



# Deploying a Static Website on AWS S3 Bucket

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|--------------------------------------|-----------|
| <b>Introduction</b>                  | <b>2</b>  |
| <b>Methodology</b>                   | <b>2</b>  |
| Flow Diagram                         | 2         |
| <b>Procedure</b>                     | <b>2</b>  |
| a) Configuration:                    | 2         |
| b) Upload Website Files:             | 5         |
| c) Domain Configuration:             | 7         |
| d) Security and performance          | 13        |
| Cloud front                          | 17        |
| connect Route 53 with the Cloudfront | 21        |
| <b>Conclusion</b>                    | <b>23</b> |

## Introduction

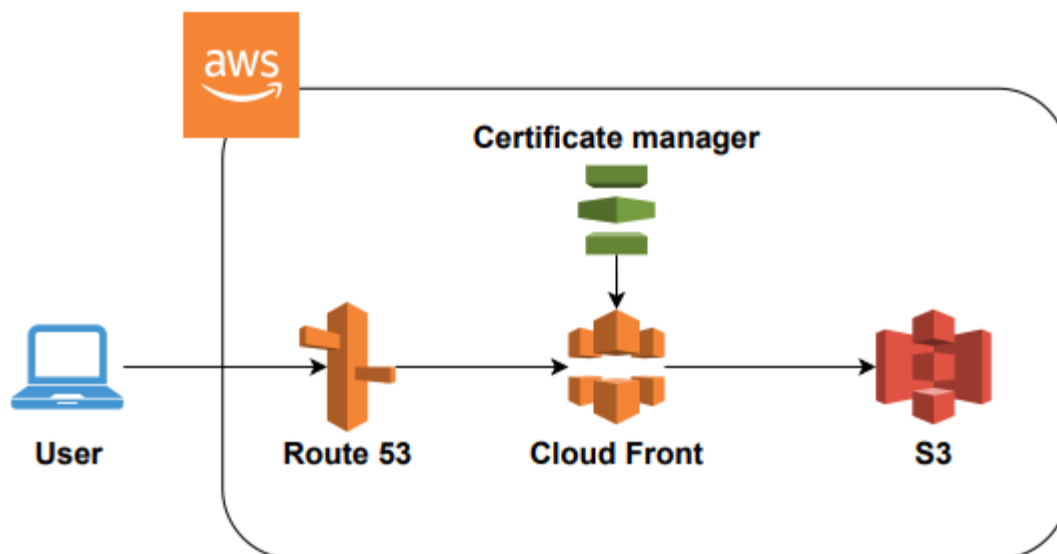
The document shows how to deploy a static website on AWS using the instructions provided in the task

## Methodology

Given below are general steps for the procedure

1. The first step is to create an S3 bucket and save the files as objects in the bucket also make it publicly accessible
2. Create and configure a domain name and create hosted zones using Route53
3. Create a cloud-front distribution and attach a certificate using aws certificate manager to secure the site
4. Connect route53 to cloudfront

## Flow Diagram



## Procedure

Following are detailed steps

### a) Configuration:

- The first step is to create an S3 bucket and give it the same name as the domain name because the DNS server will only know to route requests to the S3 bucket if the name of the bucket matches the name of the domain.

Amazon S3 > Buckets > Create bucket

## Create bucket [Info](#)

Buckets are containers for data stored in S3. [Learn more](#)

### General configuration

Bucket name

●●●●●●●●.online

Bucket name must be globally unique and must not contain spaces or uppercase letters. [See rules for bucket naming](#)

AWS Region

US East (N. Virginia) us-east-1 ▼

Copy settings from existing bucket - *optional*  
Only the bucket settings in the following configuration are copied.

[Choose bucket](#)

### Object Ownership [Info](#)

- Uncheck the block all public access as we have to make a public website

☐ **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.

**Turning off block all public access might result in this bucket and the objects within becoming public**

AWS recommends that you turn on block all public access, unless public access is required for specific and verified use cases such as static website hosting.

☒ I acknowledge that the current settings might result in this bucket and the objects within becoming public.

