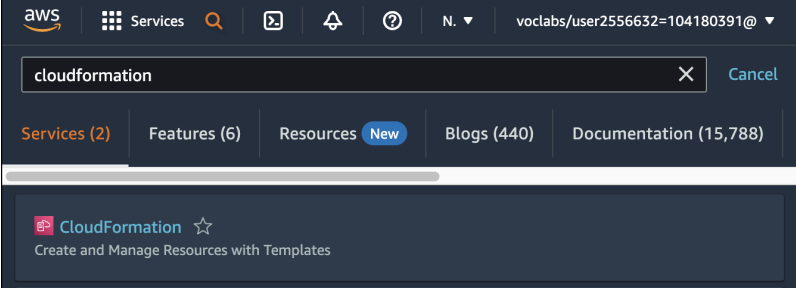
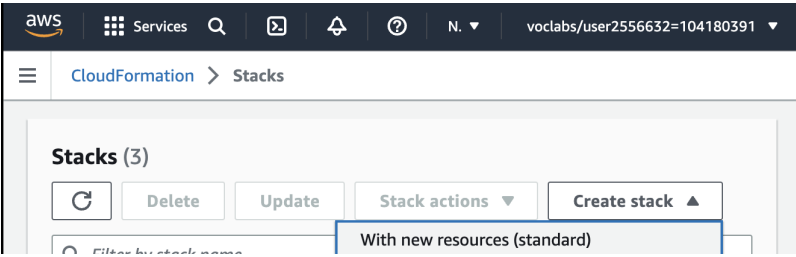
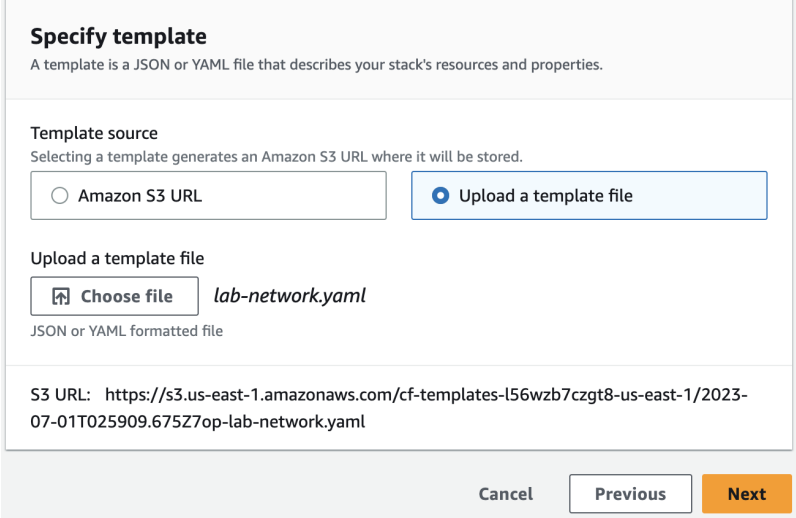


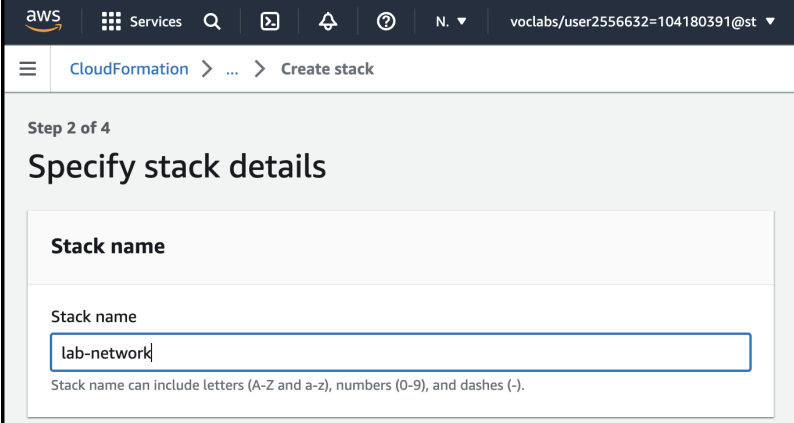
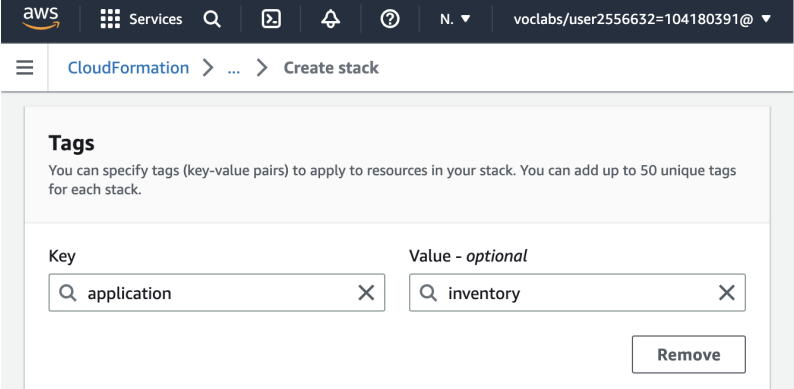
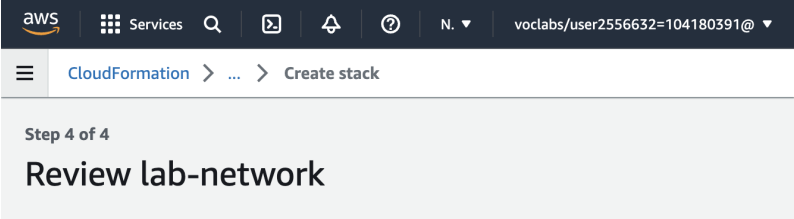


