

# Assignment 2

## Cloud computing architecture

### Cos20019

## Semester 2, 2023

Name: Tran Hoang Hai Anh

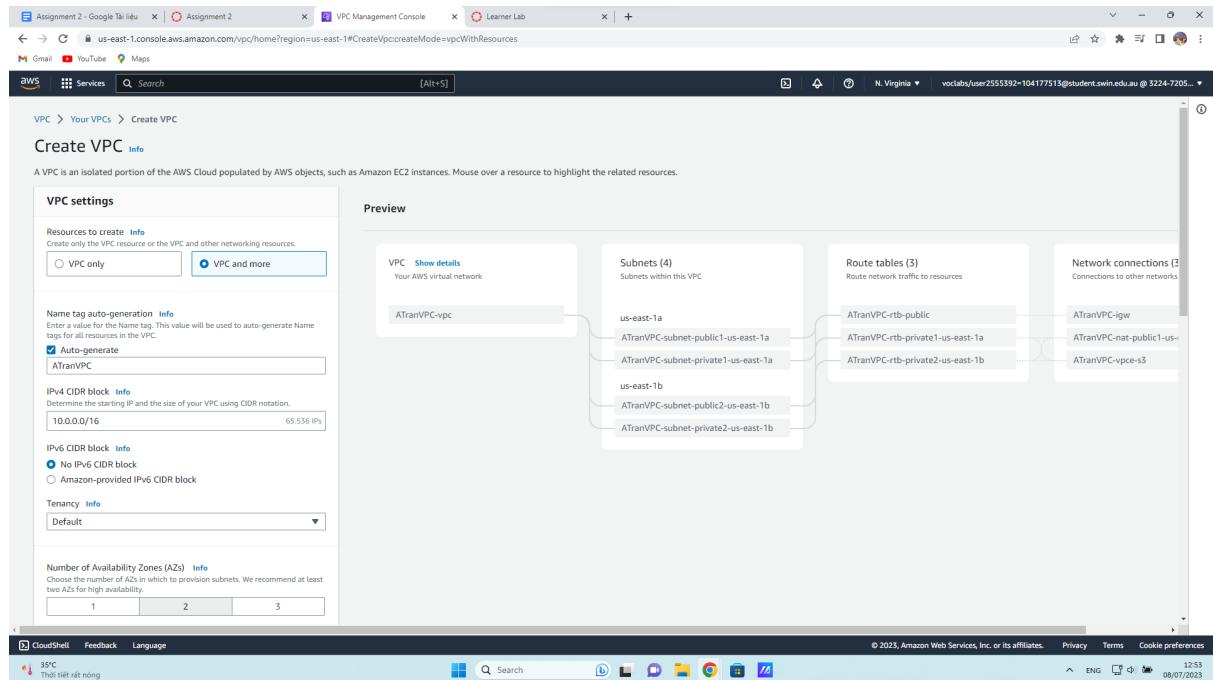
StudentID: 104177513

Tutorial class: Saturday 13:00 PM

Website link:

<http://webserverbalancer-996665445.us-east-1.elb.amazonaws.com/photoalbum/album.php>

Create a VPC based on the requirements



**VPC Management Console**

**Assignment 2 - Google Tài liệu** | **Assignment 2** | **VPC Management Console** | **Learner Lab** | +

us-east-1.console.aws.amazon.com/vpc/home?region=us-east-1#CreateVpcWizard

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N. Virginia vocabs/user2555392+104177513@student.swin.edu.au @ 3224-7205...

**Preview**

**VPC** Show details Your AWS virtual network

**Subnets (4)** Subnets within this VPC

**Route tables (3)** Route network traffic to resources

**Network connections (3)** Connections to other networks

**Customize AZs**

First availability zone: us-east-1a  
Second availability zone: us-east-1b

**Number of public subnets** Info The number of public subnets to add to your VPC. Use public subnets for web applications that need to be publicly accessible over the internet.

0 2

**Number of private subnets** Info The number of private subnets to add to your VPC. Use private subnets to secure backend resources that don't need public access.

0 2 4

**Customize subnets CIDR blocks**

Public subnet CIDR block in us-east-1a: 10.0.1.0/24 256 IPs  
Public subnet CIDR block in us-east-1b: 10.0.2.0/24 256 IPs  
Private subnet CIDR block in us-east-1a: 10.0.3.0/24 256 IPs  
Private subnet CIDR block in us-east-1b: 10.0.4.0/24 256 IPs

**NAT gateways (\$)** Info Choose the number of Availability Zones (AZs) in which to create NAT gateways. Note that there is a charge for each NAT gateway.

35°C Thời tiết rất nóng

**Success**

**Details**

- Create VPC: vpc-098f490844d69d410
- Enable DNS hostnames
- Enable DNS resolution
- Verifying VPC creation: vpc-098f490844d69d410
- Create S3 endpoint: vpc-e0fa2f7089443512b
- Create subnet: subnet-081419ec5f64238d3
- Create subnet: subnet-097e56ebc2863be9
- Create subnet: subnet-0ae8bf72560f45b4
- Create subnet: subnet-097e4d2d23824d341
- Create internet gateway: igw-0953507a10ab84651
- Attach internet gateway to the VPC
- Create route table: rtb-03ef105b7a4e0e3a9
- Create route
- Associate route table
- Associate route table
- Allocate elastic IP: eipalloc-068a61ee33c91a312
- Create NAT gateway: nat-03f9bed637a011746
- Wait for NAT Gateways to activate
- Create route table: rtb-0365fb2798f56e26
- Create route
- Associate route table
- Create route table: rtb-0f1c53e4d297c3934
- Create route
- Associate route table
- Verifying route table creation
- Associate S3 endpoint with private subnet route tables: vpc-e0fa2f7089443512b

**View VPC**

CloudShell Feedback Language

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## Create RDS

Assignment 2 - Google Tài liệu | Assignment 2 | RDS Management Console | Learner Lab

us-east-1.console.aws.amazon.com/rds/home?region=us-east-1#create-db-subnet-group:

Gmail YouTube Maps

AWS Services Search [Alt+S]

Amazon RDS

Description: assignment2dbsubnet

VPC: ATranVPC (vpc-098f490844d69d410)

Add subnets

Availability Zones: us-east-1a, us-east-1b

Subnets: subnet-0ae8ff2560fc45b4 (10.0.3.0/24), subnet-097e4bd2a3824d341 (10.0.4.0/24)

For Multi-AZ DB clusters, you must select 3 subnets in 3 different Availability Zones.

