

SNS SES CloudWatch

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.

Create Alarm

Activities Google Chrome Tue Mar 3, 20:28:27 7.59KB/s 8.64KB/s 20%

CloudWatch Manager x console.aws.amazon.com/cloudwatch/home?region=us-east-1#alarmsV2:7-(alarmStateFilter='ALL-alarmTypeFilter='ALL-currentPageIndex='1)

aws Services Resource Groups revant@lanyash N. Virginia Support

CloudWatch Dashboards Alarms

ALARM INSUFFICIENT OK Billing Logs Log groups Insights Metrics Events Rules Event Buses ServiceLens Service Map Traces Synthetics Canaries Contributor Insights Settings Favorites

We listened to your feedback! In response to your comments on usability, we enhanced our user interface. You get to preview our improvements before we roll it out to everyone else. [Send us feedback](#) [Switch to your original interface](#)

CloudWatch > Alarms

Alarms (1)

☐ Hide Auto Scaling alarms Clear selection Create composite alarm Actions Create alarm

Search Any state Any type < 1 > ⚙

<input type="checkbox"/>	Name	State	Conditions	Actions
<input type="checkbox"/>	BillingAlarm	OK	EstimatedCharges > 1 for 1 datapoints within 6 hours	Topic not found

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Activities Google Chrome Tue Mar 3, 20:29:13 60.1B/s 70.1B/s 20%

CloudWatch Manager x console.aws.amazon.com/cloudwatch/home?region=us-east-1#alarmsV2:create

aws Services Resource Groups revant@lanyash N. Virginia Support

Select metric

Untitled graph 1h 3h 12h 1d 3d 1w custom Line

All metrics Graphed metrics Graph options Source

Search for any metric, dimension or resource id Graph search

194 Metrics

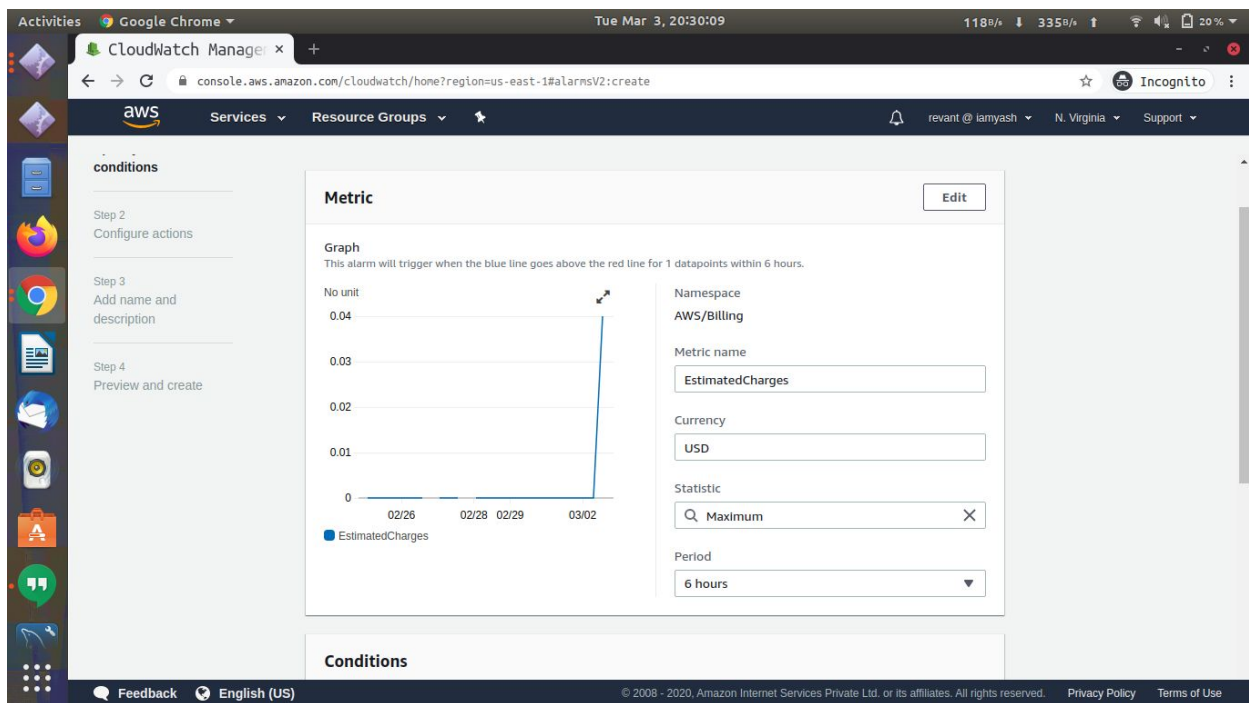
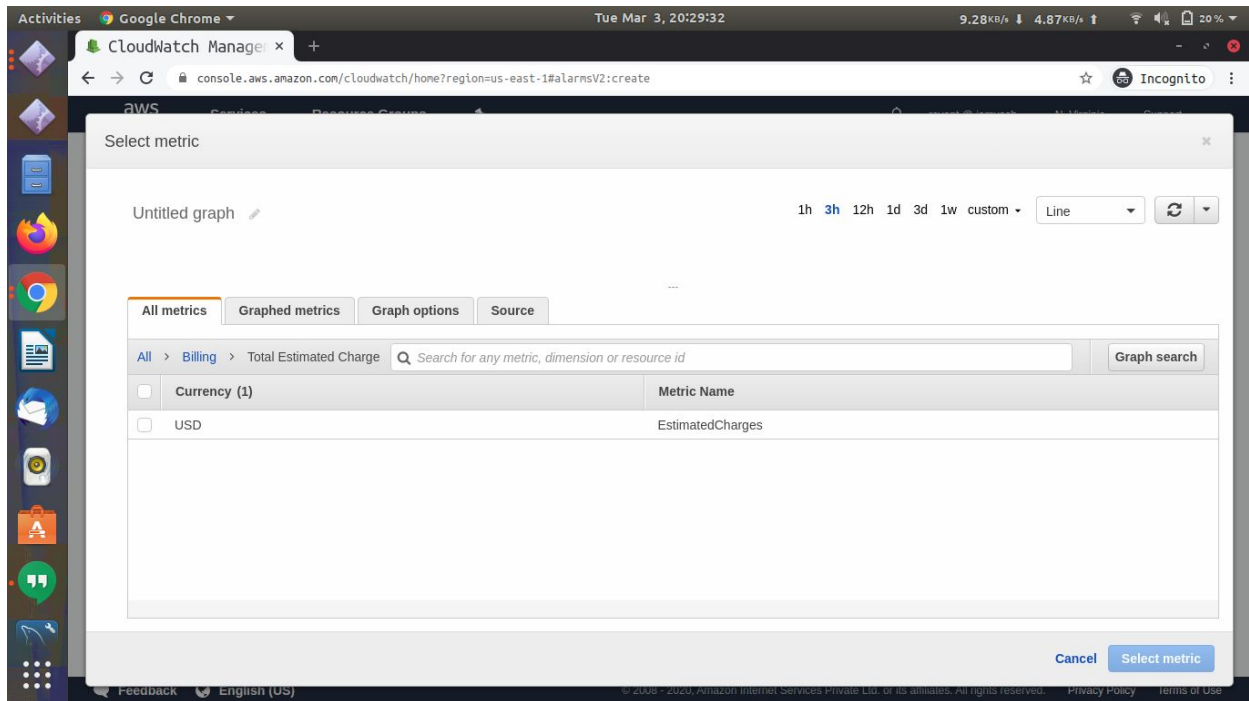
3 Metrics