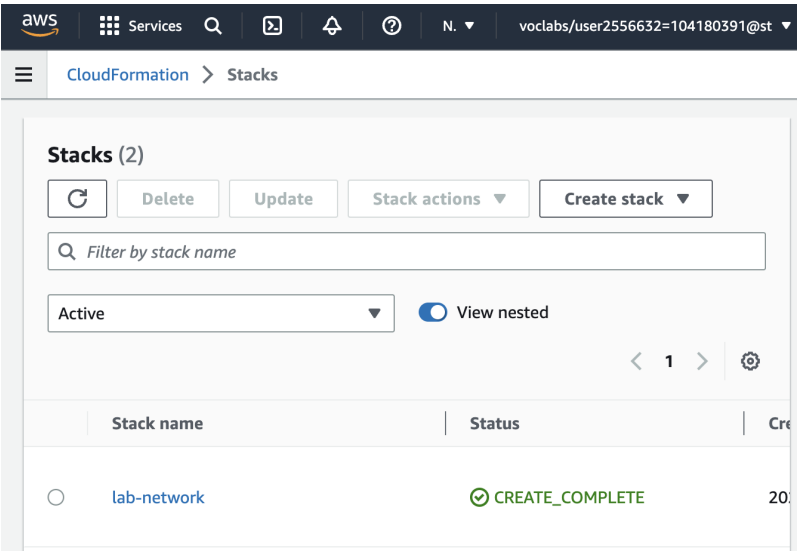
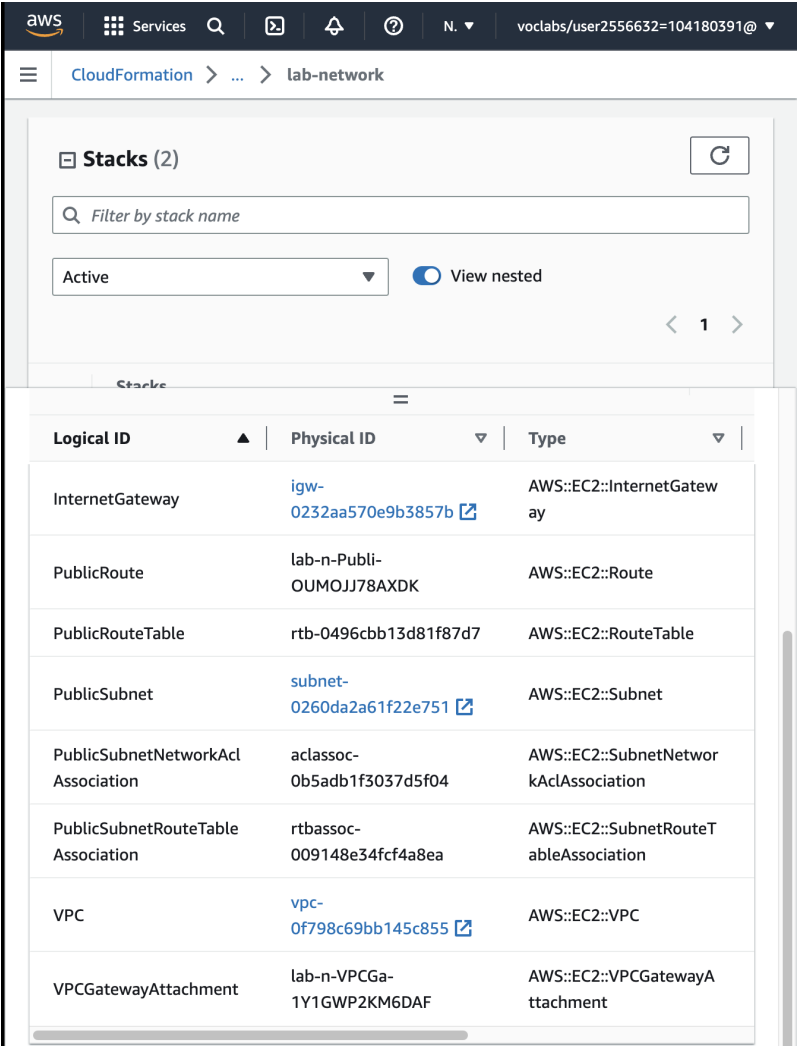
## **Module 10 Guided Lab - Automating Infrastructure Deployment with AWS CloudFormation**

July 1, 2023

Luu Tuan Hoang  
Student ID: 104180391

Task 1: Deploying a networking layer		
Step	Description	Screenshot
1	In the AWS Management Console, from the <b>Services</b> menu, choose <b>CloudFormation</b> .	 <p>The screenshot shows the AWS Management Console interface. At the top, there's a search bar with 'cloudformation' entered. Below the search bar, there are tabs for 'Services (2)', 'Features (6)', 'Resources (New)', 'Blogs (440)', and 'Documentation (15,788)'. The 'Services (2)' tab is selected, showing a result for 'CloudFormation' with a star icon and the description 'Create and Manage Resources with Templates'.</p>
2	Choose <b>Create stack</b> > <b>With existing resources (standard)</b>	 <p>The screenshot shows the 'Create stack' dialog in the AWS CloudFormation console. The 'Stacks (3)' section is visible, with buttons for 'Refresh', 'Delete', 'Update', 'Stack actions', and 'Create stack'. The 'Create stack' button is highlighted, and a dropdown menu is open showing the option 'With new resources (standard)'.</p>
3	Import downloaded <b>lab-network.yaml</b> file.	 <p>The screenshot shows the 'Specify template' dialog in the AWS CloudFormation console. The dialog has a title 'Specify template' and a subtitle 'A template is a JSON or YAML file that describes your stack's resources and properties.' Below this, there's a section 'Template source' with the text 'Selecting a template generates an Amazon S3 URL where it will be stored.' There are two radio buttons: 'Amazon S3 URL' and 'Upload a template file'. The 'Upload a template file' option is selected. Below this, there's a section 'Upload a template file' with a 'Choose file' button and the filename 'lab-network.yaml'. Below the filename, it says 'JSON or YAML formatted file'. At the bottom, there's a section 'S3 URL:' with the URL 'https://s3.us-east-1.amazonaws.com/cf-templates-l56wzb7czgt8-us-east-1/2023-07-01T025909.675Z7op-lab-network.yaml'. At the bottom right, there are buttons for 'Cancel', 'Previous', and 'Next'.</p>

4	<ul style="list-style-type: none"><li>- <b>Stack name:</b> lab-network</li><li>- Choose <b>Next</b></li></ul>	 <p>The screenshot shows the AWS CloudFormation console at Step 2 of 4, titled 'Specify stack details'. The 'Stack name' field is filled with 'lab-network'. A note below the field states: 'Stack name can include letters (A-Z and a-z), numbers (0-9), and dashes (-)'.</p>
5	<p>In the <b>Tags</b> section, enter these values.</p> <ul style="list-style-type: none"><li>- <b>Key:</b> application</li><li>- <b>Value:</b> inventory</li><li>- Choose <b>Next</b></li></ul>	 <p>The screenshot shows the 'Tags' section of the AWS CloudFormation console. It includes a description: 'You can specify tags (key-value pairs) to apply to resources in your stack. You can add up to 50 unique tags for each stack.' Below this, there are two input fields: 'Key' with the value 'application' and 'Value - optional' with the value 'inventory'. A 'Remove' button is located at the bottom right of the tag entry area.</p>
6	Choose <b>Submit</b> .	 <p>The screenshot shows the AWS CloudFormation console at Step 4 of 4, titled 'Review lab-network'. This is the final step before creating the stack.</p>

