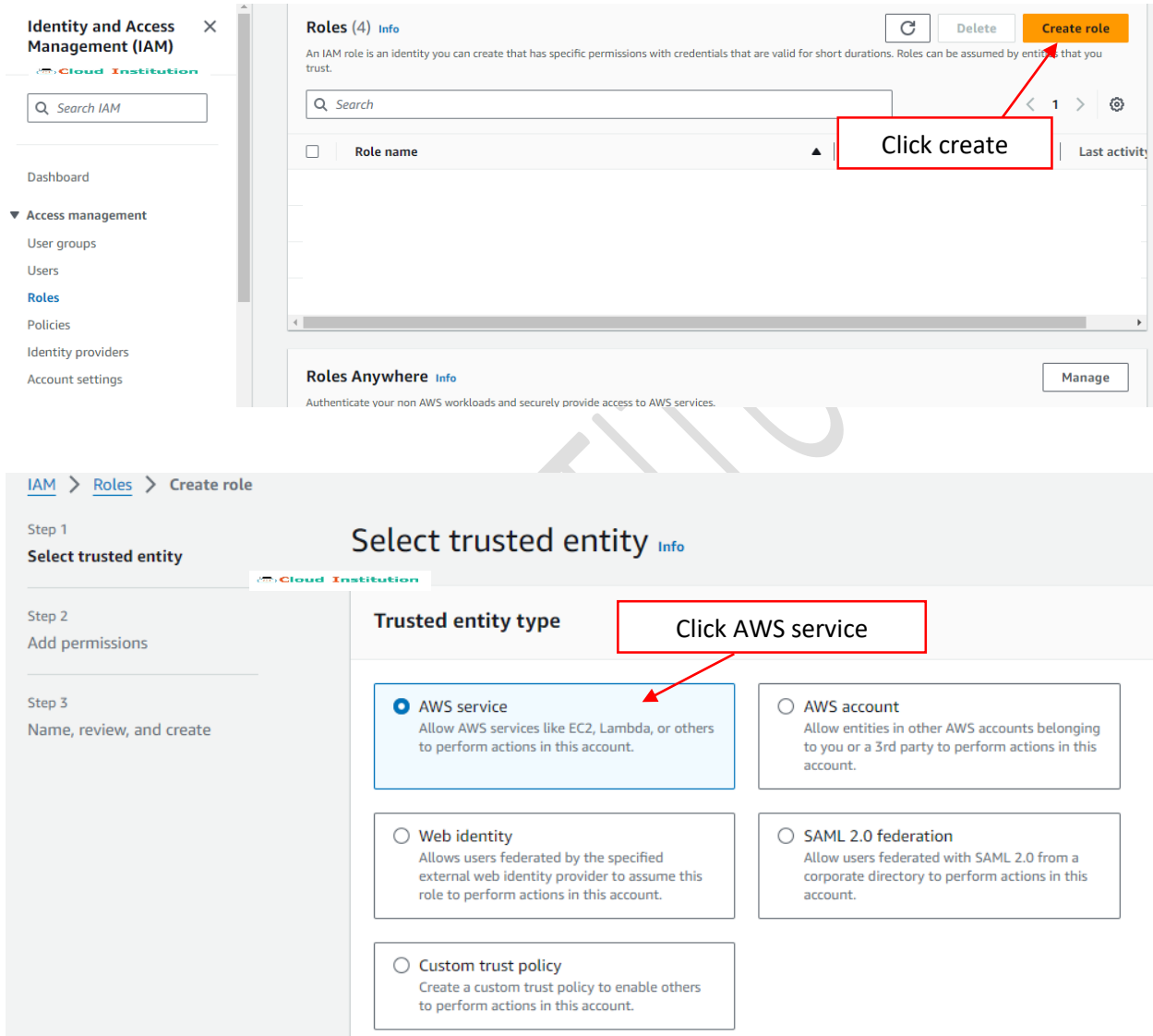


TRIGGERING SNS USING AWS LAMBDA

Step 1 : Create a IAM Role



The image shows two screenshots from the AWS IAM console. The top screenshot displays the 'Roles (4)' page with a 'Create role' button highlighted in orange. A red box labeled 'Click create' points to this button. The bottom screenshot shows the 'Select trusted entity' step, where the 'AWS service' option is selected and highlighted with a red box labeled 'Click AWS service'.

Identity and Access Management (IAM)

Search IAM

Dashboard

Access management

- User groups
- Users
- Roles**
- Policies
- Identity providers
- Account settings

Roles (4) Info

An IAM role is an identity you can create that has specific permissions with credentials that are valid for short durations. Roles can be assumed by entities that you trust.

Search

Role name

Click create

Roles Anywhere Info

Authenticate your non AWS workloads and securely provide access to AWS services.

