MY AWS PROJECTS - MEME MATCHING GAME

Hi, everyone!

Caleb here!

For this project, I learned how to create a meme matching game using two AWS services; S3 and CodePipeline. GitHub was also used in this exercise.

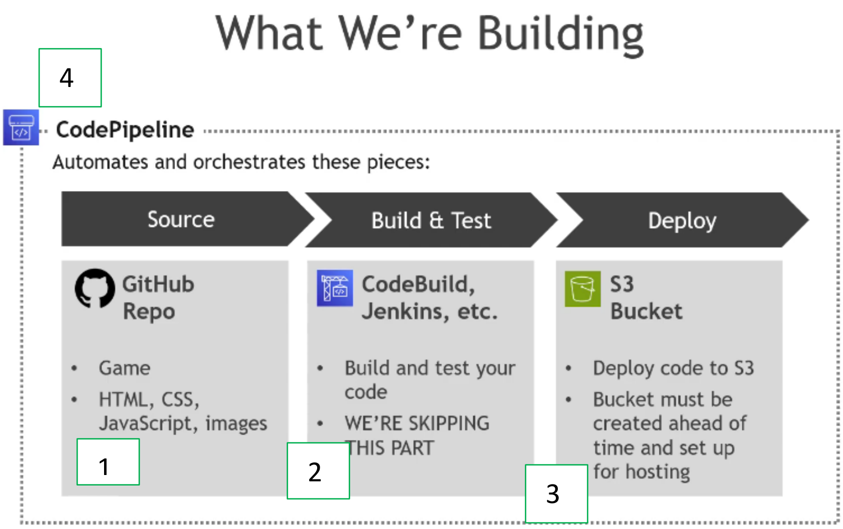
Shouts out to Amber Israelsen for this one, as always. You can find this project on her YouTube channel, https://www.youtube.com/@TinyTechnicalTutorials.

Now, let's get going!

So, this is how the game works: there are ten cards, each of which shows a picture when clicked on, and you are basically clicking on them in pairs simultaneously. When you click on a pair and the pictures are the same, that pair vanishes from the 'deck'. The whole aim in the end is to clear all the cards.

There is code for this, of course. The idea is to host this code in GitHub, create a pipeline which will pull the code every time a change is made, and then deploy it out to an S3 bucket.

So, here's a diagram showing the blueprint of what we are attempting for this project:



What We're Building

CodePipeline

Automates and orchestrates these pieces:

Source

GitHub Repo

- Game
- HTML, CSS, JavaScript, images

Build & Test

CodeBuild, Jenkins, etc.

- Build and test your code
- WE'RE SKIPPING THIS PART

Deploy

S3 Bucket

- Deploy code to S3
- Bucket must be created ahead of time and set up for hosting

Notice I have numbered the steps for easier clarification.

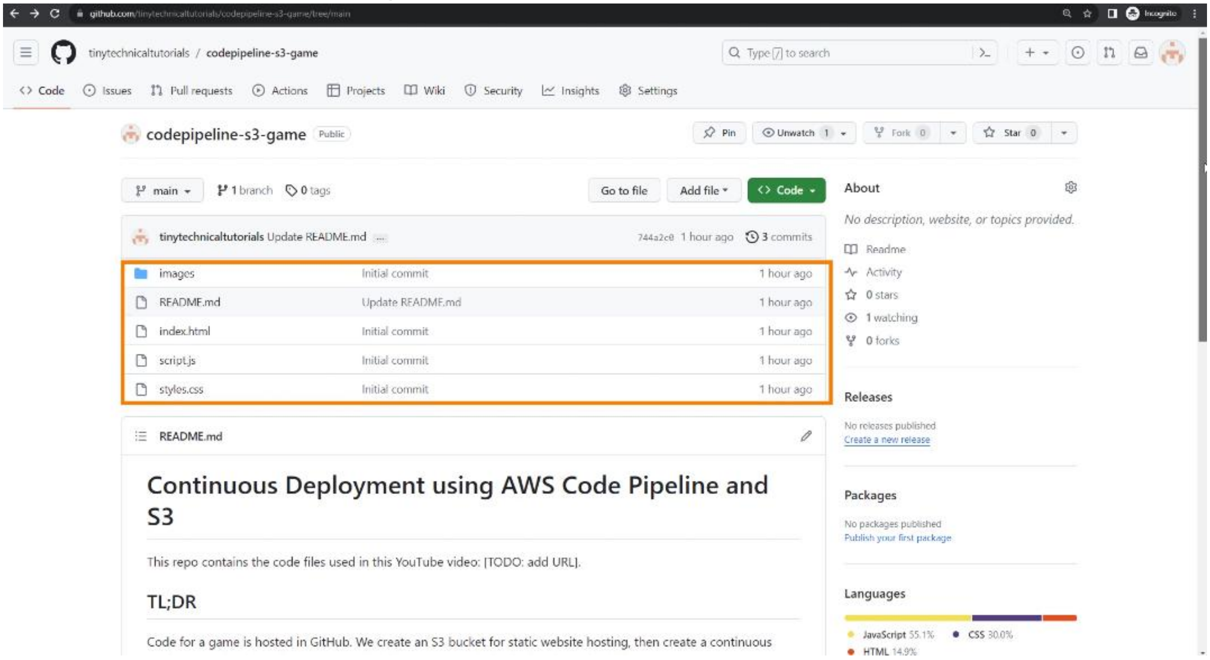
In step 1, we will be retrieving all the code needed from an existing GitHub repository and placing it in our own GitHub repository.

Step 2 is where there is the building and testing of our code. We will be leaving that step out though, as we already have all the codes needed in their right form and order.

In step 3, we will be creating an S3 bucket in which we will have our static website, where the code will be deployed.

Finally, for step 4, this is where we employ the use of the service known as CodePipeline. CodePipeline will be responsible for automating the process of retrieval of the code from GitHub to S3, as well as automatically updating any changes made to the code and making them take effect in S3.

Let’s start by getting the code needed for this project. We will find these codes at https://github.com/tinytechnicaltutorials/codepipeline-s3-game. This repository, once you click on the URL, should look something like this:



tinytechnicaltutorials Update README.md ... 744a2c0 1 hour ago 3 commits

images	Initial commit	1 hour ago
README.md	Update README.md	1 hour ago
index.html	Initial commit	1 hour ago
script.js	Initial commit	1 hour ago
styles.css	Initial commit	1 hour ago

README.md

Continuous Deployment using AWS Code Pipeline and S3

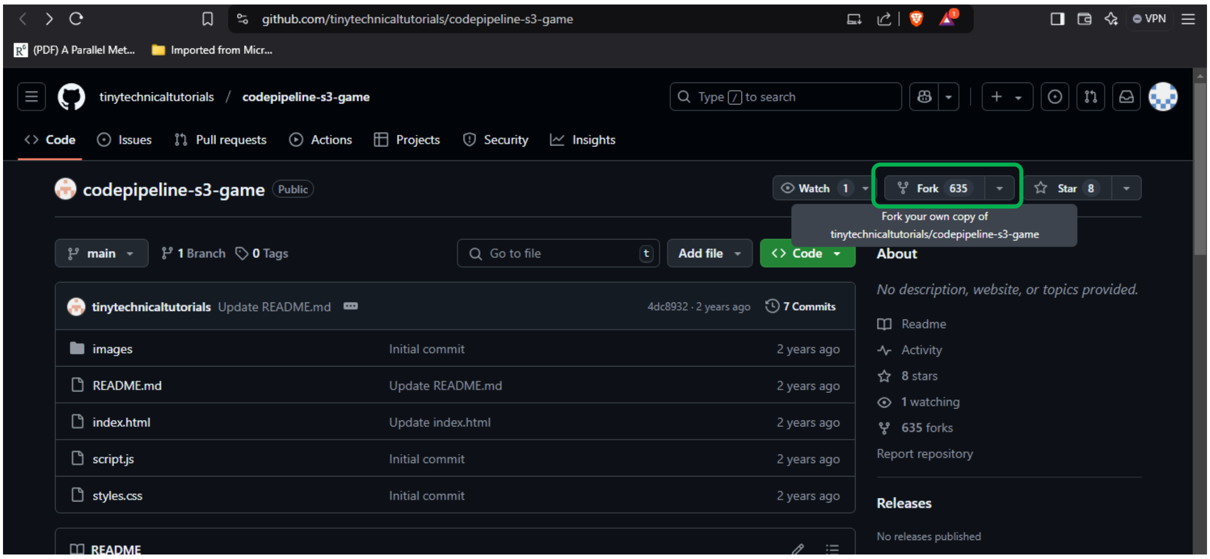
This repo contains the code files used in this YouTube video: [TODO: add URL].

TL;DR

Code for a game is hosted in GitHub. We create an S3 bucket for static website hosting, then create a continuous

As seen in the highlight in the screenshot, this is where the code needed for the project, as well as a README file giving a heads-up on what is going to be done, are located.

We will need to do something known as ‘forking’; essentially, we are picking up all the codes and sending a copy of it into our own GitHub repository. Of course, that means you will need to have created your own GitHub account to be able to do this. See the diagram below:



No description, website, or topics provided.

Readme
Activity
8 stars
1 watching
635 forks
Report repository

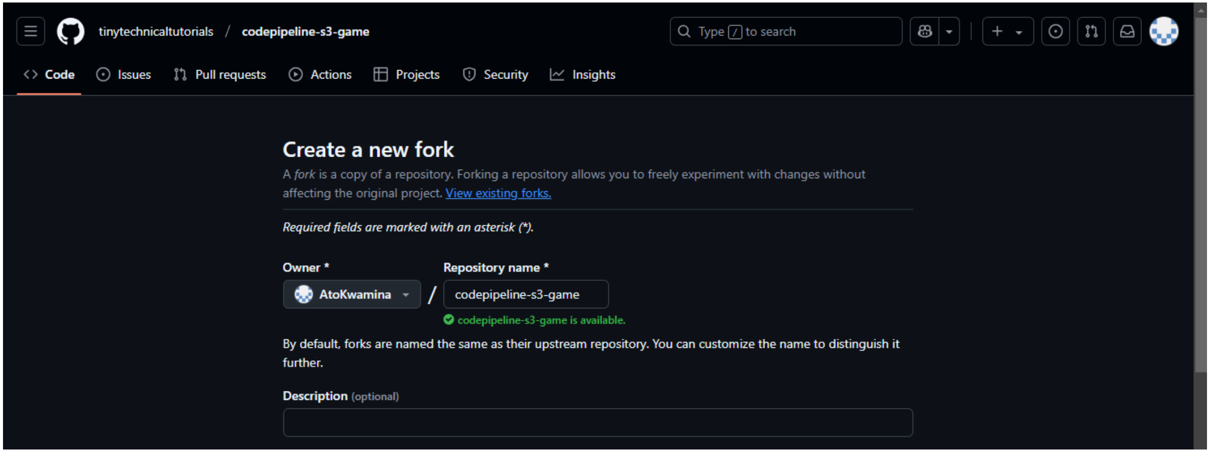
Releases

No releases published

tinytechnicaltutorials Update README.md · 4dc8932 · 2 years ago · 7 Commits

images	Initial commit	2 years ago
README.md	Update README.md	2 years ago
index.html	Update index.html	2 years ago
script.js	Initial commit	2 years ago
styles.css	Initial commit	2 years ago

Clicking on the ‘fork’ option should show the following page:



Create a new fork

A *fork* is a copy of a repository. Forking a repository allows you to freely experiment with changes without affecting the original project. View existing forks.

Required fields are marked with an asterisk (*).

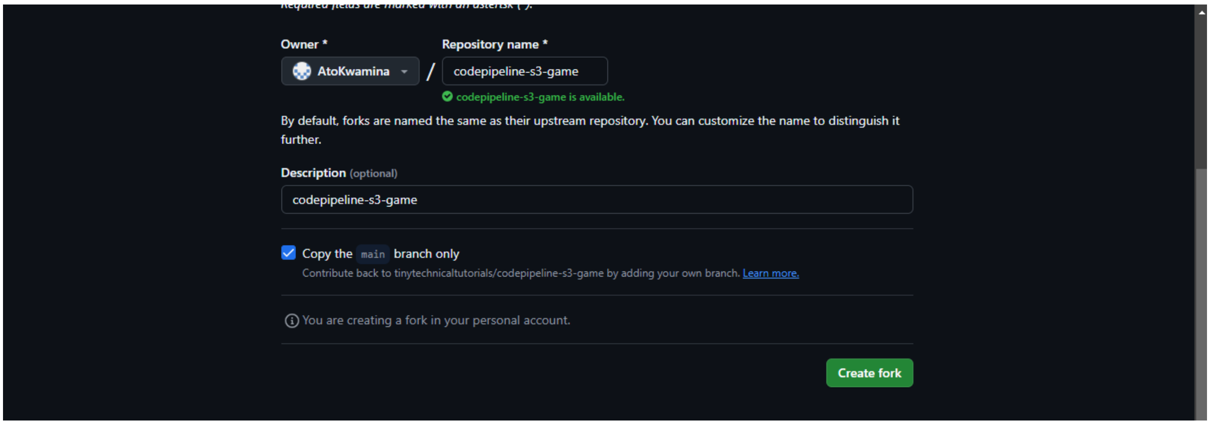
Owner *: AtoKwamina / Repository name *: codepipeline-s3-game

codepipeline-s3-game is available.

By default, forks are named the same as their upstream repository. You can customize the name to distinguish it further.

Description (optional)

You may choose to leave everything as-is, and then hit ‘Create fork’ to mirror the contents in your own repository. For the ‘Description’ part, I just decided to give it the same as the name of the repository. Feel free to add any description you want.



Owner *: AtoKwamina / Repository name *: codepipeline-s3-game

codepipeline-s3-game is available.

By default, forks are named the same as their upstream repository. You can customize the name to distinguish it further.

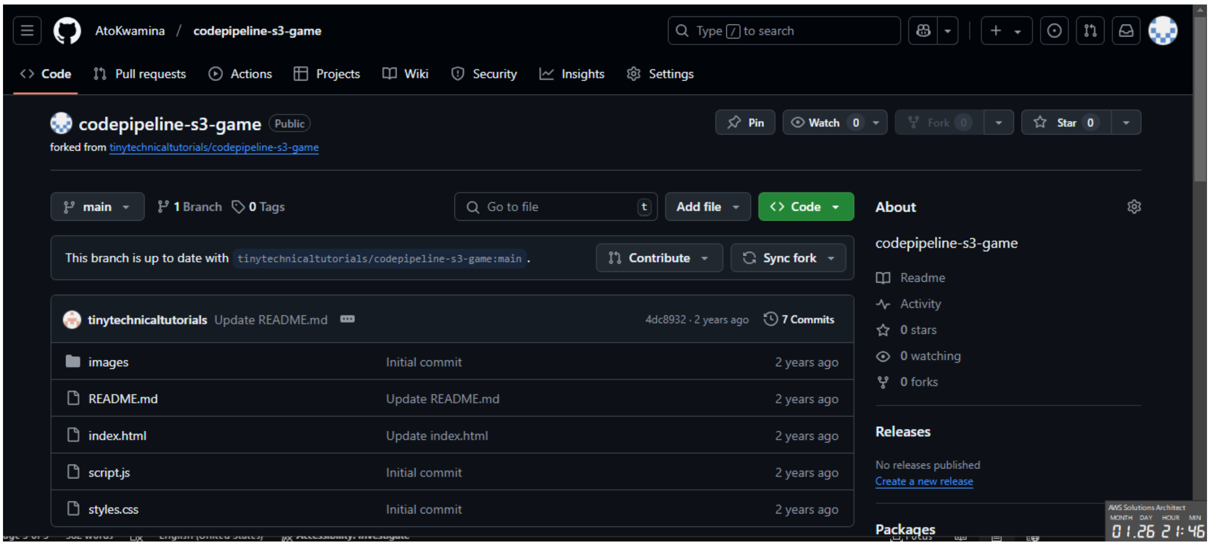
Description (optional): codepipeline-s3-game

☑ Copy the `main` branch only

Contribute back to tinytechnicaltutorials/codepipeline-s3-game by adding your own branch. Learn more.

You are creating a fork in your personal account.

As now shown, the repository has been created in my own account ‘AtoKwamina’.



codepipeline-s3-game Public

forked from tinytechnicaltutorials/codepipeline-s3-game

This branch is up to date with `tinytechnicaltutorials/codepipeline-s3-game:main` .

tinytechnicaltutorials Update README.md 4dc8932 · 2 years ago 7 Commits

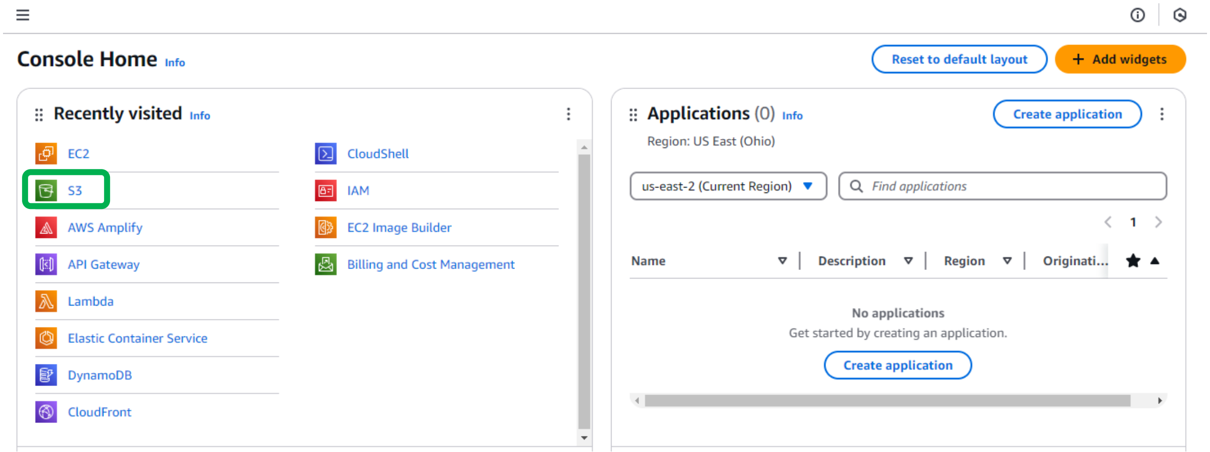
images	Initial commit	2 years ago
README.md	Update README.md	2 years ago
index.html	Update index.html	2 years ago
script.js	Initial commit	2 years ago
styles.css	Initial commit	2 years ago

codepipeline-s3-game

No releases published

Next, we will need to create and configure an S3 bucket. S3 is used for ‘object’ (file) storage on AWS. It can also be used for static website hosting, which is pretty much what we are trying to do at the moment.

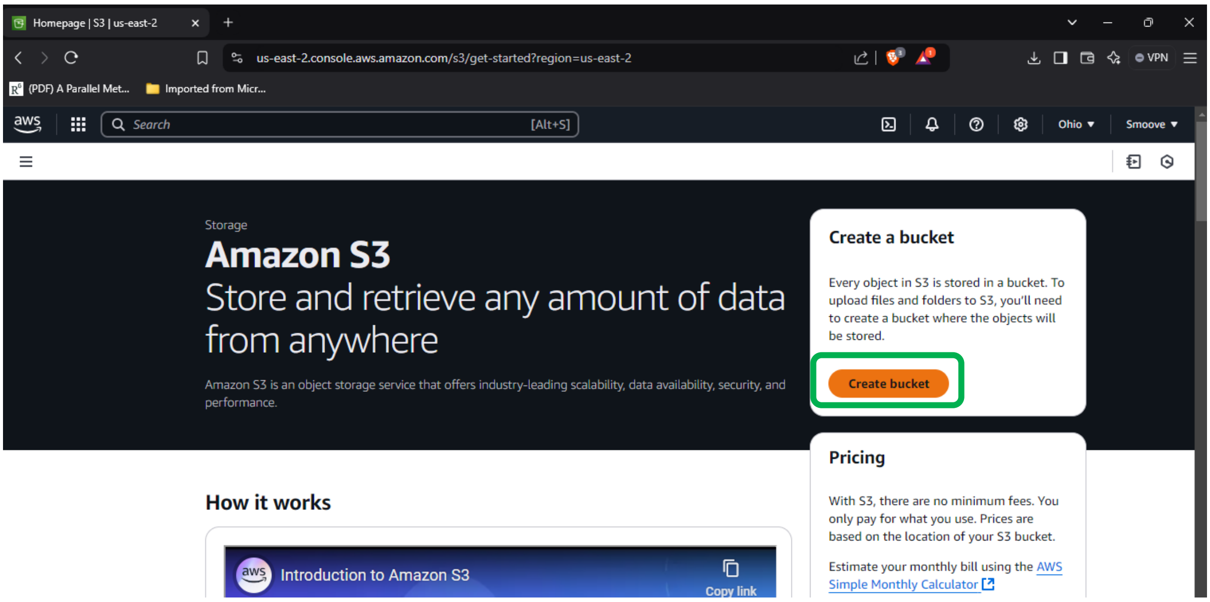
So, let’s move now to our AWS console and navigate to S3:



Region: US East (Ohio)

No applications
Get started by creating an application.

We then go ahead and begin the bucket creation process:


Homepage | S3 | us-east-2
us-east-2.console.aws.amazon.com/s3/get-started?region=us-east-2
(PDF) A Parallel Met...
Imported from Micr...
VPN
aws
Search
[Alt+S]
Ohio ▾
Smoove ▾
Create bucket
Introduction to Amazon S3
Copy link

Storage

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.

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.

