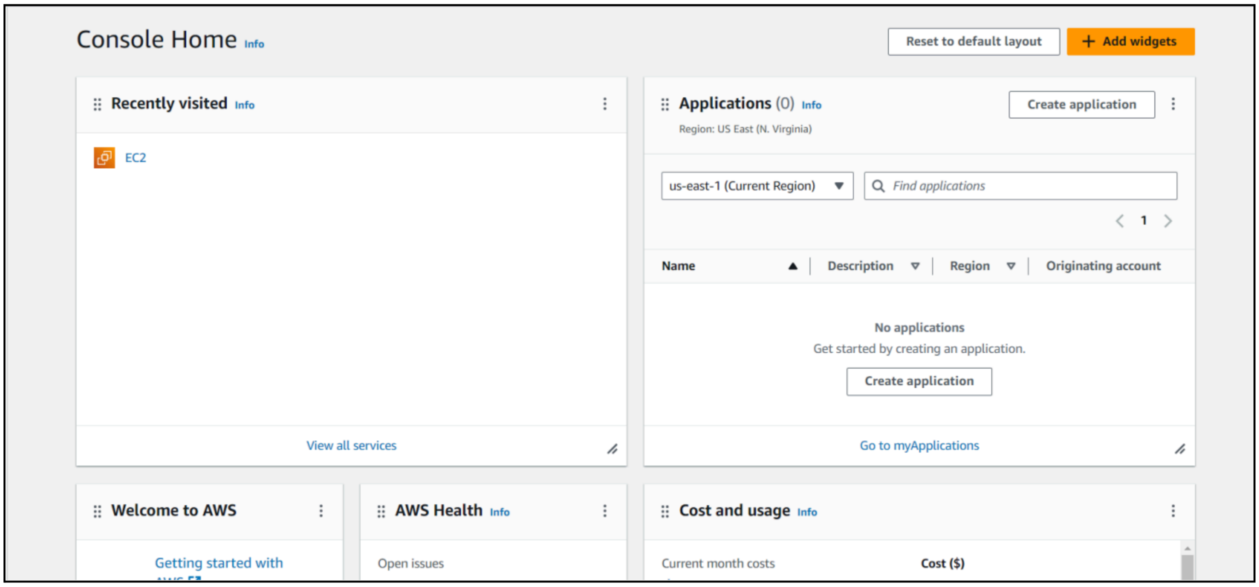
EXPERIMENT NO. 1

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

EC2 Instance Creation and static site hosting

1) Login to your AWS account:



Region: US East (N. Virginia)

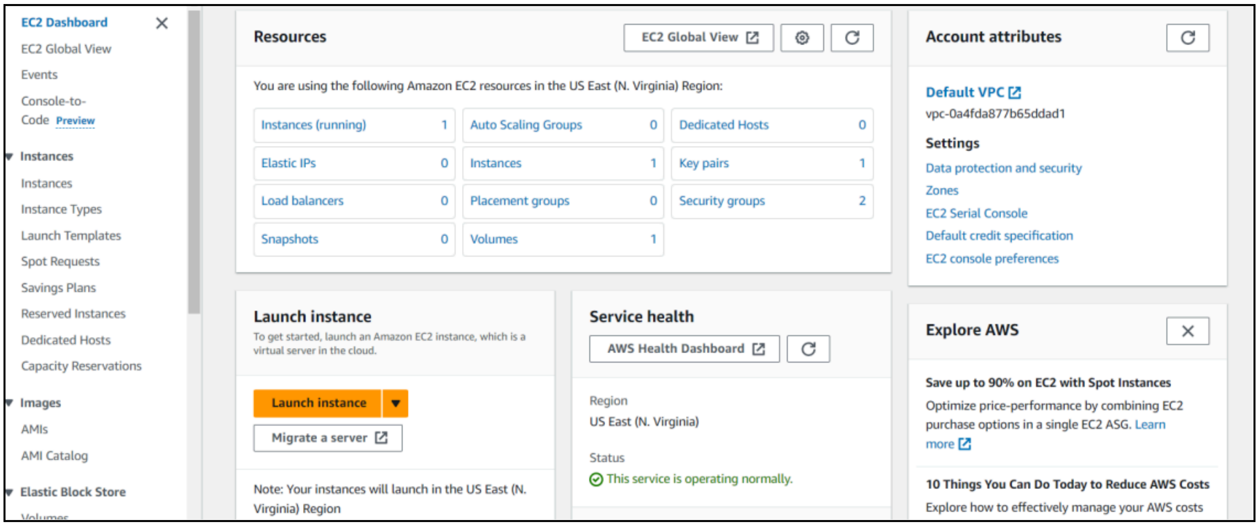
Name	Description	Region	Originating account

No applications

Get started by creating an application.

Current month costs | Cost ($)

2) Click on EC2 and then create an instance by clicking on instances



You are using the following Amazon EC2 resources in the US East (N. Virginia) Region:

Instances (running)	1	Auto Scaling Groups	0	Dedicated Hosts	0
Elastic IPs	0	Instances	1	Key pairs	1
Load balancers	0	Placement groups	0	Security groups	2
Snapshots	0	Volumes	1		

Default VPC
vpc-0a4fda877b65ddad1

To get started, launch an Amazon EC2 instance, which is a virtual server in the cloud.

Note: Your instances will launch in the US East (N. Virginia) Region

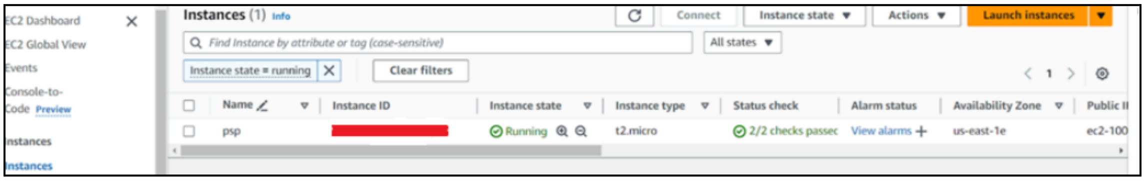
Region
US East (N. Virginia)

Status
This service is operating normally.

Save up to 90% on EC2 with Spot Instances
Optimize price-performance by combining EC2 purchase options in a single EC2 ASG. Learn more

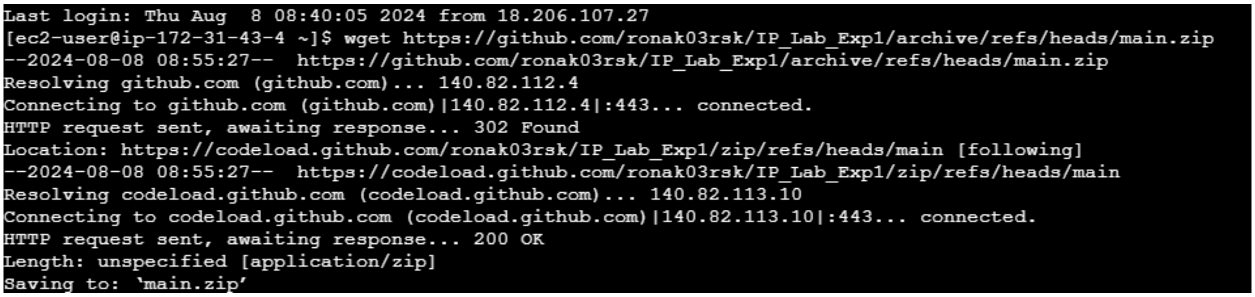
10 Things You Can Do Today to Reduce AWS Costs
Explore how to effectively manage your AWS costs

3) After an instance is created successfully .

