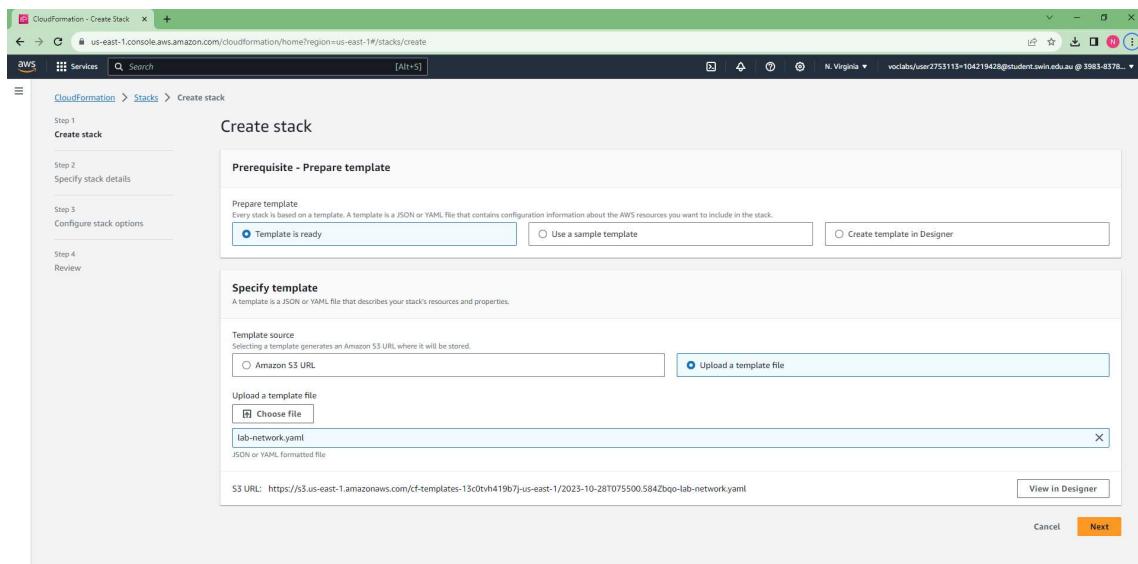
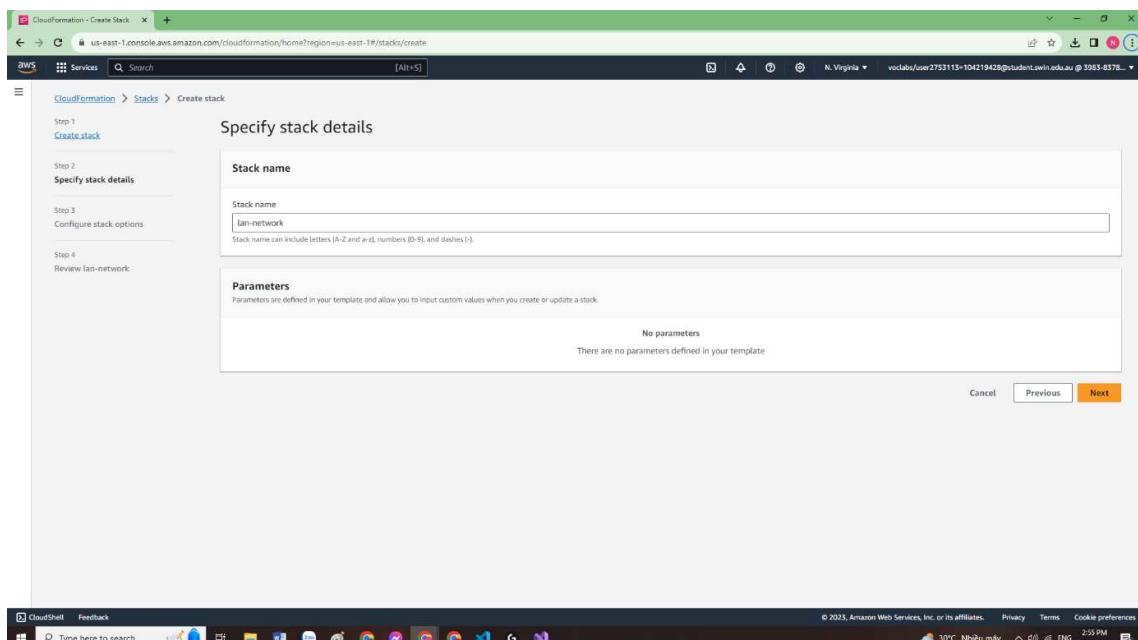


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Step 1: Upload the lab-network u downloaded



1.2: Configure the stack



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The screenshot shows the 'Configure stack options' step of the CloudFormation wizard. It includes sections for Tags, Permissions, and Stack failure options.

Tags: A table showing one tag: Key 'application' and Value 'inventory'. Buttons for 'Add new tag' and 'Remove' are present.

Permissions: A dropdown for 'IAM role - optional' set to 'Sample-role-name' with buttons for 'Remove' and 'Edit'.

Stack failure options: A section with two radio button options: 'Roll back all stack resources' (selected) and 'Preserve successfully provisioned resources'.

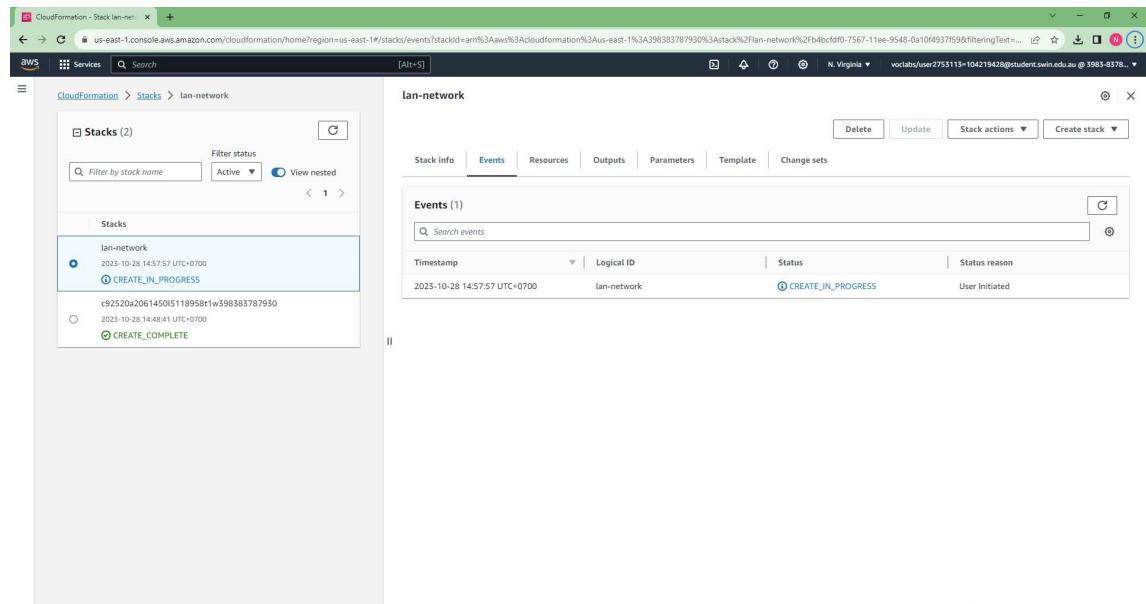
The screenshot shows the 'Review lan-network' step of the wizard. It displays the template details and allows modification of stack name and parameters.

