ASSESSMENT ON SNS, SES AND CLOUDWATCH
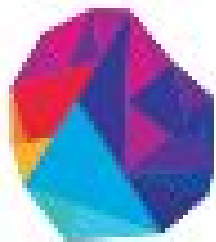
1.Monitor Your Estimated Charges Using CloudWatch

Step 1: Enable Billing Alerts

a)Open the Billing and Cost Management console at

Billing & Cost Management Dashboard

Spend Summary

Cost Explorer

Welcome to the AWS Billing & Cost Management console. Your last month, month-to-date, and month-end forecasted costs appear below.

Current month-to-date balance for February 2020, the exchange rate for the Payment Currency is estimated.

0.00 USD which converts to

0.00 INR

at today's exchange rate of 72.2756

b)In the navigation pane, choose Preferences.

Billing preferences

Payment methods

Consolidated billing

Tax settings

c)Select Receive Billing Alerts and Choose Save preferences.

✓ **Receive Billing Alerts**

Turn on this feature to monitor your AWS usage charges and recurring fees automatically, making it easier to track and manage your spending on AWS. You can set up billing alerts to receive email notifications when your charges reach a specified threshold. Once enabled, this preference cannot be disabled. Manage Billing Alerts or try the new budgets feature!
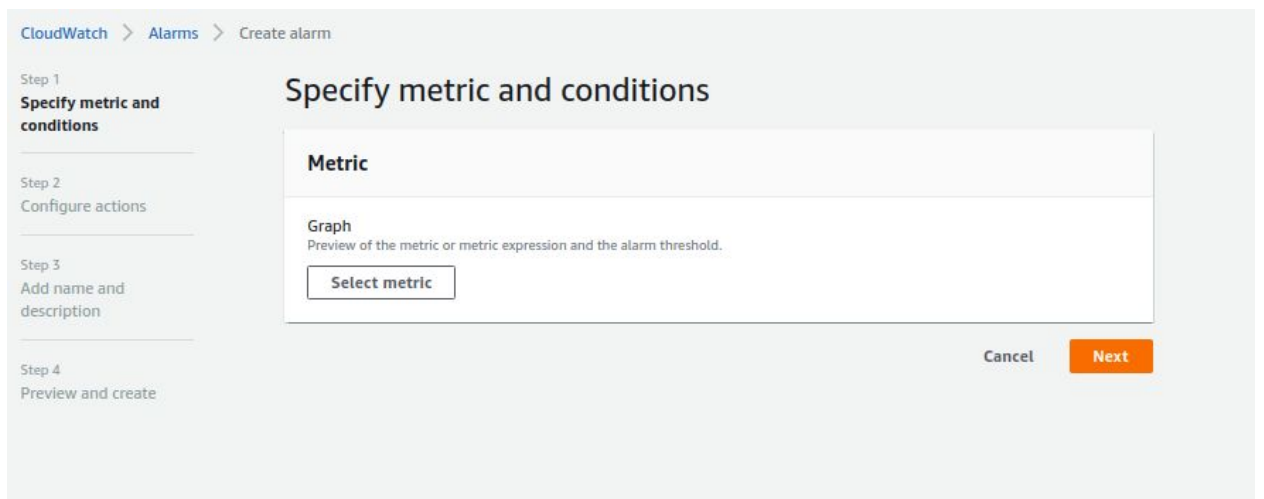
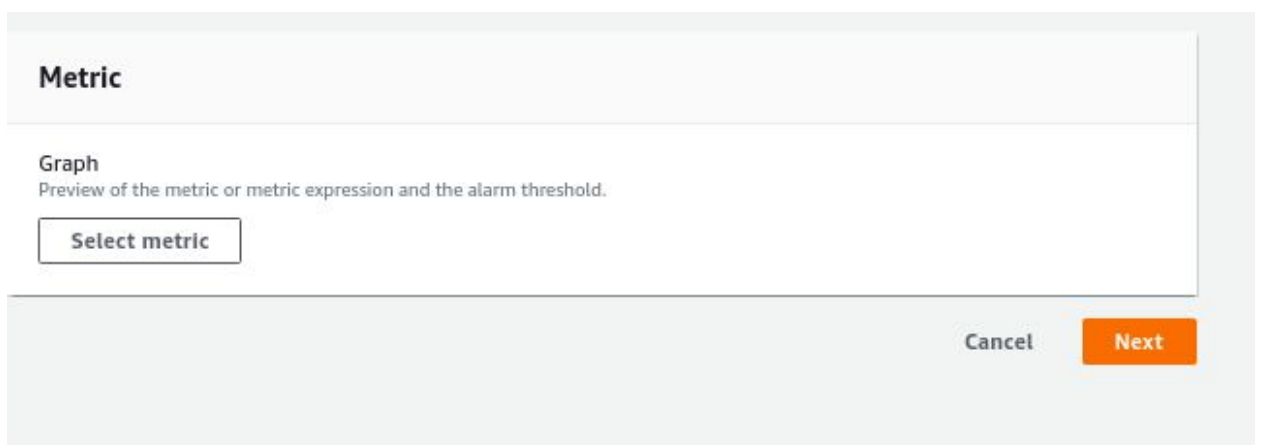### Step 2: Create a Billing Alarm

