**Section 20) aws Serveless SAM : Serverless Application Model**

The AWS **Serverless Application Model** (SAM) is an open-source framework for building **serverless applications**. It provides shorthand syntax to express functions, APIs, databases, and event source mappings. With just a few lines per resource, you can define the **application** you want and **model** it using YAML.

**SAM :** allow to deploy application into AWS

Machine generated alternative text:
AWS SAM 
• SAM Serverless Application Model 
• Framework for developing and deploying serverless applications 
• All the configuration is YAML co 
• Generate complex CloudFor tif simple SAM YAML file 
• Supports anything from Cloud ,oAÄioh: Outputs, Mappings, 
Parameters, Resources... 
• Only two commands to deploy to AWS 
• SAM can use CodeDeploy to deploy Lambda functions 
• AM n h Ip you to run Lambda, API Gateway, DynamoDB locally 

**Function : Amazon lambda**

**Api : API Gateway**

**SimpleTable : DynamoDb**

Machine generated alternative text:
AWS SAM - Recipe 
• Transform Header indicates it's SAM template: 
• Transform: 'AWS: 
• Write Code 
• AWS: : Server less: : Fun i 
• AWS: : Server less: :Api 
• AWS: : Server less: : Sim le,a I 
• Package & Deploy: 
• aws cloud formation package / sam package 
• aws cloud formation deploy / sam deploy 

Note : **generated template will have the reference of application code into S3**

**Stack could be dynamodb , api gateway**

Machine generated alternative text:
Deep dive into SAM deployment 
aws cloudformation package 
Transform 
aws cloudformation deploy 
Create and execute change set 
SAM Template 
YAML file 
ce 
_„r.erated Template 
-.1CIoud rmation YAML 
change set 
AWS 
CloudFormation 
stac 
Zip and upload 
Application Code 
+ Swagger File (optional) 
4:57 / 4:58 
refer 
code S3 
bucket 

**Installing the SAM cli**

**Note : anytime transform : means sam template**

**Structure**

Machine generated alternative text:
EXPLORER 
OPEN EDITORS 
X app.py src 
! template.yaml 
commands.sh 
SAM 
src 
app.py 
commands.sh 
! template.yaml 
app-py x ! ternplate.yaml 
1 import j son 
print( 'Loading function') 
commands.sh 
def context) : 
return "Hello World" Echo 
*raise Exception( 'So*thing went wrong' ) 

**Step 1) create app.py**

Machine generated alternative text:
0-just-ec2yaml commandsshO template_yaml 
1 
2 
3 
4 
5 
6 
import j son 
print ( ' Loading function ' 
def lambda handler (event, context) : 
re turn 
"hello world" 

**Step 2) create template.yaml file :------ how your function should be**

**Aws TemplateFormatVersion :;--- indicating this is cloudformation template**

**Transform : indicating we are using a SAM template**

**Handler :----file name .function name**

Machine generated alternative text:
0-just-ec2_yaml anew 39 Happpyt.,a 8 commands-sh 
template_yaml 
1 
2 
3 
4 
5 
6 
9 
10 
11 
12 
13 
14 
15 
ÄWSTemp1ateEormatVersion : ' 2010—09—09 ' 
Transform: 'AWS: : Server ' 
Description: A starter AWS Lambda function. 
Resources : 
hellowor1dpython3 : 
Type: 'Aws: 
Properties : 
Handler : 
Runtime : 
CodeUri : 
• Server less: : Function ' 
app . lambda handler 
python3 . 6 
Sr c/ 
Description: A starter AWS Lambda function. 
MemorySize : 
12B 
Timeout : 
3 

**Step 3) create bucket**

# create an s3 bucket

aws s3 mb s3://saurabh-code-sam-demo

**# package cloudformation**

aws cloudformation package --s3-bucket saurabh-code-sam-demo --template-file template.yaml --output-template-file gen/template-generated.yaml

# sam package ...

**Generated template**

Machine generated alternative text:
0-just-ec2_yaml anew 39 Sapp-py 8 commands_sh 8 template_yaml 
template-generated_yaml 
1 
2 
3 
4 
5 
6 
10 
11 
12 
13 
14 
STemp1ateEormatVersion : ' ' 
Transform: AWS: : Server 
Description: A starter AWS Lambda function. 
Resources : 
hellowor1dpython3 : 
• Server less: : Function 
Type: Aws: 
Properties : 
Handler : 
app . lambda handler 
Runtime : 
python3 . 6 
s3 : / / 7 94 eeOcOd9935237 B 99e5393821b7ebO 
CodeUri : 
Description: A starter AWS Lambda function. 
MemorySize : 
12B 
Timeout : 
3 

**By running below command chainset will be create**

# deploy : **it will refer generated template**

aws cloudformation deploy --template-file gen/template-generated.yaml --stack-name hello-world-sam --capabilities CAPABILITY\_IAM

Machine generated alternative text:
Microsoft Windows (Version 1B. e. 17134.1726) 
(c) 2B18 Microsoft Corporation. All rights reserved. 
C: XUsersXsaurakesXDesktopXniagara_docXaws stephaneXcodeXsam-dem»aws cloudformation package 
te-file gen/template-generated.yaml 
Uploading to 794eeeced9935237899e5393821b7ebe 2e1 / 2e1.e (lee. eeyo) 
Successfully packaged artifacts and wrote output template to file gen/template-generated.yaml . 
Execute the following command to deploy the packaged template 
-s3-bucket saurabh-code-sam-demo 
- -template-file template.yaml 
- - output -templa 
aws cloudformation deploy --template-file stephaneXcodeXsam-demoXgenXtemp1ate-generated.yam1 
stephaneXcodeXsam-dem»aws cloudformation deploy --template-file gen/template-generated.yaml 
lities CAPABILITY IAM 
Waiting for changeset to be created.. 
Waiting for stack create/update to complete 
Successfully created/updated stack - hello-world-sam 
C: XUsersXsaurakesXDesktopXniagara_docXaws stephanekcodeksam-dem» 
-stack-name (YOUR STACK NAME) 
--stack-name hello-world-sam - -capabi 

**Automatically cloudformation will get create**

Machine generated alternative text:
CloudFormation 
Stacks (1) 
Stacks 
Status 
@ CREATE_ 
COMPLETE 
Delete 
Created time 
Update 
Active 
Stack actions v 
v View nested 
Description 
Create stack v 
Q 
Filter by stack name 
O 
Stack name 
hello-world-sam 
2020-10-17 21:06:59 UTC+0530 
A starter AWS Lambda function. 

