

Industry: Healthcare

Problem Statement:

How to secure patient records online and send it privately to the intended party

Topics:

In this project, you will be working on a hospital project to send reports online and develop a platform so the patients can access the reports via mobile and push notifications. You will publish the report to an Amazon SNS keeping it secure and private. Your message will be hosted on an EC2 instance within your Amazon VPC. By publishing the messages privately, you can improve the message delivery and receipt through Amazon SNS.

Highlights:

1. AWS CloudFormation to create a VPC
2. Connect VPC with AWS SNS
3. Publish message privately with SNS

#1- Creating a CloudFormation stack using form composer

The screenshot shows the AWS CloudFormation console interface. At the top, there's a navigation bar with the AWS logo, a search bar, and user information (Mumbai, prakash24). Below this, a breadcrumb trail shows 'CloudFormation > Stacks > Create stack'. The left sidebar contains a menu with 'Stacks', 'StackSets', 'Exports', 'Infrastructure Composer', 'IaC generator', 'Hooks overview', 'Hooks', 'Registry', 'Public extensions', 'Activated extensions', 'Publisher', and 'Spotlight'. The main content area is titled 'Create stack' and shows a four-step process: 'Step 1: Create stack' (selected), 'Step 2: Specify stack details', 'Step 3: Configure stack options', and 'Step 4: Review and create'. Under 'Step 1', there are three options: 'Choose an existing template', 'Use a sample template', and 'Build from Infrastructure Composer' (selected). The 'Build from Infrastructure Composer' option is highlighted with a blue border and a blue radio button. Below this, there's a section titled 'Create a template in Infrastructure Composer' with a description and a button labeled 'Create in Infrastructure Composer'. At the bottom right, there are 'Cancel' and 'Next' buttons. The footer shows the URL 'https://ap-south-1.console.aws.amazon.com/console/home?region=ap-sout...' and copyright information for Amazon Web Services, Inc. or its affiliates, along with links for Privacy, Terms, and Cookie preferences.

aws [Alt+S] Mumbai prakash24

EC2 EC2 Image Builder S3 IAM VPC

CloudFormation > Stacks > Create stack

CloudFormation

- Stacks
- StackSets
- Exports
- Infrastructure Composer
- IaC generator
- Hooks overview [New](#)
- Hooks [New](#)
- ▼ **Registry**
 - Public extensions
 - Activated extensions
 - Publisher
- Spotlight

Create stack

Step 1 **Create stack**

Step 2 Specify stack details

Step 3 Configure stack options

Step 4 Review and create

Prerequisite - Prepare template

You can also create a template by scanning your existing resources in the [IaC generator](#).

Prepare template

Every stack is based on a template. A template is a JSON or YAML file that contains configuration information about the AWS resources you want to include in the stack.

- ☐ Choose an existing template
Upload or choose an existing template.
- ☐ Use a sample template
Choose from our sample template library.
- ☒ **Build from Infrastructure Composer**
Create a template using a visual builder.

Create a template in Infrastructure Composer

Use Infrastructure Composer to visually design your stacks on a simple, drag-and-drop interface. Infrastructure Composer automatically updates and validates the template.

[Create in Infrastructure Composer](#)

[Cancel](#) [Next](#)

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#2- Creating a CloudFormation Template using form composer

The screenshot displays the AWS CloudFormation console's Infrastructure Composer interface. At the top, the AWS navigation bar includes the logo, a search bar, and utility icons. Below this, a secondary bar shows service shortcuts for EC2, EC2 Image Builder, S3, IAM, and VPC. The main header area contains the breadcrumb 'CloudFormation > Infrastructure Composer', a 'CloudFormation console mode' button, and a 'Menu' dropdown. The left sidebar, titled 'Infrastructure Composer', features a 'Resources' tab and a search bar. It lists 'Enhanced components (14)' with icons for API Gateway, Cognito UserPool, Cognito UserPoolClient, DynamoDB Table, and EventBridge Event rule. The main workspace is divided into 'Canvas' and 'Template' tabs, with a toggle for 'YAML' and 'JSON'. The 'Template' tab is active, showing a large empty text area for the template. At the bottom of the workspace, a status bar indicates 'No template validation errors'. The footer of the console shows the URL 'https://ap-south-1.console.aws.amazon.com/console/home?region=ap-south-1' and copyright information for Amazon Web Services, Inc. or its affiliates, along with links for Privacy, Terms, and Cookie preferences.

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EC2 EC2 Image Builder S3 IAM VPC

CloudFormation > Infrastructure Composer

Unsaved changes CloudFormation console mode Menu

Infrastructure Composer

List Resources

Search for a resource

Enhanced components (14)

- API Gateway
- Cognito UserPool
- Cognito UserPoolClient
- DynamoDB Table
- EventBridge Event rule

Canvas Template YAML JSON

Validate Create template

1

No template validation errors

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aws

Search

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Mumbai

prakash24

EC2

EC2 Image Builder

S3

IAM

VPC

CloudFormation > Infrastructure Composer

Unsaved changes

CloudFormation console mode

Menu

Infrastructure Composer

<

List

Resources

Search for a resource

Enhanced components (14)

