How to Resize EBS Volumes on AWS (without Rebooting)

What is EBS Volume?

Amazon EBS volume is a durable, block-level storage device that you can attach to a single EC2 instance.

It is a block storage system which is used to store persistent data.

Amazon EBS – Volume Types:

- **General Purpose SSD**
- **Provisioned IOPS SSD**
- **Throughput Optimized HDD**
- **Magnetic**

This article guides you to resize the EBS volume size without rebooting the EC2 Instance.

Modifying Volume Size Using AWS Console:

Login to EC2 management Console,

EC2 CONSOLE

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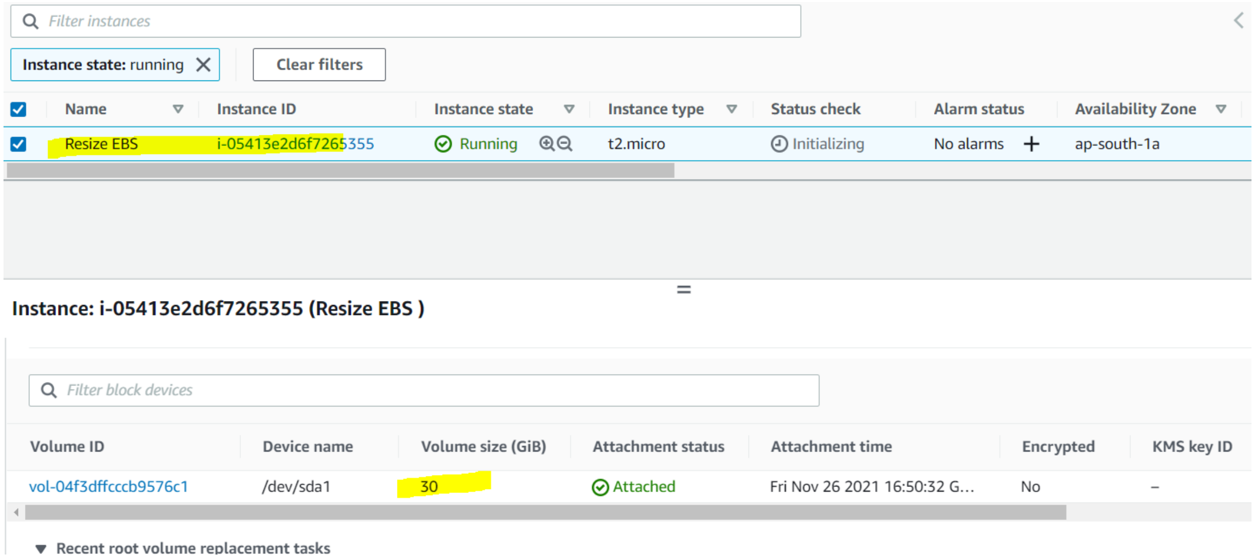
Resize EBS Volumes with Linux EC2 Instances

Say your company is running a production environment on an EC2 instance—perhaps a small application that doesn't require many resources.

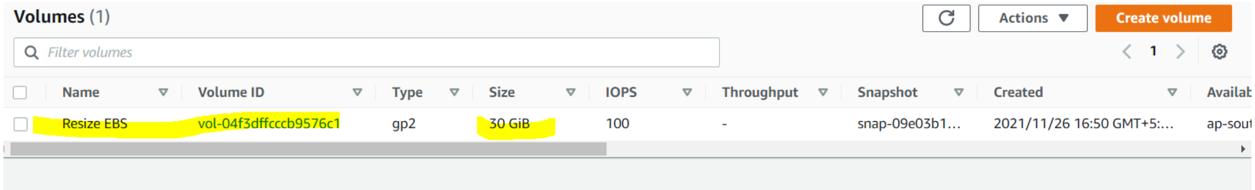


☑	Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone
☑	Resize EBS	i-05413e2d6f7265355	Running	t2.micro	Initializing	No alarms	ap-south-1a

Instance: i-05413e2d6f7265355 (Resize EBS)

Volume ID	Device name	Volume size (GiB)	Attachment status	Attachment time	Encrypted	KMS key ID
vol-04f3dffcccb9576c1	/dev/sda1	30	Attached	Fri Nov 26 2021 16:50:32 G...	No	–