- Note that the bucket isn't publicly accessible yet so we have to create a new policy that allows the public to get the object and in the resource add the arn of the bucket, it can also be created using the policy generator.

## Policy

```

1 {
2     "Version": "2012-10-17",
3     "Statement": [
4         {
5             "Sid": "PublicReadGetObject",
6             "Effect": "Allow",
7             "Principal": "*",
8             "Action": [
9                 "s3:GetObject"
10            ],
11            "Resource": [
12                "arn:aws:s3:::codistancodestore/*"
13            ]
14        }
15    ]
16 }
```

## b) Upload Website Files:

- Upload the index.html file for the website in my case i also added the folder containing an image which is optional

```

<!DOCTYPE html>
<html>
<head>
<title>Codistan Ventures Task</title>
<style>
    body {
        font-family: Arial, sans-serif;
        margin: 0;
        padding: 20px;
    }
    h1 {
        color: #333;
    }
</style>
</head>
<body>
<h1>Welcome to My Static Website!</h1>
<p>Codistan ventures task.</p>

</body>
</html>
```

- Upload the files

The screenshot shows the Amazon S3 'Upload' page for a bucket named 'my-bucket'. The breadcrumb navigation is 'Amazon S3 > Buckets > my-bucket > Upload'. The main heading is 'Upload' with an 'Info' link. Below this, a message states: 'Add the files and folders you want to upload to S3. To upload a file larger than 160GB, use the AWS CLI, AWS SDK or Amazon S3 REST API. [Learn more](#)'. A dashed box contains the instruction: 'Drag and drop files and folders you want to upload here, or choose **Add files**, or **Add folders**.' Below this is a section titled 'Files and folders (2 Total, 8.6 KB)' with 'Remove', 'Add files', and 'Add folder' buttons. A search bar with the placeholder 'Find by name' and a pagination control '< 1 >' are present. A table lists the uploaded items:

| <input type="checkbox"/> | Name         | Folder  | Type      | Size    |
|--------------------------|--------------|---------|-----------|---------|
| <input type="checkbox"/> | index.html   | -       | text/html | 388.0 B |
| <input type="checkbox"/> | taskcods.png | images/ | image/png | 8.2 KB  |

At the bottom, there is a 'Destination' section.

- After uploading the files create the bucket and go to the properties section scroll down and at the end, there will be an option for static website hosting enable it using the edit button
- In the index document write the name of the HTML file that was uploaded to the S3 bucket

## Static website hosting

Use this bucket to host a website or redirect requests. [Learn more](#)

### Static website hosting

- ☐ Disable
- ☒ Enable

### Hosting type

- ☒ Host a static website  
Use the bucket endpoint as the web address. [Learn more](#)
- ☐ Redirect requests for an object  
Redirect requests to another bucket or domain. [Learn more](#)

**i** For your customers to access content at the website endpoint, you must make all your content publicly readable. To do so, you can edit the S3 Block Public Access settings for the bucket. For more information, see [Using Amazon S3 Block Public Access](#)

### Index document

Specify the home or default page of the website.

### Error document - optional

This is returned when an error occurs.