Manage

IAM > Roles > Create role

Step 1

Select trusted entity

Step 2

Add permissions

Step 3

Name, review, and create

Select trusted entity Info

Trusted entity type

Click AWS service

- ☒ **AWS service**
Allow AWS services like EC2, Lambda, or others to perform actions in this account.
- ☐ **AWS account**
Allow entities in other AWS accounts belonging to you or a 3rd party to perform actions in this account.
- ☐ **Web identity**
Allows users federated by the specified external web identity provider to assume this role to perform actions in this account.
- ☐ **SAML 2.0 federation**
Allow users federated with SAML 2.0 from a corporate directory to perform actions in this account.
- ☐ **Custom trust policy**
Create a custom trust policy to enable others to perform actions in this account.

Use case

Cloud Institution

Allow an AWS service like EC2, Lambda, or others to perform actions in this account.

Service or use case

Lambda

Select Lambda

Choose a use case for the specified service.

Use case

☒ Lambda

Allows Lambda functions to call AWS services on your behalf.

Click next

Cancel

Next

Permissions policies (3/925) Info






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

Q sns

Filter by

All types

5 matches

<input type="checkbox"/>	Policy name	Type	Description
<input checked="" type="checkbox"/>	 AmazonSNSFullAccess	AWS managed	Provides full access to Amazon SNS via...
<input type="checkbox"/>	 AmazonSNSReadOnlyAcc...	AWS managed	Provides read only access to Amazon S...
<input type="checkbox"/>	 AmazonSNSRole	AWS managed	Default policy for Amazon SNS service...
<input type="checkbox"/>	 AWSElasticBeanstalkRole...	AWS managed	(Elastic Beanstalk operations role) Allo...
<input type="checkbox"/>	 AWSIoTDeviceDefenderP...	AWS managed	Provides messages publish access to S...

Select SNS full access,
Lambda full access,
cloudwatch full access

► Set permissions boundary - optional

Click next

Cancel

Previous

Next

IAM > Roles > Create role

Step 1
[Select trusted entity](#)

Step 2
[Add permissions](#)

Step 3
Name, review, and create

Name, review, and create

Role details

Role name
Enter a meaningful name to identify this role.

Maximum 64 characters. Use alphanumeric and '+', '@', '-' characters.

Description
Add a short explanation for this role.

Maximum 1000 characters. Use letters (A-Z and a-z), numbers (0-9), tabs, new lines, or any of the following characters: '_', '+', '@', '-', '/', '[', ']', '!', '\$', '%', '^', '&', '*', '(', ')', '<', '>'.

Add tags - optional [Info](#)
Tags are key-value pairs that you can add to AWS resources to help identify, organize, or search for resources.

No tags associated with the resource.

You can add up to 50 more tags.

