

APPLICATION DEVELOPMENT ON CLOUD

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SECTION:01

Assignment 4: what is the purpose of roles and users?

Users: assign permissions-->root account-->read access or write access.

roles: service to service agreement

Dynamodb and lambda-->we need roles.

TODO:

1.role creation for communication(connect dynamodb and lambda)

2.dynamodb(nosql)-->tablename and key value and -->store the values

3.lambda

STEPS:

step 1: create role any name attach 4 policies

go to "IAM"-->Roles (by default)-->create custom role-->default aws service selected-->select lambda-->next-->type dynamo-->select 4 roles-->any role name-->create role.

step 2: create dynamodb and search-->create table-->table_name(message)-->messageid(string)-->create table-->click on the message table-->explore table items-->visible

step 3: duplicate the tab again-->write lambda(without the server requirement) fxn-->search it-->create fxn(write)-->author from scratch-->fxn_name-->nodejs only-->click Change default execution role-->use existing role-->create it-->copy the 1st code

step 4: read fxn-->now copy second code within the code.

-->deploy and test it will get the message.

OUTPUTS:

The image displays two screenshots of the AWS IAM Management Console interface.

Top Screenshot: IAM dashboard

The dashboard shows the following sections:

- Security recommendations:** Includes a warning to "Add MFA for root user" and a success message "Root user has no active access keys".
- IAM resources:** A table showing counts for User groups (0), Users (0), Roles (2), Policies (0), and Identity providers (0).
- What's new:** A list of recent updates, including "Right-size permissions for more roles in your account using IAM Access Analyzer" and "Amazon S3 Object Ownership can now disable access control lists".
- AWS Account:** Displays account details such as Account ID (854909286809) and Account Alias (854909286809).
- Quick Links:** Links to "My security credentials" and "Tools".

Bottom Screenshot: Select trusted entity

This screenshot shows the "Create role" process, specifically the "Select trusted entity" step. The interface includes:

- Trusted entity type:** Radio buttons for "AWS service" (selected), "AWS account", "Web identity", "SAML 2.0 federation", and "Custom trust policy".
- Use case:** A section for selecting a use case, with options for "EC2" and "Lambda".

us-east-1.console.aws.amazon.com/iamv2/home?region=us-east-1#/roles/create?commonUseCase=Lambda&step=review&trustedEntityType=AWS_SERVICE

us-east-1.console.aws.amazon.com/iamv2/home?region=us-east-1#/roles/create?commonUseCase=Lambda&step=review&trustedEntityType=AWS_SERVICE

Services

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sandeep.1853

Introducing the new IAM roles experience

We've redesigned the IAM roles experience to make it easier to use. [Let us know what you think](#)

IAM > Roles > Create role

Step 1: Select trusted entity

Step 2: Add permissions

Step 3: Name, review, and create

Name, review, and create

Role details

Role name

Enter a meaningful name to identify this role

s01-dynamo-lambda

Maximum 64 characters. Use alphanumeric and '+', '@', '_' characters.

Description

Add a short explanation for this role

Allows Lambda functions to call AWS services on your behalf.

Maximum 1000 characters. Use alphanumeric and '+', '@', '_' characters.

Step 1: Select trusted entities

Edit

```
1 {
2   "Version": "2012-10-17",
3   "Statement": [
4     {
5       "Effect": "Allow",
6       "Action": [
7         "sts:AssumeRole"
8       ],
9       "Principal": {
10        "Service": [
```

Feedback

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Identity and Access Management (IAM)

Search IAM

Dashboard

Access management

User groups

Users

Roles

Policies

Identity providers

Account settings

Access reports

Access analyzer

Archive rules

Analizers

Settings

Credential report

Organization activity

Service control policies (SCPs)

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Role s01-dynamo-lambda created

[View role](#)

New! Securely access AWS services from your data center with IAM Roles Anywhere. [Learn more](#)

IAM > Roles

Roles (3) [Info](#)

An IAM role is an identity you can create that has specific permissions with credentials that are valid for short durations. Roles can be assumed by entities that you trust.

