

Assignment 7 – Lambda

1. Recite **NoSQL**.
2. Practice versioning and aliasing in lambda. Different versions will print out different logs. In the alias, do **50:50 routing** (canary) to the lambda versions.
3. Synchronous trigger – Run 'hello world' lambda behind **ALB** in your AWS Academy account. You need to run your lambda in VPC. Do it in your default VPC.
4. Asynchronous trigger – The **SQS** will trigger the lambda. Add a **filter** in the trigger. The lambda will send an email to you. <https://www.youtube.com/watch?v=iAl6ScF119Q>.

```
const AWS = require("aws-sdk");  
  
const sns = new AWS.SNS({apiVersion: '2010-03-31'});
```

```
const params = {  
  Message: JSON.stringify({  
    subject: body.subject,  
    email: body.email,  
    message: body.message  
  }),  
  Subject: emailSubject,  
  TopicArn: topic  
};
```

```
const res = await sns.publish(params).promise();
```

5. Event Source Mapping – Implement event source mapping that lets lambda read data from Kinesis data stream and logs that event out in CloudWatch.

```
aws lambda create-event-source-mapping --function-name MyKinesisFunction --event-source  
arn:aws:kinesis:us-east-1:525718235721:stream/MyFirstDataStream --batch-size 100 --starting-position  
LATEST
```

```
aws kinesis put-record --stream-name MyFirstDataStream --partition-key 1 --data "hello first record"
```

Read: <https://docs.aws.amazon.com/lambda/latest/dg/invocation-eventsourcemapping.html>

6. [Extra] Find an example of using step functions online and practice that.

Versions and Alias

Lambda > Functions > myLambdaFunc

myLambdaFunc

Throttle

Copy ARN

Actions ▼

► Function overview [Info](#)

Code

Test

Monitor

Configuration

Aliases

Versions

Versions (2) [Info](#)

Delete

Publish new version

Find versions

< 1 >

	Version ▼	Aliases	Description ▼	Last modified ▼	Architecture
<input type="radio"/>	2	-	change print content	25 seconds ago	x86_64
<input type="radio"/>	1	-	dev code	10 minutes ago	x86_64

Create Alias with 50:50 routing

Create alias

Alias configuration

An alias is a pointer to one or two versions. Choose each version that you want the alias to point to.

Name

DevTest

Description - *optional*

myFirstAlias

Version

2

Weight (%)

50

▼ Weighted alias

You can shift traffic between two versions, based on weights (%) that you assign. Click [here](#) to learn more.

Additional version - *optional*

1

Weight (%)

50

Alias: DevTest

[Copy ARN](#)[Actions](#) ▼[► Function overview](#) [Info](#)[Test](#)[Monitor](#)[Configuration](#)[General configuration](#)[Triggers](#)[Permissions](#)[Destinations](#)[Function URL -](#)

General configuration

[Edit](#)

Name

DevTest

Description

myFirstAlias

Version

2 - Weight: 50%

Additional version

1 - Weight: 50%

Create Target Group with Lambda

[EC2](#) > [Target groups](#) > [Create target group](#)

Register targets

Step 2 of 2

This is an optional step to create a target group. However, to ensure that your load balancer routes traffic to this target group you must register your targets.

Lambda function

You can specify a single Lambda function as the target

☒ Choose a Lambda function from the list or [create function](#)

myLambdaFunc ▼



☒ Version ☐ Alias

\$LATEST ▼

☐ Enter a Lambda function ARN. [Lambda](#)

☐ Add a function later

ALB and Lambda

Filter by tags and attributes or search by keyword

Name

DNS name

State

VPC ID

Availability Zones

Type

myALB

myALB-1476515346.us-east-1.elb.amazonaws.com

Provisioning

vpc-088246cb64e82cd4e

us-east-1a, us-east-1b

application

Load balancer: myALB

Description

Listeners

Monitoring

Integrated services

Tags

Basic Configuration

Name

myALB

ARN

arn:aws:elasticloadbalancing:us-east-1:368447205418:loadbalancer/app/myALB/fae69d7aa8c60044

DNS name

myALB-1476515346.us-east-1.elb.amazonaws.com (A Record)

State

Provisioning

Type

application

Scheme

internet-facing

IP address type

ipv4

Edit IP address type

VPC

vpc-088246cb64e82cd4e

Availability Zones

subnet-050ec3eceb5d2e3e2 - us-east-1a

Add as a target Lambda into ALB

Targets

Monitoring

Health checks

Attributes

Tags

Registered target

Lambda target groups are limited to a single Lambda function target. The load balancer starts routing requests to a newly registered target as soon as initial health checks (if enabled).

