Host a Static Website on Amazon S3

Storage AWS project

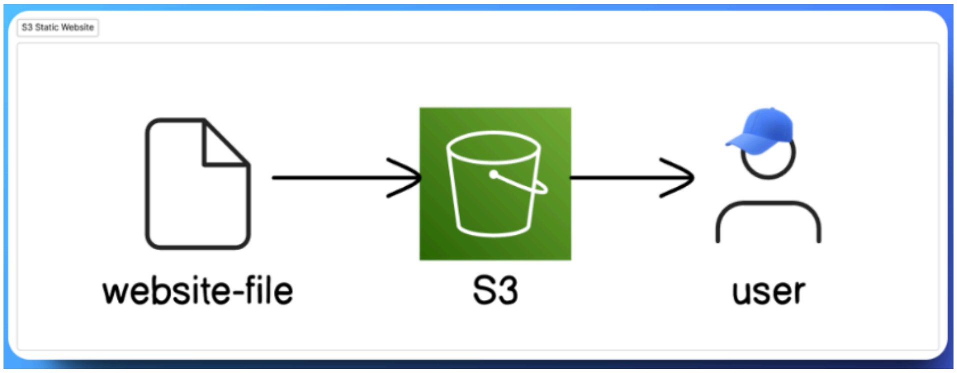
Let's host our own website on Amazon S3!

What we'll need: An AWS account

AWS Services: Amazon S3

Amazon S3 is used to store and retrieve any amount of data at any time from anywhere on the web.

Project Architecture Diagram



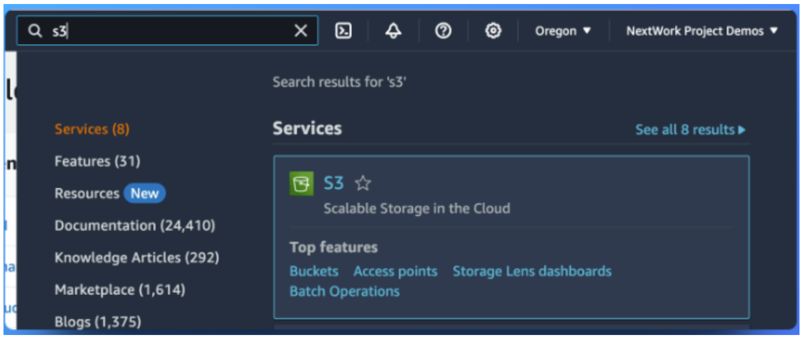
In this project, we're using Amazon S3 which stands for (Amazon Simple Storage Service) to host a website.

Websites are run by files and pictures. We''ll be hosting (which basically means make public on the Internet) a website on Amazon S3 by **uploading website content** into S3 and then making it publicly accessible.

Step 1: Create a bucket in Amazon S3 - Search for S3

Let's start by opening up an iconic AWS service called Amazon S3.

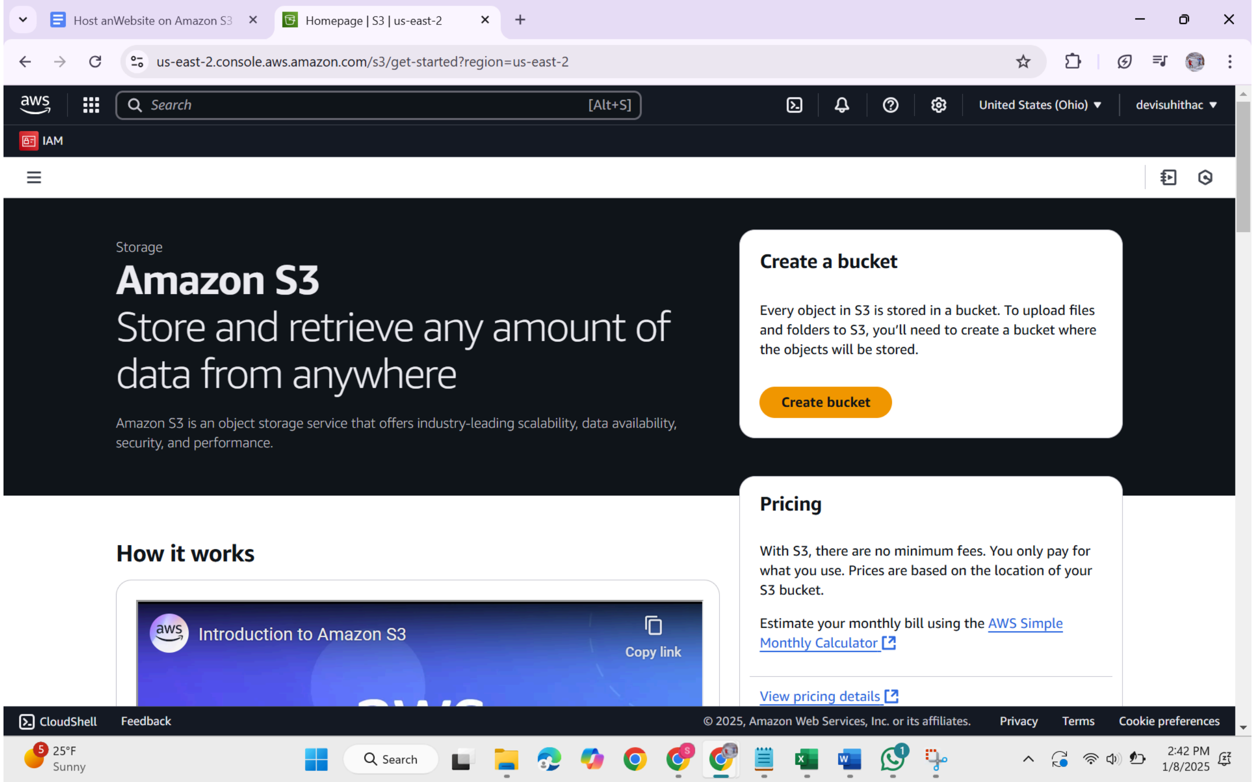
Login into Free AWS account → Go to S3 Bucket console → Create a storage space for our website files.