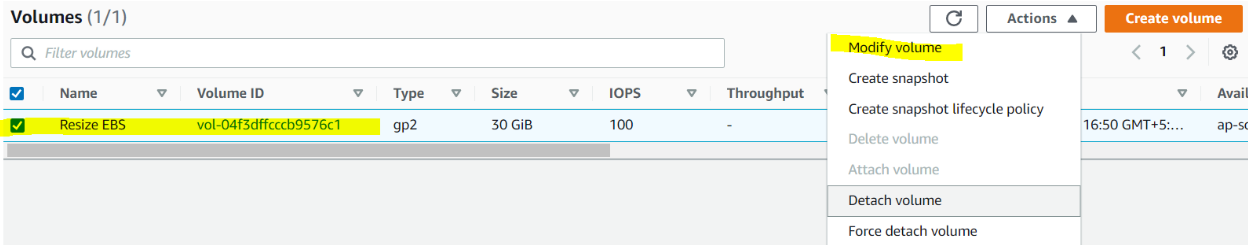
Since this application uses little storage, a small, 30GB general purpose AWS EBS volume has been employed.



Volumes (1)

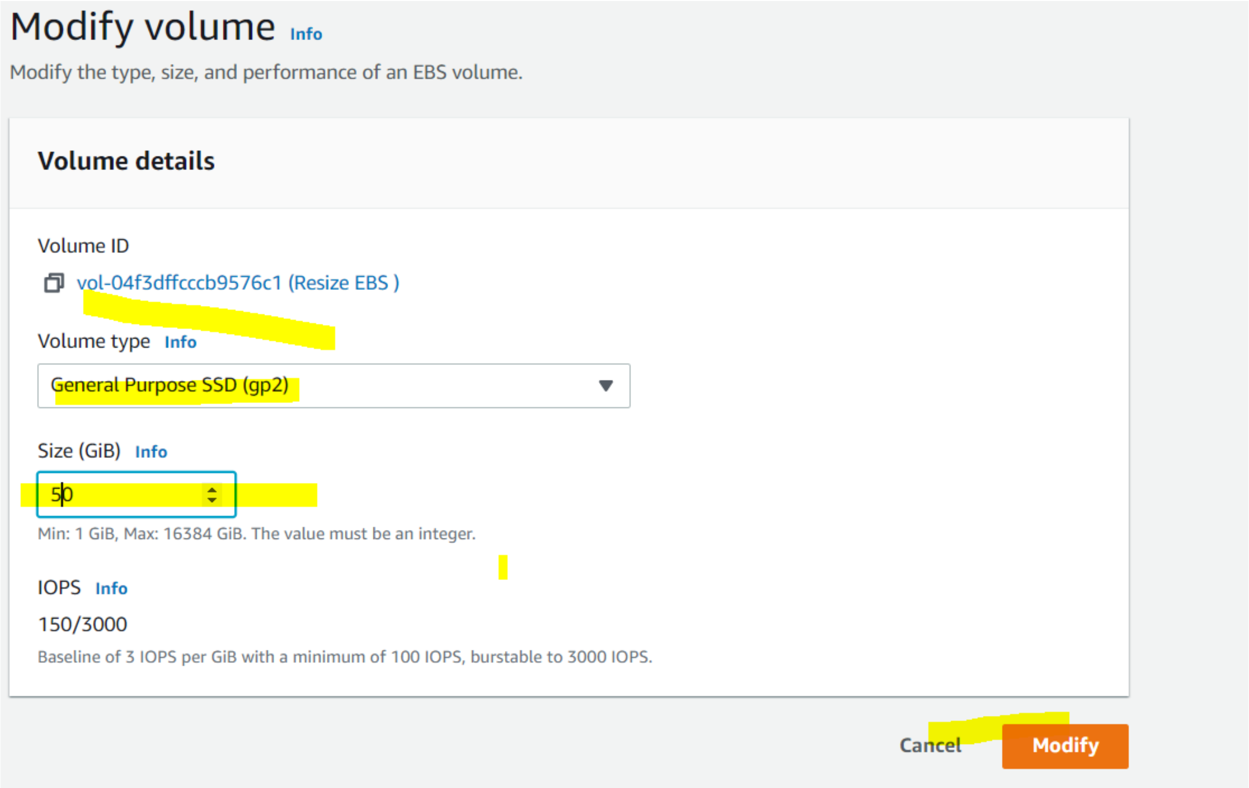
□	Name	Volume ID	Type	Size	IOPS	Throughput	Snapshot	Created	Availab
□	Resize EBS	vol-04f3dffcccb9576c1	gp2	30 GiB	100	-	snap-09e03b1...	2021/11/26 16:50 GMT+5:...	ap-sout

First, go to your volume and choose "Modify Volume" under "Actions."



