

Module-1: EBS Assignment

Problem Statement:

You work for XYZ Corporation. Your corporation wants to launch a new web-based application using AWS Virtual Machines, and configure the resources accordingly with appropriate storage for the tasks.

You are asked to perform the following tasks:

1. Launch a Linux EC2 instance.
2. Create an EBS volume with 20 GB of storage and attach it to the created EC2 instance.
3. Resize the attached volume and make sure it reflects in the connected instance.

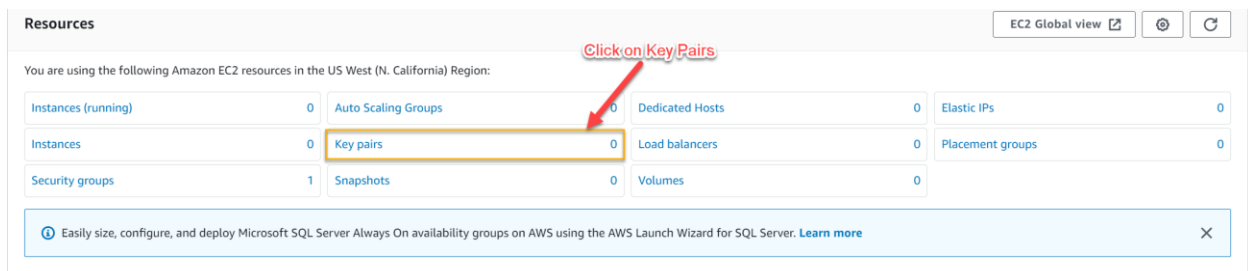
Answer:

Login to AWS Console using your credentials

<https://aws.amazon.com/console/>

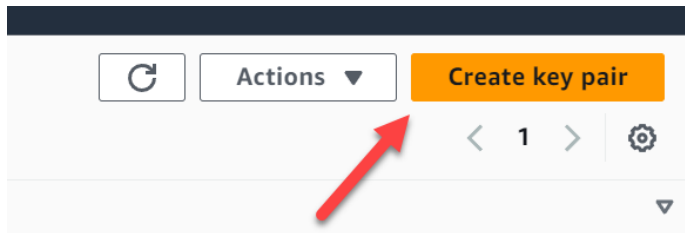
Navigate to EC2 service or search for EC2 in search bar click on it.

Step1: Create Key Pair



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Click on “Create Key Pair”

EC2 > Key pairs > Create key pair

Create key pair [Info](#)

Key pair
A key pair, consisting of a private key and a public key, is a set of security credentials that you use to prove your identity when connecting to an instance.

Name
 1
The name can include up to 255 ASCII characters. It can't include leading or trailing spaces.

Key pair type [Info](#)
☒ RSA ☐ ED25519

Private key file format
☒ .pem 2
For use with OpenSSH
☐ .ppk
For use with PuTTY

Tags - *optional*

Key	Value - <i>optional</i>
<input type="text" value="Name"/>	<input type="text" value="Ravi Ankam"/> 3
<input type="button" value="Remove"/>	
<input type="text" value="Date"/>	<input type="text" value="30th July 2023"/> 4
<input type="button" value="Remove"/>	

You can add up to 48 more tags.

5

- Provide Name

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- Select type
- Select the key format
- Click on “Create key pair”

Successfully created key pair

Key pairs (1) [Info](#)

<input type="checkbox"/>	Name	Type	Created	Fingerprint	ID
<input type="checkbox"/>	RaviKumar	rsa	2023/07/30 12:30 GMT+5:30	2f:41:a1:d6:b1:89:a4:a2:b8:14:e6:9f:25:89:56:a5:2d:02:97:28	key-0038f76bd752202da

Click on instances and “Launch instances”

N. California ▼

Ankam Ravi Kumar ▼

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Connect

Instance state ▼

Actions ▼

Launch instances ▼

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1

>

⚙

▼

IPv6 IPs

▼

Monitoring

▼

S

▼

Key name

▼

Launch time

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EC2 > Instances > Launch an instance

Launch an instance [Info](#)

Amazon EC2 allows you to create virtual machines, or instances, that run on the AWS Cloud. Quickly get started by following the simple steps below.

