**DISK MANAGEMENT – II**

**LOGICAL VOLUME MANAGER(LVM):**

**WHAT IS LVM?**

* LVM stands for Logical Volume Manager, to resize file system’s size online we require LVM partition in Linux.
* Size of LVM partition can be extended and reduced using the lvextend & lvreduce commands respectively.

**Physical Volume:**

* It’s a raw hard drive that it initialized to work with LVM, such as /dev/sdb, /dev/sdc, /dev/sdb1 etc.

**Volume Group**:

* Many PV is combined into one VG. You can create many VGs and each of them has a unique name.

**Logical Volume**:

* You can create many LVs from a VG. You can extend, reduce the LV size on the fly. The LV also has unique names.
* You format the LV into ext4, zfs, btrfs etc filesystems, mount it and use it as you do other ordinary partitions.

**Partitions based Filesystem:**

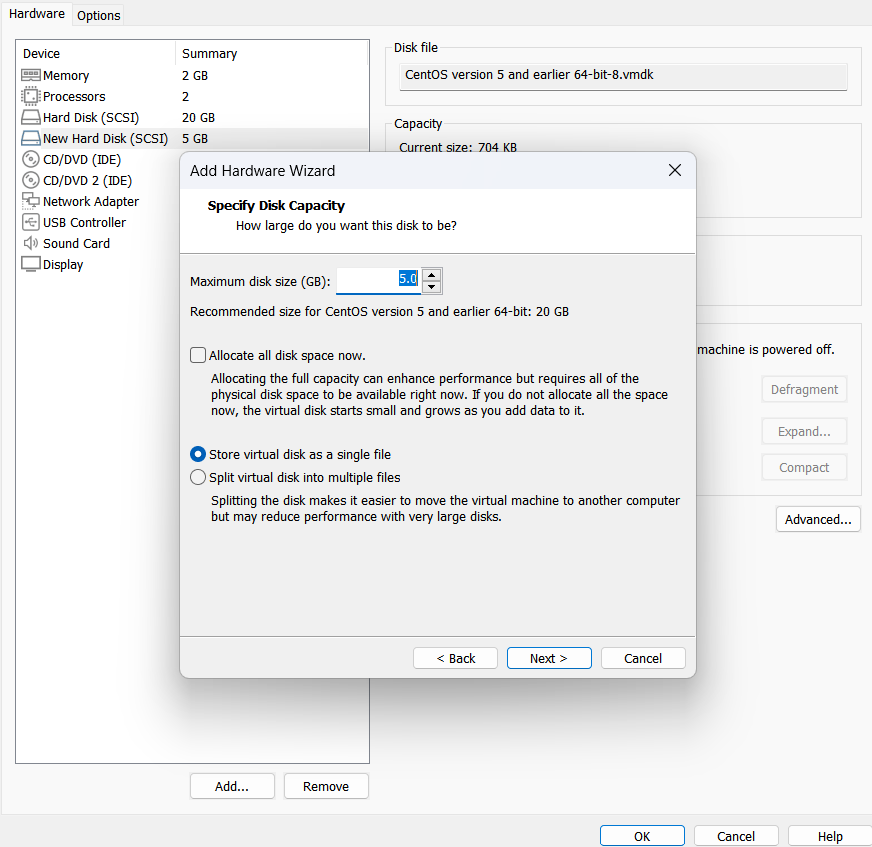
* Hard Disks --> Partitions --> filesystem --> mount

**LVM based Filesystem:**

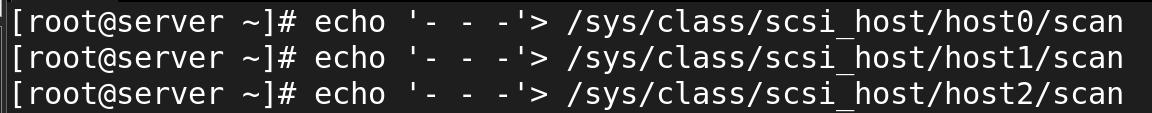
* Hard Disks --> Partitions --> Physical Volume --> Volume Group --> Logical Volume --> filesystem --> mount
* #lvmdiskscan

