

SNS, SES, Cloudwatch

ASSIGNMENT



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1. Monitor Your Estimated Charges Using CloudWatch

Step 1: Enable Billing Alerts

Step 2: Create a Billing Alarm

Step 3: Check the Alarm Status

Step 4: Create & Subscribe to SNS Topic

Step 5: Send a notification to all the stakeholder, if AWS resource pricing reaches the threshold value.

CloudWatch > Alarms > Create alarm

Step 1
Specify metric and conditions

Step 2
Configure actions

Step 3
Add name and description

Step 4
Preview and create

Specify metric and conditions

Metric

Graph

Preview of the metric or metric expression and the alarm threshold.

Select metric

Cancel

Next

Select metric

Untitled graph

1h 3h 12h 1d 3d 1w custom

Line

No unit

4

3.82

3.52

2020-03-05 08:00 UTC

1. EstimatedCharges 3.76

08:00 08:15 08:30 08:45 09:00 09:15 09:30 09:45 10:00 10:15 10:30 10:45 11:00 11:15

All metrics

Graphed metrics (1)

Graph options

Source

All > Billing > Total Estimated Charge

Search for any metric, dimension or resource id

Graph search

☒

Currency (1)

Metric Name

☒

USD

EstimatedCharges

Cancel

Select metric

Conditions

Threshold type



Static

Use a value as a threshold



Anomaly detection

Use a band as a threshold

Whenever EstimatedCharges is...

Define the alarm condition.



Greater

> threshold



Greater/Equal

>= threshold



Lower/Equal

<= threshold



Lower

< threshold

than...

Define the threshold value.

1000

USD

Must be a number

▼ Additional configuration

Datapoints to alarm

Define the number of datapoints within the evaluation period that must be breaching to cause the alarm to go to ALARM state.

1

out of

1

Notification

Alarm state trigger

Define the alarm state that will trigger this action.

Remove

☒ **In alarm**

The metric or expression is outside of the defined threshold.

☐ **OK**

The metric or expression is within the defined threshold.

☐ **Insufficient data**

The alarm has just started or not enough data is available.

Select an SNS topic

Define the SNS (Simple Notification Service) topic that will receive the notification.

☒ **Select an existing SNS topic**

☐ Create new topic

☐ Use topic ARN

Send a notification to...

maithely



Only email lists for this account are available.

Email (endpoints)

Topic has no endpoints - [View in SNS Console](#)

Add name and description

Name and description

Alarm name

Define a unique name.

alrethtttttt created

Alarm description - optional

Define a description for this alarm.

Send a notification to all the stakeholder, if [AWS](#) resource pricing reaches the threshold value.

Up to 1024 characters (99/1024)

Cancel

Previous

Next


2. Create a custom Memory metric in CloudWatch and set up an alarm at 80 % which will autoscale the instance in the autoscaling group.


Create a role which has cloud watch full access


Create role


1234

Select type of trusted entity

 **AWS service**
EC2, Lambda and others

 **Another AWS account**
Belonging to you or 3rd party

 **Web identity**
Cognito or any OpenID provider

 **SAML 2.0 federation**
Your corporate directory

Allows AWS services to perform actions on your behalf. [Learn more](#)

Choose a use case

Common use cases

EC2

Allows EC2 instances to call AWS services on your behalf.

Lambda

Allows Lambda functions to call AWS services on your behalf.

Or select a service to view its use cases

API Gateway

CodeDeploy

EMR

KMS

RoboMaker

AWS Backup

CodeGuru

ElastiCache

Kinesis

S3

* Required

Cancel

Next: Permissions

Create role

1234

▼ Attach permissions policies

Choose one or more policies to attach to your new role.








