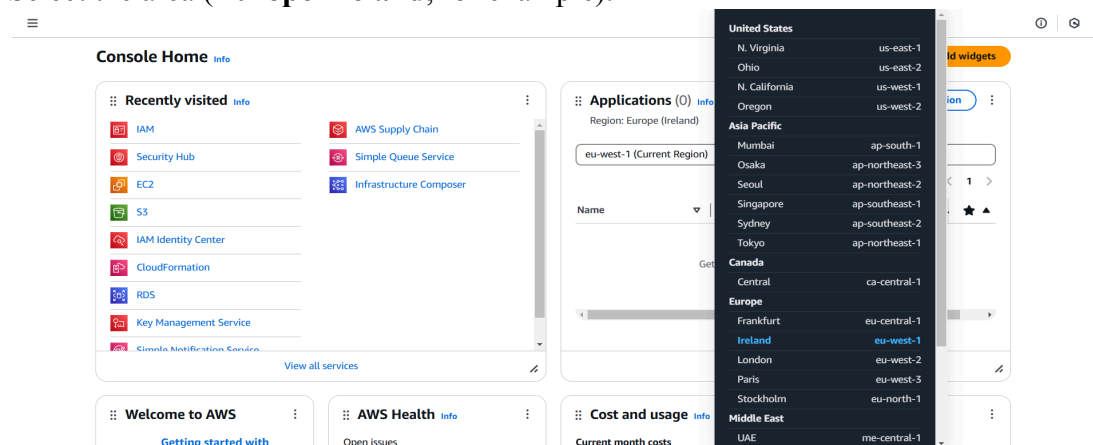


First Cloud Formation Stack

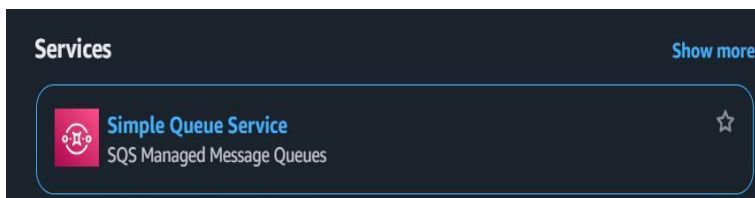
The process involves using the AWS Management Console to create a CloudFormation stack with pre-defined templates. First, locate the template file from GitHub, edit it in VS Code, and upload it during stack creation. Navigate through AWS services like SQS and SNS to confirm no pre-existing resources. Then, open the CloudFormation Console, select "Create Stack," choose the "With new resources" option, and upload the edited template. Configure stack details, review settings, and submit. Monitor stack creation via the Events tab and verify the new resources (queues, topics, etc.) in their respective service dashboards. The end goal is to automate infrastructure creation efficiently.

Activity

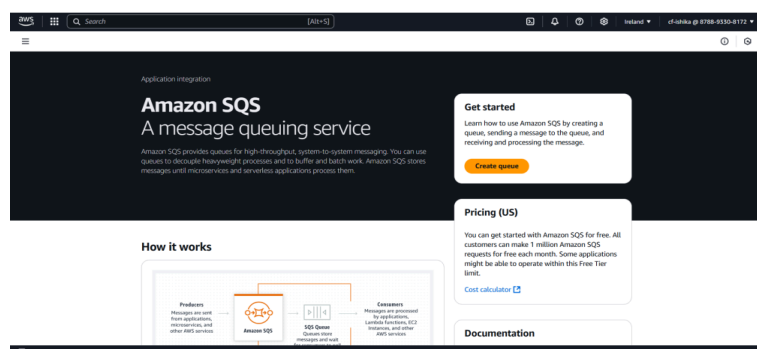
1. You can Find the template files in our GitHub repository under the same name as the heading for easy access and edits. Save the attached template file, open it in VS Code for edits, and upload it during stack creation.
2. To construct a stack, open the [AWS Management Console](#).
3. Select the area (**Europe-Ireland**, for example).