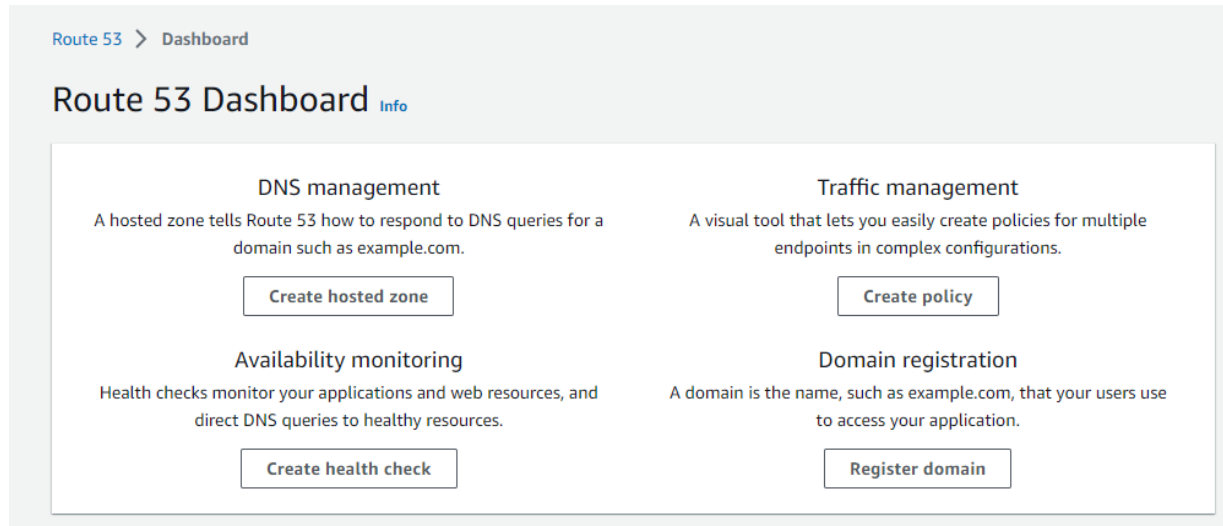
## c) Domain Configuration:

- Select the domain where you want to host the website I purchased the domain from Godaddy website

The screenshot shows the Godaddy website dashboard. On the left is a sidebar menu with options: Dashboard, Domain, Website, Email, Marketing, Commerce (marked NEW), and Deals (marked NEW). The main content area features a large blue banner with the text "Create a Coming Soon page in minutes. Start getting visitors and testing your ideas on codistantask0998.online" and a "Get Started" button. To the right of the banner, there's a "Go to My Products" link, a "Brand" section with "My Business" and "codistantask0998.online", a "Find a New Domain" search bar, and a "Quick Links" section.



- Now we have to create a hosted zone for the domain to connect it with the S3 bucket for that purpose go to route53 and select Create a hosted zone



- In the domain name add the name of the registered domain
- In the type select public hosted zone as it is publicly accessible.

### Hosted zone configuration

A hosted zone is a container that holds information about how you want to route traffic for a domain, such as example.com, and its subdomains.

**Domain name** [Info](#)  
This is the name of the domain that you want to route traffic for.

Valid characters: a-z, 0-9, ! \* # \$ % & ' ( ) \* + , - / : ; < = > ? @ [ \ ] ^ \_ ` { | } . ~

**Description - optional** [Info](#)  
This value lets you distinguish hosted zones that have the same name.

The description can have up to 256 characters. 0/256

**Type** [Info](#)  
The type indicates whether you want to route traffic on the internet or in an Amazon VPC.

☒ **Public hosted zone**  
A public hosted zone determines how traffic is routed on the internet.

☐ **Private hosted zone**  
A private hosted zone determines how traffic is routed within an Amazon VPC.

**Tags** [Info](#)  
Apply tags to hosted zones to help organize and identify them.

- Now we have to configure the name servers of our Godaddy domain for that purpose go to the route53 service and select Create a hosted zone, in the section copy the Name servers provided by AWS.

online was successfully created.  
Now you can create records in the hosted zone to specify how you want Route 53 to route traffic for your domain.

Public example.online Info Delete zone Test record Configure query logging

Hosted zone details Edit hosted zone

Records (2) DNSSEC signing Hosted zone tags (0)

Records (2) Info  
Automatic mode is the current search behavior optimized for best filter results. To change modes go to settings.

Refresh Delete record Import zone file Create record

Filter records by property or value Type Routing pol... Alias < 1 >

| Record ...                          | Type | Routin... | Differ... | Alias | Value/Route traffic to  |
|-------------------------------------|------|-----------|-----------|-------|---|
| <input type="checkbox"/> example... | NS   | Simple    | -         | No    | ns-348.awsdns-43.com,<br>ns-1452.awsdns-53.org,<br>ns-1922.awsdns-48.co.uk,<br>ns-675.awsdns-20.net |
| <input type="checkbox"/> example... | SOA  | Simple    | -         | No    | ns-348.awsdns-43.com. awsd...   |

Ln 4, Col 22 100% Windows (CRLF)

- Now go to the Godaddy website and in the domain tab select Nameservers and click on change Nameservers

Domain Portfolio

example.online Use My Domain

Overview DNS Products

DNS Records Forwarding Nameservers Premium DNS Hostnames

Nameservers determine where your DNS is hosted and where you add, edit or delete your DNS records.

