
AWS
re:Invent
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SVS002

Accelerating serverless development with AWS SAM

Eric Johnson

Principal Developer Advocate
AWS

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Agenda

Intro to AWS SAM

Demo

New features

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Intro to AWS SAM

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Serverless Application Model

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AWS SAM has two parts

Transform templates

Shorthand syntax to express resources and event source mappings; it provides infrastructure as code (IaC) for serverless applications

Command Line Interface (CLI)

Provides tooling for local development with rapid iteration, debugging, build, packaging, and deployment for serverless applications

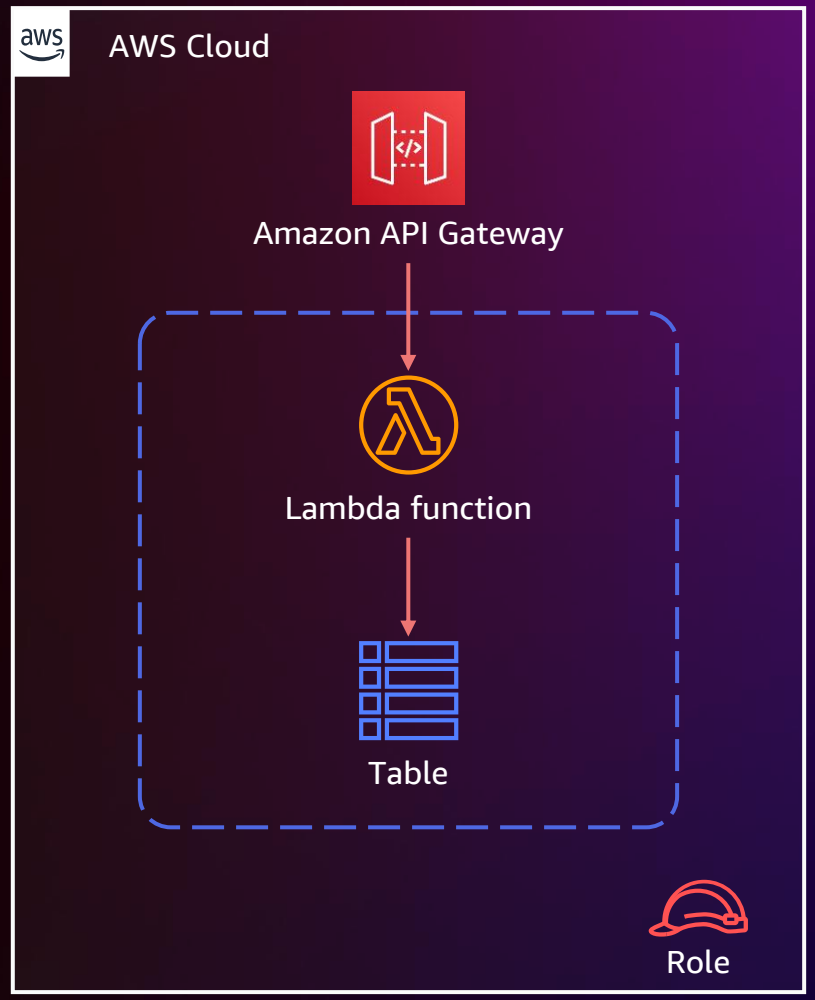


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AWS SAM transform templates

```
AWSTemplateFormatVersion: '2010-09-09'
Transform: AWS::Serverless-2016-10-31
Resources:
  GetProductsFunction:
    Type: AWS::Serverless::Function
    Properties:
      CodeUri: src/
      Handler: app.handler
      Runtime: python3.9
      Policies:
        - DynamoDBReadPolicy:
            TableName: !Ref ProductTable
      Events:
        GetProductsEvent:
          Type: Api
          Properties:
            Path: /products
            Method: get
  ProductTable:
    Type: AWS::Serverless::SimpleTable
```

Deployment



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AWS SAM serverless resources

