SECURE STATIC WEBSITE DEPLOYMENT ON AWS WITH S3, CLOUDFRONT, AND ROUTE 53

Proof-of-Concept Documentation (DO NOT use as-is in production)

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Version: 1.0 | **Date:** 07 08 2025

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1. INTRODUCTION

This documentation outlines the process of hosting a static website using AWS S3 for storage and CloudFront for content delivery. AWS was chosen for its scalability, global reach, and integration with other cloud services; readers will learn how to securely deploy and distribute a static site using these tools.

2. ARCHITECTURE OVERVIEW

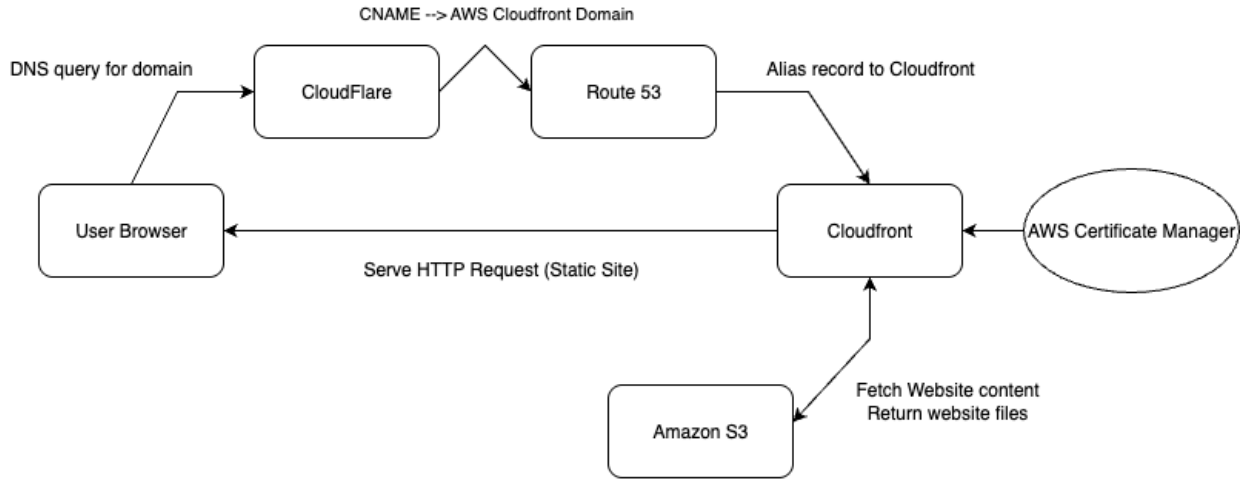

Figure 1: Architecture Diagram

3. PREREQUISITES

Item	**Notes**
AWS account (Free Tier)	IAM user with S3/CloudFront/Route 53 permissions
HTML/CSS site	At minimum **index.html**
Optional custom domain	Registered in Route 53 or external registrar (e.g. Cloudflare, GoDaddy, etc)

4. IMPLEMENTATION STEPS

4.1 Create S3 Bucket

1. Navigate to S3 -> Create bucket.
2. Bucket name: static-site-project-trevenx-interns
3. Disable “Block all public access”.

4. Enable static website hosting -> index document = index.html.

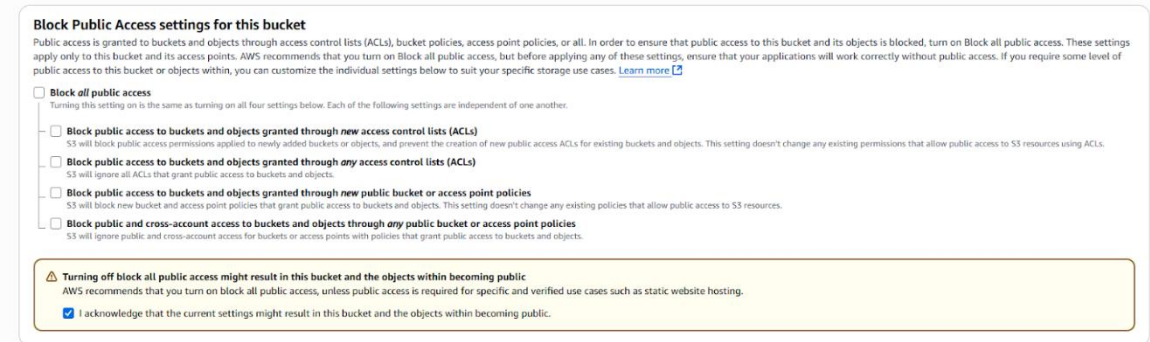

Figure 2: Bucket Public Access Settings

4.2 Upload Website Files

1. Click Upload -> add index.html and assets.
2. Verify public read via bucket policy (See Appendix B)

4.3 Configure CloudFront

1. Create distribution -> Origin = *S3 website endpoint.*
2. Default root object = index.html.
3. Viewer protocol policy = “Redirect HTTP -> HTTPS”.

