

Use Case Description

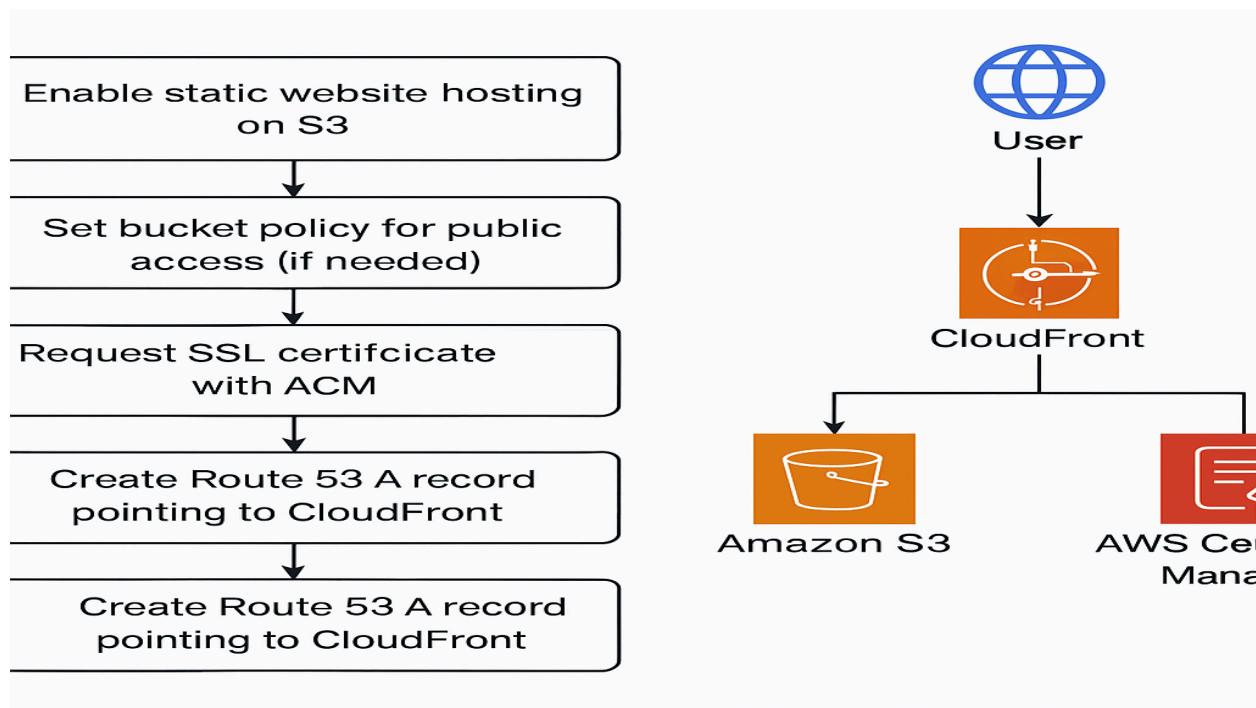
Host a secure, low-latency static website with global distribution.

- In this document, I'm going to host a secure, low-latency static website with global distribution.
- You can find a complete guide, step-by-step implementation with result-oriented screenshots, outcomes, and deliverables below,

🛠 Tools & Services Used:

- Amazon S3
- Amazon Route 53
- Amazon Certificate Manager (ACM)
- Amazon CloudFront
- Amazon IAM

💻 Architectural Diagram:

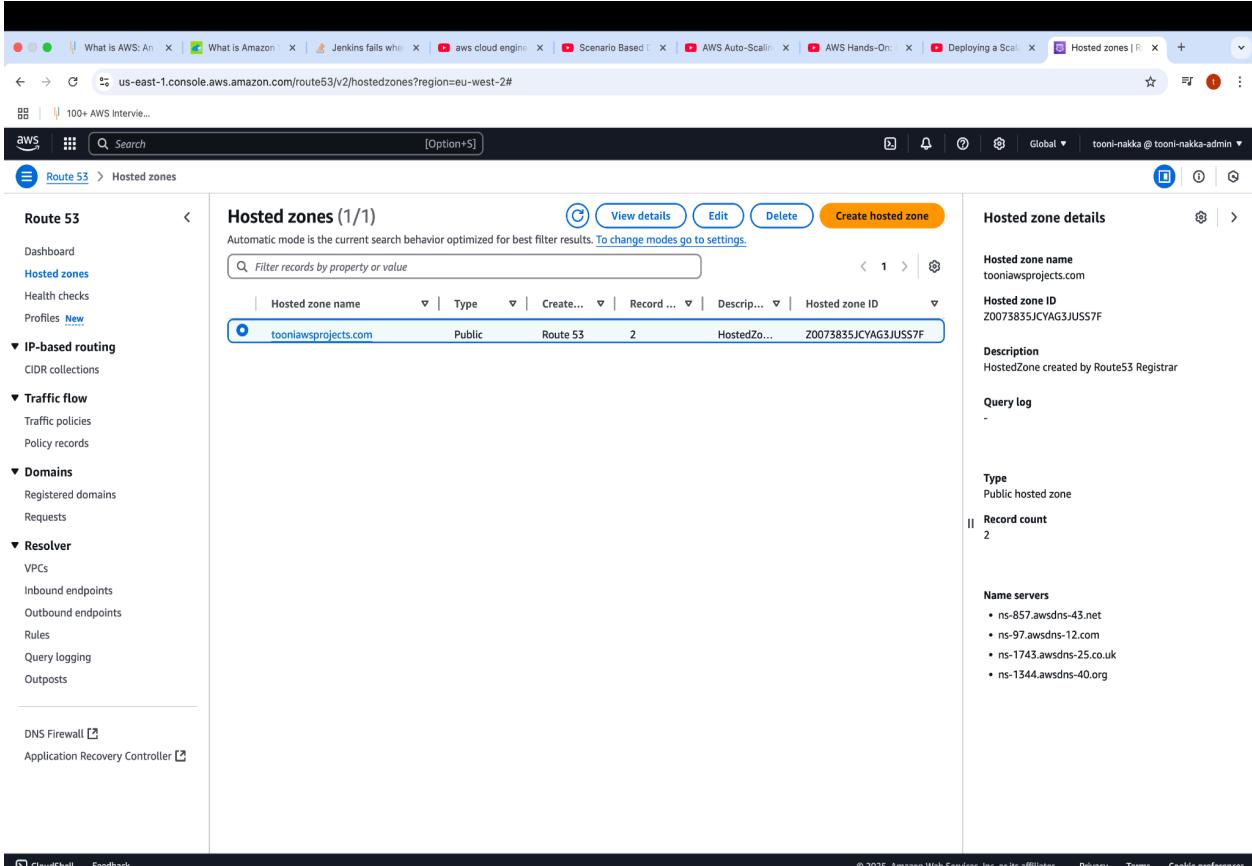


Step-by-Step Guide

Step 1: Register a Domain

1.1 Register a Domain with Route 53

- Navigate to the Route 53 Console.
- Register a new domain (e.g., `tooniawsprojects.com`) or use an existing one.
- A hosted zone will be automatically created for your domain.



The screenshot shows the AWS Route 53 console with the 'Hosted zones' section selected. On the left, there's a navigation sidebar with various options like 'Dashboard', 'Hosted zones' (which is highlighted), 'Health checks', 'Profiles', 'IP-based routing', 'Traffic flow', 'Domains', 'Resolver', 'DNS Firewall', and 'Application Recovery Controller'. The main content area has a title 'Hosted zones (1/1)' and a sub-instruction 'Automatic mode is the current search behavior optimized for best filter results. To change modes go to settings.' Below this is a table with one row:

Hosted zone name	Type	Record count	Hosted zone ID	
<code>tooniawsprojects.com</code>	Public	Route 53	2	20073855JCYAG3JUSS7F

To the right of the table, under 'Hosted zone details', are the following fields:

- Hosted zone name:** `tooniawsprojects.com`
- Hosted zone ID:** `Z0073855JCYAG3JUSS7F`
- Description:** HostedZone created by Route53 Registrar
- Query log:** -
- Type:** Public hosted zone
- Record count:** 2
- Name servers:**
 - `ns-857.awsdns-43.net`
 - `ns-97.awsdns-12.com`
 - `ns-1743.awsdns-25.co.uk`
 - `ns-1344.awsdns-40.org`

At the bottom of the page, there are links for 'CloudShell', 'Feedback', '© 2025, Amazon Web Services, Inc. or its affiliates.', 'Privacy', 'Terms', and 'Cookie preferences'.

Step 2: Create and Configure S3 Buckets

2.1. Create Two S3 Buckets

- One for website content: `www.tooniawsprojects.com`

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- One for redirection: tooniawsprojects.com

The screenshot shows the AWS S3 console interface. At the top, there's a banner indicating a successful bucket creation: "Successfully created bucket 'www.tooniawsprojects.com'". Below this, an "Account snapshot" section shows updated storage usage. The main area displays two buckets under the "General purpose buckets" tab:

Name	AWS Region	IAM Access Analyzer	Creation date
tooniawsprojects.com	Europe (London) eu-west-2	View analyzer for eu-west-2	May 13, 2025, 12:45:51 (UTC+01:00)
www.tooniawsprojects.com	Europe (London) eu-west-2	View analyzer for eu-west-2	May 13, 2025, 12:46:15 (UTC+01:00)

2.2. Enable Static Website Hosting on www.tooniawsprojects.com

- Go to **Properties** → Enable **Static website hosting**
- Enter index.html as the index document.

