

# Adv. Devops Experiment no. 1

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Class: D15A Roll no.: 25

## Aim:

Part A) To host static and dynamic website on AWS and EC2.

Part B) To understand the benefits of Cloud Infrastructure and Setup AWS Cloud9 IDE, Launch AWS Cloud9 IDE and Perform Collaboration Demonstration.

## Theory:

### AWS EC2 (Elastic Compute Cloud)

**1. What is it?** AWS EC2 provides scalable virtual servers (instances) in the cloud. You can use EC2 to run applications and services without managing physical hardware.

#### 2. Key Features:

- **Instance Types:** Various types optimized for compute, memory, storage, or GPU capabilities.
- **Auto Scaling:** Automatically adjusts the number of instances based on traffic.
- **Elastic Load Balancing (ELB):** Distributes incoming traffic across multiple instances.
- **Security:** Integrates with AWS Identity and Access Management (IAM) and provides security groups and network ACLs.
- **Pricing:** Pay-as-you-go or reserved instances for long-term commitments.

#### 3. Common Use Cases:

- Hosting websites and web applications.
- Running big data analytics.
- Building development and test environments.
- Running high-performance computing (HPC) applications.

### AWS S3 (Simple Storage Service)

**1. What is it?** AWS S3 is an object storage service that provides highly scalable and durable storage for a wide variety of data types.

## 2. Key Features:

- **Storage Classes:** Multiple classes like Standard, Intelligent-Tiering, One Zone-IA, Glacier for different use cases and cost savings.
- **Data Durability:** Designed for 99.999999999% durability over a given year.
- **Scalability:** Automatically scales to accommodate data growth.
- **Security:** Data encryption (at rest and in transit), and access control policies.
- **Versioning:** Keeps multiple versions of an object to recover from accidental deletions.

## 3. Common Use Cases:

- Backup and restore.
- Data archiving.
- Application data storage.
- Content distribution and hosting.

## AWS Cloud9

**1. What is it?** AWS Cloud9 is a cloud-based Integrated Development Environment (IDE) that allows you to write, run, and debug code from a web browser.

## 2. Key Features:

- **Environment:** Comes with pre-configured environments (Ubuntu-based) that include necessary tools and libraries.
- **Collaboration:** Multiple users can collaborate in real-time within the same IDE environment.
- **Integrated Tools:** Built-in terminal, debugger, and support for various programming languages.
- **AWS Integration:** Seamless integration with AWS services for deploying applications directly from the IDE.
- **Customizable:** Allows custom configurations and preferences for your development environment.

## 3. Common Use Cases:

- Developing applications in a managed environment.
- Collaborative coding and debugging sessions.
- Learning and experimenting with code in a cloud-based IDE.

# 1. Static Website hosting using EC2(Ubuntu):

## 1) Instance creation and configuration:

[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

Recents

Quick Start

Amazon Linux

macOS

Ubuntu

Windows

Red Hat

SUSE L

Browse more AMIs

Including AMIs from AWS, Marketplace and the Community

#### Amazon Machine Image (AMI)

Ubuntu Server 24.04 LTS (HVM), SSD Volume Type  
ami-0e86e20dae9224db8 (64-bit (x86)) / ami-096ea6a12ea24a797 (64-bit (Arm))  
Virtualization: hvm    ENA enabled: true    Root device type: ebs

Free tier eligible ▼

#### Description

Ubuntu Server 24.04 LTS (HVM),EBS General Purpose (SSD) Volume Type. Support available from Canonical (<http://www.ubuntu.com/cloud/services>).

### ▼ 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

▼

[Create new key pair](#)

▼ Network settings Info

Edit

Network Info

vpc-0f5e8abf0225b8a45

Subnet Info

No preference (Default subnet in any availability zone)

Auto-assign public IP Info

Enable

Additional charges apply when outside of free tier allowance

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-3' 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

| <input type="checkbox"/> | Name              | Instance ID         | Instance state       | Instance type |
|--------------------------|-------------------|---------------------|----------------------|---------------|
| <input type="checkbox"/> | Rohan's Ubuntu... | i-0af1b42335baa28df | <span>Running</span> | t2.micro      |
|                          |                   |                     |                      |               |
|                          |                   |                     |                      |               |

| Instance summary for i-0af1b42335baa28df (Rohan's Ubuntu Server) Info |   |  | Connect | Instance state ▼ | Actions ▼ |
|---|---|--|---------|------------------|-----------|
| Updated less than a minute ago  |   |  |         |                  |           |
| Instance ID<br>i-0af1b42335baa28df (Rohan's Ubuntu Server)            | Public IPv4 address<br>3.236.201.192   open address                             | Private IPv4 addresses<br>172.31.13.156  |         |                  |           |
| IPv6 address<br>-   | Instance state<br>Running   | Public IPv4 DNS<br>ec2-3-236-201-192.compute-1.amazonaws.com   open address                        |         |                  |           |
| Hostname type<br>IP name: ip-172-31-13-156.ec2.internal               | Private IP DNS name (IPv4 only)<br>ip-172-31-13-156.ec2.internal                | Elastic IP addresses<br>-  |         |                  |           |
| Answer private resource DNS name<br>IPv4 (A)                          | Instance type<br>t2.micro   | AWS Compute Optimizer finding<br>Opt-in to AWS Compute Optimizer for recommendations.   Learn more |         |                  |           |
| Auto-assigned IP address<br>3.236.201.192 [Public IP]                 | VPC ID<br>vpc-0f5e8abf0225b8a45   | Auto Scaling Group name<br>-   |         |                  |           |
| IAM Role<br>-   | Subnet ID<br>subnet-0a7cc411812f446e5   |  |         |                  |           |
| IMDSv2<br>Required  | Instance ARN<br>arn:aws:ec2:us-east-1:656404017537:instance/i-0af1b42335baa28df |  |         |                  |           |

2) Connect to the instance and execute commands:

1. sudo apt-get update
2. sudo apt-get install apache2
3. systemctl status apache2

```
aws Services Search [Alt+S]

To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

ubuntu@ip-172-31-13-156:~$ sudo apt-get update
Hit:1 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble InRelease
Get:2 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates InRelease [126 kB]
Get:3 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-backports InRelease [126 kB]
Get:4 http://security.ubuntu.com/ubuntu noble-security InRelease [126 kB]
Get:5 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/universe amd64 Packages [15.0 MB]
Get:6 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/universe Translation-en [5982 kB]
Get:7 http://security.ubuntu.com/ubuntu noble-security/main amd64 Packages [323 kB]
Get:8 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/universe amd64 Components [3871 kB]
Get:9 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/universe amd64 c-n-f Metadata [301 kB]
Get:10 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/multiverse amd64 Packages [269 kB]
Get:11 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/multiverse Translation-en [118 kB]
Get:12 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/multiverse amd64 Components [35.0 kB]
Get:13 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/multiverse amd64 c-n-f Metadata [8328 B]
Get:14 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 Packages [387 kB]
Get:15 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/main Translation-en [95.9 kB]
Get:16 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 c-n-f Metadata [6272 B]
Get:17 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/universe amd64 Packages [328 kB]
Get:18 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/universe Translation-en [138 kB]
Get:19 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/universe amd64 Components [45.0 kB]
Get:20 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/universe amd64 c-n-f Metadata [13.2 kB]
Get:21 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/restricted amd64 Packages [280 kB]
Get:22 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/restricted Translation-en [54.8 kB]
Get:23 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/multiverse amd64 Packages [14.1 kB]
Get:24 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/multiverse Translation-en [3608 B]
Get:25 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/multiverse amd64 Components [212 B]

ubuntu@ip-172-31-13-156:~$ sudo apt-get install apache2
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  apache2-bin apache2-data apache2-utils libapr1t64 libaprutil1-dbd-sqlite3 libaprutil1-ldap libaprutil1t64 liblua5.4-0 ssl-cert
Suggested packages:
  apache2-doc apache2-suexec-pristine | apache2-suexec-custom www-browser
The following NEW packages will be installed:
  apache2 apache2-bin apache2-data apache2-utils libapr1t64 libaprutil1-dbd-sqlite3 libaprutil1-ldap libaprutil1t64 liblua5.4-0 ssl-cert
0 upgraded, 10 newly installed, 0 to remove and 55 not upgraded.
Need to get 2083 kB of archives.
After this operation, 8094 kB of additional disk space will be used.
Do you want to continue? [Y/n] y
Get:1 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/main amd64 libapr1t64 amd64 1.7.2-3.1build2 [107 kB]
Get:2 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/main amd64 libaprutil1t64 amd64 1.6.3-1.1ubuntu7 [91.9 kB]
Get:3 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/main amd64 libaprutil1-dbd-sqlite3 amd64 1.6.3-1.1ubuntu7 [11.2 kB]
Get:4 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/main amd64 libaprutil1-ldap amd64 1.6.3-1.1ubuntu7 [9116 B]
Get:5 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/main amd64 liblua5.4-0 amd64 5.4.6-3build2 [166 kB]
Get:6 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 apache2-bin amd64 2.4.58-1ubuntu8.4 [1329 kB]
Get:7 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 apache2-data all 2.4.58-1ubuntu8.4 [163 kB]
Get:8 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 apache2-utils amd64 2.4.58-1ubuntu8.4 [97.1 kB]
Get:9 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 apache2 amd64 2.4.58-1ubuntu8.4 [90.2 kB]
Get:10 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/main amd64 ssl-cert all 1.1.2ubuntu1 [17.8 kB]
Fetched 2083 kB in 0s (25.3 MB/s)

Do you want to continue? [Y/n] y
Get:1 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/main amd64 libapr1t64 amd64 1.7.2-3.1build2 [107 kB]
Get:2 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/main amd64 libaprutil1t64 amd64 1.6.3-1.1ubuntu7 [91.9 kB]
Get:3 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/main amd64 libaprutil1-dbd-sqlite3 amd64 1.6.3-1.1ubuntu7 [11.2 kB]
Get:4 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/main amd64 libaprutil1-ldap amd64 1.6.3-1.1ubuntu7 [9116 B]
Get:5 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/main amd64 liblua5.4-0 amd64 5.4.6-3build2 [166 kB]
Get:6 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 apache2-bin amd64 2.4.58-1ubuntu8.4 [1329 kB]
Get:7 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 apache2-data all 2.4.58-1ubuntu8.4 [163 kB]
Get:8 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 apache2-utils amd64 2.4.58-1ubuntu8.4 [97.1 kB]
Get:9 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 apache2 amd64 2.4.58-1ubuntu8.4 [90.2 kB]
Get:10 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/main amd64 ssl-cert all 1.1.2ubuntu1 [17.8 kB]
Fetched 2083 kB in 0s (25.3 MB/s)
Preconfiguring packages ...
Selecting previously unselected package libapr1t64:amd64.
(Reading database ... 67741 files and directories currently installed.)
Preparing to unpack .../0-libapr1t64_1.7.2-3.1build2_amd64.deb ...
Unpacking libapr1t64:amd64 (1.7.2-3.1build2) ...
Selecting previously unselected package libaprutil1t64:amd64.
Preparing to unpack .../1-libaprutil1t64_1.6.3-1.1ubuntu7_amd64.deb ...
Unpacking libaprutil1t64:amd64 (1.6.3-1.1ubuntu7) ...
Selecting previously unselected package libaprutil1-dbd-sqlite3:amd64.
Preparing to unpack .../2-libaprutil1-dbd-sqlite3_1.6.3-1.1ubuntu7_amd64.deb ...
Unpacking libaprutil1-dbd-sqlite3:amd64 (1.6.3-1.1ubuntu7) ...
Selecting previously unselected package libaprutil1-ldap:amd64.
Preparing to unpack .../3-libaprutil1-ldap_1.6.3-1.1ubuntu7_amd64.deb ...
```

```
ubuntu@ip-172-31-13-156:~$ systemctl status apache2
● apache2.service - The Apache HTTP Server
   Loaded: loaded (/usr/lib/systemd/system/apache2.service; enabled; preset: enabled)
   Active: active (running) since Thu 2024-08-22 17:23:12 UTC; 11min ago
     Docs: https://httpd.apache.org/docs/2.4/
    Main PID: 2399 (apache2)
      Tasks: 55 (limit: 1130)
     Memory: 5.4M (peak: 5.6M)
        CPU: 70ms
    CGroup: /system.slice/apache2.service
            └─2399 /usr/sbin/apache2 -k start
              └─2402 /usr/sbin/apache2 -k start
                └─2403 /usr/sbin/apache2 -k start

Aug 22 17:23:12 ip-172-31-13-156 systemd[1]: Starting apache2.service - The Apache HTTP Server...
Aug 22 17:23:12 ip-172-31-13-156 systemd[1]: Started apache2.service - The Apache HTTP Server.
ubuntu@ip-172-31-13-156:~$ sudo su
root@ip-172-31-13-156:/home/ubuntu# cd /var/www/html/
bash: cd: /var/www/html/: No such file or directory
root@ip-172-31-13-156:/home/ubuntu# cd /var/www/html/
root@ip-172-31-13-156:/var/www/html#
```