**Go to resources both lambda function and IAM is created**

Machine generated alternative text:
CloudFormation 
Stacks (1) 
Stacks 
hello-world-sam 
1 'Cttv—vvvl 
Stack info 
Delete 
Outputs 
Type 
Stack actions v 
create stack 
Change sets 
Status reason 
Update 
O 
Template 
Events 
Resources 
Physical ID 
Parameters 
Status 
Q 
Filter by stack name 
O View nested 
Active v 
hello-world-sam 
2020-10-17 21:06:59 UTC+0530 
@ CREATE_COMPLETE 
(2) 
Resources 
Q 
Search resources 
Logical ID 
helloworldpython3 
helloworldpython3 
Role 
hello-world-sam- 
helloworldpython3- 
1 FVY094NMOCPL 
hello-world-sam- 
helloworldpython3R 
ole-IEARV8BNTD75 
AWS::Lambda: 
:Function 
AWS:: 
CREATE.COM 
PLETE 
CREATE.COM 
PLETE 

Machine generated alternative text:
AWS Lambda 
Dashboard 
Applications 
Functions 
v Additional resources 
Layers 
v Related AWS resources 
Step Functions state 
machines 
x 
Lambda Functions 
Functions 
Q 
Filter by tags and attributes or search by keyword 
Function name 
hello-world-sam-helloworldpython3- 
O 
1 FVY094NMOCPL 
Last fetched now 
Description 
A starter AWS Lambda 
function. 
Actions 
Runtime v 
Python 3.6 
Code 
size 
201 
bytes 
Create function 
Last 
modified v 
4 minutes 
ago 

Machine generated alternative text:
aws 
Services v 
hello-world-sam-helloworldpython3- 
1 FVY094NMOCPL 
Throttle 
Qualifiers 
saurabh @ awsdeveloperlearnv London v 
Support 
Actions V 
Select a test event 
Test 
+ Add trigger 
Function code 
Info 
A File Edit Find Mew Go 
hello-world-sam-hel O • 
app.py 
Tools 
1 
Window 
app.py 
#11port j son 
Test 
hello-world-sam-helloworldpython3-1 FVY094 
NMOCPL 
Layers 
Deploy 
+ Add destination 
Deploy 
Actions v 
print( Loading function') 
def lambda handler (event, context): 
return "hello world" 

Machine generated alternative text:
Lambda Functions hello-world-sam-helloworldpython3-1 FVY094NMOCPL 
ARN - 
arn:aws:lambda:eu-west-2:398678778168:function:hello-world-sam-helloworldpython3-1FVY094NMOCPL 
Throttle 
Qualifiers v 
Actions V 
test 
Test 
x 
x 
hello-world-sam-helloworldpython3-1 FVY094NMOCPL 
@ This function belongs to an application. Click here to manage it. 
@ Execution result: succeeded (logs) 
V Details 
The area below shows the result returned by your function execution. Learn more about returning results from your function. 
"hello world" 
Summary 
Code SHA-256 
PQOb6dOZQIX5+1qC/exX/D3xY+sjiOpMeRMyaQGwWIQ: 
Duration 
0.22 ms 
Resources configured 
128 MB 
Log output 
Request ID 
80-1 le44c37edc1 
Billed duration 
100 ms 
Max memory used 
43 MB Init Duration: 1.06 ms 
The section below shows the logging calls in your code. These correspond to a single row within the CloudWatch log group corresponding to this Lambda function. Click here to view the CloudWatch log group. 

**SAM API Gateway**

**Sam with api gateway demo**

**Step 1:**

**App.py in the form of api gateway**

Machine generated alternative text:
import 
bot03 
import 
son 
import 
os 
print ( ' Loading function' 
respond (err, yes—None) : 
if err else 
if err else 
'200' 
j son. dumps (res) , 
return 
' statusCode ' 
'400' 
' body ' 
err . message 
'headers ' 
' Content—Type ' 
— def lambda 
re turn 
indent— 
' application/ j son ' 
+ j son. dumps (event, 
handler (event, context) : 
print ( "Received event : 
respond (None, Yes:" Hello 
World" 

**Step 2) modify template.yaml to include api gateway stuff**

**Note : whenever Hello api with get method is called invoke lambda function**

Machine generated alternative text:
0-just-ec2_yaml anew 39 B app_py Ecommands sh aÉÅÅÅÅÅGÅÅ"ÄBtempIateqgeneratedyaml Stemplate_yaml 
1 
2 
3 
4 
5 
6 
9 
10 
11 
12 
13 
14 
15 
16 
17 
19 
20 
21 
ÄWSTemp1ateEormatVersion : ' 2010—09—09 ' 
Transform: 'AWS: : Server ' 
Description: A starter AWS Lambda function. 
Resources : 
hellowor1dpython3 : 
Type : 'AWS: : Server less: : Function ' 
Properties : 
Handler: app . lambda handler 
Runtime: python3 . 6 
CodeUri : src/ 
Description: A starter AWS Lambda function. 
MemorySize : 
12B 
Timeout : 
3 
Events : 
HelloWor1dSÄMÄP1 : 
Type : Api 
Properties : 
Path: / hello 
Me thod : GE 

**Step 3) run command**

**Note : we don’t need to recreate bucket because bucket is created**

**Run below command to get updated generated template**

**# package cloudformation**

aws cloudformation package --s3-bucket saurabh-code-sam-demo --template-file template.yaml --output-template-file gen/template-generated.yaml

Machine generated alternative text:
0-just-ec2_yamI new 39 app-py commands_sh template_yaml 
1 
2 
3 
4 
5 
6 
9 
10 
11 
12 
13 
14 
15 
16 
17 
19 
20 
STemp1ateEormatVersion : ' ' 
Transform: AWS: : Server 
Description: A starter AWS Lambda function. 
Resources : 
hellowor1dpython3 : 
Type: AWS: : Server less: : Function 
Properties : 
Handler: app . lambda handler 
Runtime: python3 . 6 
CodeUri: s3: // a546409ba8511c958abbcec44f027b65 
Description: A starter AWS Lambda function. 
MemorySize : 
12B 
Timeout : 
3 
Events : 
HelloWor1dSÄMÄP1 : 
Type : Api 
Properties : 
Path: / hello 
Method: GET 

**Step 4) run deploy command**

# deploy

aws cloudformation deploy --template-file gen/template-generated.yaml --stack-name hello-world-sam --capabilities CAPABILITY\_IAM

**Note : now when changset will create it will execute cloud formation and lot of stuff will be created due to generated yaml file only**

