

Ubuntu - Extend Your Default LVM Space

So, like me, you installed Ubuntu and accepted the default use of lvm and now your operating volume is very small and the Ubuntu installer did not utilize the entire physical drive. There is a ton of free space that is not being utilized. And, possibly, your freshly installed cloud application (NextCloud) will soon exceed the allotted space within the first week or so as a result of data uploading or synchronization.

All credit goes to this article: <https://packetpushers.net/ubuntu-extend-your-default-lvm-space/>

```
$ df -h
```

Filesystem	Size	Used	Avail	Use%	Mounted on
tmpfs	791M	1.2M	790M	1%	/run
/dev/mapper/ubuntu--vg-ubuntu--lv	98G	7.0G	86G	8%	/
tmpfs	3.9G	0	3.9G	0%	/dev/shm
tmpfs	5.0M	0	5.0M	0%	/run/lock
/dev/sda2	2.0G	130M	1.7G	8%	/boot
tmpfs	791M	4.0K	791M	1%	/run/user/1000

```
user@svr1:~$ sudo vgdisplay
```

```
[sudo] password for user:
```

```
--- Volume group ---
VG Name                ubuntu-vg
System ID
Format                 lvm2
Metadata Areas         1
Metadata Sequence No  2
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                <929.00 GiB
PE Size                4.00 MiB
Total PE              237823
Alloc PE / Size       25600 / 100.00 GiB
Free PE / Size        212223 / <829.00 GiB
VG UUID                rF3fw2-13h2-kAiL-aeWA-KyDZ-5HQU-GwvKDe
```

```
user@svr1:~$ sudo lvdisplay
```

```
--- Logical volume ---
LV Path                /dev/ubuntu-vg/ubuntu-lv
```

```
LV Name          ubuntu-lv
VG Name          ubuntu-vg
LV UUID          xUUIxr-wnDl-7Znk-EQpK-gAwb-Wug0-a7JSTb
LV Write Access  read/write
LV Creation host, time ubuntu-server, 2023-06-28 23:21:26 +0000
LV Status        available
# open          1
LV Size          100.00 GiB
Current LE       25600
Segments         1
Allocation       inherit
Read ahead sectors auto
- currently set to 256
Block device     253:0
```

```
user@svr1:~$ sudo su
root@svr1:/home/user# cd
root@svr1:~#
```

```
root@svr1:~# lvextend -l +100%FREE /dev/ubuntu-vg/ubuntu-lv
```

```
Size of logical volume ubuntu-vg/ubuntu-lv changed from 100.00 GiB (25600 extents) to <929.00 GiB (237823 extents).
Logical volume ubuntu-vg/ubuntu-lv successfully resized.
root@svr1:~#
```

Run `lvdisplay` once more to verify that that the logical volume was successfully resized.

```
root@svr1:~# lvdisplay
--- Logical volume ---
LV Path          /dev/ubuntu-vg/ubuntu-lv
LV Name          ubuntu-lv
VG Name          ubuntu-vg
LV UUID          xUUIxr-wnDl-7Znk-EQpK-gAwb-Wug0-a7JSTb
LV Write Access  read/write
LV Creation host, time ubuntu-server, 2023-06-28 23:21:26 +0000
LV Status        available
# open          1
LV Size          <929.00 GiB
Current LE       237823
Segments         1
Allocation       inherit
Read ahead sectors auto
- currently set to 256
Block device     253:0

root@svr1:~#
```

At this point you have increased the size of the block volume where your root filesystem resides, but

you still need to extend the filesystem on top of it.

First, run `df -h` to verify your (almost full) root file system, then run `resize2fs /dev/mapper/ubuntu-vg-ubuntu-lv` to extend your filesystem, and run `df -h` one more time to make sure you're successful.

Note: The following operations and output involves a 2TB physical drive instead of 1TB. Sorry, but this is a different server where the entire job was properly finished by extending the file system on top of the block volume that you just extended.