AWS Namespaces

Billing 10 Metrics	EBS 45 Metrics	EC2 119 Metrics
SES 4 Metrics	SNS 6 Metrics	Usage 7 Metrics

Cancel Select metric

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If alarm is greater than 5 USD generate alarm

Activities Google Chrome Tue Mar 3, 20:30:26 2.13KB/s 3.06KB/s 20%

CloudWatch Manager x console.aws.amazon.com/cloudwatch/home?region=us-east-1#alarmsV2:create

aws Services Resource Groups revant @ iamyash N. Virginia Support

Period
6 hours

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.

5 USD

Must be a number

Additional configuration

Cancel Next

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Activities Google Chrome Tue Mar 3, 20:31:21 306B/s 0B/s 20%

CloudWatch Manager x console.aws.amazon.com/cloudwatch/home?region=us-east-1#alarmsV2:create

aws Services Resource Groups revant @ iamyash N. Virginia Support

Step 3
Add name and description

Step 4
Preview and create

Define the alarm state that will trigger this action.

☒ 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

Create a new topic...
The topic name must be unique.

Revant

SNS topic names can contain only alphanumeric characters, hyphens (-) and underscores (_).

Email endpoints that will receive the notification...
Add a comma-separated list of email addresses. Each address will be added as a subscription to the topic above.

revantjain14723@gmail.com

user1@example.com, user2@example.com

Create topic

Add notification

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Activities Google Chrome Tue Mar 3, 20:33:51 730B/s 1.52KB/s 19%

CloudWatch Manager x console.aws.amazon.com/cloudwatch/home?region=us-east-1#alarmsV2:create

aws Services Resource Groups

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

Add name and description

Name and description

Alarm name
Define a unique name.

Revant

Alarm description - optional
Define a description for this alarm.

Alarm description

Up to 1024 characters (0/1024)

Cancel Previous Next

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Activities Google Chrome Tue Mar 3, 20:34:12 0B/s 241B/s 19%

CloudWatch Manager x console.aws.amazon.com/cloudwatch/home?region=us-east-1#alarmsV2:create

aws Services Resource Groups

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

Metric

Graph
This alarm will trigger when the blue line goes above the red line for 1 datapoints within 6 hours.

No unit

5
4
3
2
1
0

02/26 02/28 02/29 03/02

EstimatedCharges

Namespace
AWS/Billing

Metric name
EstimatedCharges

Currency
USD

Statistic
Maximum

Period
6 hours

Conditions

Threshold type
Static

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

First create a policy for Cloudwatch metric

Activities Google Chrome Tue Mar 3, 15:33:40 8.42KB/s 8670/s 13%

Amazon IAM EC2 EKS My 202 IAM SNS Lear rev: +

console.aws.amazon.com/iam/home?region=us-east-1#/policies\$new?step=review

aws Services Resource Groups

revant.jain@tothenew.com @ ttn-n... Global Support

Create policy

1 2

Review policy

Name*

Use alphanumeric and '+=, @, _' characters. Maximum 128 characters.

