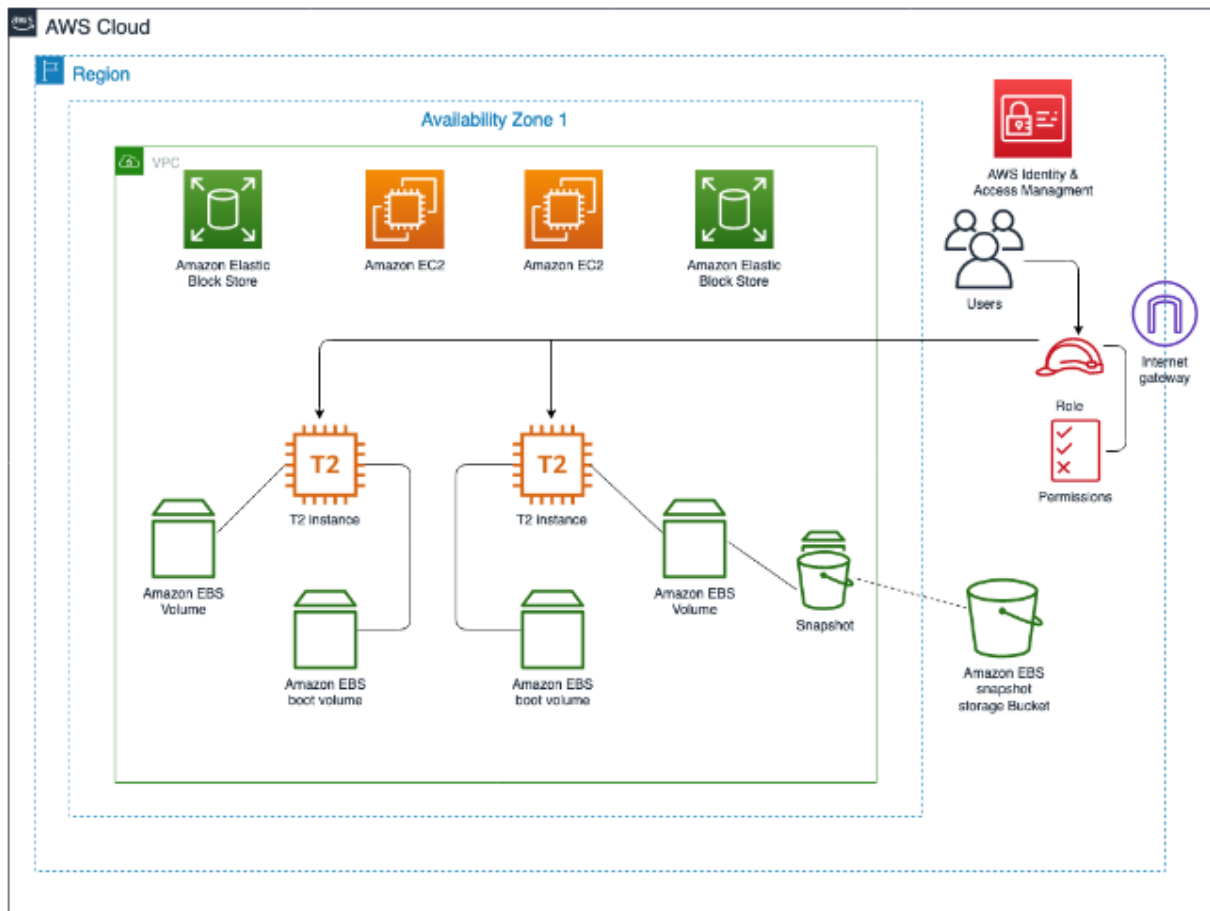


Introduction to Amazon Elastic Block Store (Amazon EBS).



Task 1: Create and attach an EBS volume to an EC2 instance.

- Task 1.1: Name existing EBS volumes.