API Gateway

Cognito UserPool

Cognito UserPoolClient

DynamoDB Table

EventBridge Event rule

Canvas

Template

YAML

JSON

Valid

Create template

1 AWSTemplateFormatVersion: 2010-09-09

2 Description: CloudFormation Template for SNS VPC Endpoints Tutorial

3 Parameters:

4 KeyName:

5 Description: Name of an existing EC2 KeyPair to enable SSH access to the instance

6 Type: 'AWS::EC2::KeyPair::KeyName'

7 ConstraintDescription: must be the name of an existing EC2 KeyPair.

8 SSHLocation:

9 Description: The IP address range that can be used to SSH to the EC2 instance

10 Type: String

11 MinLength: '9'

12 MaxLength: '18'

13 Default: 0.0.0.0/0

14 AllowedPattern: '(\\d{1,3})\\. (\\d{1,3})\\. (\\d{1,3})\\. (\\d{1,3})/(\\d{1,2})'

15 ConstraintDescription: must be a valid IP CIDR range of the form x.x.x.x/x.

16 Mappings:

17 RegionMap:

18 ap-south-1:

19 AMI: ami-0614680123427b75e

No template validation errors

No template validation errors

#4- Storing a template in new S3 Bucket

Continue to CloudFormation

i We're creating the following bucket to hold the template and future templates: project3-template-ap-south-1. [Standard Amazon S3 pricing](#) applies. For more information, see [Using Infrastructure Composer in CloudFormation console mode](#).

▼ Use a different bucket

Transfer bucket name

project3-template-ap-south-1

Use the default bucket name or enter a new name that meets [Amazon S3 bucket naming rules](#)

Cancel Confirm and continue to CloudFormation

No template validation errors

```
RegionMap:
  ap-south-1:
    AMI: ami-0614680123427b75e
```

#5-Upload the templated in s3 bucket

aws

Search

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Mumbai

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EC2

EC2 Image Builder

S3

IAM

VPC

Amazon S3

Buckets

project3-template-ap-south-1

Amazon S3

Buckets

Access Grants

Access Points

Object Lambda Access Points

Multi-Region Access Points

Batch Operations

IAM Access Analyzer for S3

Block Public Access settings for this account

Storage Lens

Dashboards

Storage Lens groups

AWS Organizations settings

Feature spotlight

10

project3-template-ap-south-1

Info

Objects

Properties

Permissions

Metrics

Management

Access Points

Objects (1)

Info

Refresh

Copy S3 URI

Copy URL

Download

Open

Delete


Actions

Create folder

Upload

Objects are the fundamental entities stored in Amazon S3. You can use [Amazon S3 inventory](#) to get a list of all objects in your bucket. For others to access your objects, you'll need to explicitly grant them permissions. [Learn more](#)

Find objects by prefix

	Name	Type	Last modified	Size	Storage class
<input type="checkbox"/>	 template-1733233802236.yaml	yaml	December 3, 2024, 19:43:22 (UTC+05:30)	6.5 KB	Standard

AWS Marketplace for S3

CloudShell

Feedback

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#6- Checking the architecture design using composer

aws

Search

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Mumbai

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EC2

EC2 Image Builder

S3

IAM

VPC

CloudFormation

Infrastructure Composer

Unsaved changes

2024-12-03T145825.823Zlfl-template-1733233802236.yaml

CloudFormation console mode

Menu

Infrastructure Composer

List

Resources

Search for a resource

Enhanced components (14)

API Gateway

Cognito UserPool

Cognito UserPoolClient

DynamoDB Table

EventBridge Event rule

Canvas

Template

Arrange

Validate

Create template

SNS Topic

SNSTopic

Standard Component

EC2Instance

EC2InstanceRole

EC2InstanceProfile

EC2Instance

Standard Component

LambdaFunction1

LambdaExecutionRole

LambdaFunction1

LambdaLogGroup1

Standard Component

LambdaFunction2

LambdaFunction2

LambdaLogGroup2

Standard Component

SecurityGroup

SecurityGroup

Standard Component

VPC

RouteTable

SubnetRouteTableAssociation

Subnet

InternetGatewayRoute

VPC

VPCGatewayAttachment

InternetGateway

CloudShell

Feedback

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#7 – Move Next step to creating stack

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EC2 EC2 Image Builder S3 IAM VPC

CloudFormation > Stacks > Create stack

CloudFormation

- Stacks
- StackSets
- Exports

Infrastructure Composer

laC generator

Hooks overview [New](#)

Hooks [New](#)

▼ **Registry**

- Public extensions
- Activated extensions
- Publisher

Spotlight

Step 3
○ Configure stack options

Step 4
○ Review and create

You can also create a template by scanning your existing resources in the [laC generator](#).

Prepare template
Every stack is based on a template. A template is a JSON or YAML file that contains configuration information about the AWS resources you want to include in the stack.

- ☐ Choose an existing template
Upload or choose an existing template.
- ☐ Use a sample template
Choose from our sample template library.
- ☒ **Build from Infrastructure Composer**
Create a template using a visual builder.

Create a template in Infrastructure Composer
Use Infrastructure Composer to visually design your stacks on a simple, drag-and-drop interface. Infrastructure Composer automatically updates and validates the template.

✔ Your template was successfully imported from Infrastructure Composer.

