

Assignment : 14

Title : Create an elastic IP for an instance.

Disadvantage of using public IPv4 address : One of the biggest benefits of compute capacity in cloud such as EC2 is to be able to start, stop, hibernate or terminate your instance within a matter of seconds. However, there is a downside as well. If you stop your EC2 instance and start it again, the IP address of your instance changes. That means your instance is no longer accessible using your old IP address.

For example : If you are hosting your application on EC2 and the public IP changes. Your application becomes inaccessible. You might think that you will use the new IP address instead. Well that will work of course. But what if you are using a custom domain name where you have specified the IP address of the instance. It is almost impossible and impractical to update the A record manually each time IP address changes.

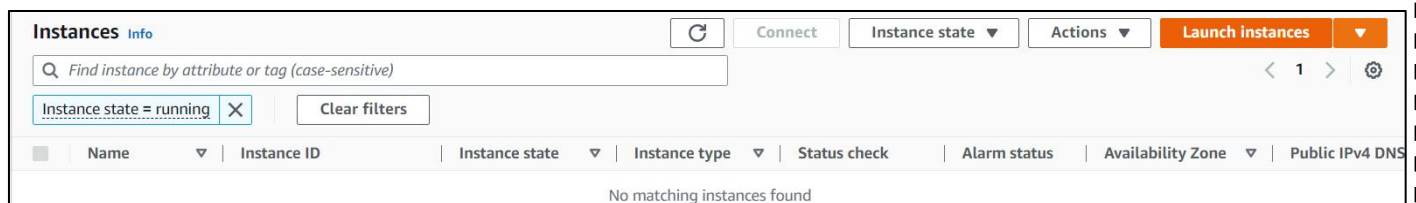
The solution is to attach an Elastic IP to your instance. Now even if your system stops , starts or hibernate, your instance has elastic IP attached to it. Even if your instance got terminated somehow, you can launch a new instance and attach the same elastic IP to new instance.

An **Elastic IP** is a static public IP address that you can allocate to your AWS account. Once allocated, you can associate this elastic IP to any of your EC2 instance, disassociate from one instance and re-associate to another. That means it's a reserved public IP address that you can assign to your EC2 instance.

Steps to create an elastic IP :

A. Steps to Create an instance :

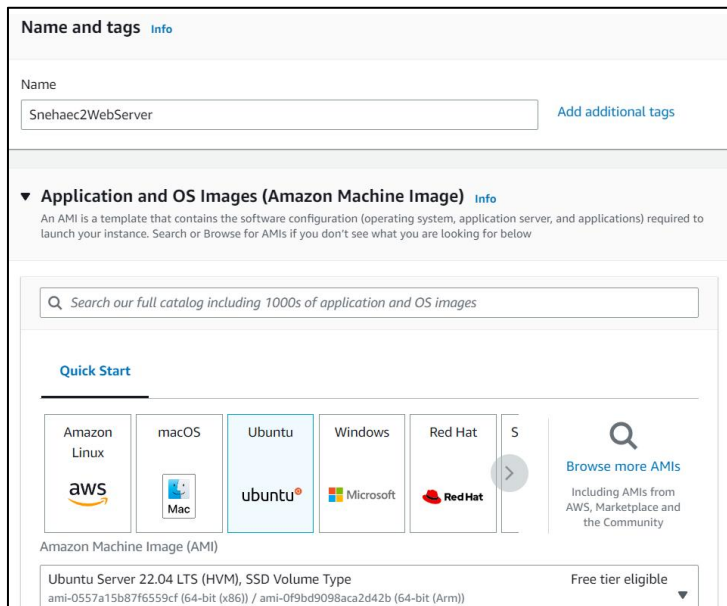
1. Open the Amazon EC2 console.
2. From the EC2 console dashboard, Click on **Instances(Running)**, choose **Launch instance**.



and The Launch an instance page opens..