Description

Maximum 1000 characters. Use alphanumeric and '+=, @, _' characters.

Summary

Filter

Service	Access level	Resource	Request condition
Allow (1 of 223 services) Show remaining 222			
CloudWatch	Limited: Write	All resources	None


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Activities Google Chrome Tue Mar 3, 15:34:48 5.82 KB/s 5240/s 13%


console.aws.amazon.com/iam/home?region=us-east-1#/roles\$new?step=type


Create role

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
AWS Chatbot	CodeStar Notifications	Elastic Beanstalk	Lambda	SNS

* Required

Cancel **Next: Permissions**

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Activities Google Chrome Tue Mar 3, 15:35:05 3.34 KB/s 00/s 13%

console.aws.amazon.com/iam/home?region=us-east-1#/roles\$new?step=permissions&commonUseCase=EC2&selectedUseCase=EC2

Create role

Attach permissions policies

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

Create policy

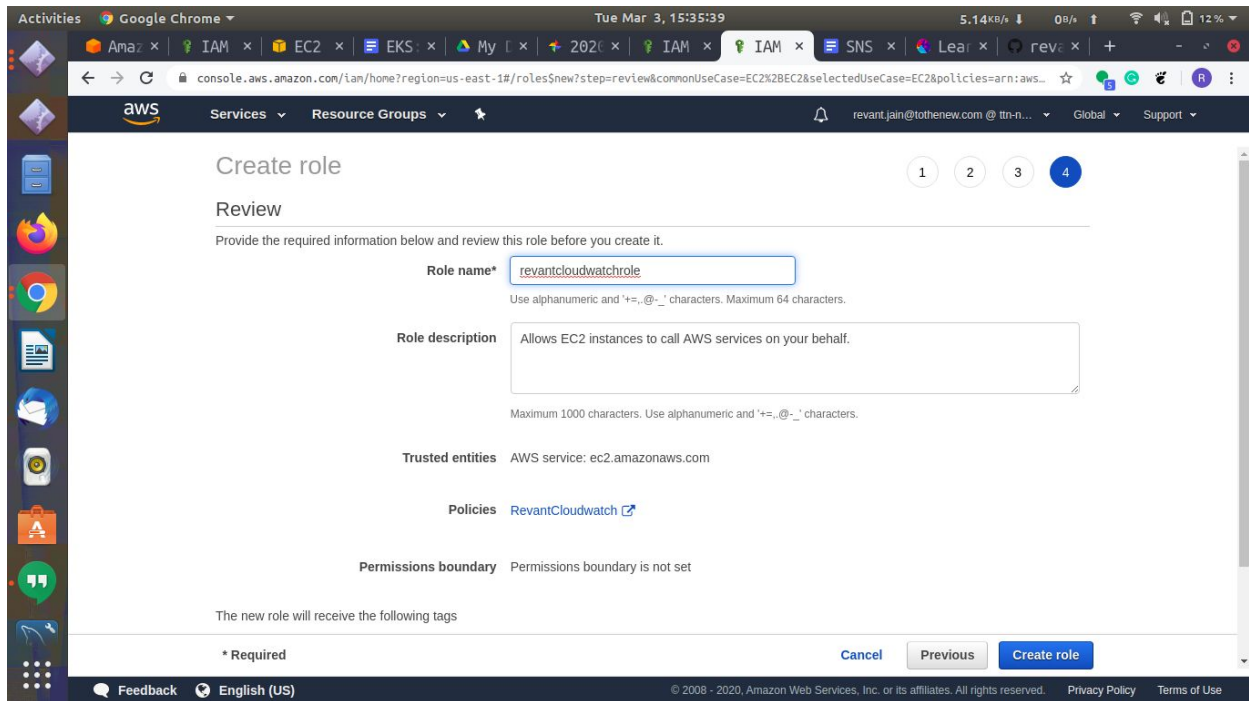
Filter policies Showing 2 results

	Policy name	Used as
<input checked="" type="checkbox"/>	RevantCloudwatch	None
<input type="checkbox"/>	RevantS3policy	Permissions policy (1)

