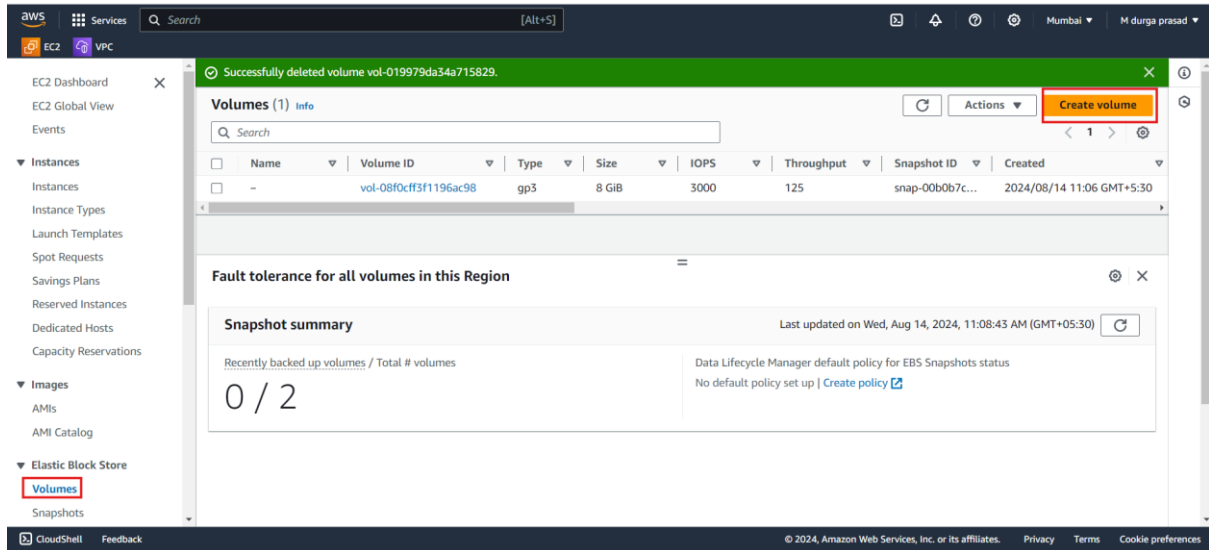# CONCAT LVM FILE SYSTEM IN AWS

First, we need to create volume as per requirement in volumes

Select volume type settings gp2, gp3, io1, io2, sc1, st1, standard

Select available zone as per standard and also volume encrypt the as per requirement also take a snap shot for volume

Availability Zone | Info

ap-south-1a ▼

Snapshot ID - *optional* | Info

Don't create volume from a snapshot ▼ ⟳

Encryption | Info
Use Amazon EBS encryption as an encryption solution for your EBS resources associated with your EC2 instances.
☐ Encrypt this volume

Tags - *optional* Info
A tag is a label that you assign to an AWS resource. Each tag consists of a key and an optional value. You can use tags to search and filter your resources or track your AWS costs.

No tags associated with the resource.

Add tag

You can add 50 more tags.

Give a tap for easy to identifying as per standard

Snapshot summary Info ⟳

🕐 Click refresh to view backup information
The volume type that you select and the tags that you assign determine whether the volume will be backed up by any Data Lifecycle Manager policies.

Cancel   **Create volume**

Check the volumes tab the given volume create or not

✓ Successfully created volume vol-0c97aa4b09535a339.   ✕

Volumes (1/2) Info   ⟳   Actions ▼   **Create volume**

Q Search   ⟨ 1 ⟩ ⚙

	Name ▽	Volume ID ▽	Type ▽	Size ▽	IOPS ▽	Throughput ▽	Snapshot ID ▽	Created ▽
☐	–	vol-08f0cff3f1196ac98	gp3	8 GiB	3000	125	snap-00b0b7c...	2024/08/14 11:06 GMT+5:30
☑	–	vol-0c97aa4b09535a339	gp2	1 GiB	100	–	–	2024/08/14 11:20 GMT+5:30