Machine generated alternative text:
aws 
Services v 
CloudFormation 
El Stacks (1) 
Stacks 
hello-world-sam 
c 
Outputs 
Parameters 
Type 
Delete 
saurabh @ awsdeveloperlearn v 
London v 
Support v 
Stack actions v 
Status reason 
hello-world-sam 
Resources 
Update 
Create stack v 
c 
Events 
Stack info 
Q Filter by stack name 
View nested 
Active V 
hello-world-sam 
2020-10-17 UTC+0530 
@ UPDATE COMPLETE 
Template 
Change sets 
Status 
CREATE COMPLETE 
CREATE COMPLETE 
CREATE COMPLETE 
UPDATE COMPLETE 
CREATE COMPLETE 
(6) 
Resources 
o 
Q 
Search resources 
Logical ID 
ServerlessRestApi 
ServerlessRestApiDeploymen 
t521de1ca91 
ServerlessRestApiProdStage 
helloworldpython3 
helloworldpython3HelloWorl 
dSAMAPlPermissionProd 
Physical ID 
811sjyjzx3 e 
ai5euj 
prod 
hello-world-sam- 
helloworldpython3- 
IFVY094NMOCPL e 
hello-world-sam- 
AWS::ApiGateway::Res 
tApi 
AWS::ApiGateway::Dep 
loyment 
AWS.. 
ge 
AWS::Lambda::Functio 
AWS::Lambda::Permiss 
helloworldpython3HelloWorld 
SAMAPlPermissionProd- 
15B4KT70QDTCX 

**Step 5) go to api gateway**

**Hello-world-sam is created**

Machine generated alternative text:
aws 
Services v 
APIs hello-world-sam (811sjyjzx3) Resources 'hello (00znsd) GET 
saurabh @ awsdevelopeneam v London v 
Show all hints 
Integration Request 
Type: LAMBDA PROXY 
Integration Response 
Proxy integrations cannot be configured to 
transform responses. 
Support v 
o 
o 
o 
Amazon API Gateway 
APIs 
Custom Domain Names 
VPC Links 
API: hello-world-sam 
I Resources 
Stages 
Authorizers 
Gateway Responses 
Models 
Resource Policy 
Documentation 
Dashboard 
Settings 
Resources 
/hello 
GET 
Actions 
/hello - GET - Method Execution 
TEST 
Method Request 
Auth: NONE 
ARN: arn:aws:execute-api:eu-west- 
Isjyjzx3/*/GET/hello 
Method Response 
Select an integration response. 

Machine generated alternative text:
aws 
Services v 
APIs hello-world-sam (811sjyjzx3) Resources 
'hello (OOznsd) 
/hello - GET - 
GET 
Method Test 
Request: /hello 
Status: 200 
Latency: 450 ms 
Response Body 
"Hello world" 
Response Headers 
"X-Amzn-Trace -Id 
" • " -2273f31a262f3bae85c2d45d; Sampled-Ø" , "C 
ontent-Type" "application/json") 
Logs 
Execution log for request fe965665-4961-49e8-8824-beøed6dcede4 
saurabh @ awsdevelopenearn v London v 
Show all hints 
Support v 
Amazon API Gateway 
APIs 
Custom Domain Names 
VPC Links 
API: hello-world-sam 
I Resources 
Stages 
Authorizers 
Gateway Responses 
Models 
Resource Policy 
Documentation 
Dashboard 
Settings 
Usage Plans 
Resources 
/hello 
GET 
Actions 
Method Execution 
Make a test call to your method with the provided input 
Path 
No path parameters exist for this resource. You can define path 
parameters by using the syntax (myPathParam) in a resource 
path 
Query Strings 
(hello) 
param 1 —value 1 &param2zvalue2 
Headers 
(hello) 
Use a colon (l) to separate header 
name and value, and new lines to 
declare multiple headers. eg_ 
Accept:applicationbsom 
Stage Variables 
No estage variables exist for this method. 
Client Certificate 
Sat Oct 
61-49e8- 
17 UTC 2e2ø 
8824-bøøed6dcede4 
Starting execution for request: fe965665-49 
HTTP Method: GET, Resource Path: / hello 
Method request path: 
Method request query string: 
Method request headers: 
Method request body before transformations: 
Endpoint request URI: https : // lambda .eu-wes 
Sat 
Sat 
Sat 
Sat 
Sat 
Sat 
Oct 
Oct 
Oct 
Oct 
Oct 
Oct 
17 
17 
17 
17 
17 
17 
16 
16 
16 
16 
16 
UTC 
UTC 
UTC 
UTC 
UTC 
UTC 
2e2ø 
2e2ø 
2e2ø 
2e2ø 
2e2ø 
2e2ø 

Machine generated alternative text:
aws 
Services v 
APIs 
Stages 
hello-world-sam (811sjyjzx3) 
Create 
Stages 
prod 
'hello 
saurabh @ awsdevelopeneam v 
GET 
Invoke URL: https://811sjyjzx3_execute-api_eu-west-2_amazonaws.com/Prod/hello 
London v 
Show all hints 
Support v 
Amazon API Gateway 
APIs 
Prod 
Custom Domain Names 
/hello 
VPC Links 
GET 
Stage 
API: hello-world-sam 
Resources 
I Stages 
Authorizers 
Gateway Responses 
Use this page to override the Prod stage settings for the GET to 'hello method. 
Settings @ Inherit from stage 
O Override for this method 
Save Changes 

Machine generated alternative text:
C 81 Isjyjzx3.execute-api.eu-west-2.amazonaws.com/Prod/hello 
// 2e2e1e17213457 
// https://811sjyjzx3.execute-api.eu-west-2.amazonaws.com/Prod/he110 
"Hello World" 

**SAM DynamoDB**

**Note : api gateway talk to lambda function and lambda function talk to dynamo db and also lambda function IAM Policy is there**

**Step 1) app.py**

Machine generated alternative text:
0-just-ec2_yaml new390É'ÅBB'BJå'1B commandsshOI template_yaml template-generated_y 
1 
2 
3 
4 
5 
6 
10 
11 
12 
13 
14 
15 
16 
17 
19 
20 
21 
22 
23 
24 
25 
import bot03 
import j son 
import os 
print ( ' Loading function' 
# create the client outside of the handler 
os . environ 
' REGION NPNE' 
region name 
dynamo bot03 . client ( ' dynamodb ' 
region name—region name) 
os . environ 
table name 
' TABLE NAME' 
respond (err, yes—None) : 
— def 
return 
' statusCode ' 
'400' 
if err else 
'200' 
if err else j son. dumps (res) , 
' application/ j son ' 
' body ' 
err . message 
'headers ' 
' Content—Type ' 
lambda handler (event, context) : 
print ( "Received event : 
+ j son . dumps (event, indent: 
scan result dynamo . scan (TableName:tab1e name) 
return respond (None, res:scan result) 