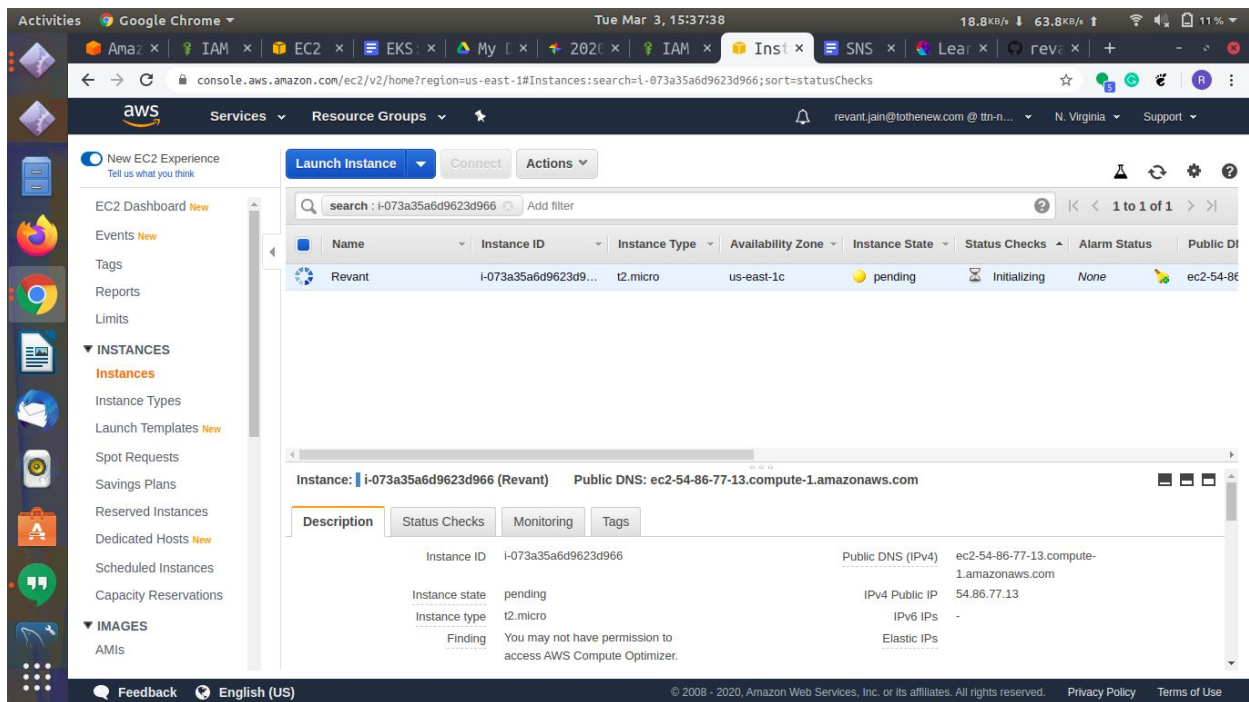
* Required

Cancel Previous **Next: Tags**

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Then create an Ec2 instance



Ssh into that particular instance and create a metric of memory

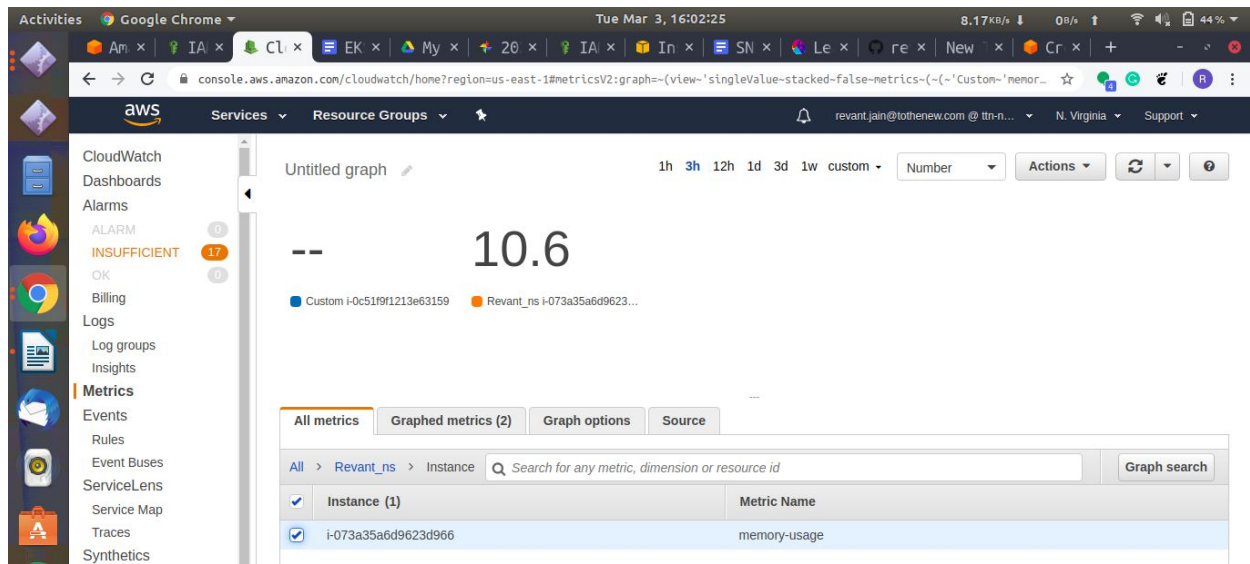
```
Activities Terminal Tue Mar 3, 15:55:32 8.62KB/s ↓ 1.42KB/s ↑ 37% ▾  
ubuntu@ip-172-31-233-147: ~  
File Edit View Search Terminal Help  
#!/bin/bash  
MEM=$(free -m | awk 'NR==2{printf "%.2f\t", $3*100/$2 }')  
InsId=$(ec2metadata --instance-id)  
aws cloudwatch put-metric-data --metric-name memory-usage --dimensions Instance=  
$InsId --namespace "Custom" --value $USEDMEMORY
```

Giving a cron that will run that particular script every minute

```
#
## 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
"/tmp/crontab.J1Bbwu/crontab" 23L, 920C
```