The screenshot shows the "Edit static website hosting" configuration for the 'www.tooniawsprojects.com' bucket. The "Static website hosting" section is active, with "Enable" selected. The "Hosting type" section has "Host a static website" selected. The "Index document" field contains "index.html". There are also sections for "Error document" (set to "error.html") and "Redirection rules".

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The screenshot shows the 'Edit static website hosting' configuration for the 'tooniawsprojects.com' bucket. The 'Static website hosting' section is active, showing the 'Host a static website' option selected. The 'Host name' field contains 'www.tooniawsprojects.com'. Under 'Protocol - Optional', 'http' is selected. At the bottom right are 'Cancel' and 'Save changes' buttons.

2.3. Upload Website Files

- Upload files like index.html, style.css, etc., to the www.tooniawsprojects.com bucket.

The screenshot shows the 'Upload objects' interface for the 'www.tooniawsprojects.com' bucket. A file named 'index.html' is being uploaded. The 'Destination' dropdown is set to 's3://www.tooniawsprojects.com'. The 'Permissions' section indicates public access is granted. At the bottom right are 'Cancel' and 'Upload' buttons.

2.4 Disable the Block all public access

- Go to www.tooniawsprojects.com bucket, go to permissions
- Edit Block public access(bucket settings)
- Disable the Block all public access

Edit Block public access (bucket settings) Info

Block public access (bucket settings)

Public access is granted to buckets and objects through access control lists (ACLs), bucket policies, access point policies, or all. In order to ensure that public access to all your S3 buckets and objects is blocked, turn on Block all public access. These settings apply only to this bucket and its access points. AWS recommends that you turn on Block all public access, but before applying any of these settings, ensure that your applications will work correctly without public access. If you require some level of public access to your buckets or objects within, you can customize the individual settings below to suit your specific storage use cases. [Learn more](#)

Block all public access
Turning this setting on is the same as turning on all four settings below. Each of the following settings are independent of one another.

- Block public access to buckets and objects granted through new access control lists (ACLs)**
S3 will block public access permissions applied to newly added buckets or objects, and prevent the creation of new public access ACLs for existing buckets and objects. This setting doesn't change any existing permissions that allow public access to S3 resources using ACLs.
- Block public access to buckets and objects granted through any access control lists (ACLs)**
S3 will ignore all ACLs that grant public access to buckets and objects.
- Block public access to buckets and objects granted through new public bucket or access point policies**
S3 will block new bucket and access point policies that grant public access to buckets and objects. This setting doesn't change any existing policies that allow public access to S3 resources.
- Block public and cross-account access to buckets and objects through any public bucket or access point policies**
S3 will ignore public and cross-account access for buckets or access points with policies that grant public access to buckets and objects.

[Cancel](#) [Save changes](#)

2.5. Set Public Read Permissions (if not using CloudFront OAI)

- Add this **bucket policy** (replace www.example.com with your bucket name):

```
{
  "Version": "2012-10-17",
  "Statement": [
    {
      "Sid": "PublicReadGetObject",
      "Effect": "Allow",
      "Principal": "*",
      "Action": "s3:GetObject",
      "Resource": "arn:aws:s3:::www.tooniawsprojects.com/*"
    }
  ]
}
```

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The screenshot shows the AWS S3 Bucket policy configuration page for the bucket 'www.tooniawsprojects.com'. The policy is set to 'Individual Block Public Access settings for this bucket'. The JSON code for the policy is:

```
{ "Version": "2012-10-17", "Statement": [ { "Sid": "PublicReadGetObject", "Effect": "Allow", "Principal": "*", "Action": "S3.GetObject", "Resource": "arn:aws:s3:::www.tooniawsprojects.com/*" } ] }
```

Below the policy, there is an 'Object Ownership' section with a note about controlling ownership of objects written to the bucket from other AWS accounts. It also mentions that ACLs are disabled and all objects are owned by the account.

Step 3: Configure Route 53 DNS Records

- Go back to the Route 53 Console.

3.1 Add Alias Records

- **Record 1:** A Record for www.tooniawsprojects.com
 - Alias: Yes → Target: CloudFront distribution
- **Record 2:** A Record for tooniawsprojects.com
 - Alias: Yes → Target: same CloudFront distribution or redirect bucket

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Route 53

Hosted zones

Records (2)

Type	Routing policy	Value/Route traffic to	TTL (s...)	Health ...
NS	Simple	ns-857.awsdns-43.net. ns-97.awsdns-12.com. ns-1745.awsdns-25.co.uk. ns-1544.awsdns-40.org.	172800	-
SOA	Simple	ns-857.awsdns-43.net. awsd...	900	-

Record creation method

Configure records

Simple routing records

Record name | Info

Record type | Info

Value/Route traffic to | Info

Evaluate target health

Define simple record

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The screenshot shows the AWS Route 53 console with the URL us-east-1.console.aws.amazon.com/route53/v2/hostedzones?region=eu-west-2#CreateRecord. The page is titled "Route 53 > Hosted zones > tooniawsprojects.com > Create record".

