

Cloud Computing Architecture- COS20019

Assignment 2

Student Name – ID: Le Xuan Nhat –

105169523

Contents

Create VPC	3
S3.....	4
Lambda.....	5
RDS.....	8
EC2 Instance.....	9
Create AMI	13
Create Target Group.....	14
Create Load Balancer.....	14
Create Launch Template.....	16
Create Auto Scaling Group	18
Security group.....	23
Network ACL	27
Additional Tests.....	29

Create VPC

Create VPC

VPC Management Console

https://us-east-1.console.aws.amazon.com/vpc/home?region=us-east-1#CreateVpc:createMode=vpcWithResources

Services Q Search [Alt+S]

N. Virginia v vodabs/user2555068=104169523@student.swin.edu.au @ 5329-4175...

VPC > Your VPCs > Create VPC

Create VPC info

A VPC is an isolated portion of the AWS Cloud populated by AWS objects, such as Amazon EC2 instances. Mouse over a resource to highlight the related resources.

VPC settings

Resources to create **Info**
Create only the VPC resource or the VPC and other networking resources.
 VPC only VPC and more

Name tag auto-generation **Info**
Enter a value for the Name tag. This value will be used to auto-generate Name tags for all resources in the VPC.
 Auto-generate
NLeVPC

IPv4 CIDR block **Info**
Determine the starting IP and the size of your VPC using CIDR notation.
10.0.0.0/16 65,536 IPs

IPv6 CIDR block **Info**
 No IPv6 CIDR block Amazon-provided IPv6 CIDR block

Tenancy **Info**
Default

Number of Availability Zones (AZs) **Info**
Choose the number of AZs in which to provision subnets. We recommend at least two AZs for high availability.
1 2 3

► Customize AZs

Number of public subnets **Info**
This is the number of public subnets to add to your VPC. This number can't be less than four.

CloudShell Feedback Language

© 2023, Amazon Web Services, Inc. or its affiliates. Privacy Terms Cookie preferences

Change the subnet to match the architecture diagram. Create NAT gateway so we do not have to do that later.

VPC Management Console

https://us-east-1.console.aws.amazon.com/vpc/home?region=us-east-1#CreateVpc:createMode=vpcWithResources

Services Q Search [Alt+S]

N. Virginia v vodabs/user2555068=104169523@student.swin.edu.au @ 5329-4175...

VPC > Your VPCs > Create VPC

Create VPC info

A VPC is an isolated portion of the AWS Cloud populated by AWS objects, such as Amazon EC2 instances. Mouse over a resource to highlight the related resources.

VPC settings

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.
None In 1 AZ 1 per AZ

VPC endpoints **Info**
Endpoints can help reduce NAT gateway charges and improve security by accessing S3 directly from the VPC. By default, full access policy is used. You can customize this policy at any time.
None S3 Gateway

