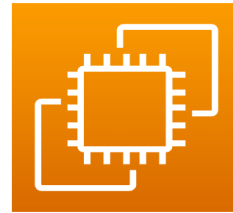


AWS EC2



1. Introduction

Amazon EC2 (Elastic Compute Cloud) is a core AWS service that provides resizable compute capacity in the cloud. It allows you to launch and manage virtual servers, known as EC2 instances, to run applications and services without needing to manage hardware.

2. Key Features

- **Scalable** – Scale up/down as needed
 - **Flexible** – Choose from a wide variety of instance types
 - **Secure** – Supports key pairs, security groups, IAM roles
 - **Persistent** – Attach Elastic Block Store (EBS) volumes
 - **Customizable** – Use AMIs to create custom instances
-

3. Architecture Overview

```
+-----+
|  EC2 Instance  |
+-----+
| OS: Amazon Linux |
| EBS: 8 GB Root   |
| Network: VPC     |
| Access: Key Pair |
+-----+
```

4. Project Objective

Objective: Deploy an Amazon EC2 instance with a web server installed and configured to serve a basic HTML page.

5. 🛠️ Step-by-Step Project Setup

✅ Step 1: Log into AWS Management Console

1. Go to <https://aws.amazon.com>
 2. Sign in to your AWS account
 3. Navigate to **EC2 Dashboard**
-

✅ Step 2: Launch EC2 Instance

1. Click **Launch Instance**
 2. Name: **MyEC2Project**
 3. **Amazon Machine Image (AMI):**
 - Select: **Amazon Linux 2 AMI** (Free Tier eligible)
 4. **Instance Type:** **t2.micro** (Free Tier eligible)
 5. **Key Pair:** Create new or use existing key (download **.pem** file)
 6. **Network Settings:**
 - Allow SSH (port 22)
 - Allow HTTP (port 80)
 7. **Storage:** Keep default (8 GB EBS)
 8. Click **Launch Instance**
-

✅ Step 3: Connect to EC2 Instance

1. Click on your instance ID
2. Wait for **Status: Running**
3. Click **Connect > SSH client**
4. Use the provided command:

```
ssh -i your-key.pem ec2-user@your-public-ip
```

✅ Step 4: Install Apache Web Server

```
sudo yum update -y  
sudo yum install httpd -y  
sudo systemctl start httpd  
sudo systemctl enable httpd
```

✅ Step 5: Create a Web Page

```
echo "<h1>Hello from EC2 Web Server</h1>" | sudo tee  
/var/www/html/index.html
```

✅ Step 6: Verify in Browser

1. Copy **Public IPv4 address** of your instance
2. Open in browser:

```
http://<your-public-ip>
```

Expected Output:

```
Hello from EC2 Web Server
```

6. Security Groups

Rule	Port	Description
SSH	22	To connect via SSH
HTTP	80	To access web server

7. Monitoring

- Go to **EC2 > Monitoring**
 - Check metrics like:
 - CPU utilization
 - Network in/out
 - Disk reads/writes
-

8. Pricing

- **Free Tier:** `t2.micro` up to 750 hours/month
 - Storage (EBS): 30 GB/month free
 - Charges apply only when exceeding limits
-

9. Use Cases

- Hosting simple websites
- Running applications
- Testing environments
- Backend server for apps

- Custom software deployment
-

10. Best Practices

- Stop instances when not in use
 - Use security groups to limit access
 - Store key pair securely
 - Regularly back up data via snapshots
 - Monitor with CloudWatch
-

11. Screenshots to Include

Include the following in your report:

- EC2 launch configuration
- Key pair creation
- Apache installation output
- Web server homepage in browser
- Security group settings