HOSTING A STATIC WEBSITE USING AMAZON S3

Introduction

Amazon S3 (Simple Storage Service) is a cloud-based object storage service provided by Amazon Web Services (AWS) that allows users to store, manage, and retrieve data over the internet. In Amazon S3, data is stored inside containers called buckets, where each bucket holds objects such as HTML files, CSS files, JavaScript files, images, and other static resources. Buckets are created in a specific AWS region and are uniquely named, enabling organized storage and controlled access to stored data.

Amazon S3 also provides a feature called Static Website Hosting, which allows users to host static websites directly from an S3 bucket without using any servers. By enabling static website hosting and configuring public access permissions, the content stored in the bucket can be accessed through a web browser using an S3 website endpoint. This approach offers a simple, scalable, and cost-effective solution for hosting static web applications without the need for server configuration or maintenance.

Objective

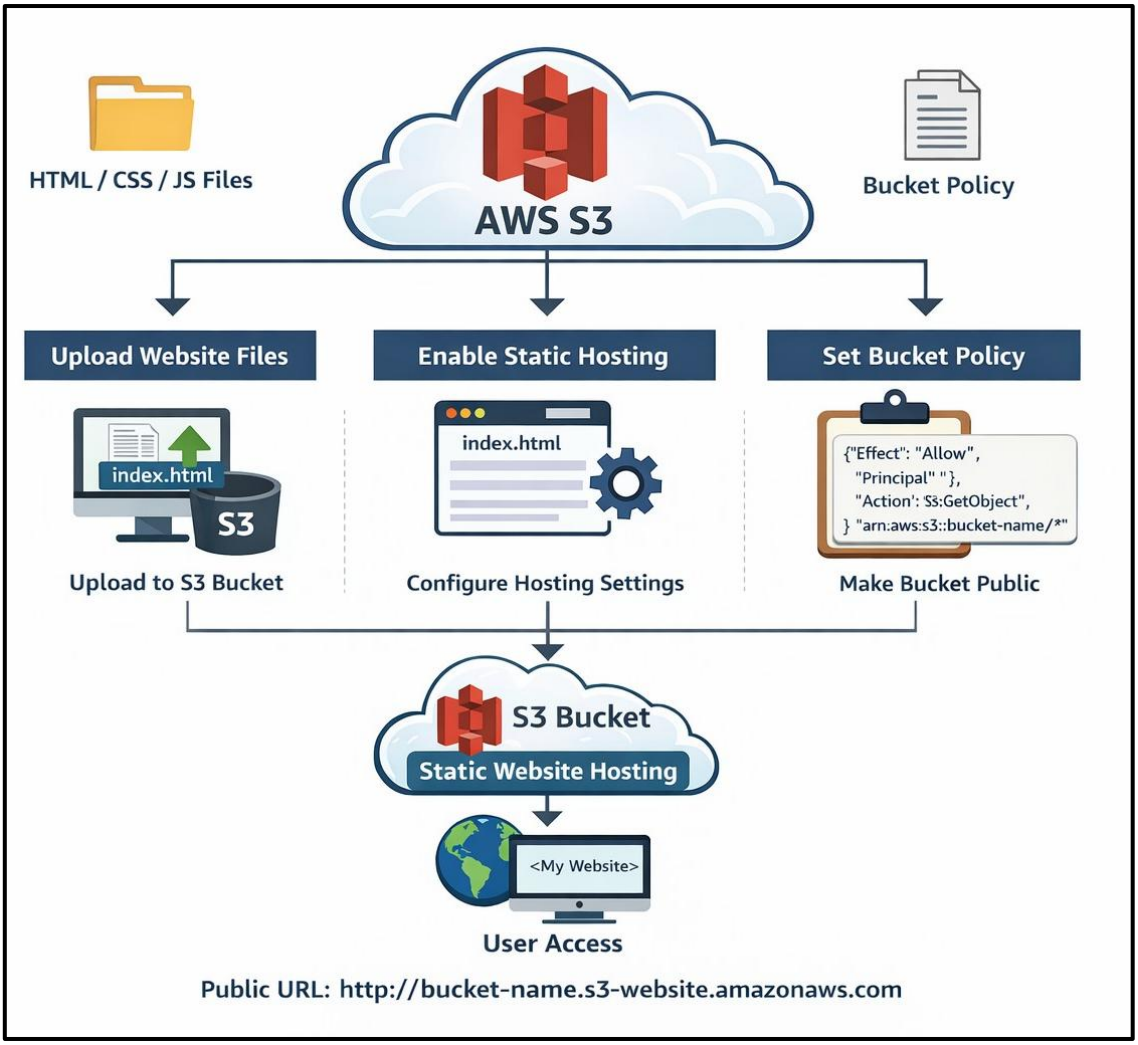
The objective of this project is to host a static website using **Amazon S3 (Simple Storage Service)** by utilizing AWS cloud infrastructure. This project aims to demonstrate the process of creating an S3 bucket, uploading static website files such as HTML and CSS, configuring bucket permissions to allow public access, and enabling static website hosting using the AWS Management Console. Through this implementation, the project highlights how Amazon S3 can be used as a reliable, scalable, and cost-effective solution for hosting static web content without the need for managing physical or virtual servers.