Volumes (1/1)

☑	Name	Volume ID	Type	Size	IOPS	Throughput		Avail
☑	Resize EBS	vol-04f3dffcccb9576c1	gp2	30 GiB	100	-	16:50 GMT+5:...	ap-sc



Modify volume Info

Modify the type, size, and performance of an EBS volume.

Volume details

Volume ID: vol-04f3dffcccb9576c1 (Resize EBS)

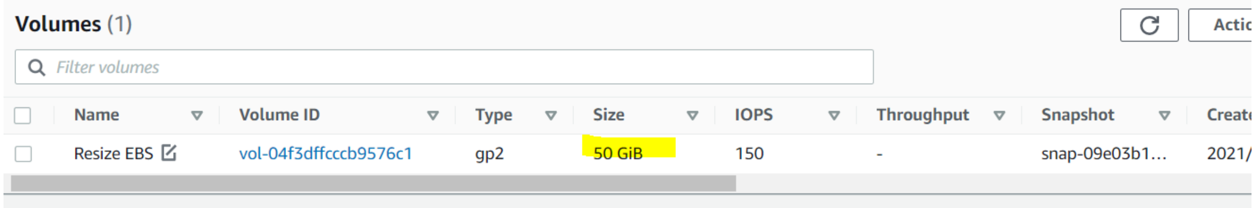
Volume type Info: General Purpose SSD (gp2)

Size (GiB) Info: 50

Min: 1 GiB, Max: 16384 GiB. The value must be an integer.

IOPS Info: 150/3000

Baseline of 3 IOPS per GiB with a minimum of 100 IOPS, burstable to 3000 IOPS.



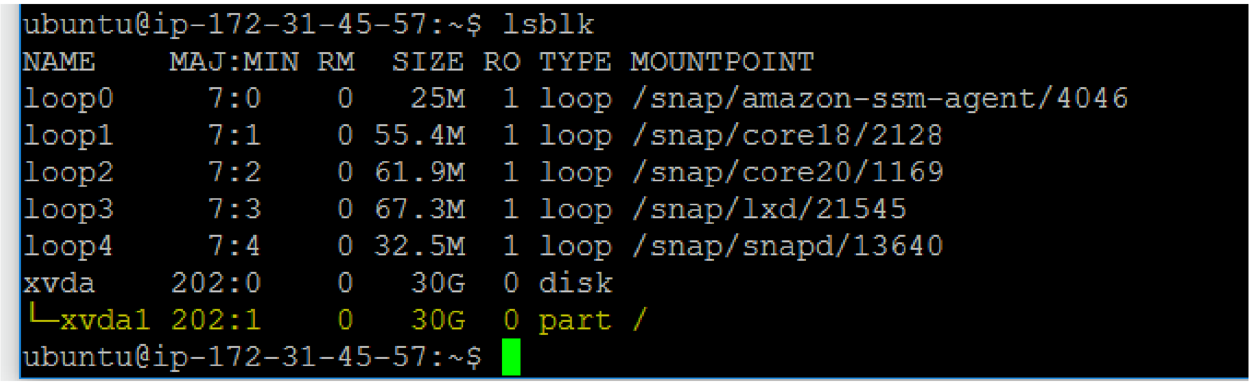
Volumes (1)

	Name	Volume ID	Type	Size	IOPS	Throughput	Snapshot	Creat
□	Resize EBS	vol-04f3dffcccb9576c1	gp2	50 GiB	150	-	snap-09e03b1...	2021/

Important Note: EBS Volume once increased, It cannot be reduced.

After the volume has been extended, the EC2 instance and the system both need to be adjusted to adapt to the new size. Note that you can do this adjustment either as a root or a user with sudo privileges.

The first step in this process is checking the partition size.