Deregister

Lambda function

myLambdaFunc

Version

\$LATEST

ARN

arn:aws:lambda:us-east-1:368447205418:function:myLambdaFunc


Health status


healthy


Health status details

myLambdaFunc

▼ Function overview Info

 myLambdaFunc

 Layers (0)

 Application Load Balancer

+ Add destination


CloudWatch from Lambda

CloudWatch > Log groups > /aws/lambda/myLambdaFunc > 2022/05/10/[\$LATEST]ab44f50c36a34ecca9756c14f0dc985c

Log events

You can use the filter bar below to search for and match terms, phrases, or values in your log events. [Learn more about filter patterns](#)

☐ View as text



Actions ▼

Create Metric Filter

Clear 1m 30r

▶

Timestamp

Message

No older events at this moment. [Retry](#)

▶ 2022-05-09T21:20:17.923-05:00 START RequestId: f2cd3351-993c-4ff5-a373-4b4a61b77b37 Version: \$LATEST

▶ 2022-05-09T21:20:17.935-05:00 END RequestId: f2cd3351-993c-4ff5-a373-4b4a61b77b37

▶ 2022-05-09T21:20:17.936-05:00 REPORT RequestId: f2cd3351-993c-4ff5-a373-4b4a61b77b37 Duration: 11.73 ms Billed Duratic

Kinesis Data Stream and Lambda

Amazon Kinesis > Data streams > myDataStream

myDataStream Info

Data stream summary


Status

✔ Active

Capacity mode

Provisioned

ARN

 arn:aws:kinesis:us-east-1:86471066583:stream/myDataStream

Creation time

May 09, 2022, 22:57 CDT

Data retention period

1 day

Applications

Monitoring

Configuration

Enhanced fan-out (0)

Producers Info

Producers put records into Kinesis Data Streams.

Amazon Kinesis Agent

Use a stand-alone Java software application to send data to the stream. [Learn more](#)

View in Github

AWS SDK

Use AWS SDK for Java to develop producers. [Learn more](#)

View in Github

Amazon Kinesis Producer Library (KPL)

Use KPL to develop producers. [Learn more](#)

View in Github

```
C:\Users\Asus>aws lambda create-event-source-mapping --function-name myKinesisFunc --event-source arn:aws:kinesis:us-east-1:864710665833:stream/myDataStream --batch-size 100 --starting-position LATEST
{
  "UUID": "fee79e80-a264-4435-9d45-1ff9a74ed1d5",
  "StartingPosition": "LATEST",
  "BatchSize": 100,
  "MaximumBatchingWindowInSeconds": 0,
  "ParallelizationFactor": 1,
  "EventSourceArn": "arn:aws:kinesis:us-east-1:864710665833:stream/myDataStream",
  "FunctionArn": "arn:aws:lambda:us-east-1:864710665833:function:myKinesisFunc",
  "LastModified": "2022-05-09T23:16:42.457000-05:00",
  "LastProcessingResult": "No records processed",
  "State": "Creating",
  "StateTransitionReason": "User action",
  "DestinationConfig": {
    "OnFailure": {}
  },
  "MaximumRecordAgeInSeconds": -1,
  "BisectBatchOnFunctionError": false,
  "MaximumRetryAttempts": -1,
  "TumblingWindowInSeconds": 0,
  "FunctionResponseTypes": []
}
```



```
2022-05-10T00:00:17.868-05:00      2022-05-10T05:00:17.856Z cb900b0f-4466-41c6-b06e-43d904bbf35f INFO {"Records":[{"kinesis":{"kinesisSchemaVersion":"1.0","partitionKey":"1","sequenceNumber":"2022-05-10T05:00:17.856Z      cb900b0f-4466-41c6-b06e-43d904bbf35f      INFO      {      "Records": [      {      {      "kinesis": {      "kinesisSchemaVersion": "1.0",      "partitionKey": "1",      "sequenceNumber": "4962936593455049610711439606449191542883280193793818626",      "data": "test",      "approximateArrivalTimestamp": 1652158817.456      },      "eventSource": "aws:kinesis",      "eventVersion": "1.0",      "eventId": "shardid-000000000000:4962936593455049610711439606449191542883280193793818626",      "eventName": "aws:kinesis:record",      "invokeIdentityArn": "arn:aws:iam:864710665833:role/service-role/myKinesisFunc-role-se4owkax",      "awsRegion": "us-east-1",      "eventSourceARN": "arn:aws:kinesis:us-east-1:864710665833:stream/myDataStream"      }      }      }      }      }
```