Prerequisite - Prepare template: Shows 'Template' status as 'Template is ready'.

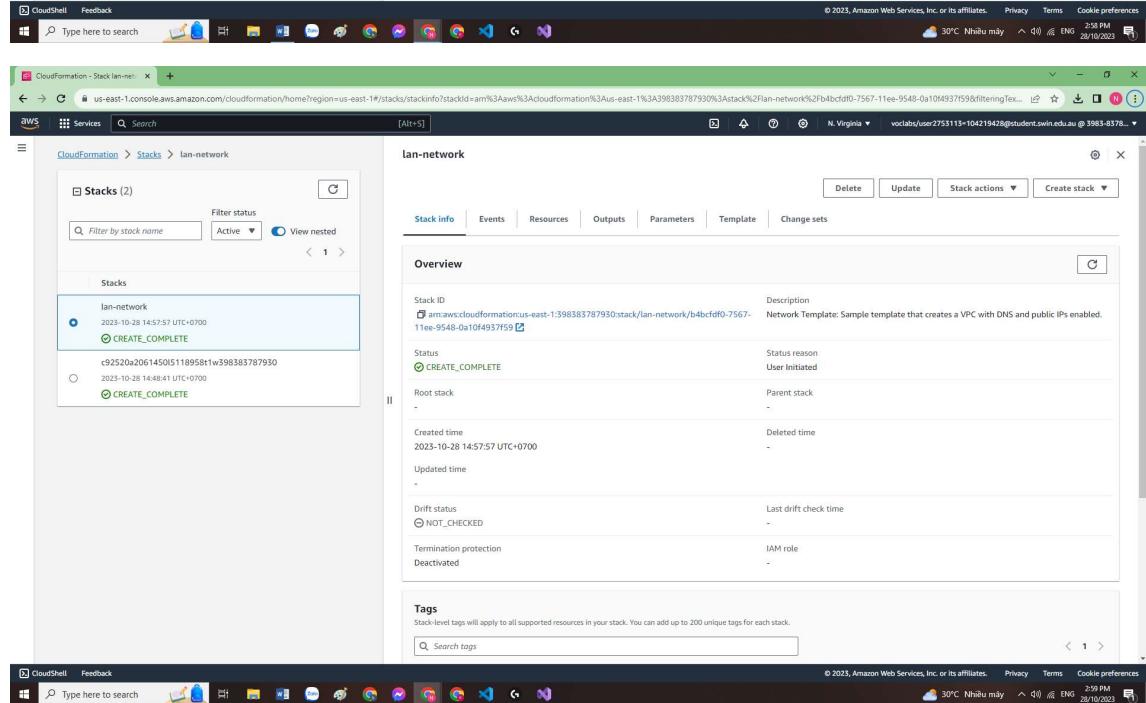
Template: Displays the 'Template URL' as <https://s3.us-east-1.amazonaws.com/f-templates-13c0vh419b7j/us-east-1/2023-10-28T075500.5842bqo-lab-network.yaml> and the 'Stack description' as 'Network Template: Sample template that creates a VPC with DNS and public IPs enabled.'

Step 2: Specify stack details: Includes fields for 'Stack name' (set to 'lan-network') and 'Parameters' (with a search bar).

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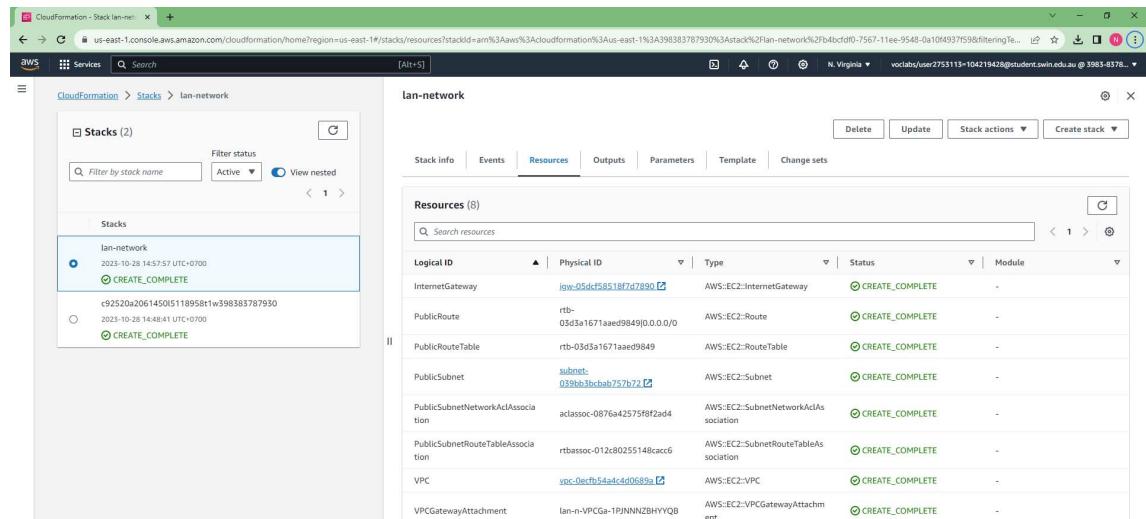


The screenshot shows the AWS CloudFormation console with the 'CloudFormation - Stack lan-net' window open. The left sidebar shows 'CloudFormation > Stacks > lan-network'. The main area displays the 'lan-network' stack details. The 'Events' tab is selected, showing one event: 'CREATE_IN_PROGRESS' at 2023-10-28 14:57:57 UTC+0700. The 'Stack info' tab shows the stack ID as 'arn:aws:cloudformation:us-east-1:398383787930:stack/lan-network/b4bcfdff-7567-11ee-9548-0a104937f598' and the status as 'CREATE_IN_PROGRESS' (User Initiated). The 'Overview' tab provides a summary of the stack's creation time (2023-10-28 14:57:57 UTC+0700), updated time (2023-10-28 14:48:41 UTC+0700), and drift status (NOT_CHECKED).



