

## Expand Logical volume in Linux LVM

LVM makes it easy to resize volumes in Linux. This can be done without unmounting drives or requiring a restart.

First determine the free space of the group volume.

`vgdisplay`

```
root@windns2:/home/network# vgdisplay
--- Volume group ---
VG Name                ubuntu-vg
System ID
Format                 lvm2
Metadata Areas         1
Metadata Sequence No  3
VG Access               read/write
VG Status               resizable
MAX LV                 0
Cur LV                1
Open LV                1
Max PV                 0
Cur PV                1
Act PV                 1
VG Size                <24.00 GiB
PE Size                4.00 MiB
Total PE               6143
Alloc PE / Size       6143 / <24.00 GiB
Free PE / Size         0 / 0
VG UUID                o4sv9j-i2P6-RIAB-qcZz-YYRN-2Wr5-pXsGB1
```

Determine the path to the volume group and extend it using `vgextend ubuntu-vg /dev/sda3` where `ubuntu-vg` is the group name and `/dev/sda3` is a partition created using `fdisk`.

`lvdisplay`

```
root@windns2:/home/network# lvdisplay
--- Logical volume ---
LV Path                /dev/ubuntu-vg/ubuntu-lv
LV Name                ubuntu-lv
VG Name                ubuntu-vg
LV UUID                b5OCG1-MXXR-LqwR-dv5k-bP9
LV Write Access        read/write
LV Creation host, time ubuntu-server, 2019-08-23
LV Status               available
# open                 1
LV Size                <24.00 GiB
Current LE              6143
Segments                1
Allocation              inherit
Read ahead sectors     auto
- currently set to     256
Block device           253:0
```

Expand the logical volume into the group volume. You can specify a size (M for Megabytes, G for Gigabytes, T for Terabytes) ...

```
lvextend -L+19G /dev/ubuntu-vg/ubuntu-lv
```

or you can expand the logical volume into the remaining free space.

```
lvextend -l +100%FREE /dev/ubuntu-vg/ubuntu-lv
```

You will get a success message similar to the screenshot below after the task is completed.

```
root@windns1:/var/log# lvextend -l +100%FREE /dev/ubuntu-vg/ubuntu-lv
Size of logical volume ubuntu-vg/ubuntu-lv changed from 4.00 GiB (1024 extents) to <24.00 GiB (6143 extents).
Logical volume ubuntu-vg/ubuntu-lv successfully resized.
```

Resize the partition to use the newly expanded logical volume

```
resize2fs /dev/ubuntu-vg/ubuntu-lv
```

```
root@windns1:/home/network# resize2fs /dev/ubuntu-vg/ubuntu-lv
resize2fs 1.44.1 (24-Mar-2018)
Filesystem at /dev/ubuntu-vg/ubuntu-lv is mounted on /; on-line resizing required
old_desc_blocks = 1, new_desc_blocks = 3
The filesystem on /dev/ubuntu-vg/ubuntu-lv is now 6290432 (4k) blocks long.
```

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