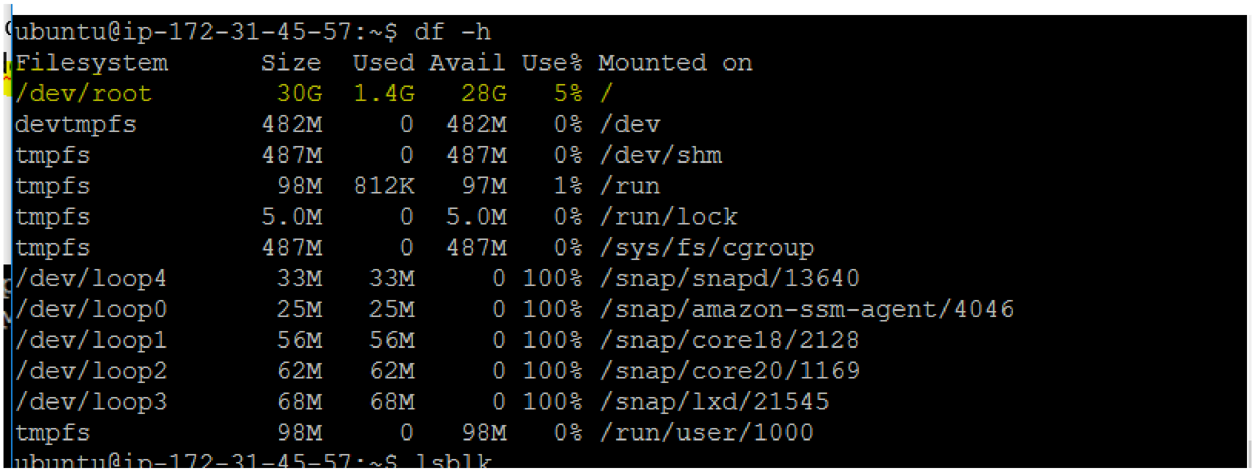


```
ubuntu@ip-172-31-45-57:~$ lsblk
NAME    MAJ:MIN RM  SIZE RO TYPE MOUNTPOINT
loop0     7:0    0   25M  1 loop /snap/amazon-ssm-agent/4046
loop1     7:1    0 55.4M  1 loop /snap/core18/2128
loop2     7:2    0 61.9M  1 loop /snap/core20/1169
loop3     7:3    0 67.3M  1 loop /snap/lxd/21545
loop4     7:4    0 32.5M  1 loop /snap/snapd/13640
xvda    202:0    0   30G  0 disk
└─xvda1 202:1    0   30G  0 part /
ubuntu@ip-172-31-45-57:~$
```

Note that there is a space between “/dev/xvda” and “1.” “1” refers to the partition number.

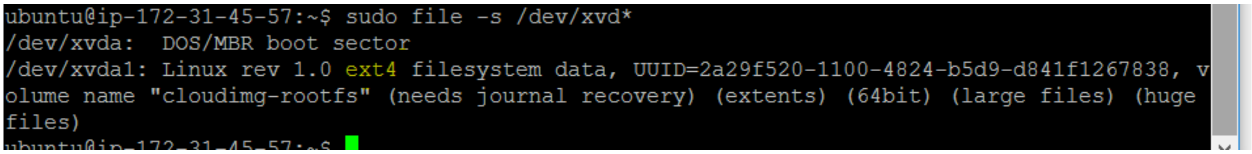
Checking the file system size

Next, the file system size needs to be checked. In the screenshot below, you will notice that it is still only registering 30GB, even though both the volume and partition have been resized.



```
ubuntu@ip-172-31-45-57:~$ df -h
Filesystem      Size  Used Avail Use% Mounted on
/dev/root        30G  1.4G   28G   5% /
devtmpfs        482M     0  482M   0% /dev
tmpfs           487M     0  487M   0% /dev/shm
tmpfs            98M  812K   97M   1% /run
tmpfs           5.0M     0  5.0M   0% /run/lock
tmpfs           487M     0  487M   0% /sys/fs/cgroup
/dev/loop4       33M   33M     0 100% /snap/snapd/13640
/dev/loop0       25M   25M     0 100% /snap/amazon-ssm-agent/4046
/dev/loop1       56M   56M     0 100% /snap/core18/2128
/dev/loop2       62M   62M     0 100% /snap/core20/1169
/dev/loop3       68M   68M     0 100% /snap/lxd/21545
tmpfs            98M     0   98M   0% /run/user/1000
ubuntu@ip-172-31-45-57:~$ lsblk
```

