2
      Persistence : Superblock is persistent

      Update Time : Tue Nov 19 18:34:11 2019
                  State : clean, resyncing
      Active Devices : 2
      Working Devices : 2
      Failed Devices : 0
      Spare Devices : 0

      Consistency Policy : resync

      Resync Status : 11% complete

      Name : raid-20186748:1 (local to host raid-20186748)
      UUID : cce0425f:578695e3:71216d7f:345b237f
      Events : 1

      Number  Major  Minor  RaidDevice State
          0       8       49        0     active sync   /dev/sdd1
          1       8       65        1     active sync   /dev/sde1
[root@raid-20186748 ~]#
```



Configuración para prueba del funcionamiento del Raid 1

Para probar el funcionamiento del raid 1, crearemos un directorio llamado **raid 1**, donde montaremos la unidad raid **md1** que creamos para el raid 1. Luego con **mkfs.ext4 /dev/md1** creamos un sistema de archivos de tipo **ext4** en la unidad raid para que esta pueda ser escrita.



General

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System

Base Memory: 1024 MB
Boot Order: Floppy, Optical, Hard Disk
Acceleration: VT-x/AMD-V, Nested Paging, PAE/NX, KVM Paravirtualization

centosServer-20186748 (Genisys) [Running] - Oracle VM VirtualBox

```
Iroot@raid-20186748 ~# mkdir /mnt/raid1
Iroot@raid-20186748 ~# mkfs.ext4 /dev/md1
mke2fs 1.42.9 (28-Dec-2013)
Filesystem label=
OS type: Linux
Block size=4096 (log=2)
Fragment size=4096 (log=2)
Stride=0 blocks, Stripe width=0 blocks
524288 inodes, 2095616 blocks
104788 blocks (5.00%) reserved for the super user
First data block=0
Maximum filesystem blocks=2147483648
64 block groups
32768 blocks per group, 32768 fragments per group
8192 inodes per group
Superblock backups stored on blocks:
    32768, 98304, 163840, 229376, 294912, 819200, 884736, 1605632

Allocating group tables: done
Writing inode tables: done
Creating journal (32768 blocks): done
Writing superblocks and filesystem accounting information: _
```

File Machine View Input Devices Help

Right Ctrl



Ahora con el comando **mount** montamos la unidad raid 1 dentro del directorio **raid1** que habíamos creado

[File](#) [Machine](#) [Help](#)

General

Name: centosServer-20186748
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Settings File Location: C:\Users\jp135\VirtualBox VMs\Centos\centosServer
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System

Base Memory: 1024 MB
Boot Order: Floppy, Optical, Hard Disk
Acceleration: VT-x/AMD-V, Nested Paging, PAE/NX, KVM Paravirtualization

Display

Video Memory: 16 MB
Graphics Controller: VMSVGA
Remote Desktop Server: Disabled
Recording: Disabled

Storage

Audio

Host Driver: Windows DirectSound
Controller: ICH AC97

Network

Adapter 1: Intel PRO/1000 MT Desktop (Bridged Adapter, Intel(R) Dual Band Wireless-AC 7265)
Adapter 4: Intel PRO/1000 MT Desktop (Internal Network, 'intnet')

USB

USB Controller: OHCI, EHCI
Device Filters: 0 (0 active)

Shared folders

None

Description

None

centosServer-20186748 (Genisys) [Running] - Oracle VM VirtualBox

File Machine View Input Devices Help

```
root@raid-20186748 ~]# mount /dev/md1 /mnt/raid1
root@raid-20186748 ~]# df -h
Filesystem      Size  Used Avail Use% Mounted on
/devtmpfs        484M   0  484M  0% /dev
tmpfs           496M   0  496M  0% /dev/shm
tmpfs           496M  6.9M 489M  2% /run
tmpfs           496M   0  496M  0% /sys/fs/cgroup
/dev/mapper/centos-root  17G  1.5G  16G  9% /
/dev/sda1       1014M 139M  876M  14% /boot
tmpfs           180M   0  180M  0% /run/user/0
/dev/md1         7.8G  36M  7.3G  1% /mnt/raid1
root@raid-20186748 ~]#
```



Para que se la unidad se monte al iniciar el sistema, colocamos esta regla en el archivo **/etc/fstab**



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Groups: Centos

System

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Boot Order: Floppy, Optical, Hard Disk
Acceleration: VT-x/AMD-V, Nested Paging, PAE/NX, KVM Paravirtualization

Display

Video Memory: 16 MB
Graphics Controller: VMSVGA
Remote Desktop Server: Disabled
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Adapter 1: Intel PRO/1000 MT Desktop (Bridged Adapter, Intel(R) Dual Band Wireless-AC 7265)
Adapter 4: Intel PRO/1000 MT Desktop (Internal Network, 'intnet')

USB

USB Controller: OHCI, EHCI
Device Filters: 0 (0 active)

Shared folders

None

Description

None

centosServer-20186748 (Genisys) [Running] - Oracle VM VirtualBox

