Logical Volume Management

Logical volume management on Linux is a different way of using available disks (block devices), allowing for more flexible allocation of space on filesystems stored on one or more disks by grouping disks into volume groups, then creating logical volumes within those volume groups without boundaries. Filesystems are created on the logical volumes which may use a portion of a disks full capacity, or the capacity of more than one disk. The only limit is the total space in the volume group which is determined by the sum of the total physical space of all the physical block storage devices in the volume group.

You can add more devices to an existing volume group and even take them away (be careful!). Volume groups, Logical Volumes in them, and the Filesystems on them can also be extended, resized or removed as necessary.

Scan for block devices that can be used for Logical Volume Management

lvmdiskscan

Display current physical volumes and their LVM Status

pvdisplay

Use block device /dev/hdb for LVM

pvcreate /dev/hdb

This command also takes multiple devicenames in one go, separated by spaces.

Create a volume group consisting of the physical volumes

vgcreate VolGroup01 /dev/hdb

Extend an existing volume group onto the block device just added

vgextend VolGroup00 /dev/hdb

Read the man page on vgextend for all available options.

Create a logical volume within the volume group

lvcreate -L +25G /dev/VolGroup01/LogVol00

Extend existing logical volume into the new unused space in the volume group

lvextend -L +25G /dev/VolGroup00/LogVol00

Expand the filesystem into the new free space in the logical volume.

resize2fs /dev/VolGroup00/LogVol00/

Verify the new size using *df*

df -kh

Display volume group information

vgdisplay VolGroup01

Display physical volume information

pvdisplay /dev/hdb

Display logical volume information

```
lvdisplay /dev/VolGroup01/LogVol00
```

Un-mount the filesystem

```
umount /filesystem
```

Check and Fix errors on the filesystem

```
e2fsck -f /dev/VolGroup01/LogVol00

or  /dev/mapper/LogVol00
```

Resize a logical volume

```
lvresize -L new-size /dev/VolGroup01/LogVol00
```

Resize a filesystem

```
resize2fs /dev/mapper/LogVol00

e.g. 1500M or 44G
```