Cloud Computing Lab

Experiment-3

Create an Amazon EC2 instance and set up a web-server on the instance and associate an IP address with the instance.

Amazon Web Services (AWS) provides a powerful cloud computing platform with a wide range of services. One of the core services offered by AWS is Amazon Elastic Compute Cloud (EC2), which allows users to launch virtual servers in the cloud.

An Amazon EC2 instance is a virtual server in the cloud that allows users to run applications and workloads on AWS. It's essentially renting a computer in a data center, providing on-demand computing resources that can be scaled up or down as needed. EC2 instances offer various configurations of CPU, memory, storage, and networking, allowing users to choose the best fit for their specific requirements.
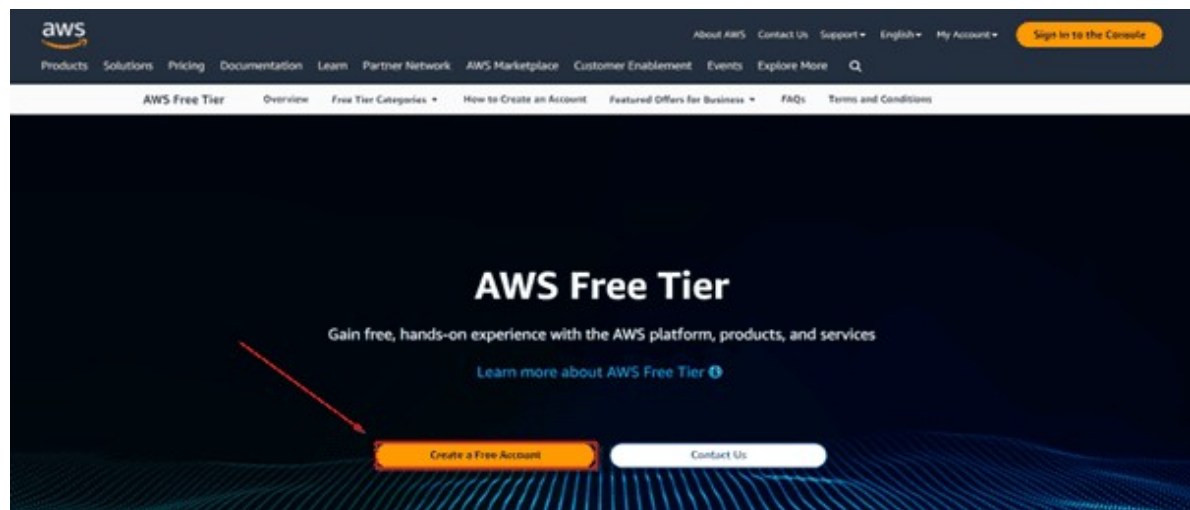
AWS Free Tier Limits

- Monthly **750 hours of Amazon EC2** Cloud computing capability that is scalable.
- **5 GB of basic storage on Amazon S3,** Infrastructure for scalable, robust, and secure object storage.
- Monthly database usage allotted to **Amazon RDS 750 hours** (for relevant database engines) SQL Server, MariaDB, PostgreSQL, and MySQL managed relational database services.
- **5 GB of Amazon EFS storage.** A shared file storage solution that is easy to use and scales for Amazon EC2 instances.
- **30 GB** of General Purpose (SSD) or Magnetic Elastic Block Storage from **Amazon Elastic Store** are long-lasting, dependable, low-latency block-level storage volumes for EC2 instances.

REGISTER FOR AWS FREE-TIER ACCOUNT

Step 1: First, open your web browser and navigate to the AWS Free Tier Page
Step 2: On the middle click of Create a Free Account

Step 3: Verify your email address.

aws

Sign up for AWS

Explore Free Tier products with a new AWS account.

To learn more, visit aws.amazon.com/free.

Root user email address
Used for account recovery and some administrative functions

[   ]@k21academy.com

AWS account name
Choose a name for your account. You can change this name in your account settings after you sign up.

[   ]

Verify email address

OR

Sign in to an existing AWS account

- **Provide password: Provide the details that you want to use to log in to your AWS account, and click on Continue**

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Create your password

✓ It's you! Your email address has ✕
been successfully verified.

Your password provides you with sign in access to AWS, so it's important we get it right.

Root user password

[   ]

Confirm root user password

[   ]

Continue (step 1 of 5)

OR

Sign in to an existing AWS account

- **Email address: Enter the email ID that hasn't been registered yet with Amazon AWS**

- **Password: Type your Password**

- **Confirm password: Confirm the Password**

- **Captcha: Enter the given security check**

Choose your Option, we will be going with a 6-month Free.

Sign up for AWS

Choose your account plan

Free (6 months)

Learn, experiment, and build prototypes

✓ Receive up to $200 in credits

✓ Includes free usage of select services

✕ Workloads scale beyond credit thresholds

✕ Access to all AWS services and features

ⓘ After the 6 month free period or when all credits are used, you can choose to upgrade to a paid plan. Otherwise, your account closes automatically.