Namespace -revantns

Metric - memory usage



Now create ami of this instance and use it in autoscaling group

The screenshot shows the 'Create Image' dialog box in the AWS console. The 'Instance ID' is set to 'i-073a35a6d9623d966'. The 'Image name' and 'Image description' are both set to 'Revant'. The 'No reboot' checkbox is checked. Under 'Instance Volumes', there is a table with the following data:

Volume Type	Device	Snapshot	Size (GiB)	Volume Type	IOPS	Throughput (MB/s)	Delete on Termination	Encrypted
Root	/dev/sda1	snap-0e078112eedec9db	8	General Purpose SSD (gp2)	100 / 3000	N/A	<input checked="" type="checkbox"/>	Not Encrypted

Below the table, there is a button 'Add New Volume'. At the bottom, there is a note: 'Total size of EBS Volumes: 8 GiB. When you create an EBS image, an EBS snapshot will also be created for each of the above volumes.' The 'Create Image' button is highlighted in blue.

Now create launch template for this autoscaling group

Activities Google Chrome Tue Mar 3, 16:09:30 11.4KB/s 4.34KB/s 42%

console.aws.amazon.com/ec2/v2/home?region=us-east-1#CreateTemplate:

aws Services Resource Groups

EC2 > Launch templates > Create launch template

Success
Successfully created **revant** (lt-0a341843365ed4a17)

Next steps

Launch an instance from this template
With On-Demand instances, you pay for compute capacity by the hour with no long-term commitments or upfront payments. Launch an On-Demand instance from your launch template.
[Launch Instance from this template](#)

Create an Auto Scaling group from your template

Activities Google Chrome Tue Mar 3, 16:10:55 8.45KB/s 0B/s 41%

console.aws.amazon.com/ec2/autoscaling/home?region=us-east-1#CreateAutoScalingGroup:source=launchtemplate;launchTemplateId=lt-0a3418...

aws Services Resource Groups

1. Configure Auto Scaling group details 2. Configure scaling policies 3. Configure Notifications 4. Configure Tags 5. Review

Create Auto Scaling Group
Please review your Auto Scaling group details. You can go back to edit changes for each section. Click **Create Auto Scaling group** to complete the creation of an Auto Scaling group.

Auto Scaling Group Details [Edit details](#)

Group name	revant
Launch Template	lt-0a341843365ed4a17
Launch Template Version	1
Launch Template Description	version1
Group size	1
Minimum Group Size	1
Maximum Group Size	1
Subnet(s)	subnet-06680a5b651f104dc
Health Check Grace Period	300
Detailed Monitoring	No
Instance Protection	None
Service-Linked Role	AWSServiceRoleForAutoScaling

Scaling Policies [Edit scaling policies](#)

Notifications [Edit notifications](#)

[Cancel](#) [Previous](#) [Create Auto Scaling group](#)

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Activities Google Chrome Tue Mar 3, 16:15:16 9.71KB/s 926B/s 40%

console.aws.amazon.com/ec2/autoscaling/home?region=us-east-1#AutoScalingGroups:id=revant;view=details

aws Services Resource Groups

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EC2 Dashboard
Events
Tags
Reports
Limits

INSTANCES
Instances
Instance Types
Launch Templates
Spot Requests
Savings Plans
Reserved Instances
Dedicated Hosts
Scheduled Instances
Capacity Reservations

IMAGES
AMIs
Bundle Tasks

ELASTIC BLOCK STORE
Volumes
Snapshots

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Try the new design for Amazon EC2 Auto Scaling
This older console is being replaced with the new EC2 Auto Scaling console. No new features or improvements will be made in this older console. Go to the new console.

Create Auto Scaling group Actions

Filter: Filter Auto Scaling groups... 1 to 2 of 2 Auto Scaling Groups

Name	Launch Configuration /	Instances	Desired	Min	Max	Availability Zones	Default Cooldown	Health Ch
revant	revant	1	2	1	2	us-east-1c	300	300
autoscaling-m...	mathely-template	1	1	1	1	us-east-1c	300	300

Auto Scaling Group: revant

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

Launch Template revant
Launch Template Version 2
Launch Template Description -
Instance Types -

Availability Zone(s) us-east-1c
Subnet(s) subnet-06680a5b651
Classic Load Balancers
Target Groups

Activities Google Chrome Tue Mar 3, 17:48:11 4.66KB/s 7.92KB/s 35%

console.aws.amazon.com/cloudwatch/home?region=us-east-1#metricsV2:graph=-(view='singleValue-stacked-false-region='us-east-1-metrics-...

aws Services Resource Groups

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CloudWatch
Dashboards
Alarms
ALARM
INSUFFICIENT 18
OK 1
Billing
Logs
Log groups
Insights
Metrics
Events
Rules
Event Buses
ServiceLens
Service Map
Traces
Synthetics
Canaries
Contributor Insights
Settings
Favorites

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Untitled graph 1h 3h 12h 1d 3d 1w custom Number Actions