7	<b>lab-network</b> stack successfully created.	 <p>The screenshot shows the AWS CloudFormation console. The breadcrumb navigation is 'CloudFormation &gt; Stacks'. Under the 'Stacks (2)' section, there are buttons for 'Refresh', 'Delete', 'Update', 'Stack actions', and 'Create stack'. A search bar 'Filter by stack name' is present. A dropdown menu is set to 'Active', and the 'View nested' toggle is turned on. A table lists the stacks:</p> <table><thead><tr><th>Stack name</th><th>Status</th><th>Created</th></tr></thead><tbody><tr><td>lab-network</td><td>CREATE_COMPLETE</td><td>20...</td></tr></tbody></table>	Stack name	Status	Created	lab-network	CREATE_COMPLETE	20...																					
Stack name	Status	Created																											
lab-network	CREATE_COMPLETE	20...																											
8	<p>Choose the <b>Resources</b> tab.</p> <p>A list of the resources that were created by the template.</p>	 <p>The screenshot shows the 'Resources' tab for the 'lab-network' stack. The breadcrumb navigation is 'CloudFormation &gt; ... &gt; lab-network'. The 'Stacks (2)' section is visible at the top. Below it, a table lists the resources created by the template:</p> <table><thead><tr><th>Logical ID</th><th>Physical ID</th><th>Type</th></tr></thead><tbody><tr><td>InternetGateway</td><td>igw-0232aa570e9b3857b</td><td>AWS::EC2::InternetGateway</td></tr><tr><td>PublicRoute</td><td>lab-n-PublicRoute-OUMOJJ78AXDK</td><td>AWS::EC2::Route</td></tr><tr><td>PublicRouteTable</td><td>rtb-0496cbb13d81f87d7</td><td>AWS::EC2::RouteTable</td></tr><tr><td>PublicSubnet</td><td>subnet-0260da2a61f22e751</td><td>AWS::EC2::Subnet</td></tr><tr><td>PublicSubnetNetworkAclAssociation</td><td>aassoc-0b5adb1f3037d5f04</td><td>AWS::EC2::SubnetNetworkAclAssociation</td></tr><tr><td>PublicSubnetRouteTableAssociation</td><td>rtbassoc-009148e34fcf4a8ea</td><td>AWS::EC2::SubnetRouteTableAssociation</td></tr><tr><td>VPC</td><td>vpc-0f798c69bb145c855</td><td>AWS::EC2::VPC</td></tr><tr><td>VPCGatewayAttachment</td><td>lab-n-VPCGatewayAttachment-1Y1GWP2KM6DAF</td><td>AWS::EC2::VPCGatewayAttachment</td></tr></tbody></table>	Logical ID	Physical ID	Type	InternetGateway	igw-0232aa570e9b3857b	AWS::EC2::InternetGateway	PublicRoute	lab-n-PublicRoute-OUMOJJ78AXDK	AWS::EC2::Route	PublicRouteTable	rtb-0496cbb13d81f87d7	AWS::EC2::RouteTable	PublicSubnet	subnet-0260da2a61f22e751	AWS::EC2::Subnet	PublicSubnetNetworkAclAssociation	aassoc-0b5adb1f3037d5f04	AWS::EC2::SubnetNetworkAclAssociation	PublicSubnetRouteTableAssociation	rtbassoc-009148e34fcf4a8ea	AWS::EC2::SubnetRouteTableAssociation	VPC	vpc-0f798c69bb145c855	AWS::EC2::VPC	VPCGatewayAttachment	lab-n-VPCGatewayAttachment-1Y1GWP2KM6DAF	AWS::EC2::VPCGatewayAttachment
Logical ID	Physical ID	Type																											
InternetGateway	igw-0232aa570e9b3857b	AWS::EC2::InternetGateway																											
PublicRoute	lab-n-PublicRoute-OUMOJJ78AXDK	AWS::EC2::Route																											
PublicRouteTable	rtb-0496cbb13d81f87d7	AWS::EC2::RouteTable																											
PublicSubnet	subnet-0260da2a61f22e751	AWS::EC2::Subnet																											
PublicSubnetNetworkAclAssociation	aassoc-0b5adb1f3037d5f04	AWS::EC2::SubnetNetworkAclAssociation																											
PublicSubnetRouteTableAssociation	rtbassoc-009148e34fcf4a8ea	AWS::EC2::SubnetRouteTableAssociation																											
VPC	vpc-0f798c69bb145c855	AWS::EC2::VPC																											
VPCGatewayAttachment	lab-n-VPCGatewayAttachment-1Y1GWP2KM6DAF	AWS::EC2::VPCGatewayAttachment																											

9

Choose the **Events** tab and scroll through the events log.

The events log shows (from more recent to less recent) the activities that were performed by AWS CloudFormation.

aws

Services

N.

voclabs/user2556632=104180391@

CloudFormation > ... > lab-network

Stacks (2)

Filter by stack name

Active

View nested

< 1 >

Timestamp	Logical ID	Status
2023-07-01 10:06:15 UTC+0700	lab-network	CREATE_COMPLETE
2023-07-01 10:06:14 UTC+0700	PublicRoute	CREATE_COMPLETE
2023-07-01 10:05:59 UTC+0700	PublicSubnetNetworkAcl Association	CREATE_COMPLETE
2023-07-01 10:05:59 UTC+0700	PublicRoute	CREATE_IN_PROGRESS
2023-07-01 10:05:58 UTC+0700	PublicRoute	CREATE_IN_PROGRESS
2023-07-01 10:05:56 UTC+0700	VPCGatewayAttachment	CREATE_COMPLETE
2023-07-01 10:05:51 UTC+0700	PublicSubnetRouteTable Association	CREATE_COMPLETE
2023-07-01 10:05:51 UTC+0700	PublicSubnetRouteTable Association	CREATE_IN_PROGRESS

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Choose the **Outputs** tab.

A CloudFormation stack can provide output information, such as the ID of specific resources and links to resources.

Two outputs are listed.

- **PublicSubnet:** The ID of the public subnet that was created
- **VPC:** The ID of the VPC that was created

The screenshot shows the AWS CloudFormation console interface. At the top, the breadcrumb navigation indicates 'CloudFormation > ... > lab-network'. Below this, there's a search bar 'Filter by stack name' and a dropdown menu set to 'Active'. A toggle for 'View nested' is also visible. The 'Stacks' section lists the 'lab-network' stack. The main panel shows the 'lab-network' stack details with tabs for 'Stack info', 'Events', 'Resources', 'Outputs', 'Parameters', and 'Termination protection'. The 'Outputs' tab is selected, displaying a table of two outputs: 'PublicSubnet' and 'VPC'.

Key	Value	Description
PublicSubnet	subnet-0260da2a61f22e751	The subnet ID to use for public web servers
VPC	vpc-0f798c69bb145c855	VPC ID

11

Choose the **Template** tab.

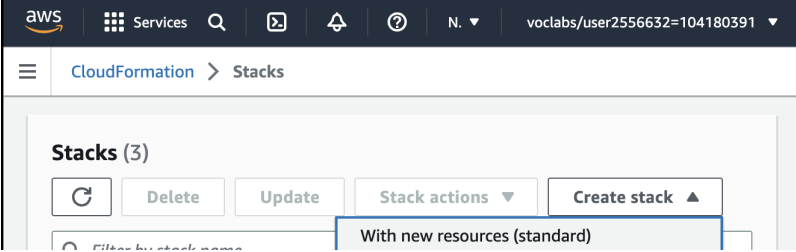
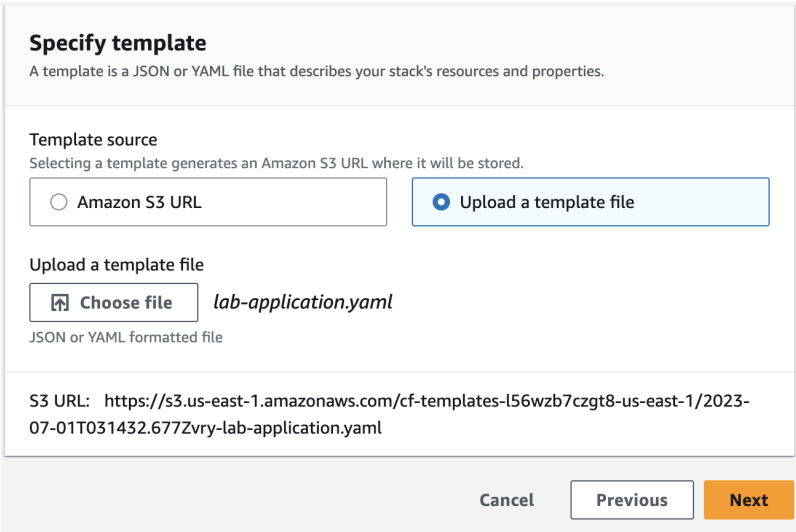
This tab shows the template that was used to create the stack—that is, the template that was uploaded while creating the stack.

