Deploying & Consuming Serverless Functions with AWS Amplify

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Agenda

- Building with AWS Lambda – Options
- AWS Amplify Overview
- AWS Lambda Overview
- Creating, Updating & Removing Lambda Functions
- Invoking from a client-side web application
- Invoking Locally
- Multiple Environments
- Deleting the Project

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Building with AWS Lambda – Options

- AWS Amplify
- Serverless Framework
- Terraform
- SAM
- CloudFormation
- AWS Console
- Claudia / Apex / Other 3rd party tools

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Building with AWS Lambda – Amplify

- CLI Based
- Only works with AWS
- Both client & backend tooling
- Uses CloudFormation under the hood
- Easy entry-point for devs new to AWS & Serverless paradigm
- Allows creation of both Lambda functions + API Gateway APIs

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Amplify Framework

- ✓ CLI
- ✓ Client Libraries (Native & JS Support)
- ✓ Console – Continuous Deployment & Hosting
- ✓ Prebuilt UI Components
- ✓ Toolchain
- ✓ JS Framework Support

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AWS Amplify JS Client SDK

- Opinionated
- Declarative
- Client focused
- High-level abstractions
- Best practices built-in
- Built with Amplify CLI in mind

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Amplify Framework

CLI

- Create, update & delete cloud services.
- Manage multiple environments.
- GraphQL Tranform
- GraphQL & Lambda Codegen

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Amplify CLI

Categories

Authentication

Analytics

Interactions (chat bots)

API (REST)

API (GraphQL)

Serverless Functions

Storage

XR

Push Notifications

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Amplify CLI

```
$ amplify add auth

$ amplify push

$ amplify configure auth

$ amplify remove auth

$ amplify delete
```

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CLI - Multiple Environments

```
$ amplify env add

$ amplify env list

$ amplify env checkout

$ amplify env remove
```

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Amplify Framework

Client

- Connect to & interact with cloud services from web & mobile applications.
- Preconfigured components for popular front-end libraries.

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AWS Amplify Client

```
$ npm install aws-amplify
```

```
import {
  Auth, API, Storage, Analytics, XR
} from ‘aws-amplify’
```

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AWS Amplify Client

```
import {
  API
} from ‘aws-amplify’

API.get(’apiname’, ‘path’)
```

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AWS Amplify – Native Support

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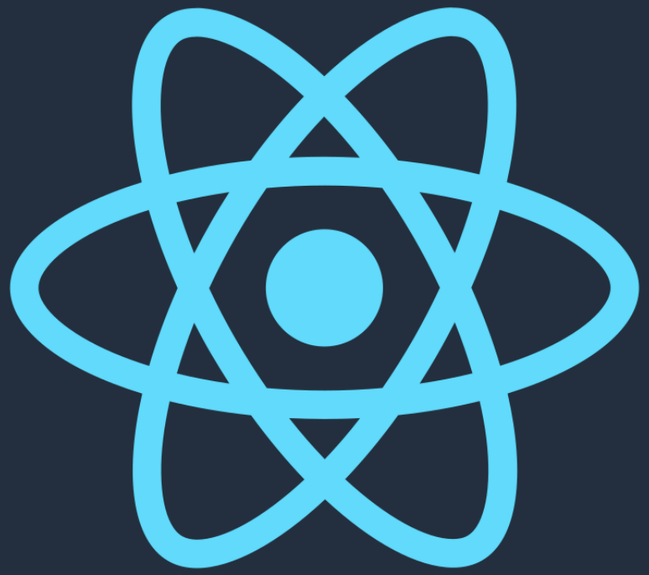
AWS Amplify – JS Framework Support



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AWS Amplify

Amplify Console

- Continuous deployment and hosting service
- Integration with existing Amplify backends
- Automatic support for Lambda at Edge for atomic deployments.
- Easy custom domains

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Typical Workflow – Amplify Console

1. Open Amplify Console
2. Connect to then choose repository from GitHub / GitLab / etc..
3. Deploy application
4. Make changes to app locally
5. Merge changes to master

   - This will kick off a new build

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Amplify Framework

Deploying a Lambda function with API Gateway

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Deploying a Lambda function with API Gateway

1. Create the Lambda function & API

```
$ amplify add api

// chose REST with Express backend
```

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Deploying a Lambda function with API Gateway

2. Write code / make changes

```
// amplify/backend/function/<FUNCTION_NAME>/src/app.js

app.get('/items', function(req, res) {
  // new code goes here
})
```

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Deploying a Lambda function with API Gateway

3. Deploy new API

```
$ amplify push
```

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Deploying a Lambda function with API Gateway

4. Interacting with the API

```
import { API } from 'aws-amplify'

API.get('/items')
  .then(data => console.log({ data }))
  .catch(err => console.log({ err })
```

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AWS Lambda Overview

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AWS Lambda Overview

- Run code without provisioning or managing servers
- Pay only for the compute time you consume
- Dynamically scales function execution in response to increased traffic
- Event-based
  - API Gateway
  - Other Lambda (AWS SDK)
  - DynamoDB / S3 / Aurora / Cognito / SQS / Lex / etc..

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AWS Lambda Overview

```
exports.handler = async (event, context) => {
    const data = await(myapicall)
    const response = {
        statusCode: 200,
        body: data
    };
    return response;
}
```

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AWS Amplify – Serverless Functions

DEMO

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Resources

AWS Amplify Docs

https://aws-amplify.github.io/

Amplify Community

https://amplify.aws/community/

Serverless Functions in Depth

https://read.acloud.guru/serverless-functions-in-depth-507439b4be88

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Thank you!

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