

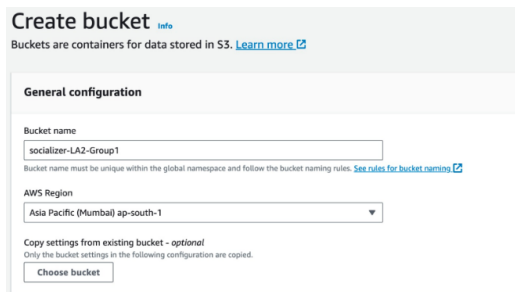
Cloud Computing - Lab Assignment 2

- by Group 1

- ARCHIS SAHU - 2020A7PS1692H
- SIDDHANT PANDA - 2020A7PS0264H
- ADITYA DHANEKULA - 2020A7PS0205H
- AYUSH KALRA - 2021A7PS2222H

Steps to host static website on AWS S3

1. give a name to the bucket which will also be a part of the url



Create bucket [info](#)

Buckets are containers for data stored in S3. [Learn more](#)

General configuration

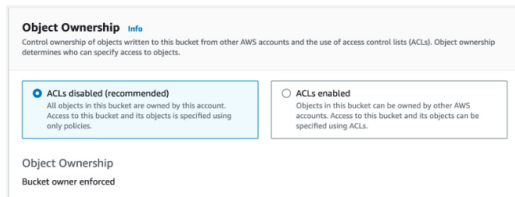
Bucket name
socializer-LA2-Group1

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

AWS Region
Asia Pacific (Mumbai) ap-south-1

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

2. set up object ownership



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

3. allow public access to the bucket as we need to host the static website publicly

Block Public Access settings for this bucket

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 this bucket and its 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 this bucket 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.

⚠ Turning off block all public access might result in this bucket and the objects within becoming public
AWS recommends that you turn on block all public access, unless public access is required for specific and verified use cases such as static website hosting.

☒ I acknowledge that the current settings might result in this bucket and the objects within becoming public.

4. choose other versioning and encryption options as required

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

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

▼ **Advanced settings**

Object Lock
Store objects using a write-once-read-many (WORM) model to help you prevent objects from being deleted or overwritten for a fixed amount of time or indefinitely. [Learn more](#)

- ☐ Disable
- ☒ Enable
Permanently allows objects in this bucket to be locked. Additional Object Lock configuration is required in bucket details after bucket creation to protect objects in this bucket from being deleted or overwritten.

Object Lock works only in versioned buckets. Enabling Object Lock automatically enables Bucket Versioning.

5. add bucket policy to allow access to objects stored in the bucket

Bucket policy
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](#)

[Policy examples](#) [Policy generator](#)

Bucket ARN
arn:aws:s3::socializer-laz-group1

Policy

```

1 {
2   "Version": "2012-10-17",
3   "Statement": [
4     {
5       "Sid": "Statement1",
6       "Principal": {
7         "AWS": "*"
8       },
9       "Effect": "Allow",
10      "Action": [
11        "s3:GetObject"
12      ],
13      "Resource": [
14        "arn:aws:s3::socializer-laz-group1/*"
15      ]
16    }
17  ]
18 }
```

Edit statement [Remove](#)

Statement1

Add actions for S3

- ☒ s3:GetObject
- ☐ s3:GetObjectVersion
- ☐ s3:GetObjectVersionAtTimestamp
- ☐ s3:GetObjectVersionForReplication
- ☐ s3:GetObjectVersionTagging
- ☐ s3:GetObjectVersionForDelete

Access level - read or write

6. allow static website hosting under properties and specify index document and error document

Static website hosting

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

Static website hosting

Disabled

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](#)

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.

index.htm

Static website hosting

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

Static website hosting

Enabled

Hosting type

Bucket hosting

Bucket website endpoint

When you configure your bucket as a static website, the website is available at the AWS Region-specific website endpoint of the bucket. [Learn more](#)

<http://socializer-la2-group1.s3-website-ap-south-1.amazonaws.com>

7. upload the build files of the static website

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 (10 Total, 783.1 KB)

[Remove](#) [Add files](#) [Add folder](#)

All files and folders in this table will be uploaded.