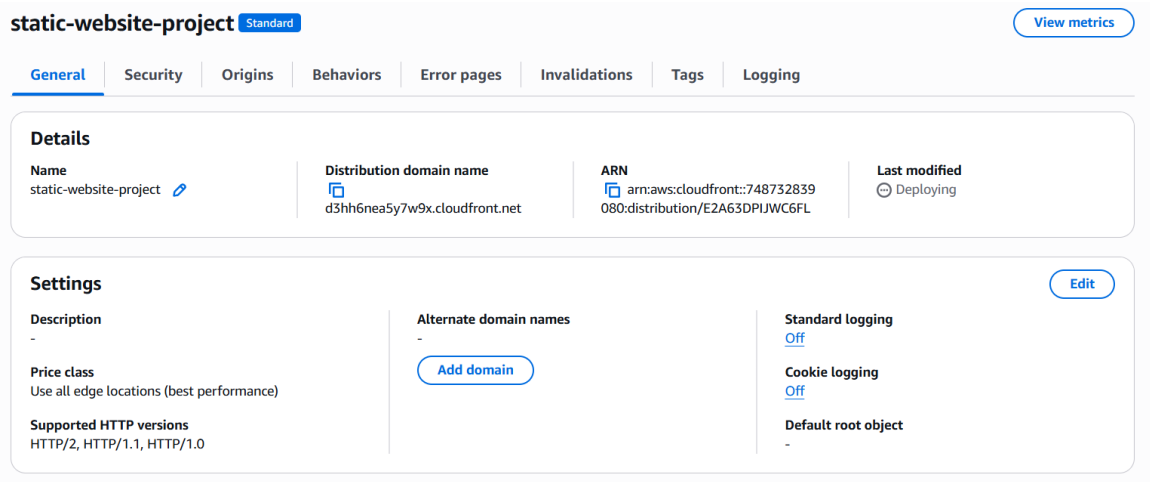

Figure 3: CloudFront Distribution Settings

4.4 Route 53 DNS & HTTPS

1. Request TLS cert in ACM (us-east-1) for intern.jimwest405.com
2. Validate via DNS CNAME
3. Edit CloudFront distribution -> Alternate domain names = inter.jimwest405.com -> attach cert
4. In route 53 hosted zone create a record (alias) to the CloudFront distribution.

5. COST & SECURITY CONSIDERATIONS

Service	Free tier?	Monthly cost (low traffic)
S3 storage	Yes, 5 GB	< $0.05
CloudFront	1 TB out	$0-$2
Route 53 hosted zone	N/A	$0.50

- Enable S3 versioning + lifecycle rules for potential rollbacks.
- Consider AWS WAF for production sites.

6. OUTCOME & VERIFICATION

- Browsing to https://intern.jimwest405.com/ returns expected content. (See Appendix C)
- SSL padlock present (tested via https://www.ssllabs.com/ssltest/).

7. FUTURE ENHANCEMENTS

- CI/CD with GitHub Actions to auto-sync S3.
- Add CloudFront Functions for HTTP security headers.
- Configure S3 access logs to Athena/OpenSearch for analysis.