check the voume tags as per requirment

Check the volume state in available or pending
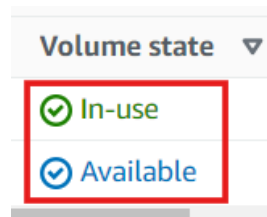
After that go to volume actions and attach the volume
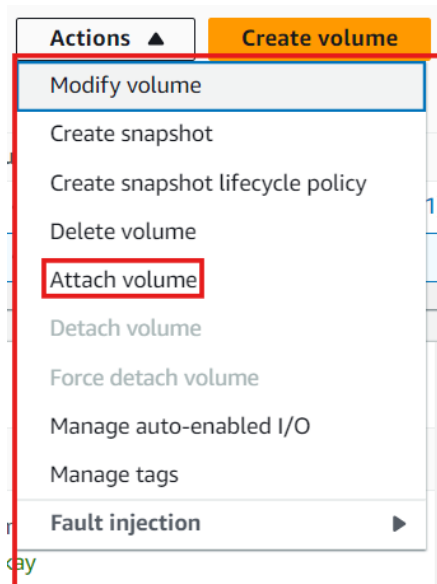
Then go to the attach volume tab

EC2 > Volumes > vol-0c97aa4b09535a339 > Attach volume

Attach volume Info

Attach a volume to an instance to use it as you would a regular physical hard disk drive.
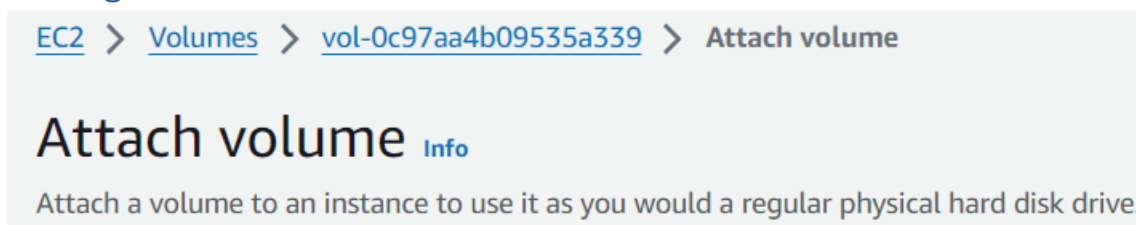
Select the instance id which instance to attach as per running instance

Instance   Info

i-0155f92a582c12e50

Q |

i-0155f92a582c12e50
(vara-sys-1) (running)

Basic details

Q

/dev/sdb	Linux ✓
/dev/sdc	Linux
/dev/sdd	Linux
/dev/sde	Linux
/dev/sdf	Linux
/dev/sdg	Linux
/dev/sdh	Linux
/dev/sdi	Linux
/dev/sdb	

Select the volume name as per standard & tab the attach volume

Basic details

Volume ID

vol-0c97aa4b09535a339 (concat lv)

Availability Zone

ap-south-1a

Instance   Info

i-0155f92a582c12e50

Only instances in the same Availability Zone as the selected volume are displayed.

Device name   Info

/dev/sdb

Recommended device names for Linux: /dev/xvda for root volume. /dev/sd[f-p] for data volumes.

ⓘ Newer Linux kernels may rename your devices to **/dev/xvdf** through **/dev/xvdp** internally, even when the device name entered here (and shown in the details) is **/dev/sdf** through **/dev/sdp.**

Cancel   **Attach volume**

If you want to delete the volume then first need to detach or force detach

Force detach vol-0c97aa4b09535a339?   ✕

Forced detachment of a stuck volume can cause damage to the file system or the data it contains. Only use this option as a last resort to detach a volume from a failed instance, or if you are detaching a volume with the intention of deleting it.

Are you sure that you want to force detach volume vol-0c97aa4b09535a339?