Using default nameservers Change Nameservers

Nameservers ?

ns27.domaincontrol.com

ns28.domaincontrol.com

- Click on the second option and paste the Nameservers provided by AWS

## Edit nameservers

Choose nameservers for [redacted].online

☐ GoDaddy Nameservers (recommended)

☒ I'll use my own nameservers

ns-348.awsdns-43.com.

ns-1452.awsdns-53.org.

ns-1922.awsdns-48.co.uk.

ns-675.awsdns-20.net.

[+ Add Nameserver](#)

**Save** **Cancel**

Use My

\*Untitled - Notepad

File Edit Format View Help

ns-348.awsdns-43.com.  
ns-1452.awsdns-53.org.  
ns-1922.awsdns-48.co.uk.  
ns-675.awsdns-20.net.

Ln 4, Col 1 100% Windows (CRLF)

- Go to route 53 and under the hosted zone Click on create record. Select record type A and click on Alias.
- Select the S3 endpoint and click on create records.

**Create record** [Info](#)

**Quick create record** [Switch to wizard](#)

▼ Record 1 [Delete](#)

Record name [Info](#)  Keep blank to create a record for the root domain.

Record type [Info](#) A - Routes traffic to an IPv4 address and some AWS resources

☒ Alias

Route traffic to [Info](#)

Alias to S3 website endpoint

US East (N. Virginia) [us-east-1]

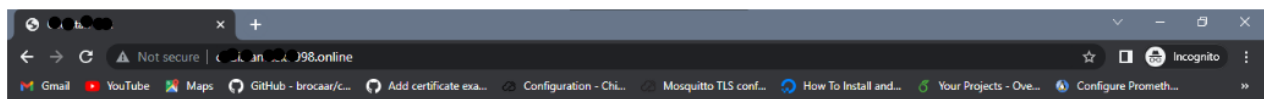
Routing policy [Info](#) Simple routing

Evaluate target health ☒ Yes

[Add another record](#)

[Cancel](#) [Create records](#)

- Copy the domain name and enter it into the browser to see the static website (Note that if the page isn't updating paste the domain name in an incognito tab)



**Welcome to My Static Website!**

## d) Security and performance

- Note that the static website isn't secure and to secure it we have to add the certificate.

- For that purpose go to the certificate manager and click on request certificate under the certificates tab and select the public certificate

**View all of your certificates** ×  
acm:ListCertificates now supports more details in each certificate summary. You can also view up to 500 certificates per page in the certificates table. Click the gear icon in the list certificates page to set your table preferences. [Learn more](#) and [let us know what you think](#).

AWS Certificate Manager > Certificates > Request certificate

## Request certificate

**Certificate type** [Info](#)

ACM certificates can be used to establish secure communications access across the internet or within an internal network. Choose the type of certificate for ACM to provide.

- ☒ **Request a public certificate**  
Request a public SSL/TLS certificate from Amazon. By default, public certificates are trusted by browsers and operating systems.
- ☐ **Request a private certificate**  
No private CAs available for issuance.

Requesting a private certificate requires the creation of a private certificate authority (CA). To create a private CA, visit [AWS Private Certificate Authority](#).

Cancel **Next**

- Enter the domain name and note that you can also add tags which are optional but it is better to add tags as it helps to identify the details. Select the DNS validation option.

## Request public certificate

**Domain names**  
 Provide one or more domain names for your certificate.

Fully qualified domain name [Info](#)  
  

Add another name to this certificate

You can add additional names to this certificate. For example, if you're requesting a certificate for "www.example.com", you might want to add the name "example.com" so that customers can reach your site by either name.

