

Healthcare Project

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.

Solution:

Step-1: Open cloud formation and create a stack by choosing a template and upload a template, name the stack and finally review the stack and click on submit.

Stacks (0) [Refresh] [Delete] [Update] [Stack actions] [Create stack]

Filter by stack name [Search] Filter status: Active [Dropdown] View nested [Toggle]

Stack name	Status	Created time	Description
No stacks No stacks to display			

[Create stack] [View getting started guide]

Create stack

Prerequisite - Prepare template

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.

Selecting a template generates an Amazon S3 URL where it will be stored.

☐ Amazon S3 URL

Provide an Amazon S3 URL to your template.

☒ Upload a template file

Upload your template directly to the console.

☐ Sync from Git

Sync a template from your Git repository.

Upload a template file

[Choose file]

Project3-Cf-tmp-new (1).yaml

JSON or YAML formatted file

S3 URL: [https://s3.us-east-1.amazonaws.com/cf-templates-1ejsaob12ennw-us-east-1/2024-12-06T061754.492Zu7v-Project3-Cf-tmp-new\(1\).yaml](https://s3.us-east-1.amazonaws.com/cf-templates-1ejsaob12ennw-us-east-1/2024-12-06T061754.492Zu7v-Project3-Cf-tmp-new(1).yaml)

[View in Infrastructure Composer]

Cancel

Next

Stack name

stack-cf-health

Stack name must be 1 to 128 characters, start with a letter, and only contain alphanumeric characters. Character count: 15/128.

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

north

SSHLocation

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

0.0.0.0/0

Stack creation options

Timeout

-

Termination protection

Deactivated

Quick-create link

Use quick-create links to get stacks up and running quickly from the AWS CloudFormation console with the same basic configuration as this stack. Copy the URL on the link to share. [Learn more](#)

Open quick-create link

Create change set

Stacks (1)

Cancel

Previous

Submit

Refresh

Delete

Update

Stack actions

Create stack

Filter status

Active

View nested

Filter by stack name

< 1 >

Stack name	Status	Created time	Description
stack-cf-health	CREATE_COMPLETE	2024-12-06 11:51:54 UTC+0530	CloudFormation Template for SNS VPC Endpoints Tutorial

Step-2: Go to SNS, a topic gets created. Select the topic and create subscription and confirm the subscription.

Topics (1)

Edit

Delete

Publish message

Create topic

Search

< 1 >

Name	Type	ARN
VPCE-Tutorial-Topic	Standard	arn:aws:sns:us-east-1:043309329049:V...

Details

Name

VPCE-Tutorial-Topic

Display name

VPCE-Tutorial-Topic

ARN

arn:aws:sns:us-east-1:043309329049:VPCE-Tutorial-Topic

Type

Standard

Topic owner

043309329049

<

Subscriptions

Access policy

Data protection policy

Delivery policy (HTTP/S)

Delivery status

>

Subscriptions (0)

Edit

Delete

Request confirmation

Confirm subscription

Create subscription

ARN

arn:aws:sns:us-east-1:043309329049:VPCE-Tutorial-Topic

Topic owner

043309329049

Type

Standard

<

Subscriptions

Access policy

Data protection policy

Delivery policy (HTTP/S)

Delivery status

>

Subscriptions (1)

Edit

Delete

Request confirmation

Confirm subscription

Create subscription

Search

< 1 >

ID	Endpoint	Status	Protocol
781803ce-6a06-431f-87...	obulreddy1252@gmail.c...	Confirmed	EMAIL

Step-3: Go to VPC, create endpoint with AWS service type, choose the SNS topic and select the network, subnets, security groups and click on create endpoint.

Endpoints [Info](#)

[Refresh](#) [Actions](#) [Create endpoint](#)

< 1 > [Settings](#)

Name	VPC endpoint ID	Endpoint type	Status
No endpoint found			

Name tag - optional
Creates a tag with a key of 'Name' and a value that you specify. Tags help you find and manage your endpoint.