DNS options **Info**
 Enable DNS hostnames Enable DNS resolution

► Additional tags

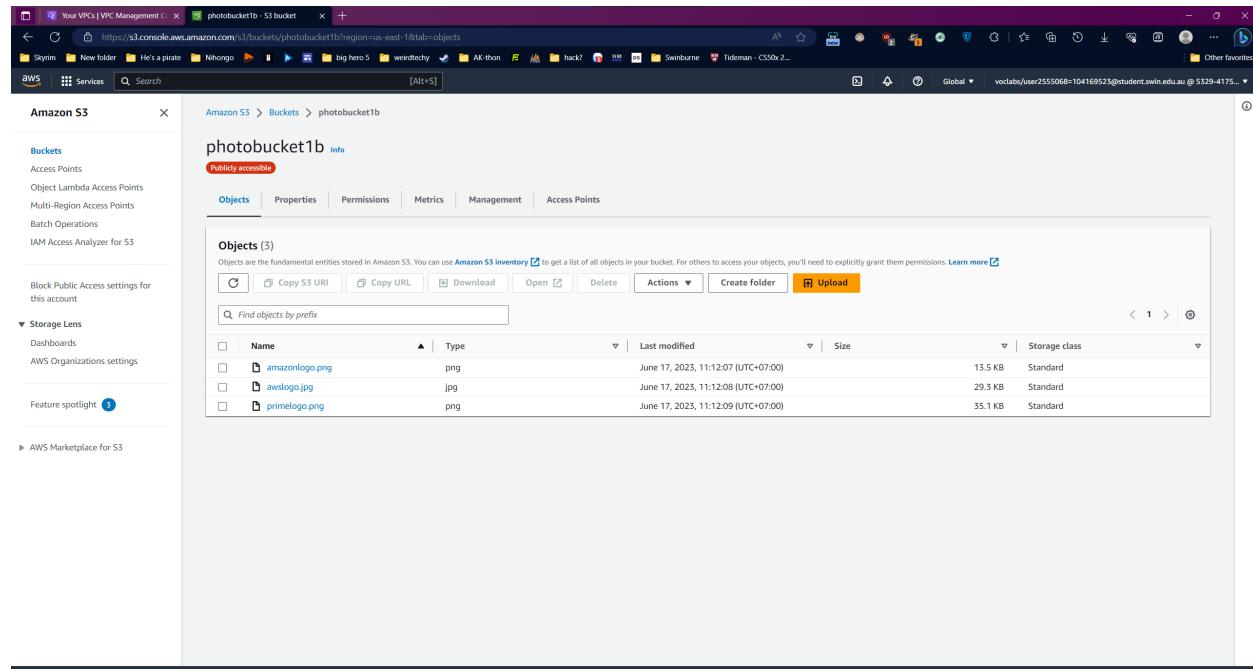
Create VPC

CloudShell Feedback Language

© 2023, Amazon Web Services, Inc. or its affiliates. Privacy Terms Cookie preferences

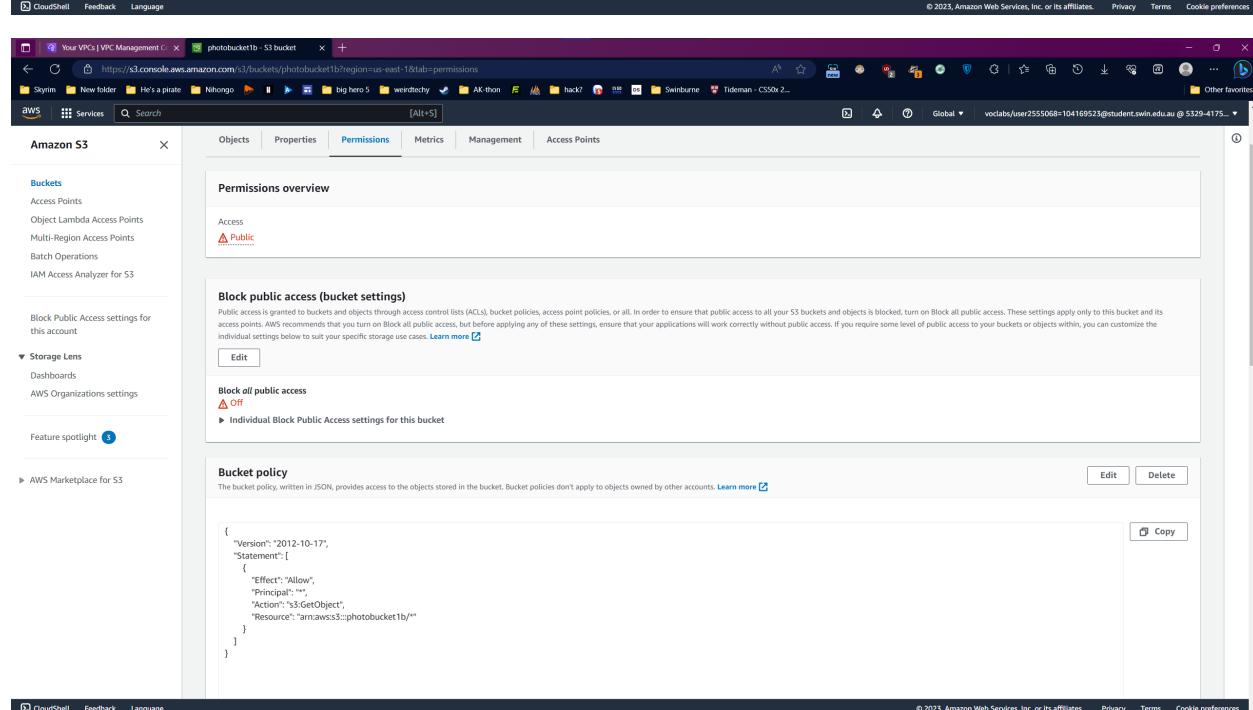
S3

Reuse old photobucket1b



The screenshot shows the AWS S3 console interface for the photobucket1b bucket. The left sidebar includes links for Buckets, Storage Lens, and Feature spotlight. The main content area displays three objects: amazonlogo.png, awslogo.jpg, and primelemon.png. The table below provides details about these files:

Name	Type	Last modified	Size	Storage class
amazonlogo.png	png	June 17, 2023, 11:12:07 (UTC+07:00)	13.5 KB	Standard
awslogo.jpg	jpg	June 17, 2023, 11:12:08 (UTC+07:00)	29.3 KB	Standard
primelemon.png	png	June 17, 2023, 11:12:09 (UTC+07:00)	55.1 KB	Standard



The screenshot shows the AWS S3 console interface for the photobucket1b bucket, specifically the Permissions tab. The left sidebar includes links for Buckets, Storage Lens, and Feature spotlight. The main content area displays the permissions overview, which shows "Public" access is enabled. It also shows the "Block public access (bucket settings)" section, where "Block all public access" is set to "Off". The "Bucket policy" section displays the following JSON policy:

```
{  
    "Version": "2012-10-17",  
    "Statement": [  
        {  
            "Effect": "Allow",  
            "Principal": "*",  
            "Action": "s3:GetObject",  
            "Resource": "arn:aws:s3:::photobucket1b/*"  
        }  
    ]  
}
```

Lambda

Create a function

The screenshot shows the 'Create function' wizard in the AWS Lambda console. The 'Basic information' section is active, showing fields for 'Function name' (set to 'CreateThumbnail'), 'Runtime' (set to 'Python 3.7'), and 'Architecture' (set to 'x86_64'). The 'Permissions' section shows the 'Change default execution role' button is expanded, with the 'Use an existing role' option selected and 'LabRole' chosen from the dropdown. The bottom of the screen shows standard AWS navigation links like CloudShell, Feedback, and Language.

Upload the zip file

The screenshot shows the 'CreateThumbnail' function details page. A green banner at the top indicates successful creation. The 'Function overview' section shows the function name 'CreateThumbnail', a description field, and a last modified time of '13 seconds ago'. The 'Code source' tab is selected, showing the code editor with a single line of Python code: 'return {"statusCode": 200, "body": json.dumps("Hello From Lambda")}'. The 'Test' dropdown menu is open, showing options to upload from 'zip file' or 'Amazon S3 location'. The bottom of the screen shows standard AWS navigation links like CloudShell, Feedback, and Language.

The screenshot shows the AWS Lambda function configuration interface. The main title is "CreateThumbnail". Below it, a message says "Successfully created the function CreateThumbnail. You can now change its code and configuration. To invoke your function with a test event, choose "Test". The "Function overview" section is expanded. A modal window titled "Upload a .zip file" is open, showing a file named "lambda-deployment-package.zip" (5.37 MB) selected for upload. The "Code source" tab is active, displaying the Lambda function code:

```
lambda_function.py
1 import json
2
3 def lambda_handler(event, context):
4     """event['bucketName'] = 'photobucket1b'
5     event['fileName'] = 'primeLogo.png'
6     context['responseCode'] = 200
7     context['body'] = json.dumps('Hello from Lambda!')"""
8
```

Test to see the resized image

The screenshot shows the "Test event" configuration page for the "CreateThumbnail" function. It displays a success message: "Successfully updated the function CreateThumbnail." The "Test event" section is active, showing a "Create new event" button. The "Event name" field contains "Test1". Under "Event sharing settings", "Private" is selected. The "Template - optional" field contains "hello-world". The "Event JSON" field contains the following JSON:

```
{"bucketName": "photobucket1b", "fileName": "primeLogo.png"}
```

The screenshot shows the AWS Lambda function configuration page for 'CreateThumbnail'. The 'Function overview' tab is selected. It displays the function name 'CreateThumbnail', which has no triggers or destinations. The 'Description' field is empty. The 'Last modified' time is '2 minutes ago'. The 'Function ARN' is 'arn:aws:lambda:us-east-1:532941750742:function:CreateThumbnail'. The 'Function URL' is 'Info'. Below the overview, there are tabs for 'Code', 'Test' (which is currently selected), 'Monitor', 'Configuration', 'Aliases', and 'Versions'. A green success message at the top states 'Successfully updated the function CreateThumbnail.' Under the 'Test' tab, it says 'Executing function: succeeded (logs)' and provides a 'Details' link. A 'Test event' section allows creating a new event with a 'Create new event' button and a 'Test' button.

