

Raid

Table des matières

1	Installation	1
2	Informations	1
2.1	Enumération des méta-devices	1
2.2	Identification des méta-devices	1
2.3	Identification des composants	2
3	Création d'un méta-devices	3
4	Assemblage de 2 disques Raid	3
5	Exemple de dépanage	3
5.1	Retrait d'une partition	5
5.2	Ajout d'une partition	7

L'utilitaire et les devices sont nommés par MD en réfétrence à Meta Device.

1 Installation

```
# modprobe raid1
```

KERNEL:

```
Device Drivers
* Multi device support (RAID and LVM)
M   Raid Support
M   ... RAID-1 (mirroring) mode
```

```
# apt-get install mdadm
```

2 Informations

2.1 Enumération des méta-devices

```
$ cat /proc/mdstat
```

```
Personalities : [raid1] [raid0]
md6 : active raid1 sdd1[0] sde1[1]
      4393844564 blocks super 1.0 [2/2] [UU]

md2 : active raid0 sdb3[1] sda3[0]
      8192512 blocks 256k chunks

md3 : active raid1 sdb5[1] sda5[0]
      56114944 blocks [2/2] [UU]

md0 : active raid1 sdc1[2](S) sdb1[1] sda1[0]
      104320 blocks [2/2] [UU]

md5 : active raid1 sdg1[0]
```

1318663296 blocks [2/1] [U_]

Les U nous donnent un rapide aperçu du bon fonctionnement des disques en RAID1.

2.2 Identification des méta-devices

```
# mdadm --detail /dev/md6
```

/dev/md6:

```
Version : 01.00.03
Creation Time : Tue Sep 16 09:16:10 2008
Raid Level : raid1
Array Size : 4393844564 (4190.30 GiB 4499.30 GB)
Used Dev Size : 8787689128
Raid Devices : 2
Total Devices : 2
Preferred Minor : 6
Persistence : Superblock is persistent

Update Time : Mon Oct 6 17:37:38 2008
State : clean
Active Devices : 2
Working Devices : 2
Failed Devices : 0
Spare Devices : 0

Name : 6
UUID : c0997472:a1b5725c:7adcf733:faa95824
Events : 2
```

Number	Major	Minor	RaidDevice	State	
0	8	49	0	active sync	/dev/sdd1
1	8	65	1	active sync	/dev/sde1

Il s'agit du UUID que l'on retrouve également dans le fichier */etc/mdadm.conf*. Cf `$man mdadm.conf`.

DEVICE partitions containers

MAILADDR root

ARRAY /dev/md0 level=raid1 num-devices=2 devices=/dev/sda9,/dev/sdb1

2.3 Identification des composants

```
# mdadm --examine /dev/sdd1
```

/dev/sdd1:

```
Magic : a92b4efc
Version : 1.0
Feature Map : 0x0
Array UUID : c0997472:a1b5725c:7adcf733:faa95824
Name : 6
Creation Time : Tue Sep 16 09:16:10 2008
Raid Level : raid1
Raid Devices : 2
```

Avail Dev Size : 8787689256 (4190.30 GiB 4499.30 GB)

```

    Array Size : 8787689128 (4190.30 GiB 4499.30 GB)
Used Dev Size : 8787689128 (4190.30 GiB 4499.30 GB)
Super Offset : 8787689384 sectors
    State : clean
Device UUID : 21b2d04b:ff7bdedd:03de1d87:84431ec4

Update Time : Mon Oct  6 17:43:55 2008
Checksum : fa6581ad - correct
Events : 2

```

```

    Array Slot : 0 (0, 1)
Array State : Uu

```

L'identifiant Array UUID permet de retrouver le tableau auquel participe ce disque.

