**LVM Configuration Commands: Add 2 HDD with booting HDD (Total 3)**

1. **[root@localhost ~]# lsblk**

NAME MAJ:MIN RM SIZE RO TYPE MOUNTPOINT

sda 8:0 0 20G 0 disk

├─sda1 8:1 0 1G 0 part /boot

└─sda2 8:2 0 19G 0 part

├─centos-root 253:0 0 17G 0 lvm /

└─centos-swap 253:1 0 2G 0 lvm [SWAP]

sdb 8:16 0 20G 0 disk

sdc 8:32 0 20G 0 disk

sr0 11:0 1 973M 0 rom

1. **[root@localhost ~]# pvcreate /dev/sdb /dev/sdc**

Physical volume "/dev/sdb" successfully created.

Physical volume "/dev/sdc" successfully created.

1. **[root@localhost ~]# pvdisplay**

--- Physical volume ---

PV Name /dev/sda2

VG Name centos

PV Size <19.00 GiB / not usable 3.00 MiB

Allocatable yes (but full)

PE Size 4.00 MiB

Total PE 4863

Free PE 0

Allocated PE 4863

PV UUID tE23TB-FBVR-FRUb-0hLP-hF7k-IPsp-dpyXwJ

"/dev/sdc" is a new physical volume of "20.00 GiB"

--- NEW Physical volume ---

PV Name /dev/sdc

VG Name

PV Size 20.00 GiB

Allocatable NO

PE Size 0

Total PE 0

Free PE 0

Allocated PE 0

PV UUID 8B6yvi-02Bl-amwB-A1hT-wPVb-BzY3-yraV2h

"/dev/sdb" is a new physical volume of "20.00 GiB"

--- NEW Physical volume ---

PV Name /dev/sdb

VG Name

PV Size 20.00 GiB

Allocatable NO

PE Size 0

Total PE 0

Free PE 0

Allocated PE 0

PV UUID P0rDA0-Ret3-9YSg-2wGd-Dpc3-QF7g-yaXQN6

1. **[root@localhost ~]# vgcreate shrushti /dev/sdb /dev/sdc**

Volume group "shrushti" successfully created

1. **[root@localhost ~]# vgdisplay**

--- Volume group ---

VG Name shrushti

System ID

Format lvm2

Metadata Areas 2

Metadata Sequence No 1

VG Access read/write

VG Status resizable

MAX LV 0

Cur LV 0

Open LV 0

Max PV 0

Cur PV 2

Act PV 2

VG Size 39.99 GiB

PE Size 4.00 MiB

Total PE 10238

Alloc PE / Size 0 / 0

Free PE / Size 10238 / 39.99 GiB

VG UUID wh5CJO-7t5N-1EEG-97WW-22WE-QbWr-OFhnoX

--- Volume group ---

VG Name centos

System ID

Format lvm2

Metadata Areas 1

Metadata Sequence No 3

VG Access read/write

VG Status resizable

MAX LV 0

Cur LV 2

Open LV 2

Max PV 0

Cur PV 1

Act PV 1

VG Size <19.00 GiB

PE Size 4.00 MiB

Total PE 4863

Alloc PE / Size 4863 / <19.00 GiB

Free PE / Size 0 / 0

VG UUID l9ikUh-QLUp-8ljK-fCed-87tG-2H3a-9ABodM

1. **[root@localhost ~]# lvcreate -n srushti --size 1G shrushti**

Logical volume "srushti" created.

1. **[root@localhost ~]# lvdisplay**

--- Logical volume ---

LV Path /dev/shrushti/srushti

LV Name srushti

VG Name shrushti

LV UUID mSf2BR-0UKC-cLHr-7Pe8-UBsc-jr05-SVxk5I

LV Write Access read/write

LV Creation host, time localhost.localdomain, 2023-07-29 23:09:30 +0530

LV Status available

# open 0

LV Size 1.00 GiB

Current LE 256

Segments 1

Allocation inherit

Read ahead sectors auto

- currently set to 8192

Block device 253:2

--- Logical volume ---

LV Path /dev/centos/swap

LV Name swap

VG Name centos

LV UUID eFS7lT-MRee-HJM8-jBVO-g9Ey-5pEY-jxTnrj

LV Write Access read/write

LV Creation host, time localhost, 2022-11-27 00:26:15 +0530

LV Status available

# open 2

LV Size 2.00 GiB

Current LE 512

Segments 1

Allocation inherit

Read ahead sectors auto

- currently set to 8192

Block device 253:1

--- Logical volume ---

LV Path /dev/centos/root

LV Name root

VG Name centos

LV UUID yvgaUc-QjVw-K2Jb-XXe8-UUAC-mtmy-uQpKTj

LV Write Access read/write

LV Creation host, time localhost, 2022-11-27 00:26:16 +0530

LV Status available

# open 1

LV Size <17.00 GiB

Current LE 4351

Segments 1

Allocation inherit

Read ahead sectors auto

- currently set to 8192

Block device 253:0

1. **[root@localhost ~]# fdisk /dev/mapper/shrushti-srushti**

Welcome to fdisk (util-linux 2.23.2).

