

```
isx47320900@i12:/tmp/images$ sudo mdadm --create /dev/md0 --level=1 --raid-devices=2 /dev/loop1 /dev/loop2
```

```
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/md0 started.
```

```
isx47320900@i12:/tmp/images$ sudo mdadm --detail /dev/md0
/dev/md0:
```

```
    Version : 1.2
  Creation Time : Fri Feb 18 09:58:04 2022
    Raid Level : raid1
    Array Size : 510976 (499.00 MiB 523.24 MB)
  Used Dev Size : 510976 (499.00 MiB 523.24 MB)
    Raid Devices : 2
  Total Devices : 2
  Persistence : Superblock is persistent
```

```
    Update Time : Fri Feb 18 09:58:07 2022
      State : clean
  Active Devices : 2
 Working Devices : 2
  Failed Devices : 0
   Spare Devices : 0
```

```
Consistency Policy : resync
```

```
    Name : i12:0 (local to host i12)
   UUID : 58846188:9f83a0c3:dfce82f7:f3ef946e
  Events : 17
```

Number	Major	Minor	RaidDevice	State	
0	7	1	0	active sync	/dev/loop1
1	7	2	1	active sync	/dev/loop2

```
1r raid 1
```

```
isx47320900@i12:/tmp/images$ sudo mdadm --create /dev/md1 --level=1 --raid-devices=2 /dev/loop3 /dev/loop4
```

```
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.
```

```
isx47320900@i12:/tmp/images$ sudo mdadm --detail /dev/md1
/dev/md1:
```

```
Version : 1.2
Creation Time : Fri Feb 18 09:59:25 2022
Raid Level : raid1
Array Size : 510976 (499.00 MiB 523.24 MB)
Used Dev Size : 510976 (499.00 MiB 523.24 MB)
Raid Devices : 2
Total Devices : 2
Persistence : Superblock is persistent

Update Time : Fri Feb 18 09:59:27 2022
State : clean
Active Devices : 2
Working Devices : 2
Failed Devices : 0
Spare Devices : 0
```

```
Consistency Policy : resync
```

```
Name : i12:1 (local to host i12)
UUID : ba95abf7:4f0ada50:21a42ab8:eb80aba1
Events : 18
```

Number	Major	Minor	RaidDevice	State	
0	7	3	0	active sync	/dev/loop3
1	7	4	1	active sync	/dev/loop4

2n raid 1

```
isx47320900@i12:/tmp/images$ sudo pvcreate /dev/md0
Physical volume "/dev/md0" successfully created.
```

```
isx47320900@i12:/tmp/images$ sudo vgcreate mydisk /dev/md0
Volume group "mydisk" successfully created
```

Primer raid crear PV i VG mydisc.

```
isx47320900@i12:/tmp/images$ sudo lvcreate -L 200M -n sistema /dev/mydisk
Logical volume "sistema" created.
isx47320900@i12:/tmp/images$ sudo lvcreate -L 100M -n dades /dev/mydisk
Logical volume "dades" created.
isx47320900@i12:/tmp/images$ sudo mkfs -t ext4 /dev/mydisk/sistema
mke2fs 1.46.2 (28-Feb-2021)
Discarding device blocks: done
Creating filesystem with 204800 1k blocks and 51200 inodes
Filesystem UUID: 2fc6e50b-2066-42db-afbe-4533a5264664
Superblock backups stored on blocks:
    8193, 24577, 40961, 57345, 73729

Allocating group tables: done
Writing inode tables: done
Creating journal (4096 blocks): done
Writing superblocks and filesystem accounting information: done
```

```
isx47320900@i12:/tmp/images$ sudo mkfs -t ext4 /dev/mydisk/dades
mke2fs 1.46.2 (28-Feb-2021)
Discarding device blocks: done
Creating filesystem with 102400 1k blocks and 25688 inodes
Filesystem UUID: 091db567-b4c5-4e00-974c-c54bdd6e132a
Superblock backups stored on blocks:
    8193, 24577, 40961, 57345, 73729
```

```
Allocating group tables: done
Writing inode tables: done
Creating journal (4096 blocks): done
Writing superblocks and filesystem accounting information: done
```

```
/dev/md0: UUID="70Ygsx-zZgM-mSpY-K8n3-huDP-H4sv-efzZEM" TYPE="LVM2_member"
/dev/mapper/mydisk-sistema: UUID="2fc6e50b-2066-42db-afbe-4533a5264664" BLOCK_SIZE="1024" TYPE="ext4"
/dev/mapper/mydisk-dades: UUID="091db567-b4c5-4e00-974c-c54bdd6e132a" BLOCK_SIZE="1024" TYPE="ext4"
```