Search

< 1 > ⚙

<input type="checkbox"/>	Role name	Trusted entities	Last activity
<input type="checkbox"/>	AWSServiceRoleForSupport	AWS Service: support (Service-Linked Role)	-
<input type="checkbox"/>	AWSServiceRoleForTrustedAdvisor	AWS Service: trustedadvisor (Service-Linked Role)	-
<input type="checkbox"/>	s01-dynamo-lambda	AWS Service: lambda	-

Roles Anywhere [Info](#)

Authenticate your non AWS workloads and securely provide access to AWS services.

[Manage](#)

Access AWS from your non AWS workloads

X.509 Standard

Temporary credentials

Feedback

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Identity and Access Management (IAM)

Search IAM

Dashboard

Access management

- User groups
- Users
- Roles
- Policies
- Identity providers
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IAM > Roles

Roles (3)

An IAM role is an identity you can create that has specific permissions with credentials that are valid for short durations. Roles can be assumed by entities that you trust.

Search

< 1 >

<input type="checkbox"/>	Role name	Trusted entities	Last activity
<input type="checkbox"/>	AWSServiceRoleForSupport	AWS Service: support (Service-Linked Role)	-
<input type="checkbox"/>	AWSServiceRoleForTrustedAdvisor	AWS Service: trustedadvisor (Service-Linked Role)	-
<input type="checkbox"/>	s01-dynamo-lambda	AWS Service: lambda	-

Roles Anywhere

Authenticate your non AWS workloads and securely provide access to AWS services.

Manage

Access AWS from your non AWS workloads

Operate your non AWS workloads using the same authentication and authorization strategy that you use

X.509 Standard

Use your own existing PKI infrastructure or use AWS Certificate Manager Private Certificate Authority to

Temporary credentials

Use temporary credentials with ease and benefit from the enhanced security they provide.

Feedback

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IAM Management Console

Create table | Amazon DynamoDB

us-east-1.console.aws.amazon.com/dynamodbv2/home?region=us-east-1#create-table

DynamoDB > Tables > Create table

Create table

Table details

DynamoDB is a schemaless database that requires only a table name and a primary key when you create the table.

Table name

This will be used to identify your table.

message

Between 3 and 255 characters, containing only letters, numbers, underscores (_), hyphens (-), and periods (.).

Partition key

The partition key is part of the table's primary key. It is a hash value that is used to retrieve items from your table and allocate data across hosts for scalability and availability.

messageid

String

1 to 255 characters and case sensitive.

Sort key - optional

You can use a sort key as the second part of a table's primary key. The sort key allows you to sort or search among all items sharing the same partition key.

Enter the sort key name

String

1 to 255 characters and case sensitive.