Role Created

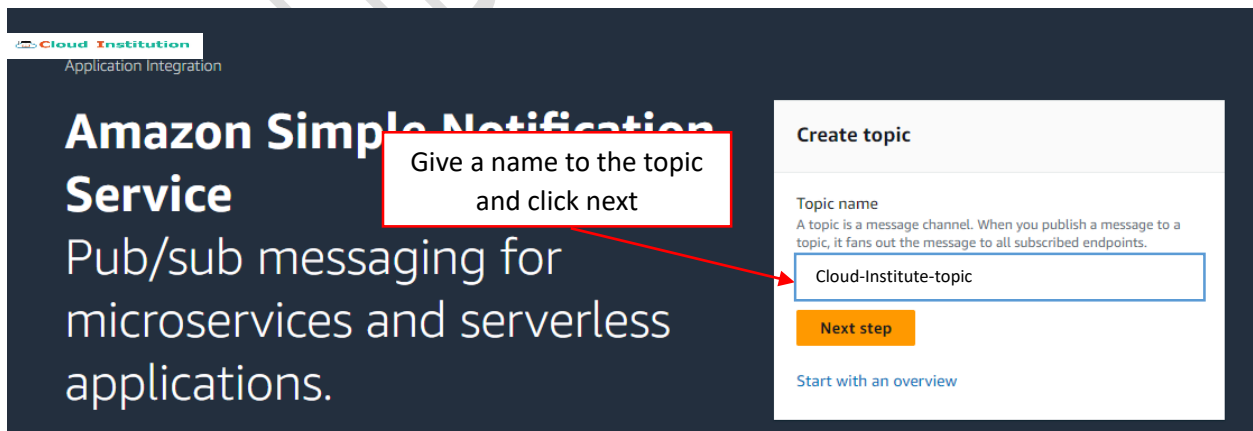
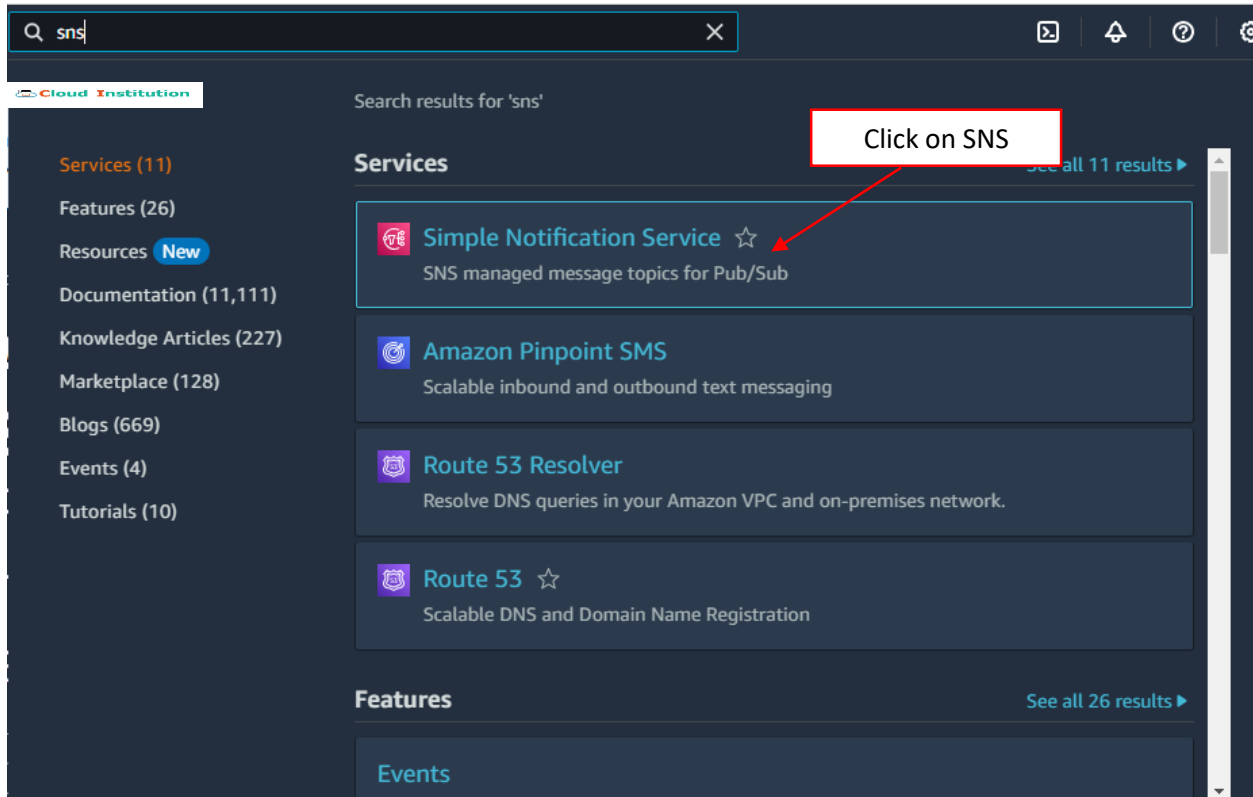
Role Role-cloud-institute created. [View role](#)

Roles (5) [Info](#)

An IAM role is an identity you can create that has specific permissions with credentials that are valid for short durations. Roles can be assumed by entities that you trust.

<input type="checkbox"/>	Role name	Trusted entities	Last activity
<input type="checkbox"/>	Role-cloud-institute	AWS Service: lambda	-

Step 2 : Create a SNS



Create topic

Details

Type [Info](#)

Topic type cannot be modified after topic is created

☐ FIFO (first-in, first-out)

- Strictly-preserved message ordering
- Exactly-once message delivery
- High throughput, up to 300 publishes/second
- Subscription protocols: SQS

☒ Standard

- Best-effort message ordering
- At-least once message delivery
- Highest throughput in publishes/second
- Subscription protocols: SQS, Lambda, HTTP, SMS, email, mobile application endpoints

Click on Standard

Name

Maximum 256 characters. Can include alphanumeric characters, hyphens (-) and underscores (_).

Display name - optional [Info](#)

To use this topic with SMS subscriptions, enter a display name. Only the first 10 characters are displayed in an SMS message.

Maximum 100 characters.

▼ Access policy - optional [Info](#)

This policy defines who can access your topic. By default, only the topic creator can publish and subscribe to the topic.

 Cloud Institution

Choose method

☒ Basic

Use simple criteria to define a basic access policy.

☐ Advanced

Use a JSON object to define an advanced access policy.

Click on Basic

Publishers

Specify who can publish messages to the topic.