Name

Folder

Type

Size

☐

asset-manifest.json

-

application/json

457.0 B

☐

background.jpg

-

image/jpeg

122.1 KB

☐

favicon.ico

-

image/x-icon

3.8 KB

☐

index.html

-

text/html

644.0 B

☐

main.76c63858.css

static/css/

text/css

1.2 KB

☐

main.76c63858.css....

static/css/

-

2.0 KB

☐

main.8c078f83.js

static/js/

text/javascript

146.4 KB

☐

main.8c078f83.js.LIC...

static/js/

text/plain

971.0 B

☐

main.8c078f83.js.map

static/js/

-

383.6 KB

☐

background.387170...

static/media/

image/jpeg

122.1 KB

Destination

Destination

s3://socializer-la2-group1

Destination details

Bucket settings that impact new objects stored in the specified destination.

Permissions

Grant public access and access to other AWS accounts.

Properties

Specify storage class, encryption settings, tags, and more.

Cancel

Upload

Options to choose when creating an S3 bucket

REGION

Choose a region that is close to your target audience to minimize latency. For example, if your target audience is in India, you would choose a region in India, in our case Mumbai.

BUCKET NAME

Bucket names must be unique across all of AWS. Choose a bucket name that is descriptive of your website and easy to remember.

STORAGE CLASS

S3 offers a variety of storage classes, each with its own pricing and performance characteristics. The following table provides a brief overview of the different storage classes:

	Storage class	Pricing	Performance
1	Standard	Most expensive	Highest performance
2	Infrequent Access (IA)	Less expensive than Standard	Lower performance than Standard
3	Reduced Redundancy Storage (RRS)	Least expensive	Lowest performance
4	Glacier	Very inexpensive	Very low performance

Choose a storage class that is appropriate for your needs and budget. For example, if you are hosting a static website that is frequently accessed, you would choose the Standard storage class. If you are hosting a static website that is not frequently accessed, you could choose the IA or RRS storage class.

VERSIONING

Object versioning allows you to recover previous versions of objects that have been accidentally deleted or overwritten. It is recommended to enable object versioning for all S3 buckets.

PERMISSIONS

By default, S3 buckets are private. This means that only users with explicit permission can access the bucket and its contents. You can make your bucket public or private, depending on your needs. For example, if you are hosting a static website, you would likely want to make your bucket public so that anyone can access your website.

Hosting a website on S3

To host a website on S3, you need to enable static website hosting for your bucket. Once you have enabled static website hosting, you need to upload your website files to your bucket. You can then set the index document for your website and the permissions for your bucket.

The following are some recommendations for when to choose which options when creating an S3 bucket and hosting a website:

- **Region:** Choose a region that is close to your target audience to minimize latency.
- **Bucket name:** Choose a bucket name that is descriptive of your website and easy to remember.
- **Storage class:** Choose a storage class that is appropriate for your needs and budget. For example, if you are hosting a static website that is frequently accessed, you would choose the Standard storage class. If you are hosting a static website that is not frequently accessed, you could choose the IA or RRS storage class.
- **Versioning:** It is recommended to enable object versioning for all S3 buckets.
- **Permissions:** If you are hosting a static website, you would likely want to make your bucket public so that anyone can access your website.

Additional considerations

In addition to the options mentioned above, there are a few other things to consider when creating an S3 bucket and hosting a website:

- **Website endpoint:** By default, S3 website endpoints do not support HTTPS. If you want to use HTTPS for your website, you can use Amazon CloudFront to distribute your website content.
- **Custom domain name:** S3 does not support custom domain names by default. You need to use a service like Amazon Route 53 to map a custom domain name to your S3 bucket.
- **Caching:** You can use caching to improve the performance of your website. Amazon CloudFront offers a variety of caching options. You can also use a third-party caching solution, such as CloudFlare.
- **Monitoring:** It is important to monitor your website for performance and availability. You can use Amazon CloudWatch to monitor your website and receive alerts if there are any problems.