```
# /etc/fstab
# Created by anaconda on Mon Nov 18 15:59:12 2019
#
# Accessible filesystems, by reference, are maintained under '/dev/disk'
# See man pages fstab(5), findfs(8), mount(8) and/or blkid(8) for more info
#
#/dev/mapper/centos-root / xfs defaults 0 0
UUID=a1886c93-7dc8-42a0-966d-cfc4e8c705a7 /boot xfs defaults 0 0
/dev/mapper/centos-swap swap swap defaults 0 0
/dev/md1 /mnt/raid1_ext4 defaults 0 0
```

-- INSERT --

12,20 811

Right Ctrl



Con el comando **mdadm -E -s -v >> /etc/mdadm.conf** guardamos las configuraciones de forma permanente

[File](#) [Machine](#) [Help](#)

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Base Memory: 1024 MB
Boot Order: Floppy, Optical, Hard Disk
Acceleration: VT-x/AMD-V, Nested Paging, PAE/NX, KVM Paravirtualization

Display

Video Memory: 16 MB
Graphics Controller: VMSVGA
Remote Desktop Server: Disabled
Recording: Disabled

Storage

Audio

Host Driver: Windows DirectSound
Controller: ICH AC97

Network

Adapter 1: Intel PRO/1000 MT Desktop (Bridged Adapter, Intel(R) Dual Band Wireless-AC 7265)
Adapter 4: Intel PRO/1000 MT Desktop (Internal Network, 'intnet')

USB

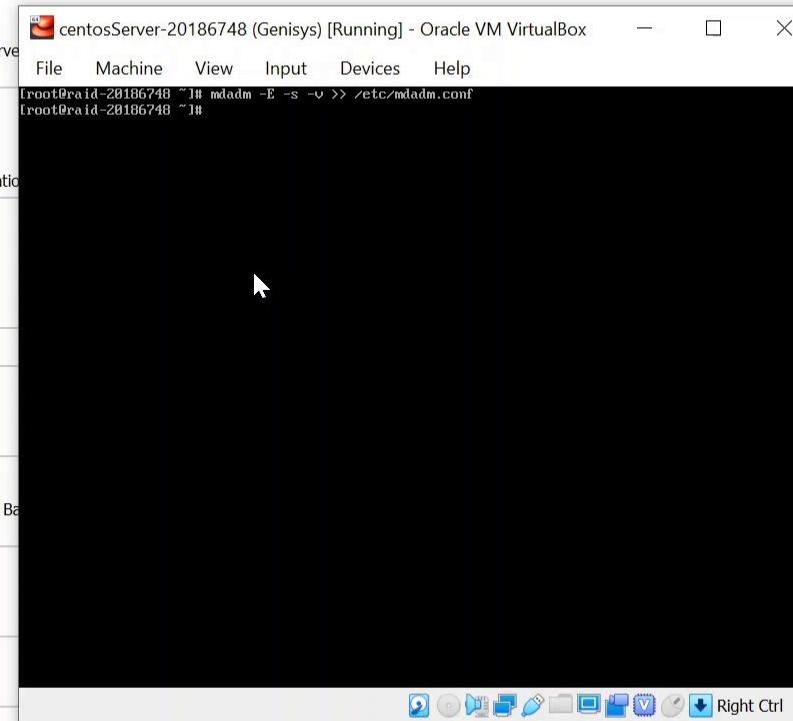
USB Controller: OHCI, EHCI
Device Filters: 0 (0 active)

Shared folders

None

Description

None



Para probar la funcionalidad del raid 1, crearemos un archivo dentro del directorio donde montamos la unidad del raid 1, **raid1**

[File](#) [Machine](#) [Help](#)

General

Name: centosServer-20186748
Operating System: Red Hat (64-bit)
Settings File Location: C:\Users\jp135\VirtualBox VMs\Centos\centosServer
Groups: Centos

System

Base Memory: 1024 MB
Boot Order: Floppy, Optical, Hard Disk
Acceleration: VT-x/AMD-V, Nested Paging, PAE/NX, KVM Paravirtualization

Display

Video Memory: 16 MB
Graphics Controller: VMSVGA
Remote Desktop Server: Disabled
Recording: Disabled

Storage

Audio

Host Driver: Windows DirectSound
Controller: ICH AC97

Network

Adapter 1: Intel PRO/1000 MT Desktop (Bridged Adapter, Intel(R) Dual Band Wireless-AC 7265)
Adapter 4: Intel PRO/1000 MT Desktop (Internal Network, 'intnet')

USB

USB Controller: OHCI, EHCI
Device Filters: 0 (0 active)

Shared folders

None

Description

None

centosServer-20186748 (Genisys) [Running] - Oracle VM VirtualBox

File Machine View Input Devices Help
[root@raid-20186748 ~]# cd /mnt/raid1
[root@raid-20186748 raid1]# ls
lost+found
[root@raid-20186748 raid1]# echo "TEST RAID 1" >> test-r1
[root@raid-20186748 raid1]# cat test-r1
TEST RAID 1
[root@raid-20186748 raid1]#



Luego retiramos uno de los discos duros que forman parte del raid 1



General
Name: centoS-20186748
Operating System: Red Hat (64-bit)
Settings File Location: C:\Users\jp135\VirtualBox\Centos
Groups:

System
Base Memory: 1024 MB
Boot Order: Floppy, Optical, Hard Disk
Acceleration: VT-x/AMD-V, Nested Paging,

Display
Video Memory: 16 MB
Graphics Controller: VMSVGA
Remote Desktop Server: Disabled
Recording: Disabled

Storage
Host Driver: Windows DirectSound
Controller: ICH AC97

Network
Adapter 1: Intel PRO/1000 MT Desktop (Bridged Adapter 4: Intel PRO/1000 MT Desktop (Internal)

USB
USB Controller: OHCI, EHCI
Device Filters: 0 (0 active)

Shared folders

None

Description

None

centoS-20186748 - Settings

Storage

Storage Devices

- Controller: IDE
 - Empty
 - Empty
- Controller: SATA
 - centoS-20186748.vdi
 - raid0.vdi
 - raid0-1.vdi
 - raid1.vdi**
 - raid1-1.vdi
 - raid5-0.vdi
 - raid5-1.vdi
 - raid5-2.vdi

Attributes

Hard Disk: SATA Port 3

Solid-state Drive

Hot-pluggable

Information

Type (Format): Normal (VDI)

Virtual Size: 8.00 GB

Actual Size: 2.00 MB

Details: Dynamically allocated storage

Location: C:\Users\jp135\VirtualBox VMs\Centos\centoS...

Attached to: centoS-20186748

Encrypted with key: --

OK Cancel





General
Name: centosServer-20186748
Operating System: Red Hat (64-bit)
Settings File Location: C:\Users\jp135\VirtualBox\Centos
Groups:

System

Base Memory: 1024 MB
Boot Order: Floppy, Optical, Hard Disk
Acceleration: VT-x/AMD-V, Nested Paging,

Display

Video Memory: 16 MB
Graphics Controller: VMSVGA
Remote Desktop Server: Disabled
Recording: Disabled

Storage

Host Driver: Windows DirectSound
Controller: ICH AC97

Network

Adapter 1: Intel PRO/1000 MT Desktop (Bridged Adapter 4: Intel PRO/1000 MT Desktop (Internal)

USB

USB Controller: OHCI, EHCI
Device Filters: 0 (0 active)

Shared folders

None

Description

None

centosServer-20186748 - Settings

Storage

Storage Devices

- Controller: IDE
 - Empty
 - Empty
- Controller: SATA
 - centosServer-20186748.vdi
 - raid0.vdi
 - raid0-1.vdi
 - raid1.vdi
 - raid5-0.vdi**
 - raid5-1.vdi
 - raid5-2.vdi

Attributes

Hard Disk: SATA Port 5

Solid-state Drive

Hot-pluggable

Information

Type (Format): Normal (VDI)

Virtual Size: 8.00 GB

Actual Size: 2.00 MB

Details: Dynamically allocated storage

Location: C:\Users\jp135\VirtualBox VMs\Centos\centos...

Attached to: centosServer-20186748

Encrypted with key: --

OK Cancel

Right Ctrl



Con **mdadm --detail /dev/md1**, podemos comprobar de que hemos retirado el disco, sin embargo al abrir el archivo que hemos creado observamos que la información continúa intacta



General

Name: centosServer-20186748
Operating System: Red Hat (64-bit)
Settings File Location: C:\Users\jp135\VirtualBox VMs\Centos\centosServer
Groups: Centos

System

Base Memory: 1024 MB
Boot Order: Floppy, Optical, Hard Disk
Acceleration: VT-x/AMD-V, Nested Paging, PAE/NX, KVM Paravirtualization

Display

Video Memory: 16 MB
Graphics Controller: VMSVGA
Remote Desktop Server: Disabled
Recording: Disabled

Storage

Audio

Host Driver: Windows DirectSound
Controller: ICH AC97

Network

Adapter 1: Intel PRO/1000 MT Desktop (Bridged Adapter, Intel(R) Dual Band Wireless-AC 7265)
Adapter 4: Intel PRO/1000 MT Desktop (Internal Network, 'intnet')

USB

USB Controller: OHCI, EHCI
Device Filters: 0 (0 active)

Shared folders

None

Description

None

centosServer-20186748 (Genisys) [Running] - Oracle VM VirtualBox

File Machine View Input Devices Help

