AWS re:Invent

NOV. 29 – DEC. 3, 2021 | LAS VEGAS, NV

FWM201

Accelerate front-end web and mobile development with AWS Amplify

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Developer Advocacy Lead – AWS Amplify
AWS

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What we'll chat about

What's going on in the web and mobile industry?

What is AWS Amplify?

How to build, ship, and scale with Amplify

How customers are using Amplify

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What is Amplify?

AWS Amplify is a set of tools and services that makes it quick and easy for front-end web and mobile developers to build full-stack applications on AWS



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What goes into building an application?

Build

Add the fundamental building blocks of storage, data, and authentication to your application and connect them to your front end



Ship

Deploy your application front end and backend



Scale

- Add custom features like AI/ML and mapping
- Make sure your application can handle additional load
- Have full control of extending your codebase



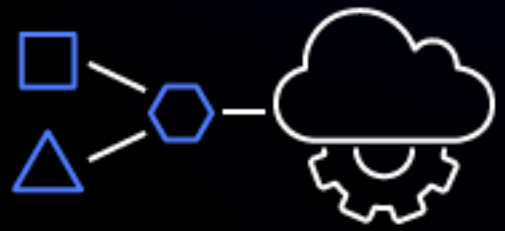
aws

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Build

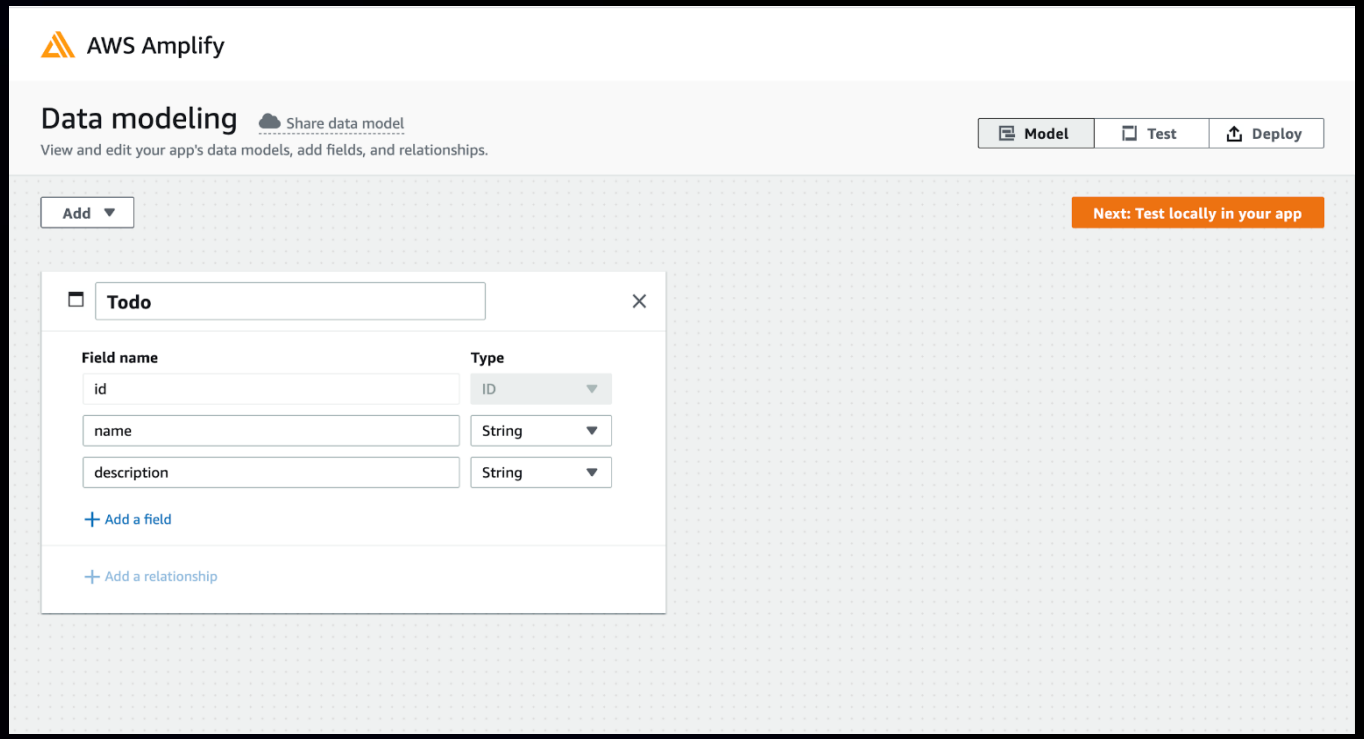


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Add data

Create a database schema visually



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ScreenFlow File Edit Mark Insert Font Actions Arrange View Window Help
83% Wed 12:23 PM

AWS Amplify

Sign in to AWS

Let's get started. Here's what you can do:



Create an app backend

Setup a backend to enable data, authentication, or storage capabilities. Then integrate them in your app with just a few steps.

Web + Mobile

Get started

No AWS account required to start.



Host my web app

Host your static web apps with AWS Amplify Console in less than 15 minutes. Connect your repo, configure build settings, and deploy.

