What is S3?

Amazon S3 (Simple Storage Service) is a cloud-based object storage service provided by Amazon Web Services (AWS). It allows users to store and retrieve data from anywhere on the internet, with high scalability, availability, durability, and security.

S3 is designed to store and retrieve any amount of data from anywhere on the web, with support for various storage classes, including standard, intelligent tiering, infrequent access, and archive. S3 also provides features such as versioning, cross-region replication, lifecycle policies, and encryption, to ensure data protection, compliance, and governance.

S3 is commonly used for a wide range of use cases, including backup and restore, disaster recovery, content distribution, big data analytics, machine learning, and more. It can be integrated with other AWS services, such as EC2, Lambda, RDS, and Redshift, as well as third-party services and applications.

Creating an S3 bucket from console

- Once logged into AWS console, search for the S3 service and click S3.
- Click "Create Bucket"
- Input naming convention e.g. <Name>sctps3bucket (e.g. jazeelsctps3bucket)
- Enable "Bucket Versioning". Bucket Versioning allows you to maintain multiple versions of the same file that is updated, and is an important method to preserve, retrieve, and restore every version of every object stored in your buckets. With versioning you can recover more easily from both unintended user actions and application failures. ()
- Leave all other configurations as default and create the bucket.
- Once created, click your newly created bucket to view the bucket.
- Under Objects, click "Upload" and upload any text or image file from your computer. This can be done by clicking "Add Files" and then Upload in the next page.
- Once created, under Objects, you will see your newly-added file. Highlight the file and click "Copy URL". This should look something like - jazeelsctps3bucket.s3.ap-southeast-1.amazonaws.com/360_F_143428338_gcxw3J cd0tJpkvvb53pfEztwtU9sxsgT.jpg
- Enter this URL in the browser. You will notice that you get an error message as below. This is due to the Block Public permission that we have set earlier.

This XML file does not appear to have any style information associated with it. The document tree is shown below.

```
▼<Error>
   <Code>AccessDenied</Code>
   <Message>Access Denied</Message>
   <RequestId>HTK5XXRE34NQZQ3W</RequestId>
   <HostId>zKvRufpu6nlelmHpiX9vlQqcicbuljNOj0efD958fdRJF+AA2zf7Ax1Jx7qb5OaSMQR+H2xa/V0=</HostId>
</Error>
```

  ○
- Assuming this is a file that should be publicly available e.g. a company's media image to the consumers, then we will have to adjust the permissions. To do this, in the S3 page, select the tab "Permissions" and click Edit under "Block public access" as below
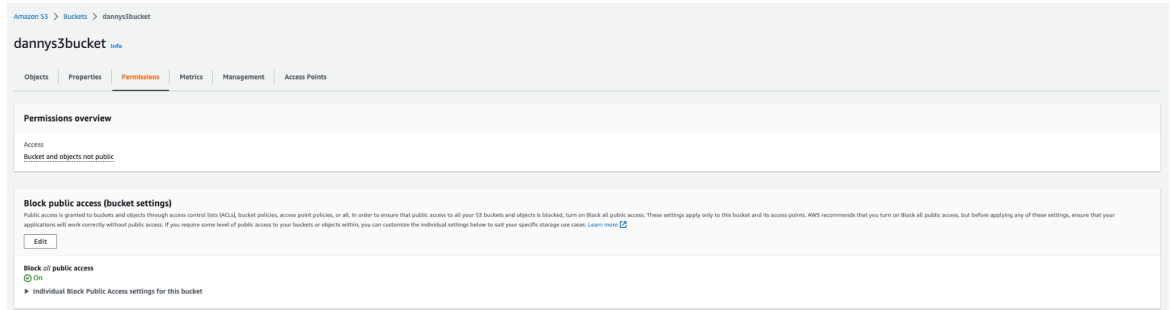
- Untick "Block all public access" and Save changes (you will be prompted to confirm your changes)
- After that, you will need to explicitly add a permission to allow Public Read Access to your bucket. To do this, under the Permissions tab, scroll down to Bucket Policy and click "Edit".
- Here, enter the below code snippet, but remember to change the bucket name variable <YOUR-BUCKET-NAME> to your personal bucket name:

```
{
  "Id": "Policy1699621214786",
  "Version": "2012-10-17",
  "Statement": [
    {
      "Sid": "PublicReadGetObject",
      "Action": [
        "s3:GetObject"
      ],
      "Effect": "Allow",
      "Resource": "arn:aws:s3:::<YOUR-BUCKET-NAME>/*",
      "Principal": "*"
    }
  ]
}
```

- Once done, Save your changes and try accessing your S3 object URL again. This time, it should show you your media file on the browser.