Tools & Services Used

- **Amazon Web Services (AWS)** – Cloud platform used to host the website
- **Amazon S3 (Simple Storage Service)** – Used to store website files and host the static website
- **AWS Management Console** – Used to create and configure AWS resources
- **Web Browser** – Used to access and verify the hosted website
- **HTML / CSS** – Used to design the static website content

System Architecture

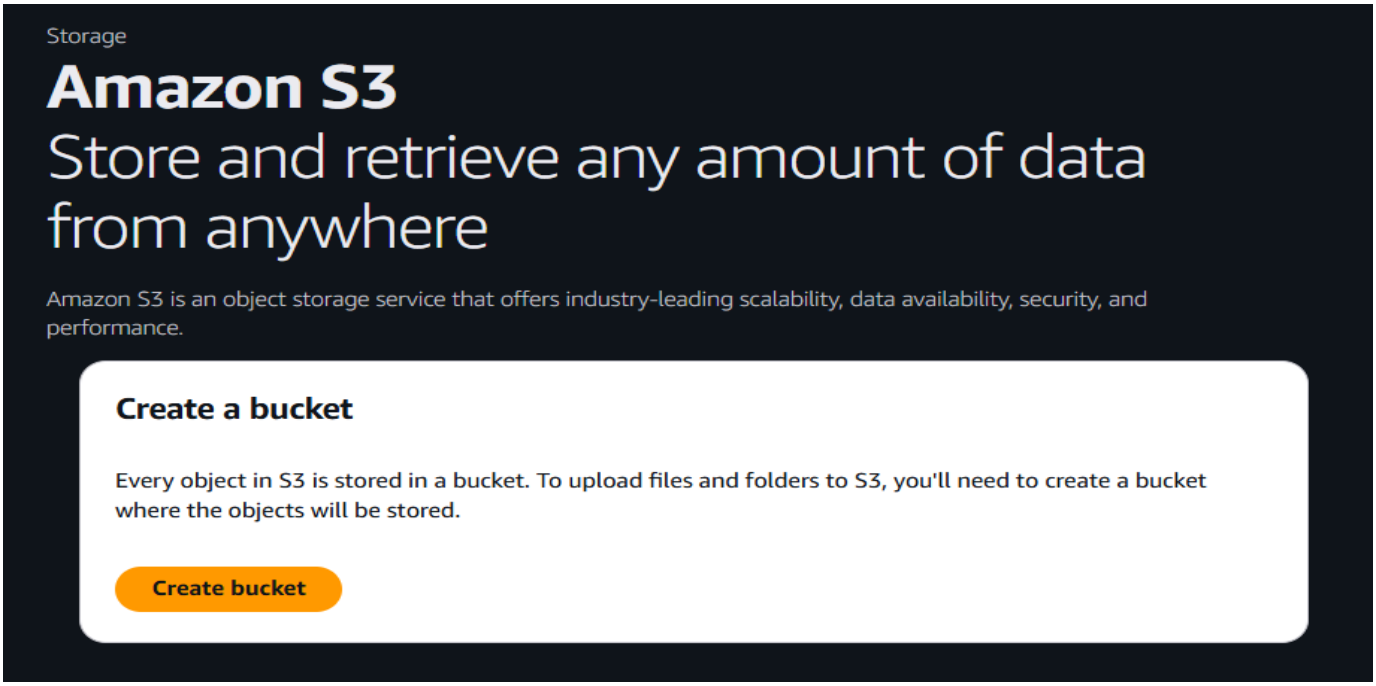
The architecture of this project is simple and serverless. The static website files such as HTML, CSS, and images are stored inside an Amazon S3 bucket. Static website hosting is enabled on the bucket, allowing Amazon S3 to serve the website content directly to users. When a user accesses the website URL through a web browser, the request is sent to the S3 website endpoint, and Amazon S3 responds by delivering the static content stored in the bucket.