3. Under Name and tags, for Name, enter a descriptive name for your instance like 'Snehaec2WebServer'.

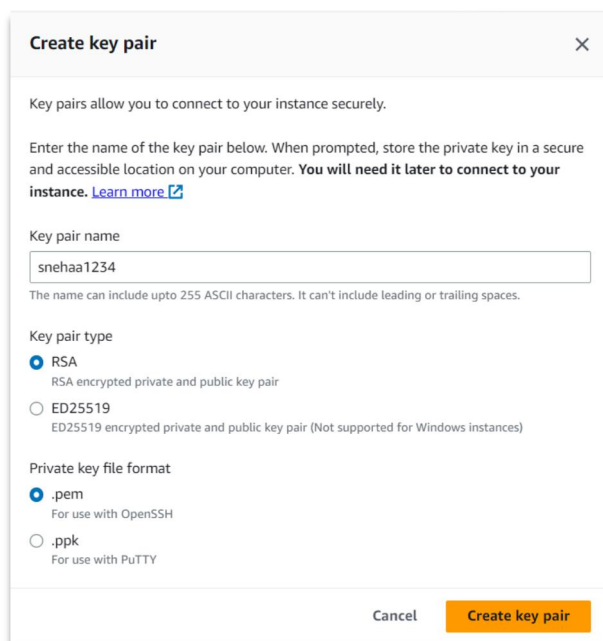
4. Under Application and OS Images (Amazon Machine Image), do the following: Choose Quick Start, and then choose Ubuntu. This is the operating system (OS) for your instance, which is Free Tier Eligible.



Under Instance type, from the Instance type list, you can select the hardware configuration for your instance. Choose the t2.micro instance type, which is selected by default. The t2.micro instance type is eligible for the free tier.



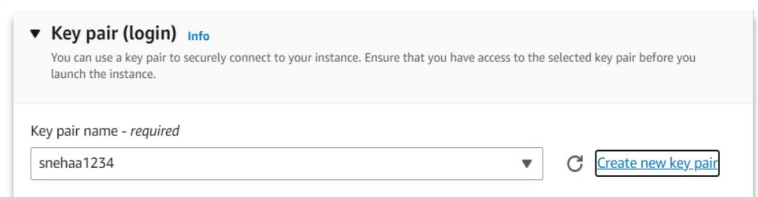
5. Under Key pair (login), for Key pair name, choose the key pair that you created already or Choose Create new key pair. A dialogue box opens – Give a name to the key pair under the Key pair name like snehaa1234



The key pair generated is of:

- i. Type – RSA
- ii. File format – .pem

Click on Create key pair and the .pem file of your key pair is automatically downloaded. And is saved for further use.



6. In Network settings, under the Firewall (Security groups) there is a by default selection of Create security Groups under which check or select all the three boxes namely :

- ☒ **Allow SSH traffic from** - Helps you connect to your instance
- ☒ **Allow HTTPS traffic from the internet** - To set up an end point.
- ☒ **Allow HTTP traffic from the internet** - To set up an endpoint .

7. Keep the default selections for the other configuration settings for your instance. Review a summary of your instance configuration in the **Summary** panel, and when you're ready, choose **Launch instance**.

A confirmation page lets you know that your instance is launching. Choose **View all instances** to close the confirmation page and return to the console.

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 ☐ 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
- ☒ **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.

Summary

Number of instances [Info](#)
1

Software Image (AMI)
Canonical, Ubuntu, 22.04 LTS, ...[read more](#)
ami-0557a15b87f6559cf

Virtual server type (instance type)
t2.micro

Firewall (security group)
New security group

Storage (volumes)
1 volume(s) - 8 GiB

Free tier: In your first year includes

Cancel **Launch instance**

B. Save the public IPv4 address and stop the instance (Instance state → stop instance), keep a note of the IP address.

C. Now run the same instance (Instance state → start instance) and check the Public ipv4 address again, you can see the address has changed.

Successfully started i-013efbdfb2b6b3117

48.175.140.192 - Before stopping
54.164.207.208 - after restarting

D. Now create Elastic IP .

Network & Security → Elastic IPs → Allocate Elastic IP Address

Elastic IP addresses

Name	Allocated IPv4 addr...	Type	Allocation ID	Reverse DNS record
No Elastic IP addresses found in				

Allocate Elastic IP address

Allocate the Elastic IP Address by clicking **Allocate**.