3) Editing the inbound rules:

Security Groups (1/1) Info

Find resources by attribute or tag

Security group name = launch-wizard-3

Clear filters

|                                     | Name | Security group ID    | Security group name | VPC ID                | Description                            |
|-------------------------------------|------|----------------------|---------------------|-----------------------|--|
| <input checked="" type="checkbox"/> | -    | sg-04536e9fd071d79ea | launch-wizard-3     | vpc-0f5e8abf0225b8a45 | launch-wizard-3 created 2024-08-22T... |

Inbound rules (1/1)

Search

< 1 >

|                                     | Name | Security group rule... | IP version | Type | Protocol | Port range | Source    |
|-------------------------------------|------|------------------------|------------|------|----------|------------|-----------|
| <input checked="" type="checkbox"/> | -    | sgr-0f27b5ab0f675045d  | IPv4       | SSH  | TCP      | 22         | 0.0.0.0/0 |

Edit inbound rules Info

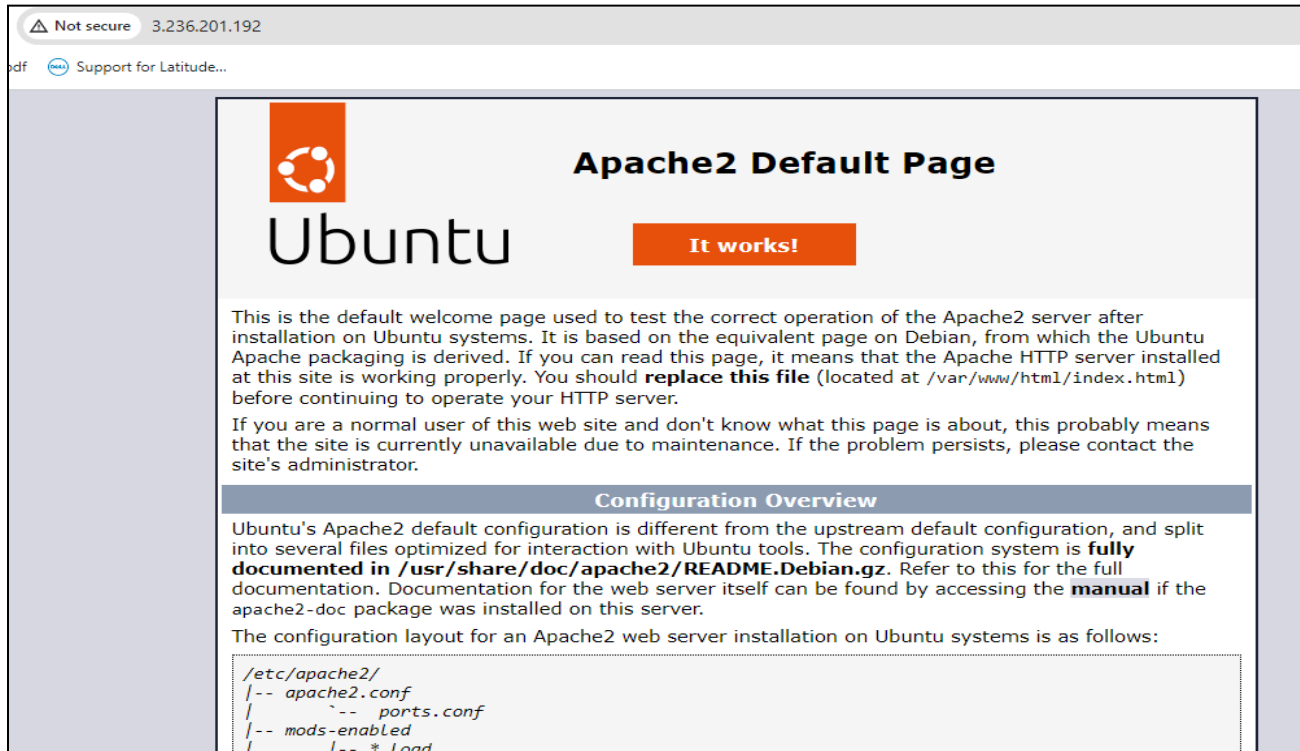
Inbound rules control the incoming traffic that's allowed to reach the instance.

Inbound rules Info

| Security group rule ID | Type  | Protocol | Port range | Source      | Description - optional |
|------------------------|-------|----------|------------|-------------|------------------------|
| sgr-0f27b5ab0f675045d  | SSH   | TCP      | 22         | Custom      |                        |
| -                      | HTTP  | TCP      | 80         | Anywhere... |                        |
| -                      | HTTPS | TCP      | 443        | Anywhere... |                        |

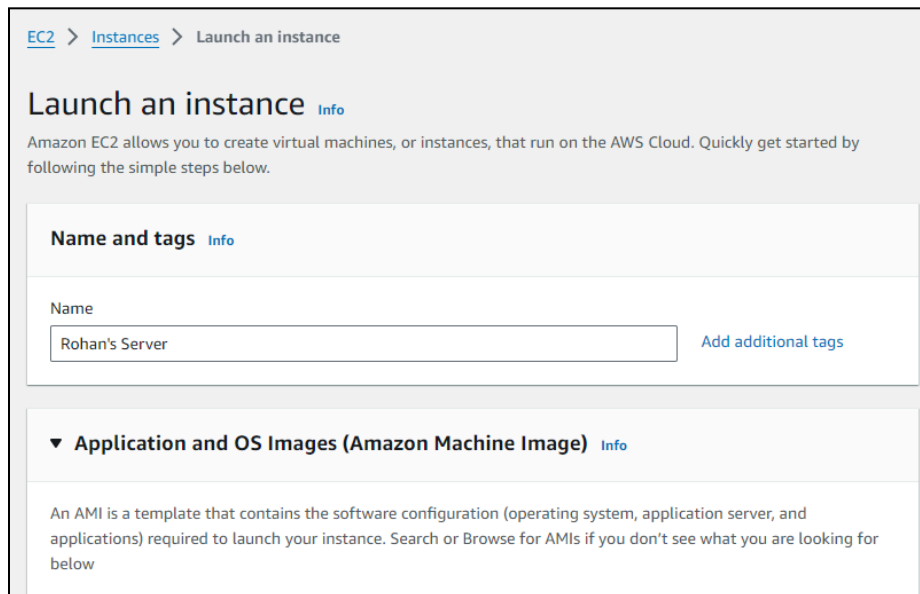
Add rule

4) Go to the public IP link in new tab.




## 1. Dynamic hosting using EC2(Amazon Linux):

### 1) Instance creation:



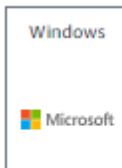
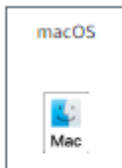
## ▼ Application and OS Images (Amazon Machine Image) [Info](#)

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

 Search our full catalog including 1000s of application and OS images

Recents

Quick Start



Browse more AMIs

Including AMIs from  
AWS, Marketplace and  
the Community

### Amazon Machine Image (AMI)

#### Amazon Linux 2023 AMI

ami-066784287e358dad1 (64-bit (x86), uefi-preferred) / ami-023508951a94f0c71 (64-bit (Arm), uefi)  
Virtualization: hvm ENA enabled: true Root device type: ebs

Free tier eligible

### Description

Amazon Linux 2023 is a modern, general purpose Linux-based OS that comes with 5 years of long term support. It is optimized for AWS and designed to provide a secure, stable and high-performance execution environment to develop and run your cloud applications.

### Architecture

64-bit (x86)

### Boot mode

uefi-preferred

### AMI ID

ami-066784287e358dad1

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: 0.026 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

## ▼ 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

AWSLinux

 [Create new key pair](#)



▼ Network settings Info

Edit

Network Info

vpc-0f5e8abf0225b8a45

Subnet Info

No preference (Default subnet in any availability zone)

Auto-assign public IP Info

Enable

Additional charges apply when outside of free tier allowance

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-2' 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.

