# Assignment 1

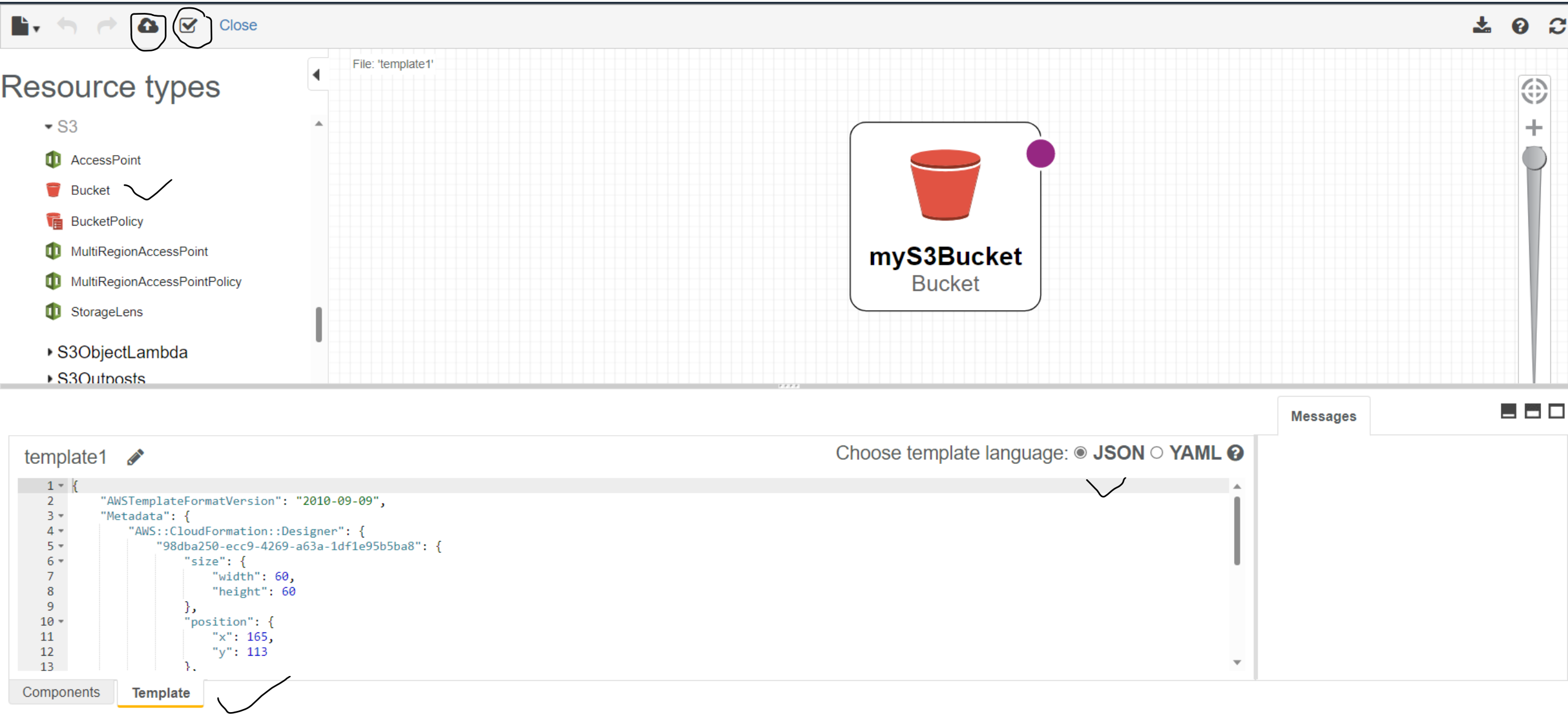
**Problem Statement:**

You work for XYZ Corporation. Your team is asked to deploy similar architecture multiple times for testing, development, and production purposes. Implement CloudFormation for the tasks assigned to you below.

**Tasks To Be Performed:**

1. Create a template which can create an S3 bucket named "Intellipaat-<yourname >"
2. The template should be able to enable versioning for the bucket created.

Search for the CloudFormation service – go in designer – choose the service you want to select like S3 bucket , drag and drop – go in template do the modification as requires – tick the correct icon which validate the code – at last click on cloud icon which initiate the stack formation process – REFRESH THE PAGE IF REQUIRES.



# Create stack

## Prerequisite - Prepare template

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.

- (●) Template is ready
- ( ) Use a sample template
- ( ) Create template in Designer

## Specify template

A template is a JSON or YAML file that describes your stack's resources and properties.

If you had template ready upload.

Template source

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 - *new* — Sync a template from your Git repository.

Amazon S3 URL

https://s3.eu-north-1.amazonaws.com/cf-templates-126txhh3ur0p8-eu-north-1/2023334sAI-template1ywrtcqixsv

Amazon S3 template URL

S3 URL: https://s3.eu-north-1.amazonaws.com/cf-templates-126txhh3ur0p8-eu-north-1/2023334sAI-template1ywrtcqixsv [View in Designer]

Cancel Next

# Specify stack details

## Provide a stack name

Stack name

mythirdStack

Stack name can include letters (A-Z and a-z), numbers (0-9), and dashes (-).

## Parameters

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

**No parameters**

There are no parameters defined in your template

Cancel Previous Next

# 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.

No tags associated with the stack.

Add new tag

You can add 50 more tag(s)

## 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

## 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 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.

▸ **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.

▸ **Notification options**

▸ **Stack creation options**

Cancel Previous Next

CloudFormation > Stacks > myStack-sid30nov

## Stacks (2)

Filter status

Filter by stack name | Active | View nested

1

| Stacks | |
|---|---|
| mythirdStack<br>2023-11-30 21:24:21 UTC+0530<br>CREATE_IN_PROGRESS | |
| myStack-sid30nov<br>2023-11-30 14:49:07 UTC+0530<br>CREATE_COMPLETE | |

## myStack-sid30nov

Delete | Update | Stack actions | Create stack

Stack info | Events | Resources | Outputs | Parameters | Template | Change sets

### Events (5)

Detect root cause

Search events

| Timestamp | Logical ID | Status | Status reason |
|---|---|---|---|
| 2023-11-30 14:49:33 UTC+0530 | myStack-sid30nov | CREATE_COMPLETE | - |
| 2023-11-30 14:49:32 UTC+0530 | myS3Bucket | CREATE_COMPLETE | - |
| 2023-11-30 14:49:11 UTC+0530 | myS3Bucket | CREATE_IN_PROGRESS | Resource creation Initiated |
| 2023-11-30 14:49:10 UTC+0530 | myS3Bucket | CREATE_IN_PROGRESS | - |
| 2023-11-30 14:49:07 UTC+0530 | myStack-sid30nov | CREATE_IN_PROGRESS | User Initiated |

## General purpose buckets (4) Info

Buckets are containers for data stored in S3. Learn more

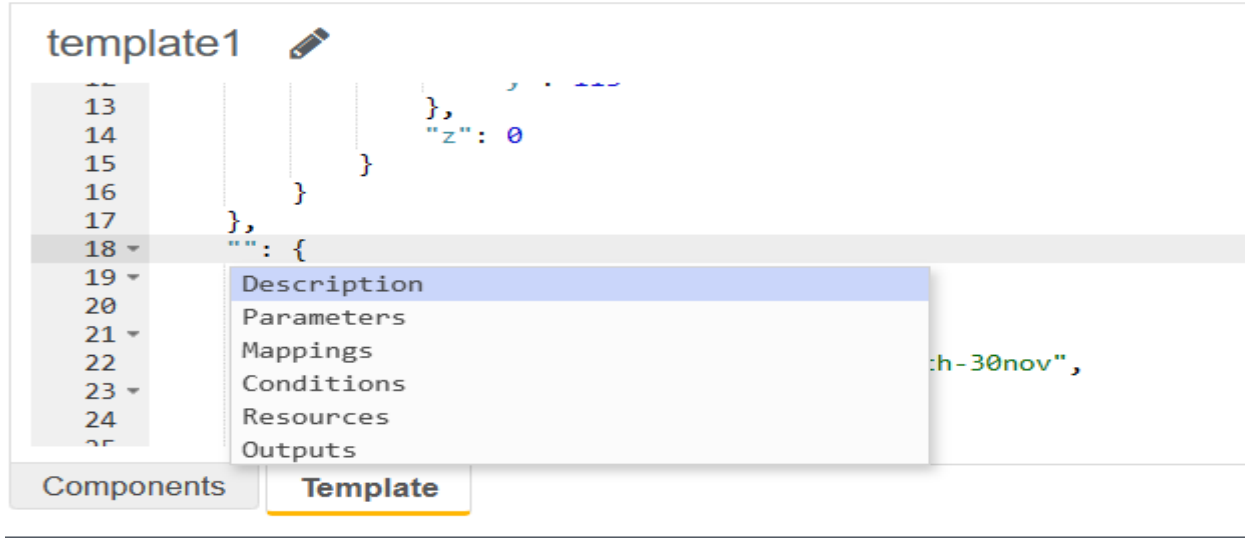
Copy ARN | Empty | Delete | Create bucket

