

## AWS Solutions Architect Certification Training

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### Module 2 - Assignment COMPLETED by Nagesha. K.S. Please check the following screenshots for each question.

#### Problem Statement:

You work for XYZ Corporation. Your company is working on an application, and it requires secured web servers on Linux to launch the application.

**You are asked to:**

1. Create an instance in the us-east-1 (N. Virginia) region with the Linux OS and manage the requirement of web servers of your company using AMIs
2. Replicate the instance in the us-west-2 (Oregon) region
3. Build two EBS volumes and attach them to the instance in the us-east-1 (N. Virginia) region
4. Delete one volume after detaching it and extend the size of the other volume
5. Take a backup of this EBS volume
6. **Optional Step (Not Free Tier eligible):** Create one more EBS volume with the Multi-Attach feature and attach it to two compatible instances to test the feature. Here, mounting is optional (**Hint:** Nitro-based EC2 instance, which is billable)

1. Create an instance in the us-east-1 (N. Virginia) region with the Linux OS and manage the requirement of web servers of your company using AMIs

The screenshot displays the AWS Management Console interface for the us-east-1 region. The left sidebar shows the navigation menu with options like EC2 Dashboard, EC2 Global View, Events, Console-to-Code, and Instances. The main content area shows the 'Instances (1/1)' page with a table listing the instance 'NageshaKS-AWS Mod-2' with ID 'i-036a74c89e8dd79d8' in a 'Running' state. Below the table, the 'Details' tab for the instance is open, showing the instance summary with fields for Instance ID, Public IPv4 address (54.81.48.174), Private IPv4 addresses (172.31.45.87), and Public IPv4 DNS (ec2-54-81-48-174.compute-1.amazonaws.com).

**Instances (1/1) Info**

Find Instance by attribute or tag (case-sensitive) All states

Instance ID = i-036a74c89e8dd79d8 Clear filters

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone
NageshaKS-AWS Mod-2	i-036a74c89e8dd79d8	Running	t2.micro	Initializing	View alarms	us-east-1a

**i-036a74c89e8dd79d8 (NageshaKS-AWS Mod-2)**

Details Status and alarms Monitoring Security Networking Storage Tags

**Instance summary Info**

Instance ID i-036a74c89e8dd79d8 (NageshaKS-AWS Mod-2)	Public IPv4 address 54.81.48.174   open address	Private IPv4 addresses 172.31.45.87
IPv6 address -	Instance state Running	Public IPv4 DNS ec2-54-81-48-174.compute-1.amazonaws.com   open address
Hostname type -	Private IP DNS name (IPv4 only) -	

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12:37 26-07-2024



## 2. Replicate the instance in the us-west-2 (Oregon) region

The screenshot displays the AWS Management Console interface for the us-west-2 region. The left sidebar shows navigation options under 'Instances', 'Images', and 'Elastic Block Store'. The main content area shows a list of instances with one instance, 'Nagesha-KS copied AMI Oregon', in a 'Pending' state. Below the list, the details for instance 'i-00489dabcbdbba996' are shown, including its public IPv4 address (52.38.209.8) and private IPv4 address (172.31.20.250). The instance is running on a t2.micro instance type. The bottom of the screen shows the Windows taskbar with various application icons and the system clock indicating 12:58 on 26-07-2024.

**Instances (1/1) Info**

Find Instance by attribute or tag (case-sensitive)

Instance ID = i-00489dabcbdbba996

Clear filters

Name	Instance ID	Instance state	Instance type	Status check	Alarm status
Nagesha-KS copied AMI Oregon	i-00489dabcbdbba996	Pending	t2.micro	-	View alarms

**i-00489dabcbdbba996 (Nagesha-KS copied AMI Oregon)**

Details | Status and alarms | Monitoring | Security | Networking | Storage | Tags

**Instance summary Info**

Instance ID i-00489dabcbdbba996 (Nagesha-KS copied AMI Oregon)	Public IPv4 address 52.38.209.8   <a href="#">open address</a>	Private IPv4 addresses 172.31.20.250
IPv6 address	Instance state	Activate Windows Go to Settings to activate Windows.