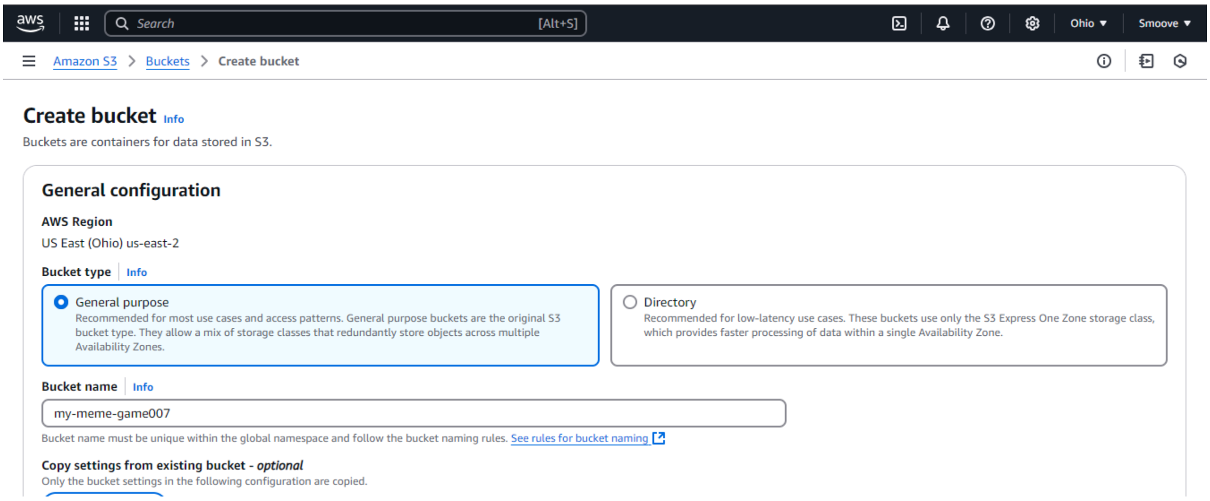
How it works

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

First thing we do is give it a name. I just decided to use the name my instructor, Amber, used. Make sure to add something to it though, if you decide to do the same; remember S3 bucket names are globally unique, so if you write it without any additions, there is a chance it could already be in use.



Create bucket

Buckets are containers for data stored in S3.

General configuration

AWS Region

US East (Ohio) us-east-2

Bucket type

● 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

my-meme-game007

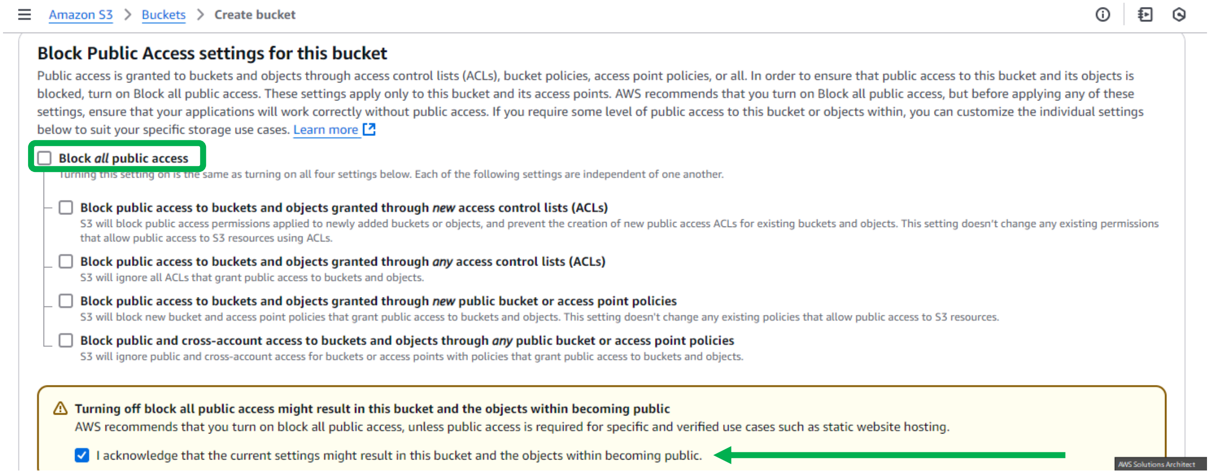
Bucket name must be unique within the global namespace and follow the bucket naming rules. See rules for bucket naming

Copy settings from existing bucket - *optional*

Only the bucket settings in the following configuration are copied.

Scroll down till you get to the section with the inscription ‘Block *all* public access’ and deselect that option. We are doing this because we are creating a static website that we want to be globally accessible. In a real-world environment though, be careful about that option.

Also tick the acknowledgment part to let AWS know you are sure of what you are doing.



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

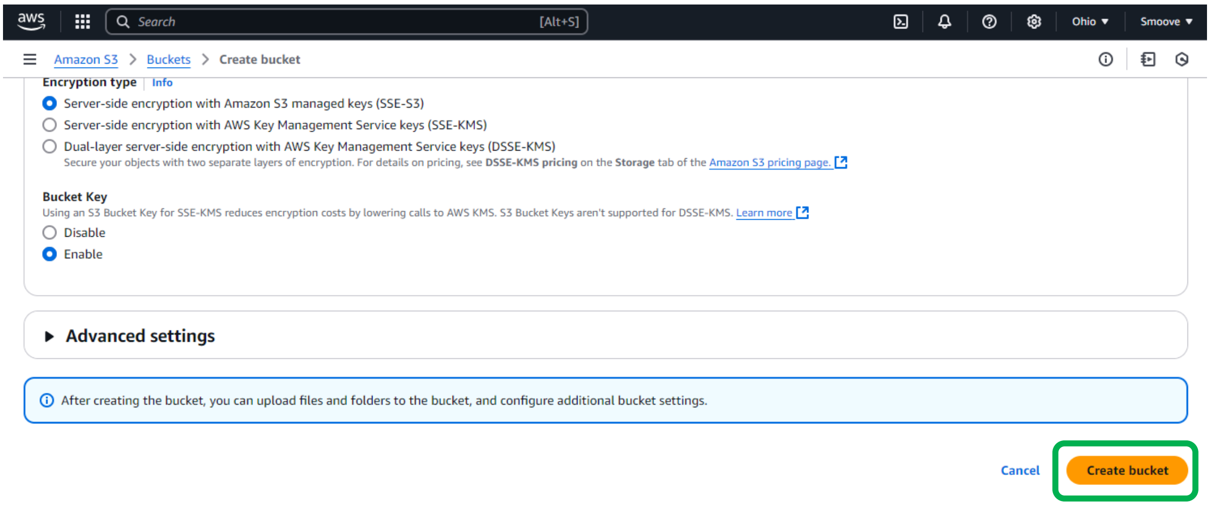
□ **Block *all* public access**
Turning this setting on is the same as turning on all four settings below. Each of the following settings are independent of one another.

- □ **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.

Now scroll down and leave everything else as-is then click on 'Create bucket'.



Encryption type Info

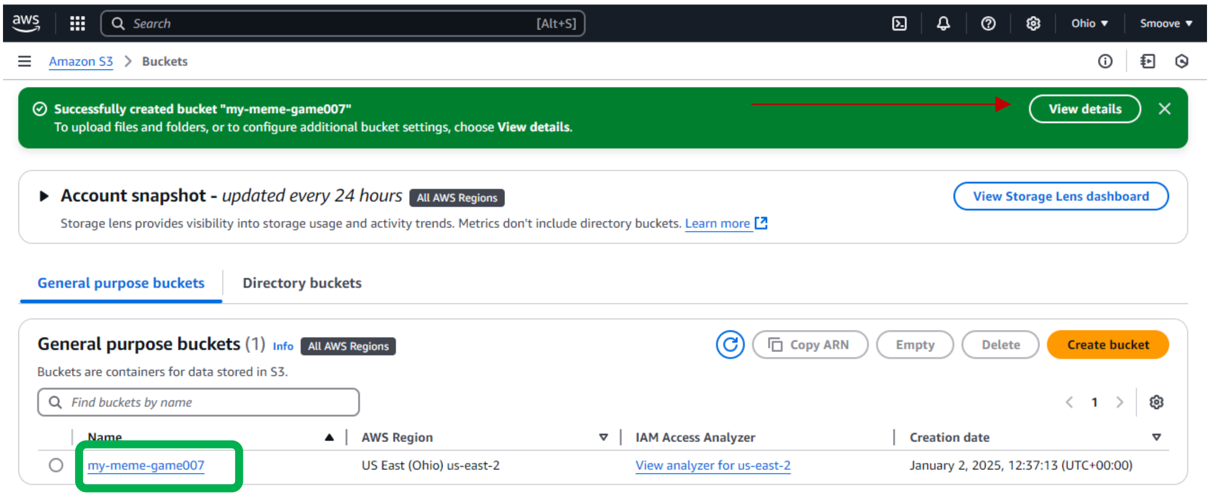
● Server-side encryption with Amazon S3 managed keys (SSE-S3)
○ Server-side encryption with AWS Key Management Service keys (SSE-KMS)
○ Dual-layer server-side encryption with AWS Key Management Service keys (DSSE-KMS)
Secure your objects with two separate layers of encryption. For details on pricing, 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.

Now you can click on ‘View Details’, or just select the bucket just created by clicking on it under ‘General purpose buckets’.



Successfully created bucket "my-meme-game007"
To upload files and folders, or to configure additional bucket settings, choose **View details**.

Account snapshot - *updated every 24 hours* All AWS Regions

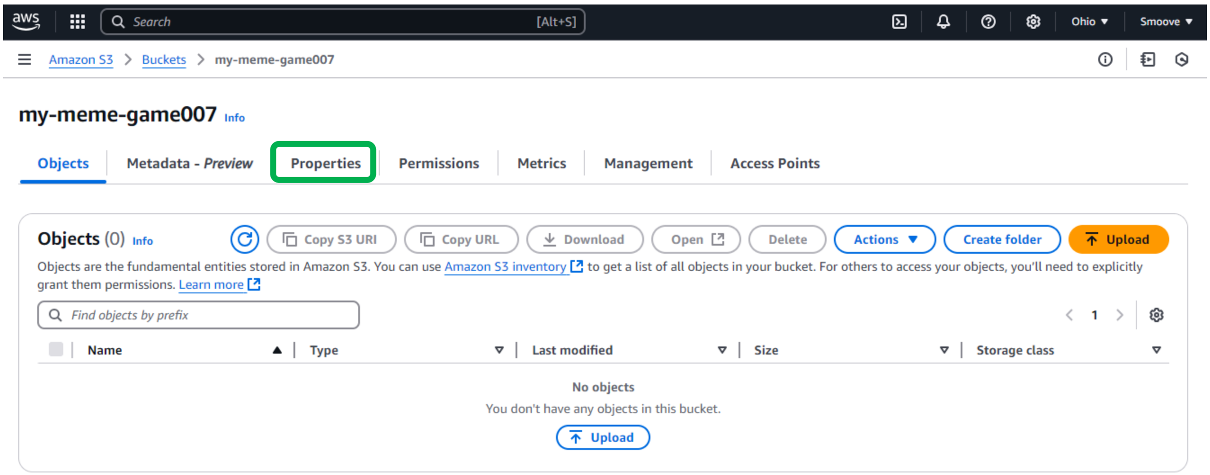
Storage lens provides visibility into storage usage and activity trends. Metrics don't include directory buckets. Learn more

General purpose buckets (1) Info All AWS Regions

Buckets are containers for data stored in S3.

Name	AWS Region	IAM Access Analyzer	Creation date
○ my-meme-game007	US East (Ohio) us-east-2	View analyzer for us-east-2	January 2, 2025, 12:37:13 (UTC+00:00)

There are still a few updates we will need to configure for this bucket, so on this next page, go to ‘Properties’.



my-meme-game007 Info

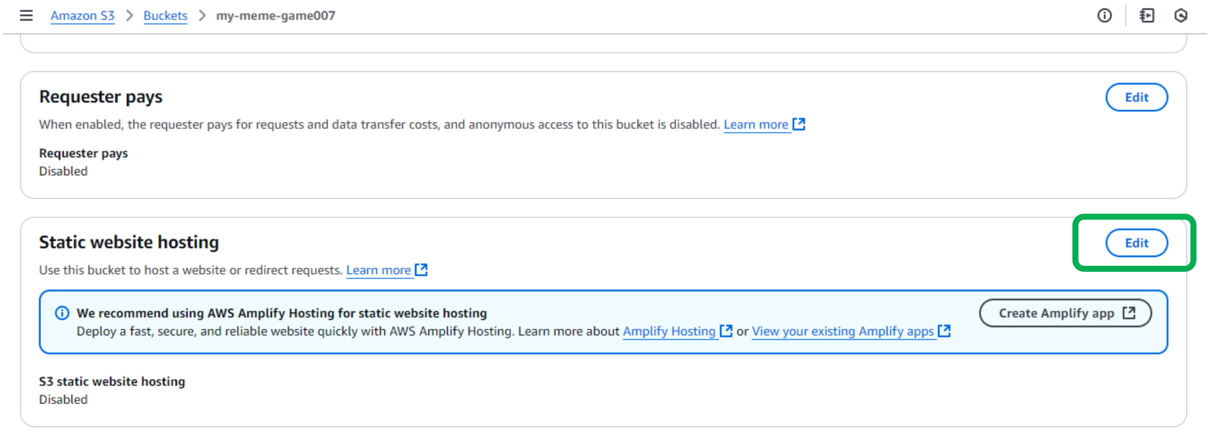
Objects (0) Info

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.
Upload

First thing we will need to do here would be to enable static website hosting, as it is disabled by default. So, we will scroll all the way down on this page to where we see that option, and then click on 'Edit'.



Amazon S3 > Buckets > my-meme-game007

Requester pays

When enabled, the requester pays for requests and data transfer costs, and anonymous access to this bucket is disabled. Learn more

Requester pays: Disabled

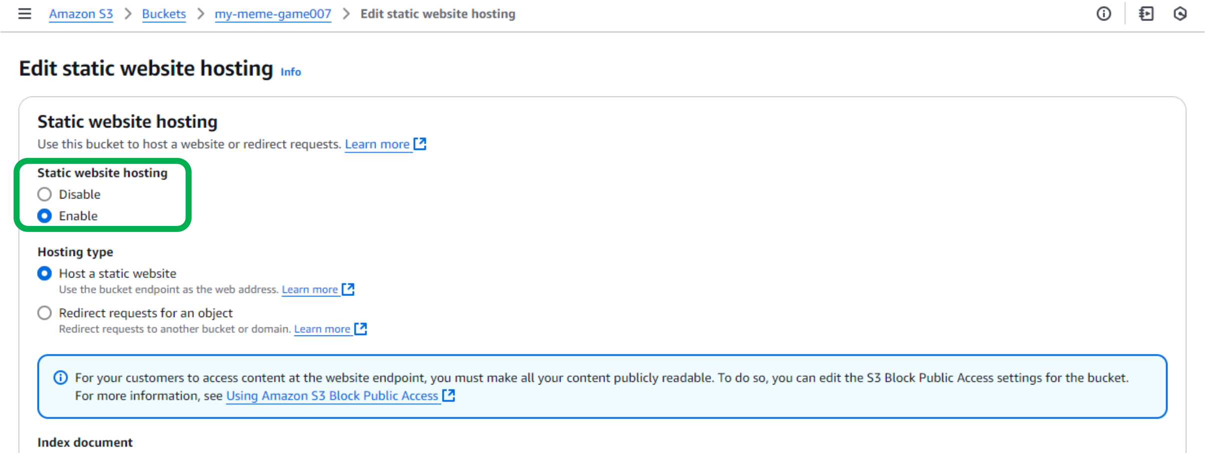
Static website hosting

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

Click on the 'Enable' option to enable it.



Amazon S3 > Buckets > my-meme-game007 > Edit static website hosting

Edit static website hosting Info

Static website hosting

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

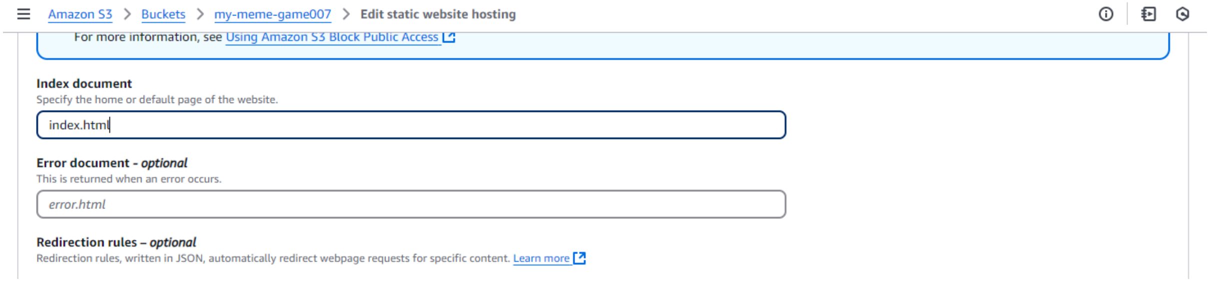
Static website hosting
○ Disable
● Enable

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

Our next change will be for the index document, which will be our default homepage of 'index.html'. Type that in there.



Amazon S3 > Buckets > my-meme-game007 > Edit static website hosting

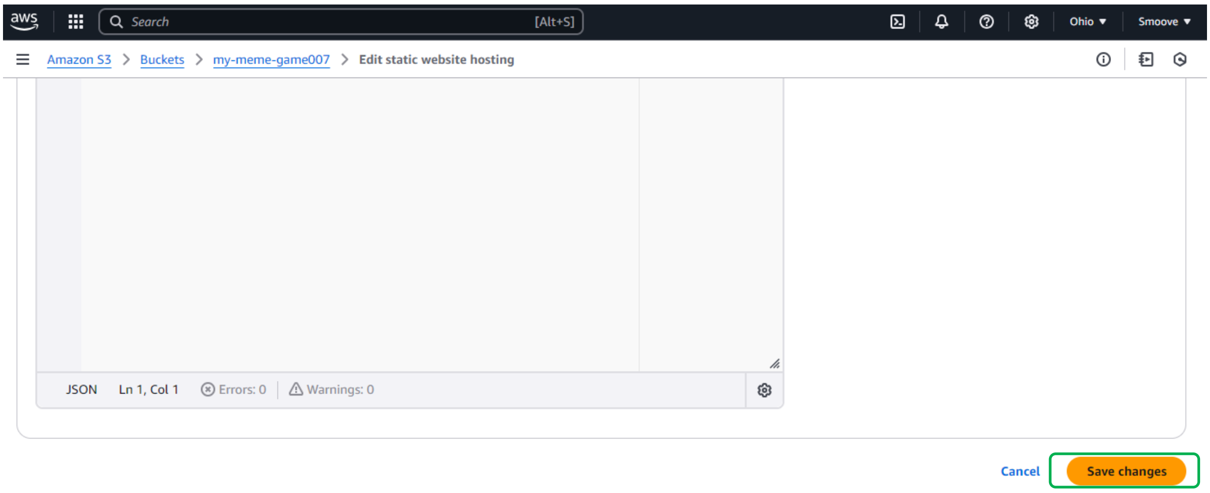
For more information, see Using Amazon S3 Block Public Access

Index document
Specify the home or default page of the website.
index.html

Error document - *optional*
This is returned when an error occurs.
error.html

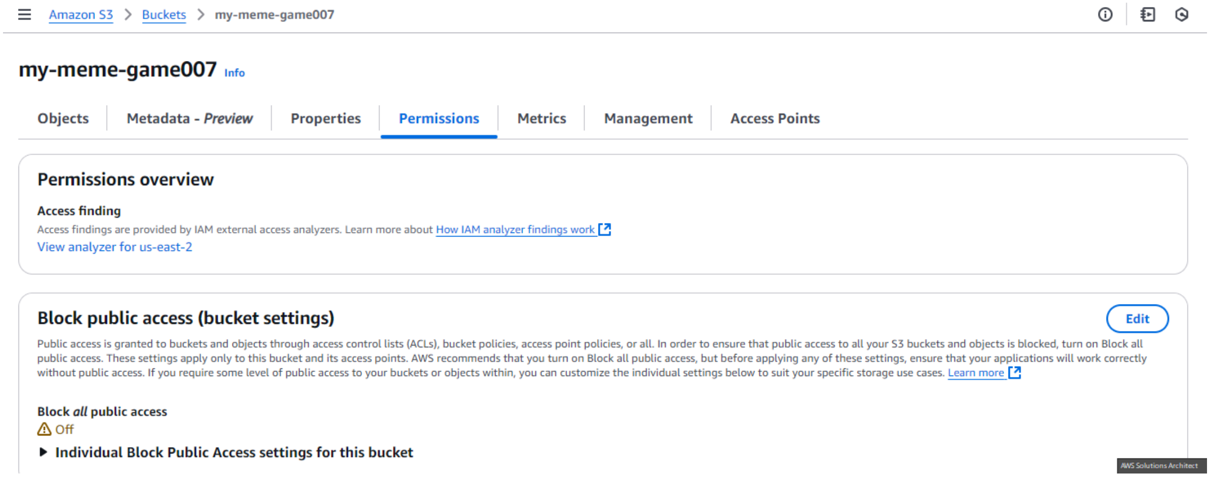
Redirection rules – *optional*
Redirection rules, written in JSON, automatically redirect webpage requests for specific content. Learn more

Then scroll down and save changes.



Next thing we need to look at now is permissions. We had previously disabled the 'Block all access' setting, but to add to that, we would also want global access to our website to view our files. This is where the bucket policy setting comes in handy.

Go to 'Permissions', scroll down to the 'Bucket policy' section and click on 'Edit'.