Record creation method:

- Quick create (recommended for expert users)**: Choose this method if you are confident in the process of creating records and know which options you need.
- Wizard (recommended for new users)**: Choose this method if you need more explanations as you create your record.

Step 1: Choose routing policy (radio button selected)

Step 2: Configure records

Configure records (Info)

You can create multiple records at a time that have the same routing policy.

Simple routing records to add to tooniawsprojects.com (Info)

Use if you want all of your clients to receive the same response(s).

Record name	Type	Value/Route traffic to	TTL (seconds)
www.tooniaw...	A	s3-websit...	-
tooniawsp...	A	s3-websit...	-

Existing records

Cancel Previous Create records

The screenshot shows the AWS Route 53 console with the URL us-east-1.console.aws.amazon.com/route53/v2/hostedzones?region=eu-west-2#HostedZoneDetails. The page is titled "Route 53 > Hosted zones > tooniawsprojects.com".

Route 53

- Hosted zones (selected)
- Health checks
- Profiles New
- IP-based routing
- Traffic flow
- Domains
- Resolver
- DNS Firewall
- Application Recovery Controller

Public tooniawsprojects.com (Info)

Hosted zone details

Records (4) DNSSEC signing Hosted zone tags (0)

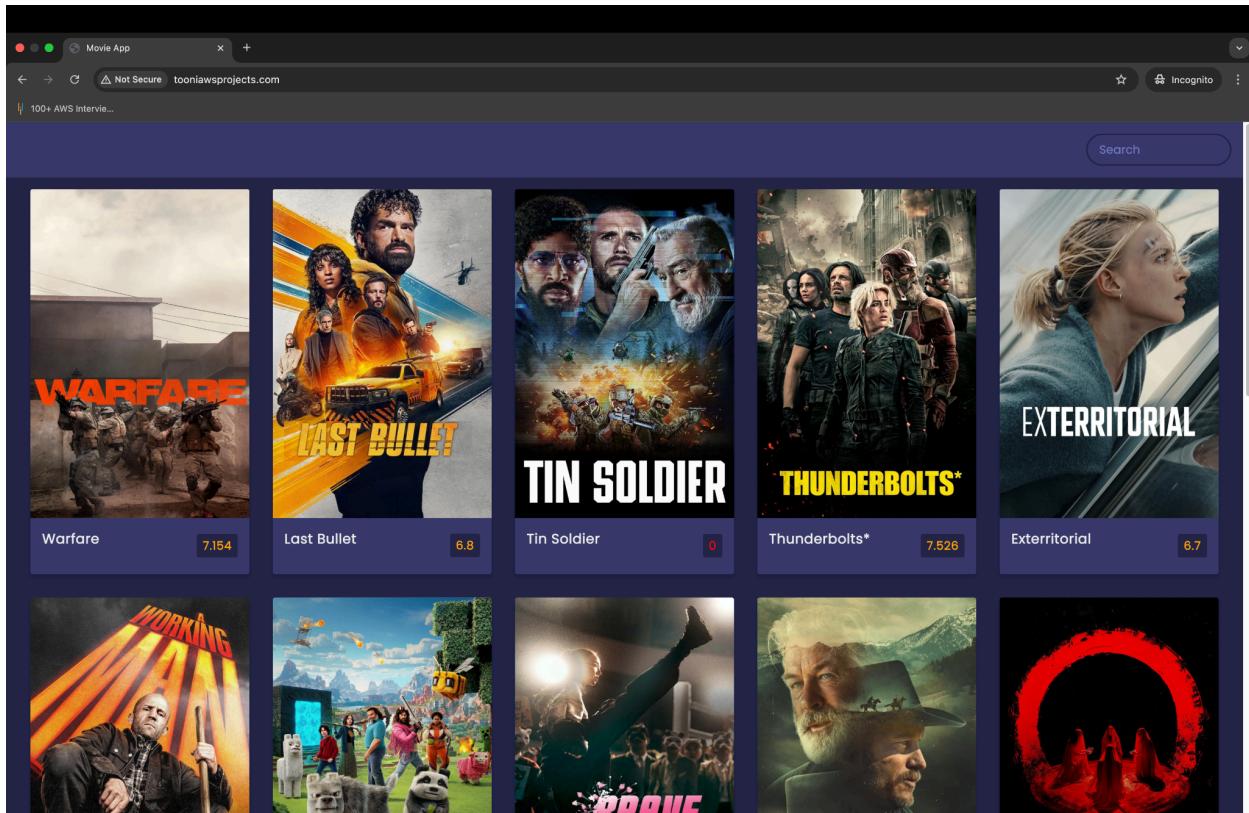
Records (4) (Info)

Automatic mode is the current search behavior optimized for best filter results. To change modes go to settings.

