



**CLOUD TRAIN**  
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## **MODULE 2** **EC2 & VOLUMES**

AWS Workshop

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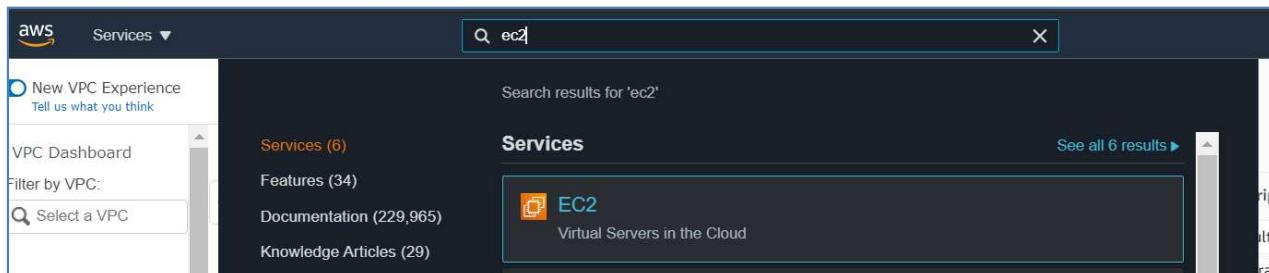
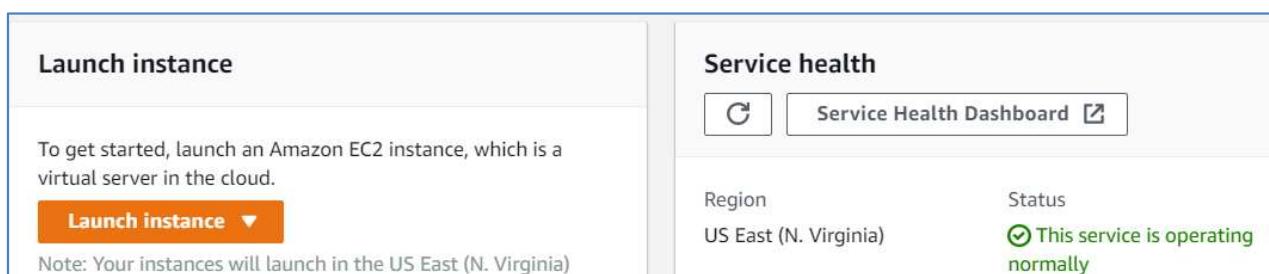
## Host your website inside EC2

In this exercise, you will do the following:

- Launch an EC2 instance through the AWS console (i.e. build a “virtual server” to serve your website)
- SSH into to the EC2 instance and install a web server (i.e. use the terminal to “log in” to the “virtual server” and interact with it)
- Host a static webpage on the EC2 instance (i.e. “deploy” a static html file to the web)

### Launch an EC2 Instance

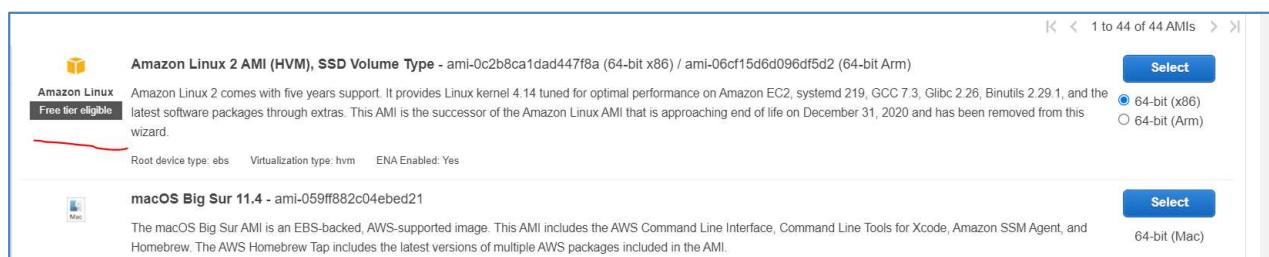
Sign into the AWS console and search for “EC2”. Navigate to the EC2 dashboard and click “Launch Instance”.

The screenshot shows the AWS EC2 'Launch instance' wizard. On the left, the 'Launch instance' step displays a button to 'Launch instance'. A note says instances will launch in the US East (N. Virginia). On the right, the 'Service health' step shows the service is operating normally in the US East (N. Virginia) region.

#### Step 1. Choose AMI

- In this step you will choose the operating system for your “virtual server” and the basic set of software that will come preinstalled.
- Choose a free-tier eligible Linux option (**Amazon Linux AMI, SSD Volume Type**) and click “Select”



The screenshot shows the AWS AMI selection screen. It lists two AMIs: 'Amazon Linux 2 AMI (HVM), SSD Volume Type' and 'macOS Big Sur 11.4'. The 'Amazon Linux 2 AMI' is selected and highlighted with a red box. Both entries provide a brief description, root device type, virtualization type, and ENA support status. There are 'Select' buttons and checkboxes for 64-bit (x86) and 64-bit (Arm) architectures.

## Step 2. Choose Instance Type

- In this step, you will choose how powerful the “virtual server” will be — things like the number of CPUs, amount of memory, type of hard disk/storage, and network speed.
- Choose the option marked as free tier eligible (**General Purpose — t2.micro**)— it will be one of the smallest, least powerful options. Click next to configure instance details.

Family	Type	vCPUs	Memory (GiB)	Instance Storage (GB)	EBS-Optimized Available	Network Performance	IPv6 Support
t2	t2.nano	1	0.5	EBS only	-	Low to Moderate	Yes
<b>t2</b>	<b>t2.micro</b>	<b>1</b>	<b>1</b>	EBS only	-	Low to Moderate	Yes
t2	<b>t2.small</b>	1	2	EBS only	-	Low to Moderate	Yes
t2	<b>t2.medium</b>	2	4	EBS only	-	Low to Moderate	Yes
t2	<b>t2.large</b>	2	8	EBS only	-	Low to Moderate	Yes
t2	<b>t2.xlarge</b>	4	16	EBS only	-	Moderate	Yes
t2	<b>t2.2xlarge</b>	8	32	EBS only	-	Moderate	Yes
t3	t3.nano	2	0.5	EBS only	Yes	Up to 5 Gigabit	Yes
t3	t3.micro	2	1	EBS only	Yes	Up to 5 Gigabit	Yes

[Cancel](#) [Previous](#) [Review and Launch](#) [Next: Configure Instance Details](#)

## Step 3. Configure Instance

- In this step, you will accept all of the default options. Glance at the options to get a sense of the types of things that can be done here.
- Click next to add storage.

**Step 3: Configure Instance Details**

Configure the instance to suit your requirements. You can launch multiple instances from the same AMI, request Spot instances to take advantage of the lower pricing, assign an access management role to the instance, and more.

Number of instances	<input type="text" value="1"/>	<a href="#">Launch into Auto Scaling Group</a>
Purchasing option	<input type="checkbox"/> Request Spot instances	
Network	vpc-0edb0533666a47053 (default)	<a href="#">Create new VPC</a>
Subnet	No preference (default subnet in any Availability Zone)	<a href="#">Create new subnet</a>
Auto-assign Public IP	<a href="#">Use subnet setting (Enable)</a>	
Placement group	<input type="checkbox"/> Add instance to placement group	
Capacity Reservation	<a href="#">Open</a>	
Domain join directory	No directory	<a href="#">Create new directory</a>
IAM role	<a href="#">None</a>	
Shutdown behavior	<a href="#">Stop</a>	
Stop - Hibernate behavior	<input type="checkbox"/> Enable hibernation as an additional stop behavior	
Enable termination protection	<input type="checkbox"/> Protect against accidental termination	
Monitoring	<input type="checkbox"/> Enable CloudWatch detailed monitoring <small>Additional charges apply.</small>	

[Cancel](#) [Previous](#) [Review and Launch](#) [Next: Add Storage](#)

#### Step 4. Add Storage

- In this step, you will choose the hard drive(s) for your “virtual server”, and how fast it will perform. By default, a hard drive is already attached (it is known as a root drive because it is capable of starting the operating system).
- You can change the default drive’s configuration and/or add additional hard drives to your “virtual server” in this step.
- We will accept the default options and move to the next step. Click next to add tags.

#### Step 4: Add Storage

Your instance will be launched with the following storage device settings. You can attach additional EBS volumes and instance store volumes to your instance, or edit the settings of the root volume. You can also attach additional EBS volumes after launching an instance, but not instance store volumes. [Learn more](#) about storage options in Amazon EC2.

