

Task: Create two python lambda functions using serverless/aws ssm.

It will do following functions:

1. In first function Check if instance is running or not.
 1. if not, then create instance and install apache/nginx in the server
 2. first function will call second function, shut down instance and send an email that everything was installed and now terminating instance
 3. Schedule first function to run every day at 11 am IST
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Step1 -: Create a IAM role for Lambda . Attach following permission policies

1. [AmazonSSMManagedInstanceCore](#)
2. [AmazonSESEFullAccess](#)
3. [AmazonSSMFullAccess](#)
4. [AmazonEC2FullAccess](#)

Step2 -: Create a IAM role for ec2. Attach following permission policies

1. [AmazonSSMManagedInstanceCore](#)
2. [AWSLambda_FullAccess](#)
3. [AmazonSSMFullAccess](#)

Step3 -: Launch an EC2 instance and attach IAM role which we have created.

Step4 -: Create a Lambda function and use IAM role which we have created before.

#Code

```
import boto3
import os
import time
import json
```

```
ec2 = boto3.client('ec2')
ssm = boto3.client('ssm')
ses = boto3.client('ses')
```

```
AMI_ID = 'ami-0c768662cc797cd75'
INSTANCE_TYPE = 't2.micro'
KEY_NAME = 'firstkey'
SECURITY_GROUP_IDS = ['sg-0952cfb107706af85']
USER_DATA = '''
#!/bin/bash
sudo yum update -y
sudo amazon-linux-extras install nginx -y
'''
```

```
def lambda_handler(event, context):
    instance_id = None
    try:
```

```

    instance_id = os.environ['INSTANCE_ID']
except KeyError:
    pass

if instance_id:
    response = ec2.describe_instances(InstanceIds=[instance_id])
    state = response['Reservations'][0]['Instances'][0]['State']['Name']
    if state != 'running':
        instance_id = None
if not instance_id:
    response = ec2.run_instances(
        ImageId=AMI_ID,
        InstanceType=INSTANCE_TYPE,
        KeyName=KEY_NAME,
        SecurityGroupIds=SECURITY_GROUP_IDS,
        UserData=USER_DATA,
        MinCount=1,
        MaxCount=1
    )
    instance_id = response['Instances'][0]['InstanceId']
ec2.get_waiter('instance_running').wait(InstanceIds=[instance_id])

time.sleep(230)
ssm.send_command(
    InstanceIds=[instance_id],
    DocumentName='AWS-RunShellScript',
    Parameters={'commands': ['sudo yum install -y nginx', 'sudo systemctl start nginx']}
)
email_subject = 'Instance Shutdown '
email_body = 'The software installation is complete and the instance is now shutting down.'
recipient_email = 'sanjuaws786@gmail.com'
sender_email = 'sanjuaws786@gmail.com'

ec2.stop_instances(InstanceIds=[instance_id])

ses.send_email(
    Source=sender_email,
    Destination={'ToAddresses': [recipient_email]},
    Message={
        'Subject': {'Data': email_subject},
        'Body': {'Text': {'Data': email_body}}
    }
)

return {
    'statusCode': 200,
    'body': 'Instance has been stopped and email has been sent'
}

```

Step4 -: In lambda function go to configuration and increase timeout .

Step5 -: Add environment variable in lambda function configuration

In Key write 'INSTANCE_ID' and in value enter instance id .

Install and run ssm agent in instance manually.

Step6 :- Search Amazon Simple email service and verify your email.

