

Name :- sai sreenivas eerla

Location :- Hyderabad

Date :- 06th february 2024

Project :- Hospital Report Notification

Project Description :-

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**

Follow the steps to complete the hospital project with aws.

SOLUTIONS:-

OPEN THE AWS MANAGEMENT CONSOLE AND OPEN THE SEARCH BAR CLICK TO SEARCH THE CLOUDFORMATION.

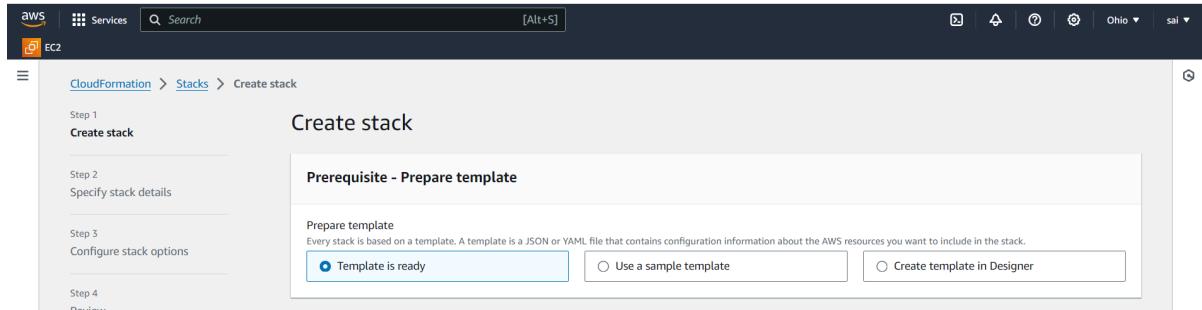
The screenshot shows the AWS Management Console search results for 'CloudFormation'. The search bar at the top contains 'cloudformation'. The results are categorized under 'Services' and 'Features'. Under 'Services', there are four items: CloudFormation, CloudFront, Application Composer, and EFS. Under 'Features', there is one item: Registry. A sidebar on the right provides information about EC2 free tier offers in use, including a forecast for the month and a link to view global EC2 resources. The bottom of the screen shows the standard AWS navigation bar with links like CloudShell, Feedback, and various social media icons.

THEN OPEN THE CLOUDFORMATION DASHBOARD OPEN THE STACKS HOMEPAGE.

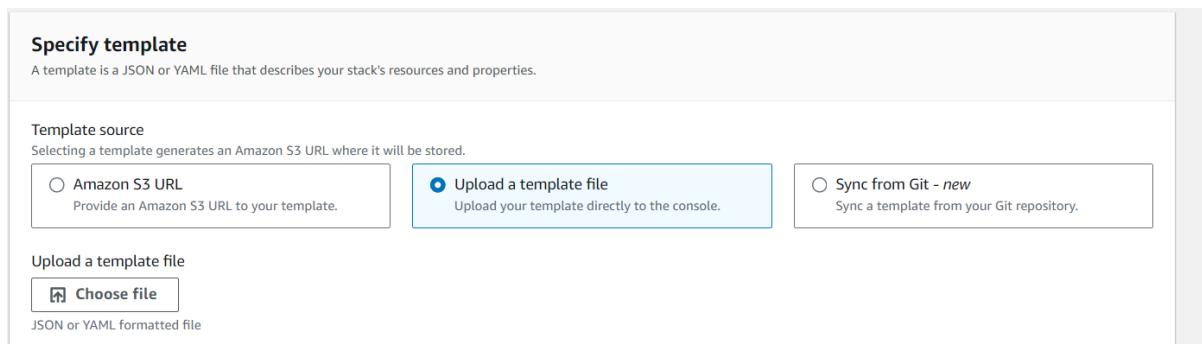
The screenshot shows the CloudFormation dashboard with the 'Stacks' homepage selected. The left sidebar has a 'CloudFormation' header and sections for 'Stacks', 'StackSets', 'Exports', 'Designer', 'IaC generator', 'Registry', 'Public extensions', 'Activated extensions', 'Publisher', 'Spotlight', and 'Feedback'. The main content area displays a table titled 'Stacks (0)' with columns for 'Stack name', 'Status', 'Created time', and 'Description'. A message 'No stacks' is shown above the table, and a large orange 'Create stack' button is centered below it. At the bottom of the page is a 'View getting started guide' button. The bottom of the screen shows the standard AWS navigation bar.

CLICK TO OPEN THE STACKS OPTION AND GO TO THE CREATE STACK IN CLOUDFORMATION.

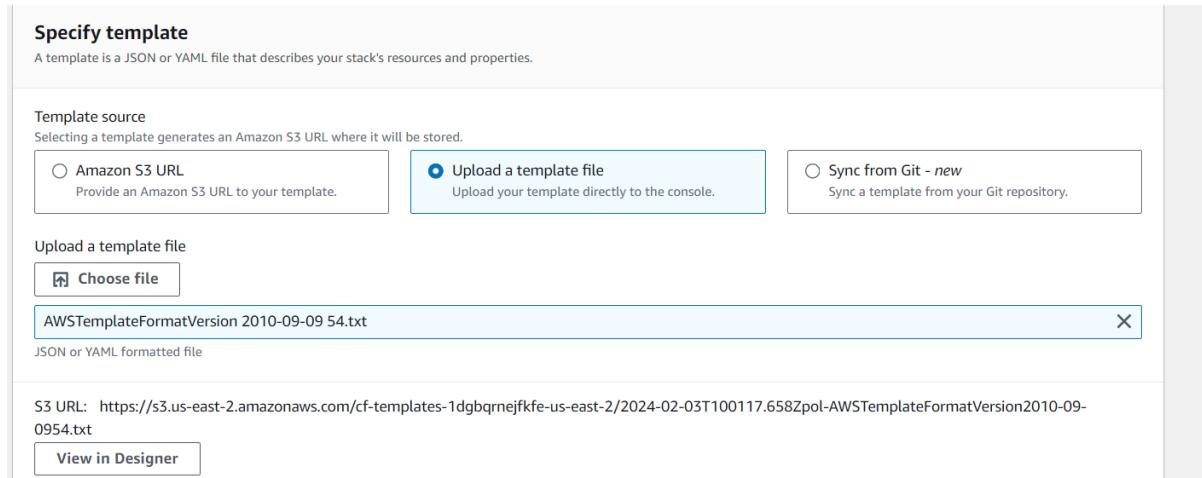
GIVE THE PREREQUISITE - PREPARE TEMPLATE..DETAILS.



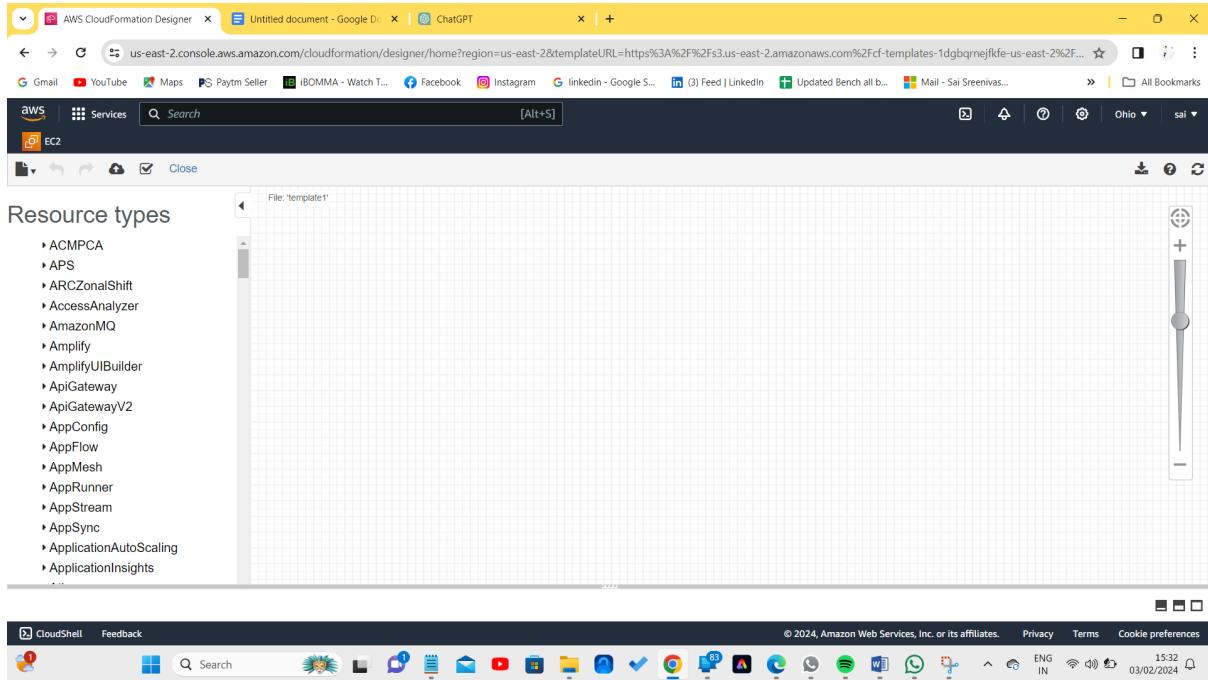
GIVE THE SPECIFY TEMPLATE SOURCE DETAILS IN CLOUDFORMATION AND UPLOAD A FILE.



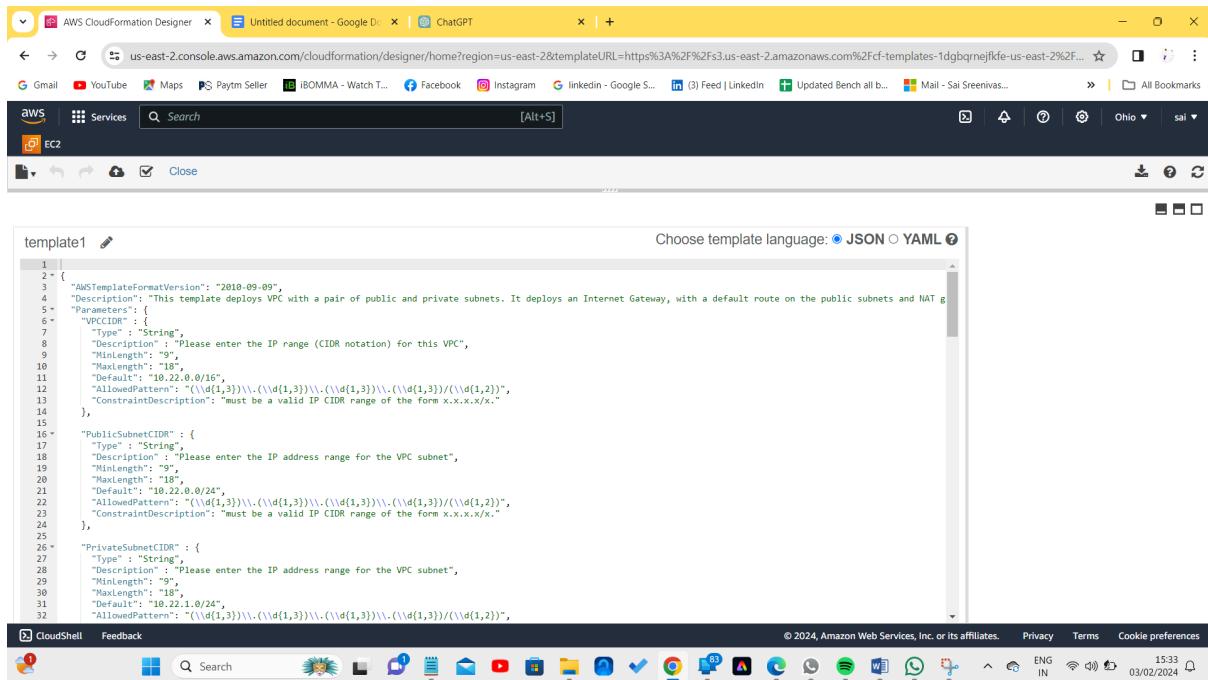
CLICK TO OPEN AND UPLOAD A TEMPLATE FILE LOCAL BROWSER. SEE THE UPLOAD FILE S3 URL IN YAML FORMAT.



