

**Importante que antes você tenha instalado o NodeJS e o AWS CLI para garantir, segue os caminhos:**

**CLI:**

[https://docs.aws.amazon.com/pt\\_br/cli/v1/userguide/cli-chap-install.html](https://docs.aws.amazon.com/pt_br/cli/v1/userguide/cli-chap-install.html)

**NodeJS:**

<https://nodejs.org/en/download/>

## **Preparação CDK > AWS SAM**

**Primeiro devemos criar um user IAM para ele:**

```
>>> $ sudo aws configure
Password:
AWS Access Key ID [*****YFUI]:
AWS Secret Access Key [*****sp/Z]:
```

**Segundo passo vamos utilizar um sample do AWS SAM, então para isso precisamos instalar o pacote do SAM em sua máquina antes de qualquer coisa, neste caminho:**

[https://docs.aws.amazon.com/pt\\_br/serverless-application-model/latest/developerguide/install-sam-cli.html](https://docs.aws.amazon.com/pt_br/serverless-application-model/latest/developerguide/install-sam-cli.html)

**Depois de instalado você vai poder fazer o fork do código de qualquer modelo disponível de backend, vamos fazer um exemplo e testar:**

```
rperucchi$ cd sam-app-example/. >>>>
rperucchi$ sudo sam init
```

You can preselect a particular runtime or package type when using the `sam init` experience.  
Call `sam init --help` to learn more.

Which template source would you like to use?

- 1 - AWS Quick Start Templates
- 2 - Custom Template Location

Choice: 1

Choose an AWS Quick Start application template

- 1 - Hello World Example
- 2 - Multi-step workflow
- 3 - Serverless API
- 4 - Scheduled task
- 5 - Standalone function
- 6 - Data processing
- 7 - Infrastructure event management
- 8 - Serverless Connector Hello World Example
- 9 - Multi-step workflow with Connectors
- 10 - Lambda EFS example
- 11 - Machine Learning

Template: 3

Which runtime would you like to use?

- 1 - dotnet6
- 2 - dotnetcore3.1
- 3 - nodejs18.x
- 4 - nodejs16.x
- 5 - nodejs14.x
- 6 - nodejs12.x

Runtime: 6

Based on your selections, the only Package type available is Zip.

We will proceed to selecting the Package type as Zip.

Based on your selections, the only dependency manager available is npm.

We will proceed copying the template using npm.

Select your starter template

- 1 - Quick Start: App Backend using TypeScript
- 2 - Quick Start: Web Backend

Template: 1

Would you like to enable X-Ray tracing on the function(s) in your application? [y/N]: y

X-Ray will incur an additional cost. View

<https://aws.amazon.com/xray/pricing/> for more details

Would you like to enable monitoring using CloudWatch Application Insights?

For more info, please view

<https://docs.aws.amazon.com/AmazonCloudWatch/latest/monitoring/cloudwatch-application-insights.html> [y/N]: N

Project name [sam-app]: sample-backend-api

Cloning from <https://github.com/aws/aws-sam-cli-app-templates>  
(process may take a moment)

```
-----  
Generating application:  
-----
```

```
Name: sample-backend-api  
Runtime: nodejs12.x  
Architectures: x86_64  
Dependency Manager: npm  
Application Template: quick-start-typescript-app  
Output Directory: .
```

Next steps can be found in the README file at ./sample-backend-api/README.md

Commands you can use next

```
=====
```

- [\*] Create pipeline: `cd sample-backend-api && sam pipeline init --bootstrap`
- [\*] Validate SAM template: `cd sample-backend-api && sam validate`
- [\*] Test Function in the Cloud: `cd sample-backend-api && sam sync --stack-name {stack-name} --watch`

**Depois que ele instala e clona o modelo baseado nas configurações que você solicitou, vamos pedir para ele compilar e neste momento ele vai fazer todo o procedimento de instalação dos pacotes npm necessários.**

```
rperucchi$ sudo sam build
```

```
npm install  
added 255 packages from 293 contributors and audited 255  
packages in 11.32s
```

```
54 packages are looking for funding  
run `npm fund` for details
```

```
found 0 vulnerabilities
```

...

Build Succeeded

Built Artifacts : .aws-sam/build  
Built Template : .aws-sam/build/template.yaml

Commands you can use next

=====

[\*] Validate SAM template: sam validate  
[\*] Invoke Function: sam local invoke  
[\*] Test Function in the Cloud: sam sync --stack-name {{stack-name}} --watch  
[\*] Deploy: sam deploy --guided

**Este ultimo passo e o passo do deploy em sua conta que seu user IAM esta permitindo o provisionamento, neste momento ele faz uso do CloudFormation para fazer toda a provisao de forma transparente:**

(base) MacBook-Pro-de-Rafael:sample-backend-api rperucchi\$ sudo sam deploy --guided

Configuring SAM deploy

=====

Looking for config file [samconfig.toml] : Not found

Setting default arguments for 'sam deploy'