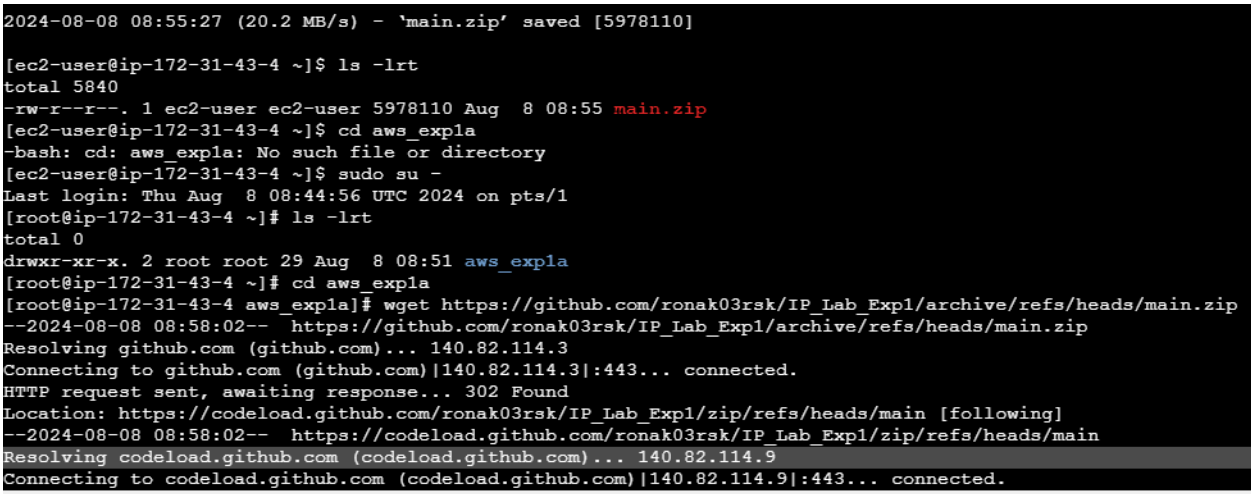


□	Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public II
□	psp	[redacted]	Running	t2.micro	2/2 checks passec	View alarms +	us-east-1e	ec2-100

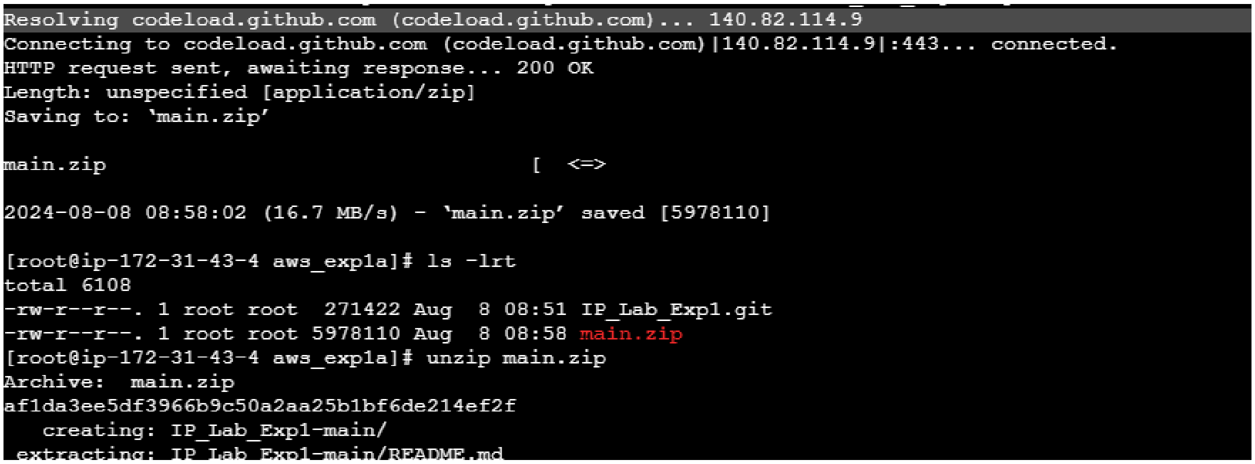
4) After that you wil go to command prompt and perform the following commands:



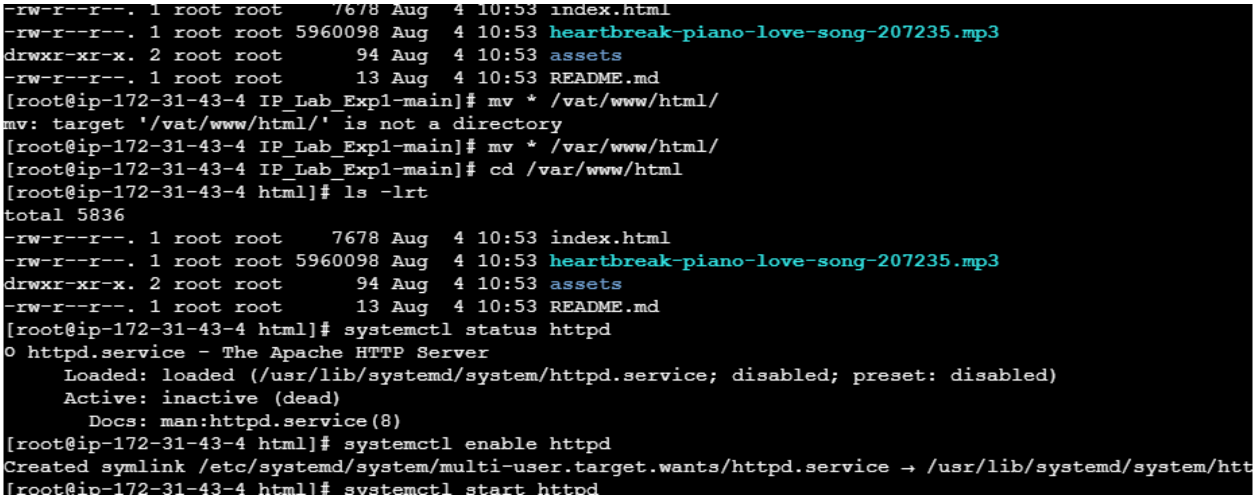
```
Last login: Thu Aug  8 08:40:05 2024 from 18.206.107.27
[ec2-user@ip-172-31-43-4 ~]$ wget https://github.com/ronak03rsk/IP_Lab_Exp1/archive/refs/heads/main.zip
--2024-08-08 08:55:27--  https://github.com/ronak03rsk/IP_Lab_Exp1/archive/refs/heads/main.zip
Resolving github.com (github.com)... 140.82.112.4
Connecting to github.com (github.com)|140.82.112.4|:443... connected.
HTTP request sent, awaiting response... 302 Found
Location: https://codeload.github.com/ronak03rsk/IP_Lab_Exp1/zip/refs/heads/main [following]
--2024-08-08 08:55:27--  https://codeload.github.com/ronak03rsk/IP_Lab_Exp1/zip/refs/heads/main
Resolving codeload.github.com (codeload.github.com)... 140.82.113.10
Connecting to codeload.github.com (codeload.github.com)|140.82.113.10|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: unspecified [application/zip]
Saving to: ‘main.zip’
```



