

ASSIGNMENT-1

Create a VPC with 2 subnets and 2 routetables and internet gateway

- Launch 3 instances
- Attach 1 instance with EBS
- Attach 2 instances with EFS

For this assignment first we have to create vpc

Create a virtual Private Cloud(vpc)

Open your AWS account and search for vpc in search space of AWS homepage

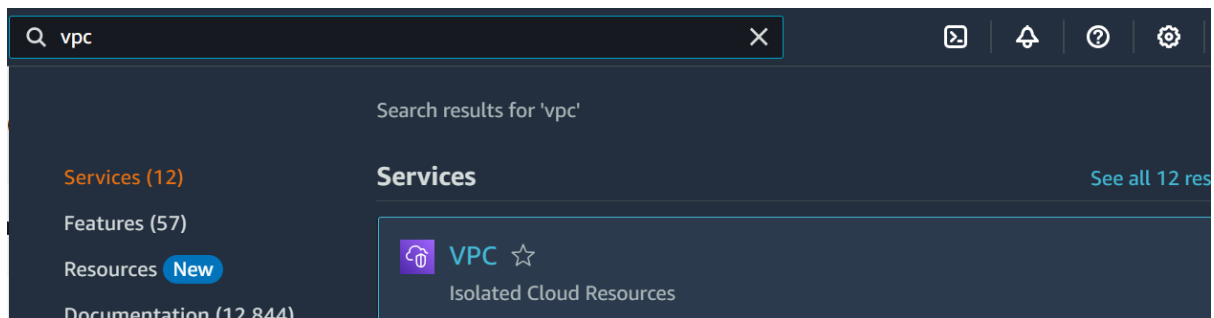


Fig. 1

Click on VPC which is shown above (Fig. 1)

Now click on Create VPC to Create our custom VPC (Fig. 2)

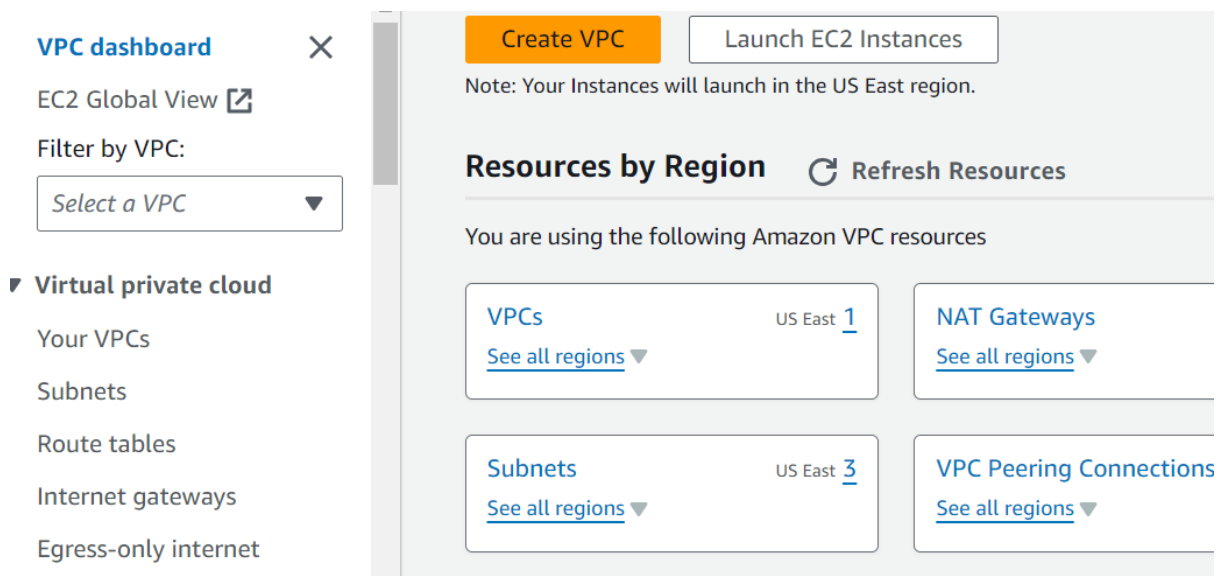


Fig. 2

Now fill the all details after then finally click on Create VPC(Fig. 3)

Home

Services

Instances

Amazon VPC

Create VPC

VPC is an isolated portion of the Amazon Cloud provided by AWS objects, such as Amazon EC2 instances.

