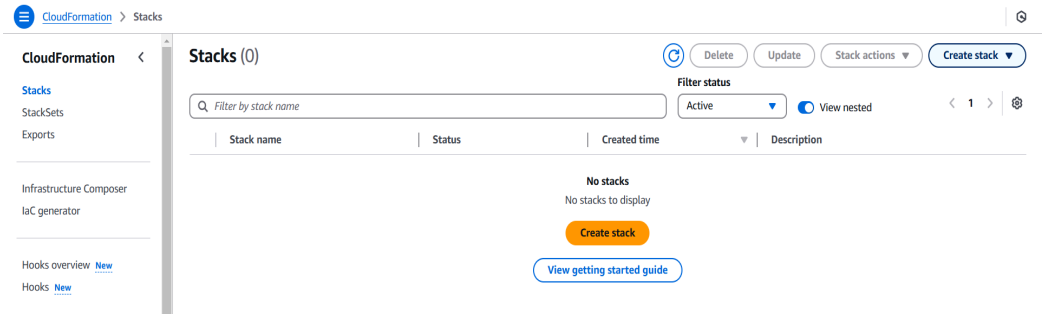
Cloudformation Stack Workflow

The process involves creating and updating AWS CloudFormation stacks to manage infrastructure. First, find the template in the GitHub repository, edit it locally in VS Code, and upload it via the CloudFormation Console. Create a stack by providing a name, configuring options, and submitting. Monitor the stack until the status is "CREATE_COMPLETE" and verify the created resources. For updates, edit the template, select "Update Stack," upload the updated file, and submit. Track progress to "UPDATE_COMPLETE" and verify new resources or changes. The end goal is to automate resource management, enabling efficient scaling, updates, and compliance through infrastructure as code.

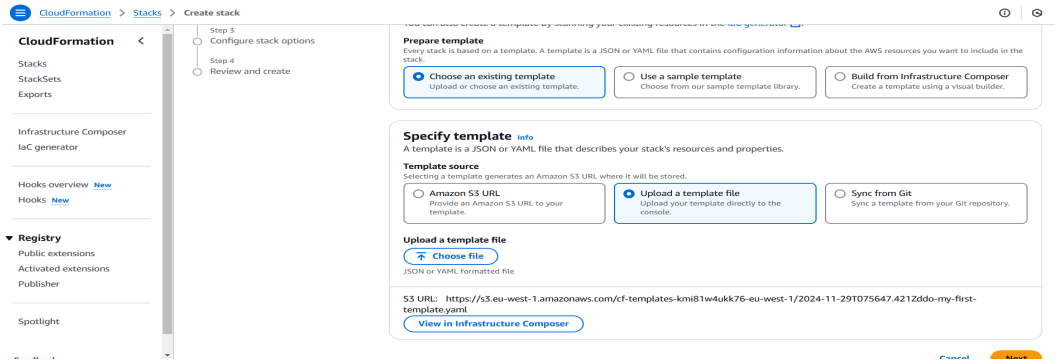
Activity

1. You can Find the template files in our GitHub repository under the same name as the heading for easy access and edits.
2. Construct a stack, open the AWS Management Console.
3. This is the **Cloud Formation Dashboard.**