**Note : here we are seeing two environment variable region name and table\_name that we have to set in template.yaml**

**Note it : will give IAM policy to function to perform CRUD operation**

Machine generated alternative text:
ÄWSTemp1ateEormatVersion : ' ' 
Transform: 'AWS: : Server ' 
Description: A starter AWS Lambda function. 
Resources : 
hellowor1dpython3 : 
function . 
Type: 'Aws: 
Properties : 
Handler : 
Runtime : 
CodeUri : 
• Server less: : Function ' 
app . lambda handler 
python3 . 6 
Sr c/ 
Description: A starter AWS Lambda 
MemorySize : 
12B 
Timeout : 
3 
Environment : 
Variables : 
ABLE NAME : 
GION NAME: 
Events : 
! Ref Table 
!Ref AWS: : Region 
HelloWor1dSÄMÄP1 : 
Type : Api 
Properties : 
Path: / hello 
Method: GET 
Policies . 
— DynamoDBCrudP01icy : 
TableName : ! Ref Table 
Table : 
Type: AWS: : Server less: : SimpleTab1e 
Properties : 
PrimaryKey : 
Name : greeting 
Type : String 
Provisi onedThroughput : 
ReadCapacityUnits : 
2 
Wri teCapaci tyUni ts : 
2 

**Step 3)**

**Run below command to deploy our function**

**# package cloudformation**

aws cloudformation package --s3-bucket saurabh-code-sam-demo --template-file template.yaml --output-template-file gen/template-generated.yaml

# sam package ...

**Template generated**

Machine generated alternative text:
0-just-ec2_yaml anew 39 app_py commands-sh iB 
template-generated_yaml 
lines : 
39 
Col: 1 Sel : 010 
1 
2 
3 
4 
5 
6 
10 
11 
12 
13 
14 
15 
16 
17 
19 
20 
21 
22 
23 
24 
25 
26 
27 
29 
30 
31 
32 
33 
34 
35 
36 
STemp1ateEormatVersion : ' ' 
Transform: AWS: : Server 
Description: A starter AWS Lambda function. 
Resources : 
hellowor1dpython3 : 
• Server less: : Function 
Type: Aws: 
Properties : 
Handler : 
app . lambda handler 
Runtime : 
python3 . 6 
s3 : / / saurabh—code—sam—demo/ a54 64 09baB 51 Ic95B abbcec4 4 f02 7b 65 
CodeUri : 
Description: A starter AWS Lambda function. 
MemorySize : 
12B 
Timeout : 
3 
Environment : 
Variables : 
TABLE NAME : 
Ref: Table 
REGION NAME : 
Ref: AWS: : Region 
Events : 
HelloWor1dSÄMÄP1 : 
Type : Api 
Properties : 
Path: / hello 
Method: GET 
Policies : 
— DynamoDBCrudP01icy : 
TableName : 
Ref: Table 
Table : 
Type: AWS: : Server less: : SimpleTab1e 
Properties : 
PrimaryKey : 
Name: greeting 
Type : String 
Provisi onedThroughput : 
ReadCaoaci EvtJni : 
7. 
length . 
• 1,034 
AML Ain't Markup Language 

**# deploy**

aws cloudformation deploy --template-file gen/template-generated.yaml --stack-name hello-world-sam --capabilities CAPABILITY\_IAM

Machine generated alternative text:
C: XUsersXsaurakesXDesktopXniagara_docXaws stephaneXcodeXsam-dem»aws cloudformation package 
te-file gen/template-generated.yaml 
Successfully packaged artifacts and wrote output template to file gen/template-generated.yaml . 
Execute the following command to deploy the packaged template 
-s3-bucket saurabh-code-sam-demo 
- -template-file template.yaml 
- - output -templa 
aws cloudformation deploy --template-file stephaneXcodeXsam-demoXgenXtemp1ate-generated.yam1 
stephaneXcodeXsam-dem»aws cloudformation deploy --template-file gen/template-generated.yaml 
lities CAPABILITY IAM 
Waiting for changeset to be created.. 
Waiting for stack create/update to complete 
Successfully created/updated stack - hello-world-sam 
C: XUsersXsaurakesXDesktopXniagara_docXaws stephanekcodeksam-dem» 
-stack-name (YOUR STACK NAME) 
--stack-name hello-world-sam - -capabi 

Machine generated alternative text:
aws 
Services v 
CloudFormation 
El Stacks (1) 
Stacks 
hello-world-sam 
c 
(7) 
Resources 
Q 
Search resources 
Logical ID 
ServerlessRestApi 
ServerlessRestApiDeploymen 
t521de1ca91 
ServerlessRestApiProdStage 
helloworldpython3 
helloworldpython3HelloWorl 
dSAMAPlPermissionProd 
helloworldpython3Role 
Physical ID 
811sjyjzx3 e 
ai5euj 
prod 
hello-world-sam-Table- 
70XOW6NOZULY e 
hello-world-sam- 
helloworldpython3- 
IFVY094NMOCPL e 
hello-world-sam- 
helloworldpython3HelloWorld 
SAMAPlPermissionProd- 
15B4KT70QDTCX 
hello-world-sam- 
helloworldpython3Role- 
IEARV8BNTD75 
Type 
AWS::ApiGateway::Res 
tApi 
AWS::ApiGateway::Dep 
loyment 
AWS.. 
ge 
AW :. ynamoDB::Tabl 
::Lambda::Functio 
AWS 
::Lambda::Permiss 
AWS 
Ion 
"Role 
Status 
saurabh @ awsdeveloperlearn v 
Status reason 
London v 
Support v 
c 
o 
Q Filter by stack name 
View nested 
Active V 
hello-world-sam 
2020-10-17 UTC+0530 
@ UPDATE COMPLETE 
CREATE COMPLETE 
CREATE COMPLETE 
CREATE COMPLETE 
CREATE COMPLETE 
UPDATE COMPLETE 
CREATE COMPLETE 
UPDATE COMPLETE 

**Go to dynamo db**

**Table created**

Machine generated alternative text:
DynamoDB 
Dashboard 
Tables 
Backups 
Resewed capacity 
Preferences 
DAX 
Dashboard 
Clusters 
Subnet groups 
Create table 
Delete table 
x 
Choose a table group 
Actions 
O 
Sort key 
Indexes 
Total read capacity 
2 
Ito 1 of 1 Tables 
Total write capacity 
2 
Auto 
Q Filter by table name 
Status 
Active 
C) 
Name 
hello-world- 
Partition key 
greeting (String) 
sam-Table-70XOW6NOZl 