VPC settings

Resources to create

☒ VPC only

☐ VPC and subnets

Name tag, optional

Provide a name for your VPC. You can use the default name.

My VPC

IPv4 CIDR block

☒ IPv4 CIDR block (required)

☐ Amazon-provided IPv4 CIDR block

10.0.0.0/16

IPv6 CIDR

☐ No IPv6 CIDR block

☒ Amazon-provided IPv6 CIDR block

☐ Amazon-provided IPv6 CIDR block

☐ IPv6 CIDR boundary type

Secondary

Default

Tags

Add a new tag

Key

Value

Value

Cancel

Save tag

Fig. 3

Now we created a custom VPC successfully

Now click on Create Subnets to our custom VPC (Fig. 4)

Subnets (3) via 											
Filter: All resources in this region											
<input type="checkbox"/>	Name	Subnet ID	State	VPC	VPC ID	Private CIDR	Available Private Address	Availability Zone	Availability Zone ID	Route table	Subnet ACL
<input type="checkbox"/>	aws-us-east-1-us-east-1a-subnet	subnet-0a1b2c3d	Available	aws-us-east-1-us-east-1a-vpc	vpc-0e1f2g3h	172.31.0.0/24	4095	us-east-1a	us-east-1a	rt-0i4j5k6l	acl-0m7n8o9p
<input type="checkbox"/>	aws-us-east-1-us-east-1b-subnet	subnet-0q1r2s3t	Available	aws-us-east-1-us-east-1a-vpc	vpc-0e1f2g3h	172.31.0.0/24	4095	us-east-1b	us-east-1b	rt-0u4v5w6x	acl-0y7z8a9b
<input type="checkbox"/>	aws-us-east-1-us-east-1c-subnet	subnet-0c1d2e3f	Available	aws-us-east-1-us-east-1a-vpc	vpc-0e1f2g3h	172.31.0.0/24	4095	us-east-1c	us-east-1c	rt-0g4h5i6j	acl-0k7l8m9n

Fig. 4

Create two subnets, one is public and another one is private

Here we have to select our custom VPC and after then fill all details, finally create subnet

Public subnet(Fig. 5)

▼

Subnets

Create subnet

Create subnet

VPC

info

VPC ID

Create subnets in this VPC.

vpc-0112a7530a0d53311 (my-vpc1)

Associated VPC CIDRs

IPv4 CIDRs

10.0.0.0/16

Subnet settings

Specify the CIDR blocks and Availability Zone for the subnet.

Subject 1 of 1

Subnet name

Create a tag with a key of "Name" and a value that you specify.

my-publicsubnet1

The name can be up to 256 characters long.

Availability Zone

info

Choose the zone in which your subnet will reside, or let Amazon choose one for you.

US East (Ohio) / us-east-2a

IPv4 VPC CIDR block

info

Choose the VPC's IPv4 CIDR block for the subnet. The subnet's IPv4 CIDR must lie within this block.

10.0.0.0/16

IPv4 subnet CIDR block

10.0.0.0/24

256 IPs

▼ Tags - optional

Key

Value - optional

Q. Name

X

Q. my-publicsubnet1

X

Remove

Add new tag

You can add 50 more tags.

Remove

Add new subnet

Cancel

Create subnet

Fig. 5

Private subnet(Fig. 6)

Create subnet

VPC

VPC ID

Create subnets in this VPC.

vpc-0112a753b5a9d5331 | my-vpc1

Associated VPC CIDRs

IPv4 CIDRs

10.0.0.0/16

Subnet settings

Specify the CIDR blocks and Availability Zone for the subnet.

Subnet 1 of 1

Subnet name

Create a tag with a key of 'Name' and a value that you specify.

my-privatesubnet1

The name can be up to 256 characters long.

Availability Zone

Choose the zone in which your subnet will reside, or let Amazon choose one for you.

US East (Ohio) / us-east-2b

IPv4 VPC CIDR block

Choose the VPC's IPv4 CIDR block for the subnet. The subnet's IPv4 CIDR must lie within this block.

10.0.0.0/16

IPv4 subnet CIDR block

10.0.1.0/24

256 IP's

Tags - optional

Key

Value - optional

Q Name X

Q my-privatesubnet1 X

Remove

Add new tag

You can add 49 more tags.