3 Création d'un méta-devices

```

# mdadm --create /dev/md0 --level=1 --raid-devices=2 --run /dev/sda9 /dev/sdb1
# cat /proc/mdstat
...
# mke2fs -j /dev/md0

```

4 Assemblage de 2 disques Raid

Là je ne comprends pas tout... (à priori pas besoin)

```

# mdadm --assemble /dev/md0 /dev/sda9 /dev/sdb1

```

5 Exemple de dépanage

```

$ cat /proc/mdstat

```

```

Personalities : [raid1]
md0 : active raid1 sda14[0] sdb8[1]
      97659008 blocks [2/2] [UU]

```

```

unused devices: <none>

```

```

# mdadm --detail /dev/md0
/dev/md0:
    Version : 0.90
  Creation Time : Thu Jul  3 17:30:08 2008
    Raid Level : raid1
    Array Size : 97659008 (93.13 GiB 100.00 GB)
  Used Dev Size : 97659008 (93.13 GiB 100.00 GB)
    Raid Devices : 2
  Total Devices : 2
Preferred Minor : 0
Persistence : Superblock is persistent

Update Time : Sat Sep  5 19:58:58 2009

```

State : clean
Active Devices : 2
Working Devices : 2
Failed Devices : 0
Spare Devices : 0

UUID : 2c1b5075:68a897c4:ad6c6860:42e1fd6e (local to host narval)
Events : 0.12426

Number	Major	Minor	RaidDevice	State	
0	8	14	0	active sync	/dev/sda14
1	8	24	1	active sync	/dev/sdb8

mdadm --examine /dev/sda14
/dev/sda14:

Magic : a92b4efc
Version : 0.90.00
UUID : 2c1b5075:68a897c4:ad6c6860:42e1fd6e (local to host narval)
Creation Time : Thu Jul 3 17:30:08 2008
Raid Level : raid1
Used Dev Size : 97659008 (93.13 GiB 100.00 GB)
Array Size : 97659008 (93.13 GiB 100.00 GB)
Raid Devices : 2
Total Devices : 2
Preferred Minor : 0

Update Time : Sat Sep 5 20:00:27 2009
State : clean
Active Devices : 2
Working Devices : 2
Failed Devices : 0
Spare Devices : 0
Checksum : c71fbf18 - correct
Events : 12426

	Number	Major	Minor	RaidDevice	State	
this	0	8	14	0	active sync	/dev/sda14
	0	8	14	0	active sync	/dev/sda14
	1	8	24	1	active sync	/dev/sdb8

mdadm --examine /dev/sdb8
/dev/sdb8:

Magic : a92b4efc
Version : 0.90.00
UUID : 2c1b5075:68a897c4:ad6c6860:42e1fd6e (local to host narval)
Creation Time : Thu Jul 3 17:30:08 2008
Raid Level : raid1
Used Dev Size : 97659008 (93.13 GiB 100.00 GB)
Array Size : 97659008 (93.13 GiB 100.00 GB)
Raid Devices : 2
Total Devices : 2

Preferred Minor : 0

Update Time : Sat Sep 5 20:01:19 2009
State : clean
Active Devices : 2
Working Devices : 2
Failed Devices : 0
Spare Devices : 0
Checksum : c71fbf58 - correct
Events : 12426

	Number	Major	Minor	RaidDevice	State	
this	1	8	24	1	active sync	/dev/sdb8
0	0	8	14	0	active sync	/dev/sda14
1	1	8	24	1	active sync	/dev/sdb8

5.1 Retrait d'une partition

```
# mdadm --manage /dev/md0 -f detached /dev/sda14
mdadm: set /dev/sda14 faulty in /dev/md0
```

```
# cat /proc/mdstat
Personalities : [raid1]
md0 : active raid1 sda14[2](F) sdb8[1]
      97659008 blocks [2/1] [_U]
```

unused devices: <none>

```
# mdadm --detail /dev/md0
/dev/md0:
  Version : 0.90
  Creation Time : Thu Jul 3 17:30:08 2008
  Raid Level : raid1
  Array Size : 97659008 (93.13 GiB 100.00 GB)
  Used Dev Size : 97659008 (93.13 GiB 100.00 GB)
  Raid Devices : 2
  Total Devices : 2
  Preferred Minor : 0
  Persistence : Superblock is persistent

  Update Time : Sat Sep 5 20:13:33 2009
  State : clean, degraded
  Active Devices : 1
  Working Devices : 1
  Failed Devices : 1
  Spare Devices : 0

  UUID : 2c1b5075:68a897c4:ad6c6860:42e1fd6e (local to host narval)
  Events : 0.12430
```