Create policy

↺

Filter policies ▼

Q cloudwatch

Showing 22 results

	Policy name ▼	Used as
<input type="checkbox"/>	▶  CloudWatchEventsServiceRolePolicy	None
<input checked="" type="checkbox"/>	▶  CloudWatchFullAccess	None
<input type="checkbox"/>	▶  CloudWatchLogsFullAccess	None
<input type="checkbox"/>	▶  CloudWatchLogsReadOnlyAccess	None
<input type="checkbox"/>	▶  CloudWatchReadOnlyAccess	None
<input type="checkbox"/>	▶  CloudWatchSyntheticsFullAccess	None
<input type="checkbox"/>	▶  CloudWatchSyntheticsReadOnlyAccess	None

* Required

Cancel

Previous

Next: Tags

Now create an instance and attach role to it

Launch Instance ▾ Connect Actions ▾

search : i-0c121ec1a4bc0e52a Add filter ? < > 1 to 1 of

Name	Instance ID	Instance Type	Availability Zone	Instance State	Status Checks	Alarm Status
maithely-ec2	i-0c121ec1a4bc0e52a	t2.micro	us-east-1a	running	Initializing	None

Instance: i-0c121ec1a4bc0e52a (maithely-ec2) Public DNS: ec2-52-55-183-84.compute-1.amazonaws.com

Description Status Checks Monitoring Tags

Instance ID	i-0c121ec1a4bc0e52a	Public DNS (IPv4)	ec2-52-55-183-84.compute-1.amazonaws.com
Instance state	running	IPv4 Public IP	52.55.183.84
Instance type	t2.micro	IPv6 IPs	-
Finding	You may not have permission to access AWS Compute Optimizer.		
Private DNS	ip-10-0-66-19.ec2.internal	Elastic IPs	
Private IPs	10.0.66.19	Availability zone	us-east-1a
Secondary private IPs		Security groups	launch-wizard-1. view inbound rules. view outbound rules
		Scheduled events	No scheduled events

[Instances](#) > Attach/Replace IAM Role

Attach/Replace IAM Role

Select an IAM role to attach to your instance. If you don't have any IAM roles, choose Create new IAM role to create a role in the IAM console. If an IAM role is already attached to your instance, the IAM role you choose will replace the existing role.

Instance ID i-0c121ec1a4bc0e52a (maithely-ec2) ⓘ

IAM role*



[Create new IAM role](#) ⓘ

* Required

Now ssh on instance and create a file

```
maithely@maithely: ~/Downloads x ubuntu@ip-10-0-186-12: ~ x
#!/bin/bash
MEM=$(free -m | awk 'NR==2{printf "%.2f\t", $3*100/$2 }')
InsId=$(ec2metadata --instance-id)
aws cloudwatch put-metric-data --metric-name memory-usage --dimensions Instance=
$InsId --namespace "Custom" --value $MEM --region us-east-1
```

Write a cron in crontab -e


```
ubuntu@ip-10-0-66-19:~$ crontab -e
no crontab for ubuntu - using an empty one

Select an editor. To change later, run 'select-editor'.
 1. /bin/nano      <---- easiest
 2. /usr/bin/vim.basic
 3. /usr/bin/vim.tiny
 4. /bin/ed

Choose 1-4 [1]: 2
crontab: installing new crontab
ubuntu@ip-10-0-66-19:~$ pwd
/home/ubuntu
```

```
File Edit View Search Terminal Help
# Edit this file to introduce tasks to be run by cron.
#
# Each task to run has to be defined through a single line
# indicating with different fields when the task will be run
# and what command to run for the task
#
# To define the time you can provide concrete values for
# minute (m), hour (h), day of month (dom), month (mon),
# and day of week (dow) or use '*' in these fields (for 'any').#
# Notice that tasks will be started based on the cron's system
# daemon's notion of time and timezones.
#
# Output of the crontab jobs (including errors) is sent through
# email to the user the crontab file belongs to (unless redirected).
#
# For example, you can run a backup of all your user accounts
# at 5 a.m every week with:
# 0 5 * * 1 tar -zcf /var/backups/home.tgz /home/
#
# For more information see the manual pages of crontab(5) and cron(8)
#
# m h  dom mon dow   command
*/1 * * * * /home/ubuntu/mem.sh
```

