

# Module 9

## Creating a Highly Available Environment

COS20019 – CLOUD ARCHITECTURE COMPUTING

Lab 08

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### Task 1: Inspecting your VPC

#### 1. IPv4 CIDR for this lab

The screenshot shows the AWS VPC console. At the top, there's a header 'Your VPCs (1/2)' with a search bar and a 'Create VPC' button. Below this is a table listing VPCs. The 'Lab VPC' is selected, showing its ID 'vpc-0bf56b85255700e20', state 'Available', and IPv4 CIDR '10.0.0.0/16'. Below the table, the 'Details' tab is active for the 'Lab VPC'. The details are organized into a grid:

VPC ID vpc-0bf56b85255700e20	State Available	DNS hostnames Enabled	DNS resolution Enabled
Tenancy Default	DHCP option set dopt-0b71f153e1261684c	Main route table rtb-087880b4ae12b3571	Main network ACL acl-08615d609fb8035eb
Default VPC No	IPv4 CIDR 10.0.0.0/16	IPv6 pool -	IPv6 CIDR (Network border group) -
Network Address Usage metrics Disabled	Route 53 Resolver DNS Firewall rule groups -	Owner ID 070684687948	

#### 2. The internet gateways Lab IG is attached to Lab VPC

The screenshot shows the AWS Internet Gateways console. At the top, there's a header 'Internet gateways (1/2)' with a search bar and a 'Create internet gateway' button. Below this is a table listing internet gateways. The 'Lab IG' is selected, showing its ID 'igw-08b2edbe8d6ad7fa8', state 'Attached', and VPC ID 'vpc-0bf56b85255700e20 | Lab VPC'. The owner ID is '070684687948'.

Name	Internet gateway ID	State	VPC ID	Owner
Lab IG	igw-08b2edbe8d6ad7fa8	Attached	vpc-0bf56b85255700e20   Lab VPC	070684687948
-	igw-0ea05e5ea449ea7a7	Attached	vpc-032c849108ec766fe	070684687948

### Task 2: Creating an application load Balancer

## 1. First availability Zone for the load balancer :

### Network mapping [Info](#)

The load balancer routes traffic to targets in the selected subnets, and in accordance with your IP address settings.

**VPC** [Info](#)

Select the virtual private cloud (VPC) for your targets or you can [create a new VPC](#). Only VPCs with an internet gateway are enabled for selection. The selected VPC can't be changed after the load balancer is created. To confirm the VPC for your targets, view your [target groups](#).

Lab VPC  
vpc-0bf56b85255700e20  
IPv4: 10.0.0.0/16

**Mappings** [Info](#)

Select at least two Availability Zones and one subnet per zone. The load balancer routes traffic to targets in these Availability Zones only. Availability Zones that are not supported by the load balancer or the VPC are not available for selection.

☒ **us-east-1a (use1-az6)**

Subnet

subnet-012a34f6a0aa29362Public Subnet 1

IPv4 address  
Assigned by AWS

☐ **us-east-1b (use1-az1)**

### Security groups [Info](#)

## 2. Security group for the load balancer:

aws

Services

Search

[Alt+S]

N. Virginia

voclabs/user2553680=Tran\_Thanh\_Minh @ 0706-8468-7948

EC2 > Security Groups > Create security group

### Create security group [Info](#)

A security group acts as a virtual firewall for your instance to control inbound and outbound traffic. To create a new security group, complete the fields below.

#### Basic details

Security group name [Info](#)

Inventory-LB

Name cannot be edited after creation.

Description [Info](#)

Enable web access to load balancer

VPC [Info](#)

vpc-0bf56b85255700e20

#### Inbound rules [Info](#)

Type <a href="#">Info</a>	Protocol <a href="#">Info</a>	Port range <a href="#">Info</a>	Source <a href="#">Info</a>	Description - optional <a href="#">Info</a>
HTTP	TCP	80	Anywh... 0.0.0.0/0	
HTTPS	TCP	443	Anywh... 0.0.0.0/0	

