

# Software RAID

Christian Külker

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## 1 Introduction

There are many FOSS frameworks for managing disks and accessing remote file systems via NFS and Samba. These include FreeNAS and Open Media Vault (OMV). However, this document describes the low-level view when using Software Redundant Array of Independent/Inexpensive Disks (RAID) via `mdadm`.

## 2 Software RAID with mdadm

RAID is not a backup. Data on the disks used in this document will be **erased**.

### 2.1 Installation

```
aptitude install mdadm
```

## 2.2 RAID 0

Obviously you need at least two disks for RAID 0.

### 2.2.1 Setup

Use `fdisk` or your tool of choice to partition the HDD.

As root

```
mdadm --create --verbose /dev/md0 --level=0 --raid-devices=2 /dev/sda1
      /dev/sdb1

mkdir /mnt/raid0
mkfs.xfs /dev/md0 # Or your filesystem of choice
mount /dev/md0 /mnt/raid0
```

### 2.2.2 Check Health

```
mdadm --detail /dev/md0
```

### 2.2.3 Mount at Startup

Edit `/etc/fstab`

```
1 /dev/md0 /mnt/raid0 xfs defaults,noatime 0 1
```

Add configuration to `mdadm`

```
mdadm --detail --scan | tee -a /etc/mdadm/mdadm.conf
```

Check if the configuration is OK.

```
reboot
```

Verify that the RAID comes up.

## 2.3 RAID 1

Obviously you need also at least two disks for RAID 1. The process is basically the same as for RAID 0. Here the summary:

Use `fdisk` or your tool of choice to partition the HDD.

As root

```
mdadm --create --verbose /dev/md0 --level=1 --raid-devices=2 /dev/sda1
      /dev/sdb1

mkdir /mnt/raid1
mkfs.xfs /dev/md0 # Or your filesystem of choice
mount /dev/md0 /mnt/raid1
```

### 2.3.1 Check Health

```
mdadm --detail /dev/md0
```

### 2.3.2 Mount at Startup

Edit `/etc/fstab`

```
1 /dev/md0 /mnt/raid1 xfs defaults,noatime 0 1
```

Add configuration to `mdadm`

```
mdadm --detail --scan | tee -a /etc/mdadm/mdadm.conf
```

Check if the configuration is OK.

```
reboot
```

Verify that the RAID comes up.

## 3 History

Version	Date	Notes
0.1.1	2024-02-15	+ RAID 1
0.1.0	2023-04-23	Initial release

## 4 Disclaimer of Warranty

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