```
root@raid-20186748: ~# mdadm --detail /dev/md1
/dev/md1:
      Version : 1.2
      Creation Time : Tue Nov 19 18:34:07 2019
      Raid Level : raid1
      Array Size : 8382464 (7.99 GiB 8.58 GB)
      Used Dev Size : 8382464 (7.99 GiB 8.58 GB)
      Raid Devices : 2
      Total Devices : 1
      Persistence : Superblock is persistent

      Update Time : Tue Nov 19 18:38:37 2019
                     State : clean, degraded
      Active Devices : 1
      Working Devices : 1
      Failed Devices : 0
      Spare Devices : 0

      Consistency Policy : resync

      Name : raid-20186748:1 (local to host raid-20186748)
      UUID : cc0f425f:578695e3:71216d7f:345b237f
      Events : 25

      Number  Major  Minor  RaidDevice State
          0      8        49        0     active sync   /dev/sdd1
          -      8        0         1     removed
root@raid-20186748: ~# ls
lost+found  test-r1
root@raid-20186748: ~#
```



[File](#) [Machine](#) [Help](#)

General

Name: centosServer-20186748
Operating System: Red Hat (64-bit)
Settings File Location: C:\Users\jp135\VirtualBox VMs\Centos\centosServer
Groups: Centos

System

Base Memory: 1024 MB
Boot Order: Floppy, Optical, Hard Disk
Acceleration: VT-x/AMD-V, Nested Paging, PAE/NX, KVM Paravirtualization

Display

Video Memory: 16 MB
Graphics Controller: VMSVGA
Remote Desktop Server: Disabled
Recording: Disabled

Storage

Audio

Host Driver: Windows DirectSound
Controller: ICH AC97

Network

Adapter 1: Intel PRO/1000 MT Desktop (Bridged Adapter, Intel(R) Dual Band Wireless-AC 7265)
Adapter 4: Intel PRO/1000 MT Desktop (Internal Network, 'intnet')

USB

USB Controller: OHCI, EHCI
Device Filters: 0 (0 active)

Shared folders

None

Description

None

centosServer-20186748 (Genisys) [Running] - Oracle VM VirtualBox

File Machine View Input Devices Help