×

▼ Configure storage Info

Advanced

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

## 2) Connect to the instance:

### Execute commands:

1. `sudo su -`
2. `yum update -y`
3. `yum install -y httpd`
4. `systemctl status httpd`
5. `mkdir aws_assg3`
6. `cd aws_assg3`
7. For this experiment we have created a website which we have uploaded on Github.com.
8. Copy the Download Link for the .zip file of the website.
9. using the `wget` command, download the zip file to the folder.
10. unzip the main.zip file and navigate into the "OnlinePrintingServices-main" folder using the `cd` command.
11. move all the contents from the folder to `"/var/www/html/"`

```
Amazon Linux 2023
https://aws.amazon.com/linux/amazon-linux-2023

Last login: Wed Aug 21 20:17:27 2024 from 18.206.107.28
[ec2-user@ip-172-31-51-115 ~]$ sudo su -
[root@ip-172-31-51-115 ~]# yum update -y
Last metadata expiration check: 0:10:51 ago on Wed Aug 21 20:12:36 2024.
Dependencies resolved.
Nothing to do.
Complete!
[root@ip-172-31-51-115 ~]# yum install -y httpd
Last metadata expiration check: 0:11:57 ago on Wed Aug 21 20:12:36 2024.
Dependencies resolved.
```

| Package                       | Architecture | Version                | Repository  | Size  |
|-------------------------------|--------------|------------------------|-------------|-------|
| Installing:                   |              |                        |             |       |
| httpd                         | x86_64       | 2.4.62-1.amzn2023      | amazonlinux | 48 k  |
| Installing dependencies:      |              |                        |             |       |
| apr                           | x86_64       | 1.7.2-2.amzn2023.0.2   | amazonlinux | 129 k |
| apr-util                      | x86_64       | 1.6.3-1.amzn2023.0.1   | amazonlinux | 98 k  |
| generic-logos-httpd           | noarch       | 18.0.0-12.amzn2023.0.3 | amazonlinux | 19 k  |
| httpd-core                    | x86_64       | 2.4.62-1.amzn2023      | amazonlinux | 1.4 M |
| httpd-core                    | x86_64       | 2.4.62-1.amzn2023      | amazonlinux | 1.4 M |
| httpd-filesystem              | noarch       | 2.4.62-1.amzn2023      | amazonlinux | 14 k  |
| httpd-tools                   | x86_64       | 2.4.62-1.amzn2023      | amazonlinux | 81 k  |
| libbrotli                     | x86_64       | 1.0.9-4.amzn2023.0.2   | amazonlinux | 315 k |
| mailcap                       | noarch       | 2.1.49-3.amzn2023.0.3  | amazonlinux | 33 k  |
| Installing weak dependencies: |              |                        |             |       |
| apr-util-openssl              | x86_64       | 1.6.3-1.amzn2023.0.1   | amazonlinux | 17 k  |
| mod_http2                     | x86_64       | 2.0.27-1.amzn2023.0.3  | amazonlinux | 166 k |
| mod_lua                       | x86_64       | 2.4.62-1.amzn2023      | amazonlinux | 61 k  |

```
Transaction Summary
Install 12 Packages

Total download size: 2.3 M
Installed size: 6.9 M
Downloading Packages:
(1/12): apr-util-openssl-1.6.3-1.amzn2023.0.1.x86_64.rpm 256 kB/s | 17 kB 00:00
(2/12): apr-1.7.2-2.amzn2023.0.2.x86_64.rpm 1.8 MB/s | 129 kB 00:00
(3/12): apr-util-1.6.3-1.amzn2023.0.1.x86_64.rpm 1.2 MB/s | 98 kB 00:00
(4/12): generic-logos-httpd-18.0.0-12.amzn2023.0.3.noarch.rpm 1.0 MB/s | 19 kB 00:00
(5/12): httpd-2.4.62-1.amzn2023.x86_64.rpm 2.3 MB/s | 48 kB 00:00
(6/12): httpd-filesystem-2.4.62-1.amzn2023.noarch.rpm 657 kB/s | 14 kB 00:00
(7/12): httpd-core-2.4.62-1.amzn2023.x86_64.rpm 34 MB/s | 1.4 MB 00:00
(8/12): libbrotli-1.0.9-4.amzn2023.0.2.x86_64.rpm 14 MB/s | 315 kB 00:00
(9/12): mailcap-2.1.49-3.amzn2023.0.3.noarch.rpm 1.4 MB/s | 33 kB 00:00
(10/12): mod_http2-2.0.27-1.amzn2023.0.3.x86_64.rpm 5.9 MB/s | 166 kB 00:00
(11/12): mod_lua-2.4.62-1.amzn2023.x86_64.rpm 3.5 MB/s | 61 kB 00:00
(12/12): httpd-tools-2.4.62-1.amzn2023.x86_64.rpm 708 kB/s | 81 kB 00:00
```

```
Total
Running transaction check
Transaction check succeeded.
Running transaction test
Transaction test succeeded.
Running transaction
Preparing :
Installing : apr-1.7.2-2.amzn2023.0.2.x86_64 1/1
Installing : apr-util-openssl-1.6.3-1.amzn2023.0.1.x86_64 1/12
Installing : apr-util-1.6.3-1.amzn2023.0.1.x86_64 2/12
Installing : mailcap-2.1.49-3.amzn2023.0.3.noarch 3/12
Installing : httpd-tools-2.4.62-1.amzn2023.x86_64 4/12
Installing : libbrotli-1.0.9-4.amzn2023.0.2.x86_64 5/12
Installing : httpd-filesystem-2.4.62-1.amzn2023.noarch 6/12
Running scriptlet: httpd-filesystem-2.4.62-1.amzn2023.noarch 7/12
Installing : httpd-filesystem-2.4.62-1.amzn2023.noarch 7/12
Installing : httpd-core-2.4.62-1.amzn2023.x86_64 8/12
Installing : mod_http2-2.0.27-1.amzn2023.0.3.x86_64 9/12
Installing : mod_lua-2.4.62-1.amzn2023.x86_64 10/12
Installing : generic-logos-httpd-18.0.0-12.amzn2023.0.3.noarch 11/12
Installing : httpd-2.4.62-1.amzn2023.x86_64 12/12
Running scriptlet: httpd-2.4.62-1.amzn2023.x86_64 12/12
Verifying : apr-1.7.2-2.amzn2023.0.2.x86_64 1/12
Verifying : apr-util-1.6.3-1.amzn2023.0.1.x86_64 2/12
Verifying : apr-util-openssl-1.6.3-1.amzn2023.0.1.x86_64 3/12
Verifying : generic-logos-httpd-18.0.0-12.amzn2023.0.3.noarch 4/12
Verifying : httpd-2.4.62-1.amzn2023.x86_64 5/12
Verifying : httpd-core-2.4.62-1.amzn2023.x86_64 6/12
Verifying : httpd-filesystem-2.4.62-1.amzn2023.noarch 7/12
Verifying : httpd-tools-2.4.62-1.amzn2023.x86_64 8/12
```

```
Verifying : httpd-tools-2.4.62-1.amzn2023.x86_64 8/12
Verifying : libbrotli-1.0.9-4.amzn2023.0.2.x86_64 9/12
Verifying : mailcap-2.1.49-3.amzn2023.0.3.noarch 10/12
Verifying : mod_http2-2.0.27-1.amzn2023.0.3.x86_64 11/12
Verifying : mod_lua-2.4.62-1.amzn2023.x86_64 12/12
```

```
Installed:
apr-1.7.2-2.amzn2023.0.2.x86_64      apr-util-1.6.3-1.amzn2023.0.1.x86_64      apr-util-openssl-1.6.3-1.amzn2023.0.1.x86_64      generic-logos-httpd-18.0.0-12.amzn2023.0.3.noarch
httpd-2.4.62-1.amzn2023.x86_64      httpd-core-2.4.62-1.amzn2023.x86_64      httpd-filesystem-2.4.62-1.amzn2023.noarch      httpd-tools-2.4.62-1.amzn2023.x86_64
libbrotli-1.0.9-4.amzn2023.0.2.x86_64      mailcap-2.1.49-3.amzn2023.0.3.noarch      mod_http2-2.0.27-1.amzn2023.0.3.x86_64      mod_lua-2.4.62-1.amzn2023.x86_64
```

```
Complete!
root@ip-172-31-51-115 ~]# systemctl status httpd
● httpd.service - The Apache HTTP Server
   Loaded: loaded (/usr/lib/systemd/system/httpd.service; disabled; preset: disabled)
   Active: inactive (dead)
     Docs: man:httpd.service(8)

root@ip-172-31-51-115 ~]# mkdir aws_assg3
root@ip-172-31-51-115 ~]# cd aws_assg3
root@ip-172-31-51-115 aws_assg3]# wget https://github.com/Rohan-Lalchandani08/OnlinePrintingServices.git
--2024-08-21 20:32:34-- https://github.com/Rohan-Lalchandani08/OnlinePrintingServices.git
Resolving github.com (github.com)... 140.82.113.4
Connecting to github.com (github.com)|140.82.113.4|:443... connected.
HTTP request sent, awaiting response... 301 Moved Permanently
Location: https://github.com/Rohan-Lalchandani08/OnlinePrintingServices [following]
--2024-08-21 20:32:34-- https://github.com/Rohan-Lalchandani08/OnlinePrintingServices
Reusing existing connection to github.com:443.
HTTP request sent, awaiting response... 200 OK
Length: unspecified [text/html]
Saving to: 'OnlinePrintingServices.git'
```

```
Saving to: 'OnlinePrintingServices.git'

OnlinePrintingServices.git          [ <=> ] 277.94K --.-KB/s  in 0.007s

2024-08-21 20:32:35 (39.4 MB/s) - 'OnlinePrintingServices.git' saved [284608]

[root@ip-172-31-51-115 aws_assg3]# ls -lrt
total 280
-rw-r--r-- 1 root root 284608 Aug 21 20:32 OnlinePrintingServices.git
[root@ip-172-31-51-115 aws_assg3]# wget https://github.com/Rohan-Lalchandani08/OnlinePrintingServices/archive/refs/heads/main.zip
--2024-08-21 20:35:21-- https://github.com/Rohan-Lalchandani08/OnlinePrintingServices/archive/refs/heads/main.zip
Resolving github.com (github.com)... 140.82.113.3
Connecting to github.com (github.com)|140.82.113.3|:443... connected.
HTTP request sent, awaiting response... 302 Found
Location: https://codeload.github.com/Rohan-Lalchandani08/OnlinePrintingServices/zip/refs/heads/main [following]
--2024-08-21 20:35:21-- https://codeload.github.com/Rohan-Lalchandani08/OnlinePrintingServices/zip/refs/heads/main
Resolving codeload.github.com (codeload.github.com)... 140.82.113.9
Connecting to codeload.github.com (codeload.github.com)|140.82.113.9|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: unspecified [application/zip]
Saving to: 'main.zip'

main.zip          [ <=> ] 450.42K --.-KB/s  in 0.02s

2024-08-21 20:35:21 (28.4 MB/s) - 'main.zip' saved [461233]

[root@ip-172-31-51-115 aws_assg3]# ls -lrt
total 732
-rw-r--r-- 1 root root 284608 Aug 21 20:32 OnlinePrintingServices.git
-rw-r--r-- 1 root root 461233 Aug 21 20:35 main.zip
```

```

-rw-r--r--. 1 root root 284608 Aug 21 20:32 OnlinePrintingServices.git
-rw-r--r--. 1 root root 461233 Aug 21 20:35 main.zip
[root@ip-172-31-51-115 aws_assg3]# unzip main.zip
Archive:  main.zip
e89afae28997f8992f8d48da34c717b34da37c24
  creating: OnlinePrintingServices-main/
  extracting: OnlinePrintingServices-main/about.html
  inflating: OnlinePrintingServices-main/audio.mp3
  extracting: OnlinePrintingServices-main/banner.png
  inflating: OnlinePrintingServices-main/brochure.jpg
  extracting: OnlinePrintingServices-main/buisnesscard.png
  inflating: OnlinePrintingServices-main/contact.html
  extracting: OnlinePrintingServices-main/facebook.png
  extracting: OnlinePrintingServices-main/flyers.png
  inflating: OnlinePrintingServices-main/index.html
  extracting: OnlinePrintingServices-main/insta.png
  extracting: OnlinePrintingServices-main/poster.png
  inflating: OnlinePrintingServices-main/printer logo.png
  inflating: OnlinePrintingServices-main/x.png
[root@ip-172-31-51-115 aws_assg3]# ls -lrt
total 748
drwxr-xr-x. 2 root root 16384 Aug 20 04:47 OnlinePrintingServices-main
-rw-r--r--. 1 root root 284608 Aug 21 20:32 OnlinePrintingServices.git
-rw-r--r--. 1 root root 461233 Aug 21 20:35 main.zip
[root@ip-172-31-51-115 aws_assg3]# cd OnlinePrintingServices-main
[root@ip-172-31-51-115 OnlinePrintingServices-main]# ls -lrt
total 480
-rw-r--r--. 1 root root 14913 Aug 20 04:47 x.png
-rw-r--r--. 1 root root 17827 Aug 20 04:47 'printer logo.png'
-rw-r--r--. 1 root root 68827 Aug 20 04:47 poster.png