=====

**Stack Name** [sam-app]: sample-backend-api

**AWS Region** [us-east-1]:

#Shows you resources changes to be deployed and require a 'Y' to initiate deploy

**Confirm changes before deploy** [y/N]: y

#SAM needs permission to be able to create roles to connect to the resources in your template

**Allow SAM CLI IAM role creation** [Y/n]: y

#Preserves the state of previously provisioned resources when an operation fails

**Disable rollback** [y/N]: y

**getByIdFunction may not have authorization defined, Is this okay?** [y/N]: y

**putItemFunction may not have authorization defined, Is this okay?** [y/N]: y

**Save arguments to configuration file** [Y/n]: y

**SAM configuration file** [samconfig.toml]:

**SAM configuration environment** [default]:

Looking for resources needed for deployment:

Creating the required resources...

Successfully created!

Managed S3 bucket: aws-sam-cli-managed-default-samclisourcebucket-1ino35x4vpuye  
A different default S3 bucket can be set in samconfig.toml

Saved arguments to config file  
Running 'sam deploy' for future deployments will use the parameters saved above.

The above parameters can be changed by modifying samconfig.toml

Learn more about samconfig.toml syntax at  
<https://docs.aws.amazon.com/serverless-application-model/latest/developerguide/serverless-sam-cli-config.html>

...

### Configuring SAM deploy

=====

Looking for config file [samconfig.toml] : Not found

Setting default arguments for 'sam deploy'

=====

**Stack Name** [sam-app]: sample-backend-api

**AWS Region** [us-east-1]:

#Shows you resources changes to be deployed and require a 'Y' to initiate deploy

**Confirm changes before deploy** [y/N]: y

#SAM needs permission to be able to create roles to connect to the resources in your template

**Allow SAM CLI IAM role creation** [Y/n]: y

#Preserves the state of previously provisioned resources when an operation fails

**Disable rollback** [y/N]: y

**getByIdFunction may not have authorization defined, Is this okay?** [y/N]: y

**putItemFunction may not have authorization defined, Is this okay?** [y/N]: y

**Save arguments to configuration file** [Y/n]: y

**SAM configuration file** [samconfig.toml]:

**SAM configuration environment** [default]:

Looking for resources needed for deployment:

Creating the required resources...

Successfully created!

Managed S3 bucket: aws-sam-cli-managed-default-samclisourcebucket-1ino35x4vpuye

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Saved arguments to config file

Running 'sam deploy' for future deployments will use the parameters saved above.

The above parameters can be changed by modifying samconfig.toml

Learn more about samconfig.toml syntax at

<https://docs.aws.amazon.com/serverless-application-model/latest/developerguide/serverless-sam-cli-config.html>

Uploading to sample-backend-api/0344b536cdd82e66d3c9789c15113ca611200046 / 11200046 (100.00%)

Uploading to sample-backend-api/4c2623b3bfe945b7d703e36ebea4b9b511200095 / 11200095 (100.00%)

#### Deploying with following values

```
=====
Stack name           : sample-backend-api
Region               : us-east-1
Confirm changeset    : True
Disable rollback     : True
Deployment s3 bucket : aws-sam-cli-managed-default-
samclisourcebucket-1ino35x4vpuye
Capabilities         : ["CAPABILITY_IAM"]
Parameter overrides  : {}
Signing Profiles     : {}
```

#### Initiating deployment

```
=====
Uploading to sample-backend-
api/7913c22689f9fabf237ca156e65b72d4.template 2332 / 2332
(100.00%)
```

Waiting for changeset to be created..  
CloudFormation stack changeset

Operation ResourceType	LogicalResourceId Replacement
+ Add AWS::DynamoDB::Table	SampleTable N/A
+ Add ServerlessRestApiDeploymentb56639 N/A	AWS::ApiGateway::Deployment ed39
+ Add AWS::ApiGateway::Stage	ServerlessRestApiProdStage N/A
+ Add AWS::ApiGateway::RestApi	ServerlessRestApi N/A
+ Add getByIdFunctionApiPermissionProd N/A	AWS::Lambda::Permission
+ Add AWS::IAM::Role	getByIdFunctionRole N/A
+ Add AWS::Lambda::Function	getByIdFunction N/A

```
+ Add
putItemFunctionApiPermissionProd    AWS::Lambda::Permission
N/A
+ Add
AWS::IAM::Role                      putItemFunctionRole
N/A
+ Add
AWS::Lambda::Function              putItemFunction
N/A
```

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-----

Changeset created successfully. arn:aws:cloudformation:us-east-1:602643045824:changeSet/samcli-deploy1673112481/2dec80ba-f14c-427d-8b91-8ce142994a89

Previewing CloudFormation changeset before deployment

=====

Deploy this changeset? [y/N]: y

2023-01-07 14:28:50 - Waiting for stack create/update to complete

CloudFormation events from stack operations (refresh every 0.5 seconds)