Web only

Connect app repo

Already have existing Amazon Cognito, S3, or other AWS resources? Connect to them from your app with the Amplify Libraries. Go to docs

Learn how industry leaders use AWS Amplify

noom

orangetheory FITNESS

BRANCH

hypertrack



DataStore

Amplify DataStore provides a programming model for leveraging shared and distributed data without writing additional code for offline and online scenarios, which makes working with distributed, cross-user data just as simple as working with local-only data

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AWS AppSync

AWS AppSync is
a managed GraphQL
API service

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Amazon DynamoDB

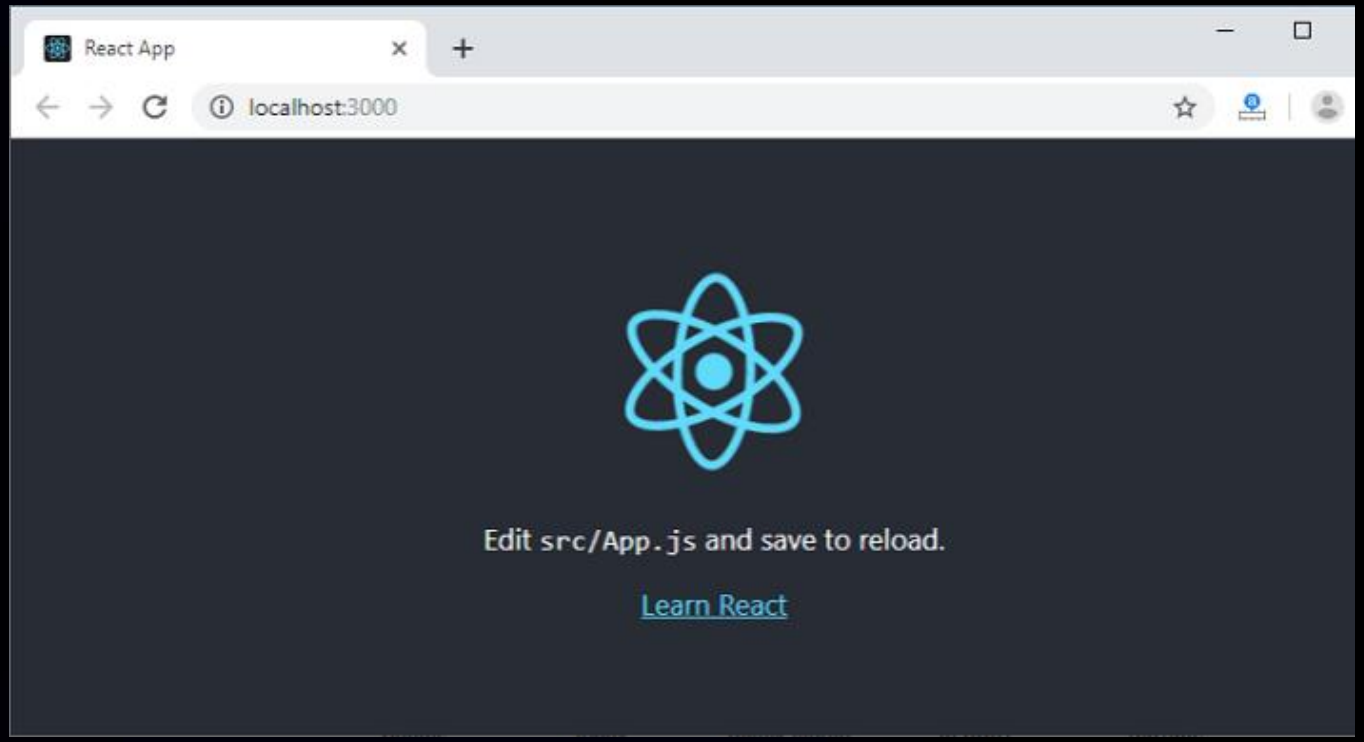
Amazon DynamoDB is a serverless key-value and document database that’s highly scalable

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Test in your app

Test out your backend locally; no AWS account needed



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sandbox.amplifyapp.com/test/ad4e87a4-52e1-4a2a-b305-b3b28161233c

AWS Amplify

2 (Optional) Create a new app

3 Install Amplify CLI to pull the data model

4 Install Amplify library and initialize Amplify

5 **Test CRUD APIs locally with Amplify DataStore**

Amplify DataStore allows you to manage your app data without writing additional code for offline and online scenarios.

Use the code generator below to test and explore the DataStore API:

Select a model: Video ▼ Select an operation: Create | Update | Delete | Query

```
import { DataStore } from '@aws-amplify/datastore';
import { Video } from './models';

...

await DataStore.save(
    new Video({
                "title": "Lorem ipsum dolor sit amet",
                "description": "Lorem ipsum dolor sit amet",
                "order": 1020,
                "courseID": "a3f4095e-39de-43d2-baf4-f8c16f0f6f4d"
        })
);
```

When you're ready, deploy to AWS to sync your data to the cloud.

Back | Deploy to AWS

Documentation Support

EXPLORER

OPEN EDITORS

VIDEO-COURSE-PLATF...