**Validation method** [Info](#)  
 Select a method for validating domain ownership.

☒ **DNS validation - recommended**  
 Choose this option if you are authorized to modify the DNS configuration for the domains in your certificate request.

☐ **Email validation**  
 Choose this option if you do not have permission or cannot obtain permission to modify the DNS configuration for the domains in your certificate request.

**Key algorithm** [Info](#)  
 Select an encryption algorithm. Some algorithms may not be supported by all AWS services.

☒ **RSA 2048**  
 RSA is the most widely used key type.

☐ **ECDSA P 256**  
 Equivalent in cryptographic strength to RSA 3072.

☐ **ECDSA P 384**  
 Equivalent in cryptographic strength to RSA 7680.

- Copy the CNAME name as it will be used to create the new record

**Certificate status**

Identifier  
 c15f0c58-b29b-40d7-bbca-8de081fe3b97

Status  
 Pending validation [Info](#)

ARN  
 arn:aws:acm:us-east-1:928607174033:certificate/c15f0c58-b29b-40d7-bbca-8de081fe3b97

Type  
 Amazon Issued

**Domains (1)**

Create records in Route 53

Export to CSV

| Domain      | Status             | Renewal status | Type  | CNAME value   |
|-------------|--------------------|----------------|-------|---|
| 0998.online | Pending validation | -              | CNAME | <div>Copied to clipboard</div> _a6fccf31a2ef327a00b0614564e2df06.0998.online. |

**Details**

| In use | Serial number | Requested at | Renewal eligibility |
|--------|---------------|--------------|---------------------|
|        |               |              |                     |

- Now go to the certificate will be created and for it's validation we have to create a new record route53 section and select the create record

Route 53 > Hosted zones > 0998.online > Create record

## Create record [Info](#)

**Quick create record** [Switch to wizard](#)

▼ Record 1 [Delete](#)

Record name [Info](#)  codistantask0998.online  
Keep blank to create a record for the root domain.

Record type [Info](#)

☒ Alias

Value [Info](#)

Enter multiple values on separate lines.

TTL (seconds) [Info](#)      
Recommended values: 60 to 172800 (two days)

Routing policy [Info](#)

[Add another record](#)

- Paste the CNAME name in the record name section and cut ".codistantask0998.online" as it is already present



Route 53 > Hosted zones > .codistantask0998.online > Create record

## Create record [Info](#)

**Quick create record** [Switch to wizard](#)

▼ Record 1 [Delete](#)

Record name [Info](#)  .codistantask0998.online  
Keep blank to create a record for the root domain.

Record type [Info](#) A – Routes traffic to an IPv4 address and some AWS resources ▼

☒ Alias

Value [Info](#)

Enter multiple values on separate lines.

TTL (seconds) [Info](#)  1m 1h 1d Routing policy [Info](#) Simple routing ▼

Recommended values: 60 to 172800 (two days)

[Add another record](#)

- Select the record type as CNAME and in the value tab enter the CNAME value from the certificate.

**Quick create record** [Switch to wizard](#)

▼ Record 1 [Delete](#)

Record name [Info](#)  .codistantask0998.online  
Keep blank to create a record for the root domain.

Record type [Info](#) CNAME – Routes traffic to another domain name and to some AWS res... ▼

☒ Alias

Value [Info](#)

Enter multiple values on separate lines.

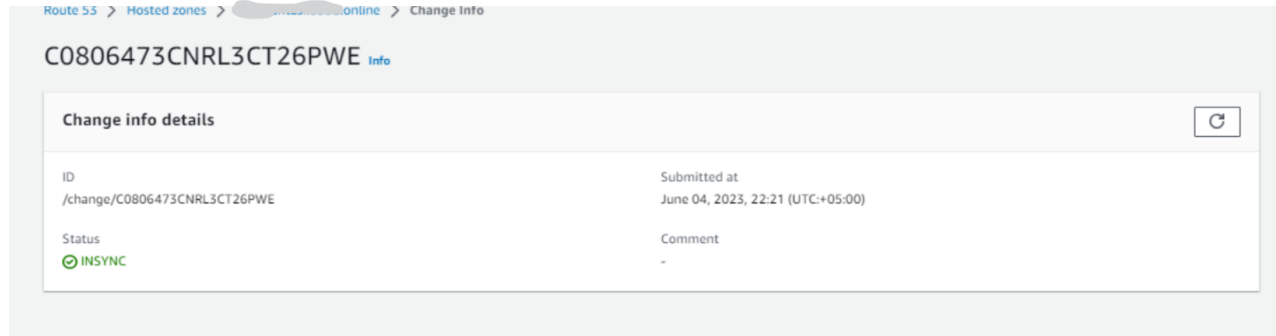
TTL (seconds) [Info](#)  1m 1h 1d Routing policy [Info](#) Simple routing ▼