Select the **AWS region** closest to us. We can find this at the top right corner of our AWS Management Console.

- Choose **Create bucket.**
- For **Bucket name**, enter nextwork-website-project-name
- Make sure to replace our name with our name.

<u>Why can't I keep 'name' in the bucket name?</u>
→ An S3 bucket name is globally unique.



Amazon S3

Store and retrieve any amount of data from anywhere

Amazon S3 is an object storage service that offers industry-leading scalability, data availability, security, and performance.

How it works

Create a bucket

Every object in S3 is stored in a bucket. To upload files and folders to S3, you'll need to create a bucket where the objects will be stored.

Pricing

With S3, there are no minimum fees. You only pay for what you use. Prices are based on the location of your S3 bucket.

Estimate your monthly bill using the AWS Simple Monthly Calculator

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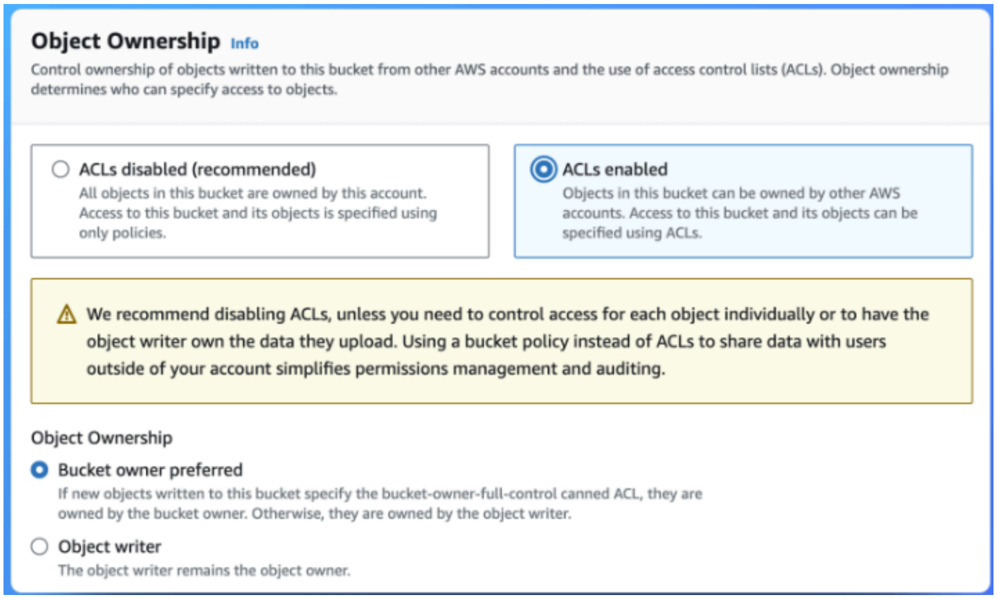
Task - 1

The Region I picked for my S3 bucket was the United States (Ohio) because it is geographically closest to my location, ensuring lower latency and faster access to the hosted website. Additionally, it offers cost-effective storage and supports all the features required for hosting a static website on S3.

2. What does it mean that S3 buckets have to be globally unique?

S3 bucket names are globally unique! This means that no two S3 buckets across any AWS account or region can have the same name. Each bucket name must be distinct across the entire Amazon S3 service to ensure that requests and data are routed correctly to the intended bucket without conflicts or ambiguity.

For **Object Ownership**, choose **ACLs enabled**



Object Ownership Info

Control ownership of objects written to this bucket from other AWS accounts and the use of access control lists (ACLs). Object ownership determines who can specify access to objects.

○ ACLs disabled (recommended)
All objects in this bucket are owned by this account. Access to this bucket and its objects is specified using only policies.

● ACLs enabled
Objects in this bucket can be owned by other AWS accounts. Access to this bucket and its objects can be specified using ACLs.

⚠ We recommend disabling ACLs, unless you need to control access for each object individually or to have the object writer own the data they upload. Using a bucket policy instead of ACLs to share data with users outside of your account simplifies permissions management and auditing.