Table settings

☒ Default settings

☐ Customize settings

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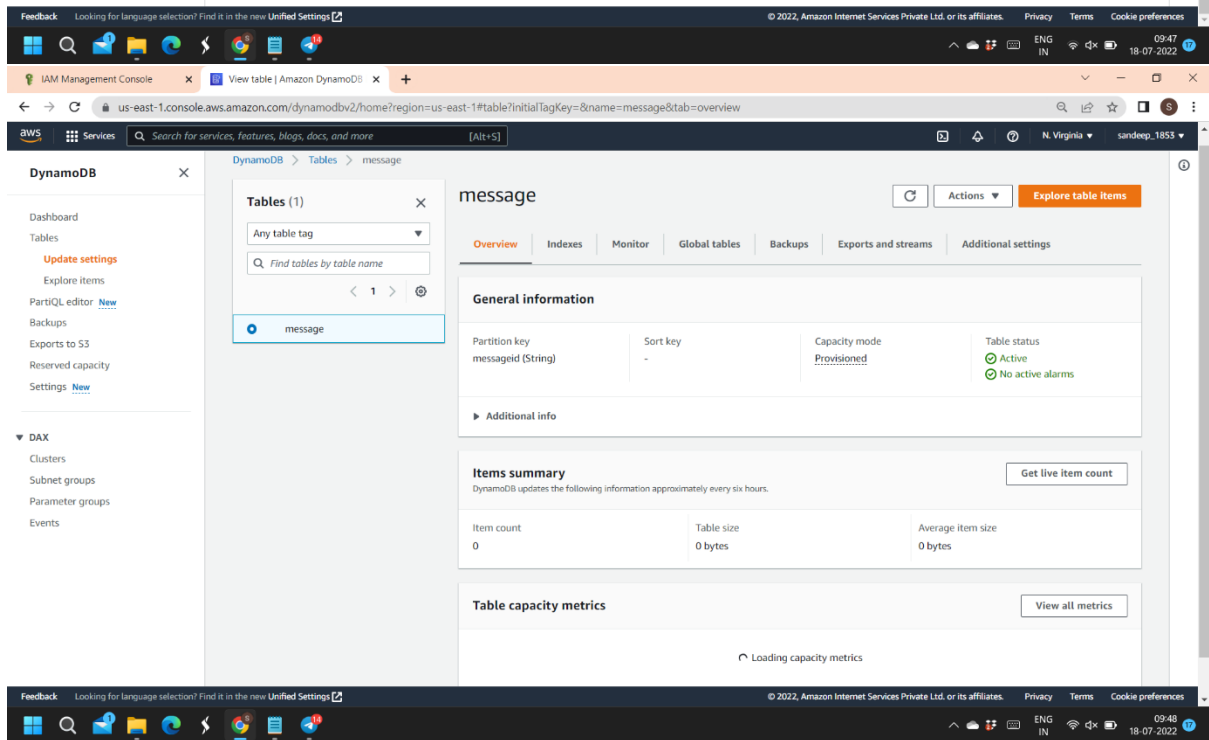
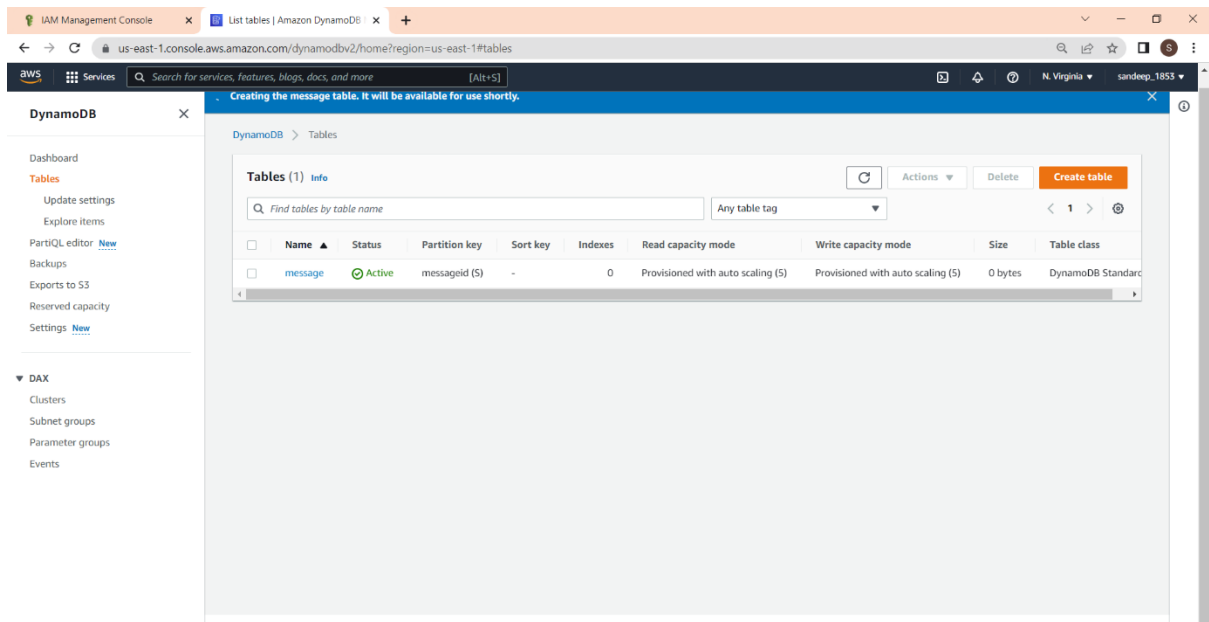
Terms