Volume Type	Device	Snapshot	Size (GiB)	Volume Type	IOPS	Throughput (MB/s)
Root	/dev/xvda	snap-090e9376979c86d7b	8	General Purpose SSD (gp2)	100 / 3000	N/A

[Add New Volume](#)

#### Step 5. Add Tags

- In this step you can add “tags” to help you to manage and administer your AWS resources. We don’t have a need for this, but add one for the experience.
- Click Add Tag— enter “name” for the key and “WebServer” for the value.
- Click Next to Configure the Security Group

#### Step 5: Add Tags

A tag consists of a case-sensitive key-value pair. For example, you could define a tag with key = Name and value = Webserver.  
A copy of a tag can be applied to volumes, instances or both.  
Tags will be applied to all instances and volumes. [Learn more](#) about tagging your Amazon EC2 resources.

Key	(128 characters maximum)	Value	(256 characters maximum)	Instances	Volumes	Network Interfaces
name		WebServer		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

[Add another tag](#) (Up to 50 tags maximum)

#### Step 6. Configure Security Group

- In this step, you will choose the type of traffic your “virtual server” will allow from the outside. You need to allow two types of traffic — SSH (so we can “log in” to the virtual server) and HTTP (so we can view our webpage through the browser).
- Select “Create a new security group”. Enter anything you want for the name and description
- Keep the SSH rule that is already listed.
- Click “add rule”. Select HTTP for the type and keep everything else as it is.
- Click review and launch.

**Step 6: Configure Security Group**

A security group is a set of firewall rules that control the traffic for your instance. On this page, you can add rules to allow specific traffic to reach your instance. For example, if you want to set up a web server and allow Internet traffic to reach your instance, add rules that allow unrestricted access to the HTTP and HTTPS ports. You can create a new security group or select from an existing one below. [Learn more about Amazon EC2 security groups.](#)

Assign a security group:  Create a new security group  
 Select an existing security group

Security group name:

Description:

Type	Protocol	Port Range	Source	Description
SSH	TCP	22	Custom <input type="text" value="0.0.0.0/0"/>	e.g. SSH for Admin Desktop
HTTP	TCP	80	Custom <input type="text" value="0.0.0.0/:0"/>	e.g. SSH for Admin Desktop

[Add Rule](#)

**Step 7. Review**

- Ignore the security warning (we will tear down this instance as soon as we are done) and click Launch.
- A pop up window will ask you to select or create a key pair. A key pair is needed to securely SSH (“log in”) to our new EC2 instance.
  - Select ‘Create a new key pair’
  - Give the Key Pair a name — e.g. ‘ec2-key-pair’
  - Click Download Key Pair
  - Click Launch Instances
  - Click View Instance to navigate back to the EC2 dashboard

Instance Details

Storage

Tags

Edit instance details

Edit storage

Edit tags

Cancel Previous Launch

**Select an existing key pair or create a new key pair**

A key pair consists of a **public key** that AWS stores, and a **private key file** that you store. Together, they allow you to connect to your instance securely. For Windows AMIs, the private key file is required to obtain the password used to log into your instance. For Linux AMIs, the private key file allows you to securely SSH into your instance.

Note: The selected key pair will be added to the set of keys authorized for this instance. Learn more about [removing existing key pairs from a public AMI](#).

**Key pair name**

You have to download the **private key file** (\*.pem file) before you can continue. **Store it in a secure and accessible location.** You will not be able to download the file again after it's created.

[Cancel](#)

## SSH into the EC2 instance and Install a Web Server

You will see your new instance listed on the EC2 dashboard. Wait until the Instance State is ‘running’.

Selecting the instance (click the button next to the instance) displays information about the instance below. In this area, you will see the IPv4 Public IP address of your instance. Copy it to your clipboard.

Navigate to your terminal and do the following:

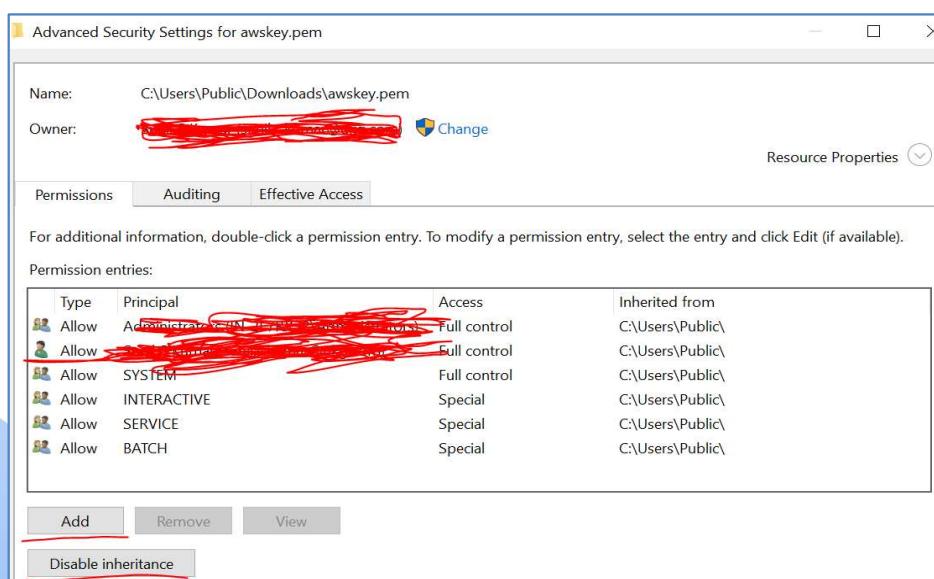
### Step 1. Change the permissions on your key-pair file

- First, save the downloaded key-pair .pem file to a directory of your choice (for eg: `~/ssh/` directory or windows downloads folder).
- Then change the permissions with the following command, if you are using Linux laptop. (If you don’t do this, the key-pair is considered “too permissive”, or unsafe, because it is ostensibly readable by other users. You won’t be able to SSH into the EC2 instance as a result).

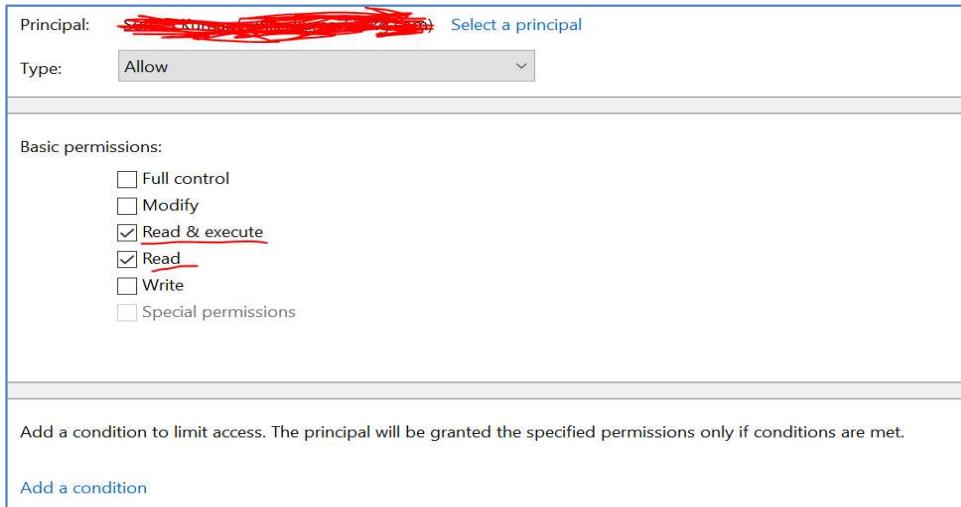
```
chmod 400 <path_to_key_pair_file>
```

- Windows users change the permissions as below:

***Key file properties -> Security -> Advanced -> Disable inheritance and add your user by selecting a principal.***



- Only give Read and execute + Read permission to it



Principal: [REDACTED] Select a principal

Type: Allow

Basic permissions:

Full control  
 Modify  
 Read & execute  
 Read  
 Write  
 Special permissions

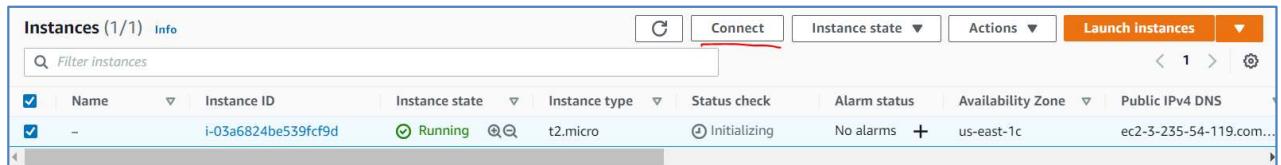
Add a condition to limit access. The principal will be granted the specified permissions only if conditions are met.