-----

ResourceStatus LogicalResourceId	ResourceType ResourceStatusReason
-----	-----
CREATE_IN_PROGRESS	AWS::CloudFormation::Stack
sample-backend-api	User Initiated
CREATE_IN_PROGRESS	AWS::DynamoDB::Table
SampleTable	-
CREATE_IN_PROGRESS	AWS::DynamoDB::Table
SampleTable	Resource creation Initiated
CREATE_COMPLETE	AWS::DynamoDB::Table
SampleTable	-
CREATE_IN_PROGRESS	AWS::IAM::Role
putItemFunctionRole	-
CREATE_IN_PROGRESS	AWS::IAM::Role
putItemFunctionRole	Resource creation Initiated
CREATE_IN_PROGRESS	AWS::IAM::Role
getByIdFunctionRole	-
CREATE_IN_PROGRESS	AWS::IAM::Role
getByIdFunctionRole	Resource creation Initiated
CREATE_COMPLETE	AWS::IAM::Role
putItemFunctionRole	-
CREATE_COMPLETE	AWS::IAM::Role
getByIdFunctionRole	-

CREATE_IN_PROGRESS	AWS::Lambda::Function
getByIdFunction	-
CREATE_IN_PROGRESS	AWS::Lambda::Function
putItemFunction	-
CREATE_IN_PROGRESS	AWS::Lambda::Function
getByIdFunction	Resource creation Initiated
CREATE_IN_PROGRESS	AWS::Lambda::Function
putItemFunction	Resource creation Initiated
CREATE_COMPLETE	AWS::Lambda::Function
getByIdFunction	-
CREATE_COMPLETE	AWS::Lambda::Function
putItemFunction	-
CREATE_IN_PROGRESS	AWS::ApiGateway::RestApi
ServerlessRestApi	-
CREATE_IN_PROGRESS	AWS::ApiGateway::RestApi
ServerlessRestApi	Resource creation Initiated
CREATE_COMPLETE	AWS::ApiGateway::RestApi
ServerlessRestApi	-
CREATE_IN_PROGRESS	AWS::Lambda::Permission
putItemFunctionApiPermissionProd	-
CREATE_IN_PROGRESS	AWS::ApiGateway::Deployment
ServerlessRestApiDeploymentb56639	-
ed39	
CREATE_IN_PROGRESS	AWS::Lambda::Permission
getByIdFunctionApiPermissionProd	-
CREATE_IN_PROGRESS	AWS::Lambda::Permission
putItemFunctionApiPermissionProd	Resource creation Initiated
CREATE_IN_PROGRESS	AWS::Lambda::Permission
getByIdFunctionApiPermissionProd	Resource creation Initiated
CREATE_IN_PROGRESS	AWS::ApiGateway::Deployment
ServerlessRestApiDeploymentb56639	Resource creation Initiated
ed39	
CREATE_COMPLETE	AWS::ApiGateway::Deployment
ServerlessRestApiDeploymentb56639	-
ed39	
CREATE_IN_PROGRESS	AWS::ApiGateway::Stage
ServerlessRestApiProdStage	-
CREATE_IN_PROGRESS	AWS::ApiGateway::Stage
ServerlessRestApiProdStage	Resource creation Initiated
CREATE_COMPLETE	AWS::ApiGateway::Stage
ServerlessRestApiProdStage	-
CREATE_COMPLETE	AWS::Lambda::Permission
putItemFunctionApiPermissionProd	-
CREATE_COMPLETE	AWS::Lambda::Permission
getByIdFunctionApiPermissionProd	-
CREATE_COMPLETE	AWS::CloudFormation::Stack
sample-backend-api	-

---



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CloudFormation outputs from deployed stack



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## Outputs

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---

Key	WebEndpoint
Description	API Gateway endpoint URL for Prod stage
Value	https://uzrngo1vcd.execute-api.us-east-1.amazonaws.com/Prod/

---

Depois deste último momento voce vai ter

1 endpoint GET conseguira consultar estes itens baseado no Id incluído.

1 endpoint POST, onde você vai conseguir inserir mediante os dados de

```
TodoItem {  
  id: string;  
  title: string;  
  isComplete: boolean;  
}
```

**Lembre-se de remover o conteúdo criado em sua conta AWS free sempre ou será taxado.**

## Comando:

```
$ sudo sam delete
```

```
Are you sure you want to delete the stack sample-backend-  
api in the region us-east-1 ? [y/N]: y  
Are you sure you want to delete the folder sample-backend-  
api in S3 which contains the artifacts? [y/N]: y  
- Deleting S3 object with key sample-backend-  
api/0344b536cdd82e66d3c9789c15113ca6  
- Deleting S3 object with key sample-backend-  
api/4c2623b3bfe945b7d703e36e4b9b5  
- Deleting S3 object with key sample-backend-  
api/7913c22689f9fabf237ca156e65b72d4.template  
- Deleting Cloudformation stack sample-backend-api
```

Deleted successfully