Machine generated alternative text:
Services v 
DynamoDB 
Dashboard 
Tables 
Backups 
Resewed capacity 
Preferences 
DAX 
Dashboard 
Clusters 
Subnet groups 
Parameter groups 
Events 
Create table 
Delete table 
x 
hello-world- 
Overview 
Table details 
sam-Table-70XOW6NOZULY Close 
Indexes 
Global Tables 
Backups 
saurabh @ awsdeveloperleam 
v London v 
Support 
Contributor Insights 
Items 
Metrics 
Alarms 
Capacity 
View type 
Triggers 
More v 
Q Filter by table name 
Choose a table . . 
Name 
Actions 
Latest stream ARN 
Manage Stream 
Table name 
Primary partition key 
Primary sort key 
Point-in-time recovery 
Encryption Type 
KMS Master Key ARN 
Encryption Status 
CloudWatch Contributor Insights 
Time to live attribute 
Table status 
Creation date 
Read/write capacity mode 
Last change to on-demand mode 
Provisioned read capacity units 
Provisioned write capacity units 
Last decrease time 
Last increase time 
Storage size (in bytes) 
Item count 
Region 
Amazon Resource Name (ARN) 
hello-world-sam-Table-70XOW6NOZl 
hello-world-sam-Table-70XOW6NOZULY 
greeting (String) 
DISABLED Enable 
DEFAULT Manage Encryption 
Not Applicable 
DISABLED Manage Contributor Insights 
DISABLED Manage TTL 
Active 
October 17, 2020 at PM UTC+5:30 
Provisioned 
2 (Auto Scaling Disabled) 
2 (Auto Scaling Disabled) 
O bytes 
O Manage live count 
EU (London) 
NEW 

**Add item**

Machine generated alternative text:
Services v 
DynamoDB 
Dashboard 
Tables 
Backups 
Resewed capacity 
Preferences 
DAX 
Dashboard 
Clusters 
Subnet groups 
Parameter groups 
Events 
Create table 
Delete table 
x 
hello-world- 
Overview 
Create item 
sam-Table-70XOW6NOZULY Close 
Indexes 
Global Tables 
Backups 
saurabh @ awsdeveloperleam v London v 
Support v 
Contributor Insights 
Triggers 
Items 
Metrics 
Alarms 
Capacity 
Q Filter by table name 
Choose a table . . 
Name 
More v 
Viewing 1 to 2 items 
Actions 
Actions v 
Scan: (Table) hello-world-sam-Table-70XOW6NOZULY: we... 
Scan 
v (Tablel hello-world-sam-Table-70XOW6NOZULY: greeting 
O Add filter 
Start search 
hello-world-sam-Table-70XOW6NOZl 
co 
greeting O 
bonjour 
hello 

**Now want to check our function work properly**

Machine generated alternative text:
AWS Lambda 
Dashboard 
Applications 
Functions 
V Additional resources 
Layers 
V Related AWS resources 
Step Functions state 
machines 
x 
Lambda Functions 
Functions 
Q Filter by tags and attributes or search by keyword 
Description 
A starter AWS Lambda function. 
Last fetched now 
Runtime 
Python 3.6 
c 
Actions 
Code size 
370 bytes 
Create function 
Last modified 
5 minutes ago 
O 
Function name 
hello-world-sam-helloworldpython3- 
IFVY094NMOCPL 

**Note environment variable and table name came automatically**

Machine generated alternative text:
hello-world- 
sam- 
helloworldpython3- 
1 FVY094NMOCPL 
Throttle 
Qualifiers v 
Actions 
test 
1:1 
Test 
Spaces: 4 
Edit 
Python 
Environment variables 
(2) 
The environment variables below are encrypted at rest with the default Lambda service key. 
Key 
REGION NAME 
TABLE NAME 
(4) 
Tags 
Value 
eu-west-2 
hello-world-sam-Table-70XOW6NOZULY 
Manage tags 
A tag is a label that you assign to an AWS resource. Each tag consists of a key and an optional value. You can use tags to search and filter your resources or track your AWS costs. 

Machine generated alternative text:
hello-world-sam-helloworldpython3- 
Function code 
Info 
1 FVY094NMOCPL 
Deploy 
Throttle 
Qualifiers 
Actions 
test 
Deploy 
Actions 
Test 
Tools 
12 
22 
Window 
app.py 
• mport 
bot03 
import 
son 
import 
Test 
File Edit Find Mew Go 
hello-world-sam-hel O • 
app.py 
print( Loading function') 
# create the client outside of the handler 
os . environC'REG10N NAME') 
region name 
dynamo bot03 .client( 'dynamodb', 
region name-region name) 
table name 
os . environ( 'TABLE NAME ' ) 
def respond (err, nes-None): 
return 
' statusCode 
'4ea' if err else '20' 
' body' 
err . message if err else json.dumps(res), 
' headers 
' Content-Type ' 
application/json' , 
def lambda handler (event, context) • 
print("Received event: 
json.dumps(event, indent-2)) 
scan result 
dynamo. scan(Tab1eName-tab1e name) 
respond(None, res-scan result) 
return 

**Check IAM Role**

**Lambda function also have to role for dynamo db**

Machine generated alternative text:
aws 
" dynamodb:GetItem" , 
Services v 
Identity and Access 
Management (IAM) 
Dashboard 
Access management 
Groups 
Users 
Roles 
Policies 
Identity providers 
Account settings 
Access reports 
Access analyzer 
Archive rules 
Analyzers 
Settings 
Credential report 
Organization activity 
Service control policies 
(SCPs) 
Q Search IAM 
AWS account ID: 
4 
Roles hello-world-sam-helloworldpython3Role-lEARV8BNTD75 
Summary 
saurabh@awsdeveloperleam v 
Global V 
Support v 
Delete role 
O Add inline policy 
Simulate policy 
Permissions 
Role ARN 
Role description 
Instance Profile ARNs 
Path 
Creation time 
Last activity 
Maximum session duration 
Trust relationships Tags (1) 
Edit 
2020-10-17 21:07 UTC+0530 
2020-10-17 21:33 UTC+0530 (Today) 
1 hour Edit 
Policy type 
AWS managed policy 
Inline policy 
2020, Amazon Internet Services Private Ltd. or its affiliates. All rights reserved. 
Revoke sessions 
Access Advisor 
Permissions policies (2 policies applied) 
Attach policies 
Policy name 
AWSLambdaBasicExecutionRole 
helloworldpython3RolePolicy0 
Policy summary 
O JSON 
Edit policy 
0 2008 - 
Privacy Policy 
Terms ot use 
"Statement" : 
"Action" 
" dvnamodb : Deleteltem" 
Feedback 
EngliSh (US) 

Machine generated alternative text:
Attach policies 
Policy name 
AWSLambdaBasicExecutionRole 
helloworldpython3RolePolicy0 
" dynamodb:GetItem" , 
" dynamodb: putltem" , 
O Add inline policy 
Simulate policy 
Policy type 
AWS managed policy 
Inline policy 
Policy summary 
O JSON 
Edit policy 
16 • 
"Statement" : 
"Action" 
" dynamodb : Deleteltem" , 
" dynamodb:scan" 
" dynamodb:Query" , 
" dynamodb:updateltem" , 
" dynamodb: Batchwriteltem" , 
" dynamodb: BatchGetItem" , 
" dynamodb:DescribeTable" 
" dynamodb : Cond it ionChec kit em " 
"Resource' 