Find buckets by name

1

| Name | AWS Region | Access | Creation date |
|---|---|---|---|
| cf-templates-126txhh3ur0p8-eu-north-1 | Europe (Stockholm) eu-north-1 | Bucket and objects not public | November 30, 2023, 14:33:57 (UTC+05:30) |
| elasticbeanstalk-eu-north-1-170303796048 | Europe (Stockholm) eu-north-1 | Objects can be public | November 29, 2023, 14:36:38 (UTC+05:30) |
| intellipaat-siddharth-30nov | Europe (Stockholm) eu-north-1 | Bucket and objects not public | November 30, 2023, 14:49:12 (UTC+05:30) |
| redshi-bucket | Europe (Stockholm) eu-north-1 | Objects can be public | November 28, 2023, 15:03:53 (UTC+05:30) |

Control key + space bar for adding any  specification.




Template codes

```
{
    "AWSTemplateFormatVersion": "2010-09-09",
    "Metadata": {
        "AWS::CloudFormation::Designer": {
            "98dba250-ecc9-4269-a63a-1df1e95b5ba8": {
                "size": {
                    "width": 60,
                    "height": 60
                },
                "position": {
                    "x": 165,
                    "y": 113
                },
                "z": 0
            }
        }
    },
    "Resources": {
        "myS3Bucket": {
            "Type": "AWS::S3::Bucket",
            "Properties": {
            "BucketName": "intellipaat-siddharth-30nov",
                "VersioningConfiguration": {
                    "Status": "Enabled"
                }
            }
        }
    }
}
```

# Assignment 2

AWS Solutions Architect Training

IntelliPaat

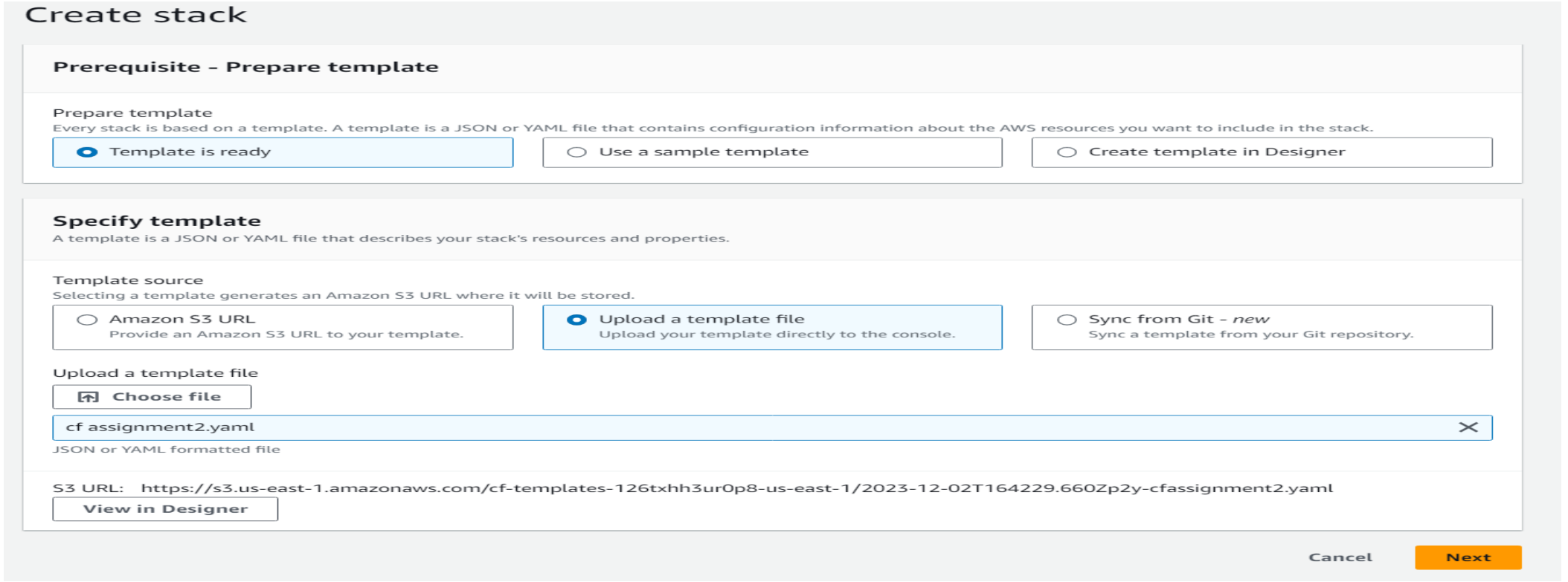
## Problem Statement:

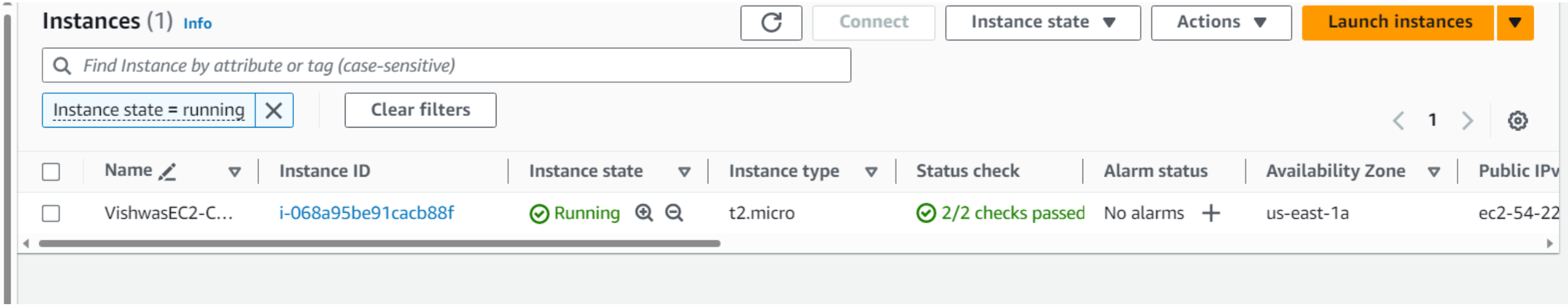
You work for XYZ Corporation. Your team is asked to deploy similar architecture multiple times for testing, development, and production purposes. Implement CloudFormation for the tasks assigned to you below.

## Tasks To Be Performed:

1. Create a template with 1 VPC and 1 public subnet.
2. Launch an Amazon Linux EC2 instance in the public subnet and tag the instance as “CFinstance”

If you had a template ready upload in Json or YAML format.



# Specify stack details

## Provide a stack name

Stack name

CF_Assignment-2-sid

Stack name can include letters (A-Z and a-z), numbers (0-9), and dashes (-).