- amplify
- node_modules
- public
- src
  - models
  - App.css
  - App.js
  - App.test.js
  - aws-exports.js
  - index.css
  - index.js M
  - logo.svg
  - reportWebVitals.js
  - setupTests.js
- .eslintcache U
- .eslintignore U
- .gitignore M
- amplify-build-config.json
- package-lock.json U
- package.json M
- README.md
- yarn.lock

OUTLINE

TIMELINE

NPM SCRIPTS

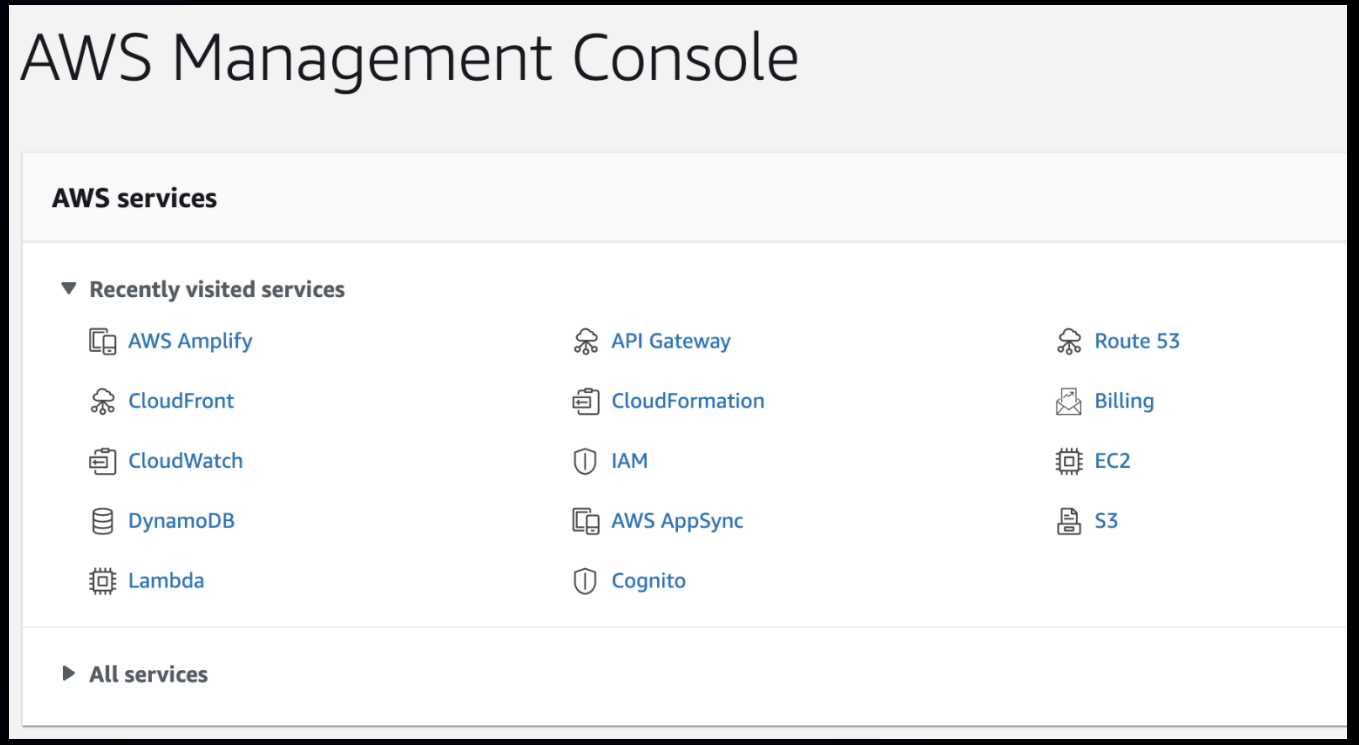
index.js | App.js

```
1  import logo from './logo.svg';
2  import './App.css';
3
4  function App() {
5    return (
6      <div className="App">
7        <header className="App-header
8          <img src={logo} className="
9          <p>
10           Edit <code>src/App.js</co
11         </p>
12         <a
13           className="App-link"
14           href="https://reactjs.org
15           target="_blank"
16           rel="noopener noreferrer"
17         >
18           Learn React
19         </a>
20       </header>
21     </div>
22   );
23 }
24
25 export default App;
26
```



Deploy to AWS

Put your app out
into the world!



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AWS Amplify

Test locally in your app

Share data model

Initialize Amplify libraries and connect it with your data model locally.

Model | Test | Deploy

1. What type of app are you building?

   Web - React

2. (Optional) Create a new app

3. Install Amplify CLI to pull the data model

4. Install Amplify library and initialize Amplify

5. **Test CRUD APIs locally with Amplify DataStore**

Amplify DataStore allows you to manage your app data without writing additional code for offline and online scenarios.

Use the code generator below to test and explore the DataStore API:

Select a model: Course

Select an operation: Create | Update | Delete | Query

```
import { DataStore } from '@aws-amplify/datastore';
import { Course } from './models';

...

const models = await DataStore.query(Course);
console.log(models);
```

When you're ready, deploy to AWS to sync your data to the cloud.

Trying to set up a relationship? Click to learn how.