a)Open the CloudWatch console.
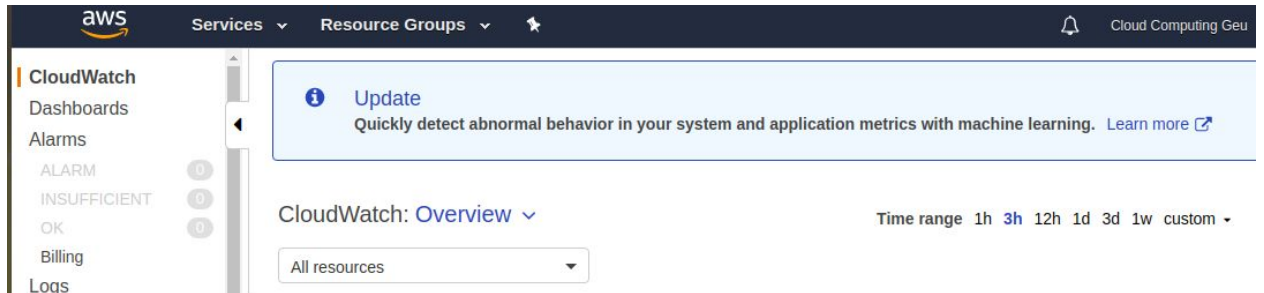
b)If necessary, change the Region to US East (N. Virginia). Billing metric data is stored in this Region and reflects worldwide charges.
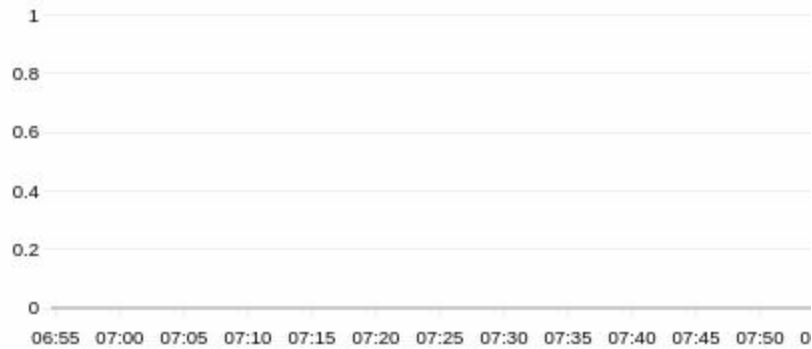
c)In the navigation pane, choose Alarms, Create Alarm.

d)Choose Select metric, Billing, Total Estimated Charge.