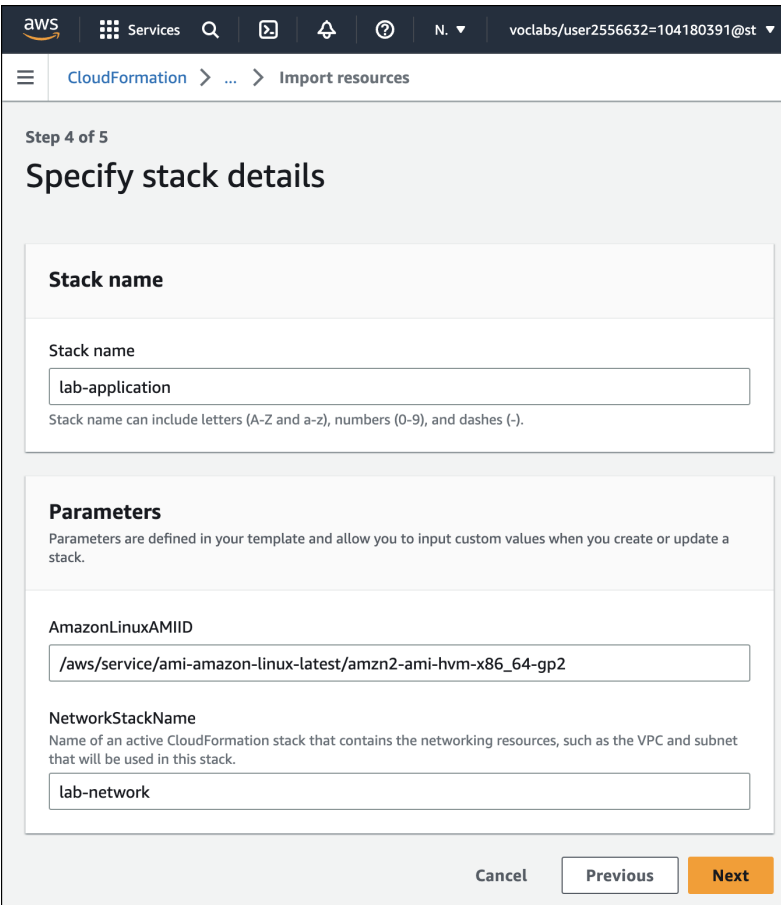
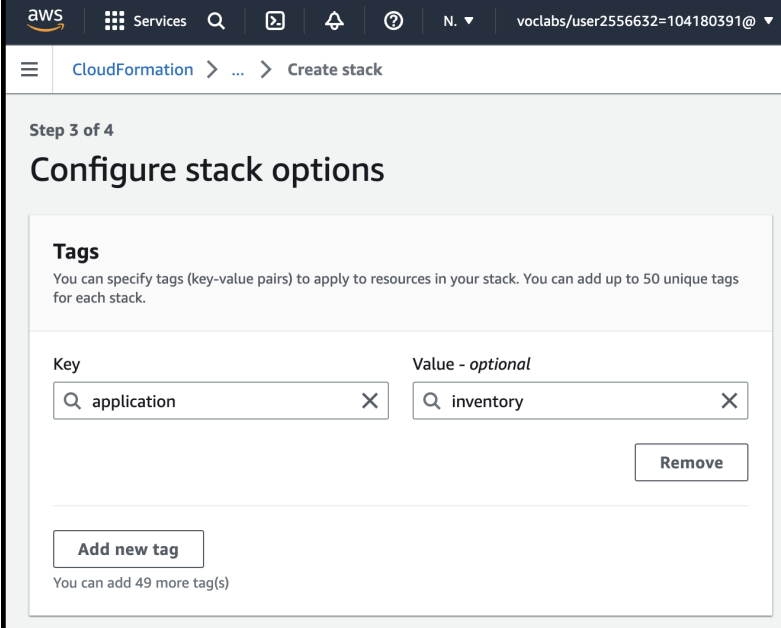
The screenshot shows the AWS CloudFormation console interface, specifically the 'Template' tab for the 'lab-network' stack. The breadcrumb navigation is 'CloudFormation > ... > lab-network'. The 'Stacks' section lists the 'lab-network' stack. The main panel shows the 'lab-network' stack details with tabs for 'Stack info', 'Events', 'Resources', 'Outputs', 'Parameters', and 'Template'. The 'Template' tab is selected, displaying the template content. At the top of the template section, there are buttons for 'View in Designer', 'Copy to clipboard', and a refresh icon.

```

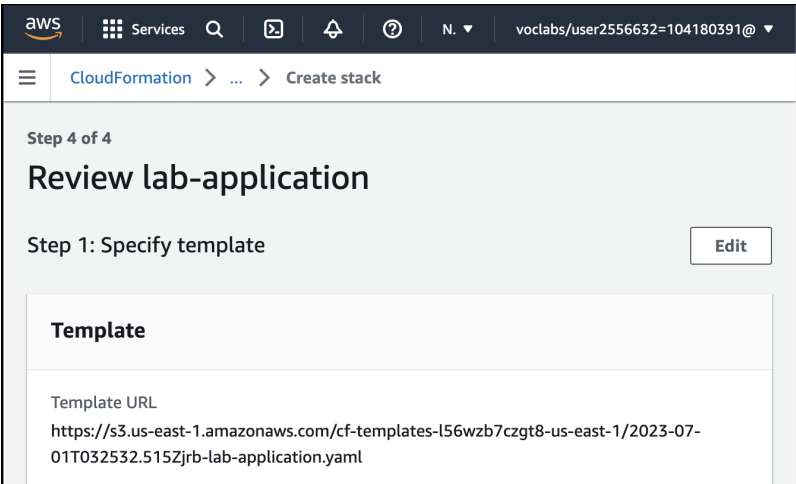
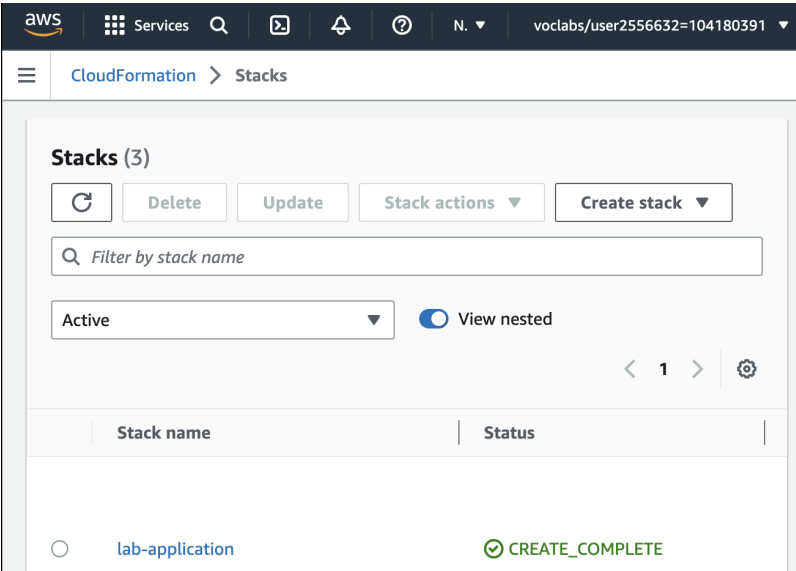
AWSTemplateFormatVersion: 2010-09-09
Description: >-
  Network Template: Sample template that creates a VPC with DNS and public
  IPs enabled.

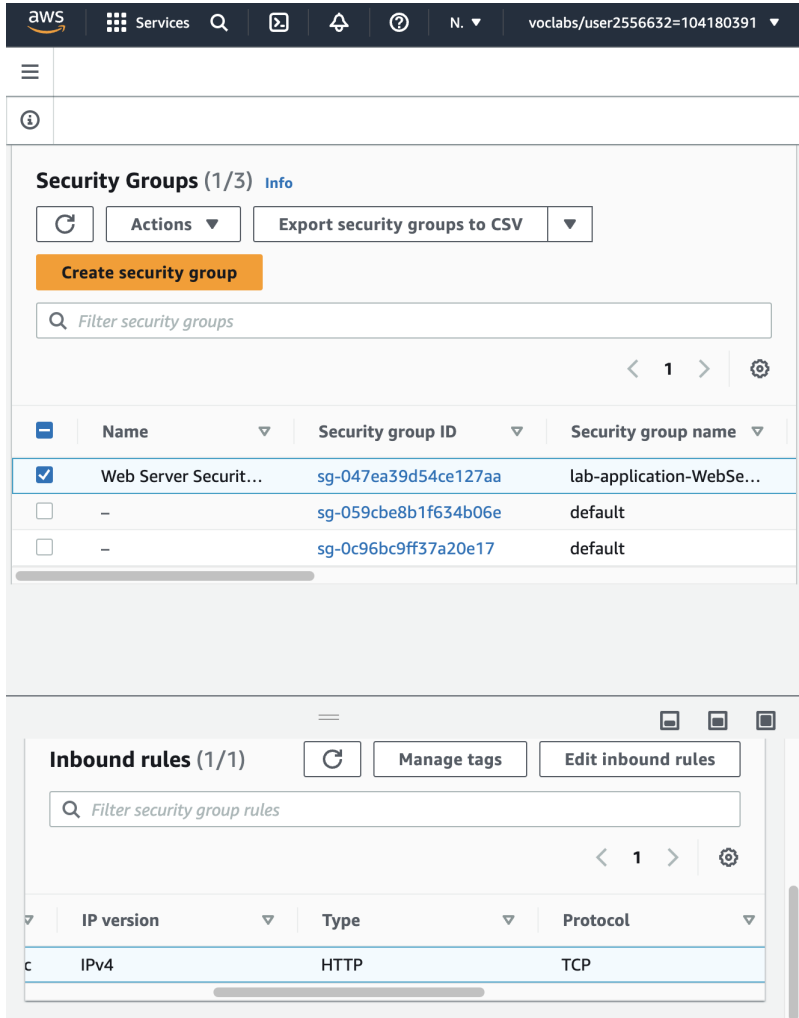
# This template creates:
# VPC
# Internet Gateway
# Public Route Table
# Public Subnet
  