Remove

Add new subnet

Cancel

Create subnet

Fig. 6

Now we created two subnets to our custom VPC successfully (Fig. 7)

Subnets (2/5)

Find resources by attribute or tag

	Name	Subnet ID	State	VPC	IPv4 CIDR	IPv6 CIDR
<input checked="" type="checkbox"/>	my-privatesubnet1	subnet-0edd39e78b45512a9	Available	vpc-0112a753b5a9d5331 my-...	10.0.1.0/24	-
<input type="checkbox"/>	-	subnet-0a901292fc1b86766	Available	vpc-05f1509d3f9a12c60	172.31.0.0/20	-
<input type="checkbox"/>	-	subnet-0016165a5d505cd69	Available	vpc-05f1509d3f9a12c60	172.31.16.0/20	-
<input type="checkbox"/>	-	subnet-04a5a7f73bd9af7bd	Available	vpc-05f1509d3f9a12c60	172.31.32.0/20	-
<input checked="" type="checkbox"/>	my-publicsubnet1	subnet-082119f8376fe1253	Available	vpc-0112a753b5a9d5331 my-...	10.0.0.0/24	-

Fig. 7

Now click on Internet gateway from menu bar and create Internet gateway (Fig. 8)

VPC dashboard

EC2 Global View

Filter by VPC:

Select a VPC

Virtual private cloud

Your VPCs

Subnets

Route tables

Internet gateways

Internet gateways (1)

Search

	Name	Internet gateway ID	State	VPC ID	Owner
<input type="checkbox"/>	-	igw-021f675cae8bf77f2	Attached	vpc-05f1509d3f9a12c60	211125405055

Fig. 8

Give name to our internet gateway and finally click on Create Internet gateway(Fig. 9)

VPC > Internet gateways > Create internet gateway

Create internet gateway [Info](#)

An internet gateway is a virtual router that connects a VPC to the internet. To create a new internet gateway specify the name for the gateway below.

Internet gateway settings

Name tag
Creates a tag with a key of 'Name' and a value that you specify.

Tags - optional

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.

Key	Value - optional	
<input type="text" value="Name"/>	<input type="text" value="my-internetgateway"/>	<input type="button" value="Remove"/>

You can add 49 more tags.

Fig. 9

Then click on actions and click on Attach to VPC (Fig. 10)

The following internet gateway was created: igw-08ad7b8f3ceb763b0 - my-internetgateway. You can now attach to a VPC to enable the VPC to communicate with the internet.

VPC > Internet gateways > igw-08ad7b8f3ceb763b0

igw-08ad7b8f3ceb763b0 / my-internetgateway

Details [Info](#)

Internet gateway ID igw-08ad7b8f3ceb763b0	State Detached	VPC ID -	Owner 211125405055
----------------------------------------------	-------------------	-------------	-----------------------

Actions ▴

- Attach to VPC
- Detach from VPC
- Manage tags
- Delete

Fig. 10

Now we have to select our custom VPC in that available VPCS so we already created it our custom VPC. And finally click on Attach internet gateway(Fig. 11)

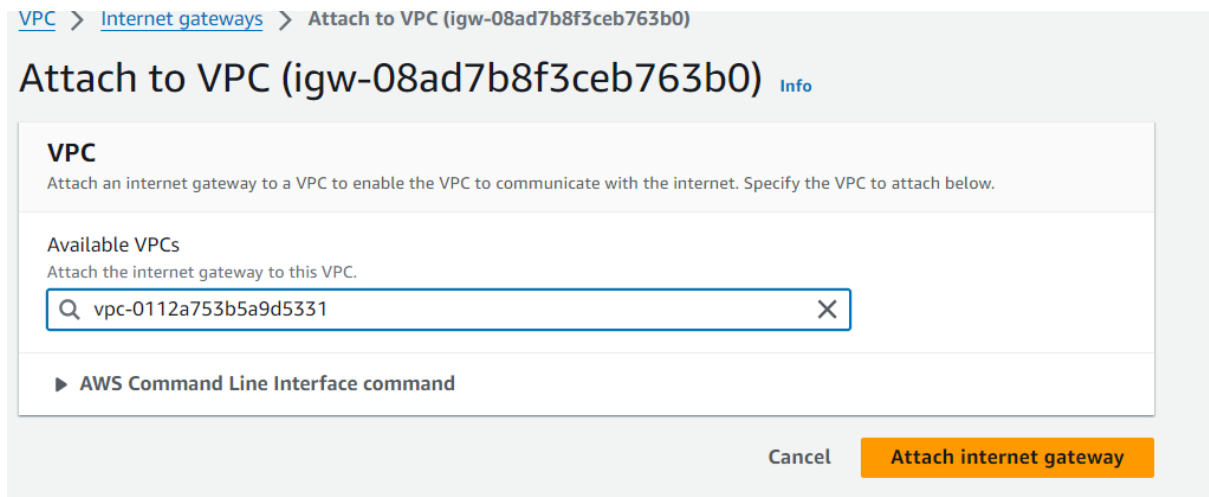


Fig. 11

Now ,we created internet gateway to our custom VPC successfully(Fig. 12)

