

Creating Stacks Outputs Conditionally

The process involves conditionally defining stack outputs based on the environment. In the CloudFormation template, define an output named `ReadReplicaEndpoint` using `Fn::GetAtt` to reference the `Endpoint.Address` of the read replica. Add a description and associate the output with the `EnvironmentIsProduction` condition. Save and upload the template to the AWS CloudFormation console. Create a production stack named `ProductionDatabaseStack`, set the `Environment` to `production`, and verify the output includes the read replica endpoint. Delete the stack afterward. Repeat for a test stack named `TestDatabaseStack` with `Environment` set to `test`, confirming the read replica endpoint is absent.

Activity

1. Find the template files in our GitHub repository under the same name as the heading for easy access and edits. Find and Save the attached template locally, open it in VS Code for edits.
2. Open the “**Creating Stacks outputs Conditionally**” of your CloudFormation template. Define an output for the read replica endpoint and name it `ReadReplicaEndpoint`. Use the `Fn::GetAtt` function to reference the `Endpoint.Address` attribute of the read replica resource. Add a description such as "The connection endpoint for the read replica." Ensure the output is created only in the production environment by associating it with the `EnvironmentIsProduction` condition. Add the `Condition` attribute at the same level as the `Value` and `Description` attributes, specifying the `EnvironmentIsProduction` condition.

```
74  Outputs:
75      MasterDbId:
76          Value: !Ref MasterDbInstance
77          Description: Master database instance identifier
78      MasterDbEndpoint:
79          Value: !GetAtt [ MasterDbInstance, Endpoint.Address ]
80          Description: The connection endpoint of the master database instance
81      ReadReplicaEndpoint:
82          Value: !GetAtt [ ReadReplica, Endpoint.Address ]
83          Description: The connection endpoint for the read replica
84          Condition: EnvironmentIsProduction
```

3. Save the template and upload it to the AWS CloudFormation console.

4. Create a production stack, name it ProductionDatabaseStack, and provide the necessary parameter values, including production for the Environment.

Provide a stack name

Stack name

ProductionDataBaseStack

Stack name must be 1 to 128 characters, start with a letter, and only contain alphanumeric characters. Character count: 23/128.

Parameters

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

Network Settings

VpcId

A valid VPC id in your AWS account

vpc-0b0c8badfef0024a4

DbSubnets

Db subnet ids as a list: <subnet1>,<subnet2>,...

Select List<AWS::EC2::Subnet::Id>

subnet-0619479663b4084af

subnet-08c772de46d053876

subnet-0a1bbb2feaa84bb95

Environment

production

Cancel

Previous

Next

5. Wait for the stack creation to complete and verify the read replica endpoint appears in the outputs.

ProductionDataBaseStack

Delete

Update

Stack actions

Create stack

Stack info

Events - updated

Resources

Outputs

Parameters

Template

Change sets

Git sync

Table view

Timeline view - new

Events (14)

Detect root cause

Search events

Timestamp	Logical ID	Status	Detailed status	Status reason
2024-12-19 15:37:32 UTC+0530	ProductionDataBaseStack	CREATE_COMPLETE	-	-
2024-12-19 15:37:31 UTC+0530	ReadReplica	CREATE_COMPLETE	-	-
2024-12-19 15:29:55 UTC+0530	ReadReplica	CREATE_IN_PROGRESS	-	Resource creation Initiated
2024-12-19 15:29:53 UTC+0530	ReadReplica	CREATE_IN_PROGRESS	-	-
2024-12-19 15:29:52 UTC+0530	MasterDbInstance	CREATE_COMPLETE	-	-

ProductionDataBaseStack

Delete

Update

Stack actions

Create stack

Stack info

Events - updated

Resources

Outputs

Parameters

Template

Change sets

Git sync

Outputs (3)

Search outputs

< 1 >

Key	Value	Description	Export name
MasterDbEndpoint	productiondatabasestack-masterdbinstance-zhobmn1cmpyr.c924886w4bjj.eu-west-1.rds.amazonaws.com	The connection endpoint of the master database instance	-
MasterDbId	productiondatabasestack-masterdbinstance-zhobmn1cmpyr	Master database instance identifier	-
ReadReplicaEndpoint	productiondatabasestack-readreplica-6gvtvmb028bx.c924886w4bjj.eu-west-1.rds.amazonaws.com	The connection endpoint for the read replica	-