Changes will remain in memory only, until you decide to write them.

Be careful before using the write command.

Device does not contain a recognized partition table

Building a new DOS disklabel with disk identifier 0x8e071527.

Command (m for help): n

Partition type:

p primary (0 primary, 0 extended, 4 free)

e extended

Select (default p): p

Partition number (1-4, default 1):

First sector (2048-2097151, default 2048):

Using default value 2048

Last sector, +sectors or +size{K,M,G} (2048-2097151, default 2097151):

Using default value 2097151

Partition 1 of type Linux and of size 1023 MiB is set

Command (m for help): w

The partition table has been altered!

Calling ioctl() to re-read partition table.

WARNING: Re-reading the partition table failed with error 22: Invalid argument.

The kernel still uses the old table. The new table will be used at

the next reboot or after you run partprobe(8) or kpartx(8)

Syncing disks.

1. **[root@localhost ~]# partprobe /dev/shrushti/srushti**
2. **[root@localhost ~]# lsblk**

NAME MAJ:MIN RM SIZE RO TYPE MOUNTPOINT

sda 8:0 0 20G 0 disk

├─sda1 8:1 0 1G 0 part /boot

└─sda2 8:2 0 19G 0 part

├─centos-root 253:0 0 17G 0 lvm /

└─centos-swap 253:1 0 2G 0 lvm [SWAP]

sdb 8:16 0 20G 0 disk

└─shrushti-srushti 253:2 0 1G 0 lvm

└─shrushti-srushti1 253:3 0 1023M 0 part

sdc 8:32 0 20G 0 disk

sr0 11:0 1 973M 0 rom

1. **[root@localhost ~]# mkfs.ext4 /dev/mapper/shrushti-srushti**

mke2fs 1.42.9 (28-Dec-2013)

Filesystem label=

OS type: Linux

Block size=4096 (log=2)

Fragment size=4096 (log=2)

Stride=0 blocks, Stripe width=0 blocks

65536 inodes, 262144 blocks

13107 blocks (5.00%) reserved for the super user

First data block=0

Maximum filesystem blocks=268435456

8 block groups

32768 blocks per group, 32768 fragments per group

8192 inodes per group

Superblock backups stored on blocks:

32768, 98304, 163840, 229376

Allocating group tables: done

Writing inode tables: done

Creating journal (8192 blocks): done

Writing superblocks and filesystem accounting information: done

1. **[root@localhost ~]# mkdir demo**
2. **[root@localhost ~]# mount /dev/mapper/shrushti-srushti demo**
3. **[root@localhost ~]# lsblk**

NAME MAJ:MIN RM SIZE RO TYPE MOUNTPOINT

sda 8:0 0 20G 0 disk

├─sda1 8:1 0 1G 0 part /boot

└─sda2 8:2 0 19G 0 part

├─centos-root 253:0 0 17G 0 lvm /

└─centos-swap 253:1 0 2G 0 lvm [SWAP]

sdb 8:16 0 20G 0 disk

└─shrushti-srushti 253:2 0 1G 0 lvm /root/demo

sdc 8:32 0 20G 0 disk

sr0 11:0 1 973M 0 rom

1. **[root@localhost ~]# lvextend -L +2G /dev/mapper/shrushti-srushti**

Size of logical volume shrushti/srushti changed from 1.00 GiB (256 extents) to 3.00 GiB (768 extents).

Logical volume shrushti/srushti successfully resized.

1. **[root@localhost ~]# lsblk**

NAME MAJ:MIN RM SIZE RO TYPE MOUNTPOINT

sda 8:0 0 20G 0 disk

├─sda1 8:1 0 1G 0 part /boot

└─sda2 8:2 0 19G 0 part

├─centos-root 253:0 0 17G 0 lvm /

└─centos-swap 253:1 0 2G 0 lvm [SWAP]

sdb 8:16 0 20G 0 disk

└─shrushti-srushti 253:2 0 3G 0 lvm /root/demo

sdc 8:32 0 20G 0 disk

sr0 11:0 1 973M 0 rom

1. **[root@localhost ~]# resize2fs /dev/mapper/shrushti-srushti**

resize2fs 1.42.9 (28-Dec-2013)

Filesystem at /dev/mapper/shrushti-srushti is mounted on /root/demo; on-line resizing required

old\_desc\_blocks = 1, new\_desc\_blocks = 1

The filesystem on /dev/mapper/shrushti-srushti is now 786432 blocks long.