```

```

-rw-r--r--. 1 root root 17827 Aug 20 04:47 'printer logo.png'
-rw-r--r--. 1 root root 68827 Aug 20 04:47 poster.png
-rw-r--r--. 1 root root 28213 Aug 20 04:47 insta.png
-rw-r--r--. 1 root root 2821 Aug 20 04:47 index.html
-rw-r--r--. 1 root root 102141 Aug 20 04:47 flyers.png
-rw-r--r--. 1 root root 11110 Aug 20 04:47 facebook.png
-rw-r--r--. 1 root root 936 Aug 20 04:47 contact.html
-rw-r--r--. 1 root root 34395 Aug 20 04:47 buisnesscard.png
-rw-r--r--. 1 root root 86675 Aug 20 04:47 brochure.jpg
-rw-r--r--. 1 root root 69398 Aug 20 04:47 banner.png
-rw-r--r--. 1 root root 29997 Aug 20 04:47 audio.mp3
-rw-r--r--. 1 root root 2 Aug 20 04:47 about.html
[root@ip-172-31-51-115 OnlinePrintingServices-main]# mv * /var/www/html/
[root@ip-172-31-51-115 OnlinePrintingServices-main]# cd /var/www/html/
[root@ip-172-31-51-115 html]# ls -lrt
total 480
-rw-r--r--. 1 root root 14913 Aug 20 04:47 x.png
-rw-r--r--. 1 root root 17827 Aug 20 04:47 'printer logo.png'
-rw-r--r--. 1 root root 68827 Aug 20 04:47 poster.png
-rw-r--r--. 1 root root 28213 Aug 20 04:47 insta.png
-rw-r--r--. 1 root root 2821 Aug 20 04:47 index.html
-rw-r--r--. 1 root root 102141 Aug 20 04:47 flyers.png
-rw-r--r--. 1 root root 11110 Aug 20 04:47 facebook.png
-rw-r--r--. 1 root root 936 Aug 20 04:47 contact.html
-rw-r--r--. 1 root root 34395 Aug 20 04:47 buisnesscard.png
-rw-r--r--. 1 root root 86675 Aug 20 04:47 brochure.jpg
-rw-r--r--. 1 root root 69398 Aug 20 04:47 banner.png
-rw-r--r--. 1 root root 29997 Aug 20 04:47 audio.mp3
-rw-r--r--. 1 root root 2 Aug 20 04:47 about.html
[root@ip-172-31-51-115 html]#

```

### 3) Editing the Inbound Rules:

Click on “Edit Inbound Rules” Button:

The screenshot shows the AWS IAM console interface for editing inbound rules. At the top, there's a filter bar with 'Security group name = launch-wizard-2' and a 'Clear filters' button. Below this is a table listing security groups. The selected rule is 'sgr-0726ca15cc9357960' with type 'SSH' and port '22'. The 'Edit inbound rules' button is highlighted. Below the table, the 'Inbound rules (1)' section shows a search bar and a table with columns: Name, Security group rule..., IP version, Type, Protocol, Port range, and Source. The rule 'sgr-0726ca15cc9357960' is listed with type 'SSH', protocol 'TCP', port '22', and source '0.0.0.0/0'. Below this, the 'Inbound rules' section shows the details of the selected rule, including fields for Type (SSH), Protocol (TCP), Port range (22), Source (Custom), and Description (optional). The 'Add rule' button is visible at the bottom left.

Now, Add new Rules as follows:

The screenshot shows the AWS IAM console interface for adding new rules. The 'Inbound rules' section is expanded, showing a table with columns: Security group rule ID, Type, Protocol, Port range, Source, and Description - optional. The table lists three rules: 'sgr-0726ca15cc9357960' with type 'SSH', protocol 'TCP', port '22', source 'Custom', and description 'Web Port'; a rule with type 'HTTP', protocol 'TCP', port '80', source 'Anywher...', and description 'Web Port'; and a rule with type 'HTTPS', protocol 'TCP', port '443', source 'Anywher...', and description 'Web Port'. The 'Add rule' button is visible at the bottom left.

4) Check the status of httpd and then enable & start httpd using the following commands:

```
systemctl status httpd
systemctl enable httpd
systemctl start httpd
```

Now open the public ipv4 address allocated to the EC2 instance we created in new tab. We will be able to see the Website.


```

[root@ip-172-31-51-115 html]# systemctl status httpd
o httpd.service - The Apache HTTP Server
   Loaded: loaded (/usr/lib/systemd/system/httpd.service; disabled; preset: disabled)
   Active: inactive (dead)
     Docs: man:httpd.service(8)
[root@ip-172-31-51-115 html]# systemctl enable httpd
Created symlink /etc/systemd/system/multi-user.target.wants/httpd.service → /usr/lib/systemd/system/httpd.service.
[root@ip-172-31-51-115 html]# start httpd
-bash: start: command not found
[root@ip-172-31-51-115 html]# systemctl start httpd
[root@ip-172-31-51-115 html]#

[root@ip-172-31-51-115 html]# systemctl status httpd
• httpd.service - The Apache HTTP Server
   Loaded: loaded (/usr/lib/systemd/system/httpd.service; enabled; preset: disabled)
   Active: active (running) since Wed 2024-08-21 20:59:52 UTC; 3s ago
     Docs: man:httpd.service(8)
  Main PID: 28176 (httpd)
    Status: "Started, listening on: port 80"
    Tasks: 177 (limit: 1112)
   Memory: 12.9M
      CPU: 63ms
   CGroup: /system.slice/httpd.service
           └─28176 /usr/sbin/httpd -DFOREGROUND
           └─28177 /usr/sbin/httpd -DFOREGROUND
           └─28178 /usr/sbin/httpd -DFOREGROUND
           └─28179 /usr/sbin/httpd -DFOREGROUND
           └─28180 /usr/sbin/httpd -DFOREGROUND

Aug 21 20:59:52 ip-172-31-51-115.ec2.internal systemd[1]: Starting httpd.service - The Apache HTTP Server...
Aug 21 20:59:52 ip-172-31-51-115.ec2.internal systemd[1]: Started httpd.service - The Apache HTTP Server.
Aug 21 20:59:52 ip-172-31-51-115.ec2.internal httpd[28176]: Server configured, listening on: port 80

```



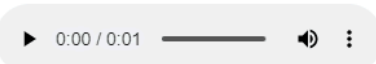
# Print It - Online Printing Services for everyone

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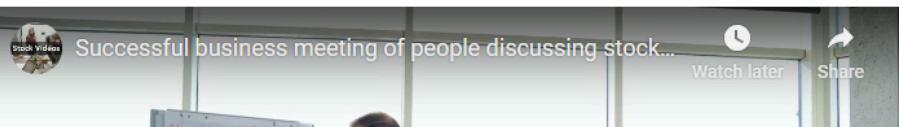
- [Introduction Audio](#)
- [Promotional Video](#)
- [Company Details](#)
- [Services We Offer](#)

Your one-stop solution for all printing needs.

## Introduction Audio



## Promotional Video



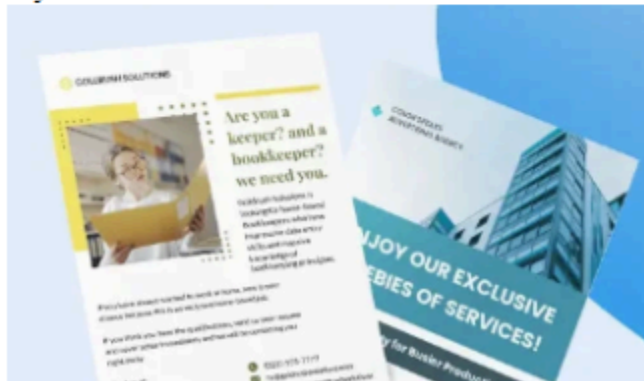
## Company Details

## Services We Offer

- Business Cards



- Flyers



### 3) Using S3 Bucket:

- 1) Search for s3 bucket and go to the link and click on create bucket.

Storage

# Amazon S3

## Store and retrieve any amount of data from anywhere

Amazon S3 is an object storage service that offers industry-leading scalability, data availability, security, and performance.

### Create a bucket

Every object in S3 is stored in a bucket. To upload files and folders to S3, you'll need to create a bucket where the objects will be stored.

Create bucket

- 2) Configure the settings:

### General configuration

AWS Region  
US East (N. Virginia) us-east-1

Bucket type [Info](#)

☒ **General purpose**  
Recommended for most use cases and access patterns. General purpose buckets are the original S3 bucket type. They allow a mix of storage classes that redundantly store objects across multiple Availability Zones.

