

Task 1: Check Current Storage

```
lsblk, pvs, vgs, lvs, df -h
```

```
[ubuntu@ip-172-31-45-102:~/dev]$ 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
  efivarsfs   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$ 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$ sudo lvcreate -L 500M -n docker cloud
  Logical volume "docker" created.
[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-Q1MN-dWqh-FVQSQL

  --- 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-Q1MN-dWqh-FVQSQL
```

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