Select metric

Untitled graph ✎

1
0.8
0.6
0.4
0.2
0
06:55 07:00 07:05 07:10 07:15 07:20 07:25 07:30 07:35 07:40 07:45 07:50 0

All metrics	Graphed metrics	Graph options	Source

🔍 Search for any metric, dimension or resource id

3 Metrics

Billing

3 Metrics

All metrics	Graphed metrics	Graph options	Source

All > Billing   🔍 Search for any metric, dimension or resource id

3 Metrics

By Service	Total Estimated Charge
2 Metrics	1 Metric

d)Select the checkbox next to EstimatedCharges and choose Select metric

All > Billing > Total Estimated Charge | Search for any metric, dimension or resource id | Graph search

		Metric Name
✓	Currency (1)	
☑	USD	EstimatedCharges

e)For Whenever my total AWS charges for the month exceed, specify the monetary amount (for example, 200) that must be exceeded to trigger the alarm and send an email notification.

Tip

The graph shows a current estimate of your charges that you can use to set an appropriate amount.

For send a notification to, choose an existing notification list or create a new one.

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

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

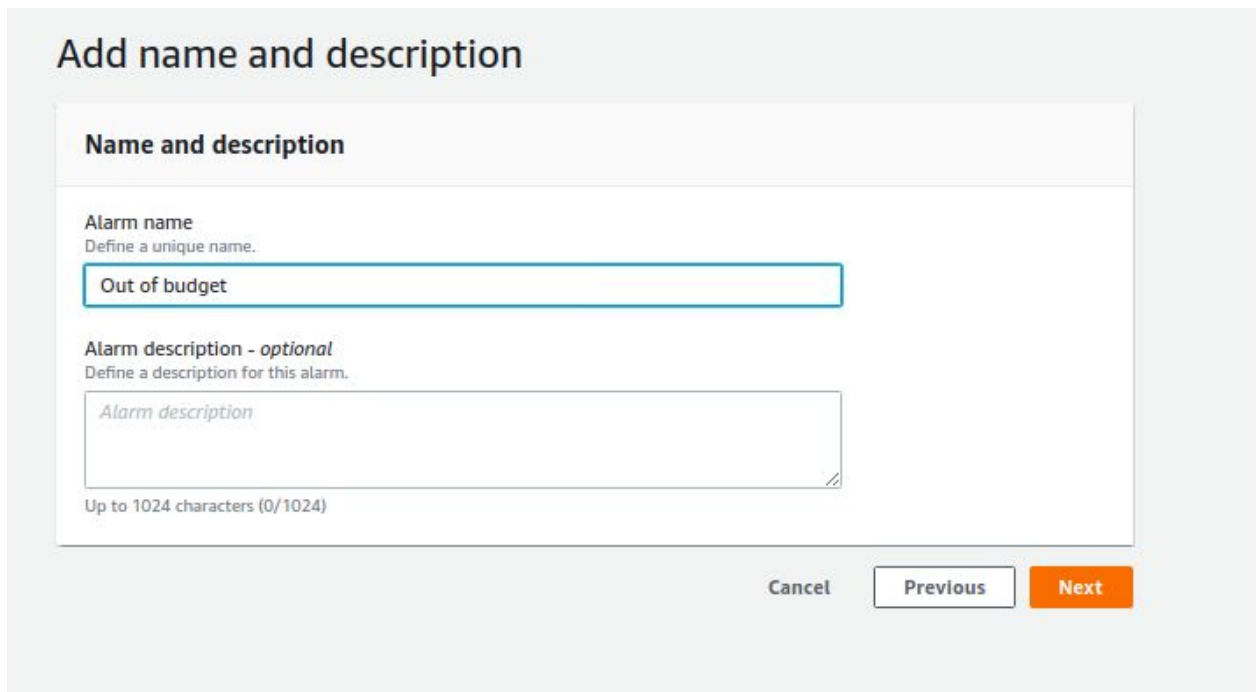Default_CloudWatch_Alarms_Topic

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.