To confirm detachment, type *detach* in this field.

detach

Cancel   **Force detach**

check the volume is detect or not in instance level in putty

by using the scan and lsblk

```
[root@vara-sys-01 ~]#
[root@vara-sys-01 ~]# echo " - - - " > /sys/class/scsi_host/host0/s
scan                    sg_tablesize            subsystem/
sg_prot_tablesize    state                    supported_mode
[root@vara-sys-01 ~]# echo " - - - " > /sys/class/scsi_host/host0/scan
[root@vara-sys-01 ~]# lsblk
NAME        MAJ:MIN RM SIZE RO TYPE MOUNTPOINTS
xvda        202:0    0   8G  0 disk
├─xvda1     202:1    0   8G  0 part /
├─xvda127 259:0     0   1M  0 part
└─xvda128 259:1     0  10M  0 part /boot/efi
xvdb        202:16   0   1G  0 disk
[root@vara-sys-01 ~]#
[root@vara-sys-01 ~]#
```

Then if want created into physical volume then command not because
the lvm2 package not installed after that we need to install that
required package by using yum module

```
[root@vara-sys-01 ~]#
[root@vara-sys-01 ~]# pvcreate /dev/xvd
xvda      xvda1     xvda127  xvda128   xvdb
[root@vara-sys-01 ~]# pvcreate /dev/xvdb
-bash: pvcreate: command not found
[root@vara-sys-01 ~]#
[root@vara-sys-01 ~]# yum clean all
17 files removed
[root@vara-sys-01 ~]# yum repolist
repo id                         repo name
amazonlinux                     Amazon Linux 2023 repository
kernel-livepatch                Amazon Linux 2023 Kernel Livepatch repository
[root@vara-sys-01 ~]# yum install lvm2
Amazon Linux 2023 repository                                    50 MB/s |  26 MB
```

#yum install lvm2

```
[root@vara-sys-01 ~]# yum repolist
repo id                         repo name
amazonlinux                     Amazon Linux 2023 repository
kernel-livepatch                Amazon Linux 2023 Kernel Livepatch repository
[root@vara-sys-01 ~]# yum install lvm2
Amazon Linux 2023 repository                              50 MB/s |  26 MB    00:00
Amazon Linux 2023 Kernel Livepatch repository            58 kB/s |  11 kB    00:00
Dependencies resolved.
================================================================================
 Package              Architecture Version                    Repository    Size
================================================================================
Installing:
 lvm2                 x86_64       2.03.16-1.amzn2023.0.5      amazonlinux   1.5 M
Installing dependencies:
 device-mapper-event       x86_64  1.02.185-1.amzn2023.0.5    amazonlinux    31 k
 device-mapper-event-libs  x86_64  1.02.185-1.amzn2023.0.5    amazonlinux    30 k
 device-mapper-persistent-data x86_64 0.9.0-7.amzn2023.0.2    amazonlinux   781 k
 lvm2-libs                 x86_64  2.03.16-1.amzn2023.0.5     amazonlinux   985 k

Transaction Summary
================================================================================
Install  5 Packages

Total download size: 3.2 M
Installed size: 9.3 M
Is this ok [y/N]:
```

```
Is this ok [y/N]: y
Downloading Packages:
(1/5): device-mapper-event-libs-1.02.185-1.amzn2023.0.5.x86_64.rpm          482 kB/s |  30 kB     00:00
(2/5): device-mapper-event-1.02.185-1.amzn2023.0.5.x86_64.rpm              380 kB/s |  31 kB     00:00
(3/5): device-mapper-persistent-data-0.9.0-7.amzn2023.0.2.x86_64.rpm       7.1 MB/s | 781 kB     00:00
(4/5): lvm2-2.03.16-1.amzn2023.0.5.x86_64.rpm                               25 MB/s | 1.5 MB     00:00
(5/5): lvm2-libs-2.03.16-1.amzn2023.0.5.x86_64.rpm                          13 MB/s | 985 kB     00:00
--------------------------------------------------------------------------------------------------------
Total                                                                       15 MB/s | 3.2 MB     00:00
Running transaction check
Transaction check succeeded.
Running transaction test
Transaction test succeeded.
Running transaction
  Preparing        :                                                                           1/1
  Installing       : device-mapper-event-libs-1.02.185-1.amzn2023.0.5.x86_64                    1/5
  Installing       : device-mapper-event-1.02.185-1.amzn2023.0.5.x86_64                         2/5
  Running scriptlet: device-mapper-event-1.02.185-1.amzn2023.0.5.x86_64                         2/5
Created symlink /etc/systemd/system/sockets.target.wants/dm-event.socket → /usr/lib/systemd/system/dm-event
.socket.

  Installing       : lvm2-libs-2.03.16-1.amzn2023.0.5.x86_64                                    3/5
  Installing       : device-mapper-persistent-data-0.9.0-7.amzn2023.0.2.x86_64                  4/5
  Installing       : lvm2-2.03.16-1.amzn2023.0.5.x86_64                                         5/5
  Running scriptlet: lvm2-2.03.16-1.amzn2023.0.5.x86_64                                         5/5
Created symlink /etc/systemd/system/sysinit.target.wants/lvm2-monitor.service → /usr/lib/systemd/system/lvm
```