☐ **Directory - New**  
Recommended for low-latency use cases. These buckets use only the S3 Express One Zone storage class, which provides faster processing of data within a single Availability Zone.

Bucket name [Info](#)

rohans3bucket

Bucket name must be unique within the global namespace and follow the bucket naming rules. [See rules for bucket naming](#)

Copy settings from existing bucket - *optional*  
Only the bucket settings in the following configuration are copied.

Choose bucket

Format: s3://bucket/prefix

### Object Ownership [Info](#)

Control ownership of objects written to this bucket from other AWS accounts and the use of access control lists (ACLs). Object ownership determines who can specify access to objects.

☒ **ACLs disabled (recommended)**  
All objects in this bucket are owned by this account. Access to this bucket and its objects is specified using only policies.

☐ **ACLs enabled**  
Objects in this bucket can be owned by other AWS accounts. Access to this bucket and its objects can be specified using ACLs.

Object Ownership  
Bucket owner enforced



## Bucket Versioning

Versioning is a means of keeping multiple variants of an object in the same bucket. You can use versioning to preserve, retrieve, and restore every version of every object stored in your Amazon S3 bucket. With versioning, you can easily recover from both unintended user actions and application failures. [Learn more](#)

### Bucket Versioning

- ☐ Disable
- ☒ Enable

## Default encryption [Info](#)

Server-side encryption is automatically applied to new objects stored in this bucket.

### Encryption type [Info](#)

- ☒ Server-side encryption with Amazon S3 managed keys (SSE-S3)
- ☐ Server-side encryption with AWS Key Management Service keys (SSE-KMS)
- ☐ Dual-layer server-side encryption with AWS Key Management Service keys (DSSE-KMS)
- Secure your objects with two separate layers of encryption. For details on pricing, see [DSSE-KMS pricing](#) on the [Storage](#) tab of the [Amazon S3 pricing page](#).

### Bucket Key

Using an S3 Bucket Key for SSE-KMS reduces encryption costs by lowering calls to AWS KMS. S3 Bucket Keys aren't supported for DSSE-KMS. [Learn more](#)

- ☐ Disable
- ☒ Enable

## General purpose buckets (1) [Info](#) [All AWS Regions](#)

Buckets are containers for data stored in S3.

< 1 >

|                       | Name                           | AWS Region                      | IAM Access Analyzer                         | Creation date                         |
|-----------------------|--------------------------------|---------------------------------|---|---------------------------------------|
| <input type="radio"/> | <a href="#">rohans3bucket1</a> | US East (N. Virginia) us-east-1 | <a href="#">View analyzer for us-east-1</a> | August 23, 2024, 21:32:27 (UTC+05:30) |

## 3) Upload the files.

### Files and folders (13 Total, 456.9 KB)

All files and folders in this table will be uploaded.

< 1 2 >

| <input type="checkbox"/> | Name             | Folder | Type       |
|--------------------------|------------------|--------|------------|
| <input type="checkbox"/> | x.png            | -      | image/png  |
| <input type="checkbox"/> | about.html       | -      | text/html  |
| <input type="checkbox"/> | audio.mp3        | -      | audio/mpeg |
| <input type="checkbox"/> | banner.png       | -      | image/png  |
| <input type="checkbox"/> | brochure.jpg     | -      | image/jpeg |
| <input type="checkbox"/> | buisnesscard.png | -      | image/png  |
| <input type="checkbox"/> | contact.html     | -      | text/html  |
| <input type="checkbox"/> | facebook.png     | -      | image/png  |
| <input type="checkbox"/> | flyers.png       | -      | image/png  |
| <input type="checkbox"/> | index.html       | -      | text/html  |

4) Go to your bucket destination link.

**Destination** [Info](#)

Destination  
[s3://rohans3bucket1](#)

**▼ Destination details**  
Bucket settings that impact new objects stored in the specified destination.

|  |  |   |
|--|--|---|
| <b>Bucket Versioning</b><br>When enabled, multiple variants of an object can be stored in the bucket to easily recover from unintended user actions and application failures. <a href="#">Learn more</a> <a href="#">↗</a><br><b>Enabled</b> | <b>Default encryption type</b><br>If an encryption type isn't specified, bucket settings for default encryption are used to encrypt objects when storing them in Amazon S3. <a href="#">Learn more</a> <a href="#">↗</a><br><b>Server-side encryption with Amazon S3 managed keys (SSE-S3)</b> | <b>Object Lock</b><br>When enabled, objects in this bucket might be prevented from being deleted or overwritten for a fixed amount of time or indefinitely. <a href="#">Learn more</a> <a href="#">↗</a><br><b>Disabled</b> |
|--|--|---|

5) Uncheck the block public access.

[Amazon S3](#) > [Buckets](#) > [rohans3bucket1](#) > **Edit Block public access (bucket settings)**

**Edit Block public access (bucket settings)** [Info](#)

**Block public access (bucket settings)**  
Public access is granted to buckets and objects through access control lists (ACLs), bucket policies, access point policies, or all. In order to ensure that public access to all your S3 buckets and objects is blocked, turn on Block all public access. These settings apply only to this bucket and its access points. AWS recommends that you turn on Block all public access, but before applying any of these settings, ensure that your applications will work correctly without public access. If you require some level of public access to your buckets or objects within, you can customize the individual settings below to suit your specific storage use cases. [Learn more](#) [↗](#)

☒ **Block all public access**  
Turning this setting on is the same as turning on all four settings below. Each of the following settings are independent of one another.

☐ **Block public access to buckets and objects granted through *new* access control lists (ACLs)**  
S3 will block public access permissions applied to newly added buckets or objects, and prevent the creation of new public access ACLs for existing buckets and objects. This setting doesn't change any existing permissions that allow public access to S3 resources using ACLs.

☐ **Block public access to buckets and objects granted through *any* access control lists (ACLs)**  
S3 will ignore all ACLs that grant public access to buckets and objects.

☐ **Block public access to buckets and objects granted through *new* public bucket or access point policies**  
S3 will block new bucket and access point policies that grant public access to buckets and objects. This setting doesn't change any existing policies that allow public access to S3 resources.

☐ **Block public and cross-account access to buckets and objects through *any* public bucket or access point policies**  
S3 will ignore public and cross-account access for buckets or access points with policies that grant public access to buckets and objects.

6) Go to the properties section and scroll down to static website hosting and enable it.

### Static website hosting

Use this bucket to host a website or redirect requests. [Learn more](#)

Static website hosting

☐ Disable

☒ Enable

Hosting type

☒ Host a static website

Use the bucket endpoint as the web address. [Learn more](#)

☐ Redirect requests for an object

Redirect requests to another bucket or domain. [Learn more](#)

**i** For your customers to access content at the website endpoint, you must make all your content publicly readable. To do so, you can edit the S3 Block Public Access settings for the bucket. For more information, see [Using Amazon S3 Block Public Access](#)

Index document

Specify the home or default page of the website.

Error document - optional

This is returned when an error occurs.

7) Go to the permissions section and see for ACL's option and enable it.

### Object Ownership

Control ownership of objects written to this bucket from other AWS accounts and the use of access control lists (ACLs). Object ownership determines who can specify access to objects.

☐ ACLs disabled (recommended)

All objects in this bucket are owned by this account. Access to this bucket and its objects is specified using only policies.

☒ ACLs enabled

Objects in this bucket can be owned by other AWS accounts. Access to this bucket and its objects can be specified using ACLs.

**⚠** We recommend disabling ACLs, unless you need to control access for each object individually or to have the object writer own the data they upload. Using a bucket policy instead of ACLs to share data with users outside of your account simplifies permissions management and auditing.

**⚠** **Enabling ACLs turns off the bucket owner enforced setting for Object Ownership**

Once the bucket owner enforced setting is turned off, access control lists (ACLs) and their associated permissions are restored. Access to objects that you do not own will be based on ACLs and not the bucket policy.

☒ I acknowledge that ACLs will be restored.

Object Ownership

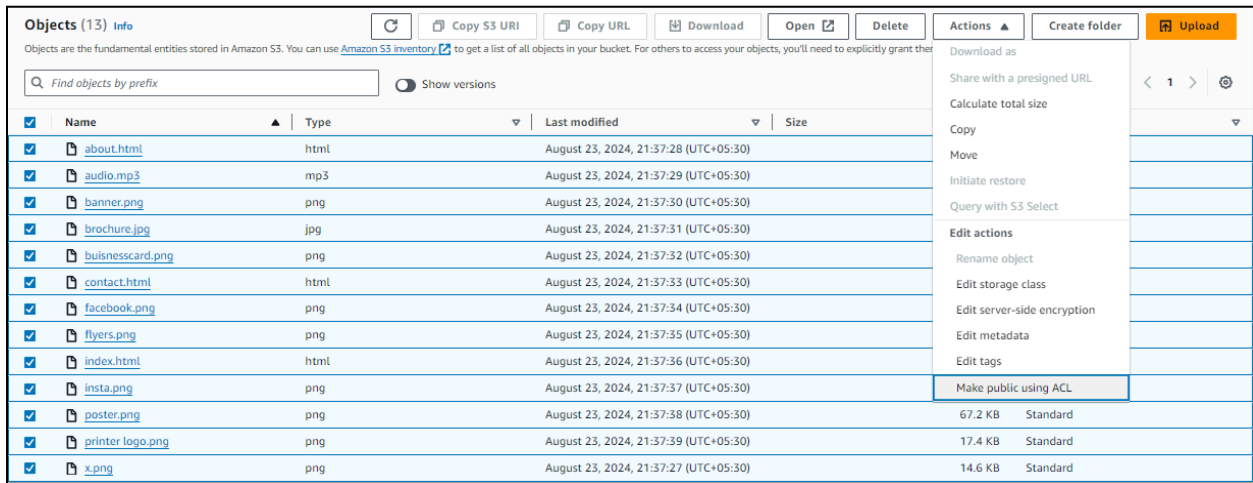
☒ Bucket owner preferred

If new objects written to this bucket specify the bucket-owner-full-control canned ACL, they are owned by the bucket owner. Otherwise, they are owned by the object writer.

☐ Object writer

The object writer remains the object owner.