OPEN THE RESOURCE TYPES IN AWS..



TEMPLATE 1 UPLOAD THE FILE FORMAT IN JSON ..



SEE THE TEMPLATE1 DETAILS IN YAML FORMAT.

Choose template language: JSON YAML

```

template1
 1 AWSTemplateFormatVersion: 2010-09-09
 2 Description: >
 3   This template deploys VPC with a pair of public and private subnets. It
 4   also creates an Internet Gateway, with a default route on the public subnets and
 5   NAT gateway and route for private subnet.
 6 - Parameters:
 7   VPCCIDR:
 8     Type: String
 9     Description: Please enter the IP range (CIDR notation) for this VPC
10    MinLength: '8'
11    MaxLength: '18'
12    Default: '10.22.0.0/16'
13    AllowedPattern: '(\d{1,3})\.(\d{1,3})\.(\d{1,3})\.(\d{1,2})'
14    ConstraintDescription: must be a valid IP CIDR range of the form x.x.x.x/x.
15 PublicSubnetCIDR:
16   Type: String
17   Description: Please enter the IP address range for the VPC subnet
18   MinLength: '9'
19   MaxLength: '18'
20   Default: '10.22.0.0/24'
21   AllowedPattern: '(\d{1,3})\.(\d{1,3})\.(\d{1,3})\.(\d{1,2})'
22   ConstraintDescription: must be a valid IP CIDR range of the form x.x.x.x/x.
23 - PrivateSubnetCIDR:
24   Type: String
25   Description: Please enter the IP address range for the VPC subnet
26   MinLength: '9'
27   MaxLength: '18'
28   Default: '10.22.0.1/24'
29   AllowedPattern: '(\d{1,3})\.(\d{1,3})\.(\d{1,3})\.(\d{1,2})'
30   ConstraintDescription: must be a valid IP CIDR range of the form x.x.x.x/x.
31 - Resources:
32   VPC:
  
```

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Choose template language: JSON YAML

```

template1
 33 - VPC:
 34   Type: 'AWS::EC2::VPC'
 35   Properties:
 36     CidrBlock: !Ref VPCCIDR
 37     EnableDnsSupport: true
 38     EnableDnsHostnames: true
 39     InstantTenancy: default
 40   Tags:
 41     Key: Name
 42     Value: !Sub '${AWS::StackName}-VPC'
 43 - InternetGateway:
 44   Type: 'AWS::EC2::InternetGateway'
 45   Properties:
 46   - Tags:
 47     Key: Name
 48     Value: !Sub '${AWS::StackName}-IG'
 49   - GatewayAttachment:
 50     Type: 'AWS::EC2::VPCCGatewayAttachment'
 51   - Properties:
 52     InternetGatewayId: !Ref InternetGateway
 53     VpcId: !Ref VPC
 54 - PublicSubnetRouteTable:
 55   Type: 'AWS::EC2::RouteTable'
 56   Properties:
 57     VpcId: !Ref VPC
 58   - Tags:
 59     Key: Name
 60     Value: !Sub '${AWS::StackName}-public'
 61 - PublicSubnetRoute:
 62   Type: 'AWS::EC2::Route'
 63   Properties:
 64     DestinationCidrBlock: '0.0.0.0/0'
 65     GatewayId: !Ref InternetGateway
 66     PublicSubnetRouteTableId: !Ref PublicSubnetRouteTable
 67     SubnetId: !Ref PublicSubnet
 68     DependsOn: GatewayToInternet
 69   - Properties:
 70     VpcId: !Ref VPC
 71     CidrBlock: !Ref PublicSubnetCIDR
 72     MapPublicIpOnLaunch: true
 73   - Tags:
 74     - Key: Name
 75       Value: !Sub '${AWS::StackName}-public-subnet'
 76 - PublicSubnetRouteTableAssociation:
 77   Type: 'AWS::EC2::SubnetRouteTableAssociation'
 78   Properties:
 79     RouteTableId: !Ref PublicSubnetRouteTable
 80     SubnetId: !Ref PublicSubnet
 81 - AZNatGatewayIP:
 82   Type: 'AWS::EC2::IP'
 83   Properties:
 84     DependsOn: GatewayToInternet
 85   - Domain: vpc
 86   - AZNatGateway:
 87     Type: 'AWS::EC2::NatGateway'
 88   - Properties:
 89     AllocationId: !GetAtt
 90     - AZNatGateway!IP
 91     - AllocationId
 92     SubnetId: !Ref PublicSubnet
 93     PrivateSubnetRouteTable:
 94     - 
```

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Choose template language: JSON YAML

```

template1
 62 - Dependencies: GatewayToInternet
 63   Properties:
 64     RouteTableId: !Ref PublicSubnetRouteTable
 65     DestinationCidrBlock: '0.0.0.0/0'
 66     GatewayId: !Ref InternetGateway
 67 - PublicSubnet:
 68   Type: 'AWS::EC2::Subnet'
 69   Properties:
 70     VpcId: !Ref VPC
 71     CidrBlock: !Ref PublicSubnetCIDR
 72     MapPublicIpOnLaunch: true
 73   - Tags:
 74     - Key: Name
 75       Value: !Sub '${AWS::StackName}-public-subnet'
 76 - PublicSubnetRouteTableAssociation:
 77   Type: 'AWS::EC2::SubnetRouteTableAssociation'
 78   Properties:
 79     RouteTableId: !Ref PublicSubnetRouteTable
 80     SubnetId: !Ref PublicSubnet
 81 - AZNatGatewayIP:
 82   Type: 'AWS::EC2::IP'
 83   Properties:
 84     DependsOn: GatewayToInternet
 85   - Domain: vpc
 86   - AZNatGateway:
 87     Type: 'AWS::EC2::NatGateway'
 88   - Properties:
 89     AllocationId: !GetAtt
 90     - AZNatGateway!IP
 91     - AllocationId
 92     SubnetId: !Ref PublicSubnet
 93     PrivateSubnetRouteTable:
 94     - 
```

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AWS CloudFormation Designer - Untitled document - Google Drive - ChatGPT

Choose template language: JSON YAML

```

template1
 96   VpcId: !Ref VPC
 97   Tags:
 98     Key: Name
 99     Value: !Sub '${AWS::StackName}-private'
100  PrivateSubnet:
101    Type: 'AWS::EC2::Subnet'
102    Properties:
103      RouteTableId: !Ref PrivateSubnetRouteTable
104      DestinationCidrBlock: '0.0.0.0/0'
105      NetworkAclId: !Ref AZNatGateway
106      PrivateSubnetId: !Ref PrivateSubnet
107      VpcId: !Ref VPC
108      CidrBlock: !Ref PrivateSubnetCIDR
109      MapPublicIpOnLaunch: false
110      Tags:
111        Key: Name
112        Value: !Sub '${AWS::StackName}-private-subnet'
113  PrivateSubnetRouteTableAssociation:
114    Type: 'AWS::EC2::SubnetRouteTableAssociation'
115    Properties:
116      RouteTableId: !Ref PrivateSubnetRouteTable
117      SubnetId: !Ref PrivateSubnet
118  Outputs:
119    InternetGateway:
120      Description: A reference to the IG
121      Value: !Ref InternetGateway
122    VPC:
123      Description: A reference to the created VPC
124      Value: !Ref VPC
125    PublicSubnet:
126      Description: A reference to the public subnet
127      Value: !Ref PublicSubnet
128    PrivateSubnet:
129      Description: A reference to the private subnet
130      Value: !Ref PrivateSubnet
131
  
```

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AWS CloudFormation Designer - Untitled document - Google Drive - ChatGPT

Choose template language: JSON YAML

Messages 2/3/2024, 3:33:21 PM - Successfully converted the template to YAML.

```

template1
 106  NatGatewayId: !Ref AZNatGateway
 107  PrivateSubnet:
 108    Type: 'AWS::EC2::Subnet'
 109    Properties:
 110      VpcId: !Ref VPC
 111      CidrBlock: !Ref PrivateSubnetCIDR
 112      MapPublicIpOnLaunch: false
 113      Tags:
 114        Key: Name
 115        Value: !Sub '${AWS::StackName}-private-subnet'
 116  PrivateSubnetRouteTableAssociation:
 117    Type: 'AWS::EC2::SubnetRouteTableAssociation'
 118    Properties:
 119      RouteTableId: !Ref PrivateSubnetRouteTable
 120      SubnetId: !Ref PrivateSubnet
 121  Outputs:
 122    InternetGateway:
 123      Description: A reference to the IG
 124      Value: !Ref InternetGateway
 125    VPC:
 126      Description: A reference to the created VPC
 127      Value: !Ref VPC
 128    PublicSubnet:
 129      Description: A reference to the public subnet
 130      Value: !Ref PublicSubnet
 131    PrivateSubnet:
 132      Description: A reference to the private subnet
 133      Value: !Ref PrivateSubnet
  
```

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SEE THE PARAMETERS IN TEMPLATE1 IN YAML LANGUAGE.

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Choose template language: JSON YAML

Parameters 2/3/2024, 3:33:21 PM - Successfully converted the template to YAML.

```

Parameters:
 1 Parameters:
 2   VPCCIDR:
 3     Type: String
 4     Description: Please enter the IP range (CIDR notation) for this VPC
 5     MinLength: '9'
 6     MaxLength: '16'
 7     Default: '10.22.0.0/16'
 8     AllowedPattern: '(\d{1,3})\.(\d{1,3})\.(\d{1,3})\.(\d{1,3})'
 9     ConstraintDescription: must be a valid IP CIDR range of the form x.x.x.x/x.
10
11   PrivateSubnetCIDR:
12     Type: String
13     Description: Please enter the IP address range for the VPC subnet
14     MinLength: '9'
15     MaxLength: '18'
16     Default: '10.22.0.0/24'
17     AllowedPattern: '(\d{1,3})\.(\d{1,3})\.(\d{1,3})\.(\d{1,3})'
18     ConstraintDescription: must be a valid IP CIDR range of the form x.x.x.x/x.
19
20   PublicSubnetCIDR:
21     Type: String
22     Description: Please enter the IP address range for the VPC subnet
23     MinLength: '9'
24     MaxLength: '18'
25     Default: '10.22.1.0/24'
26     AllowedPattern: '(\d{1,3})\.(\d{1,3})\.(\d{1,3})\.(\d{1,3})'
27     ConstraintDescription: must be a valid IP CIDR range of the form x.x.x.x/x.
  