Everyone

Anybody can publish

Subscribers

Specify who can subscribe to this topic.

Everyone

Any AWS account can subscribe to the topic

Click on Everyone

JSON preview

```
{
  "Version": "2008-10-17",
  "Id": "__default_policy_ID",
  "Statement": [
    {
      "Sid": "__default_statement_ID",
      "Effect": "Allow",
      "Principal": {
        "AWS": "*"
      },
      "Action": [
        "SNS:Publish",
        "SNS:RemovePermission",
        "SNS:SetTopicAttributes"
      ]
    }
  ]
}
```

► **Delivery status logging - optional** [Info](#)

These settings configure the logging of message delivery status to CloudWatch Logs.

► **Tags - optional**

A tag is a metadata label that you can assign to an Amazon SNS topic. Each tag consists of a key and an optional value. You can use tags to search and filter your topics and track your costs. [Learn more](#)

► **Active tracing - optional** [Info](#)

Use AWS X-Ray active tracing for this topic to view its traces and service map in Amazon CloudWatch. Additional costs apply.

Cancel Create topic

Topic created successfully

✓ **Topic Cloud-Institute-topic created successfully.** Publish message ×
You can create subscriptions and send messages to them from this topic.

[Amazon SNS](#) > [Topics](#) > Cloud-Institute-topic


Cloud-Institute-topic

Edit Delete Publish message

Details

Name	Cloud-Institute-topic	Display name	-
ARN	arn:aws:sns:us-east-1:473869189128:Cloud-Institute-topic	Topic owner	473869189128
Type	Standard		

Step 3 : Create a Lambda Function



Compute

AWS Lambda

lets you run code without thinking about servers.

You pay only for the compute time that you consume — there is no charge when your code is not running. With Lambda, you can run code for virtually any type of application or backend service, all with zero administration.

Click create

Get started

Author a Lambda function from scratch, or choose from one of many preconfigured examples.

Create a function

Lambda > Functions > Create function

Create function Info

Choose one of the following options to create your function.

☒ **Author from scratch**
Start with a simple Hello World example.

☐ **Use a blueprint**
Build a Lambda application from sample code and configuration presets for common use cases.

☐ **Container image**
Select a container image to deploy for your function.

Basic information

Function name
Enter a name that describes the purpose of your function.

Function-Cloud-institute

Use only letters, numbers, hyphens, or underscores with no spaces.

Runtime Info
Choose the language to use to write your function. Note that the console code editor supports only Node.js, Python, and Ruby.

Python 3.12

Architecture Info
Choose the instruction set architecture you want for your function code.

☒ x86_64

☐ arm64

Permissions Info
By default, Lambda will create an execution role with permissions to upload logs to Amazon CloudWatch Logs. You can customize this default role later when adding triggers.

▼ **Change default execution role**

Execution role
Choose a role that defines the permissions of your function. To create a custom role, go to the IAM console.

☐ Create a new role with basic Lambda permissions

☒ **Use an existing role**

☐ Create a new role from AWS policy templates

Existing role
Choose an existing role that you've created to be used with this Lambda function. The role must have permission to upload logs to Amazon CloudWatch Logs.

