Experiment 1

AIM: To understand the benefits of Cloud Infrastructure and Setup AWS Cloud9 IDE, Launch AWS Cloud9 IDE and Perform Collaboration Demonstration.

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

ⓘ For capabilities similar to AWS Cloud9, explore AWS Toolkits in your own IDE and AWS CloudShell in the AWS Management Console. Learn more ↗

AWS Cloud9 > Environments > Create environment

Create environment Info

Details

Name

```
mahvish
```

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	○ Existing compute
Cloud9 creates an EC2 instance in your account. The configuration of your EC2 instance cannot be changed by Cloud9 after creation.	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.

User name

Mahvish

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
Enter a custom password for the user.

●●●●●●●●●●

☐ 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**

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	○ Copy permissions	○ Attach policies directly
Add user to an existing group, or create a new group. We recommend using groups to manage user permissions by job function.	Copy all group memberships, attached managed policies, and inline policies from an existing user.	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 group
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 ↗

▼ **Set permissions boundary - *optional***

Set a permissions boundary to control the maximum permissions for this user. Use this advanced feature used to delegate permission management to others. Learn more ↗

☐ Use a permissions boundary to control the maximum permissions
You can select one of the existing permissions policies to define the boundary.

Cancel   Previous   **Next**

Create user group

Create a user group and select policies to attach to the group. We recommend using groups to mana
job function, AWS service access, or custom permissions. Learn more ↗

User group name
Enter a meaningful name to identify this group.

webappgrp

Maximum 128 characters. Use alphanumeric and '+=,.@-_' characters.

Permissions policies (946)

Filter by Type

| Q Search | All ty... ▼ | ‹ 1 2 3 4 5 6 7 |

		Policy name ↗ ▲	Type ▽	Use... ▽	Description
☐	⊞	🟧 AdministratorAccess	AWS managed ...	None	Provides full
☐	⊞	🟧 AdministratorAcce...	AWS managed	None	Grants accou
☐	⊞	🟧 AdministratorAcce...	AWS managed	None	Grants accou
☐	⊞	🟧 AlexaForBusinessD...	AWS managed	None	Provide devi

User groups (1/1)

| Q Search | | | | ‹ 1 › ⚙ |

☑	Group name ↗ ▽	Users ▽	Attached policies ↗ ▽	Created ▼
☑	webappgrp	0	-	2024-07-30 (1 minute ago)

▼ **Set permissions boundary - *optional***

Set a permissions boundary to control the maximum permissions for this user. Use this advanced feature used to delegate permission management to others. Learn more ↗

☐ Use a permissions boundary to control the maximum permissions
You can select one of the existing permissions policies to define the boundary.

Cancel   Previous   Next

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://011528263675.signin.aws.amazon.com/console

User name
Mahvish

Console password
*************** Show

Cancel   Download .csv file   Return to users list

- s3 bucket

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

▶ **Advanced settings**

ⓘ After creating the bucket, you can upload files and folders to the bucket, and configure additional bucket settings.

Cancel   **Create bucket**

⊘ **Successfully created bucket "test-mahvish"**
To upload files and folders, or to configure additional bucket settings, choose **View details**.

View details   ✕

Amazon S3 > Buckets

▶ **Account snapshot -** *updated every 24 hours* [All AWS Regions]
    Storage lens provides visibility into storage usage and activity trends. Learn more 🔗

View Storage Lens dashboard

General purpose buckets   Directory buckets

General purpose buckets (1) Info [All AWS Regions]
Buckets are containers for data stored in S3.

↻   🗐 Copy ARN   Empty   Delete   **Create bucket**

🔍 Find buckets by name

‹ 1 ›   ⚙

	Name ▲	AWS Region ▽	IAM Access Analyzer	Creation date ▽
○	test-mahvish	US East (N. Virginia) us-east-1	View analyzer for us-east-1	August 12, 2024, 20:04:18 (UTC+05:30)

Upload Info

Add the files and folders you want to upload to S3. To upload a file larger than 160GB, use the AWS CLI, AWS SDK or Amazon S3 REST API. Learn more ↗

Drag and drop files and folders you want to upload here, or choose **Add files** or **Add folder**.

Files and folders (1 Total, 50.0 B)

All files and folders in this table will be uploaded.

| Remove | Add files | Add folder |

	Name ▽	Folder ▽	Type ▽	Size ▽
☐	test.txt	-	text/plain	50.0 B

Destination Info

Destination

s3://test-mahvish

⊘ **Upload succeeded**
View details below.

Upload: status

Close

ⓘ The information below will no longer be available after you navigate away from this page.