SQS and Lambda

Triggers

Permissions

Destinations

Function URL - new

Environment variables

Tags

VPC


Monitoring and operations tools

Add trigger

Find triggers

< 1 >

Trigger



SQS: firstSqs.fifo (Enabled)
arn:aws:sqs:us-east-1:368447205418:firstSqs.fifo

▼ Details

Batch size: 1

Batch window: **None**

Filter criteria:

```
{
  "filters": [
    {
      "pattern": "{\"body\":{\"str\":\"123456\"}}"}
    ]
  }
}
```

`{"str":"123456"}`

[Amazon SQS](#) > [Queues](#) > [firstSqs.fifo](#) > Send and receive messages

Send and receive messages

Send messages to and receive messages from a queue.

Send message [Info](#)

Message body

Enter the message to send to the queue.

`{"str":123456}`

Log events

You can use the filter bar below to search for and match terms, phrases, or values in your log events. [Learn more about filter patterns](#)

☐ View as text

Actions ▾

Create Metric Filter

Clear

1m

30m

1h

12h

Custom

▶	Timestamp	Message
No older events at this moment. Retry		
▶	2022-05-10T00:44:49.726-05:00	START RequestId: 7bfcc73a-8951-5566-949c-9dc977411a77 Version: \$LATEST
▼	2022-05-10T00:44:49.726-05:00	<div><div>{'Records': [{ 'messageId': '82a94107-b435-4682-b974-4b6c792455b0', 'receiptHandle': 'AQEBgO/t4fA05jLzL39D9Q13TGrvJ0PyMAAcTz4AnAjkVC... {'Records': [{ 'messageId': '82a94107-b435-4682-b974-4b6c792455b0', 'receiptHandle': AQEBgO/t4fA05jLzL39D9Q13TGrvJ0PyMAAcTz4AnAjkVCfHG6JIPtmF0TGzVEN9Ja+Ihp2LQsxVPNKsq48xSILFaPM+e9Gw4Ad1jb0TcOXnqBssf3Xpna1NweXrw2dUTMp9wq1G5LQLBRQudqDITpRnSG1e91pf68a07QKvDI6sVvuMws5QMDSHdpupPpYTIgGssACicj/Bnf6fXIK/WDE6TLQ/CUF6Qd8GEvMwY+S60X5SrHoMSVL9w90PUz1Psl8/rUPD1exCvXzN/+0Ou7fyghu+sEpItw7KaZnvsL17trmDt8exe7f93LLFbWjx1javGSRyJFEuYgzRwu6Xb3MG9XIGDL3uRe7538611n2up9e1KGGbhYCqa8IeczK3WzTgM', 'body': 'Pstr:123456', 'attributes': {'ApproximateReceiveCount': '1', 'SentTimestamp': '1652161489393', 'SenderId': 'AROAVLSJKGAVEHXTAMJZS:user1923421=Test_Student', 'ApproximateFirstReceiveTimestamp': '1652161489404'}, 'messageAttributes': {}, 'md5OfBody': '4521d8926ada3122ad79c4574cce9892', 'eventSource': 'aws:sqs', 'eventSourceARN': 'arn:aws:sqs:us-east-1:368447205418:myQueue', 'awsRegion': 'us-east-1'}}]}</div><div>Copy</div></div>
▶	2022-05-10T00:44:49.727-05:00	END RequestId: 7bfcc73a-8951-5566-949c-9dc977411a77