Amazon S3 URL
`https://s3.ap-south-1.amazonaws.com/project3-template-ap-south-1/template-1733233802236.yaml`

[Edit in Infrastructure Composer](#)

[Cancel](#) [Next](#)

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#8 – Providing Stack Name and parameters of KeyName

The screenshot shows the AWS CloudFormation console interface. The top navigation bar includes the AWS logo, a search bar, and user information (Mumbai, prakash24). The left sidebar contains navigation links for CloudFormation, Stacks, StackSets, Exports, Infrastructure Composer, laC generator, Hooks overview, and Registry. The main content area is titled 'Specify stack details' and contains two sections: 'Provide a stack name' and 'Parameters'. In the 'Provide a stack name' section, the 'Stack name' field is filled with 'aws-capstone-project3'. In the 'Parameters' section, the 'KeyName' dropdown is set to 'my_linux_key' and the 'SSHLocation' field is filled with '0.0.0.0/0'. At the bottom right, there are 'Cancel', 'Previous', and 'Next' buttons. The bottom status bar shows the URL and copyright information.

aws [Search] [Alt+S] Mumbai prakash24

EC2 EC2 Image Builder S3 IAM VPC

CloudFormation > Stacks > Create stack

CloudFormation <

- Stacks
- StackSets
- Exports
- Infrastructure Composer
- laC generator
- Hooks overview [New](#)
- Hooks [New](#)
- ▼ **Registry**
 - Public extensions
 - Activated extensions
 - Publisher
 - Spotlight

Step 1 Create stack

Step 2 **Specify stack details**

Step 3 Configure stack options

Step 4 Review and create

Specify stack details

Provide a stack name

Stack name

aws-capstone-project3

Stack name must be 1 to 128 characters, start with a letter, and only contain alphanumeric characters. Character count: 21/128.

Parameters

Parameters are defined in your template and allow you to input custom values when you create or update a stack.

KeyName

Name of an existing EC2 KeyPair to enable SSH access to the instance

my_linux_key

SSHLocation

The IP address range that can be used to SSH to the EC2 instance

0.0.0.0/0

Cancel Previous Next

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#9 – Accepting a acknowledgement for IAM Role

The screenshot shows the AWS CloudFormation console's 'Create stack' wizard. The left sidebar contains navigation links for CloudFormation (Stacks, StackSets, Exports), Infrastructure Composer (IaC generator), Hooks overview (New), Hooks (New), Registry (Public extensions, Activated extensions, Publisher), and Spotlight. The main content area displays the 'Create stack' steps: Specify alarms, Notification options (optional), and Stack creation options (optional). The 'Capabilities' section is expanded, showing a warning: 'The following resource(s) require capabilities: [AWS::IAM::Role]'. Below this, a checkbox is checked, indicating 'I acknowledge that AWS CloudFormation might create IAM resources with custom names.' At the bottom right, there are 'Cancel', 'Previous', and 'Next' buttons. The footer includes 'CloudShell', 'Feedback', and copyright information for Amazon Web Services, Inc. or its affiliates, along with links for Privacy, Terms, and Cookie preferences.

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EC2 EC2 Image Builder S3 IAM VPC

CloudFormation > Stacks > Create stack

CloudFormation <

- Stacks
- StackSets
- Exports

Infrastructure Composer

IaC generator

Hooks overview **New**

Hooks **New**

▼ **Registry**

- Public extensions
- Activated extensions
- Publisher

Spotlight

Specify alarms for CloudFormation to monitor when creating and updating the stack. If the operation breaches an alarm threshold, CloudFormation rolls it back.

► **Notification options - optional**

Specify a new or existing Amazon Simple Notification Service topic where notifications about stack events are sent.

► **Stack creation options - optional**

Specify the timeout and termination protection options for stack creation.

Capabilities

The following resource(s) require capabilities: [AWS::IAM::Role]

This template contains Identity and Access Management (IAM) resources. Check that you want to create each of these resources and that they have the minimum required permissions. In addition, they have custom names. Check that the custom names are unique within your AWS account. [Learn more](#)

☒ I acknowledge that AWS CloudFormation might create IAM resources with custom names.

Cancel Previous Next

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#10 – Create CloudFormation stack successfully

aws

Search

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EC2

EC2 Image Builder

S3

IAM

VPC

CloudFormation

Stacks

aws-capstone-project3

Stacks

Stack details

Drifts

StackSets

Exports

Infrastructure Composer

laC generator

Hooks overview

Hooks

Registry

Public extensions

Activated extensions

Publisher

Introducing the new Hooks experience and capabilities

The Hooks' new console workflow simplifies how you authorize your Hooks by using Lambda functions or Guard domain-specific language (DSL). You can also learn more about the expanded evaluation targets.

View Hooks overview

Stacks (1)

Filter by stack name

Filter status

Active

View nested

Stacks

aws-capstone-project3

2024-12-03 19:28:34 UTC+0530

CREATE IN PROGRESS

aws-capstone-project3

Delete

Update

Stack actions

Create stack

Stack info

Events - updated

Resources

Outputs

Parameters

Tags

Table view

Timeline view - new

Events (1)

Detect root cause

Search events

Timestamp	Logical ID	Status	Detailed status
2024-12-03 19:28:34 UTC+0530	aws-capstone-project3	CREATE_IN_PROGRESS	-

CloudShell

Feedback

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#11 – VPC Created by CloudFormation stack successfully

aws

Services

Search

[Alt+S]

EC2

EC2 Image Builder

S3

IAM

VPC

📺

🔔

?

⚙️

Mumbai

prakash24

VPC dashboard

EC2 Global View

Filter by VPC

Virtual private cloud

Your VPCs

Subnets

Route tables

Internet gateways

Egress-only internet gateways

DHCP option sets

Elastic IPs

Managed prefix lists

NAT gateways

Peering connections

Security

Network ACLs

Security groups

Your VPCs (2)

Info

Last updated 4 minutes ago

Actions

Create VPC

Search

< 1 >

⚙️

<input type="checkbox"/>	Name	VPC ID	State	Block Public...	IPv4 CIDR	IPv6 CIDR
<input type="checkbox"/>	Project-Capstone-3-VPC	vpc-0acfde7b115770f89	Available	Off	10.0.0.0/16	-
<input type="checkbox"/>	-	vpc-09da02eb16a97ff13	Available	Off	172.31.0.0/16	-

