# Lesson 09 Demo 03

# Creating an S3 Bucket Using CloudFormation

**Objective:** To create an S3 Bucket stack using CloudFormation for efficient infrastructure management and deployment

**Tools required:** AWS Management Console

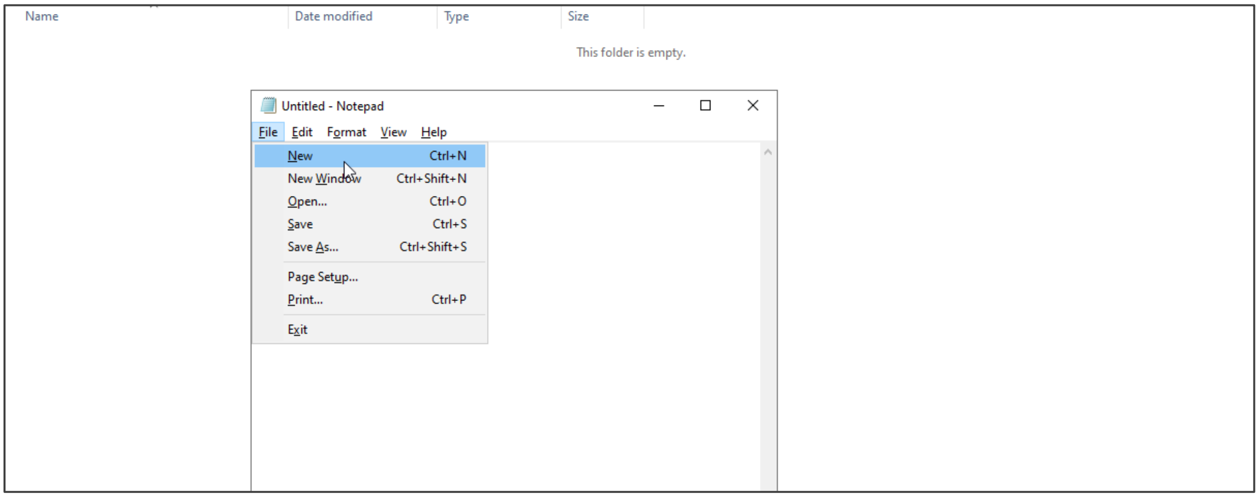
**Prerequisites:** None

Steps to be followed:

1. Create a template
2. Create an IAM role for the S3 bucket stack
3. Create an S3 Bucket stack

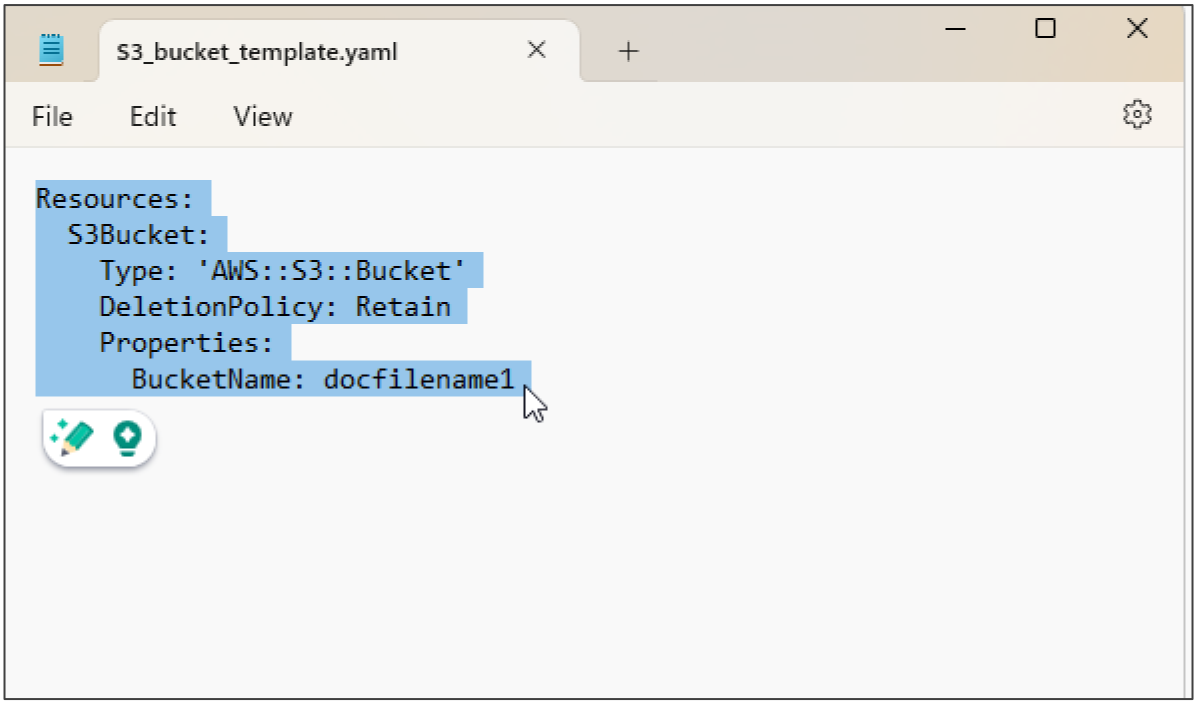
## Step 1: Create a template

1.1 Open a new file in Notepad



1.2 Write the following code in Notepad to create an S3 bucket template:

```
Resources:
 S3Bucket:
  Type: 'AWS::S3::Bucket'
  DeletionPolicy: Retain
  Properties:
   BucketName: docfilename1
```