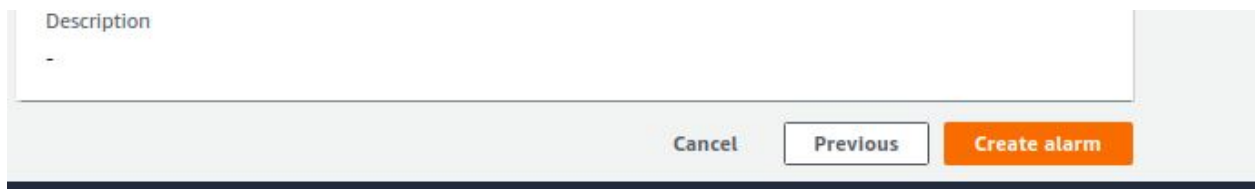diksha.tomar102@gmail.com

user1@example.com, user2@example.com

Create topic

To create a list, choose New list and type a comma-separated list of email addresses to be notified when the alarm changes to the ALARM state. Each email address is sent a subscription confirmation email. The recipient must confirm the subscription before notifications can be sent to the email address.
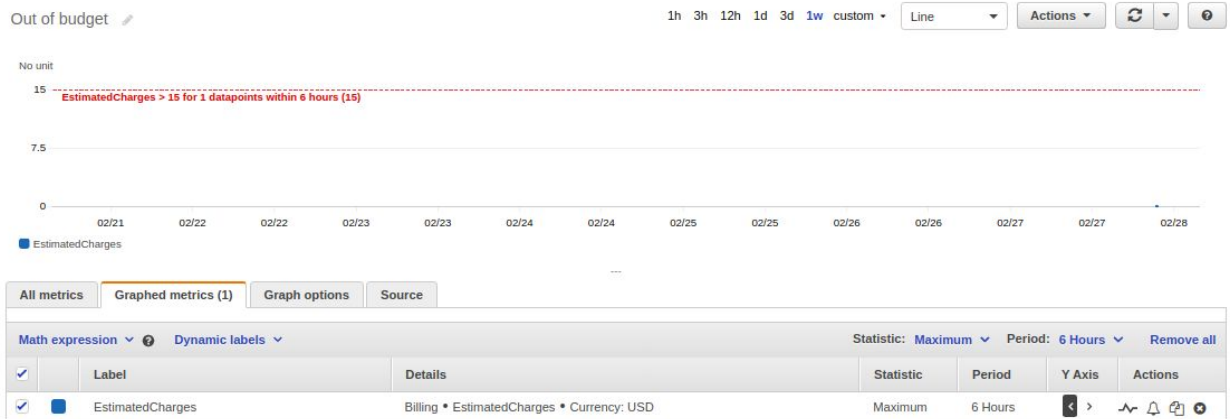

f)Choose Create Alarm.

Step 3: Check the Alarm Status

a)In the navigation pane, choose Alarms.

b)Select the check box next to the alarm. Until the subscription is confirmed, it is shown as "Pending confirmation". After the subscription is confirmed, refresh the console to show the updated status.

Step 4: Create & Subscribe to SNS Topic

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.
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Default_CloudWatch_Alarms_Topic

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.

diksha.tomar102@gmail.com

user1@example.com, user2@example.com

[Create topic]

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

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

Summary

Role ARN	arn:aws:iam::187632318301:role/Diksha_EC2AccessToCloudwatch
Role description	Allows EC2 instances to call AWS services on your behalf.	Edit
Instance Profile ARNs	arn:aws:iam::187632318301:instance-profile/Diksha_EC2AccessToCloudwatch
Path	/
Creation time	2020-03-02 10:11 UTC+0530
Last activity	Not accessed in the tracking period
Maximum CLI/API session duration	1 hour Edit

Permissions	Trust relationships	Tags (2)	Access Advisor	Revoke sessions

▼ Permissions policies (1 policy applied)

Attach policies   ⊕ Add inline policy

Policy name ▼	Policy type ▼	
📦 CloudWatchFullAccess	AWS managed policy	✖

▶ Permissions boundary (not set)

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-02e90d6eb2f81e411 (diksha(wordpress2)) ⓘ