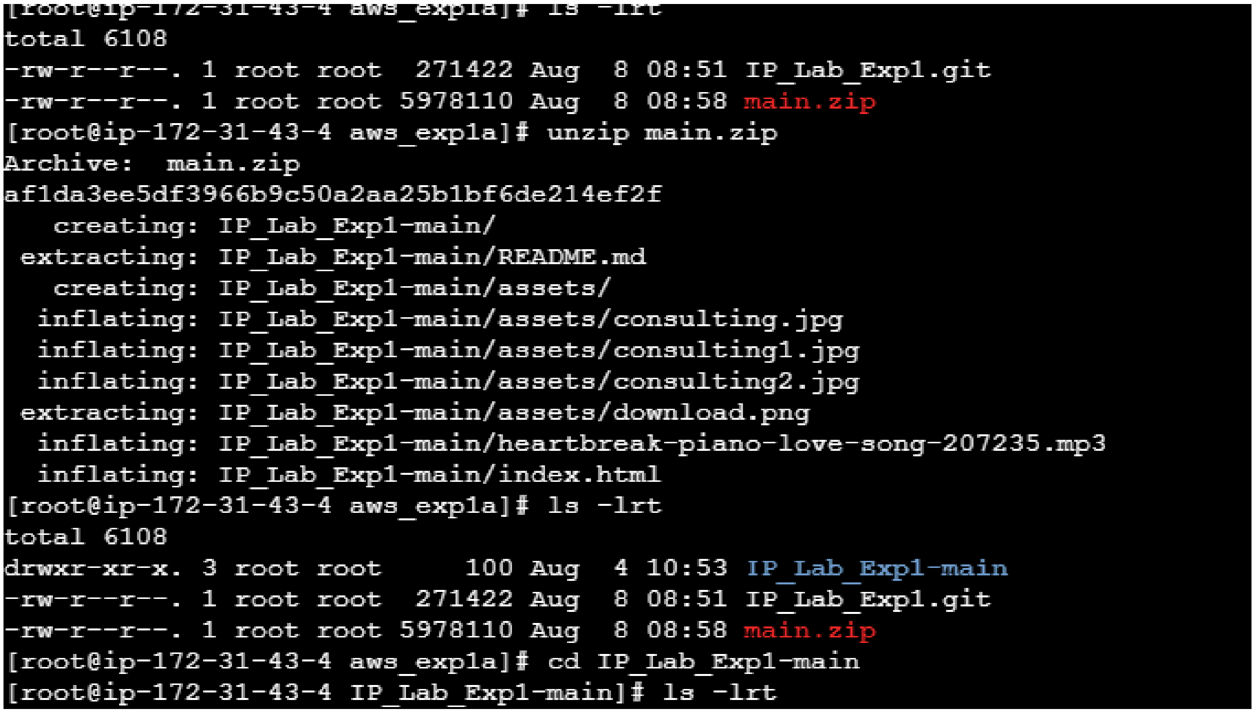
```
2024-08-08 08:55:27 (20.2 MB/s) - ‘main.zip’ saved [5978110]

[ec2-user@ip-172-31-43-4 ~]$ ls -lrt
total 5840
-rw-r--r--. 1 ec2-user ec2-user 5978110 Aug  8 08:55 main.zip
[ec2-user@ip-172-31-43-4 ~]$ cd aws_exp1a
-bash: cd: aws_exp1a: No such file or directory
[ec2-user@ip-172-31-43-4 ~]$ sudo su -
Last login: Thu Aug  8 08:44:56 UTC 2024 on pts/1
[root@ip-172-31-43-4 ~]# ls -lrt
total 0
drwxr-xr-x. 2 root root 29 Aug  8 08:51 aws_exp1a
[root@ip-172-31-43-4 ~]# cd aws_exp1a
[root@ip-172-31-43-4 aws_exp1a]# wget https://github.com/ronak03rsk/IP_Lab_Exp1/archive/refs/heads/main.zip
--2024-08-08 08:58:02--  https://github.com/ronak03rsk/IP_Lab_Exp1/archive/refs/heads/main.zip
Resolving github.com (github.com)... 140.82.114.3
Connecting to github.com (github.com)|140.82.114.3|:443... connected.
HTTP request sent, awaiting response... 302 Found
Location: https://codeload.github.com/ronak03rsk/IP_Lab_Exp1/zip/refs/heads/main [following]
--2024-08-08 08:58:02--  https://codeload.github.com/ronak03rsk/IP_Lab_Exp1/zip/refs/heads/main
Resolving codeload.github.com (codeload.github.com)... 140.82.114.9
Connecting to codeload.github.com (codeload.github.com)|140.82.114.9|:443... connected.
```



```
Resolving codeload.github.com (codeload.github.com)... 140.82.114.9
Connecting to codeload.github.com (codeload.github.com)|140.82.114.9|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: unspecified [application/zip]
Saving to: ‘main.zip’

main.zip                                [  <=>

2024-08-08 08:58:02 (16.7 MB/s) - ‘main.zip’ saved [5978110]

[root@ip-172-31-43-4 aws_exp1a]# ls -lrt
total 6108
-rw-r--r--. 1 root root  271422 Aug  8 08:51 IP_Lab_Exp1.git
-rw-r--r--. 1 root root 5978110 Aug  8 08:58 main.zip
[root@ip-172-31-43-4 aws_exp1a]# unzip main.zip
Archive:  main.zip
af1da3ee5df3966b9c50a2aa25b1bf6de214ef2f
   creating: IP_Lab_Exp1-main/
 extracting: IP_Lab_Exp1-main/README.md
```

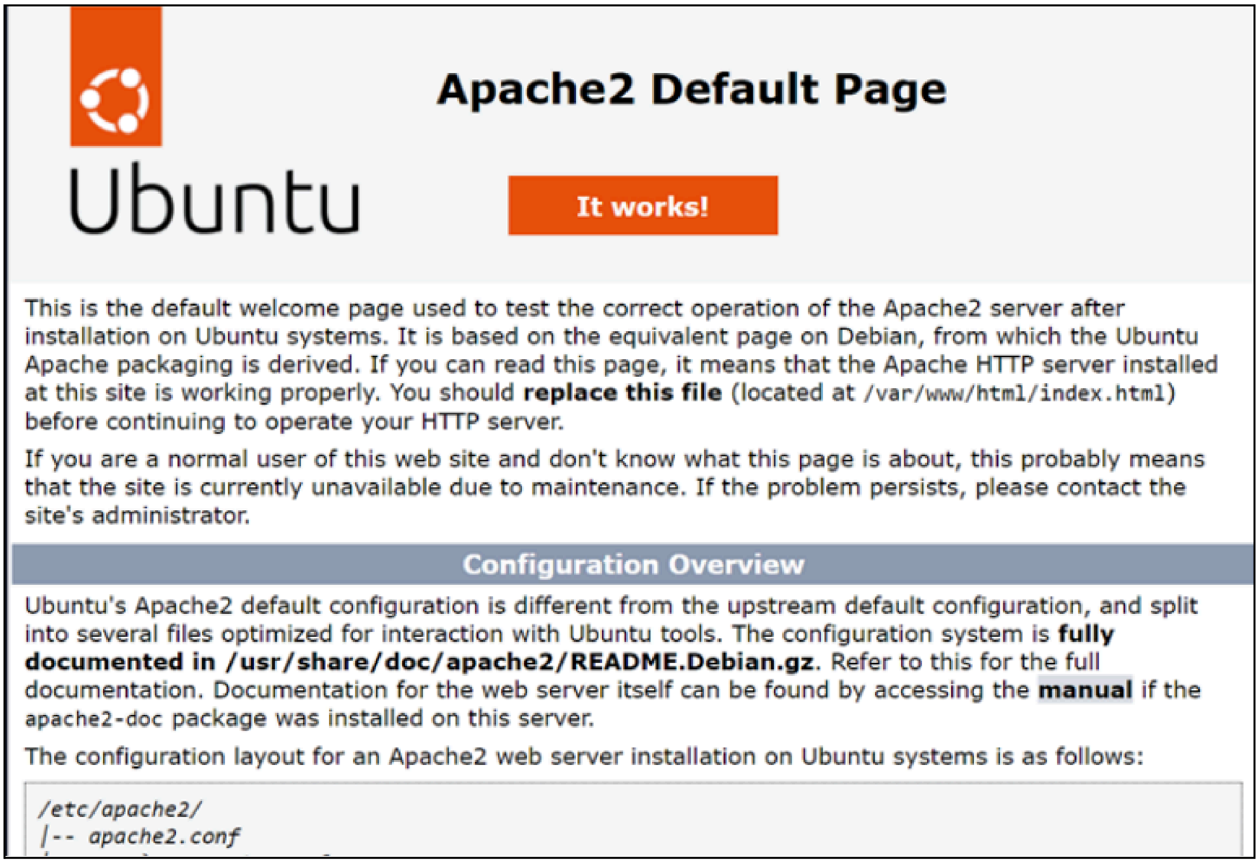


```
-rw-r--r--. 1 root root    7678 Aug  4 10:53 index.html
-rw-r--r--. 1 root root 5960098 Aug  4 10:53 heartbreak-piano-love-song-207235.mp3
drwxr-xr-x. 2 root root      94 Aug  4 10:53 assets
-rw-r--r--. 1 root root      13 Aug  4 10:53 README.md
[root@ip-172-31-43-4 IP_Lab_Exp1-main]# mv * /vat/www/html/
mv: target '/vat/www/html/' is not a directory
[root@ip-172-31-43-4 IP_Lab_Exp1-main]# mv * /var/www/html/
[root@ip-172-31-43-4 IP_Lab_Exp1-main]# cd /var/www/html
[root@ip-172-31-43-4 html]# ls -lrt
total 5836
-rw-r--r--. 1 root root    7678 Aug  4 10:53 index.html
-rw-r--r--. 1 root root 5960098 Aug  4 10:53 heartbreak-piano-love-song-207235.mp3
drwxr-xr-x. 2 root root      94 Aug  4 10:53 assets
-rw-r--r--. 1 root root      13 Aug  4 10:53 README.md
[root@ip-172-31-43-4 html]# 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-172-31-43-4 html]# systemctl enable httpd
Created symlink /etc/systemd/system/multi-user.target.wants/httpd.service → /usr/lib/systemd/system/htt
[root@ip-172-31-43-4 html]# systemctl start httpd
```



```
[root@ip-172-31-43-4 aws_exp1a]# ls -lrt
total 6108
-rw-r--r--. 1 root root  271422 Aug  8 08:51 IP_Lab_Exp1.git
-rw-r--r--. 1 root root 5978110 Aug  8 08:58 main.zip
[root@ip-172-31-43-4 aws_exp1a]# unzip main.zip
Archive:  main.zip
af1da3ee5df3966b9c50a2aa25b1bf6de214ef2f
   creating: IP_Lab_Exp1-main/
 extracting: IP_Lab_Exp1-main/README.md
   creating: IP_Lab_Exp1-main/assets/
  inflating: IP_Lab_Exp1-main/assets/consulting.jpg
  inflating: IP_Lab_Exp1-main/assets/consulting1.jpg
  inflating: IP_Lab_Exp1-main/assets/consulting2.jpg
 extracting: IP_Lab_Exp1-main/assets/download.png
  inflating: IP_Lab_Exp1-main/heartbreak-piano-love-song-207235.mp3
  inflating: IP_Lab_Exp1-main/index.html
[root@ip-172-31-43-4 aws_exp1a]# ls -lrt
total 6108
drwxr-xr-x. 3 root root     100 Aug  4 10:53 IP_Lab_Exp1-main
-rw-r--r--. 1 root root  271422 Aug  8 08:51 IP_Lab_Exp1.git
-rw-r--r--. 1 root root 5978110 Aug  8 08:58 main.zip
[root@ip-172-31-43-4 aws_exp1a]# cd IP_Lab_Exp1-main
[root@ip-172-31-43-4 IP_Lab_Exp1-main]# ls -lrt
```