8 serverless resource types

- AWS::Serverless::Function
- AWS::Serverless::Api
- AWS::Serverless::HttpApi
- AWS::Serverless::SimpleTable
- AWS::Serverless::LayerVersion
- AWS::Serverless::Application
- AWS::Serverless::StateMachine
- AWS::Serverless::Connector
- SAM Version 2016-10-31

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Lambda function event sources

16 Function Event source types supported in AWS SAM

- S3
- SNS
- Kinesis
- DynamoDB
- SQS
- Api
- HttpApi
- Schedule
- CloudWatchEvent
- CloudWatchLogs
- IoTRule
- AlexaSkill
- Cognito
- EventBridgeRule
- MSK
- MQ

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AWS SAM CLI

App development
- init
- build
- local
- logs
- traces
- sync

Stack management
- validate
- package
- delete
- deploy
- pipeline
- publish*

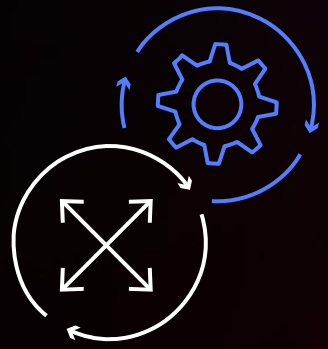
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AWS SAM Accelerate



sam build

- Parallel builds
- Incremental builds
- Temporary layers



sam sync

- Update code without redeploying
- Watch for changed files



sam logs

- Get aggregated logs in your local terminal
- Filter logs
- Include traces

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Show us the code!

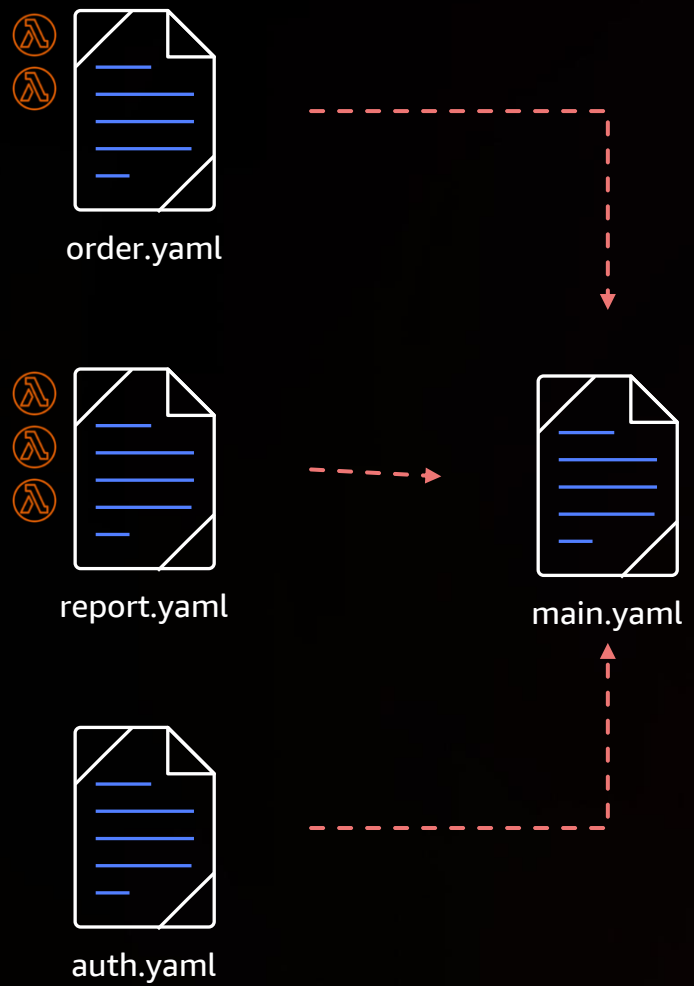
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New (or recent) features

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Nested stack support for AWS SAM Accelerate