[Add a condition](#)

- You are all set to use this file.

### Step 8. SSH into your new EC2 instance

- Go to EC2 instances dashboard and select the server you launched. Click on connect

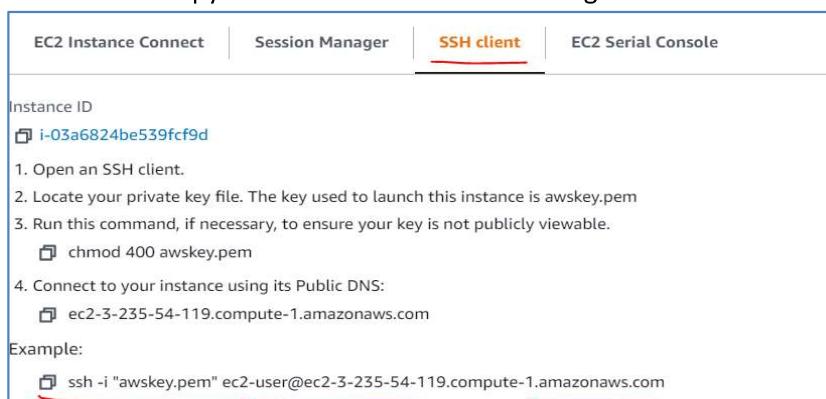


Instances (1/1) Info

Filter instances

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4 DNS
-	i-03a6824be539fcf9d	Running	t2.micro	Initializing	No alarms	us-east-1c	ec2-3-235-54-119.com...

- Select SSH Client tab and copy the command to connect using ssh



EC2 Instance Connect | Session Manager | **SSH client** | EC2 Serial Console

Instance ID: i-03a6824be539fcf9d

- Open an SSH client.
- Locate your private key file. The key used to launch this instance is awskey.pem
- Run this command, if necessary, to ensure your key is not publicly viewable.  
`chmod 400 awskey.pem`
- Connect to your instance using its Public DNS:  
`ssh ec2-3-235-54-119.compute-1.amazonaws.com`

Example:  
`ssh -i "awskey.pem" ec2-user@ec2-3-235-54-119.compute-1.amazonaws.com`

```
ssh -i <path_to_key_pair_file> ec2-user@<public_ip_from_dashboard>
```

- Type yes to continue.
- At this point, your terminal is now interacting directly with your EC2 instance (aka your “virtual server”) — rather than your physical machine.

```
PS C:\Users\Public\Downloads> ssh -i "awskey.pem" ec2-user@ec2-3-235-54-119.compute-1.amazonaws.com
[ec2-user@ip-172-31-7-204 ~]$
```

### Step 9. Elevate your privileges

```
sudo su
```

### Step 10. Update all of the packages on the instance

```
yum update -y
```

(note: if you are familiar with using homebrew on your Mac, you can think of the way we are using yum here as similar to brew)

```
[ec2-user@ip-172-31-7-204 ~]$ sudo su
[root@ip-172-31-7-204 ec2-user]# yum update -y
Loaded plugins: extras_suggestions, langpacks, priorities, update-motd
amzn2-core
No packages marked for update
[root@ip-172-31-7-204 ec2-user]#
```

### Step 11. Install an apache webserver

```
yum install httpd -y
```

### Step 12. Start the webserver

```
service httpd start
```

```
Installed:
httpd.x86_64 0:2.4.48-2.amzn2

Dependency Installed:
apr.x86_64 0:1.6.3-5.amzn2.0.2           apr-util.x86_64 0:1.6.1-5.amzn2.0.2      apr-util-bdb.x86_64 0:1.6.1-5.amzn2.0.2
httpd-filesystem.noarch 0:2.4.48-2.amzn2     httpd-tools.x86_64 0:2.4.48-2.amzn2       mailcap.noarch 0:2.1.41-2.amzn2

Complete!
```

### Step 13. Configure the web server to restart if it gets stopped

```
chkconfig httpd on
```

```
[root@ip-172-31-7-204 ec2-user]# service httpd start
Redirecting to /bin/systemctl start httpd.service
[root@ip-172-31-7-204 ec2-user]# chkconfig httpd on
Note: Forwarding request to 'systemctl enable httpd.service'.
Created symlink from /etc/systemd/system/multi-user.target.wants/httpd.service to /usr/lib/systemd/system/httpd.service.
[root@ip-172-31-7-204 ec2-user]#
```

## Add a static HTML file to be served

By default, the apache web server will display the index.html file found in /var/www/html directory in the root path of your website.

In this section you will create an index.html file to be served.

### Step 1. Navigate to the directory

```
cd /var/www/html
```

### Step 2. Manually create an index.html file in this directory

- Using your preferred editor (vim, nano, etc) create the index.html file:

```
vim index.html
```

- Add valid html to the file (e.g.):

```
<html><body>My first EC2 instance</body></html>
```

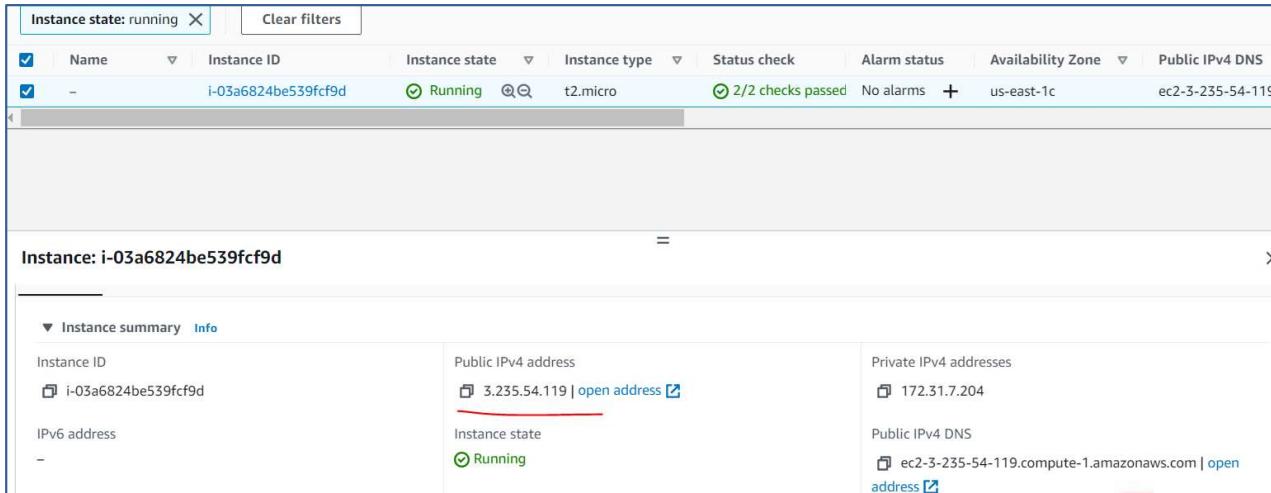
- Exit and save. Make sure that the file has content:

```
cat index.html
```

```
[root@ip-172-31-7-204 ec2-user]# cd /var/www/html
[root@ip-172-31-7-204 html]# vim index.html
[root@ip-172-31-7-204 html]# cat index.html
<html><body>My first EC2 instance</body></html>
[root@ip-172-31-7-204 html]#
```

### Step 3. Browse the website

- Navigate back to the EC2 dashboard in the AWS console and copy the Public DNS(or IPV4) of your instance into your clipboard.
- Paste that address into your browser like `http://<IPV4>` .
- If all went well, you should see the html that you just created!