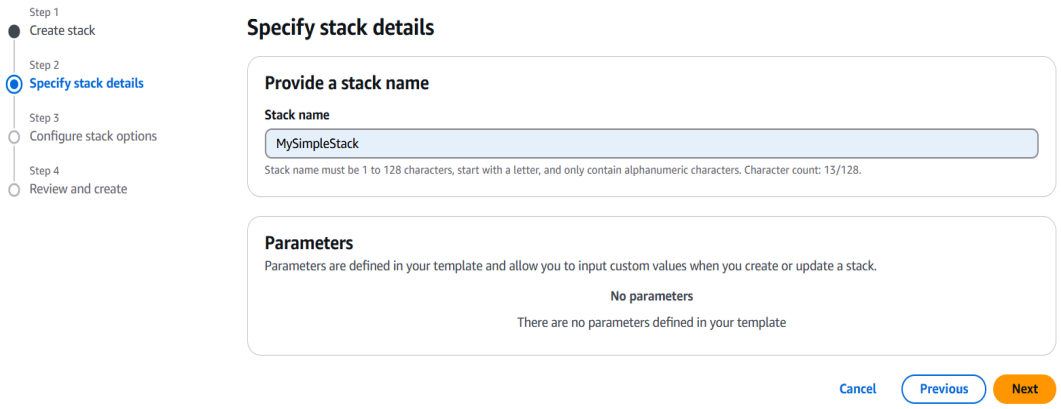


4. Click on "**Create Stack**".
5. Choose the option: '**With new resources**' to create resources with the stack.

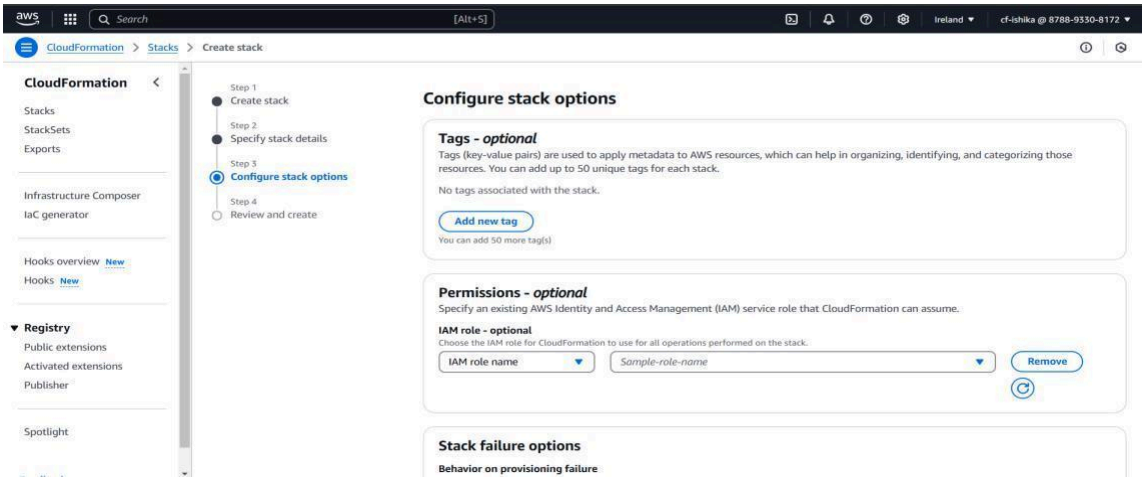
6. Use the default '**Choose an existing template**' option if your CloudFormation template is ready. Select the '**Upload a template file**' option to provide your template while creating the stack. Click '**Choose file**', locate and select the sample template file from your computer and click the '**Next**' button to proceed.



7. Provide a unique stack name using alphanumeric characters or hyphens, e.g., '**MySimpleStack**' in PascalCase.Click '**Next**' again to continue.

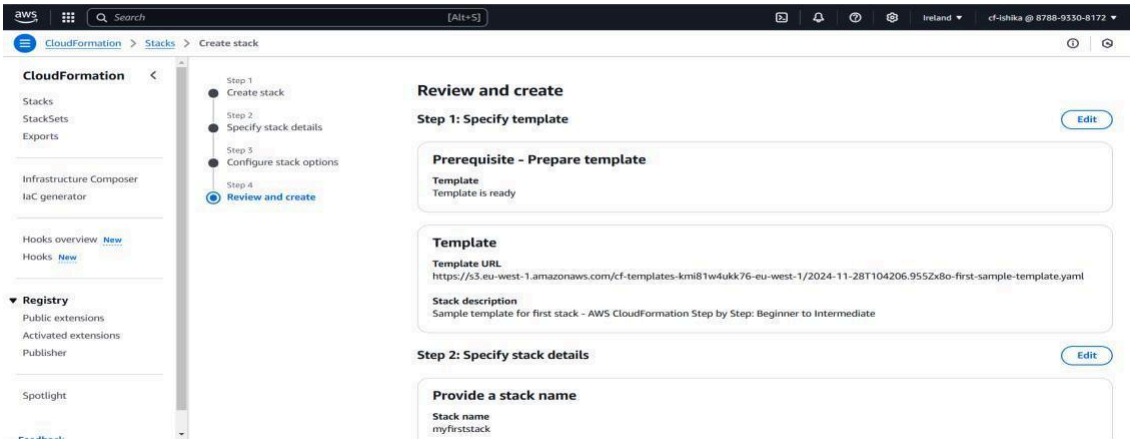


8. Configure the stack options, starting with assigning tags for cost-tracking and resource categorization.

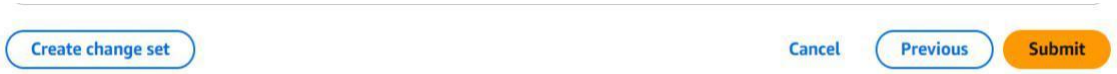


Note: that the stack inherits your IAM user's permissions by default to create resources.