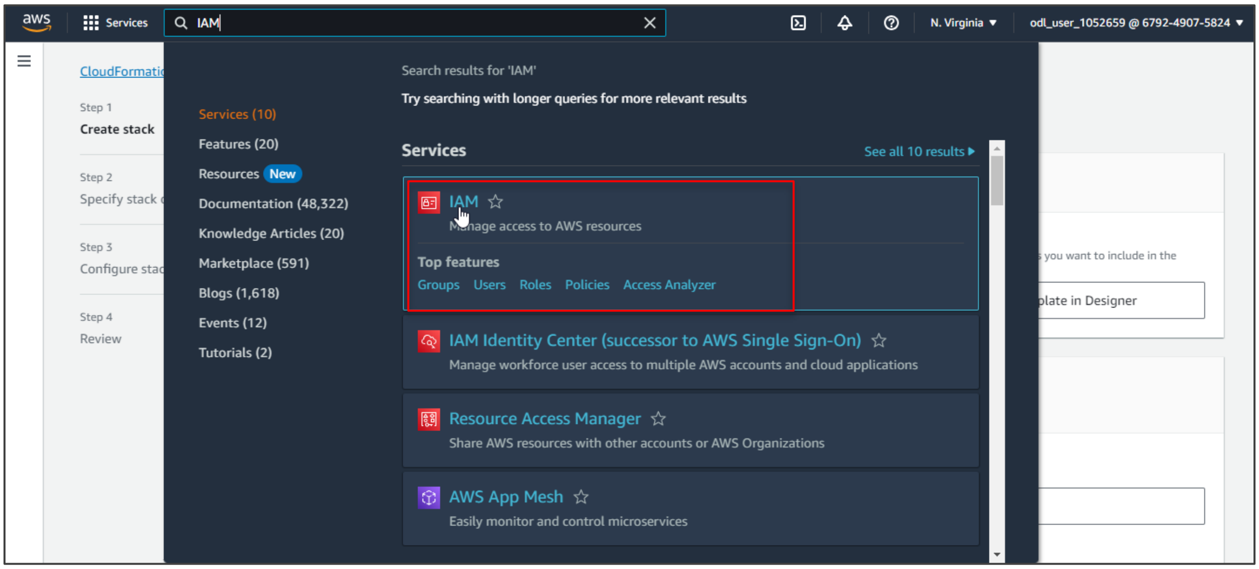


```
Resources:
  S3Bucket:
    Type: 'AWS::S3::Bucket'
    DeletionPolicy: Retain
    Properties:
      BucketName: docfilename1
```

You must save the file with a **.yaml** extension on your local system.

## Step 2: Create an IAM role for the S3 bucket stack

### 2.1 Open the **IAM** service



Search results for 'IAM'

Try searching with longer queries for more relevant results

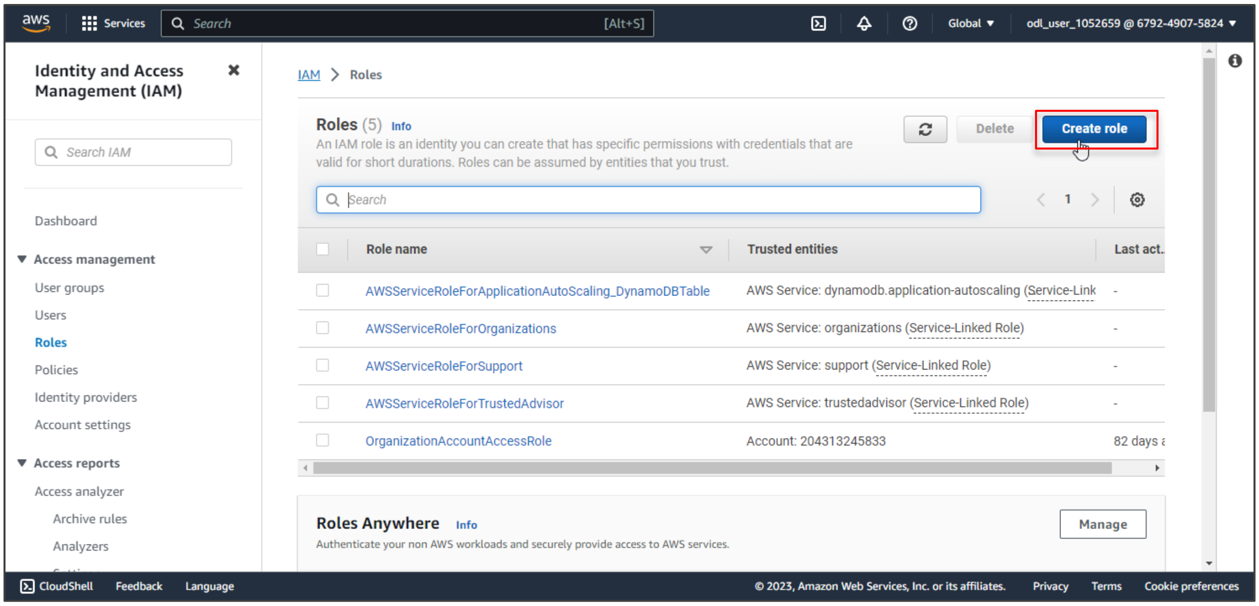
IAM
Manage access to AWS resources

IAM Identity Center (successor to AWS Single Sign-On)
Manage workforce user access to multiple AWS accounts and cloud applications

Resource Access Manager
Share AWS resources with other accounts or AWS Organizations

AWS App Mesh
Easily monitor and control microservices

### 2.2 Select **Roles** and click on the **Create role** button



Roles (5)

