5.4. REMOVING A DISK FROM A LOGICAL VOLUME

These example procedures show how you can remove a disk from an existing logical volume, either to replace the disk or to use the disk as part of a different volume. In order to remove a disk, you must first move the extents on the LVM physical volume to a different disk or set of disks.

5.4.1. Moving Extents to Existing Physical Volumes

In this example, the logical volume is distributed across four physical volumes in the volume group `myvg`.

```
# pvs -o+pv_used
  PV         VG   Fmt  Attr PSize  PFree  Used
  /dev/sda1  myvg lvm2 a-   17.15G 12.15G  5.00G
  /dev/sdb1  myvg lvm2 a-   17.15G 12.15G  5.00G
  /dev/sdc1  myvg lvm2 a-   17.15G 12.15G  5.00G
  /dev/sdd1  myvg lvm2 a-   17.15G  2.15G 15.00G
```

This examples moves the extents off of `/dev/sdb1` so that it can be removed from the volume group.

1. If there are enough free extents on the other physical volumes in the volume group, you can execute the `pvmove` command on the device you want to remove with no other options and the extents will be distributed to the other devices.

   ```
   # pvmove /dev/sdb1
     /dev/sdb1: Moved: 2.0%
    ...
     /dev/sdb1: Moved: 79.2%
    ...
     /dev/sdb1: Moved: 100.0%
   ```

   After the `pvmove` command has finished executing, the distribution of extents is as follows:

   ```
   # pvs -o+pv_used
     PV         VG   Fmt  Attr PSize  PFree  Used
     /dev/sda1  myvg lvm2 a-   17.15G  7.15G 10.00G
     /dev/sdb1  myvg lvm2 a-   17.15G 17.15G     0
   ```

```
  /dev/sdc1  myvg lvm2 a-   17.15G 12.15G  5.00G
  /dev/sdd1  myvg lvm2 a-   17.15G  2.15G 15.00G
```

2. Use the `vgreduce` command to remove the physical volume `/dev/sdb1` from the volume group.

```
# vgreduce myvg /dev/sdb1
  Removed "/dev/sdb1" from volume group "myvg"
# pvs
  PV         VG   Fmt  Attr PSize  PFree
  /dev/sda1  myvg lvm2 a-   17.15G  7.15G
  /dev/sdb1       lvm2 --   17.15G 17.15G
  /dev/sdc1  myvg lvm2 a-   17.15G 12.15G
  /dev/sdd1  myvg lvm2 a-   17.15G  2.15G
```

The disk can now be physically removed or allocated to other users.

5.4.2. Moving Extents to a New Disk

In this example, the logical volume is distributed across three physical volumes in the volume group `myvg` as follows:

```
# pvs -o+pv_used
  PV         VG   Fmt  Attr PSize  PFree  Used
  /dev/sda1  myvg lvm2 a-   17.15G  7.15G 10.00G
  /dev/sdb1  myvg lvm2 a-   17.15G 15.15G  2.00G
  /dev/sdc1  myvg lvm2 a-   17.15G 15.15G  2.00G
```

This example procedure moves the extents of `/dev/sdb1` to a new device, `/dev/sdd1`.

1. Create a new physical volume from `/dev/sdd1`.

```
# pvcreate /dev/sdd1
  Physical volume "/dev/sdd1" successfully created
```

2. Add the new physical volume `/dev/sdd1` to the existing volume group `myvg`.

```
# vgextend myvg /dev/sdd1
  Volume group "myvg" successfully extended
# pvs -o+pv_used
  PV         VG   Fmt  Attr PSize  PFree  Used
  /dev/sda1   myvg lvm2 a-   17.15G  7.15G 10.00G
  /dev/sdb1   myvg lvm2 a-   17.15G 15.15G  2.00G
```

```
  /dev/sdc1   myvg lvm2 a-   17.15G 15.15G  2.00G
  /dev/sdd1   myvg lvm2 a-   17.15G 17.15G     0
```

3. Use the `pvmove` command to move the data from `/dev/sdb1` to `/dev/sdd1`.

```
# pvmove /dev/sdb1 /dev/sdd1
  /dev/sdb1: Moved: 10.0%
...
  /dev/sdb1: Moved: 79.7%
...
  /dev/sdb1: Moved: 100.0%

# pvs -o+pv_used
  PV          VG   Fmt  Attr PSize  PFree  Used
  /dev/sda1   myvg lvm2 a-   17.15G  7.15G 10.00G
  /dev/sdb1   myvg lvm2 a-   17.15G 17.15G     0
  /dev/sdc1   myvg lvm2 a-   17.15G 15.15G  2.00G
  /dev/sdd1   myvg lvm2 a-   17.15G 15.15G  2.00G
```

4. After you have moved the data off `/dev/sdb1`, you can remove it from the volume group.

```
# vgreduce myvg /dev/sdb1
  Removed "/dev/sdb1" from volume group "myvg"
```

You can now reallocate the disk to another volume group or remove the disk from the system.