

Activity 6

Start by creating a CloudFormation stack using the activity template. Name it "Section6ActivitySolution," select a subnet for the WebServerInstance, and proceed to create the stack. Once created, remove the EbsVolume and VolumeAttachment resources from the template and add an S3Bucket resource. Save the updated template and create a new change set in the CloudFormation Console, replacing the current template. Modify the WebServerSubnet parameter and review the changes. Execute the change set to update the stack. Verify changes, ensuring the removal of old resources and the addition of the new S3 bucket. Finally, delete the stack for cleanup.

What we have in the Activity:

1. CloudFormation Stack Management:

- Creation of a stack using a provided template.
- Parameter configuration during stack creation (e.g., subnet selection).

2. Template Customization:

- Modifications to existing resources (removal of EbsVolume and VolumeAttachment).
- Addition of new resources (e.g., S3Bucket).

3. Change Set Implementation:

- Creation of a change set to preview and plan updates before execution.
- Use of "Replace current template" to incorporate template changes.
- Clear description for change set tracking.

4. Action Types in Change Sets:

- *Add*: Creating new resources (e.g., S3 bucket).
- *Remove*: Deleting unnecessary resources (e.g., EbsVolume).
- *Modify*: Updating existing resources (e.g., WebServerInstance).

5. Execution and Verification:

- Safe execution of the change set without impacting the existing stack until confirmed.
- Verification of stack updates through resource lists and actions.

6. Resource Cleanup:

- Deletion of the stack to avoid unnecessary costs and maintain a clean environment.

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 AWS CloudFormation Console and click **Create stack**. Upload the activity template and click **Next**.

The screenshot shows the 'Create stack' wizard in the AWS CloudFormation console. The left sidebar indicates the current step is 'Step 1: Create stack'. The main content area is titled 'Create stack' and includes a 'Prerequisite - Prepare template' section with a link to the 'IaC generator'. Below this, the 'Prepare template' section explains that every stack is based on a template (JSON or YAML) and offers three options: 'Choose an existing template' (selected), 'Use a sample template', and 'Build from Infrastructure Composer'. The 'Specify template' section, which includes an 'info' icon, explains that a template describes the stack's resources and properties. It offers three 'Template source' options: 'Amazon S3 URL', 'Upload a template file' (selected), and 'Sync from Git'. Under 'Upload a template file', there is a 'Choose file' button and a text input field containing 'section-6-activity-solution-template.yaml'. A note below the input field states 'JSON or YAML formatted file'.

3. Name the stack "Section6ActivitySolution" and select a subnet for WebServerInstance.

The screenshot shows the 'Specify stack details' step of the 'Create stack' wizard. The left sidebar indicates the current step is 'Step 2: Specify stack details'. The main content area is titled 'Specify stack details' and includes a 'Provide a stack name' section with a text input field containing 'Soltion6DataBase' (note the typo). A note below the input field states 'Stack name must be 1 to 128 characters, start with a letter, and only contain alphanumeric characters. Character count: 16/128.' Below this, the 'Parameters' section explains that parameters are defined in the template and allows for custom values. It includes a 'WebServerSubnet' parameter with a description 'The subnet of the web server instance.' and a dropdown menu showing 'subnet-0619479663b4084af'. At the bottom right, there are three buttons: 'Cancel', 'Previous', and 'Next'.

- Click **Next** until the Review page, then click **Create stack**.