Select a VPC above

#12 – Subnet Created by CloudFormation stack successfully

aws

Services

Search

[Alt+S]

EC2

EC2 Image Builder

S3

IAM

VPC

VPC dashboard

EC2 Global View

Filter by VPC

Virtual private cloud

Your VPCs

Subnets

Route tables

Internet gateways

Egress-only internet gateways

DHCP option sets

Elastic IPs

Managed prefix lists

NAT gateways

Peering connections

Security

Network ACLs

Security groups

Subnets (4) Info

Last updated 4 minutes ago

Actions

Create subnet

Find resources by attribute or tag

<input type="checkbox"/>	Name	Subnet ID	State	VPC	Block Public...
<input type="checkbox"/>	-	subnet-0d380e0325f047d0e	Available	vpc-09da02eb16a97ff13	Off
<input type="checkbox"/>	Project-Capstone-3-Subnet	subnet-09f7d5009e0ef16c3	Available	vpc-0acfd7b115770f89 Proje...	Off
<input type="checkbox"/>	-	subnet-0b589d49699caccb2	Available	vpc-09da02eb16a97ff13	Off
<input type="checkbox"/>	-	subnet-0938ef38c2baa63a9	Available	vpc-09da02eb16a97ff13	Off

Select a subnet

#13 – Route Tables Created by CloudFormation stack successfully

aws

Services

Search

[Alt+S]

EC2

EC2 Image Builder

S3

IAM

VPC

VPC dashboard

EC2 Global View

Filter by VPC

Virtual private cloud

Your VPCs

Subnets

Route tables

Internet gateways

Egress-only internet gateways

DHCP option sets

Elastic IPs

Managed prefix lists

NAT gateways

Peering connections

Security

Network ACLs

Security groups

Route tables (3)

Info

Last updated 5 minutes ago

Actions

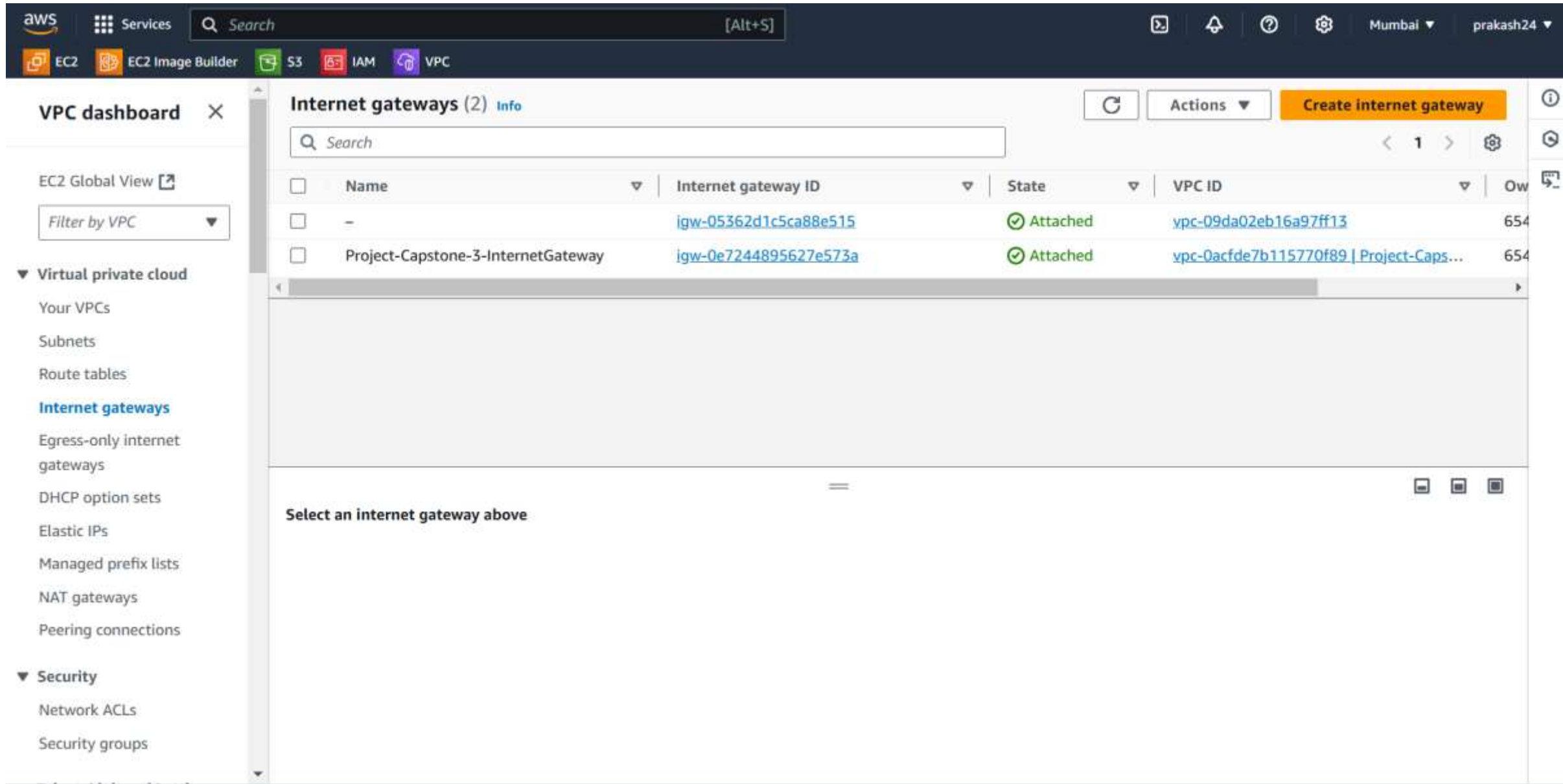
Create route table

Find resources by attribute or tag

	Name	Route table ID	Explicit subnet associ...	Edge associations	Main	VPC
<input type="checkbox"/>	-	rtb-07dd451299986bd9d	-	-	Yes	vpc-09da02
<input type="checkbox"/>	-	rtb-001941a492a7ba3e0	-	-	Yes	vpc-0acfd
<input type="checkbox"/>	Project-Capstone-3-RouteTable	rtb-0dbb90f33aa8bcbf3	subnet-09f7d5009e0ef1...	-	No	vpc-0acfd

