> Problem Statement: Create Serverless Cron Job to execute a Lambda Function on a specific interval time.

Schedule AWS Lambda functions using EventBridge

Step 1: Create a Lambda function

To create a Lambda function

1. Open the AWS Lambda console at https://console.aws.amazon.com/lambda/.
2. Choose **Create function**.
3. Choose **Author from scratch**.
4. Enter a name and description for the Lambda function. For example, name the function `ServerlessCronLambda`.
5. Leave the rest of the options as the defaults and choose **Create function**.
6. On the **Code** tab of the function page.
7. Replace the existing code with the following code.

```
# Execution of this code in Lambda should have EC2 List and appropriate Policies
to start and stop instances.
import json
import boto3

ec2 = boto3.client('ec2')

def lambda_handler(event, context):
print("event object is ",event)
ec2_dict=ec2.describe_instances()
reservations_list=ec2_dict['Reservations']
print("reservations_list:",reservations_list,"type(reservations_list):",type(reser
vations_list),"len(reservations_list):",len(reservations_list))
print("----------------------------------------")
InstanceIdsList=[]
for instance in reservations_list:
    print("instance is of type",type(instance))
    instance_id=instance['Instances'][0]['InstanceId']
    instance_state=instance['Instances'][0]['State']['Name']
    tags_list=instance['Instances'][0]['Tags']
    print("tags_list is - ", tags_list)
    print("instance_id is",instance_id)
    print("instance_state is",instance_state)
    # [{'Key': 'env', 'Value': 'dev'}, {'Key': 'Name', 'Value': 'EC2-B'}]
    for tags in tags_list:
        print(type(tags))
        if tags['Key'] == 'env' and tags['Value'] == 'dev':
            if instance_state == 'stopped':
                print(instance_id ,"will be started")
                InstanceIdsList.append(instance_id)
```

```
if not InstanceIdsList:
    print("InstanceIdsList is empty, cannot perform start operation")
else:
    print("Starting all the instances with instance ids: ",InstanceIdsList)
    ec2.start_instances(InstanceIds=InstanceIdsList)

# TODO implement
return {
    'statusCode': 200,
    'body': json.dumps('Hello from Lambda!')
}
```

8. Choose **Deploy**.

Step 2: Create a Rule

- Create a rule to run the Lambda function you created in step 1 on a schedule.
- You can use the console to create the rule. **To create a rule (console)**

1. Open the Amazon EventBridge console at https://console.aws.amazon.com/events/.
2. In the navigation pane, choose **Rules**. Choose **Create rule**.
3. Enter a name e.g `ServerlessCronLambdaEventRule` and description for the rule.

   > A rule can't have the same name as another rule in the same Region and on the same event bus.

4. For **Event bus**, choose the **AWS default event bus** that you want to associate with this rule.

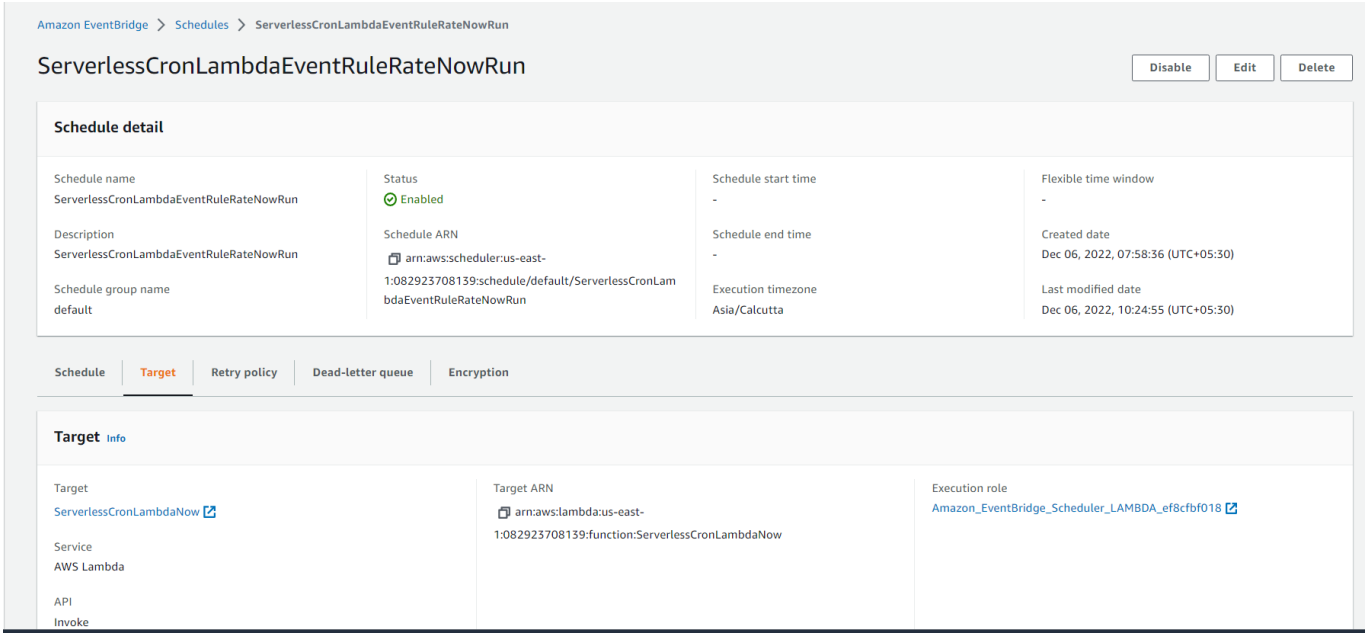
   > When an AWS service in your account emits an event, it always goes to your account's default event bus.

5. For **Rule type**, choose **Schedule**\ Choose **Next**.
6. EventBridge supports `cron expressions` and `rate expressions`. For more information click here
7. For **Schedule pattern**, choose **A schedule that runs at a regular rate, such as every 2 minutes.** and enter **2** and choose **Minutes** from the drop-down list.

   > All scheduled events use UTC+0 time zone

   > Here, The Schedule Pattern for this example would be a Fixed Time in the morning or evening.

8. Choose **Next**. For **Target types**, choose **AWS service**.
9. For **Select a target**, choose **Lambda function** from the drop-down list.
10. For **Function**, select the Lambda function that you created in the **Step 1: Create a Lambda function** section. In this example, select `ServerlessCronLambda`.
11. Choose **Next**. Choose **Next**.
12. Review the details of the rule and choose **Create rule**.



Step 3: Verify the rule

- Once above Rule is Enabled, Wait for at least 2 minutes after completing step 2, and then you can verify that your Lambda function was invoked.

View the output from your Lambda function

1. Open the CloudWatch console at https://console.aws.amazon.com/cloudwatch/.
2. In the navigation pane, choose **Logs**.
3. Select the name of the log group for your Lambda function (`/aws/lambda/ServerlessCronLambda`).
4. Select the name of the log stream to view the data provided by the function for the instance that you launched.
5. If you see the Lambda event in the CloudWatch logs, it means Lambda Function is successfully executed using Event Schedule.

Step 4: Validate the Results

- In this scenario, the Python boto3 Function Code will run in the Lambda Function at a specific interval, validate the output of the above program written inside Lambda Function.

Reference

- https://aws.amazon.com/blogs/compute/introducing-amazon-eventbridge-scheduler/