6. Delete the production stack after verification.

ProductionDataBaseStack

Delete

Update

Stack actions

Create stack

Stack info

Events - updated

Resources

Outputs

Parameters

Template

Change sets

Git sync

Table view

Timeline view - new

Events (24)

Search events

Detect root cause

Timestamp	Logical ID	Status	Detailed status	Status reason
2024-12-07 17:28:37 UTC+0530	ProductionDataBaseStack	DELETE_COMPLETE	-	-
2024-12-07 17:28:37 UTC+0530	DbSecurityGroup	DELETE_COMPLETE	-	-
2024-12-07 17:28:37 UTC+0530	DbSubnetGroup	DELETE_COMPLETE	-	-
2024-12-07 17:28:36 UTC+0530	DbSubnetGroup	DELETE_IN_PROGRESS	-	-
2024-12-07 17:28:36 UTC+0530	DbSecurityGroup	DELETE_IN_PROGRESS	-	-

7. Create a test stack, name it TestDatabaseStack, and provide a test for the Environment parameter.

Provide a stack name

Stack name

TestDataBaseStack

Stack name must be 1 to 128 characters, start with a letter, and only contain alphanumeric characters. Character count: 17/128.

Parameters

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

Network Settings

VpcId

A valid VPC id in your AWS account

vpc-0b0c8badfef0024a4

DbSubnets

Db subnet ids as a list: <subnet1>,<subnet2>,...

Select List<AWS::EC2::Subnet::Id>

subnet-0619479663b4084af

subnet-08c772de46d053876

subnet-0a1bbb2feaa84bb95

Environment

test

Cancel

Previous

Next

8. Wait for the stack creation to complete and confirm the read replica endpoint is absent in the outputs.

TestDataBaseStack

DeleteUpdateStack actionsCreate stack

Stack infoEvents - updatedResourcesOutputsParametersTemplateChange setsGit sync

Table viewTimeline view - new

Events (11)

Detect root cause

Search events

Timestamp	Logical ID	Status	Detailed status	Status reason
2024-12-19 15:30:37 UTC+0530	TestDataBaseStack	CREATE_COMPLETE	-	-
2024-12-19 15:30:36 UTC+0530	MasterDbInstance	CREATE_COMPLETE	-	-
2024-12-19 15:25:02 UTC+0530	MasterDbInstance	CREATE_IN_PROGRESS	-	Resource creation Initiated

TestDataBaseStack

DeleteUpdateStack actionsCreate stack

Stack infoEvents - updatedResourcesOutputsParametersTemplateChange setsGit sync

Outputs (2)

< 1 >

Search outputs

Key	Value	Description	Export name
MasterDbEndpoint	testdatabasestack-masterdbinstance-w7deb7mszne5.c924886w4bj.eu-west-1.rds.amazonaws.com	The connection endpoint of the master database instance	-
MasterDbId	testdatabasestack-masterdbinstance-w7deb7mszne5	Master database instance identifier	-

9. Delete the test stack after verification.

TestDataBaseStack

DeleteUpdateStack actionsCreate stack

Stack infoEvents - updatedResourcesOutputsParametersTemplateChange setsGit sync

Table viewTimeline view - new

Events (19)

Detect root cause

Search events

Timestamp	Logical ID	Status	Detailed status	Status reason
2024-12-19 15:42:48 UTC+0530	TestDataBaseStack	DELETE_COMPLETE	-	-
2024-12-19 15:42:47 UTC+0530	DbSecurityGroup	DELETE_COMPLETE	-	-
2024-12-19 15:42:47 UTC+0530	DbSubnetGroup	DELETE_COMPLETE	-	-
2024-12-19 15:42:46 UTC+0530	DbSubnetGroup	DELETE_IN_PROGRESS	-	-
2024-12-19 15:42:46 UTC+0530	DbSecurityGroup	DELETE_IN_PROGRESS	-	-