5) After that the ip-address which was given while running the instance, copy that and paste that on chrome, make sure that it is http and not https



Apache2 Default Page

This is the default welcome page used to test the correct operation of the Apache2 server after installation on Ubuntu systems. It is based on the equivalent page on Debian, from which the Ubuntu Apache packaging is derived. If you can read this page, it means that the Apache HTTP server installed at this site is working properly. You should **replace this file** (located at `/var/www/html/index.html`) before continuing to operate your HTTP server.

If you are a normal user of this web site and don't know what this page is about, this probably means that the site is currently unavailable due to maintenance. If the problem persists, please contact the site's administrator.

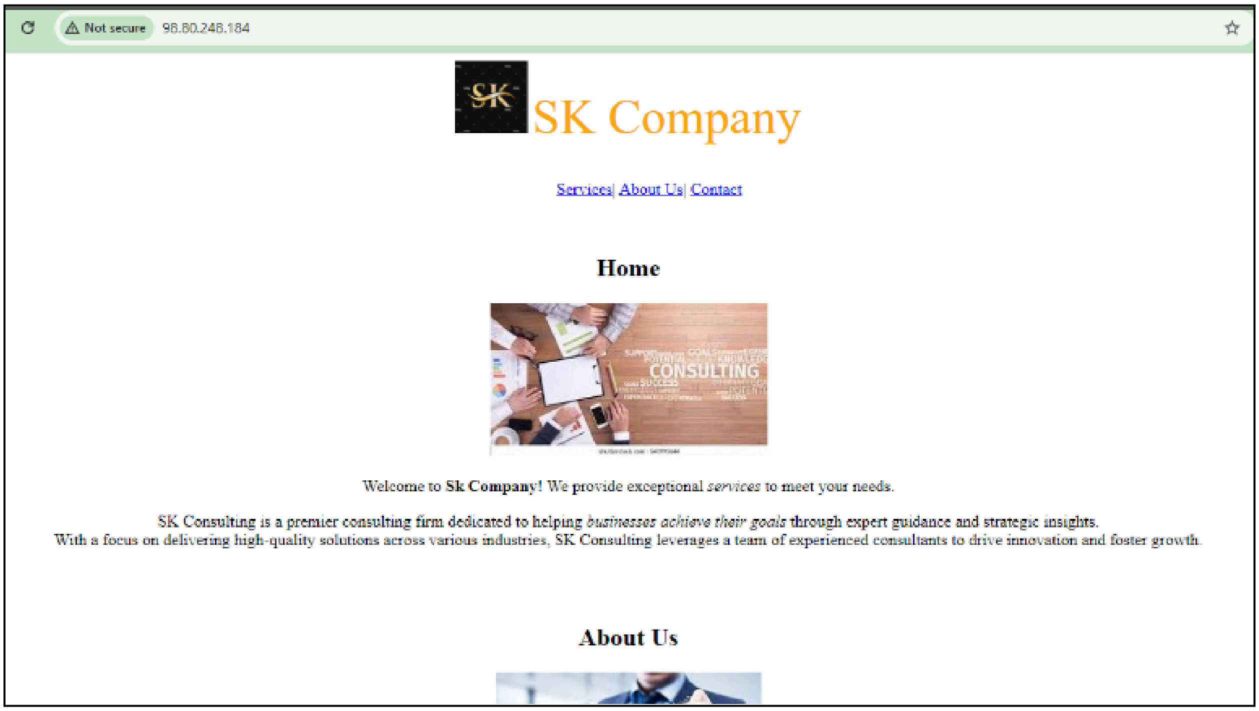
Configuration Overview

Ubuntu's Apache2 default configuration is different from the upstream default configuration, and split into several files optimized for interaction with Ubuntu tools. The configuration system is **fully documented in /usr/share/doc/apache2/README.Debian.gz**. Refer to this for the full documentation. Documentation for the web server itself can be found by accessing the **manual** if the `apache2-doc` package was installed on this server.

The configuration layout for an Apache2 web server installation on Ubuntu systems is as follows:

```
/etc/apache2/
|-- apache2.conf
```

6) After the commands being successfully executed and everything is perfectly fine you will see the website you wanted on the same IP address.



98.80.248.184

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Home

Welcome to **Sk Company!** We provide exceptional *services* to meet your needs.