LV de 200M sistema, LV de 100M dades i Mkfs

```
isx47320900@i12:/tmp/images$ sudo mount /dev/mydisk/dades /mnt/1
isx47320900@i12:/tmp/images$ sudo mount /dev/mydisk/sistema /mnt/2
isx47320900@i12:/tmp/images$ sudo cp -r /boot/* /mnt/1/
isx47320900@i12:/tmp/images$ sudo cp -r /boot/* /mnt/2/
```

/dev/mapper/mydisk-dades	92M	66M	20M	78%	/mnt/1
/dev/mapper/mydisk-sistema	189M	66M	109M	38%	/mnt/2

Muntar i posar-hi dades

```
isx47320900@i12:/tmp/images$ sudo vgextend mydisk /dev/md1
Physical volume "/dev/md1" successfully created.
Volume group "mydisk" successfully extended
```

Incorporar al VG el segon raid.

```
isx47320900@i12:/tmp/images$ sudo lvextend -L +100M /dev/mydisk/sistema
Size of logical volume mydisk/sistema changed from 200.00 MiB (50 extents) to 300.00 MiB (75 extents).
Logical volume mydisk/sistema successfully resized.
```

Incrementar sistema +100M.

```
isx47320900@i12:/tmp/images$ sudo mdadm /dev/md0 --fail /dev/loop1
mdadm: set /dev/loop1 faulty in /dev/md0
```

Provocar un fail a un dels disc del raid1

```
isx47320900@i12:/tmp/images$ sudo pvmove /dev/md0 /dev/md1
/dev/md0: Moved: 9.00%
/dev/md0: Moved: 50.00%
/dev/md0: Moved: 75.00%
/dev/md0: Moved: 100.00%
```

movem dades

```
isx47320900@i12:/tmp/images$ sudo vgreduce mydisk /dev/md0
Removed "/dev/md0" from volume group "mydisk"
```

eliminem del vg

Device	Boot	Start	End	Sectors	Size	Id	Type
/dev/nvme0n1p1		2046	791015423	791013378	377.2G	5	Extended
/dev/nvme0n1p2		791015424	811986943	20971520	10G	83	Linux
/dev/nvme0n1p3		811986944	820375551	8388608	4G	83	Linux
/dev/nvme0n1p4		820375552	828764159	8388608	4G	83	Linux
/dev/nvme0n1p5		2048	390625279	390623232	186.3G	83	Linux
/dev/nvme0n1p6 *		390627328	781250559	390623232	186.3G	83	Linux
/dev/nvme0n1p7		781252608	791015423	9762816	4.7G	82	Linux swap / Solaris

Crear sda2: 10G, sda3: 4G, sda4: 4G

```
/dev/nvme0n1p3: UUID="e01153a3-778e-405f-d47f-48e8ec949a5d"  UUID_SUB="d13a6a68-656f-8906-08c3-49d49efda5d6"  LABEL="i12:0"  TYPE="linux_raid_member"  PARTUUID="35896dcb-03"
/dev/nvme0n1p4: UUID="e01153a3-778e-405f-d47f-48e8ec949a5d"  UUID_SUB="086fabb2-1b08-ed6f-46a7-a1f819daafa2"  LABEL="i12:0"  TYPE="linux_raid_member"  PARTUUID="35896dcb-04"
```

Crear un raid1 amb sda3 i sda4

```
root@i12:~# vgcreate diskedt /dev/md0
Physical volume "/dev/md0" successfully created.
Volume group "diskedt" successfully created

root@i12:~# lvcreate -L +3G -n sistema /dev/diskedt
Logical volume "sistema" created.

root@i12:~# lvcreate -l100%FREE -n dades /dev/diskedt
Logical volume "dades" created.
```

generar un VG anomenat diskedt amb sda3 i sda4 y generar lv sistema de 3G, Dades de 1G

```

root@il12:~# sudo mkfs -t ext4 /dev/diskedt/dades
mke2fs 1.46.2 (28-Feb-2021)
Discarding device blocks: done
Creating filesystem with 260096 4k blocks and 65024 inodes
Filesystem UUID: ee2d1d83-ee19-4622-9265-c37b6a4efaab
Superblock backups stored on blocks:
    32768, 98304, 163840, 229376

Allocating group tables: done
Writing inode tables: done
Creating journal (4096 blocks): done
Writing superblocks and filesystem accounting information: done

