

Lab 1 bootcamp - Sonu Subedi

Steps involved:

Step 1:

[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

[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

[Quick Start](#)

Virtualization: hvm ENA enabled: true Root device type: ebs

Description

Amazon Linux 2023 AMI 2023.3.20240108.0 x86_64 HVM kernel-6.1

Architecture

64-bit (x86)



Boot mode

uefi-preferred

AMI ID

ami-0005e0cfe09cc9050

Verified provider

▼ Instance type [Info](#) | [Get advice](#)

Instance type

t2.micro

Free tier eligible

Family: t2 1 vCPU 1 GiB Memory Current generation: true

On-Demand Windows base pricing: 0.0162 USD per Hour

On-Demand SUSE base pricing: 0.0116 USD per Hour

On-Demand RHEL base pricing: 0.0716 USD per Hour

On-Demand Linux base pricing: 0.0116 USD per Hour

☐ All generations

[Compare instance types](#)

[Additional costs apply for AMIs with pre-installed software](#)

Create key pair

Key pair name

Key pairs allow you to connect to your instance securely.

key

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

Key pair type

☒ RSA
RSA encrypted private and public key pair

☐ ED25519
ED25519 encrypted private and public key pair

Private key file format

☒ .pem
For use with OpenSSH

☐ .ppk
For use with PuTTY

⚠

When prompted, store the private key in a secure and accessible location on your computer. **You will need it later to connect to your instance.** [Learn more](#)

Cancel

Create key pair

▼ Network settings Info

Edit

Network Info

vpc-00b45d126454bad71

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

☐ 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

Tick on allow HTTP traffic

Configure storage:

security group rules to allow access from known IP addresses only.

▼ Configure storage InfoAdvanced

1x 8 GiB gp3 Root volume (Not encrypted)

Free tier eligible customers can get up to 30 GB of EBS General Purpose (SSD) or Magnetic storage

Add new volume

Click refresh to view backup information

The tags that you assign determine whether the instance will be backed up by any Data Lifecycle Manager policies.

0 x File systemsEdit

Number of volumes1

SoftwareAmazon Linux 2ami-0005e0c3247562b6c

Virtual server typet2.micro

Firewall (security group)New security group

Storage (Amazon EBS)1 volume(s)

Free tier eligible customers can get up to 30 GB of EBS General Purpose (SSD) or Magnetic storage

Cancel

EC2 > Instances > Launch an instance

Success

Successfully initiated launch of instance (i-0c48aa472bfe42872)

▼ Launch log

Initializing requests

Creating security groups

Creating security group rules

Launch initiation

Succeeded

Succeeded

Succeeded

Succeeded

	Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4 DNS
<input type="checkbox"/>	Sonu's server	i-0c48aa472bfe42872	Running	t2.micro	2/2 checks passed	View alarms	us-east-1a	ec2-54-221-83-1

Instance summary for i-0c48aa472bfe42872 (Sonu's server) Info

Updated less than a minute ago

Refresh

Connect

Instance state ▼

Actions ▼

<div>Instance ID</div> <div> i-0c48aa472bfe42872 (Sonu's server)</div>	<div>Public IPv4 address</div> <div> 54.221.83.174 open address</div>	<div>Private IPv4 addresses</div> <div> 172.31.29.139</div>
<div>IPv6 address</div> <div>–</div>	<div>Instance state</div> <div> Running</div>	<div>Public IPv4 DNS</div> <div> ec2-54-221-83-174.compute-1.amazonaws.com open address</div>
<div>Hostname type</div> <div>IP name: ip-172-31-29-139.ec2.internal</div>	<div>Private IP DNS name (IPv4 only)</div> <div> ip-172-31-29-139.ec2.internal</div>	
<div>Answer private resource DNS name</div> <div>IPv4 (A)</div>	<div>Instance type</div> <div>t2.micro</div>	<div>Elastic IP addresses</div> <div>–</div>
<div>Auto-assigned IP address</div> <div> 54.221.83.174 [Public IP]</div>	<div>VPC ID</div> <div> vpc-00b45d126454bad71 open address</div>	<div>AWS Compute Optimizer finding</div> <div> Opt-in to AWS Compute Optimizer for recommendations. Learn more</div>
<div>IAM Role</div> <div>–</div>	<div>Subnet ID</div> <div> subnet-0ea462c026d642e8f open address</div>	<div>Auto Scaling Group name</div> <div>–</div>
<div>IMDSv2</div> <div>Required</div>		

Instance summary

Details

Status and alarms New

Monitoring

Security

Networking

Storage

Tags

▼ Security details

IAM Role

–

Owner ID

817679870051

Launch time

Fri Jan 19 2024 16:14:45 GMT+0545 (Nepal Time)

Security groups

sg-099621f502a3525b5 (launch-wizard-1)

▼ Inbound rules

Filter rules

< 1

ID	Port range	Protocol	Source	Security groups	Description
5362	22	TCP	0.0.0.0/0	launch-wizard-1	–
7db7	80	TCP	0.0.0.0/0	launch-wizard-1	–

Security group ko name:: launch-wizard

Allocate Elastic IP address [Info](#)