Subnets selected (2)

Availability zone	Subnet ID	CIDR block
us-east-1a	subnet-0ae8ff2560fc45b4	10.0.3.0/24
us-east-1b	subnet-097e4bd2a3824d341	10.0.4.0/24

Assignment 2 - Google Tài liệu | Assignment 2 | Subnet Groups - RDS Manager | Learner Lab

us-east-1.console.aws.amazon.com/rds/home?region=us-east-1#db-subnet-groups-list:

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AWS Services Search [Alt+S]

Amazon RDS

Successfully created assignment2dbsubnet. View subnet group

Successfully deleted dbsubnet

RDS > Subnet groups

Subnet groups (1)

Name	Description	Status	VPC
assignment2dbsubnet	assignment2dbsubnet	Complete	vpc-098f490844d69d410

**Create database - RDS Manager**

Assignment 2 - Google Tài liệu | Assignment 2 | Create database - RDS Manager | Learner Lab

us-east-1.console.aws.amazon.com/rds/home?region=us-east-1#launch-dbinstance;gdb=false;isHermesCreate=true;s3-import=false

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AWS Services Search [Alt+S]

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**Choose a database creation method**

- Standard create You set all of the configuration options, including ones for availability, security, backups, and maintenance.
- Easy create Use recommended best-practice configurations. Some configuration options can be changed after the database is created.

**Engine options**

**Engine type**

- Aurora (MySQL Compatible)
- Aurora (PostgreSQL Compatible)
- MySQL
- MariaDB
- PostgreSQL
- Oracle
- Microsoft SQL Server

**Edition**

- MySQL Community

**MySQL**

MySQL is the most popular open source database in the world. MySQL on RDS offers the rich features of the MySQL community edition with the flexibility to easily scale compute resources or storage capacity for your database.

- Supports database size up to 64 TiB.
- Supports General Purpose, Memory Optimized, and Burstable Performance instance classes.
- Supports automated backup and point-in-time recovery.
- Supports up to 15 Read Replicas per instance, within a single Region or 5 read replicas cross-region.

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Assignment 2 - Google Tài liệu | Assignment 2 | Create database - RDS Manager | Learner Lab

us-east-1.console.aws.amazon.com/rds/home?region=us-east-1#launch-dbinstance;gdb=false;isHermesCreate=true;s3-import=false

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AWS Services Search [Alt+S]

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**DB instance identifier**

Type a name for your DB instance. The name must be unique across all DB instances owned by your AWS account in the current AWS Region.

assignment2

The DB instance identifier is case-insensitive, but is stored as all lowercase (as in "mydbinstance"). Constraints: 1 to 60 alphanumeric characters or hyphens. First character must be a letter. Can't contain two consecutive hyphens. Can't end with a hyphen.

**Credentials Settings**

**Master username**

Type a login ID for the master user of your DB instance.

admin

1 to 16 alphanumeric characters. First character must be a letter.

Manage master credentials in AWS Secrets Manager

Manage master user credentials in Secrets Manager. RDS can generate a password for you and manage it throughout its lifecycle.

If you manage the master user credentials in Secrets Manager, some RDS features aren't supported.

Learn more ↗

Auto generate a password

Amazon RDS can generate a password for you, or you can specify your own password.

**Master password**

\*\*\*\*\*

Constraints: At least 8 printable ASCII characters. Can't contain any of the following: / (slash), '(single quote)', "(double quote)" and @ (at sign).

Confirm master password

\*\*\*\*\*

**Instance configuration**

The DB instance configuration options below are limited to those supported by the engine that you selected above.

**MySQL**

MySQL is the most popular open source database in the world. MySQL on RDS offers the rich features of the MySQL community edition with the flexibility to easily scale compute resources or storage capacity for your database.

- Supports database size up to 64 TiB.
- Supports General Purpose, Memory Optimized, and Burstable Performance instance classes.
- Supports automated backup and point-in-time recovery.
- Supports up to 15 Read Replicas per instance, within a single Region or 5 read replicas cross-region.

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Screenshot of the AWS RDS Management Console showing the creation of a new database instance.

**Assignment 2 - Google Tài liệu** | **Assignment 2** | **Create database - RDS Manager** | **Learner Lab**

**Services** | **Search** | **[Alt+S]**

**Connectivity**

**Availability Zone**

Choose the Availability Zone from the current AWS Region to create the database in. Availability Zones improve high availability by isolating failures from other Availability Zones, while supporting low-latency connectivity in the Region.

**Learn more**

Regions, Availability Zones, and Local Zones

**Network type**

To use dual-stack mode, make sure that you associate an IPv6 CIDR block with a subnet in the VPC you specify.

**IPv4** | **Dual-stack mode**

**Virtual private cloud (VPC)**

Choose the VPC. The VPC defines the virtual networking environment for this DB instance.

ATranVPC-vpc (vpc-098f490844d69d410) | 4 Subnets, 2 Availability Zones

Only VPCs with a corresponding DB subnet group are listed.

**After a database is created, you can't change its VPC.**

**DB subnet group**

Choose the DB subnet group. The DB subnet group defines which subnets and IP ranges the DB instance can use in the VPC that you selected.

assignment2dbsubnet | 2 Subnets, 2 Availability Zones

**Public access**

**Yes**: RDS assigns a public IP address to the database. Amazon EC2 instances and other resources outside of the VPC can connect to your database. Resources inside the VPC can also connect to the database. Choose one or more VPC security groups that specify which resources can connect to the database.

**No**: RDS doesn't assign a public IP address to the database. Only Amazon EC2 instances and other resources inside the VPC can connect to your database. Choose one or more VPC security groups that specify which resources can connect to the database.

**VPC security group (firewall)**

Choose one or more VPC security groups to allow access to your database. Make sure that the security group rules allow the appropriate incoming traffic.

**Choose existing** | **Create new**

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## Create S3 bucket

Screenshot of the AWS S3 Bucket Creation wizard.

**Assignment 2 - Google Tài liệu** | **Assignment 2** | **\$3 bucket** | **Learner Lab**

**Services** | **Search** | **[Alt+S]**

Buckets are containers for data stored in S3. [Learn more](#)

**General configuration**

**Bucket name**: stranbucket

Bucket name must be unique within the global namespace and follow the bucket naming rules. [See rules for bucket naming](#)

**AWS Region**: US East (N. Virginia) us-east-1

**Copy settings from existing bucket - optional**

Only the bucket settings in the following configuration are copied.

**Choose bucket**

**Object Ownership**

Control ownership of objects written to this bucket from other AWS accounts and the use of access control lists (ACLs). Object ownership determines who can specify access to objects.

**ACLs disabled (recommended)**: All objects in this bucket are owned by this account. Access to this bucket and its objects is specified using only policies.

**ACLs enabled**: Objects in this bucket can be owned by other AWS accounts. Access to this bucket and its objects can be specified using ACLs.

**Object Ownership**: Bucket owner enforced

**Block Public Access settings for this bucket**

Public access to objects in this bucket through bucket-level lists (ACLs), bucket policies, access point policies, or all. In order to ensure that public access to this bucket and its objects is blocked, turn on Block all public access. These settings apply only to this bucket and its access points. AWS recommends that you turn on Block all public access, but before applying any of these settings, ensure that your applications will work correctly without public access. If you require some level of public access to this bucket or objects within, you can customize the individual settings below to suit your specific storage use cases. [Learn more](#)

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Đoàn Văn Đại 3 Construction

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The screenshot shows the AWS S3 Management Console. A green banner at the top indicates that the bucket "atranbucket" has been successfully created. Below this, the "Account snapshot" section provides an overview of storage usage: Total storage 1.4 MB, Object count 2, and Average object size 726.7 KB. The "Buckets" section lists the single bucket "atranbucket" with details: Name (atranbucket), AWS Region (US East (N. Virginia) us-east-1), Access (Objects can be public), and Creation date (July 8, 2023, 13:26:57 (UTC+07:00)).