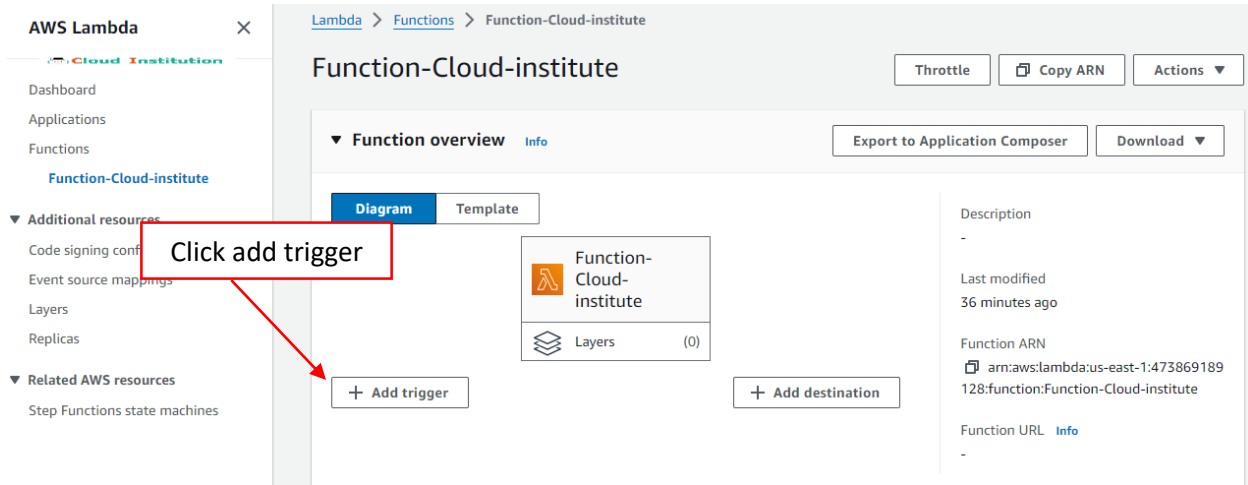
Role-cloud-institute

Advanced settings

Cancel Create function

Function created

Step : 4 Triggering SNS



AWS Lambda ×

Cloud Institution

Dashboard
Applications
Functions
Function-Cloud-institute

▼ Additional resources
Code signing configuration
Event source mappings
Layers
Replicas

▼ Related AWS resources
Step Functions state machines

Lambda > Functions > Function-Cloud-institute

Function-Cloud-institute

Throttle Copy ARN Actions

▼ Function overview Info

Export to Application Composer Download

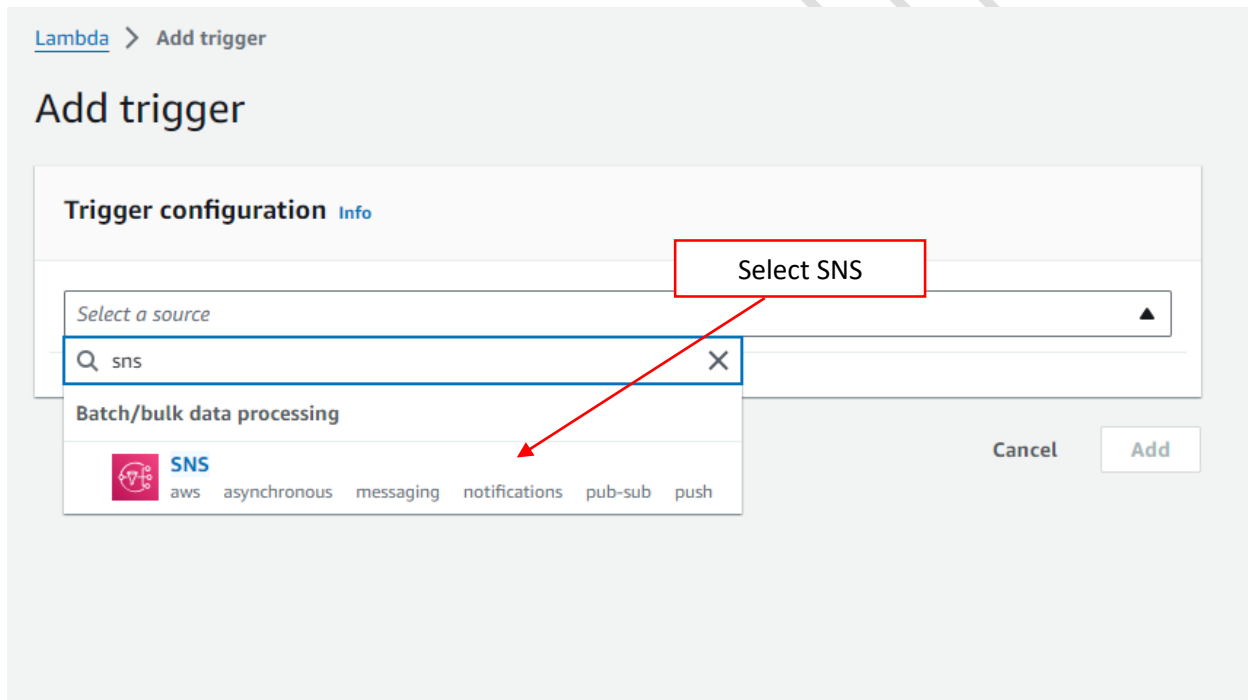
Diagram Template

Function-Cloud-institute

Layers (0)

+ Add trigger + Add destination

Description
-
Last modified
36 minutes ago
Function ARN
arn:aws:lambda:us-east-1:473869189:128:function:Function-Cloud-institute
Function URL Info



Lambda > Add trigger


Add trigger

Trigger configuration Info

Select a source

Q sns X

Batch/bulk data processing


 **SNS**
aws asynchronous messaging notifications pub-sub push

Cancel Add

[Lambda](#) > Add trigger

Add trigger

Trigger configuration [Info](#)

 **SNS**
aws asynchronous messaging notifications pub-sub push

SNS topic
Select the SNS topic to subscribe to.

