Expand Logical volume in Linux LVM

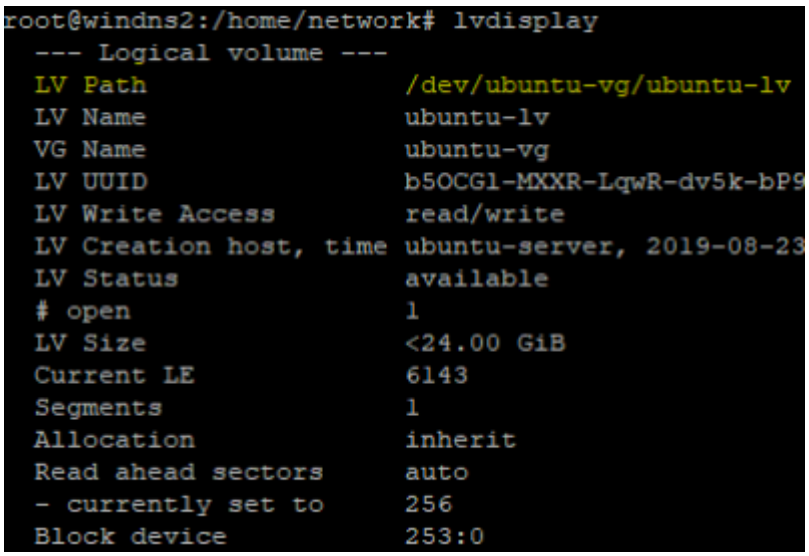
LVM makes it easy to resize volumes in Linux. This can be done without unmounting drives or requiring a restart.

First determine the free space of the group volume.

`vgdisplay`

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`



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.
```