Summary

Destination	Succeeded	Failed
s3://test-mahvish	⊘ 1 file, 287.0 B (100.00%)	⊖ 0 files, 0 B (0%)

Files and folders | Configuration

Files and folders (1 Total, 287.0 B)

Name	Folder ▽	Type ▽	Size ▽	Status ▽	Error	▽
test.html ↗	-	text/html	287.0 B	⊘ Succeeded	-	

test.html Info

[Copy S3 URI] [Download] [Open] [Object actions ▼]

Properties | Permissions | Versions

Object overview

Owner
awslabsc0w3698888t1642940625

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

Last modified
August 12, 2024, 22:33:51 (UTC+05:30)

Size
287.0 B

Type
html

Key
test.html

S3 URI
s3://test-mahvish/test.html

Amazon Resource Name (ARN)
arn:aws:s3:::test-mahvish/test.html

Entity tag (Etag)
7a3411f1dad97a2779c8dc65580432d2

Object URL
https://test-mahvish.s3.amazonaws.com/test.html

Edit static website hosting Info

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 🔗

test-mahvish Info

Objects   Properties   **Permissions**   Metrics   Management   Access Points

Permissions overview

Access finding

Access findings are provided by IAM external access analyzers. Learn more about How IAM analyzer findings work ↗

View analyzer for us-east-1

Block public access (bucket settings)   [Edit]

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

⊘ On

▶ Individual Block Public Access settings for this bucket

Bucket policy   [Edit] [Delete]

The bucket policy, written in JSON, provides access to the objects stored in the bucket. Bucket policies don't apply to objects owned by other accounts. Learn more ↗

Bucket policy

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```json
{
    "Version": "2012-10-17",
    "Statement": [
        {
            "Sid": "PublicReadGetObject",
            "Effect": "Allow",
            "Principal": "*",
            "Action": "s3:GetObject",
            "Resource": "arn:aws:s3:::test-mahvish/*"
        }
    ]
}
```

Welcome to My Basic HTML Page

Mahvish here

- Launching an EC2 instance

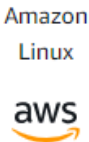EC2 > Instances > Launch an instance

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.
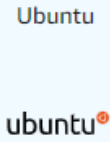
Name and tags Info

Name

| Mahvish | | Add additional tags |

Quick Start

| Amazon Linux | macOS | Ubuntu | Windows | Red Hat | SUSE Li | Browse more AMIs |
| aws | Mac | ubuntu | Microsoft | Red Hat | SUS | Including AMIs from AWS, Marketplace and the Community |

Amazon Machine Image (AMI)

Ubuntu Server 24.04 LTS (HVM), SSD Volume Type   Free tier eligible
ami-04a81a99f5ec58529 (64-bit (x86)) / ami-0c14ff330901e49ff (64-bit (Arm))
Virtualization: hvm   ENA enabled: true   Root device type: ebs

Description

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

Architecture   AMI ID

| 64-bit (x86) ▼ | ami-04a81a99f5ec58529   **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

▼ 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

Network settings Info   Edit

Network | Info

vpc-073a9e2489cd0d33c

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-1**' with the following rules:

☑ Allow SSH traffic from   Anywhere
  Helps you connect to your instance   0.0.0.0/0   ▼

☐ Allow HTTPS traffic from the internet
  To set up an endpoint, for example when creating a web server

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  To set up an endpoint, for example when creating a web server

---

EC2 > Instances > Launch an instance

⊘ **Success**
  Successfully initiated launch of instance (i-0e39cd326d64588eb)

▼ Launch log

Initializing requests   ⊘ Succeeded

Creating security groups   ⊘ Succeeded

Creating security group rules   ⊘ Succeeded

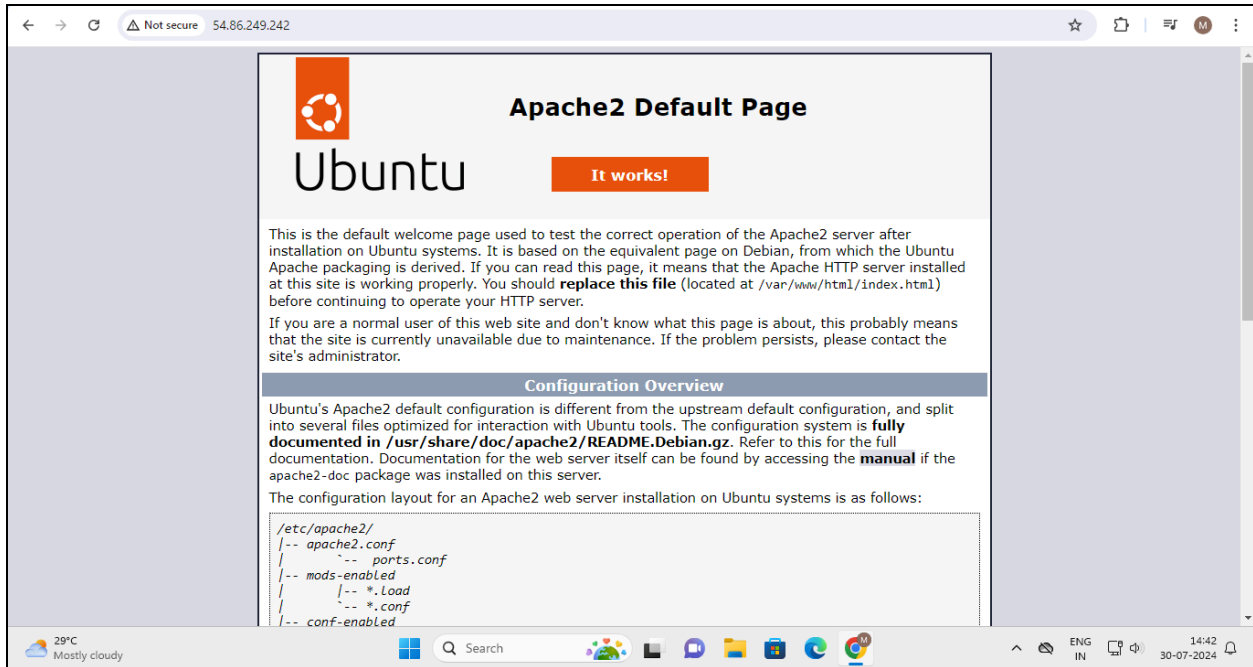Launch initiation   ⊘ Succeeded