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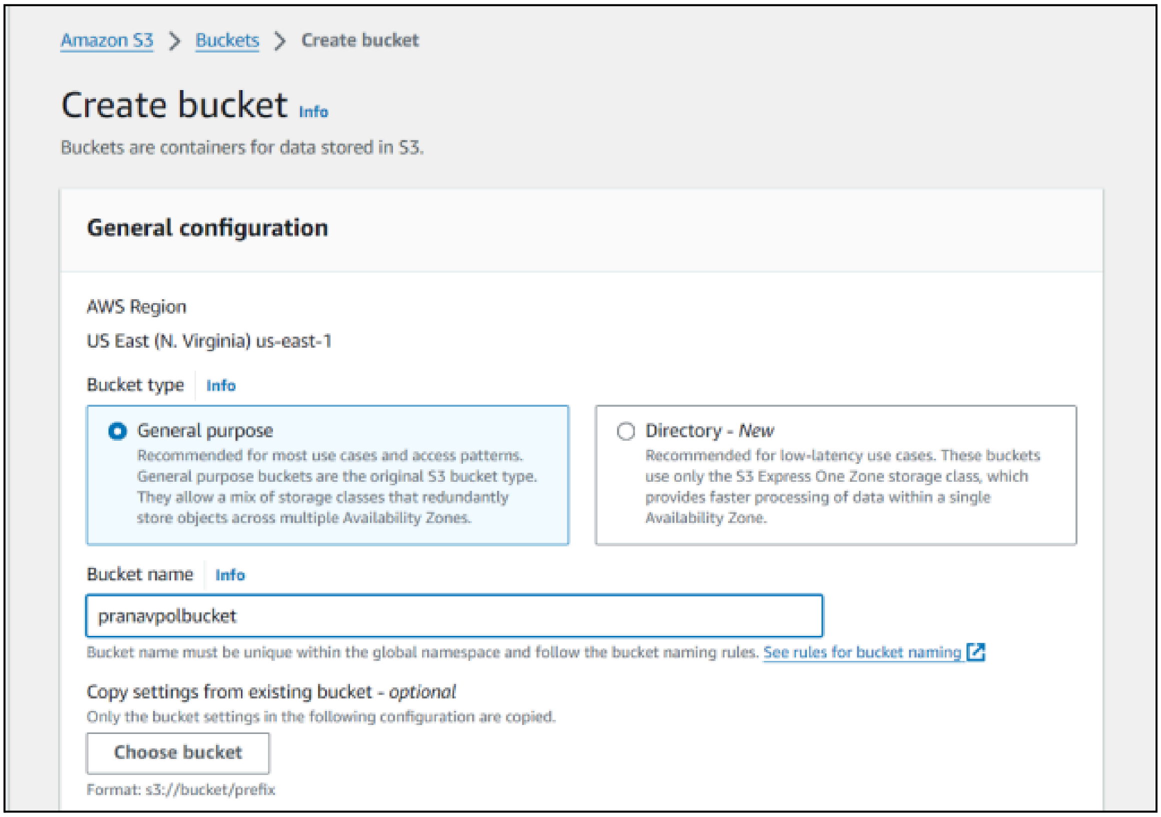
With a focus on delivering high-quality solutions across various industries, SK Consulting leverages a team of experienced consultants to drive innovation and foster growth.

About Us

Static Site Hosting using S3 bucket:

Step1: Create bucket



Create bucket Info

Buckets are containers for data stored in S3.

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

pranavpolbucket

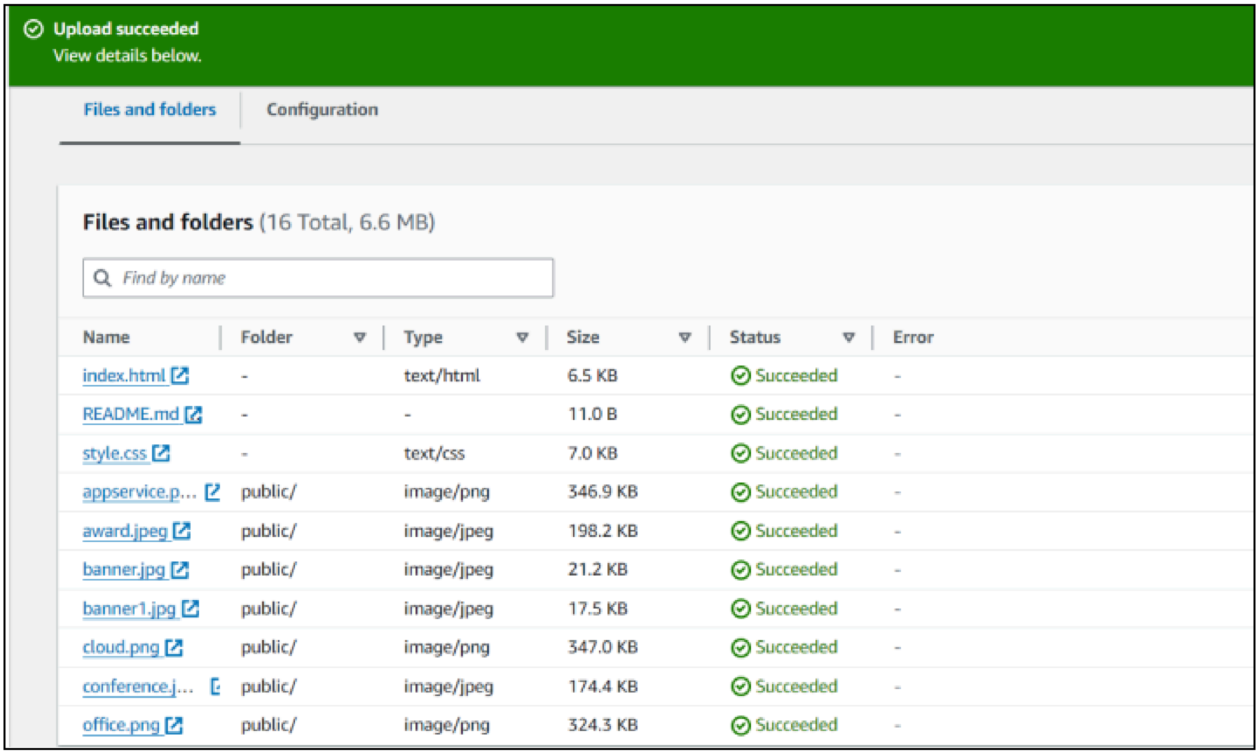
Bucket name must be unique within the global namespace and follow the bucket naming rules. See rules for bucket naming

Copy settings from existing bucket - *optional*

Only the bucket settings in the following configuration are copied.

Format: s3://bucket/prefix

Step 2: Add resources

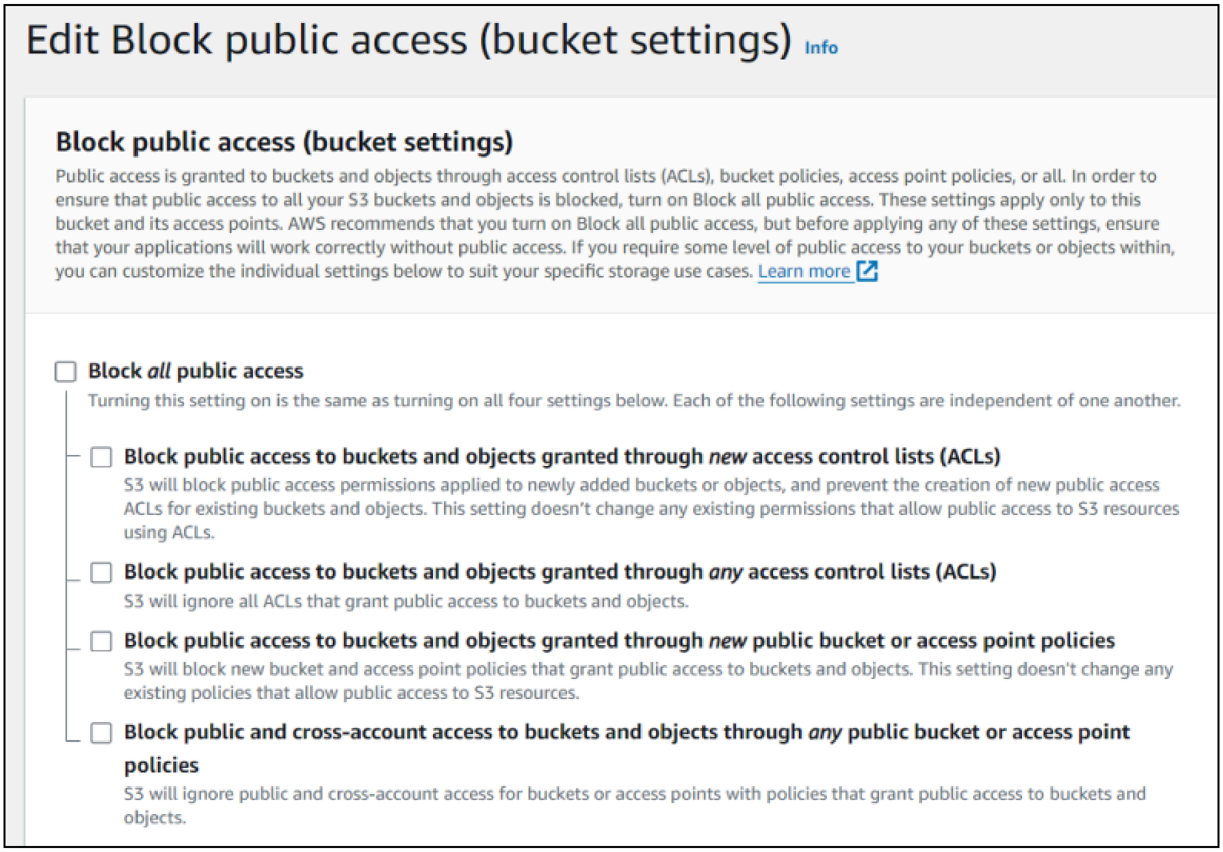


Upload succeeded
View details below.