Select a route table

#14– Internet Gateway Created by CloudFormation stack successfully



The screenshot shows the AWS Management Console interface. The top navigation bar includes the AWS logo, a search bar, and various service icons (EC2, EC2 Image Builder, S3, IAM, VPC). The left sidebar displays the 'VPC dashboard' with a search bar and a list of VPC-related services under 'Virtual private cloud' and 'Security'. The main content area is titled 'Internet gateways (2)' and features a table listing the gateways.

Internet gateways (2)

<input type="checkbox"/>	Name	Internet gateway ID	State	VPC ID	Owner
<input type="checkbox"/>	-	igw-05362d1c5ca88e515	Attached	vpc-09da02eb16a97ff13	654
<input type="checkbox"/>	Project-Capstone-3-InternetGateway	igw-0e7244895627e573a	Attached	vpc-0acfd7b115770f89 Project-Caps...	654

Select an internet gateway above

#15– EC2 Instance Created by CloudFormation stack successfully

aws

Search

[Alt+S]

EC2

EC2 Image Builder

S3

IAM

VPC

Mumbai

prakash24

Dashboard

EC2 Global View

Events

Instances

Instance Types

Launch Templates

Spot Requests

Savings Plans

Reserved Instances

Dedicated Hosts

Capacity Reservations

Images

AMI Catalog

Elastic Block Store

Volumes

Snapshots

Lifecycle Manager

Instances (1) Info

Last updated less than a minute ago

Connect

Instance state

Actions

Launch instances

Find Instance by attribute or tag (case-sensitive)

All states

Instance state = running

Clear filters

< 1 >

<input type="checkbox"/>	Name	Instance ID	Instance state	Instance type	Status check
<input type="checkbox"/>	Project-Capstone-3-EC2Instance	i-0aedcdd04535c6cac	Running	t2.small	2/2 checks passed

Select an instance

#16– Security Group Created by CloudFormation stack successfully

The screenshot shows the AWS Management Console interface. The top navigation bar includes the AWS logo, a search bar, and a user profile 'prakash24'. Below the navigation bar, there are quick links for EC2, EC2 Image Builder, S3, IAM, and VPC. The left sidebar contains a menu with categories like Launch Templates, Spot Requests, Savings Plans, Reserved Instances, Dedicated Hosts, Capacity Reservations, Images, Elastic Block Store, Network & Security, and Load Balancing. The 'Security Groups' page is displayed, showing a list of 11 security groups. The 'Project-Capstone-3-SecurityGroup' is selected, and its details are shown at the bottom of the page.

Security Groups (1/11) [Info](#)

Find resources by attribute or tag

	Name	Security group ID	Security group name	VPC
<input type="checkbox"/>	-	sg-00630cb4f1ef7b702	default	vpc-f
<input type="checkbox"/>	-	sg-03d607566a1f3deb8	launch-wizard-3	vpc-f
<input type="checkbox"/>	-	sg-09a51be0b8d21d8a9	efs-sg-1	vpc-f
<input type="checkbox"/>	-	sg-0dc8a4ae4cd79225b	launch-wizard-5	vpc-f
<input type="checkbox"/>	-	sg-07c8c3ee6254b1e49	jenkins-sg-prod	vpc-f
<input type="checkbox"/>	-	sg-09ee8c91ed1becbc7	instance-sg-1	vpc-f
<input type="checkbox"/>	-	sg-0fb136d429c6d171e	launch-wizard-1	vpc-f
<input type="checkbox"/>	-	sg-04dceeb513c35ea4f	launch-wizard-4	vpc-f
<input checked="" type="checkbox"/>	Project-Capstone-3-SecurityGroup	sg-05cf24873adbb56b8	Tutorial Security Group	vpc-f
<input type="checkbox"/>	-	sg-07143b67e065cc9d4	launch-wizard-2	vpc-f
<input type="checkbox"/>	-	sg-01ac92321af0dcdbdf	default	vpc-f

sg-05cf24873adbb56b8 - Tutorial Security Group

#17– Lambda Function Created by CloudFormation stack successfully







The screenshot shows the AWS Lambda console interface. At the top, the AWS logo and navigation bar are visible, including a search bar and user information (Mumbai, prakash24). Below the navigation bar, the left sidebar contains the 'Lambda' menu with options like 'Dashboard', 'Applications', and 'Functions'. The main content area is titled 'Functions (2)' and displays a table of two Lambda functions. Both functions were created by CloudFormation stacks named 'Project-Capstone-3-Lambda-1' and 'Project-Capstone-3-Lambda-2'. They are both using the 'Zip' package type and 'Python 3.9' runtime. The last modified time for both is '13 minutes ago'.

