DEPLOYING A WEBSITE ON AWS WITH S3 FOR HOSTING AND CLOUDFRONT.

INTRODUCTION
Amazon S3 is a Cloud-based Storage Service that helps you store and receive files over the internet. It is commonly used for hosting websites, sharing files, storing backups, big data analytics etc. It is secure, reliable, durable and always available.

PREREQUISITES
- AWS Account
- Static website file
- Bucket policy for website access
- AWS S3 Bucket
- AWS CloudFront

STEP 1: CREATE AN AWS ACCOUNT
- Set up your account by signing into AWS Console to create an account or sign in to an already AWS Account.
- On the AWS Console, ensure you have the necessary permissions for S3.
- Navigate to S3 service in the AWS Management Console to create a Bucket.
  (A bucket is a container for storing objects in S3)

STEP 2: CREATE A NEW S3 BUCKET
- Now we need to go to the S3 Console and Click **Create Bucket**.
- Select **General purpose** and enter a **unique bucket name** for the bucket as well as selecting a desired **region**.

Create bucket Info

Buckets are containers for data stored in S3.

General configuration

AWS Region

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

Bucket type | Info

○ **General purpose**
Recommended for most use cases and access patterns. General purpose buckets are the original S3 bucket type. They allow a mix of storage classes that redundantly store objects across multiple Availability Zones.

○ **Directory**
Recommended for low-latency use cases. These buckets use only the S3 Express One Zone storage class, which provides faster processing of data within a single Availability Zone.

Bucket name | Info

hands-onbucket

Bucket name must be unique within the global namespace and follow the bucket naming rules. See rules for bucket naming ↗

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

Choose bucket

Format: s3://bucket/prefix

- Disable **Block all public access** and tick **I acknowledge that the current settings might result in this bucket and object becoming public** to confirm you want to make the bucket public.

☐ **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.

- Enable versioning for tracking file changes (optional). Leave every other setting on default and click **Create bucket** to finish.

Edit static website hosting Info

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 ⬈

ⓘ 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.

index.html

STEP 3: UPLOAD AN OBJECT (a website file)

An Object is a file stored in S3. Each object has a Key (file name), Value (data) and a Metadata.

- Click on the newly created bucket to open the bucket and Click **Upload** to upload a file or folder.

hands-onbucket Info

Objects | Metadata | Properties | Permissions | Metrics | Management | Access Points

Objects (0) ⟳ Copy S3 URI Copy URL ⬇ Download Open ⬈ Delete Actions ▼ Create folder ⬆ Upload

Objects are the fundamental entities stored in Amazon S3. You can use Amazon S3 inventory ⬈ to get a list of all objects in your bucket. For others to access your objects, you'll need to explicitly grant them permissions. Learn more ⬈

🔍 Find objects by prefix   ‹ 1 › ⚙

☐	Name ▲	Type ▽	Last modified ▽	Size ▽	Storage class ▽

No objects
You don't have any objects in this bucket.

⬆ Upload

- Click **Add files** or **Add folders** to add your index.html file or any other file or folder.

Upload Info

Add the files and folders you want to upload to S3. To upload a file larger than 160GB, use the AWS CLI, AWS SDKs or Amazon S3 REST API. Learn more ⧉

Drag and drop files and folders you want to upload here, or choose **Add files** or **Add folder**.

Files and folders (1 total, 309.0 B)

All files and folders in this table will be uploaded.

Remove   Add files   Add folder

	Name	Folder	Type	Size
☐	index.html	-	text/html	309.0 B

< 1 >

Destination Info

Destination

s3://hands-onbucket ⧉

▼ **Destination details**

- Click **Upload** and your file will be successfully uploaded.

STEP 4: ENABLE STATIC WEBSITE HOSTING

A static website is a website that consists of fixed content which displays same information to everyone accessing the website.

- Open the S3 bucket you have created and navigate to **properties** tab.

Default encryption Info

Server-side encryption is automatically applied to new objects stored in this bucket.

Encryption type | Info

- ⦿ Server-side encryption with Amazon S3 managed keys (SSE-S3)
- ○ Server-side encryption with AWS Key Management Service keys (SSE-KMS)
- ○ Dual-layer server-side encryption with AWS Key Management Service keys (DSSE-KMS)
  Secure your objects with two separate layers of encryption. For details on pricing, see **DSSE-KMS pricing** on the **Storage** tab of the Amazon S3 pricing page. ⧉

Bucket Key

Using an S3 Bucket Key for SSE-KMS reduces encryption costs by lowering calls to AWS KMS. S3 Bucket Keys aren't supported for DSSE-KMS. Learn more ⧉

- ○ Disable
- ⦿ Enable

▶ **Advanced settings**

ⓘ After creating the bucket, you can upload files and folders to the bucket, and configure additional bucket settings.

Cancel   Create bucket

mypract Info

Objects | Metadata | **Properties** | Permissions | Metrics | Management | Access Points

Bucket overview

AWS Region	**Amazon Resource Name (ARN)**	**Creation date**
US East (N. Virginia) us-east-1	▢ arn:aws:s3:::mypract	January 31, 2025, 12:02:25 (UTC+13:00)

- Scroll down to static website hosting.