IAM role*	Diksha_EC2AccessToCloudwatch ▼	⟳	Create new IAM role ⓘ

* Required

```
#START OF SCRIPT
MEMFREE=$(egrep -o "MemFree:\s*([0-9]*)" /proc/meminfo | egrep -o "[0-9]*")
BUFFERS=$(egrep -o "Buffers:\s*([0-9]*)" /proc/meminfo | egrep -o "[0-9]*")
CACHED=$(egrep -o "\bCached:\s*([0-9]*)" /proc/meminfo | egrep -o "[0-9]*")
echo $MEMFREE
echo $BUFFERS
echo $CACHED
FREEMEM=`expr $MEMFREE + $BUFFERS + $CACHED`
echo $FREEMEM
/usr/bin/aws cloudwatch put-metric-data --namespace "Diksha_Metrix" --metric-nam
e "FREE RAM" --value $FREEMEM --region us-east-1
#END OF SCRIPT
~
~
~
~
~
~
~
~
~
~
~
"script.sh" 12L, 490C                                          11,1            All
```

```
                          ubuntu@ip-10-0-1-110: ~

File  Edit  View  Search  Terminal  Tabs  Help

        ubuntu@ip-10-0-1-110: ~          ×         diksha@diksha: ~          ×

   GNU nano 2.9.3            /tmp/crontab.7pFb29/crontab             Modified


# 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
* * * * * ~/script.sh
```

```
ubuntu@ip-10-0-1-110:~$ bash script.sh
127284
133460
445108
705852
ubuntu@ip-10-0-1-110:~$
```

All metrics   **Graphed metrics**   **Graph optio**

Q *Search for any metric, dimension or resource id*

24,181 Metrics

▼ ─ Custom Namespaces ─────────

Diksha_Metrix

1 Metric

CloudWatch > Alarms > Create alarm

Specify metric and conditions

Metric	Edit

Graph
This alarm will trigger when the blue line goes above the red line for 1 datapoints within 5 minutes.

No unit

725k

720k

715k

710k

03:30   04:30   05:30   06:30

■ FREE RAM

Namespace
Diksha_Metrix

Metric name
FREE RAM

Statistic
Q Average   ✕

Period
5 minutes   ▼

Conditions

Threshold type

- ● **Static**
  Use a value as a threshold

- ○ **Anomaly detection**
  Use a band as a threshold

Whenever FREE RAM is...
Define the alarm condition.

- ● **Greater**
  > threshold

- ○ **Greater/Equal**
  >= threshold

- ○ **Lower/Equal**
  <= threshold

- ○ **Lower**
  < threshold

than...
Define the threshold value.

```
819200                    ⬍
```

Must be a number

▶ **Additional configuration**

Cancel   **Next**

Notification

Alarm state trigger
Define the alarm state that will trigger this action.

Remove

- ● **In alarm**
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- ○ **OK**
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- ○ **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...

```
🔍  Diksha_SNS                    ✕
```

Only email lists for this account are available.

Email (endpoints)

diksha.tomar102@gmail.com - View in SNS Console ↗

Add notification

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.

SNSalarm_mem_DIksha

Alarm description - *optional*
Define a description for this alarm.

alarm fopr memory

Up to 1024 characters (17/1024)

Cancel   Previous   Next

Create Auto Scaling group   Actions ▾

Filter: Q diksha   ✕ |< < 1 to 3 of 3 Auto Scaling Groups > >|

	Name	▲	Launch Configuration / ▾	Instances ▾	Desired ▾	Min ▾	Max ▾	Availability Zones ▾	Default Cooldown ▾	Health Check Grac ▾
☑	Wordpress		wordpressAsG(diksha)	1	1	1	1	us-east-1e, us-east-1f	300	300

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

Add policy   ↻

Create Scaling policy   Cancel   Create

Name: mem_policy

Execute policy when: SNSalarm_mem_DIksha ▾   ↻   Create new alarm

breaches the alarm threshold: FREE RAM > 819200 for 300 seconds
for the metric dimensions

Take the action: Add ▾ 1   capacity units ▾

And then wait: 300   seconds before allowing another scaling activity

Create a target tracking scaling policy ⓘ
Create a scaling policy with steps ⓘ

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

STEP 1: Create a new topic "Diksha_SNS"

STEP 2: Create subscription for the topic

STEP 3: Confirm Subscription in your email

Subscription confirmed!