Elastic IP address settings [Info](#)

Network Border Group [Info](#)


Public IPv4 address pool

- ☒ Amazon's pool of IPv4 addresses
- ☐ Public IPv4 address that you bring to your AWS account with BYOIP. (option disabled because no pools found) [Learn more](#)
- ☐ Customer-owned pool of IPv4 addresses created from your on-premises network for use with an Outpost. (option disabled because no customer owned pools found) [Learn more](#)

Global static IP addresses

AWS Global Accelerator can provide global static IP addresses that are announced worldwide using anycast from AWS edge locations. This can help improve the availability and latency for your user traffic by using the Amazon global network. [Learn more](#)

[Create accelerator](#)

 Elastic IP address allocated successfully.
Elastic IP address 3.225.3.135

[Associate this Elastic IP address](#)

Elastic IP addresses (1/1)

[Public IPv4 address: 3.225.3.135](#)

[Clear filters](#)

<input checked="" type="checkbox"/>	Name	Allocated IPv4 addr...	Type	Allocation ID	Reverse DNS record
<input checked="" type="checkbox"/>	-	3.225.3.135	Public IP	eipalloc-0e8cf4724d318a012	-

Associate this Elastic IP address



Actions ▲

Allocate Elastic IP address

View details

Release Elastic IP addresses

Associate Elastic IP address

Disassociate Elastic IP address

Update reverse DNS

Enable transfers

Disable transfers

Accept transfers

Allocation ID

eipalloc-0e8cf4724

1



ord



Associate Elastic IP address [Info](#)

Choose the instance or network interface to associate to this Elastic IP address (3.225.3.135)

Elastic IP address: 3.225.3.135

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

CloudShell [Feedback](#)

✓ Elastic IP address associated successfully.

Elastic IP address 3.225.3.135 has been associated with instance i-0c48aa472bfe42872

Elastic IP addresses (1/1)



Actions ▾

Public IPv4 address: 3.225.3.135 X

<input checked="" type="checkbox"/>	Name ▾	Allocated IPv4 addr... ▾	Type ▾	Allocation ID ▾	Reverse DNS record ▾	Associ
<input checked="" type="checkbox"/>	-	3.225.3.135	Public IP	eipalloc-0e8cf4724d318a012	-	i-0c48

```
Command Prompt
Microsoft Windows [Version 10.0.22621.3007]
(c) Microsoft Corporation. All rights reserved.

C:\Windows\System32>cd Users
The system cannot find the path specified.

C:\Windows\System32> cd C:\Users\subed\Downloads

C:\Users\subed\Downloads> icacls key1.pem /inheritance:r /grant:r "%USERNAME%:R"
processed file: key1.pem
Successfully processed 1 files; Failed processing 0 files

C:\Users\subed\Downloads>|
```

```
C:\Users\subed\Downloads> icacls key1.pem /inheritance:r /grant:r "%USERNAME%:R"
processed file: key1.pem
Successfully processed 1 files; Failed processing 0 files
```

```
C:\Users\subed\Downloads>ssh -i "key1.pem" ec2-user@3.225.3.135
The authenticity of host '3.225.3.135 (3.225.3.135)' can't be established.
ED25519 key fingerprint is SHA256:vNRM9jkQxNCUVKDzSsQnoPkEF5nolqX4k4a/XjqVFbg.
This key is not known by any other names
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added '3.225.3.135' (ED25519) to the list of known hosts.
```

Version 2023.3.20240117:

```
#  
#- Amazon Linux 2023  
##-  
###-  
###|  
##/  
## \---  
##### V--!!-->  
##### /  
##### -  
##### /  
##### /m/!
```

<https://aws.amazon.com/linux/amazon-linux-2023>

```
[ec2-user@ip-172-31-29-139 ~]$
```

```
#  
I~\_ #####- Amazon Linux 2023  
NN \_#####\  
NN \###|  
NN \#/ ---  
NN V~! '->  
  
NNN  
NN ._-/_/  
-_m/'
```


Edit inbound rules [Info](#)

Inbound rules control the incoming traffic that's allowed to reach the instance.

Inbound rules [Info](#)

Security group rule ID	Type Info	Protocol Info	Port range Info	Source Info	Description - optional Info	
sgr-0d0b5c97b7eeb1354	<div>HTTP</div>	TCP	80	<div>Custom</div>	<div><div>Q</div><div>0.0.0.0/0</div></div>	<div></div> <div>Delete</div>
sgr-089bef5e2b56d1d08	<div>SSH</div>	TCP	22	<div>Custom</div>	<div><div>Q</div><div>0.0.0.0/0</div></div>	<div></div> <div>Delete</div>

Add rule

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

Cancel

Preview changes

Save rules

Hello from ip-172-31-25-247.ec2.internal

Application Load Balancer

► How Application Load Balancers work

Basic configuration

Load balancer name

Name must be unique within your AWS account and can't be changed after the load balancer is created.

A maximum of 32 alphanumeric characters including hyphens are allowed, but the name must not begin or end with a hyphen.

Scheme [Info](#)

Scheme can't be changed after the load balancer is created.

