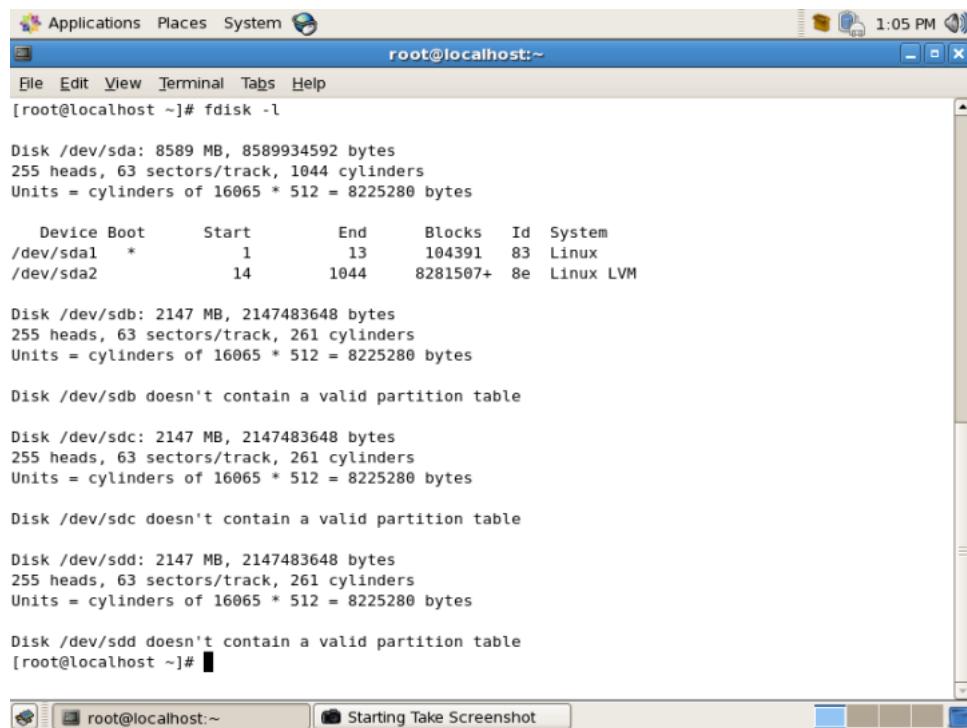


Workshop 2: Steps in raid deployment on Linux

1- Adding disks to the system: Add there hard disks to your machine and use fdisk -l to list the machine disks as below:



```
root@localhost:~# fdisk -l

Disk /dev/sda: 8589 MB, 8589934592 bytes
255 heads, 63 sectors/track, 1044 cylinders
Units = cylinders of 16065 * 512 = 8225280 bytes

Device Boot      Start        End      Blocks   Id  System
/dev/sdal       *          1         13     104391   83  Linux
/dev/sda2        14        1044    8281507+  8e  Linux LVM

Disk /dev/sdb: 2147 MB, 2147483648 bytes
255 heads, 63 sectors/track, 261 cylinders
Units = cylinders of 16065 * 512 = 8225280 bytes

Disk /dev/sdb doesn't contain a valid partition table

Disk /dev/sdc: 2147 MB, 2147483648 bytes
255 heads, 63 sectors/track, 261 cylinders
Units = cylinders of 16065 * 512 = 8225280 bytes

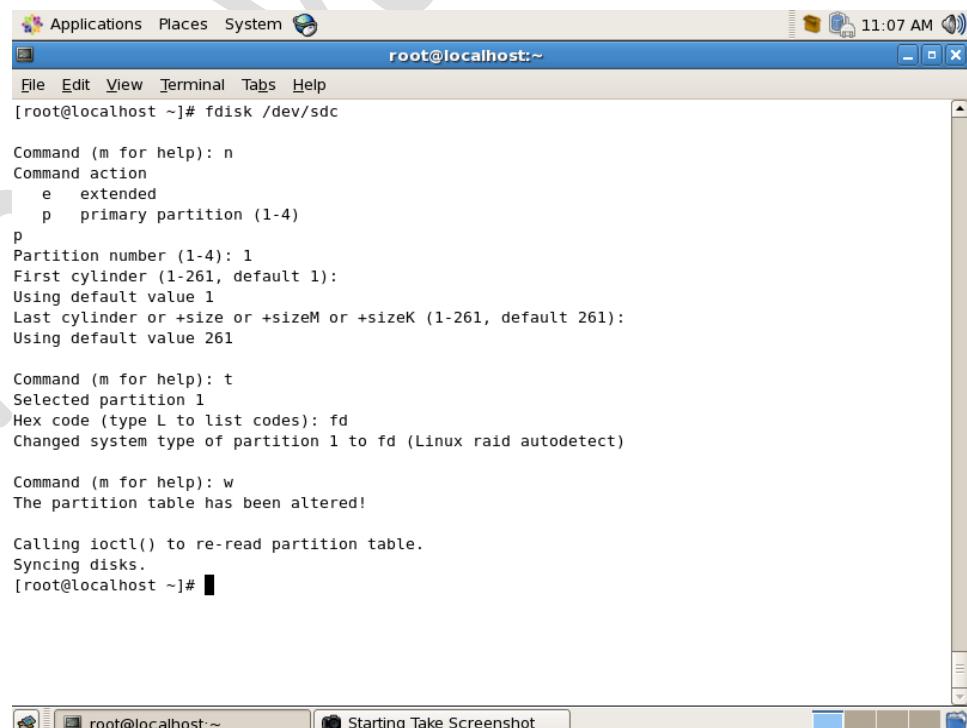
Disk /dev/sdc doesn't contain a valid partition table

Disk /dev/sdd: 2147 MB, 2147483648 bytes
255 heads, 63 sectors/track, 261 cylinders
Units = cylinders of 16065 * 512 = 8225280 bytes

Disk /dev/sdd doesn't contain a valid partition table
[root@localhost ~]#
```