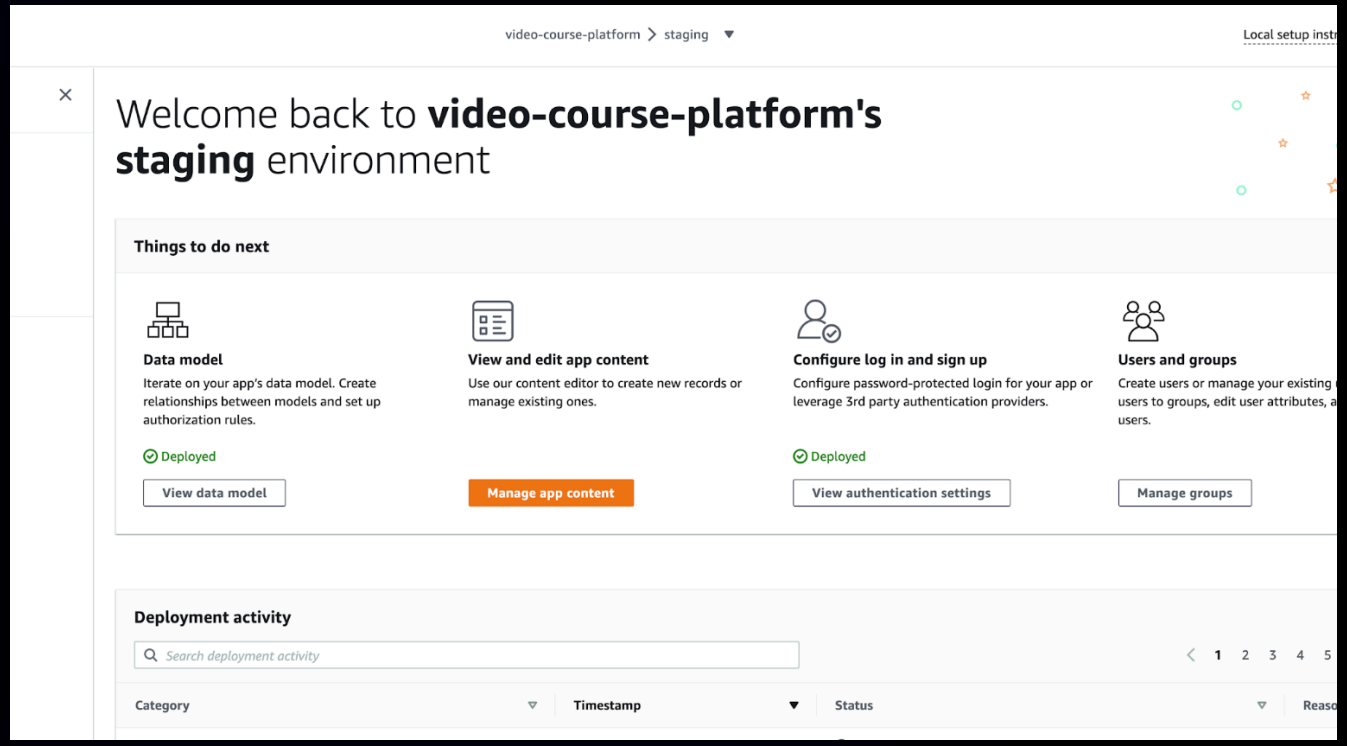
Back | Deploy to AWS

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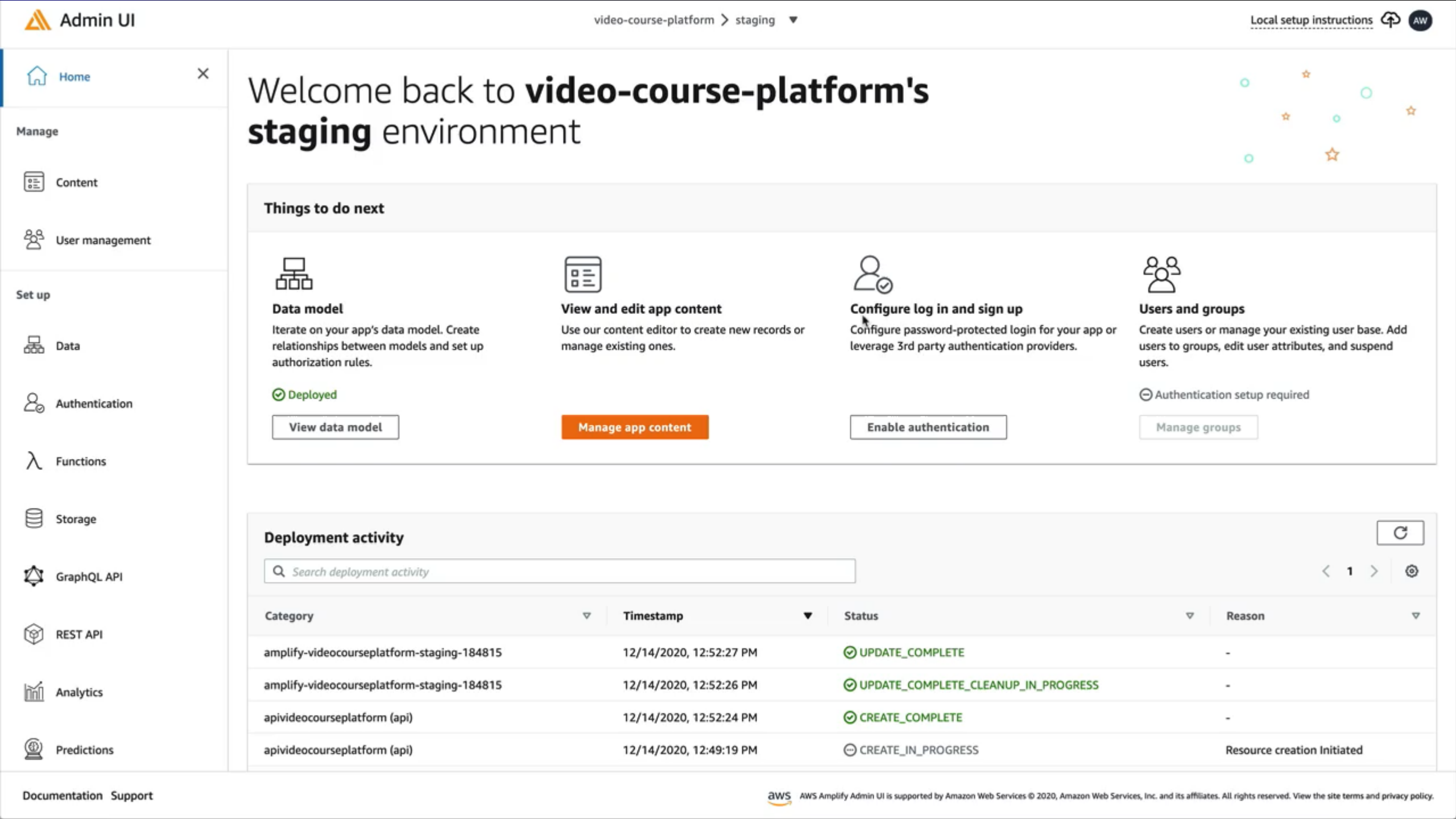


Manage your app

Add auth and manage data



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Admin UI
video-course-platform > staging
Local setup instructions
AW
Home
Manage
Content
User management
Set up
Data
Authentication
Functions
Storage
GraphQL API
REST API
Analytics
Predictions
Welcome back to video-course-platform's staging environment
Things to do next
Data model
Iterate on your app's data model. Create relationships between models and set up authorization rules.
Deployed
View data model
View and edit app content
Use our content editor to create new records or manage existing ones.
Manage app content
Configure log in and sign up
Configure password-protected login for your app or leverage 3rd party authentication providers.
Enable authentication
Users and groups
Create users or manage your existing user base. Add users to groups, edit user attributes, and suspend users.
Authentication setup required
Manage groups
Deployment activity
Search deployment activity
1
Category
Timestamp
Status
Reason
amplify-videocourseplatform-staging-184815
12/14/2020, 12:52:27 PM
UPDATE_COMPLETE
-
amplify-videocourseplatform-staging-184815
12/14/2020, 12:52:26 PM
UPDATE_COMPLETE_CLEANUP_IN_PROGRESS
-
apivideocourseplatform (api)
12/14/2020, 12:52:24 PM
CREATE_COMPLETE
-
apivideocourseplatform (api)
12/14/2020, 12:49:19 PM
CREATE_IN_PROGRESS
Resource creation Initiated
Documentation
Support
aws
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Amazon Cognito

Amazon Cognito lets you add user sign-up, sign-in, and access control to your web and mobile apps quickly and easily; you can enable 2FA and social auth as well

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Extend with the Amplify CLI

Use the other Amplify categories like Amazon S3 storage, AWS Lambda functions, and more



aws

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App.js index.js

```
            new Course({
              title: window.prompt(),
              description: window.prompt()
            })
          )
          console.log(course)
        } catch (err) {
          console.error(err)
        }
      }

      return (
        <div className='App'>
          <h1>Video Courses</h1>
          {courses.map(course => (
            <div key={course.id}>
              <h2>{course.title}</h2>
              <p>{course.description}</p>
            </div>
          ))}
          <button onClick={addCourse}>Add Course</button>
        </div>
      )
    }

    export default App
```



Amazon S3

Amazon S3 allows
you to store static assets

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Industry trend: Server-side rendering

Over the last few years, we've seen more and more returning to the server in order to make apps more performant

Next.js, React server components, and Nuxt.js are a few examples of this trend



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Amplify supports SSR!