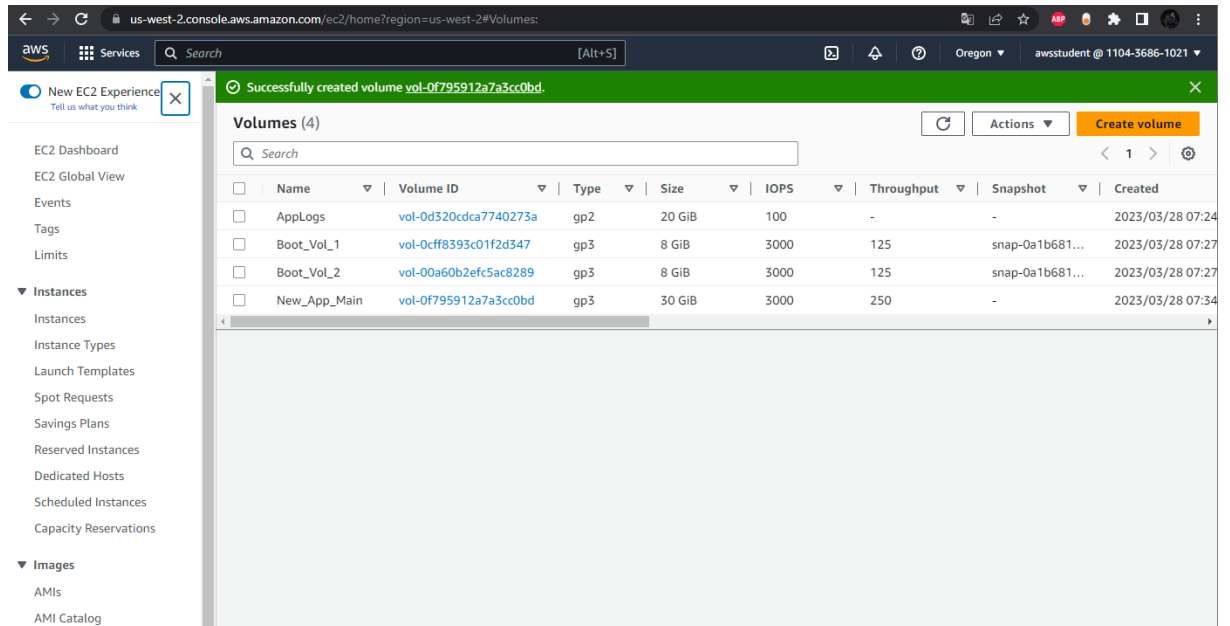
The screenshot shows the AWS Management Console Volumes page. The table lists the following volumes:

	Name	Volume ID	Type	Size	IOPS	Throughput	Snapshot	Created
<input type="checkbox"/>	AppLogs	vol-0d320cda7740273a	gp2	20 GiB	100	-	-	2023/03/28 07:24
<input type="checkbox"/>	Boot_Vol_1	vol-0cff8393c01f2d347	gp3	8 GiB	3000	125	snap-0a1b681...	2023/03/28 07:27
<input checked="" type="checkbox"/>	Boot_Vol_2	vol-00a60b2efc5ac8289	gp3	8 GiB	3000	125	snap-0a1b681...	2023/03/28 07:27

- Renaming the volumes.

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- Task 1.2: Create an EBS volume and Task 1.3: Attach EBS volume to an EC2 instance.



- Creating a new volume.

Task 2: Create and configure a file system on an attached EBS volume.

```
Session ID: awsstudent-098dab7a53941f9a8 Instance ID: i-0e8f0767fddff4de5 Terminate

sh-4.2$ df -h
Filesystem      Size  Used Avail Use% Mounted on
devtmpfs        465M   0  465M   0% /dev
tmpfs           473M   0  473M   0% /dev/shm
tmpfs           473M  356K  472M   1% /run
tmpfs           473M   0  473M   0% /sys/fs/cgroup
/dev/nvme0n1p1  8.0G  1.5G   6.5G  19% /

sh-4.2$ sudo mkfs -t ext3 /dev/sdf
mke2fs 1.42.9 (28-Dec-2013)
Filesystem label=
OS type: Linux
Block size=4096 (log=2)
Fragment size=4096 (log=2)
Stride=0 blocks, Stripe width=0 blocks
1966080 inodes, 7864320 blocks
393216 blocks (5.00%) reserved for the super user
First data block=0
Maximum filesystem blocks=4294967296
240 block groups
32768 blocks per group, 32768 fragments per group
8192 inodes per group
Superblock backups stored on blocks:
    32768, 98304, 163840, 229376, 294912, 819200, 884736, 1605632, 2654208,
    4096000

Allocating group tables: done
Writing inode tables: done
Creating journal (32768 blocks): done
Writing superblocks and filesystem accounting information: done

sh-4.2$
```

- df -h for checking the free disk space available, and creating a file system.