Record name	Type	Routing policy	Alias	Value/Route traffic to	TTL (seconds)	Health
tooniawsprojects....	A	Simple	-	Yes	s3-website.eu-west-2.amazo...	-
tooniawsprojects....	NS	Simple	-	No	ns-857.awsdns-43.net.	ns-97.awsdns-12.com.
tooniawsprojects....	SOA	Simple	-	No	ns-1743.awsdns-25.co.uk.	ns-1344.awsdns-40.org.
www.tooniawsp...	A	Simple	-	Yes	ns-857.awsdns-43.net.awsd...	900

0 records selected Select a record to see its details

Step 4: Test Your Website



- As you can see, the above website is not secure, so we have to request an SSL Certificate to make the website secure.

Step 5: Request SSL Certificate Using AWS Certificate Manager (ACM)

5.1. Open ACM in us-east-1

- CloudFront only accepts certificates from the N. Virginia region

5.2. Request a Public Certificate

- Add www.tooniawsprojects.com and tooniawsprojects.com
- Choose **DNS Validation**

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5.3. Validate Domain

- ACM provides CNAME records → add them to your **Route 53 Hosted Zone**
- Wait until the certificate status is **Issued**.

The screenshot shows the 'Request public certificate' step in the AWS Certificate Manager. It includes fields for domain names (www.tooniawsprojects.com and tooniawsprojects.com), validation methods (DNS validation selected), key algorithms (RSA 2048 selected), and tags.

The screenshot shows the 'Create DNS records in Amazon Route 53' step. It displays two pending validation records for the domains www.tooniawsprojects.com and tooniawsprojects.com, both pointing to the same Route 53 zone.

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Go to Route 53, Hosted Zones, you can find two more records, which we've created.

- Records with CNAME

The screenshot shows the AWS Route 53 service console. On the left, there's a navigation sidebar with options like Dashboard, Hosted zones (which is selected), Health checks, Profiles, IP-based routing, Traffic flow, Domains, Resolver, and DNS Firewall. The main content area is titled "Public tooniawsprojects.com Info". It shows "Hosted zone details" and "Records (6) Info". The table lists the following records:

Record	Type	Routing	Alias	Value/Route traffic to	TTL	Health
tooniawsp...	A	Simple	Yes	s3-website.eu-west-2.amazonaws.com	-	-
tooniawsp...	NS	Simple	No	ns-857.awsdns-43.net ns-97.awsdns-12.com ns-1743.awsdns-25.co.uk ns-1344.awsdns-40.org	172800	-
tooniawsp...	SOA	Simple	No	ns-857.awsdns-43.net.awsd...	900	-
_64cb9fd...	CNAME	Simple	No	_99c45349e57dcb76516cd...	300	-
www.tooni...	A	Simple	Yes	s3-website.eu-west-2.amazonaws.com	-	-
_36c6931...	CNAME	Simple	No	_3d731668373345f9fda6b9...	300	-

An SSL Certificate is successfully issued.

The screenshot shows the AWS Certificate Manager (ACM) service console. On the left, there's a navigation sidebar with options like List certificates, Request certificate, Import certificate, and AWS Private CA. The main content area is titled "d6c64323-95b6-4ec3-b1fc-ad56cc4d6b41". It shows "Certificate status" with the identifier d6c64323-95b6-4ec3-b1fc-ad56cc4d6b41, ARN arn:aws:acm:us-east-1:266735822656:certificate/d6c64323-95b6-4ec3-b1fc-ad56cc4d6b41, and Type Amazon Issued. The "Status" is Issued. Below this, the "Domains (2)" section lists the domains www.tooniawsprojects.com and tooniawsprojects.com, both with a status of Success. The "Details" section provides certificate metadata such as Serial number, Public key info, Signature algorithm, and Renewal eligibility.

Step 6: Configure CloudFront CDN

6.1. Create a CloudFront Distribution

- Origin domain:** Select www.tooniawsprojects.com.s3.amazonaws.com
- Set Viewer Protocol Policy** to Redirect HTTP to HTTPS
- Choose Custom SSL Certificate:** Select the one from ACM

The screenshot shows the AWS S3 Bucket configuration page for the bucket www.tooniawsprojects.com. The 'Static website hosting' section is highlighted, showing that it is enabled and set to 'Bucket hosting'. A note recommends using AWS Amplify Hosting for static website hosting, with a 'Create Amplify app' button. Other sections like Transfer acceleration, Object Lock, and Requester pays are also visible.