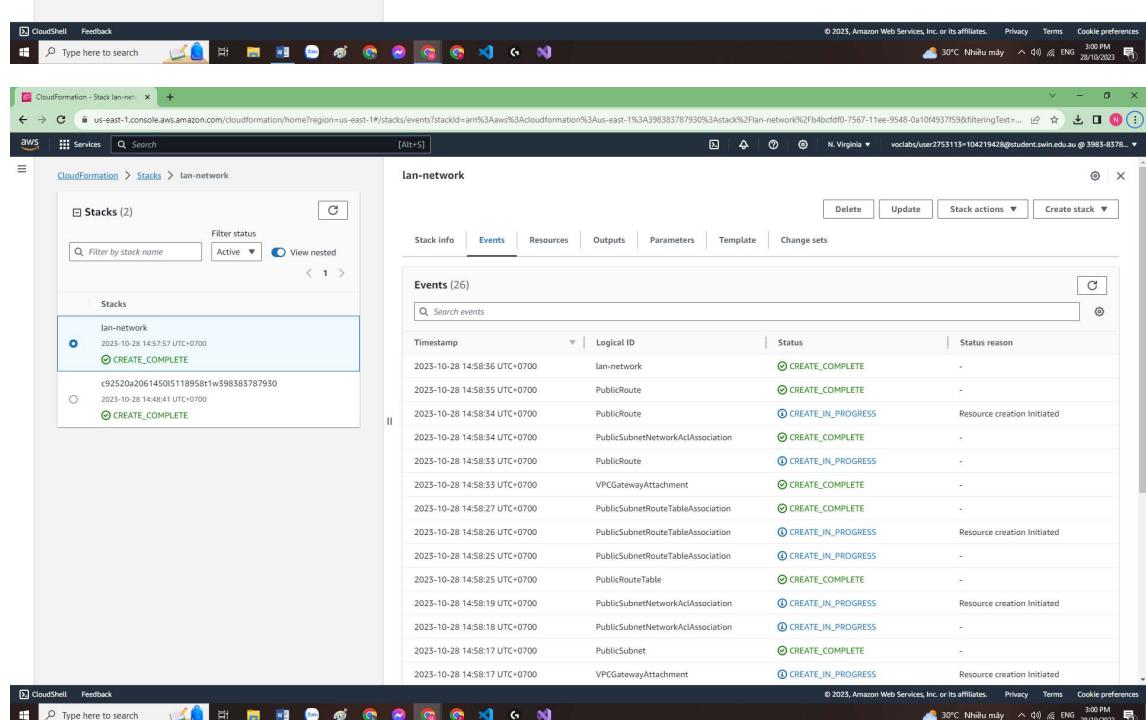
The screenshot shows the AWS CloudFormation console with the 'CloudFormation - Stack lan-net' window open. The left sidebar shows 'CloudFormation > Stacks > lan-network'. The main area displays the 'lan-network' stack details. The 'Overview' tab is selected, showing the stack ID as 'arn:aws:cloudformation:us-east-1:398383787930:stack/lan-network/b4bcfdff-7567-11ee-9548-0a104937f598', status as 'CREATE_COMPLETE' (User Initiated), and other metadata like Created time (2023-10-28 14:57:57 UTC+0700) and Last drift check time (not applicable). The 'Tags' tab is also visible.

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The screenshot shows the AWS CloudFormation console with the 'lan-network' stack selected. The 'Resources' tab is active, displaying a list of resources with their logical IDs, physical IDs, types, and statuses. All resources are in 'CREATE_COMPLETE' status.

Logical ID	Physical ID	Type	Status	Module
InternetGateway	igw-05d4f58518f7d7890	AWS::EC2::InternetGateway	CREATE_COMPLETE	-
PublicRoute	rtb-03d3a1671aae9d949	AWS::EC2::Route	CREATE_COMPLETE	-
PublicRouteTable	rtb-03d3a1671aae9d949	AWS::EC2::RouteTable	CREATE_COMPLETE	-
PublicSubnet	subnet-039bb3bcab757c72	AWS::EC2::Subnet	CREATE_COMPLETE	-
PublicSubnetNetworkAclAssociation	aclassoc-0876a42575f8f2ad4	AWS::EC2::SubnetNetworkAclAssociation	CREATE_COMPLETE	-
PublicSubnetRouteTableAssociation	rtbassoc-012c80255148acc6	AWS::EC2::SubnetRouteTableAssociation	CREATE_COMPLETE	-
VPC	vpc-0eefb54a4dc4d0689a	AWS::EC2::VPC	CREATE_COMPLETE	-
VPCGatewayAttachment	lan-n-VPCGta-1PJNNNZBHYQ8	AWS::EC2::VPGatewayAttachment	CREATE_COMPLETE	-



The screenshot shows the AWS CloudFormation console with the 'lan-network' stack selected. The 'Events' tab is active, displaying a list of events with their timestamps, logical IDs, statuses, and status reasons. Most events are in 'CREATE_COMPLETE' status, except for some in 'CREATE_IN_PROGRESS' which are labeled as 'Resource creation initiated'.