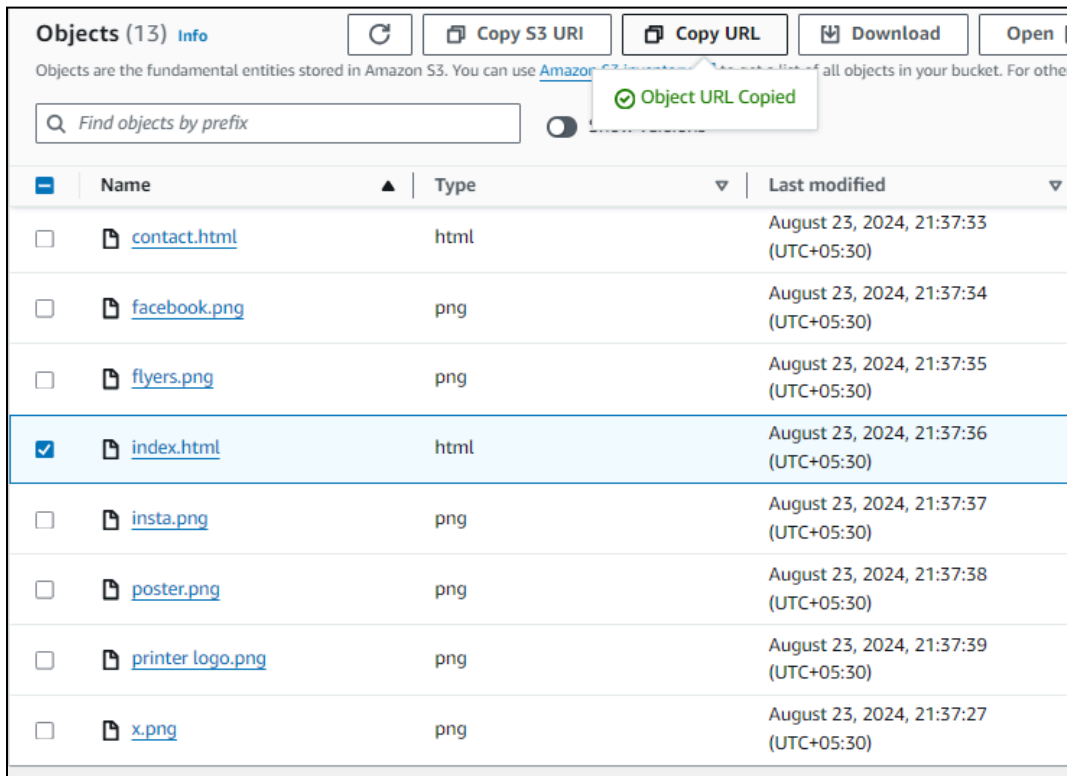
- 8) Now, go to the objects section and select all objects and click on action button and select “Make public using ACL”



The screenshot shows the Amazon S3 console interface. At the top, there are buttons for 'Copy S3 URI', 'Copy URL', 'Download', 'Open', and 'Delete'. Below these is a search bar labeled 'Find objects by prefix' and a 'Show versions' toggle. A table lists 13 objects, all of which are selected with checkboxes. The 'Actions' dropdown menu is open, showing options like 'Download as', 'Share with a presigned URL', 'Calculate total size', 'Copy', 'Move', 'Initiate restore', 'Query with S3 Select', 'Edit actions', 'Rename object', 'Edit storage class', 'Edit server-side encryption', 'Edit metadata', 'Edit tags', and 'Make public using ACL' (which is highlighted).

| Name                             | Type | Last modified                         | Size             |
|----------------------------------|------|---------------------------------------|------------------|
| <a href="#">about.html</a>       | html | August 23, 2024, 21:37:28 (UTC+05:30) |                  |
| <a href="#">audio.mp3</a>        | mp3  | August 23, 2024, 21:37:29 (UTC+05:30) |                  |
| <a href="#">banner.png</a>       | png  | August 23, 2024, 21:37:30 (UTC+05:30) |                  |
| <a href="#">brochure.jpg</a>     | jpg  | August 23, 2024, 21:37:31 (UTC+05:30) |                  |
| <a href="#">businesscard.png</a> | png  | August 23, 2024, 21:37:32 (UTC+05:30) |                  |
| <a href="#">contact.html</a>     | html | August 23, 2024, 21:37:33 (UTC+05:30) |                  |
| <a href="#">facebook.png</a>     | png  | August 23, 2024, 21:37:34 (UTC+05:30) |                  |
| <a href="#">flyers.png</a>       | png  | August 23, 2024, 21:37:35 (UTC+05:30) |                  |
| <a href="#">index.html</a>       | html | August 23, 2024, 21:37:36 (UTC+05:30) |                  |
| <a href="#">insta.png</a>        | png  | August 23, 2024, 21:37:37 (UTC+05:30) |                  |
| <a href="#">poster.png</a>       | png  | August 23, 2024, 21:37:38 (UTC+05:30) | 67.2 KB Standard |
| <a href="#">printer logo.png</a> | png  | August 23, 2024, 21:37:39 (UTC+05:30) | 17.4 KB Standard |
| <a href="#">x.png</a>            | png  | August 23, 2024, 21:37:27 (UTC+05:30) | 14.6 KB Standard |

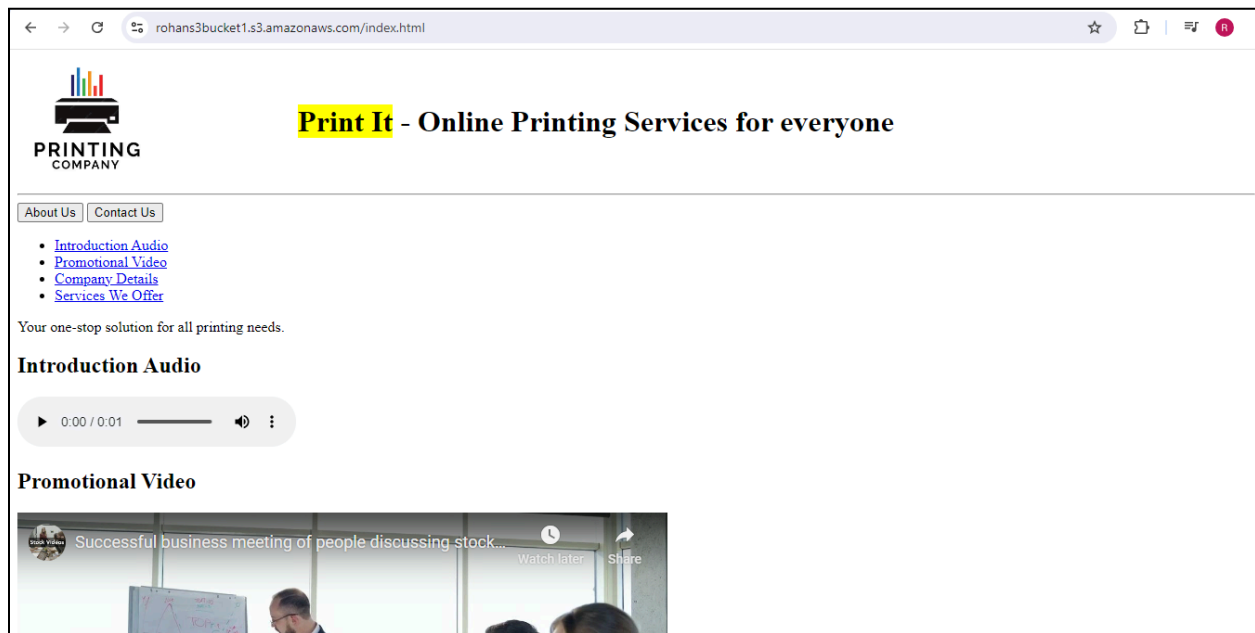
- 9) Copy the URL of the index.html file and go to the copied link in the new tab of the browser.



The screenshot shows the Amazon S3 console interface. At the top, there are buttons for 'Copy S3 URI', 'Copy URL', 'Download', and 'Open'. Below these is a search bar labeled 'Find objects by prefix' and a 'Show versions' toggle. A table lists 13 objects, with 'index.html' selected. A green notification bubble with a checkmark icon and the text 'Object URL Copied' is visible above the table.

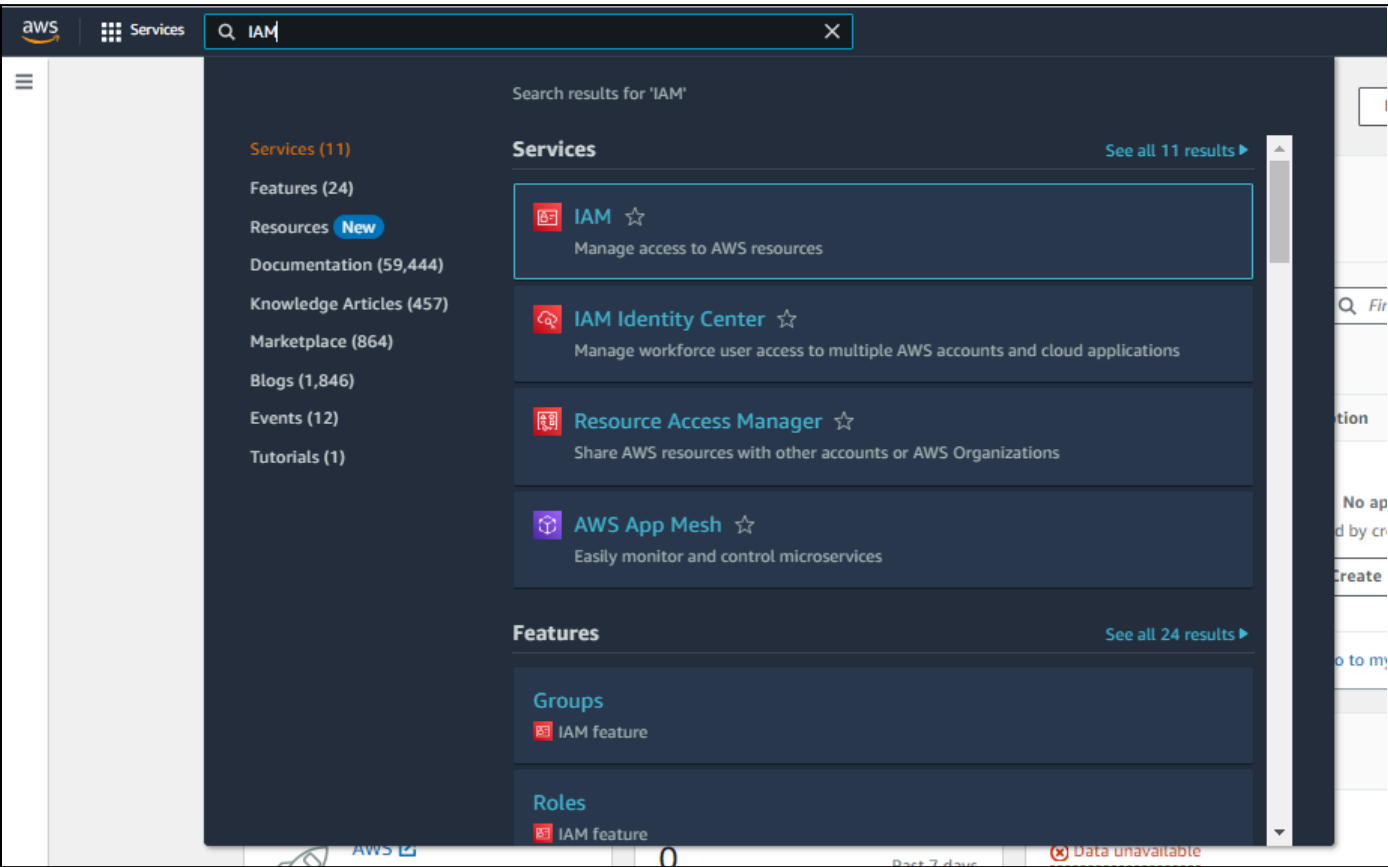
| Name                             | Type | Last modified                         |
|----------------------------------|------|---------------------------------------|
| <a href="#">contact.html</a>     | html | August 23, 2024, 21:37:33 (UTC+05:30) |
| <a href="#">facebook.png</a>     | png  | August 23, 2024, 21:37:34 (UTC+05:30) |
| <a href="#">flyers.png</a>       | png  | August 23, 2024, 21:37:35 (UTC+05:30) |
| <a href="#">index.html</a>       | html | August 23, 2024, 21:37:36 (UTC+05:30) |
| <a href="#">insta.png</a>        | png  | August 23, 2024, 21:37:37 (UTC+05:30) |
| <a href="#">poster.png</a>       | png  | August 23, 2024, 21:37:38 (UTC+05:30) |
| <a href="#">printer logo.png</a> | png  | August 23, 2024, 21:37:39 (UTC+05:30) |
| <a href="#">x.png</a>            | png  | August 23, 2024, 21:37:27 (UTC+05:30) |