The screenshot shows the AWS EC2 Instances console. On the left, a sidebar lists various EC2 management options like Dashboard, Global View, Events, Instances, Images, Elastic Block Store, Network & Security, and more. The main area is titled "Create Dev Server" and shows the "Launch instance" wizard. It starts with the "Name and tags" step, where the instance is named "Dev Server". The next step, "Application and OS Images (Amazon Machine Image)", is currently selected. It displays a catalog of AMIs, including Amazon Linux, macOS, Ubuntu, Windows, Red Hat, and SUSE. A specific AMI, "Amazon Linux 2 AMI (HVM) - Kernel 5.10, SSD Volume Type", is highlighted. This AMI is described as being free tier eligible. The "Summary" step on the right shows that 1 instance is being launched, using the "t2.micro" virtual server type, default security group, and 8 GiB of storage. A callout box highlights the "Free tier: In your first year includes 750 hours of t2.micro (or t3.micro in the Regions in which t2.micro is unavailable) instance usage on free tier AMIs per month, 30 GiB of EBS storage, 2 million I/Os, 1 GiB of snapshots, and 100 GiB of bandwidth to the internet." Finally, the "Launch instance" button is visible.

Choose default SG, I will change it later on

Learner Lab | Launch an instance | EC2 Manager | Assignment 2 | Assignment 2 - Google Tài liệu | +

us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#LaunchInstances: N. Virginia vocabs/user2555392+104177513@student.swin.edu.au @ 3224-7205...

**New EC2 Experience**

Tell us what you think

**Instances**

- Instances
- Instance Types
- Launch Templates
- Spot Requests
- Savings Plans
- Reserved Instances
- Dedicated Hosts
- Scheduled Instances
- Capacity Reservations

**Images**

- AMIs
- AMI Catalog

**Elastic Block Store**

- Volumes
- Snapshots
- Lifecycle Manager

**Network & Security**

- Security Groups
- Elastic IPs
- Placement Groups

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Learner Lab | Assignment 2 | Assignment 1a | EC2 Management Console | Assignment 2 - Google Tài liệu | +

us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#LaunchInstances: N. Virginia vocabs/user2555392+104177513@student.swin.edu.au @ 3224-7205...

**Services**

Search [Alt+S]

On-Demand Linux pricing: 0.0116 USD per Hour

**Key pair (login) Info**

You can use a key pair to securely connect to your instance. Ensure that you have access to the selected key pair before you launch the instance.

Key pair name - required assignment 2 Create new key pair

**Network settings Info**

VPC - required info

vpc-098f490844d69d410 (ATranVPC-vpc) 10.0.0.0/16

Subnet info

subnet-097e56be2863bef9 ATranVPC-subnet-public2-us-east-1b VPC vpc-098f490844d69d410 Owner: 322472051361 Availability Zone us-east-1b IP addresses available: 251 CIDR: 10.0.2.0/24

Create new subnet

Auto-assign public IP info

Disable

Firewall (security groups) info

A security group is a set of firewall rules that control the traffic for your instance. Add rules to allow specific traffic to reach your instance.

Create security group Select existing security group

Common security groups info

Select security groups default sg-047bd6c0312012702 VPC vpc-098f490844d69d410

Compare security group rules

**Summary**

Number of instances Info 1

Software image (AMI)

Amazon Linux 2 Kernel 5.10 AMI... read more ami-04823729c75214919

Virtual server type (instance type)

t2.micro

Firewall (security group)

default

Storage (volumes)

1 volume(s) - 8 GiB

**Free tier:** In your first year includes 750 hours of t2.micro (or t3.micro in the Regions in which t2.micro is unavailable) instance usage on free tier AMIs per month, 30 GiB of EBS storage, 2 million I/Os, 1 GiB of snapshots, and 100 GiB of bandwidth to the internet.

Cancel Launch instance Review commands

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Learner Lab | Assignment 2 | Assignment 1a | EC2 Management Console | Assignment 2 - Google Tài liệu | +

us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#LaunchInstances: N. Virginia vocabs/user2555392+104177513@student.swin.edu.au @ 3224-7205...

**Services**

Search [Alt+S]

Metadata transport

Select

Metadata version info

Select

Metadata response hop limit info

Select

Allow tags in metadata info

Select

User data - optional info

Upload a file with your user data or enter it in the field.

Choose file

```
#!/bin/bash
yum update -y
amazon-linux-extras install -y lamp-mariadb10.2-php7.2 php7.2
service httpd start
yum install -y httpd mariadb-server php-mbstring php-xml
systemctl start httpd
systemctl enable httpd
usermod -a -G apache ec2-user
chown -R ec2-user:apache /var/www
chmod 2775 /var/www
find /var/www -type d -exec sudo chmod 2775 {} \;
find /var/www -type f -exec sudo chmod 664 {} \;
echo "<?php echo '<h2>Welcome to COS80001. Installed PHP version: ' . phpversion() . '</h2>?>" > /var/www/html/phpinfo.php
```

User data has already been base64 encoded

**Summary**

Number of instances Info 1

Software image (AMI)

Amazon Linux 2 Kernel 5.10 AMI... read more ami-04823729c75214919

Virtual server type (instance type)

t2.micro

Firewall (security group)

TestSG

Storage (volumes)

1 volume(s) - 8 GiB

**Free tier:** In your first year includes 750 hours of t2.micro (or t3.micro in the Regions in which t2.micro is unavailable) instance usage on free tier AMIs per month, 30 GiB of EBS storage, 2 million I/Os, 1 GiB of snapshots, and 100 GiB of bandwidth to the internet.

Cancel Launch instance Review commands

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The screenshot shows the AWS EC2 Instances 'Launch an instance' page. A success message at the top states: 'Successfully initiated launch of instance i-00beb9d6c286a8859'. Below this, a 'Next Steps' section lists several options with small descriptions and buttons:

- Create billing and free tier usage alerts
- Connect to your instance
- Connect an RDS database
- Create EBS snapshot policy
- Manage detailed monitoring
- Create Load Balancer
- Create AWS budget
- Manage CloudWatch alarms

At the bottom, there are links for 'cloudShell', 'Feedback', and 'Language'. The status bar shows the date and time: 08/07/2023.

## Create Lambda

The screenshot shows the AWS Lambda 'Create function - Lambda' page. It includes sections for 'Basic information' and 'Permissions'.