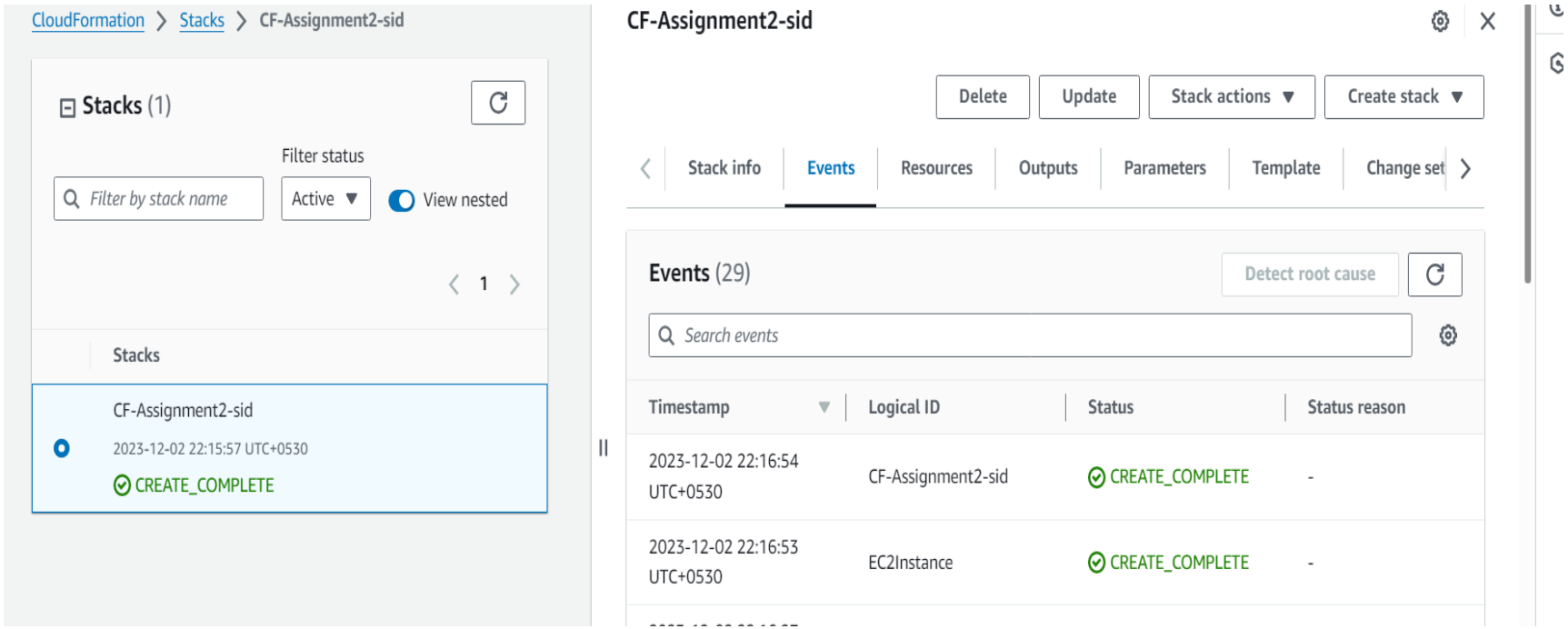
## Parameters

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

**No parameters**

There are no parameters defined in your template

Cancel | Previous | Next



# Assignment 3

AWS Solutions Architect Training

IntelliPaat

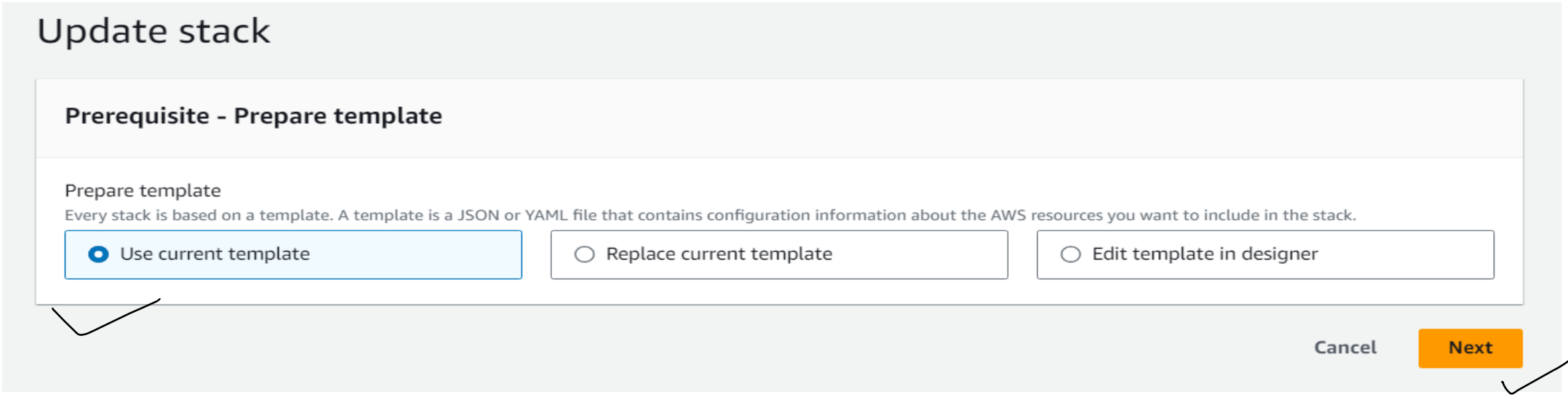
## Problem Statement:

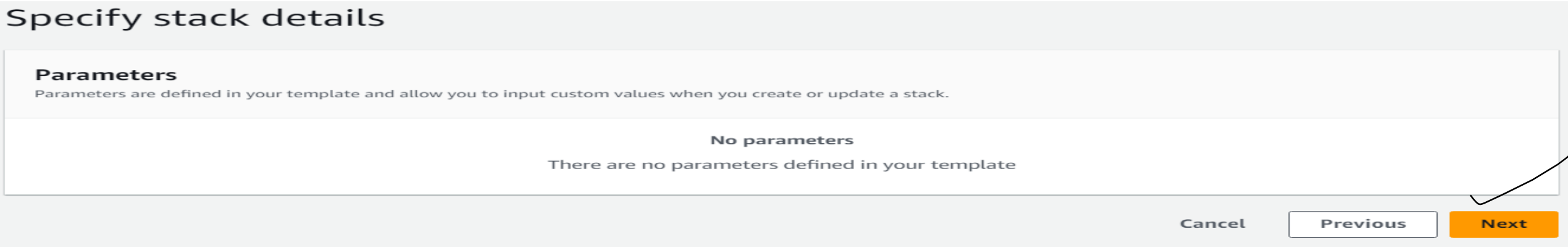
You work for XYZ Corporation. Your team is asked to deploy similar architecture multiple times for testing, development, and production purposes. Implement CloudFormation for the tasks assigned to you below.