10.2 -- 10.4

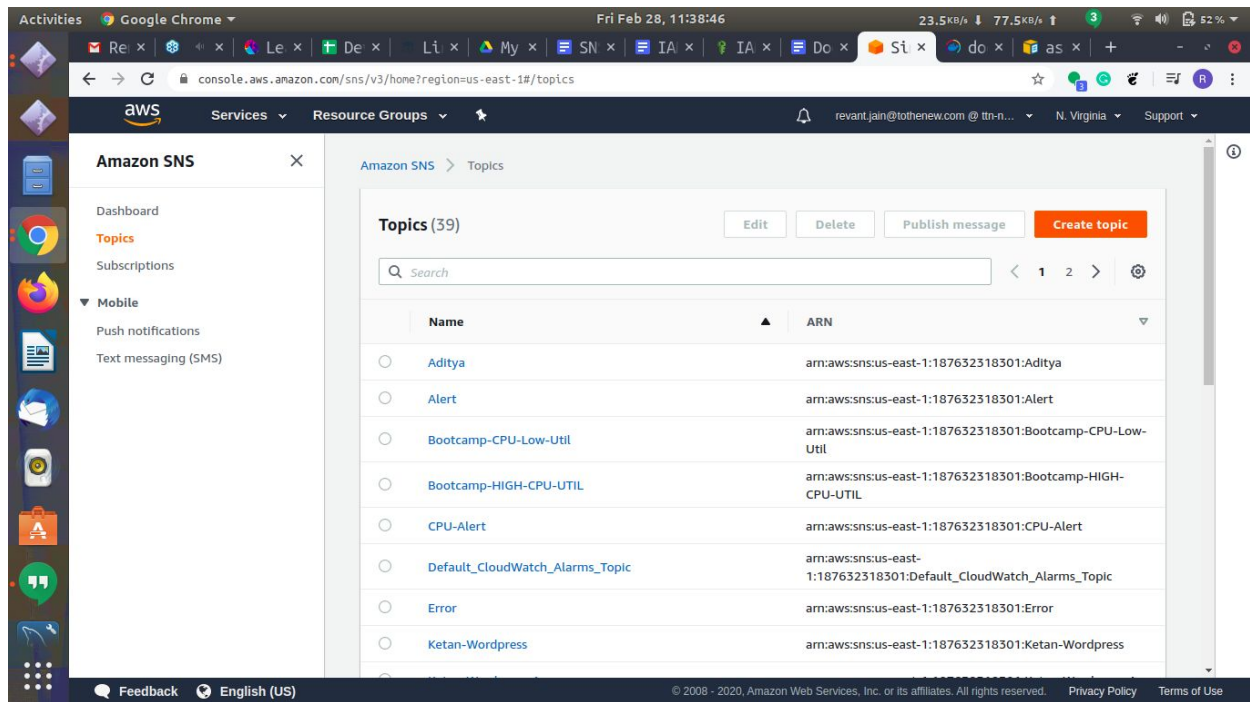
i-0739f794f575c73e (revant2) i-073a35a6d9623d966 (Reva... i-07d8f4ee024a283a3 (revant1)

All metrics Graphed metrics (3) Graph options Source

All > Revant_ns > Instance Search for any metric, dimension or resource id Graph search

Instance (3)	Metric Name
i-0739f794f575c73e	memory-usage
i-073a35a6d9623d966	memory-usage
i-07d8f4ee024a283a3	memory-usage

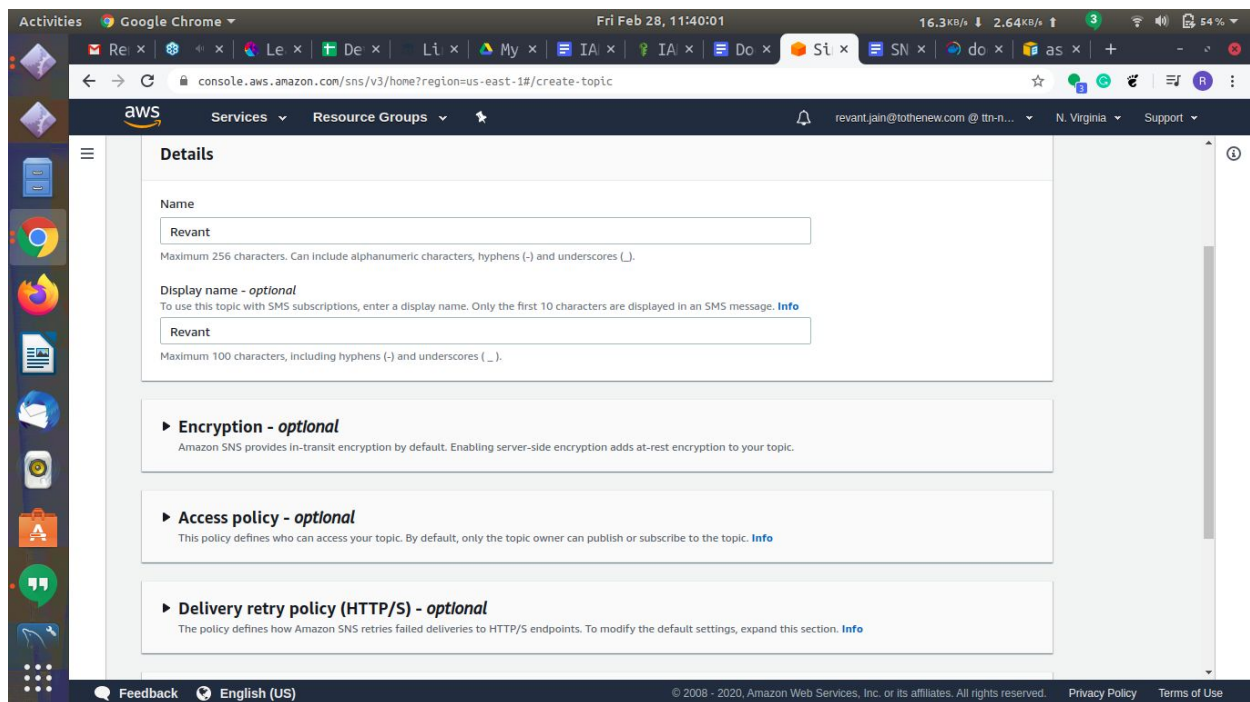
3. Create SNS topic, subscribe to a topic, publish message, unsubscribe the message and delete the topic