The screenshot shows the AWS CloudFront distribution creation page. Under 'Distribution options', the 'Single website or app' option is selected. In the 'Origin' section, the 'Origin domain' is set to www.tooniawsprojects.com.s3-website.eu-west-2.amazonaws.com, 'Protocol' is set to 'HTTP only', and the 'HTTP port' is set to 80. The 'Name' field contains the same origin URL. The 'Origin path - optional' field is empty. At the bottom, there's an 'Add custom header - optional' section and standard AWS footer links.

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The screenshot shows the AWS CloudFront 'Create Distribution' settings page. The 'Settings' tab is selected. Under 'Acast static IP list - optional', it says 'There are no Acast static IP lists available'. Under 'Price class', 'Use all edge locations (best performance)' is selected. In the 'Alternate domain name (CNAME) - optional' section, 'www.tooniawsprojects.com' is listed with a 'Remove' button. Under 'Custom SSL certificate - optional', 'www.tooniawsprojects.com' is selected with a 'Request certificate' button. A note about legacy client support and a checkbox for 'Enabled' are shown. Under 'Security policy', 'TLSv1.2_2021 (recommended)' is selected. The bottom of the page includes standard AWS navigation links like CloudShell, Feedback, Privacy, Terms, and Cookie preferences.

6.2 Set Behavior

- Cache policy: Use default or optimized caching
- Enable compression (optional)

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The screenshot shows the AWS CloudFront console with the distribution **E2QZXZL2V3IW37**. The distribution is configured with a single origin and a custom SSL certificate. The security policy is set to TLSv1.2_2021. Logging is currently off. The distribution domain name is www.tooniawsprojects.com.

- Do the same for another bucket - [tooniawsprojects.com](http://www.tooniawsprojects.com)

The screenshot shows the AWS CloudFront console with the distribution **E1H7YZIA0OSDKO**. The distribution is configured with a single origin and a custom SSL certificate. The security policy is set to TLSv1.2_2021. Logging is currently off. The distribution domain name is www.tooniawsprojects.com.

- CloudFront Distributions have been created and deployed successfully.

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The screenshot shows the AWS CloudFront Distributions page. The left sidebar includes sections for CloudFront, Policies, Functions, Static IPs, VPC origins, Multi-tenant distributions, Distribution tenants, Telemetry, Monitoring, Alarms, Logs, Reports & analytics, Cache statistics, Popular objects, Top referers, Usage, Viewers, Security, Origin access, Field-level encryption, Key management, Public keys, Key groups, and Savings Bundle. The main content area displays a table titled "Distributions (2)" with columns for ID, Status, Description, Type, Domain Name, Alternative Domain Name, Origins, and Last modified. Two distributions are listed:

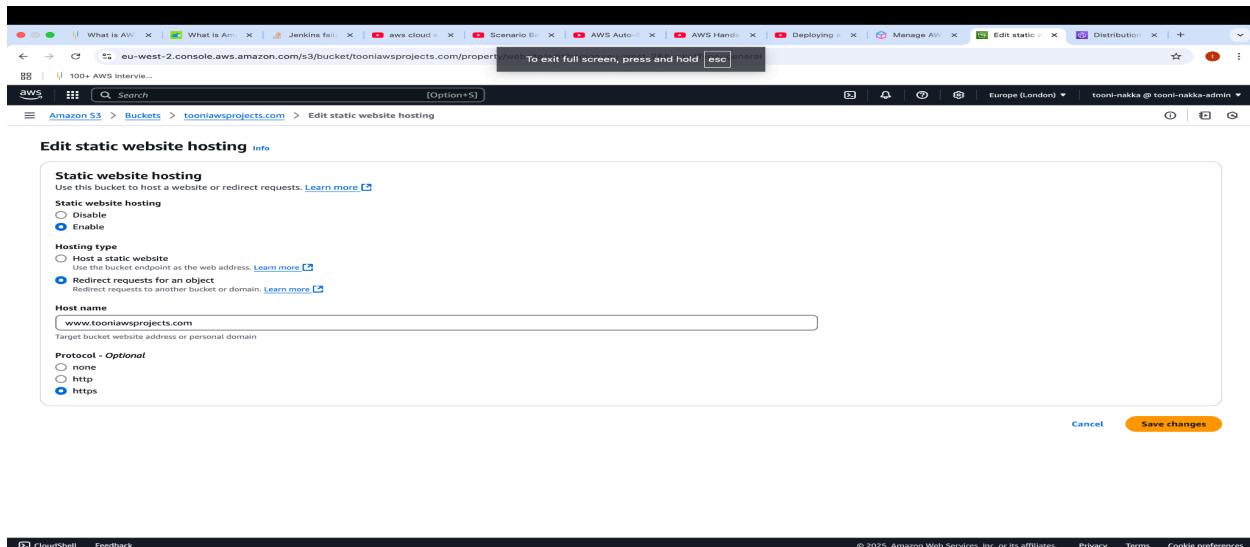
ID	Status	Description	Type	Domain Name	Alternative Domain Name	Origins	Last modified
E1H7Y2IA00SDKO	Enabled	-	Standard	d2py...	tooniawsproject	tooniawsproject	May 13, 2025, 02:05 PM GMT+1
E2QXZXL2V3IW37	Enabled	-	Standard	d2vfd...	www.tooniawsp	www.tooniawsp	May 13, 2025, 02:02 PM GMT+1