Permissions overview

Access finding

Access findings are provided by IAM external access analyzers. Learn more about How IAM analyzer findings work

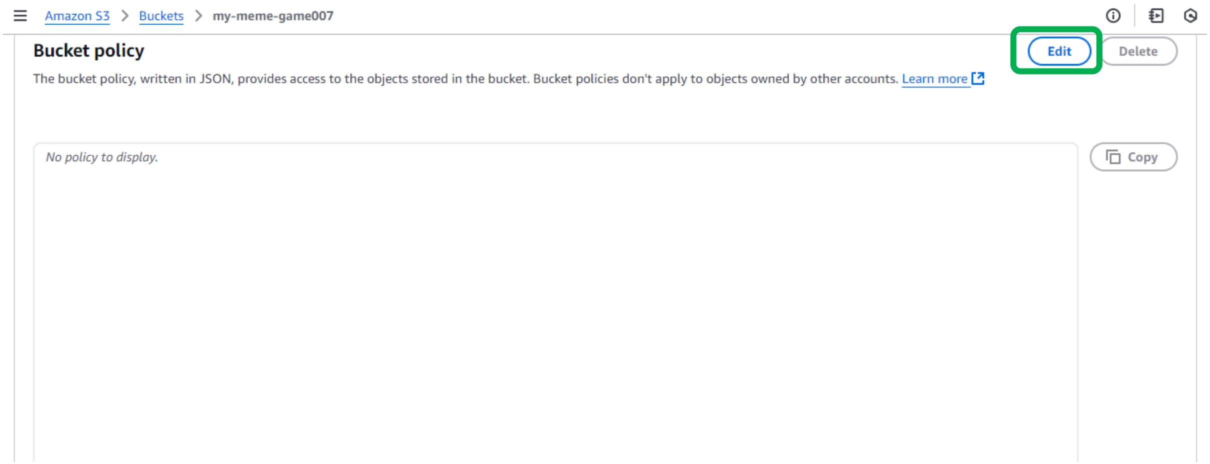
View analyzer for us-east-2

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
⚠ Off

▸ **Individual Block Public Access settings for this bucket**



Amazon S3 > Buckets > my-meme-game007

Bucket policy

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.

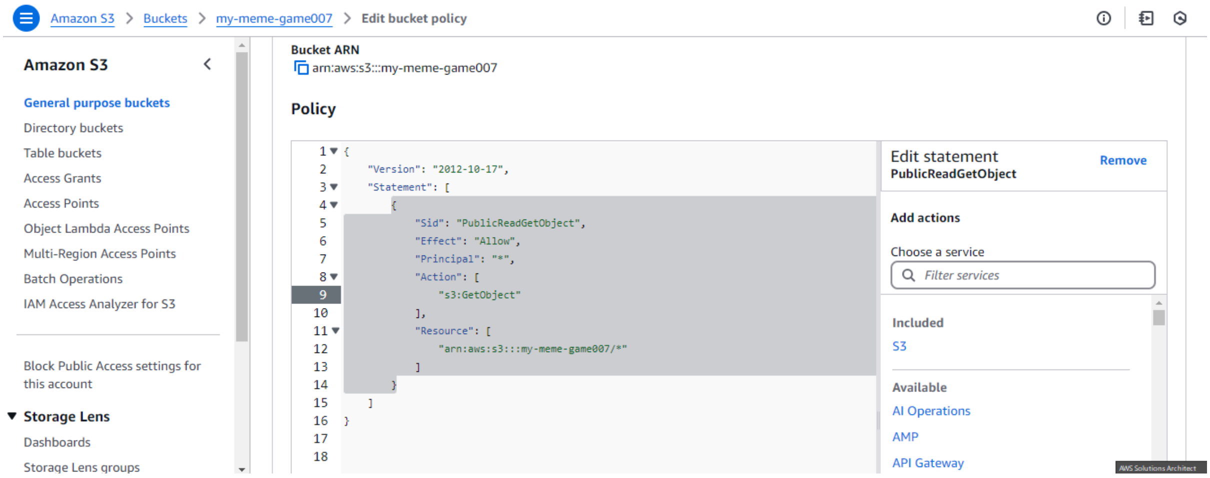
You'll need this JSON code to edit the bucket policy to allow read access to the files in your bucket.
Don't forget to update the bucket name with the name of your particular bucket.

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

Let me try and break down the code a little for easier understanding.

Essentially, the Sid part is saying 'public read access to the bucket', Effect says 'allow', meaning that 'allow this access', the '*' for Principal means 'everyone', the Action part is 'getobject', meaning ‘read’, that is, everyone may access and view the contents of the bucket, and then finally, the ‘arn’ information is the ‘Amazon Resource Name’, which in this case is the name of our S3 bucket. That’s why the name of our bucket was needed there.

As you’ll notice in the screenshot below, I have updated the policy and used the name of my S3 bucket.



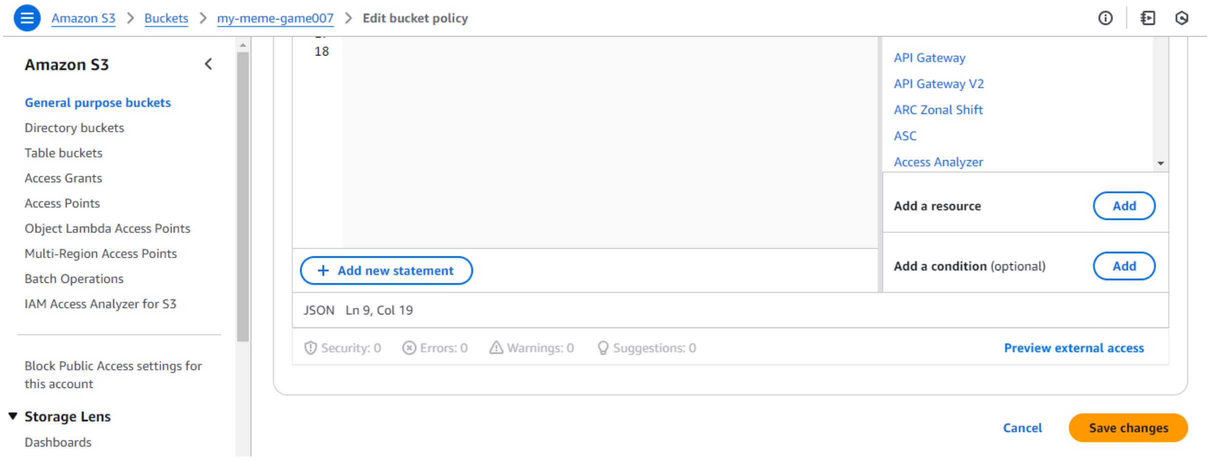
Bucket ARN
arn:aws:s3:::my-meme-game007

Policy

```
{
    "Version": "2012-10-17",
    "Statement": [
        {
            "Sid": "PublicReadGetObject",
            "Effect": "Allow",
            "Principal": "*",
            "Action": [
                "s3:GetObject"
            ],
            "Resource": [
                "arn:aws:s3:::my-meme-game007/*"
            ]
        }
    ]
}
```

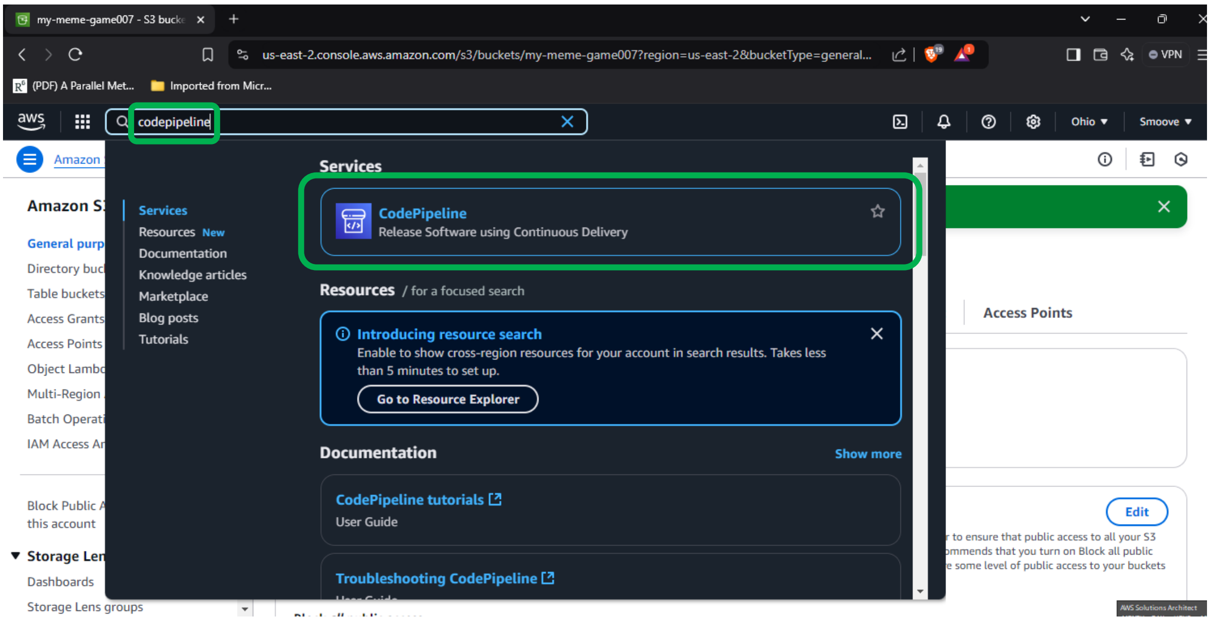
Edit statement PublicReadGetObject

Having done all this successfully, scroll down and click on ‘Save changes’.



At this point, we have our code stored in GitHub. We’ve also set up our S3 account and its associated permissions and configured it for static website hosting. The next thing we have to do is make use of the CodePipeline service which will take care of getting the code from GitHub into the S3 bucket.

So, let’s go back to our AWS Console and open up a new tab for CodePipeline in the search bar.


codepipeline

Services

CodePipeline
Release Software using Continuous Delivery

Resources / for a focused search

Introducing resource search
Enable to show cross-region resources for your account in search results. Takes less than 5 minutes to set up.

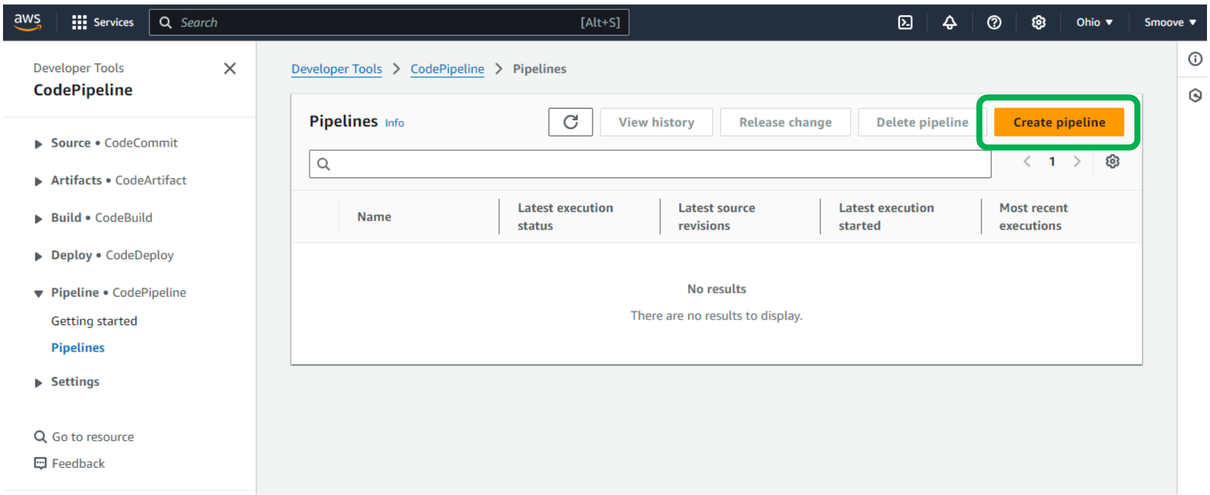
Go to Resource Explorer

Documentation

CodePipeline tutorials
User Guide

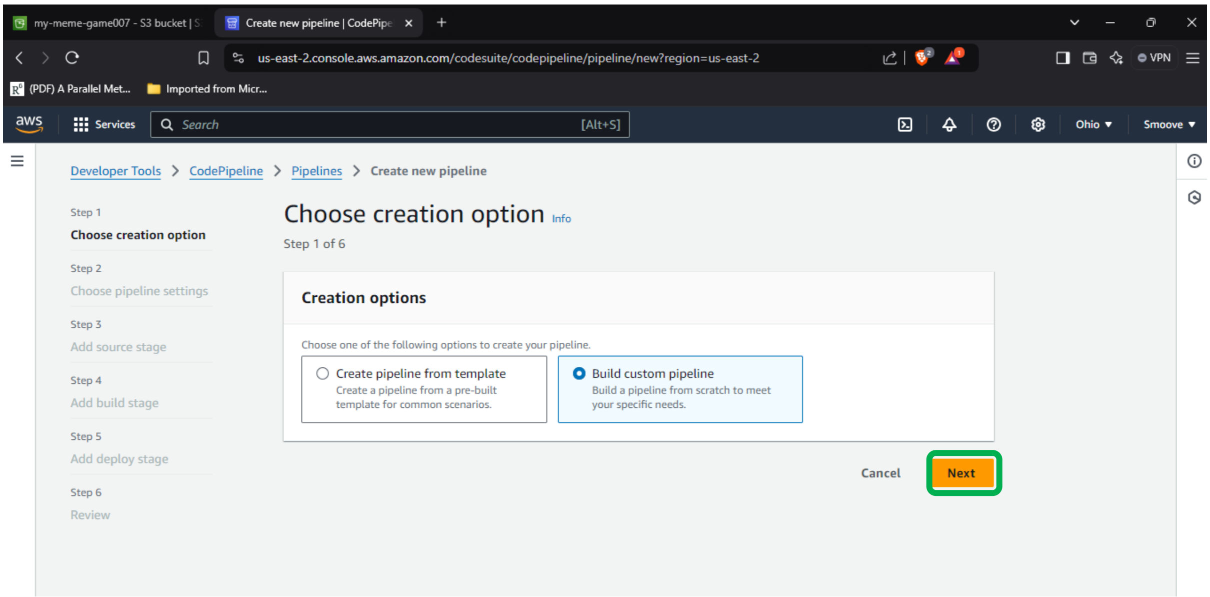
Troubleshooting CodePipeline

And then we will click on ‘Create pipeline’ on the next page:


Name	Latest execution status	Latest source revisions	Latest execution started	Most recent executions

No results
There are no results to display.

From the options on the next page, choose ‘Build custom pipeline’ and click on ‘Next’.



us-east-2.console.aws.amazon.com/codesuite/codepipeline/pipeline/new?region=us-east-2

Developer Tools > CodePipeline > Pipelines > Create new pipeline

Step 1
Choose creation option

Step 2
Choose pipeline settings

Step 3
Add source stage

Step 4
Add build stage

Step 5
Add deploy stage

Step 6
Review

Choose creation option Info

Step 1 of 6

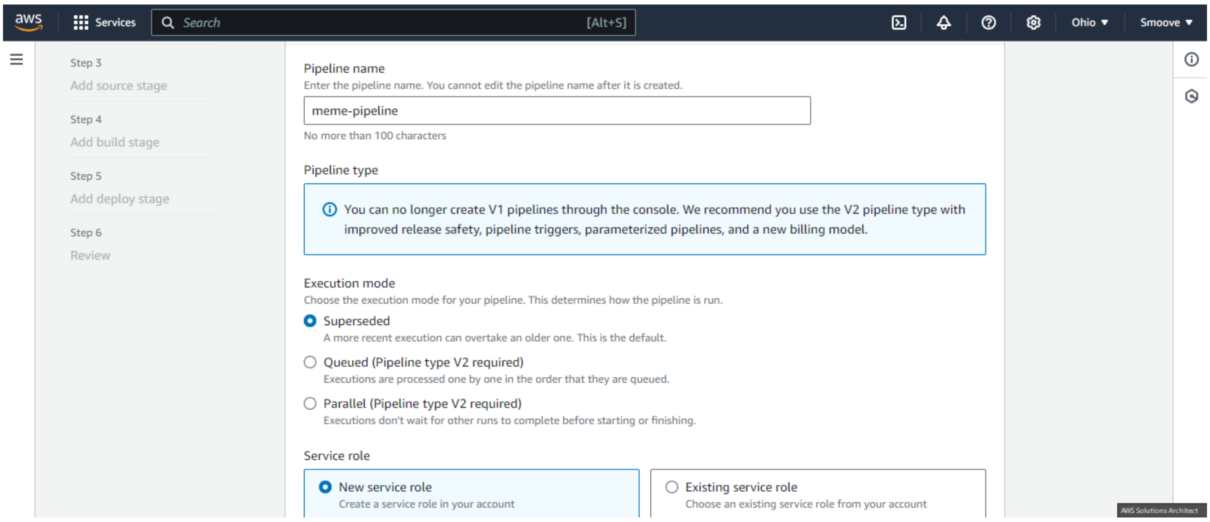
Creation options

Choose one of the following options to create your pipeline.

○ Create pipeline from template
Create a pipeline from a pre-built template for common scenarios.

● Build custom pipeline
Build a pipeline from scratch to meet your specific needs.

From the screenshot below, we will observe that version 1 (V1) is no longer available, so we go ahead and use V2. We give it a consistent name, in this case, ‘meme-pipeline’, and then we select the Execution mode and service roles as shown.



Pipeline name
Enter the pipeline name. You cannot edit the pipeline name after it is created.
meme-pipeline
No more than 100 characters

Pipeline type
You can no longer create V1 pipelines through the console. We recommend you use the V2 pipeline type with improved release safety, pipeline triggers, parameterized pipelines, and a new billing model.

Execution mode
Choose the execution mode for your pipeline. This determines how the pipeline is run.

● Superseded
A more recent execution can overtake an older one. This is the default.

○ Queued (Pipeline type V2 required)
Executions are processed one by one in the order that they are queued.

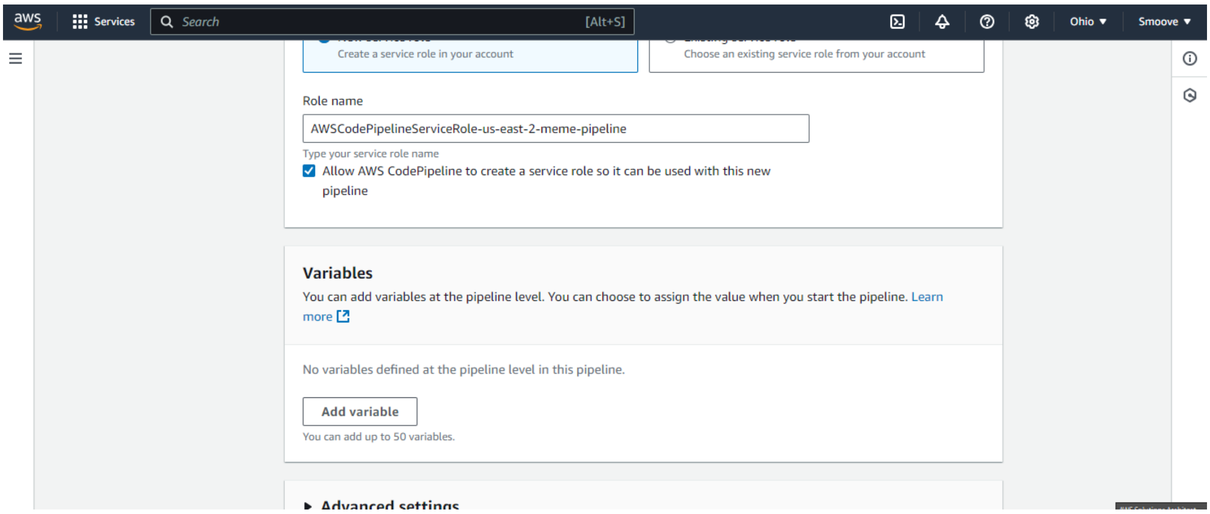
○ Parallel (Pipeline type V2 required)
Executions don't wait for other runs to complete before starting or finishing.

Service role

● New service role
Create a service role in your account

○ Existing service role
Choose an existing service role from your account

Scroll down, and in the ‘Role name’ section, you will observe that a name has been automatically filled for you.



Create a service role in your account

Choose an existing service role from your account

Role name

AWSCodePipelineServiceRole-us-east-2-meme-pipeline

Type your service role name

☑ Allow AWS CodePipeline to create a service role so it can be used with this new pipeline

Variables

You can add variables at the pipeline level. You can choose to assign the value when you start the pipeline. Learn more

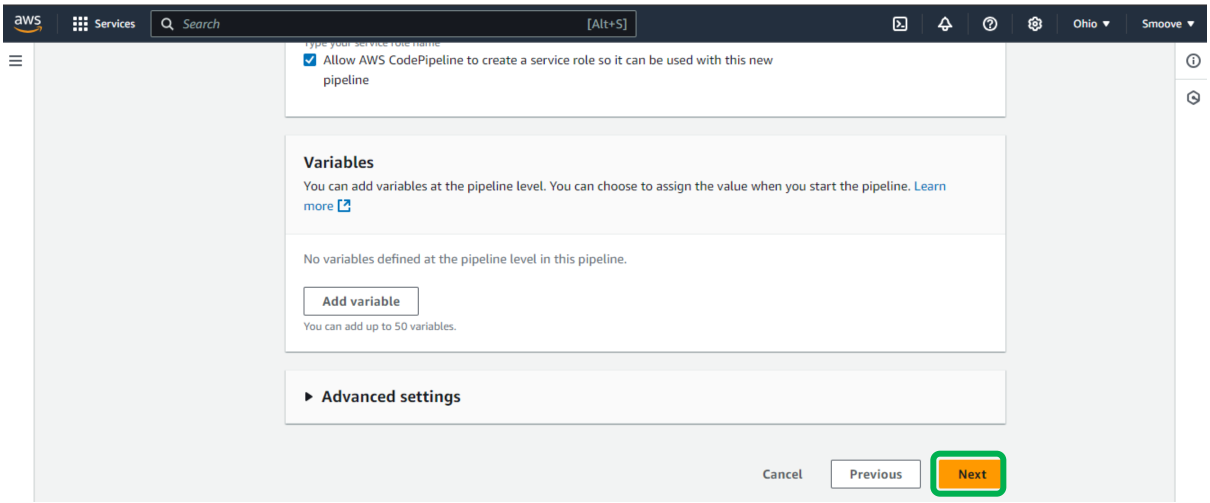
No variables defined at the pipeline level in this pipeline.

Add variable

You can add up to 50 variables.

▸ Advanced settings

Go ahead and leave everything else as-is, and click on ‘Next’.