Now create an AMI of the instance created

Launch Instance ▾ Connect Actions ^

search : i-0c121ec1a4bc0e52a

Name	Instance ID	Availability Zone	Instance State	Status Checks
maithely-ec2	i-0c121ec1a4bc0e52a	us-east-1a	running	2/2 checks passed

Instance: **i-0c121ec1a4bc0e52a** (maithely-ec2)

Description Status Checks

- Connect
- Get Windows Password
- Create Template From Instance
- Launch More Like This
- Instance State
- Instance Settings
- Image
 - Create Image
 - Bundle Instance (instance store AMI)
- Networking
- CloudWatch Monitoring

Instance ID: i-0c121ec1a4bc0e52a

Public DNS (IPv4): ec2-52-55-1.amazonaws.com

Instance state: running

IPv4 Public IP: 52.55.183.10

Now create a launch template and add ami created to it

Max 255 chars

Auto Scaling guidance [Info](#)
Select this if you intend to use this template with EC2 Auto Scaling

☐ Provide guidance to help me set up a template that I can use with EC2 Auto Scaling

► Template tags

► Source template

Launch template contents

Specify the details of your launch template below. Leaving a field blank will result in the field not being included in the launch template.

Amazon machine image (AMI) [Info](#)

AMI


maithely-ami
ami-0b2ee00171e228729
Catalog: My AMIs architecture: 64-bit (x86) virtualization: hvm

Also attach role in launch template


Now create ASG

Create Auto Scaling Group

☒ Launch Template New

Launch templates give you the option of launching one type of instance, or a combination of instance types and purchase options. Launch templates include the latest Amazon EC2 features and can be updated and versioned. [Learn more](#) 

[Create new launch template](#)

Filter launch templates... X							K
Name	Launch Template Id	Default Version	Latest Version	Create Time	Created		
 maithely-launch	lt-0470bcb9252648929	1	1	Thu Mar 05 17:30:47 GMT+530 2020	arn:aws:ia		

You can see that 2 desired instances are up now

Filter:

<input type="checkbox"/>	Name	Launch Configuration /	Instances	Desired	Min	Max	Availability Zones	Default C
<input type="checkbox"/>	autoscaling-m...	maithely-launch	2	2	1	2	us-east-1a, us-east-1b	300

Auto Scaling Group: autoscaling-maithely

Details Activity History Scaling Policies **Instances** Monitoring Notifications Tags Scheduled Actions Lifecycle

Actions

Filter: Any Health Status Any Lifecycle State

<input type="checkbox"/>	Instance ID	Lifecycle	Launch Configuration / Template	Availability Zone	Health Status
<input type="checkbox"/>	i-0d25aea05cb3c11bb	InService	maithely-launch	us-east-1b	Healthy
<input type="checkbox"/>	i-0100b41d307f89f9d	InService	maithely-launch	us-east-1a	Healthy

Now you ssh at instance and install aws cli and run that ssh file at both the instances

```
ubuntu@ip-10-0-118-22:~$ ls
get-pip.py  mem.sh
ubuntu@ip-10-0-118-22:~$ sudo vim mem.sh
ubuntu@ip-10-0-118-22:~$ bash mem.sh
```

Now you can see at metrics

Untitled graph 


1h **3h** 12h 1d 3d 1w custom ▾

Number ▾

10.1

10.2

 i-0100b41d307f89f9d

 i-0d25aea05cb3c11bb

All metrics	Graphed metrics (2)	Graph options	Source
All > Custom > Instance <input type="text" value="Search for any metric, dimension or resource id"/>			
<input checked="" type="checkbox"/>	Instance (2)	Metric Name	
<input checked="" type="checkbox"/>	i-0100b41d307f89f9d	memory-usgae	
<input checked="" type="checkbox"/>	i-0d25aea05cb3c11bb	memory-usgae	

3. Create SNS topic, subscribe to a topic, publish message, unsubscribe the message and delete the topic.

Create topic

Details

Name

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](#)

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

► Encryption - *optional*

Amazon SNS provides in-transit encryption by default. Enabling server-side encryption adds at-rest encryption to your topic.