The resize is real

The screenshot shows the AWS S3 console for the 'photobucket1b' bucket. The 'Objects' tab is selected, showing four objects: 'amazonlogo.png', 'awslogo.jpg', 'primelogo.png', and 'resized-primeLogo.png'. The table includes columns for Name, Type, Last modified, Size, and Storage class. All objects are in the 'Standard' storage class. The last modified date for 'resized-primeLogo.png' is 'July 16, 2023, 16:43:26 (UTC+07:00)'. The screenshot also shows the left sidebar with navigation links like 'Buckets', 'Storage Lens', and 'Feature spotlight'.

Name	Type	Last modified	Size	Storage class
amazonlogo.png	png	June 17, 2023, 11:12:07 (UTC+07:00)	13.5 KB	Standard
awslogo.jpg	jpg	June 17, 2023, 11:12:08 (UTC+07:00)	29.3 KB	Standard
primelogo.png	png	June 17, 2023, 11:12:09 (UTC+07:00)	35.1 KB	Standard
resized-primeLogo.png	png	July 16, 2023, 16:43:26 (UTC+07:00)	14.9 KB	Standard

RDS

Use the old database

The screenshot shows the AWS RDS Management Console. A green banner at the top indicates a successful modification of a subnet group. Below it, a blue banner introduces Aurora I/O-Optimized. The main area displays a table of databases, with one entry for 'database-1' shown. The table includes columns for DB Identifier, Status, Role, Engine, Region & AZ, Size, Actions, CPU, Current activity, Maintenance, VPC, and Multi-AZ. The database 'database-1' is listed as 'Backing-up' on the 'us-east-1a' instance, MySQL Community engine, db.t3.micro size, and vpc-08d26ac150279c10 VPC.

Add the 2 private subnet

The screenshot shows the 'Add subnets' step in the RDS Management Console. It starts with a 'Description' field containing 'Created from the RDS Management Console'. Below it, an 'Availability Zones' section allows selecting subnets from different zones. Two subnets are selected: 'us-east-1a' and 'us-east-1b'. In the 'Subnets' section, two specific subnets are chosen: 'subnet-0e6341c4770e7de0a (10.0.4.0/24)' and 'subnet-03e5b4a7dfb9beb34 (10.0.3.0/24)'. A note states that for Multi-AZ DB clusters, three subnets must be selected from three different Availability Zones. The 'Subnets selected (2)' table lists the chosen subnets with their Availability zone, Subnet ID, and CIDR block. At the bottom right are 'Cancel' and 'Save' buttons.

EC2 Instance

Create Dev Server:

Name, Linux 2 AMI

The screenshot shows the 'Name and tags' step of the AWS EC2 Launch Instance wizard. The 'Name' field contains 'DevServer'. The 'Number of instances' dropdown is set to 1. The 'Software Image (AMI)' section shows 'Amazon Linux 2 Kernel 5.10 AMI...' and 'ami-04823729c75214919'. The 'Virtual server type (instance type)' is 't2.micro' and the 'Firewall (security group)' is 'DevA2'. Under 'Storage (volumes)', it says '1 volume(s) - 8 GiB'. A tooltip for the 'Free tier' information states: 'Free tier for first 72 hours of t2.micro (or t3.micro) in the Regions in which t2.micro is unavailable'.

Name and tags

Name: DevServer

Application and OS Images (Amazon Machine Image)

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

Quick Start

Amazon Linux AWS macOS Ubuntu Windows Red Hat SUSE Linux

Amazon Machine Image (AMI)

Amazon Linux 2 AMI (HVM, Kernel 5.10, SSD Volume Type) ami-04823729c75214919 (64-bit (x86)) / ami-065d498933678065 (64-bit (Arm)) Virtualization type: HVM

Description

Amazon Linux 2 Kernel 5.10 AMI 2.0.20230628.0 x86_64 HVM gp2

Architecture: 64-bit (x86) AMI ID: ami-04823729c75214919 Verified provider

Summary

Number of instances: 1

Software Image (AMI): Amazon Linux 2 Kernel 5.10 AMI...
ami-04823729c75214919

Virtual server type (instance type): t2.micro

Firewall (security group): DevA2

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

Free tier for first 72 hours of t2.micro (or t3.micro) in the Regions in which t2.micro is unavailable

Launch Instance

Choose the correct VPC:

The screenshot shows the 'Your VPCs | VPC Management' section of the AWS console. A tooltip for 'Free tier' is displayed, stating: '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 IOPS, 1 GB of snapshots, and 100 GiB of bandwidth to the internet.' The 'Launch instance' button is highlighted.