Type your service role name

☑ Allow AWS CodePipeline to create a service role so it can be used with this new pipeline

Variables

You can add variables at the pipeline level. You can choose to assign the value when you start the pipeline. Learn more

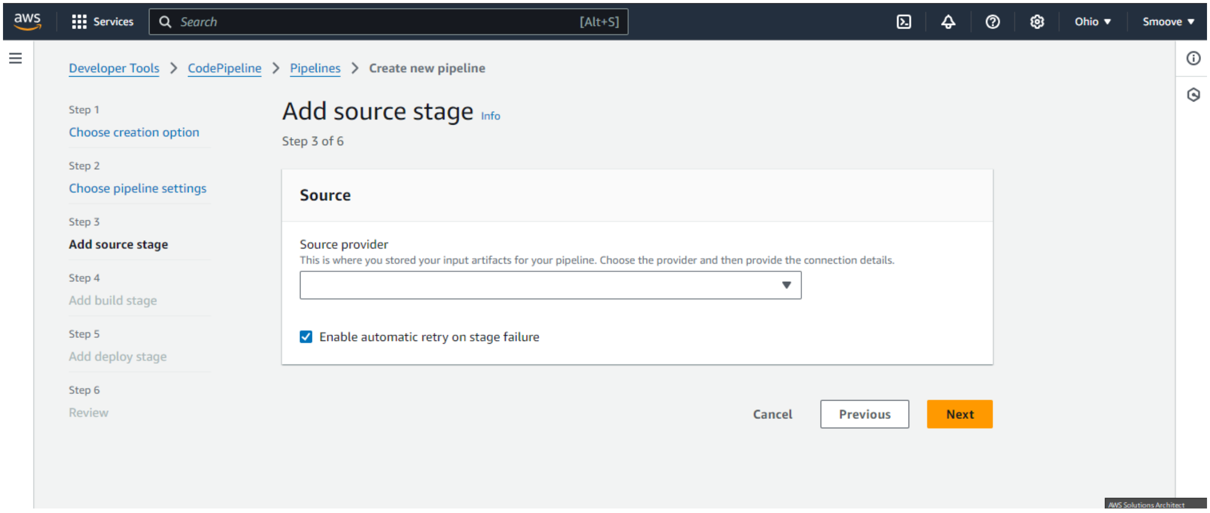
No variables defined at the pipeline level in this pipeline.

Add variable

You can add up to 50 variables.

▸ Advanced settings

The next page should look something like this:



aws
Services
Search
[Alt+S]
Ohio ▾
Smoove ▾
Developer Tools > CodePipeline > Pipelines > Create new pipeline

Step 1
Choose creation option

Step 2
Choose pipeline settings

Step 3
Add source stage

Step 4
Add build stage

Step 5
Add deploy stage

Step 6
Review

Add source stage Info

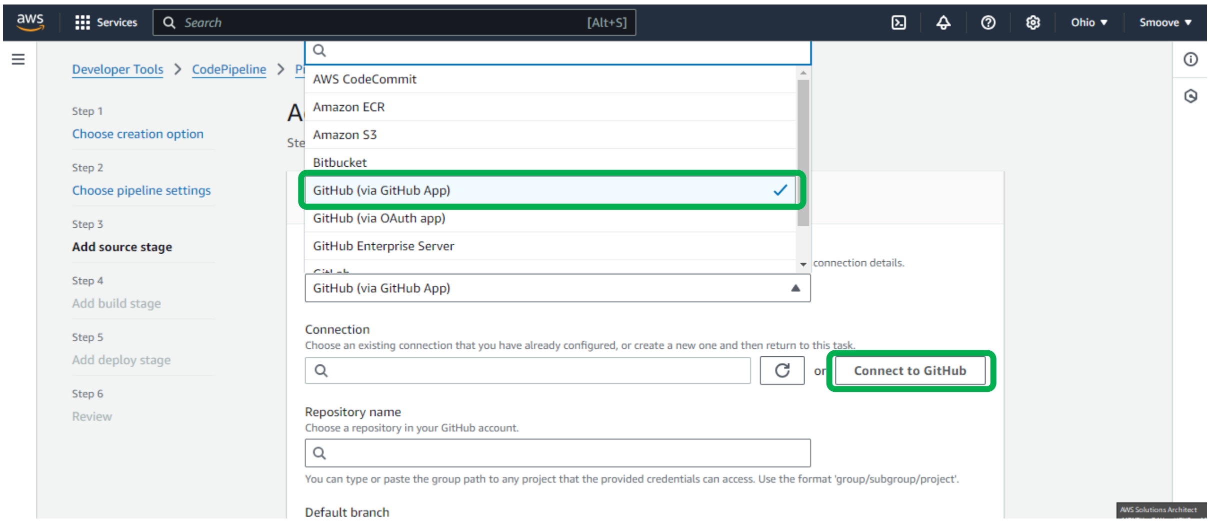
Step 3 of 6

Source

Source provider
This is where you stored your input artifacts for your pipeline. Choose the provider and then provide the connection details.

☑ Enable automatic retry on stage failure

Click on the drop-down menu under ‘Source provider’ and select ‘GitHub (via GitHub App)’. Then, click on ‘Connect to GitHub’:



Step 1
Choose creation option

Step 2
Choose pipeline settings

Step 3
Add source stage

Step 4
Add build stage

Step 5
Add deploy stage

Step 6
Review

Source provider: GitHub (via GitHub App)

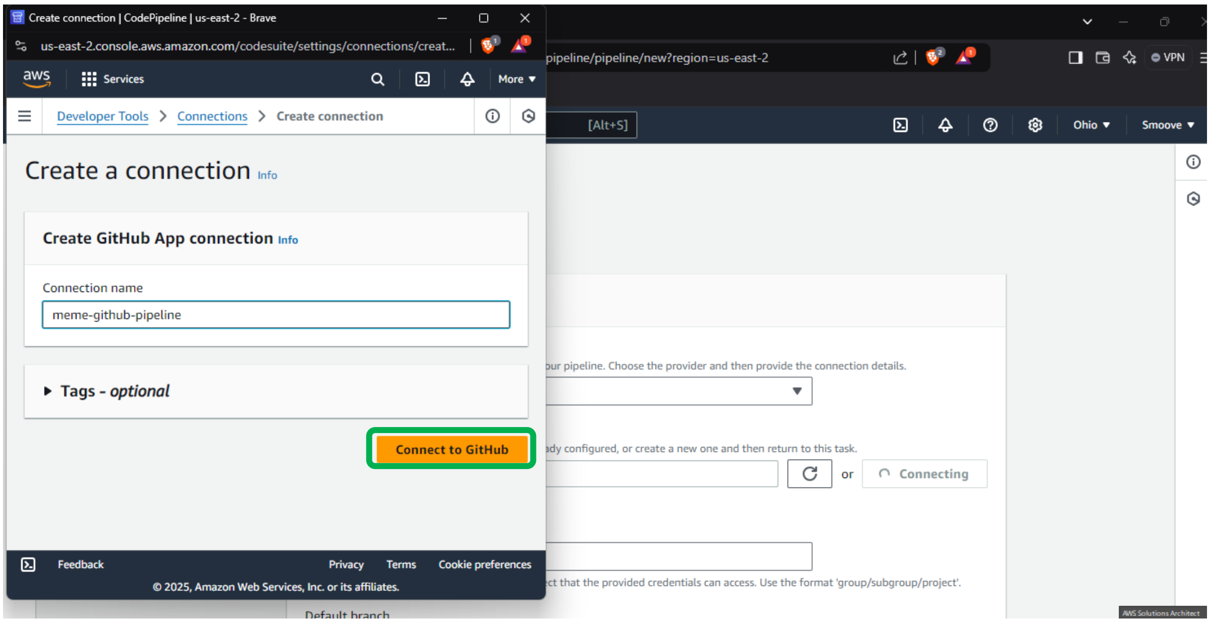
Connection
Choose an existing connection that you have already configured, or create a new one and then return to this task.

Repository name
Choose a repository in your GitHub account.

You can type or paste the group path to any project that the provided credentials can access. Use the format 'group/subgroup/project'.

Default branch

A pop-up tab opens. Type a connection name; in my case I am using ‘meme-github-pipeline’. Then click on ‘Connect to GitHub’.



Create connection | CodePipeline | us-east-2 - Brave

us-east-2.console.aws.amazon.com/codesuite/settings/connections/creat...

Developer Tools > Connections > Create connection

Create a connection Info

Create GitHub App connection Info

Connection name: meme-github-pipeline

Tags - *optional*

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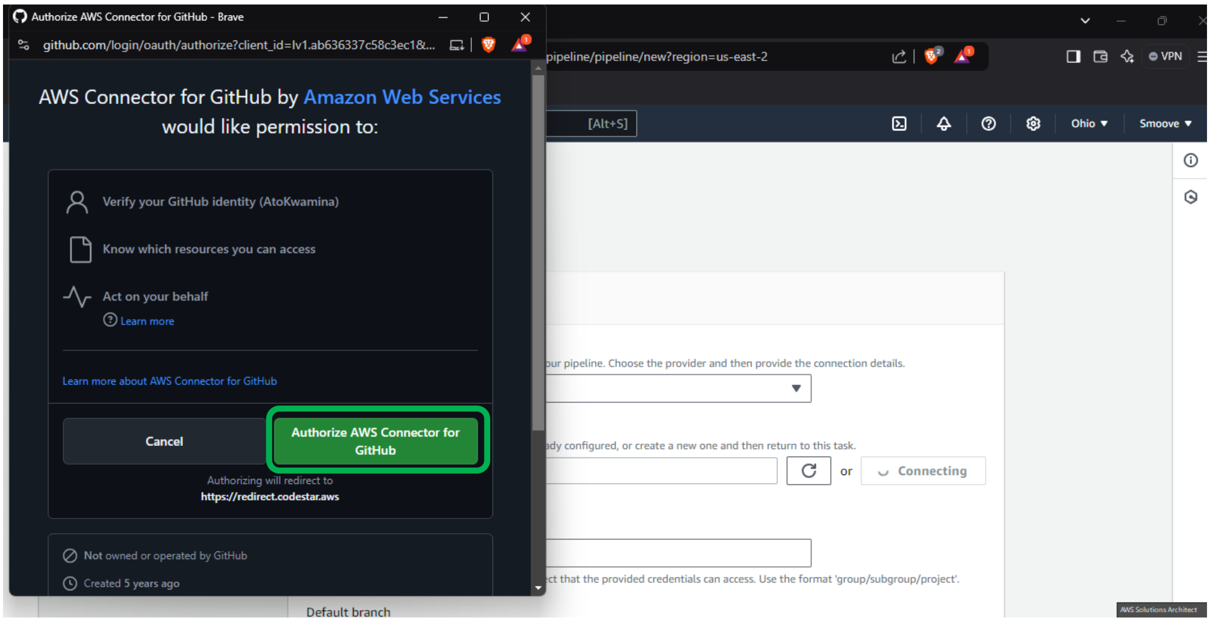
...pipeline/pipeline/new?region=us-east-2

...our pipeline. Choose the provider and then provide the connection details.

...ady configured, or create a new one and then return to this task.

...ct that the provided credentials can access. Use the format 'group/subgroup/project'.

You should then see a window like this:



Authorize AWS Connector for GitHub - Brave

github.com/login/oauth/authorize?client_id=Iv1.ab636337c58c3ec1&...

AWS Connector for GitHub by Amazon Web Services would like permission to:

Verify your GitHub identity (AtoKwamina)

Know which resources you can access

Act on your behalf

Learn more about AWS Connector for GitHub

Authorizing will redirect to https://redirect.codestar.aws

Not owned or operated by GitHub

Created 5 years ago

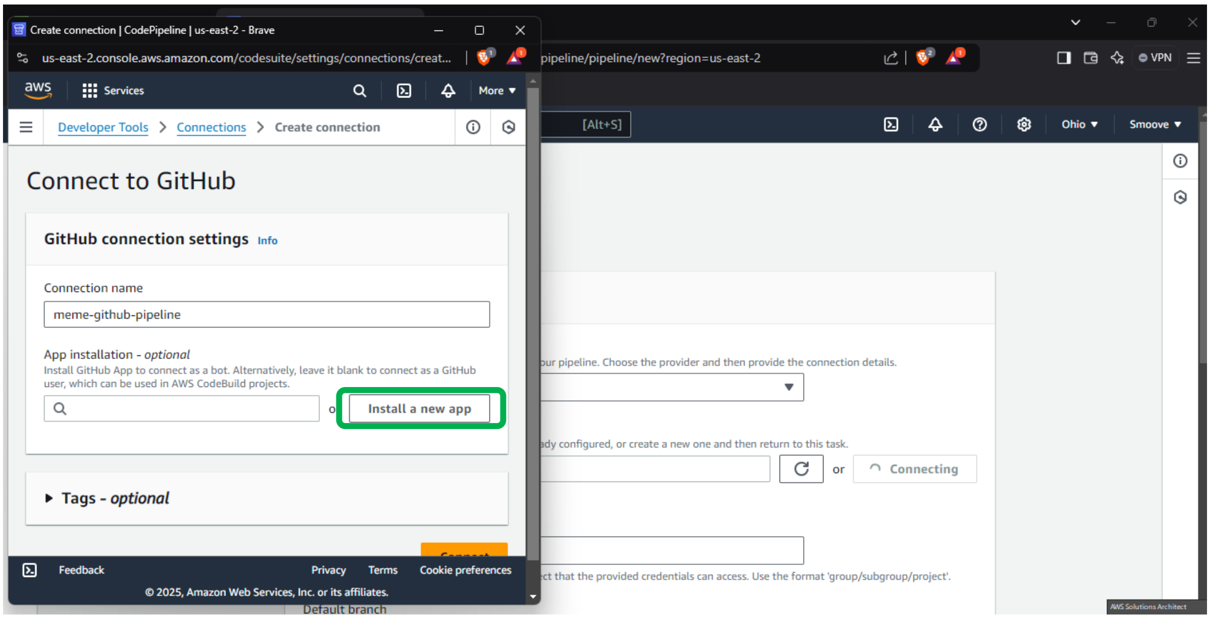
...pipeline/pipeline/new?region=us-east-2

...our pipeline. Choose the provider and then provide the connection details.

...ady configured, or create a new one and then return to this task.

...ct that the provided credentials can access. Use the format 'group/subgroup/project'.

Select ‘Authorize AWS Connector for GitHub’, and you’re moved to another page, where you select ‘Install a new app’:



Connect to GitHub

GitHub connection settings Info

Connection name

meme-github-pipeline

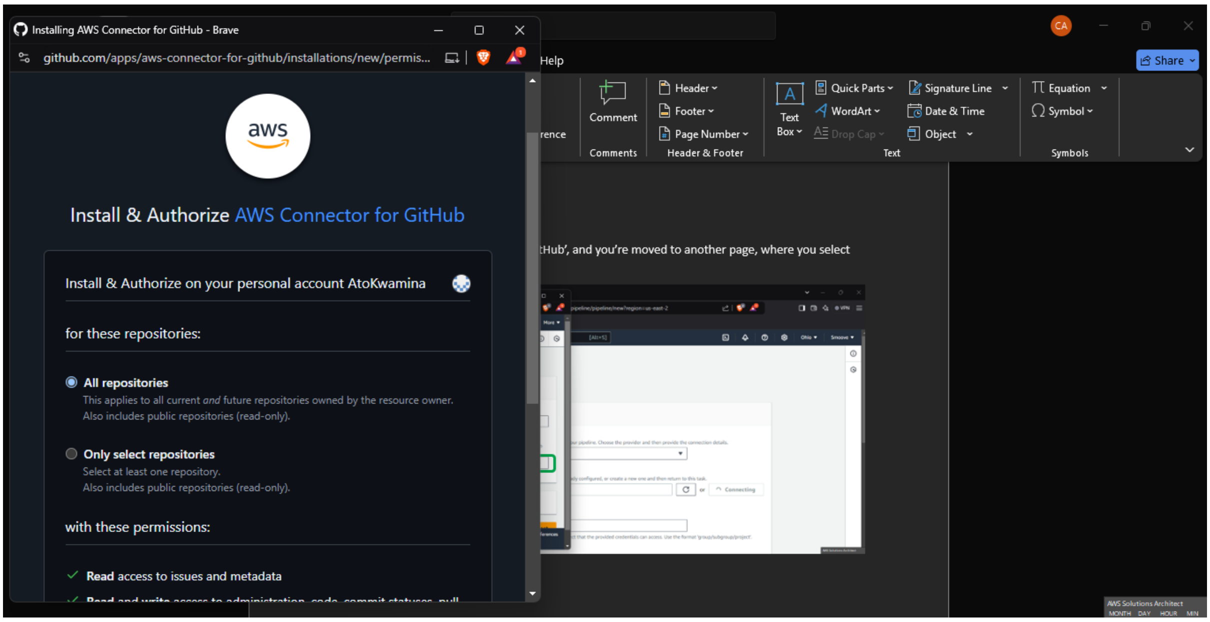
App installation - *optional*

Install GitHub App to connect as a bot. Alternatively, leave it blank to connect as a GitHub user, which can be used in AWS CodeBuild projects.

Create connection | CodePipeline | us-east-2 - Brave
us-east-2.console.aws.amazon.com/codesuite/settings/connections/creat...
Services
More
Developer Tools
Connections
Create connection
Install a new app
Tags - optional
Feedback
Privacy
Terms
Cookie preferences
© 2025, Amazon Web Services, Inc. or its affiliates.
Ohio
Smoove
Connecting

A new page opens like this. As seen from the screenshot below, my own GitHub account is showing now. If done correctly, your own GitHub account should also be displayed.

Choose ‘Only selected repositories’, and then from there, select the repository that was forked into your GitHub account. Finally, click on ‘Install and Authorize’.



Install & Authorize AWS Connector for GitHub

Install & Authorize on your personal account AtoKwamina

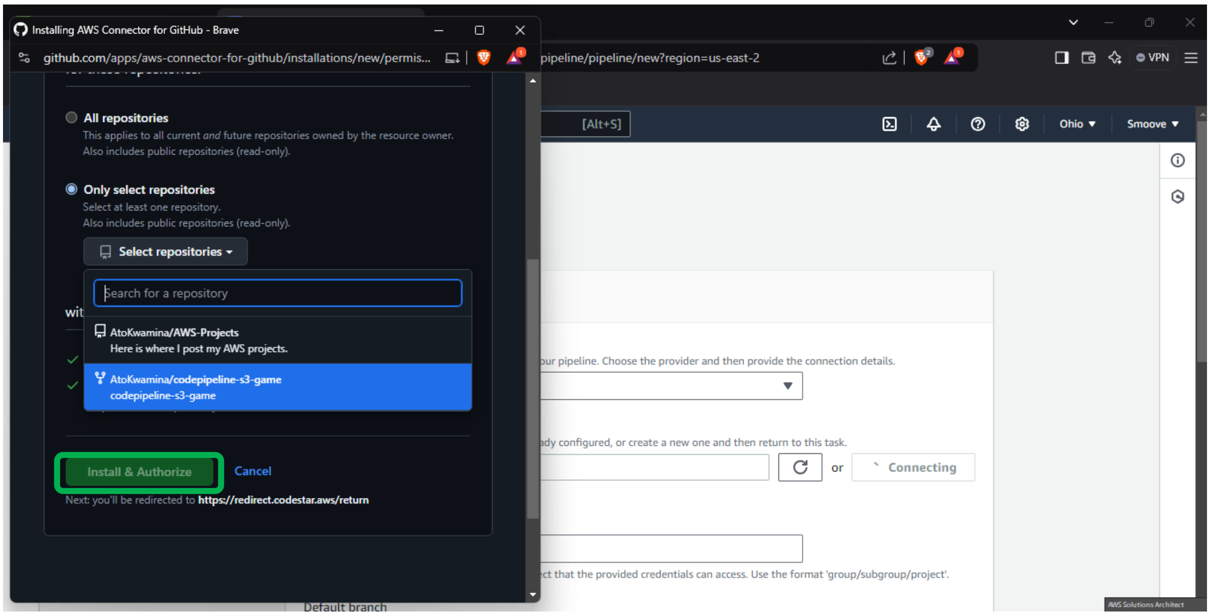
for these repositories:

● All repositories
This applies to all current *and* future repositories owned by the resource owner.
Also includes public repositories (read-only).

○ Only select repositories
Select at least one repository.
Also includes public repositories (read-only).

with these permissions:

✓ Read access to issues and metadata


Installing AWS Connector for GitHub - Brave

github.com/apps/aws-connector-for-github/installations/new/permis...

○ All repositories
This applies to all current *and* future repositories owned by the resource owner.
Also includes public repositories (read-only).

● Only select repositories
Select at least one repository.
Also includes public repositories (read-only).

Select repositories ▾

Search for a repository

AtoKwamina/AWS-Projects
Here is where I post my AWS projects.

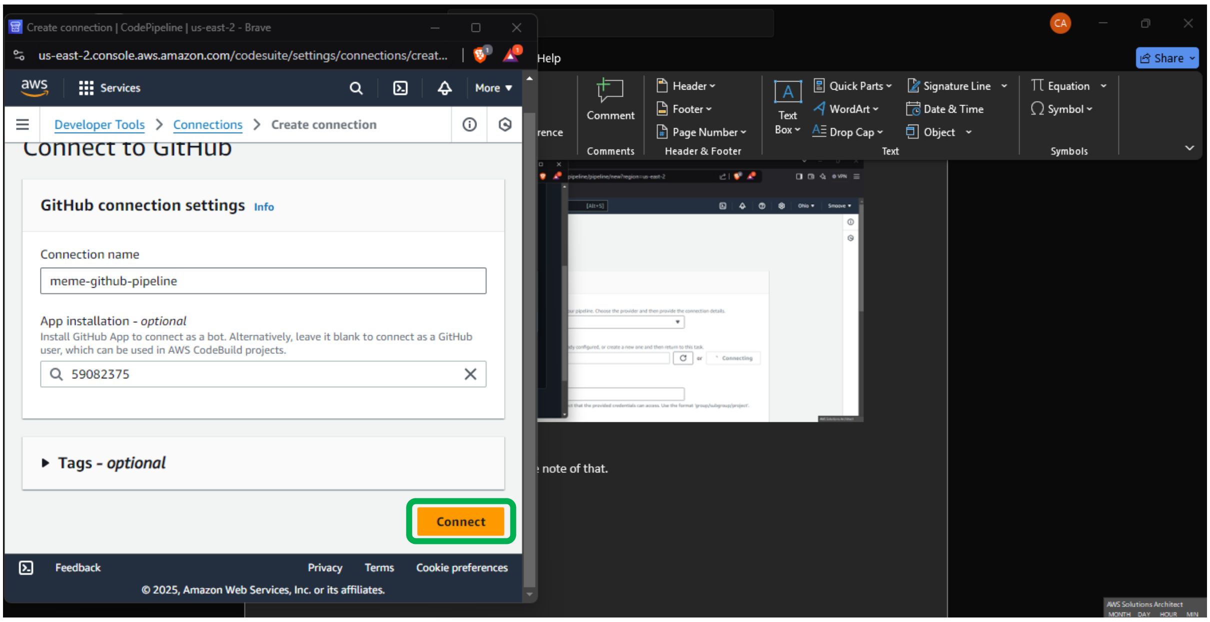
AtoKwamina/codepipeline-s3-game
codepipeline-s3-game

Install & Authorize   Cancel

Next: you'll be redirected to **https://redirect.codestar.aws/return**

NB: You may be asked to sign in, so take note of that.