**Basic information** section:

- Function name: CreateThumbnail
- Runtime: Python 3.7
- Architecture: x86\_64

**Permissions** section:

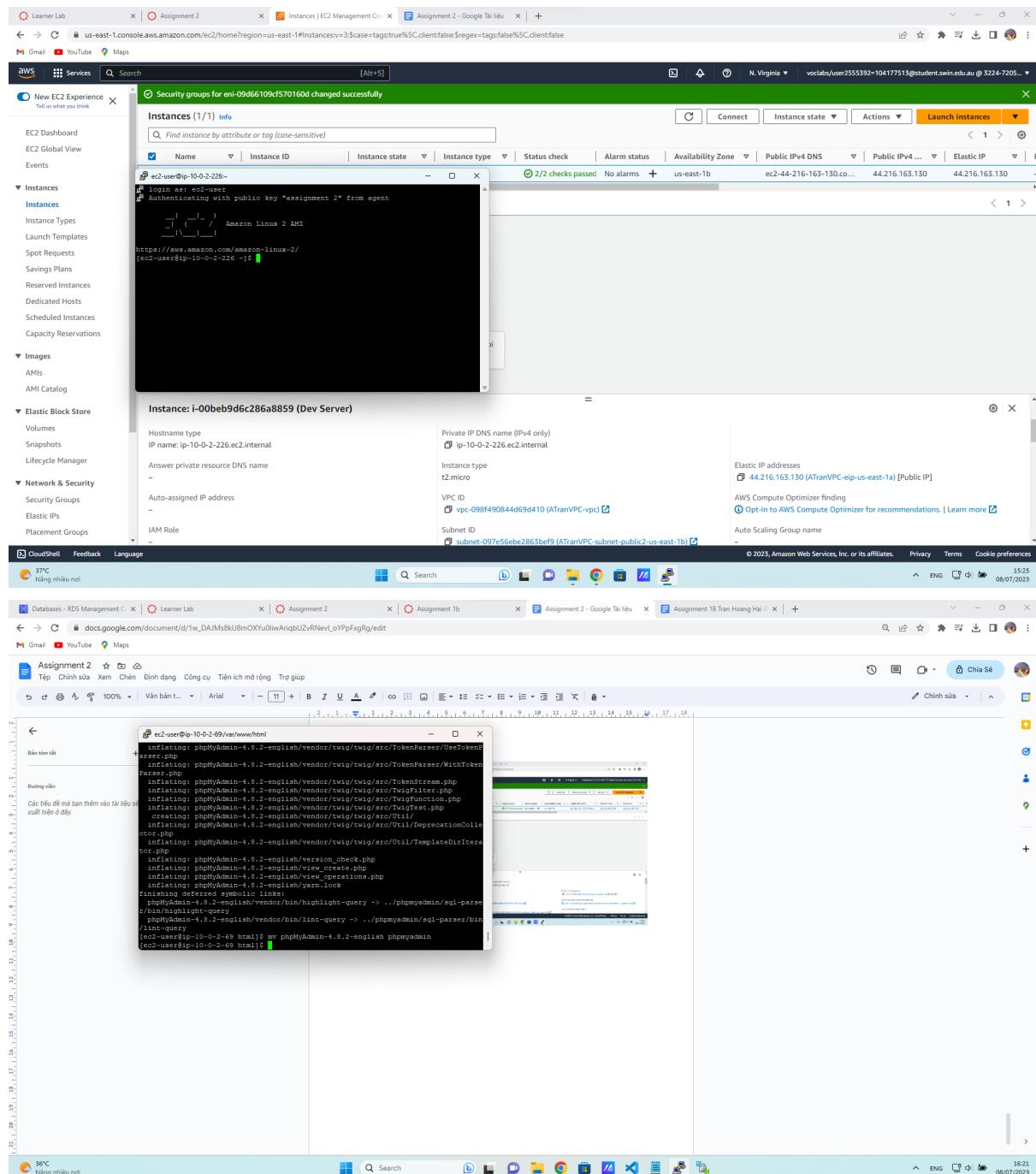
- Execution role: LabRole
- Existing role: Choose an existing role that's been created to be used with this Lambda function.

At the bottom, there are links for 'cloudShell', 'Feedback', and 'Language'. The status bar shows the date and time: 08/07/2023.

The screenshot shows the AWS Lambda console interface. At the top, there are several tabs: Learner Lab, Assignment 2, CreateThumbnail - Lambda, and Assignment 2 - Google Tài liệu. The main content area displays the 'CreateThumbnail' function details. The function name is 'CreateThumbnail'. It has no triggers or layers. The description is empty. Last modified was 4 seconds ago. Function ARN is arn:aws:lambda:us-east-1:322472051361:function:CreateThumbnail. Function URL is available. Below this, there are tabs for Code, Test, Monitor, Configuration, Aliases, and Versions. The Code tab is selected. The code source section contains a note: 'The deployment package of your Lambda function "CreateThumbnail" is too large to enable inline code editing. However, you can still invoke your function.' There is a 'Upload from' button. At the bottom of the page, there is a navigation bar with cloudShell, Feedback, Language, and links to Privacy, Terms, and Cookie preferences.

## Customize AMI

The screenshot shows the AWS EC2 console interface. The top navigation bar includes tabs for Learner Lab, Assignment 2, Associate Elastic IP address | EC2, Assignment 2 - Google Tài liệu, and Assignment 2. The main content area shows the 'Associate Elastic IP address' process for instance i-00beb96c286a8859. The private IP address chosen is 44.216.163.130. A warning message states: 'If you associate an Elastic IP address with an instance that already has an Elastic IP address associated, the previously associated Elastic IP address will be disassociated, but the address will still be allocated to your account.' Below this, it says: 'If no private IP address is specified, the Elastic IP address will be associated with the primary private IP address.' The 'Associate' button is highlighted in orange. At the bottom of the page, there is a navigation bar with cloudShell, Feedback, Language, and links to Privacy, Terms, and Cookie preferences.



## Change config file

The screenshot shows a WinSCP interface with two panes. The left pane displays a file transfer window titled 'My documents' with various files like 'index.html', 'style.css', and 'script.js'. The right pane shows a file browser for '/var/www/html/phpmyadmin/' with a list of files and their details. Below the browser is a terminal window showing the contents of 'config.inc.php'.

```

/*
 * First server
 */
$cfg['Servers'][$i]['auth_type'] = 'cookie';
/* Server parameters */
$cfg['Servers'][$i]['host'] = 'assignment2db.c6wi8l7att9r.us-east-1.rds.amazonaws.com';
$cfg['Servers'][$i]['compress'] = false;
$cfg['Servers'][$i]['AllowNoPassword'] = false;

/*
 * phpMyAdmin configuration storage settings.
 */

/* User used to manipulate with storage */
// $cfg['Servers'][$i]['controlhost'] = '';
// $cfg['Servers'][$i]['controlport'] = '';
// $cfg['Servers'][$i]['controluser'] = 'pma';
// $cfg['Servers'][$i]['controlpass'] = 'pmapass';

/* Storage database and tables */
// $cfg['Servers'][$i]['pmadb'] = 'phpmyadmin';

```

## Create table based on requirements on phpmyadmin

The screenshot shows a browser window with multiple tabs open. The active tab is 'Server: assignment2db c6wi8l7att9r.us-east-1.rds.amazonaws.com > Database: photoalbum > Table: photo\_metadata'. The main content is the 'Structure' tab of the table creation interface. It shows five columns: 'Name', 'Type', 'Length/Values', 'Default', 'Collation', 'Attributes', 'Null', 'Index', 'A\_I', and 'Comments'. Below the table structure, there are fields for 'Table comments', 'Collation', and 'Storage Engine' (set to InnoDB). At the bottom right are 'Preview SQL' and 'Save' buttons.