Lambda > Functions

Functions (2) Last fetched 30 seconds ago [Refresh](#) [Actions](#) [Create function](#)

<input type="checkbox"/>	Function name	Description	Package type	Runtime	Last modified
<input type="checkbox"/>	Project-Capstone-3-Lambda-2	SNS VPC endpoint tutorial lambda function 2	Zip	Python 3.9	13 minutes ago
<input type="checkbox"/>	Project-Capstone-3-Lambda-1	SNS VPC endpoint tutorial lambda function 1	Zip	Python 3.9	13 minutes ago

#18 – SNS Topic Created by CloudFormation stack successfully

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EC2 EC2 Image Builder S3 IAM VPC

Amazon SNS > Topics

Amazon SNS

Dashboard

Topics

Subscriptions

▼ Mobile

Push notifications

Text messaging (SMS)

New Feature

Amazon SNS now supports in-place message archiving and replay for FIFO topics. [Learn more](#)

Topics (1)

Edit

Delete

Publish message

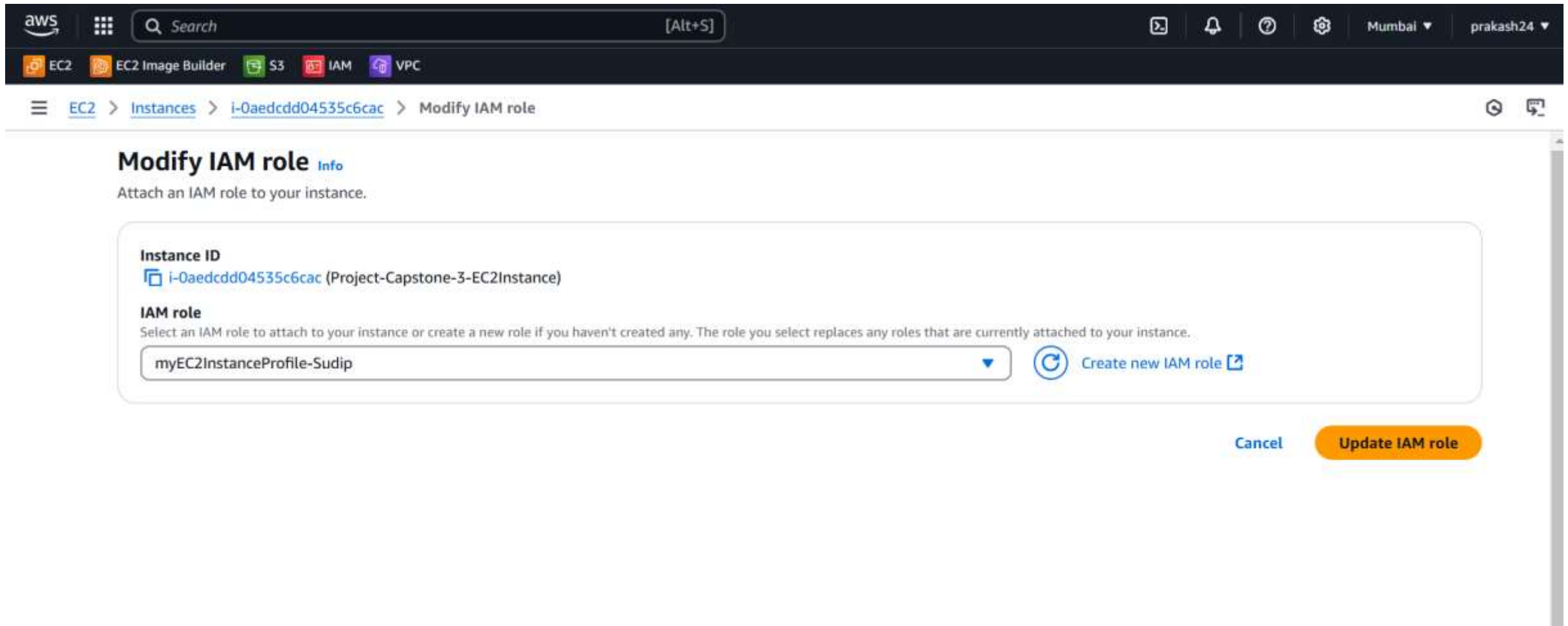
Create topic

< 1 >

⚙️

	Name	Type	ARN
<input type="radio"/>	Project-Capstone-3-Topic	Standard	arn:aws:sns:ap-south-1:654654393526:Project...

#19 – IAM Role Attach to EC2 Created by CloudFormation stack successfully



The screenshot displays the AWS Management Console interface. At the top, the navigation bar includes the AWS logo, a search bar, and user information for 'prakash24' in the 'Mumbai' region. Below the navigation bar, a series of service icons (EC2, EC2 Image Builder, S3, IAM, VPC) are visible. The breadcrumb trail indicates the current path: **EC2** > **Instances** > **i-0aedcdd04535c6cac** > **Modify IAM role**. The main content area is titled 'Modify IAM role' with an 'Info' link. Below the title, a subtitle reads 'Attach an IAM role to your instance.' The content is organized into a form with two main sections: 'Instance ID' and 'IAM role'. The 'Instance ID' section shows the selected instance 'i-0aedcdd04535c6cac (Project-Capstone-3-EC2Instance)'. The 'IAM role' section includes a descriptive text: 'Select an IAM role to attach to your instance or create a new role if you haven't created any. The role you select replaces any roles that are currently attached to your instance.' Below this text is a dropdown menu currently displaying 'myEC2InstanceProfile-Sudip'. To the right of the dropdown is a circular refresh icon and a link that says 'Create new IAM role' with an external link icon. At the bottom right of the form, there are two buttons: a blue 'Cancel' button and an orange 'Update IAM role' button.

aws | Search [Alt+S] | Mumbai | prakash24

EC2 EC2 Image Builder S3 IAM VPC

EC2 > Instances > i-0aedcdd04535c6cac > Modify IAM role

Modify IAM role [Info](#)

Attach an IAM role to your instance.