```

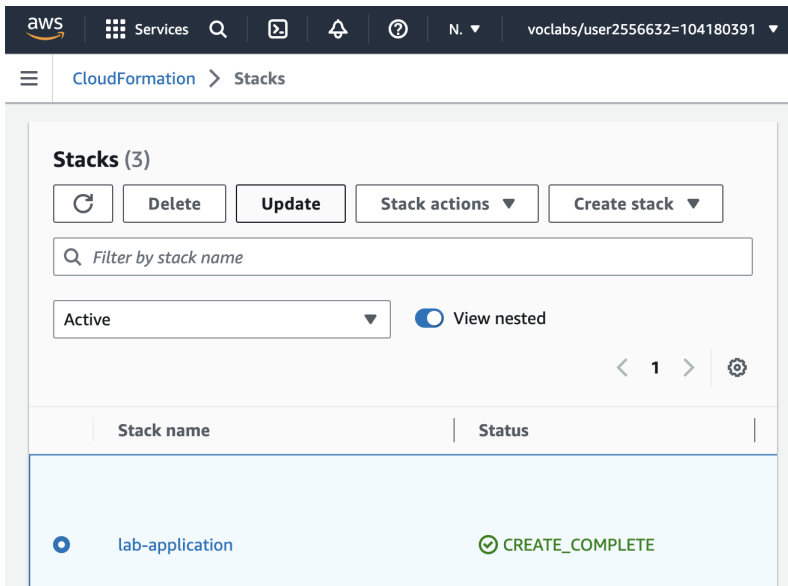
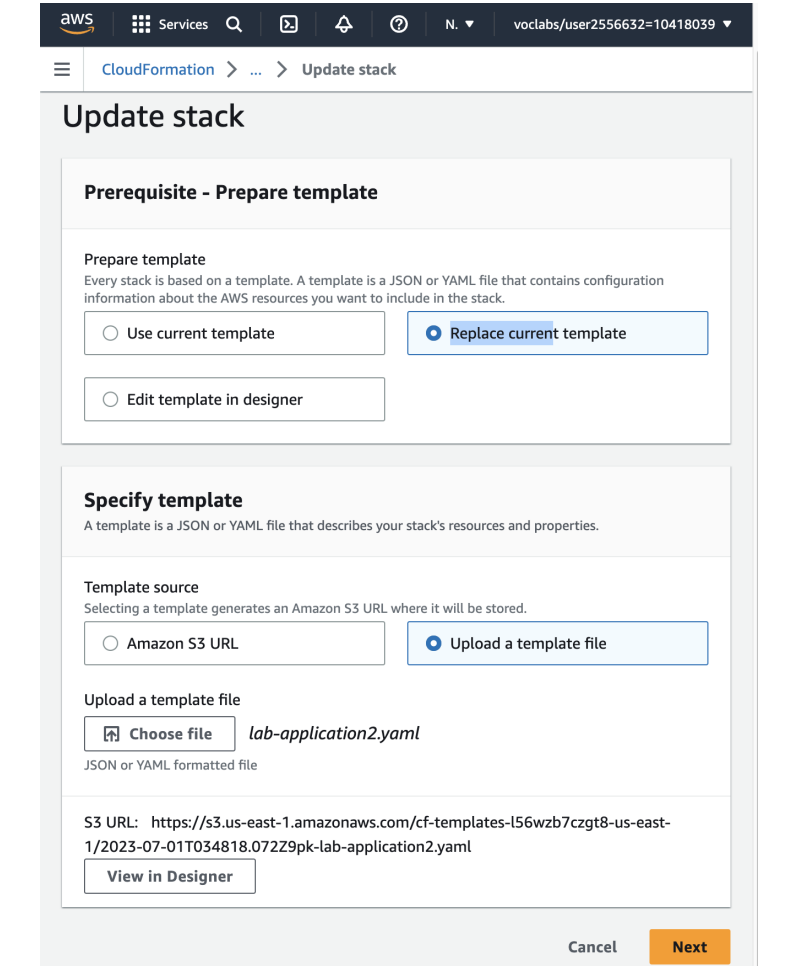
Task 2: Deploying an application layer		
Step	Description	Screenshot
1	Choose <b>Create stack</b> > <b>With new resources (standard)</b>	 <p>The screenshot shows the AWS CloudFormation console. At the top, there's a navigation bar with the AWS logo, 'Services', a search icon, and a user profile 'voclabs/user2556632=104180391'. Below the navigation bar, the breadcrumb 'CloudFormation &gt; Stacks' is visible. The main content area is titled 'Stacks (3)' and contains several buttons: 'Refresh', 'Delete', 'Update', 'Stack actions' (with a dropdown arrow), and 'Create stack' (with an upward arrow). A blue box highlights the 'Create stack' button and the 'With new resources (standard)' option in the dropdown menu.</p>
2	Import downloaded <b>lab-application.yaml</b> file.	 <p>The screenshot shows the 'Specify template' dialog in the AWS CloudFormation console. The dialog has a title 'Specify template' and a subtitle 'A template is a JSON or YAML file that describes your stack's resources and properties.' Below this, there's a section 'Template source' with the text 'Selecting a template generates an Amazon S3 URL where it will be stored.' There are two radio buttons: 'Amazon S3 URL' and 'Upload a template file'. The 'Upload a template file' option is selected. Below the radio buttons, there's a section 'Upload a template file' with a 'Choose file' button and the filename 'lab-application.yaml'. Below the filename, it says 'JSON or YAML formatted file'. At the bottom of the dialog, there's a text field for 'S3 URL' with the value 'https://s3.us-east-1.amazonaws.com/cf-templates-l56wzb7czgt8-us-east-1/2023-07-01T031432.677Zvry-lab-application.yaml'. At the bottom right of the dialog, there are three buttons: 'Cancel', 'Previous', and 'Next'.</p>