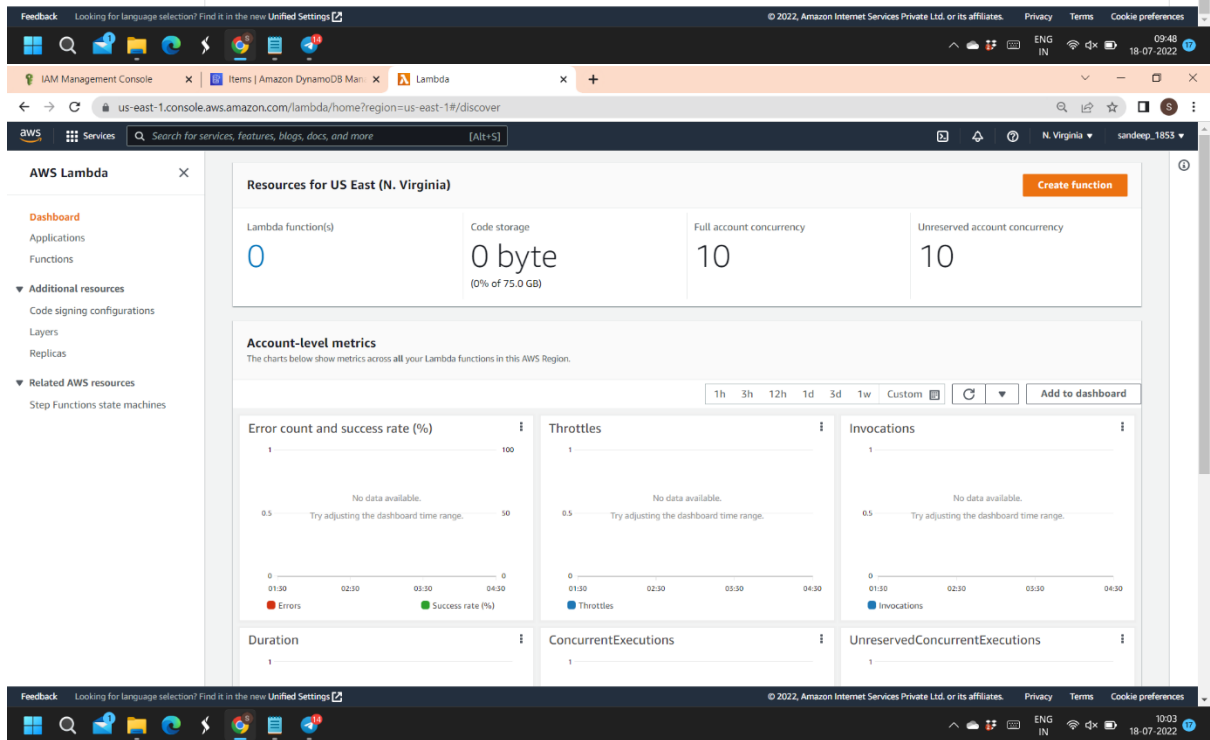
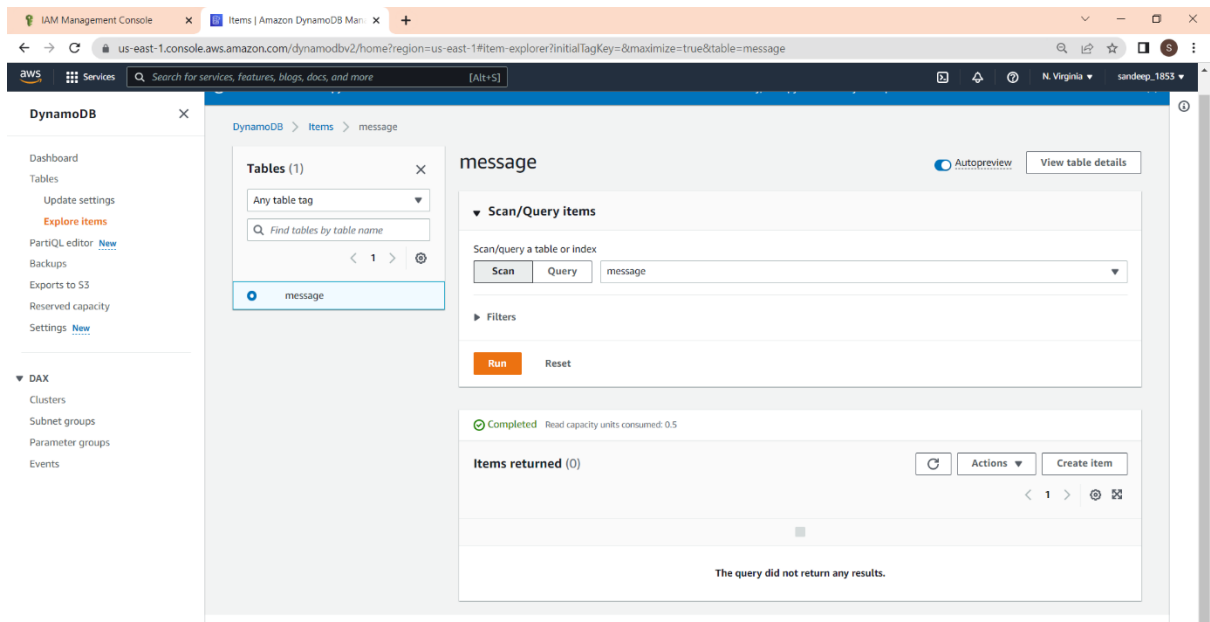
Cookie preferences

