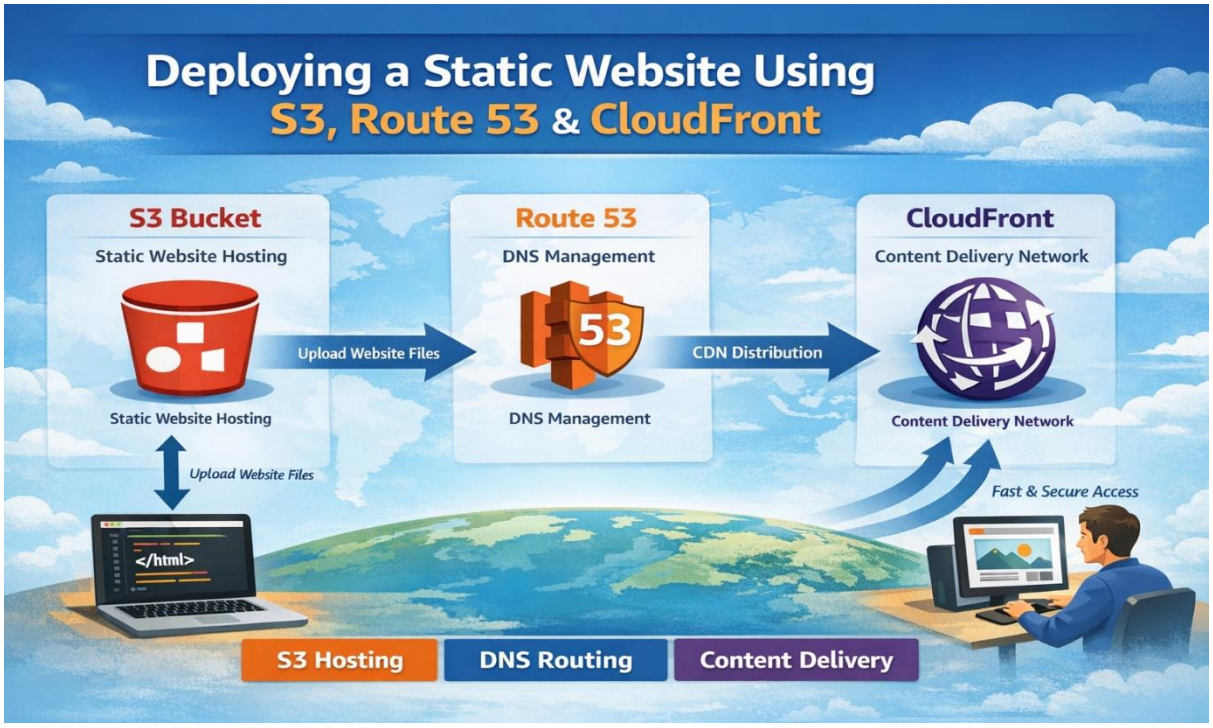
Deploying a Static Website Using S3, Route 53, and CloudFront.



Hosting a Static website on AWS may sound complex, but with the right combination of services- Amazon S3, Route 53, and CloudFront- you can build a fast, secure, and globally accessible site with ease. In this step-by-step guide, we'll walk through how to configure each service to work together seamlessly, from storing your files in S3 to managing DNS with Route 53 and speeding up content delivery through CloudFront. Whether you're launching a portfolio, landing pages, or documentation sites, this setup has you covered.

Prerequisites:

✅ *An AWS account*

✅ *A registered domain (either in Route 53 or another provider)*

Step 1: Create an S3 Bucket for Web Hosting

i. Open **AWS S3 Console** & Click **Create Bucket.**

ii. **Bucket Name:** Enter a unique bucket name (e.g. example.com)

iii. **Region:** Choose a Region close to your users to minimize latency

iv. **Disable Block Public Access:** Uncheck "Block all Public Access" & Confirm Changes

v. Click **Create Bucket**

Step 2: Enable Static Website Hosting.

i. In the AWS S3 Console, select the bucket you created.

ii. Go to **Properties Tab**

iii. Under **Static Website Hosting**, Click **Edit**

iv. Select **Enable**

v. Hosting Type: Choose **Host a Static Website**

vi. Enter the name of your index document as *index.html*

vii. Optionally, enter the name of a custom error document (e.g., *error.html*).

viii. Click **Save changes.**

ix. Note the *Bucket Website Endpoint URL.*

Step 3: Upload Website Files

i. Open your S3 bucket.