The screenshot shows the AWS EC2 Instances page. A single instance is listed:

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4 DNS
-	i-03a6824be539fcf9d	Running	t2.micro	2/2 checks passed	No alarms	us-east-1c	ec2-3-235-54-119

Below the table, the instance details are shown:

Instance: i-03a6824be539fcf9d

Instance summary		
Instance ID i-03a6824be539fcf9d	Public IPv4 address <a href="#">3.235.54.119   open address</a>	Private IPv4 addresses 172.31.7.204
IPv6 address -	Instance state Running	Public IPv4 DNS <a href="#">ec2-3-235-54-119.compute-1.amazonaws.com   open address</a>

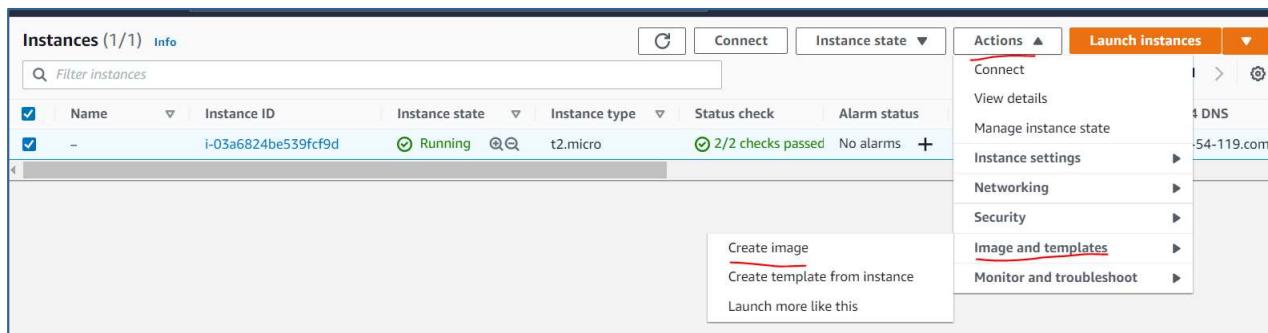
  


The browser address bar displays "Not secure | 3.235.54.119". Below the address bar, the text "My first EC2 instance" is visible.

You have successfully created an EC2 instance and hosted a website on it.

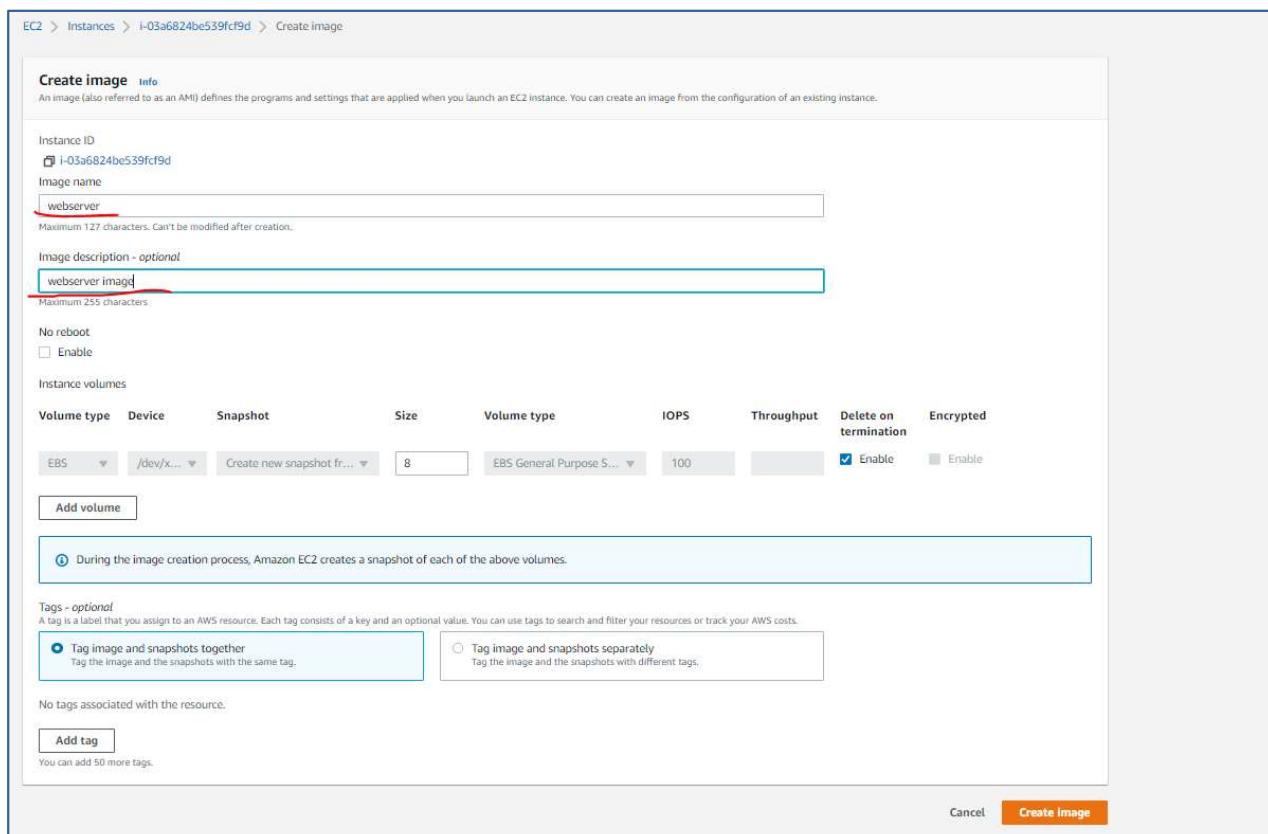
## Create an AMI

**Step 1.** Right-click the instance you want to use as the basis for your AMI, and choose Create Image from the context menu.



**Step 2.** In the Create Image dialog box, type a unique name and description, and then choose Create Image.

- By default, Amazon EC2 shuts down the instance, takes snapshots of any attached volumes, creates and registers the AMI, and then reboots the instance.
- Choose No reboot, only if you don't want your instance to be shut down.



EC2 > Instances > i-03a6824be539fcf9d > Create image

**Create image** Info

An image (also referred to as an AMI) defines the programs and settings that are applied when you launch an EC2 instance. You can create an image from the configuration of an existing instance.

Instance ID:

Image name:  Maximum 127 characters. Can't be modified after creation.

Image description - optional:  Maximum 255 characters.

No reboot:  Enable

Instance volumes:

Volume type	Device	Snapshot	Size	Volume type	IOPS	Throughput	Delete on termination	Encrypted
EBS	/dev/x...	Create new snapshot fr...	8	EBS General Purpose S...	100		<input checked="" type="checkbox"/> Enable	<input type="checkbox"/> Enable

Add volume

During the image creation process, Amazon EC2 creates a snapshot of each of the above volumes.

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.

Tag image and snapshots together  
Tag the image and the snapshots with the same tag.

Tag image and snapshots separately  
Tag the image and the snapshots with different tags.

No tags associated with the resource.

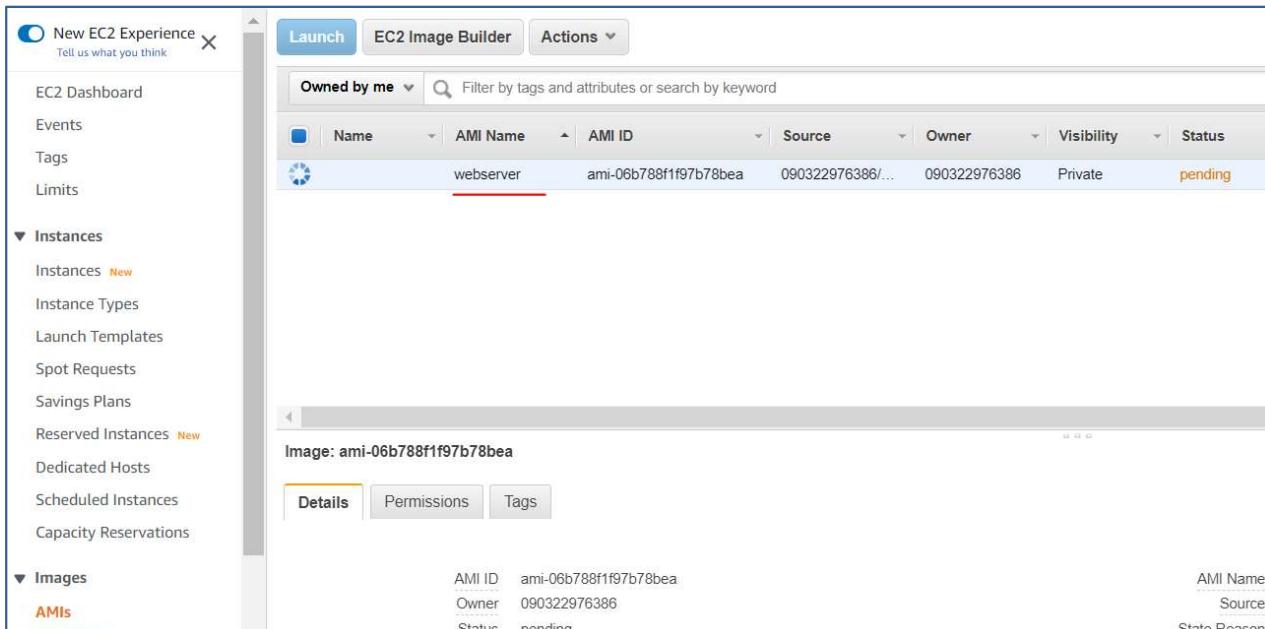
Add tag

You can add 50 more tags.