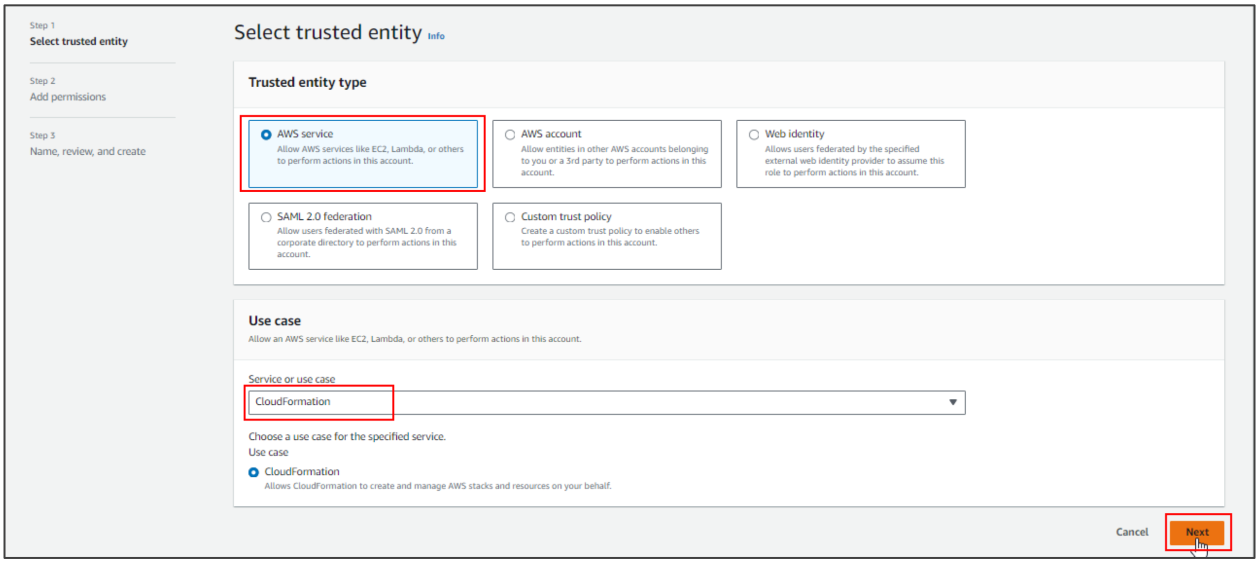
An IAM role is an identity you can create that has specific permissions with credentials that are valid for short durations. Roles can be assumed by entities that you trust.

| Role name | Trusted entities | Last act. |
|---|---|---|
| AWSServiceRoleForApplicationAutoScaling_DynamoDBTable | AWS Service: dynamodb.application-autoscaling (Service-Link | - |
| AWSServiceRoleForOrganizations | AWS Service: organizations (Service-Linked Role) | - |
| AWSServiceRoleForSupport | AWS Service: support (Service-Linked Role) | - |
| AWSServiceRoleForTrustedAdvisor | AWS Service: trustedadvisor (Service-Linked Role) | - |
| OrganizationAccountAccessRole | Account: 204313245833 | 82 days a |

Roles Anywhere

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

2.3 In the Select trusted entity section, specify the trusted entity type as **AWS service** and use case as **CloudFormation**, and click **Next**



Step 1
Select trusted entity

Step 2
Add permissions

Step 3
Name, review, and create

Select trusted entity Info

**Trusted entity type**

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

○ AWS account
Allow entities in other AWS accounts belonging to you or a 3rd party to perform actions in this account.

○ Web identity
Allows users federated by the specified external web identity provider to assume this role to perform actions in this account.

○ SAML 2.0 federation
Allow users federated with SAML 2.0 from a corporate directory to perform actions in this account.

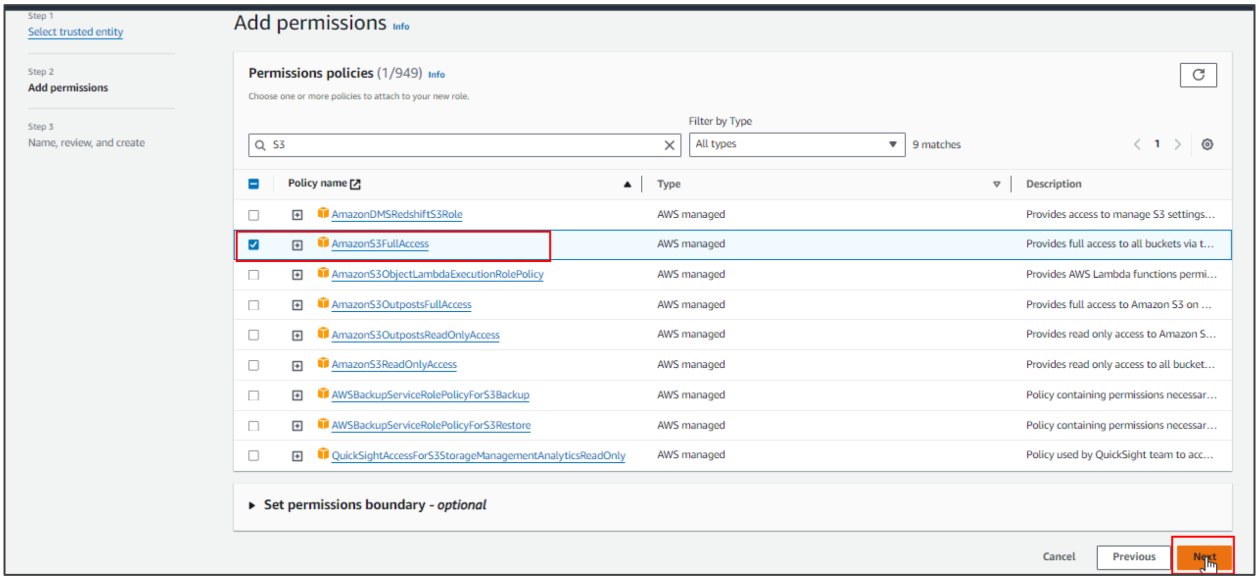
○ Custom trust policy
Create a custom trust policy to enable others to perform actions in this account.

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

Service or use case
CloudFormation

Choose a use case for the specified service.
Use case
● CloudFormation
Allows CloudFormation to create and manage AWS stacks and resources on your behalf.