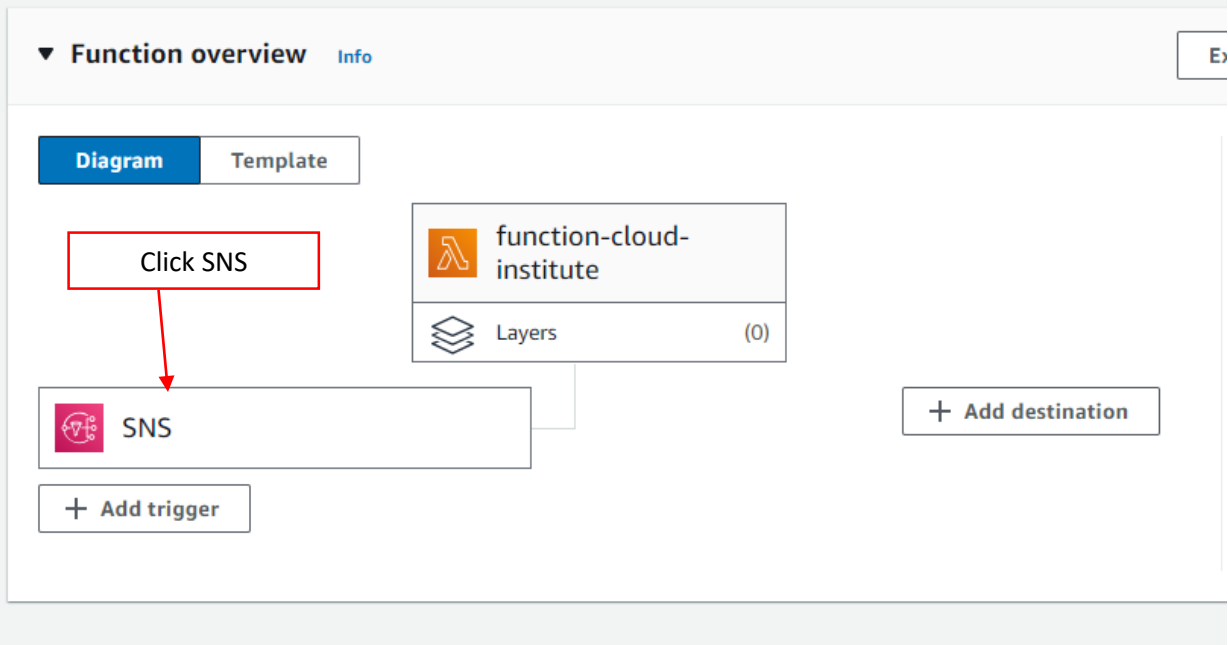
Cloud-Institute-topic
Lambda will add the necessary permissions for AWS SNS to invoke your Lambda function.
[more](#) [about the Lambda permissions model.](#)

Annotations:

- Select the created topic (points to the search bar)
- Click Add (points to the Add button)

Trigger is added

function-cloud-institute



Code | Test | Monitor | **Configuration** | Aliases | Versions

General configuration

Triggers

Permissions

Destinations

Function URL

Environment variables

Tags

Triggers (1) Info

Go to Code tab

Find triggers

Trigger

SNS: [Cloud-Institute-topic](#)
arn:aws:sns:us-east-1:473869189128:Cloud-Institute-topic
Details

Fix errors Edit Delete Add trigger

Code | Test | Monitor | **Configuration** | Aliases | Versions

Code source Info

Upload from

File Edit Find View Go Tools Window Test Deploy

Go to Anything (Ctrl-P)

Environment

function-cloud-instit
lambda_function.py

```
1 import json
2
3 def lambda_handler(event, context):
4     # TODO implement
5     print('event', event)
6     return {
7         'statusCode': 200,
8         'body': json.dumps('Hello from Lambda!')
9     }
10
```

2. Click Deploy

1. Add a print statement

In the Test tab

Code | **Test** | Monitor | Configuration | Aliases | Versions

Test event Info

Save Test

To invoke your function without saving an event, configure the JSON event, then choose Test.