Choose free plan

Paid

Develop production-ready workloads

✓ Receive up to $200 in credits

✓ Includes free usage of select services

✓ Workloads scale beyond credit thresholds

✓ Access to all AWS services and features

ⓘ After all of your credits are used, you are charged using pay-as-you-go pricing.

Choose paid plan

Step 4: Contact Information

Select your AWS type (Professional/ Personal). Fill in the correct information to validate your account if you're going to create a personal use account, then click on "Personal Account" otherwise, use "Company Account", accept the Terms and Conditions, and then click on Create Account and Continue

Free Tier offers

All AWS accounts can explore 3 different types of free offers, depending on the product used.

Always free
Never expires

12 months free
Start from initial sign-up date

Trials
Start from service activation date

Sign up for AWS

Contact Information

How do you plan to use AWS?

○ Business – for your work, school, or organization

● Personal – for your own projects

Who should we contact about this account?

Full Name

Phone Number

+91

Country or Region

India

Address

Apartment, suite, unit, building, floor, etc.

City

State, Province, or Region

Postal Code

Customers with an Indian contact address are served by Amazon Web Services India Private Limited, the local seller for AWS services in India.

☑ I have read and agree to the terms of the AWS Customer Agreement 🔗.

Continue (step 2 of 5)

Note: Make sure to provide proper contact details and mobile number to get the Verification code from AWS.

Step 5: Payment and PAN information: In this step, you must fill in your credit card /Debit Card info and billing address and click on Secure Submit.

Step 6: In this step, it will take you to the payment gateway to validate your payment information, and for your credit card verification, Amazon will charge the minimum price based onyour Country. Here I have provided India, so Amazon charged 2 INR.

Step 7: Phone verification: Here you will be taken to an identity verification page that will already have your phone number, so you just have to select either "Text message or Voice call" Provide a valid phone number, Solve the captcha, and then click on Send SMS or Call Me Now(depending upon your selection).

Sign up for AWS

Confirm your identity

Before you can use your AWS account, you must verify your phone number. When you continue, the AWS automated system will contact you with a verification code.

How should we send you the verification code?
- Text message (SMS)
- Voice call

Country or region code
India (+91)

Mobile phone number
7017083421

Security check

Type the characters as shown above

Send SMS (step 4 of 5)

Step 8: After clicking on Send SMS or Call me Now, you will immediately receive a call or SMS from Amazon for a verification code. Enter your code, then click on Verify Code.

Sign up for AWS

Confirm your identity

Verify code

7674

Continue (step 4 of 5)

Having trouble? Sometimes it takes up to 10 minutes to retrieve a verification code. If it's been longer than that, return to the previous page and try again.

Step 9: Support plan: AWS support offers a selection of plans to meet your business needs.
Select your suitable plan then click continue.

Note: All customers receive free basic support.

Step 10: Registration Confirmation page.

Once you completed all the above steps and processes. You'll get the confirmation page below. Now your account will be processed for activation. It may take somewhere between 30 minutes to 1 hour for you to receive an email confirmation that your Amazon Cloud Services account has been activated.

we have successfully created the AWS Free Tier Account.

Here's a step-by-step guide to **create an Amazon EC2 instance, set up a web server**, and **associate an IP address** with it:

Step 1: Launch an EC2 Instance

1. **Log in** to your AWS Management Console.
2. Go to **EC2** under Services.
3. Click **"Launch Instance"**.
4. **Configure Instance Details**:
   o Name: e.g., MyWebServer
   o AMI: Choose **Amazon Linux 2 AMI**
   o Instance type: e.g., **t2.micro** (free tier eligible)
   o Key pair: Create or choose an existing key pair (used for SSH access)
   o Network: Default VPC (or your custom one)
5. **Configure Storage** (default 8GB is fine)
6. **Security Group Settings**:
   o Add rule: HTTP, Port 80, Source: Anywhere (0.0.0.0/0)
   o Add rule: SSH, Port 22, Source: Your IP
7. Click **Launch Instance**

Step 2: Connect to Your Instance

1. Once the instance is running, click **"Connect"**.
2. Choose **SSH Client** tab.
3. Open terminal (Linux/macOS) or PowerShell (Windows).
4. Use the command provided (something like):

   ssh -i "your-key.pem" ec2-user@<your-public-ip>

Step 3: Install and Start a Web Server

Once connected via SSH:

1. **Update packages**:

   sudo yum update -y

2.**Install Apache (httpd)**:

   sudo yum install httpd –y

3.**Start Apache**:

   sudo systemctl start httpd

4.**Enable Apache on boot**:

   sudo systemctl enable httpd

5.**Verify by editing the homepage:**

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

Step 4: Associate a Static IP (Elastic IP)

1. Go to **EC2 > Network & Security > Elastic IPs**.
2. Click **Allocate Elastic IP address**.
3. Once allocated, select the new IP and click **Actions > Associate IP**.
4. Associate it with your instance's network interface.

Step 5: Test Your Web Server

- Open a browser and enter your **Elastic IP**.
- You should see:
  Hello from EC2 Web Server

Let me know if you want to automate this with a script or use a specific OS like Ubuntu