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_app.js M | sign-in.js U | index.js M | schema.js 9+, U | Settings

You, 5 minutes ago | 1 author (You)

```
1  import Head from 'next/head'
2  import styles from '../styles/Home.module.css'
3
4  import Link from 'next/link'
5
6  export default function Home () {
7    return (      You, 19 hours ago • Initial commit from Create Next App
8      <div className={styles.container}>
9        <Head>
10         <title>Create Next App</title>
11         <meta name='description' content='Generated by create next app' />
12         <link rel='icon' href='/favicon.ico' />
13       </Head>
14       <Link href='/sign-in'>Sign In</Link>
15     </div>
16   )
17 }
18
```

Customers building with Amplify

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“We chose Amplify libraries because we believed it would accelerate our development speed and time to market; it did just that. Amplify libraries, particularly the authentication feature, moved us so much quicker to MVP phase and onboarding customers. Amplify invoked the many steps needed to create an authentication flow so we just didn’t have to think about it; the Amplify library did it out of the box. I credit Amplify for getting us to market 6 months faster than if we had not used it. As our business continues to scale, Amplify also allows us to customize AWS services to match our business needs; this has been another important aspect of getting started with Amplify.”

Adithya Reddy

Full Stack Engineer
Branch Insurance

aws

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> **By using AWS Amplify and GraphQL APIs on AWS AppSync, we streamlined the whole development process. Using these AWS services has made building in the cloud very simple.**

Abhi Patel

Chief Operating Officer
Knowt

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Ship



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We've already discussed two ways to deploy your app backend. . .

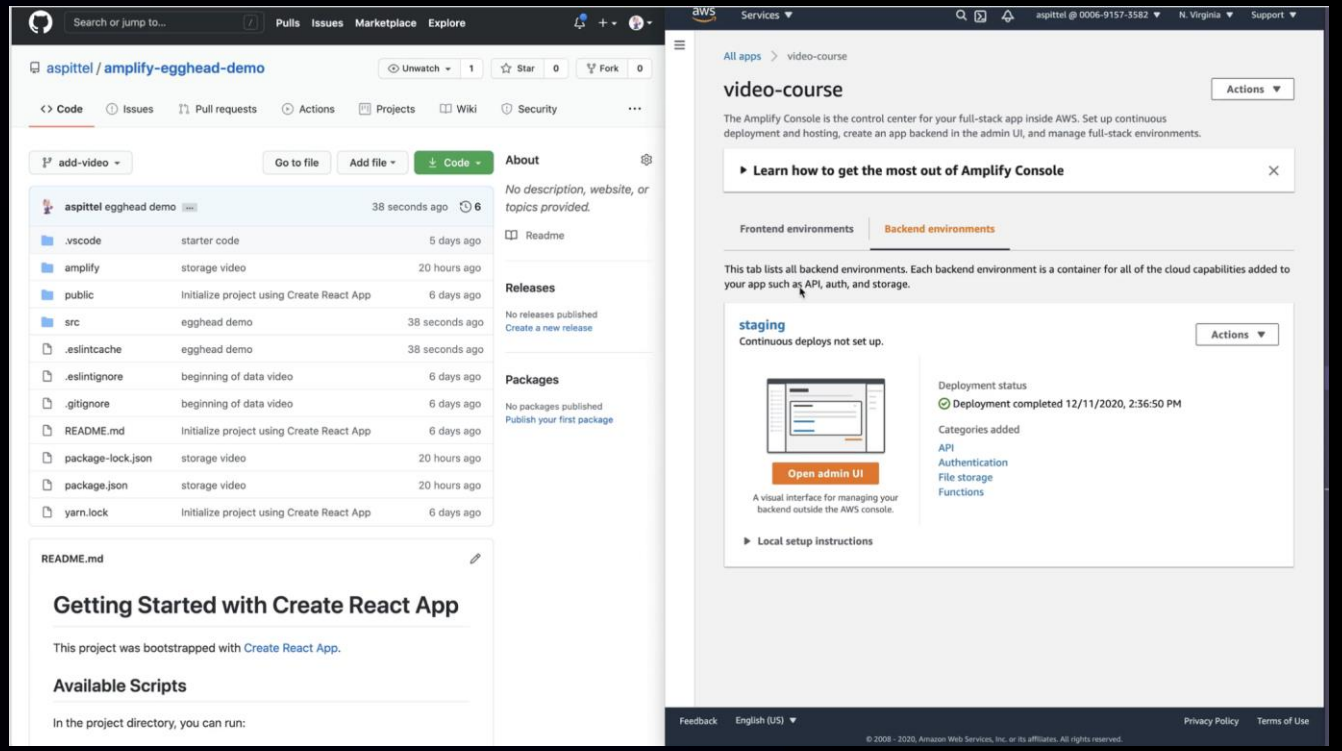
- Using the Amplify sandbox
- Amplify push

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Front end deployment

Add static web hosting with continuous deployment



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aspittel / amplify-egghead-demo

Unwatch 1 | Star 0 | Fork 0

Code | Issues | Pull requests | Actions | Projects | Wiki | Security | ...

add-video | Go to file | Add file | Code

aspittel egghead demo ... 38 seconds ago 6

.vscode	starter code	5 days ago
amplify	storage video	20 hours ago
public	Initialize project using Create React App	6 days ago
src	egghead demo	38 seconds ago
.eslintcache	egghead demo	38 seconds ago
.eslintignore	beginning of data video	6 days ago
.gitignore	beginning of data video	6 days ago
README.md	Initialize project using Create React App	6 days ago
package-lock.json	storage video	20 hours ago
package.json	storage video	20 hours ago
yarn.lock	Initialize project using Create React App	6 days ago

About

No description, website, or topics provided.