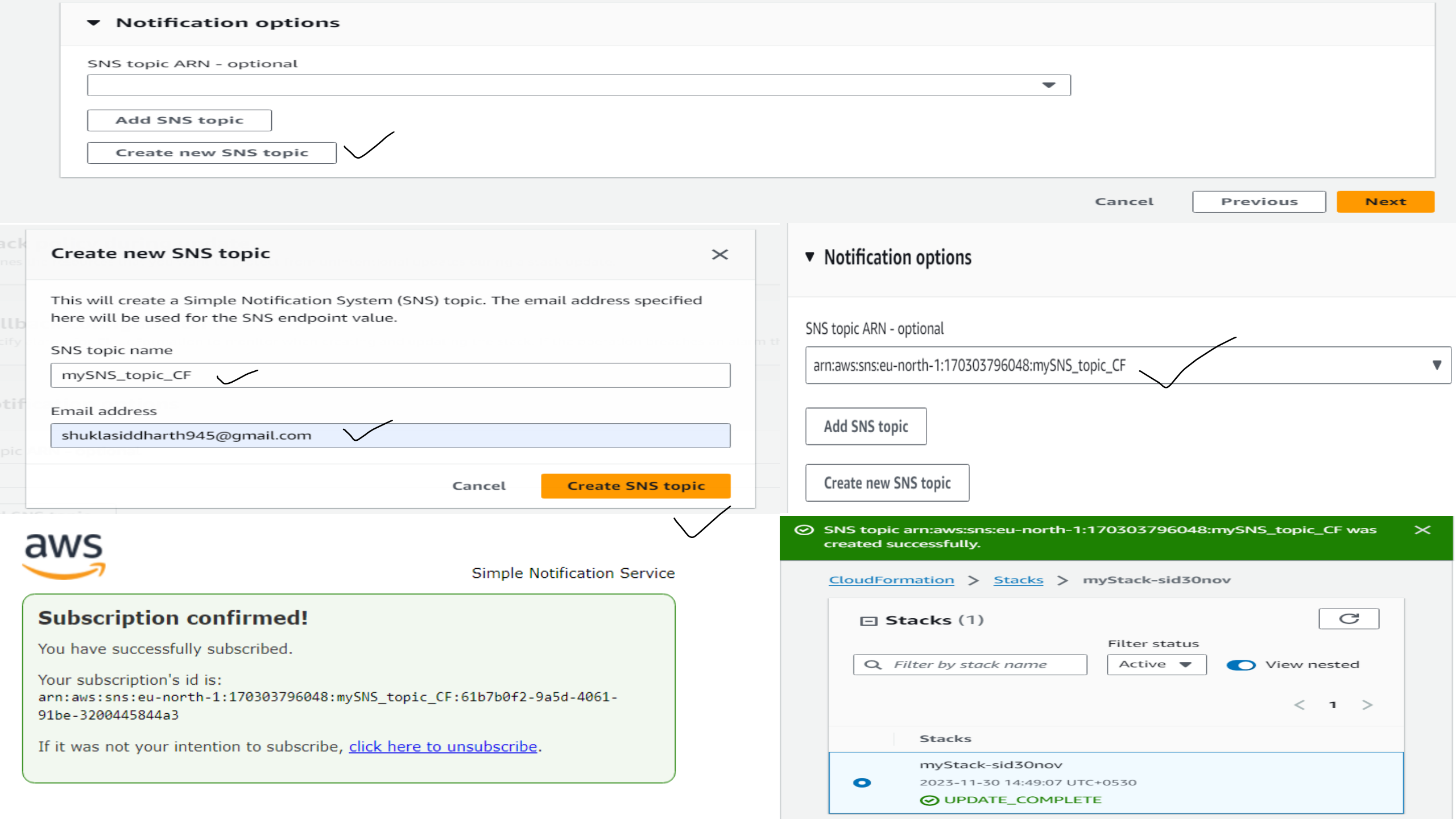
## Tasks To Be Performed:

1. Use the template from CloudFormation task 1.
2. Add Notification to the CloudFormation stack using SNS so that you get a notification via mail for every step of the stack creation process.

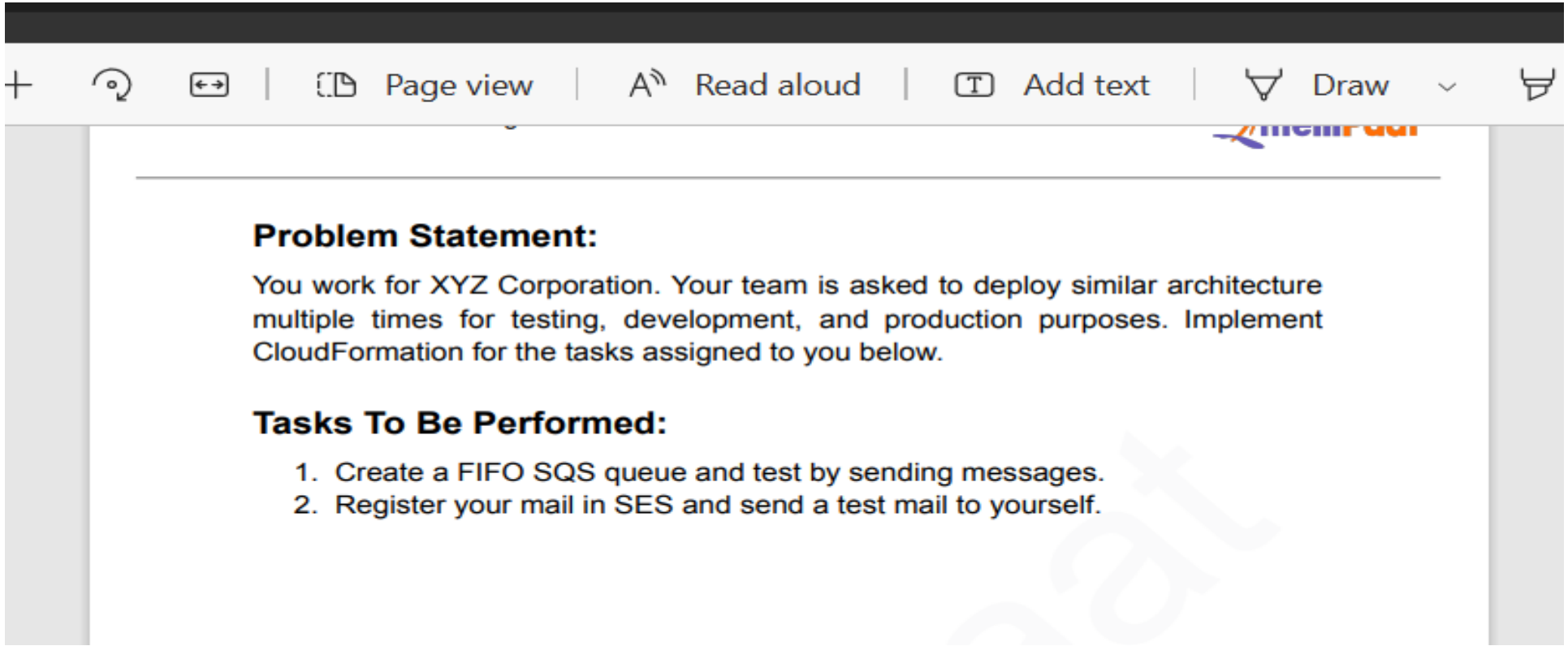
For getting SNS notifications we need to update this stack.


Notification options
SNS topic ARN - optional
Add SNS topic
Create new SNS topic
Cancel
Previous
Next
Create new SNS topic
This will create a Simple Notification System (SNS) topic. The email address specified here will be used for the SNS endpoint value.
SNS topic name
mySNS_topic_CF
Email address
shuklasiddharth945@gmail.com
Cancel
Create SNS topic
Notification options
SNS topic ARN - optional
arn:aws:sns:eu-north-1:170303796048:mySNS_topic_CF
Add SNS topic
Create new SNS topic
aws
Simple Notification Service
Subscription confirmed!
You have successfully subscribed.
Your subscription's id is:
arn:aws:sns:eu-north-1:170303796048:mySNS_topic_CF:61b7b0f2-9a5d-4061-91be-3200445844a3
If it was not your intention to subscribe, click here to unsubscribe.
SNS topic arn:aws:sns:eu-north-1:170303796048:mySNS_topic_CF was created successfully.
CloudFormation > Stacks > myStack-sid30nov
Stacks (1)
Filter by stack name
Active
View nested
1
Stacks
myStack-sid30nov
2023-11-30 14:49:07 UTC+0530
UPDATE_COMPLETE