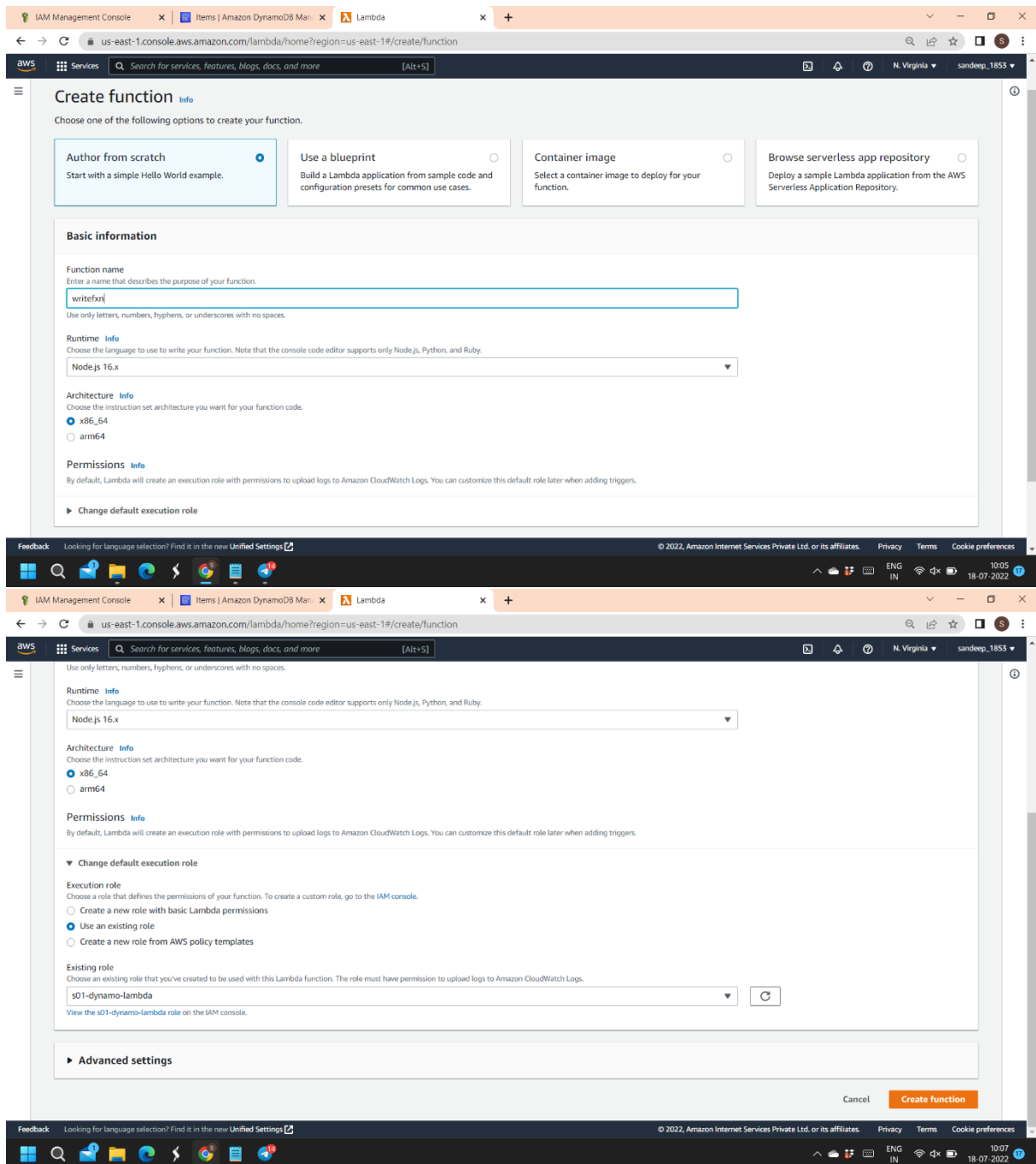
ENG IN

09:47

18-07-2022







IAM Management Console x Items | Amazon DynamoDB Man... x writefxn - Lambda x +

us-east-1.console.aws.amazon.com/lambda/home?region=us-east-1#/functions/writefxn/newFunction=true&tab=code

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N. Virginia sandeep_1853

Successfully created the function writefxn. You can now change its code and configuration. To invoke your function with a test event, choose "Test".

Lambda > Functions > writefxn

writefxn

Throttle Copy ARN Actions

Function overview info

+ Add trigger

writefxn

Layers (0)

+ Add destination

Description

-

Last modified

4 seconds ago

Function ARN

arn:aws:lambda:us-east-1:854909286809:function:writefxn

Function URL info

-

Code Test Monitor Configuration Aliases Versions

Code source info

Upload from

File Edit Find View Go Tools Window Test Deploy

Go to Anything (Ctrl-P)

index.js

```
1 exports.handler = async (event, context) => {
2   // Your code goes here
3 }
```

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IAM Management Console x List tables | Amazon DynamoDB x writefxn - Lambda x +

us-east-1.console.aws.amazon.com/lambda/home?region=us-east-1#/functions/writefxn/newFunction=true&tab=code

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N. Virginia sandeep_1853