Creating an S3 bucket from AWS CLI.

- Prerequisites: Ensure you have already installed AWS CLI on your local machine. To confirm this, type aws --version in your CLI.
- To learn more about what you can do from the CLI with aws s3, type aws s3 help
- To list all the S3 buckets that are available in your project, type aws s3 ls
- To create a bucket, ensure that the bucket name is globally unique. Use the "aws s3 mb" command, where mb stands for make bucket. Type aws s3 mb s3://<bucketname>
- Once successfully created, you can list the content of the bucket using aws s3 ls by typing aws s3 ls s3://<bucketname>

You can use any **one** of the following 3 commands to copy all files and folders in your current directory to the s3 bucket. You have to use the "--recursive" flag for mv and cp commands because these 2 commands are used only to move a single file/object by default. The s3 sync command can be used to sync all of your local files with your s3 bucket.

- ```
  aws s3 cp . s3://<bucketname> --recursive
  ```
- ```
  aws s3 mv . s3://<bucketname> --recursive
  ```
- ```
  aws s3 sync . s3://<bucketname>
  ```

For more information: s3 — AWS CLI 1.29.83 Command Reference (amazon.com)

Creating S3 Lifecycle Policies

In your bucket, head over to the tab "Management" as shown below:

- Here, you will see Lifecycle Rules and Replication Rules. We will be looking at Lifecycle Rules today. Lifecycle Rules define the time your objects in the bucket can be retained, and you can set different policies on the objects in your bucket.
- To begin, click "Create Lifecycle Rule"
- We intend to create a Lifecycle Policy to move files older than 30 days to an Infrequent Access storage type for cost savings.
- For Lifecycle name, enter "30DayLifecycleRule"
- Choose the rule scope "Apply to all objects in the bucket" and acknowledge this option. This would apply your rule to all objects. If you'd like to apply to only certain files, you may try out the scope "Limit the scope of this rule using one or more filters" instead and enter a prefix of your choice.
- For Lifecycle Rule Actions, select "Move current versions of objects between storage classes".
- Choose the storage transition type as "One Zone-IA" with a duration of 30 days. This will automatically move any objects in your S3 bucket that are older than 30 days to the One Zone IA storage type.
- Confirm that your end goal is as below:

Review transition and expiration actions

Current version actions	Noncurrent versions actions
Day 0	Day 0
• Objects uploaded	No actions defined.
↓	
Day 30	
• Objects move to One Zone-IA	

-

Hosting a static web page

- In AWS S3, click Create bucket.
- Enter the Bucket name with the format ==\<yourname>statics3website.com (e.g.== ==jazeelstatics3website.com)==
- Choose the Region where you want to create the bucket i.e. Singapore. Choose a Region that is geographically close to you to minimize latency and costs, or to address regulatory requirements. The Region that you choose determines your Amazon S3 website endpoint.
- To accept the default settings and create the bucket, click Create.
- In the Buckets list, click the name of the bucket that you want to enable static website hosting for and click Properties.
- Under Static website hosting, click Edit.
- Under Static website hosting, choose Enable.
- In Index document, enter the file name of the index document, typically ==index.html.== Leave the others empty for now. Save the changes.
- Under Static website hosting, note the Endpoint. The Endpoint is the Amazon S3 website endpoint for your bucket. After you finish configuring your bucket as a static website, you can use this endpoint to test your website.
- Download a sample project via this URL - https://sctpstaticwebfiles.s3.ap-southeast-1.amazonaws.com/static-website.zip and unzip the file.
- You will only need to upload the contents inside this unzipped folder (and NOT the whole unzipped folder itself) including the folders under knight as below in S3:

You can use any of the 3 commands mentioned above to copy the files into s3.

```
PS C:\Users\jazee\OneDrive\Desktop\static-website> aws s3 sync . s3://jazeelstatics3website.com
upload: assets\css\ie9.css to s3://jazeelstatics3website.com/assets/css/ie9.css
upload: assets\css\noscript.css to s3://jazeelstatics3website.com/assets/css/noscript.css
upload: assets\css\font-awesome.min.css to s3://jazeelstatics3website.com/assets/css/font-awesome.min.css
upload: assets\fonts\fontawesome-webfont.eot to s3://jazeelstatics3website.com/assets/fonts/fontawesome-webfont.eot
upload: assets\css\main.css to s3://jazeelstatics3website.com/assets/css/main.css
upload: assets\js\skel.min.js to s3://jazeelstatics3website.com/assets/js/skel.min.js
upload: assets\fonts\fontawesome-webfont.woff2 to s3://jazeelstatics3website.com/assets/fonts/fontawesome-webfont.woff2
upload: assets\fonts\fontawesome-webfont.ttf to s3://jazeelstatics3website.com/assets/fonts/fontawesome-webfont.ttf
upload: assets\js\main.js to s3://jazeelstatics3website.com/assets/js/main.js
upload: assets\js\jquery.min.js to s3://jazeelstatics3website.com/assets/js/jquery.min.js
upload: assets\fonts\FontAwesome.otf to s3://jazeelstatics3website.com/assets/fonts/FontAwesome.otf
upload: assets\sass\base\_page.scss to s3://jazeelstatics3website.com/assets/sass/base/_page.scss
upload: assets\sass\base\_typography.scss to s3://jazeelstatics3website.com/assets/sass/base/_typography.scss
upload: assets\sass\components\_box.scss to s3://jazeelstatics3website.com/assets/sass/components/_box.scss
upload: assets\js\util.js to s3://jazeelstatics3website.com/assets/js/util.js
upload: assets\fonts\fontawesome-webfont.woff to s3://jazeelstatics3website.com/assets/fonts/fontawesome-webfont.woff
upload: assets\fonts\fontawesome-webfont.svg to s3://jazeelstatics3website.com/assets/fonts/fontawesome-webfont.svg
upload: assets\sass\components\_form.scss to s3://jazeelstatics3website.com/assets/sass/components/_form.scss
upload: assets\sass\components\_list.scss to s3://jazeelstatics3website.com/assets/sass/components/_list.scss
upload: assets\sass\components\_table.scss to s3://jazeelstatics3website.com/assets/sass/components/_table.scss
upload: assets\sass\components\_button.scss to s3://jazeelstatics3website.com/assets/sass/components/_button.scss
upload: assets\sass\ie9.scss to s3://jazeelstatics3website.com/assets/sass/ie9.scss
upload: assets\sass\components\_icon.scss to s3://jazeelstatics3website.com/assets/sass/components/_icon.scss
upload: assets\sass\layout\_bg.scss to s3://jazeelstatics3website.com/assets/sass/layout/_bg.scss
upload: assets\sass\components\_image.scss to s3://jazeelstatics3website.com/assets/sass/components/_image.scss
upload: assets\sass\layout\_header.scss to s3://jazeelstatics3website.com/assets/sass/layout/_header.scss
```

Amazon S3 > Buckets > jazeelstatics3website.com

jazeelstatics3website.com Info

Publicly accessible

| Objects | Properties | Permissions | Metrics | Management | Access Points |

Objects (4)

Objects are the fundamental entities stored in Amazon S3. You can use Amazon S3 inventory ☑ to get a list of all objects in your bucket. For others to access your objects, you'll need to explicitly grant them permissions.

| ⟳ | Copy S3 URI | Copy URL | Download | Open ☑ | Delete | Actions ▼ | Create folder | ⬆ Upload |

| Q Find objects by prefix | | ⬤ Show versions |

	Name	▲	Type
☐	📁 assets/		Folder
☐	📁 error/		Folder
☐	📁 images/		Folder
☐	📄 index.html		html

- In the same bucket, select the Permissions tab.
- Under Block public access (bucket settings), click Edit.
- Clear Block all public access, and choose   Save changes.
- Under Bucket Policy, click Edit.
- To grant public read access for your website, copy the following bucket policy, and paste it in the Bucket policy editor and **remember to update your bucketname.**

- In the preceding example bucket policy, Bucket-Name is a placeholder for the bucket name. To use this bucket policy with your own bucket, you must update this name to match your bucket name.
- Click Save changes.
- Go to the public URL of your S3 bucket (this can be found in the Properties tab under Static Website Hosting). You should be able to view the mini static page you have deployed.

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 buc

🗗 http://jazeelstatics3website.com.s3-website-ap-southeast-1.amazonaws.com 🗗