Implementation

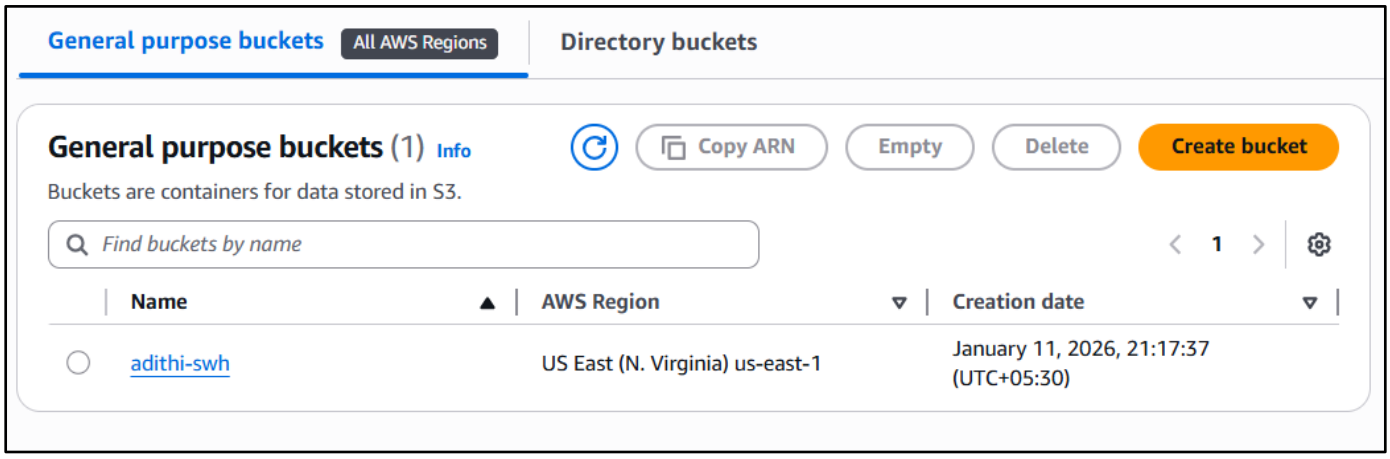
Step 1: Login to AWS Management Console

The AWS Management Console was accessed using valid AWS credentials. From the console dashboard, the Amazon S3 service was selected to begin the website hosting process.