On the next page, go ahead and click on 'Connect'.


Create connection | CodePipeline | us-east-2 - Brave

us-east-2.console.aws.amazon.com/codesuite/settings/connections/creat...

Developer Tools > Connections > Create connection

Connect to GitHub

GitHub connection settings Info

Connection name
meme-github-pipeline

App installation - *optional*
Install GitHub App to connect as a bot. Alternatively, leave it blank to connect as a GitHub user, which can be used in AWS CodeBuild projects.
59082375

▸ Tags - *optional*

Connect

Feedback   Privacy   Terms   Cookie preferences

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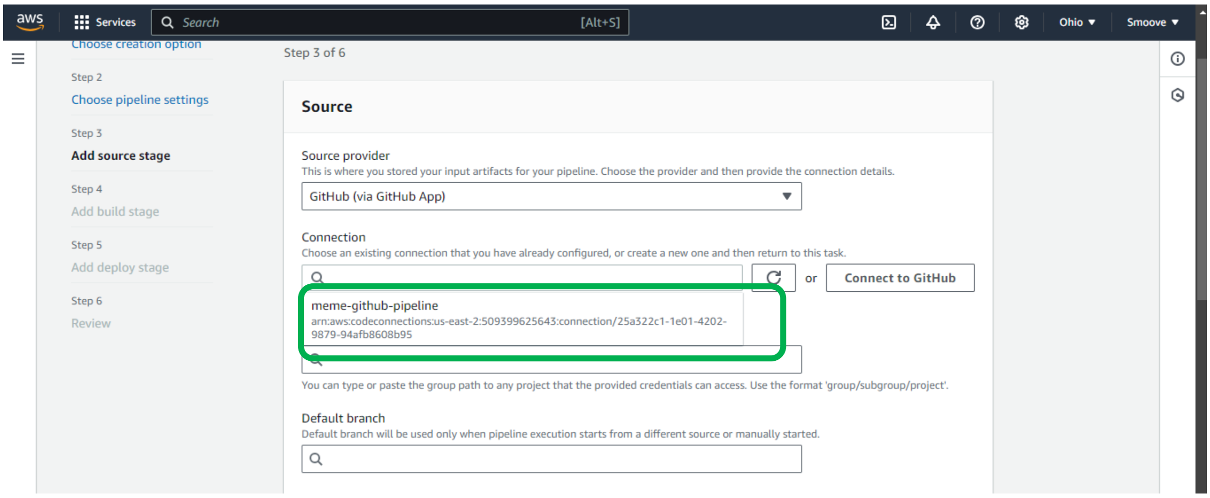
Once successful, the connection you just created should be present in the 'Connection' tab. Click on the tab and select it as I have selected mine below.



Choose creation option

Step 2

Choose pipeline settings

Step 3

Add source stage

Step 4

Add build stage

Step 5

Add deploy stage

Step 6

Review

Step 3 of 6

Source

Source provider

This is where you stored your input artifacts for your pipeline. Choose the provider and then provide the connection details.

GitHub (via GitHub App)

Connection

Choose an existing connection that you have already configured, or create a new one and then return to this task.

meme-github-pipeline

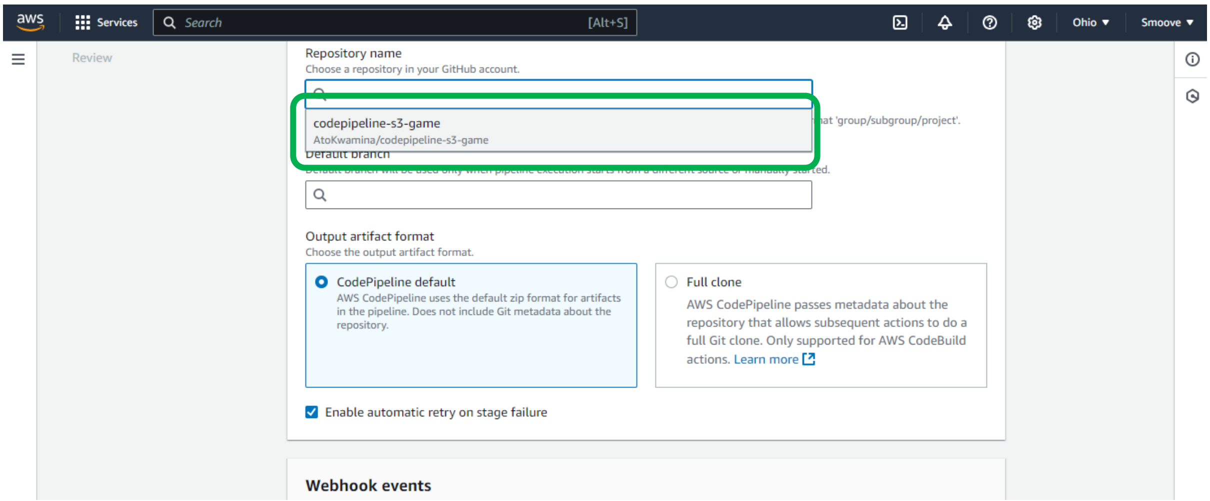
arn:aws:codeconnections:us-east-2:509399625643:connection/25a322c1-1e01-4202-9879-94afb8608b95

You can type or paste the group path to any project that the provided credentials can access. Use the format 'group/subgroup/project'.

Default branch

Default branch will be used only when pipeline execution starts from a different source or manually started.

Under the 'Repository name' option, select the name that pops up (pertaining to what you just created).



Review

Repository name

Choose a repository in your GitHub account.

codepipeline-s3-game

AtoKwamina/codepipeline-s3-game

Default branch

Default branch will be used only when pipeline execution starts from a different source or manually started.

Output artifact format

Choose the output artifact format.

● CodePipeline default

AWS CodePipeline uses the default zip format for artifacts in the pipeline. Does not include Git metadata about the repository.

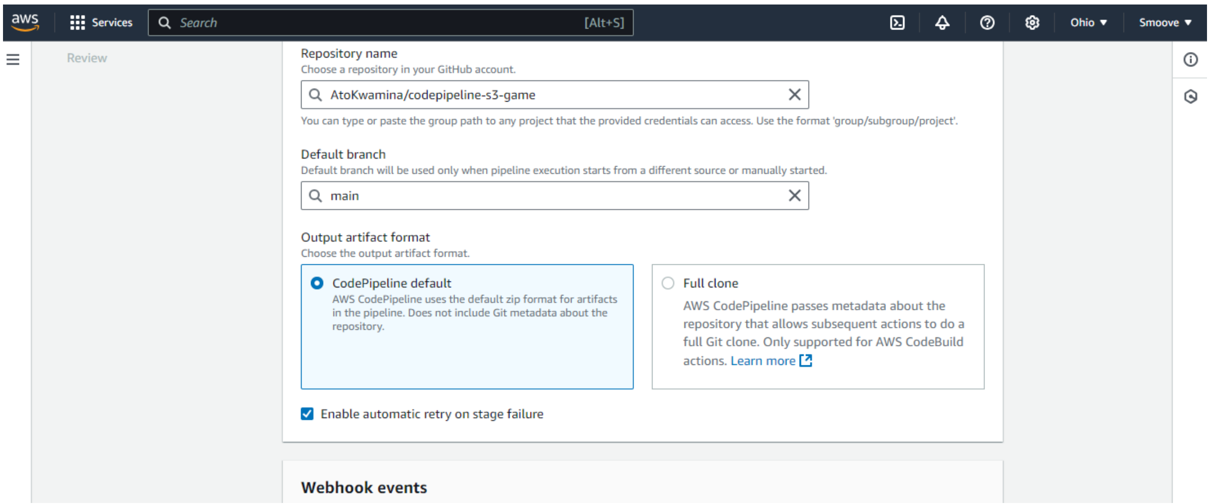
○ Full clone

AWS CodePipeline passes metadata about the repository that allows subsequent actions to do a full Git clone. Only supported for AWS CodeBuild actions. Learn more

☑ Enable automatic retry on stage failure

Webhook events

Use the default branch name ‘main’, then select ‘CodePipeline default’ and click on ‘Next’.



Repository name
Choose a repository in your GitHub account.
AtoKwamina/codepipeline-s3-game
You can type or paste the group path to any project that the provided credentials can access. Use the format 'group/subgroup/project'.

Default branch
Default branch will be used only when pipeline execution starts from a different source or manually started.
main

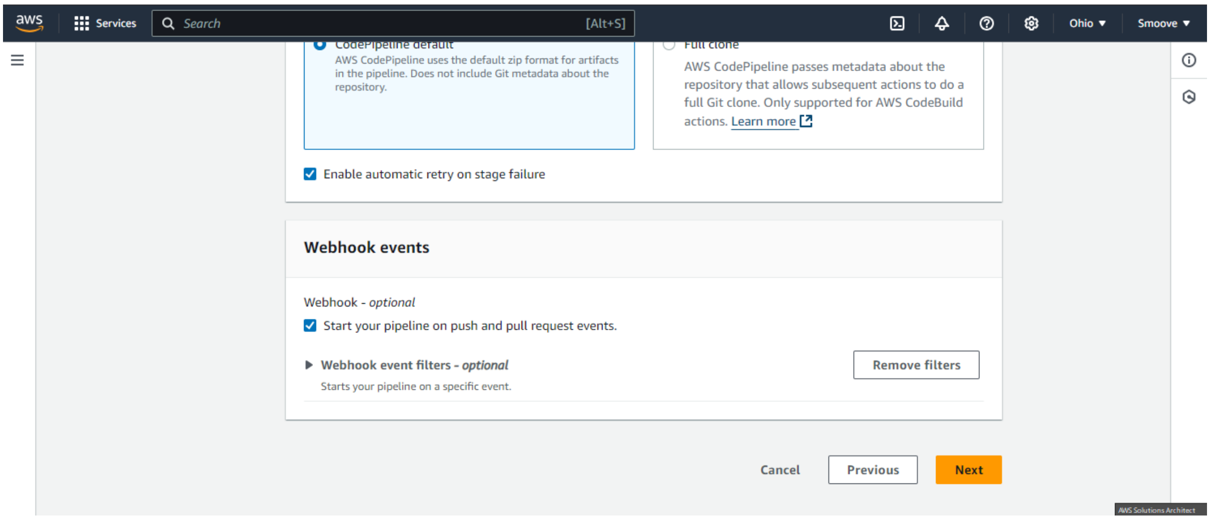
Output artifact format
Choose the output artifact format.

● CodePipeline default
AWS CodePipeline uses the default zip format for artifacts in the pipeline. Does not include Git metadata about the repository.

○ Full clone
AWS CodePipeline passes metadata about the repository that allows subsequent actions to do a full Git clone. Only supported for AWS CodeBuild actions. Learn more

☑ Enable automatic retry on stage failure

Webhook events



● CodePipeline default
AWS CodePipeline uses the default zip format for artifacts in the pipeline. Does not include Git metadata about the repository.

○ Full clone
AWS CodePipeline passes metadata about the repository that allows subsequent actions to do a full Git clone. Only supported for AWS CodeBuild actions. Learn more

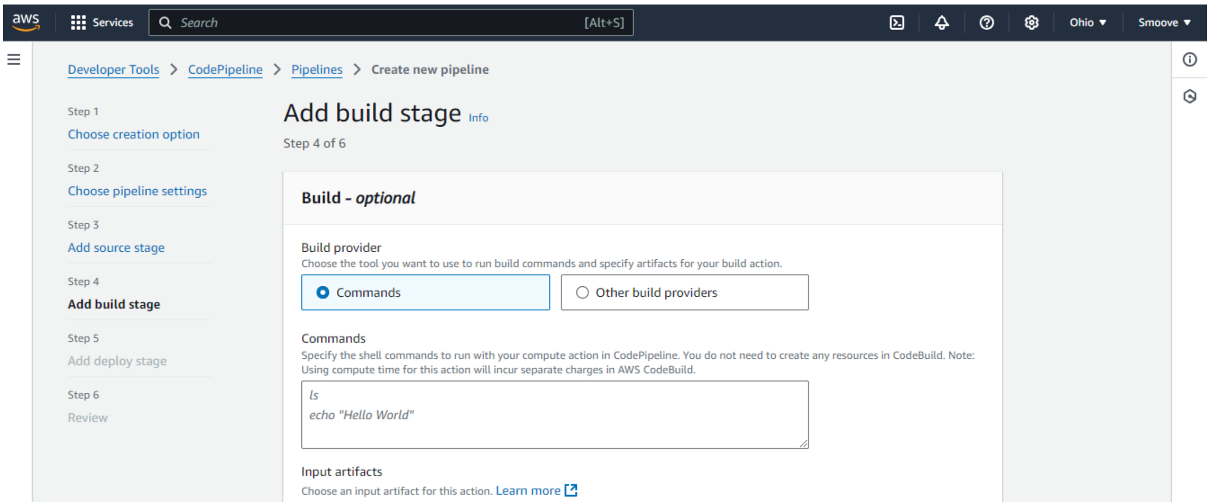
☑ Enable automatic retry on stage failure

Webhook events

Webhook - *optional*
☑ Start your pipeline on push and pull request events.

▸ Webhook event filters - *optional*
Starts your pipeline on a specific event.

For the ‘Build stage’ option, we will skip it since it relates to the part of the exercise on build and test, which we will not be doing here.



Add build stage Info
Step 4 of 6

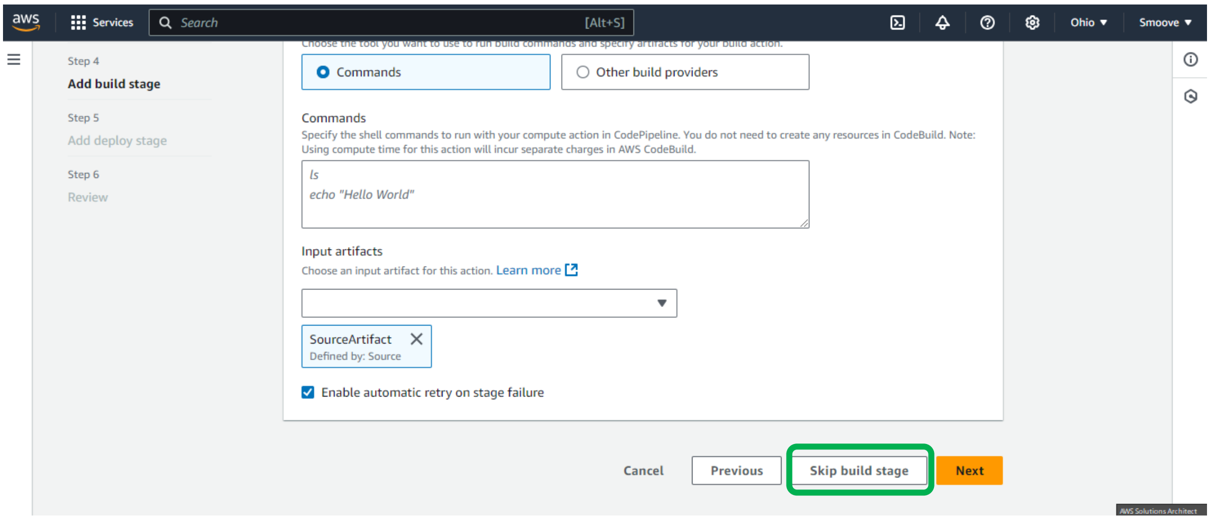
Build - *optional*

Build provider
Choose the tool you want to use to run build commands and specify artifacts for your build action.
● Commands ○ Other build providers

Commands
Specify the shell commands to run with your compute action in CodePipeline. You do not need to create any resources in CodeBuild. Note: Using compute time for this action will incur separate charges in AWS CodeBuild.

```
ls
echo "Hello World"
```

Input artifacts
Choose an input artifact for this action. Learn more



Step 4
Add build stage

Step 5
Add deploy stage

Step 6
Review

Choose the tool you want to use to run build commands and specify artifacts for your build action.

● Commands ○ Other build providers

Commands
Specify the shell commands to run with your compute action in CodePipeline. You do not need to create any resources in CodeBuild. Note: Using compute time for this action will incur separate charges in AWS CodeBuild.

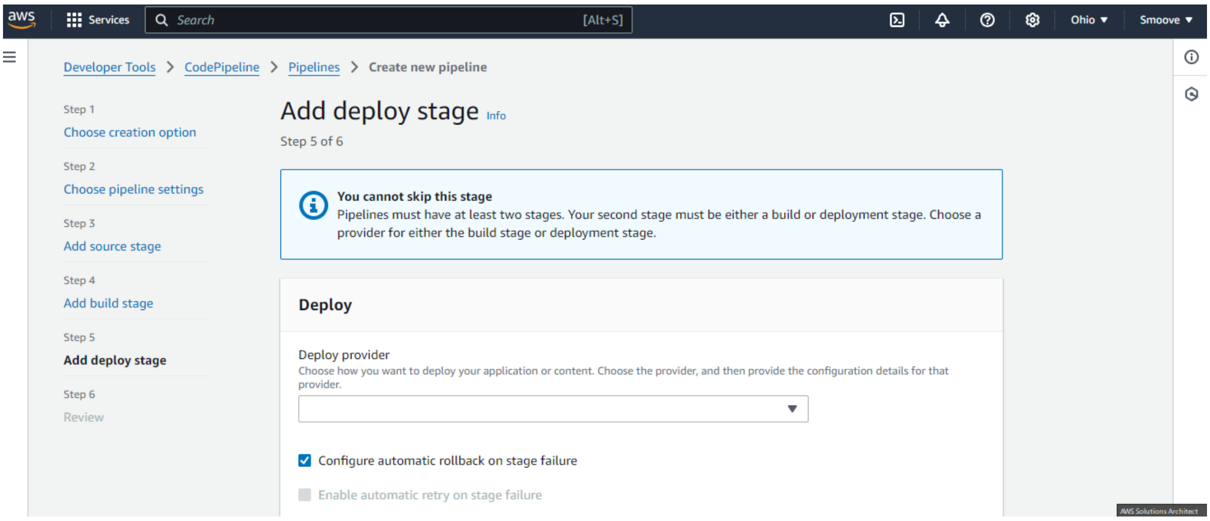
```
ls
echo "Hello World"
```

Input artifacts
Choose an input artifact for this action. Learn more

SourceArtifact
Defined by: Source

☑ Enable automatic retry on stage failure

On the next page, we have the 'Add deploy stage' option. This is where we choose the service in which we will be deploying our code.



Developer Tools > CodePipeline > Pipelines > Create new pipeline

Step 1
Choose creation option

Step 2
Choose pipeline settings

Step 3
Add source stage

Step 4
Add build stage

Step 5
Add deploy stage

Step 6
Review

Add deploy stage Info
Step 5 of 6

You cannot skip this stage
Pipelines must have at least two stages. Your second stage must be either a build or deployment stage. Choose a provider for either the build stage or deployment stage.

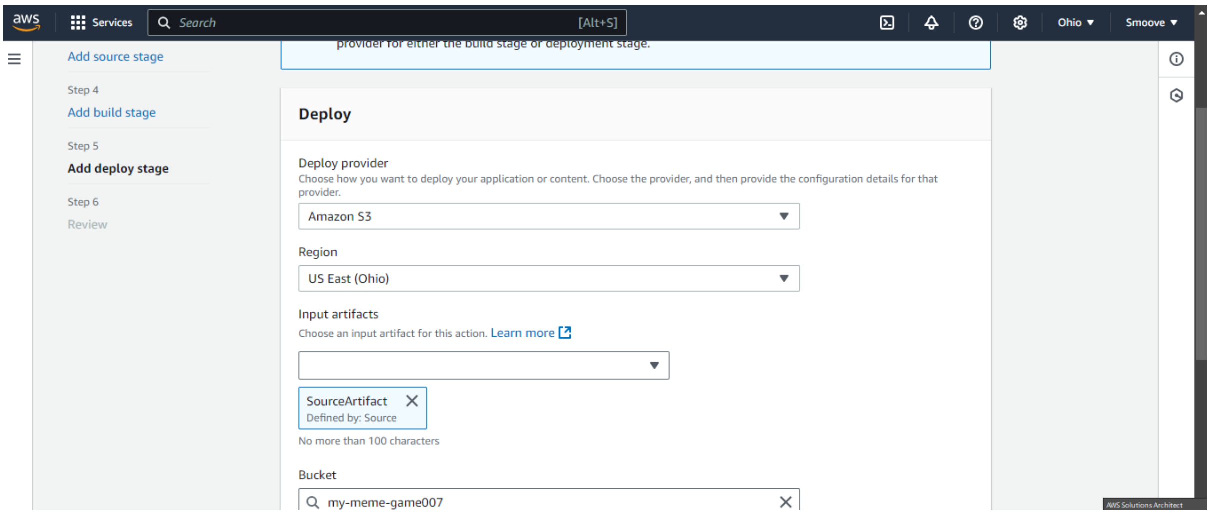
Deploy

Deploy provider
Choose how you want to deploy your application or content. Choose the provider, and then provide the configuration details for that provider.