- Choose **Enable** and select **Host static website**. In the Index document, type **index.html**

- Click **Save changes**.

STEP 5: SET BUCKET POLICIES TO MAKE YOUR FILES PUBLIC

Policies are rules that define permissions for users or groups in AWS. Navigate to the bucket created.

- Go to the permission tab and scroll down to bucket policy tab

Bucket policy

Edit   Delete

The bucket policy, written in JSON, provides access to the objects stored in the bucket. Bucket policies don't apply to objects owned by other accounts.
Learn more ↗

No policy to display.   Copy

- Click on Edit to add a JSON policy that will make your files public replacing **your bucket** name with the name of your S3 bucket which was created.
- Click **Save changes** to save the policy updated.

Policy

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

Edit statement

Select a statement

Select an existing statement in the policy or add a new statement.

+ **Add new statement**

STEP 6: ACCESS THE WEBSITE

- Navigate to the **Properties** tab and under the Static website hosting, copy the **bucket website endpoint**.

Static website hosting   Edit

Use this bucket to host a website or redirect requests. Learn more [↗]

ⓘ **We recommend using AWS Amplify Hosting for static website hosting**   Create Amplify app [↗]
   Deploy a fast, secure, and reliable website quickly with AWS Amplify Hosting. Learn more about Amplify
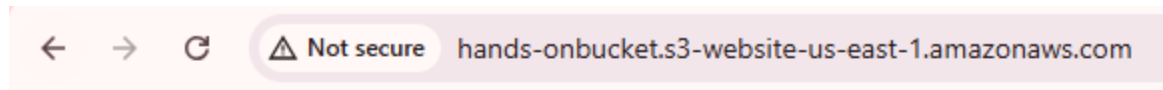   Hosting [↗] or View your existing Amplify apps [↗]

S3 static website hosting
Enabled

Hosting type
Bucket hosting

Bucket website endpoint
When you configure your bucket as a static website, the website is available at the AWS Region-specific website endpoint of the bucket. Learn more [↗]
🗍 http://hands-onbucket.s3-website-us-east-1.amazonaws.com [↗]

- Paste the URL into a new tab in your browser to view your static website.

← → C   ⚠ Not secure   hands-onbucket.s3-website-us-east-1.amazonaws.com

Welcome to My Website

Hosted on Amazon S3 with CloudFront CDN.

STEP 7: CREATE A CLOUDFRONT DISTRIBUTION

CloudFront is a Content Delivery Network (CDN) offered by Amazon Web Services (AWS). It speeds up the delivery of static and dynamic web contents such as html pages, images, videos and APIs to end users by caching the contents at placed edge locations around the world.

- Go to **Amazon CloudFront** Console and click **Create a CloudFront Distribution.**

Networking & Content Delivery

Amazon CloudFront
Securely deliver content with low latency and high transfer speeds

Amazon CloudFront is a fast content delivery network (CDN) service that securely delivers data, videos, applications, and APIs to customers globally with low latency and high transfer speeds.

Get started with CloudFront

Enable accelerated, reliable and secure content delivery for Amazon S3 buckets, Application Load Balancers, Amazon API Gateway APIs, and more in 5 minutes or less.

Create a CloudFront distribution

- Choose S3 website Endpoint as the Origin Domain

☰   CloudFront > Distributions > Create

Create distribution

Origin

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

🔍 hands-onbucket.s3-website-us-east-1.amazonaws.com   ✕

Enter a valid DNS domain name, such as an S3 bucket, HTTP server, or VPC origin ID.

- Select Redirect HTTP to HTTPS as the Viewer protocol policy

Viewer

Viewer protocol policy
○ HTTP and HTTPS
● Redirect HTTP to HTTPS
○ HTTPS only

- Click Create Distribution and wait for deployment.
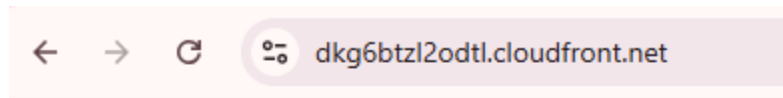
STEP 8: TEST YOUR CLOUDFRONT URL

- Go to the CloudFront Console
- Copy the Distribution Domain Name (it ends with **.cloudfront.net**)

Details

Distribution domain name
🗍 d3bej2140iqhj1.cloudfront.net

- Paste it into your browser and your website should load.