Create Image

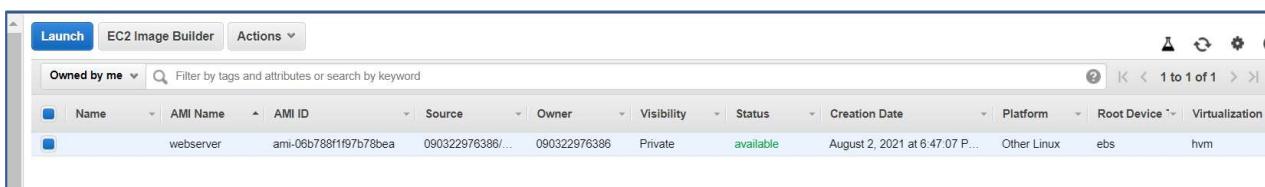
**Step 3.** It may take a few minutes for the AMI to be created. After it is created, it will appear in the AMIs view in AWS Explorer.

- To display this view, double-click the Amazon EC2 | AMIs node in AWS Explorer. To see your AMIs, from the Viewing drop-down list, choose Owned By Me.
- You may need to choose Refresh to see your AMI. When the AMI first appears, it may be in a pending state, but after a few moments, it transitions to an available state.



The screenshot shows the AWS EC2 AMI list. On the left, there's a navigation sidebar with links like EC2 Dashboard, Events, Tags, Limits, Instances, Images, and AMIs. The AMIs link is highlighted. The main area has tabs for Launch, EC2 Image Builder, and Actions. A dropdown menu shows 'Owned by me'. A search bar and a filter for tags and keywords are present. A table lists AMIs with columns for Name, AMI Name, AMI ID, Source, Owner, Visibility, and Status. One row is selected, showing 'webserver' as the AMI Name, 'ami-06b788f1f97b78bea' as the AMI ID, and 'pending' as the Status. Below the table, details for the selected AMI are shown: AMI ID: ami-06b788f1f97b78bea, Owner: 090322976386, Status: pending. To the right, there are buttons for AMI Name, Source, and State Reason. At the bottom, there are tabs for Details, Permissions, and Tags.

**Step 4.** After some time, your image is created. You can use Launch option to create an EC2 instance from it. I will directly deploy your website on an EC2 instance now, which can be accessed directly



This screenshot shows the same AWS EC2 AMI list as the previous one, but the 'Status' column for the 'webserver' AMI now shows 'available' instead of 'pending'. The rest of the interface is identical, including the sidebar, tabs, and table structure.

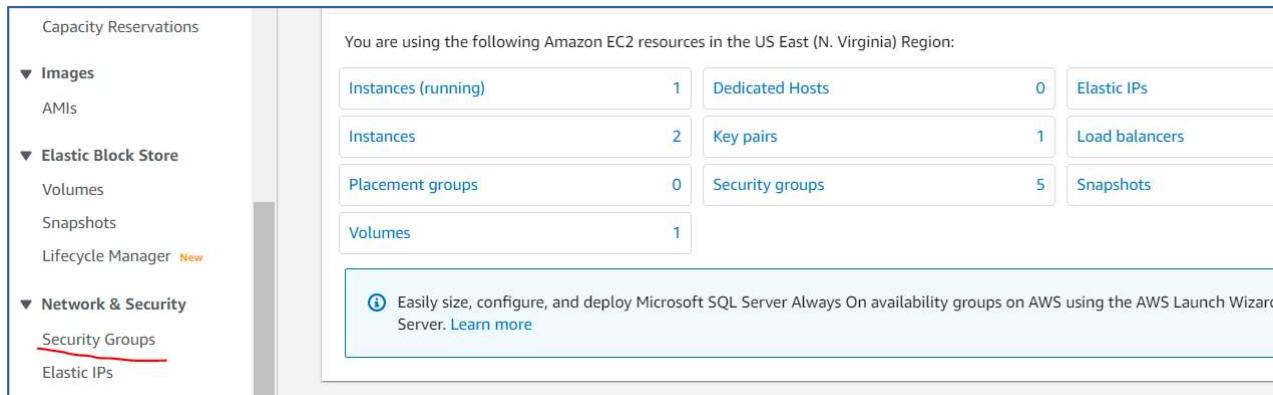


The screenshot shows a web browser window. The address bar displays the IP address '3.85.41.151'. The page content includes a back arrow, a forward arrow, a refresh icon, and the text 'Not secure'. Below the address bar, the message 'My first EC2 instance' is displayed. The background of the browser window is dark.

## Create an Elastic IP

**Step 1.** Open the Amazon EC2 console at <https://console.aws.amazon.com/ec2/>

**Step 2.** In the navigation pane, choose **Network & Security, Elastic IPs**.

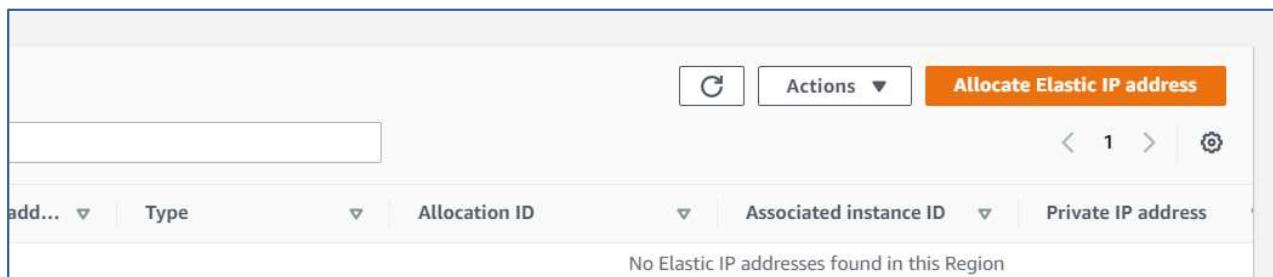


The screenshot shows the AWS EC2 Network & Security page. On the left, there's a navigation pane with options like Capacity Reservations, Images (AMIs), Elastic Block Store (Volumes, Snapshots, Lifecycle Manager), and Network & Security (Security Groups, **Elastic IPs**). The main area displays a summary of resources in the US East (N. Virginia) Region:

You are using the following Amazon EC2 resources in the US East (N. Virginia) Region:			
Instances (running)	1	Dedicated Hosts	0
Instances	2	Key pairs	1
Placement groups	0	Security groups	5
Volumes	1	Snapshots	

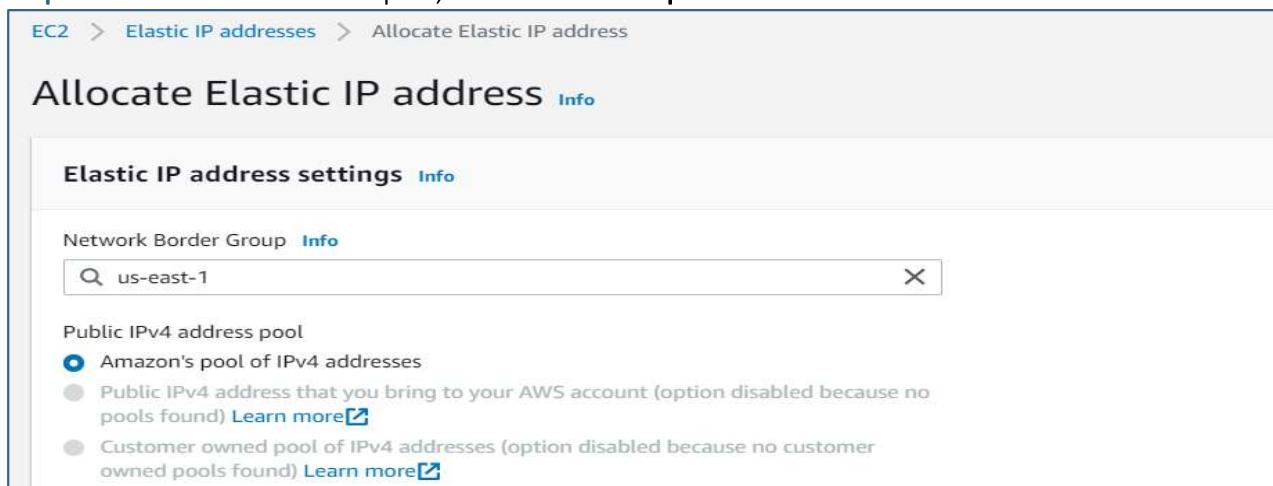
Below the summary, a note says: "Easily size, configure, and deploy Microsoft SQL Server Always On availability groups on AWS using the AWS Launch Wizard Server. [Learn more](#)".