Name and tags [Info](#)

Name

MyEC2Instance

1

[Add additional tags](#)

▼ Application and OS Images (Amazon Machine Image) [Info](#)

An AMI is a template that contains the software configuration (operating system, application server, and applications) required to launch your instance. Search or Browse for AMIs if you don't see what you are looking for below


 Search our full catalog including 1000s of application and OS images

Recents


[Quick Start](#)

2

Amazon
Linux


Ubuntu


Windows


Red Hat


SUSE Linux


Debian




[Browse more AMIs](#)

Including AMIs from
AWS, Marketplace and
the Community

Amazon Machine Image (AMI)

Amazon Linux 2023 AMI

ami-0c38b9e37c107d921 (64-bit (x86)) / ami-0ded4aec722231ef6 (64-bit (Arm))
Virtualization: hvm ENA enabled: true Root device type: ebs

Free tier eligible

3

Description

Amazon Linux 2023 AMI 2023.1.20230725.0 x86_64 HVM kernel-6.1

Architecture

64-bit (x86)

4

AMI ID

ami-0c38b9e37c107d921

Verified provider

1. Provide EC2 instance with a name
2. Select the Operating system
3. Select instance type
4. Select the Architecture of the instance

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▼ Key pair (login) Info

You can use a key pair to securely connect to your instance. Ensure that you have access to the selected key pair before you launch the instance.

Key pair name - *required*

RaviKumar

5

Create new key pair

▼ Network settings Info Edit

Network Info

vpc-0db031121cf0d6260

Subnet Info

No preference (Default subnet in any availability zone)

Auto-assign public IP Info

Enable

Firewall (security groups) Info

A security group is a set of firewall rules that control the traffic for your instance. Add rules to allow specific traffic to reach your instance.

Create security group 6

Select existing security group

We'll create a new security group called 'launch-wizard-1' with the following rules:

☒ Allow SSH traffic from

Helps you connect to your instance

Anywhere

0.0.0.0/0

7

☐ Allow HTTPS traffic from the internet

To set up an endpoint, for example when creating a web server

☒ Allow HTTP traffic from the internet

To set up an endpoint, for example when creating a web server

⚠ Rules with source of 0.0.0.0/0 allow all IP addresses to access your instance. We recommend setting security group rules to allow access from known IP addresses only.

×

▼ Configure storage Info Advanced

1x 8 GiB gp3 Root volume (Not encrypted)

8 20 GiB gp3 EBS volume (Not encrypted)

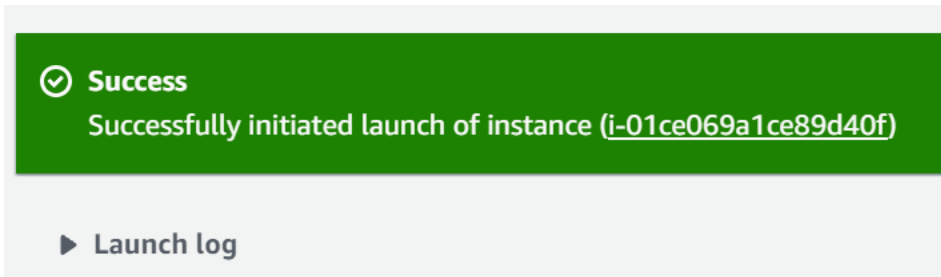
8

Remove

5. Select the Key pair that we have created in the first step
6. Create a Security Group
7. Allow SSH (port 22) from anywhere for now
8. Create a new 20GB EBS Volume

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The instance is created successfully.

Note: Wait for few minutes to complete the initialization

Instances (1) [info](#)

<input type="checkbox"/>	Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4 DNS	Public IPv4 ...	Ela...	IPv6 IPs	Monitoring	Security gr...	Key name	Launch time
<input type="checkbox"/>	MyEC2Instance	i-01ce069a1ce89d40f	Running	t2.micro	Initializing	No alarms	us-west-1b	ec2-3-101-127-129.us-...	3.101.127.129	-	-	disabled	launch-wizard-1	RaviKumar	2023/07/30 12:46 GMT+5:30

Checks completed

<input type="checkbox"/>	Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4 DNS	Public IPv4 ...	Ela...	IPv6 IPs
<input type="checkbox"/>	MyEC2Instance	i-01ce069a1ce89d40f	Running	t2.micro	2/2 checks passed	No alarms	us-west-1b	ec2-3-101-127-129.us-...	3.101.127.129	-	-

Connect to the EC2 instance now

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Connect to instance Info

Connect to your instance i-01ce069a1ce89d40f (MyEC2Instance) using any of these options

EC2 Instance ConnectSession ManagerSSH clientEC2 serial console

Instance ID
i-01ce069a1ce89d40f (MyEC2Instance)

Connection Type
☒ Connect using EC2 Instance Connect
Connect using the EC2 Instance Connect browser-based client, with a public IPv4 address.
☐ Connect using EC2 Instance Connect Endpoint
Connect using the EC2 Instance Connect browser-based client, with a private IPv4 address and a VPC endpoint.

Public IP address
3.101.127.129

User name
Enter the user name defined in the AMI used to launch the instance. If you didn't define a custom user name, use the default user name, ec2-user.
ec2-user

Note: In most cases, the default user name, ec2-user, is correct. However, read your AMI usage instructions to check if the AMI owner has changed the default AMI user name.