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```
sh-4.2$ sudo mkdir /mnt/data-store
sh-4.2$ sudo mount /dev/sdf /mnt/data-store
sh-4.2$ echo "/dev/sdf /mnt/data-store ext3 defaults,noatime 1 2" | sudo tee -a /etc/fstab
sh-4.2$ cat /etc/fstab
#
UUID=9da90cbe-ac2c-449c-ba5c-c06e3466d676 / xfs defaults,noatime 1 1
/dev/sdf /mnt/data-store ext3 defaults,noatime 1 2
sh-4.2$ df -h
Filesystem      Size  Used Avail Use% Mounted on
devtmpfs        465M   0  465M   0% /dev
tmpfs           473M   0  473M   0% /dev/shm
tmpfs           473M 356K  472M   1% /run
tmpfs           473M   0  473M   0% /sys/fs/cgroup
/dev/nvme0n1p1  8.0G  1.5G   6.5G  19% /
/dev/nvme1n1    30G  156K   28G   1% /mnt/data-store
sh-4.2$
```

- Creating directory, attaching file system to the storage device.

Task 3: Modify the EBS volume size and expand the file system on the volume.

- 3.1: Modify the size of an existing EBS volume(New_App_Main).

Requested volume modification for volume vol-0f795912a7a3cc0bd.
The volume is being modified.

Volumes (4)									
	Name	Volume ID	Type	Size	IOPS	Throughput	Snapshot	Created	
<input type="checkbox"/>	AppLogs	vol-0d320cdca7740273a	gp2	20 GiB	100	-	-	2023/03/28 07:24	
<input type="checkbox"/>	Boot_Vol_1	vol-0cff8393c01f2d347	gp3	8 GiB	3000	125	snap-0a1b681...	2023/03/28 07:27	
<input type="checkbox"/>	Boot_Vol_2	vol-00a60b2efc5ac8289	gp3	8 GiB	3000	125	snap-0a1b681...	2023/03/28 07:27	
<input type="checkbox"/>	New_App_Main	vol-0f795912a7a3cc0bd	gp3	30 GiB	3000	250	-	2023/03/28 07:34	

- 3.2: Expand the volume of your file system.

```
sh-4.2$ lsblk
NAME                MAJ:MIN RM  SIZE RO TYPE MOUNTPOINT
nvme0n1             259:0    0    8G  0 disk
├─nvme0n1p1         259:1    0    8G  0 part /
└─nvme0n1p128       259:2    0    1M  0 part
nvme1n1             259:3    0   50G  0 disk /mnt/data-store
sh-4.2$
```

- Listing all available block devices.

```
sh-4.2$ df -h
Filesystem      Size  Used Avail Use% Mounted on
devtmpfs        465M   0  465M   0% /dev
tmpfs           473M   0  473M   0% /dev/shm
tmpfs           473M 356K  472M   1% /run
tmpfs           473M   0  473M   0% /sys/fs/cgroup
/dev/nvme0n1p1  8.0G  1.5G   6.5G  19% /
/dev/nvme1n1    50G   160K   47G   1% /mnt/data-store
sh-4.2$
```

- Resized file system from 30 to 50 GB.

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Task 4: Modify the EBS volume type (attached to EC2 instance) and provisioned performance for an existing application.

EC2 > Volumes > vol-0d320cdca7740273a > Modify volume

Modify volume [Info](#)

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

Volume details

Volume ID
vol-0d320cdca7740273a (AppLogs)

Volume type [Info](#)
General Purpose SSD (gp3) ▼

Size (GiB) [Info](#)
20
Min: 1 GiB, Max: 16384 GiB. The value must be an integer.

IOPS [Info](#)
6000
Min: 3000 IOPS, Max: 16000 IOPS. The value must be an integer.

Throughput (MiB/s) [Info](#)
250
Min: 125 MiB, Max: 1000 MiB. Baseline: 125 MiB/s.

Cancel [Modify](#)

Task 5: Configure a snapshot for an existing EBS volume.

- Created snapshot for App_Main_Snap.

Snapshots (1)

Owned by me

[Recycle Bin](#) [Actions](#) [Create snapshot](#)

<input type="checkbox"/>	Name	Snapshot ID	Size	Description	Storage...	Snapshot status	Started
<input type="checkbox"/>	App_Main_Snap	snap-04ce91377bd24105d	50 GiB	Snapshot of App_Main	Standard	Pending	2023/03/28

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Task 6: Restore an EBS volume from an existing snapshot.

```
Session ID: awsstudent-0d5ed0c555330bed4 Instance ID: i-0e8f0767ffdf4de5 Terminate
sh-4.2$ sudo mkdir /mnt/data-store2
sh-4.2$ sudo mount /dev/sdg /mnt/data-store2
sh-4.2$ lsblk
NAME                                MAJ:MIN RM SIZE RO TYPE MOUNTPOINT
nvme0n1                             259:0    0  8G  0 disk 
├─nvme0n1p1                         259:1    0  8G  0 part /
├─nvme0n1p128                       259:2    0  1M  0 part 
nvme1n1                             259:3    0 50G  0 disk /mnt/data-store
nvme2n1                             259:4    0 55G  0 disk /mnt/data-store2
sh-4.2$
```

- Session manager on the replica EC2 instance.