```
[ec2-user@ip-172-31-13-190 ~]$ ls
[ec2-user@ip-172-31-13-190 ~]$ echo "hello"
hello
[ec2-user@ip-172-31-13-190 ~]$ cat > myfile.txt
this is advanced devops lab
^C
[ec2-user@ip-172-31-13-190 ~]$ cat myfile
cat: myfile: No such file or directory
[ec2-user@ip-172-31-13-190 ~]$ cat myfile.txt
this is advanced devops lab
[ec2-user@ip-172-31-13-190 ~]$
```

```
root@ip-172-31-32-173:~# sudo su
root@ip-172-31-32-173:~# apt 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-sql
Suggested packages:
  apache2-doc apache2-suexec-pristine | apache2-suexec-custom www-brows
The following NEW packages will be installed:
  apache2 apache2-bin apache2-data apache2-utils libapr1t64 libaprutil1
0 upgraded, 10 newly installed, 0 to remove and 26 not upgraded.
Need to get 1680 kB/2083 kB of archives.
After this operation, 8094 kB of additional disk space will be used.
```

```
root@ip-172-31-32-173:~# systemctl status apache2
● apache2.service - The Apache HTTP Server
     Loaded: loaded (/usr/lib/systemd/system/apache2.service; enabled; preset: enabled)
     Active: active (running) since Tue 2024-07-30 08:58:11 UTC; 44s ago
       Docs: https://httpd.apache.org/docs/2.4/
   Main PID: 2619 (apache2)
      Tasks: 55 (limit: 1130)
     Memory: 5.4M (peak: 5.5M)
        CPU: 40ms
     CGroup: /system.slice/apache2.service
             ├─2619 /usr/sbin/apache2 -k start
             ├─2621 /usr/sbin/apache2 -k start
             └─2623 /usr/sbin/apache2 -k start

Jul 30 08:58:11 ip-172-31-32-173 systemd[1]: Starting apache2.service - The Apache HTTP Server...
Jul 30 08:58:11 ip-172-31-32-173 systemd[1]: Started apache2.service - The Apache HTTP Server.
```

```
Jul 30 08:58:11 ip-172-31-32-173 systemd[1]: Starting apache2.service - The Apache HTTP Server...
Jul 30 08:58:11 ip-172-31-32-173 systemd[1]: Started apache2.service - The Apache HTTP Server.
root@ip-172-31-32-173:~# cd /var/www/html
```

```
root@ip-172-31-32-173:/var/www/html# nano index2.html
root@ip-172-31-32-173:/var/www/html# cat index2.html
<h1>Hi..Mahvish here<h1>
root@ip-172-31-32-173:/var/www/html#
```


Hi..Mahvish here