☑ Configure automatic rollback on stage failure

□ Enable automatic retry on stage failure

Under the ‘Deploy provider’ side, select ‘Amazon S3’. Then ensure the region is the region you started with and are currently in, and also select the bucket (your bucket will automatically be an option once you click in the option bar).



provider for either the build stage or deployment stage.

Deploy

Deploy provider

Choose how you want to deploy your application or content. Choose the provider, and then provide the configuration details for that provider.

Amazon S3

Region

US East (Ohio)

Input artifacts

Choose an input artifact for this action. Learn more

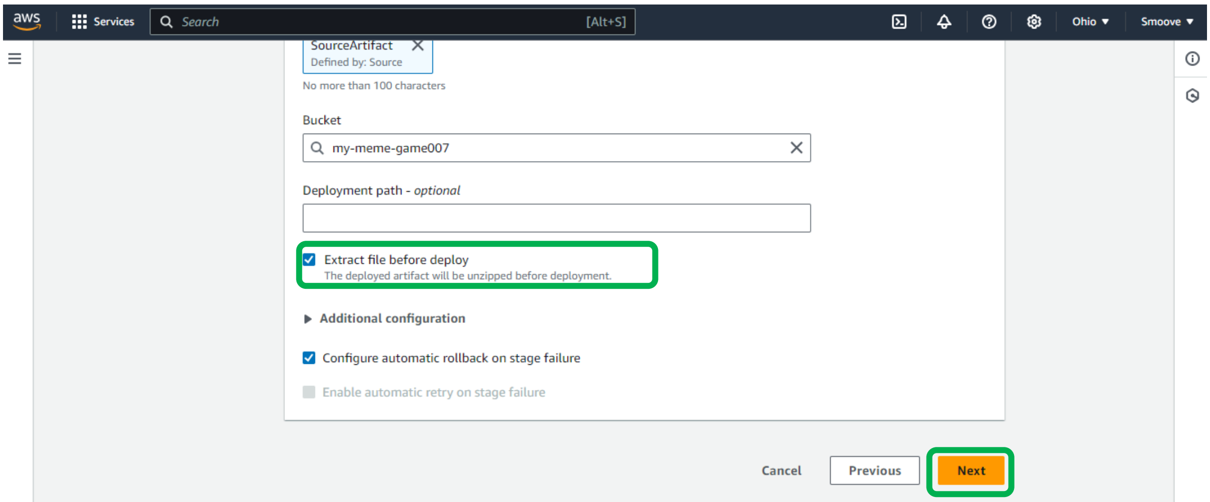
SourceArtifact ✕
Defined by: Source

No more than 100 characters

Bucket

my-meme-game007

Make sure the ‘Extract before deploy’ option is selected to get rid of the ‘S3 object key’ option, as we won’t be needing that. Then click ‘Next’.



SourceArtifact ✕
Defined by: Source

No more than 100 characters

Bucket

my-meme-game007

Deployment path - *optional*

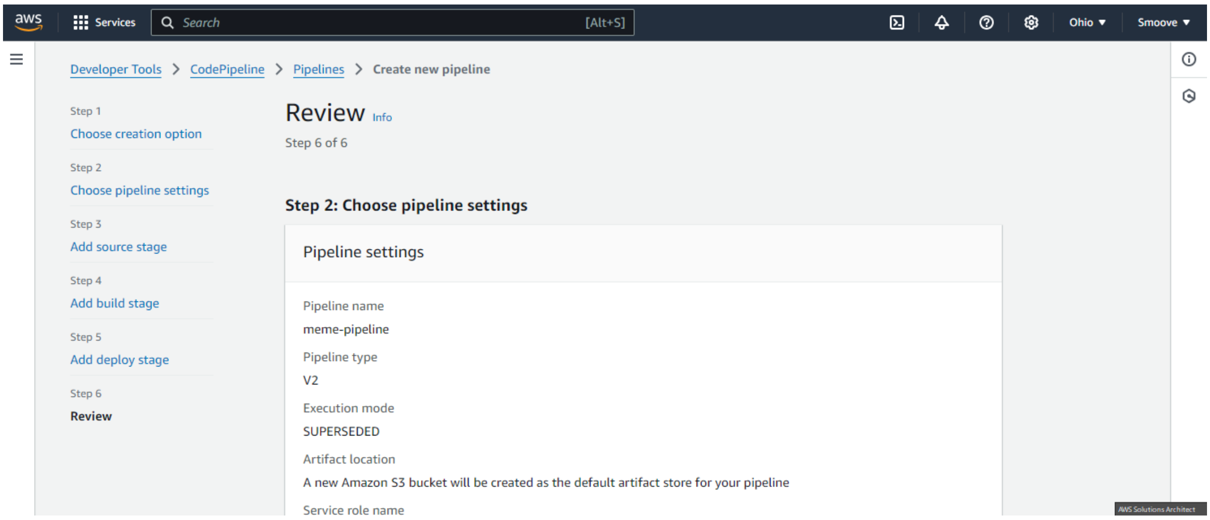
☑ Extract file before deploy
The deployed artifact will be unzipped before deployment.

▶ Additional configuration

☑ Configure automatic rollback on stage failure

□ Enable automatic retry on stage failure

The next page you will see is the ‘Review’ page. Ensure you have set everything up properly here, then click ‘Next’.



Developer Tools > CodePipeline > Pipelines > Create new pipeline

Step 1
Choose creation option

Step 2
Choose pipeline settings

Step 3
Add source stage

Step 4
Add build stage

Step 5
Add deploy stage

Step 6
Review

Review Info

Step 6 of 6

Step 2: Choose pipeline settings

Pipeline settings

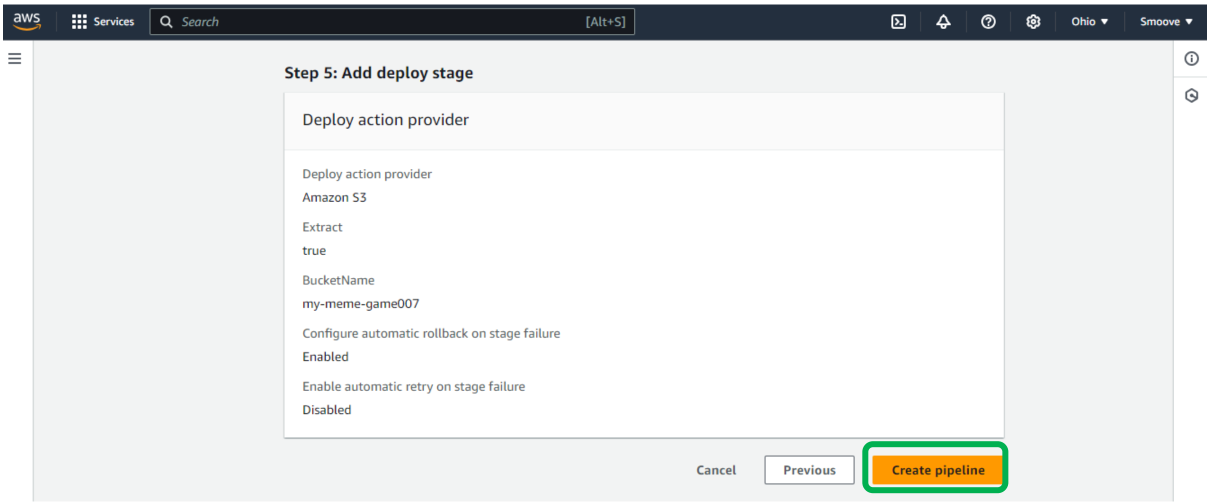
Pipeline name
meme-pipeline

Pipeline type
V2

Execution mode
SUPERSEDED

Artifact location
A new Amazon S3 bucket will be created as the default artifact store for your pipeline

Service role name



Step 5: Add deploy stage

Deploy action provider

Deploy action provider
Amazon S3

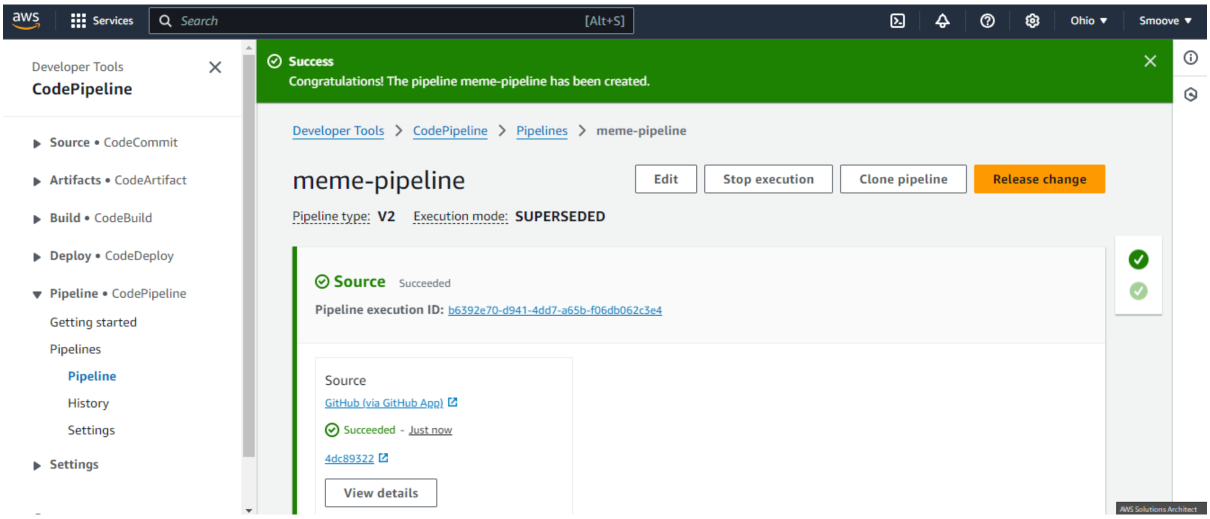
Extract
true

BucketName
my-meme-game007

Configure automatic rollback on stage failure
Enabled

Enable automatic retry on stage failure
Disabled

And there you have it! Pipeline created.



Developer Tools
CodePipeline

- ▶ Source • CodeCommit
- ▶ Artifacts • CodeArtifact
- ▶ Build • CodeBuild
- ▶ Deploy • CodeDeploy
- ▼ Pipeline • CodePipeline
  - Getting started
  - Pipelines
    - Pipeline
    - History
    - Settings
- ▶ Settings

Success
Congratulations! The pipeline meme-pipeline has been created.

Developer Tools > CodePipeline > Pipelines > meme-pipeline

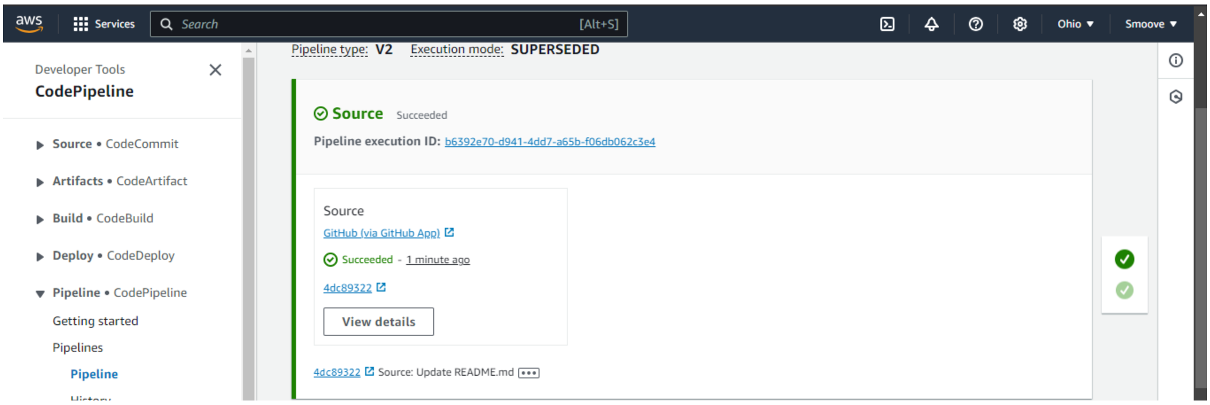
meme-pipeline

Pipeline type: V2 Execution mode: SUPERSEDED

Source Succeeded
Pipeline execution ID: b6392e70-d941-4dd7-a65b-f06db062c3e4

Source
GitHub (via GitHub App)
Succeeded - Just now
4dc89322

So, you will observe two parts to this. The first part is where CodePipeline grabs the code needed from our GitHub repository:



Pipeline type: V2 Execution mode: SUPERSEDED

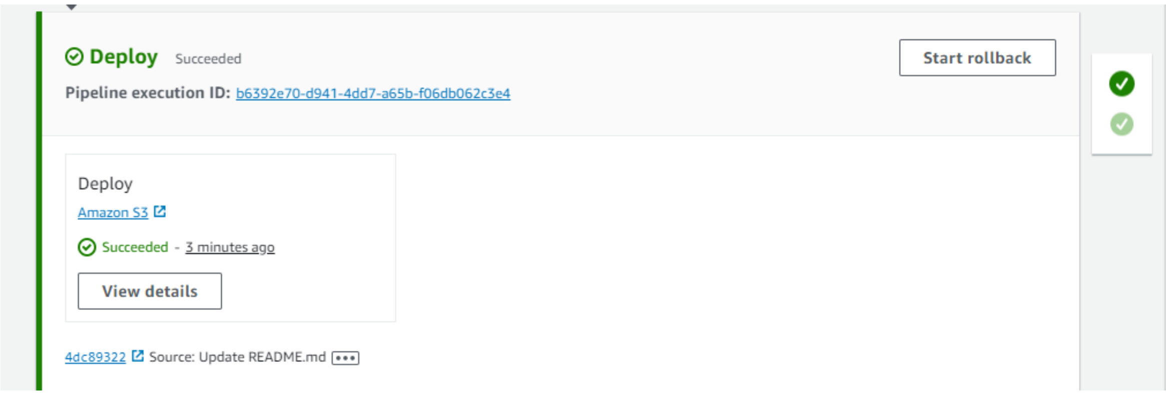
Source Succeeded

Pipeline execution ID: b6392e70-d941-4dd7-a65b-f06db062c3e4

Source
GitHub (via GitHub App)
Succeeded - 1 minute ago
4dc89322

4dc89322 Source: Update README.md

The second part will be where CodePipeline then deploys the code on S3:



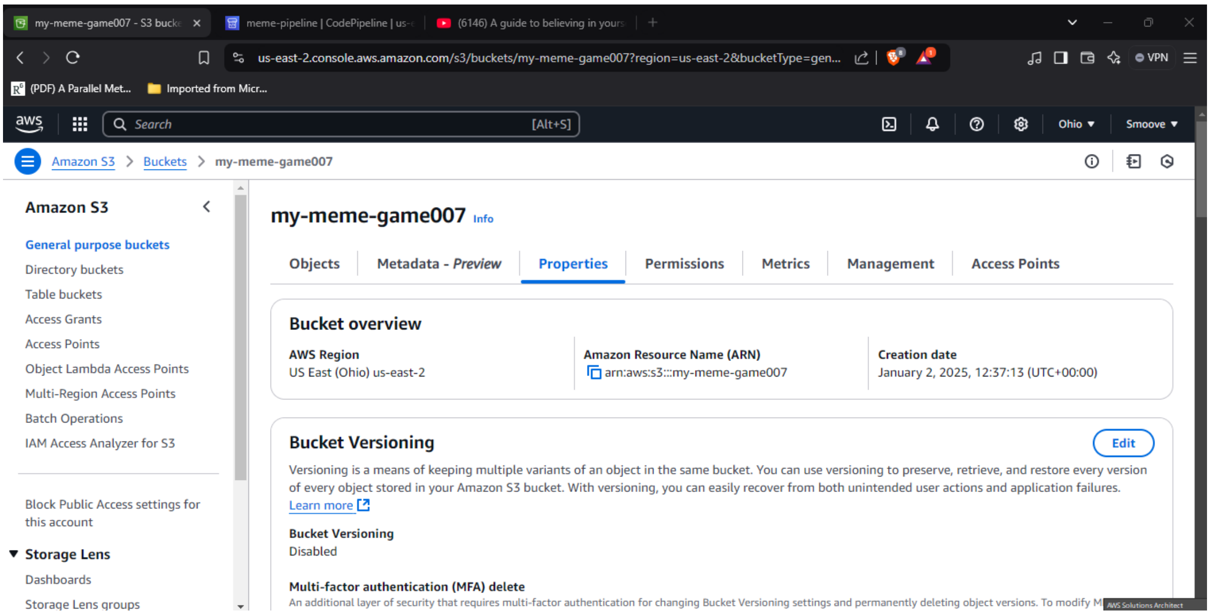
Deploy Succeeded

Pipeline execution ID: b6392e70-d941-4dd7-a65b-f06db062c3e4

Deploy
Amazon S3
Succeeded - 3 minutes ago

4dc89322 Source: Update README.md

We can now go ahead and test things out. We will start by going back to the S3 tab and choosing ‘Properties’:


my-meme-game007 - S3 bucke
meme-pipeline | CodePipeline | us-
(6146) A guide to believing in yours
us-east-2.console.aws.amazon.com/s3/buckets/my-meme-game007?region=us-east-2&bucketType=gen...
VPN
(PDF) A Parallel Met...
Imported from Micr...
aws
Search
[Alt+S]
Ohio ▾
Smoove ▾
Amazon S3 > Buckets > my-meme-game007
Amazon S3
General purpose buckets
Directory buckets
Table buckets
Access Grants
Access Points
Object Lambda Access Points
Multi-Region Access Points
Batch Operations
IAM Access Analyzer for S3
Block Public Access settings for this account
Storage Lens
Dashboards
Storage Lens groups
Objects
Metadata - Preview
Properties
Permissions
Metrics
Management
Access Points
Edit
AWS Solutions Architect

my-meme-game007 Info

Bucket overview

AWS Region	Amazon Resource Name (ARN)	Creation date
US East (Ohio) us-east-2	arn:aws:s3:::my-meme-game007	January 2, 2025, 12:37:13 (UTC+00:00)

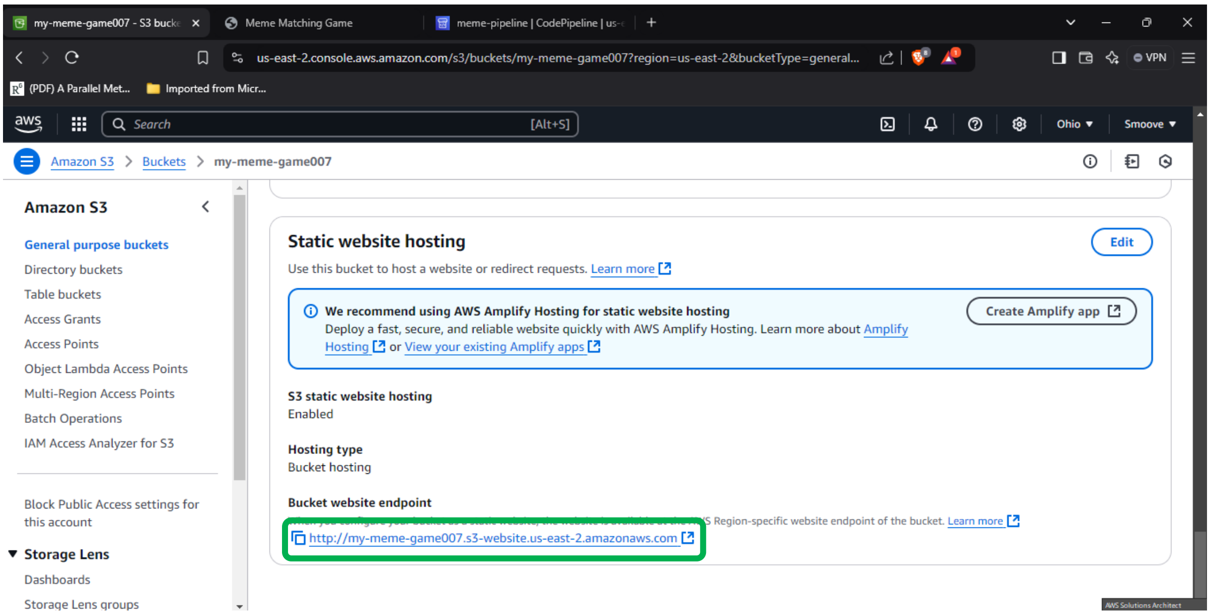
Bucket Versioning

Versioning is a means of keeping multiple variants of an object in the same bucket. You can use versioning to preserve, retrieve, and restore every version of every object stored in your Amazon S3 bucket. With versioning, you can easily recover from both unintended user actions and application failures. Learn more

Bucket Versioning
Disabled

Multi-factor authentication (MFA) delete
An additional layer of security that requires multi-factor authentication for changing Bucket Versioning settings and permanently deleting object versions. To modify M

Scroll all the way down to ‘Static website hosting’ section. There should be a bucket website endpoint there. Click on it to reveal the result of your code.


my-meme-game007 - S3 bucke
Meme Matching Game
meme-pipeline | CodePipeline | us-
us-east-2.console.aws.amazon.com/s3/buckets/my-meme-game007?region=us-east-2&bucketType=general...
VPN
(PDF) A Parallel Met...
Imported from Micr...
aws
Search
[Alt+S]
Ohio ▾
Smoove ▾
Amazon S3 > Buckets > my-meme-game007
Amazon S3
General purpose buckets
Directory buckets
Table buckets
Access Grants
Access Points
Object Lambda Access Points
Multi-Region Access Points
Batch Operations
IAM Access Analyzer for S3
Block Public Access settings for this account
▼ Storage Lens
Dashboards
Storage Lens groups
Edit
Create Amplify app
AWS Solutions Architect