```

```

root@il12:~# sudo mkfs -t ext4 /dev/diskedt/sistema
mke2fs 1.46.2 (28-Feb-2021)
Discarding device blocks: done
Creating filesystem with 786432 4k blocks and 196608 inodes
Filesystem UUID: 3725bb12-e663-46f2-b79c-ala80f49d890
Superblock backups stored on blocks:
    32768, 98304, 163840, 229376, 294912

```

```

Allocating group tables: done
Writing inode tables: done
Creating journal (16384 blocks): done
Writing superblocks and filesystem accounting information: done

```

```

root@il12:~# mount /dev/diskedt/dades /mnt/dades/

```

```

root@il12:~# mount /dev/diskedt/sistema /mnt/sistema

```

```

root@il12:~# df -h

```

Filesystem	Size	Used	Avail	Use%	Mounted on
udev	7.8G	0	7.8G	0%	/dev
tmpfs	1.6G	1.9M	1.6G	1%	/run
/dev/nvme0n1p5	183G	27G	147G	16%	/
tmpfs	7.8G	63M	7.7G	1%	/dev/shm
tmpfs	5.0M	4.0K	5.0M	1%	/run/lock
tmpfs	1.6G	56K	1.6G	1%	/run/user/0
tmpfs	1.6G	876K	1.6G	1%	/run/user/103054
gandhi:/groups	931G	327G	605G	36%	/home/groups
/dev/mapper/diskedt-dades	982M	66M	849M	8%	/mnt/dades
/dev/mapper/diskedt-sistema	2.9G	66M	2.7G	3%	/mnt/sistema

muntar i posar-hi xixa.

```

GNU nano 5.4 /etc/fstab
# /etc/fstab: static file system information.
#
# Use 'blkid' to print the universally unique identifier for a
# device; this may be used with UUID= as a more robust way to name devices
# that works even if disks are added and removed. See fstab(5).
#
# systemd generates mount units based on this file, see systemd.mount(5).
# Please run 'systemctl daemon-reload' after making changes here.
#
# <file system> <mount point> <type> <options> <dump> <pass>
# / was on /dev/nvme0n1p5 during installation
/dev/nvme0n1p5 / ext4 errors=remount-ro 0 1
# swap was on /dev/nvme0n1p7 during installation
/dev/nvme0n1p7 none swap sw 0 0
gandhi:/groups/ /home/groups nfs4 sec=krb5,comment=systemd.automount 0 0

/dev/diskedt/sistema /mnt/sistema ext4 errors=remount-ro 0 0
/dev/diskedt/dades /mnt/dades ext4 errors=remount-ro 0 0

```

automatitzar el muntatge (/mnt/dades, /mnt/sistema)

```
mdadm --examine --scan > /etc/mdadm/mdadm.conf
```

para poder montar automáticamente el raid

```

root@il2:~# mount -l | grep dades
/dev/mapper/diskedt-dades on /mnt/dades type ext4 (rw,relatime,errors=remount-ro)
root@il2:~# mount -l | grep sistema
/dev/mapper/diskedt-sistema on /mnt/sistema type ext4 (rw,relatime,errors=remount-ro)

root@il2:~# df -h

```

Filesystem	Size	Used	Avail	Use%	Mounted on
udev	7.8G	0	7.8G	0%	/dev
tmpfs	1.6G	1.8M	1.6G	1%	/run
/dev/nvme0n1p5	183G	27G	147G	16%	/
tmpfs	7.8G	42M	7.8G	1%	/dev/shm
tmpfs	5.0M	4.0K	5.0M	1%	/run/lock
/dev/mapper/diskedt-dades	982M	66M	849M	8%	/mnt/dades
/dev/mapper/diskedt-sistema	2.9G	66M	2.7G	3%	/mnt/sistema

assegurem que tenim dades i sistema després de reiniciar

```

sudo mdadm
umount /mnt/dades
umount /mnt/sistema
vgremove diskedt

```