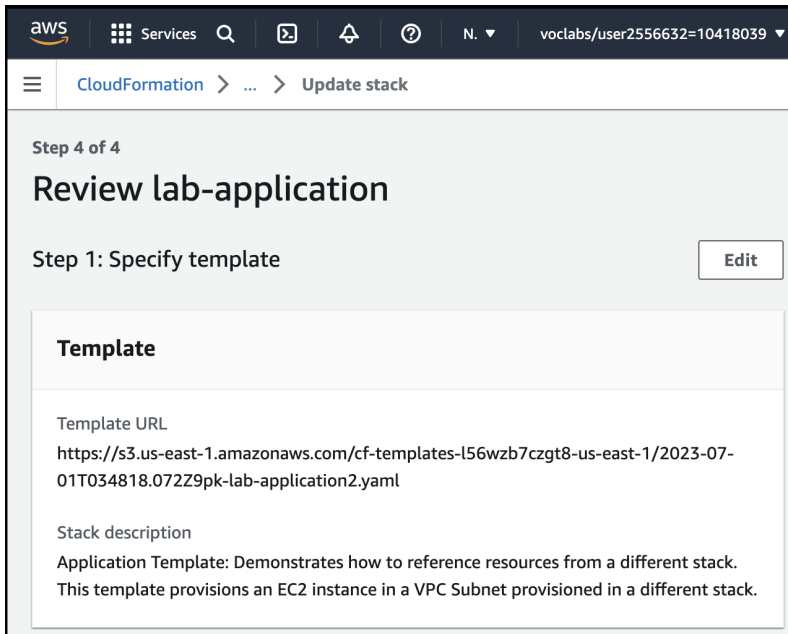
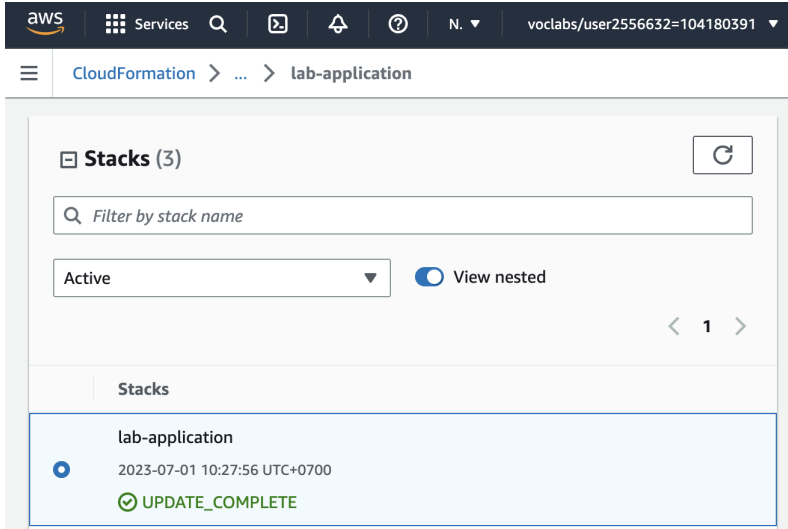
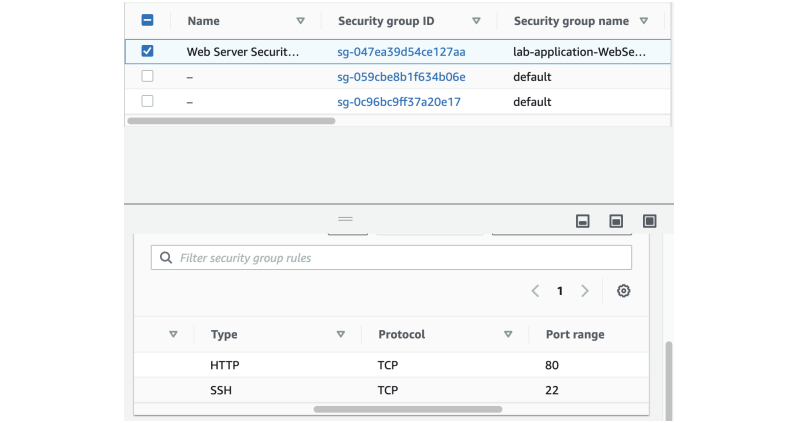
3	<p>Create Stack:</p> <ul style="list-style-type: none"><li>- <b>Stack name:</b> lab-application</li><li>- <b>NetworkStackName:</b> lab-network</li><li>- Choose <b>Next</b></li></ul>	
4	<p>In the <b>Tags</b> section, enter these values.</p> <ul style="list-style-type: none"><li>- <b>Key:</b> application</li><li>- <b>Value:</b> inventory</li></ul> <p>Choose <b>Next</b></p>	