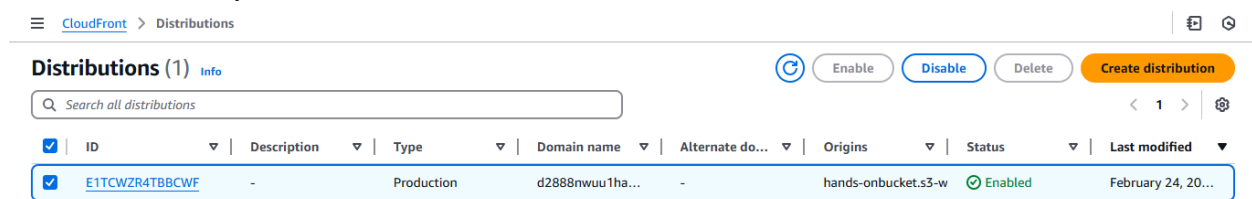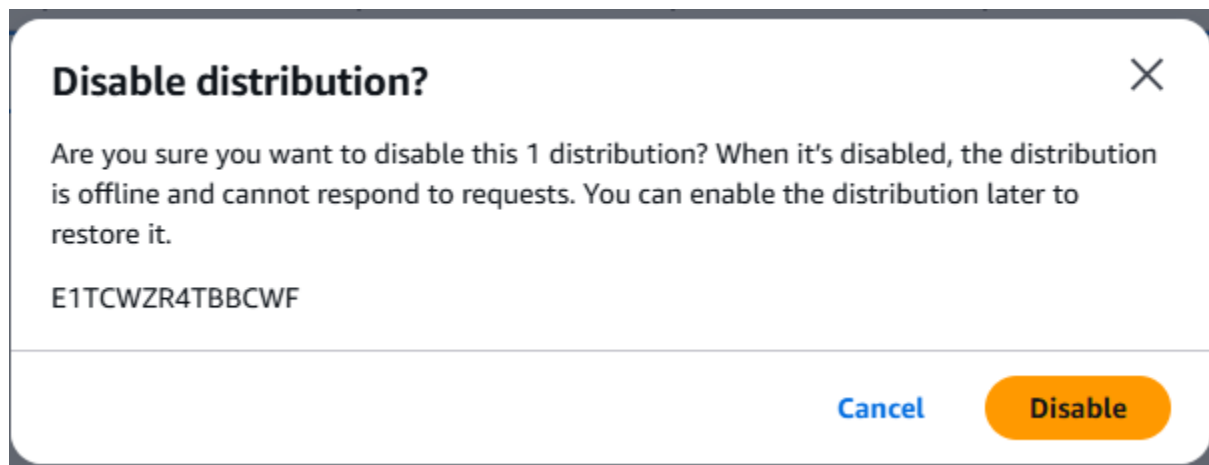← → C 🔒 dkg6btzl2odtl.cloudfront.net

Welcome to My Website

Hosted on Amazon S3 with CloudFront CDN.

STEP 9: DELETE CLOUDFRONT DISTRIBUTION
- Go to **Amazon CloudFront Console**
- Click on your **Distribution**

- Click on Disable (you must disable it before deleting it).

Disable distribution?   ✕

Are you sure you want to disable this 1 distribution? When it's disabled, the distribution is offline and cannot respond to requests. You can enable the distribution later to restore it.

E1TCWZR4TBBCWF

Cancel   **Disable**

- Wait until the status changes to **Disabled**.

- Click **delete** to remove the CloudFront Distribution.

STEP 10: EMPTY THE S3 BUCKET
- Go to the console and open S3.
- Click on the bucket name and select **Empty** to remove all files.

- Confirm by typing **Permanently delete** and clicking **Empty**.

Empty bucket Info

⚠️
- Emptying the bucket deletes all objects in the bucket and cannot be undone.
- Objects added to the bucket while the empty bucket action is in progress might be deleted.
- To prevent new objects from being added to this bucket while the empty bucket action is in progress, you might need to update your bucket policy to stop objects from being added to the bucket.

Learn more ↗

ⓘ If your bucket contains a large number of objects, creating a lifecycle rule to delete all objects in the bucket might be a more efficient way of emptying your bucket. Learn more ↗   [Go to lifecycle rule configuration]

Permanently delete all objects in bucket "hands-onbucket"?

To confirm deletion, type *permanently delete* in the text input field.

| permanently delete |

Cancel   **Empty**

- In the S3, go to the Bucket lists and select the bucket you want to delete.
- Click delete bucket and confirm by typing the Bucket name and clicking "Delete".

Delete bucket Info

⚠️
- Deleting a bucket cannot be undone.
- Bucket names are unique. If you delete a bucket, another AWS user can use the name.
- If this bucket is used with a Multi-Region Access Point in an external account, initiate failover before deleting the bucket.
- If this bucket is used with an access point in an external account, the requests made through those access points will fail after you delete this bucket.
- This bucket is configured to host a static website. We recommend that you clean up the Route 53 hosted zone settings that are related to the bucket.

Learn more ↗

Delete bucket "hands-onbucket"?

To confirm deletion, enter the name of the bucket in the text input field.

| hands-onbucket |

Cancel   **Delete bucket**

CONCLUSION

Amazon S3 provides a simple and reliable way to host a static website with minimal cost and effort. It allows for easy deployment, availability and scalability. With a few configurations, you can quickly deploy a website to a global audience. S3 stores your websites files while CloudFront acts as a Content Delivery Network to deliver content faster worldwide.

By enabling static website hosting on S3, setting proper permissions and linking it to CloudFront, you ensure a secure and optimized web experience. Once everything is set up, your website will be accessible globally with low latency and high availability.

This article serves as an overview, providing steps on how to host a static website on S3 in AWS.