```
Iroot@raid-20186748:~# cat test-rl
TEST RAID 1
Iroot@raid-20186748:~# ~
```



RAID 5

Con **fdisk** particionamos los discos para RAID, ejecutando el comando **fdisk** con el disco que vamos a particionar, y colocamos las opciones **n** para una nueva partición, **p** para crear una partición primaria, y dejamos las opciones por defecto para utilizar el disco completo, para elegir la partición usamos **t**, y seleccionamos **fd** para Raid, para concluir podemos ver las opciones usadas con **p**, y guardarlas con **w**.
luego repetimos el proceso con los demás discos

File Machine Help

**General**

Name: centosServer-20186748
 Operating System: Red Hat (64-bit)
 Settings File Location: C:\Users\jp135\VirtualBox VMs\Centos\centosServer
 Groups: Centos

System

Base Memory: 1024 MB
 Boot Order: Floppy, Optical, Hard Disk
 Acceleration: VT-x/AMD-V, Nested Paging, PAE/NX, KVM Paravirtualization

Display

Video Memory: 16 MB
 Graphics Controller: VMSVGA
 Remote Desktop Server: Disabled
 Recording: Disabled

Storage**Audio**

Host Driver: Windows DirectSound
 Controller: ICH AC97

Network

Adapter 1: Intel PRO/1000 MT Desktop (Bridged Adapter, Intel(R) Dual Band identifier: 0x52392a24
 Adapter 4: Intel PRO/1000 MT Desktop (Internal Network, 'intnet')

USB

USB Controller: OHCI, EHCI
 Device Filters: 0 (0 active)

Shared folders

None

Description

None

```
centosServer-20186748 (Genisys) [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help

Command (m for help): n
Partition type:
  p  primary (0 primary, 0 extended, 4 free)
  e  extended
Select (default p):
Using default response p

Partition number (1-4, default 1):
First sector (2048-16777215, default 2048):
Using default value 2048
Last sector, +sectors or +size{K,M,G} (2048-16777215, default 16777215):
Using default value 16777215
Partition 1 of type Linux and of size 8 GiB is set

Command (m for help): t
Selected partition 1
Hex code (type L to list all codes): fd
Changed type of partition 'Linux' to 'Linux raid autodetect'

Command (m for help): p
Disk /dev/sdf: 8589 MB, 8589934592 bytes, 16777216 sectors
Units = sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
Disk label type: dos

Device Boot Start End Blocks Id System
/dev/sdf1 2048 16777215 8387584 fd Linux raid autodetect

Command (m for help): w
The partition table has been altered!

Calling ioctl(0) to re-read partition table.
Syncing disks.
[root@raid-20186748 ~]# _
```



**General**

Name: centosServer-20186748
 Operating System: Red Hat (64-bit)
 Settings File Location: C:\Users\jp135\VirtualBox VMs\Centos\centosServer
 Groups: Centos

System

Base Memory: 1024 MB
 Boot Order: Floppy, Optical, Hard Disk
 Acceleration: VT-x/AMD-V, Nested Paging, PAE/NX, KVM Paravirtualization

Display

Video Memory: 16 MB
 Graphics Controller: VMSVGA
 Remote Desktop Server: Disabled
 Recording: Disabled

Storage

Host Driver: Windows DirectSound
 Controller: ICH AC97

Network

Adapter 1: Intel PRO/1000 MT Desktop (Bridged Adapter, Intel(R) Dual Band identifier: 0x00f2482
 Adapter 4: Intel PRO/1000 MT Desktop (Internal Network, 'intnet')

USB

USB Controller: OHCI, EHCI
 Device Filters: 0 (0 active)

Shared folders

None

Description

None

centosServer-20186748 (Genisys) [Running] - Oracle VM VirtualBox

File Machine View Input Devices Help

```
Command (m for help): n
Partition type:
  p  primary (0 primary, 0 extended, 4 free)
  e  extended
Select (default p):
Using default response p
Partition number (1-4, default 1):
First sector (2048-16777215, default 2048):
Using default value 2048
Last sector, +sectors or +size(K,M,G) (2048-16777215, default 16777215):
Using default value 16777215
Partition 1 of type Linux and of size 8 GiB is set

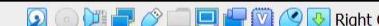
Command (m for help): t
Selected partition 1
Hex code (type L to list all codes): fd
Changed type of partition 'Linux' to 'Linux raid autodetect'

Command (m for help): p
Disk /dev/sdg: 8589 MB, 8589934592 bytes, 16777216 sectors
Units = sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
Disk label type: dos
```

Device	Boot	Start	End	Blocks	Id	System
/dev/sdg1	2048	16777215	8387584	fd	Linux raid autodetect	