Files and folders (16 Total, 6.6 MB)

Name	Folder	Type	Size	Status	Error
index.html	-	text/html	6.5 KB	Succeeded	-
README.md	-	-	11.0 B	Succeeded	-
style.css	-	text/css	7.0 KB	Succeeded	-
appservice.p...	public/	image/png	346.9 KB	Succeeded	-
award.jpeg	public/	image/jpeg	198.2 KB	Succeeded	-
banner.jpg	public/	image/jpeg	21.2 KB	Succeeded	-
banner1.jpg	public/	image/jpeg	17.5 KB	Succeeded	-
cloud.png	public/	image/png	347.0 KB	Succeeded	-
conference.j...	public/	image/jpeg	174.4 KB	Succeeded	-
office.png	public/	image/png	324.3 KB	Succeeded	-

Step 3 : Provide public access



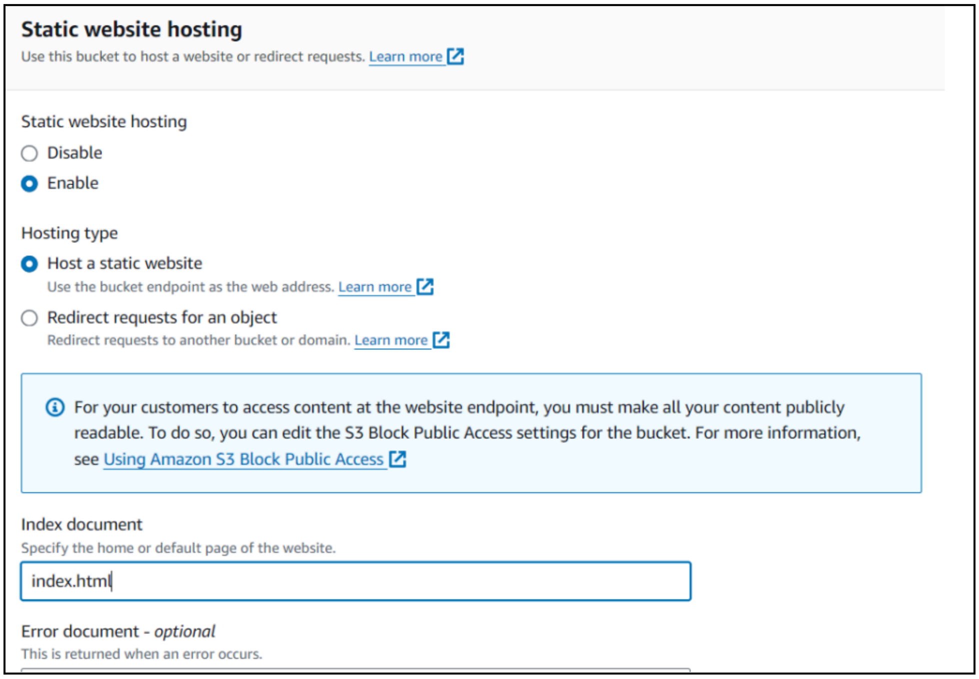
Edit Block public access (bucket settings) Info

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.



Static website hosting

Use this bucket to host a website or redirect requests. Learn more

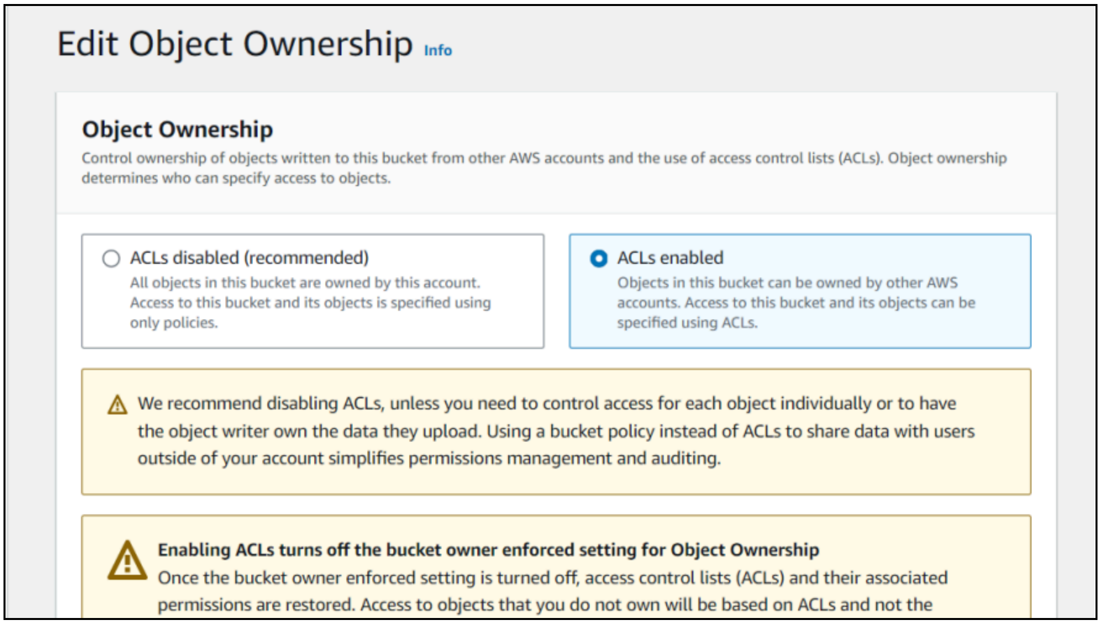
Static website hosting
○ Disable
● Enable

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

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.
index.html

Error document - *optional*
This is returned when an error occurs.



Edit Object Ownership Info

Object Ownership

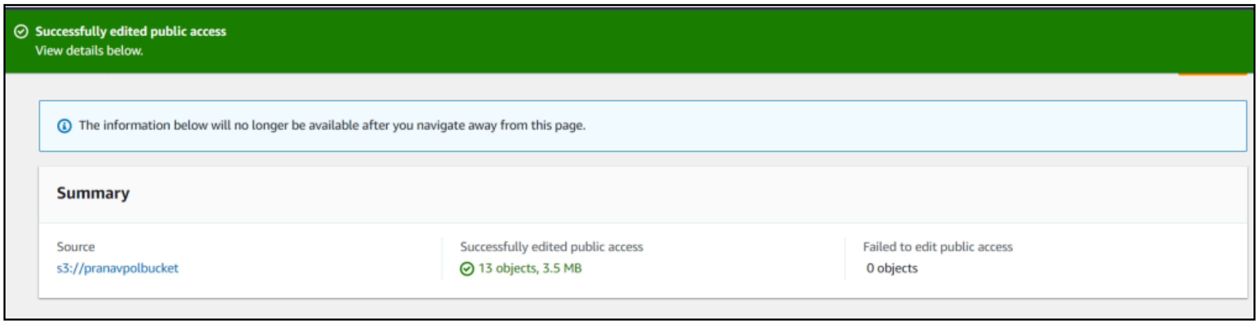
Control ownership of objects written to this bucket from other AWS accounts and the use of access control lists (ACLs). Object ownership determines who can specify access to objects.