☒ Internet-facing

An internet-facing load balancer routes requests from clients over the internet to targets. Requires a public subnet. [Learn more](#) [↗](#)

☐ Internal

An internal load balancer routes requests from clients to targets using private IP addresses.

IP address type [Info](#)

Select the type of IP addresses that your subnets use.

☒ IPv4

Recommended for internal load balancers.

Network mapping [Info](#)

The load balancer routes traffic to targets in the selected subnets, and in accordance with your IP address settings.

VPC [Info](#)

Select the virtual private cloud (VPC) for your targets or you can [create a new VPC](#). Only VPCs with an internet gateway are enabled for selection. The selected VPC can't be changed after the load balancer is created. To confirm the VPC for your targets, view your [target groups](#).

-

vpc-0b7272288b62dddec
IPv4: 172.31.0.0/16

▼

↺

Mappings [Info](#)

Select at least two Availability Zones and one subnet per zone. The load balancer routes traffic to targets in these Availability Zones only. Availability Zones that are not supported by the load balancer or the VPC are not available for selection.

☒ us-east-1a (use1-az6)

Subnet

subnet-020aceafd4a3e074e

▼

IPv4 address

Assigned by AWS

☒ us-east-1b (use1-az1)

Subnet

subnet-0d2e8b94ac8ac629a

▼

IPv4 address

Assigned by AWS

☒ us-east-1c (use1-az2)

Security groups [Info](#)

A security group is a set of firewall rules that control the traffic to your load balancer. Select an existing security group, or you can [create a new security group](#).

Security groups

Select up to 5 security groups

Q |

☒ launch-wizard-1
sg-0eae42968ba66701a VPC: vpc-0b7272288b62dddec

☒ default
sg-012cf31c7f3a994e7 VPC: vpc-0b7272288b62dddec

↺

Listeners and routing [Info](#)

A listener is a process that checks for connection requests using the port and protocol you configure. The rules that you define for a listener determine how the load balancer routes requests to its registered targets.

Specify group details

Your load balancer routes requests to the targets in a target group and performs health checks on the targets.

Basic configuration

Settings in this section can't be changed after the target group is created.

Choose a target type

☒ Instances

- Supports load balancing to instances within a specific VPC.
- Facilitates the use of [Amazon EC2 Auto Scaling](#) to manage and scale your EC2 capacity.

☐ IP addresses

- Supports load balancing to VPC and on-premises resources.
- Facilitates routing to multiple IP addresses and network interfaces on the same instance.
- Offers flexibility with microservice based architectures, simplifying inter-application communication.
- Supports IPv6 targets, enabling end-to-end IPv6 communication, and IPv4-to-IPv6 NAT.

☐ Lambda function

- Offers the flexibility for a Network Load Balancer to accept and route TCP requests within a specific VPC.
- Facilitates using static IP addresses and PrivateLink with an Application Load Balancer.

Target group name

myTG

A maximum of 32 alphanumeric characters including hyphens are allowed, but the name must not begin or end with a hyphen.

Protocol : Port

Choose a protocol for your target group that corresponds to the Load Balancer type that will route traffic to it. Some protocols now include anomaly detection for the targets and you can set mitigation options once your target group is created. This choice cannot be changed after creation

HTTP



80

1-65535

IP address type

Only targets with the indicated IP address type can be registered to this target group.

☒ IPv4

Each instance has a default network interface (eth0) that is assigned the primary private IPv4 address. The instance's primary private IPv4 address is the one that will be applied to the target.

☐ IPv6

Each instance you register must have an assigned primary IPv6 address. This is configured on the instance's default network interface (eth0). [Learn more](#)

VPC


IP address type

Only targets with the indicated IP address type can be registered to this target group.

☒ IPv4

Each instance has a default network interface (eth0) that is assigned the primary private IPv4 address. The instance's primary private IPv4 address is the one that will be applied to the target.

☐ IPv6

Each instance you register must have an assigned primary IPv6 address. This is configured on the instance's default network interface (eth0). [Learn more](#) 

VPC

Select the VPC with the instances that you want to include in the target group. Only VPCs that support the IP address type selected above are available in this list.

-

vpc-0b7272288b62dddec
IPv4: 172.31.0.0/16

▼

Protocol version

☒ HTTP1

Send requests to targets using HTTP/1.1. Supported when the request protocol is HTTP/1.1 or HTTP/2.

☐ HTTP2

Send requests to targets using HTTP/2. Supported when the request protocol is HTTP/2 or gRPC, but gRPC-specific features are not available.

☐ gRPC

Send requests to targets using gRPC. Supported when the request protocol is gRPC.

1 selected

Ports for the selected instances

Ports for routing traffic to the selected instances.

80

1-65535 (separate multiple ports with commas)

Include as pending below

Protocol

HTTP

:

Port

80

1-65535

Default action

Forward to

myTG

Target type: Instance, IPv4

HTTP

Info

Create target group

Listener tags - optional

←

→

↺

⚠ Not secure

mylb-141742034.us-east-1.elb.amazonaws.com

Hello from ip-172-31-25-247.ec2.internal

Autoscaling

Stress test