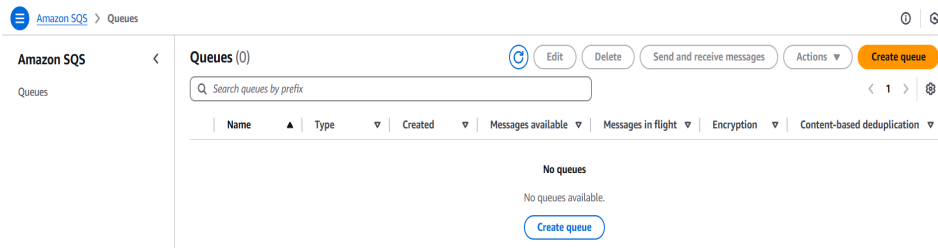
4. Search for **Simple Queue Service(SQS)** in the AWS search bar and navigate to the service in another tab by Right clicking on the SQS.



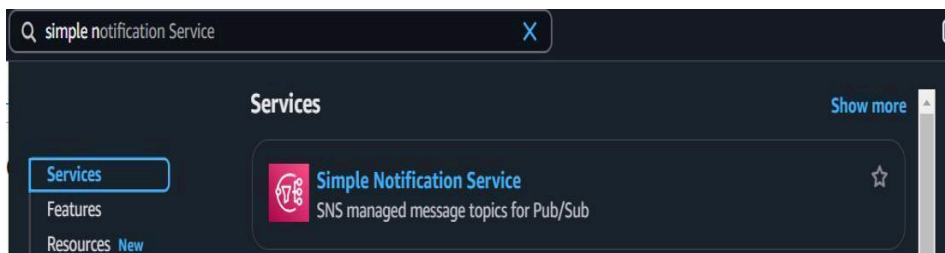
5. This is the **Simple Queue Service(SQS) Dashboard**.



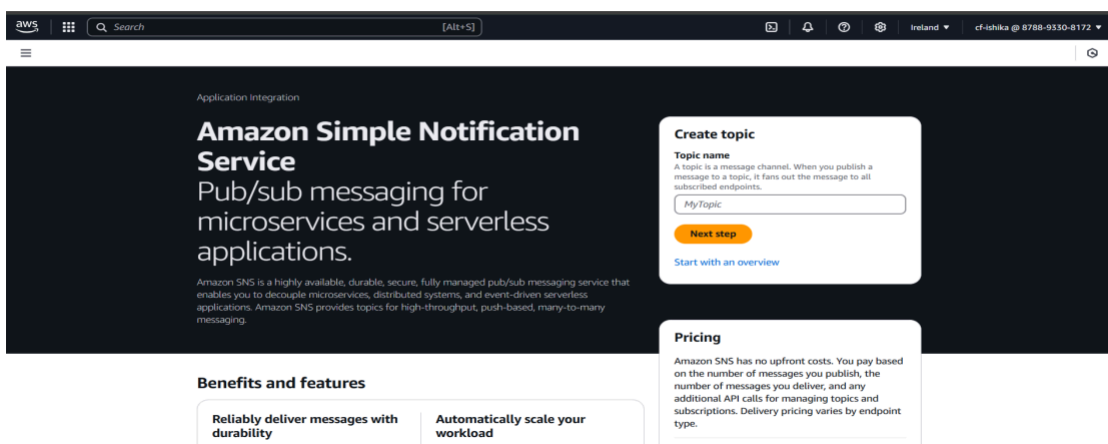
6. Switch to the queue list from the left menu and verify that no queues are present initially.



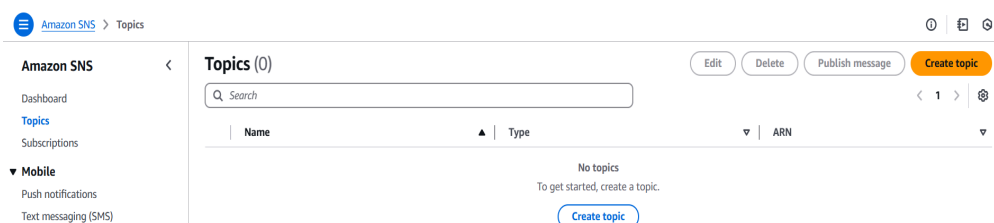
7. Now, Search for **Simple Notification Service(SNS)** in the AWS search bar and navigate to the service in another tab by Right clicking on the SNS.