Buttons for Enable, Disable, Delete, and Create distribution are visible at the top right of the table.

This screenshot is identical to the one above, showing the AWS CloudFront Distributions page with the same list of distributions and interface elements.

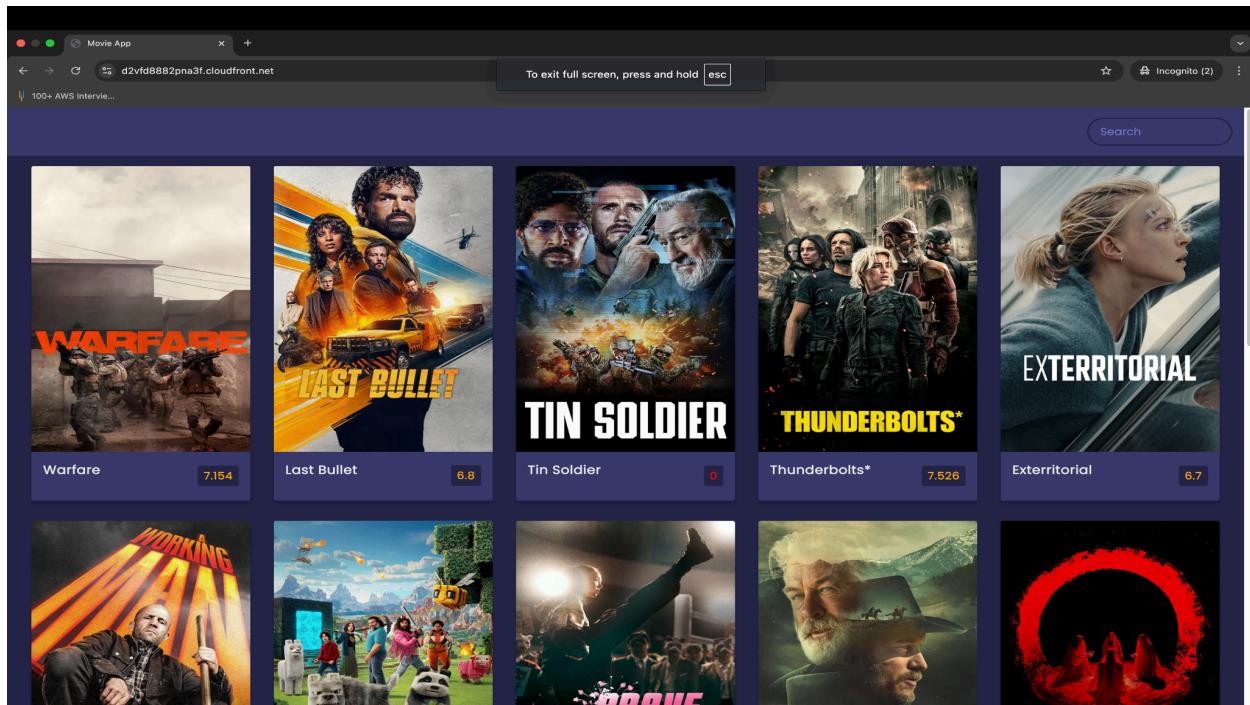
6.3 Change the Protocol to HTTPS in Amazon S3

- Go back to S3, select the www.tooniawsprojects.com bucket
- Go to the properties, and edit the static website hosting
- Change the Protocol from HTTP to HTTPS.



6.4 Test the Website

- Copy the Domain name from the CloudFront Distribution of www.tooniawsprojects.com.
- Run the Domain name on the browser.



- As you can see in the above picture, the website is successfully running, we're getting the response from the HTTPS protocol, and the website is secured with an SSL Certificate, but we've to change the domain name to our created hostname. We will do that in the next step.