Test event action

Create new event Edit saved event

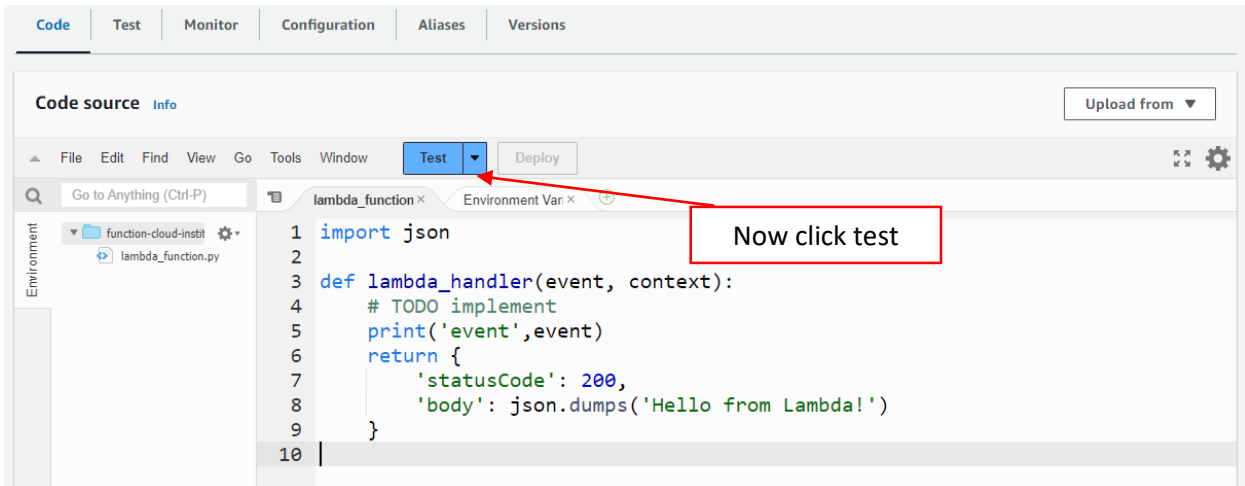
Give a name to the event

Event name

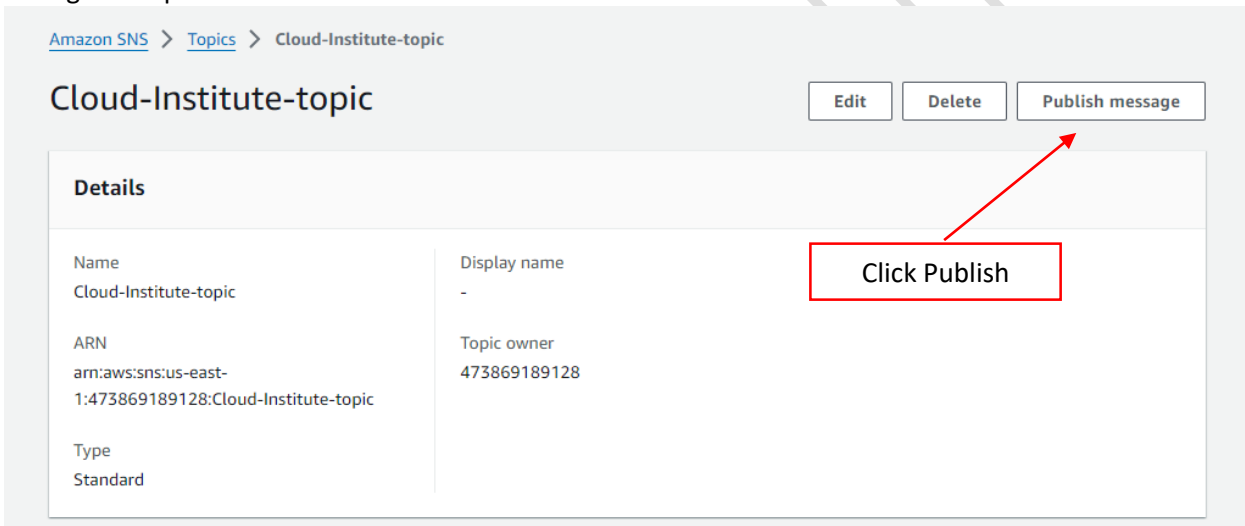
cloud-event

Maximum of 25 characters consisting of letters, numbers, dots, hyphens and underscores.