```

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TEMPLATE1 OUTPUT DETAILS IN YAML FORMAT.

```
template1
 1 "Outputs":
 2   "InternetGateway":
 3     "Description": A reference to the IG
 4     "Value": !Ref InternetGateway
 5   "VPC":
 6     "Description": A reference to the created VPC
 7     "Value": !Ref VPC
 8   "PublicSubnet":
 9     "Description": A reference to the public subnet
10    "Value": !Ref PublicSubnet
11   "PrivateSubnet":
12     "Description": A reference to the private subnet
13     "Value": !Ref PrivateSubnet
```

Choose template language: JSON YAML

Messages
2/3/2024, 3:33:21 PM - Successfully converted the template to YAML.

SEE THE S3 URL LINK IN CLOUDFORMATION AND CLICK TO THE NEXT...



SEE THE SPECIFY STACK DETAILS NAME HOSPITAL-PROJECT-CLOUDFORMATION-VPC-STACK...



PARAMETERS IN CLOUDFORMATION PRIVATE SUBNET CIDR, PUBLIC SUBNET CIDR..

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

PrivateSubnetCIDR
Please enter the IP address range for the VPC subnet
10.22.1.0/24

PublicSubnetCIDR
Please enter the IP address range for the VPC subnet
10.22.0.0/24

VPCCIDR
Please enter the IP range (CIDR notation) for this VPC
10.22.0.0/16

CLICK TO NEXT OPEN THE CONFIGURE STACK DETAILS..

Cancel Previous Next

CONFIGURE STACK OPTIONS IN CLOUDFORMATION..

CloudFormation > Stacks > Create stack

Step 1 Create stack

Step 2 Specify stack details

Step 3 Configure stack options

Step 4 Review evsstack1

Configure stack options

Tags
You can specify tags (key-value pairs) to apply to resources in your stack. You can add up to 50 unique tags for each stack.

Key	Value - optional
sai	1

Add new tag

You can add 49 more tag(s)

GIVE THE PERMISSIONS IAM ROLE IN OPTIONAL...

Permissions

IAM role - optional
Choose the IAM role for CloudFormation to use for all operations performed on the stack.

IAM role name ▾ Sample-role-name Remove C

STACK FAILURE OPTIONS.

Stack failure options

Behavior on provisioning failure
Specify the roll back behavior for a stack failure. [Learn more](#)

Roll back all stack resources
Roll back the stack to the last known stable state.

Preserve successfully provisioned resources
Preserves the state of successfully provisioned resources, while rolling back failed resources to the last known stable state. Resources without a last known stable state will be deleted upon the next stack operation.

Delete newly created resources during a rollback
Specify whether resources that were created during a failed operation should be deleted regardless of their deletion policy. [Learn more](#)

Use deletion policy
Retains or deletes created resources according to their attached deletion policy.

Delete all newly created resources
Deletes created resources during a rollback regardless of their attached deletion policy.

ADVANCED STACK POLICY OPTIONS..

Advanced options

You can set additional options for your stack, like notification options and a stack policy. [Learn more](#)

▼ Stack policy

Defines the resources that you want to protect from unintentional updates during a stack update.

Stack policy - optional

A stack policy is a JSON document that defines the update actions that can be performed on designated resources

No stack policy

Enter stack policy

Upload a file

STACK ROLLBACK CONFIGURATION CLOUDFORMATION..

▼ Rollback configuration

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

Monitoring time - optional

Number of minutes after the operation completes that CloudFormation should continue monitoring the specified alarms.

10 Minutes

CloudWatch alarm - optional

arn:aws:cloudwatch:us-east-1:123456789012:alarm:MyAlarmName

Add CloudWatch alarm ARN

ALERT THE NOTIFICATION OPTIONS IN SNS..

▼ Notification options

SNS topic ARN - optional

arn:aws:sns:us-east-2:058900729997:Default_CloudWatch_Alarms_Topic

Add SNS topic

Create new SNS topic

FINALLY ACTIVATED THE STACK CREATION OPTIONS AND CLICK THE NEXT OPTION.

▼ Stack creation options

Timeout

The number of minutes before a stack creation times out.

Minutes

Termination protection

Prevents the stack from being accidentally deleted. Once created, you can update this through stack actions.

- Deactivated
 Activated

Cancel

Previous

Next

REVIEW HOSPITAL-PROJECT-CLOUDFORMATION-VPC-STACK DETAILS..

CloudFormation | us-east-2 Untitled document - Google Docs ChatGPT

Step 1 Create stack

Step 2 Specify stack details

Step 3 Configure stack options

Step 4 Review hospital-project-cloudformation-vpc-stack

Review hospital-project-cloudformation-vpc-stack

Step 1: Specify template

Prerequisite - Prepare template

Template

Template URL
https://s3.us-east-2.amazonaws.com/cf-templates-1dgbqrnejkfe-us-east-2/2024-02-03T100700.350Zhkf-AWSTemplateFormatVersion2010-09-0954.txt

Stack description
This template deploys VPC with a pair of public and private subnets. It deploys an Internet Gateway, with a default route on the public subnets and NAT gateway and route for private subnet.

CloudShell Feedback

CloudFormation | us-east-2 Untitled document - Google Docs ChatGPT

G Gmail YouTube Maps Paytm Seller iBOMMA - Watch T... Facebook Instagram linkedin - Google S... (3) Feed | LinkedIn Updated Bench all b... Mail - Sai Sreenivas...

Services Search [Alt+S]

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ENG IN 15:46 03/02/2024

PROVIDE A STACK NAME..AND PARAMETERS..

Step 2: Specify stack details

Provide a stack name

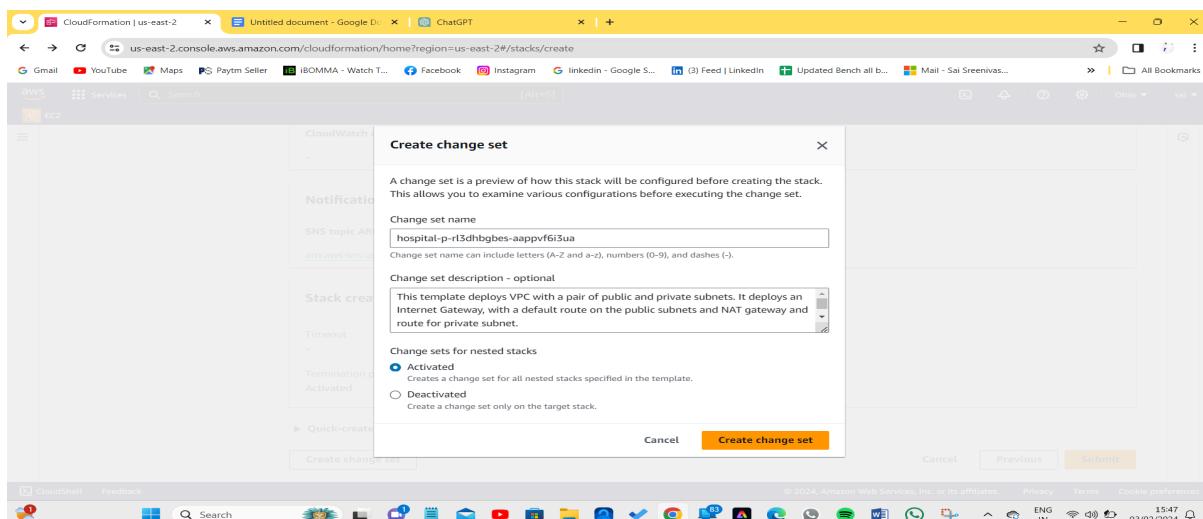
Stack name
hospital-project-cloudformation-vpc-stack

Parameters (3)

Key	Value
PrivateSubnetCIDR	10.22.1.0/24
PublicSubnetCIDR	10.22.0.0/24
VPCCIDR	10.22.0.0/16

Step 3: Configure stack options

CLICK TO CREATE THE CHANGE SET...



NOTIFICATION OPTIONS SNS TOPIC AND CREATION OPTION DETAILS..SUBMIT IT.

Notification options

SNS topic ARN
arn:aws:sns:us-east-2:058900729997:Default_CloudWatch_Alarms_Topic

Stack creation options

Timeout
-

Termination protection
Activated

[▶ Quick-create link](#)

[Create change set](#) [Cancel](#) [Previous](#) [Submit](#)

SUCCESSFULLY CREATED THE HOSPITAL PROJECT CLOUDFORMATION VPC STACK..

CloudFormation - Stack hospital-project-cloudformation-vpc-stack

hospital-project-cloudformation-vpc-stack

Events (1)

Timestamp	Logical ID	Status	Status reason
2024-02-03 15:47:35 UTC+0530	hospital-project-cloudformation-vpc-stack	REVIEW_IN_PROGRESS	User Initiated

SEE THE STACK INFORMATION DETAILS LIKE STACK I'D,STATUS..

CloudFormation - Stack hospital-project-cloudformation-vpc-stack

hospital-project-cloudformation-vpc-stack

Overview

Stack ID	arn:aws:cloudformation:us-east-2:058900729997:stack/hospital-project-cloudformation-vpc-stack/735624f0-c27d-11ee-9155-02c8fa8b114b
Status	REVIEW_IN_PROGRESS
Root stack	-
Created time	2024-02-03 15:47:35 UTC+0530
Updated time	-

CHANGE SET CREATE SUCCESSFULL..

The screenshot shows the AWS CloudFormation console with the URL <https://us-east-2.console.aws.amazon.com/cloudformation/home?region=us-east-2#/stacks/changesets?stackId=arn%3aws%3acloudformation%3aus-east-2%3a058900729997%3astack%2fhospital-pr...>. The main view displays the 'hospital-project-cloudformation-vpc-stack' stack, which has one active stack named 'hospital-project-cloudformation-vpc-stack' created on 2024-02-03 15:47:35 UTC+0530, currently in 'REVIEW_IN_PROGRESS' status. On the right, the 'Change sets' tab is selected, showing a single change set named 'hospital-p-r13dhbgbes-aappvf6i3ua' created on 2024-02-03 15:47:35 UTC+0530, with a status of 'CREATE_COMPLETE'. A detailed description of the change set is provided, stating it deploys a VPC with a pair of public and private subnets, including an Internet Gateway and a default route on the public subnets and NAT gateway for private subnets.

The screenshot shows the AWS CloudFormation console with the URL <https://us-east-2.console.aws.amazon.com/cloudformation/home?region=us-east-2#/stacks/events?stackId=arn%3aws%3acloudformation%3aus-east-2%3a058900729997%3astack%2fhospital-project...>. The search bar at the top contains 'sns'. The left sidebar shows the navigation menu with 'Stack details' selected under 'Stacks'. The main search results page displays two services: 'Simple Notification Service' (SNS) and 'Amazon Pinpoint SMS'. Below these, under 'Features', there are sections for 'Events' and 'ElastiCache feature'. The right side of the screen shows the 'hospital-project-cloudformation-vpc-stack' stack details, including the 'Events' tab, with a status of 'REVIEW_IN_PROGRESS' and 'User Initiated'.

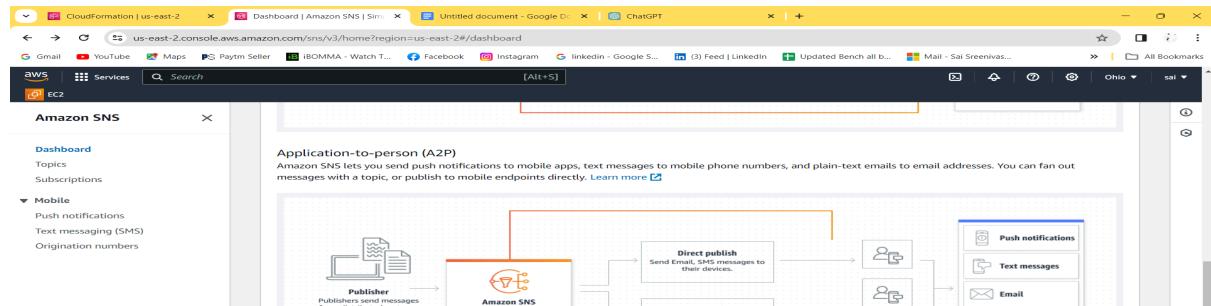
OPEN THE SNS DASHBOARD RESOURCE..