# Assignment 4



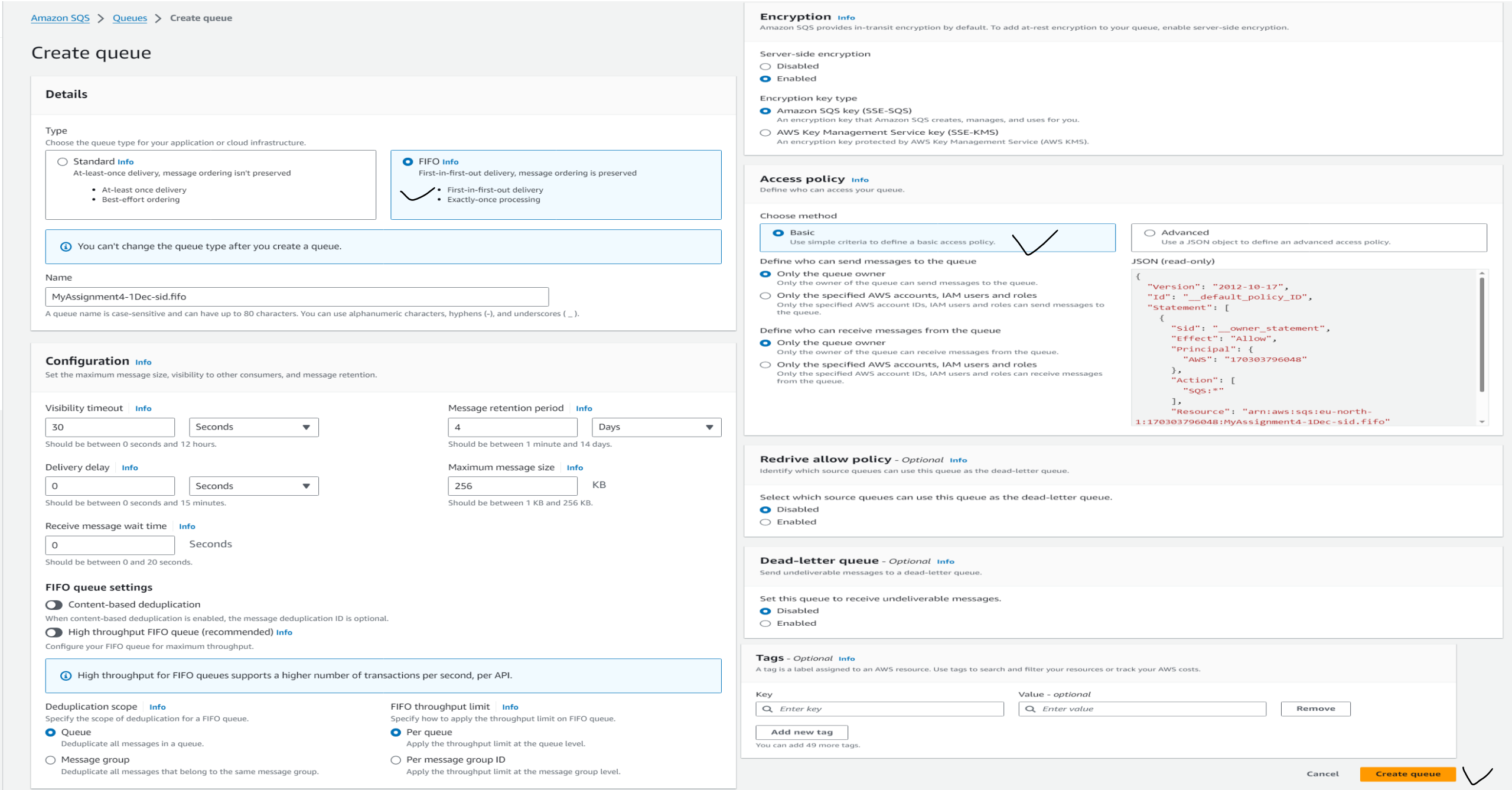

**Problem Statement:**

You work for XYZ Corporation. Your team is asked to deploy similar architecture multiple times for testing, development, and production purposes. Implement CloudFormation for the tasks assigned to you below.

**Tasks To Be Performed:**

1. Create a FIFO SQS queue and test by sending messages.
2. Register your mail in SES and send a test mail to yourself.

# Search for Simple Queue Service – create queue. Standard for all services notification, FIFO for only Queue.



Amazon SQS > Queues > Create queue

## Create queue

### Details

Type
Choose the queue type for your application or cloud infrastructure.

- Standard Info
  At-least-once delivery, message ordering isn't preserved
  - At-least once delivery
  - Best-effort ordering
- FIFO Info
  First-in-first-out delivery, message ordering is preserved
  - First-in-first-out delivery
  - Exactly-once processing

You can't change the queue type after you create a queue.

Name
MyAssignment4-1Dec-sid.fifo
A queue name is case-sensitive and can have up to 80 characters. You can use alphanumeric characters, hyphens (-), and underscores ( _ ).

### Configuration Info
Set the maximum message size, visibility to other consumers, and message retention.

Visibility timeout Info
30 Seconds
Should be between 0 seconds and 12 hours.

Message retention period Info
4 Days
Should be between 1 minute and 14 days.

Delivery delay Info
0 Seconds
Should be between 0 seconds and 15 minutes.

Maximum message size Info
256 KB
Should be between 1 KB and 256 KB.

Receive message wait time Info
0 Seconds
Should be between 0 and 20 seconds.

### FIFO queue settings

Content-based deduplication
When content-based deduplication is enabled, the message deduplication ID is optional.

High throughput FIFO queue (recommended) Info
Configure your FIFO queue for maximum throughput.

High throughput for FIFO queues supports a higher number of transactions per second, per API.

Deduplication scope Info
Specify the scope of deduplication for a FIFO queue.
- Queue
  Deduplicate all messages in a queue.
- Message group
  Deduplicate all messages that belong to the same message group.

FIFO throughput limit Info
Specify how to apply the throughput limit on FIFO queue.
- Per queue
  Apply the throughput limit at the queue level.
- Per message group ID
  Apply the throughput limit at the message group level.

### Encryption Info
Amazon SQS provides in-transit encryption by default. To add at-rest encryption to your queue, enable server-side encryption.

Server-side encryption
- Disabled
- Enabled

Encryption key type
- Amazon SQS key (SSE-SQS)
  An encryption key that Amazon SQS creates, manages, and uses for you.
- AWS Key Management Service key (SSE-KMS)
  An encryption key protected by AWS Key Management Service (AWS KMS).

### Access policy Info
Define who can access your queue.

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

Define who can send messages to the queue
- Only the queue owner
  Only the owner of the queue can send messages to the queue.
- Only the specified AWS accounts, IAM users and roles
  Only the specified AWS account IDs, IAM users and roles can send messages to the queue.

Define who can receive messages from the queue
- Only the queue owner
  Only the owner of the queue can receive messages from the queue.
- Only the specified AWS accounts, IAM users and roles
  Only the specified AWS account IDs, IAM users and roles can receive messages from the queue.

JSON (read-only)

```
{
  "Version": "2012-10-17",
  "Id": "__default_policy_ID",
  "Statement": [
    {
      "Sid": "__owner_statement",
      "Effect": "Allow",
      "Principal": {
        "AWS": "170303796048"
      },
      "Action": [
        "SQS:*"
      ],
      "Resource": "arn:aws:sqs:eu-north-
1:170303796048:MyAssignment4-1Dec-sid.fifo"
```

### Redrive allow policy - *Optional* Info
Identify which source queues can use this queue as the dead-letter queue.

Select which source queues can use this queue as the dead-letter queue.
- Disabled
- Enabled

### Dead-letter queue - *Optional* Info
Send undeliverable messages to a dead-letter queue.

Set this queue to receive undeliverable messages.
- Disabled
- Enabled

### Tags - *Optional* Info
A tag is a label assigned to an AWS resource. Use tags to search and filter your resources or track your AWS costs.

Key — Enter key
Value - *optional* — Enter value
Remove

Add new tag
You can add 49 more tags.

Cancel Create queue

## Queues (1)

Edit | Delete | Send and receive messages | Actions | Create queue

Search queues by prefix

1

| Name | Type | Created | Messages available | Messages in flight | Encryption |
|---|---|---|---|---|---|
| MyAssignment4-1Dec-sid.fifo | FIFO | 2023-12-01T15:01+05:30 | 0 | 0 | Amazon SQS |



# MyAssignment4-1Dec-sid.fifo

Edit | Delete | Purge | Send and receive messages | Start DLQ redrive

## Details Info

### Send message Info

Clear content | Send message

Message body

Enter the message to send to the queue.

Hiii i am siddhartha.

Message group ID

The tag that specifies that a message belongs to a specific message group.

1

Message deduplication ID

The token used for deduplication of messages within the deduplication interval.