Screenshot of the phpMyAdmin interface showing the structure of the 'photo\_metadata' table.

**Table Structure:**

Name	Type	Length/Values	Default	Collation	Attributes	Null	Index	A_I	Comments
title	VARCHAR	255	None	utf8mb4_0900_ai_ci		Yes	... (index)		
description	VARCHAR	255	None	utf8mb4_0900_ai_ci		Yes	... (index)		
creationdate	DATE		None	utf8mb4_0900_ai_ci		Yes	... (index)		
keywords	VARCHAR	255	None	utf8mb4_0900_ai_ci		Yes	... (index)		
reference	VARCHAR	255	None	utf8mb4_0900_ai_ci		Yes	... (index)		

**Table comments:** Collation: InnoDB

**Relation view:**

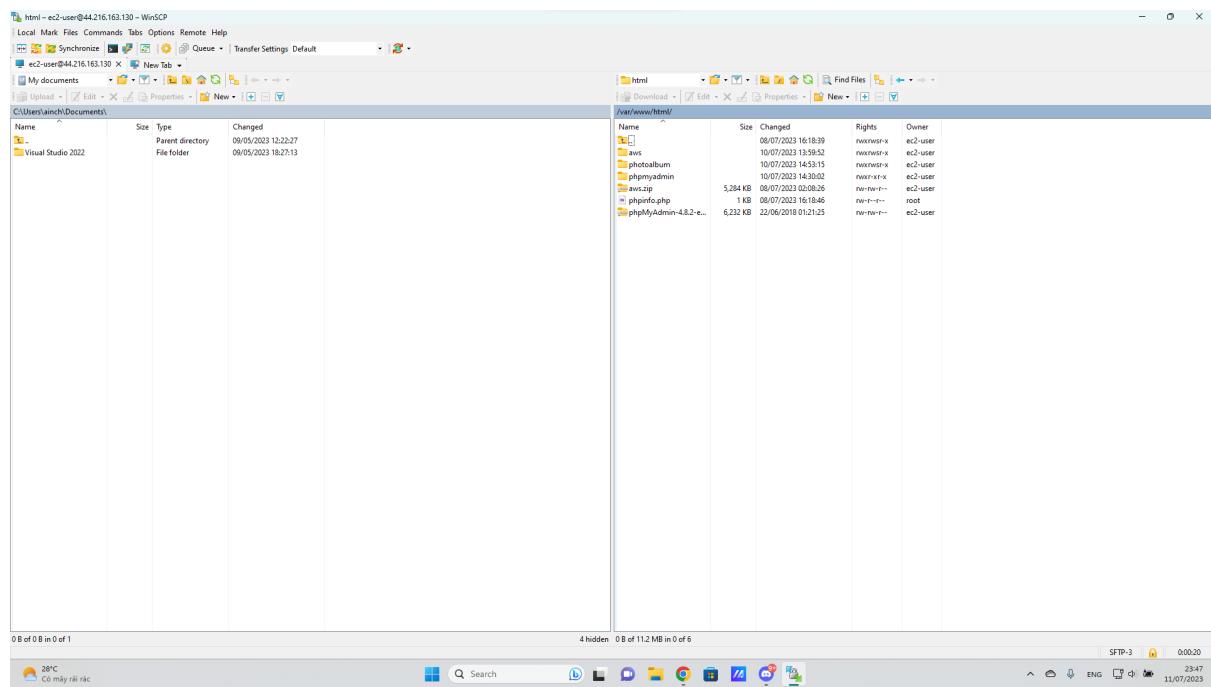
#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
1	title	varchar(255)	utf8mb4_0900_ai_ci	No	None				<a href="#">Change</a> <a href="#">Drop</a> <a href="#">More</a>
2	description	varchar(255)	utf8mb4_0900_ai_ci	No	None				<a href="#">Change</a> <a href="#">Drop</a> <a href="#">More</a>
3	creationdate	date		No	None				<a href="#">Change</a> <a href="#">Drop</a> <a href="#">More</a>
4	keywords	varchar(255)	utf8mb4_0900_ai_ci	No	None				<a href="#">Change</a> <a href="#">Drop</a> <a href="#">More</a>
5	reference	varchar(255)	utf8mb4_0900_ai_ci	No	None				<a href="#">Change</a> <a href="#">Drop</a> <a href="#">More</a>

**Indexes:** No index defined!

**Information:**

Space usage		Row statistics	
Data	16 KiB	Format	dynamic
Index	0 B	Collation	utf8mb4_0900_ai_ci
Overhead		Next autoidx	0
Effective	16 KiB	Creation	Jul 10, 2023 at 07:59 AM
Total	16 KiB	Last update	Jul 10, 2023 at 07:59 AM
		Last check	Jul 10, 2023 at 07:59 AM

Upload websites file



## Create AMI image successfully

Currently creating AMI ami-0a4e05afcc5600b55 from instance i-0f36900845dfb2ec0. Check that the AMI status is 'Available' before deleting the instance or carrying out other actions related to this AMI.

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4 DNS
Dev Server	i-0f36900845dfb2ec0	Running	t2.micro	2/2 checks passed	No alarms	us-east-1b	ec2-44-216-163-

## Create launch template

Learner Lab | Create launch template | Assignment 2 | Assignment 1b | ec2-44-216-163-130 | Assignment1b.pdf | Assignment 2 - Google | +

us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#CreateTemplate:

Gmail YouTube Maps

aws Services Search [Alt+S] N. Virginia voclabs/user2555392=104177513@student.swin.edu.au @ 3224-7205...

Launch template contents

Specify the details of your launch template below. Leaving a field blank will result in the field not being included in the launch template.

Application and OS Images (Amazon Machine Image) - required [Info](#)

An AMI is a template that contains the software configuration (operating system, application server, and applications) required to launch your instance. Search or Browse for AMIs if you don't see what you are looking for below.

Search our full catalog including 1000s of application and OS images

Recents [My AMIs](#) Quick Start

Owned by me Shared with me [Browse more AMIs](#)

Including AMIs from AWS, Marketplace and the Community

Amazon Machine Image (AMI)

Web server  
ami-04e05afc5600b55  
2023-07-10T08:03:15.000Z Virtualization: hvm ENA enabled: true Root device type: ebs

Description

Summary

Software Image (AMI)  
Web server  
ami-04e05afc5600b55

Virtual server type (instance type)

Firewall (security group)

Storage (volumes)  
1 volume(s) - 8 GiB

Free tier: In your first year includes 750 hours of t2.micro (or t3.micro in the Regions in which t2.micro is unavailable) instance usage on free tier AMIs per month.

Create launch template

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Learner Lab | Create Auto Scaling | Load balancers | Assignment 2 | Assignment 1b | phpMyAdmin | Assignment1b.pdf | Assignment 2 - Google | +

us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#CreateALBWizard:

Gmail YouTube Maps

aws Services Search [Alt+S] N. Virginia voclabs/user2555392=104177513@student.swin.edu.au @ 3224-7205...