```
Command (m for help): w
The partition table has been altered!
```

```
Calling ioctl(0) to re-read partition table.
Syncing disks.
[root@raid-28186748 ~]# _
```



**General**

Name: centosServer-20186748
 Operating System: Red Hat (64-bit)
 Settings File Location: C:\Users\jp135\VirtualBox VMs\Centos\centosServer
 Groups: Centos

System

Base Memory: 1024 MB
 Boot Order: Floppy, Optical, Hard Disk
 Acceleration: VT-x/AMD-V, Nested Paging, PAE/NX, KVM Paravirtualization

Display

Video Memory: 16 MB
 Graphics Controller: VMSVGA
 Remote Desktop Server: Disabled
 Recording: Disabled

Storage

Host Driver: Windows DirectSound
 Controller: ICH AC97

Network

Adapter 1: Intel PRO/1000 MT Desktop (Bridged Adapter, Intel(R) Dual Band identifier: 0xbfd24d87)
 Adapter 4: Intel PRO/1000 MT Desktop (Internal Network, 'intnet')

USB

USB Controller: OHCI, EHCI
 Device Filters: 0 (0 active)

Shared folders

None

Description

None

```
centosServer-20186748 (Genisys) [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help

Command (m for help): n
Partition type:
  p  primary (0 primary, 0 extended, 4 free)
  e  extended
Select (default p):
Using default response p

Partition number (1-4, default 1):
First sector (2048-16777215, default 2048):
Using default value 2048
Last sector, +sectors or +size(K,M,G) (2048-16777215, default 16777215):
Using default value 16777215
Partition 1 of type Linux and of size 8 GiB is set

Command (m for help): t
Selected partition 1
Hex code (type L to list all codes): fd
Changed type of partition 'Linux' to 'Linux raid autodetect'

Command (m for help): p
Disk /dev/sdh: 8589 MB, 8589934592 bytes, 16777216 sectors
Units = sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
Disk label type: dos

Device Boot Start End Blocks Id System
/dev/sdh1 2048 16777215 8387584 fd Linux raid autodetect

Command (m for help): w
The partition table has been altered!

Calling ioctl(0) to re-read partition table.
Syncing disks.
[root@raid-28186748 ~]#
```



Colocamos el comando **mdadm -C /dev/md5 -I raid5 -n 3 /dev/sd[rango de discos]1** para crear el raid 5

[File](#) [Machine](#) [Help](#)

General

Name: centosServer-20186748
Operating System: Red Hat (64-bit)
Settings File Location: C:\Users\jp135\VirtualBox VMs\Centos\centosServer
Groups: Centos

System

Base Memory: 1024 MB
Boot Order: Floppy, Optical, Hard Disk
Acceleration: VT-x/AMD-V, Nested Paging, PAE/NX, KVM Paravirtualization

Display

Video Memory: 16 MB
Graphics Controller: VMSVGA
Remote Desktop Server: Disabled
Recording: Disabled

Storage

Audio

Host Driver: Windows DirectSound
Controller: ICH AC97

Network

Adapter 1: Intel PRO/1000 MT Desktop (Bridged Adapter, Intel(R) Dual Band Wireless-AC 7265)
Adapter 4: Intel PRO/1000 MT Desktop (Internal Network, 'intnet')

USB

USB Controller: OHCI, EHCI
Device Filters: 0 (0 active)

Shared folders

None

Description

None

centosServer-20186748 (Genisys) [Running] - Oracle VM VirtualBox

[root@raid-20186748 ~]# mdadm -C /dev/md5 -l raid5 -n 3 /dev/sd[ef-h]1
mdadm: Defauling to version 1.2 metadata
mdadm: array /dev/md5 started.
[root@raid-20186748 ~]# _



Con el comando **mdadm --detail /dev/md5** verificamos que el raid 5 se encuentra activo



General

Name: centosServer-20186748
Operating System: Red Hat (64-bit)
Settings File Location: C:\Users\jp135\VirtualBox VMs\Centos\centosServer
Groups: Centos

System

Base Memory: 1024 MB
Boot Order: Floppy, Optical, Hard Disk
Acceleration: VT-x/AMD-V, Nested Paging, PAE/NX, KVM Paravirtualization

Display

Video Memory: 16 MB
Graphics Controller: VMSVGA
Remote Desktop Server: Disabled
Recording: Disabled

Storage

Host Driver: Windows DirectSound
Controller: ICH AC97

Network

Adapter 1: Intel PRO/1000 MT Desktop (Bridged Adapter, Intel(R) Dual Band Wireless-AC 7265)
Adapter 4: Intel PRO/1000 MT Desktop (Internal Network, 'intnet')

USB

USB Controller: OHCI, EHCI
Device Filters: 0 (0 active)

Shared folders

None

Description

None

centosServer-20186748 (Genisys) [Running] - Oracle VM VirtualBox

```
File Machine View Input Devices Help
root@raid-20186748 ~]# mdadm --detail /dev/md5
/dev/md5:
      Version : 1.2
      Creation Time : Tue Nov 19 18:42:10 2019
      Raid Level : raid5
      Array Size : 16764928 (15.99 GiB 17.17 GB)
      Used Dev Size : 8382464 (7.99 GiB 8.58 GB)
      Raid Devices : 3
      Total Devices : 3
      Persistence : Superblock is persistent

      Update Time : Tue Nov 19 18:42:28 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 : 27% complete