8. This is the **Simple Notification Service(SNS) Dashboard**.



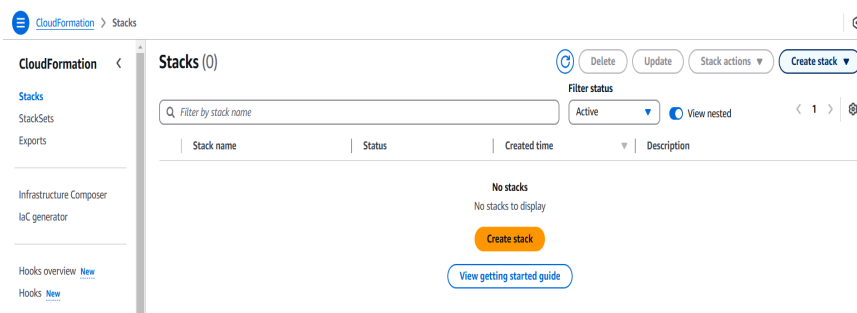
9. Switch to the topic list using the left menu. Verify that no SNS topics are currently available. Anticipate new resources in these services after creating the stack.



10. Now, Search for **Cloud Formation** in the AWS search bar and open the console.



11. This is the **Cloud Formation Dashboard**.



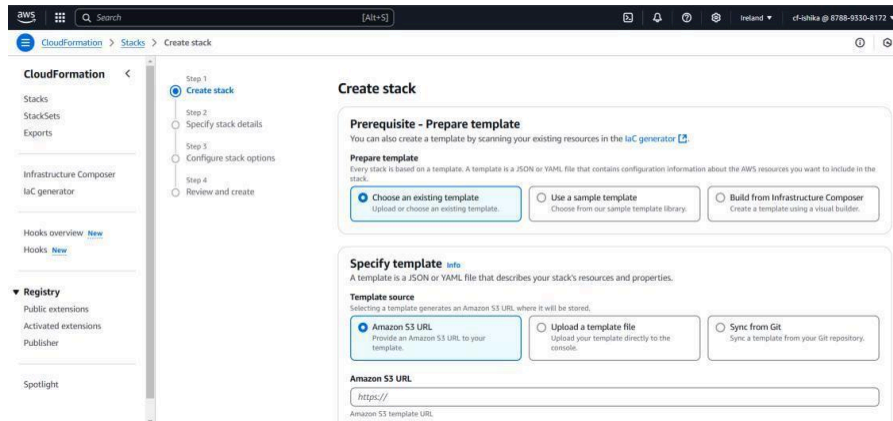
12. Click on “**Create Stack**”.



13. Choose between two options: '**With new resources**' to create resources with the stack or '**With existing resources**' to import existing AWS resources into a new stack.