Check the installation process

```
Created symlink /etc/systemd/system/sysinit.target.wants/lvm2-monitor.service → /usr/lib/systemd/system/lvm
2-monitor.service.
Created symlink /etc/systemd/system/sysinit.target.wants/lvm2-lvmpolld.socket → /usr/lib/systemd/system/lvm
2-lvmpolld.socket.

  Verifying        : device-mapper-event-1.02.185-1.amzn2023.0.5.x86_64                         1/5
  Verifying        : device-mapper-event-libs-1.02.185-1.amzn2023.0.5.x86_64                    2/5
  Verifying        : device-mapper-persistent-data-0.9.0-7.amzn2023.0.2.x86_64                  3/5
  Verifying        : lvm2-2.03.16-1.amzn2023.0.5.x86_64                                         4/5
  Verifying        : lvm2-libs-2.03.16-1.amzn2023.0.5.x86_64                                    5/5

Installed:
  device-mapper-event-1.02.185-1.amzn2023.0.5.x86_64
  device-mapper-event-libs-1.02.185-1.amzn2023.0.5.x86_64
  device-mapper-persistent-data-0.9.0-7.amzn2023.0.2.x86_64
  lvm2-2.03.16-1.amzn2023.0.5.x86_64
  lvm2-libs-2.03.16-1.amzn2023.0.5.x86_64

Complete!
[root@vara-sys-01 ~]#
```

After that installation create physical volume for that device check the #pvs, #pvdisplay, #pvs -v

```
[root@vara-sys-01 ~]#
[root@vara-sys-01 ~]# pvcreate /dev/xvdb
  Physical volume "/dev/xvdb" successfully created.
[root@vara-sys-01 ~]#
[root@vara-sys-01 ~]# pvs
  PV         VG Fmt  Attr PSize PFree
  /dev/sdb      lvm2 ---  1.00g 1.00g
[root@vara-sys-01 ~]# pvscan -v
  PV /dev/sdb                          lvm2 [1.00 GiB]
  Total: 1 [1.00 GiB] / in use: 0 [0    ] / in no VG: 1 [1.00 GiB]
[root@vara-sys-01 ~]#
[root@vara-sys-01 ~]# pvdisplay
  "/dev/sdb" is a new physical volume of "1.00 GiB"
  --- NEW Physical volume ---
  PV Name               /dev/sdb
  VG Name
  PV Size               1.00 GiB
  Allocatable           NO
  PE Size               0
  Total PE              0
  Free PE               0
  Allocated PE          0
  PV UUID               9LD4Pi-Wv7v-DkZC-Hd5y-Deyg-V9ie-6OHCcX

[root@vara-sys-01 ~]# pvs -v
  PV         VG Fmt  Attr PSize PFree DevSize PV UUID
  /dev/sdb      lvm2 ---  1.00g 1.00g   1.00g 9LD4Pi-Wv7v-DkZC-Hd5y-Deyg-V9ie-6OHCcX
[root@vara-sys-01 ~]#
```