Security Group Dev A2, IAM LabProfile

The screenshot shows the 'Your VPCs | VPC Management' section of the AWS console. A tooltip for 'Free tier' is displayed, stating: '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 IOPS, 1 GB of snapshots, and 100 GiB of bandwidth to the internet.' The 'Launch instance' button is highlighted.

Setup PHP script:

The screenshot shows the AWS CloudShell interface. A terminal window is open with the following command history:

```
#!/bin/bash
yum update -y
amazon-linux-extras install -y lamp-mariadb10.2 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 6664 {} \;
echo "<?php echo '<h2>Welcome to COS80001. Installed PHP version:'. PHPVERSION . '</h2>'; ?>" > /var/www/html/phpinfo.php
```

To the right of the terminal, there is a summary pane for the instance configuration:

- Number of instances**: 1
- Software Image (AMI)**: Amazon Linux 2 Kernel 5.10 AMI... (ami-0482372975214919)
- Virtual server type (instance type)**: t2.micro
- Firewall (security group)**: DevA2
- 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.

At the bottom of the summary pane are buttons for **Cancel**, **Launch Instance** (highlighted in orange), and **Review commands**.

Add phpMyAdmin to WinSCP folder

The screenshot shows the AWS CloudShell interface with WinSCP running in a separate window. The WinSCP interface displays the following file transfer details:

Name	Size	Changed	Rights	Owner
...				
aws	2 KB	16/07/2023 17:26:29	rw-rw-r--	ec2-user
photobucket	16/07/2023 17:26:16		rw-rw-r--	ec2-user
phpMyAdmin	16/07/2023 17:26:16		rw-rw-r--	ec2-user
phpMyAdmin	5.285 KB	14/07/2023 20:00:09	rw-rw-r--	ec2-user
phpinfo.php	1 KB	16/07/2023 17:09:53	rw-r--r--	root
phpMyAdmin-4.8.2-en...	6.232 KB	22/06/2018 12:12:25	rw-rw-r--	ec2-user

The WinSCP interface also shows the file transfer progress for two files:

- 0 B of 16.3 MB in 0 of 12
- 0 B of 11.2 MB in 0 of 6

At the bottom of the WinSCP window, it shows SFTP-3 and 01407.

Success!

The screenshot shows the phpMyAdmin interface running on a Linux system. The top navigation bar includes links to EC2 Management Console, VPC Management, Database Details - RDS Manager, photobucket1 - S3 bucket, CreateThumbnail - Lambda, and other AWS services. The main menu has tabs for Databases, SQL, Status, User accounts, Export, Import, Settings, Binary log, Replication, Variables,Charsets, Engines, and Plugins.

General settings: Shows a 'Server connection collation' set to utf8mb4_unicode_ci.

Appearance settings: Includes a theme dropdown set to pmahomme, a font size selector at 82%, and a 'More settings' link.

Database server: Lists the server as database-1.cusminbgdqqa.us-east-1.rds.amazonaws.com via TCP/IP, with MySQL as the server type. It also lists SSL is not being used, Server version 8.0.28 - Source distribution, User: admin@10.0.2.166, and Server charset UTF-8 Unicode (utf8).

Web server: Lists Apache/2.4.57 (Ubuntu), Database client version libmysql - mysqlnd 5.0.12-dev - 20150407 - \$Id: 3591daad22de08524295e1bd073aceef11e6579\$, PHP extension mysqli, curl, mbstring, and PHP version 7.2.34.

phpMyAdmin: Version information: 4.8.2, latest stable version: 5.2.1. Links include Documentation, Official Homepage, Contribute, Get support, List of changes, and License.

Notices:

- A newer version of phpMyAdmin is available and you should consider upgrading. The newest version is 5.2.1 released on 2023-02-08.
- The phpMyAdmin configuration storage is not completely configured, some extended features have been deactivated. [Find out why](#) Or alternately go to 'Operations' tab of any database to set it up there.
- The configuration file now needs a secret passphrase (blowfish_secret).
- The \$cfg['TempDir'] (/tmp) is not accessible. phpMyAdmin is not able to cache templates and will be slow because of this.

Console: A small link at the bottom left.