Before you start this process, make sure you know which file system you are working with. If you don’t already know, you can find out using the following command:



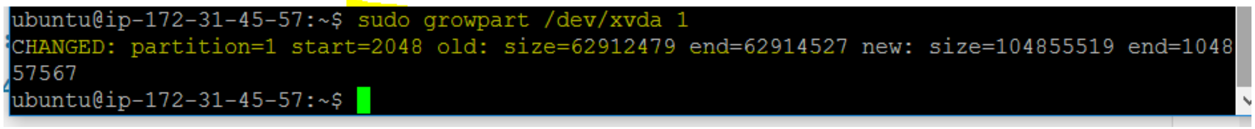
```
ubuntu@ip-172-31-45-57:~$ sudo file -s /dev/xvd*
/dev/xvda:  DOS/MBR boot sector
/dev/xvda1: Linux rev 1.0 ext4 filesystem data, UUID=2a29f520-1100-4824-b5d9-d841f1267838, v
olume name "cloudimg-rootfs" (needs journal recovery) (extents) (64bit) (large files) (huge
files)
ubuntu@ip-172-31-45-57:~$
```

If you were using an ext4 (or even older ext2 or ext3) file system, you could extend it using the “**resize2fs /dev/xvda1”** command.

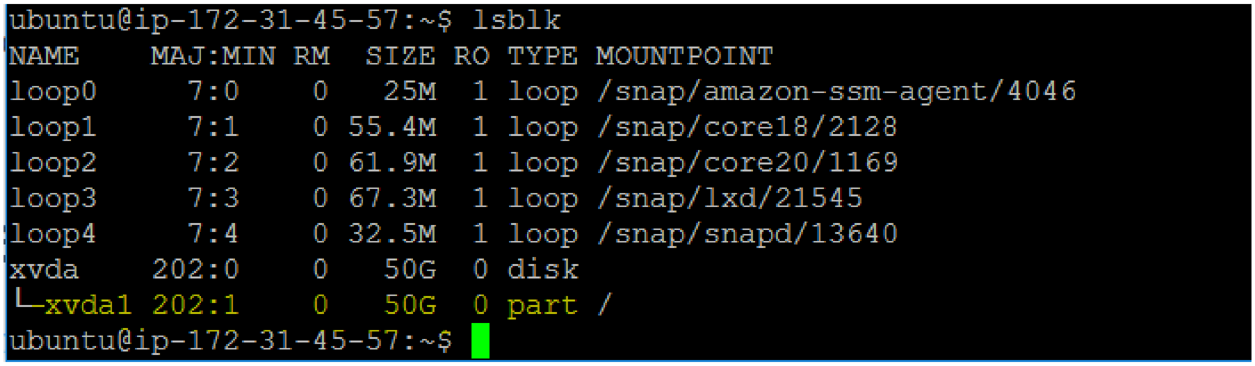
In our case, since the file system is XFS, we have to rely on the “**xfs_growfs”** tool, which should already be in the system. If not, you can install it yourself as part of the “**xfsprogs”** package.

Using this, we can proceed to extend the file system to match the volume and the partition size of 30GB. We will target the “/”, since that is where “/dev/xvda1” has been mounted.

To expand the partition, use the command shown in the screenshot below. After you do so, you will see that the partition has grown to match the volume size.



```
ubuntu@ip-172-31-45-57:~$ sudo growpart /dev/xvda 1
CHANGED: partition=1 start=2048 old: size=62912479 end=62914527 new: size=104855519 end=1048
57567
ubuntu@ip-172-31-45-57:~$
```