8. APPENDIX

Appendix A - Route 53 Hosted Zone Configuration for inter.jimwest405.com

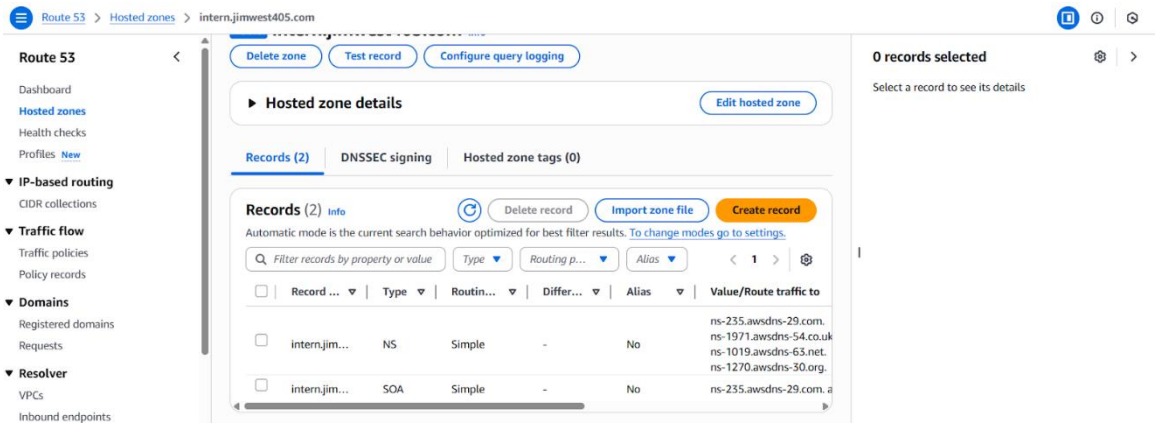

Figure 4: Route 53 DNS Records

Appendix B – Public-read bucket policy

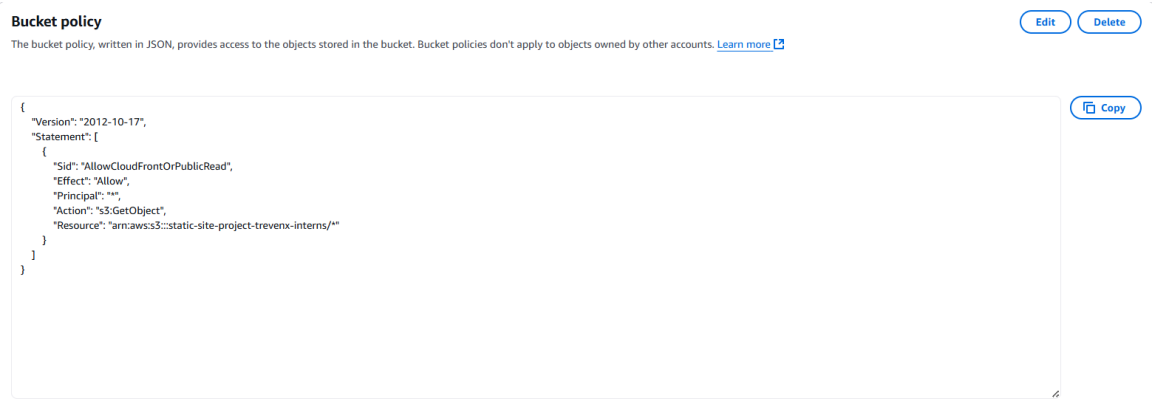

Figure 5: Bucket Policy Configuration

Appendix C - Verification of website function

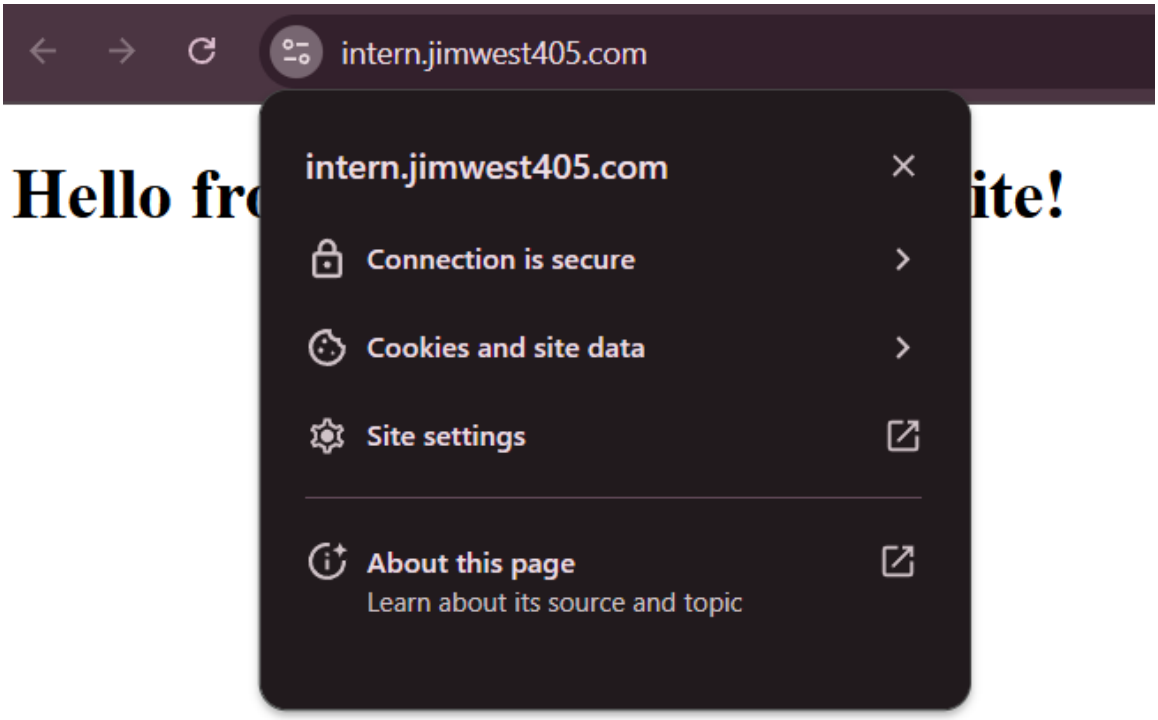

Figure 6: Secure HTTPS Connection Confirmation

Appendix D - Pending Validation in AWS Certificate Manager

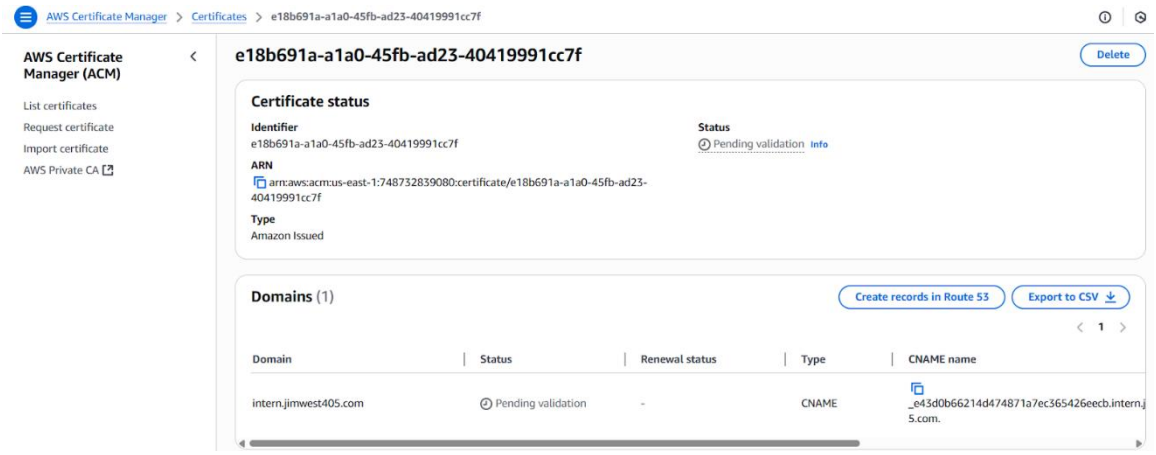