1

▶ Message attributes - *Optional* Info

### Receive messages Info

Edit poll settings | Stop polling | Poll for messages

| Messages available | Polling duration | Maximum message count | Polling progress |
|---|---|---|---|
| 1 | 30 | 10 | 0% |
| | | | 0 receives/second |

### Messages (0)

View details | Delete

Search messages

1

| ID | Sent | Size | Receive count |
|---|---|---|---|

No messages. To view messages in the queue, poll for messages.

Poll for messages

## Receive messages Info

Edit poll settings | Stop polling | Poll for messages

| Messages available | Polling duration | Maximum message count | Polling progress |
|---|---|---|---|
| 1 | 30 | 10 | 1 receives/second |

### Messages (1)

View details | Delete

Search messages

1

| ID | Sent | Size | Receive count |
|---|---|---|---|
| 4d156e79-03f2-41bf-a8bc-28f0fcbb2e10 | 2023-12-01T15:06+05:30 | 22 bytes | 1 |

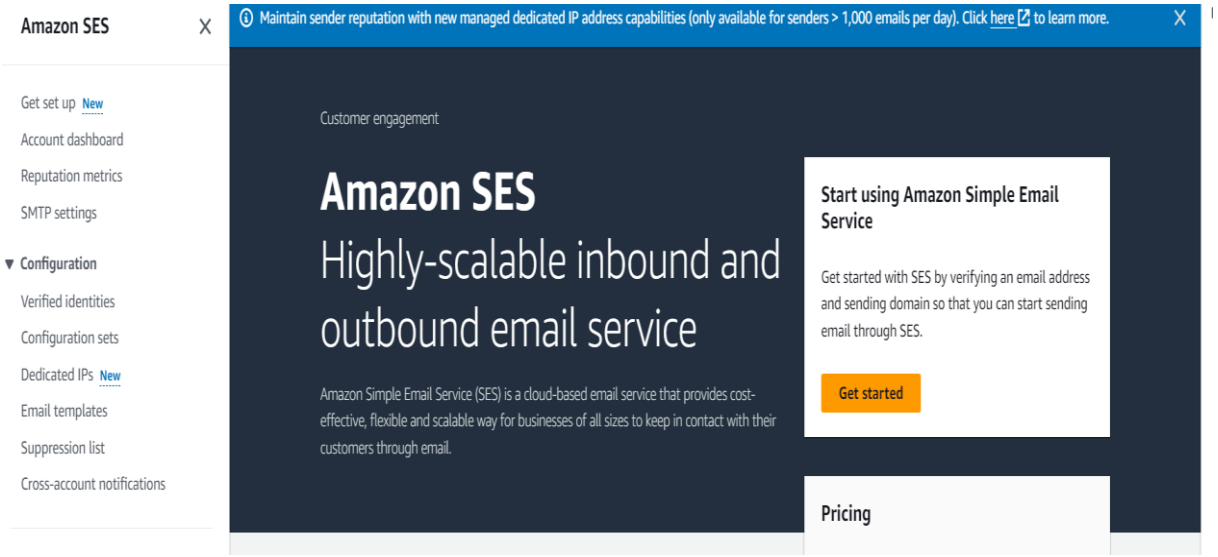
### Message: 4d156e79-03f2-41bf-a8bc-28f0fcbb2e10

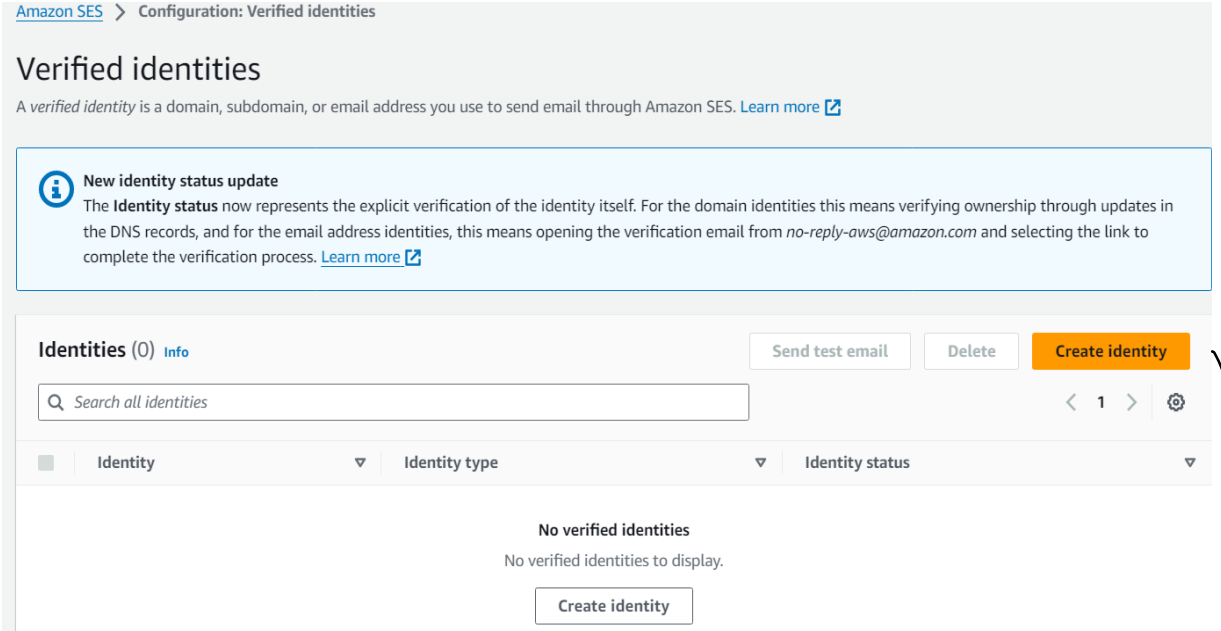
Body | Attributes | Details

Hiii i am siddhartha.

Done

Search for Simple email service. Go for verified identities.




# Create identity

A *verified identity* is a domain, subdomain, or email address you use to send email through Amazon SES. Identity verification at the domain level extends to all email addresses under one verified domain identity.

## Identity details Info

Identity type

- ○ Domain
  To verify ownership of a domain, you must have access to its DNS settings to add the necessary records.
- ◉ Email address
  To verify ownership of an email address, you must have access to its inbox to open the verification email.

Email address

shuklasiddharth945@gmail.com

Email address can contain up to 320 characters, including plus signs (+), equals signs (=) and underscores (_).

☐ Assign a default configuration set

Enabling this option ensures that the assigned configuration set is applied to messages sent from this identity by default whenever a configuration set isn't specified at the time of sending.

## Tags - *optional* Info

You can add one or more tags to help manage and organize your resources, including identities.

No tags associated with the resource.

Add new tag

You can add 50 more tags.

Cancel | Create identity

## Congratulations!

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

---

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

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

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

Thank you for using Amazon Web Services!

Go to the Amazon SES detail page.