      Name : raid-20186748:5 (local to host raid-20186748)
      UUID : 328e5e6b:b5d05bb8:3f46ffeb:2771ac08
      Events : 5

      Number  Major  Minor  RaidDevice State
            0      8       8          0    active sync   /dev/sdf1
            1      8       97         1    active sync   /dev/sdg1
            3      8      113         2    spare rebuilding /dev/sdh1

root@raid-20186748 ~]# _
```



Configuración para prueba del funcionamiento del Raid 5

Para probar el funcionamiento del raid 5, crearemos un directorio llamado **raid 5**, donde montaremos la unidad raid **md5** que creamos para el raid 5. Luego con **mkfs.ext4 /dev/md5** creamos un sistema de archivos de tipo **ext4** en la unidad raid para que esta pueda ser escrita.

[File](#) [Machine](#) [Help](#)

General

Name: centosServer-20186748
Operating System: Red Hat (64-bit)
Settings File Location: C:\Users\jp135\VirtualBox VMs\Centos\centosServer
Groups: Centos

System

Base Memory: 1024 MB
Boot Order: Floppy, Optical, Hard Disk
Acceleration: VT-x/AMD-V, Nested Paging, PAE/NX, KVM Paravirtualization

Display

Video Memory: 16 MB
Graphics Controller: VMSVGA
Remote Desktop Server: Disabled
Recording: Disabled

Storage

Audio

Host Driver: Windows DirectSound
Controller: ICH AC97

Network

Adapter 1: Intel PRO/1000 MT Desktop (Bridged Adapter, Intel(R) Dual Band Wireless-AC 7265)
Adapter 4: Intel PRO/1000 MT Desktop (Internal Network, 'intnet')

USB

USB Controller: OHCI, EHCI
Device Filters: 0 (0 active)

Shared folders

None

Description

None

centosServer-20186748 (Genisys) [Running] - Oracle VM VirtualBox

File Machine View Input Devices Help

```
[root@raid-20186748 ~]# mkdir /mnt/raid5
```

```
[root@raid-20186748 ~]# -
```





General

Name: centosServer-20186748
Operating System: Red Hat (64-bit)
Settings File Location: C:\Users\jp135\VirtualBox VMs\Centos\centosServer
Groups: Centos

System

Base Memory: 1024 MB
Boot Order: Floppy, Optical, Hard Disk
Acceleration: VT-x/AMD-V, Nested Paging, PAE/NX, KVM Paravirtualization

Display

Video Memory: 16 MB
Graphics Controller: VMSVGA
Remote Desktop Server: Disabled
Recording: Disabled

Storage

Host Driver: Windows DirectSound
Controller: ICH AC97

Network

Adapter 1: Intel PRO/1000 MT Desktop (Bridged Adapter, Intel(R) Dual Band Wireless-AC 7265)
Adapter 4: Intel PRO/1000 MT Desktop (Internal Network, 'intnet')

USB

USB Controller: OHCI, EHCI
Device Filters: 0 (0 active)

Shared folders

None

Description

None

centosServer-20186748 (Genisys) [Running] - Oracle VM VirtualBox

File Machine View Input Devices Help

```
Iroot@raid-20186748 ~# mkfs.ext4 /dev/md5
mke2fs 1.42.9 (28-Dec-2013)
Filesystem label=
OS type: Linux
Block size=4096 (log=2)
Fragment size=4096 (log=2)
Stride=128 blocks, Stripe width=256 blocks
1048576 inodes, 4191232 blocks
209561 blocks (5.00%) reserved for the super user
First data block=0
Maximum filesystem blocks=2151677952
128 block groups
32768 blocks per group, 32768 fragments per group
8192 inodes per group
Superblock backups stored on blocks:
    32768, 98304, 163840, 229376, 294912, 819200, 884736, 1605632, 2654208,
    4096000

Allocating group tables: done
Writing inode tables: done
Creating journal (32768 blocks): done
Writing superblocks and filesystem accounting information: 0/128
```



Ahora con el comando **mount** montamos la unidad raid 5 dentro del directorio **raid5** que habíamos creado

[File](#) [Machine](#) [Help](#)

General

Name: centosServer-20186748
Operating System: Red Hat (64-bit)
Settings File Location: C:\Users\jp135\VirtualBox VMs\Centos\centosServer
Groups: Centos

System

Base Memory: 1024 MB
Boot Order: Floppy, Optical, Hard Disk
Acceleration: VT-x/AMD-V, Nested Paging, PAE/NX, KVM Paravirtualization

Display

Video Memory: 16 MB
Graphics Controller: VMSVGA
Remote Desktop Server: Disabled
Recording: Disabled

Storage

Audio

Host Driver: Windows DirectSound
Controller: ICH AC97

Network

Adapter 1: Intel PRO/1000 MT Desktop (Bridged Adapter, Intel(R) Dual Band Wireless-AC 7265)
Adapter 4: Intel PRO/1000 MT Desktop (Internal Network, 'intnet')

USB

USB Controller: OHCI, EHCI
Device Filters: 0 (0 active)

Shared folders

None

Description

None

centosServer-20186748 (Genisys) [Running] - Oracle VM VirtualBox

[File](#) [Machine](#) [View](#) [Input](#) [Devices](#) [Help](#)