2- Prepare the partitions (/dev/[sh]d[bcd]) for auto RAID detection using fdisk:

Make a partition on your each disk. In order for a partition to be automatically recognized as part of a RAID set, it must first have its partition type set to **fd**. This may be achieved by using the **fdisk** command menu, and using the "**t**" option to change the setting.



```
root@localhost:~# fdisk /dev/sdc

Command (m for help): n
Command action
  e  extended
  p  primary partition (1-4)
p
Partition number (1-4): 1
First cylinder (1-261, default 1):
Using default value 1
Last cylinder or +size or +sizeM or +sizeK (1-261, default 261):
Using default value 261

Command (m for help): t
Selected partition 1
Hex code (type L to list codes): fd
Changed system type of partition 1 to fd (Linux raid autodetect)

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

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

Do it for **/dev/sdb** , **/dev/sdc** and **/dev/sdd**.

3- Check partition added type:

```
[root@localhost ~]# fdisk -l

Disk /dev/sda: 8589 MB, 8589934592 bytes
255 heads, 63 sectors/track, 1044 cylinders
Units = cylinders of 16065 * 512 = 8225280 bytes

Device Boot Start End Blocks Id System
/dev/sda1 * 1 13 104391 83 Linux
/dev/sda2 14 1044 8281507+ 8e Linux LVM

Disk /dev/sdb: 2147 MB, 2147483648 bytes
255 heads, 63 sectors/track, 261 cylinders
Units = cylinders of 16065 * 512 = 8225280 bytes

Device Boot Start End Blocks Id System
/dev/sdb1 1 261 2096451 fd Linux raid autodetect

Disk /dev/sdc: 2147 MB, 2147483648 bytes
255 heads, 63 sectors/track, 261 cylinders
Units = cylinders of 16065 * 512 = 8225280 bytes

Device Boot Start End Blocks Id System
/dev/sdc1 1 261 2096451 fd Linux raid autodetect

Disk /dev/sdd: 2147 MB, 2147483648 bytes
255 heads, 63 sectors/track, 261 cylinders
Units = cylinders of 16065 * 512 = 8225280 bytes

Device Boot Start End Blocks Id System
/dev/sdd1 1 261 2096451 fd Linux raid autodetect
[root@localhost ~]#
```

Note: As above the partitions system must be "Linux raid autodetect".

4- Create the array raidset using mdadm:

```
mdadm -C /dev/md0 -l raid5 -n 3 /dev/sdb1 /dev/sdc1 /dev/sdd1
```

5- Create filesystem on the newly created raidset

The newly created RAID set may then be addressed as a single device using the /dev/md0 device file, and formated, and mounted as normal.

```
# mkfs.ext3 /dev/md0
```

6- create the /etc/mdadm.conf using the mdadm command

Creating the /etc/mdadm.conf file is peasantly simple, requiring only that mdadm be called with the "scan", "verbose", and "detail" switches, and its standard output redirected. It may therefore also be used as a handy tool for determining any changes on the array simply by diff'ing the current, and stored output. Create as follows

```
mdadm --detail --verbose > /etc/mdadm.conf
```

7- Create mount points and edit /etc/fstab

Care must be taken that any recycled partitions used in the RAID set be removed from the /etc/fstab.

```
# mkdir /ipi
```

Add the following amount to /etc/fstab

```
/dev/md0      /ipi      ext3      defaults      0  0
```

8-Mount filesystem using mount

If the array has been created online, and a reboot has not been executed, then the file systems will need to be manually mounted, either manually using the mount command, or simply using **mount -a**