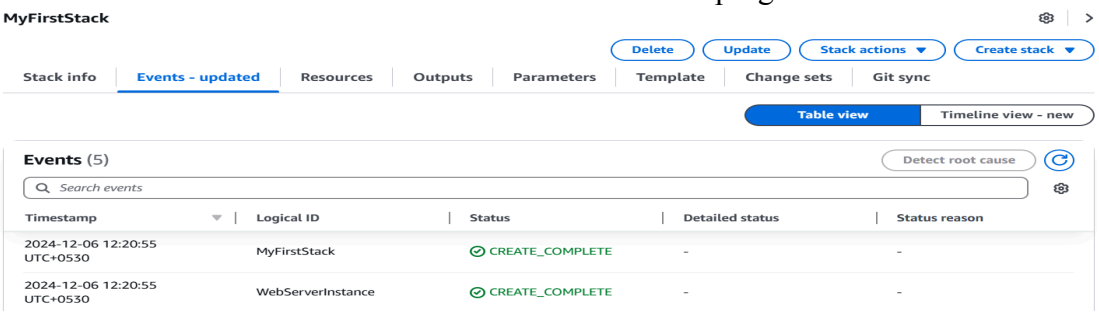
9. Optionally, assign a CloudFormation service role in the '**Permissions**' section to separate permissions, though this is advanced and can be skipped. Skip other advanced options not covered in this lecture.
10. Click '**Next**' to proceed. Now, We are on the review page, reviewing your stack configuration and going back if needed.



11. Scroll down to the bottom and click the 'Submit' button to initiate stack creation.



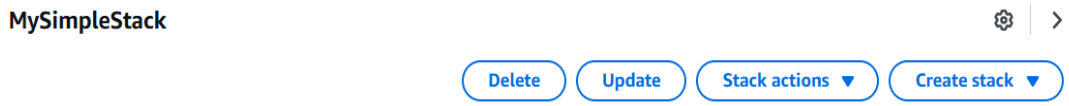
12. CloudFormation starts creating the stack and redirects you to the stack details.Check the stack events tab where you will see the stack in the '**CREATE_IN_PROGRESS**' state. Refresh the event list to monitor the stack creation progress.



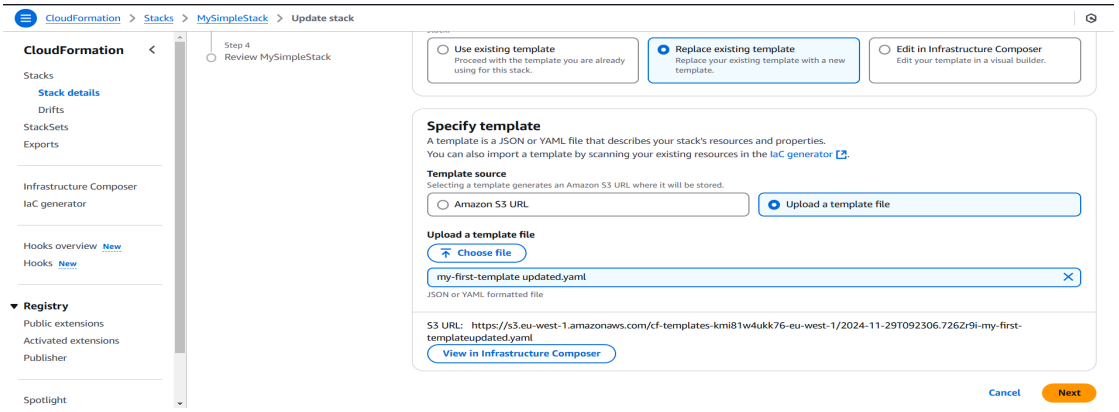
Updating your Stack

1. Find and Save the attached template locally, open it in VS Code for edits.
2. Updating a CloudFormation stack is needed to modify infrastructure, such as changing resource configurations, adding/removing resources, scaling for

performance, applying security updates, or adapting to new requirements. To update



3. Choose one of three update options: "**Use existing template**" or "**Replace existing template**." or "**Edit in Infrastructure Composure**".
4. For template replacement, select **'Upload a template file'**. Locate the template("update your stack") from the drive and upload the updated template file. Click **'Next'** to proceed.