Timestamp	Logical ID	Status	Status reason
2023-10-28 14:58:36 UTC+0700	lan-network	CREATE_COMPLETE	-
2023-10-28 14:58:35 UTC+0700	PublicRoute	CREATE_COMPLETE	-
2023-10-28 14:58:34 UTC+0700	PublicRoute	CREATE_IN_PROGRESS	Resource creation initiated
2023-10-28 14:58:34 UTC+0700	PublicSubnetNetworkAclAssociation	CREATE_COMPLETE	-
2023-10-28 14:58:33 UTC+0700	PublicRoute	CREATE_IN_PROGRESS	-
2023-10-28 14:58:33 UTC+0700	VPCGatewayAttachment	CREATE_COMPLETE	-
2023-10-28 14:58:27 UTC+0700	PublicSubnetRouteTableAssociation	CREATE_COMPLETE	-
2023-10-28 14:58:26 UTC+0700	PublicSubnetRouteTableAssociation	CREATE_IN_PROGRESS	Resource creation initiated
2023-10-28 14:58:25 UTC+0700	PublicSubnetRouteTableAssociation	CREATE_IN_PROGRESS	-
2023-10-28 14:58:25 UTC+0700	PublicRouteTable	CREATE_COMPLETE	-
2023-10-28 14:58:19 UTC+0700	PublicSubnetNetworkAclAssociation	CREATE_IN_PROGRESS	Resource creation initiated
2023-10-28 14:58:18 UTC+0700	PublicSubnetNetworkAclAssociation	CREATE_IN_PROGRESS	-
2023-10-28 14:58:17 UTC+0700	PublicSubnet	CREATE_COMPLETE	-
2023-10-28 14:58:17 UTC+0700	VPCGatewayAttachment	CREATE_IN_PROGRESS	Resource creation initiated

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The screenshot shows the AWS CloudFormation console with the following details:

CloudFormation - Stack lan-network

Events (26)

Timestamp	Logical ID	Status	Status reason
2023-10-28 14:58:25 UTC+0700	PublicSubnetRouteTableAssociation	CREATE_IN_PROGRESS	-
2023-10-28 14:58:25 UTC+0700	PublicRouteTable	CREATE_COMPLETE	-
2023-10-28 14:58:19 UTC+0700	PublicSubnetNetworkAclAssociation	CREATE_IN_PROGRESS	Resource creation initiated
2023-10-28 14:58:18 UTC+0700	PublicSubnetNetworkAclAssociation	CREATE_IN_PROGRESS	-
2023-10-28 14:58:17 UTC+0700	PublicSubnet	CREATE_COMPLETE	-
2023-10-28 14:58:17 UTC+0700	VPCGatewayAttachment	CREATE_IN_PROGRESS	Resource creation initiated
2023-10-28 14:58:17 UTC+0700	VPCGatewayAttachment	CREATE_IN_PROGRESS	-
2023-10-28 14:58:16 UTC+0700	InternetGateway	CREATE_COMPLETE	-
2023-10-28 14:58:14 UTC+0700	PublicSubnet	CREATE_IN_PROGRESS	Resource creation initiated
2023-10-28 14:58:14 UTC+0700	PublicRouteTable	CREATE_IN_PROGRESS	Resource creation initiated
2023-10-28 14:58:13 UTC+0700	PublicSubnet	CREATE_IN_PROGRESS	-
2023-10-28 14:58:13 UTC+0700	PublicRouteTable	CREATE_IN_PROGRESS	-
2023-10-28 14:58:12 UTC+0700	VPC	CREATE_COMPLETE	-
2023-10-28 14:58:01 UTC+0700	VPC	CREATE_IN_PROGRESS	Resource creation initiated
2023-10-28 14:58:01 UTC+0700	InternetGateway	CREATE_IN_PROGRESS	Resource creation initiated
2023-10-28 14:58:00 UTC+0700	VPC	CREATE_IN_PROGRESS	-
2023-10-28 14:58:00 UTC+0700	InternetGateway	CREATE_IN_PROGRESS	-
2023-10-28 14:57:57 UTC+0700	lan-network	CREATE_IN_PROGRESS	User initiated

Stacks (2)

Stack name	Last updated	Status
lan-network	2023-10-28 14:57:57 UTC+0700	CREATE_COMPLETE
c92520a206145015118958t1w398383787930	2023-10-28 14:48:41 UTC+0700	CREATE_COMPLETE

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Screenshot of the AWS CloudFormation 'Create stack' wizard Step 1: Prerequisite - Prepare template.

The 'Template source' section shows 'lab-application.yaml' selected as the Amazon S3 URL. The 'Specify template' section shows the file 'lab-application.yaml' uploaded.

Bottom right: 'Cancel' and 'Next' buttons.

Screenshot of the AWS CloudFormation 'Stacks' page showing the 'lan-network' stack.

The 'Outputs' tab is selected, displaying two outputs:

Key	Value	Description	Export name
PublicSubnet	subnet-039bb3bcbab757b72	The subnet ID to use for public web servers	lan-network-SubnetID
VPC	vpc-0ecfb54a4c4d0689a	VPC ID	lan-network-VPCID

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Screenshot of the AWS CloudFormation 'Create Stack' wizard Step 1: Configure stack options.

Tags: 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.

Key	Value - optional
application	inventory

Add new tag

Permissions: IAM role - optional. Choose the IAM role for CloudFormation to use for all operations performed on the stack.

IAM role name	Sample-role-name
---------------	------------------

Stack failure options

Behavior on provisioning failure: Specify the roll back behavior for a stack failure. Learn more [\[?\]](#)

Roll back all stack resources: Roll back the stack to the last known stable state.

Preserve successfully provisioned resources: Preserves the state of successfully provisioned resources, while rolling back failed resources to the last known stable state. Resources without a last known stable state will be deleted upon the next stack operation.

Delete newly created resources during a rollback: Specify whether resources that were created during a failed operation should be deleted regardless of their deletion policy. Learn more [\[?\]](#)

Use deletion policy

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Screenshot of the AWS CloudFormation 'Create Stack' wizard Step 2: Specify stack details.

Stack name: lab-application

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

AmazonLinuxMID: /aws/service/ami-amazon-linux-latest/amzn2-ami-hvm-x86_64-gp2

NetworkStackName: Name of an active CloudFormation stack that contains the networking resources, such as the VPC and subnet that will be used in this stack.

lab-network

Cancel Previous Next

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The screenshot shows the AWS CloudFormation 'Create Stack' wizard. It consists of four main steps:

- Step 1: Create stack**: Sub-steps include 'Specify template' (Prerequisite - Prepare template, Template URL: <https://s3.us-east-1.amazonaws.com/cf-templates-13c0vh419b7j/us-east-1/2023-10-28T080249.9862r2x-lab-application.yaml>) and 'Template' (Template description: Application Template: Demonstrates how to reference resources from a different stack. This template provisions an EC2 instance in a VPC Subnet provisioned in a different stack.).
- Step 2: Specify stack details**: Sub-step includes 'Stack name' (Stack name: lab-application) and 'Parameters (2)'.
- Step 3: Configure stack options**: Sub-step includes 'Review lab-application'.
- Step 4: Review lab-application**: Sub-step includes 'Edit' button.