You have subscribed diksha.tomar102@gmail.com to the topic: **Diksha_SNS**.

Your subscription's id is:
arn:aws:sns:us-east-1:187632318301:Diksha_SNS:d93a5c58-b3f4-409a-929b-acf7e4b6f6f4

If it was not your intention to subscribe, click here to unsubscribe.

STEP 4: Publish message on the topic "Diksha_SNS"

Publish message to topic

Message details

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

Subject - *optional*

Testing SNS

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
protocols.
The same payload is sent to endpoints
subscribed to the topic, regardless of
their delivery protocol.

○ Custom payload for each delivery
protocol.
Different payloads are sent to endpoints
subscribed to the topic, based on their
delivery protocol.

Message body to send to the endpoint

```
1 This is for testing SNS
```

⊘ **Message published to topic Diksha_SNS successfully.**
Message "ID": 809cd724-2de5-577a-b7a9-81f285b3c447

Publish another message ✕

Diksha_SNS

Edit   Delete   Publish message

Details

Name
Diksha_SNS

ARN
arn:aws:sns:us-east-1:187632318301:Diksha_SNS

Display name
SNSQ3

Topic owner
187632318301

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

Subscriptions (1)

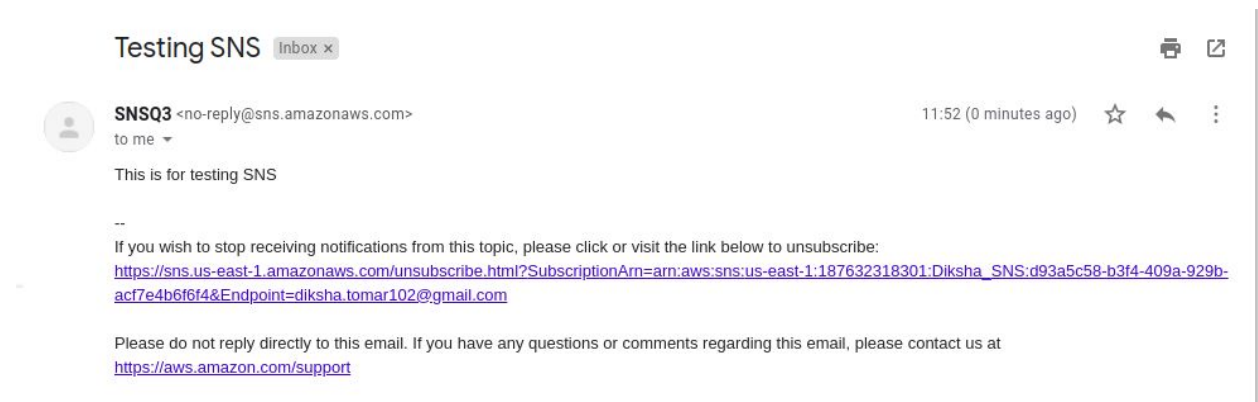Edit   Delete   Request confirmation   Confirm subscription   **Create subscription**

🔍 Search

< 1 > ⚙

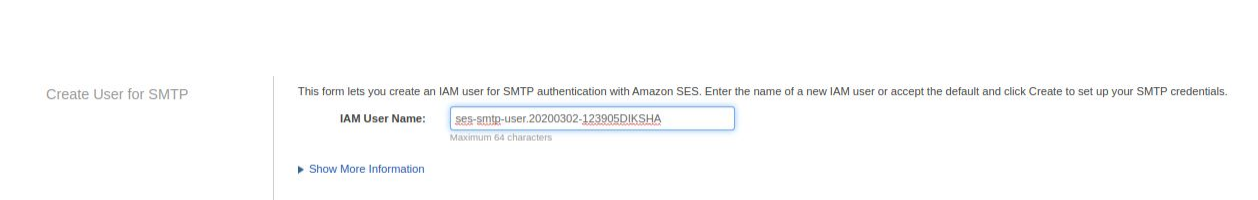| ID	▽	Endpoint	▽	Status	▽	Protocol	▲
○ d93a5c58-b3f4-409a-929b-acf7e4b6f6f4		diksha.tomar102@gmail.com		⊘ Confirmed		EMAIL	