Instance ID
i-0aedcdd04535c6cac (Project-Capstone-3-EC2Instance)

IAM role
Select an IAM role to attach to your instance or create a new role if you haven't created any. The role you select replaces any roles that are currently attached to your instance.

myEC2InstanceProfile-Sudip [Create new IAM role](#)

[Cancel](#) [Update IAM role](#)

#20– Creating VPC endpoint to access the SNS

aws

Services

Search

[Alt+S]

EC2

EC2 Image Builder

S3

IAM

VPC

Icons

Navigation

Help

Settings

Mumbai

prakash24

Services (1/1)

Search

Service Name = com.amazonaws.ap-south-1.sns

Clear filters

< 1 >

Service Name	Owner	Type
com.amazonaws.ap-south-1.sns	amazon	Interface

Network settings

Select the VPC in which to create the endpoint

VPC

Create the VPC endpoint in the VPC in the same AWS Region from which you will access a resource.

vpc-0acfde7b115770f89 (Project-Capstone-3-VPC)

Additional settings

Subnets (1/3) Info

Availability Zone	Subnet ID	Designate IP addresses	IPv4 address	IPv6 address
<input checked="" type="checkbox"/> ap-south-1a (aps1-az1)	subnet-09f7d5009e0ef16c3	<input type="checkbox"/>		
<input type="checkbox"/> ap-south-1b (aps1-az3)	No subnet available	<input type="checkbox"/>		

CloudShell

Feedback


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#21– Creating VPC endpoint to access the SNS – Part2


 Services


[Alt+S]


 EC2


 EC2 Image Builder


 S3


 IAM

 VPC










Mumbai ▾


prakash24 ▾


☒ Availability Zone ▾ | Subnet ID ▾ | Designate IP addresses | IPv4 address ▾ | IPv6 address

IP address type


- ☒ IPv4
- ☐ IPv6
- ☐ Dualstack

Security groups (1/1) [Info](#) 

Group ID = sg-05cf24873adbb56b8 

< 1 > 

<input checked="" type="checkbox"/> Group ID ▾	Group name ▾	VPC ID ▾	Description ▾
<input checked="" type="checkbox"/> sg-05cf24873adbb56b8	Tutorial Security Group	vpc-0acfd7b115770f89	Security group for SNS VPC endpoing tutorial

sg-05cf24873adbb56b8 

Policy [Info](#)

VPC endpoint policy controls access to the service.


☒ Full access

Allow access by any user or service within the VPC using credentials from any Amazon Web Services accounts to any resources in this Amazon Web Services service. All policies — IAM user policies, VPC endpoint policies, and Amazon Web Services service-specific policies (e.g. Amazon S3 bucket policies, any S3 ACL policies) — must grant the necessary permissions for access to succeed.

☐ Custom

Use the [policy creation tool](#) to generate a policy, then paste the generated policy below.

1

 CloudShell

[Feedback](#)

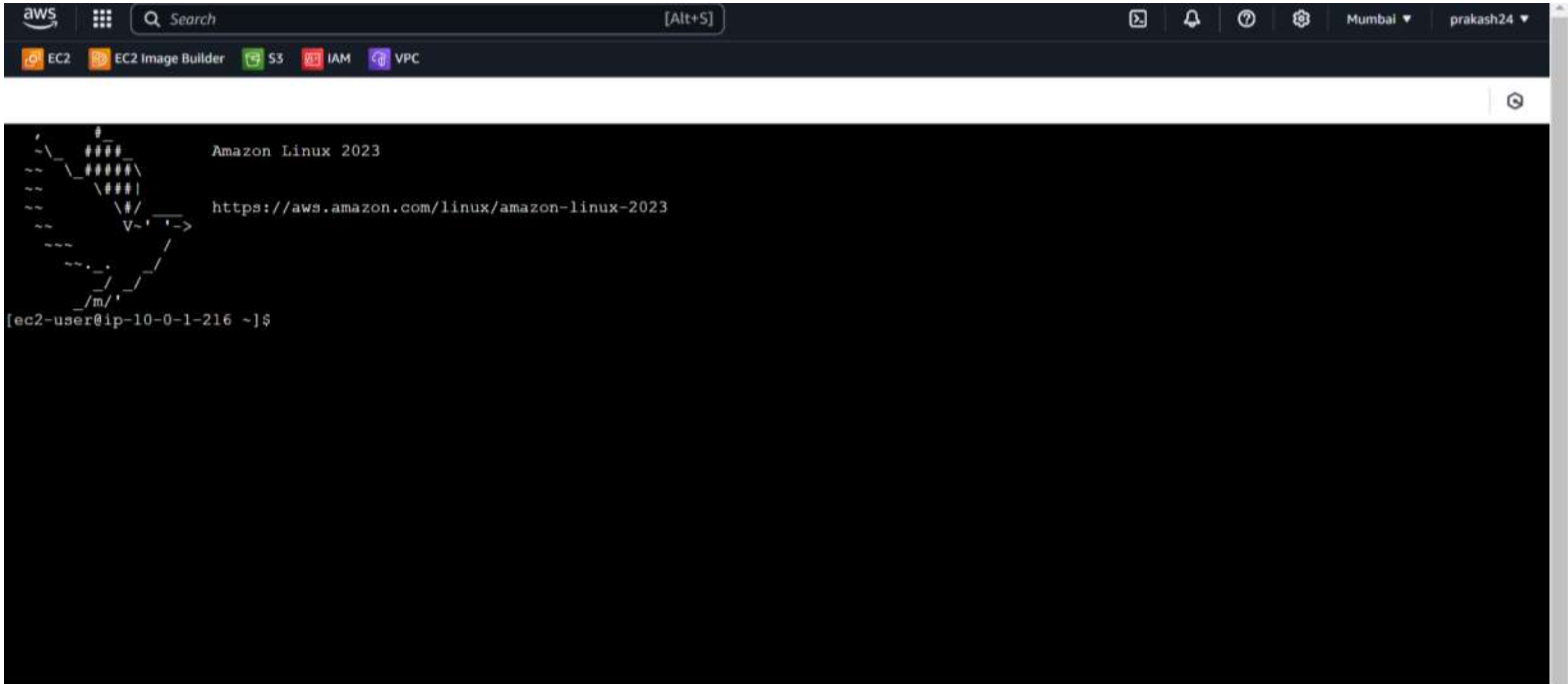
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#22- Connecting to ec2 instance