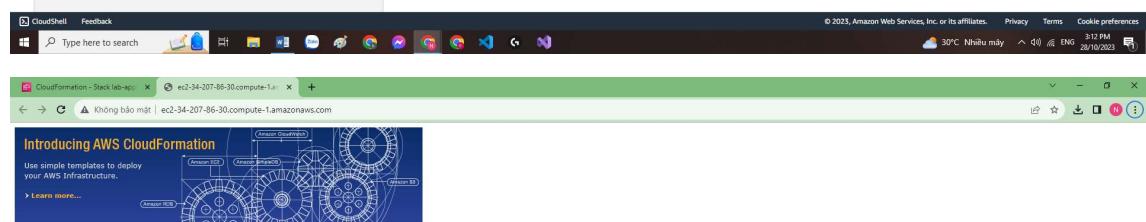
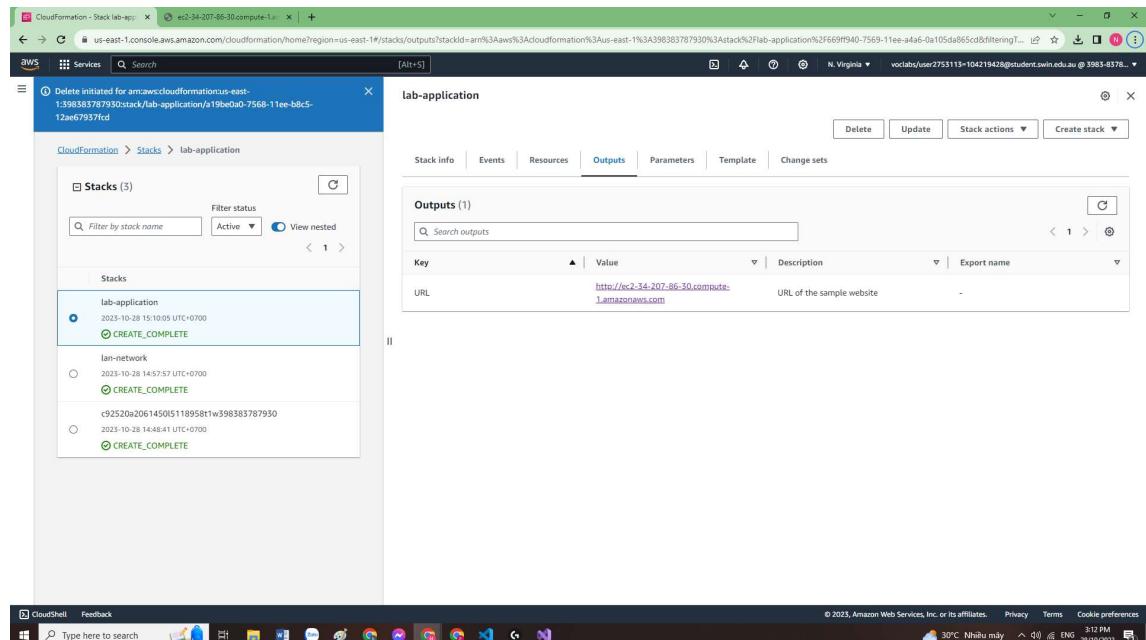
The browser address bar shows: us-east-1.console.aws.amazon.com/cloudformation/home?region=us-east-1#/stacks/create

The screenshot shows the AWS CloudFormation 'Stacks' page for the 'lab-application' stack. The stack status is 'CREATE_COMPLETE'. The page displays the following information:

- Stack info**: Shows the stack name 'lab-application' and creation time '2023-10-28 15:10:05 UTC+0700'.
- Events**: A table showing 15 events. The first event is 'CREATE_COMPLETE' for the 'lab-application' resource at 2023-10-28 15:11:52 UTC+0700. Subsequent events show the creation of 'DiskMountPoint', 'DiskVolume', 'WebServerInstance', and 'WebServerSecurityGroup' resources, all marked as 'CREATE_IN_PROGRESS' or 'CREATE_COMPLETE'.
- Resources**: Shows the resources created: 'lab-application' (Logical ID), 'DiskMountPoint', 'DiskVolume', 'WebServerInstance', and 'WebServerSecurityGroup'.
- Outputs**: Shows the outputs: 'lan-network' (Logical ID) and 'c92520a20614505118958t1w39838787930' (Logical ID).
- Parameters**: Shows the parameters: 'a19be0a0-7568-11ee-b8c5-12a6e7937fcf'.
- Template**: Shows the CloudFormation template URL: <https://s3.us-east-1.amazonaws.com/cf-templates-13c0vh419b7j/us-east-1/2023-10-28T080249.9862r2x-lab-application.yaml>.
- Change sets**: Shows the change sets: 'CREATE_IN_PROGRESS' for 'WebServerInstance' and 'WebServerSecurityGroup'.

The browser address bar shows: us-east-1.console.aws.amazon.com/cloudformation/home?region=us-east-1#/stacks/lab-application