Object Ownership

● Bucket owner preferred
If new objects written to this bucket specify the bucket-owner-full-control canned ACL, they are owned by the bucket owner. Otherwise, they are owned by the object writer.

○ Object writer
The object writer remains the object owner.

What are ACLs(Access Control Lists)?

An **ACL =** a set of rules that decides who can get access to a resource.

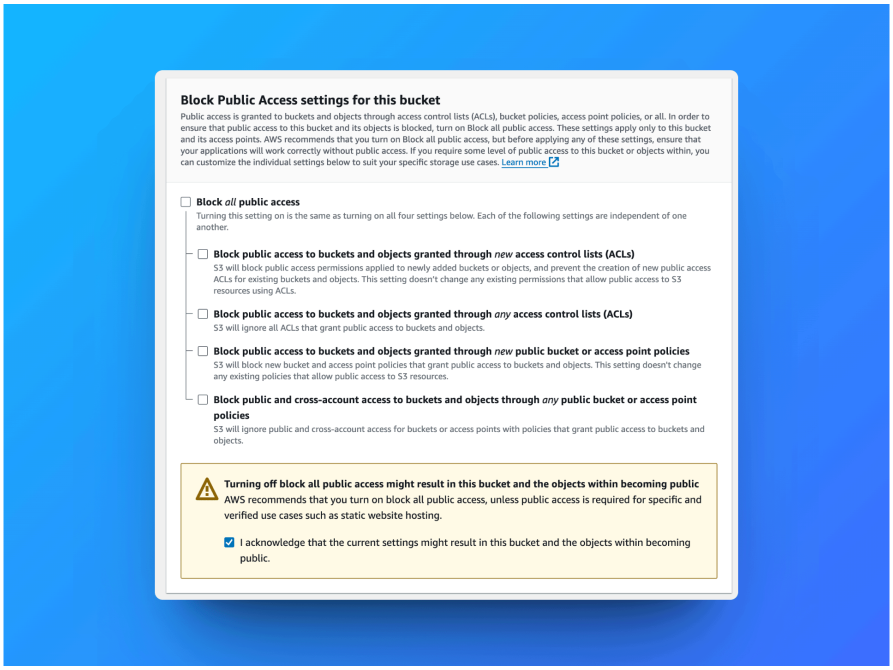
Enabling ACLs in this S3 setup lets us control who can access and do things with the objects(i.e website files) we upload into our bucket.
With ACLs, different AWS accounts can own and control different files in our bucket.

What is the yellow pop up saying?
→ It'll pop up when we enable ACLs. It tells us to use another simple tool called **bucket policies.**

It's true that bucket policies make it really easy to control access for an entire bucket(making the entire bucket and everything inside public), but ACLs are the way to go if we want to manage access for each object in our bucket individually.

Choose **Bucket owner preferred**.

For **Block Public Access settings for this bucket**, clear the check box for **Block all public access**.



Block Public Access settings for this bucket

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 this bucket and its 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 this bucket 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.

⚠ **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.

A yellow banner has popped up!

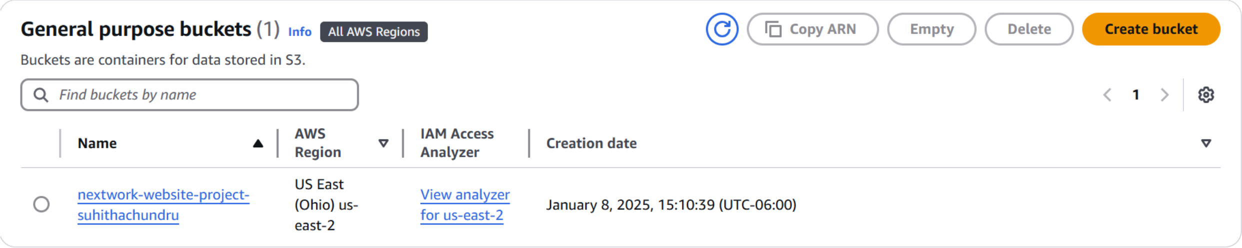
This banner is telling us that the bucket and its objects might become public if we untick the checkbox. This is what we want to host a public website!

Check the box that says **"I acknowledge that the current settings might result in this bucket and the objects within becoming public."**

Step 1: Public access to buckets is blocked by default. Because the files in your static website will need to be accessible through the internet, you must permit public access.

For **Bucket Versioning**, choose **Enable**.

- Choose **Create bucket**



General purpose buckets (1) Info All AWS Regions

Buckets are containers for data stored in S3.

	Name	AWS Region	IAM Access Analyzer	Creation date
○	nextwork-website-project-suhithachundru	US East (Ohio) us-east-2	View analyzer for us-east-2	January 8, 2025, 15:10:39 (UTC-06:00)

Step 1: WOAH - did you see that?! You just created an S3 bucket! This means you've just set up a place that can store a near endless amount of files in the cloud... that's amazing 🙂

Task - 3

How long did it take to create an S3 bucket?
Creating an S3 bucket took me only a few minutes. The process was straightforward, requiring just a few steps: entering a unique bucket name, enabling ACLs, configuring optional settings, and clicking "Create Bucket."