Recent




```
OrderStack
  Type: AWS::Serverless::Application
  Properties:
  Location: ./orders.yaml
  Parameters:
    AppId: 112d43

ReportStack
  Type: AWS::Serverless::Application
  Properties:
  Location: ./reports.yaml
  Parameters:
    AppId: 112d43
```

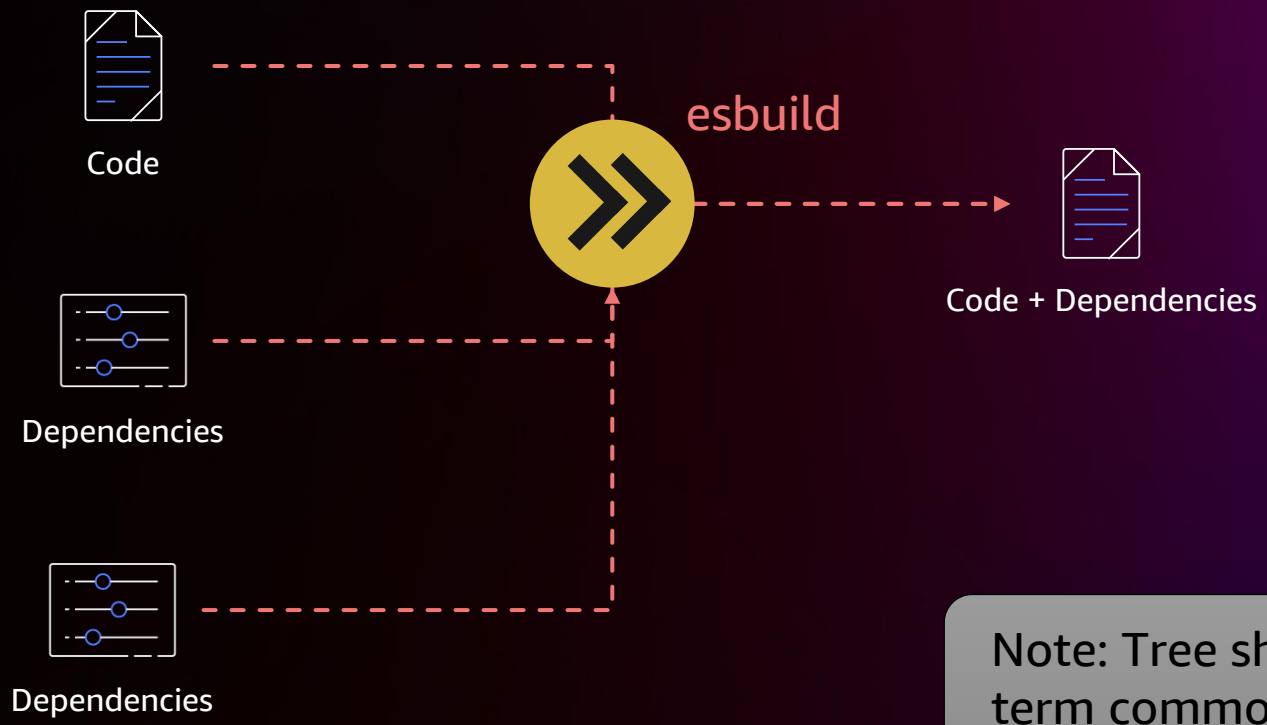
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Native esbuild support for AWS SAM build

Recent

```
Metadata:
  BuildMethod: esbuild
  BuildProperties:
    Minify: true
    Target: es2020
    EntryPoints:
      - app.ts
```



Note: Tree shaking is a term commonly used within a JavaScript context to describe the removal of dead code

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AWS SAM connectors

Recent

Connectors allow the developer to describe how data and events flow between two resources and the level of permissions required.