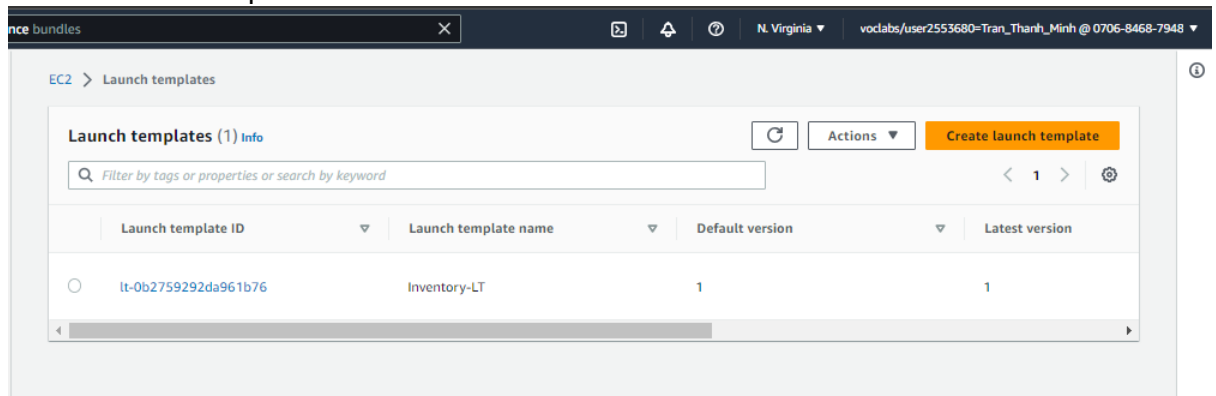
Add rule

#### Outbound rules [Info](#)

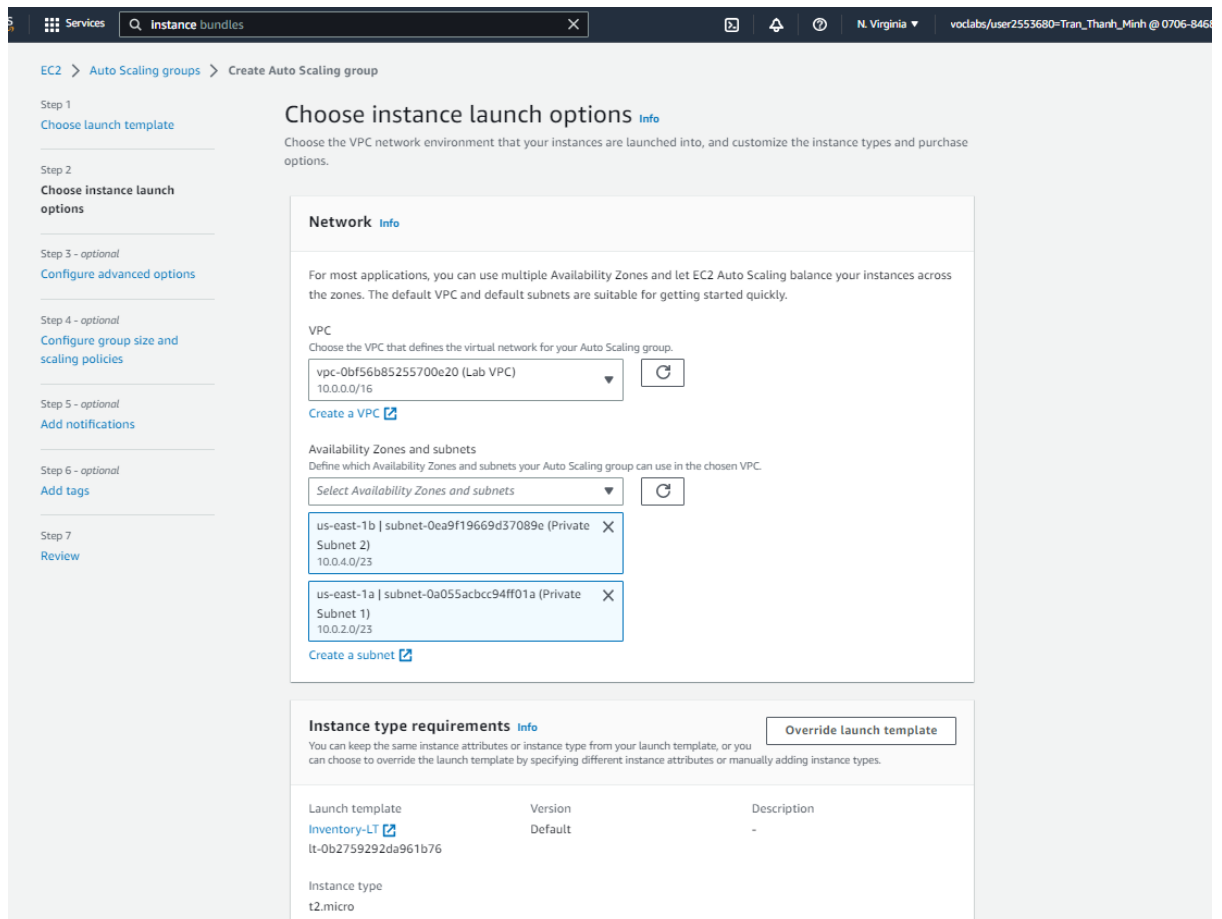
Type <a href="#">Info</a>	Protocol <a href="#">Info</a>	Port range <a href="#">Info</a>	Destination <a href="#">Info</a>	Description - optional <a href="#">Info</a>
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## Task 3: Creating an Auto Scaling group