The screenshot shows the AWS SNS Dashboard for the region us-east-2. The left sidebar includes links for Dashboard, Topics, Subscriptions, and Mobile (Push notifications). The main content area displays 'Resources for us-east-2' with three tabs: Topics, Platform applications, and Subscriptions. The Topics tab is selected, showing one item.

OVERVIEW OF AMAZON SNS TO THE APPLICATION TO APPLICATION..

The screenshot shows the 'Overview of Amazon SNS' page. The left sidebar lists Dashboard, Topics, Subscriptions, and Mobile (Push notifications, Text messaging (SMS), Origination numbers). The main content area features a diagram titled 'Application-to-application (A2A)' illustrating the flow from a 'Publisher' to an 'Amazon SNS' service, then to an 'SNS topic', and finally to 'Message filtering and fanout' before reaching 'Subscribers' (AWS Lambda, Amazon SQS, Amazon Kinesis Data Firehose, HTTP/HTTPS, Email).

OVERVIEW THE APPLICATION TO PERSON IN AMAZON SNS.



The screenshot shows the AWS CloudFormation console with the Amazon Simple Notification Service (SNS) homepage open. The main content area features a large heading 'Amazon Simple Notification Service' and sub-headings 'Pub/sub messaging for microservices and serverless applications.' and 'Benefits and features'. Below these are sections for 'Reliably deliver messages with' and 'Automatically scale your'. On the right, there is a 'Create topic' section with a 'Topic name' input field containing 'MyTopic' and a 'Next step' button. Below it is a 'Pricing' section stating 'Amazon SNS has no upfront costs. You pay based on the number of messages you publish, the number of messages you deliver, and any'. The footer contains links for CloudShell, Feedback, Search, and various AWS services, along with copyright information and a date of 03/02/2024.

OPEN THE SNS TOPIC CLICK THE CREATE SNS OPTION DO IT..
CREATE TOPIC DETAILS SELECT THE STANDARD OPTION..

The screenshot shows the AWS CloudFormation console with the 'Create topic' details page open. The 'Details' section contains two options: 'FIFO (first-in, first-out)' and 'Standard'. The 'Standard' option is selected and highlighted with a blue border. It lists features such as 'Best-effort message ordering', 'At-least once message delivery', 'Highest throughput in publishes/second', and 'Subscription protocols: SQS, Lambda, HTTP, SMS, email, mobile application endpoints'. The top navigation bar includes CloudFormation, Services, and a search bar, along with standard browser controls.

GIVE THE NAME OF THE SNS NEW TOPIC..

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.

ENCRYPTION DETAILS OPTIONAL..

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

Encryption [Learn more](#) [Info](#)
Enabling server side encryption adds at-rest encryption to your topic. Amazon SNS encrypts your message as soon as it is received. The message is decrypted immediately prior to delivery.

AWS KMS key
Select a custom KMS key or enter an existing KMS key ARN.

Description
Default key that protects my SNS data when no other key is defined

Account
058900729997

KMS key ARN
arn:aws:kms:us-east-2:058900729997:key/64993984-b66d-4899-8cf7-ed907b1ee984

ACCESS POLICY OPTIONAL BASIC METHOD IN JSON PREVIEW IN STATEMENT..

Stacks | CloudFormation | us-east-2 | Create topic | Topics | Amazon | Untitled document - Google Docs | ChatGPT

← → ⌂ us-east-2.console.aws.amazon.com/sns/v3/home?region=us-east-2#/create-topic

Gmail YouTube Maps Paytm Seller iBOMMA - Watch T... Facebook Instagram linkedin - Google S... (3) Feed | LinkedIn Updated Bench all b... Mail - Sai Sreenivas... All Bookmarks

aws Services Search [Alt+S]

EC2

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

Choose method
 Basic Use simple criteria to define a basic access policy. Advanced Use a JSON object to define an advanced access policy.

Publishers
Specify who can publish messages to the topic.

Only the owner of the topic can publish to the topic

Subscribers
Specify who can subscribe to this topic.

Only the owner of the topic can subscribe to the topic

JSON preview

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

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DATA PROTECTION POLICY AND ALSO DELIVERY POLICY IN JSON PREVIEW IN HTTP OPTIONAL..

The screenshot shows the AWS SNS console with the 'Delivery policy (HTTP/S) - optional' section expanded. It includes fields for Number of retries (3), Retries without delay (0), Minimum delay (20 seconds), Maximum delay (20 seconds), and Minimum delay retries (0). To the right, a 'JSON preview' panel displays the following JSON code:

```
{  
  "http": {  
    "defaultHealthyRetryPolicy": {  
      "numRetries": 3,  
      "numNoDelayRetries": 0,  
      "minDelayTarget": 20,  
      "maxDelayTarget": 20,  
      "numMinDelayRetries": 0,  
      "numMaxDelayRetries": 0,  
      "backoffFunction": "linear"  
    },  
    "disableSubscriptionOverrides": false,  
    "defaultRequestPolicy": {  
      "handoverRequestTime": "startAtSubscriptionCreationTime"  
    }  
  }  
}
```

DELIVERY STATUS LOGGING OPTIONAL..

The screenshot shows the AWS SNS console with the 'Delivery status logging - optional' section expanded. It includes a list of protocols for log delivery (AWS Lambda, Amazon SQS, HTTP/S, Platform application endpoint, Amazon Kinesis Data Firehose), a success sample rate field set to 100%, and an IAM roles section. In the IAM roles section, the 'Use existing service role' option is selected, with a note that it chooses an existing service role from the account.

TAGS OPTIONAL IN SNS ..

The screenshot shows the AWS SNS console with the 'Tags - optional' section expanded. It includes a table for adding tags, with one tag currently listed: 'sns' with value '2'. There are 'Add tag' and 'Remove tag' buttons at the bottom of the table.

Key	Value
sns	2

ACTIVE TRACING OF THE SNS TOPIC..

The screenshot shows the 'Active tracing - optional' section of the AWS SNS topic configuration. It includes a note about using AWS X-Ray active tracing to view traces and service maps in CloudWatch, mentioning additional costs apply. Two radio button options are shown: 'Use active tracing' (selected) and 'Don't use active tracing'.

CLICK THE CREATE TOPIC OPTION DO IT..

The screenshot shows the 'Create topic' step in the AWS SNS topic creation wizard. The 'Create topic' button is highlighted in orange. Below it, a success message states 'Topic hospital-pacents-contact-sns-topic created successfully.' The message also notes that subscriptions and messages can be sent to this topic. The browser navigation bar shows the URL as 'us-east-2.console.aws.amazon.com/sns/v3/home?region=us-east-2#/topic/arm:aws:sns:us-east-2:058900729997:hospital-pacents-contact-sns-topic'. The browser status bar indicates the topic ARN: 'arn:aws:sns:us-east-2:058900729997:hospital-pacents-contact-sns-topic'. The main content area displays the newly created topic details, including Name: 'hospital-pacents-contact-sns-topic', Display name: 'pacents-contact-sns', ARN: 'arn:aws:sns:us-east-2:058900729997:hospital-pacents-contact-sns-topic', Topic owner: '058900729997', and Type: 'Standard'. Navigation tabs at the bottom include Subscriptions, Access policy, Data protection policy, Delivery policy (HTTP/S), Delivery status logging, Encryption, and Tags. The 'Subscriptions' tab is currently selected.

CREATED TOPIC DETAILS GO TO THE CREATE SUBSCRIPTION IN SNS...

The screenshot shows the AWS CloudFormation console with a topic named "hospital-pacents-contact-sns-topic". The ARN is listed as "arn:aws:sns:us-east-2:058900729997:hospital-pacents-contact-sns-topic". The "Subscriptions" tab shows 0 subscriptions. A "Create subscription" button is visible.

OPEN THE CREATE SUBSCRIPTION TOPIC DETAILS...

The screenshot shows the "Create subscription" step in the AWS CloudFormation console. The "Details" section includes the Topic ARN "arn:aws:sns:us-east-2:058900729997:hospital-pacents-contact-sns-topic", Protocol "Email", and Endpoint "test@example.com". A note states "After your subscription is created, you must confirm it."

SUBSCRIPTION FILTER POLICY OPTIONAL...

CloudFormation | us-east-2 | Create subscription | Untitled document - Google Docs | ChatGPT

aws Services Search [Alt+S]

Subscription filter policy - optional Info

This policy filters the messages that a subscriber receives.

Subscription filter policy

Filter policy scope Info

Determines how the filter policy will be applied to the message

Message attributes Filter policy will be applied to the message attributes.

Message body Filter policy will be applied to the message body.

JSON editor

```
1 {
  "anyMandatoryKey": [
    "any",
    "of",
    "these"
  ],
  "anyOtherOptionalKey": [
    "any",
    "of",
    "these"
  ]
}
```

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REDRIVE POLICY DEAD LETTER QUEUE OPTIONAL CLICK IT..

CloudFormation | us-east-2 | Subscription: 2346550f-f488-418e-ab3d-5aee6bdb942 | Untitled document - Google Docs | ChatGPT

aws Services Search [Alt+S]

Redrive policy (dead-letter queue) - optional Info

Send undeliverable messages to a dead-letter queue.

Redrive policy (dead-letter queue)

Create subscription

SUCCESSFULLY CREATED SUBSCRIPTION..

CloudFormation | us-east-2 | Subscription: 2346550f-f488-418e-ab3d-5aee6bdb942 | Untitled document - Google Docs | ChatGPT

aws Services Search [Alt+S]

Amazon SNS

Subscription to hospital-pacents-contact-sns-topic created successfully.
The ARN of the subscription is arn:aws:sns:us-east-2:058900729997:hospital-pacents-contact-sns-topic:2346550f-f488-418e-ab3d-5aee6bdb942.