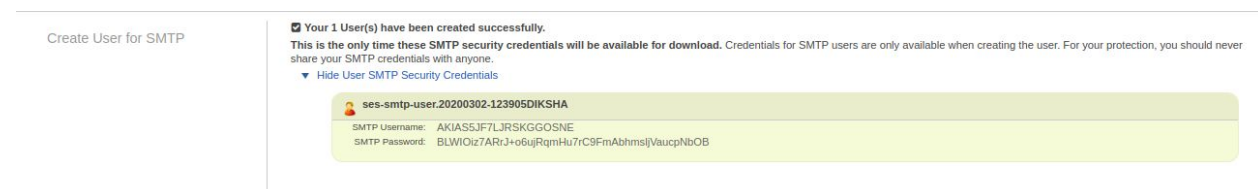STEP 5: Check you email , you have received the message published to the topic

4. Send a sample mail using SES.

STEP 1:Click the "SES Email Sending Service" option.Click the "SMTP Settings" option.

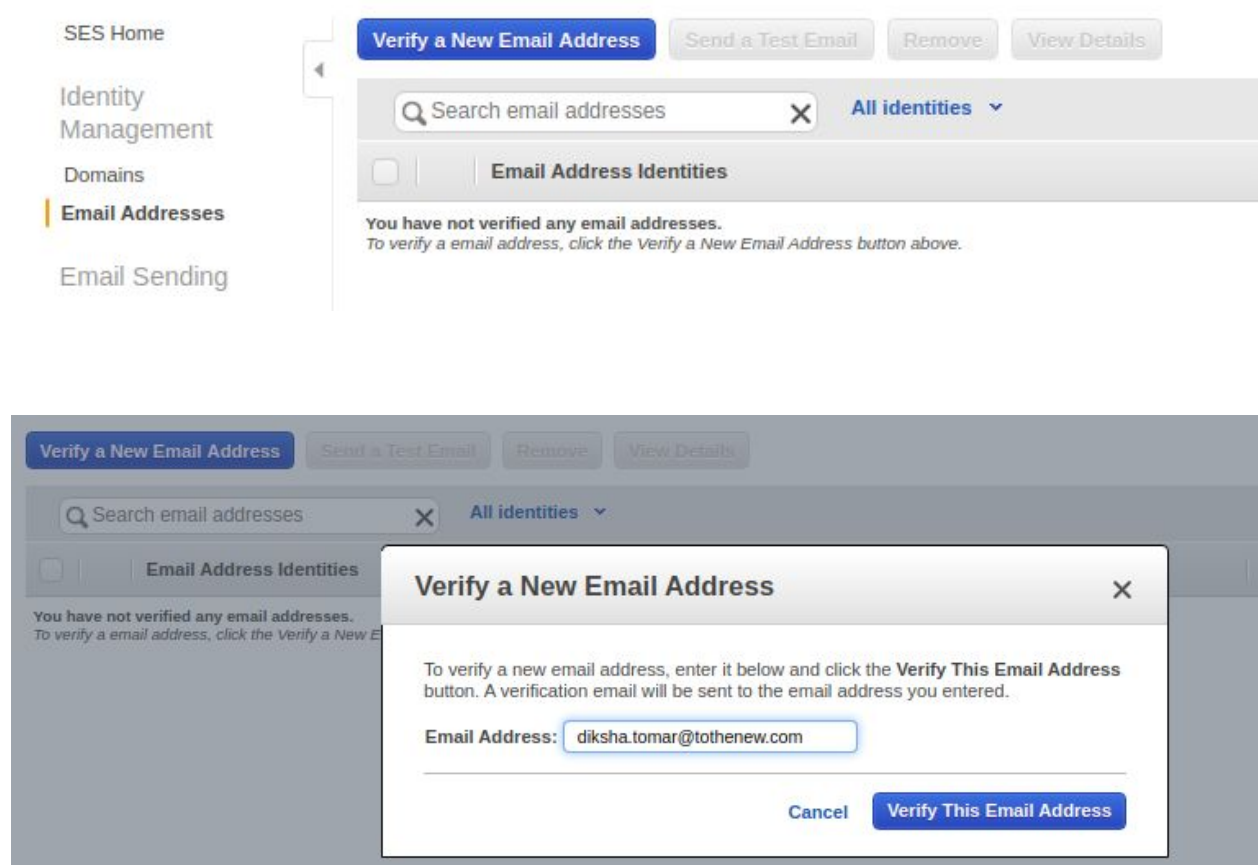Click the "Create My SMTP Credentials" button.