**CREATE LVM:**

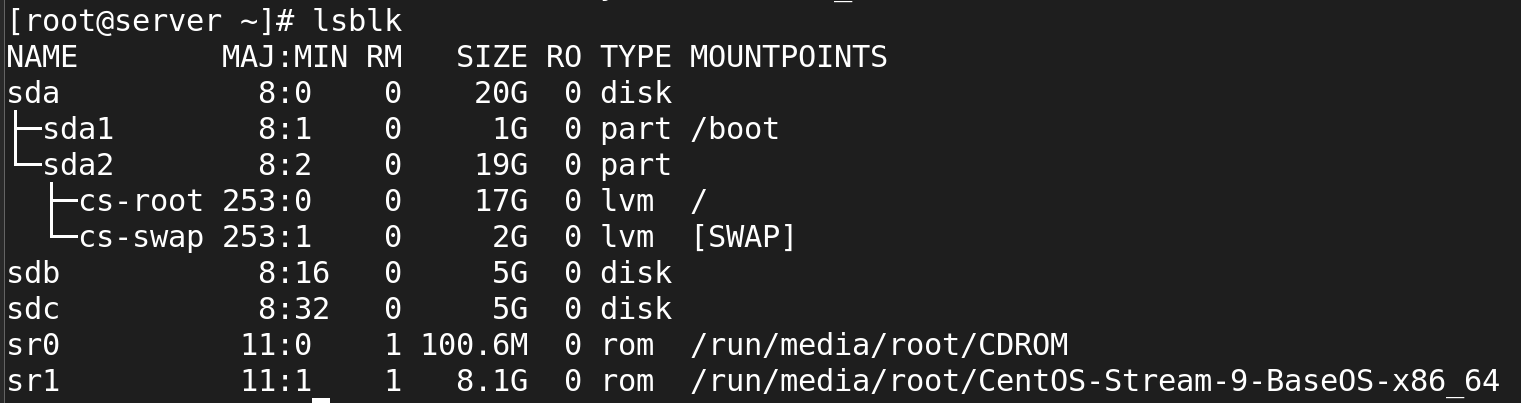
* Add Hard Disks
* To list created disk 🡪 lsblk