## Create Load balancing

Load balancer name  
Name must be unique within your AWS account and can't be changed after the load balancer is created.

Application load balancing  
A maximum of 32 alphanumeric characters including hyphens are allowed, but the name must not begin or end with a hyphen.

Scheme [Info](#)  
Scheme can't be changed after the load balancer is created.  
 Internet-facing An internet-facing load balancer routes requests from clients over the internet to targets. Requires a public subnet. [Learn more](#)  
 Internal An internal load balancer routes requests from clients to targets using private IP addresses.

IP address type [Info](#)  
Select the type of IP addresses that your subnets use.  
 IPv4 Recommended for internal load balancers.  
 Dualstack Includes IPv4 and IPv6 addresses.

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.

ATranVPC-vpc  
vpc-098f490844d69d410  
IPv4: 10.0.0.0/16

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Learner Lab | Create Auto Scaling | Load balancers | Assignment 2 | Assignment 1b | phpMyAdmin | Assignment1b.php | Assignment 2 - C | Assignment 2 - G | + | - | X

← → 🔍 us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#CreateALBWizard:

Gmail YouTube Maps

AWS Services Search [Alt+S] N. Virginia v vocabs/user2555392=104177513@student.swin.edu.au @ 3224-7205...

The load balancer is created. To confirm the VPC for your targets, view your target groups [\[x\]](#).

ATranVPC-vpc  
vpc-098f49084d69d410  
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-az4)

Subnet: subnet-081419ec5f84238d3 ATranVPC-subnet-public1-us-east-1a

IPv4 address: Assigned by AWS

us-east-1b (use1-az6)

Subnet: subnet-097e56ebe2863bef9 ATranVPC-subnet-public2-us-east-1b

IPv4 address: Assigned by AWS

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Learner Lab | Create Auto Scaling | Instances | Load balancers | Target groups | Assignment 1b | Assignment 2 | phpMyAdmin | Assignment1b.php | Assignment 2 - C | Assignment 2 - G | + | - | X

← → 🔍 us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#CreateTargetGroup:protocol=HTTP:vpc=vpc-098f49084d69d410

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AWS Services Search [Alt+S] N. Virginia v vocabs/user2555392=104177513@student.swin.edu.au @ 3224-7205...

Choose a target type

Instances

- Supports load balancing to instances within a specific VPC.
- Facilitates the use of [Amazon EC2 Auto Scaling](#) to manage and scale your EC2 capacity.

IP addresses

- Supports load balancing to VPC and on-premises resources.
- Facilitates routing to multiple IP addresses and network interfaces on the same instance.
- Offers flexibility with microservice based architectures, simplifying inter-application communication.
- Supports IPv6 targets, enabling end-to-end IPv6 communication, and IPv4-to-IPv6 NAT.

Lambda function

- Facilitates routing to a single Lambda function.
- Accessible to Application Load Balancers only.

Application Load Balancer

- Offers the flexibility for a Network Load Balancer to accept and route TCP requests within a specific VPC.
- Facilitates using static IP addresses and PrivateLink with an Application Load Balancer.

Target group name: Elbtargetgroup

A maximum of 32 alphanumeric characters including hyphens are allowed, but the name must not begin or end with a hyphen.

Protocol Port

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Learner Lab | Create Auto... | Instances | Load balanc... | Target group... | Assignment | Assignment | phpMyAdmin | Assignment | Assignment | Assignment | +

us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#TargetGroups:

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New EC2 Experience Tell us what you think

Services Search [Alt+S]

N. Virginia v vclabs/user2555392:104177513@student.swin.edu.au @ 3224-7205...

EC2 Dashboard EC2 Global View Events

Instances Instances Instance Types Launch Templates Spot Requests Savings Plans Reserved Instances Dedicated Hosts Scheduled Instances Capacity Reservations

Images AMIs AMI Catalog

Elastic Block Store Volumes CloudShell Feedback Language

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Search

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ENG 15:54 10/07/2023

us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#CreateLBWizardSuccess:loadBalancerArn=arn:aws:elasticloadbalancing:us-east-1:322472051361:loadbalancer/app/Applicationloadbalancing

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Services Search [Alt+S]

N. Virginia v vclabs/user2555392:104177513@student.swin.edu.au @ 3224-7205...

EC2 Target groups

Target groups (1) [Info](#)

Find resources by attribute or tag

Name ARN Port Protocol Target type Load balancer

Elbtargetgroup arn:aws:elasticloadbalanc... 80 HTTP Instance None associated

0 target groups selected

Select a target group above.

EC2 > Load balancers > Applicationloadbalancing > Create Application Load Balancer

Create Application Load Balancer

Suggested next steps

- Review, customize, or configure attributes for your load balancer and listeners using the [Description](#) and [Listeners](#) tabs within [Applicationloadbalancing](#).
- Discover other services that you can integrate with your load balancer. Visit the [Integrated services](#) tab within [Applicationloadbalancing](#).

View load balancer

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Learner Lab | Create Auto... | Assignment | Instances | Load balanc... | Target group | Assignment | phpMyAdmin | Assignment | Assignment | + | - | X

Gmail YouTube Maps

us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#CreateAutoScalingGroup:

Services auto scaling

Step 2 Choose instance launch options

Step 3 - optional Configure advanced options

Step 4 - optional Configure group size and scaling policies

Step 5 - optional Add notifications

Step 6 - optional Add tags

Step 7 Review

**Network Info**

For most applications, you can use multiple Availability Zones and let EC2 Auto Scaling balance your instances across the zones. The default VPC and default subnets are suitable for getting started quickly.

VPC Choose the VPC that defines the virtual network for your Auto Scaling group.

vpc-098f490844d69d410 (ATranVPC-vpc)  
10.0.0.0/16

Create a VPC

Availability Zones and subnets Define which Availability Zones and subnets your Auto Scaling group can use in the chosen VPC.

Select Availability Zones and subnets

us-east-1a | subnet-0aeb8ff2560fc45b4  
(ATranVPC-subnet-private1-us-east-1a)  
10.0.3.0/24

us-east-1b | subnet-097e4bd2a3824d341  
(ATranVPC-subnet-private2-us-east-1b)  
10.0.4.0/24

Create a subnet

**Instance type requirements** Info

Reset to launch template

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Learner Lab | Instances | Load balanc... | Target group | Assignment | phpMyAdmin | Assignment | Assignment | + | - | X

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us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#CreateAutoScalingGroup:

Services auto scaling

Step 3 - optional Configure advanced options

Step 4 - optional Configure group size and scaling policies

Step 5 - optional Add notifications

Step 6 - optional Add tags

Step 7 Review

Use the options below to attach your Auto Scaling group to an existing load balancer, or to a new load balancer that you define.

No load balancer Traffic to your Auto Scaling group will not be fronted by a load balancer.

Attach to an existing load balancer Choose from your existing load balancers.

Attach to a new load balancer Quickly create a basic load balancer to attach to your Auto Scaling group.

**Attach to an existing load balancer**

Select the load balancers that you want to attach to your Auto Scaling group.