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

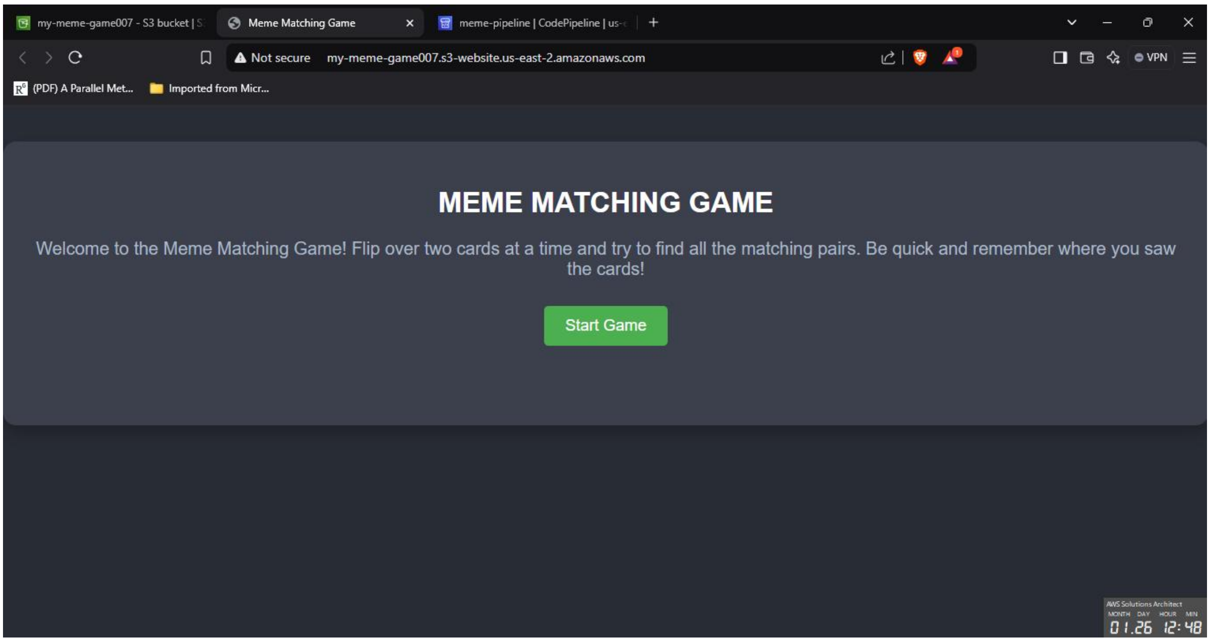
Deploy a fast, secure, and reliable website quickly with AWS Amplify Hosting. Learn more about Amplify Hosting or View your existing Amplify apps

S3 static website hosting
Enabled

Hosting type
Bucket hosting

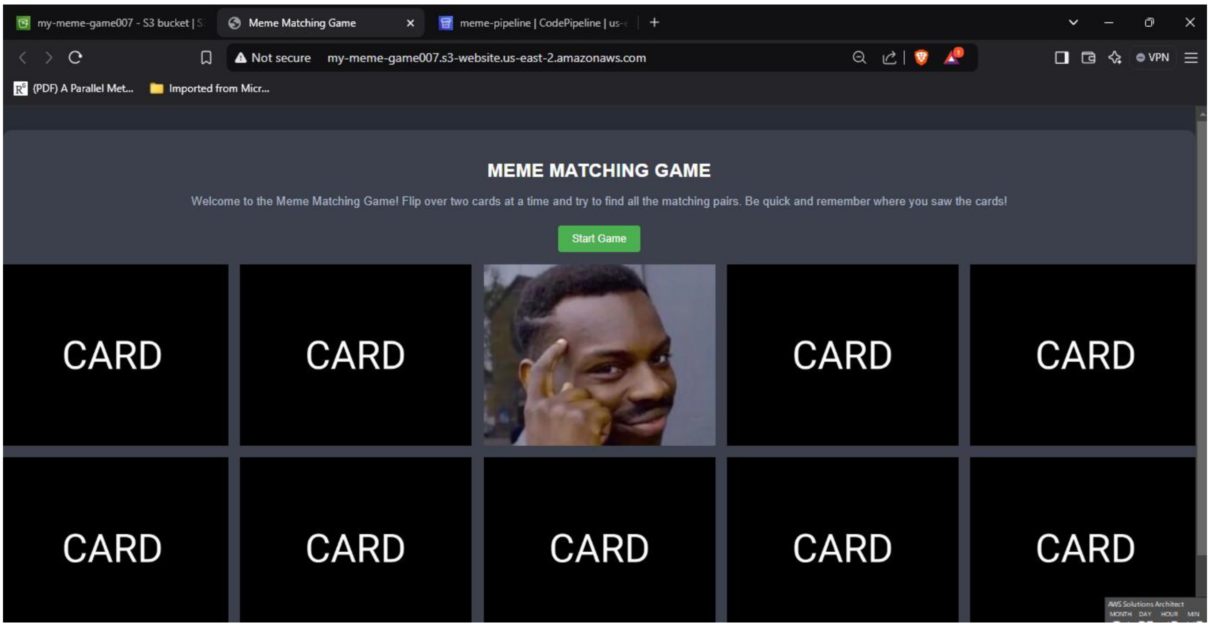
Bucket website endpoint
When you configure your bucket as a static website, the website is available at the AWS Region-specific website endpoint of the bucket. Learn more
http://my-meme-game007.s3-website.us-east-2.amazonaws.com

And there you have it!



MEME MATCHING GAME

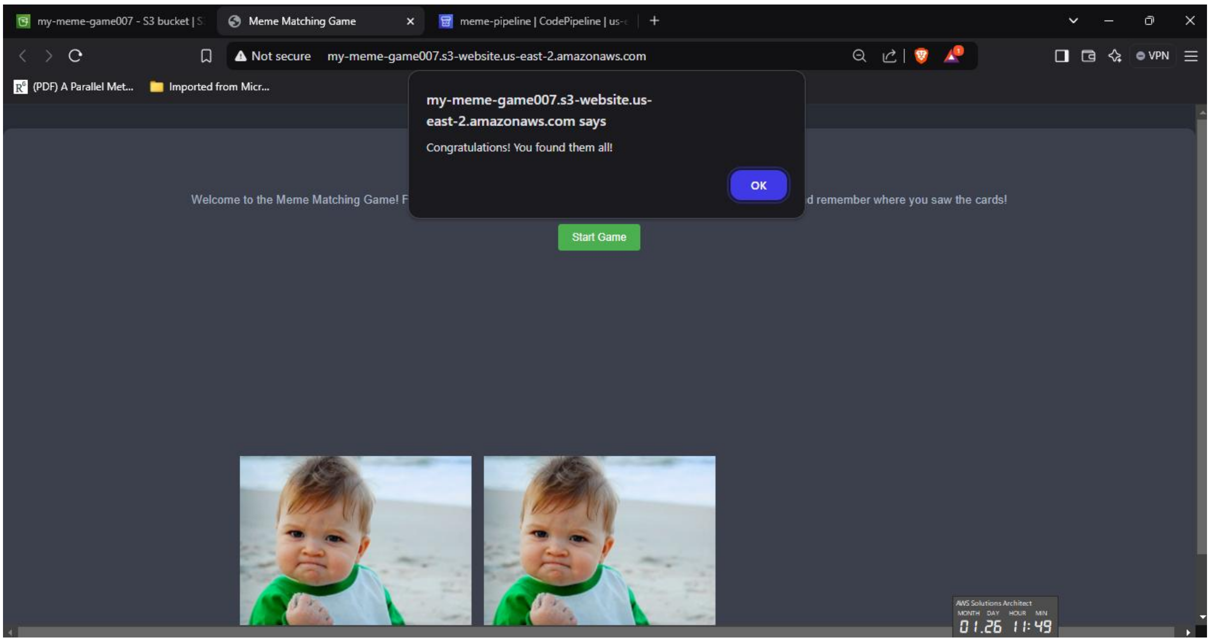
Welcome to the Meme Matching Game! Flip over two cards at a time and try to find all the matching pairs. Be quick and remember where you saw the cards!



MEME MATCHING GAME

Welcome to the Meme Matching Game! Flip over two cards at a time and try to find all the matching pairs. Be quick and remember where you saw the cards!

Looks like I am done with my game now. LOL



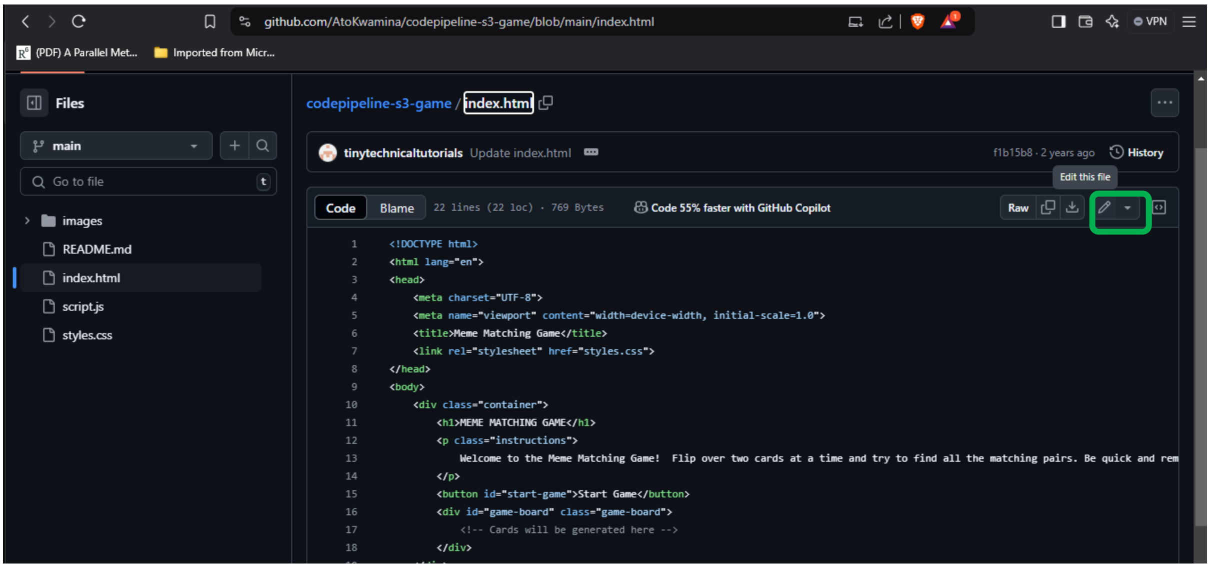
my-meme-game007.s3-website.us-east-2.amazonaws.com says

Congratulations! You found them all!

Welcome to the Meme Matching Game! F… d remember where you saw the cards!

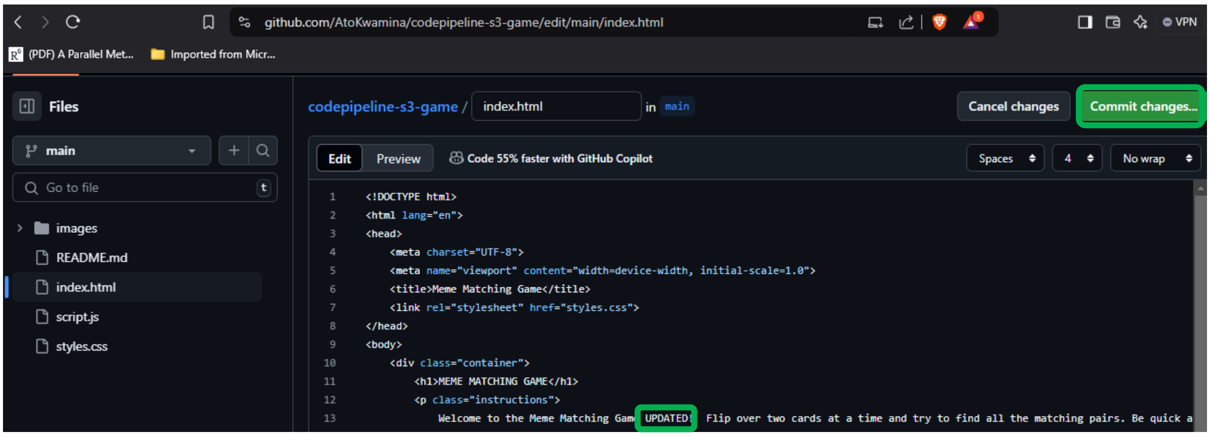
Oh and, one thing we need to remind ourselves of, where CodePipeline is concerned. Remember it's not just taking code from GitHub and deploying it in S3 per our configuration. It's also supposed to detect changes in our code and adjust the final product as such. So, let's test this.

Let's go back to GitHub and make a small change to our HTML code. Select the index.html file from the options to the left, and click on the pencil icon on the right to edit it.


github.com/AtoKwamina/codepipeline-s3-game/blob/main/index.html
(PDF) A Parallel Met...
Imported from Micr...
VPN
Files
main
Go to file
images
README.md
index.html
script.js
styles.css
codepipeline-s3-game / index.html
tinytechnicaltutorials Update index.html
f1b15b8 · 2 years ago
History
Edit this file
Code
Blame
22 lines (22 loc) · 769 Bytes
Code 55% faster with GitHub Copilot
Raw

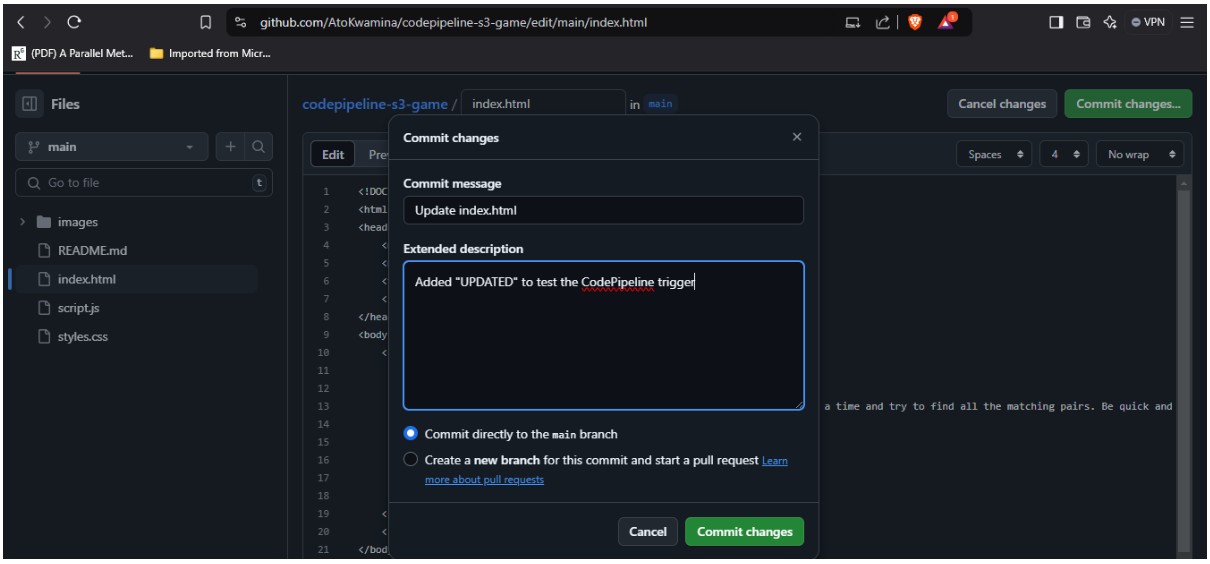
```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Meme Matching Game</title>
    <link rel="stylesheet" href="styles.css">
</head>
<body>
    <div class="container">
        <h1>MEME MATCHING GAME</h1>
        <p class="instructions">
            Welcome to the Meme Matching Game!  Flip over two cards at a time and try to find all the matching pairs. Be quick and rem
        </p>
        <button id="start-game">Start Game</button>
        <div id="game-board" class="game-board">
            <!-- Cards will be generated here -->
        </div>
```

We are just going to add the word 'UPDATED' to the instructions section of the code, and then click on 'Commit changes' like this:



```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Meme Matching Game</title>
    <link rel="stylesheet" href="styles.css">
</head>
<body>
    <div class="container">
        <h1>MEME MATCHING GAME</h1>
        <p class="instructions">
            Welcome to the Meme Matching Game UPDATED!  Flip over two cards at a time and try to find all the matching pairs. Be quick a
```

On the next page, you can just add a description of the change you just did, and then click on 'Commit changes'.



github.com/AtoKwamina/codepipeline-s3-game/edit/main/index.html

codepipeline-s3-game / index.html in main

Commit changes

Commit message: Update index.html

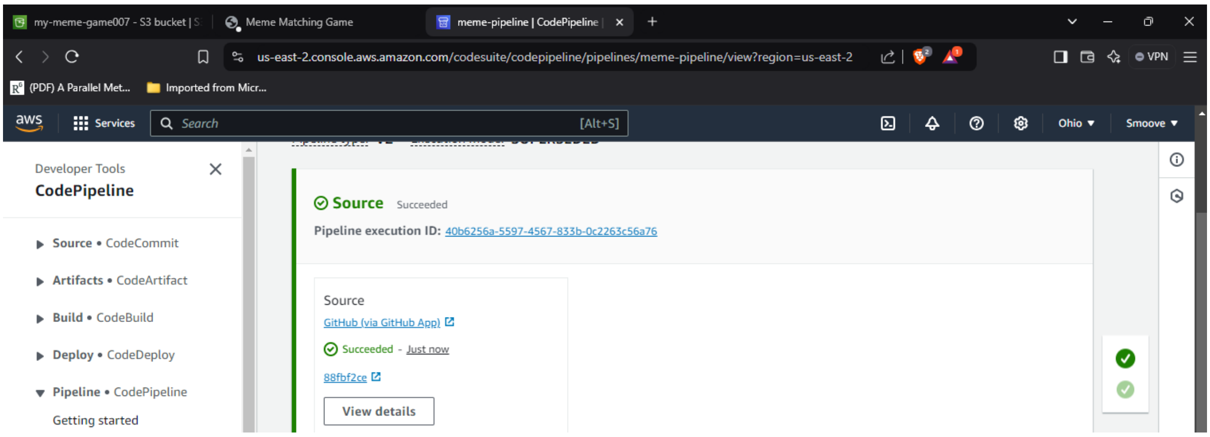
Extended description: Added "UPDATED" to test the CodePipeline trigger

● Commit directly to the `main` branch

○ Create a **new branch** for this commit and start a pull request Learn more about pull requests

Cancel | Commit changes

If you go back to the CodePipeline page, you will notice that some changes have occurred in the 'Source' section.



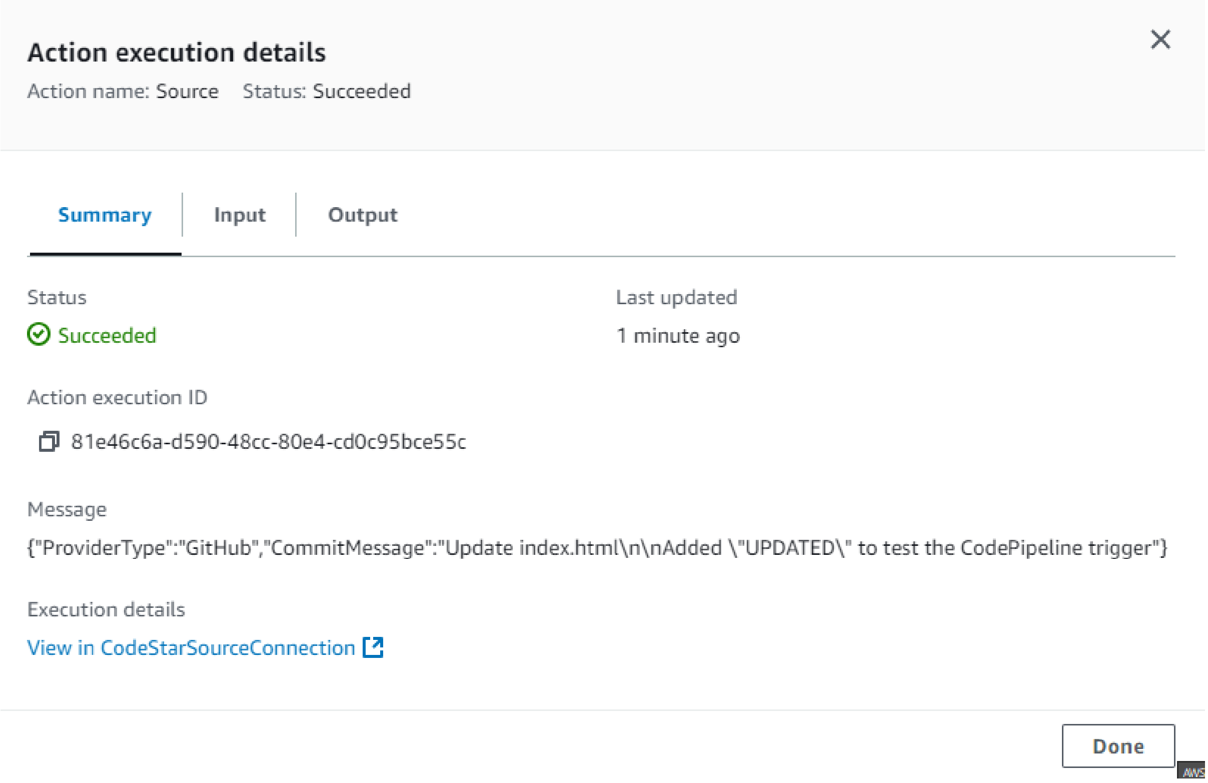
us-east-2.console.aws.amazon.com/codesuite/codepipeline/pipelines/meme-pipeline/view?region=us-east-2

Source Succeeded

Pipeline execution ID: 40b6256a-5597-4567-833b-0c2263c56a76

Source
GitHub (via GitHub App)
Succeeded - Just now
88fbf2ce
View details

Click on 'View details' to show more information about this:



Action execution details

Action name: Source Status: Succeeded

Status
✓ Succeeded

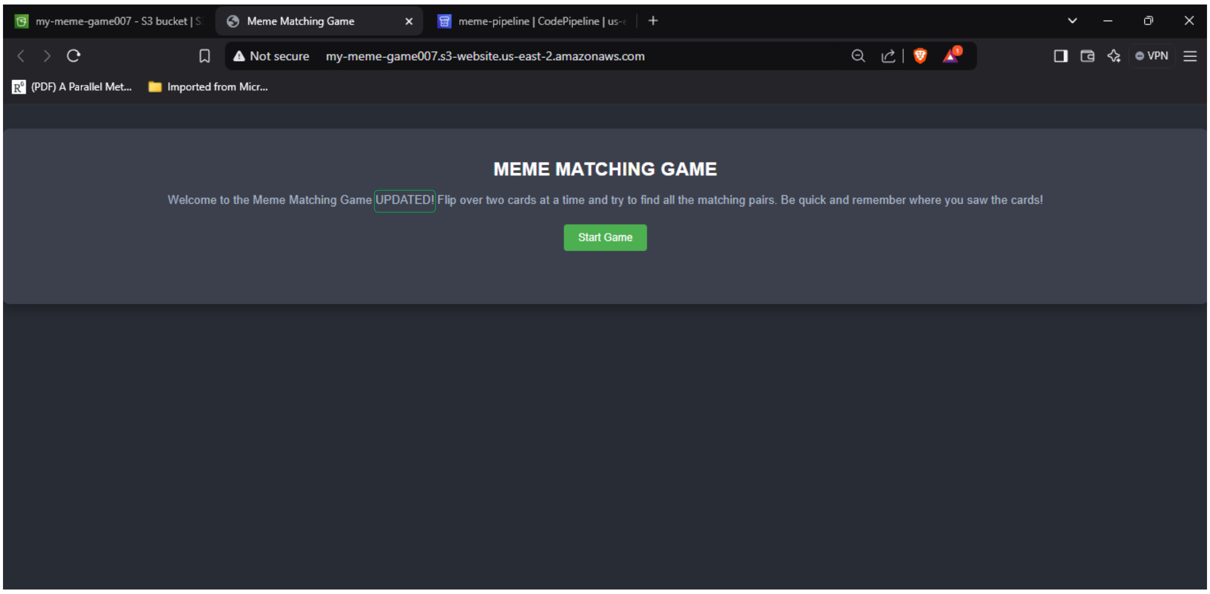
Last updated
1 minute ago

Action execution ID
81e46c6a-d590-48cc-80e4-cd0c95bce55c

Message
{"ProviderType":"GitHub","CommitMessage":"Update index.html\n\nAdded \"UPDATED\" to test the CodePipeline trigger"}

Execution details
View in CodeStarSourceConnection

Now, go back to the webpage and reload. You will see that the little update we did has taken effect.



