

Amazon EC2



EC2 is one of the most popular of AWS' offering
Infrastructure as a Service

It mainly consists in the capability of :

- Renting virtual machines (EC2)
- Storing data on virtual drives (EBS)
- Distributing load across machines (ELB)
- Scaling the services using an auto-scaling group (ASG)

EC2 sizing & configuration options

- Operating System (OS): [Linux](#), [Windows](#) or [Mac OS](#)
- How much compute power & cores (CPU) How
- much random-access memory (RAM) How much
- storage space:
 - Network-attached (EBS & EFS) hardware
 - (EC2 Instance Store)
- Network card: [speed of the card](#), [Public IP address](#)
- Firewall rules: [security group](#)
- Bootstrap script (configure at first launch): EC2 User Data

Types of Instances

Amazon EC2 (Elastic Compute Cloud) offers a wide range of instance types
Here are some of the common EC2 instance families

- General Purpose (T2, M5, M6g, etc.)
- Compute Optimized (C4, C5, C6g, etc.)
- Memory Optimized (R4, R5, R6g, etc.)
- Storage Optimized (I3, I4, D2, etc.)
- Accelerated Computing (P3, P4, G4, etc.)
- High Performance Computing (HPC, HPC6g)

General Purpose (T2, M5, M6g, etc.)

Great for a diversity of workloads such as web servers or code repositories
Balance between:

- Compute
- Memory
- Networking

Compute Optimized (C4, C5, C6g, etc.)

Great for compute-intensive tasks that require high performance processors

- Media transcoding
- High performance web servers
- High performance computing (HPC)
- Dedicated gaming servers

Memory Optimized (R4, R5, R6g, etc.)

Advantages: Memory-optimized instances are ideal for applications that require a large amount of RAM, such as in-memory databases, data caching, and analytics. They offer a high memory-to-CPU ratio.

Storage Optimized (I3, I4, D2, etc.)

Advantages: Storage-optimized instances are tailored for applications that require high disk I/O performance and large storage capacities, such as NoSQL databases, data warehousing, and big data processing.

Accelerated Computing (P3, P4, G4, etc.)

Advantages: These instances are equipped with specialized GPUs or FPGAs, making them well-suited for machine learning, deep learning, high-performance computing (HPC), and graphics-intensive applications.

High Performance Computing (HPC, HPC6g)

Advantages: These instances are designed for high-performance computing workloads, such as simulations, modeling, and scientific research. They offer low-latency networking and high CPU/GPU capabilities

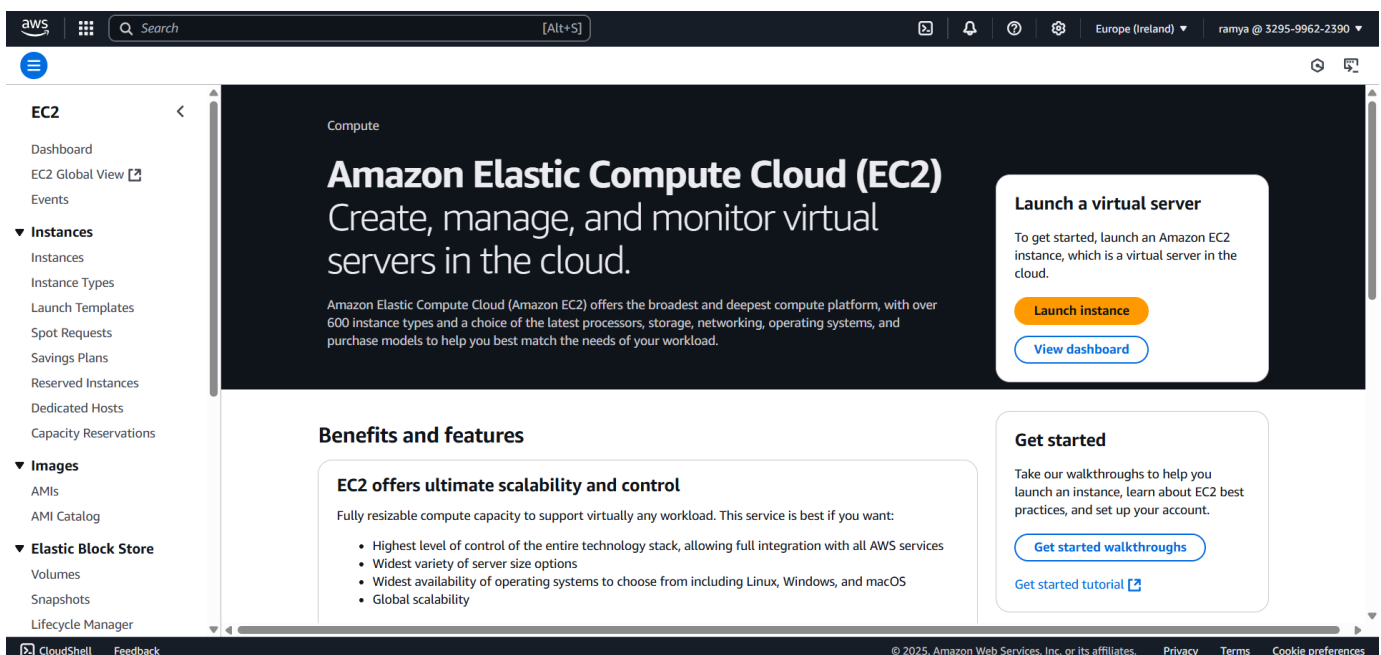
Advantages of AWS EC2-Instances

- EC2 instances can be easily scaled up or down as per the requirement.