Step 2: Upload Website Content to your bucket

that's our S3 bucket all created. Time to get those website's files inside our bucket! 📑 ➡ 🪣

In this step, get ready to:

- Download an HTML file that sets up our website.
- Download a zip file of images for our website.
- Upload both files into our S3 bucket.

In the **buckets** section, choose the name of our new bucket. Upload these files into our bucket.

What is HTML?

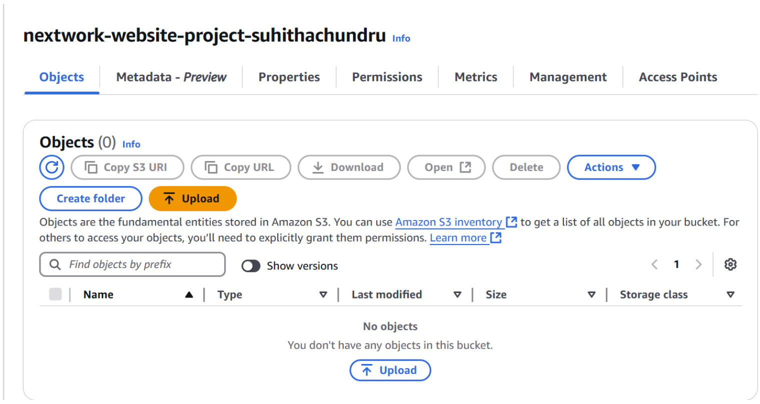
Hyper Text MarkUp Language is used to create & design web pages. It’s our way of telling the website where we want to display our text, images and videos and more.

→ Unzip the zip file we’ve downloaded.

Hot tip: If you're a Windows/Linux user

    1. Click into the unzipped folder
    2. Check whether there's a subfolder inside with the same name.
    3. Upload that subfolder in the next step!

4. Return to the Amazon S3 console with your bucket page open. Choose the **Objects** tab.
5. Choose **Upload**.
6. Choose **Add files**.
7. Choose **index.html**.
8. Choose the Add **folder**.
9. Choose the unzipped folder - NOT the zip file itself!
10. You might get a popup that tells you that all files in that folder will be uploaded.
11. Choose **Upload**.
12. S3 will get to work right away!
13. While we wait for your files to 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

Name	Type	Last modified	Size	Storage class

No objects

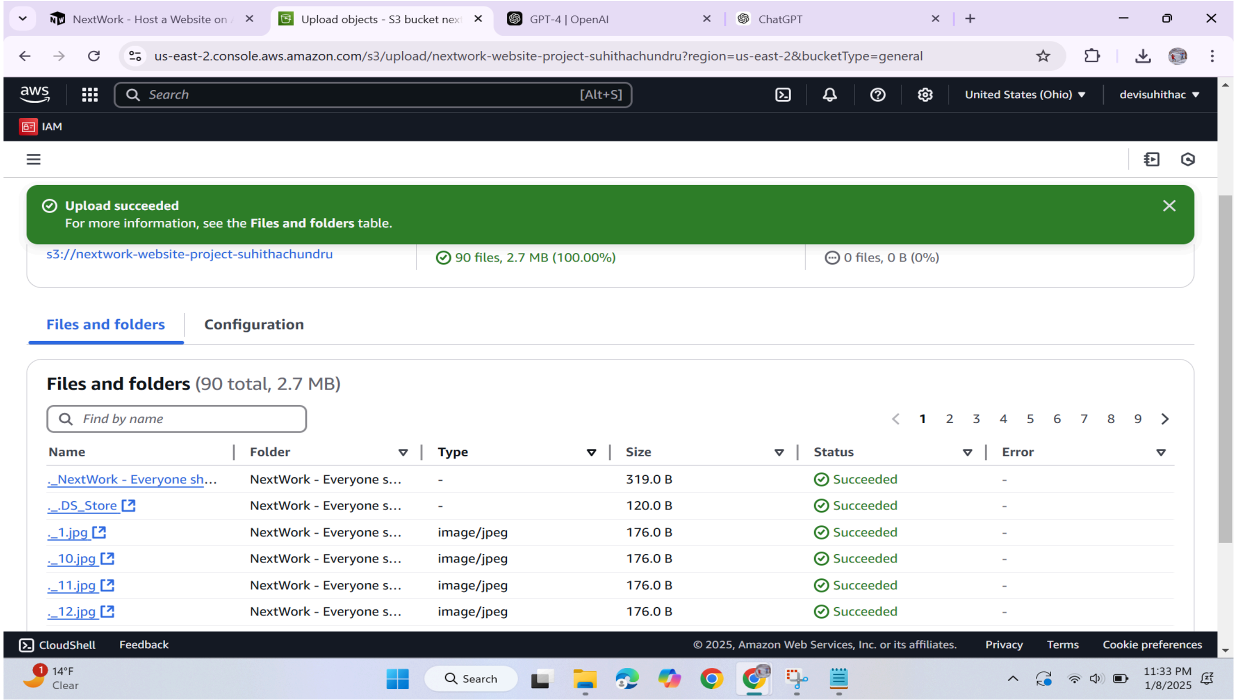
You don't have any objects in this bucket.