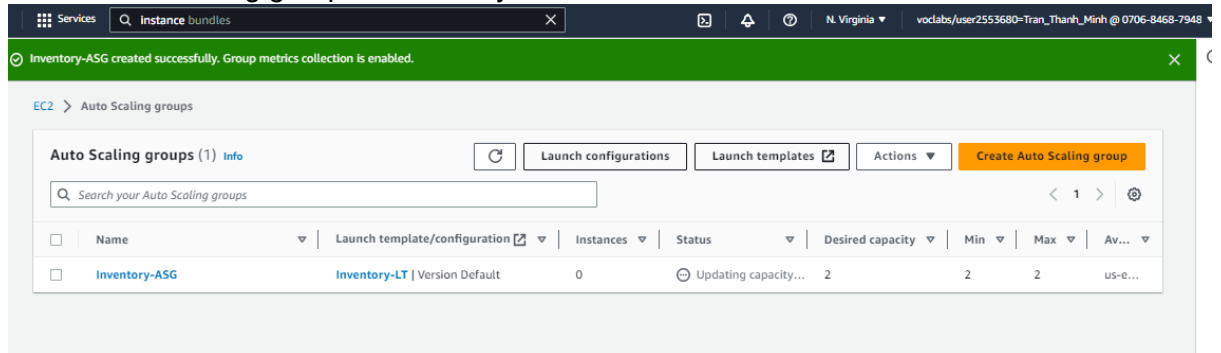
### 1. Create launch templates



### 2. Create auto scaling group for both private subnet to make EC2 instances access both AZ

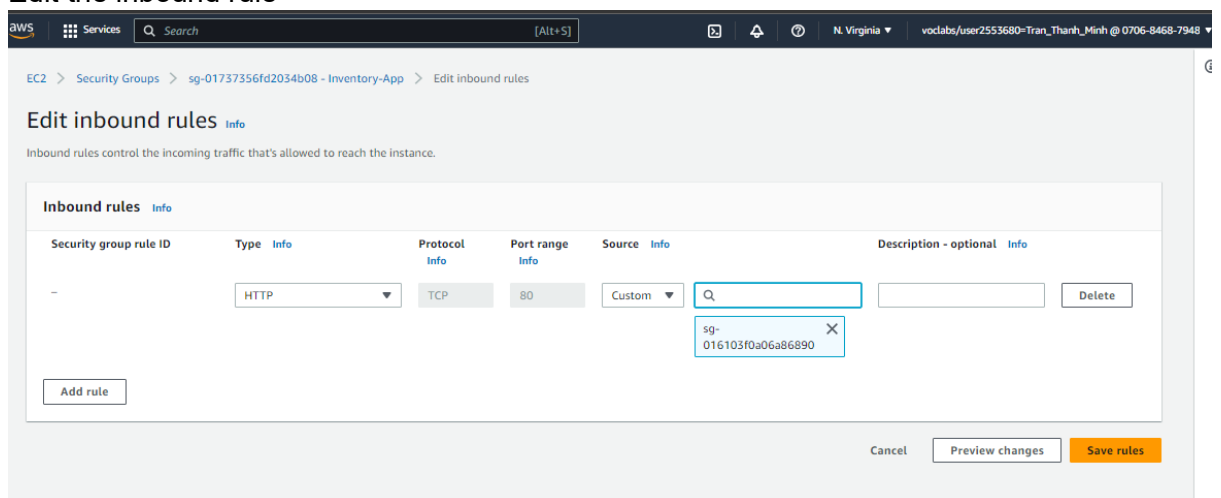


### 3. Create auto scaling group successfully

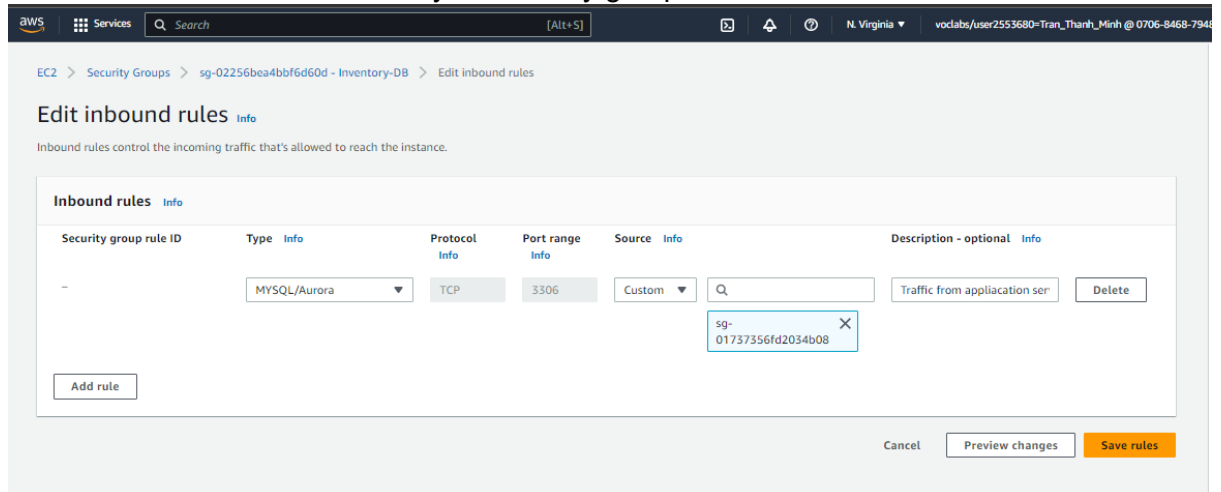


## Task 4: Updating security groups

### 1. Edit the inbound rule

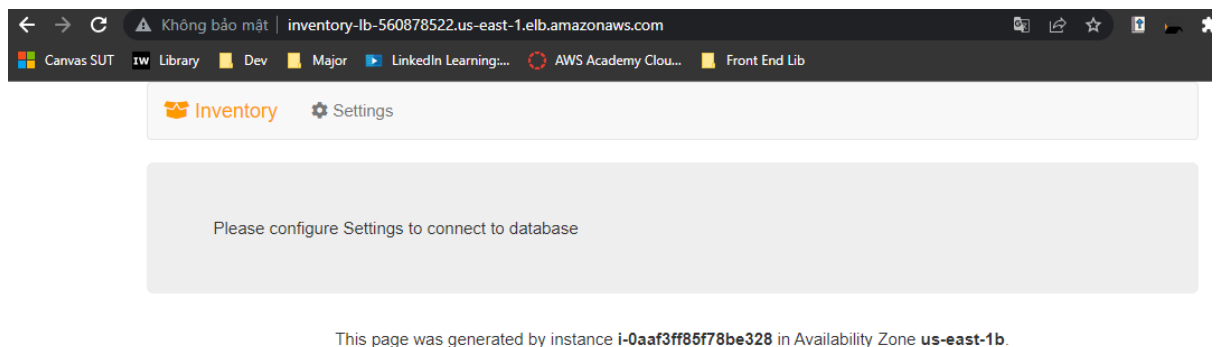
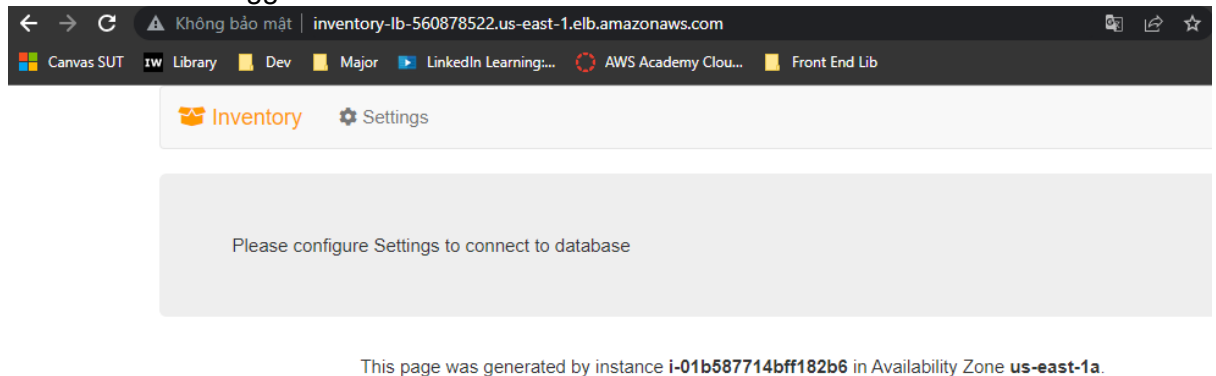


### 2. Edit inbound rule for the inventory db security group



## Task 5: Testing the application

### 1. The instance ID toggle between the 2 instances



2.

## Task 6: Testing high availability

### 1. Terminate the instance and the new one is created

The screenshot shows the AWS Management Console "Instances (4)" page. The table lists two instances:

	Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4
<input type="checkbox"/>	-	<a href="#">i-01b587714bffa182b6</a>	Terminated	t2.micro	-	No alarms	us-east-1a	-
<input type="checkbox"/>	-	<a href="#">i-0c47f2e25a60957ed</a>	Pending	t2.micro	-	No alarms	us-east-1a	-