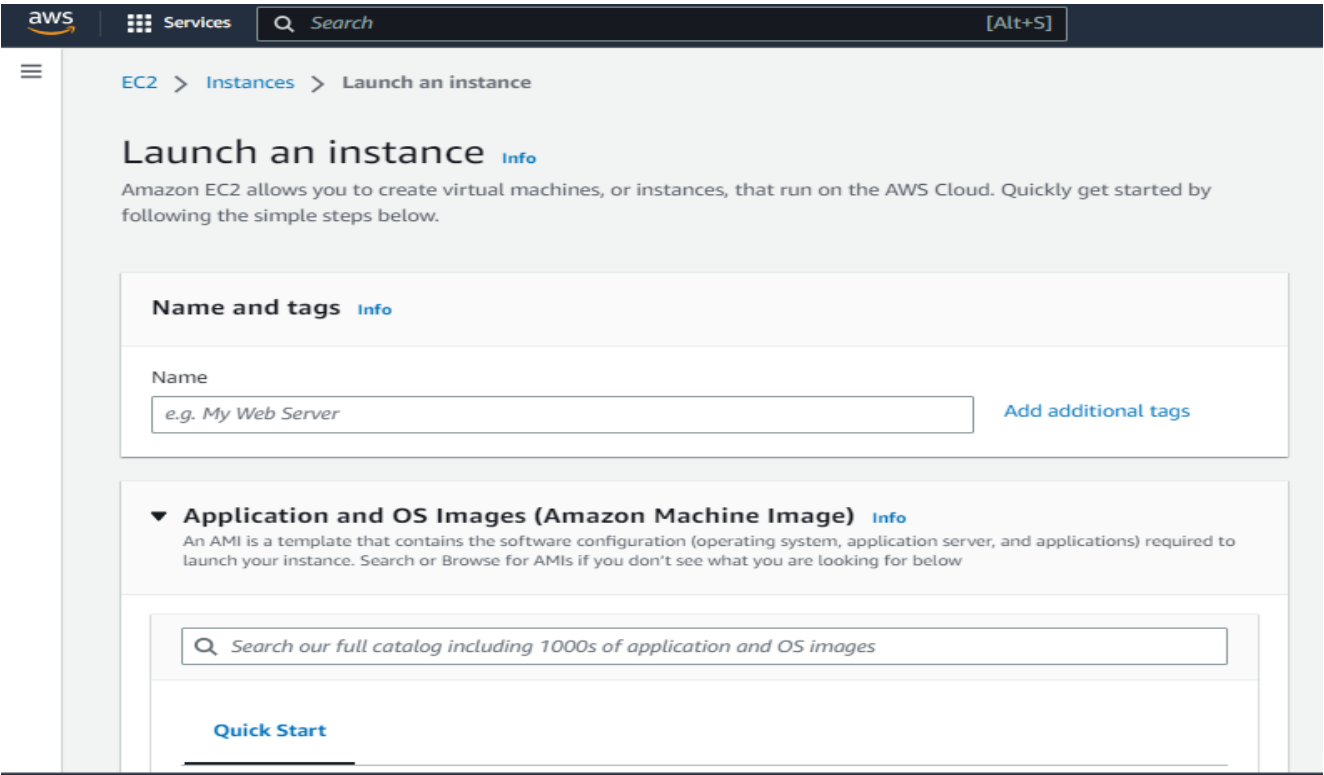
- EC2 instances are charged based on usage
- It can be easily deployed and managed using Amazon Web Services (AWS) management console, APIs, or CLI.
- It can be deployed in multiple availability zones to ensure high availability and data durability.
- It can be customized with different operating systems, applications, and network configurations.