Recommended values: 60 to 172800 (two days)

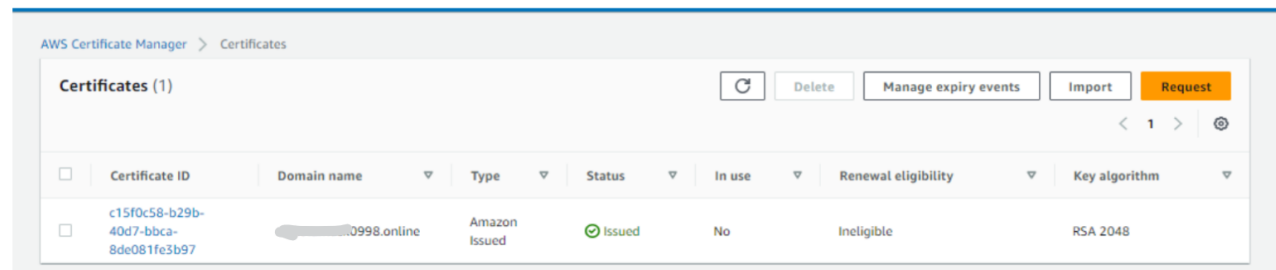
[Add another record](#)

[Cancel](#) [Create records](#)

- Click on the create records option note that after a few minutes, the status changes from pending to in sync



- Go to the certificates tab and it will change the status to issued after a few minutes.



## Cloud front

The Cloudfront service is used to deliver content such as web pages etc with low latency and higher transfer speeds

- now we have to attach the certificate to the Cloudfront distribution for that purpose go to the create distribution tab in the original domain and select the static website endpoint that was provided in the properties section of the s3 bucket
- It will appear automatically in the Drop down menu
- Also, select the use website endpoint option

## Create distribution

### Origin

Origin domain  
Choose an AWS origin, or enter your origin's domain name.

Protocol [Info](#)

☒ HTTP only

☐ HTTPS only

☐ Match viewer

HTTP port  
Enter your origin's HTTP port. The default is port 80.

HTTPS port  
Enter your origin's HTTPS port. The default is port 443.

Minimum origin SSL protocol [Info](#)  
The minimum SSL protocol that CloudFront uses with the origin.

☒ TLSv1.2

☐ TLSv1.1

- In the viewer protocol policy select the redirect HTTP to HTTPS option

## Viewer

### Viewer protocol policy

- ☐ HTTP and HTTPS
- ☒ Redirect HTTP to HTTPS
- ☐ HTTPS only

### Allowed HTTP methods

- ☒ GET, HEAD
- ☐ GET, HEAD, OPTIONS
- ☐ GET, HEAD, OPTIONS, PUT, POST, PATCH, DELETE

### Restrict viewer access

If you restrict viewer access, viewers must use CloudFront signed URLs or signed cookies to access your content.

- ☒ No
- ☐ Yes

## Cache key and origin requests

We recommend using a cache policy and origin request policy to control the cache key and origin requests.

- ☒ Cache policy and origin request policy (recommended)
- ☐ Legacy cache settings

### Cache policy

Choose an existing cache policy or create a new one.

CachingOptimized

Recommended for S3 ▼

Policy with caching enabled. Supports Gzip and Brotli compression.