Create AMI

The screenshot shows the AWS EC2 Management Console with the 'Create image' wizard open. The URL in the browser is <https://us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#CreateImageInstanceId=i-000926acfcaab0924>.

Create image info

An image (also referred to as an AMI) defines the programs and settings that are applied when you launch an EC2 instance. You can create an image from the configuration of an existing instance.

Instance ID: i-000926acfcaab0924 (DevServer)

Image name: DevImage

Image description - optional: dev server image

No reboot: Enable

Instance volumes:

Storage type	Device	Snapshot	Size	Volume type	IOPS	Throughput	Delete on termination	Encrypted
EBS	/dev/...	Create new snapshot fr...	8	EBS General Purpose S...	100	100	<input checked="" type="checkbox"/> Enable	<input type="checkbox"/> Enable

Add volume

Tags - optional: A tag is a label that you assign to an AWS resource. Each tag consists of a key and an optional value. You can use tags to search and filter your resources or track your AWS costs.

Tag image and snapshots together
Tag the image and the snapshots with the same tag.

Tag image and snapshots separately
Tag the image and the snapshots with different tags.

No tags associated with the resource.

© 2023, Amazon Web Services, Inc. or its affiliates. [Privacy](#) [Terms](#) [Cookie preferences](#)

Create Target Group

The screenshot shows the 'Create Target Group' wizard on the AWS Management Console. The target group name is 'targetgroupsg2'. The protocol is set to 'HTTP' on port '80'. The VPC selected is 'NtVPC-vcpc'. The protocol version is 'HTTP1'. The health check path is '/photosalbum/album.php'. The page includes sections for 'Target group name', 'Protocol', 'VPC', 'Protocol version', 'Health checks', and navigation links for 'CloudShell', 'Feedback', 'Language', and '© 2023, Amazon Web Services, Inc. or its affiliates. Privacy Terms Cookie preferences'.

Target group name
targetgroupsg2

Protocol Port
HTTP : 80

VPC
Select the VPC with the instances that you want to include in the target group.
NtVPC-vcpc
vpc-08d265e150279c10
IPv4: 10.0.0.0/16

Protocol version
 HTTP1
Send requests to targets using HTTP/1.1. Supported when the request protocol is HTTP/1.1 or HTTP/2.
 HTTP2
Send requests to targets using HTTP/2. Supported when the request protocol is HTTP/2 or gRPC, but gRPC-specific features are not available.
 gRPC
Send requests to targets using gRPC. Supported when the request protocol is gRPC.

Health checks
The associated load balancer periodically sends requests, per the settings below, to the registered targets to test their status.

Health check protocol
HTTP

Health check path
Use the default path of "/" to ping the root, or specify a custom path if preferred.
/photosalbum/album.php

Create Load Balancer

The screenshot shows the 'Create Application Load Balancer' wizard on the AWS Management Console. The basic configuration includes a load balancer name 'LBsg2', scheme 'Internet-facing', IP address type 'IPv4', and a selected VPC. The network mapping section indicates traffic routes to targets in selected subnets. The page includes sections for 'Basic configuration', 'Network mapping', and 'VPC info'. Navigation links for 'CloudShell', 'Feedback', 'Language', and '© 2023, Amazon Web Services, Inc. or its affiliates. Privacy Terms Cookie preferences' are also present.

Load balancer name
LBsg2

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.

Choose public IPs

The screenshot shows the AWS CloudFormation CreateALBWizard step. The current step is "Choose public IPs". The interface includes tabs for "Load balancers [EC2 Manager]" and "EC2 Management Console". The main content area displays the "Network mapping" configuration. It shows a VPC named "NLLeVPC" selected. Two Availability Zones are listed: "us-east-1a (use1-az1)" and "us-east-1b (use1-az2)". Each zone has a corresponding subnet and IPv4 address assigned by AWS. Below this, there is a "Security groups" section.

Choose Security group for Load Balancer

The screenshot shows the AWS CloudFormation CreateALBWizard step. The current step is "Choose Security group for Load Balancer". The interface includes tabs for "Load balancers [EC2 Manager]" and "EC2 Management Console". The main content area displays the "Security groups" configuration. A security group named "ELBA2_sg-01aeedee60da83a2ea" is selected. Below this, there is a "Listeners and routing" section where a listener for port 80 is configured to forward traffic to a target group named "targetgroupasg2". There are also sections for "Listener tags - optional" and "Add-on services - optional".

Create Launch Template

Screenshot of the AWS CloudShell interface showing the creation of a new Launch Template.