Successfully created the function writefxn. You can now change its code and configuration. To invoke your function with a test event, choose "Test".

Code source info

Upload from

File Edit Find View Go Tools Window Test Deploy Changes not deployed

Go to Anything (Ctrl-P)

Environment

writefxn

index.js

```
1 const AWS = require('aws-sdk');
2 const db = new AWS.DynamoDB.DocumentClient({region: 'us-east-1'});
3 exports.handler = async (event, context, callback) => {
4   const requestId = context.awsRequestId;
5   await createMessage(requestId).then(() => {
6     callback(null, {
7       statusCode: 200,
8       body: '',
9       headers: {
10        'Access-Control-Allow-Origin': '*'
11      }
12    });
13  });
14  });
15  }).catch((err) => {
16    console.error(err)
17  });
18  });
19
20 function createMessage(requestId) {
21   const params = {
22     tableName: 'message',
23     Item: {
24       'messageId': requestId,
25       'message': 'Hello sandeep welcome to cloud class'
26     }
27   };
28   return db.put(params).promise();
29 }
30
```

25:50 JavaScript Spaces: 4

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us-east-1.console.aws.amazon.com/lambda/home?region=us-east-1#/functions/writetxn/newFunction=true&tab=code

Configure test event

A test event is a JSON object that mocks the structure of requests emitted by AWS services to invoke a Lambda function. Use it to see the function's invocation result.