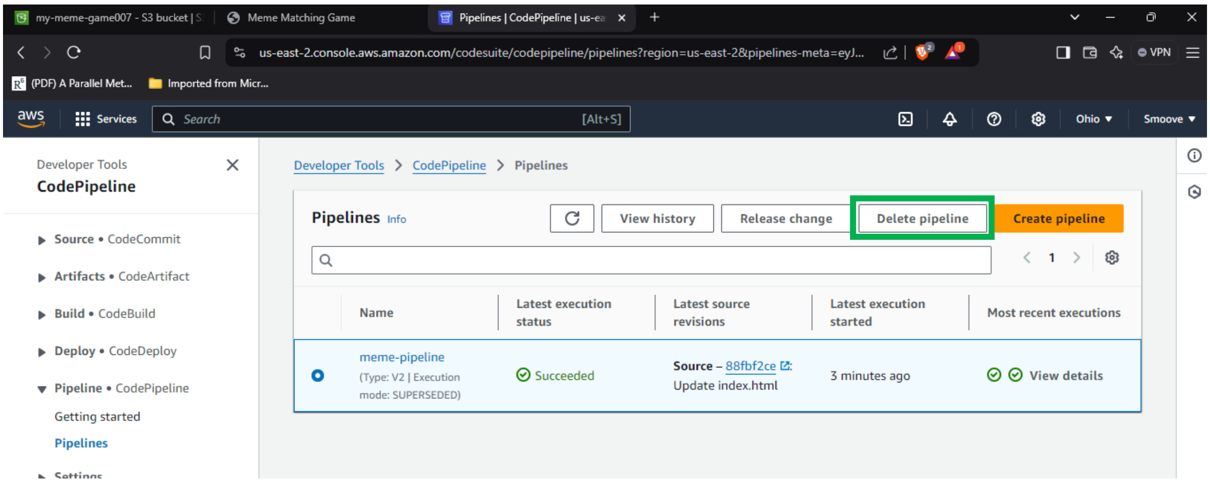
my-meme-game007 - S3 bucket | S
Meme Matching Game
meme-pipeline | CodePipeline | us-
Not secure
my-meme-game007.s3-website.us-east-2.amazonaws.com
VPN
(PDF) A Parallel Met...
Imported from Micr...

MEME MATCHING GAME

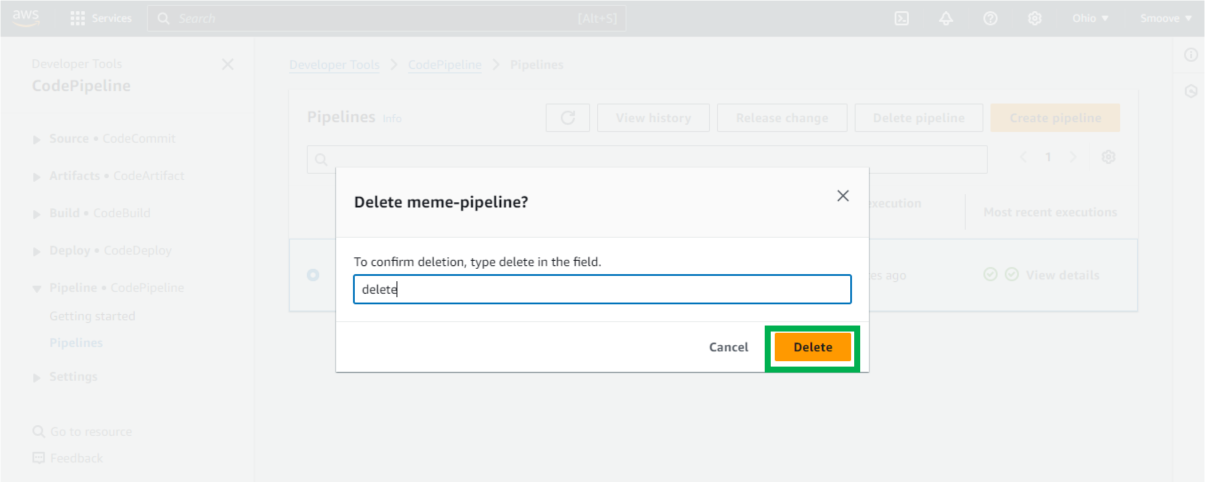
Welcome to the Meme Matching Game UPDATED! Flip over two cards at a time and try to find all the matching pairs. Be quick and remember where you saw the cards!

Great! So that's all for this project. But remember to delete all your work to avoid incurring unwarranted charges!

To do this, let's begin with CodePipeline. Go to that page and select the pipeline you have created. Then, click on 'Delete' to remove it permanently.



	Name	Latest execution status	Latest source revisions	Latest execution started	Most recent executions
●	meme-pipeline (Type: V2 | Execution mode: SUPERSEDED)	✓ Succeeded	Source – 88fbf2ce Update index.html	3 minutes ago	✓ ✓ View details

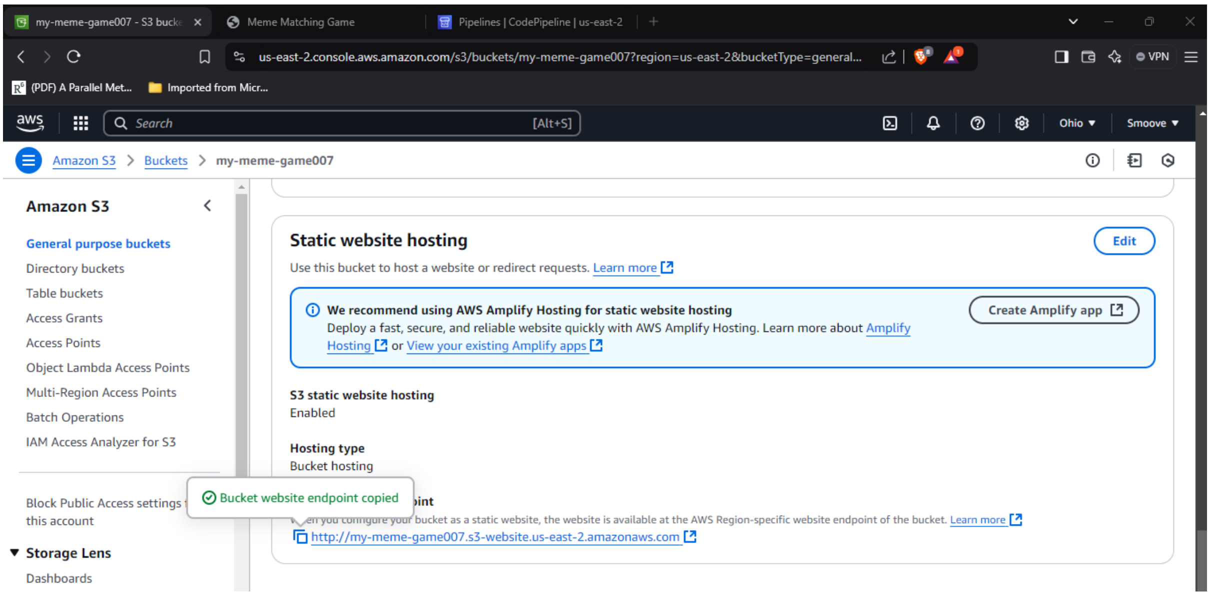


Delete meme-pipeline?

To confirm deletion, type delete in the field.

delete

Now we move out to the S3 tab as well. Here we will try to delete the bucket, but since it has objects in it, we will have to empty it first. See the screenshots below.


my-meme-game007 - S3 bucke
Meme Matching Game
Pipelines | CodePipeline | us-east-2
us-east-2.console.aws.amazon.com/s3/buckets/my-meme-game007?region=us-east-2&bucketType=general...
(PDF) A Parallel Met...
Imported from Micr...
Search
[Alt+S]
Ohio
Smoove
Amazon S3 > Buckets > my-meme-game007
Amazon S3
General purpose buckets
Directory buckets
Table buckets
Access Grants
Access Points
Object Lambda Access Points
Multi-Region Access Points
Batch Operations
IAM Access Analyzer for S3
Block Public Access settings for this account
Storage Lens
Dashboards
Edit
Create Amplify app

Static website hosting

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

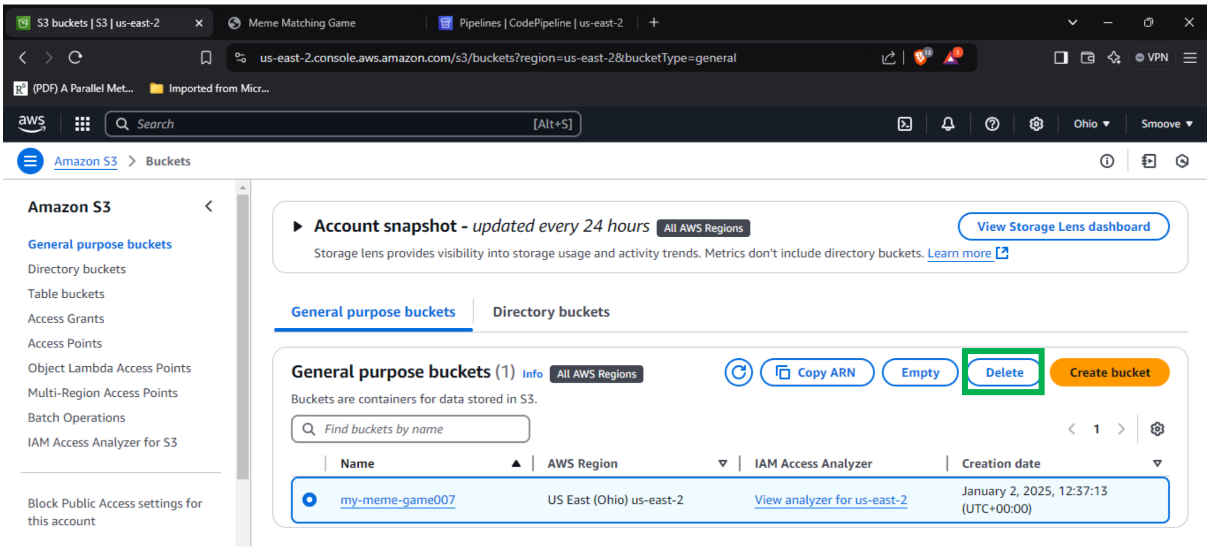
We recommend using AWS Amplify Hosting for static website hosting
Deploy a fast, secure, and reliable website quickly with AWS Amplify Hosting. Learn more about Amplify Hosting or View your existing Amplify apps

S3 static website hosting
Enabled

Hosting type
Bucket hosting

✓ Bucket website endpoint copied

...oint
...en 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://my-meme-game007.s3-website.us-east-2.amazonaws.com



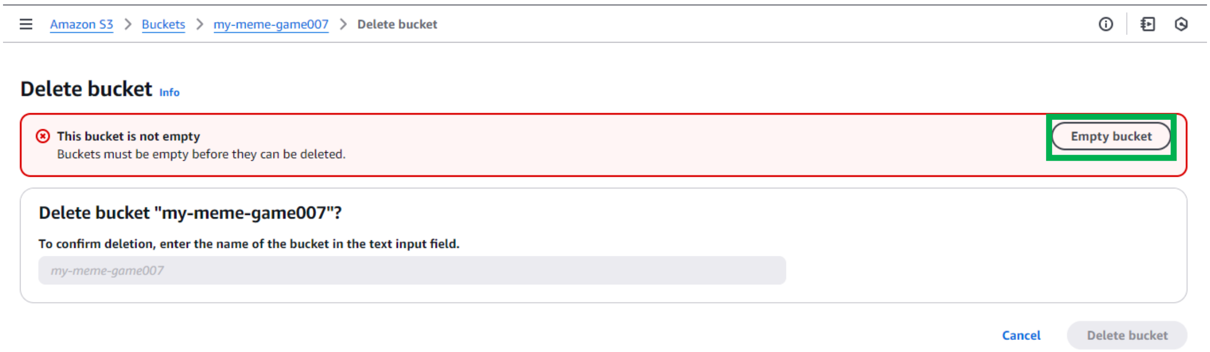
Account snapshot - *updated every 24 hours* All AWS Regions

Storage lens provides visibility into storage usage and activity trends. Metrics don't include directory buckets. Learn more

General purpose buckets (1) Info All AWS Regions

Buckets are containers for data stored in S3.

	Name	AWS Region	IAM Access Analyzer	Creation date
●	my-meme-game007	US East (Ohio) us-east-2	View analyzer for us-east-2	January 2, 2025, 12:37:13 (UTC+00:00)



Delete bucket Info

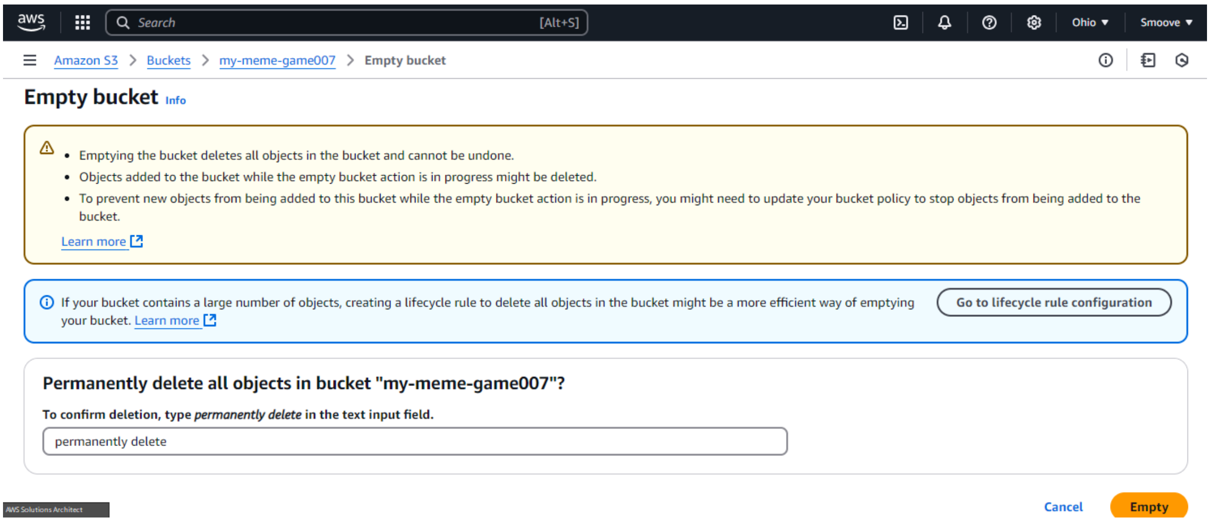
This bucket is not empty
Buckets must be empty before they can be deleted.

Delete bucket "my-meme-game007"?

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

my-meme-game007

Type ‘permanently delete’ in the typing area, then click on ‘Empty’ to empty your bucket.


Search [Alt+S]
Ohio
Smoove
Amazon S3 > Buckets > my-meme-game007 > Empty bucket
Go to lifecycle rule configuration
Cancel
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.

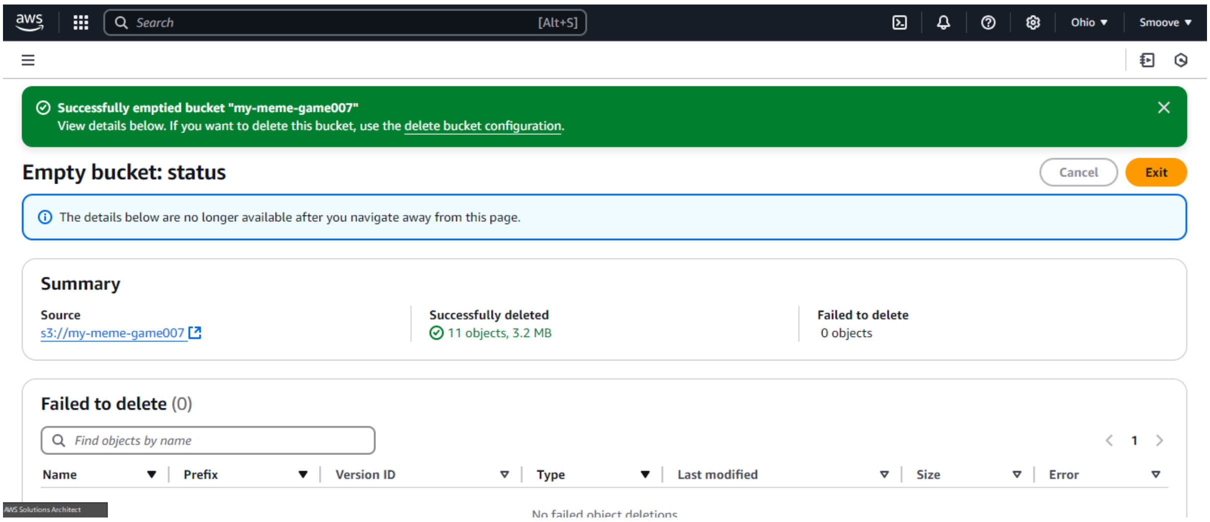
Learn more

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

Permanently delete all objects in bucket "my-meme-game007"?

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

permanently delete



Successfully emptied bucket "my-meme-game007"
View details below. If you want to delete this bucket, use the delete bucket configuration.

Empty bucket: status

The details below are no longer available after you navigate away from this page.

Summary

Source
s3://my-meme-game007

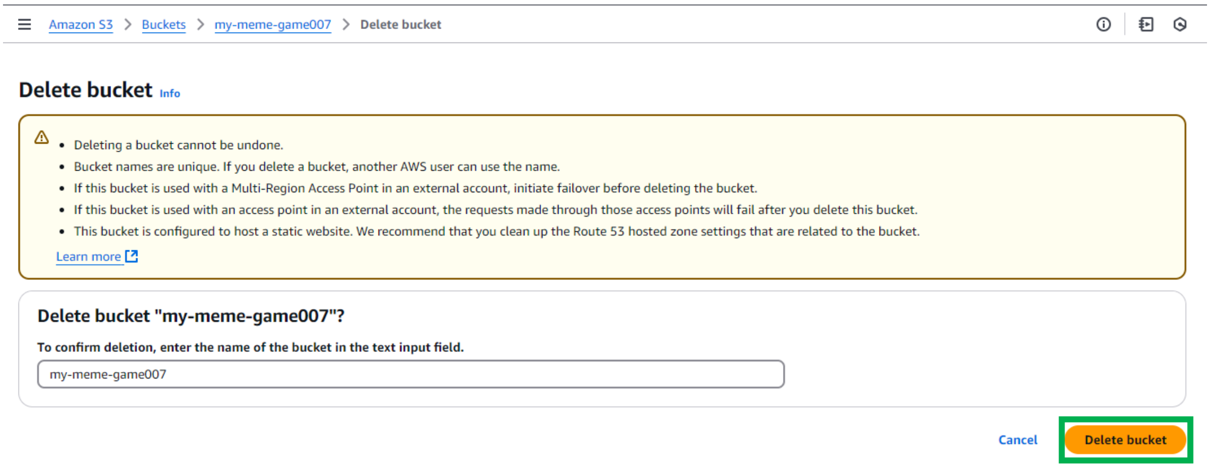
Successfully deleted
11 objects, 3.2 MB

Failed to delete
0 objects

Failed to delete (0)

No failed object deletions

Now you can go ahead and delete the bucket. Click on ‘delete bucket configuration’ above, then go ahead and delete the bucket as shown below.



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 "my-meme-game007"?

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

my-meme-game007

And we’re done!

I will be uploading more project tutorials as and when I go through them. Thanks!