**Step 3.** Choose **Allocate Elastic IP address**.



The screenshot shows the 'Allocate Elastic IP address' page. At the top, there are buttons for 'Actions' and 'Allocate Elastic IP address'. Below that is a search bar and a table with columns: add..., Type, Allocation ID, Associated instance ID, and Private IP address. A message at the bottom states: "No Elastic IP addresses found in this Region".

**Step 4.** For Public IPv4 address pool, choose **Amazon's pool of IPv4 addresses**:



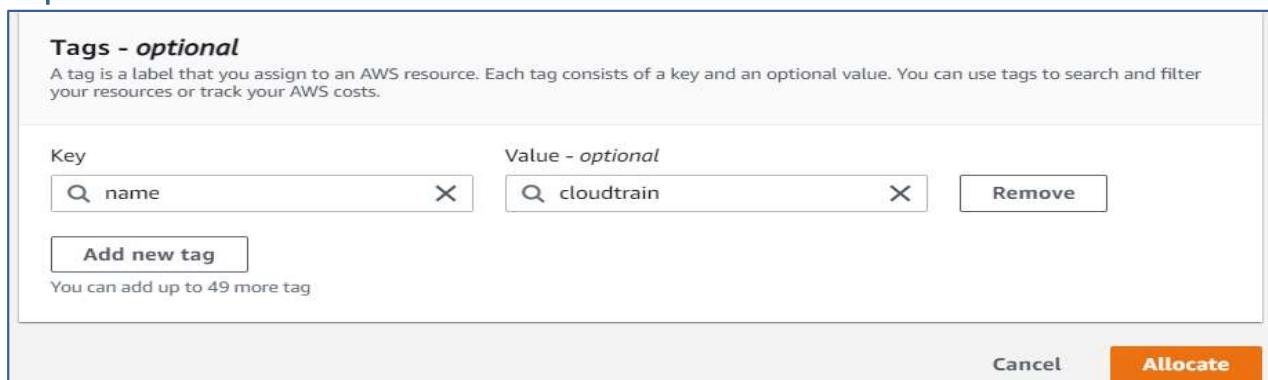
The screenshot shows the 'Allocate Elastic IP address' settings page. The 'Network Border Group' dropdown is set to 'us-east-1'. Under 'Public IPv4 address pool', the radio button for 'Amazon's pool of IPv4 addresses' is selected, while other options like 'Public IPv4 address that you bring to your AWS account' and 'Customer owned pool of IPv4 addresses' are disabled.

**Step 5.** (Optional) Add or remove a tag.

[Add a tag] Choose Add new tag and do the following:

- For Key, enter the key name.
- For Value, enter the key value.

[Remove a tag] Choose Remove to the right of the tag's Key and Value.

**Step 6.** Choose Allocate.

The screenshot shows the 'Tags - optional' dialog box. It includes a descriptive text about tags, a table for adding tags with columns for Key and Value, and buttons for Add new tag, Remove, Cancel, and Allocate.

Key	Value - optional
<input type="text" value="name"/>	<input type="text" value="cloustrain"/>

**Add new tag** **Remove**

You can add up to 49 more tag

**Cancel** **Allocate**

## Associate an Elastic IP Address to an instance

**Step 1.** Open the Amazon EC2 console at <https://console.aws.amazon.com/ec2/>.

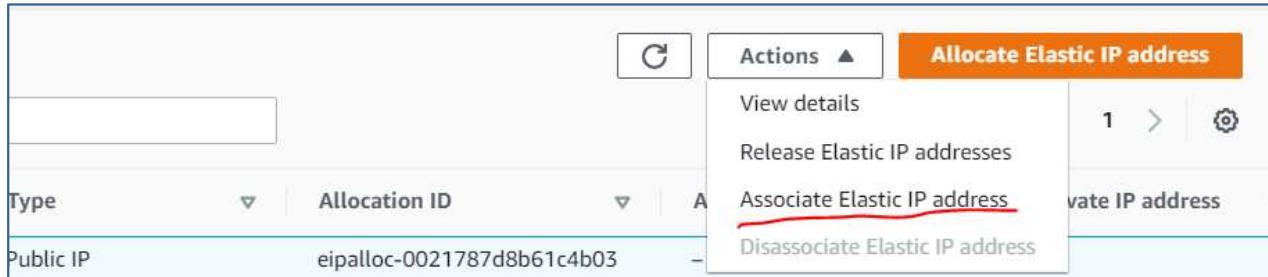
**Step 2.** In the navigation pane, choose **Elastic IPs**.



The screenshot shows the 'Resources' section of the AWS EC2 console. It displays various resource counts in the US East (N. Virginia) Region. The 'Elastic IPs' count is highlighted with a red underline.

Instances (running)	1	Dedicated Hosts	0	Elastic IPs	1
Instances	1	Key pairs	1	Load balancers	0
Placement groups	0	Security groups	5	Snapshots	1

**Step 3.** Select the Elastic IP address to associate and choose **Actions, Associate Elastic IP address**.



The screenshot shows the AWS Elastic IP Addresses list. A dropdown menu is open over a row of elastic IP addresses. The menu has a heading 'Actions' and an orange button labeled 'Allocate Elastic IP address'. Below these are several options: 'View details', 'Release Elastic IP addresses', 'Associate Elastic IP address' (which is underlined in red), and 'Disassociate Elastic IP address'. The 'Associate Elastic IP address' option is the one being selected.

**Step 4.** For Resource type, choose **Instance**.



The screenshot shows the 'Associate Elastic IP address' wizard. Step 1: Choose the instance or network interface to associate to this Elastic IP address (52.206.153.52). It displays the 'Elastic IP address: 52.206.153.52' and a 'Resource type' section. In the 'Resource type' section, there are two options: 'Instance' (selected) and 'Network interface'. The 'Instance' option is selected with a blue circle.

**Step 5.** For instance, choose the instance with which to associate the Elastic IP address. You can also enter text to search for a specific instance.



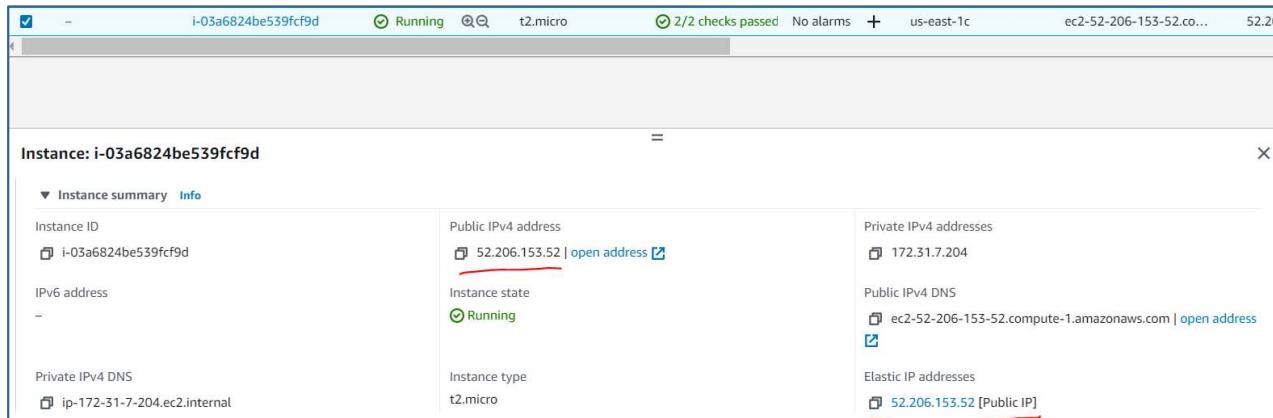
The screenshot shows the 'Associate Elastic IP address' wizard. Step 2: Choose the instance with which to associate the Elastic IP address. It displays a search bar for 'Instance' containing 'i-03a6824be539fcf9d'. Below it is a 'Private IP address' section with a search bar containing 'Choose a private IP address'.