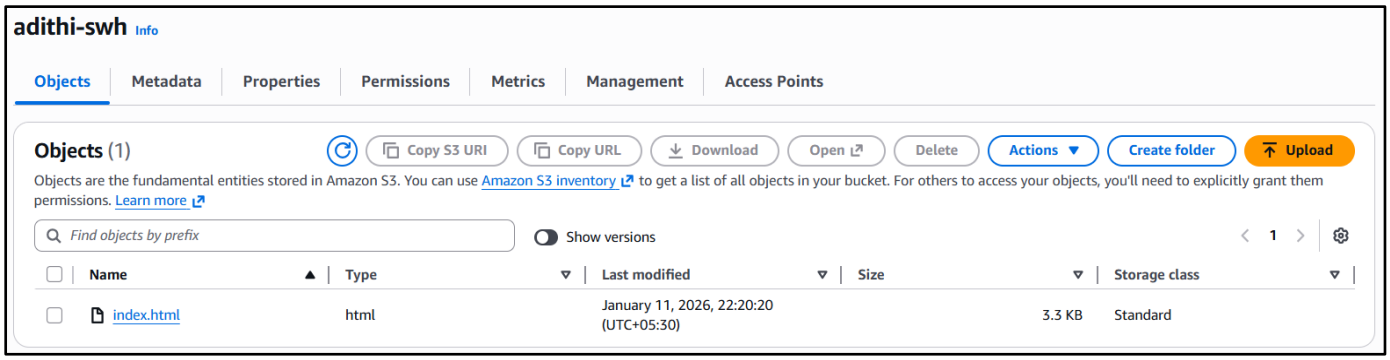
Step 2: Create an S3 Bucket

A new S3 bucket was created with a globally unique name in a selected AWS region. During bucket creation, public access blocking was disabled to allow website access. Object ownership settings were configured, and the bucket was created successfully.



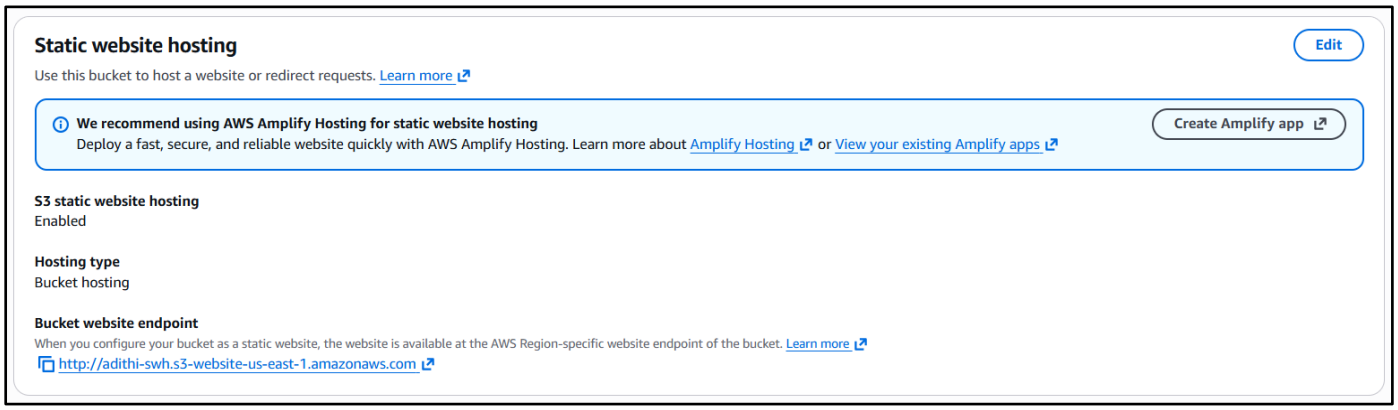
Step 3: Upload Website Files

Static website files such as index.html and other related files (CSS, images, or JavaScript) were uploaded into the S3 bucket. These files represent the content of the static website.