Click Save



Now go to Topics



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 a test message
2 Cloud Institution
```

Type a sample message

Message attributes Info

Message attributes let you provide structured metadata items (such as timestamps, geospatial data, signatures, and identifiers) for the message.

Type: Name: Value:

Add another attribute

Click publish

Cancel Publish message

Now go back to lambda functions

Code Test **Monitor** Configuration Aliases Versions

Monitor Info

View CloudWatch logs View X-Ray traces View Lambda Insights View CodeGuru profiles

Filter metrics by Function

Alarm recommendations

Click view

CloudWatch metrics

Lambda sends runtime metrics for your functions to Amazon CloudWatch. The metrics shown are an aggregate view of all function runtime activity. To view metrics for the unqualified or \$LATEST resource, choose **Filter by**. To view metrics for a specific function version or alias, choose **Aliases** or **Versions**, select the alias or version, and then choose

Invocations	Duration	Error count and success rate (%)
Count 2	Milliseconds 2.66	Count 1 No unit 100

[Log streams](#) | [Tags](#) | [Anomaly detection](#) | [Metric filters](#) | [Subscription filters](#) | [Contributor Insights](#) | [Data prod](#)

Log streams (2) Refresh Delete Create log stream Search all log streams

Exact match Show expired [Info](#) < 1 > Settings

<input type="checkbox"/>	Log stream	Last event time
<input type="checkbox"/>	2024/05/04/[\$LATEST]c78cc63ff16a4ea682c246610006c0cd	2024-05-04 16:02:52 (UTC+05:30)

CloudWatch > Log groups > /aws/lambda/function-cloud-institute > 2024/05/04/[\$LATEST]c78cc63ff16a4ea682c246610006c0cd

Log events Refresh Actions Start tailing Create metric filter

You can use the filter bar below to search for and match terms, phrases, or values in your log events. [Learn more about filter patterns](#)

1m 1h Local timezone Display Settings

▶	Timestamp	
No older events at this moment. Retry		
▶	2024-05-04T16:02:52.731+05:30	INIT_START Runtime Version: python:3.12.v25 Runtime Version ARN: arn:aws:lambda:us-east-1::runtime:eb...
▶	2024-05-04T16:02:52.821+05:30	START RequestId: 9eb5b4e2-ea78-4446-957f-2fc7d185fb05 Version: \$LATEST
▶	2024-05-04T16:02:52.822+05:30	event {'Records': [{'EventSource': 'aws:sns', 'EventVersion': '1.0', 'EventSubscriptionArn': 'arn:aws...
▶	2024-05-04T16:02:52.823+05:30	END RequestId: 9eb5b4e2-ea78-4446-957f-2fc7d185fb05
▶	2024-05-04T16:02:52.823+05:30	REPORT RequestId: 9eb5b4e2-ea78-4446-957f-2fc7d185fb05 Duration: 2.56 ms Billed Duration: 3 ms Memory...

No older events at this moment. [Retry](#)

▶	2024-05-04T16:02:52.731+05:30	INIT_START Runtime Version: python:3.12.v25 Runtime Version ARN: arn:aws:lambda:us-east-1::runtime...
▶	2024-05-04T16:02:52.821+05:30	ART RequestId: 9eb5b4e2-ea78-4446-957f-2fc7d185fb05 Version: \$LATEST
▼	2024-05-04T16:02:52.822+05:30	event {'Records': [{'EventSource': 'aws:sns', 'EventVersion': '1.0', 'EventSubscriptionArn': 'arn:a... event {'Records': [{'EventSource': 'aws:sns', 'EventVersion': '1.0', 'EventSubscriptionArn': 'arn:aws:sns:us-east-1:473869189128:Cloud-Institute-topic:fb81e2c2-de8d-4dd4-9ae6-882da050df9f', 'Sns': {'Type': 'Notification', 'MessageId': '2bac9c8c-0e4c-57b0-974b-c23c1f58f5f5', 'TopicArn': 'arn:aws:sns:us-east-1:473869189128:Cloud-Institute-topic', 'Subject': 'sub-msg', 'Message': 'This is a test message\nCloud Institution', 'Timestamp': '2024-05-04T10:32:52.501Z', 'SignatureVersion': '1', 'Signature': 'ZZcfANawPDzCEp/Dacyk2yV6o4pGQerWn9UjAldvzNXrJic5I4zwIurxJ4TPk9uvkhG8JkNwoQqcbZ88EiPsubjPbqLHyXbkcmCHNtTQHRXPU+8T7KQwMG3DwkvcCV1B3Tud4IzQhftJ2L5m7WipimD4bD41VunEZ9UGh9C1ZvIMxeAwqt/8HnR0VHJXtCHHqutOttwHOfvtvLgXzc/uH700KSngnaD6vOCVzftPrtf8FuY2Ka/WGPbb17L1KuesA57MeMp2HK1vd328/UGkJMqYd7Kao7hi47bmCHV5qwlCa2vTxIHTS70t1bzN88Go4c2u01xPbiCip03Ize65Q==', 'SigningCertUrl': 'https://sns.us-east-1.amazonaws.com/SimpleNotificationService-60eadc530605d63b8e62a523676ef735.pem', 'UnsubscribeUrl': 'https://sns.us-east-1.amazonaws.com/?Action=Unsubscribe&SubscriptionArn=arn:aws:sns:us-east-1:473869189128:Cloud-Institute-topic:fb81e2c2-de8d-4dd4-9ae6-882da050df9f', 'MessageAttributes': {}}]}]}
▶	2024-05-04T16:02:52.823+05:30	END RequestId: 9eb5b4e2-ea78-4446-957f-2fc7d185fb05
▶	2024-05-04T16:02:52.823+05:30	REPORT RequestId: 9eb5b4e2-ea78-4446-957f-2fc7d185fb05 Duration: 2.56 ms Billed Duration: 3 ms Mem...