Stacks (2)

Filter status: Active View nested

Stacks

- Soltion6DataBase
2024-12-08 15:04:56 UTC+0530
CREATE_COMPLETE
- DataBaseStack
2024-12-08 12:33:28 UTC+0530
UPDATE_COMPLETE

Soltion6DataBase

Stack info Events - updated Resources Outputs Parameters Template Change sets Git sync

Table view Timeline view - new

Events (14)

Search events

Timestamp	Logical ID	Status	Detailed status	Status reason
2024-12-08 15:05:26 UTC+0530	Soltion6DataBase	CREATE_COMPLETE	-	-
2024-12-08 15:05:25 UTC+0530	VolumeAttachment	CREATE_COMPLETE	-	-
2024-12-08 15:05:20 UTC+0530	Soltion6DataBase	CREATE_IN_PROGRESS S	CONFIGURATION_COMPLETE	Eventual consistency check initiated
2024-12-08 15:05:20 UTC+0530	VolumeAttachment	CREATE_IN_PROGRESS S	CONFIGURATION_COMPLETE	Eventual consistency check initiated
2024-12-08 15:05:20 UTC+0530	VolumeAttachment	CREATE_IN_PROGRESS S	-	Resource creation initiated

- Wait for stack creation to complete and refresh to verify resources (EC2, EBS, and VolumeAttachment).
- Modify the template by removing EbsVolume and VolumeAttachment and adding an S3Bucket.

```
30  
31 S3Bucket:  
32 Type: AWS::S3::Bucket  
33  
34
```

- Save the modified template and return to the CloudFormation Console.
- Click **Create change set** from the Actions menu and select **Replace current template**.

Stacks (2)

Filter status: Active View nested

Stacks

- Soltion6DataBase
2024-12-08 15:04:56 UTC+0530
CREATE_COMPLETE
- DataBaseStack
2024-12-08 12:33:28 UTC+0530
UPDATE_COMPLETE

Soltion6DataBase

Stack info Events - updated Resources Outputs Parameters Template Change sets Git sync

Events (14)

Search events

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2024-12-08 15:05:26 UTC+0530	Soltion6DataBase	CREATE_COMPLETE	-	-
2024-12-08 15:05:25 UTC+0530	VolumeAttachment	CREATE_COMPLETE	-	-
2024-12-08 15:05:20 UTC+0530	Soltion6DataBase	CREATE_IN_PROGRESS S	CONFIGURATION_COMPLETE	Eventual consistency check initiated
2024-12-08 15:05:20 UTC+0530	VolumeAttachment	CREATE_IN_PROGRESS S	CONFIGURATION_COMPLETE	Eventual consistency check initiated
2024-12-08 15:05:20 UTC+0530	VolumeAttachment	CREATE_IN_PROGRESS S	-	Resource creation initiated

Create change set for Soltion6DataBase

Step 1: Create change set for Soltion6DataBase

Step 2: Specify stack details

Step 3: Configure stack options

Step 4: Review Soltion6DataBase

Prerequisite - Prepare template

You can also create a template by scanning your existing resources in the [IaC 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.

☐ Use existing template
Proceed with the template you are already using for this stack.

☒ Replace existing template
Replace your existing template with a new template.

☐ Edit in Infrastructure Composer
Edit your template in a visual builder.

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

☒ Upload a template file

Upload a template file

[Choose file](#)

section-6-activity-solution-template.yaml

JSON or YAML formatted file

9. Provide a description (e.g., "Remove the EBS volume and add an S3 bucket") and click "NEXT".

CloudFormation > Stacks > Soltion6DataBase > Create change set

Step 1

● Create change set for Soltion6DataBase

Step 2

● Specify stack details

Step 3

○ Configure stack options

Step 4

○ Review Soltion6DataBase

Specify stack details

Overview

A change set is a preview of how this stack will be configured before creating the stack. This allows you to examine various configurations before executing the change set.

Change set name

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

Change set description - optional

Parameters

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

WebServerSubnet
The subnet of the web server instance.

[Cancel](#) [Previous](#) [Next](#)

10. Upload the modified template, update the WebServerSubnet parameter, and click **Next** until the Review page.

CloudFormation > Stacks > Soltion6DataBase > Change sets: Soltion6Da-vvu4lkl49-r17lr4flq

Remove the EBS volume and add an S3 bucket.