i-0aedcdd04535c6cac (Project-Capstone-3-EC2Instance)

PublicIPs: 3.109.48.69 PrivateIPs: 10.0.1.216

#23– Publishing the SNS topic

aws sns publish --region ap-south-1 --topic-arn arn:aws:sns:ap-south-1:654654393526:Project-Capstone-3-Topic --message "hi this is from sns using ec2 instance"



The screenshot shows the AWS CloudShell interface. At the top, there's a navigation bar with the AWS logo, a search bar, and icons for various services like EC2, EC2 Image Builder, S3, IAM, and VPC. The user's location is set to Mumbai, and the username is prakash24. The main area is a terminal window with a black background. The command `aws sns publish --region ap-south-1 --topic-arn arn:aws:sns:ap-south-1:654654393526:Project-Capstone-3-Topic --message "hi this is from sns using ec2 instance"` has been executed. The output is a JSON object: `{ "MessageId": "7052078c-3ba3-592a-86cc-584527262e89" }`. The prompt `[ec2-user@ip-10-0-1-216 ~]$` is visible at the bottom of the terminal.

```
[ec2-user@ip-10-0-1-216 ~]$ aws sns publish --region ap-south-1 --topic-arn arn:aws:sns:ap-south-1:654654393526:Project-Capstone-3-Topic --message "hi this is from sns using ec2 instance"
{
  "MessageId": "7052078c-3ba3-592a-86cc-584527262e89"
}
[ec2-user@ip-10-0-1-216 ~]$
```

i-0aedcdd04535c6cac (Project-Capstone-3-EC2Instance)

PublicIPs: 3.109.48.69 PrivateIPs: 10.0.1.216

#24– checking could watch of lambda function invoked by SNS Topic

aws

Search

[Alt+S]

Mumbai

prakash24

EC2

EC2 Image Builder

S3

IAM

VPC

CloudWatch

Log groups

/aws/lambda/Project-Capstone-3-Lambda-1

2024/12/03/[\$LATEST]6a997002f5154c1fa4d64966453698d3

CloudWatch

Favorites and recents

Dashboards

Alarms

Logs

Log groups

Log Anomalies

Live Tail

Logs Insights

Contributor Insights

Metrics

X-Ray traces

Events

Application Signals

Log events

You can use the filter bar below to search for and match terms, phrases, or values in your log events.

Filter events - press enter to search

1m 1h

UTC timezone

Display

Actions

Start tailing

Create metric filter

Timestamp	Message
No older events at this moment. Retry	
2024-12-03T14:48:37.393Z	INIT_START Runtime Version: python:3.9.v64 Runtime Version ARN: arn:aws:lambda:ap-south-1::runtime:57e9dce4a928fd5b7...
2024-12-03T14:48:37.465Z	Loading function
2024-12-03T14:48:37.467Z	START RequestId: 42d39f1b-a990-4a21-aabb-a64f5aea5acd Version: \$LATEST
2024-12-03T14:48:37.467Z	From SNS: hi this is from sns using ec2 instance
2024-12-03T14:48:37.513Z	END RequestId: 42d39f1b-a990-4a21-aabb-a64f5aea5acd
2024-12-03T14:48:37.513Z	REPORT RequestId: 42d39f1b-a990-4a21-aabb-a64f5aea5acd Duration: 46.33 ms Billed Duration: 47 ms Memory Size: 128 MB...
No newer events at this moment. Auto retry paused . Resume	

CloudShell

Feedback

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#25– Deleting the stack

aws

Search

[Alt+S]

EC2

EC2 Image Builder

S3

IAM

VPC

CloudFormation > Stacks > aws-capstone-project3

CloudFormation <

Stacks

Stack details

Drifts

StackSets

Exports

Infrastructure Composer

laC generator

Hooks overview New

Hooks New

Registry

Public extensions

Activated extensions

Publisher

Stacks (1)

Filter status

Filter by stack name

Active

View nested

Stacks

aws-capstone-project3

2024-12-03 19:46:18 UTC+0530

DELETE_IN_PROGRESS

aws-capstone-project3

Delete

Update

Stack actions

Create stack

Stack info

Events - updated

Resources

Outputs

Parameters

Table view

Timeline view - new

Events (78)

Detect root cause

Search events

Timestamp	Logical ID	Status	Detailed status
2024-12-03 20:47:57 UTC+0530	SNSTopic	DELETE_IN_PROGRESS	-
2024-12-03 20:47:57 UTC+0530	InternetGatewayRoute	DELETE_COMPLETE	-
2024-12-03 20:47:57 UTC+0530	LambdaPermission2	DELETE_COMPLETE	-

CloudShell

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