```
sh-4.2$ df -h
Filesystem      Size  Used Avail Use% Mounted on
devtmpfs        465M   0  465M   0% /dev
tmpfs           473M   0  473M   0% /dev/shm
tmpfs           473M 420K  472M   1% /run
tmpfs           473M   0  473M   0% /sys/fs/cgroup
/dev/nvme0n1p1  8.0G  1.5G   6.5G  19% /
/dev/nvme1n1    50G  160K   47G   1% /mnt/data-store
tmpfs           95M   0   95M   0% /run/user/0
/dev/nvme2n1    50G  160K   47G   1% /mnt/data-store2
sh-4.2$ sudo resize2fs /dev/nvme2n1
resize2fs 1.42.9 (28-Dec-2013)
Filesystem at /dev/nvme2n1 is mounted on /mnt/data-store2; on-line resizing required
old_desc_blocks = 4, new_desc_blocks = 4
The filesystem on /dev/nvme2n1 is now 14417920 blocks long.

sh-4.2$ df -h
Filesystem      Size  Used Avail Use% Mounted on
devtmpfs        465M   0  465M   0% /dev
tmpfs           473M   0  473M   0% /dev/shm
tmpfs           473M 420K  472M   1% /run
tmpfs           473M   0  473M   0% /sys/fs/cgroup
/dev/nvme0n1p1  8.0G  1.5G   6.5G  19% /
/dev/nvme1n1    50G  160K   47G   1% /mnt/data-store
tmpfs           95M   0   95M   0% /run/user/0
/dev/nvme2n1    54G  160K   52G   1% /mnt/data-store2
sh-4.2$ ls /mnt/data-store2/
file.txt lost+found
sh-4.2$ cat /mnt/data-store2/file.txt
some text has been written
sh-4.2$
```

- Resizing the file system(the first and second sizes didn't match):
-/dev/nvm2n1 -> 50G and -/dev/nvm2n1 ->54G.

Introduction to Amazon Elastic Block Store (Amazon EBS).

(Challenge) Task 7:

```
Session ID: awsstudent-05ad98c23a6e7ecdb Instance ID: i-0e8f0767ffdf4de5

sh-4.2$ sudo mkfs -t ext3 /dev/sdh
mke2fs 1.42.9 (28-Dec-2013)
Filesystem label=
OS type: Linux
Block size=4096 (log=2)
Fragment size=4096 (log=2)
Stride=0 blocks, Stripe width=0 blocks
3276800 inodes, 13107200 blocks
655360 blocks (5.00%) reserved for the super user
First data block=0
Maximum filesystem blocks=4294967296
400 block groups
32768 blocks per group, 32768 fragments per group
8192 inodes per group
Superblock backups stored on blocks:
    32768, 98304, 163840, 229376, 294912, 819200, 884736, 1605632, 2654208,
    4096000, 7962624, 11239424

Allocating group tables: done
Writing inode tables: done
Creating journal (32768 blocks): done
Writing superblocks and filesystem accounting information: done

sh-4.2$
```

- The output from the challenge task: Creating ext3 Linux file system.

```
sh-4.2$ sudo mkdir /mnt/performance-store
sh-4.2$ sudo mount /dev/sdh /mnt/performance-store
sh-4.2$ echo "/dev/sdh /mnt/performance-store ext3 defaults, noatime 1 2" | sudo tee -a /etc/fstab
/dev/sdh /mnt/performance-store ext3 defaults, noatime 1 2
sh-4.2$ cat /etc/fstab
#
UUID=9da90cbe-ac2c-449c-ba5c-c06e3466d676 / xfs defaults,noatime 1 1
/dev/sdf /mnt/data-store ext3 defaults,noatime 1 2
/dev/sdh /mnt/performance-store ext3 defaults, noatime 1 2
sh-4.2$ df -h
Filesystem      Size  Used Avail Use% Mounted on
devtmpfs        465M   0  465M   0% /dev
tmpfs           473M   0  473M   0% /dev/shm
tmpfs           473M 428K  472M   1% /run
tmpfs           473M   0  473M   0% /sys/fs/cgroup
/dev/nvme0n1p1  8.0G  1.5G   6.5G  19% /
/dev/nvme1n1    50G  160K   47G   1% /mnt/data-store
tmpfs           95M   0   95M   0% /run/user/0
/dev/nvme2n1   54G  160K   52G   1% /mnt/data-store2
/dev/nvme3n1   50G  156K   47G   1% /mnt/performance-store
sh-4.2$ sudo sh -c "echo some text has been written > /mnt/performance-store/file.txt"
sh-4.2$ cat /mnt/performance-store/file.txt
some text has been written
sh-4.2$
```

- From the challenge: Creating directory, mount a new storage volume, mount this volume.