Readme

Releases

No releases published
Create a new release

Packages

No packages published
Publish your first package

README.md

Getting Started with Create React App

This project was bootstrapped with Create React App.

Available Scripts

In the project directory, you can run:

All apps > video-course

video-course

Actions

The Amplify Console is the control center for your full-stack app inside AWS. Set up continuous deployment and hosting, create an app backend in the admin UI, and manage full-stack environments.

▶ Learn how to get the most out of Amplify Console

Frontend environments | Backend environments

This tab lists all backend environments. Each backend environment is a container for all of the cloud capabilities added to your app such as API, auth, and storage.

staging

Continuous deploys not set up.

Actions



Open admin UI

A visual interface for managing your backend outside the AWS console.

Deployment status

Deployment completed 12/11/2020, 2:36:50 PM

Categories added

API
Authentication
File storage
Functions

▶ Local setup instructions

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Customers shipping with Amplify

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“Using AWS Amplify to build a serverless architecture on AWS, the development team at Neiman Marcus accelerated the launch of our application, reduced development costs, increased agility, and gained the ability to deploy rapid updates. Using AWS Amplify on a serverless architecture cost us 90 percent less than if we had built the app using a more traditional method. This is a huge win for us.”

Hemanth Jayaraman

Senior Director of Cloud Engineering - Neiman Marcus

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“We found Amplify and played around with it on a weekend, and thought ‘wait a second, you can go from File, New Project to a real production-grade system in minutes.’ From certificate management, hosting, and CloudFront automation — all the pieces were there.”

As a fintech startup that stores customer financial data, Amplify also provides critical data protection. Having been at PayPal previously, Software Architect Alex Kates feels confident using Amplify because DynamoDB and S3 are backed by AWS Key Management Service (AWS KMS), which is backed by AWS CloudHSM HSMs that have been validated under FIPS 140-2.

“We’re able to use these services because they’re FIPS compliant so the financial information is encrypted at rest and in transit with Amplify’s SSL management. You would normally have a team of multiple infosec engineers managing these security concerns alone.”

Alex Kates

Software Architect
Credit Genie

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Scale



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Amplify grows with your company

- It’s serverless
- It uses the same AWS services so many large companies use
- It has a Git-like environment management system
- You can have multiple front ends for your app if you need a mobile and web app

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Add more features

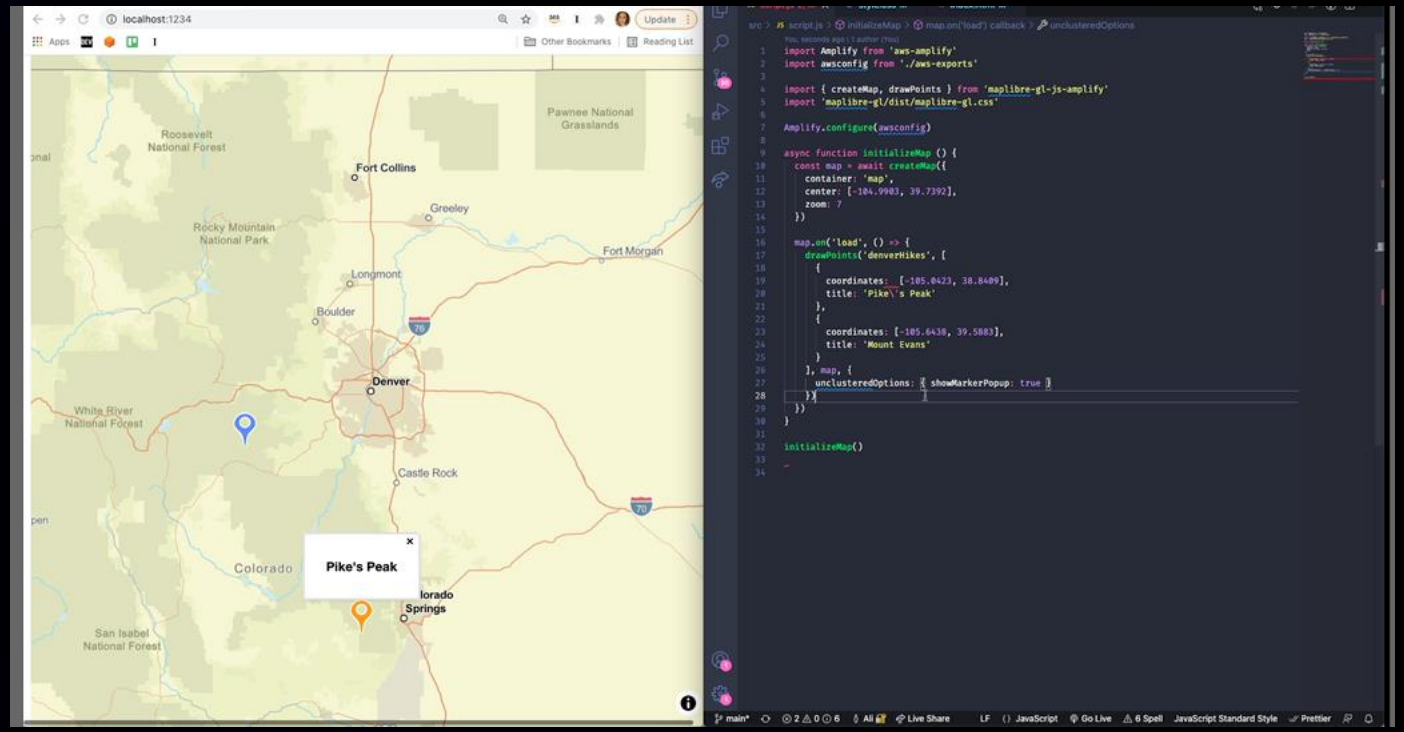
You can add advanced features to your app using Amplify, including maps, AI/ML, and interactions