The screenshot shows the Amazon SNS console interface. The left sidebar contains navigation links: Dashboard, Topics (selected), Subscriptions, Mobile, Push notifications, and Text messaging (SMS). The main content area is titled "Amazon SNS > Topics" and displays a list of 39 topics. The list has columns for "Name" and "ARN".

Name	ARN
Aditya	arn:aws:sns:us-east-1:187632318301:Aditya
Alert	arn:aws:sns:us-east-1:187632318301:Alert
Bootcamp-CPU-Low-Util	arn:aws:sns:us-east-1:187632318301:Bootcamp-CPU-Low-Util
Bootcamp-HIGH-CPU-UTIL	arn:aws:sns:us-east-1:187632318301:Bootcamp-HIGH-CPU-UTIL
CPU-Alert	arn:aws:sns:us-east-1:187632318301:CPU-Alert
Default_CloudWatch_Alarms_Topic	arn:aws:sns:us-east-1:187632318301:Default_CloudWatch_Alarms_Topic
Error	arn:aws:sns:us-east-1:187632318301>Error
Ketan-Wordpress	arn:aws:sns:us-east-1:187632318301:Ketan-Wordpress

At the top of the list, there are buttons for "Edit", "Delete", "Publish message", and "Create topic". A search bar is also present.



The screenshot shows the "Create topic" form in the Amazon SNS console. The form is titled "Details" and includes the following sections:

- Name:** A text input field with the value "Revant". Below it, a note states: "Maximum 256 characters. Can include alphanumeric characters, hyphens (-) and underscores (_)."
- Display name - optional:** A text input field with the value "Revant". Below it, a note states: "To use this topic with SMS subscriptions, enter a display name. Only the first 10 characters are displayed in an SMS message. Info".
- Encryption - optional:** A section with a heading "Encryption - optional" and a note: "Amazon SNS provides in-transit encryption by default. Enabling server-side encryption adds at-rest encryption to your topic."
- Access policy - optional:** A section with a heading "Access policy - optional" and a note: "This policy defines who can access your topic. By default, only the topic owner can publish or subscribe to the topic. Info".
- Delivery retry policy (HTTP/S) - optional:** A section with a heading "Delivery retry policy (HTTP/S) - optional" and a note: "The policy defines how Amazon SNS retries failed deliveries to HTTP/S endpoints. To modify the default settings, expand this section. Info".

Activities Google Chrome Fri Feb 28, 11:40:21 18.6KB/s 17.3KB/s 55%

Re x Go x Le x De x Li x My x IA x IA x Do x Si x SN x do x as x +

console.aws.amazon.com/sns/v3/home?region=us-east-1#/topic/arn:aws:sns:us-east-1:187632318301:Revant

aws Services Resource Groups revant.jain@tothenew.com @ ttn-n... N. Virginia Support

Amazon SNS

- Dashboard
- Topics
- Subscriptions
- ▼ Mobile
 - Push notifications
 - Text messaging (SMS)

Topic Revant created successfully.
You can create subscriptions and send messages to them from this topic.

Publish message

Amazon SNS > Topics > Revant

Revant

Edit Delete Publish message

Details

Name	Revant	Display name	Revant
ARN	arn:aws:sns:us-east-1:187632318301:Revant	Topic owner	187632318301

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

Subscriptions (0)

Edit Delete Request confirmation Confirm subscription Create subscription

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Activities Google Chrome Fri Feb 28, 11:41:34 14.0KB/s 4.31KB/s 57%

Re x Go x Le x De x Li x My x IA x IA x Do x Si x SN x do x as x +

console.aws.amazon.com/sns/v3/home?region=us-east-1#/create-subscription

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Amazon SNS > Subscriptions > Create subscription

Create subscription

Details

Topic ARN

arn:aws:sns:us-east-1:187632318301:Revant

Protocol

The type of endpoint to subscribe

SMS

Endpoint

A mobile number that can receive notifications from Amazon SNS.

+919760224604

After your subscription is created, you must confirm it. Info

Subscription filter policy - optional

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Activities Google Chrome Fri Feb 28, 11:41:51 14.6KB/s 4.76KB/s 3 57%

Re x Go x Le x De x Li x My x IA x IA x Do x Si x SN x do x as x +

console.aws.amazon.com/sns/v3/home?region=us-east-1#/subscription/arn:aws:sns:us-east-1:187632318301:Revant:32727f27-1c85-4fb2-8684-be3649394652

aws Services Resource Groups revant.jain@tothenew.com @ ttn... N. Virginia Support

Amazon SNS

- Dashboard
- Topics
- Subscriptions
- ▼ Mobile
 - Push notifications
 - Text messaging (SMS)

Subscription to Revant created successfully.
The ARN of the subscription is arn:aws:sns:us-east-1:187632318301:Revant:32727f27-1c85-4fb2-8684-be3649394652.