Choose from your load balancer target groups This option allows you to attach Application, Network, or Gateway Load Balancers.

Choose from Classic Load Balancers

Existing load balancer target groups Only instance target groups that belong to the same VPC as your Auto Scaling group are available for selection.

Select target groups

Elbtargetgroup | HTTP Application Load Balancer: Applicationloadbalancing

**VPC Lattice integration options** Info

To improve networking capabilities and scalability, integrate your Auto Scaling group with VPC Lattice. VPC Lattice facilitates

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ENG 15:58 10/07/2023

Learner Lab | Create Auto... | Assignment | Instances | Load balanc... | Target group | Assignment | phpMyAdmin | Assignment | Assignment | + | - | X

← → 🔍 us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#CreateAutoScalingGroup:

Gmail YouTube Maps

**auto scaling**

Add notifications

Step 6 - optional  
Add tags

Step 7  
Review

Desired capacity: 2

Minimum capacity: 2

Maximum capacity: 3

**Scaling policies - optional**

Choose whether to use a scaling policy to dynamically resize your Auto Scaling group to meet changes in demand. [Info](#)

Target tracking scaling policy  
Choose a desired outcome and leave it to the scaling policy to add and remove capacity as needed to achieve that outcome.

None

Scaling policy name: Target Tracking Policy

Metric type: Application Load Balancer request count per target

---

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16:04 10/07/2023

Learner Lab | Create Auto... | Assignment | Instances | Load balanc... | Target group | Assignment | phpMyAdmin | Assignment | Assignment | + | - | X

← → 🔍 us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#CreateAutoScalingGroup:

Gmail YouTube Maps

**auto scaling**

Choose whether to use a scaling policy to dynamically resize your Auto Scaling group to meet changes in demand. [Info](#)

Target tracking scaling policy  
Choose a desired outcome and leave it to the scaling policy to add and remove capacity as needed to achieve that outcome.

None

Scaling policy name: Target Tracking Policy

Metric type: Application Load Balancer request count per target

Target group: Elbtargetgroup

Target value: 30

Instances need: 300 seconds warm up before including in metric

Disable scale in to create only a scale-out policy

---

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16:04 10/07/2023

Learner Lab | Target groups | EC2 Management | atranbucket - S3 bucket | Assignment 2 - Google Tài liệu | Assignment 2 | Photo Album | Photo Album | + | - | X

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AWS Services Search [Alt+S] Global voleabs/user2555392=104177513@student.swin.edu.au @ 3222-7205... ▾

**Amazon S3**

Buckets Access Points Object Lambda Access Points Multi-Region Access Points Batch Operations IAM Access Analyzer for S3

Block Public Access settings for this account

Storage Lens Dashboards AWS Organizations settings

Feature spotlight 3

AWS Marketplace for S3

**atranbucket** info

Publicly accessible

Objects (2)

Objects are the fundamental entities stored in Amazon S3. You can use [Amazon S3 inventory](#) to get a list of all objects in your bucket. For others to access your objects, you'll need to explicitly grant them permissions. [Learn more](#)

Actions Create folder Upload

Find objects by prefix

Name	Type	Last modified	Size	Storage class
357424664_135894286191983_220013_1266823012512_n.jpg	jpg	July 12, 2023, 00:15:02 (UTC+07:00)	50.2 KB	Standard
resized-357424664_135894286191983_220013_1266823012512_n.jpg	jpg	July 12, 2023, 00:15:04 (UTC+07:00)	12.5 KB	Standard

CloudShell Feedback Language 28°C Có máy rác ENG 00:43 12/07/2023

Learner Lab | Target groups | EC2 Management | Load balancers | EC2 Management | Assignment 2 - Google Tài liệu | Assignment 2 | Photo Album | Photo Album | ec2-44-216-163-130.com | + | - | X

Gmail YouTube Maps

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Current selection does not contain a unique column. Grid edit, checkbox, Edit, Copy and Delete features are not available.

Showing rows 0 - 0 (1 total). Query took 0.0025 seconds.

SELECT \* FROM "photo\_metadata"

Profile Edit inline Explain SQL Create PHP code Refresh

Recent Favorites

Server: atranbucket2db.csw87at9.us-east-1.rds.amazonaws.com Database: photoalbum Table: photo\_metadata

Information Schema MySQL Performance Schema photoalbum sys

New

Information Schema MySQL Performance Schema photoalbum sys

photo\_metadata

title description creationdate keywords reference

HaiAnhPaint A painting 2023-07-12 Hai Anh the Artist https://atranbucket.s3.amazonaws.com/357424664\_135...

Show all Number of rows: 25 Filter rows: Search this table

Show all Number of rows: 25 Filter rows: Search this table

Query results operations Print Copy to clipboard Export Display chart Create view

Console 28°C Am ENG 00:45 12/07/2023

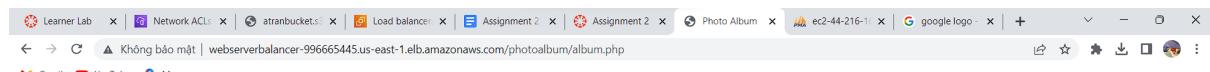
Terminate to test ASG



### 503 Service Temporarily Unavailable

The screenshot shows the AWS EC2 Instances page with 14 instances listed. The table columns are:

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4 DNS	Public IPv4 IP	Elastic IP
Dev Server	i-0f36900845dfb2ec0	Running	t2.micro	2/2 checks passed	No alarms	us-east-1b	ec2-44-216-163-130.co...	44.216.163.130	44.216.163.130
-	i-08242f8a07a0b29d3	Running	t2.micro	Initializing	No alarms	us-east-1b	-	-	-
-	i-06e7f71936baef8766	Terminated	t1.micro	-	No alarms	us-east-1a	-	-	-
-	i-07467db8116af43b99	Terminated	t1.micro	-	No alarms	us-east-1a	-	-	-
-	i-03a270fb15d129615	Terminated	t1.micro	-	No alarms	us-east-1a	-	-	-
-	i-04537a7d7772ae0773	Terminated	t2.micro	-	No alarms	us-east-1a	-	-	-
-	i-0b71ea1936e5160bd	Terminated	t1.micro	-	No alarms	us-east-1a	-	-	-
-	i-0bb91b2fd51b07e32	Terminated	m1.small	-	No alarms	us-east-1b	-	-	-
-	i-017396bb1537603d5	Terminated	m1.small	-	No alarms	us-east-1b	-	-	-
-	i-0a04c12079735cf5	Terminated	m1.small	-	No alarms	us-east-1b	-	-	-
-	i-0c90f6992eb06d227	Terminated	t1.micro	-	No alarms	us-east-1a	-	-	-
-	i-0246a9fc97ddc0e0c0	Terminated	m1.small	-	No alarms	us-east-1b	-	-	-
-	i-0525b7df754456402	Terminated	m1.small	-	No alarms	us-east-1b	-	-	-
-	i-021b456e6b23f7e8a	Terminated	t2.micro	-	No alarms	us-east-1b	-	-	-



Student name: Tran Hoang Hai Anh

Student ID: 104177513

Tutorial session: Saturday 13:00

**Uploaded photos:**

[Upload more photos](#)

