

[version_1.0]

Note

The exercises in this course will have an associated charge in your AWS account. In this exercise, you will create the following resources:

- Amazon Simple Storage Service (Amazon S3) bucket
- Amazon DynamoDB table
- AWS Identity and Access Management (IAM) policy and role
- AWS Lambda function

Familiarize yourself with [Amazon S3 pricing](#), [Amazon DynamoDB pricing](#), [AWS Lambda pricing](#) and the [AWS Free Tier](#).

Exercise 1: Testing permissions

Scenario: Working with AWS means that you should be familiar with how services integrate with each other. In the upcoming challenge, you will create an architecture with a Lambda function that inserts a test item into a DynamoDB table and uploads a test object to an S3 bucket. The Lambda function will use an IAM role for credentials. You must ensure that the S3 bucket, DynamoDB table, and Lambda function are configured correctly to all work together.

Technical knowledge prerequisites

Remember that the following tasks are *requirements*. They are not steps. You must know how to create and connect the requested resources.

Similar to the exam, component names will be given for you to use. To meet the requirements on the exam, it is important that you use the resource names that are provided to you, where applicable.

Task 1: Creating an S3 bucket

1. The S3 bucket uses these requirements.
 - **Resource name:** Enter a unique S3 bucket name
 - ***Make a note of this bucket name because you will need it later***
 - **Region:** `us-east-1`

Task 2: Creating a DynamoDB table

1. The DynamoDB table uses these requirements.
 - **Resource name:** Enter a unique DynamoDB table name
 - ***Make a note of this table name because you will be needed later***
 - **Partition key:** `ID`

- **Region:** us-east-1

Task 3: Creating an IAM policy and role

1. The IAM policy and role use these requirements.

- **Policy name:** LabLambdaPolicy
- **Actions:**
 - S3
 - DynamoDB
- **Role name:** LabLambdaRole
- **Trusted entity:** Lambda

Task 4: Creating an S3 bucket policy

1. The S3 bucket policy uses these requirements. ***HINT: Use the policy generator***

- **Resource name:** LabLambdaRole
- **Region:** us-east-1

Task 5: Lambda function

1. The Lambda function uses these requirements.

- **Runtime:** Python 3.9
- **Existing role:** LabLambdaRole
- **Region:** us-east-1
- **Environment variables:**
 - DYNAMODB_TABLE_NAME - Enter the value of your DynamoDB table name
 - S3_BUCKET_NAME - Enter the value of your S3 bucket name

2. Paste the following supplied code, then deploy and test the function.

```
import os
import boto3
import uuid
s3 = boto3.resource('s3')
dynamodb = boto3.resource('dynamodb')
def lambda_handler(event, context):
    message = "Hello from AWS Lambda!"
    encoded_string = message.encode("utf-8")
    file_name = "hello.txt"
    s3_path = "test/" + file_name
    dynamodb.Table(os.environ['DYNAMODB_TABLE_NAME']).put_item(Item={'ID': '123'})
    s3.Bucket(os.environ['S3_BUCKET_NAME']).put_object(Key=s3_path, Body=encoded_string)
    response = {
        'statusCode': 200,
        'body': 'success!',
        'headers': {
            'Content-Type': 'application/json',
            'Access-Control-Allow-Origin': '*'
        }
    },
}
return response
```

Task 6: Verifying the object

1. Verify that the object was uploaded to the S3 bucket and inserted into the DynamoDB table.

Cleaning up

In this task, you delete the AWS resources that you created for this exercise.

1. Open the **Amazon S3** console.
 - Empty and delete your S3 bucket.
2. Open the **Lambda console**.
 - Delete your Lambda function.
3. Open the **DynamoDB** console and in the navigation pane, choose **Tables**.
 - Delete your DynamoDB table.
4. Open the **IAM** console
 - In the navigation pane, choose **Roles** and delete **LabLambdaRole**.
 - In the navigation pane, choose **Policies** and delete **LabLambdaPolicy**.

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