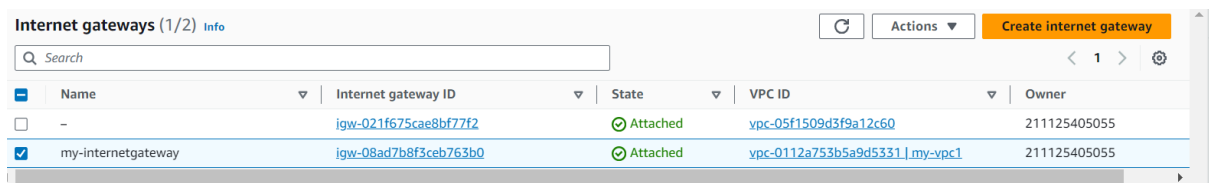


Fig. 12

Now we have to create 2 route tables(one is public and another one is private)

Click on route tables from menu bar and click on Create route tables (Fig. 13)

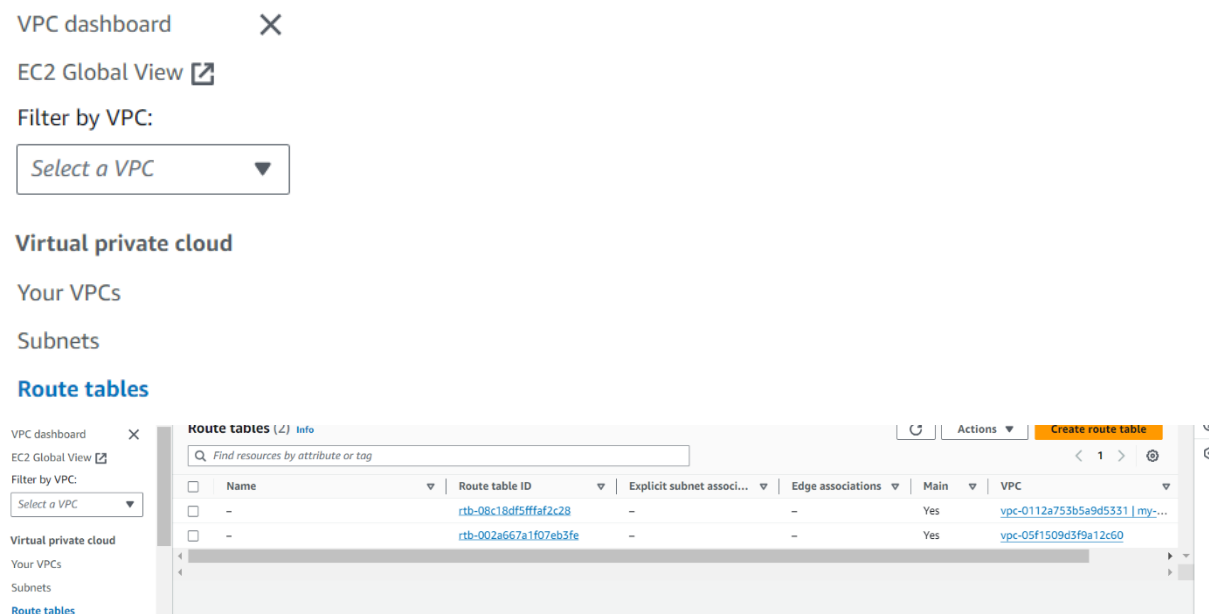


Fig. 13

Give name to route table and then select our custom VPC ,finally create route table (Fig. 14)

Create route table

Info

A route table specifies how packets are forwarded between the subnets within your VPC, the internet, and your VPN connection.

Route table settings

Name - optional

Create a tag with a key of 'Name' and a value that you specify.

my-publicroutetable

VPC

The VPC to use for this route table.

vpc-0112a753b5a9d5331 (my-vpc1)

Tags

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.