What were the two files you uploaded into our bucket?

I uploaded two files to my S3 bucket – they were index.html and NextWork - Everyone...love_files.zip.

Take a guess: How are the two files related, why would you need both?

Both files are necessary for this project as index.html likely serves as the main webpage or entry point for a website, while NextWork - Everyone...love_files.zip might contain additional resources such as images, stylesheets, JavaScript files, or other assets needed to properly display and function the content of the webpage. Together, they form a complete package for a functional and visually appealing web interface.


NextWork - Host a Website on
Upload objects - S3 bucket next
GPT-4 | OpenAI
ChatGPT
us-east-2.console.aws.amazon.com/s3/upload/nextwork-website-project-suhithachundru?region=us-east-2&bucketType=general
aws
Search
[Alt+S]
United States (Ohio)
devisuhithac
IAM

Upload succeeded
For more information, see the Files and folders table.

s3://nextwork-website-project-suhithachundru | 90 files, 2.7 MB (100.00%) | 0 files, 0 B (0%)

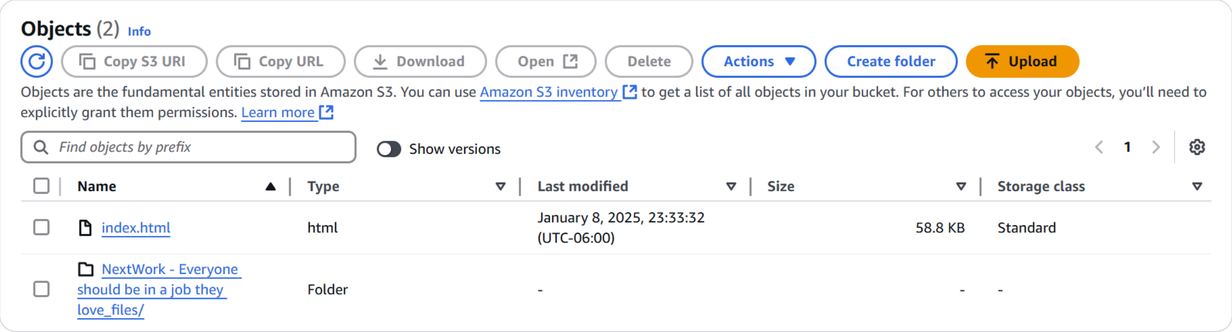
Files and folders
Configuration

Files and folders (90 total, 2.7 MB)

Find by name
1 2 3 4 5 6 7 8 9

Name	Folder	Type	Size	Status	Error
._NextWork - Everyone sh...	NextWork - Everyone s...	-	319.0 B	Succeeded	-
._.DS_Store	NextWork - Everyone s...	-	120.0 B	Succeeded	-
._1.jpg	NextWork - Everyone s...	image/jpeg	176.0 B	Succeeded	-
._10.jpg	NextWork - Everyone s...	image/jpeg	176.0 B	Succeeded	-
._11.jpg	NextWork - Everyone s...	image/jpeg	176.0 B	Succeeded	-
._12.jpg	NextWork - Everyone s...	image/jpeg	176.0 B	Succeeded	-

Step 2: Successfully uploaded our files to our S3 bucket.



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

	Name	Type	Last modified	Size	Storage class
□	index.html	html	January 8, 2025, 23:33:32 (UTC-06:00)	58.8 KB	Standard
□	NextWork - Everyone should be in a job they love_files/	Folder	-	-	-

Step 3: Configure a static website on Amazon S3

S3 bucket? Created.

Website files? Uploaded.

Next up, let's make our website available on the internet by setting up **static website hosting!**

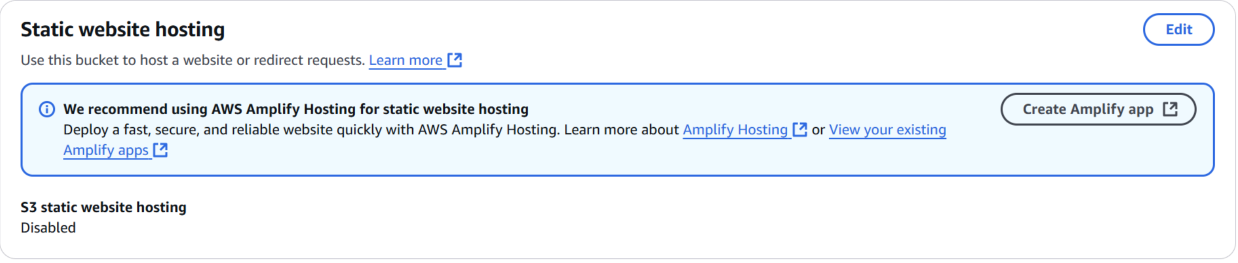
In this step, get ready to:

- Configure my S3 bucket for static website hosting.
- Visit my public website link.