Here are the new readings for 'svr3' (using a pair of 2TB Drives on a hardware RAID-1 Array - which matters not.)

```
Logical volume ubuntu-vg/ubuntu-lv successfully resized.
root@svr3:~# lvsdisplay
--- Logical volume ---
LV Path                /dev/ubuntu-vg/ubuntu-lv
LV Name                ubuntu-lv
VG Name                ubuntu-vg
LV UUID                0FjNEm-jrLm-tYWv-AzHT-TZmm-l9bx-aVWpyR
LV Write Access        read/write
LV Creation host, time ubuntu-server, 2023-06-18 18:42:52 +0000
LV Status              available
# open                 1
LV Size                <1.82 TiB
Current LE             476287
Segments               1
Allocation              inherit
Read ahead sectors     auto
- currently set to    256
Block device           253:0

root@svr3:~# df -h
Filesystem              Size  Used Avail Use% Mounted on
tmpfs                   1.6G  1.2M  1.6G   1% /run
/dev/mapper/ubuntu--vg-ubuntu--lv  98G   12G   82G  13% /
tmpfs                   7.8G    0  7.8G   0% /dev/shm
tmpfs                   5.0M    0  5.0M   0% /run/lock
/dev/sda2                2.0G  253M  1.6G  14% /boot
tmpfs                   1.6G   4.0K  1.6G   1% /run/user/1000
```

Now, run the following command to extend your filesystem.

```
root@nc3:~# resize2fs /dev/mapper/ubuntu--vg-ubuntu--lv
```

Results

```
resize2fs 1.46.5 (30-Dec-2021)
Filesystem at /dev/mapper/ubuntu--vg-ubuntu--lv is mounted on /; on-line
resizing required
old_desc_blocks = 13, new_desc_blocks = 233
```

The filesystem on /dev/mapper/ubuntu--vg-ubuntu--lv is now 487717888 (4k) blocks long.

Run df -h again.

```
root@nc3:~# df -h
Filesystem                Size      Used Avail Use% Mounted on
tmpfs                     1.6G      1.2M   1.6G   1% /run
/dev/mapper/ubuntu--vg-ubuntu--lv 1.8T      12G   1.8T   1% /
tmpfs                     7.8G       0    7.8G   0% /dev/shm
tmpfs                     5.0M       0    5.0M   0% /run/lock
/dev/sda2                 2.0G     253M   1.6G  14% /boot
tmpfs                     1.6G     4.0K   1.6G   1% /run/user/1000
root@nc3:~#
```

Run vgdisplay again

```
root@nsvr3:~# 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                    <1.82 TiB
PE Size                    4.00 MiB
Total PE                   476287
Alloc PE / Size           476287 / <1.82 TiB
Free PE / Size             0 / 0
VG UUID                    bK42QC-L9pu-bEiA-ndU0-j3v7-3XWU-tA06R5
```

Run lvdisplay again

```
root@svr3:~# lvdisplay
--- Logical volume ---
LV Path                    /dev/ubuntu-vg/ubuntu-lv
LV Name                     ubuntu-lv
VG Name                     ubuntu-vg
LV UUID                     0FjNEm-jrLm-tYWv-AzHT-TZmm-l9bx-aVWpyR
LV Write Access             read/write
LV Creation host, time     ubuntu-server, 2023-06-18 18:42:52 +0000
```

```
LV Status          available
# open             1
LV Size            <1.82 TiB
Current LE         476287
Segments           1
Allocation         inherit
Read ahead sectors auto
- currently set to 256
Block device       253:0
```

```
root@svr3:~#
```

VG Size and LV Size are both <1.82 TiB

I believe we're done here.

From:

<https://www.installconfig.com/> - **Install Config Wiki**

Permanent link:

https://www.installconfig.com/doku.php?id=ubuntu_extend_default_lvm_space&rev=1688066189

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