**Now go to api gateway**

**All we are getting through dynamo db**

Machine generated alternative text:
Amazon API Gateway 
APIs hello-world-sam (811sjyjzx3) Resources 
'hello (OOznsd) 
/hello - GET - 
GET 
Method Test 
Request: /hello 
Status: 200 
Latency: 764 ms 
Re 
" Items " 
"greeting": 
"hello" 
"greeting": 
"S": 
" bonjour" 
"Count" 
2, 
"ScannedCount " 
2, 
" ResponseMetadata " 
"Requestld": , 
"HTTPStatusCode": 2ØØ, 
"HTTPHeaders" 
Show all hints 
31s 
Jstom Domain Names 
3C Links 
'l: hello-world-sam 
Resources 
Stages 
Authorizers 
Gateway Responses 
Models 
Resource Policy 
Documentation 
Dashboard 
Settings 
sage Plans 
31 Keys 
Resources 
/hello 
GET 
Actions 
Method Execution 
Make a test call to your method with the provided input 
Path 
No path parameters exist for this resource. You can define path 
parameters by using the syntax (myPathParam) in a resource 
path 
Query Strings 
(hello) 
param 1 —value 1 &param2zvalue2 
Headers 
(hello) 
Use a colon (l) to separate header 
name and value, and new lines to 
declare multiple headers. eg_ 
Accept:applicationbsom 
Stage Variables 
No estage variables exist for this method. 
Client Certificate 
server 
"Server " 

**SAM cloud formation designer and application Repository**

**Note same template we get ( original template)**

Machine generated alternative text:
CloudFormation 
E) Stacks (1) 
Stac 
hello-world-sam 
o 
Stack info 
Template 
Events 
Resources 
Outputs 
Parameters 
mplate 
ange sets 
View in Designer 
c 
Q 
Filter by stack name 
O View nested 
Active v 
hello-world-sam 
2020-10-17 UTC*0530 
@ UPDATE_COMPLETE 
View processed template 
ormatVersion: ' 2eIe-ag-eg' 
Transform: ARS: : ServerIess-2eIE-Ie-32 
Description: A starter AL'S Lambda function. 
Resources: 
helloworIdgython3: 
Type: AK'S: : Semyer2ess: : Function 
Properties: 
Handler: app. lambda handler 
Runtime: python3 .E 
cod-Uri: 
Description: A starter AHS Lambda function. 
MemorySize: 128 
Timeout: 3 
Environment: 
Variables : 
TABLE NAME: 
Ref: Table 
REGION NAME 
Ref: .4WS: : Region 
Events : 
Helloi.lor-2dSAMAP1: 
Ty•pe: 
Properties : 
Path: / hello 
Method: GET 
Policies : 
Dynzr.oD8CrudPoIicy : 
TEbIeNzr,e: 
Ref: Table 
Table: 
Type: AK'S: :Semyer2ess: 
Properties: 
PrimaryKey : 
Name: greeting 
Type: String 
Provisioned Throughput: 
ReadCapacityLlnits: 2 
Writ—capacityunits: 2 

**But processed template is huge**

Machine generated alternative text:
CloudFormation 
E) Stacks (1) 
Stacks 
hello-world-sam 
c 
Stack info 
Template 
Events 
Resources 
Outputs 
Parameters 
Template 
Change sets 
o 
Q 
Filter by stack name 
O View nested 
Active v 
hello-world-sam 
2020-10-17 UTC*0530 
@ UPDATE_COMPLETE 
View in Designer 
O View processed template 
"AWSTempIEteFornatVersion" • 
. "2a1a-eg-ag", 
"Description" : 
"A starter AL'S Lambda function." 
"Resources 
"Semyer2essRestApiD•epIoynentS21deI : 
"Type": "AIQS: : ApiGEteway: : Deployment", 
"Properties 
"RestApiId"• 
"Server-lessRestApi" 
"Description" 
" Steger-lame" . 
"RestApi deployment it: 
" Stage " 
S 21de1CE9193gc8f8S2dE2f24feE49118S1824S4", 
"helloworIdpython3RoIe": 
"Type": 
"Properties 
"Ass umeRoIeP02i cyDocunent " : 
"Version" . 
"2e12-1e-17", 
"Statement" : 
"Action": 
" Sts : " 
"Effect": "Allow", 
"Principal": 
" . Ernazonzws . com" 
"M,EnzgedPoIicyArns" . 
"arn : ELKS : iam: : : policy/ service- role/AKSLambtE8asicExecutionRoIe" 
" Policies 

**Note : we can also see in view designer how much is created by SAM**

Machine generated alternative text:
File: 'templatel' 
helloworl... 
Serverles... 
Serverles... 
Deployment 
Table 
Serverles... 
helloworl... 
Role 
helloworl... 

**NOTE: sam is one way to deploy lambda function on aws**

**Cloudformation will do package and deploy**

**Note :**

**If we go here we will see lot of SAM template created by other people**

Machine generated alternative text:
aws 
Lambda 
Functions Create function 
Blueprints 
o 
O 
Create function 
Author from scratch 
AWS Serverless Application Repo O 
sitory 
Find and deploy serverless applications 
published by AWS, AWS partners, and Other 
Start with a simple •hello world" example. 
Applications (350) 
Q Search applications by name, description, or labels 
This Alexa sample skill is a template for a basic 
fe•-.t skill. of interesting facts 
Choose a preconfigu—late as a starting 
point for your 
bda 
Sort by Best Match 
3456 7 
30 
2 
This Alexa sample skill is a template for a trivia 
style game with score keeping. Alexa will ask 
Conducts an AWS SecretsManager 

**SAM Policy Template**

**Note: using transform policy will automatically convert to IAM**

Machine generated alternative text:
SAM Policy Templates 
• List of templates to apply permissions to 
your Lambda Functions 
• Full list available here: 
htt s://docs.aws.amazon.com/serverl 
model/latest/develo e uide/se 
emp ate-ta e 
• Important examples: 
• S3ReadPoIicy: Gives read only permissions to 
objects in S3 
• SQSPollerPolicy. Allows to poll an SQS queue 
• DynamoDBCrudPolicy: CRUD create read 
update delete 
MyFunction : 
Type: 'AWS . 
: •Serverless: :Function ' 
propert ies : 
Codeür i : 
$ (codeuri 
Handler : 
hello. handler 
Runtime: 
thon2.7 
policies : 
— SQSP011erP01icy : 
QueueName : 
! GetÄtt MyQueue. QueueName 

**SAM with CODE DEPLOY**

**See and read it carefully**

Machine generated alternative text:
SAM and CodeDeploy 
• SAM framework natively uses 
CodeDeploy to update Lambda 
functions 
• Traffic Shifting feature 
• Pre and Post traffc hooks 
features to validate deployment 
(before the traffic shift starts and 
after it ends) 
• Easy & automated rollback using 
CloudWatch Alarms 
Ote here. 
Lambda Alias 
CloudWatch 
VI 
Trigger 
deployment 
(CICD) 
CodeDeploy 
Alarm 
Traffic shifting With alias 
IV2 
Run tests 
Lambda Function 
Pre-Traffic Hook 
Run tests 
Lambda Function 
Post-Traffic Hook 