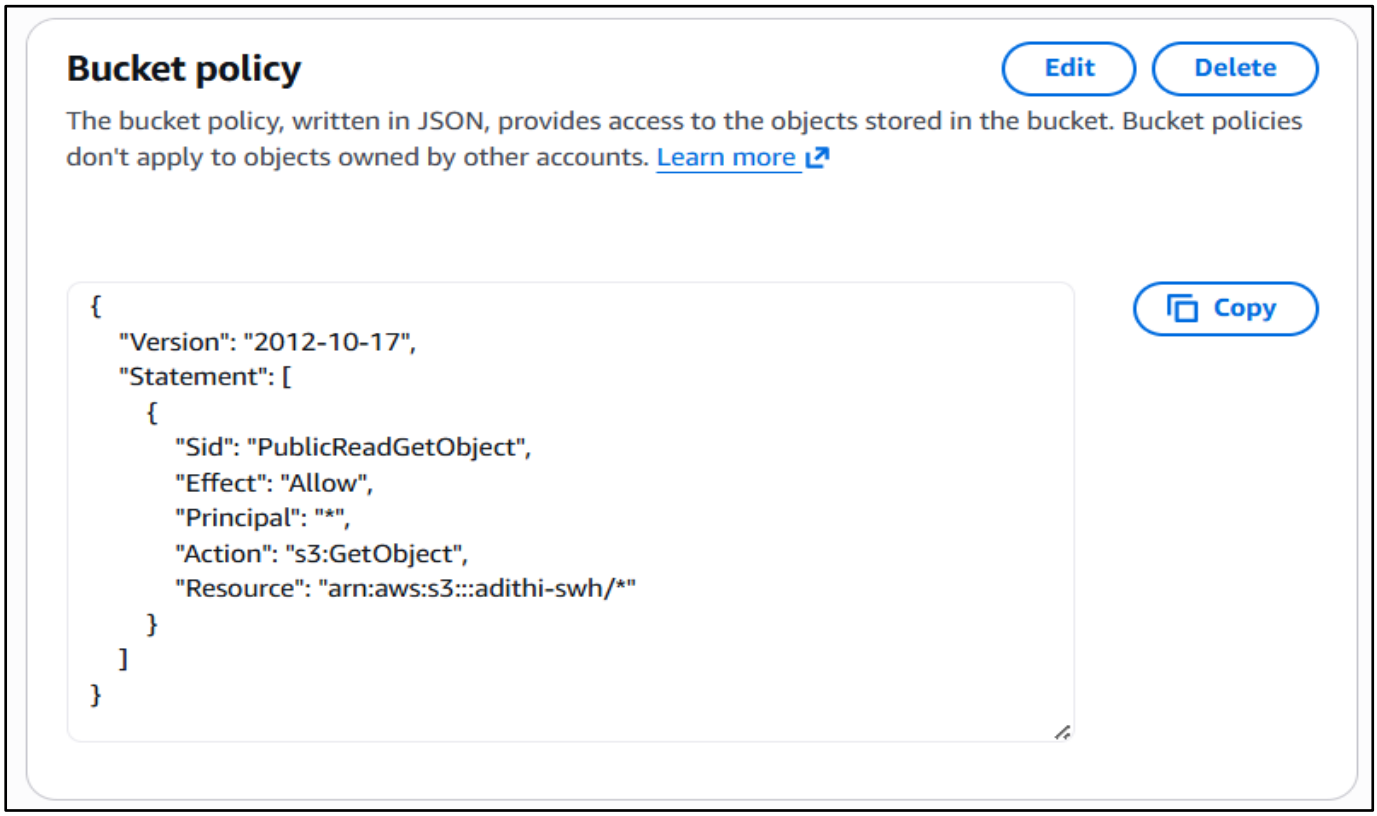
Step 4: Enable Static Website Hosting

Static website hosting was enabled from the Properties section of the S3 bucket. The index document was set as index.html, allowing Amazon S3 to serve this file as the default webpage.



Step 5: Configure Bucket Permissions

To make the website publicly accessible, a bucket policy was added in the Permissions section. This policy allowed public read access to all objects inside the bucket, ensuring users could view the website content through a browser.