```
[root@raid-20186748 ~]# mount /dev/md5 /mnt/raid5
[root@raid-20186748 ~]# cd /mnt/raid5
[root@raid-20186748 raid5]# ls
lost+found
[root@raid-20186748 raid5]# _
```



Para que se la unidad se monte al iniciar el sistema, colocamos esta regla en el archivo **/etc/fstab**



General

Name: centosServer-20186748
Operating System: Red Hat (64-bit)
Settings File Location: C:\Users\jp135\VirtualBox VMs\Centos\centosServer
Groups: Centos

System

Base Memory: 1024 MB
Boot Order: Floppy, Optical, Hard Disk
Acceleration: VT-x/AMD-V, Nested Paging, PAE/NX, KVM Paravirtualization

Display

Video Memory: 16 MB
Graphics Controller: VMSVGA
Remote Desktop Server: Disabled
Recording: Disabled

Storage

Audio

Host Driver: Windows DirectSound
Controller: ICH AC97

Network

Adapter 1: Intel PRO/1000 MT Desktop (Bridged Adapter, Intel(R) Dual Band Wireless-AC 7265)
Adapter 4: Intel PRO/1000 MT Desktop (Internal Network, 'Intnet')

USB

USB Controller: OHCI, EHCI
Device Filters: 0 (0 active)

Shared folders

None

Description

None

centosServer-20186748 (Genisys) [Running] - Oracle VM VirtualBox

```
# /etc/fstab
# Created by anaconda on Mon Nov 18 15:59:12 2019
#
# Accessible filesystems, by reference, are maintained under '/dev/disk'
# See man pages fstab(5), findfs(8), mount(8) and/or blkid(8) for more info
#
#/dev/mapper/centos-root / xfs defaults 0 0
UUID=a1886c93-7dc8-42a0-966d-cfc4e8c705a7 /boot xfs defaults 0 0
/dev/mapper/centos-swap swap swap defaults 0 0
/dev/md1 /mnt/raid1 ext4 defaults 0 0
/dev/md5 /mnt/raid5 ext4 defaults 0 0
```

-- INSERT --

13,39 A11

Right Ctrl



Para probar la funcionalidad del raid 5, crearemos un archivo dentro del directorio donde montamos la unidad del raid 5, **raid5**



General

Name: centosServer-20186748
Operating System: Red Hat (64-bit)
Settings File Location: C:\Users\jp135\VirtualBox VMs\Centos\centosServer
Groups: Centos

System

Base Memory: 1024 MB
Boot Order: Floppy, Optical, Hard Disk
Acceleration: VT-x/AMD-V, Nested Paging, PAE/NX, KVM Paravirtualization

Display

Video Memory: 16 MB
Graphics Controller: VMSVGA
Remote Desktop Server: Disabled
Recording: Disabled

Storage

Audio

Host Driver: Windows DirectSound
Controller: ICH AC97

Network

Adapter 1: Intel PRO/1000 MT Desktop (Bridged Adapter, Intel(R) Dual Band Wireless-AC 7265)
Adapter 4: Intel PRO/1000 MT Desktop (Internal Network, 'intnet')

USB

USB Controller: OHCI, EHCI
Device Filters: 0 (0 active)

Shared folders

None

Description

None

centosServer-20186748 (Genisys) [Running] - Oracle VM VirtualBox

File Machine View Input Devices Help

```
root@raid-20186748 ~# mount /dev/md5 /mnt/raid5
root@raid-20186748 ~# cd /mnt/raid5
root@raid-20186748 raid5# ls
lost+found
root@raid-20186748 raid5# echo "TEST RAID 5" >> raid5
root@raid-20186748 raid5# ls
lost+found  raid5
root@raid-20186748 raid5# _
```



Con el comando **mdadm -E -s -v >> /etc/mdadm.conf** guardamos las configuraciones de forma permanente

[File](#) [Machine](#) [Help](#)

General

Name: centosServer-20186748
Operating System: Red Hat (64-bit)
Settings File Location: C:\Users\jp135\VirtualBox VMs\Centos\centosServer
Groups: Centos

System

Base Memory: 1024 MB
Boot Order: Floppy, Optical, Hard Disk
Acceleration: VT-x/AMD-V, Nested Paging, PAE/NX, KVM Paravirtualization

Display

Video Memory: 16 MB
Graphics Controller: VMSVGA
Remote Desktop Server: Disabled
Recording: Disabled

Storage

Audio

Host Driver: Windows DirectSound
Controller: ICH AC97

Network

Adapter 1: Intel PRO/1000 MT Desktop (Bridged Adapter, Intel(R) Dual Band Wireless-AC 7265)
Adapter 4: Intel PRO/1000 MT Desktop (Internal Network, 'intnet')

USB

USB Controller: OHCI, EHCI
Device Filters: 0 (0 active)

Shared folders

None

Description

None

centosServer-20186748 (Genisys) [Running] - Oracle VM VirtualBox

File Machine View Input Devices Help