○ 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



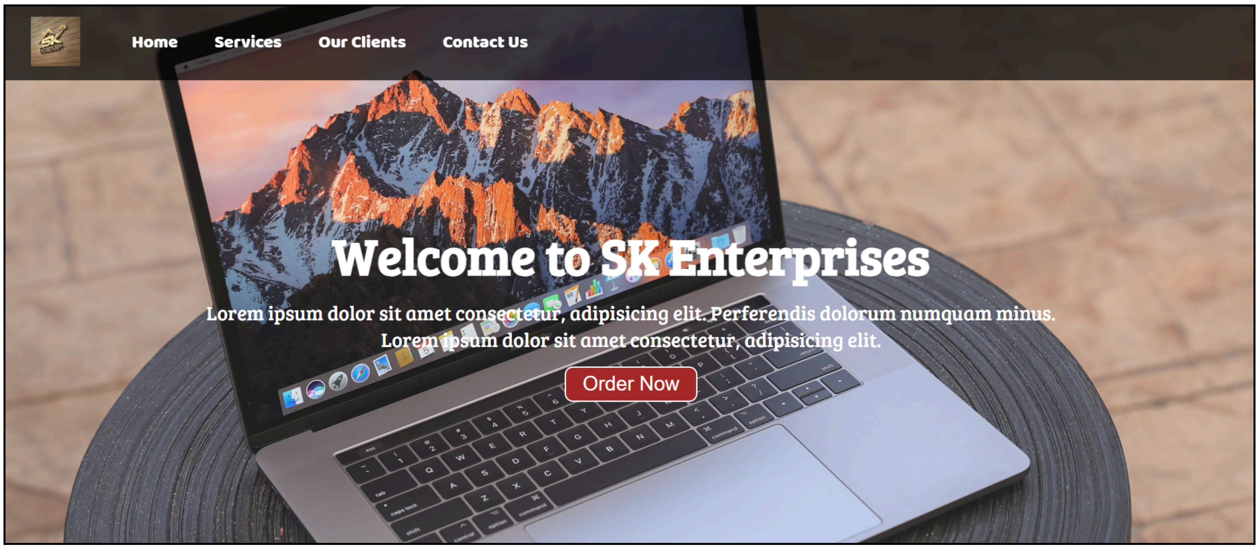
Successfully edited public access
View details below.

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

Summary

Source	Successfully edited public access	Failed to edit public access
s3://pranavpolbucket	13 objects, 3.5 MB	0 objects

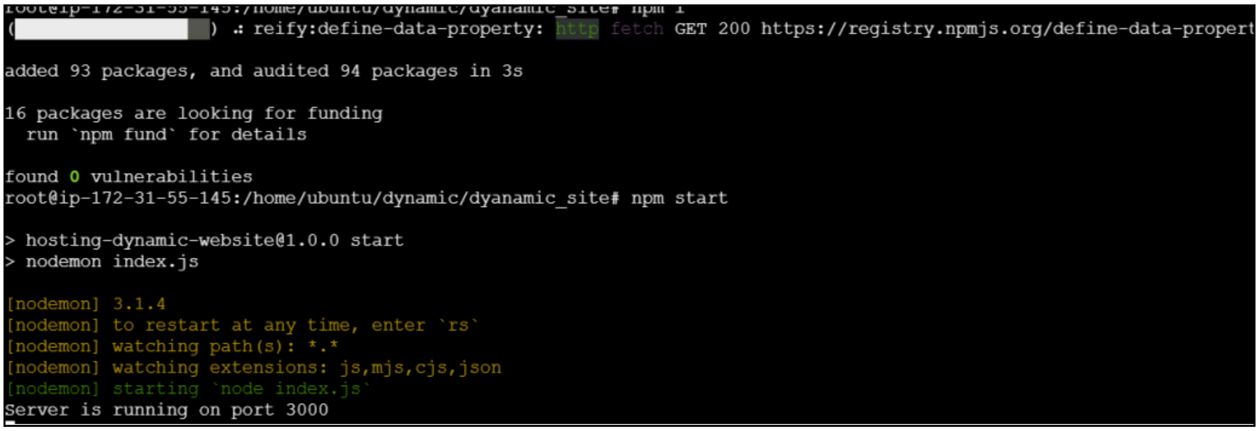
Step 4 : visit hosted website



Home
Services
Our Clients
Contact Us
Welcome to SK Enterprises
Lorem ipsum dolor sit amet consectetur, adipisicing elit. Perferendis dolorum numquam minus.
Lorem ipsum dolor sit amet consectetur, adipisicing elit.
Order Now

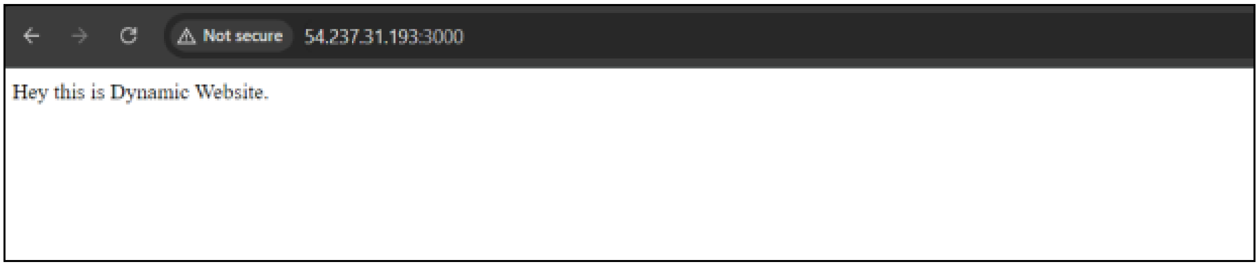
EC2 Dynamic Site Hosting:

Step 1 : Open Console and clone the github repository

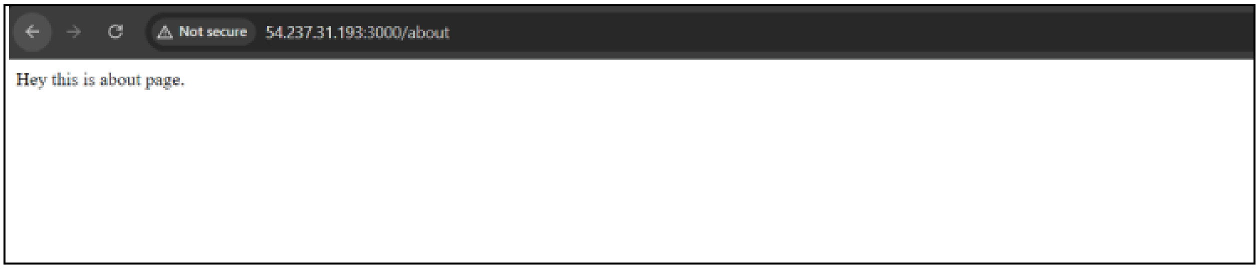


```
root@ip-172-31-55-145:/home/ubuntu/dynamic/dyanamic_site# npm i
(██████████████░) .: reify:define-data-property: http fetch GET 200 https://registry.npmjs.org/define-data-propert

added 93 packages, and audited 94 packages in 3s

16 packages are looking for funding
  run `npm fund` for details

found 0 vulnerabilities
root@ip-172-31-55-145:/home/ubuntu/dynamic/dyanamic_site# npm start

> hosting-dynamic-website@1.0.0 start
> nodemon index.js

[nodemon] 3.1.4
[nodemon] to restart at any time, enter `rs`
[nodemon] watching path(s): *.*
[nodemon] watching extensions: js,mjs,cjs,json
[nodemon] starting `node index.js`
Server is running on port 3000
```