Amazon SNS > Topics > hospital-pacents-contact-sns-topic > Subscription: 2346550f-f488-418e-ab3d-5aee6bdb942

Subscription: 2346550f-f488-418e-ab3d-5aee6bdb942

Details

ARN arn:aws:sns:us-east-2:058900729997:hospital-pacents-contact-sns-topic:2346550f-f488-418e-ab3d-5aee6bdb942	Status Pending confirmation
Endpoint saiev142@gmail.com	Protocol EMAIL
Topic hospital-pacents-contact-sns-topic	
Subscription Principal arn:aws:iam::058900729997:root	

CloudShell Feedback Search ENG IN 16:21 03/02/2024

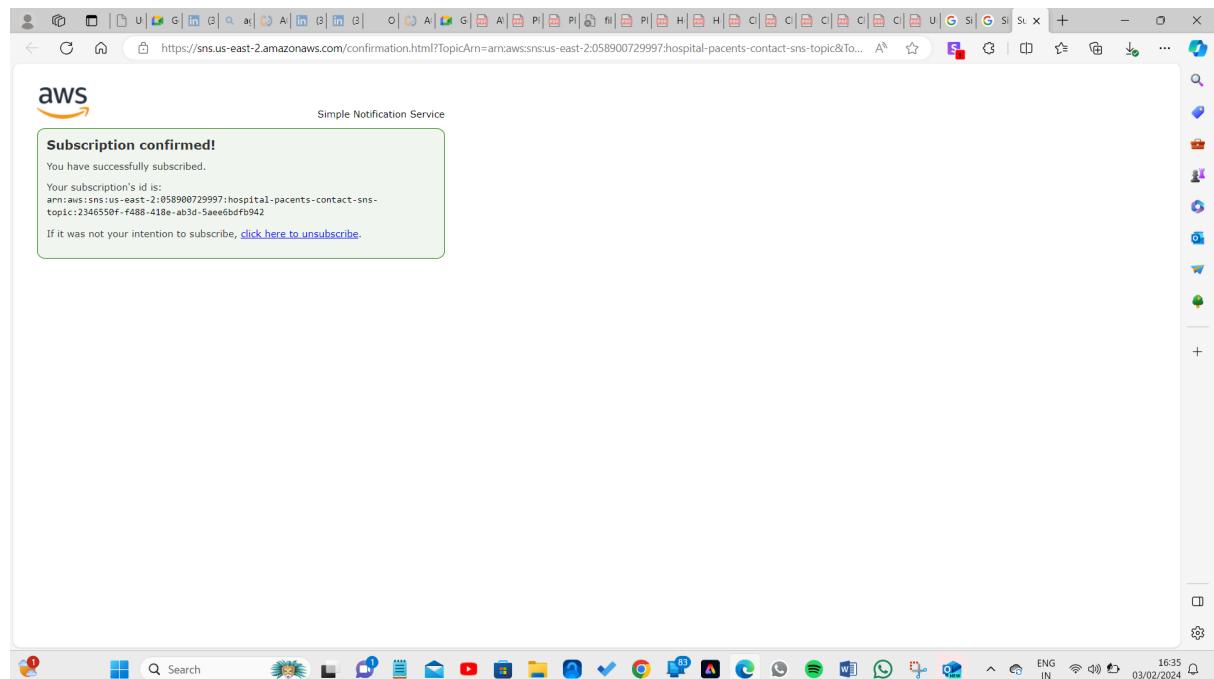
SEE THE CREATED SUBSCRIPTION STATUS IN SNS..

The screenshot shows the AWS SNS Subscriptions page. On the left, there's a sidebar with links like Dashboard, Topics, Subscriptions, Mobile (Push notifications, Text messaging (SMS), Origination numbers), and EC2. The main area has a header "Subscriptions (2)" with buttons for Edit, Delete, Request confirmation, Confirm subscription, and Create subscription. A search bar is at the top of the list table. The table columns are ID, Endpoint, Status, Protocol, and Topic. The first row shows an ID starting with "5e342db0-4b34-47ab-b...", an endpoint "arn:aws:sns:us-east-2:05890072997:Default_CloudWatch_Alarm...", a status "Confirmed", a protocol "SQS", and a topic "Default_CloudWatch_Alarm...". The second row shows an ID "Pending confirmation", an endpoint "saievs142@gmail.com", a status "Pending confirmation", a protocol "EMAIL", and a topic "hospital-pacents-contact-s...".

SEE THE EMAIL AWS NOTIFICATION DETAILS...

The screenshot shows an email inbox from "Inbox - saievs142@gmail.com". One of the emails is from "Sai Evs <saievs142@gmail.com>" with the subject "Fwd: AWS Notification - Subscription Confirmation". The email body contains the forwarded message from "pacents-contact-sns <no-reply@sns.amazonaws.com>". It includes the recipient "To: Sreenu eerla", the forwarded message content, and a confirmation link: "To confirm this subscription, click or visit the link below (if this was in error no action is necessary): [Confirm subscription](#)". The email also notes "You have chosen to subscribe to the topic: arn:aws:sns:us-east-2:05890072997:hospital-pacents-contact-sns-topic". The bottom of the email includes standard Outlook interface elements like reply, reply all, and a "Try the new Outlook" button.

CLICK THE CONFIRM THE SUBSCRIPTION ...



NOW SEE THE CONFIRMED SUBSCRIPTION..

New Feature

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

Amazon SNS

Subscriptions (2)

ID	Endpoint	Status	Protocol	Topic
5e342db0-4b34-47ab-b...	arn:aws:sqs:us-east-2:05...	Confirmed	SQS	Default_CloudWatch_Al...
2346550f-f488-418e-ab...	saievs142@gmail.com	Confirmed	EMAIL	hospital-pacents-contact...

SEE THE SUBSCRIPTION DETAILS...

The screenshot shows the AWS CloudFormation console with a subscription detail page. The URL in the address bar is `us-east-2.console.aws.amazon.com/sns/v3/home?region=us-east-2#/subscription/armaws:sns:us-east-2:058900729997:hospital-pacents-contact-sns-topic:2346550f-f488-418e-ab3d-5aee6bdfb942`. The page displays the following subscription details:

Details	Value
ARN	arn:aws:sns:us-east-2:058900729997:hospital-pacents-contact-sns-topic:2346550f-f488-418e-ab3d-5aee6bdfb942
Status	Confirmed
Endpoint	saienvs142@gmail.com
Protocol	EMAIL
Topic	hospital-pacents-contact-sns-topic
Subscription Principal	arn:aws:iam::058900729997:root

FINALLY SEE THE SNS TOPIC DETAILS...

The screenshot shows the AWS CloudFormation console with a topic detail page. The URL in the address bar is `us-east-2.console.aws.amazon.com/sns/v3/home?region=us-east-2#/topic/armaws:sns:us-east-2:058900729997:hospital-pacents-contact-sns-topic`. The page displays the following topic details:

Details	Value
Name	hospital-pacents-contact-sns-topic
Display name	pacents-contact-sns
ARN	arn:aws:sns:us-east-2:058900729997:hospital-pacents-contact-sns-topic
Topic owner	058900729997
Type	Standard

Below the details, there is a navigation bar with tabs: Subscriptions, Access policy, Data protection policy, Delivery policy (HTTP/S), Delivery status logging, Encryption, and Tags. The Subscriptions tab is selected. A sub-section titled "Subscriptions (1)" shows a single subscription entry with buttons for Edit, Delete, Request confirmation, Confirm subscription, and Create subscription.

CLICK TO PUBLISH THE MESSAGE TO TOPIC..

The screenshot shows the AWS SNS 'Publish message' interface. In the 'Message details' section, the Topic ARN is set to 'arn:aws:sns:us-east-2:058900729997:hospital-pacents-contact-sns-topic'. The Subject is 'hospital-pacents-contact-details'. The Time to Live (TTL) is set to 5 seconds. In the 'Message body' section, the message structure is selected, and the payload is defined in YAML format:

```
aws CloudShell Feedback Search ENG IN 16:40 03/02/2024
```

```
topic: hospital-pacents-contact-sns-topic
subject: hospital-pacents-contact-details
message: |
  {"aps": {"alert": "Sample message for hospital-pacents-contact-sns-topic topic."}}
```

MESSAGE BODY IN YAML FORMAT..

The screenshot shows the AWS SNS 'Publish message' interface. In the 'Message body' section, the message structure is selected, and the payload is defined in YAML format. The 'Custom payload for each delivery protocol' option is selected, and the message body is shown in a code editor:

```
aws CloudShell Feedback Search ENG IN 16:40 03/02/2024
```

```
topic: hospital-pacents-contact-sns-topic
subject: hospital-pacents-contact-details
message: |
  {"aps": {"alert": "Sample message for hospital-pacents-contact-sns-topic topic."}}
```

The message body must be a JSON object with an attribute for each delivery protocol. The code editor shows a sample message for Apple endpoints:

```
Apple endpoints: |-
  {"aps": {"alert": "Sample message for Apple endpoints."}}
```

The code editor also shows examples for other platforms like GCM, ADM, Baidu, MPNS, and WNS.

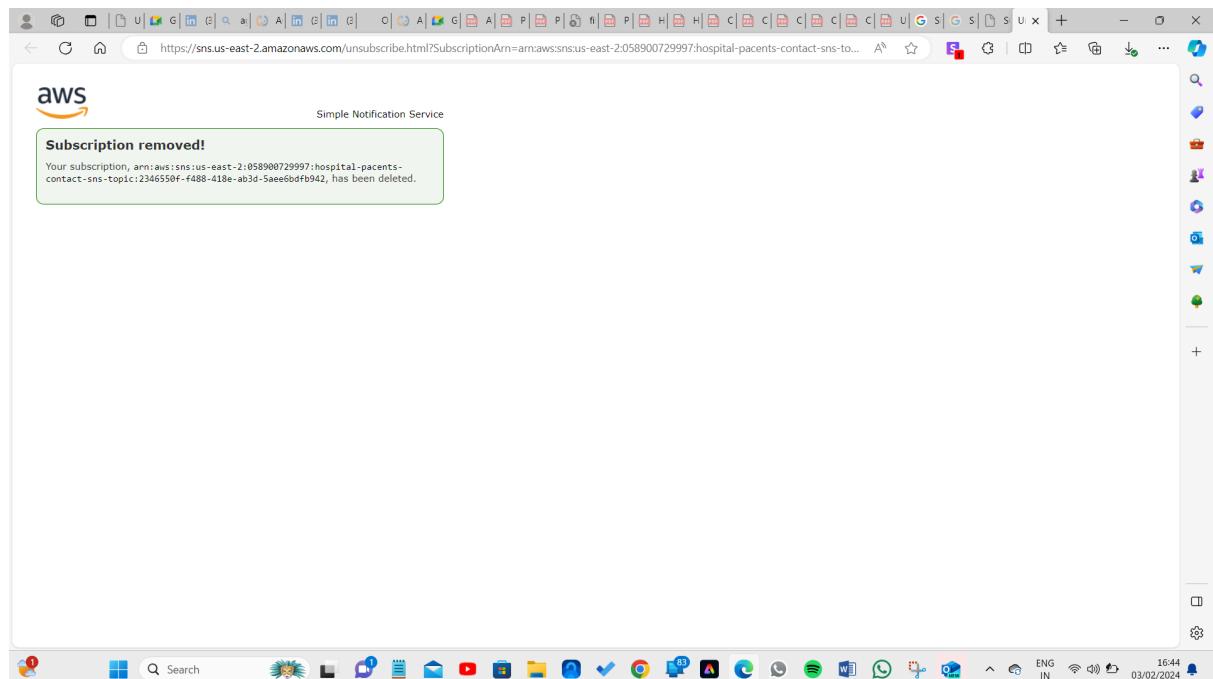
SEE THE PUBLISH MESSAGE SUCCESSFULLY..

The screenshot shows the AWS CloudWatch Metrics interface. A green notification bar at the top indicates that a message was published successfully to the topic 'hospital-pacents-contact-sns-topic'. The message ID is a0235178-a77-538a-a47d-0f408ee405e3, and the request ID is a2c5c794-1870-5ae1-a415-99ac39e2fc88. Below the notification, the 'Topics' section of the Amazon SNS service is visible, showing the details of the topic 'hospital-pacents-contact-sns-topic'. The topic has a name of 'hospital-pacents-contact-sns-topic', an ARN of 'arn:aws:sns:us-east-2:058900729997:hospital-pacents-contact-sns-topic', and a type of 'Standard'. The 'Details' section also shows the display name 'pacents-contact-sns' and the topic owner '058900729997'. At the bottom of the page, there are tabs for 'Subscriptions', 'Access policy', 'Data protection policy', 'Delivery policy (HTTP/S)', 'Delivery status logging', 'Encryption', and 'Tags'.