Then create volume group from that volume & check the volume group is created or not by using # vgs, #vgs-v, #vgscan, #vgdisplay

```
[root@vara-sys-01 ~]#
[root@vara-sys-01 ~]#
[root@vara-sys-01 ~]# vgcreate vg1 /dev/xvdb
  Volume group "vg1" successfully created
[root@vara-sys-01 ~]#
[root@vara-sys-01 ~]# vgs
  VG   #PV #LV #SN Attr   VSize    VFree
  vg1    1   0   0 wz--n- 1020.00m 1020.00m
[root@vara-sys-01 ~]#
[root@vara-sys-01 ~]# vgs -v
  VG  Attr   Ext    #PV #LV #SN VSize    VFree    VG UUID                                 VProfile
  vg1 wz--n- 4.00m   1   0   0 1020.00m 1020.00m aalbf5-6eEb-ZetD-dzjx-DZaV-mcAj-REBMSa
[root@vara-sys-01 ~]#
[root@vara-sys-01 ~]# vgscan
  Found volume group "vg1" using metadata type lvm2
[root@vara-sys-01 ~]#
[root@vara-sys-01 ~]# vgscan -v
  Found volume group "vg1" using metadata type lvm2
[root@vara-sys-01 ~]#
```

```
[root@vara-sys-01 ~]#
[root@vara-sys-01 ~]# vgdisplay
  --- Volume group ---
  VG Name               vg1
  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               1020.00 MiB
  PE Size               4.00 MiB
  Total PE              255
  Alloc PE / Size       0 / 0
  Free  PE / Size       255 / 1020.00 MiB
  VG UUID               aalbf5-6eEb-ZetD-dzjx-DZaV-mcAj-REBMSa

[root@vara-sys-01 ~]#
```

After that create concat lv as per requried size there are three manners

1 . human readable # lvcreate-L +size(G,M) -n lvname vgname

2. by using physical extends # lvcreate -l PE's-n lvname vgname

```
[root@vara-sys-017M ~]#
[root@vara-sys-017M ~]# lvcreate -l 100%FREE -n concatlv vg1
  Logical volume "concatlv" created.
[root@vara-sys-017M ~]#
[root@vara-sys-017M ~]# lvcreate -l 255 -n concatlv vg1
  Logical volume "concatlv" created.
[root@vara-sys-017M ~]#
```

Then check the lv is created or not by using these commands

lvs, # lvscan, # lvs --segment, # lvdisplay

If want to remove by using the # lvremove <device path>

Then make file system in that logical voume and create mount point as per requirement

mkfs-t ext4 <concat lvpath>

mkdir <mount point name> after that permanent in the file system tab file by using # vi /etc/fstab also check the # cat /etc/fstab

```
[root@vara-sys-017M ~]#
[root@vara-sys-017M ~]# mkfs -t ext4 /dev/vg1/concatlv
mke2fs 1.46.5 (30-Dec-2021)
Creating filesystem with 261120 4k blocks and 65280 inodes
Filesystem UUID: 91752574-ec09-4c76-bf78-c709fc3824f0
Superblock backups stored on blocks:
        32768, 98304, 163840, 229376

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

[root@vara-sys-017M ~]#
[root@vara-sys-017M ~]# mkdir /data
[root@vara-sys-017M ~]#
[root@vara-sys-017M ~]# cat /etc/fstab
#
UUID=2277f5ea-ebeb-42da-a2e1-3b9cf1c1bca9     /        xfs     defaults,noatime  1  1
UUID=E239-DD44          /boot/efi      vfat    defaults,noatime,uid=0,gid=0,umask=0077,shortname=winnt,x-sys
temd.automount 0 2
/dev/vg1/concatlv       /data   ext4    defaults      0      0
[root@vara-sys-017M ~]#
```

Then mount the file system # mount <mount point name>

Check the file system mounted or not

By using # df-h or # df-h <mount point name>

```
[root@vara-sys-017M ~]# mount /data
[root@vara-sys-017M ~]#
[root@vara-sys-017M ~]# df -h
Filesystem               Size  Used Avail Use% Mounted on
devtmpfs                 4.0M     0  4.0M   0% /dev
tmpfs                    475M     0  475M   0% /dev/shm
tmpfs                    190M  2.9M  188M   2% /run
/dev/xvda1               8.0G  1.6G  6.4G  20% /
tmpfs                    475M     0  475M   0% /tmp
/dev/xvda128              10M  1.3M  8.7M  13% /boot/efi
tmpfs                     95M     0   95M   0% /run/user/0
/dev/mapper/vg1-concatlv 986M   24K  919M   1% /data
[root@vara-sys-017M ~]#
[root@vara-sys-017M ~]# df -h /data
Filesystem               Size  Used Avail Use% Mounted on
/dev/mapper/vg1-concatlv 986M   24K  919M   1% /data
[root@vara-sys-017M ~]#
```