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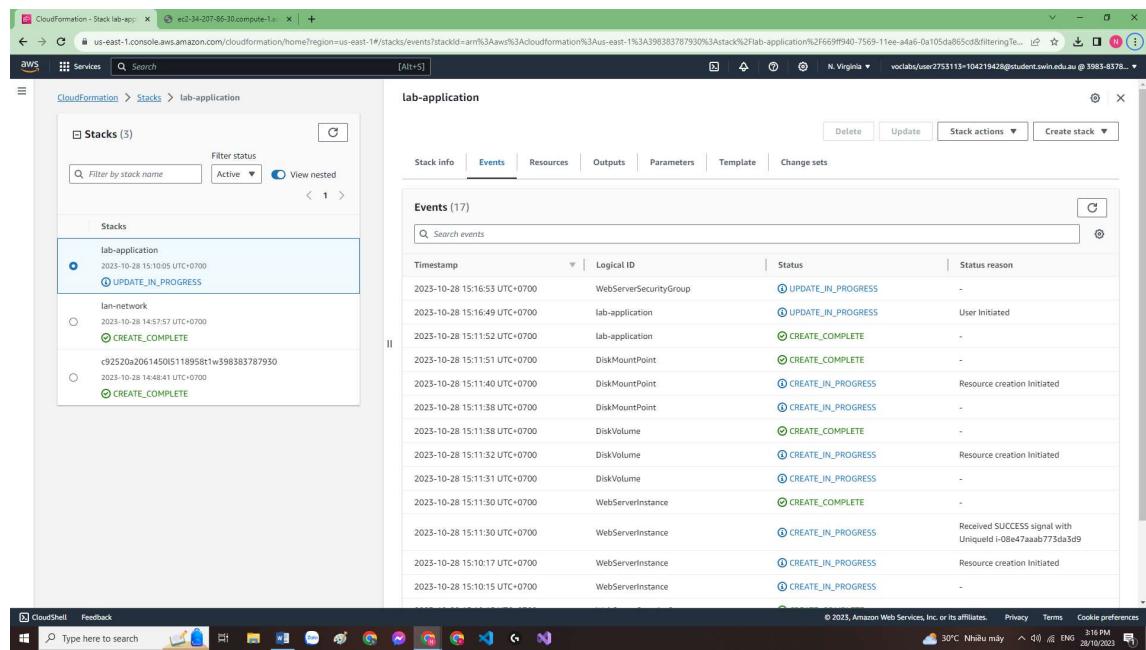
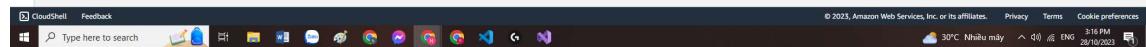
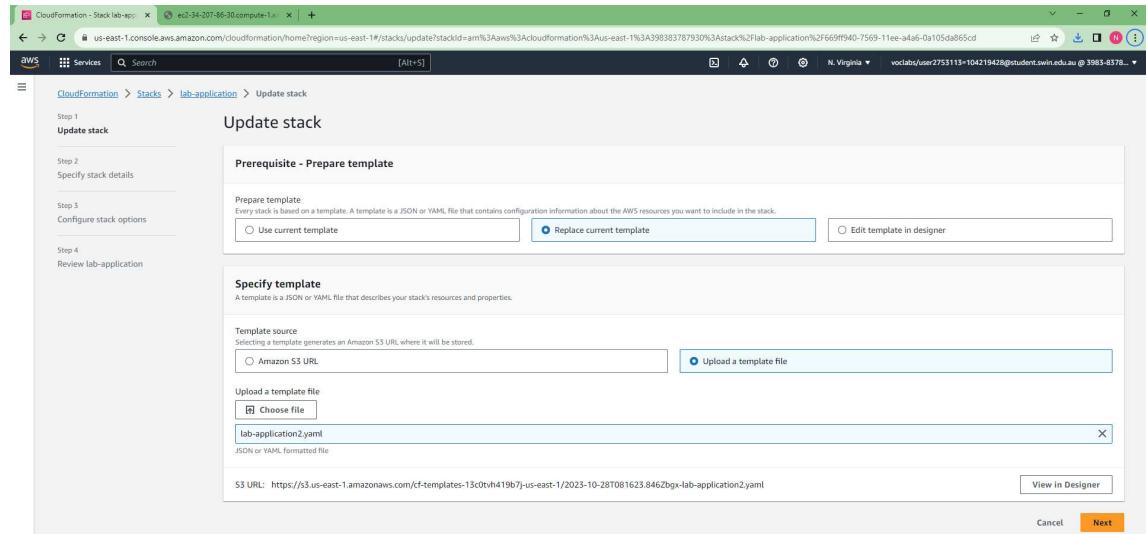


Congratulations, you have successfully launched the AWS CloudFormation sample.



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Step 2: Update lab-application stack by using another template



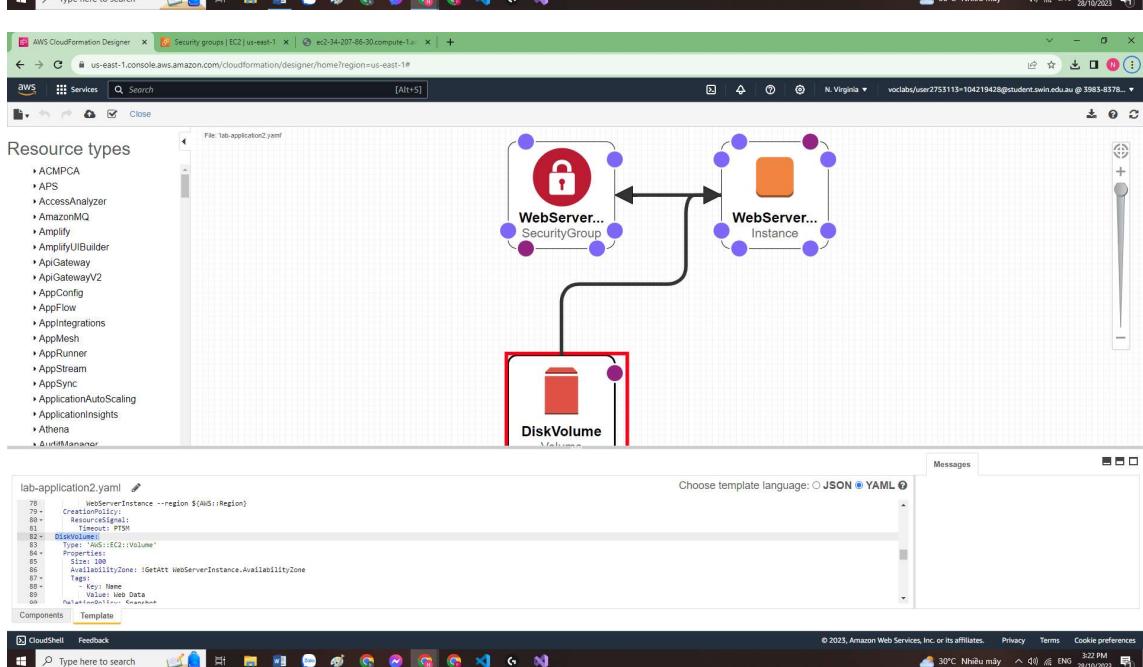
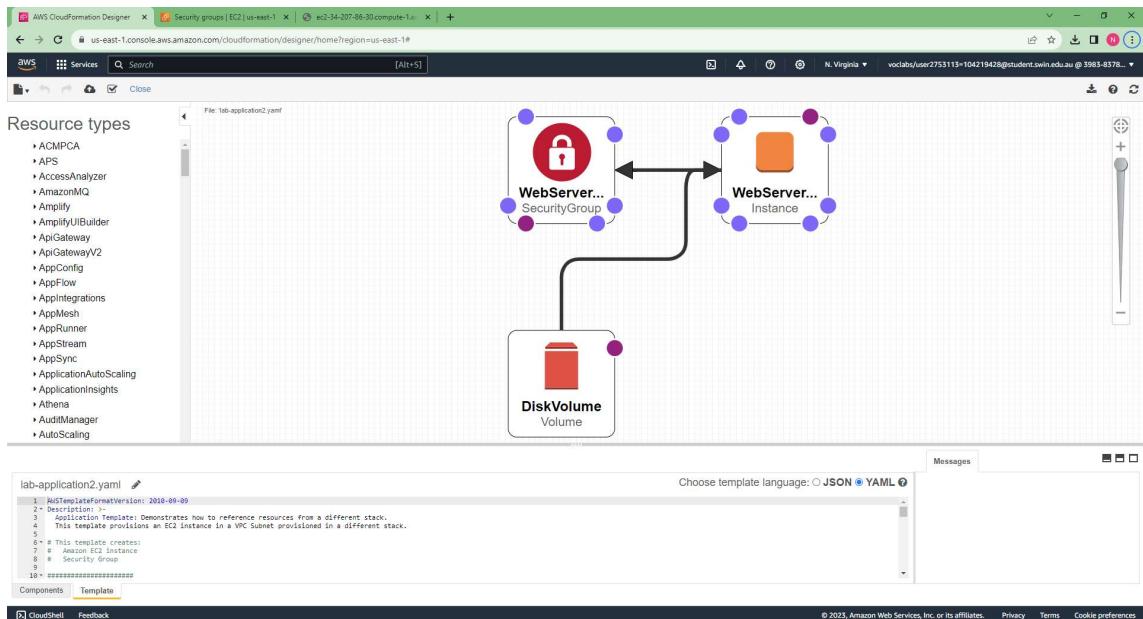
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The screenshot shows the AWS CloudFormation console with the 'lab-application' stack selected. The left sidebar lists other stacks like 'lab-network'. The main pane displays the 'Events' tab for the 'lab-application' stack, which contains 20 entries. The first entry is 'UPDATE_COMPLETE' for the stack itself at 2023-10-28 15:17:02 UTC+0700. Subsequent entries show the creation of various resources including a WebServerSecurityGroup, DiskMountPoint, and DiskVolume, all marked as 'CREATE_COMPLETE'. The status reason for most events is '-'.