What does website hosting mean?
Website hosting is what makes your website public on the internet.

> Even if you perfect an HTML file, no one else can see it when it's stored as a local file on your computer! Website hosting = storing your HTML file (and the other files for your website) on a web server, so it's accessible online.
>
> By configuring our S3 bucket for hosting, we're telling this bucket: "please create a URL that will take anyone to a page that displays the HTML file I just uploaded."

- Choose the **Properties** tab.
- Scroll allllllllll the way down to the **Static website hosting** panel.
- Choose **Edit**.
- Configure the following settings:
  - **Static web hosting:** Choose **Enable**.
  - **Hosting type:** Choose **Host a static website**.
  - **Index document:** Enter index.html

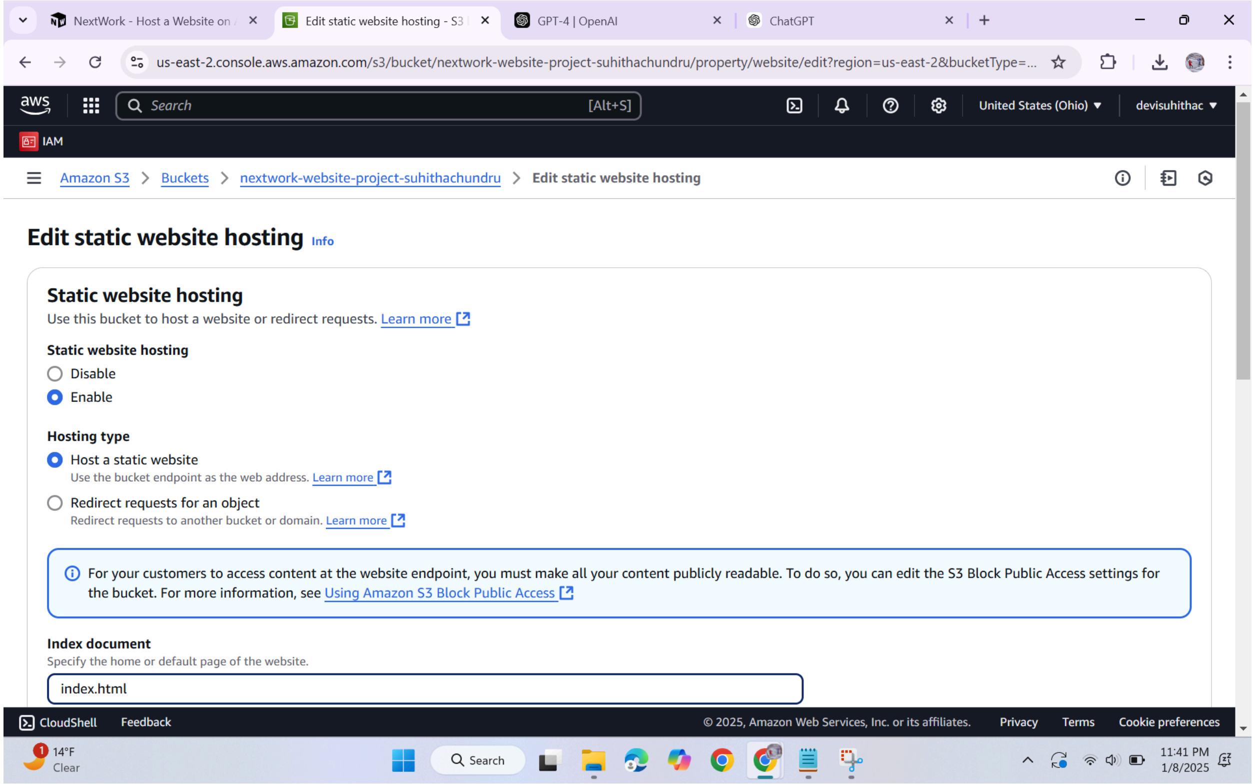


Static website hosting

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

We recommend using AWS Amplify Hosting for static website hosting
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
Disabled


NextWork - Host a Website on
Edit static website hosting - S3
GPT-4 | OpenAI
ChatGPT
us-east-2.console.aws.amazon.com/s3/bucket/nextwork-website-project-suhithachundru/property/website/edit?region=us-east-2&bucketType=...
aws
Search
[Alt+S]
United States (Ohio)
devisuhithac
IAM
Amazon S3 > Buckets > nextwork-website-project-suhithachundru > Edit static website hosting
CloudShell
Feedback
© 2025, Amazon Web Services, Inc. or its affiliates.
Privacy
Terms
Cookie preferences
14°F
Clear
Search
11:41 PM
1/8/2025

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

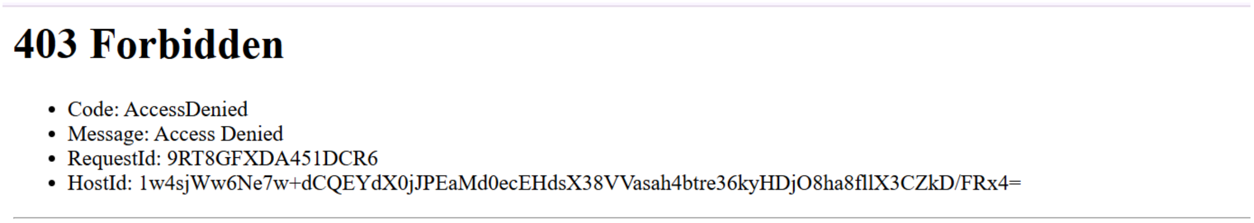
- Choose Save changes.
- In the Static website hosting panel, click on the URL under ***Bucket website endpoint.***

What's a bucket website endpoint?
A bucket website endpoint is just like a regular website URL. It lets people visit your S3 bucket as a website.

