

Lab 1 bootcamp - Sonu Subedi

1. EC2 Basics Lab

- **Objective:** To understand the process of setting up and managing an Amazon EC2 instance.
- **Approach:** Students will start by launching a new EC2 instance, selecting an appropriate instance type and configuring the instance details. They will then create and configure a new Security Group, and allocate an Elastic IP address to the instance. The lab will also include connecting to the instance via SSH.
- **Goal:** By the end of this lab, students should be able to launch and manage an EC2 instance, understand instance types, security groups, and IP addressing in AWS.

Steps involved:

Step 1:

- 1) Search EC2 > Instances then launch an instance. Give the name of instance

[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](#)

2) Configure the instance details. Select instance type as t2.micro

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 Boot mode AMI ID

64-bit (x86) uefi-preferred 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](#)

3) Create a new key pair

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** Launch instance

4) Create and configure a new Security Group. Tick on allow HTTP traffic and SSH traffic.

The screenshot shows the 'Network settings' panel in the AWS console. The 'Firewall (security groups)' section is active, showing options to either create a new security group or select an existing one. A new security group named 'launch-wizard-1' is being created with the following rules:

- ☒ Allow SSH traffic from: Helps you connect to your instance. Source: 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.

The 'Edit' button is visible in the top right corner of the settings panel.

5)

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 systems

Edit

Number of instances1

SoftwareAmazon Linux 2ami-0005e0c3247562367

Virtual security groupsgroup-1t2.micro

Firewall (security group)New security groupsgroup-1

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

New instance has been launched.

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

Click on instance Id and see its various properties.

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

Updated less than a minute ago

Instance ID

i-0c48aa472bfe42872 (Sonu's server)

IPv6 address

–

Hostname type

IP name: ip-172-31-29-139.ec2.internal

Answer private resource DNS name

IPv4 (A)

Auto-assigned IP address

54.221.83.174 [Public IP]

IAM Role

–

IMDSv2

Required

Public IPv4 address

54.221.83.174 [open address](#)

Instance state

Running

Private IP DNS name (IPv4 only)

ip-172-31-29-139.ec2.internal

Instance type

t2.micro

VPC ID

vpc-00b45d126454bad71 [open address](#)

Subnet ID

subnet-0ea462c026d642e8f [open address](#)

Private IPv4 addresses

172.31.29.139

Public IPv4 DNS

ec2-54-221-83-174.compute-1.amazonaws.com [open address](#)

Elastic IP addresses

–

AWS Compute Optimizer finding

Opt-in to AWS Compute Optimizer for recommendations.

[Learn more](#)

Auto Scaling Group name

–

Go to the Security tab and see its security groups.

Details

Status and alarms [New](#)

Monitoring

Security

Networking

Storage

Tags

▼ Security details

IAM Role

–

Security groups

sg-099621f502a3525b5 (launch-wizard-1)

Owner ID

817679870051

Launch time

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

▼ 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	–

6) Allocate an Elastic IP address to the instance

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)

Filter Elastic IP addresses

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-Oe8cf4724d318a012	-

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



Open created elastic IP address and associate them.

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

[Cancel](#) [Associate](#)

After allocation of elastic ip address in created ec2 instance

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

Elastic IP addresses (1/1) [Refresh](#) [Actions](#) [Allocate Elastic IP](#)

Public IPv4 address: 3.225.3.135

Clear filters

<input checked="" type="checkbox"/>	Name	Allocated IPv4 address	Type	Allocation ID	Reverse DNS record	Associated Instance
<input checked="" type="checkbox"/>	-	3.225.3.135	Public IP	eipalloc-0e8cf4724d318a012	-	i-0c48aa472bfe42872

Connecting to the EC2 instance via SSH

```
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>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.

A newer release of "Amazon Linux" is available.
Version 2023.3.20240117:
Run "/usr/bin/dnf check-release-update" for full release and version update info

#-
~\_#####_      Amazon Linux 2023
~~\_#####\
~~\_###|
~~\_#/___ https://aws.amazon.com/linux/amazon-linux-2023
   V~'|'->
    nnn
     \_./
      _/_/
       _/m/'
[ec2-user@ip-172-31-29-139 ~]$
```