

Task 1: Check Current Storage

lsblk, pvs, vgs, lvs, df -h

```
[ubuntu@ip-172-31-45-102:/$ cd /dev/
[ubuntu@ip-172-31-45-102:/dev$ 
[ubuntu@ip-172-31-45-102:/dev$ 
[ubuntu@ip-172-31-45-102:/dev$ lsblk
NAME                MAJ:MIN RM   SIZE RO TYPE MOUNTPOINTS
loop0                 7:0      0  27.6M  1 loop /snap/amazon-ssm-agent/11797
loop1                 7:1      0   74M  1 loop /snap/core22/2163
loop2                 7:2      0  50.9M  1 loop /snap/snapd/25577
loop3                 7:3      0  27.8M  1 loop /snap/amazon-ssm-agent/12322
loop4                 7:4      0  48.1M  1 loop /snap/snapd/25935
nvme0n1              259:0     0    8G  0 disk
├─nvme0n1p1          259:1     0    7G  0 part /
├─nvme0n1p14         259:2     0    4M  0 part
├─nvme0n1p15         259:3     0   106M  0 part /boot/efi
└─nvme0n1p16         259:4     0   913M  0 part /boot
nvme1n1              259:5     0    5G  0 disk
nvme2n1              259:6     0    9G  0 disk
nvme3n1              259:7     0    8G  0 disk
[ubuntu@ip-172-31-45-102:/dev$ 
[ubuntu@ip-172-31-45-102:/dev$ sudo pvs
PV          VG          Fmt Attr PSize PFree
/dev/nvme1n1 devops-vg lvm2 a--  <5.00g <5.00g
[ubuntu@ip-172-31-45-102:/dev$ 
[ubuntu@ip-172-31-45-102:/dev$ sudo vgs
VG          #PV #LV #SN Attr   VSize VFree
devops-vg   1   0   0 wz--n-  <5.00g <5.00g
[ubuntu@ip-172-31-45-102:/dev$ 
[ubuntu@ip-172-31-45-102:/dev$ df -h
df: -: No such file or directory
df: h: No such file or directory
[ubuntu@ip-172-31-45-102:/dev$ df -h
Filesystem      Size  Used Avail Use% Mounted on
/dev/root        6.8G  2.2G  4.6G  32% /
tmpfs            458M   0  458M   0% /dev/shm
tmpfs            183M  924K  182M   1% /run
tmpfs            5.0M   0   5.0M   0% /run/lock
efivarfs         128K  3.6K  120K   3% /sys/firmware/efi/efivars
/dev/nvme0n1p16  881M   89M  730M  11% /boot
/dev/nvme0n1p15  105M   6.2M   99M   6% /boot/efi
tmpfs            92M   12K   92M   1% /run/user/1000
[ubuntu@ip-172-31-45-102:/dev$
```

Task 2: Create Physical Volume

Task 3: Create Volume Group

Task 4: Create Logical Volume

```

[ubuntu@ip-172-31-45-102:/dev$ sudo pvcreate /dev/nvme2n1
Physical volume "/dev/nvme2n1" successfully created.
[ubuntu@ip-172-31-45-102:/dev$
[ubuntu@ip-172-31-45-102:/dev$ sudo vgcreate /dev/nvme2n1
No command with matching syntax recognised. Run 'vgcreate --help' for more information.
Correct command syntax is:
vgcreate VG_new PV ...

[ubuntu@ip-172-31-45-102:/dev$ sudo vgcreate cloud /dev/nvme2n1
Volume group "cloud" successfully created
[ubuntu@ip-172-31-45-102:/dev$
[ubuntu@ip-172-31-45-102:/dev$ sudo lvcreate -L 500M -n docker cloud
Logical volume "docker" created.
[ubuntu@ip-172-31-45-102:/dev$
[ubuntu@ip-172-31-45-102:/dev$ sudo pvdisplay
--- Physical volume ---
PV Name                /dev/nvme2n1
VG Name                cloud
PV Size                9.00 GiB / not usable 4.00 MiB
Allocatable           yes
PE Size                4.00 MiB
Total PE              2303
Free PE               2178
Allocated PE          125
PV UUID                p3RtoD-L7kQ-nx97-yUx9-Hsei-ZYf2-KVSV0u

--- Physical volume ---
PV Name                /dev/nvme1n1
VG Name                devops-vg
PV Size                5.00 GiB / not usable 4.00 MiB
Allocatable           yes
PE Size                4.00 MiB
Total PE              1279
Free PE               1279
Allocated PE          0
PV UUID                ptMU8y-cBC0-EG7D-U4jZ-5adV-Pxse-pb5obT

[ubuntu@ip-172-31-45-102:/dev$ sudo vgdisplay
--- Volume group ---
VG Name                cloud
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                0
Max PV                 0
Cur PV                1
Act PV                 1
VG Size                <9.00 GiB
PE Size                4.00 MiB
Total PE              2303
Alloc PE / Size        125 / 500.00 MiB
Free PE / Size         2178 / <8.51 GiB
VG UUID                hHLTdu-5VPh-Zpro-47Ph-QlMN-dWqh-FVQSQ1

--- Volume group ---
VG Name                devops-vg
System ID
Format                lvm2
Metadata Areas         1