When I first visited the bucket endpoint URL, I saw a 403 Forbidden error. The reason for this error is telling us that our static website is being hosted by S3, but the actual HTML/image files you've uploaded are still private.

An error! 👀

The error message we see because your files are still private.



403 Forbidden

- Code: AccessDenied
- Message: Access Denied
- RequestId: 9RT8GFXDA451DCR6
- HostId: 1w4sjWw6Ne7w+dCQEYdX0jJPEaMd0ecEHdsX38VVasah4btre36kyHDjO8ha8flIX3CZkD/FRx4=

Why did I get this error?
Objects (in this case, the HTML and images files you uploaded) are private by default. This default setting helps keep your account's data secure.

The error message we're seeing is telling us that our static website is being hosted by S3, but the actual HTML/image files we've uploaded are still private. It's kind of like having a bucket on display, so everyone can see the bucket - but the contents are covered up, preventing anyone from seeing what's inside.

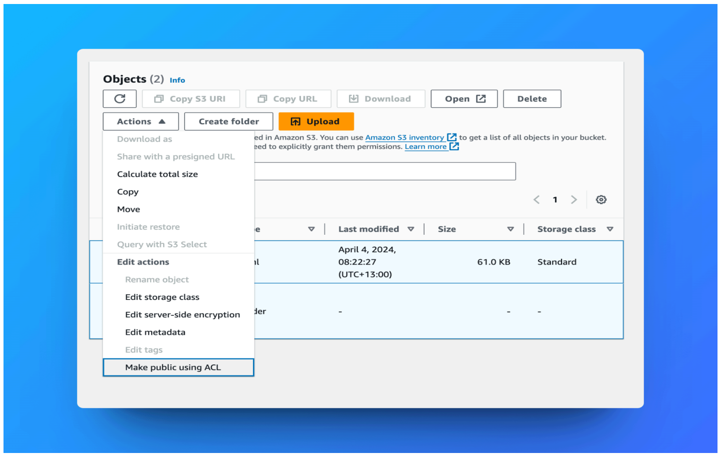
To solve this error, we need to set the permission of the objects to public - this is why we enabled **ACLs** in Task 1!

Make objects in our S3 bucket public

The only missing ingredient is to make our website files publicly accessible, so everyone has permission to view our website.

In this step, get ready to:

- Make our website files in S3 publicly accessible.
- See our website live on the internet!
- head to the **Objects** tab.
- Select the checkboxes next to our **index.html** file and the folder of website assets.
- In the **Actions** dropdown, choose **Make public using ACL**.



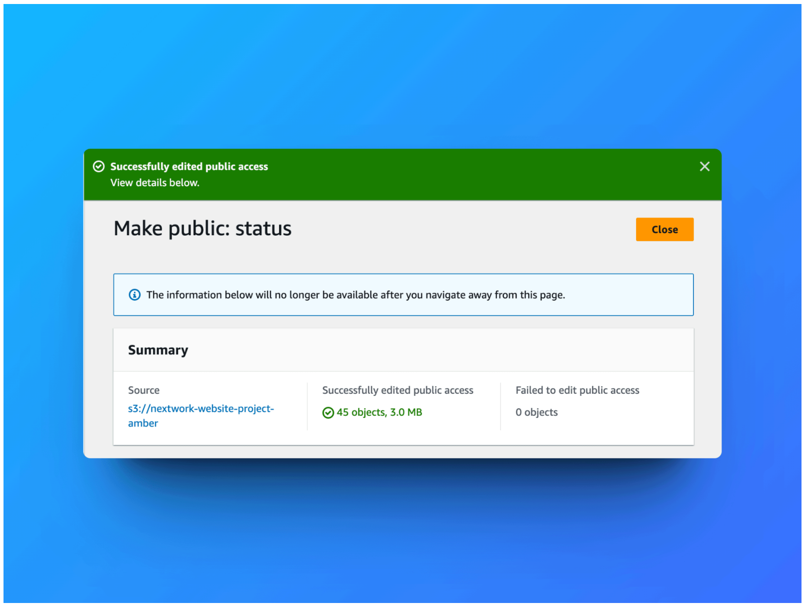
ed in Amazon S3. You can use Amazon S3 inventory to get a list of all objects in your bucket.
eed to explicitly grant them permissions. Learn more

e	Last modified	Size	Storage class
l	April 4, 2024, 08:22:27 (UTC+13:00)	61.0 KB	Standard
der	-	-	-

Step 4: Where to make our files public using ACL.