10) Website is successfully deployed.

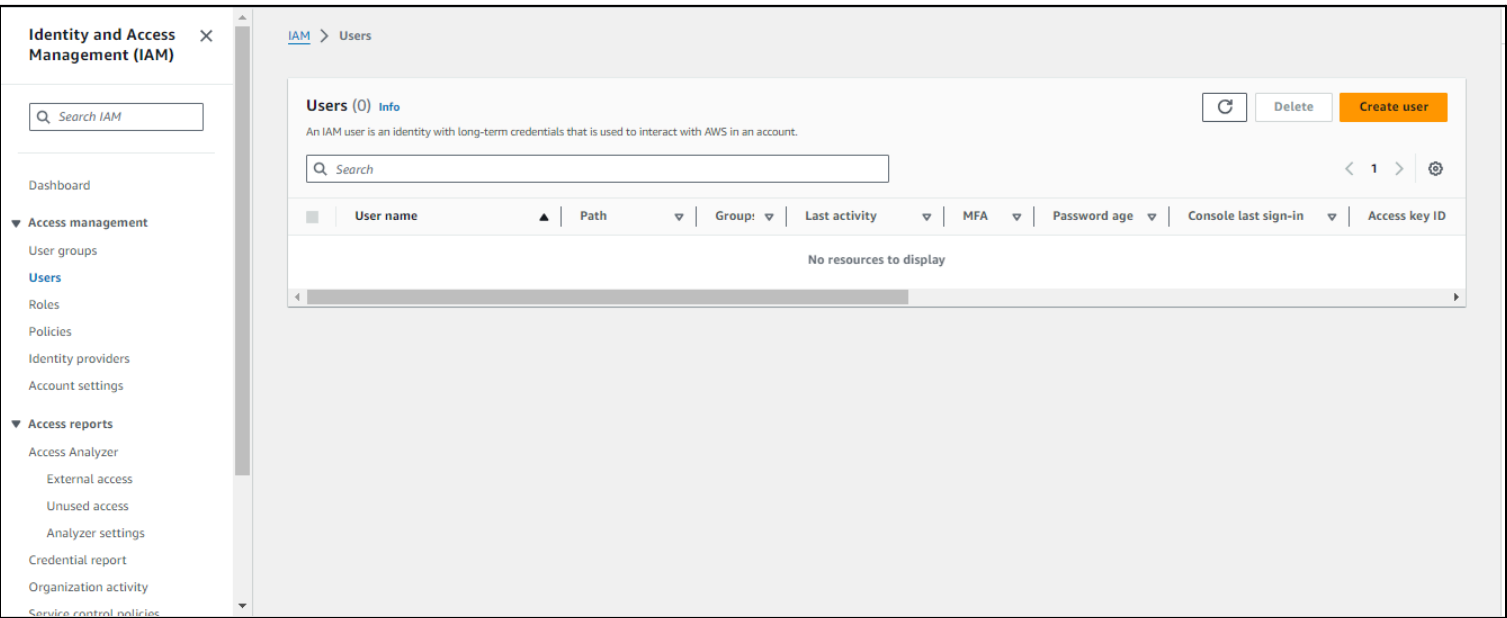


Part B) AWS Cloud9:

1) Search for IAM in the search box.



2) Click on create user.



### 3) Configuring the IAM role.

[IAM](#) > [Users](#) > Create user

Step 1  
Specify user details

Step 2  
Set permissions

Step 3  
Review and create

Step 4  
Retrieve password

## Specify user details

### User details

User name

Rohan\_IAM

The user name can have up to 64 characters. Valid characters: A-Z, a-z, 0-9, and + = , . @ \_ - (hyphen)

☒ Provide user access to the AWS Management Console - *optional*  
If you're providing console access to a person, it's a [best practice](#) to manage their access in IAM Identity Center.

**Are you providing console access to a person?**  
User type

☐ Specify a user in Identity Center - Recommended  
We recommend that you use Identity Center to provide console access to a person. With Identity Center, you can centrally manage user access to their AWS accounts and cloud applications.

☒ I want to create an IAM user  
We recommend that you create IAM users only if you need to enable programmatic access through access keys, service-specific credentials for AWS CodeCommit or Amazon Keyspaces, or a backup credential for emergency account access.

Console password

☐ Autogenerated password  
You can view the password after you create the user.

☒ Custom password

**Are you providing console access to a person?**  
User type

☐ Specify a user in Identity Center - Recommended  
We recommend that you use Identity Center to provide console access to a person. With Identity Center, you can centrally manage user access to their AWS accounts and cloud applications.

☒ I want to create an IAM user  
We recommend that you create IAM users only if you need to enable programmatic access through access keys, service-specific credentials for AWS CodeCommit or Amazon Keyspaces, or a backup credential for emergency account access.

Console password

☐ Autogenerated password  
You can view the password after you create the user.

☒ Custom password  
Enter a custom password for the user.

\*\*\*\*\*

▪ Must be at least 8 characters long

▪ Must include at least three of the following mix of character types: uppercase letters (A-Z), lowercase letters (a-z), numbers (0-9), and symbols ! @ # \$ % ^ & \* ( ) \_ + - (hyphen) = [ ] { } | ' "

☐ Show password

☐ Users must create a new password at next sign-in - Recommended  
Users automatically get the `IAMUserChangePassword` policy to allow them to change their own password.

If you are creating programmatic access through access keys or service-specific credentials for AWS CodeCommit or Amazon Keyspaces, you can generate them after you create this IAM user. [Learn more](#)

Cancel

Next

[IAM](#) > [Users](#) > Create user

Step 1

[Specify user details](#)

Step 2

**Set permissions**

Step 3

[Review and create](#)

Step 4

[Retrieve password](#)

## Set permissions

Add user to an existing group or create a new one. Using groups is a best-practice way to manage user's permissions by job functions. [Learn more](#)

### Permissions options

☒ **Add user to group**

Add user to an existing group, or create a new group. We recommend using groups to manage user permissions by job function.

☐ **Copy permissions**

Copy all group memberships, attached managed policies, and inline policies from an existing user.

☐ **Attach policies directly**

Attach a managed policy directly to a user. As a best practice, we recommend attaching policies to a group instead. Then, add the user to the appropriate group.



**Get started with groups**

Create a group and select policies to attach to the group. We recommend using groups to manage user permissions by job function, AWS service access, or custom permissions. [Learn more](#)

Create group

### ► Set permissions boundary - *optional*

Cancel

Previous

Next

✓ **User created successfully**

View user



You can view and download the user's password and email instructions for signing in to the AWS Management Console.

[IAM](#) > [Users](#) > Create user

Step 1

[Specify user details](#)

Step 2

[Set permissions](#)

Step 3

[Review and create](#)

Step 4

**Retrieve password**

## Retrieve password

You can view and download the user's password below or email users instructions for signing in to the AWS Management Console. This is the only time you can view and download this password.

### Console sign-in details

Email sign-in instructions

Console sign-in URL

<https://861276120101.signin.aws.amazon.com/console>

User name

Rohan\_IAM

Console password

\*\*\*\*\* [Show](#)