AFTER PUBLISH THE MESSAGE SEE THE EMAIL NOTIFICATION DETAILS.

The screenshot shows a Gmail inbox with several messages listed. One message from 'Sai Evs' with the subject 'Fwd: hospital-pacents-contact-details' is highlighted. The message is a forwarded message from 'pacents-contact-sns <no-reply@sns.amazonaws.com>' to 'Sai Evs <saievs142@gmail.com>' at 16:43. The message content is a forwarded message from 'pacents-contact-sns' dated 3 Feb 2024, 16:41, with the subject 'hospital-pacents-contact-details' and recipient 'saievs142@gmail.com'. The message body contains a sample message for email endpoints and unsubscribe information. Other messages in the inbox include notifications from LinkedIn, Amazon Pay, and various job alerts.

AFTER COMPLETE THE CONFIRM SUBSCRIPTION REMOVED..



FINALLY SEE THE CLOUDFORMATION STACK DETAILS CREATED SUCCESSFULLY. AND STACK INFORMATION AND EVENTS ALSO....

The screenshot shows the AWS CloudFormation console with the URL <https://us-east-2.console.aws.amazon.com/cloudformation/home?region=us-east-2#/stacks/events?stackId=arn%3aws%3Acloudformation%3Aus-east-2%3A058900729997%3Astack%2FHospital-project>. The main view shows the 'Hospital-project-cloudformation-vpc-stack' details, including the 'Events' tab which lists 36 events. The events are:

Timestamp	Logical ID	Status	Status reason
2024-02-03 16:48:23 UTC+0530	AZANatGateway	CREATE_IN_PROGRESS	Resource creation Initiated
2024-02-03 16:48:22 UTC+0530	AZANatGateway	CREATE_IN_PROGRESS	-
2024-02-03 16:48:20 UTC+0530	AZANatGatewayEIP	CREATE_COMPLETE	-
2024-02-03 16:48:09 UTC+0530	PublicSubnetRouteTableAssociation	CREATE_COMPLETE	-

STACK RESOURCES CREATE THE COMPLETE...

The screenshot shows the AWS CloudFormation console with the 'Resources' tab selected for the stack 'Hospital-project-cloudformation-vpc-stack'. The table displays the following resources:

Logical ID	Physical ID	Type	Status
AZNatGateway	nat-0edb189fad72d3c89	AWS::EC2::NatGateway	CREATE_IN_PROGRESS
AZNatGatewayEIP	18.223.4.253	AWS::EC2::EIP	CREATE_COMPLETE
GatewayToInternet	IGW vpc-06e55aa0f42964b2e	AWS::EC2::VPCTunnelAttachment	CREATE_COMPLETE
InternetGateway	igw-0a1c790b580695fc7	AWS::EC2::InternetGateway	CREATE_COMPLETE

STACK PARAMETERS IN THE CLOUDFORMATION..

The screenshot shows the AWS CloudFormation console with the 'Parameters' tab selected for the stack 'Hospital-project-cloudformation-vpc-stack'. The table displays the following parameters:

Key	Value	Resolved value
PrivateSubnetCIDR	10.22.1.0/24	-
PublicSubnetCIDR	10.22.0.0/24	-
VPCCIDR	10.22.0.0/16	-

FINALLY CHECK THE CREATE STACK IN TEMPLATE..

The screenshot shows the AWS CloudFormation Stacks page. At the top, there are tabs for 'Stacks | CloudFormation | us-east-2' and 'Dashboard | Amazon SNS | Simple Queue Service'. Below the tabs, the URL is 'us-east-2.console.aws.amazon.com/cloudformation/home?region=us-east-2#/stacks?filteringStatus=active&filteringText=&stackId=arn%3Aaws%3Acloudformation%3Aus-east-2%3A05890072999...'. The browser toolbar includes links for Gmail, YouTube, Maps, Paytm Seller, iBOMMA - Watch T..., Facebook, Instagram, linkedin - Google S..., (3) Feed | LinkedIn, Updated Bench all b..., Mail - Sai Sreenivas..., All Bookmarks, and Ohio. The AWS navigation bar shows 'Services' and 'EC2'. The main content area is titled 'CloudFormation > Stacks' and displays a table for 'Stacks (1)'. The table has columns for 'Stack name', 'Status', 'Created time', and 'Description'. One row is shown: 'Hospital-project-cloudformation-vpc-stack' with status 'CREATE_COMPLETE' and created on '2024-02-03 16:47:38 UTC+0530'. The description states: 'This template deploys VPC with a pair of public and private subnets. It deploys an Internet Gateway, with a default route on the public subnets and NAT gateway and route for private subnet.'

OPEN THE CLOUDFORMATION DASHBOARD AND CLICK TO OPEN THE STACKSETS..

The screenshot shows the AWS CloudFormation StackSets page. At the top, there are tabs for 'StackSets | CloudFormation | us-east-2' and 'Dashboard | Amazon SNS | Simple Queue Service'. Below the tabs, the URL is 'us-east-2.console.aws.amazon.com/cloudformation/home?region=us-east-2#/stacksets'. The browser toolbar includes links for Gmail, YouTube, Maps, Paytm Seller, iBOMMA - Watch T..., Facebook, Instagram, linkedin - Google S..., (3) Feed | LinkedIn, Updated Bench all b..., Mail - Sai Sreenivas..., All Bookmarks, and Ohio. The AWS navigation bar shows 'Services' and 'EC2'. The main content area is titled 'CloudFormation > StackSets' and displays a table for 'StackSets (0)'. The table has columns for 'StackSet name', 'StackSet ID', 'Permission model', 'StackSet description', 'Drift status', and 'Last drift'. A message at the top says 'Activate trusted access with AWS Organizations to use service-managed permissions.' with a 'Learn more' link and a 'Activate trusted access' button. The message also states 'No StackSets to display'.

CREATE STACKSETS CHOOSE THE PERMISSIONS..

The screenshot shows the AWS CloudFormation 'Create StackSet' wizard at Step 1: Choose a template. The main title is 'Choose a template'. On the left, a vertical navigation bar lists steps: Step 1 (Choose a template), Step 2 (Specify StackSet details), Step 3 (Configure StackSet options), Step 4 (Set deployment options), and Step 5 (Review). The 'Permissions' section is open, showing two options: 'Service-managed permissions' (selected) and 'Self-service permissions'. A note below states: 'Trusted access with AWS Organizations will be activated when you click Next.' Below the permissions section is a 'Prerequisite - Prepare template' section.

PREREQUISITE PREPARE TEMPLATE..SPECIFY DETAILS..

The screenshot shows the 'Prerequisite - Prepare template' step of the CloudFormation wizard. It includes sections for 'Prepare template' (with 'Template is ready' selected) and 'Specify template'. In the 'Specify template' section, 'Template source' is set to 'Amazon S3 URL' (selected). An 'Upload a template file' button is also present. Below it, a file input field contains 'AWSTemplateFormatVersion 2010-09-09 54.txt'. At the bottom, the S3 URL is displayed as: 'S3 URL: https://s3.us-east-2.amazonaws.com/cf-templates-1dgbqrnejkfe-us-east-2/2024-02-03T112300.946Zp8y-AWSTemplateFormatVersion2010-09-0954.txt'.

GIVE THE SPECIFY STACK DETAILS...

The screenshot shows the AWS CloudFormation - StackSets creation wizard. The current step is "Specify StackSet details". The left sidebar shows steps 1 through 5: Choose a template, Specify StackSet details (current), Configure StackSet options, Set deployment options, and Review. The main area is titled "Specify StackSet details" and contains two sections: "StackSet name" and "StackSet description". In the "StackSet name" section, the input field contains "hospitalstacks" with placeholder text "for for the of". In the "StackSet description" section, the input field contains "contact details". The status bar at the bottom indicates "Successfully activated trusted access with AWS Organizations. To change this setting, please work through the AWS Organizations service console."

STACKSETS PARAMETERS...

The screenshot shows the "Parameters" configuration screen. It lists three parameters: "PrivateSubnetCIDR" (IP address range for VPC subnet), "PublicSubnetCIDR" (IP address range for VPC subnet), and "VPCCIDR" (IP range in CIDR notation for this VPC). Each parameter has a placeholder value and a text input field. Below the parameters is a note: "Parameters are defined in your template and allow you to input custom values when you create or update a stack." At the bottom right are "Cancel", "Previous", and "Next" buttons.

CONFIGURE STACKSETS OPTIONALLY..

The screenshot shows the "Configure StackSet options" screen. The left sidebar shows steps 1 through 5: Choose a template, Specify StackSet details (current), Configure StackSet options (current), Set deployment options, and Review. The main area is titled "Configure StackSet options" and contains two sections: "Tags" and "Execution configuration". In the "Tags" section, it says "No tags associated with the stack." and there is a "Add new tag" button. In the "Execution configuration" section, under "Managed execution", the "Inactive" radio button is selected. The "Inactive" option is described as "StackSets performs one operation at a time." and the "Active" option is described as "StackSets performs non-conflicting operations concurrently and queues conflicting operations. After conflicting operations finish, StackSets starts queued operations in request order." At the bottom right are "Cancel", "Previous", and "Next" buttons.

SUCCESSFULLY CREATED THE HOSPITAL STACKSETS..

The screenshot shows the AWS CloudFormation StackSets console. In the top navigation bar, the URL is `us-east-2.console.aws.amazon.com/cloudformation/home?region=us-east-2#/stacksets/hospitalstackset:476c8e6a-555c-4c0a-be67-2b106fbfecc0/operations?permissions=service`. The main content area displays the 'Operations' tab for the 'hospitalstackset'. A green success message at the top states: 'Successfully activated trusted access with AWS Organizations. To change this setting, please work through the AWS Organizations service console.' Below this, the breadcrumb navigation shows: CloudFormation > StackSets > hospitalstackset: StackSet details. The 'Operations' tab is selected, showing a table with one row: Operation ID (155d3a8-b626-33be-b0ed-63a8fe565013), Type (CREATE), Status (RUNNING), Created time (2024-02-03 16:55:27 UTC+0530), and Completed time (-). At the bottom, it says 'Stack instances: 0 Operations selected'.

AFTER THAT GO TO THE VPC'S SERVICE AND SEE THE CREATED VPC IN CLOUDFORMATION.
VPC RESOURCE MAP...

The screenshot shows the AWS VPC Resource Map. The top navigation bar has the URL `us-east-2.console.aws.amazon.com/vpcconsole/home?region=us-east-2#vpcs:`. The main content area shows the 'Your VPCs (1/2) Info' section with a table listing two VPCs: 'vpc-04e8cb00fc844d69' and 'vpc-06e55aaaf042964b2e'. Both are marked as 'Available' with IPv4 CIDR ranges '172.30.0.0/16' and '10.22.0.0/16' respectively. Below this is the 'Resource map' section, which includes a 'VPC Show details' box, a 'Subnets (2)' box, a 'Route tables (3)' box, and a 'Network connections' box. The 'Subnets' box lists 'Hospital-project-cloudformation-vpc-...' and 'Hospital-project-cloudformation-vpc-...'. The 'Route tables' box lists 'rtb-01d502bf293cafb3f', 'Hospital-project-cloudformation-vpc-...', and 'Hospital-project-cloudformation-vpc-...'. The 'Network connections' box lists 'Hospital-project-nat-0edb189fad'. The bottom navigation bar shows the date as 03/02/2024 and the time as 16:57.