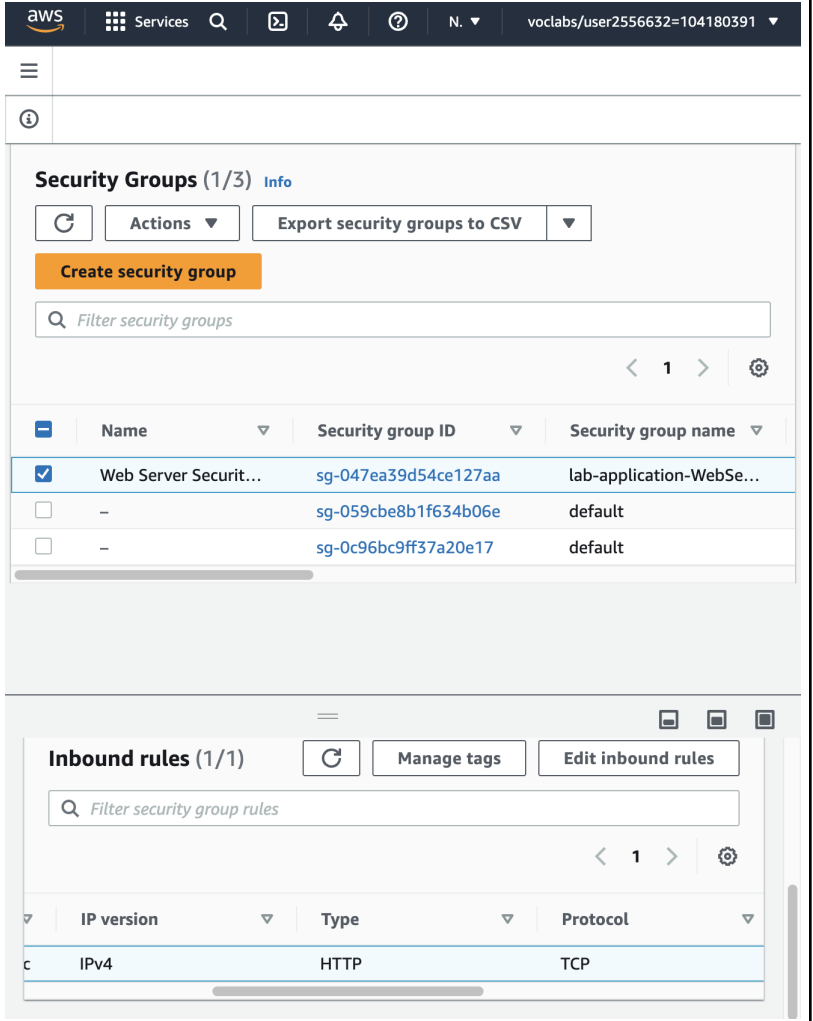
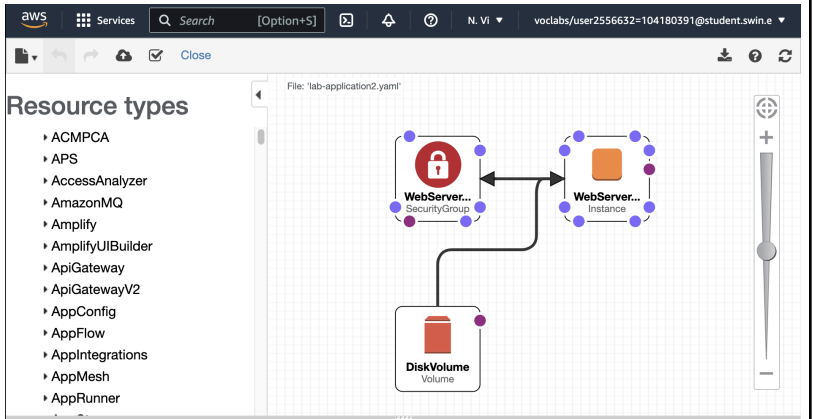
5	Choose <b>Submit</b> .	
6	<b>lab-application</b> stack successfully created.	