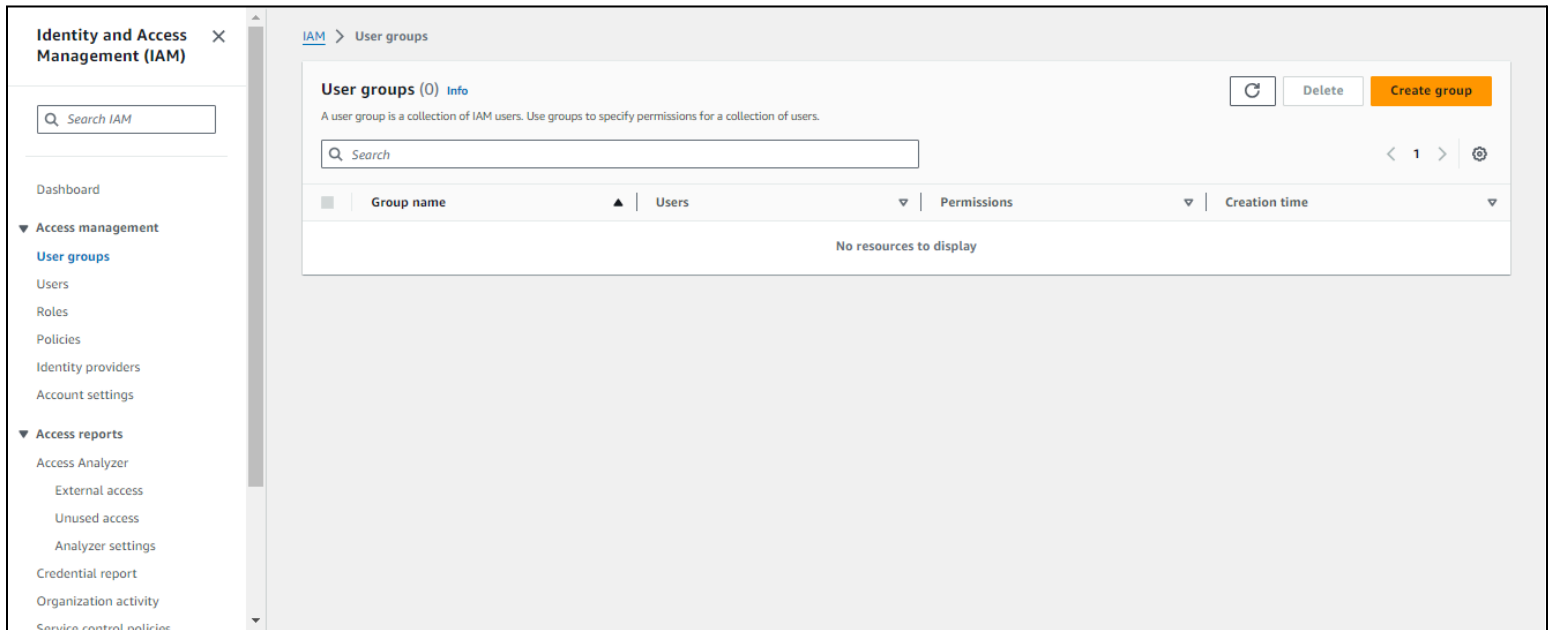
Cancel

Download .csv file

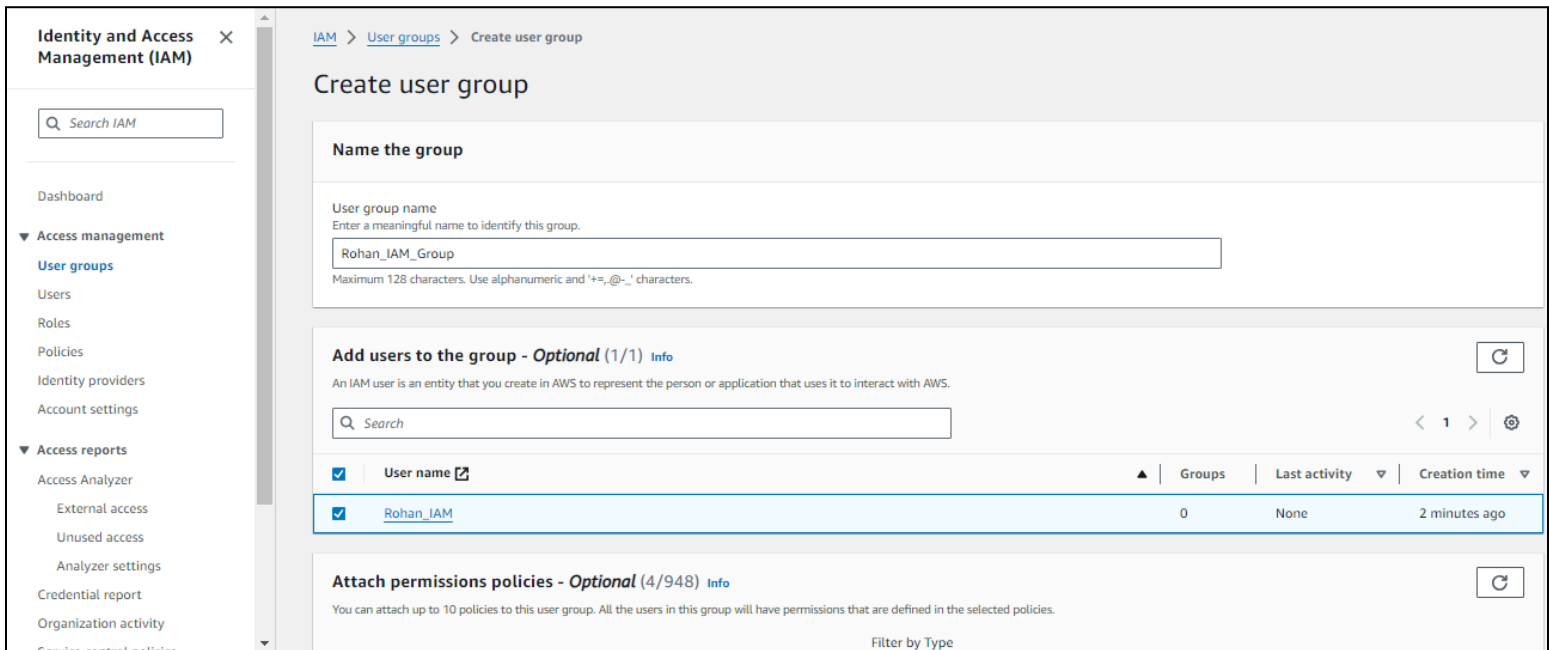
Return to users list



4) After creating IAM role, go to User groups, and click on create group.



5) Configuring the user group.



Identity and Access Management (IAM)

Search IAM

Dashboard

Access management

User groups

Users

Roles

Policies

Identity providers

Account settings

Access reports

Access Analyzer

External access

Unused access

Analyzer settings

Credential report

Organization activity

Add users to the group - Optional (1/1) Info

An IAM user is an entity that you create in AWS to represent the person or application that uses it to interact with AWS.

Search

User name

Rohan\_IAM

0

None

2 minutes ago

Attach permissions policies - Optional (4/948) Info

You can attach up to 10 policies to this user group. All the users in this group will have permissions that are defined in the selected policies.

Cloud9

Filter by Type

All types

4 matches

Policy name

Type

Used as

Description

AWSCloud9Administrator

AWS managed

None

Provides administrator access to AWS ...

AWSCloud9EnvironmentMember

AWS managed

None

Provides the ability to be invited into ...

AWSCloud9SSMInstanceProfile

AWS managed

None

This policy will be used to attach a rol...

AWSCloud9User

AWS managed

None

Provides permission to create AWS Clo...

Cancel

Create user group

6) After creating a user group, search for Cloud9 in the search box.

aws

Services

Cloud9

Search results for 'Cloud9'

Services (51)

Features (32)

Resources 

New

Documentation (15,326)

Knowledge Articles (652)

Marketplace (13)

Blogs (6,954)

Events (325)

Tutorials (22)

Services

See all 51 results

Cloud9

A Cloud IDE for Writing, Running, and Debugging Code

Amazon CodeCatalyst

Integrated DevOps Service

AWS Cloud Map

Build a dynamic map of your cloud

AWS Deadline Cloud

Simplified render management

Features

See all 32 results

Cloud WAN

VPC feature

Namespaces

AWS Cloud Map feature

AWS

Data unavailable

7) Click on create environment.

Developer Tools

# AWS Cloud9

## A cloud IDE for writing, running, and debugging code

AWS Cloud9 allows you to write, run, and debug your code with just a browser. With AWS Cloud9, you have immediate access to a rich code editor, integrated debugger, and built-in terminal with preconfigured AWS CLI. You can get started in minutes and no longer have to spend the time to install local applications or configure your development machine.

### New AWS Cloud9 environment

[Create environment](#)

### How it works

Create an AWS Cloud9 development environment on a new Amazon EC2 instance or connect it to your own Linux server through SSH. Once you've created an AWS Cloud9 environment, you will have immediate access to a rich code editor, integrated debugger, and built-in terminal with pre-configured AWS CLI – all within your browser.

Using the AWS Cloud9 dashboard, you can create and switch between many different AWS Cloud9 environments, each one containing the custom tools, runtimes, and files for a specific project.

[Learn more](#)

### Getting started

- [Before you start](#) (2 min read)
- [Create an environment](#) (2 min read)
- [Working with environments](#) (15 min read)
- [Working with the IDE](#) (10 min read)
- [Working with AWS Lambda](#) (5 min read)

8) Configuring the environment.

[AWS Cloud9](#) > [Environments](#) > [Create environment](#)

## Create environment [Info](#)

### Details

**Name**

Limit of 60 characters, alphanumeric, and unique per user.

**Description - optional**

Limit 200 characters.

**Environment type** [Info](#)  
Determines what the Cloud9 IDE will run on.

☒ **New EC2 instance**  
Cloud9 creates an EC2 instance in your account. The configuration of your EC2 instance cannot be changed by Cloud9 after creation.

☐ **Existing compute**  
You have an existing instance or server that you'd like to use.

### New EC2 instance

**Instance type** [Info](#)  
The memory and CPU of the EC2 instance that will be created for Cloud9 to run on.

13 vCPUs, 48 GiB RAM, 160 GB storage

17 vCPUs, 64 GiB RAM, 240 GB storage

25 vCPUs, 96 GiB RAM, 400 GB storage

## New EC2 instance

### Instance type [Info](#)

The memory and CPU of the EC2 instance that will be created for Cloud9 to run on.

☒ **t2.micro (1 GiB RAM + 1 vCPU)**  
Free-tier eligible. Ideal for educational users and exploration.

☐ **t3.small (2 GiB RAM + 2 vCPU)**  
Recommended for small web projects.

☐ **m5.large (8 GiB RAM + 2 vCPU)**  
Recommended for production and most general-purpose development.

☐ **Additional instance types**  
Explore additional instances to fit your need.

### Platform [Info](#)

This will be installed on your EC2 instance. We recommend Amazon Linux 2023.

Amazon Linux 2023

### Timeout

How long Cloud9 can be inactive (no user input) before auto-hibernating. This helps prevent unnecessary charges.

30 minutes

## Network settings [Info](#)

### Connection

How your environment is accessed.

## Network settings [Info](#)

### Connection

How your environment is accessed.

☒ **AWS Systems Manager (SSM)**  
Accesses environment via SSM without opening inbound ports (no ingress).

☐ **Secure Shell (SSH)**  
Accesses environment directly via SSH, opens inbound ports.

► **VPC settings** [Info](#)

### ► Tags - optional [Info](#)

A tag is a label that you assign to an AWS resource. Each tag consists of a key and an optional value. You can use tags to search and filter your resources or track your AWS costs.



#### The following IAM resources will be created in your account

- **AWSServiceRoleForAWSCloud9** - AWS Cloud9 creates a service-linked role for you. This allows AWS Cloud9 to call other AWS services on your behalf. You can delete the role from the AWS IAM console once you no longer have any AWS Cloud9 environments. [Learn more](#)
- **AWSCloud9SSMAccessRole** and **AWSCloud9SSMInstanceProfile** - A service role and an instance profile are automatically created if Cloud9 accesses its EC2 instance through AWS Systems Manager. If your environments no longer require EC2 instances that block incoming traffic, you can delete these roles using the AWS IAM console. [Learn more](#)

Cancel

Create

9) Environment is successfully created.