Photo	Name	Description	Creation date	Keywords
	Google	Logo cua Google	2023-07-15	File anh

You have successfully updated inbound rules for acl-0aa34c7470a7b4791 / PrivateSubnetNACL

Name	Network ACL ID	Associated with	Default	VPC ID	
acl-04eb90bcc80701843	6 Subnets	Yes	vpc-0918d4dfbc1a526ec	2 1	
<b>PrivateSubnetNACL</b>	<b>acl-0aa34c7470a7b4791</b>	No	vpc-098f490844d69d410 / ATranVPC-vpc	3 1	
-	acl-0ad80e7f57ceaad	4 Subnets	Yes	vpc-098f490844d69d410 / ATranVPC-vpc	2 1

Rule number	Type	Protocol	Port range	Source	Allow/Deny
1	All ICMP - IPv4	ICMP (1)	All	10.0.2.0/24	Deny
2	All traffic	All	All	0.0.0.0/0	Allow
*	All traffic	All	All	0.0.0.0/0	Deny

Learner Lab Network ACLs | VPC Management Assignment 2 - Google Tài liệu Assignment 2

us-east-1.console.aws.amazon.com/vpc/home?region=us-east-1#acl: N. Virginia voclabs/user2555392=104177513@student.swin.edu.au @ 3224-7205...

Gmail YouTube Maps

AWS Services Search [Alt+S] N. Virginia voclabs/user2555392=104177513@student.swin.edu.au @ 3224-7205...

VPC dashboard EC2 Global View New Filter by VPC: Select a VPC

Virtual private cloud Your VPCs New Subnets Route tables Internet gateways Egress-only internet gateways Carrier gateways DHCP option sets Elastic IPs Managed prefix lists Endpoints Endpoint services NAT gateways Peering connections Security

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You have successfully updated outbound rules for acl-0aa34c7470a7b4791 / PrivateSubnetNACL

**Network ACLs (1/3) Info**

Name	Network ACL ID	Associated with	Default	VPC ID	In
acl-04eb90bcc80701843	6 Subnets	Yes	vpc-0918d4dfbc1a526ec	21	
<b>PrivateSubnetNACL</b>	acl-0aa34c7470a7b4791	No	vpc-098f490844d69d410 / ATranVPC-vpc	31	
-	acl-0a0d80e7f579ceaad	Yes	vpc-098f490844d69d410 / ATranVPC-vpc	21	

Filter outbound rules

Rule number	Type	Protocol	Port range	Destination	Allow/Deny
1	All ICMP - IPv4	ICMP (1)	All	10.0.2.0/24	Deny
2	All traffic	All	All	0.0.0.0/0	Allow
*	All traffic	All	All	0.0.0.0/0	Deny

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You have successfully updated subnet associations for acl-0aa34c7470a7b4791 / PrivateSubnetNACL.

**Network ACLs (1/3) Info**

Name	Network ACL ID	Associated with	Default	VPC ID	In
-	acl-04eb90bcc80701843	6 Subnets	Yes	vpc-0918d4dfbc1a526ec	21
<b>PrivateSubnetNACL</b>	acl-0aa34c7470a7b4791	2 Subnets	No	vpc-098f490844d69d410 / ATranVPC-vpc	31
-	acl-0a0d80e7f579ceaad	2 Subnets	Yes	vpc-098f490844d69d410 / ATranVPC-vpc	21

acl-0aa34c7470a7b4791 / PrivateSubnetNACL

Details Inbound rules Outbound rules Subnet associations Tags

Details

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## HealthCheck

The screenshot shows the AWS Management Console with the URL <https://us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#TargetGroups>. The left sidebar is collapsed, and the main content area displays the 'Target groups' page under the EC2 service. A single target group, 'WebServerTarget', is listed in the table.

Name	ARN	Port	Protocol	Target type	Load balancer	VPC ID
WebServerTarget	arn:aws:elasticloadbalancing:us-east-1:123456789012:targetgroup/WebServerTarget/555555555555	80	HTTP	Instance	WebServerBalancer	vpc-098f490844d9d410

A modal window titled 'Target group: WebServerTarget' is open, showing the 'Targets' tab selected. It lists three registered targets:

Instance ID	Name	Port	Zone	Health status	Health status details
i-0f5a2fd63805c7cfa		80	us-east-1b	healthy	<a href="#">View details</a>
i-014e47b6f180ef5...		80	us-east-1a	healthy	<a href="#">View details</a>
i-009b067a25642f...		80	us-east-1a	draining	<a href="#">View details</a>

At the bottom right of the modal, there are buttons for 'Deregister' and 'Register targets'.

A screenshot of a web browser window. The title bar says "Block public access to s3 objects". The address bar shows the URL "atranbucket.s3.amazonaws.com/Google\_2015\_logo.svg.png". Below the address bar is a navigation bar with links to "Learner Lab", "Network ACLs", "atranbucket.s3", "Assignment 2", "Assignment 2", "Photo Album", "ec2-44-216-1", "google logo", and other icons. Underneath the navigation bar, there are links to "Gmail", "YouTube", and "Maps". A main content area displays the following XML error message:

```
<Error>
  <Code>AccessDenied</Code>
  <Message>Access Denied</Message>
  <RequestId>X3HMHPHIRE7HAGM</RequestId>
  <HostId>l1fFK7DwghxkJnbjHyHX3jyZBxG+B+pfdKDY1lV8KCmup9Q6eCSoM1vhBc2iXOM42vdsc9g</HostId>
</Error>
```



## Metadata in phpmyadmin table

Learner Lab | Network ACLs | atranbucket.s | atranbucket.s | Assignment | Assignment 2 | Photo Album | ec2-44-216-1 | Google logo - | +

← → ⌂ Không báo lỗi | ec2-44-216-163-130.compute-1.amazonaws.com/phpmyadmin/sql.php?db=photoalbum&table=photo\_metadata&pos=0

Gmail YouTube Maps

**phpMyAdmin**

Recent | Favorites

Server: assignment2db.c0w6l7atl9r.us-east-1.rds.amazonaws.com | Database: photoalbum | Table: photo\_metadata

Browse Structure SQL Search Insert Export Import Privileges Operations Triggers

⚠ Current selection does not contain a unique column. Grid edit, checkbox, Edit, Copy and Delete features are not available.

Showing rows 0 - 0 (1 total). Query took 0.0013 seconds.

SELECT \* FROM `photo\_metadata`

Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]

Show all Number of rows: 25 Filter rows: Search this table

+ Options title description creationdate keywords reference

title description creationdate keywords reference

Google logo Logo của Google 2023-07-15 File ảnh https://atranbucket.s3.amazonaws.com/Google\_2015\_I...

Show all Number of rows: 25 Filter rows: Search this table

Query results operations Print Copy to clipboard Export Display chart Create view

Console

31°C Nắng rát rát

Search

10:37 15/07/2023

title	description	creationdate	keywords	reference
Google logo	Logo của Google	2023-07-15	File ảnh	https://atranbucket.s3.amazonaws.com/Google_2015_I...