► Access policy - *optional*

This policy defines who can access your topic. By default, only the topic owner can publish or subscribe to the topic. [Info](#)

Create subscription

Details

Topic ARN

arn:aws:sns:us-east-1:721751390744:maith

Protocol

The type of endpoint to subscribe

Email

Endpoint

An email address that can receive notifications from Amazon SNS.

maithely.sharma@tothenew.com



After your subscription is created, you must confirm it. [Info](#)

AWS Notification - Subscription Confirmation Inbox x



maithely <no-reply@sns.amazonaws.com>
to me

4:38 PM (0 minutes ago) ☆ ↶ ⋮

You have chosen to subscribe to the topic:

arn:aws:sns:us-east-1:721751390744:maithely

To confirm this subscription, click or visit the link below (If this was in error no action is necessary):

[Confirm subscription](#)

Please do not reply directly to this email. If you wish to remove yourself from receiving all future SNS subscription confirmation requests please send an email to [sns-opt-out](#)

↶ Reply

➡ Forward



Simple Notification Service

Subscription confirmed!

You have subscribed `maithely.sharma@tothenew.com` to the topic:
`maithely`.

Your subscription's id is:
`arn:aws:sns:us-east-1:721751390744:maithely:8c5404c7-4d7a-4253-b180-1e3cb2b1d3b5`

If it was not your intention to subscribe, [click here to unsubscribe](#).

Amazon SNS

Dashboard

Topics

Subscriptions

Mobile

Push notifications

Text messaging (SMS)

Name
`maithely`

ARN
`arn:aws:sns:us-east-1:721751390744:maithely`

Display name
`maithely`

Topic owner
`721751390744`

Subscriptions | Access policy | Delivery retry policy (HTTP/S) | Delivery status logging | Encryption | Tags

Subscriptions (1)

Edit

Delete

Request confirmation

Confirm subscription

Create subscription

Search

ID	Endpoint	Status	Protocol
8c5404c7-4d7a-4253-b180-1e3cb2b1d3b5	maithely.sharma@tothenew.com	Confirmed	EMAIL

cloud_user @ 7217-5139-0744 | N. Virginia | Support

Subscription deleted successfully.

Amazon SNS > Topics > maithely

maithely

Edit

Delete

Publish message

4. Send a sample mail using SES.

Search email addresses All identities

Verify a New Email Address

To verify a new email address, enter it below and click the **Verify This Email Address** button. A verification email will be sent to the email address you entered.

Email Address:

Search email addresses All identities

Verify a New Email Address

To verify a new email address, enter it below and click the **Verify This Email Address** button. A verification email will be sent to the email address you entered.

Email Address:

Search email addresses <input type="text"/> All identities <input type="button" value="v"/>		<input type="button" value="K"/>	
<input type="checkbox"/>	Email Address Identities	Verification Status	
<input type="checkbox"/>	▶ maithely.sharma@tothenew.com	verified	
<input type="checkbox"/>	▶ maithely1sharma15@gmail.com	verified	

Mail Address | Send a Test Email | Remove | View Details

Send Test Email

×

Complete the details below to send a test email to the selected email address.
[More options...](#)

Email Format: ☒ Formatted ☐ Raw

From*: maithely1sharma15@gmail.com

To*:

Subject*:

Body:

* Required

Cancel

Send Test Email

ses Inbox ×



maithely1sharma15@gmail.com [via](#) amazonses.com

to me ▾

simple email service

↩ Reply

➡ Forward