CancelConnect

Click "Connect"

```
[ec2-user@ip-172-31-27-80 ~]$ sudo -s
[root@ip-172-31-27-80 ec2-user]# 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 
xvdb        202:16   0  20G  0 disk 
[root@ip-172-31-27-80 ec2-user]# mkfs.xfs /dev/xvdb
meta-data=/dev/xvdb          isize=512    agcount=4, agsize=1310720 blks
           =                  sectsz=512   attr=2, projid32bit=1
           =                  crc=1       finobt=1, sparse=1, rmapbt=0
           =                  reflink=1    bigtime=1 inobtcount=1
data      =                  bsize=4096   blocks=5242880, imaxpct=25
           =                  sunit=0     swidth=0 blks
naming     =version 2        bsize=4096   ascii-ci=0, ftype=1
log        =internal log    bsize=4096   blocks=16384, version=2
           =                  sectsz=512   sunit=0 blks, lazy-count=1
realtime   =none            extsz=4096   blocks=0, rtextents=0
[root@ip-172-31-27-80 ec2-user]# mkdir /data
[root@ip-172-31-27-80 ec2-user]# mount /dev/xvdb /data
[root@ip-172-31-27-80 ec2-user]# df -h /data
Filesystem      Size  Used Avail Use% Mounted on
/dev/xvdb       20G  175M   20G   1% /data
[root@ip-172-31-27-80 ec2-user]#
```

Check the disk is present

Create the file system in the disk using the below command

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```
mkfs.xfs /dev/xvdb
```

mount the partition

```
mount /dev/xvdb /data
```

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4 DNS	Public IPv4 ...	Ela...	IPv6 IPs	Monitoring	Security gr...	Key name	Launch time
MyEC2Instance	i-01ce069a1ce89d40f	Running	t2.micro	2/2 checks passed	No alarms	us-west-1b	ec2-3-101-127-129.us...	3.101.127.129	-	-	disabled	launch-wizard-1	RaviKumar	2023/07/30 1

Instance: i-01ce069a1ce89d40f (MyEC2Instance)							
Details Security Networking Storage Status checks Monitoring Tags							
▼ Root device details							
Root device name		Root device type		EBS optimization			
/dev/xvda		EBS		disabled			
▼ Block devices							
Q Filter block devices							
Volume ID	Device name	Volume size (GiB)	Attachment status	Attachment time	Encrypted	KMS key ID	Delete on termination
vol-0bebb3758f0cc086	/dev/xvda	8	Attached	2023/07/30 12:46 GMT+5:30	No	-	Yes
vol-07c42d2d3ae16d6e6	/dev/xvdb	20	Attached	2023/07/30 12:46 GMT+5:30	No	-	No

Note down the volume ID then go to EC2 → volumes

Volumes (1/1) Info												
Q Search												
Volume ID = vol-07c42d2d3ae16d6e6 X Clear filters												
Name	Volume ID	Type	Size	IOPS	Throughput	Snapshot	Created	Availability Zone	Volume state	Alarm status	Attached instances	Vol
-	vol-07c42d2d3ae16d6e6	gp3	20 GiB	3000	125	-	2023/07/30 12:46 GMT+5...	us-west-1b	In-use	No alarms	+ i-01ce069a1ce89d40f (MyE...	

Create volume

Modify volume

Create snapshot

Create snapshot lifecycle policy

Delete volume

Attach volume

Detach volume

Force detach volume

Manage auto-enabled I/O

Manage tags

Fault injection

Modify volume Info

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

Volume details

Volume ID

vol-07c42d2d3ae16d6e6

Volume type Info

General Purpose SSD (gp3)

Size (GiB) Info

25

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.

Cancel

Modify

Now update the size value from 20GB to 25GB click on Modify

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```
[root@ip-172-31-27-80 ec2-user]# xfs_growfs /data/
meta-data=/dev/xvdb          isize=512    agcount=4, agsize=1310720 blks
        =                   sectsz=512    attr=2, projid32bit=1
        =                   crc=1        finobt=1, sparse=1, rmapbt=0
        =                   reflink=1    bigtime=1 inobtcount=1
data      =                   bsize=4096   blocks=5242880, imaxpct=25
        =                   sunit=0      swidth=0 blks
naming    =version 2          bsize=4096   ascii-ci=0, ftype=1
log        =internal log     bsize=4096   blocks=16384, version=2
        =                   sectsz=512   sunit=0 blks, lazy-count=1
realtime  =none              extsz=4096   blocks=0, rtextents=0
data blocks changed from 5242880 to 6553600
[root@ip-172-31-27-80 ec2-user]# df -h /data/
Filesystem      Size  Used Avail Use% Mounted on
/dev/xvdb        25G   211M   25G    1% /data
[root@ip-172-31-27-80 ec2-user]#
```

EBS volume is expanded successfully.