The screenshot shows the AWS EC2 Security Groups console with the security group 'sg-04f9cf46930ff2bf7' selected. The left sidebar includes sections for Instances, Images, Elastic Block Store, Network & Security, Load Balancing, and Auto Scaling. The main pane displays the 'Details' section for the security group, showing its name 'lab-application-WebServerSecurityGroup-1HPTJR3PTFXE9', ID 'sg-04f9cf46930ff2bf7', and description 'Enable HTTP ingress'. It also shows the VPC ID 'vpc-0ecfb54a4c4d0689a'. The 'Inbound rules' tab is selected, showing two rules: one for SSH (TCP port 22) and one for HTTP (TCP port 80). The source for both is '0.0.0.0/0'.

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Step 3: CloudFormation template designer



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AWS CloudFormation Designer

File: lab-application2.yaml

Resource types

- Cognito
 - IdentityPool
 - IdentityPoolPrincipalTag
 - IdentityPoolAttachment
 - LogDeliveryConfiguration
 - UserPool
 - UserPoolClient
 - UserPoolDomain
 - UserPoolGroup
 - UserPoolIdentityProvider
 - UserPoolResourceServer
 - UserPoolResourceServerAttachment
 - UserPoolCustomizationAttachment
 - UserPoolUser
 - UserPoolUserToGroupAttachment
- Comprehend
- Config
- Connect
- ConnectCampaigns
- ControlTower

Diagram:

```
graph TD; SG[WebServer... SecurityGroup] <--> EC2[WebServer... Instance]; SG --> DV[DiskVolume Volume]; EC2 --> DV; UP[UserPoolResourceServer CUPRS2PFHX UserPoolRes...] --> EC2;
```

lab-application2.yaml

```
AWSTemplateFormatVersion: 2010-09-09
Description: Application Template: Demonstrates how to reference resources from a different stack. This template provisions an EC2 instance in a VPC subnet provisioned in a different stack.
```

Choose template language: JSON YAML

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AWS CloudFormation Designer

File: lab-application2.yaml

Resource types

- Cognito
 - IdentityPool
 - IdentityPoolPrincipalTag
 - IdentityPoolAttachment
 - LogDeliveryConfiguration
 - UserPool
 - UserPoolClient
 - UserPoolDomain
 - UserPoolGroup
 - UserPoolIdentityProvider
 - UserPoolResourceServer
 - UserPoolResourceServerAttachment
 - UserPoolCustomizationAttachment
 - UserPoolUser
 - UserPoolUserToGroupAttachment
- Comprehend
- Config
- Connect
- ConnectCampaigns
- ControlTower

Diagram:

```
graph TD; SG[WebServer... SecurityGroup] <--> EC2[WebServer... Instance]; SG --> DV[DiskVolume Volume]; EC2 --> DV; UP[UserPoolResourceServer CUPRS2PFHX UserPoolRes...] --> EC2;
```