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12:58  
26-07-2024

Launch an instance | EC2 | us-e

Launch an instance | EC2 | us-w

EC2 | us-west-2

Copy an AMI from one AWS Re

us-west-2.console.aws.amazon.com/ec2/home?region=us-west-2#Images:visibility=owned-by-me

aws

Services

Search

[Alt+S]

Oregon

Nagesha KS

EC2 Dashboard

EC2 Global View

Events

Instances

Instances

Instance Types

Launch Templates

Spot Requests

Savings Plans

Reserved Instances

Dedicated Hosts

Capacity Reservations

Images

AMIs

AMI Catalog

Elastic Block Store

Volumes

Amazon Machine Images (AMIs) (1/1) Info

Recycle Bin

EC2 Image Builder

Actions

Launch instance from AMI

Owned by me

Find AMI by attribute or tag

Name

AMI name

AMI ID

Source

Owner

Nagesha-KS-AMI

ami-04bb7e616278b5b06

289436155303/Nagesha-KS-AMI

289436155

AMI ID: ami-04bb7e616278b5b06

DetailsPermissionsStorageTags

AMI ID

ami-04bb7e616278b5b06

Image type

machine

Platform details

Linux/UNIX

Root device type

EBS

AMI name

Nagesha-KS-AMI

Owner account ID

289436155303

Architecture

x86\_64

Usage operation

RunInstances

Root device name

/dev/xvda

Status

Available

Source

289436155303/Nagesha-KS-AMI

Virtualization type

hvm

CloudShell

Feedback

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12:58

26-07-2024



Launch an instance | EC2 | us-east-1

Launch an instance | EC2 | us-east-1

Instances | EC2 | us-east-1

Copy an AMI from one AWS Region to another

us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#Instances:instanceId=i-036a74c89e8dd79d8;v=3;\$case=tags:true%5C,client:false;\$regex=tags:false%5C...

aws

Services

Search

[Alt+S]

N. Virginia

Nagesha KS

EC2 Dashboard

EC2 Global View

Events

Console-to-Code

Preview

Instances

Instances

Instance Types

Launch Templates

Spot Requests

Savings Plans

Reserved Instances

Dedicated Hosts

Capacity Reservations

Images

AMIs

AMI Catalog

Instances (1/1)

Info

Connect

Instance state

Actions

Launch instances

Find Instance by attribute or tag (case-sensitive)

All states

Instance ID = i-036a74c89e8dd79d8

Clear filters

< 1 >

<input checked="" type="checkbox"/>	Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone
<input checked="" type="checkbox"/>	NageshaKS-AWS Mod-2	i-036a74c89e8dd79d8	Running	t2.micro	2/2 checks passed	View alarms	us-east-1a

i-036a74c89e8dd79d8 (NageshaKS-AWS Mod-2)

Details

Status and alarms

Monitoring

Security

Networking

Storage

Tags

Instance summary

Instance ID

i-036a74c89e8dd79d8 (NageshaKS-AWS Mod-2)

IPv6 address

-

Public IPv4 address

54.81.48.174 | open address

Private IPv4 addresses

172.31.45.87

Instance state

Running

Public IPv4 DNS

ec2-54-81-48-174.compute-1.amazonaws.com | open address

Private IP DNS name (IPv4 only)

CloudShell

Feedback

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12:59

26-07-2024

Launch an instance | EC2 | us-east-1

Launch an instance | EC2 | us-east-1

Images | EC2 | us-east-1

Copy an AMI from one AWS Re

us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#Images:visibility=owned-by-me

aws

Services

Search

[Alt+S]

N. Virginia

Nagesha KS

EC2 Dashboard

EC2 Global View

Events

Console-to-Code

Preview

Instances

Instances

Instance Types

Launch Templates

Spot Requests

Savings Plans

Reserved Instances

Dedicated Hosts

Capacity Reservations

Images

AMIs

AMI Catalog

Amazon Machine Images (AMIs) (1/1)

Info

Recycle Bin

EC2 Image Builder

Actions

Launch instance from AMI

Owned by me

Find AMI by attribute or tag

< 1 >

	Name	AMI name	AMI ID	Source	Owner
<input checked="" type="checkbox"/>		Nagesha-KS-AMI	ami-050959cdaec6cdb3c	289436155303/Nagesha-KS-AMI	289436155303