Next step want to scan the disk

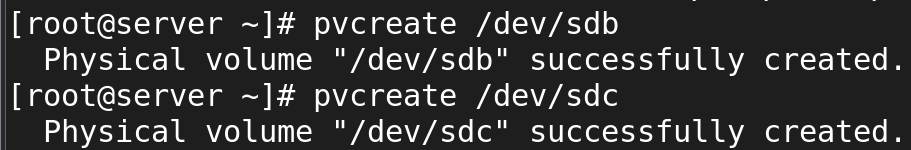


To viwe the disk command --> lsblk



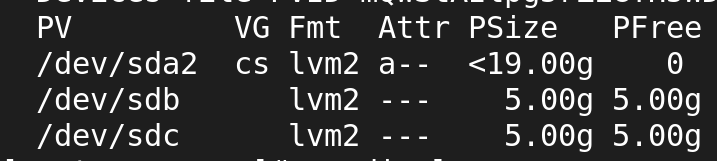
**CREATE PHYSICAL VOLUME:**

* pvcreate /dev/sdb

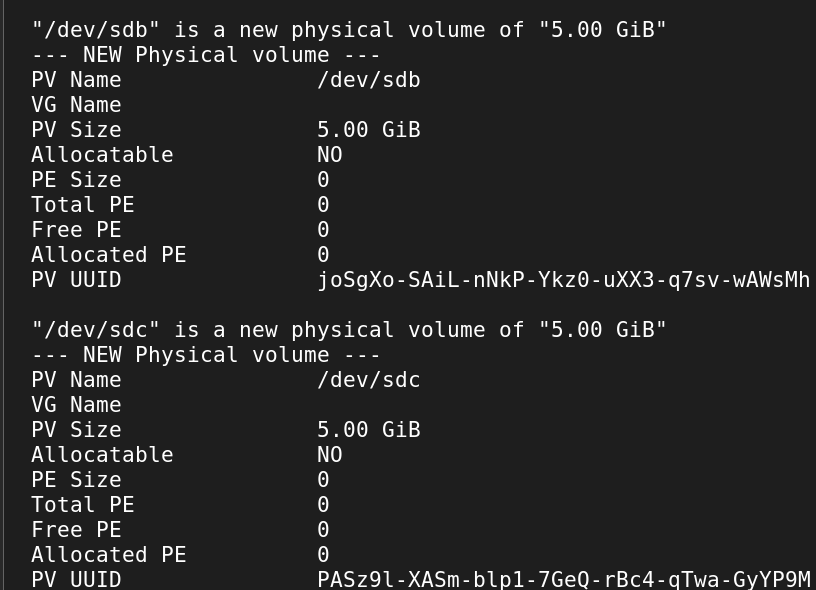


To list the created physical volume

Pvs

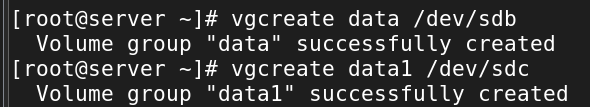


Pvdisplay

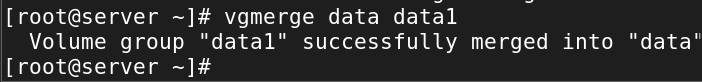


**CREATE VOLUME GROUP:**

* vgcreate lvg /dev/sdb

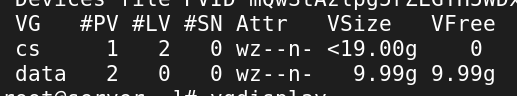


Now merge the both group into single group

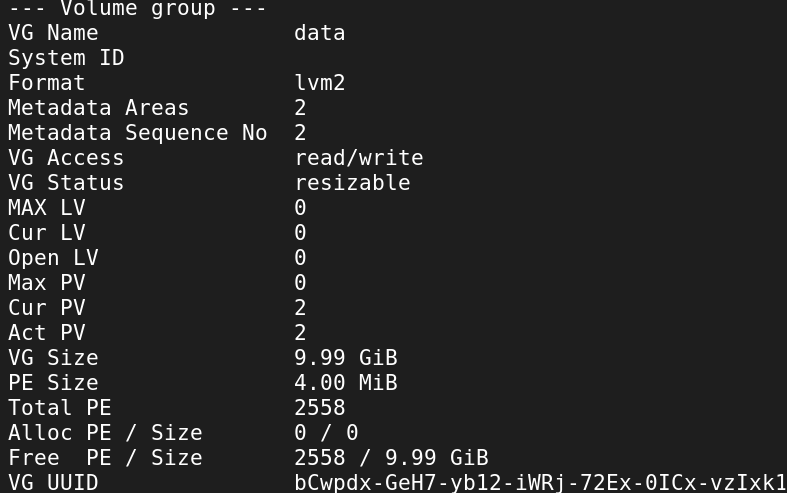


**LIST VOLUME GROUP:**

* vgs

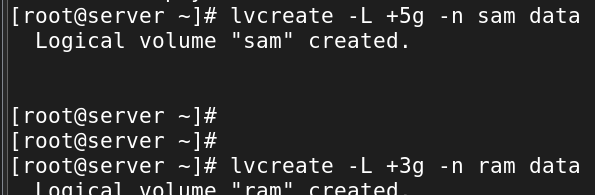


Vgdisplay