Amazon SNS > Topics > Revant > Subscription: 32727f27-1c85-4fb2-8684-be3649394652

Subscription: 32727f27-1c85-4fb2-8684-be3649394652

Edit Delete

Details

ARN	arn:aws:sns:us-east-1:187632318301:Revant:32727f27-1c85-4fb2-8684-be3649394652
Endpoint	+919760224604
Topic	Revant
Status	Confirmed
Protocol	SMS

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Activities Google Chrome Fri Feb 28, 11:42:50 17.5KB/s 11.2KB/s 3 58%

Re x Go x Le x De x Li x My x IA x IA x Do x Si x SN x do x as x +

console.aws.amazon.com/sns/v3/home?region=us-east-1#/publish/topic/arn:aws:sns:us-east-1:187632318301:Revant

aws Services Resource Groups revant.jain@tothenew.com @ ttn... N. Virginia Support

Amazon SNS > Topics > Revant > Publish message

Publish message to topic

Message details

Topic ARN
arn:aws:sns:us-east-1:187632318301:Revant

Subject - optional
hello
Maximum 100 printable ASCII characters

Time to Live (TTL) - optional
This setting applies only to mobile application endpoints. The number of seconds that the push notification service has to deliver the message to the endpoint. [Info](#)

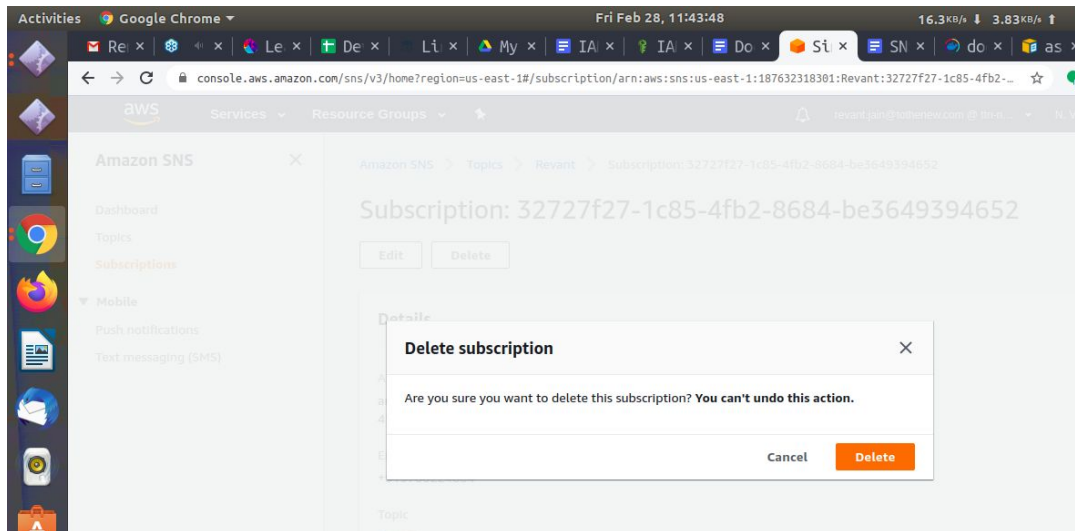
Message body

Message structure

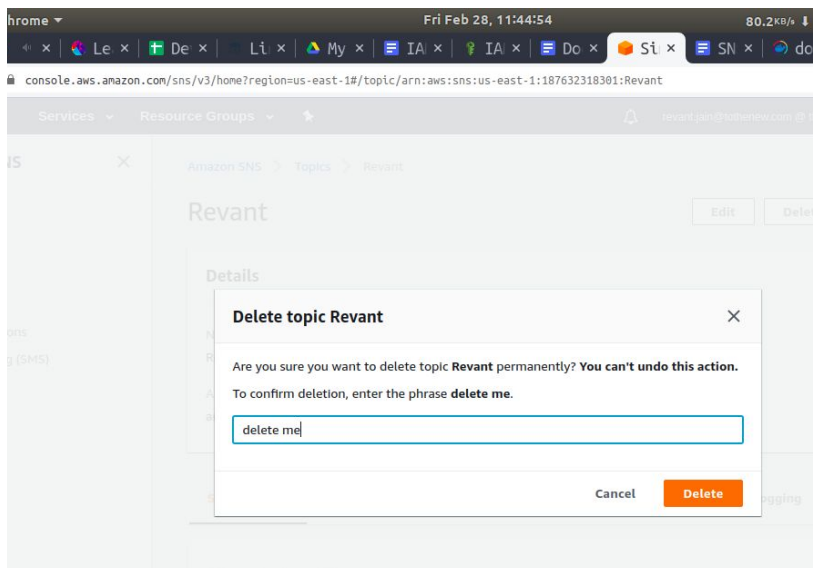
☒ Identical payload for all delivery ☐ Custom payload for each delivery

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Unsubscribe the topic



Delete the topic



4. Send a sample mail using SES.