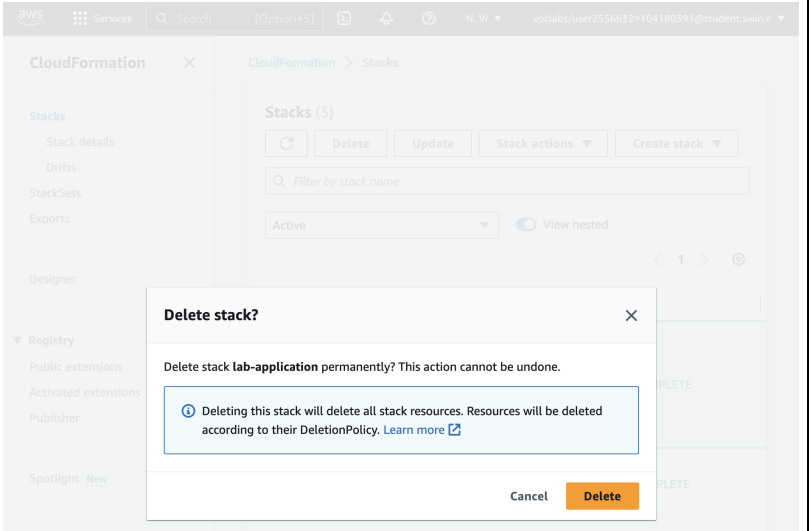
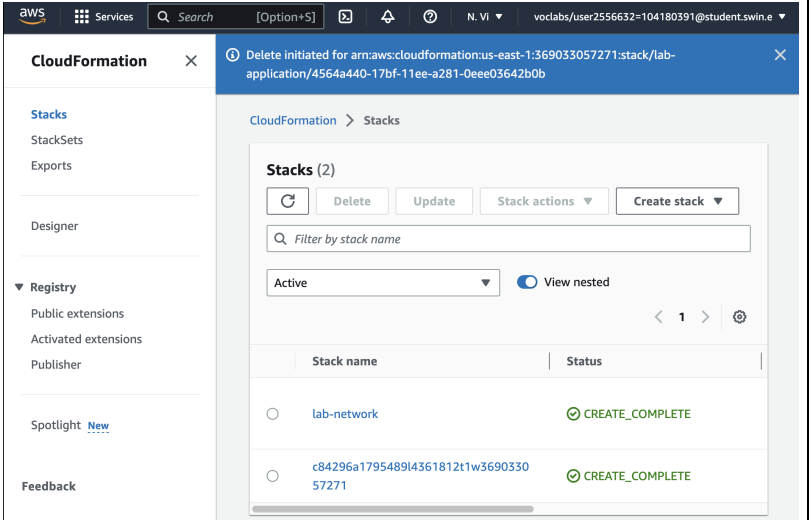
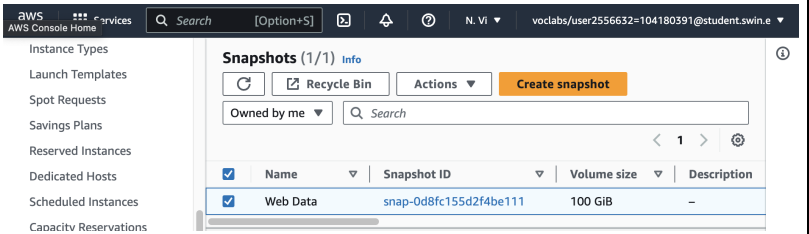
Task 3: Updating a Stack																										
Step	Description	Screenshot																								
1	<p>In the AWS Management Console, from the <b>Services</b> menu, choose <b>EC2</b>.</p> <p>In the left navigation pane, choose <b>Security Groups</b>.</p> <p>Choose the <b>Inbound rules</b> tab.</p> <p>Currently, only one rule is in the security group. The rule permits HTTP traffic.</p>	 <p>The screenshot displays the AWS Management Console interface. At the top, the navigation bar shows the AWS logo, 'Services' menu, search bar, and user information 'voclabs/user2556632=104180391'. The left-hand navigation pane is partially visible. The main content area is titled 'Security Groups (1/3)' and includes buttons for 'Create security group', 'Filter security groups', and 'Export security groups to CSV'. Below this is a table listing security groups:</p> <table><tr><th></th><th>Name</th><th>Security group ID</th><th>Security group name</th></tr><tr><td><input checked="" type="checkbox"/></td><td>Web Server Securit...</td><td>sg-047ea39d54ce127aa</td><td>lab-application-WebSe...</td></tr><tr><td><input type="checkbox"/></td><td>-</td><td>sg-059cbe8b1f634b06e</td><td>default</td></tr><tr><td><input type="checkbox"/></td><td>-</td><td>sg-0c96bc9ff37a20e17</td><td>default</td></tr></table> <p>Below the security groups list, the 'Inbound rules (1/1)' tab is selected, showing a table of rules:</p> <table><tr><th></th><th>IP version</th><th>Type</th><th>Protocol</th></tr><tr><td>c</td><td>IPv4</td><td>HTTP</td><td>TCP</td></tr></table>		Name	Security group ID	Security group name	<input checked="" type="checkbox"/>	Web Server Securit...	sg-047ea39d54ce127aa	lab-application-WebSe...	<input type="checkbox"/>	-	sg-059cbe8b1f634b06e	default	<input type="checkbox"/>	-	sg-0c96bc9ff37a20e17	default		IP version	Type	Protocol	c	IPv4	HTTP	TCP
	Name	Security group ID	Security group name																							
<input checked="" type="checkbox"/>	Web Server Securit...	sg-047ea39d54ce127aa	lab-application-WebSe...																							
<input type="checkbox"/>	-	sg-059cbe8b1f634b06e	default																							
<input type="checkbox"/>	-	sg-0c96bc9ff37a20e17	default																							
	IP version	Type	Protocol																							
c	IPv4	HTTP	TCP																							

2	<p>From the <b>Services</b> menu, choose <b>CloudFormation</b>.</p> <p>In the <b>Stacks list</b> of the AWS CloudFormation console, select <b>lab-application</b>.</p> <p>Choose <b>Update</b>.</p>	 <p>The screenshot shows the AWS CloudFormation console. At the top, there's a navigation bar with the AWS logo, 'Services' menu, search bar, and user information. Below the navigation bar, the breadcrumb trail shows 'CloudFormation &gt; Stacks'. The main content area is titled 'Stacks (3)' and contains a list of stacks. The 'lab-application' stack is selected, and the 'Update' button is highlighted. The stack's status is 'CREATE_COMPLETE'.</p>
3	<p>Configure these settings:</p> <ul style="list-style-type: none"> <li>- Select <b>Replace current template</b></li> <li>- <b>Template source:</b> Upload a template file</li> <li>- Upload a template file: Click Choose <b>file</b> then select the <b>lab-application2.yaml</b> file that was downloaded.</li> </ul>	 <p>The screenshot shows the 'Update stack' wizard in the AWS CloudFormation console. The breadcrumb trail is 'CloudFormation &gt; ... &gt; Update stack'. The wizard has two main sections: 'Prerequisite - Prepare template' and 'Specify template'. In the 'Prerequisite' section, 'Replace current template' is selected. In the 'Specify template' section, 'Upload a template file' is selected. The 'Choose file' button is highlighted, and the file 'lab-application2.yaml' is shown. Below this, the 'S3 URL' is displayed, and the 'View in Designer' button is visible. At the bottom right, there are 'Cancel' and 'Next' buttons.</p>

4	<p>Choose <b>Next</b> in each of the next three screens to advance to the <b>Review lab-application</b> page.</p> <p>Choose <b>Update stack</b></p>	
5	<p>In the <b>Stack info</b> tab, wait for the <b>Status</b> to change to <b>UPDATE_COMPLETE</b></p>	
6	<p>In the <b>Security Groups</b> list, select <b>lab-application-WebServerSecurityGroup</b>.</p> <p>The <b>Inbound rules</b> tab should display an additional rule that allows SSH traffic over TCP port 22.</p>	

## Task 4: Exploring templates with AWS CloudFormation Designer

Step	Description	Screenshot
1	<p>In the AWS Management Console, from the <b>Services</b> menu, choose <b>EC2</b>.</p> <p>In the left navigation pane, choose <b>Security Groups</b>.</p> <p>Choose the <b>Inbound rules</b> tab.</p> <p>Currently, only one rule is in the security group. The rule permits HTTP traffic.</p>	
2	<p>From the <b>Services</b> menu, choose <b>CloudFormation</b>.</p> <p>In the left navigation pane, choose <b>Designer</b>.</p> <p>Choose the <b>File</b> menu, select <b>Open &gt; Local file</b>, and select the <b>lab-application2.yaml</b> template that you downloaded previously.</p>	

Task 5: Deleting the stack		
Step	Description	Screenshot
1	<p>Return to the main AWS CloudFormation console by choosing the <b>Close</b> link at the top of the <b>Designer</b> page (choose <b>Leave page</b> if prompted).</p> <p>In the list of stacks, choose the <b>lab-application</b> link.</p> <p>Choose <b>Delete</b></p> <p>Choose <b>Delete stack</b></p>	
2	<p><b>lab-application</b> disappeared from the stacks list.</p>	
3	<p>From the <b>Services</b> menu, choose <b>EC2</b>.</p> <p>In the left navigation pane, choose <b>Snapshots</b>.</p> <p>A snapshot with a <b>Started</b> time in the last few minutes.</p>	

4

Lab completed with all tasks done.

VS

Start Lab

End Lab

2:49

Instructions

Grades

Actions ▾

Files ☐

README ☒

Terminal ☐

Source ☐

Total score20/20

[Task 1] Deploy Networking Stack5/5

[Task 2] Deploy Application Stack5/5

[Task 3] Update Application Stack5/5

[Task 5] Delete Application Stack5/5