**CentOS / RHEL : How to find free space in a Volume Group in LVM**

Knowing the free space remaining in a volume group is an important piece of information, especially when you want to :  
1. add a new volume in the VG  
2. add a new PV in the VG  
3. extend an existing volume in the VG

**Method 1 – using vgs command**

**vgs** command simply puts the total size of the VG and free space directly.

# vgdisplay -v vg\_os2 | grep Free

Using volume group(s) on command line.

Free PE / Size 40672 / 158.88 GiB

Total PE / Free PE 143072 / 40672

In most of the cases this command will be sufficient for you. In case you want details on PV level you can go for the method 2.

**Method 2 – using vgdisplay command**

Execute the command **vgdisplay** to get information of all volume groups on the system.

# vgdisplay

Example output is given below. The line “**Free PE / Size**” indicates the free physical extents in the VG and free space available in the VG respectively.

# vgdisplay

......

--- Volume group ---

VG Name vg\_os2

System ID

Format lvm2

Metadata Areas 1

Metadata Sequence No 9

VG Access read/write

VG Status resizable

MAX LV 0

Cur LV 5

Open LV 5

Max PV 0

Cur PV 1

Act PV 1

VG Size 558.88 GiB

PE Size 4.00 MiB

Total PE 143072

Alloc PE / Size 102400 / 400.00 GiB

**Free PE / Size 40672 / 158.88 GiB**

VG UUID BXrCkO-bip9-fqjB-h4yd-JdNL-fUEq-Vsh6cq

From the example above there are **40672** available PEs or **158.88 GiB** of free space.

**Finding free space in in all PVs in a VG**

To determine the number of free PEs on each physical device that is part of a volume group, execute the following command:

# vgdisplay -v [vg\_name]

This will show volume groups and the physical volumes that are associated with each volume group.

**Finding free space in all VGs**

To easily find the free space in all VGS, execute the below command.

# vgdisplay | grep Free

For example :

# vgdisplay | grep Free

Using volume group(s) on command line.

Free PE / Size 127 / 508.00 MiB

Free PE / Size 480 / 1.88 GiB

Free PE / Size 40672 / 158.88 GiB

To find free space in a specific VG only, provice the VG name in the above command. For example:

# vgdisplay -v vg\_os2 | grep Free

Using volume group(s) on command line.

Free PE / Size 40672 / 158.88 GiB

Total PE / Free PE 143072 / 40672