Number	Major	Minor	RaidDevice	State
--------	-------	-------	------------	-------

0	0	0	0	removed	
1	8	24	1	active sync	/dev/sdb8
2	8	14	-	faulty spare	/dev/sda14

```
# mdadm --examine /dev/sda14
/dev/sda14:
```

```
    Magic : a92b4efc
    Version : 0.90.00
    UUID : 2c1b5075:68a897c4:ad6c6860:42e1fd6e (local to host narval)
    Creation Time : Thu Jul 3 17:30:08 2008
    Raid Level : raid1
    Used Dev Size : 97659008 (93.13 GiB 100.00 GB)
    Array Size : 97659008 (93.13 GiB 100.00 GB)
    Raid Devices : 2
    Total Devices : 2
    Preferred Minor : 0
```

```
    Update Time : Sat Sep 5 20:06:29 2009
    State : clean
    Active Devices : 2
    Working Devices : 2
    Failed Devices : 0
    Spare Devices : 0
    Checksum : c71fc082 - correct
    Events : 12426
```

	Number	Major	Minor	RaidDevice	State	
this	0	8	14	0	active sync	/dev/sda14
	0	8	14	0	active sync	/dev/sda14
	1	8	24	1	active sync	/dev/sdb8

```
# mdadm --manage /dev/md0 -r detached /dev/sda14
mdadm: hot removed /dev/sda14
```

```
# cat /proc/mdstat
Personalities : [raid1]
md0 : active raid1 sdb8[1]
      97659008 blocks [2/1] [_U]
```

```
unused devices: <none>
```

```
# mdadm --detail /dev/md0
/dev/md0:
```

```
    Version : 0.90
    Creation Time : Thu Jul 3 17:30:08 2008
    Raid Level : raid1
    Array Size : 97659008 (93.13 GiB 100.00 GB)
    Used Dev Size : 97659008 (93.13 GiB 100.00 GB)
    Raid Devices : 2
```

```

Total Devices : 1
Preferred Minor : 0
Persistence : Superblock is persistent

Update Time : Sat Sep  5 20:16:38 2009
State : clean, degraded
Active Devices : 1
Working Devices : 1
Failed Devices : 0
Spare Devices : 0

UUID : 2c1b5075:68a897c4:ad6c6860:42e1fd6e (local to host narval)
Events : 0.12438

```

Number	Major	Minor	RaidDevice	State	
0	0	0	0	removed	
1	8	24	1	active sync	/dev/sdb8

5.2 Ajout d'une partition

```

# mdadm --manage /dev/md0 -a /dev/sda13
mdadm: added /dev/sda13

```

```

# watch cat /proc/mdstat
Personalities : [raid1]
md0 : active raid1 sda13[2] sdb8[1]
      97659008 blocks [2/1] [_U]
      [>.....] recovery = 0.7% (690240/97659008) finish=30.4min speed=53095K/sec

```

```

unused devices: <none>

```

```

...
# cat /proc/mdstat
Personalities : [raid1]
md0 : active raid1 sda13[0] sdb8[1]
      97659008 blocks [2/2] [UU]

```

```

unused devices: <none>

```

```

# mdadm --detail /dev/md0
/dev/md0:
  Version : 0.90
  Creation Time : Thu Jul  3 17:30:08 2008
  Raid Level : raid1
  Array Size : 97659008 (93.13 GiB 100.00 GB)
  Used Dev Size : 97659008 (93.13 GiB 100.00 GB)
  Raid Devices : 2
  Total Devices : 2
  Preferred Minor : 0
  Persistence : Superblock is persistent

  Update Time : Sun Sep  6 18:41:09 2009
  State : clean

```

Active Devices : 2
Working Devices : 2
Failed Devices : 0
Spare Devices : 0

UUID : 2c1b5075:68a897c4:ad6c6860:42e1fd6e (local to host narval)
Events : 0.12528

Number	Major	Minor	RaidDevice	State	
0	8	13	0	active sync	/dev/sda13
1	8	24	1	active sync	/dev/sdb8