Created time
2024-12-08 15:10:33 UTC+0530

Execution status
● AVAILABLE

Changes

Input

Template

JSON changes

Evaluations

Preview property-level changes for each resource
The Property-level changes column provides insights into the precise changes in property values for a resource. [Learn more](#)

Changes (4)

Preview how proposed changes to a stack will impact running resources. Click on "View details" to preview the impact on property values for a resource.

Action	Logical ID	Resource type	Replacement	Property-level changes	Policy action	Physical ID
Remove	EbsVolume	AWS::EC2::Volume	-	View details	Delete	vol-0e...
Add	S3Bucket	AWS::S3::Bucket	True	View details	-	-
Remove	VolumeAttachment	AWS::EC2::VolumeAtta...	-	View details	Delete	vol-0e...
Modify	WebServerInstance	AWS::EC2::Instance	True	View details	ReplaceAndDelete	i-08ff...

CloudFormation > Stacks > Soltion6DataBase

Stacks (2)

Filter status
Active

Soltion6DataBase
2024-12-08 15:04:56 UTC+0530
● UPDATE_COMPLETE

DataBaseStack
2024-12-08 12:33:28 UTC+0530
○ UPDATE_COMPLETE

Soltion6DataBase

[Delete](#) [Update](#) [Stack actions](#) [Create stack](#)

Stack info

Events - updated

Resources

Outputs

Parameters

Template

Change sets

Git sync

Table view

Timeline view - new

Events (29)

Timestamp	Logical ID	Status	Detailed status	Status reason
2024-12-08 15:13:36 UTC+0530	Soltion6DataBase	● UPDATE_COMPLETE	-	-
2024-12-08 15:13:36 UTC+0530	WebServerInstance	● DELETE_COMPLETE	-	-
2024-12-08 15:12:52 UTC+0530	WebServerInstance	⌚ DELETE_IN_PROGRESS	-	-
2024-12-08 15:12:51 UTC+0530	EbsVolume	● DELETE_COMPLETE	-	-
2024-12-08 15:12:45 UTC+0530	EbsVolume	⌚ DELETE_IN_PROGRESS	-	-

11. Wait for the change set to complete and review actions (e.g., Add, Remove, Modify). Click **Execute** to apply the change set and refresh until the update completes.

12. Verify updated resources (no EbsVolume or VolumeAttachment, new S3Bucket).

CloudFormation > Stacks > Soltion6DataBase

Stacks (2)

Filter status: Active View nested

Stacks

- Soltion6DataBase
2024-12-08 15:04:56 UTC+0530
UPDATE_COMPLETE
- DataBaseStack
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UPDATE_COMPLETE

Soltion6DataBase

Stack info | Events - updated | Resources | Outputs | Parameters | Template | Change sets | Git sync

Resources (2)

Logical ID	Physical ID	Type	Status	Module
S3Bucket	soltion6database-s3bucket-gdotxdnrijuoz	AWS::S3::Bucket	CREATE_COMPLETE	-
WebServerInstance	i-08c43007744b623ca	AWS::EC2::Instance	UPDATE_COMPLETE	-

13. Delete the stack to clean up resources.

Soltion6DataBase

Stack info | Events - updated | Resources | Outputs | Parameters | Template | Change sets | Git sync

Table view | Timeline view - new

Events (35)

Timestamp	Logical ID	Status	Detailed status	Status reason
2024-12-08 15:21:49 UTC+0530	Soltion6DataBase	DELETE_COMPLETE	-	-
2024-12-08 15:21:48 UTC+0530	WebServerInstance	DELETE_COMPLETE	-	-
2024-12-08 15:21:16 UTC+0530	S3Bucket	DELETE_COMPLETE	-	-
2024-12-08 15:21:15 UTC+0530	WebServerInstance	DELETE_IN_PROGRESS	-	-
2024-12-08 15:21:15 UTC+0530	S3Bucket	DELETE_IN_PROGRESS	-	-