**Note : if everything goes well then v1 is away and v2 goes well**

Machine generated alternative text:
SAM and CodeDeploy 
• SAM framework natively uses 
CodeDeploy to update Lambda 
functions 
• Traffic Shifting feature 
• Pre and Post traffc hooks 
features to validate deployment 
(before the traffic shift starts and 
after it ends) 
• Easy & automated rollback using 
CloudWatch Alarms 
e here. 
Lambda Alias 
CloudWatch 
Alarm 
Trigger 
deployment 
(CICD) 
CodeDepIoy 
IV2 
Run tests 
Lambda Function 
Pre-Traffic Hook 
Run tests 
Lambda Function 
Post-Traffic Hook 

**Hands on**

**Initialize a new sam application**

**# Step 1** - Download a sample application

sam init --runtime python3.7

Machine generated alternative text:
C: XUsersXsaurakesXDesktopXniagara_docXaws stephanekcodeksam-codedeploy-dem»sam init 
ich template source would you like to use? 
1 - AWS Quick Start Templates 
2 - Custom Template Location 
Choice: 1 
Project name (sam- app) : 
Cloning app templates from https://github.com/awslabs/aws-sam-cli-app-templates.git 
quick start application templates : 
1 - Hello World Example 
2 - EventBridge Hello World 
3 - EventBridge App from scratch (lee+ Event Schemas) 
4 - Step Functions Sample App (Stock Trader) 
Template selection: 
Template selection: 
Template selection: 
Template selection: 1 
Generating application: 
Name: sam- app 
Runtime: python3.7 
Dependency Manager: pip 
plication Template: hello-world 
put Directory: . 
Next steps can be found in the README file at ./sam-app/README . md 
C: XUsersXsaurakesXDesktopXniagara_docXaws stephanekcodeksam-codedeploy-dem» 
-- runtime python3.7 

**# Step 2 - Build your application**

cd sam-app

sam build **( to build sam application)**

Machine generated alternative text:
C: XUsersXsaurakesXDesktopXniagara_docXaws stephanekcodeksam-codedeploy-dem»cd sam-app 
C: XUsersXsaurakesXDesktopXniagara_docXaws stephaneXcodeXsam-codedep10y-demoXsam-appsam build 
Building codeuri: hello world/ runtime: python3.7 metadata: 
functions: 'HelloWor1dFunction' 
Running PythonPipBui1der: ResolveDependencies 
Running PythonPipBui1der : CopySource 
Build Succeeded 
Built Artifacts 
Built Template 
. aws- samXbui1d 
. aws - samXbui1dXtemp1ate. yaml 
Commands you can use next 
C * ) Invoke Function: sam local invoke 
C * ) Deploy: sam deploy --guided 
C: XUsersXsaurakesXDesktopXniagara_docXaws stephaneXcodeXsam-codedep10y-demoXsam-app 

**Step 3) in template.yaml ( how to deploy application with code deploy for this we need to add it in yaml file)**

Machine generated alternative text:
0-just-ec2_yamI 4 anew 39 S Bapp_py Ecommandssh Stemplate-generated_yaml Stemplate_yaml •l BSAM md B template_yaml 
Col : 39 
1 
2 
3 
4 
5 
6 
9 
1 
2 
3 
4 
5 
6 
1 
2 
3 
4 
5 
6 
O 
1 
2 
3 
4 
5 
ÄWSTemp1ateEormatVersion: ' ' 
Transform: AWS: : Server 
Description : 
s am— app 
Sample SAM Template for sam—app 
# More info about Global s: https://github . 
Globals : 
Function : 
Timeout : 
Resources : 
3 
HelloWor1dFunction : 
Type: AWS: : Server less: : Function # More info about Function Resource: 
https : / / github . . md#awsserverlessfunction 
Properties : 
CodeUri: hello world/ 
Handler: app . lambda handler 
Runtime: python3 . 7 
Events : 
HelloWor1d: 
Type : Api 
# More info about API Event Source: 
Properties : 
Path: / hello 
Method: ge 
as: live 
AutoPub1is 
https : / / github . . md#api 
Deplo 
Outputs : 
Preference : 
Canary 10 percent10Minutes 
# Server1essRestApi is an implicit API created out of Events key under Server less: : Function 
# Find out more about other implicit resources you can reference within SAM 
# https://github . resources.rst#api 
HelloWor1dÄpi : 
Description : 
Value : 
! sub 
"API Gateway endpoint URL for Prod stage for Hello World function" 
/ / Sr Server 1 _ _ S (kW.S: : Recri on I _ amazonaws _ com/prod/hel 1 0/" 
length : 1,761 lines : 43 
Ln : 28 
Sel:OlO 
VIL Ain't Markup Language 
Windows (CR LF) 
UTE-8 

**Autopublish alias and canary 10 % means everytime we deploy it goes to canary 10% once it perform well**

**Then 100 percent and this is using code deploy behind the scene**

**Rerun sam build**

**Step 4)**

# Step 3 - Package your application

sam deploy --guided

Machine generated alternative text:
eration 
+ Add 
+ Add 
+ Add 
+ Add 
+ Add 
+ Add 
+ Add 
+ Add 
+ Add 
+ Add 
+ Add 
LogicalResourceId 
CodeDep10yServiceR01e 
HelloWor1dFunctionA1ias1ive 
HelloWor1dFunctionDep10ymentGroup 
HelloWor1dFunctionHe110Wor1dPermissionPr 
od 
HelloWor1dFunctionR01e 
HelloWor1dFunctionVersion9b92b499c2 
HelloWor1dFunction 
Server1essDep10ymentApp1ication 
Server1essRestApiDep10yment822baca55f 
Server1essRestApiProdStage 
Server1essRestApi 
ResourceType 
AWS: : IAM: :R01e 
AWS: : Lambda: : Alias 
AWS: : CodeDep10y : : DeploymentGroup 
AWS: : Lambda: : Permission 
AWS: : IAM: :R01e 
AWS: : Lambda: : Version 
AWS: : Lambda: : Function 
AWS: : CodeDep10y : : Application 
AWS : : ApiGateway : : Deployment 
AWS: : ApiGateway : : Stage 
AWS: :ApiGateway : : RestApi 
Replacement 
N/A 
N/A 
N/A 
N/A 
N/A 
N/A 
N/A 
N/A 
N/A 
N/A 
N/A 
Changeset created successfully. arn:aws:c10udformation:eu-west-2:398678778168:changeSet/samc1i-dep10y16e2955256/2ffbb2df-e8d8-4f7d-a228-f9b1643e9c2e 
Previewing CloudFormation changeset before deployment 
Deploy this changeset? Cy/N): y 
2B2e-1e-17 22:51: 3B - Waiting for stack create/update to complete 
LogicalResourceId 
CodeDep10yServiceR01e 
Server1essDep10ymentApp1ication 
HelloWor1dFunctionR01e 
CodeDep10yServiceR01e 
Server1essDep10ymentApp1ication 
HelloWor1dFunctionR01e 
Server1essDep10ymentApp1ication 
ResourceStatusReason 
Resource creation Initiated 
Resource creation Initiated 
Resource creation Initiated 
CloudFormation events from changeset 
ResourceStatus 
ResourceType 
AWS: : IAM: :R01e 
AWS: : CodeDep10y : : Application 
AWS: : IAM: : Role 
AWS: : IAM: : Role 
AWS: : CodeDep10y : : Application 
AWS: : IAM: : Role 
AWS: : CodeDep10y : : Application 
CREATE 
CREATE 
CREATE 
CREATE 
CREATE 
CREATE 
CREATE 
IN PROGRESS 
IN PROGRESS 
IN PROGRESS 
IN PROGRESS 
COMPLETE 
IN PROGRESS 
IN PROGRESS 