STEP 2: Copy your credentials or click the "Download Credentials" button as the password will not be shown again.

STEP 3: Click the "Verify a New Email Address" link.

In the "Verify a New Email Address" dialog, enter the email address you wish to send messages from and click the "Verify This Email Address" button.

STEP 4 :You should now receive a verification message from SES asking you to confirm. Click the verification link in the message ,it is only valid for 24 hours after your original request.Check the status of the email address in the Amazon SES Console. The status of the email address should change from "pending verification" to "verified".

Amazon Web Services – Email Address Verification Request in region US East (N. Virginia) Inbox ×

Amazon Web Services <no-reply-aws@amazon.com>   12:42 PM (0 minutes ago)
to me ▾

Dear Amazon Web Services Customer,

We have received a request to authorize this email address for use with Amazon SES and Amazon Pinpoint in region US East (N. Virginia). If you requested this verification, please go to the following URL to confirm that you are authorized to use this email address:

https://email-verification.us-east-1.amazonaws.com/?Context=200332499555&X-Amz-Date=20200302T071218Z&Identity.IdentityName=diksha.tomar%40tothenew.com&X-Amz-Algorithm=AWS4-HMAC-SHA256&Identity.IdentityType=EmailAddress&X-Amz-SignedHeaders=host&X-Amz-Credential=AKIAJR7UYJEP5GNMLX6A%2F20200302%2Fus-east-1%2Fses%2Faws4_request&Operation=ConfirmVerification&Namespace=Bacon&X-Amz-Signature=eabd0e63b4058b88f5690faedc23000a4481604b4151b56ae31236995767e4a6

Your request will not be processed unless you confirm the address using this URL. This link expires 24 hours after your original verification request.

Congratulations!

You have successfully verified an email address. You can now start sending email from this address.

For new Amazon SES users—If you have not yet applied for a sending limit increase, then you are still in the sandbox environment, and you can only send email to addresses that have been verified. To verify a new email address or domain, see the **Identity Management** section of the Amazon SES console.

For new Amazon Pinpoint users—If you have not yet applied for a sending limit increase, then you are still in the sandbox environment, and you can only send email to addresses that have been verified. To verify a new email address or domain, see the **Settings** > **Channels** page on the Amazon Pinpoint console.

If you have already been approved for a sending limit increase, then you can start sending email to non-verified addresses.

Thank you for using Amazon Web Services!

Verify a New Email Address	Send a Test Email	Remove	View Details			↻ ❓
🔍 Search email addresses ✕	**All identities** ▾				|◀ ◀ 1 to 1 of 1 items ▶ ▶|
☐	**Email Address Identities**				**Verification Status**	
☐ ▶	diksha.tomar@tothenew.com				verified	

STEP 5: Now use Amazon SES to send email messages from this address. To send a test email, check the box next to the verified email address, and then click the "Send a Test Email" button.

STEP 6: Check your mail

Test mail for SES Inbox ×

diksha.tomar@tothenew.com via amazonses.com

to me

Hello

[Reply] [Forward]