THEN CREATE THE SNS ENDPOINTS...CLICK THE CREATE OPTION..

The screenshot shows the AWS VPC Endpoints console. On the left, there's a sidebar with navigation links for VPC dashboard, EC2 Global View, Filter by VPC (with a dropdown menu), Virtual private cloud (Your VPCs, Subnets, Route tables, Internet gateways, Egress-only internet gateways, DHCP option sets, Elastic IPs, Managed prefix lists), Endpoints (selected), Endpoint services, NAT gateways, and Peering connections. The main area displays a table titled 'Endpoints (1)'. The table has columns for Name, VPC endpoint ID, VPC ID, Service name, and Actions. One entry is listed: 'myendpoint' with VPC endpoint ID 'eice-0fcfc85125ddf7e00', VPC ID 'vpc-04e8cb00efc844d69', and Service name 'eice-0fcfc85125ddf7e00.35aff76f.ec2-instance-connect...'. Below the table, there's a section titled 'Select an endpoint'.

OPEN THE CREATE THE ENDPOINT HOMEPAGE GIVE THE ENDPOINT SETTINGS.. SERVICE CATEGORY...

The screenshot shows the 'Create endpoint' page. At the top, it says 'Create endpoint Info'. Below that, a note states: 'There are three types of VPC endpoints – Interface endpoints, Gateway Load Balancer endpoints, and Gateway endpoints. Interface endpoints and Gateway Load Balancer endpoints are powered by AWS PrivateLink, and use an Elastic Network Interface (ENI) as an entry point for traffic destined to the service. Interface endpoints are typically accessed using the public or private DNS name associated with the service, while Gateway endpoints and Gateway Load Balancer endpoints serve as a target for a route in your route table for traffic destined for the service.' The main section is titled 'Endpoint settings'. It includes a 'Name tag - optional' field containing 'sns-service-endpoint', a 'Service category' section with a note 'Select the service category', and a grid of service categories. The categories shown are: 'AWS services' (radio button selected), 'PrivateLink Ready partner services', 'AWS Marketplace services', 'EC2 Instance Connect Endpoint', and 'Other endpoint services'.

SEE THE END POINT SERVICES..

The screenshot shows the AWS CloudFormation console with the 'CreateVpcEndpoint' step selected. In the 'EC2' section, 'EC2 Instance Connect Endpoint' is highlighted. Other options like 'Other endpoint services' are also visible.

Services (211)		
Service Name	Owner	Type
aws.api.us-east-2.kendra-ranking	amazon	Interface
aws.sagemaker.us-east-2.notebook	amazon	Interface
aws.sagemaker.us-east-2.studio	amazon	Interface
com.amazonaws.s3-global.accesspoint	amazon	Interface
com.amazonaws.us-east-2.access-analy...	amazon	Interface
com.amazonaws.us-east-2.acm-pca	amazon	Interface
com.amazonaws.us-east-2.airflow.api	amazon	Interface
com.amazonaws.us-east-2.airflow.env	amazon	Interface
com.amazonaws.us-east-2.airflow.ops	amazon	Interface
com.amazonaws.us-east-2.appconfig	amazon	Interface

SELECT SERVICE NAME IN SNS ENDPOINT..

The screenshot shows the 'Services' section with a filter applied for 'Service Name = com.amazonaws.us-east-2 sns'. The result is a single entry for 'com.amazonaws.us-east-2 sns' which is an Interface.

Services (1/1)		
Service Name	Owner	Type
com.amazonaws.us-east-2 sns	amazon	Interface

SELECTED VPC ALSO...

The screenshot shows the 'VPC' configuration step. The 'VPC' dropdown is set to 'vpc-06e55aa0f042964b2e (Hospital-project-cloudformation-vpc-stack-VPC)'. There is also an 'Additional settings' link.

SELECTED SUBNETS ALSO..

The screenshot shows the 'Subnets' section with three subnets selected: 'us-east-2a (use2-az1)', 'us-east-2b (use2-az2)', and 'us-east-2c (use2-az3)'. The 'IP address type' dropdown is set to 'IPv4'.

Availability Zone	Subnet ID	Designate IP addresses	IPv4 address	IPv6 address
<input checked="" type="checkbox"/> us-east-2a (use2-az1)	subnet-03985007f9e5ad9f9	<input type="checkbox"/>		
<input checked="" type="checkbox"/> us-east-2b (use2-az2)	subnet-08e4d7d8f727da020	<input type="checkbox"/>		
<input type="checkbox"/> us-east-2c (use2-az3)		<input type="checkbox"/>		

IP address type
 IPv4
 IPv6
 Dualstack

SELECT THE SECURITY GROUP DETAILS..

Security groups (3/5) Info					
	Group ID	Group name	VPC ID	Description	
<input checked="" type="checkbox"/>	sg-07c436f666defe295	launch-wizard-1	vpc-04e8cb00efc844d69	launch-wizard-1 created 2024-01-17T10:28:50.120Z	
<input checked="" type="checkbox"/>	sg-0f55cae3512b6b211	launch-wizard-4	vpc-04e8cb00efc844d69	launch-wizard-4 created 2024-01-30T11:27:35.896Z	
<input checked="" type="checkbox"/>	sg-0b4b917658a6cc923	default	vpc-04e8cb00efc844d69	default VPC security group	
<input type="checkbox"/>	sg-09c257195dc4e606c	launch-wizard-3	vpc-04e8cb00efc844d69	launch-wizard-3 created 2024-01-30T11:08:40.900Z	
<input type="checkbox"/>	sg-0443111c5f2a22016	launch-wizard-2	vpc-04e8cb00efc844d69	launch-wizard-2 created 2024-01-29T10:42:56.230Z	

POLICY FULLY ACCESS.

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.

TAG SELECTED..CLICK THE CREATE ENDPOINT BUTTON DO IT..

Tags

Key	Value - optional
<input type="text" value="endpoint"/>	<input type="text" value="sns-service-endpoint"/>

[Add new tag](#)

You can add 49 more tags.

[Cancel](#) **Create endpoint**

SUCCESSFULLY CREATED VPC ENDPOINT...

The screenshot shows the AWS VPC Management console. A green success message at the top states "Successfully created VPC endpoint vpce-0ae2f89ea8a673e87". Below it, a table lists the endpoint details:

Name	VPC endpoint ID	VPC ID	Service name
-	vpce-0ae2f89ea8a673e87	vpc-04e8cb00efc844d69	com.amazonaws.us-east-2.sns

A status message below the table indicates "Update in progress" with the note "Endpoint is in pending state, information might be out of date." At the bottom of the page, there are tabs for Details, Subnets, Security Groups, Notification, Policy, Monitoring, and Tags.

OPEN THE EC2 CONSOLE HOMEPAGE AND CLICK THE CREATE INSTANCE..

The screenshot shows the AWS EC2 homepage. On the left, a sidebar menu includes EC2 Dashboard, EC2 Global View, Events, Instances (with sub-options like Instances, Instance Types, Launch Templates, Spot Requests, Savings Plans, Reserved Instances, Dedicated Hosts, Capacity Reservations), Images (AMIs, AMI Catalog), and Elastic Block Store (Volumes). The main content area features a "Resources" section with counts for Instances (running), Auto Scaling Groups, Dedicated Hosts, Elastic IPs, Instances, Key pairs, Load balancers, Placement groups, Security groups, Snapshots, and Volumes. Below this is a "Launch instance" section with a prominent orange "Launch instance" button and a "Migrate a server" link. To the right, there's a "Service health" section with a link to the AWS Health Dashboard, a "Regions" section showing US East (Ohio) as the selected region, and a "Zones" section. A sidebar on the right displays "EC2 Free Tier" offers and "Offer usage (monthly)" metrics for Linux EC2 Instances and Storage space on EBS. The bottom of the screen shows the standard AWS navigation bar with CloudShell, Feedback, and search options.

LAUNCH AN INSTANCE GIVE TAG AND NAME..

The screenshot shows the 'Launch an instance' wizard on the AWS EC2 console. The configuration includes:

- Name and tags:** Name is set to "hospital-application".
- Application and OS Images (Amazon Machine Image):** Software Image (AMI) is set to "Amazon Linux 2023 AMI 2023.3.2...".
- Virtual server type (instance type):** t2.micro.
- Firewall (security group):** New security group.
- Storage (volumes):** 1 volume(s) - 8 GiB.

A modal window displays a "Free tier: In your first year" message with a "Launch instance" button.

SUCCESSFULLY CREATED THE INSTANCE IN EC2.

The screenshot shows the AWS EC2 Instances page with the following details:

- Status:** Success, message: "Successfully initiated launch of instance (i-0064722545f845d86)".
- Next Steps:** A search bar with placeholder "What would you like to do next with this instance, for example "create alarm" or "create backup"" and a page navigation bar (1-6).
- Actions:** Four cards:
 - Create billing and free tier usage alerts:** To manage costs and avoid surprise bills, set up email notifications for billing and free tier usage thresholds. Includes a "Create billing alerts" button.
 - Connect to your instance:** Once your instance is running, log into it from your local computer. Includes a "Connect to instance" button and a "Learn more" link.
 - Connect an RDS database:** Configure the connection between an EC2 instance and a database to allow traffic flow between them. Includes a "Connect an RDS database" button and a "Create a new RDS database" link.
 - Create EBS snapshot policy:** Create a policy that automates the creation, retention, and deletion of EBS snapshots. Includes a "Create EBS snapshot policy" button.

NOW SEE THE RUNNING INSTANCE IN EC2..

GO TO THE IAM ROLE HOMEPAGE SELECTED TRUSTED ENTITY...

The screenshot shows the AWS EC2 Instances page. On the left, there's a navigation sidebar with options like EC2 Dashboard, EC2 Global View, Events, Instances (selected), Instance Types, Launch Templates, Spot Requests, Savings Plans, Reserved Instances, Dedicated Hosts, Capacity Reservations, Images, AMIs, AMI Catalog, and Elastic Block Store. The main area displays a table titled 'Instances (1/4)'. A row for an instance named 'hospital-appic...' is selected, showing its status as 'Running'. Below the table, a detailed view for the selected instance is shown, including its instance ID (i-0064722545f845d86), public IPv4 address (18.118.171.83), private IP (172.30.2.14), and public IPv4 DNS (ec2-18-118-171-83.us-east-2.compute.amazonaws.com).

The screenshot shows the AWS IAM Roles creation page. The top navigation bar includes links for Instances | EC2 | us-east-2, Create role | IAM | Global, Untitled document - Google Docs, ChatGPT, and various browser tabs. The main content area is titled 'Select trusted entity' and 'Step 1: Select trusted entity'. It shows a 'Trusted entity type' section with four options: 'AWS service' (selected), 'AWS account', 'Web identity', 'SAML 2.0 federation', and 'Custom trust policy'. Below this is a 'Use case' section with the description 'Allow an AWS service like EC2, Lambda, or others to perform actions in this account.' At the bottom, there's a 'Service or use case' input field and a 'Next Step' button.

USE CASE OF IMA ROLE SELECT THE EC2..