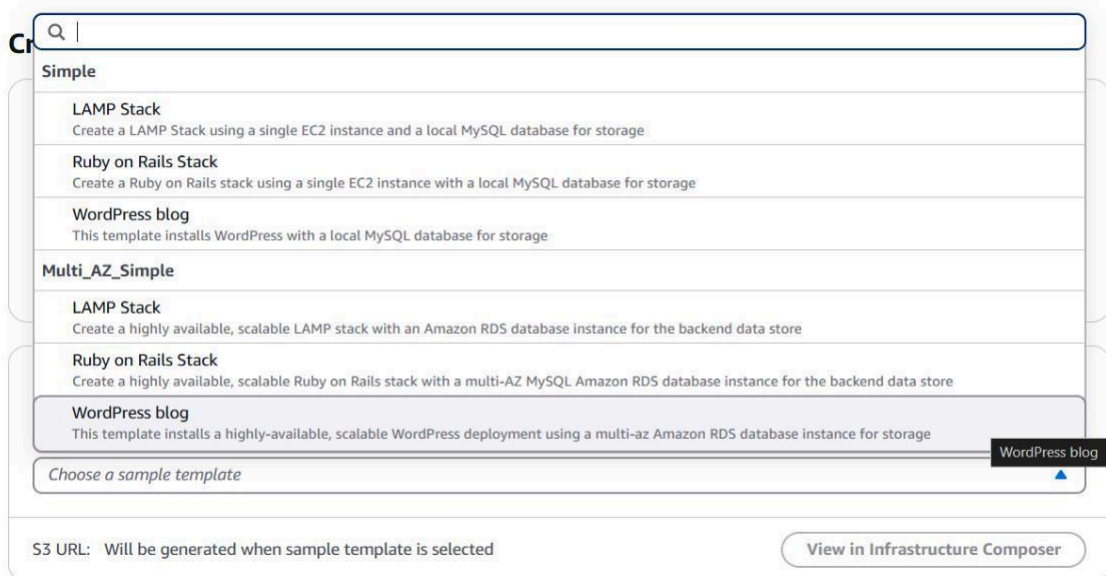


14. Select the '**With new resources**' option for creating new resources as demonstrated.



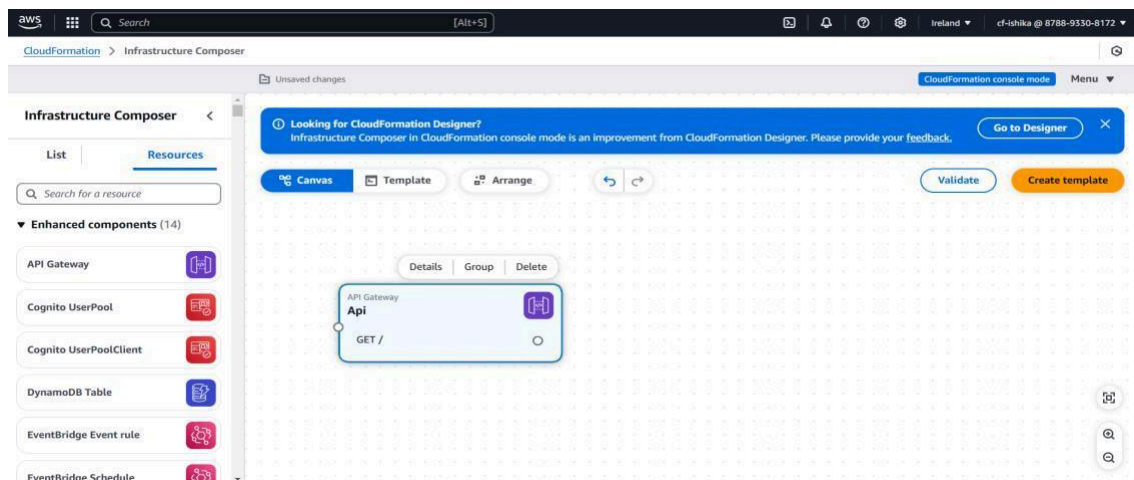
15. Use the default '**Choose an existing template**' option if your CloudFormation template is ready.

16. Select the '**Use a sample template**' option to choose from AWS's sample templates, if you want to deploy a highly available and scalable WordPress blog with an Amazon RDS instance. Select the '**Application Composer**' option to generate a template using a graphical designer.



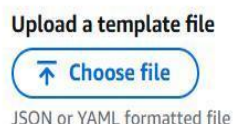
Note: the Amazon S3 URL displayed below, which is the location of the sample template in this AWS region.

17. Understand that this template is stored in an S3 bucket provided by the CloudFormation team for stack creation. Select the '**Application Composer**' option to generate a template using a graphical designer. You can Drag and drop resources onto the canvas to create a CloudFormation template.



18. Explore this option if desired, though this course focuses on writing templates manually step by step. But, we will select the '**Choose an existing template**' option to create a stack using a sample template. Provide your template to CloudFormation through available methods.

19. 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.



20. CloudFormation uploads your template to an S3 bucket and generates a corresponding S3 URL.

S3 URL: <https://s3.eu-west-1.amazonaws.com/cf-templates-kmi81w4ukk76-eu-west-1/2024-11-28T104206.955Zx8o-first-sample-template.yaml>

[View in Infrastructure Composer](#)

Note: The new S3 bucket name, created in the same AWS region, contains the uploaded template with a timestamp-based name.

21. Verify the template's upload in the S3 Console for confirmation.

The screenshot shows the Amazon S3 console interface. On the left, there's a navigation menu with options like 'General purpose buckets', 'Directory buckets', 'Table buckets', 'Access Grants', 'Access Points', 'Object Lambda Access Points', 'Multi-Region Access Points', 'Batch Operations', 'IAM Access Analyzer for S3', 'Storage Lens', and 'Feature spotlight'. The main area displays 'General purpose buckets (27)' with a search bar and a table of buckets. The table has columns for Name, AWS Region, IAM Access Analyzer, and Creation date. One bucket, 'cf-templates-kmi81w4ukk76-eu-west-1', is highlighted in blue.

