

ASSESSMENT

LAMBDA

**TO
THE
NEW™**



1. Create a Lambda function which get triggered from EC2 Action and Notify about changes via SNS Topic.

- Create a lambda function with an execution role having permission to aws sns.

Function name

Enter a name that describes the purpose of your function.

garima-lambda1

Use only letters, numbers, hyphens, or underscores with no spaces.

Runtime [Info](#)

Choose the language to use to write your function.

Node.js 12.x

Permissions [Info](#)

Lambda will create an execution role with permission to upload logs to Amazon CloudWatch Logs. You can configure

▼ Choose or create an execution role

Execution role

Choose a role that defines the permissions of your function. To create a custom role, go to the [IAM console](#).

- ☐ Create a new role with basic Lambda permissions
- ☒ Use an existing role
- ☐ Create a new role from AWS policy templates

Existing role

Choose an existing role that you've created to be used with this Lambda function. The role must have permission to

ec2-role-for-lambda

[View the ec2-role-for-lambda role](#) on the IAM console.

- Add trigger

Trigger configuration



CloudWatch Events/EventBridge
aws events management-tools

Rule

Pick an existing rule, or create a new one.

Create a new rule

Select or create a new rule

Rule name*

Enter a name to uniquely identify your rule.

ec2-state-change-rule

Rule description

Provide an optional description for your rule.

Rule type

Trigger your target based on an event pattern, or based on an automated schedule.

☒ Event pattern

☐ Schedule expression

EC2

All events

- Create a sns topic

Amazon SNS > Topics > Create topic

Create topic

Details

Name

topic-lambda1

Maximum 256 characters. Can include alphanumeric characters, hyphens (-) and underscores (_).

Display name - optional

To use this topic with SMS subscriptions, enter a display name. Only the first 10 characters are displayed in an SMS message. [Info](#)

My Topic

Maximum 100 characters, including hyphens (-) and underscores (_).

Create subscription

Details

Topic ARN

arn:aws:sns:us-east-1:543015245794:topic X

Protocol

The type of endpoint to subscribe

Email

Endpoint

An email address that can receive notifications from Amazon SNS.

garimadabral1724@gmail.com

- Python code for function

garima-lambda1

Throttle

Qualifiers ▼

Act

Edit code inline ▼

Python 3.8 ▼

```
File Edit Find View Go Tools Window Save Test ▼

Environment
  garima-lambda1
    lambda_function.py

lambda_function x
1 import json
2 import boto3
3
4 def lambda_handler(event, context):
5     instance_id = event['detail']['instance-id']
6
7     ec2_client = boto3.client('ec2')
8     instance_info = ec2_client.describe_instances(InstanceIds=[instance_id])
9     instance = instance_info['Reservations'][0]['Instances'][0]
10
11     name_tags = [t['Value'] for t in instance['Tags'] if t['Key']=='Name']
12     name = name_tags[0] if name_tags is not None else ''
13
14     MY_SNS_TOPIC_ARN = 'arn:aws:sns:us-east-1:543015245794:topic-lambda1'
15     sns_client = boto3.client('sns')
16     sns_client.publish(
17         TopicArn = MY_SNS_TOPIC_ARN,
18         Subject = 'Instance Change State: ' + instance_id,
19         Message = 'Instance: ' + instance_id + ' has changed state\n' +
20                 'State: ' + instance['State']['Name'] + '\n' +
21                 'IP Address: ' + instance['PublicIpAddress'] + '\n' +
22                 'Name: ' + name
23     )
24
```

- SNS email notification received

Instance Change State: i-0616fc1ca7bee5d23 Inbox x

AWS Notifications <no-reply@sns.amazonaws.com>

to me ▾

Instance: i-0616fc1ca7bee5d23 has changed state

State: stopping

IP Address: 18.234.128.41

Name: garima

AWS Notifications <no-reply@sns.amazonaws.com>

to me ▾

...

Instance: i-0616fc1ca7bee5d23 has changed state

State: running

IP Address: 3.84.205.239

Name: garima

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2. Create a Lambda function which gets invoked whenever a image is added to a s3 bucket and push the key to SQS.

- Create a lambda function with an execution role having sqs policy.

Basic information

Function name

Enter a name that describes the purpose of your function.

garima-lambda2

Use only letters, numbers, hyphens, or underscores with no spaces.

Runtime [Info](#)

Choose the language to use to write your function.

Python 3.8

▼ Choose or create an execution role

Execution role

Choose a role that defines the permissions of your function. To create a custom role, go to the [IAM console](#).

- ☐ Create a new role with basic Lambda permissions
- ☒ Use an existing role
- ☐ Create a new role from AWS policy templates

Existing role

Choose an existing role that you've created to be used with this Lambda function. The role must have permission to upload

garima-lambda1-role

[View the garima-lambda1-role role](#) on the IAM console.

- Create a s3 bucket and a s3 trigger for the lambda function.

Add trigger

Trigger configuration



Bucket

Please select the S3 bucket that serves as the event source. The bucket must be in the same region as the function.

garima-image-bucket



Event type

Select the events that you want to have trigger the Lambda function. You can optionally set up a prefix or suffix for an event. Each bucket, individual events cannot have multiple configurations with overlapping prefixes or suffixes that could match the key.

