



# Deploying a Secure Static Website on AWS with WAF Protection

Abid Jeem

March 12, 2025

## 1 Introduction

---

This document outlines the step-by-step process of deploying a secure static website on AWS using Amazon S3, Route 53, CloudFront, and AWS WAF. Screenshots are included to illustrate each stage of the deployment.

## 2 Setting Up Route 53

---

### What is Route 53?

- A scalable DNS and domain name registration service.
- Allows the creation of endpoints for routing user requests to specific applications.

## 3 Enabling CloudFront with HTTPS

---

### 3.1 Why CloudFront?

- Enables HTTPS with caching for better security and performance.
- Requires an SSL/TLS certificate from Amazon Certificate Manager (ACM).

### 3.2 Requesting an SSL Certificate

1. Navigate to **Certificate Manager** in AWS.
2. Request a public certificate using DNS validation.
3. Use RSA 2048-bit encryption for security.
4. Once validated, create DNS records in Route 53 by clicking the automated option in ACM.

## 4 Configuring CloudFront

---

1. Navigate to CloudFront and create a new distribution.
2. Set the **Origin Domain** by copying the "Static Website Hosting" endpoint from S3.
3. Under **Viewer Protocol Policy**, select **Redirect HTTP to HTTPS**.

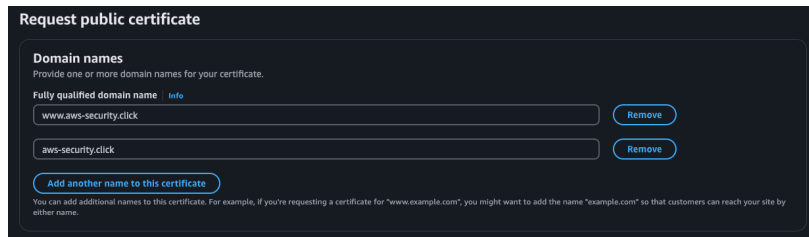


Figure 1: SSL Certificate request process in ACM.

4. In **Custom SSL Certificate**, choose the previously created certificate.
5. Under **Alternative Domain Name (CNAME)**, enter the **www** version of your static site.
6. Enable **AWS WAF** for additional security.

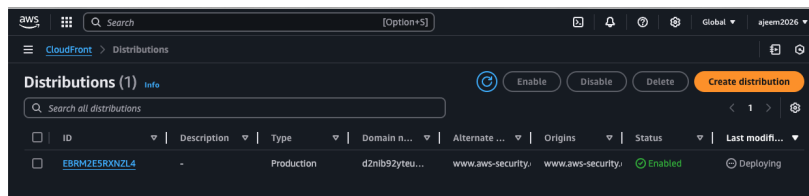


Figure 2: CloudFront distribution setup with HTTPS.

## 5 Creating Non-WWW Distribution

1. Repeat the CloudFront setup process for the non-www version of the website.
2. Now, both www and non-www versions have distributions.

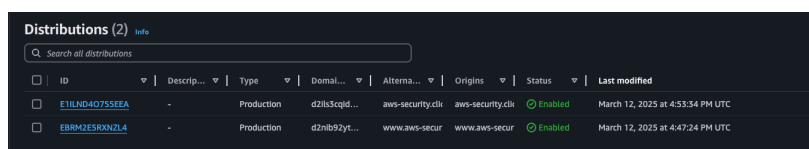


Figure 3: CloudFront distributions for both www and non-www versions.

## 6 Final Configurations: Securing with HTTPS and Updating Route 53

### 6.1 Enforcing HTTPS in S3

1. Navigate to S3 and edit the **Static Website Hosting** settings.
2. Change the protocol from HTTP to HTTPS.

## 6.2 Updating Route 53 Records

1. Find the two CNAME records in Route 53.
2. Locate the **A** record and edit it.
3. Change **Route traffic to** from **Alias** to **S3 website endpoint** to **Alias to CloudFront distribution**.
4. Select the correct distribution from the system-suggested options. Repeat this process for other.

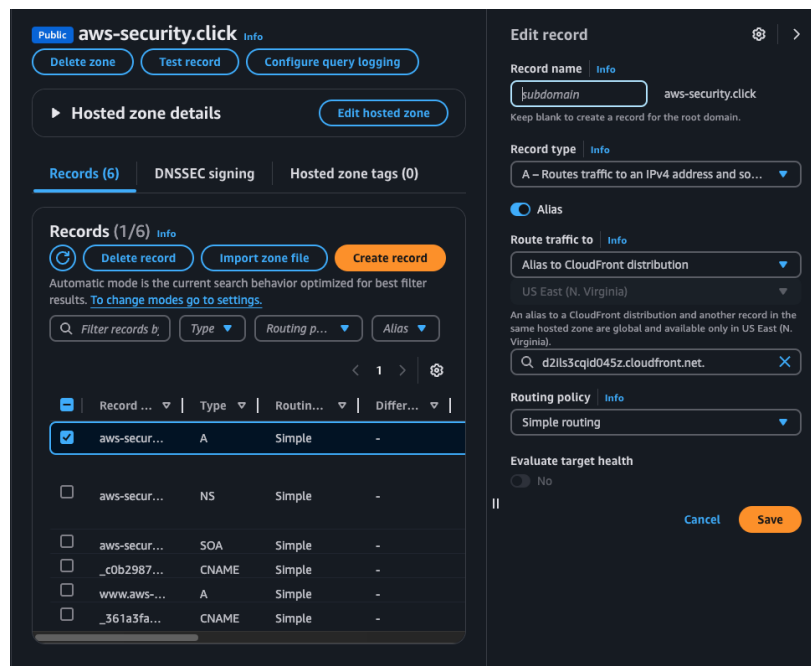


Figure 4: Updating Route 53 records to point to CloudFront.

## 7 Conclusion

By following these steps, I have successfully deployed a secure static website using AWS S3, Route 53, CloudFront, and AWS WAF. This setup ensures:

- Secure HTTPS access using CloudFront and ACM.
- Optimized routing via Route 53.
- Protection against threats with AWS WAF.

This project showcases my ability to architect, deploy, and secure cloud-based applications, demonstrating my expertise in AWS infrastructure and security.