To invoke your function without saving an event, configure the JSON event, then choose Test.

Test event action

- ☒ Create new event
- ☐ Edit saved event

Event name

testevent

Maximum of 25 characters consisting of letters, numbers, dots, hyphens and underscores.

Event sharing settings

- ☒ Private
This event is only available in the Lambda console and to the event creator. You can configure a total of 10. [Learn more](#)
- ☐ Shareable
This event is available to IAM users within the same account who have permissions to access and use shareable events. [Learn more](#)

Template - optional

hello-world

Event JSON

Format JSON

```
1- {
2-   "key1": "value1",
3-   "key2": "value2",
4-   "key3": "value3"
5- }
```

The test event testevent was successfully saved.

Code source

Test Deploy

index.js

Execution results

Test Event Name: testevent

Response

```
{
  "statusCode": 201,
  "body": "",
  "headers": {
    "Access-Control-Allow-Origin": "*"
  }
}
```

Function Logs

START RequestId: 138eca8c-de6b-4185-881b-21a2a8b14a9a Version: \$LATEST

END RequestId: 138eca8c-de6b-4185-881b-21a2a8b14a9a

REPORT RequestId: 138eca8c-de6b-4185-881b-21a2a8b14a9a Duration: 957.01 ms Billed Duration: 958 ms Memory Size: 128 MB Max Memory Used: 83 MB Init Duration: 429.33 ms

Request ID

138eca8c-de6b-4185-881b-21a2a8b14a9a

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us-east-1.console.aws.amazon.com/dynamodbv2/home?region=us-east-1#item-explorer?initialTagKey=&maximize=true&table=message

DynamoDB

Dashboard
Tables
Update settings
Explore items
 PartiQL editor [New](#)
Backups
Exports to S3
Reserved capacity
Settings [New](#)

▼ DAX
Clusters
Subnet groups
Parameter groups
Events

DynamoDB > Items > message

Tables (1)

Any table tag
Find tables by table name

message

message

Autopreview View table details

▼ Scan/Query items

Scan/query a table or index
Scan Query message

Filters

Run Reset

Completed Read capacity units consumed: 0.5

Items returned (1)

messageid message

138eca0c-de6b-4185... hello sandeep welcome to cloud

us-east-1.console.aws.amazon.com/lambda/home?region=us-east-1#/functions/writetxn?newFunction=true&tab=code

Successfully updated the function writetxn.

Code source

File Edit Find View Go Tools Window Test Deploy

Go to Anything (Ctrl-P)

Environment

writetxn index.js

Execution results

Test Event Name testevent

Response

```
{
  "statusCode": 201,
  "body": "",
  "headers": {
    "Access-Control-Allow-Origin": ""
  }
}
```

Function Logs

```
START RequestId: 6ab21594-2a10-4ab2-a121-f1eb0432626c Version: $LATEST
END RequestId: 6ab21594-2a10-4ab2-a121-f1eb0432626c
REPORT RequestId: 6ab21594-2a10-4ab2-a121-f1eb0432626c Duration: 677.58 ms Memory Size: 128 MB Max Memory Used: 82 MB Init Duration: 424.93 ms
```

Request ID

6ab21594-2a10-4ab2-a121-f1eb0432626c

us-east-1.console.aws.amazon.com/dynamodbv2/home?region=us-east-1#item-explorer?initialTagKey=&table=message

DynamoDB

message

Tables (1)

Any table tag

Find tables by table name

message

message

Autopreview View table details

Scan/Query items

Scan/Query a table or index

Scan Query message

Filters

Run Reset

Completed Read capacity units consumed: 0.5

Items returned (2)

messageid message

138eca0c-de6b-4185... hello sandeep welcome to cloud

6ab21594-2a10-4ab2... hello sandeep

us-east-1.console.aws.amazon.com/lambda/home?region=us-east-1#/functions/writetxn?newFunction=true&tab=code

Successfully updated the function writetxn.