Step 2 : Install necessary Packages and run website on port 3000



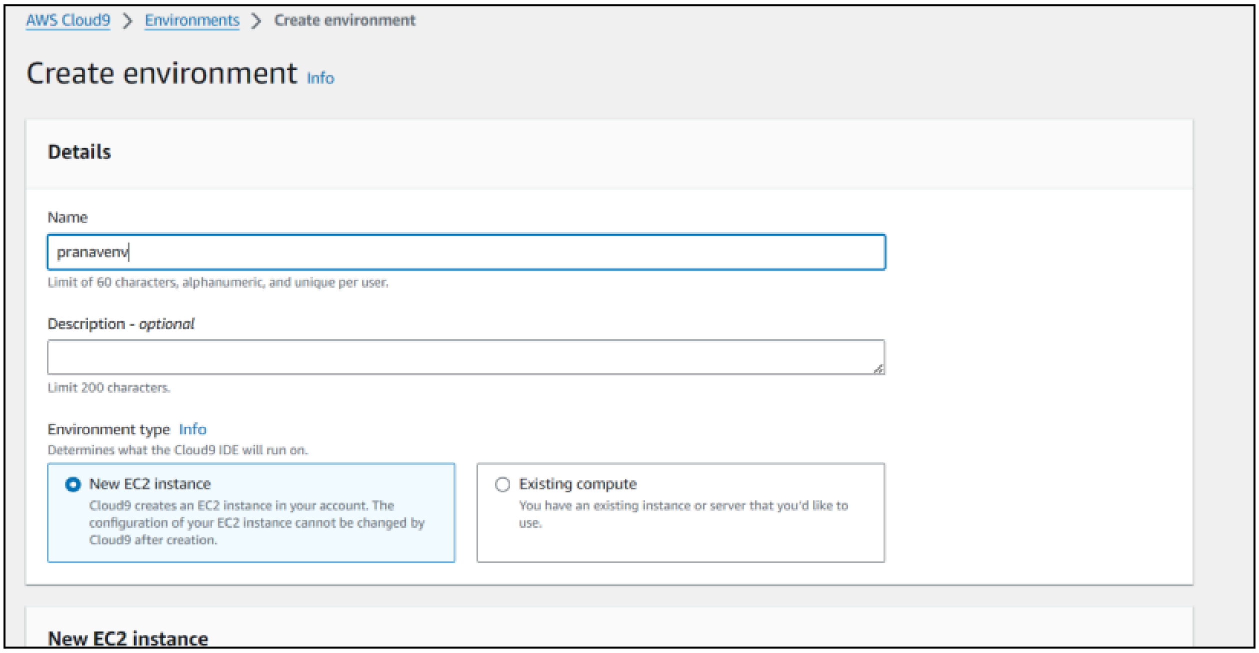
Hey this is Dynamic Website.



Hey this is about page.

Cloud 9 IDE Site Hosting:

Step 1: Create Environment



Create environment Info

Details

Name

pranavenv

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

Description - *optional*

Limit 200 characters.

Environment type Info

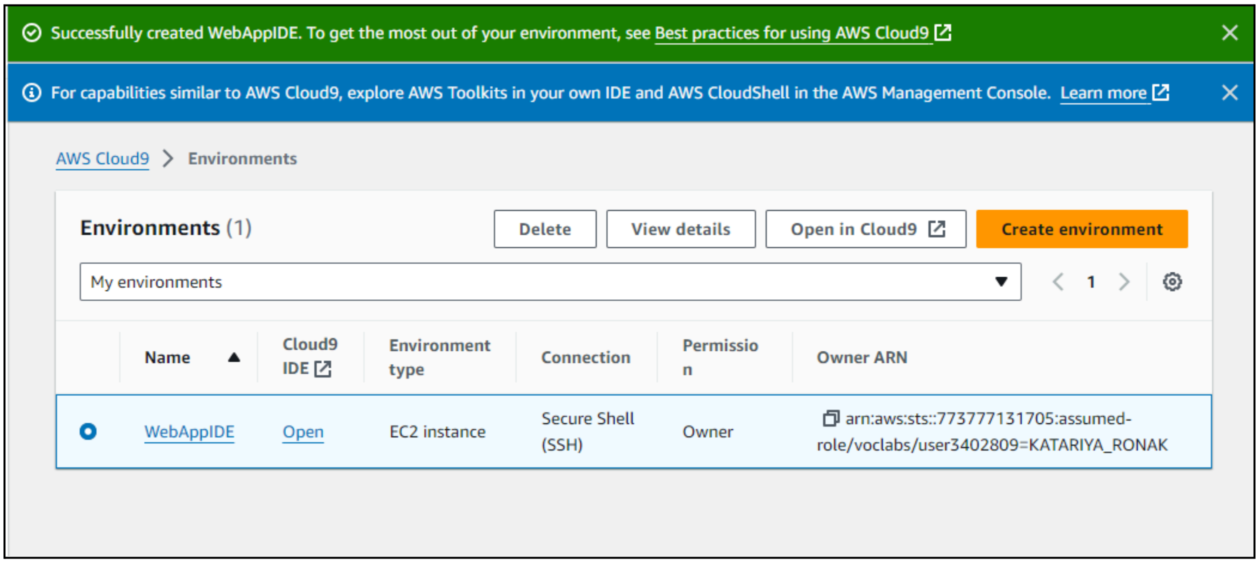
Determines what the Cloud9 IDE will run on.

● 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

Step 2 :Open the Environment IDE

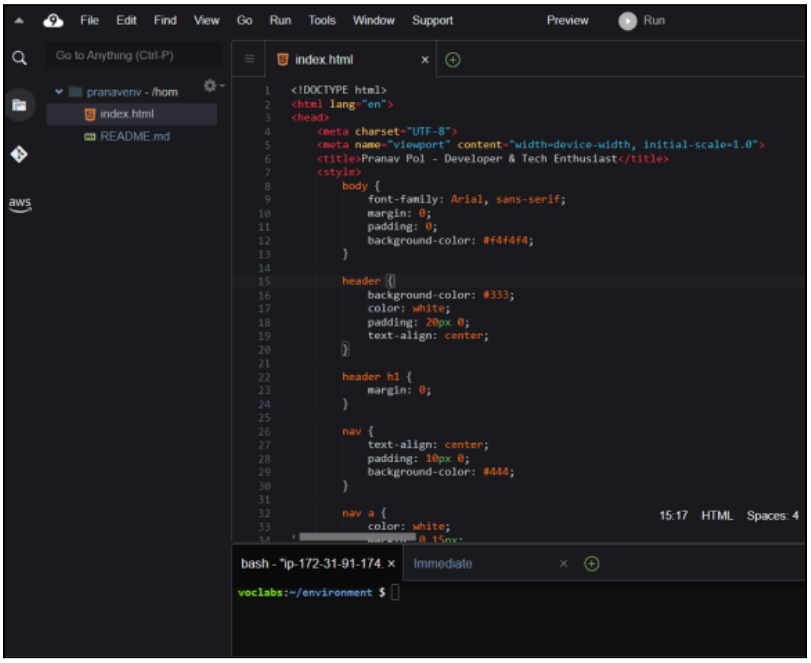

Successfully created WebAppIDE. To get the most out of your environment, see Best practices for using AWS Cloud9

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

Environments (1)

	Name ▲	Cloud9 IDE	Environment type	Connection	Permission	Owner ARN
●	WebAppIDE	Open	EC2 instance	Secure Shell (SSH)	Owner	arn:aws:sts::773777131705:assumed-role/voclabs/user3402809=KATARIYA_RONAK

Step 3: Add the code and preview the website



```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Pranav Pol - Developer & Tech Enthusiast</title>
    <style>
        body {
            font-family: Arial, sans-serif;
            margin: 0;
            padding: 0;
            background-color: #f4f4f4;
        }

        header {
            background-color: #333;
            color: white;
            padding: 20px 0;
            text-align: center;
        }

        header h1 {
            margin: 0;
        }

        nav {
            text-align: center;
            padding: 10px 0;
            background-color: #444;
        }

        nav a {
            color: white;
            margin: 0 15px;
```

```
voclabs:~/environment $
```