```
root@raid-20186748:~# ls
lost+found
root@raid-20186748:~# mdadm -E -s -v >> /etc/mdadm.conf
root@raid-20186748:~#
```



Luego retiramos uno de los discos duros que forman parte del raid 5



General
Name: centoS-20186748
Operating System: Red Hat (64-bit)
Settings File Location: C:\Users\jp135\VirtualBox\Centos
Groups:

System
Base Memory: 1024 MB
Boot Order: Floppy, Optical, Hard Disk
Acceleration: VT-x/AMD-V, Nested Paging,

Display
Video Memory: 16 MB
Graphics Controller: VMSVGA
Remote Desktop Server: Disabled
Recording: Disabled

Storage
Host Driver: Windows DirectSound
Controller: ICH AC97

Network
Adapter 1: Intel PRO/1000 MT Desktop (Bridged Adapter 4: Intel PRO/1000 MT Desktop (Internal)

USB
USB Controller: OHCI, EHCI
Device Filters: 0 (0 active)

Shared folders

None

Description

None

centoS-20186748 - Settings

Storage

Storage Devices

- Controller: IDE
 - Empty
 - Empty
- Controller: SATA
 - centoS-20186748.vdi
 - raid0.vdi
 - raid0-1.vdi
 - raid1.vdi
 - raid5-0.vdi**
 - raid5-1.vdi
 - raid5-2.vdi

Attributes

Hard Disk: SATA Port 5

Solid-state Drive

Hot-pluggable

Information

Type (Format): Normal (VDI)

Virtual Size: 8.00 GB

Actual Size: 2.00 MB

Details: Dynamically allocated storage

Location: C:\Users\jp135\VirtualBox VMs\Centos\centoS-20186748

Attached to: centoS-20186748

Encrypted with key: --

OK Cancel





New

Settings

Discard

Show

General

Name: centoS-20186748
Operating System: Red Hat (64-bit)
Settings File Location: C:\Users\jp135\VirtualBox\Centos
Groups:

System

Base Memory: 1024 MB
Boot Order: Floppy, Optical, Hard Disk
Acceleration: VT-x/AMD-V, Nested Paging,

Display

Video Memory: 16 MB
Graphics Controller: VMSVGA
Remote Desktop Server: Disabled
Recording: Disabled

Storage

Host Driver: Windows DirectSound
Controller: ICH AC97

Network

Adapter 1: Intel PRO/1000 MT Desktop (Bridged Adapter 4: Intel PRO/1000 MT Desktop (Internal)

USB

USB Controller: OHCI, EHCI
Device Filters: 0 (0 active)

Shared folders

None

Description

None

centoS-20186748 - Settings

Storage

Storage Devices

- Controller: IDE
 - Empty
 - Empty
- Controller: SATA
 - centoS-20186748.vdi
 - raid0.vdi
 - raid0-1.vdi
 - raid1.vdi
 - raid5-1.vdi**
 - raid5-2.vdi

Attributes

Hard Disk: SATA Port 6

Solid-state Drive

Hot-pluggable

Information

Type (Format): Normal (VDI)

Virtual Size: 8.00 GB

Actual Size: 2.00 MB

Details: Dynamically allocated storage

Location: C:\Users\jp135\VirtualBox VMs\Centos\centoS-20186748

Attached to: centoS-20186748

Encrypted with key: --

OK **Cancel**



Con **mdadm --detail /dev/md5**, podemos comprobar de que hemos retirado el disco, sin embargo al abrir el archivo que hemos creado observamos que la información continúa intacta

File Machine Help

**General**

Name: centosServer-20186748
 Operating System: Red Hat (64-bit)
 Settings File Location: C:\Users\jp135\VirtualBox VMs\Centos\centosServer
 Groups: Centos

System

Base Memory: 1024 MB
 Boot Order: Floppy, Optical, Hard Disk
 Acceleration: VT-x/AMD-V, Nested Paging, PAE/NX, KVM Paravirtualization

Display

Video Memory: 16 MB
 Graphics Controller: VMSVGA
 Remote Desktop Server: Disabled
 Recording: Disabled

Storage

Host Driver: Windows DirectSound
 Controller: ICH AC97

Network

Adapter 1: Intel PRO/1000 MT Desktop (Bridged Adapter, Intel(R) Dual Band Wireless-AC 7265)
 Adapter 4: Intel PRO/1000 MT Desktop (Internal Network, 'Intnet')

USB

USB Controller: OHCI, EHCI
 Device Filters: 0 (0 active)

Shared folders

None

Description

None

```
centosServer-20186748 (Genisys) [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help

root@raid-20186748:~# mdadm --detail /dev/md5
/dev/md5:
      Version : 1.2
      Creation Time : Tue Nov 19 18:42:10 2019
      Raid Level : raid5
      Array Size : 16764928 (15.99 GiB 17.17 GB)
      Used Dev Size : 8382464 (7.99 GiB 8.58 GB)
      Raid Devices : 3
      Total Devices : 2
      Persistence : Superblock is persistent

      Update Time : Tue Nov 19 18:46:08 2019
                     State : clean, degraded
      Active Devices : 2
      Working Devices : 2
      Failed Devices : 0
      Spare Devices : 0

      Layout : left-symmetric
      Chunk Size : 512K

      Consistency Policy : resync

      Name : raid-20186748:5 (local to host raid-20186748)
      UUID : 32be5e6b:b5d05bb8:3f46feb:2771ac88
      Events : 21

      Number  Major  Minor  RaidDevice State
      -      8       0       0     removed
      1      8       97      1     active sync  /dev/sdg1
      3      8       113     2     active sync  /dev/sdh1

root@raid-20186748:~# ls
lost+found  raid5
root@raid-20186748:~# cat raid5
TEST RAID 5
root@raid-20186748:~# _
```