1. **[root@localhost ~]# lsblk**

NAME MAJ:MIN RM SIZE RO TYPE MOUNTPOINT

sda 8:0 0 20G 0 disk

├─sda1 8:1 0 1G 0 part /boot

└─sda2 8:2 0 19G 0 part

├─centos-root 253:0 0 17G 0 lvm /

└─centos-swap 253:1 0 2G 0 lvm [SWAP]

sdb 8:16 0 20G 0 disk

└─shrushti-srushti 253:2 0 3G 0 lvm /root/demo

sdc 8:32 0 20G 0 disk

sr0 11:0 1 973M 0 rom

1. **[root@localhost ~]# lvcreate -L 1GB -s -n demo\_snap /dev/mapper/shrushti-srushti**

Logical volume "demo\_snap" created.

1. **[root@localhost ~]# lsblk**

NAME MAJ:MIN RM SIZE RO TYPE MOUNTPOINT

sda 8:0 0 20G 0 disk

├─sda1 8:1 0 1G 0 part /boot

└─sda2 8:2 0 19G 0 part

├─centos-root 253:0 0 17G 0 lvm /

└─centos-swap 253:1 0 2G 0 lvm [SWAP]

sdb 8:16 0 20G 0 disk

├─shrushti-srushti-real 253:3 0 3G 0 lvm

│ ├─shrushti-srushti 253:2 0 3G 0 lvm /root/demo

│ └─shrushti-demo\_snap 253:5 0 3G 0 lvm

└─shrushti-demo\_snap-cow 253:4 0 1G 0 lvm

└─shrushti-demo\_snap 253:5 0 3G 0 lvm

sdc 8:32 0 20G 0 disk

sr0 11:0 1 973M 0 rom

1. **[root@localhost ~]# lvconvert --merge /dev/mapper/shrushti-demo\_snap**

Delaying merge since origin is open.

Merging of snapshot shrushti/demo\_snap will occur on next activation of shrushti/srushti.

1. **[root@localhost ~]# lsblk**

NAME MAJ:MIN RM SIZE RO TYPE MOUNTPOINT

sda 8:0 0 20G 0 disk

├─sda1 8:1 0 1G 0 part /boot

└─sda2 8:2 0 19G 0 part

├─centos-root 253:0 0 17G 0 lvm /

└─centos-swap 253:1 0 2G 0 lvm [SWAP]

sdb 8:16 0 20G 0 disk

├─shrushti-srushti-real 253:3 0 3G 0 lvm

│ ├─shrushti-srushti 253:2 0 3G 0 lvm /root/demo

│ └─shrushti-demo\_snap 253:5 0 3G 0 lvm

└─shrushti-demo\_snap-cow 253:4 0 1G 0 lvm

└─shrushti-demo\_snap 253:5 0 3G 0 lvm

sdc 8:32 0 20G 0 disk

sr0 11:0 1 973M 0 rom

1. **[root@localhost ~]# lvcreate -L 2GB -m1 -n testmirror shrushti**

Logical volume "testmirror" created.

1. **[root@localhost ~]# lsblk**

NAME MAJ:MIN RM SIZE RO TYPE MOUNTPOINT

sda 8:0 0 20G 0 disk

├─sda1 8:1 0 1G 0 part /boot

└─sda2 8:2 0 19G 0 part

├─centos-root 253:0 0 17G 0 lvm /

└─centos-swap 253:1 0 2G 0 lvm [SWAP]

sdb 8:16 0 20G 0 disk

├─shrushti-srushti-real 253:3 0 3G 0 lvm

│ ├─shrushti-srushti 253:2 0 3G 0 lvm /root/demo

│ └─shrushti-demo\_snap 253:5 0 3G 0 lvm

├─shrushti-demo\_snap-cow 253:4 0 1G 0 lvm

│ └─shrushti-demo\_snap 253:5 0 3G 0 lvm

├─shrushti-testmirror\_rmeta\_0 253:6 0 4M 0 lvm

│ └─shrushti-testmirror 253:10 0 2G 0 lvm

└─shrushti-testmirror\_rimage\_0 253:7 0 2G 0 lvm

└─shrushti-testmirror 253:10 0 2G 0 lvm

sdc 8:32 0 20G 0 disk

├─shrushti-testmirror\_rmeta\_1 253:8 0 4M 0 lvm

│ └─shrushti-testmirror 253:10 0 2G 0 lvm

└─shrushti-testmirror\_rimage\_1 253:9 0 2G 0 lvm

└─shrushti-testmirror 253:10 0 2G 0 lvm

sr0 11:0 1 973M 0 rom

1. **[root@localhost ~]# lvremove /dev/mapper/shrushti-srushti**

Do you really want to remove active origin logical volume shrushti/srushti with 1 snapshot(s)? [y/n]: y

Logical volume shrushti/srushti contains a filesystem in use.

Logical volume shrushti/srushti not removed.

1. **[root@localhost ~]# lsblk**
2. **[root@localhost ~]# lvremove /dev/mapper/shrushti**

Do you really want to remove active origin logical volume shrushti/srushti with 1 snapshot(s)? [y/n]: y

Logical volume shrushti/srushti contains a filesystem in use.

Logical volume shrushti/srushti not removed.

Do you really want to remove active logical volume shrushti/testmirror? [y/n]: y

Logical volume "testmirror" successfully removed

1. lsblk