Analysing AWS S3 for hosting static websites

PERFORMANCE

S3 is a highly performant object storage service. It can deliver millions of requests per second with low latency. This makes it a good choice for hosting static websites, which typically have high traffic volumes.

- How to choose the right options for performance:
 - Choose a region that is close to your target audience to minimize latency.
 - Use the Standard storage class for static websites that are frequently accessed.
 - Use a content delivery network (CDN) like Amazon CloudFront to distribute your website content to users around the world.

SCALABILITY

S3 is designed to be scalable to virtually any size. It can store and deliver petabytes of data with ease. This makes it a good choice for hosting static websites of all sizes, from small personal blogs to large enterprise websites.

- How to choose the right options for scalability:
 - **Size of website:** Use the Standard storage class for static websites that are likely to grow in size over time.
 - **Market reach:** Use a CDN like Amazon CloudFront to distribute your website content to users around the world.

THROUGHPUT

S3 has a very high throughput. It can deliver terabytes of data per second. This is more than enough to handle the traffic demands of most static websites.

- How to choose the right options for throughput:
 - Use the Standard storage class for static websites that have high traffic volumes.
 - Use a CDN like Amazon CloudFront to distribute your website content to users around the world.

EFFICIENCY

S3 is an efficient object storage service. It uses a variety of techniques to reduce storage costs, such as data compression and deduplication. This makes it a cost-effective choice for hosting static websites.

- How to choose the right options for efficiency:
 - Use the Standard storage class for static websites that are frequently accessed.
 - Use a CDN like Amazon CloudFront to distribute your website content to users around the world.

RESOURCE UTILIZATION

S3 is a fully managed service. AWS takes care of all of the infrastructure and maintenance, so you don't have to worry about managing any resources yourself. This frees up your time and resources to focus on other things.

- How to choose the right options for resource utilization:
 - Simply choose the Standard storage class and use a CDN like Amazon CloudFront. AWS will take care of the rest.

FAULT TOLERANCE

S3 is a highly fault-tolerant service. It replicates your data across multiple availability zones to protect it from data loss. This makes it a reliable choice for hosting static websites.

- How to choose the right options for fault tolerance:
 - Simply choose the Standard storage class and use a CDN like Amazon CloudFront. AWS will take care of the rest.

Here are some additional things you can do to ensure fault tolerance for your static website hosted on S3:

- Use a CDN like Amazon CloudFront. CloudFront is a global content delivery network (CDN) that can help to improve the performance and reliability of your website. CloudFront delivers your website content from edge locations around the world, which can reduce latency and improve availability for your users. CloudFront also replicates your website content across multiple edge locations, which helps to protect your website from outages.
- Use a domain name service (DNS) such as AWS Route53 provider that supports failover. A DNS failover service can help to ensure that your website is still accessible to users even if one of your S3 buckets or CloudFront edge locations is unavailable.
- Use a monitoring service to monitor your website for outages. A monitoring service can alert you if your website is unavailable, so that you can take corrective action quickly.

COST-EFFECTIVENESS

S3 is a very cost-effective object storage service. It offers a variety of pricing options to fit your budget. You can also use AWS's free tier to get started with S3 for free.

- How to choose the right options for cost-effectiveness:
 - Choose the storage class that is appropriate for your needs and budget. For example, if you are hosting a static

website that is not frequently accessed, you could choose the IA or RRS storage class.

- Use a CDN like Amazon CloudFront to distribute your website content to users around the world. This can help to reduce your bandwidth costs.

SECURITY

S3 is very secure but it only provides http endpoints. CloudFront can also be used to increase security for your website. CloudFront can encrypt your website content using HTTPS, which helps to protect it from eavesdropping and tampering. You can restrict the S3 HTTP URL to CloudFront. To do this, you need to create an Origin Access Control (OAC) for your S3 bucket. An OAC is a permission that allows CloudFront to access your S3 bucket.

Conclusion

S3 is a great choice for hosting static websites. It is performant, scalable, efficient, and cost-effective. It is also easy to use and manage. By following the recommendations above, you can choose the right options for your needs and create a highly available and performant website.