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ubuntu@ip-172-31-45-57:~$ lsblk
NAME    MAJ:MIN RM  SIZE RO TYPE MOUNTPOINT
loop0     7:0    0   25M  1 loop /snap/amazon-ssm-agent/4046
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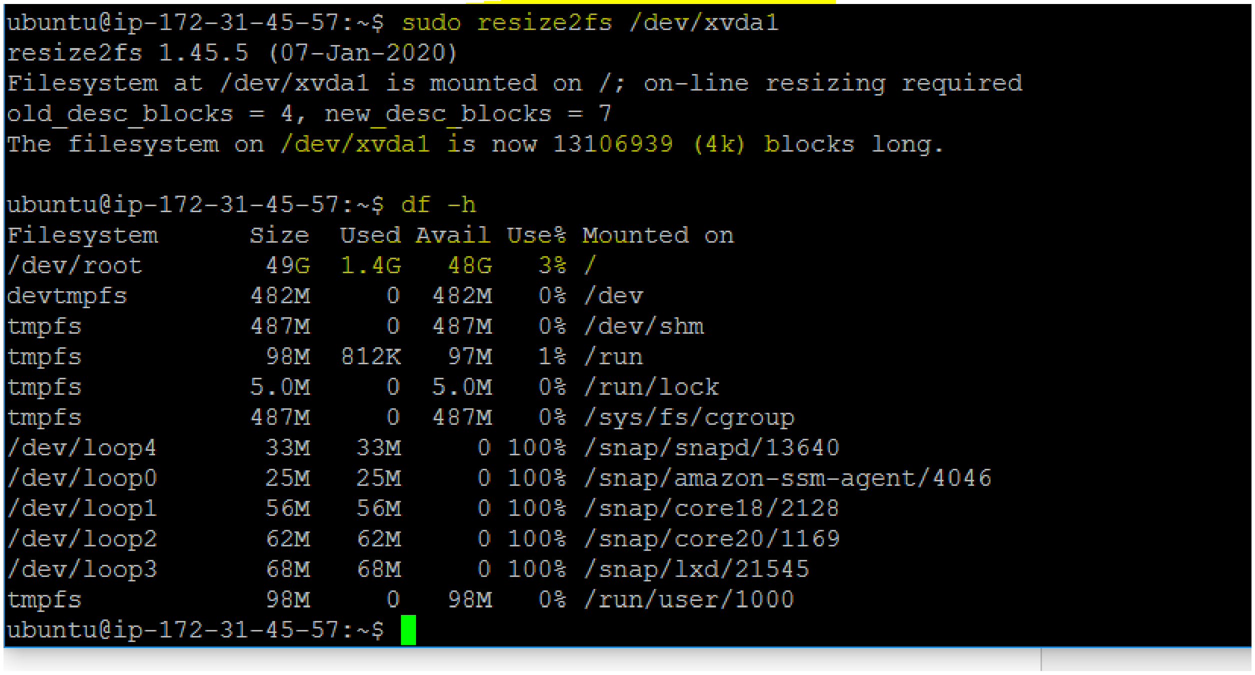
loop4     7:4    0 32.5M  1 loop /snap/snapd/13640
xvda    202:0    0   50G  0 disk
└─xvda1 202:1    0   50G  0 part /
ubuntu@ip-172-31-45-57:~$
```



```
ubuntu@ip-172-31-45-57:~$ sudo resize2fs /dev/xvda1
resize2fs 1.45.5 (07-Jan-2020)
Filesystem at /dev/xvda1 is mounted on /; on-line resizing required
old_desc_blocks = 4, new_desc_blocks = 7
The filesystem on /dev/xvda1 is now 13106939 (4k) blocks long.

ubuntu@ip-172-31-45-57:~$ df -h
Filesystem      Size  Used Avail Use% Mounted on
/dev/root        49G  1.4G   48G   3% /
devtmpfs        482M     0  482M   0% /dev
tmpfs           487M     0  487M   0% /dev/shm
tmpfs            98M  812K   97M   1% /run
tmpfs           5.0M     0  5.0M   0% /run/lock
tmpfs           487M     0  487M   0% /sys/fs/cgroup
/dev/loop4       33M   33M     0 100% /snap/snapd/13640
/dev/loop0       25M   25M     0 100% /snap/amazon-ssm-agent/4046
/dev/loop1       56M   56M     0 100% /snap/core18/2128
/dev/loop2       62M   62M     0 100% /snap/core20/1169
/dev/loop3       68M   68M     0 100% /snap/lxd/21545
tmpfs            98M     0   98M   0% /run/user/1000
ubuntu@ip-172-31-45-57:~$
```