Lab 17.1: Creating a RAID Device

Normally when creating a **RAID** device we would use partitions on separate disks. However, for this exercise we probably don't have such hardware available.

Thus we will need to have two partitions on the same disk, or we can use **LVM** partitions just for demonstration purposes. (Note we can't use image files and loopback for this exercise.)

The process will be the same whether the partitions are on one drive or several (Although there is obviously little reason to actually create a **RAID** on a single device).

1. Create two 200 MB partitions of type raid (`fd`) either on your hard disk using **fdisk**, or using **LVM**.
2. Create a **RAID 1** device named /dev/md0 using the two partitions.
3. Format the **RAID** device as an **ext4** filesystem. Then mount it at /myraid and make the mount persistent.
4. Place the information about /dev/md0 in /etc/mdadm.conf file using **mdadm**. (Depending on your distribution, this file may not previously exist.)
5. Examine /proc/mdstat to see the status of your **RAID** device.

Solution 17.1

1. If you are using real hard disk partitions do

   ```
   $ sudo fdisk /dev/sda
   ```

   and create the partitions as we have done before. For purposes of being definite, we will call them /dev/sdaX and /dev/sdaY. You will need to run **partprobe** or **kpartx** or reboot after you are done to make sure the system is properly aware of the new partitions.

   LVM partitions will be perfectly fine for this exercise and can be easily created with:

   ```
   $ sudo lvcreate -L 200M -n MD1 VG
   $ sudo lvcreate -L 200M -n MD2 VG
   ```

   where we have assumed `VG` to be the name of the volume group. Nothing needs to be done after creation to make sure the system is aware of the new **LVM** partitions.

2. ```
   $ sudo mdadm -C /dev/md0 --level=1 --raid-disks=2 /dev/sdaX /dev/sdaY
   ```

   or

   ```
   $ sudo mdadm -C /dev/md0 --level=1 --raid-disks=2 /dev/VG/MD1 /dev/VG/MD2
   ```

3. ```
   $ sudo mkfs.ext4 /dev/md0
   $ sudo mkdir /myraid
   $ sudo mount /dev/md0 /myraid
   ```

   and add to /etc/fstab

   ```
   /dev/md0  /myraid    ext4    defaults  0 0
   ```

4. ```
   $ mdadm --detail --scan >> /etc/mdadm.conf
   ```

5. ```
   $ cat /proc/mdstat
   Personalities : [raid1]
   md0 : active raid1 dm-14[1] dm-13[0]
         204736 blocks [2/2] [UU]

   unused devices: <none>
   ```

You should probably verify that with a reboot, the **RAID** volume is mounted automatically. When you are done, you probably will want to clean up by removing the line from /etc/fstab, and then getting rid of the partitions.