The main window displays the "Create launch template" configuration page. Key settings include:

- Software Image (AMI):** dev server image (ami-038cafaf039a98186)
- Virtual server type (instance type):** t2.micro
- Firewall (security group):** WebA2
- Storage (volumes):** 1 volume(s) - 8 GiB

A tooltip for the "Free tier" information is visible, stating: "In your first year includes 750 hours of t2.micro (or t3.micro in the Regions where it's unavailable) instance usage on free tier AMIs per month, 30 GiB of EBS storage, 2 million I/Os, 1 GB of snapshots, and 100 GB of bandwidth to the internet."

The "Launch template contents" section is expanded, showing the "Application and OS Images (Amazon Machine Image) - required" section. It lists the selected AMI: dev server image (ami-038cafaf039a98186).

The "Amazon Machine Image (AMI)" section shows the details for the selected AMI:
- DevImage: ami-038cafaf039a98186
- Date: 2023-07-16T10:54:23.000Z
- Virtualization: hvm
- ENA enabled: true
- Root device type: ebs

The "Description" field contains: dev server image.

The "Architecture" field shows: x86_64 and AMI ID: ami-038cafaf039a98186.

The "Instance type" section is partially visible at the bottom.

The bottom of the screen shows the CloudShell navigation bar and the AWS footer.

Create launch template | EC2 Management Console

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

Skymind New folder He's a pirate Nihongo big hero 5 weirdtechy AK-thon hack? S3 Database RDS Manager photobucket1b - S3 bucket CreateThumbnail - Lambda Photo Album

N. Virginia vectabs/user2555068=104169523@student.swin.edu.au @ 5329-4175...

Instance type

t2.micro

Family: t2 1 vCPU 1 GiB Memory Current generation: true

On-Demand Instances pricing: 0.0162 USD per Hour

On-Demand Spot Instances pricing: 0.0162 USD per Hour

On-Demand RHEL pricing: 0.0116 USD per Hour

On-Demand Linux pricing: 0.0116 USD per Hour

Key pair (login)

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: assign1a

Network settings

Subnet info: Don't include in launch template

Firewall (security groups) info: Select existing security group: WebA2

Security groups info: Select security groups: WebA2 sg-026982d8db0f6fb04 VPC: ipo-0x0d075ae150279c10

Advanced details

Purchasing option: Request Spot Instances

IAM instance profile: LabInstanceProfile arn:aws:iam::532941750742:instance-profile/LabInstanceProfile

Hostname type: Don't include in launch template

DNS Hostname: Enable resource-based IPv4 (A record) DNS requests Enable resource-based IPv6 (AAAA record) DNS requests

Instance auto-recovery: Don't include in launch template

Shutdown behavior: Don't include in launch template

Stop - Hibernate behavior: Don't include in launch template

Termination protection: Don't include in launch template

Stop protection: Don't include in launch template

Detailed CloudWatch monitoring: Enable

Summary

Software Image (AMI): dev server image ami-038ca6af039a981b6

Virtual server type (instance type): t2.micro

Firewall (security group): WebA2

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 GB of snapshots, and 100 GB of bandwidth to the internet.

Create launch template

Create Auto Scaling Group

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

Name

Auto Scaling group name
Enter a name to identify the group.

Must be unique to this account in the current Region and no more than 205 characters.

Launch template Info [Switch to launch configuration](#)

Launch template
Choose a launch template that contains the instance-level settings, such as the Amazon Machine Image (AMI), instance type, key pair, and security groups.
 [Edit](#) [Create](#)

Create a launch template [\[?\]](#)
Version
 [Edit](#) [Create](#)

Create a launch template version [\[?\]](#)

Description	Launch template	Instance type
-	Asg2Template Edit lt-098159712a895cbfa	t2.micro
AMI ID	ami-038ca6af039a98186	Request Spot Instances
Key pair name	assign1a	Security group IDs sg-026982edb0f68fb04

Additional details

Storage (volumes)

Date created	Sun Jul 16 2023 17:42:31 GMT+0700 (Indochina Time)
--------------	-------------------------------------------------------

Next

CloudShell Feedback Language

© 2023, Amazon Web Services, Inc. or its affiliates. Privacy Terms Cookie preferences

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.
 [Edit](#) [Create](#)

Create a VPC [\[?\]](#)

Availability Zones and subnets
Define which Availability Zones and subnets your Auto Scaling group can use in the chosen VPC.
 [Edit](#)

[Edit](#)

Create a subnet [\[?\]](#)

Instance type requirements Info [Override launch template](#)

You can keep the same instance attributes or instance type from your launch template, or you can choose to override the launch template by specifying different instance attributes or manually adding instance types.