2.4 In the Permissions policies, select the **AmazonS3FullAccess** policy and click **Next**



Step 1
Select trusted entity

Step 2
Add permissions

Step 3
Name, review, and create

Add permissions Info

**Permissions policies** (1/949) Info
Choose one or more policies to attach to your new role.

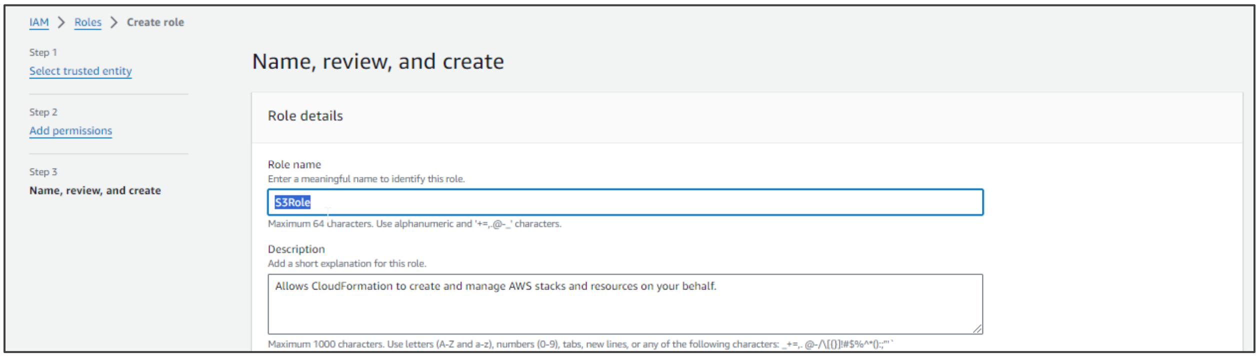
Filter by Type: All types

S3 — 9 matches

| | Policy name | Type | Description |
|---|---|---|---|
| □ | AmazonDMSRedshiftS3Role | AWS managed | Provides access to manage S3 settings… |
| ☑ | AmazonS3FullAccess | AWS managed | Provides full access to all buckets via t… |
| □ | AmazonS3ObjectLambdaExecutionRolePolicy | AWS managed | Provides AWS Lambda functions permi… |
| □ | AmazonS3OutpostsFullAccess | AWS managed | Provides full access to Amazon S3 on … |
| □ | AmazonS3OutpostsReadOnlyAccess | AWS managed | Provides read only access to Amazon S… |
| □ | AmazonS3ReadOnlyAccess | AWS managed | Provides read only access to all bucket… |
| □ | AWSBackupServiceRolePolicyForS3Backup | AWS managed | Policy containing permissions necessar… |
| □ | AWSBackupServiceRolePolicyForS3Restore | AWS managed | Policy containing permissions necessar… |
| □ | QuickSightAccessForS3StorageManagementAnalyticsReadOnly | AWS managed | Policy used by QuickSight team to acc… |

▸ Set permissions boundary - *optional*

2.5 Enter the role name and click on the **Create role** button



IAM > Roles > Create role

Step 1
Select trusted entity

Step 2
Add permissions

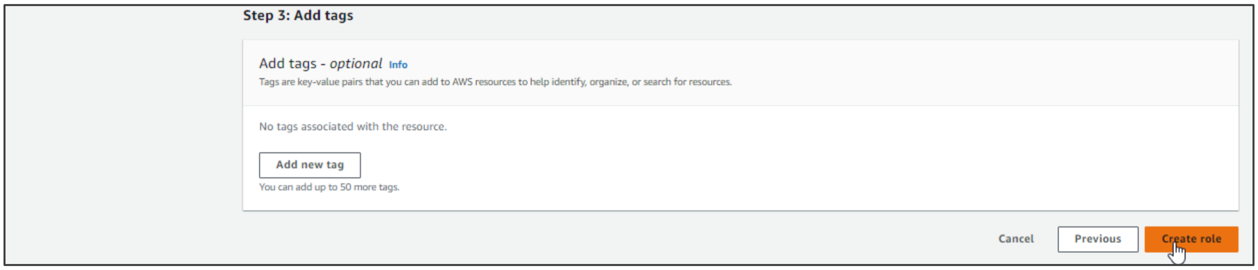
Step 3
Name, review, and create

Name, review, and create

Role details

Role name
Enter a meaningful name to identify this role.
S3Role
Maximum 64 characters. Use alphanumeric and '+=,.@-_' characters.

Description
Add a short explanation for this role.
Allows CloudFormation to create and manage AWS stacks and resources on your behalf.
Maximum 1000 characters. Use letters (A-Z and a-z), numbers (0-9), tabs, new lines, or any of the following characters: _+=,. @-/\[{}]!#$%^*();:"'`

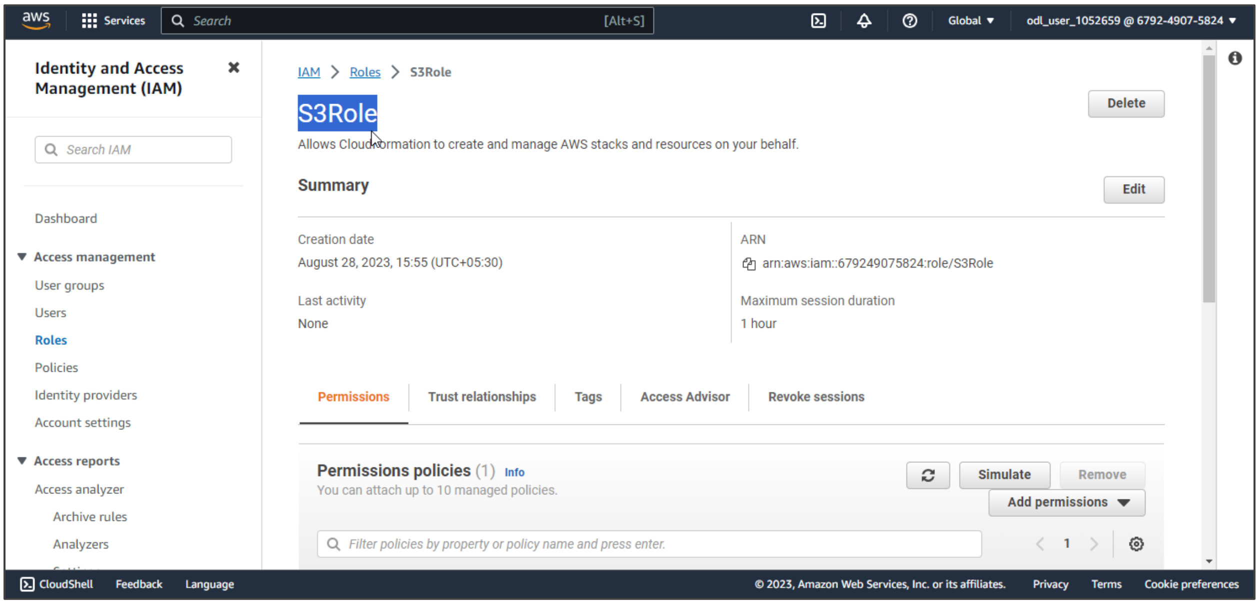


Step 3: Add tags

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

No tags associated with the resource.