**Step 6.** (Optional) For Private IP address, specify a private IP address with which to associate the Elastic IP address.

**Step 7.** Choose Associate.

**Step 8.** You can access your instance on this static IP which can survive server reboot and shutdown.





**NOTE:** If not associated, Elastic IP will cost you in AWS. Therefore, always keep Elastic Ips attached to an instance or delete them by choosing Release option from Actions drop down.

## Attaching an EBS volume externally

### To create an empty EBS volume using the console

**Step 1.** Open the Amazon EC2 console at <https://console.aws.amazon.com/ec2/>.

**Note:** From the navigation bar, select the Region in which you would like to create your volume. This choice is important because some Amazon EC2 resources can be shared between Regions, while others can't.

**Step 2.** In the navigation pane, choose **ELASTIC BLOCK STORE -> Volumes**.



The screenshot shows the AWS EC2 Volumes page. On the left, the navigation pane includes options for Scheduled Instances, Capacity Reservations, Images, AMIs, Elastic Block Store (with Volumes and Snapshots selected), and Lifecycle Manager. The main area displays the following information:

You are using the following Amazon EC2 resources in the US East (N. Virginia) Region:

Instances (running)	1	Dedicated Hosts	0	Ela
Instances	1	Key pairs	1	Loa
Placement groups	0	Security groups	5	Sna
Volumes	1			

**Step 3.** Choose Create Volume.

The screenshot shows the AWS EBS console with a search bar at the top. Below it is a table with columns: Name, Volume ID, Size, Volume Type, IOPS, Throughput, Snapshot, and Created. One row is visible, showing a volume named 'vol-09c1fb26...', size 8 GiB, type gp2, IOPS 100, and created on August 2, 2021 at 5:... . A red box highlights the 'Create Volume' button at the top left of the table area.

**Step 4.** For Volume Type, choose a volume type General Purpose SSD (gp2)

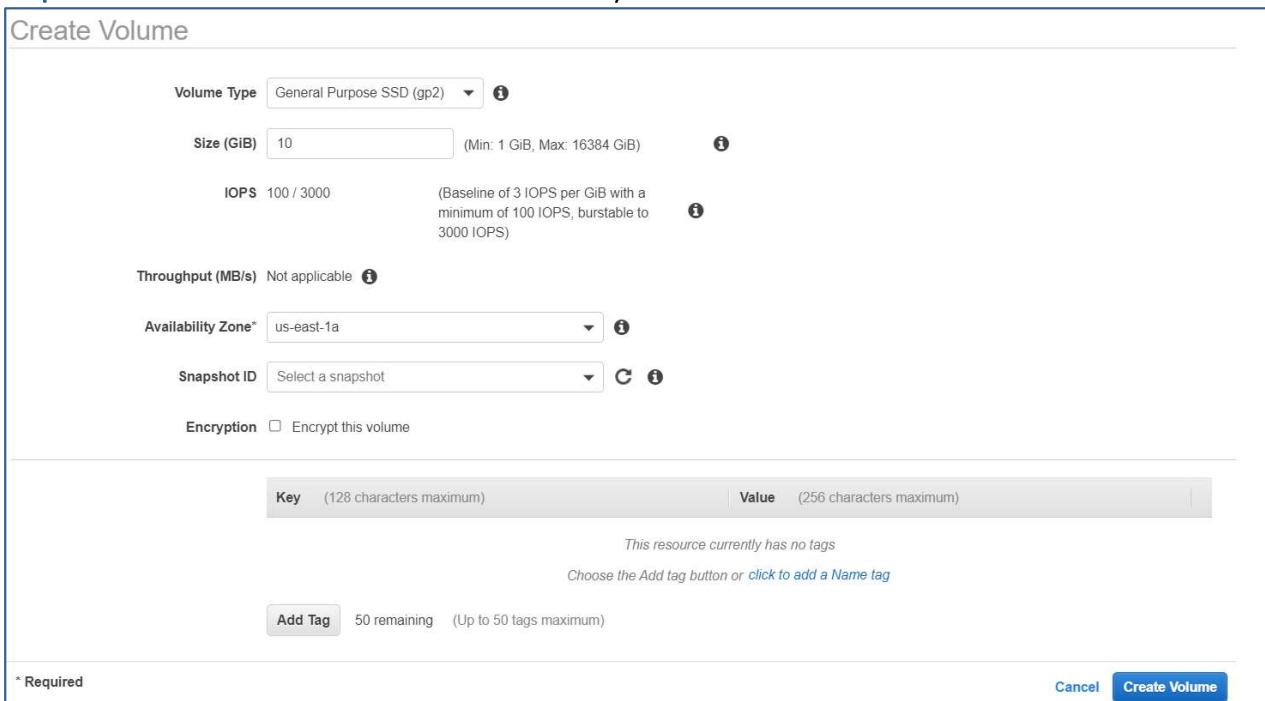
**Step 5.** For Size, enter the size of the volume, in GiB, say 10 GB.

**Step 6.** For IOPS, leave default value.

**Step 7.** For Throughput, enter the throughput that the volume should provide, in MiB/s. You can specify throughput only for gp3 volumes. So leave it for now.

**Step 8.** For Availability Zone, choose the Availability Zone in which to create the volume. An EBS volume must be attached to an EC2 instance that is in the same Availability Zone as the volume.

**Step 9.** Choose Create Volume. The volume is ready for use when the volume status is Available.



The screenshot shows the 'Create Volume' wizard step 9. It has the following fields:

- Volume Type: General Purpose SSD (gp2)
- Size (GiB): 10 (Min: 1 GiB, Max: 16384 GiB)
- IOPS: 100 / 3000 (Baseline of 3 IOPS per GiB with a minimum of 100 IOPS, burstable to 3000 IOPS)
- Throughput (MB/s): Not applicable
- Availability Zone\*: us-east-1a
- Snapshot ID: Select a snapshot
- Encryption:  Encrypt this volume
- Key: (128 characters maximum)
- Value: (256 characters maximum)
- Tags: This resource currently has no tags. Choose the Add tag button or click to add a Name tag. Add Tag (50 remaining (Up to 50 tags maximum))

\* Required

Cancel **Create Volume**



Volumes > Create Volume

## Create Volume

✓ Volume created successfully

Volume ID vol-06e8e2b79a3d0c261

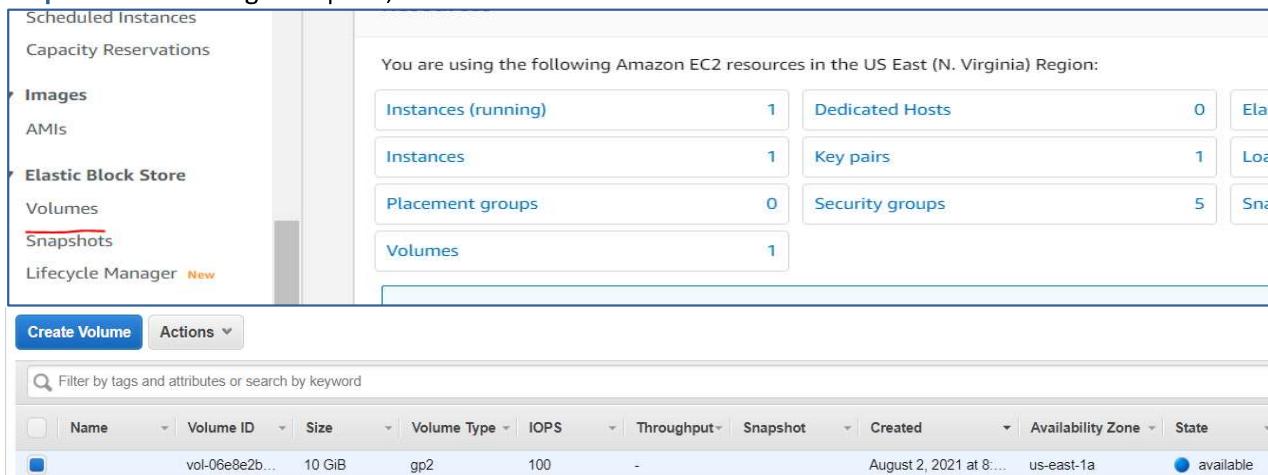
**Close**

This screenshot shows a success message in a green-bordered box: "✓ Volume created successfully". Below it, the Volume ID "vol-06e8e2b79a3d0c261" is displayed. At the bottom right is a blue "Close" button.