- Choose Make public.

- Once the green banner pops up, choose Close.



Successfully edited public access
View details below.

Make public: status

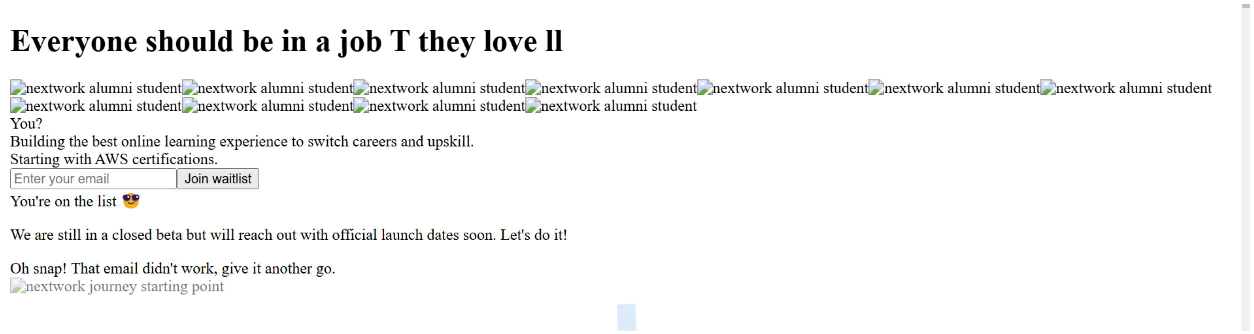
The information below will no longer be available after you navigate away from this page.

Summary

Source	Successfully edited public access	Failed to edit public access
s3://nextwork-website-project-amber	45 objects, 3.0 MB	0 objects

Successfully made files public using ACL.

- Return to the web browser tab that has the 403 Forbidden message.
- Refresh the tab.



Everyone should be in a job T they love ll

nextwork alumni student nextwork alumni student nextwork alumni student nextwork alumni student nextwork alumni student nextwork alumni student nextwork alumni student
nextwork alumni student nextwork alumni student nextwork alumni student nextwork alumni student
You?
Building the best online learning experience to switch careers and upskill.
Starting with AWS certifications.

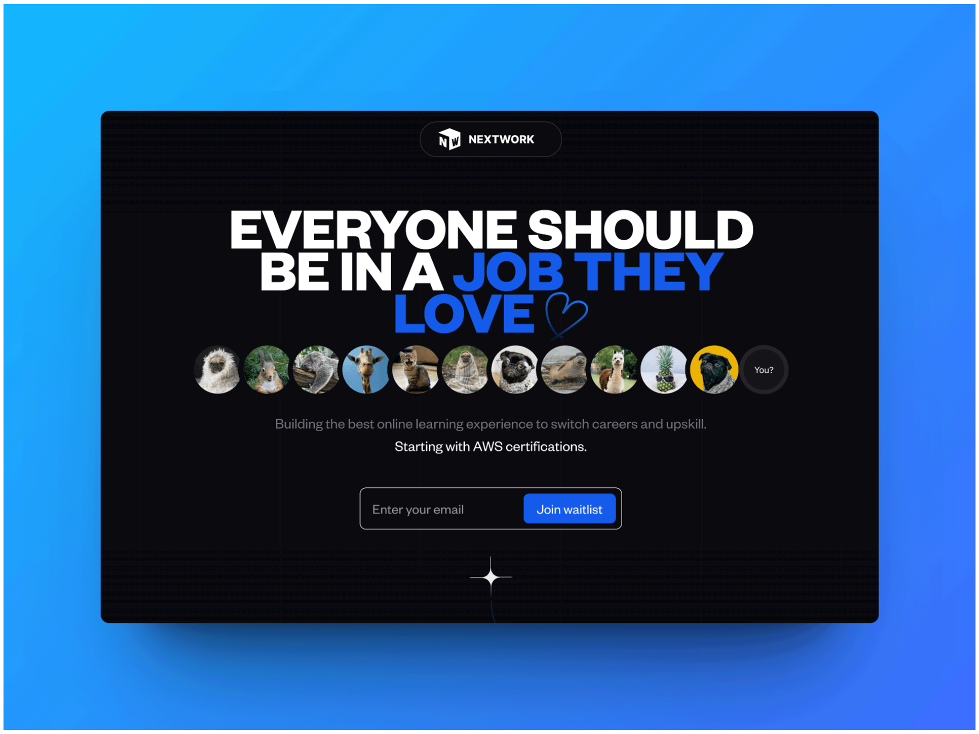
You're on the list 😎

We are still in a closed beta but will reach out with official launch dates soon. Let's do it!

Oh snap! That email didn't work, give it another go.
nextwork journey starting point

Success!

To resolve this connection error, I reuploaded my files with proper filenames. Instead of uploading a zipped file, I unzipped it and uploaded the folder, ensuring all files were organized correctly and accessible, which resolved the issue.



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