AMI ID: ami-050959cdaec6cdb3c

DetailsPermissionsStorageTags

AMI ID	ami-050959cdaec6cdb3c	Image type	machine	Platform details	Linux/UNIX	Root device type	EBS
AMI name	Nagesha-KS-AMI	Owner account ID	289436155303	Architecture	x86_64	Usage operation	RunInstances
Root device name	/dev/xvda	Status	Available	Source	289436155303/Nagesha-KS-AMI	Virtualization type	hvm
Boot mode		State reason		Creation date		Kernel	10

Activate Windows

Kernel

Settings to activate Windows.

CloudShell

Feedback

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12:59

26-07-2024

### 3. Build two EBS volumes and attach them to the instance in the us-east-1 (N. Virginia) region

us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#Volumes:

aws Services Search [Alt+S] N. Virginia Nagesha KS

EC2 Dashboard X

EC2 Global View

Events

▼ Instances

Instances

Instance Types

Launch Templates

Spot Requests

Savings Plans

Reserved Instances

Dedicated Hosts

Capacity Reservations

▼ Images

AMIs

AMI Catalog

▼ Elastic Block Store

Volumes

Successfully created volume [vol-09c36a6fe5d8eb9b4](#).

Volumes (1/5) Info

Search

	Name	Volume ID	Type	Size	IOPS	Throughput	Snapshot ID	Create
<input checked="" type="checkbox"/>	-	<a href="#">vol-09c36a6fe5d8eb9b4</a>	gp3	100 GiB	3000	125	-	2024/
<input type="checkbox"/>	-	<a href="#">vol-0bb135a18e877bfe2</a>	gp3	8 GiB	3000	125	snap-098b3fc...	2024/
<input type="checkbox"/>	-	<a href="#">vol-074d1b3f45add7621</a>	gp3	4 GiB	3000	125	-	2024/

Volume ID: [vol-09c36a6fe5d8eb9b4](#)

Details Status checks Monitoring Tags

Volume ID <a href="#">vol-09c36a6fe5d8eb9b4</a>	Size 100 GiB	Type gp3	Volume status ✓ Okay
AWS Compute Optimizer finding Opt-in to AWS Compute Optimizer for recommendations.   <a href="#">Learn more</a>	Volume state ✓ Available	IOPS 3000	Throughput 125
Fast snapshot restored No	Availability Zone us-east-1c	Created Fri Jul 26 2024 15:29:15	Multi-Attach enabled No

Activate Windows  
Go to Settings to activate Windows.



- EC2 Dashboard
- EC2 Global View
- Events
- ▼ Instances
  - Instances
  - Instance Types
  - Launch Templates
  - Spot Requests
  - Savings Plans
  - Reserved Instances
  - Dedicated Hosts
  - Capacity Reservations
- ▼ Images
  - AMIs
  - AMI Catalog
- ▼ Elastic Block Store

Successfully created volume [vol-09c36a6fe5d8eb9b4](#).

### Volumes (1/5) Info

Search

	Name	Volume ID	Type	Size	IOPS	Throughput	Snapshot ID	Create
<input type="checkbox"/>	-	<a href="#">vol-09c36a6fe5d8eb9b4</a>	gp3	100 GiB	3000	125	-	2024/
<input checked="" type="checkbox"/>	-	<a href="#">vol-0bb135a18e877bfe2</a>	gp3	8 GiB	3000	125	snap-098b3fc...	2024/
<input type="checkbox"/>	-	<a href="#">vol-074d1b3f45add7621</a>	gp3	4 GiB	3000	125	-	2024/

### Volume ID: [vol-0bb135a18e877bfe2](#)

Details Status checks Monitoring Tags

Volume ID <a href="#">vol-0bb135a18e877bfe2</a>	Size 8 GiB	Type gp3	Volume status ✓ Okay
AWS Compute Optimizer finding Opt-in to AWS Compute Optimizer for recommendations.   <a href="#">Learn more</a>	Volume state ✓ In-use	IOPS 3000	Throughput 125
Fast snapshot restored	Availability Zone	Created	Multi-Attach enabled