You can add up to 50 more tags.



Identity and Access Management (IAM)

IAM > Roles > S3Role

S3Role

Allows CloudFormation to create and manage AWS stacks and resources on your behalf.

Summary

Creation date
August 28, 2023, 15:55 (UTC+05:30)

ARN
arn:aws:iam::679249075824:role/S3Role

Last activity
None

Maximum session duration
1 hour

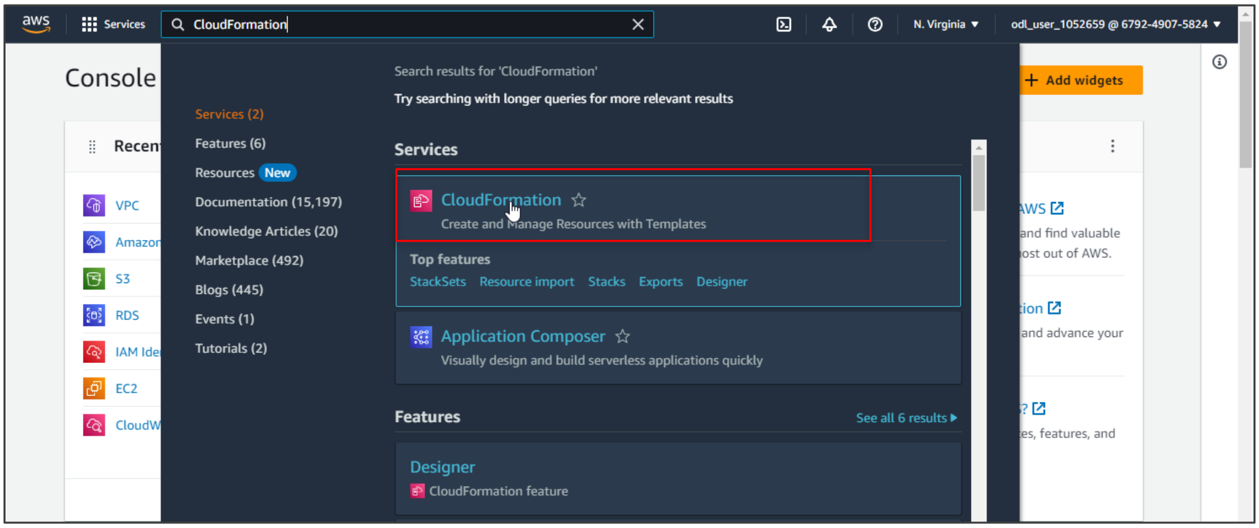
Permissions policies (1) Info
You can attach up to 10 managed policies.

Simulate
Remove
Add permissions
Filter policies by property or policy name and press enter.
1
CloudShell
Feedback
Language
© 2023, Amazon Web Services, Inc. or its affiliates.
Privacy
Terms
Cookie preferences

The IAM role is created successfully.

## Step 3: Create an S3 Bucket stack

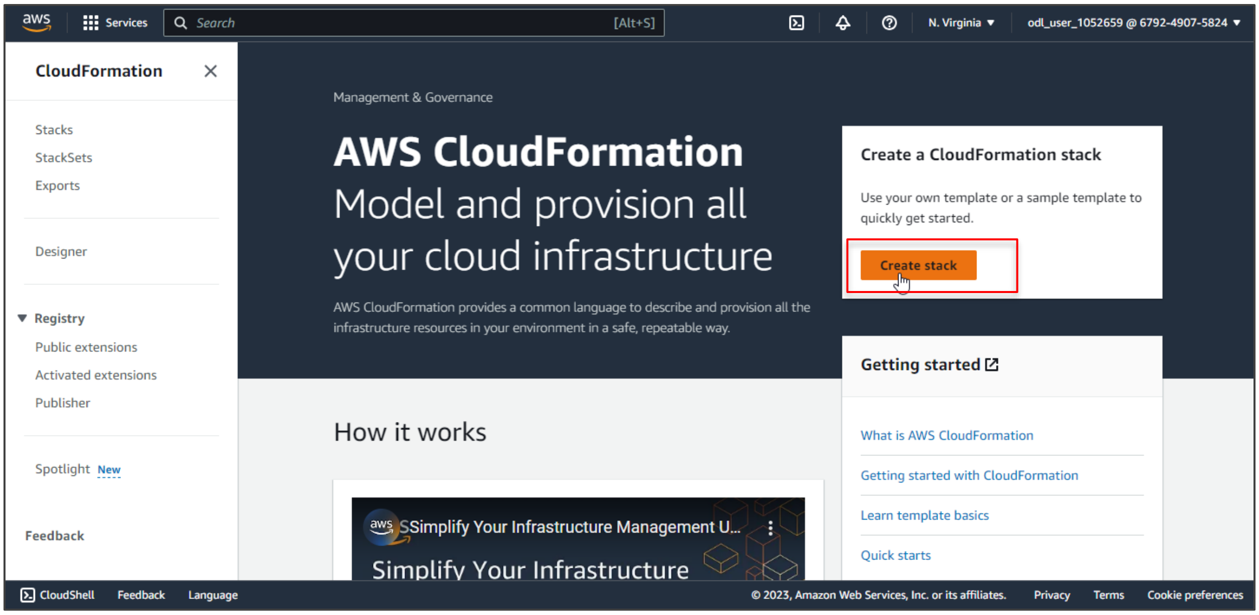
3.1 Go to the **AWS Management Console** and search for **CloudFormation**



Search results for 'CloudFormation'