[Create cache policy](#) [View policy](#)

- In the custom SSL certificate option select the certificate that was previously created.
- In the alternate domain name select the domain name.
- In the default root object type index.html which was the html file.
- Click on Create distribution

CloudFront > Distributions > E3MS47VDLOR7IN

## E3MS47VDLOR7IN

[View metrics](#)

[General](#) | [Origins](#) | [Behaviors](#) | [Error pages](#) | [Geographic restrictions](#) | [Invalidations](#) | [Tags](#)

### Details

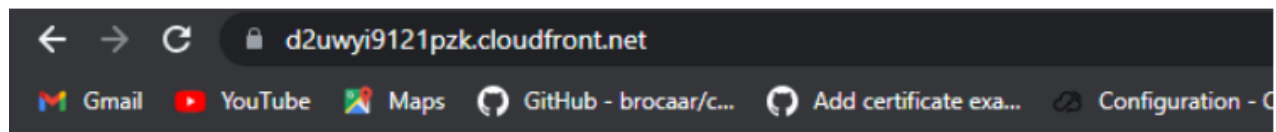
|  |   |   |
|--|---|---|
| Distribution domain name<br>d2uwyi9121pzk.cloudfront.net | ARN<br>arn:aws:cloudfront::928607174033:distribution/E3MS47VDLOR7IN | Last modified<br>June 4, 2023 at 5:47:05 PM UTC |
|--|---|---|

### Settings

[Edit](#)

|  |   |                                   |
|--|---|-----------------------------------|
| Description<br>-   | Alternate domain names<br>codistantask0998.online | Standard logging<br>Off           |
| Price class<br>Use all edge locations (best performance) | Custom SSL certificate<br>codistantask0998.online | Cookie logging<br>Off             |
| Supported HTTP versions<br>HTTP/2, HTTP/1.1, HTTP/1.0    | Security policy<br>TLSv1.2_2021                   | Default root object<br>index.html |
| AWS WAF<br>-   |   |                                   |

- Copy the distribution domain name and paste it in the browser to check if everything has been done correctly.



# Welcome to My Static Website!

## connect Route 53 with the Cloudfront

- Go to route53 and create a new record enable the alias option in the route traffic to option paste the distribution domain name and create records

The screenshot shows the 'Create record' page in the AWS Route 53 console. The breadcrumb trail at the top reads: 'Route 53 > Hosted zones > [redacted]0998.online > Create record'. The main heading is 'Create record' with an 'Info' link. Below this is a 'Quick create record' section with a 'Switch to wizard' link. Under 'Record 1', there is a 'Delete' button. The 'Record name' field contains 'subdomain' and the 'Record type' dropdown is set to 'A - Routes traffic to an IPv4 address and some AWS resources'. The 'Route traffic to' dropdown is set to 'Alias to CloudFront distribution'. The 'Routing policy' dropdown is set to 'Simple routing'. The 'Evaluate target health' toggle is set to 'No'. The 'Alias' checkbox is checked. The 'Route traffic to' dropdown is set to 'US East (N. Virginia)'. The 'Alias to CloudFront distribution' dropdown is set to 'd2uwyi9121pzk.cloudfront.net'. At the bottom, there are 'Cancel' and 'Create records' buttons.

Route 53 > Hosted zones > [redacted]0998.online > Create record

### Create record [Info](#)

**Quick create record** [Switch to wizard](#)

▼ **Record 1** [Delete](#)

Record name [Info](#)  codistantask0998.online Record type [Info](#)

Keep blank to create a record for the root domain.

☒ Alias

Route traffic to [Info](#)

An alias to a CloudFront distribution and another record in the same hosted zone are global and available only in US East (N. Virginia).