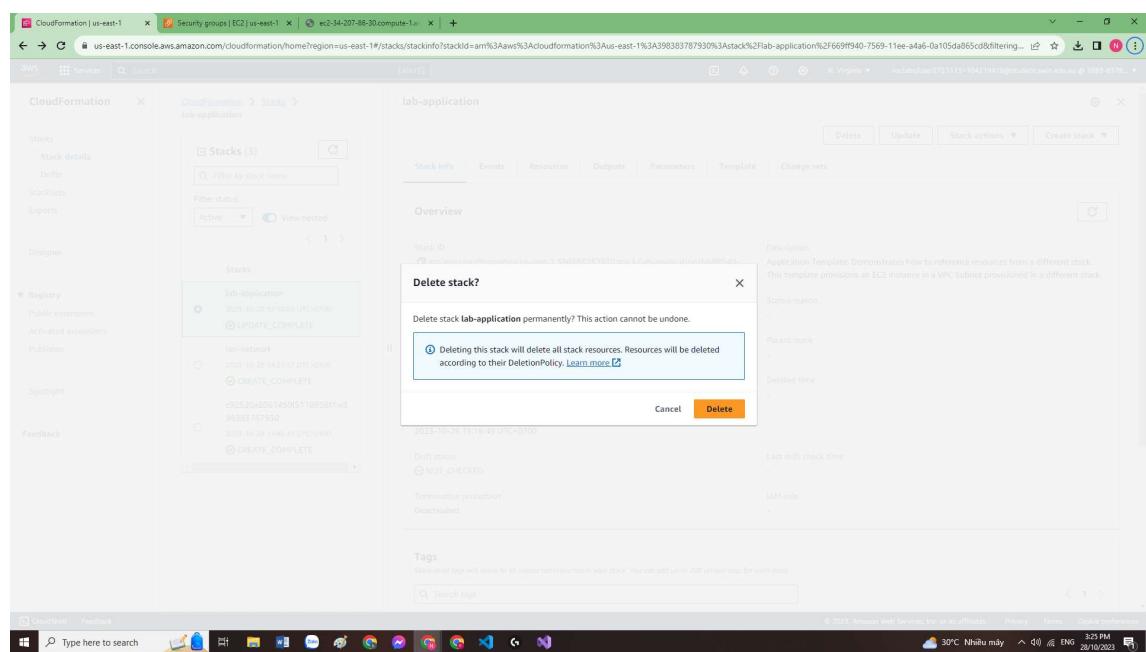
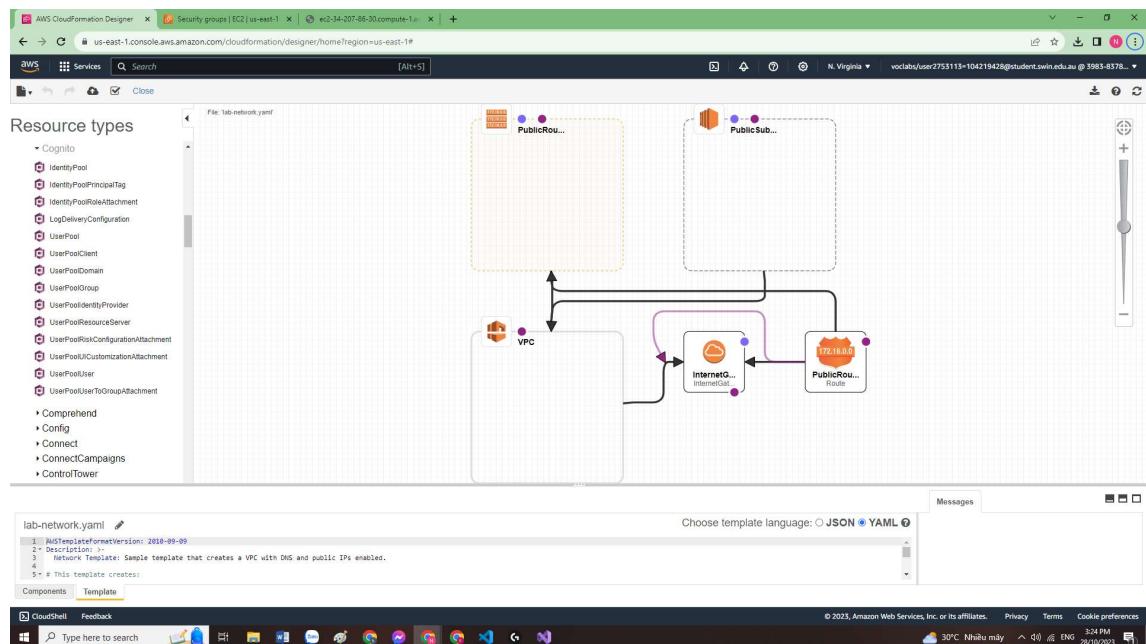
lab-application2.yaml

```
AWSTemplateFormatVersion: 2010-09-09
Description: Application Template: Demonstrates how to reference resources from a different stack. This template provisions an EC2 instance in a VPC subnet provisioned in a different stack.
```

Choose template language: JSON YAML

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The image consists of three vertically stacked screenshots of the AWS CloudFormation console.

Screenshot 1: Stacks
This screenshot shows the CloudFormation service's Stacks page. It lists three stacks: "lab-application" (Status: DELETE_IN_PROGRESS), "lan-network" (Status: CREATE_COMPLETE), and "c92520a2061450f5118958t1w398383787930" (Status: CREATE_COMPLETE). The "lab-application" stack has a detailed description: "Application Template: Demonstrates how to reference resources from a different stack. This template provisions an EC2 instance in a VPC Subnet provisioned in a different stack."

Stack name	Status	Created time	Description
lab-application	DELETE_IN_PROGRESS	2023-10-28 15:00:05 UTC+0700	Application Template: Demonstrates how to reference resources from a different stack. This template provisions an EC2 instance in a VPC Subnet provisioned in a different stack.
lan-network	CREATE_COMPLETE	2023-10-28 14:57:57 UTC+0700	Network Template: Sample template that creates a VPC with DNS and public IPs enabled.
c92520a2061450f5118958t1w398383787930	CREATE_COMPLETE	2023-10-28 14:48:41 UTC+0700	new bucket

Screenshot 2: Snapshots
This screenshot shows the EC2 service's Snapshots page. It displays a single snapshot named "Web Data" with Snapshot ID "snap-09346a1e8d1bd314f", Volume size "100 GiB", Storage tier "Standard", and Snapshot status "Completed". The progress is at 100% and it is available.

Name	Snapshot ID	Volume size	Storage tier	Snapshot status	Started	Progress	Encryption
Web Data	snap-09346a1e8d1bd314f	100 GiB	Standard	Completed	2023/10/28 15:25 GMT+7	Available (100%)	Not encrypted

Screenshot 3: Select a snapshot above.
This screenshot shows a message box stating "Select a snapshot above." It is positioned between the two previous screenshots.

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The screenshot shows the AWS Management Console interface for the EC2 service, specifically the 'Snapshots' section. A single snapshot named 'snap-09346a1e8d1bd314f (Web Data)' is displayed. The snapshot is in a 'Completed' status with a progress of 100%. It was started on Saturday, October 28, 2023, at 15:25:49 GMT+0700 (Giờ Đông Dương). The volume size is 100 GiB, and the volume ID is vol-054447c883ae18e12. The snapshot is not encrypted and has no KMS key alias or ARN. Under the 'Permissions' tab, it is set to 'Private', meaning it is shared only with AWS accounts specified by the user. There are no shared accounts listed. The 'Storage tier' and 'Tags' tabs are also visible. The browser address bar shows the URL for the snapshot details page.