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AWS SAM connectors

Recent

Source

```
HelloWorldFunction:
  Type: AWS::Serverless::Function
  Properties:
    CodeUri: hello-world/
    Handler: app.lambdaHandler
    Runtime: nodejs16.x
    Events:
      HelloWorld:
        Type: Api
        Properties:
          Path: /hello
          Method: get
```

Connector

```
MyTableConnector:
  Type: AWS::Serverless::Connector
  Properties:
    Source:
      Id: HelloWorldFunction
    Destination:
      Id: HelloWorldTable
    Permissions:
      - Write
      - Read
```

Destination

```
HelloWorldTable:
  Type: AWS::Serverless::SimpleTable
```

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AWS SAM connectors

Recent

```
{
    "Version": "2012-10-17",
    "Statement": [
        {
            "Action": [
                "dynamodb:GetItem",
                "dynamodb:Query",
                "dynamodb:Scan",
                "dynamodb:BatchGetItem",
                "dynamodb:ConditionCheckItem",
                "dynamodb:PartiQLSelect"
            ],
            "Resource": [
                "arn:aws:dynamodb:us-west-2:088483494489:table/connectors-HelloWorldTable-NVNO16YXY86W",
                "arn:aws:dynamodb:us-west-2:088483494489:table/connectors-HelloWorldTable-NVNO16YXY86W/index/*"
            ],
            "Effect": "Allow”
. . .
```

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More resources



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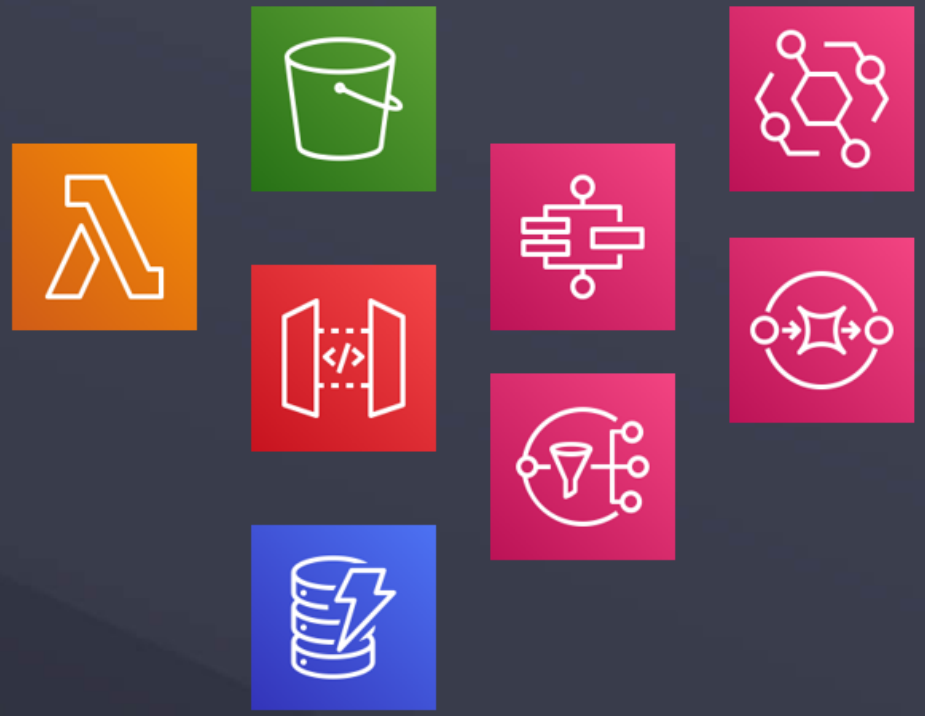
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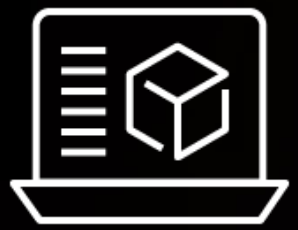
Learn More



For more serverless learning resources, visit:
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Thank you!

Eric Johnson
@edjgeek



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