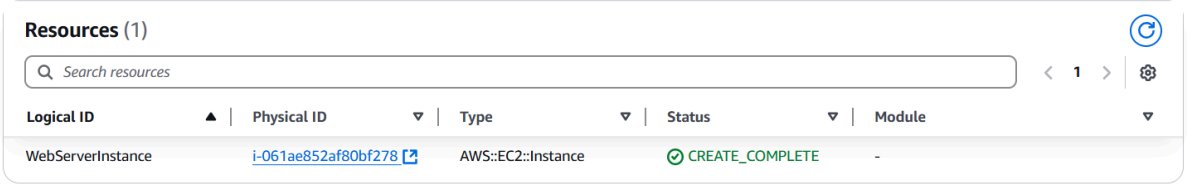


5. Click **'Next'** to skip parameters. Optionally adjust stack options; click **'Next'** again.
6. On the review page, scroll down to preview changes (e.g., added EC2 Security Group resource and its logical ID). Click **'Submit'** to update the stack.

7. Verify stack status as **'UPDATE_IN_PROGRESS'** to confirm update initiation. Refresh the event list to track the creation of **'WebServerSecurityGroup'**. Confirm **'CREATE_COMPLETE'** status for the new resource.

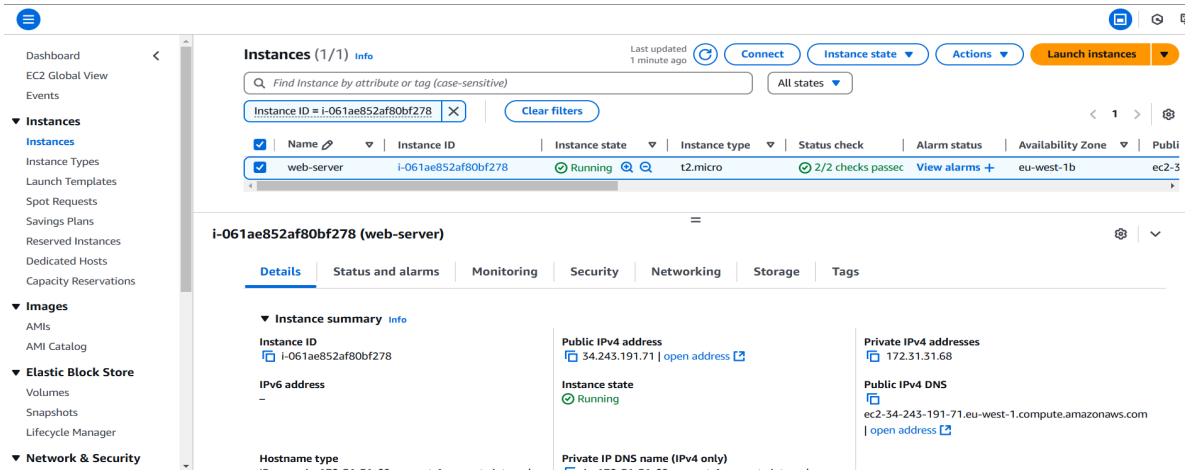
Note: the update clean-up process, removing previous resources if necessary.

8. Verify stack status as **'UPDATE_COMPLETE'** to confirm a successful update.
9. Navigate to the **'Resources' tab** to view the new security group. Locate the **security group ID** in the physical ID column, which links to the resource. Click the link to open the security group in a new tab. Verify the resource in the **security group list**.



Note: that the GroupName property was not provided, so a unique name was auto-generated.

10. Select the new security group from the list. Observe that CloudFormation generate a unique **GroupName** by appending a hashcode to the stack name and logical ID.
11. Verify the **inbound rules** to ensure the HTTP port rule added in the template is present.



Note: that the security group is not yet attached to the EC2 instance.

12. Do not delete the stack, we will use it further.