**Go to lambda**

**Sam-app created**

Machine generated alternative text:
AWS Lambda 
Dashboard 
Applications 
Functions 
Additional resources 
Layers 
x 
Lambda Applications 
Applications 
(2) Info 
Q 
Search by keyword 
c 
Actions 
Status 
@Create complete 
Create application 
o 
Name 
sam-app 
Description 
sam-app Sample SAM Template for sam-app 
Last modified 
1 minute ago 

**Latest version 1 is deployed**

Machine generated alternative text:
Lambda Functions sam-app-HelloWorldFunction-G4DHR49RCLKZ 
sam-app-HelloWorldFunction-G4DHR49RCLKZ 
This function belongs to an application. Click here to manage it. 
ARN - 
Throttle 
arn:aws:lambda:eu-west-2:398678778168:function:sam-app-HelloWorldFunction-G4DHR49RCLKZ 
Qualifiers v 
Actions v 
x 
Select a test event 
Test 
x 
Switch versions/aliases 
Filter versions/aliases 
Configuration 
v Designer 
Permissions 
Monitoring 
Versions 
Unqualified 
Version: SLAT EST 
live 
Version: 
Aliases 
Go back to application sam-app 
+ Add trigger 
sam-app-HelloWorldFunction-G4DHR49RCLKZ 
Layers 
+ Add destination 

Machine generated alternative text:
Lambda Functions sam-app-HelloWorldFunction-G4DHR49RCLKZ 
sam-app-HelloWorldFunction-G4DHR49RCLKZ 
This function belongs to an application. Click here to manage it. 
@ Execution result: succeeded (logs) 
v Details 
The area below shows the result returned by your function execution. Learn more about returning results from your function. 
ARN - 
Throttle 
arn:aws:lambda:eu-west-2:398678778168:function:sam-app-HelloWorldFunction-G4DHR49RCLKZ 
Qualifiers v 
Actions v 
Test 
x 
x 
"statusCode": 2ee, 
"body" : 
"B" message N" 
Summary 
code SHA-256 
X "hello worldX"Y' 
Request ID 
e1896697-0bö1-4700-b41a-560b8ö46ddff 
Billed duration 
100 ms 
Max memory used 
49 MB Init Duration: 113.01 ms 
cNkeBtfs21 /EzOP2dvSOLcbS+lqQ8/8v1 
Duration 
1.39 ms 
Resources configured 
128 MB 
Log output 
The section below shows the logging calls in your code. These correspond to a single row within the CloudWatch log group corresponding to this Lambda function. Click here to view the CloudWatch log group. 
START Requestld: e1896697-aba1-47ee-b41a-sseb8a46ddff version: SLATEST 
END Requestld: e1896697-eba1-47ea-b41a-sseb8a46ddff 
REPORT Requestld: e1896697-eba1-47ee-b41a-sseb8a46ddff Duration: 1.39 ms 
Billed Duration: 
lae ms Memory Size: 
128 MB 
Max Memory Used: 
Init Duration: 
113.a1 ms 

**Change it build and deploy again**

Machine generated alternative text:
0-justæc2_yamlOl new39018 apppyol commandsshOi template-generated_yaml templateyamlOl SAM 
Col : 45 
Sel 
Ln : 39 
9 
10 
11 
12 
13 
14 
15 
16 
17 
19 
20 
21 
22 
23 
24 
25 
26 
27 
29 
30 
31 
32 
33 
34 
35 
36 
37 
39 
40 
41 
42 
43 
(thon file 
Parameters 
event: dict, required 
API Gateway Lambda Proxy Input Format 
Event doc: 
https : / / docs . aws . amazon . . 
context: object, required 
Lambda Context runtime methods and attributes 
Context doc: https : // docs . aws . amazon . . html 
Returns 
API Gateway Lambda Proxy Output Format: dict 
Return doc: https://docs . aws . . html 
# try 
ip requests . get ("http://checkip . amazonaws . com/") 
except requests . RequestException as e: 
# Send some context about this error to Lambda Logs 
print (e) 
raise e 
return 
" statusCode " 
200 
j son. d 
"body" 
'hello world version2 " 
"message" 
# "location 
ip . text . replace ("X n" , 
n, 
length . 
• 1,202 
lines 
: 43 
Windows (CR LF) 
UTE-8 
10:57 PM 
INS 

# Step 2 - Build your application

cd sam-app

sam build

# Step 3 - Package your application

sam deploy --guided

**Cloudformation will deploy from code deploy to lambda function**

Machine generated alternative text:
aws 
Developer Tools 
CodeDeploy 
Source • 
x 
Resource Groups 
Developer Tools CodeDeploy 
d-CG3KZNKY1 
Deployment status 
Step 1 
Pre -deployment validation 
Com pleted 
step 2 
Tra Shifting 
Deployments 
d-CG3KZNKY1 
Copy deployment 
Traffic shifting progress 
Retry deployment 
CodeCommit 
Build • CodeBuild 
v Deploy • 
Code Deploy 
Getting started 
Deployments 
Deployment 
Applications 
Deployment 
configurations 
On-premises 
Next: The deployment Will shift 90% Of traffic from the 
Current version to the replacement version at approximately 
10 minute(s) after the deployrnent started. 
Original 
Deployment results Info 
Of traffic 
Replacement 
100% 
100% Of traffic 
Pdiey 
Completed 
Step 3 
Completed 
@ Succeeded 
@ Succeeded 
have written a note here. 
Settings 
Deployment details 
Q Feedback 