```

```
[ubuntu@ip-172-31-45-102:/dev$ sudo vgdisplay
```

```
--- Volume group ---
```

```
VG Name                cloud
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                 0
Max PV                 0
Cur PV                 1
Act PV                 1
VG Size                 <9.00 GiB
PE Size                 4.00 MiB
Total PE                2303
Alloc PE / Size        125 / 500.00 MiB
Free PE / Size          2178 / <8.51 GiB
VG UUID                 hHLTdu-5VPh-Zpro-47Ph-QlMN-dWqh-FVQSQ1
```

```
--- Volume group ---
```

```
VG Name                devops-vg
System ID
Format                 lvm2
Metadata Areas         1
Metadata Sequence No   1
VG Access               read/write
VG Status               resizable
MAX LV                 0
Cur LV                 0
Open LV                 0
Max PV                 0
Cur PV                 1
Act PV                 1
VG Size                 <5.00 GiB
PE Size                 4.00 MiB
Total PE                1279
Alloc PE / Size        0 / 0
Free PE / Size          1279 / <5.00 GiB
VG UUID                 EEP5mM-f3mQ-RxbA-T83s-lxqL-8ocp-8DvE3F
```

```
[ubuntu@ip-172-31-45-102:/dev$ sudo lvdisplay
```

```
--- Logical volume ---
```

```
LV Path                /dev/cloud/docker
LV Name                 docker
VG Name                 cloud
LV UUID                 yfbtrK-xHYr-SGfV-Kz4c-MTeM-Vmdd-4xweFC
LV Write Access         read/write
LV Creation host, time  ip-172-31-45-102, 2026-02-10 17:10:58 +0000
LV Status                available
# open                   0
LV Size                  500.00 MiB
Current LE               125
Segments                 1
Allocation                inherit
Read ahead sectors       auto
- currently set to       256
Block device             252:0
```

```
ubuntu@ip-172-31-45-102:/dev$ █
```

Task 5: Format and Mount

Task 6: Extend the Volume

```
[ubuntu@ip-172-31-45-102:/dev$ sudo mkfs.ext4 /dev/cloud/docker
mke2fs 1.47.0 (5-Feb-2023)
/dev/cloud/docker contains a ext4 file system
    created on Tue Feb 10 18:30:53 2026
[Proceed anyway? (y,N) y
Creating filesystem with 128000 4k blocks and 128000 inodes
Filesystem UUID: 57c9acb4-775c-42b9-a968-bccb4f7f5d5a
Superblock backups stored on blocks:
    32768, 98304

Allocating group tables: done
Writing inode tables: done
Creating journal (4096 blocks): done
Writing superblocks and filesystem accounting information: done

[ubuntu@ip-172-31-45-102:/dev$ sudo mkdir -p /dev/mnt/docker
[ubuntu@ip-172-31-45-102:/dev$
[ubuntu@ip-172-31-45-102:/dev$ sudo mount /dev/cloud/docker /dev/mnt/docker
[ubuntu@ip-172-31-45-102:/dev$
[ubuntu@ip-172-31-45-102:/dev$ df -h
Filesystem                Size      Used Avail Use% Mounted on
/dev/root                  6.8G      2.2G   4.6G  32% /
tmpfs                      458M          0   458M   0% /dev/shm
tmpfs                      183M      928K   182M   1% /run
tmpfs                      5.0M          0   5.0M   0% /run/lock
efivarfs                  128K       3.6K   120K   3% /sys/firmware/efi/efivars
/dev/nvme0n1p16            881M       89M   730M  11% /boot
/dev/nvme0n1p15           105M       6.2M    99M   6% /boot/efi
tmpfs                      92M       12K    92M   1% /run/user/1000
/dev/mapper/cloud-docker  452M       24K   417M   1% /dev/mnt/docker
[ubuntu@ip-172-31-45-102:/dev$
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[ubuntu@ip-172-31-45-102:/dev$
[ubuntu@ip-172-31-45-102:/dev$
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