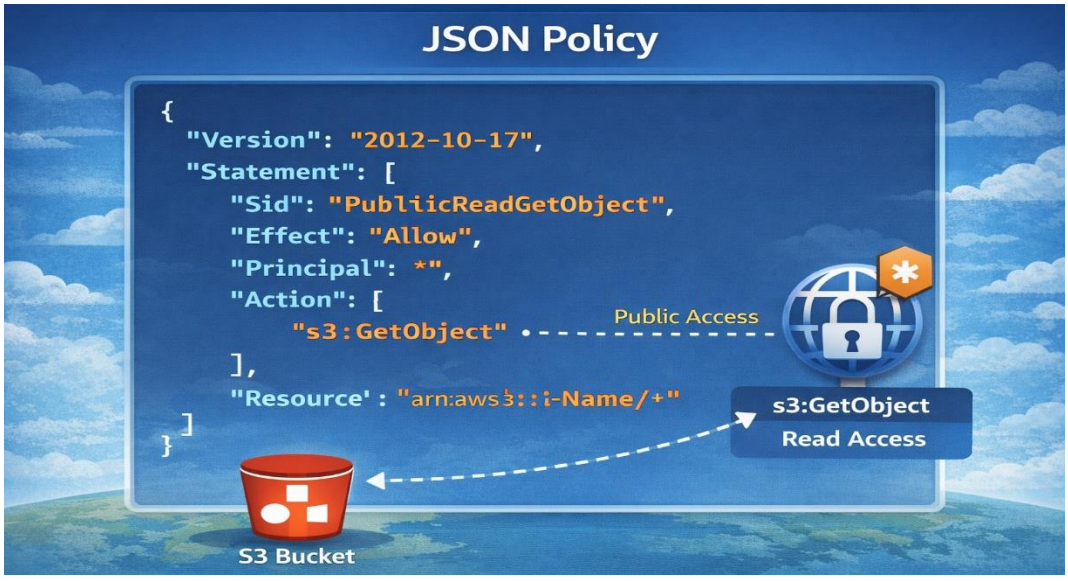
ii. Click **Upload** → Add your index.html, style.css, error.html etc.

iii. Click **Upload.**

Step 4: Configure Bucket Permissions

1. In AWS S3 Console, select your bucket.
2. Go to **Permissions tab**

Under **Bucket Policy**, click **Edit** and paste the following JSON policy. Then Click **Save Changes.**



JSON Policy:

- Defines permissions for the S3 bucket.
- In this project, the policy grants the s3:GetObject action to Principal: "*", meaning any user can read objects in the bucket.
- Key fields in the JSON policy:
    - **Version:** "2012-10-17" — indicates the policy language version.
    - **Sid:** "PublicReadGetObject" — a unique statement identifier.
    - **Effect:** "Allow" — grants the defined permission.
    - **Principal:** "*" — applies to all users, making the bucket public.
    - **Action:** ["s3:GetObject"] — allows reading objects.
    - **Resource:** "arn:aws:s3:::Bucket-Name/*" — applies the rule to all objects in the bucket.

Step 5: Test Your Website.

i. In the S3 console, select the bucket you created.

ii. Go to the **Properties** tab.

iii. Under **Static website hosting**, note the **Endpoint**.

iv. Open the endpoint URL in your browser to see your website

NOTE:

HTTPS Support*: Amazon S3 static websites do not support HTTPS. To use HTTPS, you can use Amazon CloudFront to serve your static website.*

Custom Domain*: If you want to use a custom domain, you can configure Amazon Route 53 to route traffic to your S3 bucket.*

Step 6: Register a Domain (if needed) in Route 53

1. Open **AWS Route 53 Console**.
2. Click **Domains** → Register Domain.
3. Search for and purchase a domain (e.g., example.com).
4. Wait for AWS to complete registration.

Step 7: Create a Hosted Zone in Route 53

i. In Route 53, go to **Hosted Zones.**

ii. Click **Create hosted zone.**

iii. Enter your domain name (*example.com*).

iv. Choose **Public Hosted Zone**.

v. Click **Create**.

Step 8: Set Up CloudFront for Content Delivery

Decide on the origin server for your content. This could be: Amazon S3 for static files. Amazon EC2 or an external HTTP server for dynamic content. Ensure your origin is properly configured to serve the required content.

i. Open **AWS CloudFront Console**.

ii. Click **Create distribution**.

iii. Under **Origin**, configure:

- ***Origin domain:*** *Select your S3 bucket.*
- ***Origin access****: Select* ***Public****.*
- ***Viewer Protocol Policy:*** *Choose* ***Redirect HTTP to HTTPS.***

iv. **Alternate Domain Names (CNAMEs)**: Enter your domain name (example.com).

v. Custom SSL Certificate:

Click ***Request or Import a Certificate with ACM.***

- *Request an SSL certificate for your domain.*
- *Validate via email or DNS.*
- *Once issued, attach it to the CloudFront distribution.*

vi. Click **Create distribution** and wait for deployment.

Step 9: Update Route 53 DNS Records

i. Go to **Route 53 → Hosted Zone** → Select your **domain.**

ii. Click **Create record**.

iii. Select **Simple routing** → Define **simple record.**

iv. **Record Name:** Leave empty (for root domain).

v. **Record Type:** Select A — **IPv4 Address.**

vi. **Route Traffic To:** Choose **Alias to CloudFront Distribution.**

vii. Select your **CloudFront distribution** from the dropdown.

viii. Click **Create record.**

Step 10: Verify and Test the Website

1. Open a browser and visit your domain (https://example.com).
2. If it doesn't work immediately, wait for DNS propagation (~30 mins to a few hours).

Summary

Created an **S3 bucket** for hosting static website files.

Configured **public access & bucket policy** for static hosting.

Registered a **domain** and set up a **hosted zone** in Route 53.

Created a **CloudFront distribution** for security & performance.

Configured **Route 53 DNS records** to point the domain to CloudFront.

Secured the website with **SSL (HTTPS)** using AWS ACM.