Try searching with longer queries for more relevant results

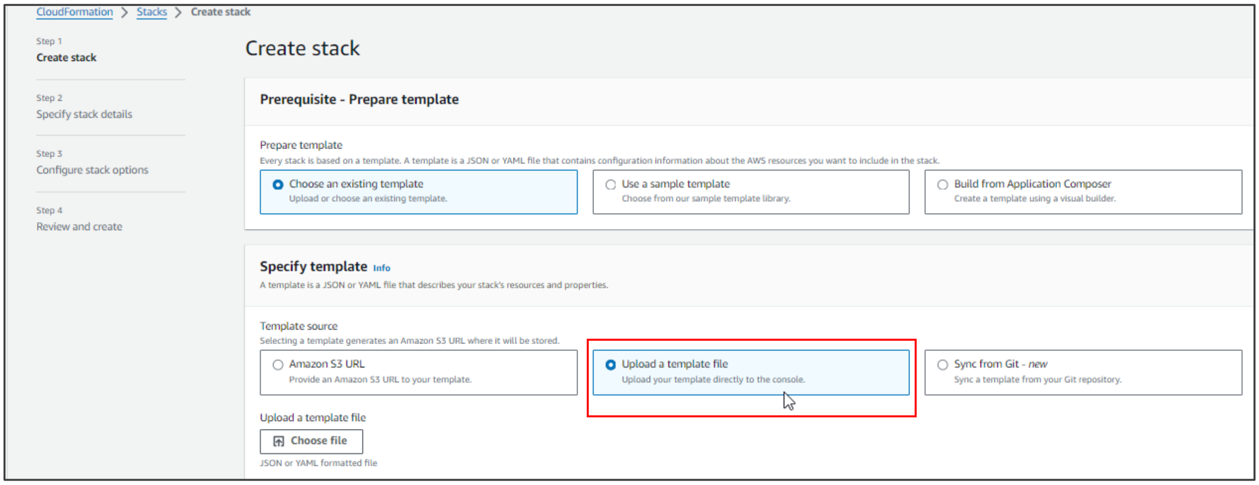
3.2 In the CloudFormation Management Console, click on **Create stack**



AWS CloudFormation provides a common language to describe and provision all the infrastructure resources in your environment in a safe, repeatable way.

Use your own template or a sample template to quickly get started.

3.3 In the Create stack console, choose **Upload a template file** in the **Specify template** section



CloudFormation > Stacks > Create stack

Step 1
Create stack

Step 2
Specify stack details

Step 3
Configure stack options

Step 4
Review and create

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.

● Choose an existing template
Upload or choose an existing template.

○ Use a sample template
Choose from our sample template library.

○ Build from Application Composer
Create a template using a visual builder.

Specify template Info
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.

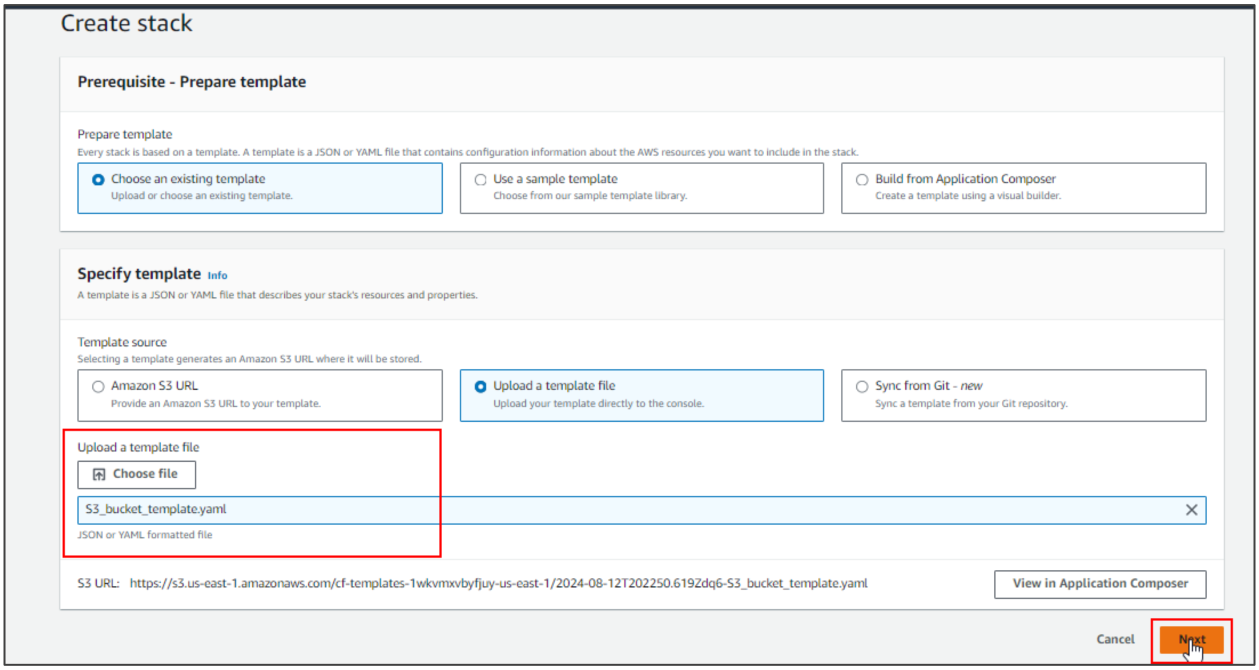
○ Amazon S3 URL
Provide an Amazon S3 URL to your template.

● 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
JSON or YAML formatted file

3.4 Click on **Choose file**, upload the template created in Step 1, and click **Next**



Create stack

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Choose from our sample template library.

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Create a template using a visual builder.

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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.

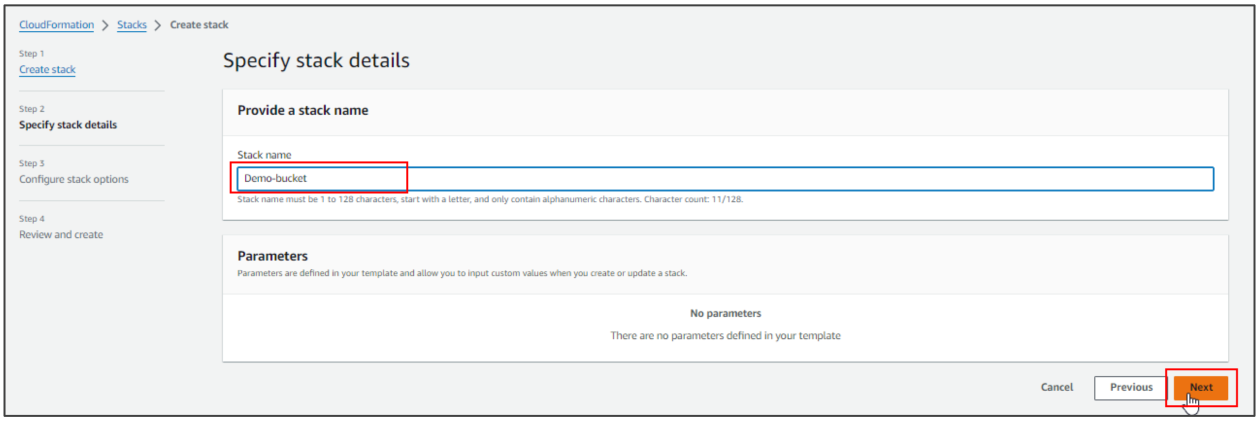
Upload a template file
Choose file
S3_bucket_template.yaml ✕
JSON or YAML formatted file