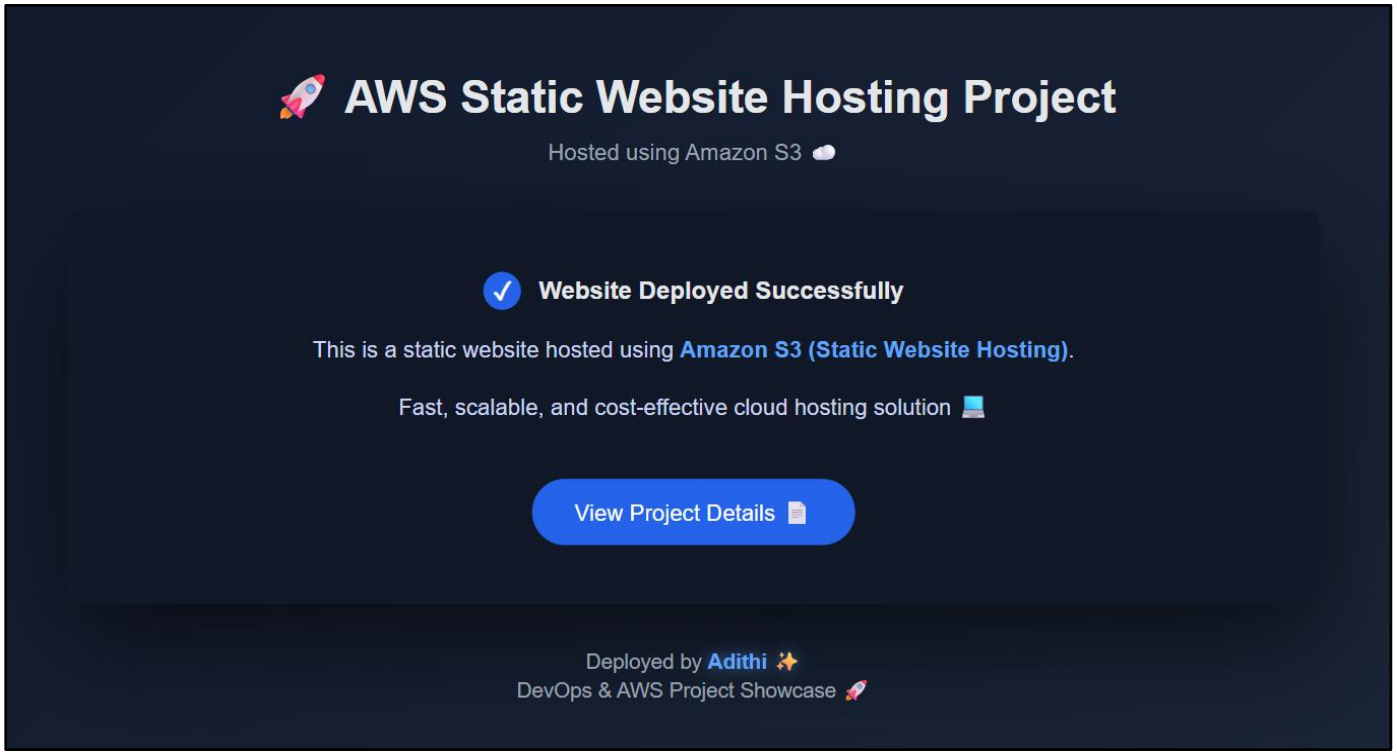


Step 6: Access the Website

After completing the configuration, the S3 website endpoint URL was copied from the Static Website Hosting section. The URL was opened in a web browser, and the static website loaded successfully.

Output

The static website was successfully hosted and accessed using the Amazon S3 website endpoint. The website content loaded correctly in the browser without any errors.



Advantages

- No server management required
- Highly scalable and reliable
- Low cost
- Easy deployment
- High availability

Limitations

- Supports only static content
- No backend processing (PHP, Python, etc.)
- HTTPS requires CloudFront integration

Use Cases

- Portfolio websites
- Landing pages
- Static blogs
- Documentation websites

Conclusion

This project successfully illustrates the implementation of static website hosting using Amazon S3. The entire process, from creating an S3 bucket to configuring permissions and enabling static website hosting, was completed using the AWS Management Console. By uploading static website files such as HTML and CSS into the S3 bucket and allowing public access, the website was made accessible to users through a browser using the S3 website endpoint.

The successful deployment of the website demonstrates that Amazon S3 is a practical and efficient platform for hosting static web applications. Since the service does not require server setup or maintenance, it significantly reduces operational complexity while ensuring high availability and scalability. The project also highlights how cloud storage services can be effectively utilized to deliver web content in a secure and cost-effective manner.

Overall, this project provides hands-on experience with AWS cloud services and enhances understanding of serverless web hosting concepts. Hosting a static website using Amazon S3 proves to be an ideal solution for simple websites, portfolios, and informational pages, making it a valuable learning experience for understanding cloud-based web deployment.

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