Name	AWS Region	IAM Access Analyzer	Creation date
buckets-generals	Europe (Ireland) eu-west-1	View analyzer for eu-west-1	December 10, 2024, 10:28:58 (UTC+05:30)
cf-s3bucketdemofortesting1	Asia Pacific (Mumbai) ap-south-1	View analyzer for ap-south-1	December 15, 2024, 11:15:48 (UTC+05:30)
cf-templates-kmi81w4ukk76-ap-south-1	Asia Pacific (Mumbai) ap-south-1	View analyzer for ap-south-1	November 9, 2024, 20:02:05 (UTC+05:30)
cf-templates-kmi81w4ukk76-eu-west-1	Europe (Ireland) eu-west-1	View analyzer for eu-west-1	November 28, 2024, 14:57:13 (UTC+05:30)
database-stack-bucket	Europe (Ireland) eu-west-1	View analyzer for eu-west-1	December 9, 2024, 10:06:36 (UTC+05:30)
generals-buckets-stacks	Europe (Ireland) eu-west-1	View analyzer for eu-west-1	December 10, 2024, 11:46:21 (UTC+05:30)
nestedstackbuckets3	Europe (Ireland) eu-west-1	View analyzer for eu-west-1	November 28, 2024, 17:10:03 (UTC+05:30)
s3-bucket-12010321	US East (N. Virginia) us-east-1	View analyzer for us-east-1	November 19, 2024, 16:16:52 (UTC+05:30)
s3demobucketstackset	Asia Pacific (Mumbai) ap-south-1	View analyzer for ap-south-1	December 15, 2024, 11:02:34 (UTC+05:30)

22. CloudFormation will continue using this bucket for templates in this region unless deleted. Proceed with the ready template to create the stack.

23. Return to the CloudFormation Console and click the 'Next' button to proceed.

The screenshot shows the 'Create stack' wizard in the AWS CloudFormation console. It has four steps: 1. Create stack (selected), 2. Specify stack details, 3. Configure stack options, and 4. Review and create. The 'Prerequisite - Prepare template' section is active, showing options to 'Choose an existing template' (selected) or 'Build from Infrastructure Composer'. The 'Specify template' section shows options for 'Template source': 'Amazon S3 URL', 'Upload a template file' (selected), and 'Sync from Git'. Below this, there's a section for 'Upload a template file' with a 'Choose file' button.

24. Provide a unique stack name using alphanumeric characters or hyphens, e.g., 'MyFirstStack' in PascalCase.

Specify stack details

Provide a stack name

Stack name

myfirststack

Stack name must be 1 to 128 characters, start with a letter, and only contain alphanumeric characters. Character count: 12/128.

Note: that this template has no parameters.

25. Click 'Next' again to continue. Configure the stack options, starting with assigning tags for cost-tracking and resource categorization.

The screenshot shows the 'Configure stack options' page in the AWS CloudFormation console. The left sidebar contains navigation links for CloudFormation, Stacks, StackSets, Exports, Infrastructure Composer, IaC generator, Hooks overview, and Registry. The main content area is titled 'Configure stack options' and includes three sections: 'Tags - optional' with an 'Add new tag' button, 'Permissions - optional' with an 'IAM role - optional' dropdown and a 'Remove' button, and 'Stack failure options' with a 'Behavior on provisioning failure' dropdown. The top navigation bar shows 'CloudFormation > Stacks > Create stack'.

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

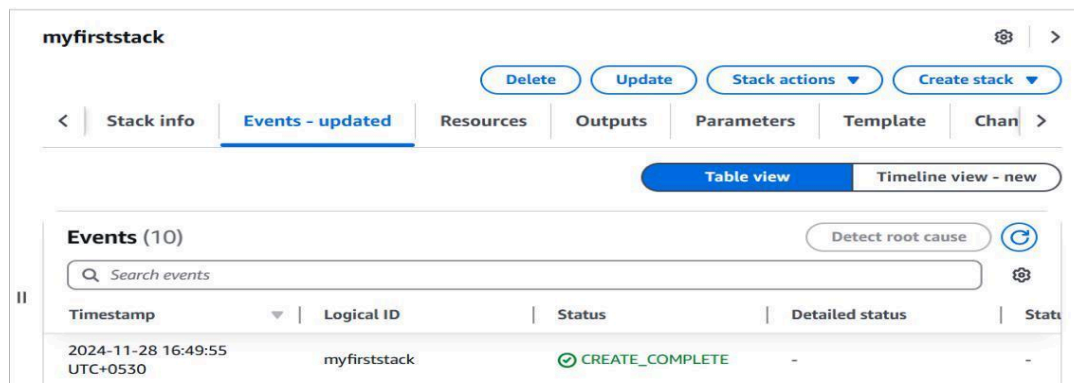
26. Optionally, assign a CloudFormation service role in the '**Permissions**' section to separate permissions, though this is advanced and can be skipped. Skip other advanced options not covered in this lecture.
27. Click 'Next' to proceed. Now, We are on the review page, reviewing your stack configuration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