#### 4. Delete one volume after detaching it and extend the size of the other volume

The screenshot shows the AWS Management Console interface. The left sidebar contains navigation links for various services, including Reserved Instances, Dedicated Hosts, Capacity Reservations, Images (AMIs, AMI Catalog), Elastic Block Store (Volumes, Snapshots, Lifecycle Manager), Network & Security (Security Groups, Elastic IPs, Placement Groups, Key Pairs, Network Interfaces), and Load Balancing. The main content area displays the 'Volumes (1/3)' page. A modal dialog box is open, titled 'Delete vol-074d1b3f45add7621?'. The dialog contains a warning icon and text: 'After you delete a volume, its data is permanently deleted and the volume can no longer be attached to an instance.' Below this, it asks 'Are you sure that you want to delete vol-074d1b3f45add7621?' and provides instructions: 'To confirm deletion, type delete in the field.' A text input field contains the word 'delete'. At the bottom of the dialog are 'Cancel' and 'Delete' buttons. In the background, a table lists volumes, with 'vol-074d1b3f45add7621' selected. A green banner at the top of the console indicates 'Successfully deleted volume vol-0ce7099831f183acd...'. The browser address bar shows the URL 'us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#Volumes:'.

us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#Volumes:

aws Services Search [Alt+S]

Reserved Instances  
Dedicated Hosts  
Capacity Reservations

▼ Images  
AMIs  
AMI Catalog

▼ Elastic Block Store  
Volumes  
Snapshots  
Lifecycle Manager

▼ Network & Security  
Security Groups  
Elastic IPs  
Placement Groups  
Key Pairs  
Network Interfaces

▼ Load Balancing

Successfully deleted volume vol-0ce7099831f183acd...

Volumes (1/3) info

Search

Actions Create volume

1

Snapshot ID Create

2024/

2024/

2024/

Volume ID: vol-074d1b3f45add7621

Details Status checks More

Volume ID Size Type Volume status

vol-074d1b3f45add7621 4 GiB gp3 Okay

AWS Compute Optimizer finding Volume state IOPS Throughput

Opt-in to AWS Compute Optimizer for recommendations. Learn more Available 3000 125

Activate Windows

Cancel Delete

Delete vol-074d1b3f45add7621?

⚠ After you delete a volume, its data is permanently deleted and the volume can no longer be attached to an instance.

Are you sure that you want to delete vol-074d1b3f45add7621?

To confirm deletion, type *delete* in the field.

delete

## Modify volume [Info](#)

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

### Volume details

Volume ID

 vol-09c36a6fe5d8eb9b4

Volume type [Info](#)

General Purpose SSD (gp3) ▼

Size (GiB) [Info](#)

300

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.

Activate Windows

- EC2 Dashboard
- EC2 Global View
- Events
- Instances
  - Instances
  - Instance Types
  - Launch Templates
  - Spot Requests
  - Savings Plans
  - Reserved Instances
  - Dedicated Hosts
  - Capacity Reservations
- Images
  - AMIs
  - AMI Catalog
- Elastic Block Store

Requested volume modification for volume [vol-09c36a6fe5d8eb9b4](#).  
The volume is being modified.

### Volumes (2) [Info](#)

<input type="checkbox"/>	Name ▾	Volume ID ▾	Type ▾	Size ▾	IOPS ▾	Throughput ▾	Snapshot ID ▾	Create
<input type="checkbox"/>	-	<a href="#">vol-09c36a6fe5d8eb9b4</a>	gp3	300 GiB	3000	125	-	2024/
<input type="checkbox"/>	-	<a href="#">vol-0bb135a18e877bfe2</a>	gp3	8 GiB	3000	125	<a href="#">snap-098b3fc...</a>	2024/

### Fault tolerance for all volumes in this Region

#### Snapshot summary

Recently backed up volumes / Total # volumes

1 / 3

Last updated on Fri, Jul 26, 2024, 03:17:51 PM (GMT+05:30)


Data Lifecycle Manager default policy for EBS Snapshots status

No default policy set up | [Create policy](#)