Type [Info](#)
Select a category

☒ **AWS services**
Connect to services provided by Amazon with an interface endpoint, or a Gateway endpoint

☐ **PrivateLink Ready partner services**
Connect to SaaS services which have AWS Service Ready designation with an interface endpoint. Uses AWS PrivateLink

☐ **AWS Marketplace services**
Connect to SaaS services that you have purchased through AWS Marketplace with an Interface Endpoint

☐ **EC2 Instance Connect Endpoint**
An elastic network interface that allow you to connect to resources in a private subnet

☐ **Resources - New**
Connect to resources like Amazon Relational Database Services (RDS) with a Resource endpoint. Uses AWS PrivateLink

☐ **Service networks - New**
Connect to VPC Lattice service networks with a Service network endpoint. Uses AWS PrivateLink

☐ **Endpoint services that use NLBs and GWLBs**
Find services shared with you by service name. Connect to a Network LoadBalancer (NLB) service with an Interface

Services (1/1)

[X](#) [Clear filters](#)

Service Name	Owner	Type	Service R
com.amazonaws.us-east-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.

[Refresh](#)

Subnets (1/6) [Info](#)

	Availability Zone	Subnet ID	Designa
<input checked="" type="checkbox"/>	us-east-1a (use1-az2)	No subnet available	
<input type="checkbox"/>	us-east-1b (use1-az4)	No subnet available	
<input checked="" type="checkbox"/>	us-east-1c (use1-az6)	<input type="text" value="subnet-0491ccb0c959bb989"/>	
<input type="checkbox"/>	us-east-1d (use1-az1)	No subnet available	
<input type="checkbox"/>	us-east-1e (use1-az3)	No subnet available	
<input type="checkbox"/>	us-east-1f (use1-az5)	No subnet available	

IP address type

☒ IPv4

☐ IPv6

☐ Dualstack

Security groups (1/2) [Info](#)

[X](#) [Clear filters](#)

Group ID	Group name	VPC ID	Description
<input type="checkbox"/> sg-070cd73f5f8fd0ff5	default	vpc-03d5c314315cc3130	default VPC security group
<input checked="" type="checkbox"/> sg-0cbf478b74b7a69be	Tutorial Security Group	vpc-03d5c314315cc3130	Security group for SNS VPC er

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

☒ **Successfully created VPC endpoint**
vpce-024212e2a8b6aab68

[X](#)

Endpoints (1/1) [Info](#)

[Refresh](#) [Actions](#) [Create endpoint](#)

< 1 > [Settings](#)

Name	VPC endpoint ID	Endpoint type	Status
<input checked="" type="checkbox"/> my-endpoint	vpce-024212e2a8b6aab68	Interface	Pending

Step-4: Go to instance, an instance VPCE-TUTORIAL is running on instance dashboard. Select the instance and connect it to the machine. Enter the command and run the command.

Instances (1) [Info](#) Last updated less than a minute ago [Connect](#) [Instance state](#) [Actions](#) [Launch instances](#)

[All states](#) [< 1 >](#) [Settings](#)

<input type="checkbox"/>	Name ↗	Instance ID	Instance state ▼	Instance type ▼	Status check	Alarm status
<input type="checkbox"/>	VPCE-Tutorial-...	i-024f92e154da2a5ea	Running 🔍 🔍	t2.micro	2/2 checks passed	View alarms

```
https://aws.amazon.com/amazon-linux-2/
[ec2-user@ip-10-0-1-15 ~]$ aws sns publish --region us-east-1 --topic-arn arn:aws:sns:us-east-1:043309329049:VPCE-Tutorial-Topic --message "
we are executing project 3"
```

Step-5: The command will create the message id and send a mail from VPCE-Tutorial-Topic with message we entered in command.

```
https://aws.amazon.com/amazon-linux-2/
[ec2-user@ip-10-0-1-15 ~]$ aws sns publish --region us-east-1 --topic-arn arn:aws:sns:us-east-1:043309329049:VPCE-Tutorial-Topic --message "
we are executing project 3"
{
  "MessageId": "70c029e5-73bf-5fb3-801e-7629d332da75"
}
[ec2-user@ip-10-0-1-15 ~]$
```