PUT

Events

+ Add notification

Delete

Edit

	Name	Events	Filter	Type
<input type="radio"/>	8896ebfb-14f9-43ff-b70d-ef6e70c7510a	PUT		Lambda

✓

1 Active notifications

Cancel

Save

- Create a fifo queue

Create New Queue

Queue Actions ▾

Filter by Prefix:

<input type="checkbox"/>	Name ▾	Queue Type ▾	Content-Based Deduplication ▾
<input checked="" type="checkbox"/>	garima.fifo	FIFO	Disabled

- Lambda function

garima-lambda2 Throttle Qualifiers ▼ Actio

Function code [Info](#)

Code entry type Edit code inline ▼ Runtime Python 3.8 ▼

Environment

garima-lambda2 / lambda_function.py

File Edit Find View Go Tools Window Save Test ▼

lambda_function x

```
1 import json
2 import boto3
3 def lambda_handler(event, context):
4     sqs = boto3.resource('sqs')
5     queue = sqs.get_queue_by_name(QueueName= 'garima.fifo' )
6     data = event[ 'Records' ][0][ 's3' ][ 'object' ][ 'key' ]
7     response = queue.send_message(
8         MessageBody=data,
9         MessageDeduplicationId= 'A-1' ,
10        MessageGroupId= 'G'
11    )
12
13
```

- Putting object in s3 bucket

garima-image-bucket

Overview Properties Permissions Management

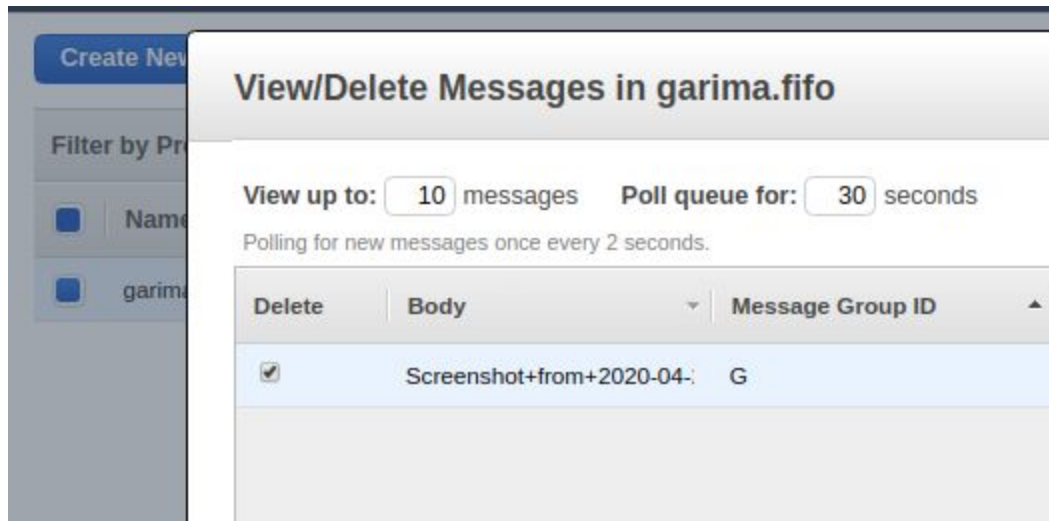
Type a prefix and press Enter to search. Press ESC to clear.

Upload Create folder Download Actions ▼

☐ Name ▼

☐ Screenshot from 2020-04-22 00-31-41.png

- Output



3. The SQS should be FIFO and write a Lambda Function which will listen to SQS and compress the image and upload to some other S3 Bucket

- Create a function with a role having sqs policy.

Function name

Enter a name that describes the purpose of your function.

garima-lambda3

Use only letters, numbers, hyphens, or underscores with no spaces.

Runtime [Info](#)

Choose the language to use to write your function.

Python 3.8

▼ Choose or create an execution role

Execution role

Choose a role that defines the permissions of your function. To create a custom role, go to the [IAM console](#).

- ☐ Create a new role with basic Lambda permissions
- ☒ Use an existing role
- ☐ Create a new role from AWS policy templates

Existing role


Choose an existing role that you've created to be used with this Lambda function. The role must have permission to upload logs to Amazon CloudWatch.

service-role/garima-lambda2-role-hgiz8w5c

[View the garima-lambda2-role-hgiz8w5c role](#) on the IAM console.

- Add sqs as the trigger

Trigger configuration

 **SQS**
aws queue

SQS queue
Choose or enter the ARN of an SQS queue.

✕ ↻

Batch size
The maximum number of messages to retrieve in a single batch.

In order to read from the SQS trigger, your execution role must have proper permissions.

☒ **Enable trigger**
Enable the trigger now, or create it in a disabled state for testing (recommended).

1 SQS Queue selected

Details

Permissions

Redrive Policy

Monitoring

Tags

Encryption

Lambda Triggers

The following Lambda function triggers are configured for this account. You can configure incoming messages to trigger one or more

Lambda Function ARN	Status
arn:aws:lambda:us-east-1:543015245794:function:garima-lambda3	Enabled

4. Create a Lambda function which gets triggered daily and takes the AMI of a particular EC2 instance(Filter on the basis of Tag).

5. Create a Lambda function which will login to a EC2 instance and prints all the running services. (Use python's paramiko module to do SSH. Also, launch lambda in a VPC).(Keep Keys in S3 and S3 should be encrypted)