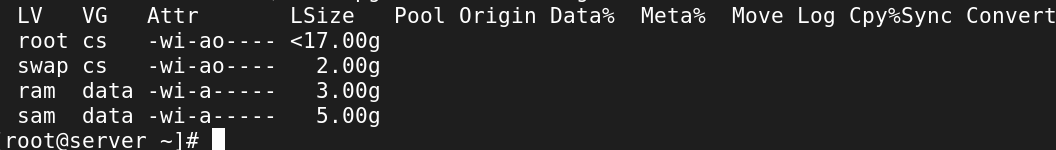
**CREATE LOGICAL VOLUME:**

* lvcreate -L +5G -n lvgl lvg

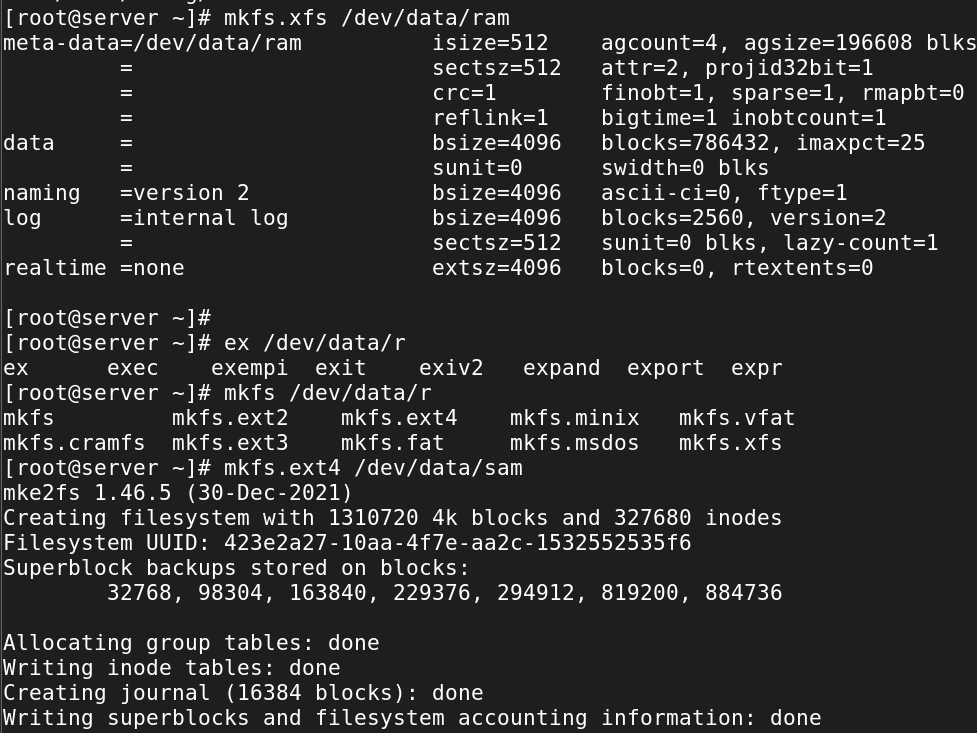


**TO LOGICAL VOLUME:**

* lvs



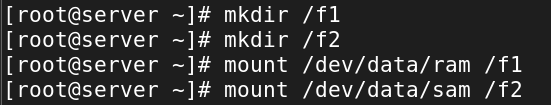
**CREATE FILESYSTEM:**



**TEMPORARY MOUNT:**

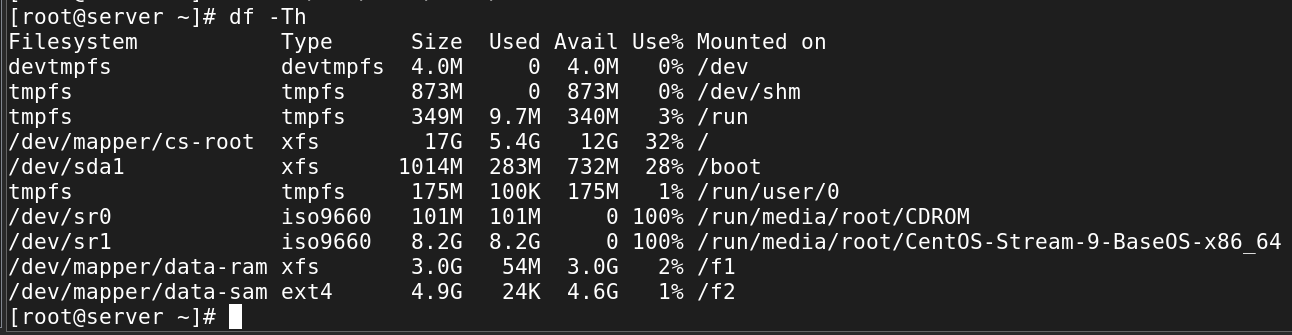
**Mount The Filesystem:**

First create an directory

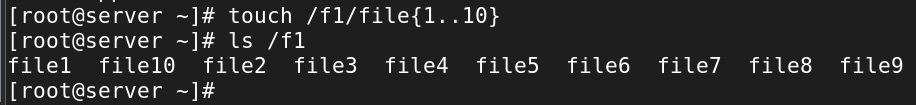


**COMMAND TO CHECK MOUNTED FILESYSTEM:**

* df -h



**Create files in the mounted dir:**

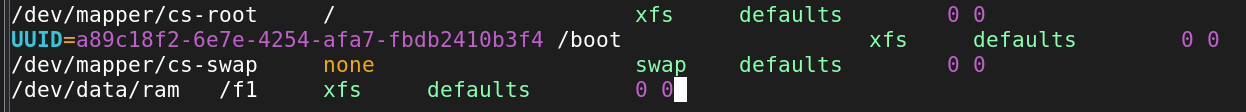


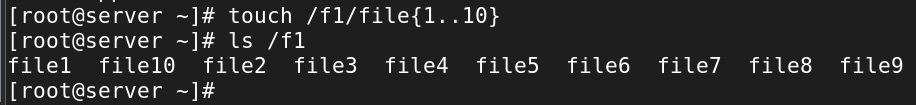
In temporary mounting, all files have deleted after rebooting:



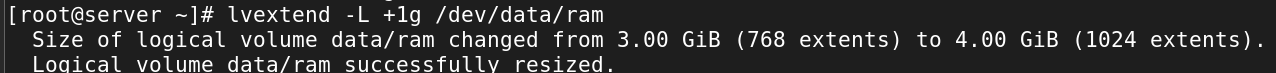
**PERMANENT MOUNT:**

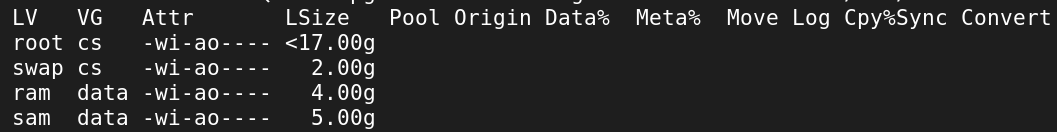
* vi /etc/fstab



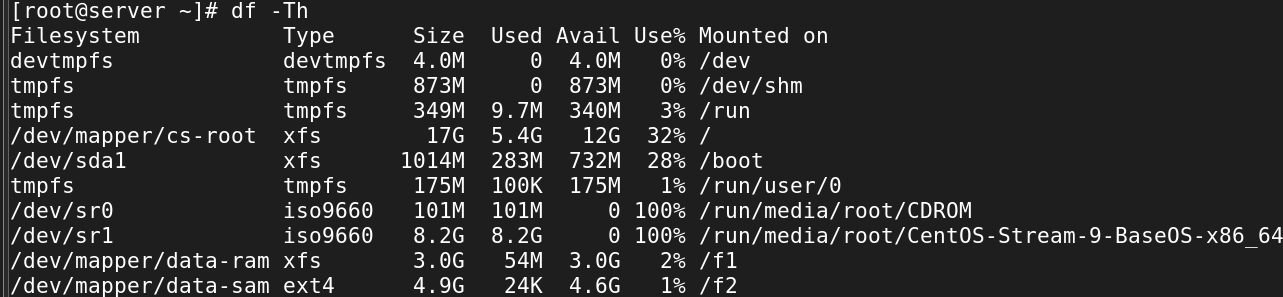


**To extend the size lvgl:**

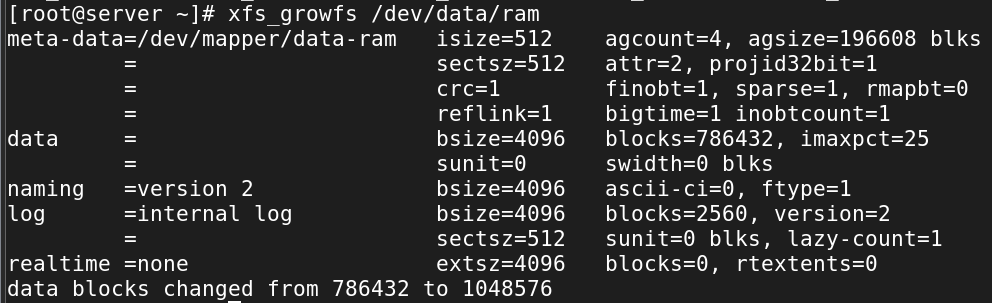


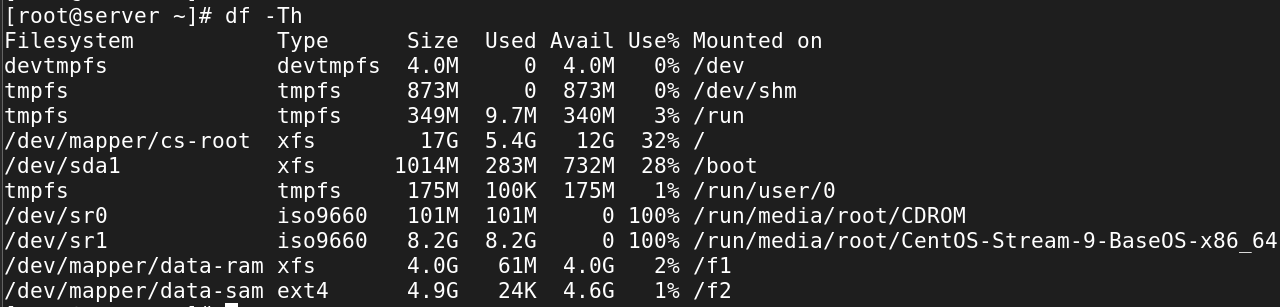


But it not show in the df -Th command



For extended lvg in ram to show in df -Th we should grow file system.