---



# shuklasiddharth945@gmail.com

Delete | Send test email

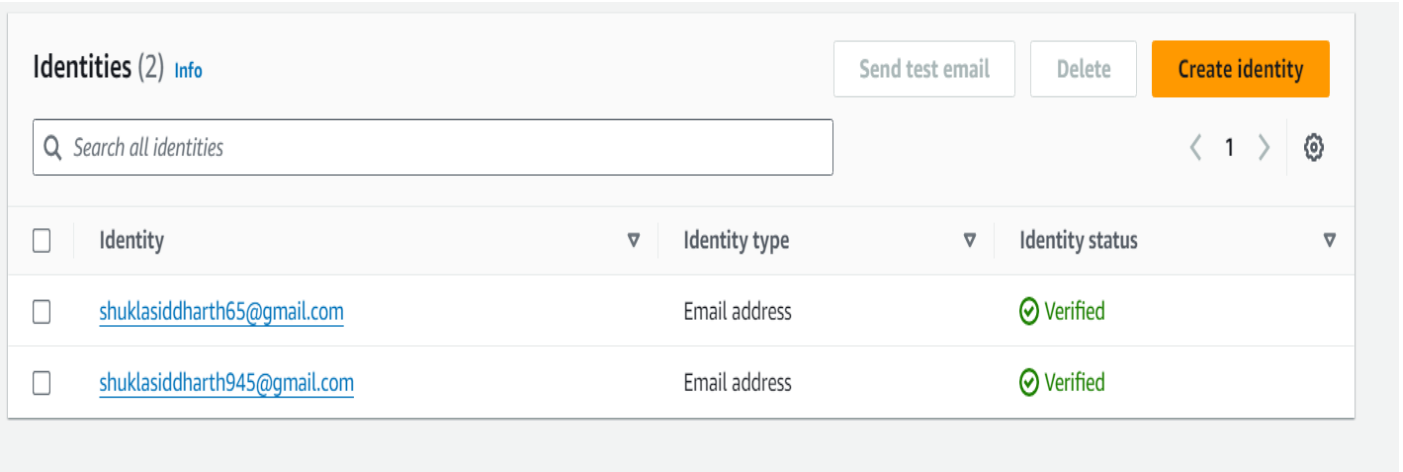
**Legacy TXT records**

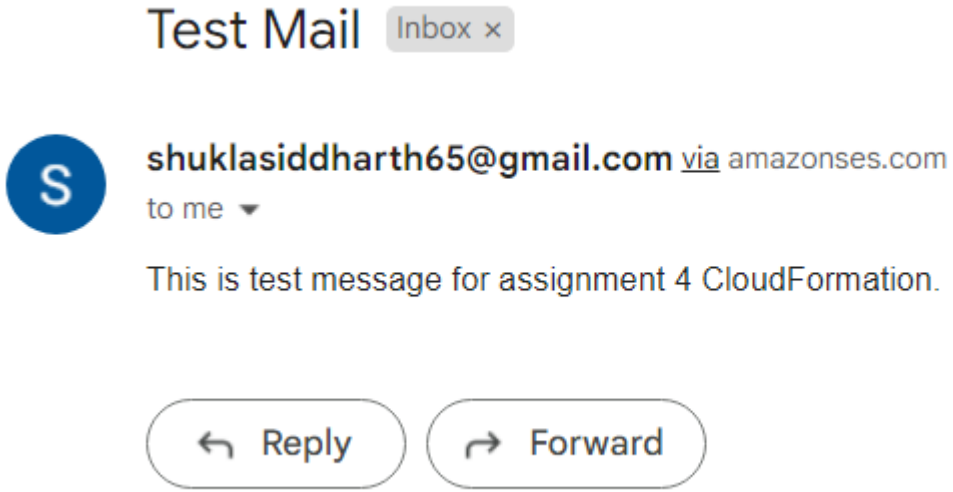
Domain verification in Amazon SES is now based on *DomainKeys Identified Mail (DKIM)*, an email authentication standard that receiving mail servers use to validate an email's authenticity. Configuring DKIM in your domain's DNS settings confirms to SES that you're the identity owner, eliminating the need for TXT records. Domain identities that were verified using TXT records do not need to be reverified; however, we still recommend enabling DKIM signatures to enhance the deliverability of your mail with DKIM-compliant email providers. **To access your legacy TXT records**, download Legacy TXT record set as .csv.

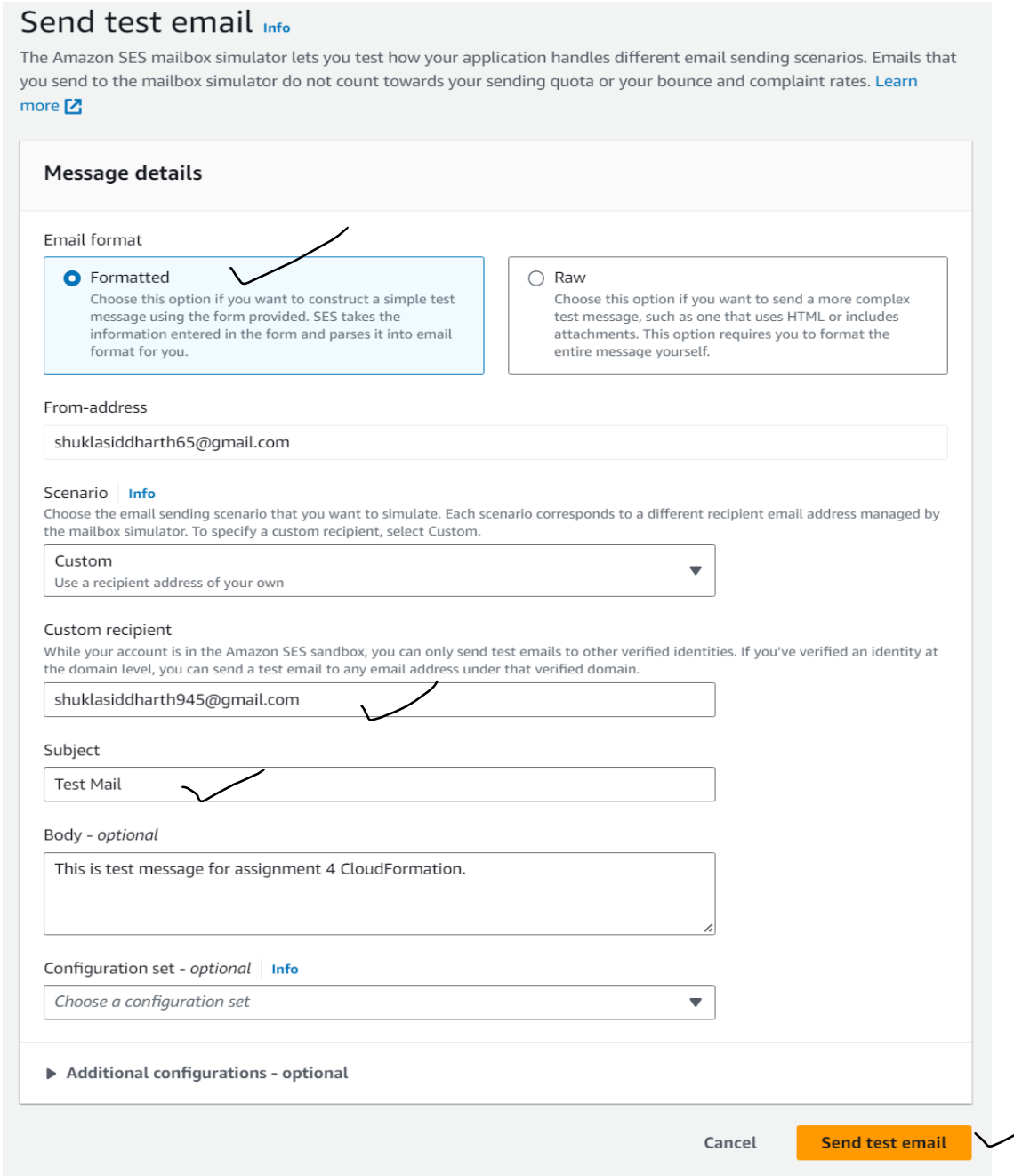
## Summary for shuklasiddharth945@gmail.com

| Identity status | Amazon Resource Name (ARN) | AWS Region |
|---|---|---|
| Verified | arn:aws:ses:eu-north-1:170303796048:identity/shuklasiddharth945@gmail.com | EU (Stockholm) |

You can always use SES for only verified emails within SES. We can test by sending message from one email to other.



# Case Study Cloud Formation

**Problem Statement:**

You work for XYZ Corporation. Your corporation wants to launch a new web-based application. The development team has prepared the code but it is not tested yet. The development team needs the system admins to build a web server to test the code but the system admins are not available.

**Tasks To Be Performed:**

1. Web tier: Launch an instance in a public subnet and that instance should allow HTTP and SSH from the internet.
2. Application tier: Launch an instance in a private subnet of the web tier and it should allow only SSH from the public subnet of Web Tier-3.
3. DB tier: Launch an RDS MYSQL instance in a private subnet and it should allow connection on port 3306 only from the private subnet of Application Tier-4.
4. Setup a Route 53 hosted zone and direct traffic to the EC2 instance.