Key

Value - optional

Q Name

X

Q my-publicroutetable

X

Remove

Add new tag

You can add 49 more tags.

Cancel

Create route table

Fig. 14

Now click on actions, and then click on Edit routes (Fig. 15)

VPC > Route tables > rtb-0d02c7e81ff775e50

rtb-0d02c7e81ff775e50 / my-publicroutetable

Details

info

Route table ID

rtb-0d02c7e81ff775e50

VPC

vpc-0112a753b5a9d5331 | my-vpc1

Main

No

Owner ID

211125405055

Explicit subnet associations

-

Edge associations

-

Actions

Set main route table

Edit subnet associations

Edit edge associations

Edit route propagation

Edit routes

Manage tags

Delete

Fig. 15

Click on Add route (Fig. 16)

VPC > Route tables > rtb-0d02c7e81ff775e50 > Edit routes

Edit routes

Destination

10.0.0.0/16

Add route

Target

local

Q local

X

Status

Active

Propagated

No

Cancel

Preview

Save changes

Fig. 16

Select internet gateway from drop down list,after then we have to select internet gateway id like igw-08ad7b8f3ceb763b0 and choose that internet gayeway ,finally click on save changes (Fig. 17)

Fig. 17

After then click on subnet associations and Edit subnet associations (Fig. 18)

Fig. 18

Select public subnet check box and save associations (Fig. 19)

Fig. 19

Create one more route table.

Imp Note: For private route table we are not given internet gateway access ,because we want to make it as private .

Create route table [Info](#)

A route table specifies how packets are forwarded between the subnets within your VPC, the internet, and your VPN connection.

Route table settings

Name - *optional*

Create a tag with a key of 'Name' and a value that you specify.

VPC

The VPC to use for this route table.

Tags

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.

Key

Value - *optional*

You can add 49 more tags.

Fig. 20

Now we successfully created two route tables to our custom VPC (Fig. 21)

Route tables (2/4) Info							<input type="button" value="Create route table"/>
<input type="text" value="Find resources by attribute or tag"/>							<input type="button" value="Actions"/> <input type="button" value="1"/> <input type="button" value="Filter"/>
<input type="checkbox"/>	Name	Route table ID	Explicit subnet associ...	Edge associations	Main	VPC	
<input type="checkbox"/>	-	rtb-08c18df5ffaf2c28	-	-	Yes	vpc-0112a753b5a9d5331 my-...	
<input type="checkbox"/>	-	rtb-002a667a1f07eb3fe	-	-	Yes	vpc-05f1509d3f9a12c60	
<input checked="" type="checkbox"/>	my-publicroutetable	rtb-0d02c7e81ff775e50	subnet-082119f8376fe1...	-	No	vpc-0112a753b5a9d5331 my-...	
<input checked="" type="checkbox"/>	my-privateroutetable	rtb-0e493382b8041e374	-	-	No	vpc-0112a753b5a9d5331 my-...	

Fig. 21

Now create Three EC2 instances

Search for EC2 in search space of AWS home page and click on EC2(Fig. 22)

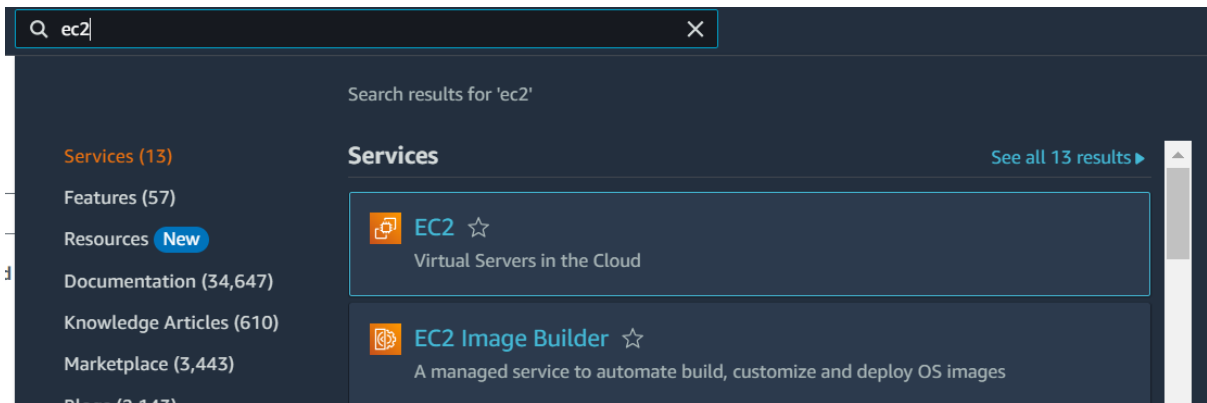


Fig. 22

Now create one EC2 instance to the Elastic Block store(EBS) and click on launch instance. (Fig. 23)