Step 7: Changing the Domain Name

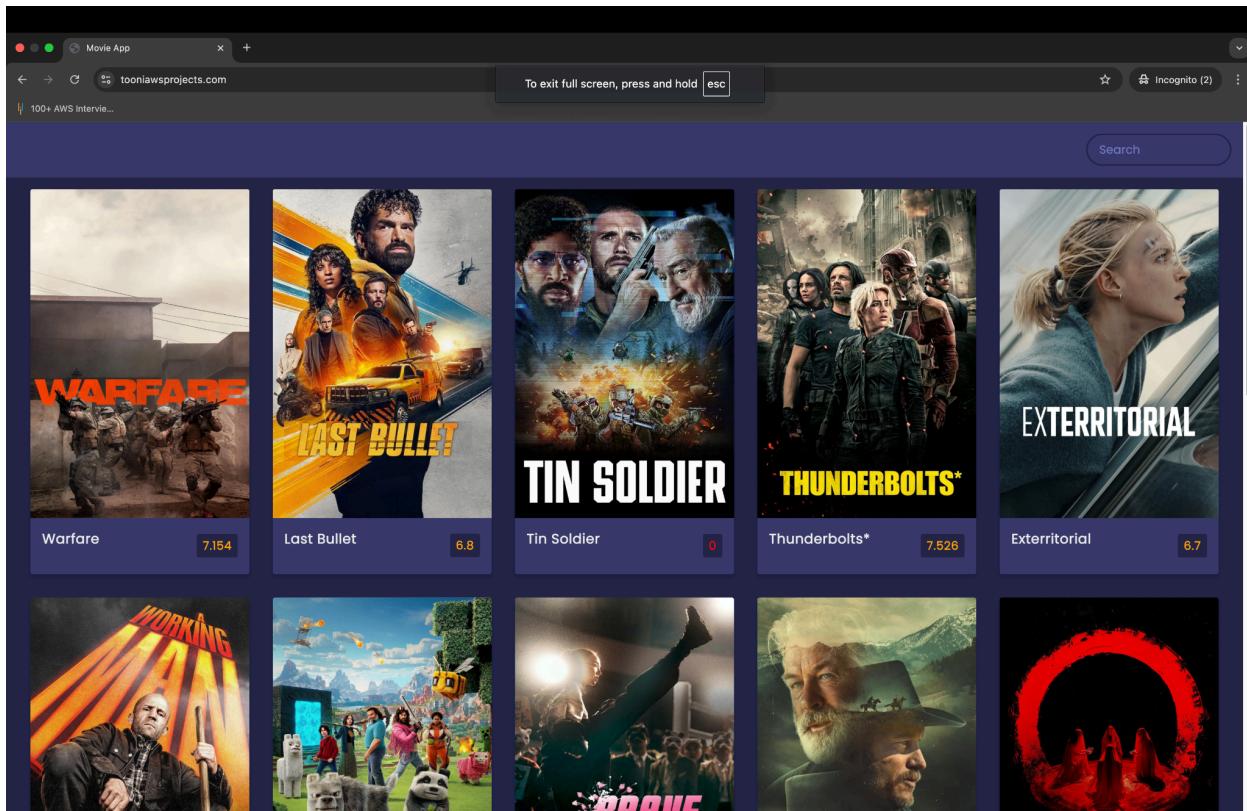
7.1 Edit the A record in the Route 53

- Go to Amazon Route 53
- Select the **A-type** record of both records
 - [tooniawsprojects.com](#)
 - [www.tooniawsprojects.com](#)
- Edit the records
 - Change the Route Traffic to
 - From **Alias S3 end to Alias CloudFront Distribution.**

Record ...	Type	Routin...	Differ...	Alias	Value/Route traffic to	TTL (s...)	Health ...	Evaluat...	Record ID
tooniawsp...	A	Simple	-	Yes	d2py1r6j6x12q.cloudfront.net.	-	-	No	-
tooniawsp...	NS	Simple	-	No	ns-857.awsdns-43.net. ns-97.awsdns-12.com. ns-1743.awsdns-25.co.uk. ns-1344.awsdns-40.org.	172800	-	-	-
tooniawsp...	SOA	Simple	-	No	ns-857.awsdns-43.net.awsd...	900	-	-	-
64ccb9fd...	CNAME	Simple	-	No	f9e43549e5f7dc76516dc7...	300	-	-	-
www.toon...	A	Simple	-	Yes	s3.website.eu-west-2.amazo...	-	-	No	-
_36c6931...	CNAME	Simple	-	No	_3d731668373345f9fdab9...	300	-	-	-

7.2 Test the Website

- Now, finally, test the website using the created hostname (www.tooniawsprojects.com).



📦 Deliverables

- **Live Website:** Accessible at <https://www.example.com>.
- **CloudFront Distribution:** Configured with your S3 bucket as the origin and SSL certificate attached.
- **SSL Certificate:** Issued and active in ACM.
- **Route 53 Configuration:** DNS records pointing your domain to the CloudFront distribution.

🐱 GitHub:

- You can find a complete document and static website files in the GitHub repo below
 - https://github.com/Tooninakka/aws_static_web_hosting