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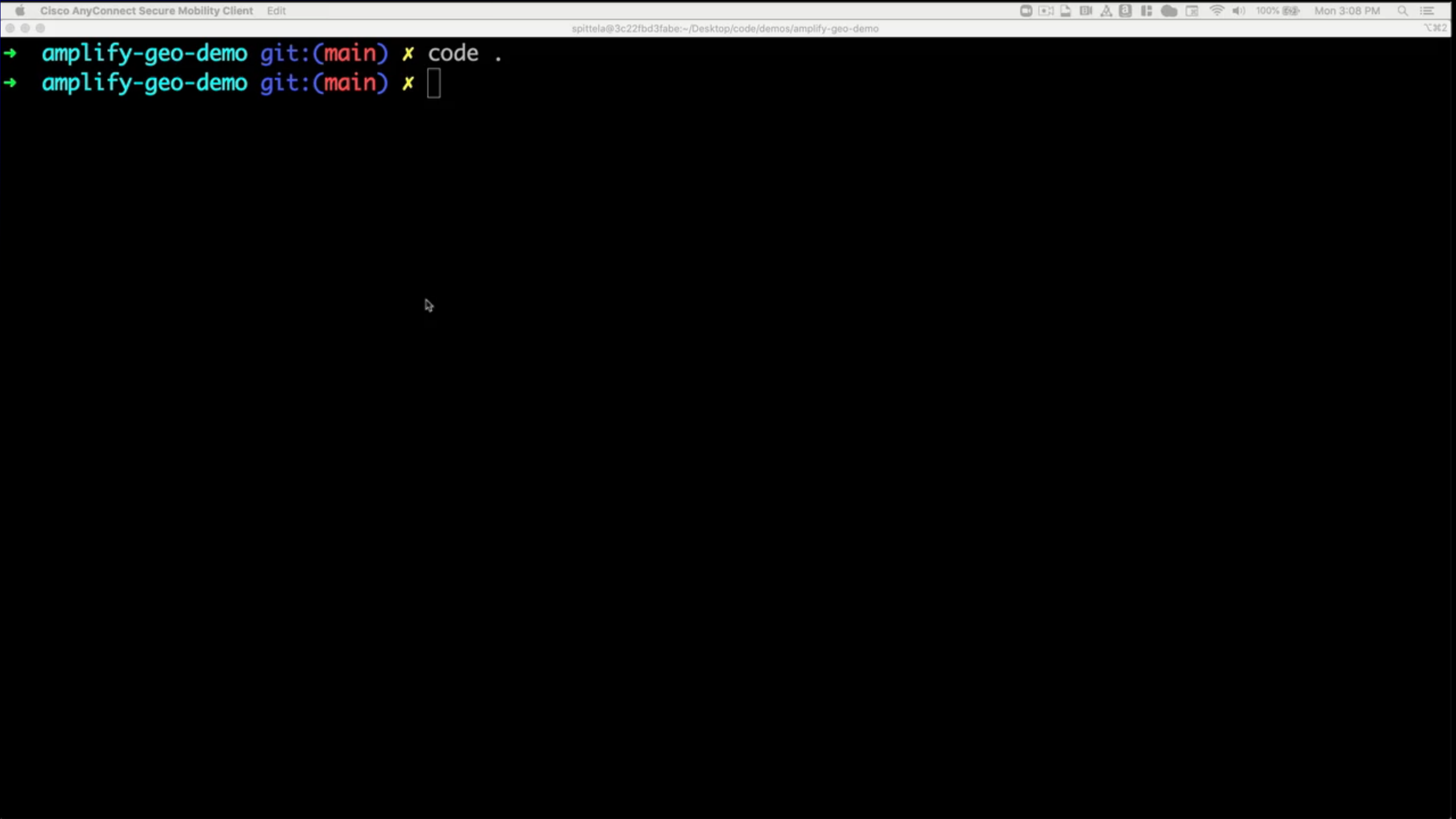


Mapping

Add maps to your app with Amplify Geo



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Cisco AnyConnect Secure Mobility Client
Edit
Mon 3:08 PM
spittela@3c22fbd3fabe:~/Desktop/code/demos/amplify-geo-demo
amplify-geo-demo git:(main) ✗ code .
amplify-geo-demo git:(main) ✗

Use what you need

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Learn more!

- Docs.amplify.aws
- Sandbox.amplifyapp.com

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Thank you!

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spittela@amazon.com

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