S3 URL: https://s3.us-east-1.amazonaws.com/cf-templates-1wkvmxvbyfjuy-us-east-1/2024-08-12T202250.619Zdq6-S3_bucket_template.yaml

View in Application Composer

Cancel Next

3.5 Enter a name for the stack and click **Next**



CloudFormation > Stacks > Create stack

Step 1
Create stack

Step 2
Specify stack details

Step 3
Configure stack options

Step 4
Review and create

Specify stack details

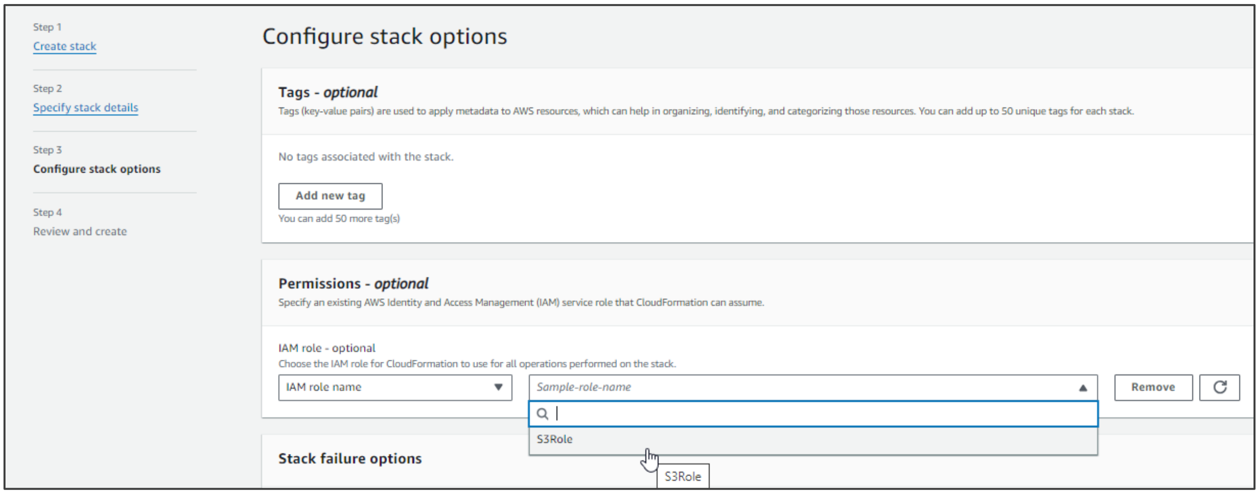
Provide a stack name

Stack name
Demo-bucket
Stack name must be 1 to 128 characters, start with a letter, and only contain alphanumeric characters. Character count: 11/128.

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

3.6 In the Configure stack options page, select the created IAM role



Step 1
Create stack

Step 2
Specify stack details

Step 3
Configure stack options

Step 4
Review and create

Configure stack options

Tags - *optional*
Tags (key-value pairs) are used to apply metadata to AWS resources, which can help in organizing, identifying, and categorizing those resources. You can add up to 50 unique tags for each stack.

No tags associated with the stack.

You can add 50 more tag(s)

Permissions - *optional*
Specify an existing AWS Identity and Access Management (IAM) service role that CloudFormation can assume.

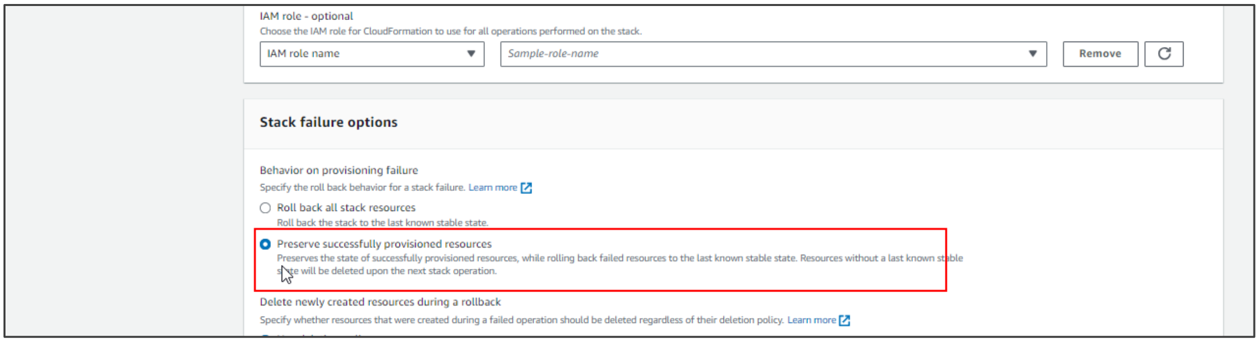
IAM role - optional
Choose the IAM role for CloudFormation to use for all operations performed on the stack.