You have been also asked to propose a solution so that:

1. Development team can test their code without having to involve the system admins and can invest their time in testing the code rather than provisioning, configuring and updating the resources needed to test the code.
2. Make sure when the development team deletes the stack, RDS DB instances should not be deleted.

# Create stack

## Prerequisite - Prepare template

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.

- (●) Template is ready
- ( ) Use a sample template
- ( ) Create template in Designer

## Specify template

A template is a JSON or YAML file that describes your stack's resources and properties.

Template source

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 - *new*
  Sync a template from your Git repository.

Upload a template file

Choose file

Cf-CaseStudy.yaml

JSON or YAML formatted file

S3 URL: https://s3.eu-north-1.amazonaws.com/cf-templates-126txhh3ur0p8-eu-north-1/2023-12-09T090040.949Zdre-Cf-CaseStudy.yaml

View in Designer

Cancel Next

# Specify stack details

## Provide a stack name

Enter stack name – choose keypair – enter any 8 character long master username and master password.

Stack name

*Enter a stack name*

Stack name can include letters (A-Z and a-z), numbers (0-9), and dashes (-).

## Parameters

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

AMI

The Ubuntu AMI to use.

ami-0b5eea76982371e91

InstanceTypeParameter

Enter instance size. Default is t2.micro.

t2.micro

Key

Select from Existing Keys.

CloudFormation

MasterUserPassword

The password for the database.

*Enter String*

MasterUsername

The username for the database.

*Enter String*

Cancel Previous Next

| | | | | | |
|---|---|---|---|---|---|
| VPCAsssessment | vpc-004716ef91f2a0c4d | Available | 10.10.0.0/16 | – | |

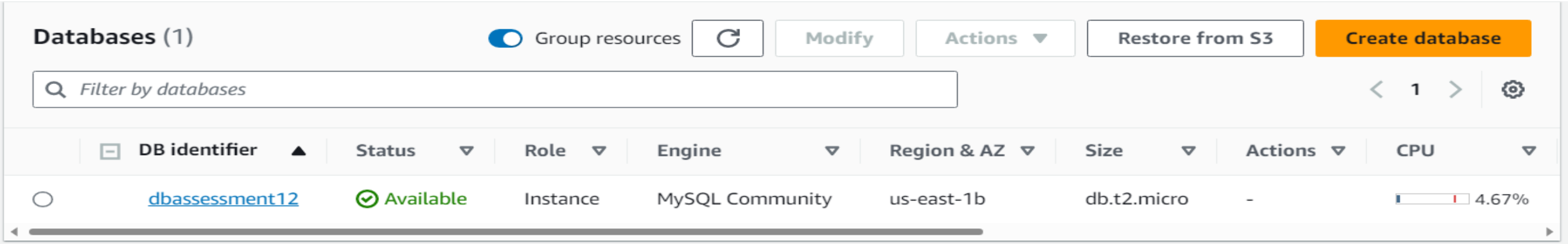
| | | | | | |
|---|---|---|---|---|---|
| RouteTablePrivateSubnet | rtb-07542feab300986b5 | subnet-03d840d9882530… | – | No | vpc-004716ef91f2a |
| RouteTablePublicSubnet | rtb-0cdffb6b8f86ee151 | subnet-042fce624943cf9… | – | No | vpc-004716ef91f2a |

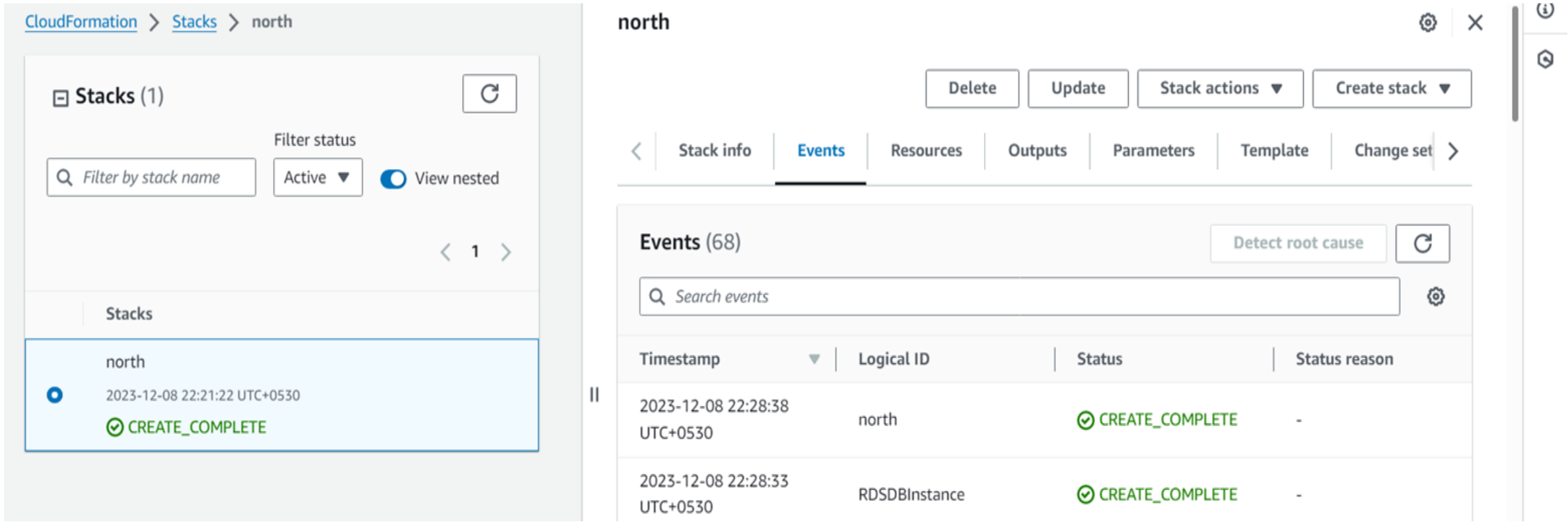
| Name | Internet gateway ID | State | VPC ID | Owner |
|---|---|---|---|---|
| InternetGatewayAssessment | igw-05cedc121f04e8471 | Attached | vpc-004716ef91f2a0c4d \| VPCAsssessm… | 170303796 |

| | | | | | | |
|---|---|---|---|---|---|---|
| NatGetwayAssessm… | nat-0ae38e49b91ab914f | Public | Available | – | 52.45.184.146 | 10.10. |

| | | | | |
|---|---|---|---|---|
| PrivateSubnetAssessment | subnet-03d840d98825301f6 | Available | vpc-004716ef91f2a0c4d \| VPCA… | 10.10.2.0/24 |
| PublicSubnetAssessment | subnet-042fce624943cf959 | Available | vpc-004716ef91f2a0c4d \| VPCA… | 10.10.1.0/24 |

| Name | Instance ID | Instance state | Instance type | Status check | Alarm status | Availability Zone | Public IPv |
|---|---|---|---|---|---|---|---|
| LinuxPublic | i-053e75229beb35ad2 | Running | t2.micro | 2/2 checks passed | No alarms | us-east-1a | ec2-18-23 |
| LinuxPrivate | i-0aecb8b63f4d2cd46 | Running | t2.micro | 2/2 checks passed | No alarms | us-east-1b | – |


Databases (1)
Group resources
Modify
Actions
Restore from S3
Create database
Filter by databases
1
DB identifier
Status
Role
Engine
Region & AZ
Size
Actions
CPU
dbassessment12
Available
Instance
MySQL Community
us-east-1b
db.t2.micro
-
4.67%


CloudFormation
Stacks
north
Stacks (1)
Filter by stack name
Filter status
Active
View nested
1
Stacks
north
2023-12-08 22:21:22 UTC+0530
CREATE_COMPLETE
north
Delete
Update
Stack actions
Create stack
Stack info
Events
Resources
Outputs
Parameters
Template
Change set
Events (68)
Detect root cause
Search events
Timestamp
Logical ID
Status
Status reason
2023-12-08 22:28:38 UTC+0530
north
CREATE_COMPLETE
-
2023-12-08 22:28:33 UTC+0530
RDSDBInstance
CREATE_COMPLETE
-