The screenshot shows the AWS IAM console interface for creating a new role. In the top navigation bar, the URL is `us-east-1.console.aws.amazon.com/iam/home?region=us-east-2#/roles/create`. The main content area is titled "Use case". A dropdown menu under "Service or use case" is set to "EC2". Below it, a list of "Use case" options is displayed, with the first item, "EC2", selected. This option allows EC2 instances to call AWS services on behalf of the user.

ADD PERMISSION POLICY...

The screenshot shows the "Add permissions" step of the IAM role creation wizard. On the left, a sidebar shows steps: Step 1 (Select trusted entity), Step 2 (Add permissions), and Step 3 (Name, review, and create). The main area is titled "Add permissions" and shows a table of "Permissions policies (1/916)". The table includes columns for "Policy name", "Type", and "Description". The "AmazonSNSFullAccess" policy is selected and highlighted. Other policies listed include "AmazonSNSReadOnlyAccess", "AmazonSNSRole", "AWSelasticBeanstalkRoleSNS", and "AWSIoTDeviceDefenderPublishFindings...".

SET PERMISSION BOUNDARY OPTIONAL..

The screenshot shows the "Set permissions boundary - optional" step of the IAM role creation wizard. It contains a list of two options: "Create role without a permissions boundary" (which is selected) and "Use a permissions boundary to control the maximum role permissions". At the bottom right, there are "Cancel", "Previous", and "Next" buttons.

REVIEW THE CREATE THE ROLE..

The screenshot shows the 'Name, review, and create' step of the IAM role creation wizard. It includes sections for 'Role details' where the role name is set to 'hospital-ec2-sns-role' and a description is provided: 'Allows EC2 instances to call AWS services on your behalf.' The sidebar on the left lists steps: 'Select trusted entity' (Step 1), 'Add permissions' (Step 2), and 'Name, review, and create' (Step 3).

SELECTED TRUSTED ENTITIES..

The screenshot shows the 'Trust policy' section with a large JSON document. The policy allows EC2 instances to assume the role:

```
1 {  
2   "Version": "2012-10-17",  
3   "Statement": [  
4     {  
5       "Effect": "Allow",  
6       "Action": [  
7         "sts:AssumeRole"  
8       ],  
9       "Principal": {  
10         "Service": [  
11           "ec2.amazonaws.com"  
12         ]  
13       }  
14     }  
15   ]  
16 }
```

SET THE PERMISSION AND ADD TAGS CLICK THE CREATE ROLE OPTION.

The screenshot shows the IAM role creation wizard. It has three main steps:

- Step 2: Add permissions**: Shows a table with one item: 'AmazonSNSFullAccess' (AWS managed, Permissions policy).
- Step 3: Add tags**: Shows a section for adding optional tags, stating 'No tags associated with the resource.' and providing a 'Add new tag' button.

At the bottom right, there are 'Cancel', 'Previous', and 'Create role' buttons. The browser status bar at the bottom indicates it's from a Microsoft Edge session on March 2, 2024, at 17:14.

SUCCESSFULLY CREATED THE HOSPITAL ROLE..

The screenshot shows the AWS IAM console with the 'hospital-ec2-sns-role' selected. The 'Summary' section displays creation date (February 03, 2024), ARN (arn:aws:iam::058900729997:role/hospital-ec2-sns-role), and last activity (Maximum session duration: 1 hour). The 'Permissions' tab is active, showing one managed policy attached. The browser taskbar at the bottom includes links for Instances, hospital-ec2-sns-role, IAM, AmazonSNSFullAccess, Untitled document - Google, ChatGPT, Gmail, YouTube, Maps, Paytm Seller, iBOMMA - Watch T..., Facebook, Instagram, linkedin - Google S..., (3) Feed | LinkedIn, Updated Bench all b..., Mail - Sai Sreenivas..., and All Bookmarks.

NOW GO THE INSTANCE OPEN THE ACTION MODIFY THE ROLE..

The screenshot shows the AWS EC2 Instances page with the 'hospital-appic...' instance selected. The instance is running (t2.micro). A context menu is open over the instance, with the 'Modify IAM role' option highlighted. The browser taskbar at the bottom includes links for Instances, hospital-ec2-sns-role, IAM, AmazonSNSFullAccess, Untitled document - Google, ChatGPT, Gmail, YouTube, Maps, Paytm Seller, iBOMMA - Watch T..., Facebook, Instagram, linkedin - Google S..., (3) Feed | LinkedIn, Updated Bench all b..., Mail - Sai Sreenivas..., and All Bookmarks.

MODIFY THE IAM ROLE UPDATE IT..

The screenshot shows the 'Modify IAM role' dialog for the 'hospital-appic...' instance. The 'Instance ID' dropdown is set to 'i-0064722545f845d86 (hospital-application)'. The 'IAM role' dropdown is set to 'hospital-ec2-sns-role'. The 'Create new IAM role' button is visible. The browser taskbar at the bottom includes links for Modify IAM role, hospital-ec2-sns-role, IAM, AmazonSNSFullAccess, Untitled document - Google, ChatGPT, Gmail, YouTube, Maps, Paytm Seller, iBOMMA - Watch T..., Facebook, Instagram, linkedin - Google S..., (3) Feed | LinkedIn, Updated Bench all b..., Mail - Sai Sreenivas..., and All Bookmarks.

SUCCESSFULLY UPDATED THE IAM ROLE AND ATTACH THE EC2..

Successfully attached hospital-ec2-sns-role to instance i-0064722545f845d86

Instances (1/4) Info

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4
master	i-09ac81fb28f832a98	Stopped	t2.micro	-	View alarms +	us-east-2c	-
slaver 2	i-0be0de1b8bf215e23	Stopped	t2.micro	-	View alarms +	us-east-2c	-
slaver 1	i-0d564ab55c27d449a	Stopped	t2.micro	-	View alarms +	us-east-2c	-

Instance: i-0064722545f845d86 (hospital-application)

Details Status and alarms New Monitoring Security Networking Storage Tags

Instance summary Info

Instance ID i-0064722545f845d86 (hospital-application)	Public IPv4 address 18.118.171.83 [open address]	Private IPv4 addresses 172.30.2.14
IPv6 address -	Instance state Running	Public IPv4 DNS ec2-18-118-171-83.us-east-2.compute.amazonaws.com [open address]
Hostname type IP name: ip-172-30-2-14.us-east-2.compute.internal	Private IP DNS name (IPv4 only) ip-172-30-2-14.us-east-2.compute.internal	

CLICK TO CONNECT THE EC2 INSTANCE CLICK THE CONNECT..

EC2 Instance Connect Session Manager SSH client EC2 serial console

Instance ID: i-0064722545f845d86 (hospital-application)

Connection Type:

Connect using EC2 Instance Connect
Connect using the EC2 Instance Connect browser-based client, with a public IPv4 address.

Connect using EC2 Instance Connect Endpoint
Connect using the EC2 Instance Connect browser-based client, with a private IPv4 address and a VPC endpoint.

Public IP address: 18.118.171.83

Username: ec2-user

Note: In most cases, the default username, ec2-user, is correct. However, read your AMI usage instructions to check if the AMI owner has changed the default AMI username.

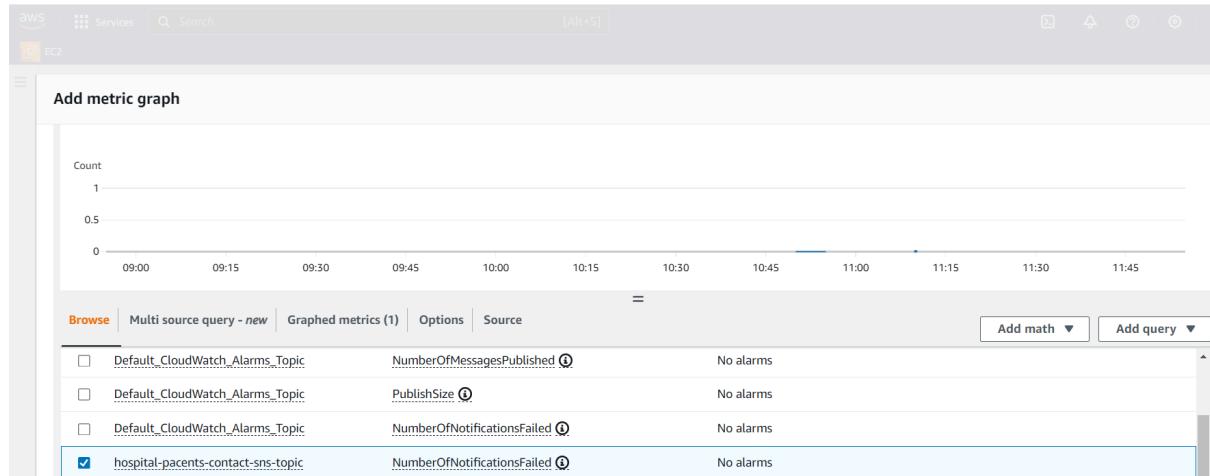
Cancel Connect

CONNECT THE AWS CONSOLE AND SEE THE SNS ARN DETAILS...

```
[ec2-user@ip-172-30-2-14 ~]$ sudo yum update
Last metadata expiration check: 0:08:39 ago on Sat Feb 3 11:40:10 2024.
Dependencies resolved.
Nothing to do.
Complete!
[ec2-user@ip-172-30-2-14 ~]$ yum update
Error: This command has to be run with superuser privileges (under the root user on most systems).
[ec2-user@ip-172-30-2-14 ~]$ cd
[ec2-user@ip-172-30-2-14 ~]$ ls
[ec2-user@ip-172-30-2-14 ~]$ yum install aws cli
Error: This command has to be run with superuser privileges (under the root user on most systems).
[ec2-user@ip-172-30-2-14 ~]$ yum install awscli
Error: This command has to be run with superuser privileges (under the root user on most systems).
[ec2-user@ip-172-30-2-14 ~]$ ^[[200~arn:aws:sns:us-east-2:058900729997:hospital-pacents-contact-sns-topic`-bash: $'\E[200~arn:aws:sns:us-east-2:058900729997:hospital-pacents-contact-sns-topic`-command not found
[ec2-user@ip-172-30-2-14 ~]$ arn:aws:sns:us-east-2:058900729997:hospital-pacents-contact-sns-topic`-bash: arn:aws:sns:us-east-2:058900729997:hospital-pacents-contact-sns-topic`-command not found
[ec2-user@ip-172-30-2-14 ~]$ arn:aws:sns:us-east-2:058900729997:hospital-pacents-contact-sns-topic`-bash: arn:aws:sns:us-east-2:058900729997:hospital-pacents-contact-sns-topic`-command not found
[ec2-user@ip-172-30-2-14 ~]$ yum install awscli
Error: This command has to be run with superuser privileges (under the root user on most systems).
[ec2-user@ip-172-30-2-14 ~]$ arn:aws:sns:us-east-2:058900729997:hospital-pacents-contact-sns-topic`-bash: arn:aws:sns:us-east-2:058900729997:hospital-pacents-contact-sns-topic`-command not found
[ec2-user@ip-172-30-2-14 ~]$ i-0064722545f845d86 (hospital-application)
PublicIPs: 18.118.171.83 PrivateIPs: 172.30.2.14
```



AND FINALLY OPEN THE CLOUDWATCH SEE THE CREATED THE HOSPITAL PATIENTS CONTACT SNS TOPIC



Hence the Solution is provided successfully If we have an Application then we can add these CLI codes to the button action and create a topic for each customer and send the notification privately to a specific user.

END.