EC2 > Elastic IP addresses > Allocate Elastic address

Allocate Elastic IP address [Info](#)

Elastic IP address settings [Info](#)

Network Border Group [Info](#)

Public IPv4 address pool
☒ Amazon's pool of IPv4 addresses

Cancel **Allocate**

E. Now we will associate the IP address.

Click on IP address you created and then click on **Associate Elastic IP Address**.

EC2 > Elastic IP addresses > 44.215.146.42

44.215.146.42

Actions ▾ Associate Elastic IP address

Summary

Allocated IPv4 address 44.215.146.42	Type Public IP	Allocation ID eipalloc-09cce3dfa70b222a2	Reverse DNS record -
Association ID -	Scope VPC	Associated instance ID -	Private IP address -
Network interface ID -	Network interface owner account ID -	Public DNS -	NAT Gateway ID -
Address pool Amazon	Network Border Group us-east-1		

Resource Type – choose Instance

Instance – choose the current running instance allocated with elastic IP

Private IP Address – Default


Tick the box – **Allow this Elastic IP address to be reassociated**

Elastic IP address: 44.215.146.42

Resource type
Choose the type of resource with which to associate the Elastic IP address.

☒ Instance

☐ Network interface

 If you associate an Elastic IP address with an instance that already has an Elastic IP address associated, the previously associated Elastic IP address will be disassociated, but the address will still be allocated to your account. [Learn more](#)

If no private IP address is specified, the Elastic IP address will be associated with the primary private IP address.

Instance

Private IP address
The private IP address with which to associate the Elastic IP address.

Reassociation
Specify whether the Elastic IP address can be reassociated with a different resource if it already associated with a resource.

☒ Allow this Elastic IP address to be reassociated

Cancel Associate

✔ Elastic IP address associated successfully.
Elastic IP address 44.215.146.42 has been associated with instance i-013efbdfb2b6b3117

Summary

Allocated IPv4 address 44.215.146.42	Type Public IP	Allocation ID eipalloc-09cce3dfa70b222a2	Reverse DNS record –
Association ID eipassoc-0f6e5dd443f83f069	Scope VPC	Associated instance ID i-013efbdfb2b6b3117	Private IP address 172.31.82.82
Network interface ID eni-02e85ba145e2dae7d	Network interface owner account ID 044915352154	Public DNS ec2-44-215-146-42.compute-1.amazonaws.com	NAT Gateway ID –
Address pool Amazon	Network Border Group us-east-1		

F. Save the public IPv4 address and stop the instance (Instance state → stop instance), keep a note of the IP address.

G. Now run the same instance (Instance state → start instance) and check the Public ipv4 address again, you can see the address has not changed this time.

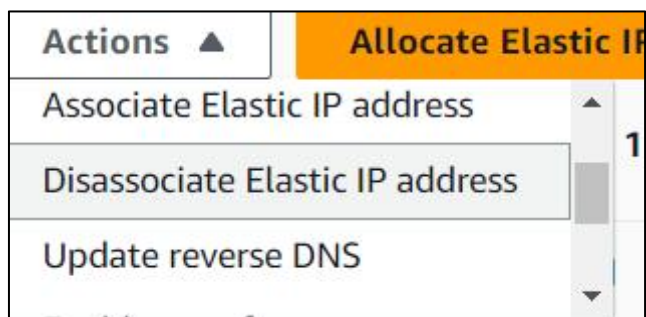
That's the final job for the elastic IP.

File Edit Format View Help
48.175.140.192 - Before stopping
54.164.207.208 - after restarting

Using elastic IP :
44.215.146.42 - Before stopping
44.215.146.42 - after restarting

H. To delete The Elastic IP :

- Disassociate Elastic IP Address
- Release Elastic IP Address



✔ Elastic IP addresses released.
Elastic IP addresses 44.215.146.42