

# Introduction to Amazon Elastic Block Store (Amazon EBS)

## Task 1.1: Name existing EBS Volumes

Volumes (1/3)											
<div><div>Search</div></div>											
	Name	Volume ID	Type	Size	IOPS	Throughput	Snapshot	Created	Availability Zone	Volume state	Alarm status
<input type="checkbox"/>	AppLogs	vol-0c8d7aa5782d80f3d	gp2	20 GiB	100	-	-	2023/04/01 18:28 GMT+2	us-west-2c	<span>🟢 In-use</span>	No alarms
<input type="checkbox"/>	Boot_Vol_1	vol-03a0c3540b88f3944	gp3	8 GiB	3000	125	snap-0a1b681...	2023/04/01 18:30 GMT+2	us-west-2c	<span>🟢 In-use</span>	No alarms
<input checked="" type="checkbox"/>	Boot_Vol_2	vol-0e3caa11e3628f0f0	gp3	8 GiB	3000	125	snap-0a1b681...	2023/04/01 18:30 GMT+2	us-west-2c	<span>🟢 In-use</span>	No alarms

## Task 1.2: Create an EBS Volume

	New_App_Main	vol-06b30b5cb10a6b816	gp3	30 GiB	3000	250	-	2023/04/01 18:40 GMT+2	us-west-2c	<span>🟢 Available</span>	No alarms
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Your new EBS volume appears in the volume list. Wait for the **State** of the new volume to change to **available**. Your new EBS volume is ready to be attached to an EC2 instance. Attaching your EBS volume to an EC2 instance allows the instance to use the volume as block storage.

## Task 1.3: Attach EBS Volume to an EC2 instance

After attaching the volume to the instance, the Volume state changes to In-use



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

- First we connect to the New\_App instance

A new browser window opens with a running terminal session. **Session Manager** creates a secure connection to the **New\_App** EC2 instance. This secure connection allows you to run Linux commands on the EC2 instance.

Run the following command to determine the available storage on the instance:

```
df -h
```

- **df** is for disk free (free disk space), and **h** for the available volume sizes in a human-readable format

```
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$
```

Create a Linux file system with the following command:

```
sudo mkfs -t ext3 /dev/sdf
```

```
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$
```

A new mounted volume created:

```
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$
```

We create a new text file in the mounted volume and display the contents of it with the **cat** command:

```
sh-4.2$ sudo sh -c "echo some text has been written > /mnt/data-store/file.txt"
sh-4.2$ cat /mnt/data-store/file.txt
some text has been written
sh-4.2$
```

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

- Volume size can only be increased using EBS Dynamic Volumes

50 GiB size:

<input type="checkbox"/>	New_App_Main	vol-06b30b5cb10a6b816	gp3	50 GiB
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Task 3.2: Expand the volume of your file system

**lsblk** - for displaying list block devices

```
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$
```

- Notice the size of the new file system of the volume is 50G

## Task 4: Modify the EBS volume type and provisioned performance for an existing application

- Modify the IOPS and Throughput of the AppLogs volume:

<input type="checkbox"/>	AppLogs	vol-0c8d7aa5782d80f3d	gp3	20 GiB	6000	250	-	2023/04/01 18:28 GMT+2	us-west-2c	In-use - optimiz	No alarms
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## Task 5: Configure a snapshot for an existing EBS volume

snap-0edf87fa958838767 (App\_Main\_Snap)

**Snapshot settings**

Snapshot ID snap-0edf87fa958838767 (App_Main_Snap)	Size 50 GiB	Progress Unavailable <div><div></div></div> 0%	Snapshot status Pending
Owner 015713684963	Volume ID vol-06b30b5cb10a6b816	Started Sat Apr 01 2023 19:08:50 GMT+0200 (Central European Summer Time)	Product codes -
Encryption Encrypted	KMS key ID 90b14a7d-d6c2-46bf-bc85-da08bccc0bc4	KMS key alias aws/ebs	KMS key ARN arn:aws:kms:us-west-2:015713684963:key/90b14a7d-d6c2-46bf-bc85-da08bccc0bc4
Fast snapshot restore -	Description Snapshot of App_Main		

In the future, this snapshot can be used to create new volumes that will have the same contents as when the snapshot was created.

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

vol-0f32209cd37843539 (Restored\_App\_Main)

**Details**

Volume ID vol-0f32209cd37843539 (Restored_App_Main)	Size 55 GiB	Type gp3	Volume status <b>Okay</b>
AWS Compute Optimizer finding Opt-in to AWS Compute Optimizer for recommendations.   <a href="#">Learn more</a>	Volume state Available	IOPS 3000	Throughput 125
Encryption Encrypted	KMS key ID 90b14a7d-d6c2-46bf-bc85-da08bccc0bc4	KMS key alias aws/ebs	KMS key ARN arn:aws:kms:us-west-2:015713684963:key/90b14a7d-d6c2-46bf-bc85-da08bccc0bc4
Fast snapshot restored No	Snapshot snap-0edf87fa958838767	Availability Zone us-west-2c	Created Sat Apr 01 2023 19:12:13 GMT+0200 (Central European Summer Time)
Multi-Attach enabled No	Attached Instances -	Outposts ARN -	

**Status checks** | Monitoring | Tags

**Status checks**

Volume status <b>Okay</b>	Availability Zone us-west-2c
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- We repeat the same steps as in task 3 for mounting the restored storage volume

```

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$ df -h

```

- Notice the difference in size