Code source Info

Upload from

File Edit Find View Go Tools Window Test Deploy

Go to Anything (Ctrl-P)

Environment

index.js

```
1 const AWS = require('aws-sdk');
2 const docClient = new AWS.DynamoDB.DocumentClient({region: 'us-east-1'});
3 exports.handler = async (event, context, callback) => {
4
5   await readMessage().then(data => {
6     data.Items.forEach(function(item) {
7       console.log(item.message);
8     });
9   });
10  callback(null, {
11    statusCode: 200,
12    body: data.Items,
13    headers: {
14      'Access-Control-Allow-Origin': '*',
15    },
16  });
17 }
18
19
20
21 }).catch((err) => {
22   console.error(err);
23 });
24
25
26 function readMessage() {
27   const params = {
28     TableName: 'message',
29     Limit: 10
30   };
31   return docClient.scan(params).promise();
32 }
33 }
```

33/2 JavaScript Spaces: 4

us-east-1.console.aws.amazon.com/lambda/home?region=us-east-1#/functions/writexn/newFunction=true&tab=code

Successfully updated the function writexn.

Code source

File Edit Find View Go Tools Window Test Deploy

Go to Anything (Ctrl-P)

Environment

- writexn
- index.js

Execution results

Status: Succeeded Max memory used: 83 MB Time: 980.85 ms

Test Event Name: testevent

Response

```
{
  "statusCode": 201,
  "body": {
    "messageId": "138ecabc-de6b-418f-881b-21a2a8b14a9a",
    "message": "hello sandeep welcome to cloud",
  },
  "messageId": "6ab21594-2a18-4ab2-a121-f1eb0432626c",
  "message": "hello sandeep"
},
{
  "headers": {
    "Access-Control-Allow-Origin": "*"
  }
}
```

Function Logs

```
START RequestId: c2fcc1b0-31d9-464a-bc16-8931a398f495 Version: $LATEST
2022-07-18T04:52:07.315Z c2fcc1b0-31d9-464a-bc16-8931a398f495 INFO hello sandeep welcome to cloud
2022-07-18T04:52:07.354Z c2fcc1b0-31d9-464a-bc16-8931a398f495 INFO hello sandeep
END RequestId: c2fcc1b0-31d9-464a-bc16-8931a398f495
REPORT RequestId: c2fcc1b0-31d9-464a-bc16-8931a398f495 Duration: 980.85 ms Billed Duration: 981 ms Memory Size: 128 MB Max Memory Used: 83 MB Init Duration: 438.61 ms
```

Request ID: c2fcc1b0-31d9-464a-bc16-8931a398f495

us-east-1.console.aws.amazon.com/lambda/home?region=us-east-1#/functions/writexn/newFunction=true&tab=monitoring

Successfully updated the function writexn.

arn:aws:lambda:us-east-1:3854909286809:function:writexn

Function URL

Code Test Monitor Configuration Aliases Versions

Metrics Logs Traces

View logs in CloudWatch View X-Ray traces in ServiceLens View Lambda Insights View profiles in CodeGuru

CloudWatch metrics

Lambda sends runtime metrics for your functions to Amazon CloudWatch. The metrics shown are an aggregate view of all function runtime activity. To view metrics for the unqualified or \$LATEST resource, choose **Filter by**. To view metrics for a specific function version or alias, choose **Aliases** or **Versions**, select the alias or version, and then choose **Monitor**.

1h 3h 12h 1d 3d 1w Custom Add to dashboard

Invocations

Duration

Error count and success rate (%)

Invocations

Duration Minimum Duration Average Duration Maximum

Errors Invocations Success rate (%)