Figure 7: Certificate Creation in AWS Certificate Manager (ACM)

Appendix E - Creating DNS Validation Records in Route 53

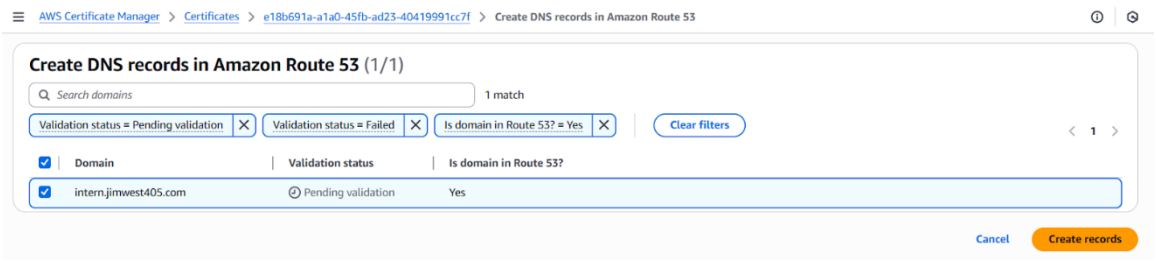

Figure 8: DNS Record Creation in Route 53

Appendix F - Adding CNAME Validation Records in Cloudflare

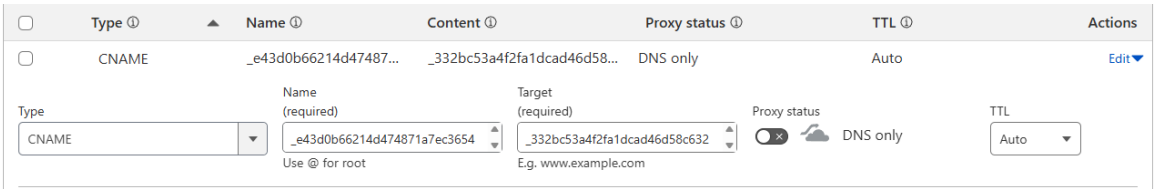

Figure 9: Cloudflare DNS CNAME Record Configuration

Appendix G - Certificate Successfully Issued

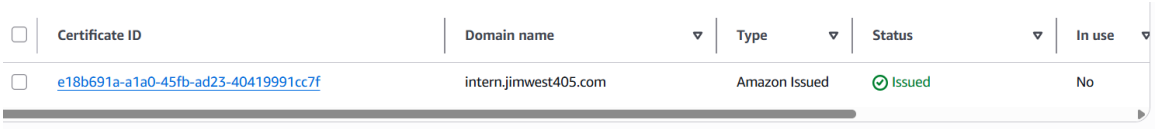

Figure 10: Certificate Successfully Issued in ACM