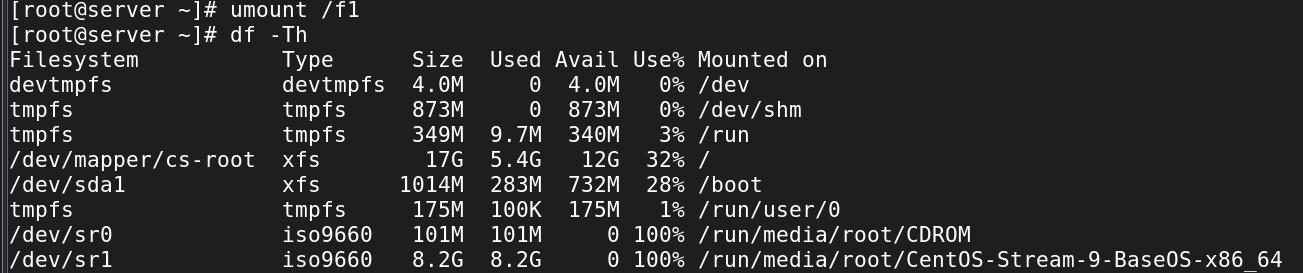


**Remove LVM:**

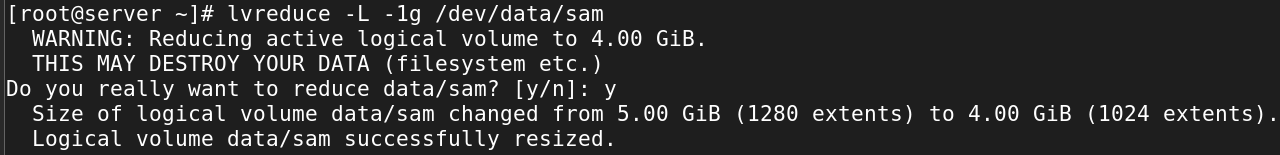
Remove fstab entry first

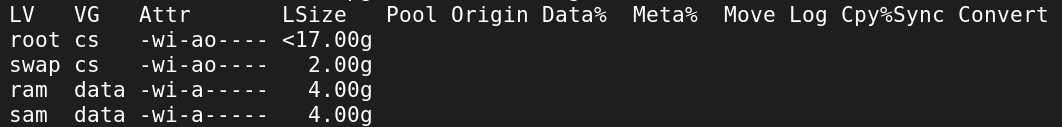


**Unmount the directory:**

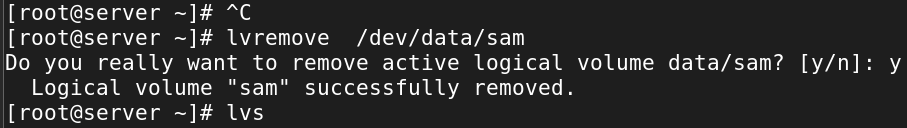


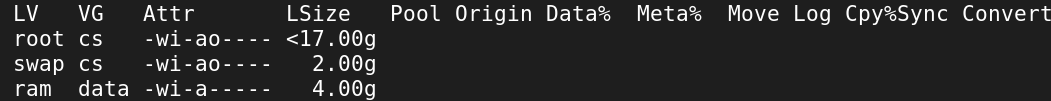
To reduce the logical volume:



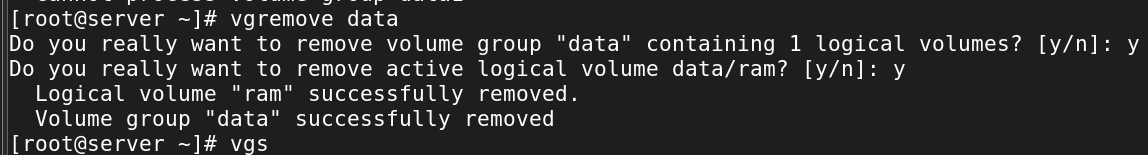


Now we remove the sam





Remove the volume group:



Remove the Physical volume:

* pvremove /dev/sdb
* pvremove /dev/sdc