The screenshot shows the 'Review and create' page in the AWS CloudFormation console. The left sidebar is the same as the previous screenshot. The main content area is titled 'Review and create' and includes two sections: 'Step 1: Specify template' with a 'Prerequisite - Prepare template' section and a 'Template' section, and 'Step 2: Specify stack details' with a 'Provide a stack name' section. The top navigation bar shows 'CloudFormation > Stacks > Create stack'.

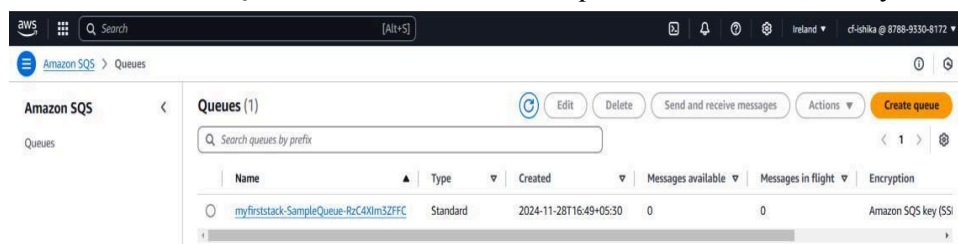
28. Scroll down to the bottom and click the 'Submit' button to initiate stack creation.

The screenshot shows the bottom of the 'Review and create' page. It features three buttons: 'Create change set' (blue), 'Cancel' (blue), and 'Submit' (orange). The 'Submit' button is highlighted.

29. 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.
30. Refresh the event list to monitor the stack creation progress.



31. So, we successfully created our first CloudFormation stack. Check the resources created by the stack in their respective service consoles.
32. Switch to the SQS Console and refresh the queue list to see the newly created queue.



33. Verify that the stack successfully created the resources.

Understanding your Stack's Information

To view stack details in the CloudFormation Console, several tabs are available. The Events Tab is the default and is used to monitor stack creation, updates, and deletion events. The Stack Info Tab provides details like the stack name, ID, description, creation time, and status. The Resources Tab lists resources managed by the stack, showing logical IDs (assigned in the template) and physical IDs (unique identifiers for services). The Outputs Tab displays stack outputs, while the Parameters Tab shows input variables; both are covered in more detail later. The Template Tab allows you to view the uploaded template, and the Change Sets Tab helps review updates before applying them. If a Git repository is integrated, details appear in

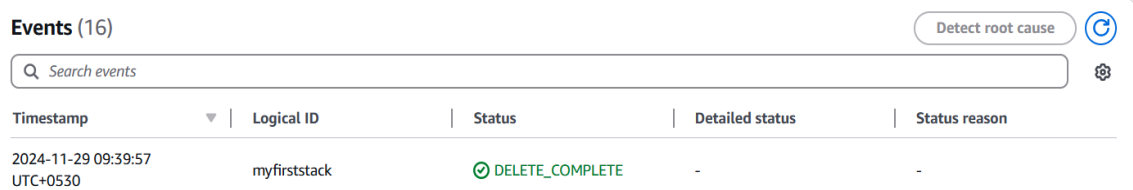
the Git Sync Tab, though this was not applicable in the example. The Events Tab is key for tracking stack actions. The next lecture covers how to delete the example stack.

How to Delete your Stack

1. Go to the **CloudFormation Console** and select the **stack** to **delete**. Click the **Delete** button in the stack details. Confirm the deletion by clicking Delete Stack.



2. Monitor progress in the Events Tab as resources are deleted. Verify deletion in the Resources Tab and AWS service consoles.



3. Apply the '**Deleted**' filter in the stack list to view deleted stacks. Use filters to organize stacks by state (e.g., Complete, Failed, In progress).
4. Toggle 'View nested' for advanced nested stack details (optional).