Activate Windows

## 5. Take a backup of this EBS volume

The screenshot shows the AWS Management Console interface for creating a snapshot of an EBS volume. The browser address bar shows the URL: `us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#CreateSnapshotFromVolume:volumeId=vol-09c36a6fe5d8eb9b4`. The console header includes the AWS logo, 'Services' menu, a search bar, and navigation icons. The breadcrumb trail is `EC2 > Volumes > vol-09c36a6fe5d8eb9b4 > Create snapshot`. The main heading is 'Create snapshot' with an 'Info' link. Below the heading is a descriptive sentence: 'Create a point-in-time snapshot to back up the data on an Amazon EBS volume to Amazon S3.' The 'Source volume' section contains a table with the following data:

Source volume	
Volume ID	Availability Zone
 vol-09c36a6fe5d8eb9b4	us-east-1c

The 'Snapshot details' section includes a 'Description' field with the placeholder text 'Add a description for your snapshot'. The text 'Module-2 assignment snapshot' is entered in the field, which is highlighted with a blue border. Below the field, it says '255 characters maximum.' There is also an 'Encryption' section with an 'Info' link.



- EC2 Dashboard
- EC2 Global View
- Events
- ▼ Instances
  - Instances
  - Instance Types
  - Launch Templates
  - Spot Requests
  - Savings Plans
  - Reserved Instances
  - Dedicated Hosts
  - Capacity Reservations
- ▼ Images
  - AMIs
  - AMI Catalog
- ▼ Elastic Block Store

Successfully created snapshot [snap-0e3575df58e0ee68a](#) from volume [vol-09c36a6fe5d8eb9b4](#).  
If you need your snapshot to be immediately available consider using Fast Snapshot Restore.

Manage fast snapshot restore

Volumes (2) Info [Refresh](#) [Actions](#) [Create volume](#)

[<](#) 1 [>](#) [Settings](#)

<input type="checkbox"/>	Name ▾	Volume ID ▾	Type ▾	Size ▾	IOPS ▾	Throughput ▾	Snapshot ID ▾	Create
<input type="checkbox"/>	-	<a href="#">vol-09c36a6fe5d8eb9b4</a>	gp3	300 GiB	3000	125	-	2024/
<input type="checkbox"/>	-	<a href="#">vol-0bb135a18e877bfe2</a>	gp3	8 GiB	3000	125	<a href="#">snap-098b3fc...</a>	2024/

Fault tolerance for all volumes in this Region [Settings](#) [Close](#)

### Snapshot summary

Last updated on Fri, Jul 26, 2024, 03:17:51 PM (GMT+05:30) [Refresh](#)

Recently backed up volumes / Total # volumes

1 / 3

Data Lifecycle Manager default policy for EBS Snapshots status

No default policy set up | [Create policy](#)

← → ↻ us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#SnapshotDetails:snapshotId=snap-0e3575df58e0ee68a ☆ N

aws Services Search [Alt+S] N. Virginia Nagesha KS

EC2 Dashboard X  
EC2 Global View  
Events

▼ Instances  
Instances  
Instance Types  
Launch Templates  
Spot Requests  
Savings Plans  
Reserved Instances  
Dedicated Hosts  
Capacity Reservations

▼ Images  
AMIs  
AMI Catalog

▼ Elastic Block Store

EC2 > Snapshots > snap-0e3575df58e0ee68a

**snap-0e3575df58e0ee68a** ↻ Delete Actions ▼

Snapshot ID 📄 <a href="#">snap-0e3575df58e0ee68a</a>	Progress ✅ Available (100%)	Snapshot status ✅ Completed	Owner 📄 289436155303
Started 📄 Fri Jul 26 2024 15:44:52 GMT+0530 (India Standard Time)	Product codes -	Fast snapshot restore -	Description 📄 Module-2 assignment snapshot
▼ Source volume			
Volume ID 📄 <a href="#">vol-09c36a6fe5d8eb9b4</a>	Volume size 📄 300 GiB		
▼ Encryption			
Encryption Not encrypted	KMS key ID -	KMS key alias -	KMS key ARN -

[Snapshot settings](#) | [Storage tier](#) | [Tags](#) Activate Windows

**AWS Module-2 Assignment has been completed successfully.**