IAM role name ▼ | *Sample-role-name* ▲

S3Role

Stack failure options

3.7 In Stack failure options, select the **Preserve successfully provisioned resources** option and click **Next**



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

IAM role name ▼ | *Sample-role-name* ▼

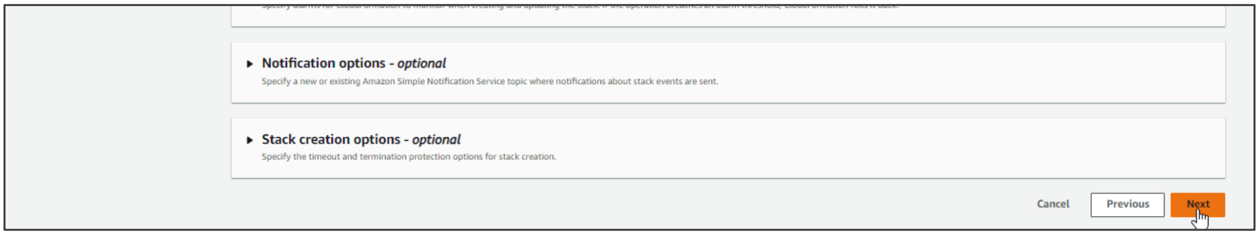
Stack failure options

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



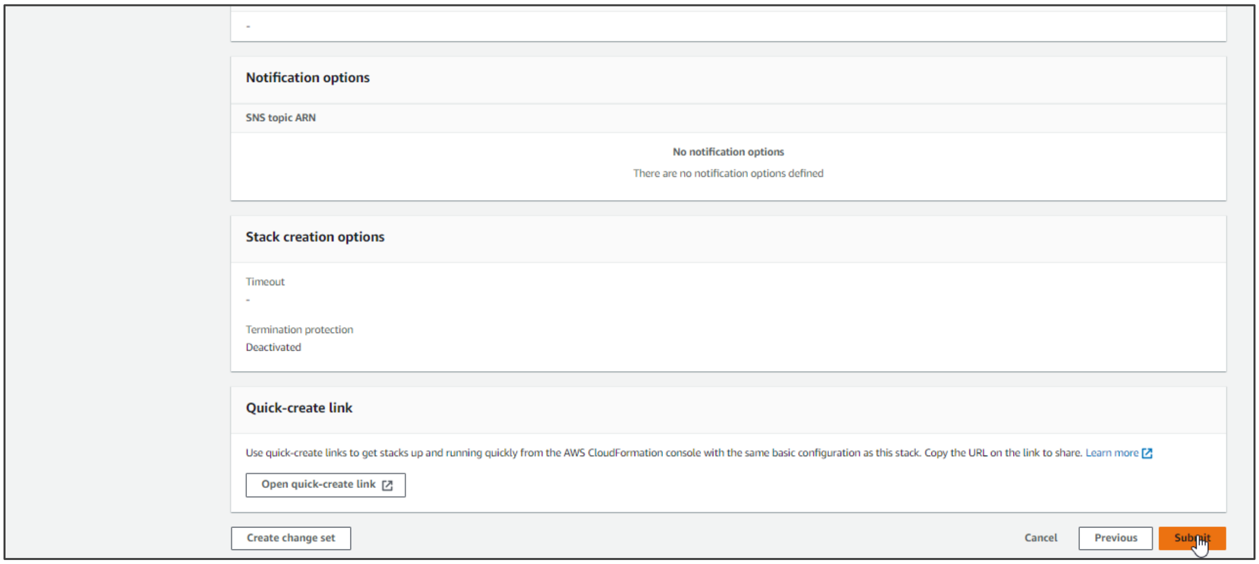
▸ Notification options - *optional*

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

▸ Stack creation options - *optional*

Specify the timeout and termination protection options for stack creation.

3.8 Review all the stack configuration details and click **Submit**



Notification options

SNS topic ARN

No notification options

There are no notification options defined

Stack creation options

Timeout

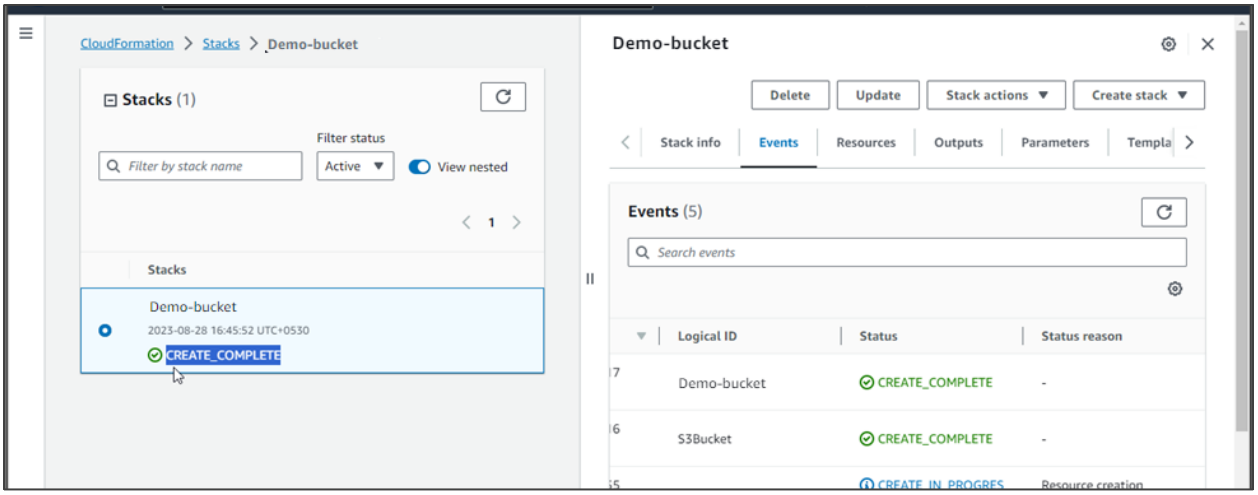
-

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



CloudFormation > Stacks > Demo-bucket

Stacks (1)

Filter status: Active

View nested

Stacks

Demo-bucket

2023-08-28 16:45:52 UTC+0530

CREATE_COMPLETE

Demo-bucket

Events (5)

| Logical ID | Status | Status reason |
|---|---|---|
| Demo-bucket | CREATE_COMPLETE | - |
| S3Bucket | CREATE_COMPLETE | - |
| | CREATE_IN_PROGRES | Resource creation |

The newly created S3 bucket will be displayed in the list.

By following these steps, you have successfully created an S3 Bucket stack using CloudFormation for efficient infrastructure management and deployment.