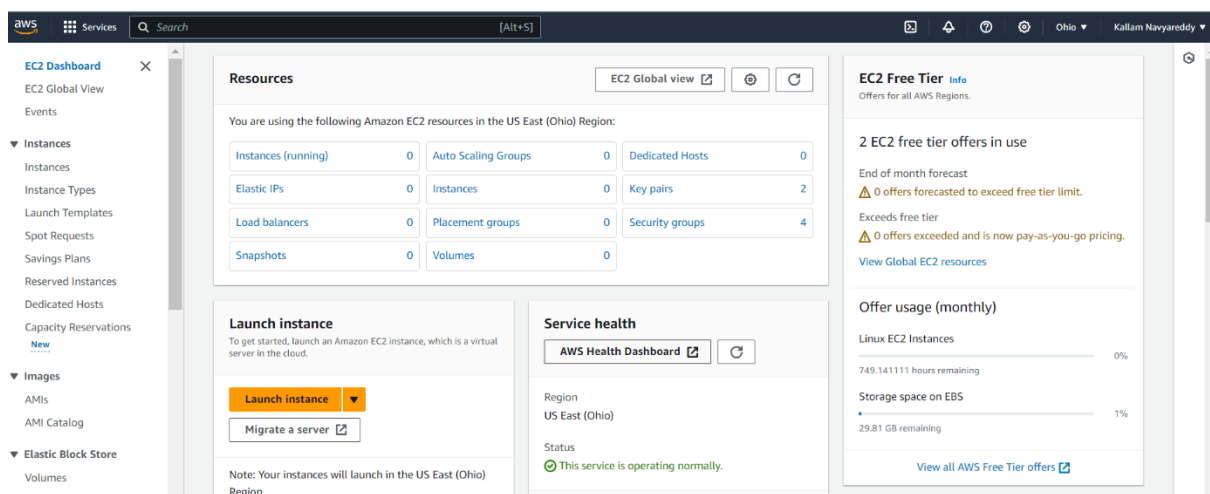


Fig. 23

For launching the instance of EC2 for ebs we have to fill the all details, and finally click on Launch instance(Fig. 24)

EC2 > Volumes > Create volume

Create volume [Info](#)

Create an Amazon EBS volume to attach to any EC2 instance in the same Availability Zone.

Volume settings

Volume type [Info](#)

General Purpose SSD (gp3)

General Purpose SSD gp3 is now the default selection. gp3 provides up to 20% lower cost per GB than gp2. [Learn More](#)

Size (GiB) [Info](#)

12

Min: 1 GiB, Max: 16384 GiB. The value must be an integer.

IOPS [Info](#)

3000

Min: 3000 IOPS, Max: 16000 IOPS. The value must be an integer.

Throughput (MiB/s) [Info](#)

125

Min: 125 MiB, Max: 1000 MiB. Baseline: 125 MiB/s.

Availability Zone [Info](#)

us-east-2b

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.

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

Fig. 26

After then click on Actions and click on Attach volume

EC2 > Volumes > vol-0073b3f80257337c3

vol-0073b3f80257337c3

Actions ▲ Delete Modify

Create snapshot

Attach volume

Detach volume

Force detach volume

Manage auto-enabled I/O

Volume ID	Size	Type
vol-0073b3f80257337c3	12 GiB	gp3
AWS Compute Optimizer finding	Volume state	IOPS
Opt-in to AWS Compute Optimizer for recommendations. Learn more	Available	3000
Encryption	KMS key ID	KMS key alias
Not encrypted	-	-

Fig. 27

For attaching the volume we have to select the instance and device name. (Fig. 28)

*Note: volume and instance are in same zone.

Attach volume [Info](#)

Attach a volume to an instance to use it as you would a regular physical hard disk drive.

Basic details

Volume ID

 vol-0b13ea082f19ec90a

Availability Zone

us-east-2b

Instance [Info](#)

i-03fffadce852b1848 ▼




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

Device name [Info](#)

/dev/sdf ▼

Recommended device names for Linux: /dev/sda1 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

Fig. 28