## To attach an EBS volume to an instance using the console

**Step 1.** Open the Amazon EC2 console at <https://console.aws.amazon.com/ec2/>.

**Step 2.** In the navigation pane, choose **Elastic Block Store -> Volumes**.



Scheduled Instances

Capacity Reservations

Images

AMIs

Elastic Block Store

Volumes

Snapshots

Lifecycle Manager New

You are using the following Amazon EC2 resources in the US East (N. Virginia) Region:

Instances (running)	1	Dedicated Hosts	0	Elas...
Instances	1	Key pairs	1	Load...
Placement groups	0	Security groups	5	Snaps...
Volumes	1			

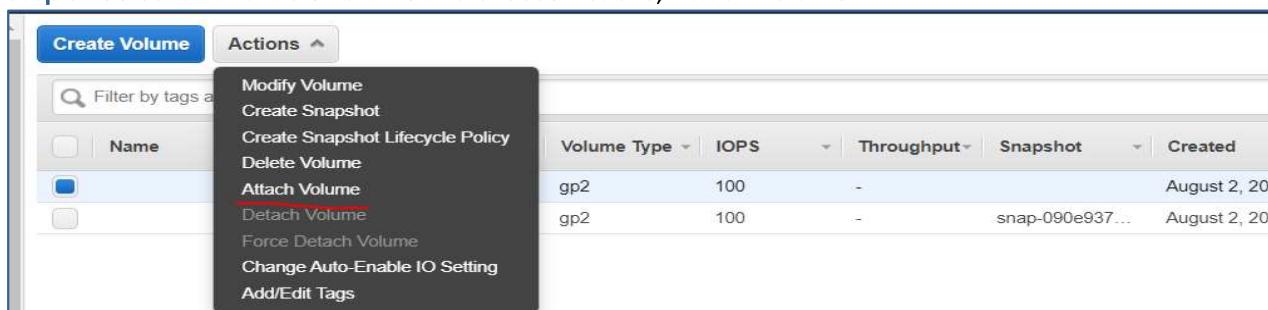
**Create Volume** **Actions**

Filter by tags and attributes or search by keyword

Name	Volume ID	Size	Volume Type	IOPS	Throughput	Snapshot	Created	Availability Zone	State
vol-06e8e2b...	10 GiB	gp2	100	-			August 2, 2021 at 8:...	us-east-1a	available

This screenshot shows the AWS EC2 Volumes page. On the left, there's a navigation pane with options like Scheduled Instances, Capacity Reservations, Images, AMIs, Elastic Block Store, Volumes (which is selected), Snapshots, and Lifecycle Manager. The main area displays resource counts: 1 running instance, 1 instance, 0 placement groups, 1 volume, etc. Below this is a "Create Volume" button and an "Actions" dropdown. A search bar and a filter table are also present. At the bottom, a table lists the newly created volume: Name "vol-06e8e2b...", Size "10 GiB", Volume Type "gp2", IOPS "100", Throughput "-", Snapshot "", Created "August 2, 2021 at 8:...", Availability Zone "us-east-1a", and State "available".

**Step 3.** Select an available volume and choose Actions, Attach Volume.



**Create Volume** **Actions**

Modify Volume

Create Snapshot

Create Snapshot Lifecycle Policy

Delete Volume

**Attach Volume**

Detach Volume

Force Detach Volume

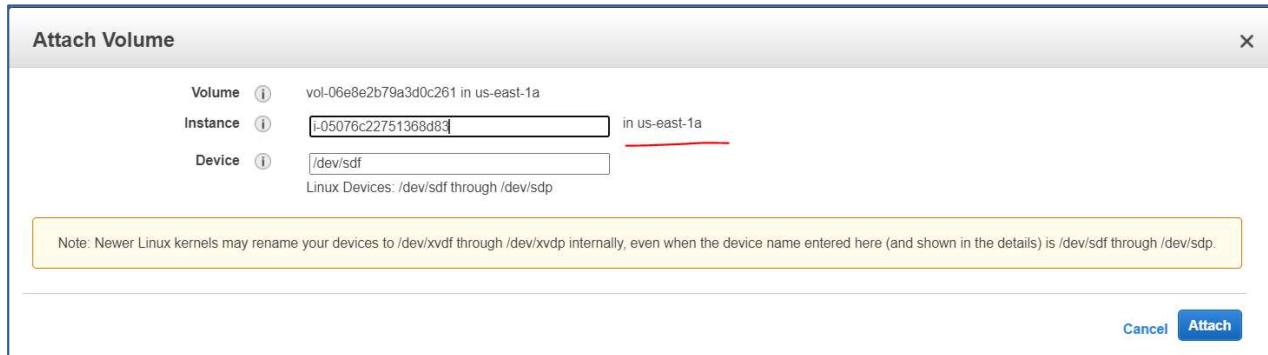
Change Auto-Enable IO Setting

Add/Edit Tags

Volume Type	IOPS	Throughput	Snapshot	Created
gp2	100	-		August 2, 202...
gp2	100	-	snap-090e937...	August 2, 202...

This screenshot shows the Actions menu for a selected volume. The "Attach Volume" option is highlighted. The main table lists two volumes: one gp2 volume of 100 IOPS created on August 2, 2021, and another gp2 volume of 100 IOPS with a snapshot and created on the same date. The Actions menu includes options like Modify Volume, Create Snapshot, Create Snapshot Lifecycle Policy, Delete Volume, Attach Volume (which is underlined), Detach Volume, Force Detach Volume, Change Auto-Enable IO Setting, and Add/Edit Tags.

**Step 4.** For Instance, start typing the name or ID of the instance. Select the instance from the list of options (only instances that are in the same Availability Zone as the volume are displayed).



Attach Volume

Volume ⓘ vol-06e8e2b79a3d0c261 in us-east-1a

Instance ⓘ i-05076c22751368d83 in us-east-1a

Device ⓘ /dev/sdf

Linux Devices: /dev/sdf through /dev/sdp

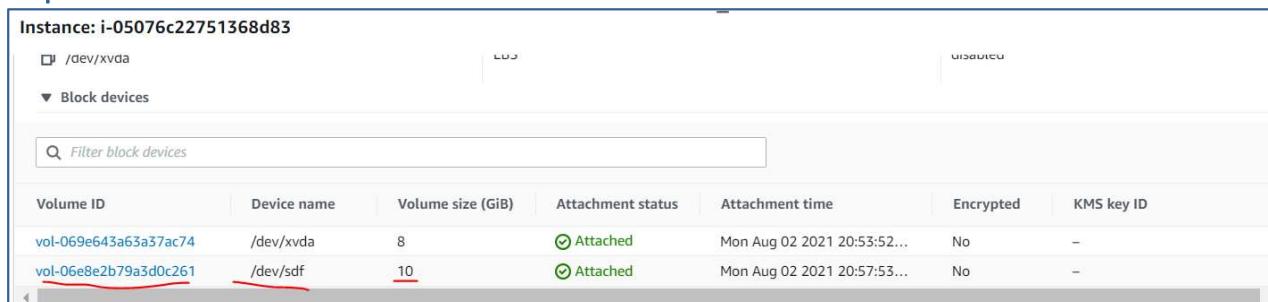
Note: Newer Linux kernels may rename your devices to /dev/xvdf through /dev/xvdp internally, even when the device name entered here (and shown in the details) is /dev/sdf through /dev/sdp.

Cancel Attach

**Step 5.** For Device, you can keep the suggested device name, or type a different supported device name.

**Step 6.** Choose **Attach**.

**Step 7.** You can check the new volume attached to instance as below:



Instance: i-05076c22751368d83

Block devices

Filter block devices

Volume ID	Device name	Volume size (GiB)	Attachment status	Attachment time	Encrypted	KMS key ID
vol-069e643a63a37ac74	/dev/xvda	8	Attached	Mon Aug 02 2021 20:53:52...	No	-
vol-06e8e2b79a3d0c261	/dev/sdf	10	Attached	Mon Aug 02 2021 20:57:53...	No	-

**Step 8.** Connect to your instance and mount the volume

```
[ec2-user@ip-172-31-24-50 ~]$ lsblk
NAME   MAJ:MIN RM SIZE RO TYPE MOUNTPOINT
xvda   202:0    0  8G  0 disk
└─xvda1 202:1    0  8G  0 part /
xvdf   202:80   0 10G  0 disk
[ec2-user@ip-172-31-24-50 ~]$
```