Routing policy [Info](#)  Evaluate target health ☐ No

[Add another record](#)

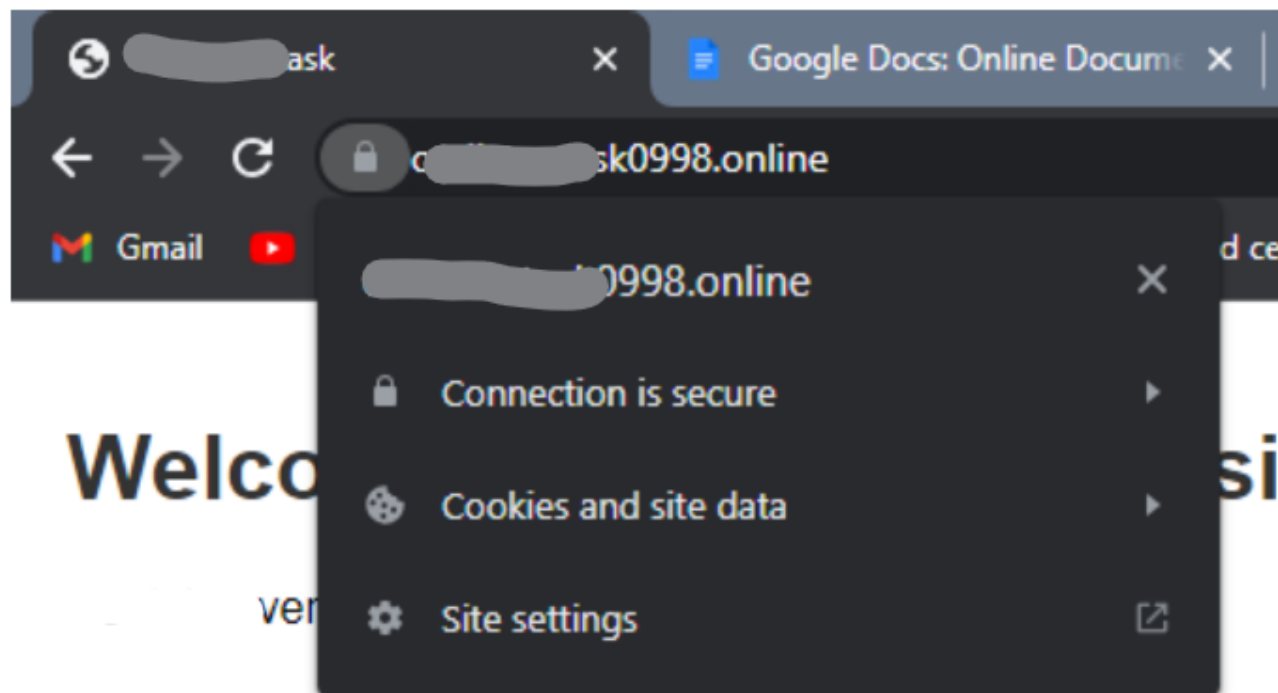
[Cancel](#) [Create records](#)

- After the records have been created copy the domain name

The screenshot shows the AWS Route 53 console for a hosted zone named 'sk0998.online'. The 'Records (4)' tab is selected, displaying a table of DNS records. The first record is an A record for 'codistanta...' pointing to 'd2uwyi9121pzk.cloudfront.net'. The right sidebar shows the 'Record details' for this record, including its type (A), value, and TTL.

| Record  | Type  | Routin... | Differ... | Alias | Value/Route traffic to   | TTL |
|---|-------|-----------|-----------|-------|--|-----|
| <input checked="" type="checkbox"/> codistanta... | A     | Simple    | -         | Yes   | d2uwyi9121pzk.cloudfront.net.  | -   |
| <input type="checkbox"/> ...                      | NS    | Simple    | -         | No    | ns-348.awsdns-43.com,<br>ns-1452.awsdns-53.org,<br>ns-1922.awsdns-48.co.uk,<br>ns-675.awsdns-20.net. | 17. |
| <input type="checkbox"/> ...                      | SOA   | Simple    | -         | No    | ns-348.awsdns-43.com. awsd...  | 90  |
| <input type="checkbox"/> _a6fccf31...             | CNAME | Simple    | -         | No    | _b10a02121d80f37fcae69d...   | 30  |

- Paste the link in the browser and note that the site is now secure



## Conclusion

I have successfully Deploying a Static Website on AWS S3 Bucket with all the conditions mentioned in the manual furthermore here is the link to website