Step-by-step Process to Launch EC2 instance

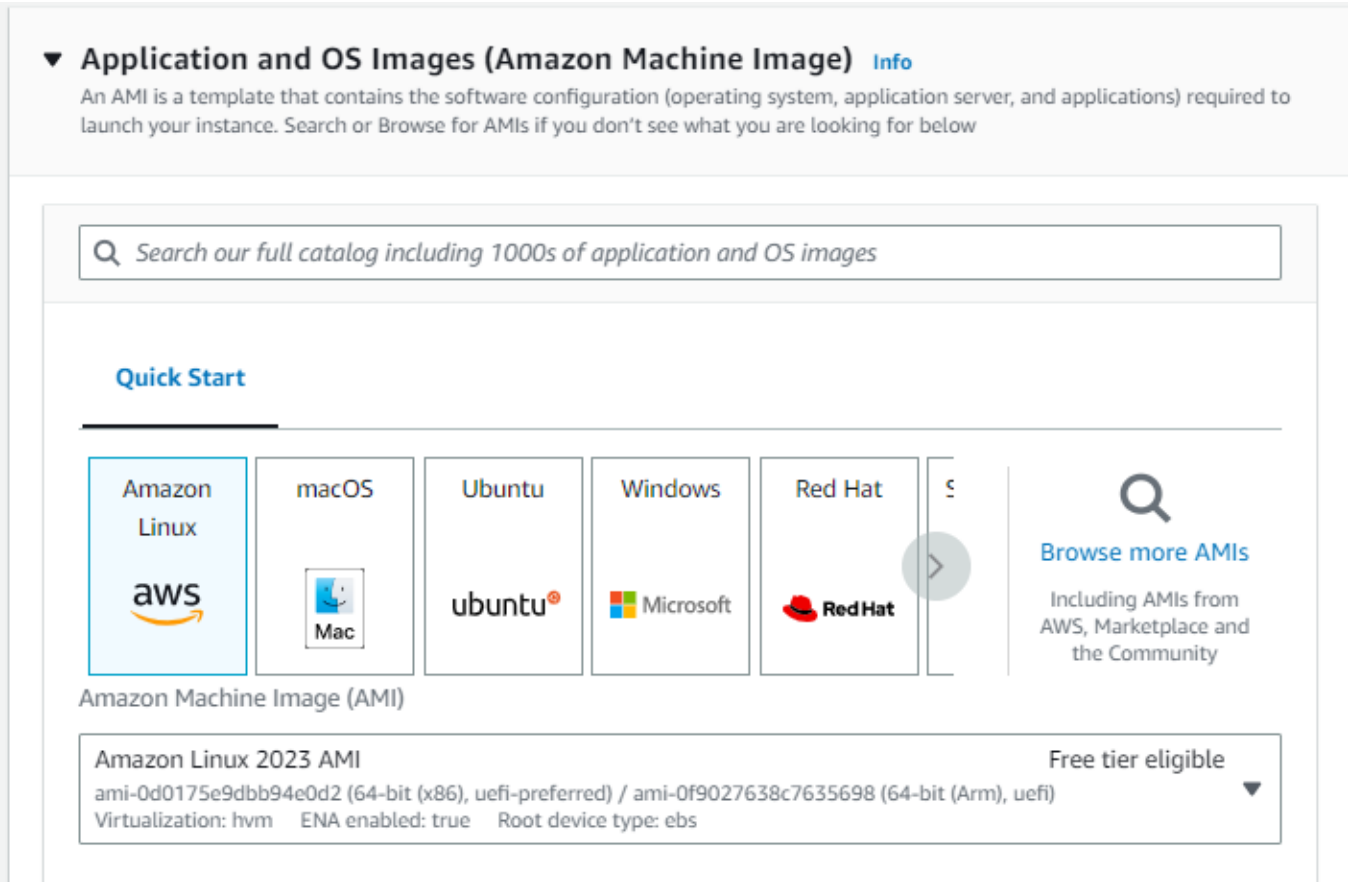
Step 1: Sign in to the AWS Management Console and search for EC2
Click on Launch instance



Step 2: Choose a name of your instance



Step 3: Choose an Amazon Machine Image (AMI)



Step 4: Choose an Instance Type

▼ Instance type [Info](#)

Instance type

t2.micro

Free tier eligible

Family: t2 1 vCPU 1 GiB Memory

On-Demand Linux pricing: 0.0146 USD per Hour

On-Demand Windows pricing: 0.0192 USD per Hour

On-Demand SUSE pricing: 0.0146 USD per Hour

On-Demand RHEL pricing: 0.0746 USD per Hour

▼

[Compare instance types](#)

Step 5: Create a key pair

▼ 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*

Select

▼

↻

[Create new key pair](#)

Step 6: Configure Network

▼ Network settings [Info](#)

Edit

Network [Info](#)

vpc-ebe49d96

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

⚠ 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.

✕

Step 7: Add Storage

▼ **Configure storage** [Info](#) Advanced

1x

GiB

▼

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

0 x File systems

Edit

Step 8: Review and click on Launch instance

Step 9: Connect to Your Inst

EC2 > Instances > i-09b40e9969c55ea11 > Connect to instance

Connect to instance [Info](#)

Connect to your instance i-09b40e9969c55ea11 using any of these options

EC2 Instance Connect

Session Manager

SSH client

EC2 serial console

Instance ID

i-09b40e9969c55ea11

Public IP address

54.206.31.155

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.

ⓘ

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.

Cancel

Connect