Launch template	Version	Description
Asg2Template Edit lt-098159712a895cbfa	Default	-

Instance type
t2.micro

Next

CloudShell Feedback Language

© 2023, Amazon Web Services, Inc. or its affiliates. Privacy Terms Cookie preferences

Screenshot of the AWS CloudShell interface showing the creation of an Auto Scaling group.

Step 1: Choose launch template or configuration

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

Configure advanced options - optional

Integrate your Auto Scaling group with other services to distribute network traffic across multiple servers using a load balancer or to establish service-to-service communications using VPC Lattice. You can also set options that give you more control over health check replacements and monitoring.

Load balancing

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: targetgroup2 | HTTP Application Load Balancer: LBtag2

VPC Lattice integration options

To improve networking capabilities and scalability, integrate your Auto Scaling group with VPC Lattice. VPC Lattice facilitates communications between AWS services and helps you connect and manage your applications across compute services in AWS.

Create VPC Lattice service

No VPC Lattice service: VPC Lattice will not manage your Auto Scaling group's network access and connectivity with other services.

Attach to VPC Lattice service: Incoming requests associated with specified VPC Lattice target groups will be routed to your Auto Scaling group.

Create new VPC Lattice service

Health checks

Health checks increase availability by replacing unhealthy instances. When you use multiple health checks, all are evaluated, and if at least one fails, instance replacement occurs.

EC2 health checks

Always enabled

Additional health check types - optional

Turn on Elastic Load Balancing health checks: Recommended: Elastic Load Balancing monitors whether instances are available to handle requests. When it reports an unhealthy instance, EC2 Auto Scaling can replace it on its next periodic check.

Turn on VPC Lattice health checks: VPC Lattice monitors whether instances are available to handle requests. If it considers a target as failed a health check, EC2 Auto Scaling replaces it after its next periodic check.

Health check grace period

This time period delays the first health check until your instances finish initializing. It doesn't prevent an instance from terminating when placed into a non-running state.

300 seconds

Additional settings

Monitoring

Enable group metrics collection within CloudWatch

Default instance warmup

The amount of time that CloudWatch metrics for new instances do not contribute to the group's aggregated instance metrics, as their usage data is not reliable yet.

Enable default instance warmup

Buttons: Cancel, Skip to review, Previous, Next

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

Screenshot of the AWS EC2 Create Auto Scaling group wizard - Step 3: Configure group size and scaling policies.

The page title is "Create Auto Scaling group | EC2". The URL is "https://us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#CreateAutoScalingGroup".

Left sidebar navigation:

- Step 1: Choose launch template or configuration
- 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

Main content area:

Configure group size and scaling policies - *optional* Info

Set the desired, minimum, and maximum capacity of your Auto Scaling group. You can optionally add a scaling policy to dynamically scale the number of instances in the group.

Group size - *optional* Info

Specify the size of the Auto Scaling group by changing the desired capacity. You can also specify minimum and maximum capacity limits. Your desired capacity must be within the limit range.

Desired capacity:

Minimum capacity:

Maximum capacity:

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:

Metric type:

Bottom right corner: © 2023, Amazon Web Services, Inc. or its affiliates. [Privacy](#) [Terms](#) [Cookie preferences](#)

Screenshot of the AWS CloudShell interface showing the creation of an Auto Scaling group.

The main window displays the "Scaling policies - optional" step of the "Create Auto Scaling group" wizard. It includes fields for:

- Scaling policy name:** Target Tracking Policy
- Metric type:** Application Load Balancer request count per target
- Target group:** TGA2
- Target value:** 30
- Instances need:** 300 seconds warm up before including in metric

Below these, there is a section for "Instance scale-in protection - optional" with a checkbox for "Enable instance scale-in protection".

At the bottom of the main window are "Cancel", "Skip to review", "Previous", and "Next" buttons.

The sidebar on the left lists the steps of the wizard:

- Step 1: Choose launch template or configuration
- 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

The "Add tags - optional" step is currently active, showing a table for adding tags to instances. One tag is present:

Key	Value - optional	Action
Name	WebServer	<input checked="" type="checkbox"/> Tag new instances <input type="button" value="Remove"/>

At the bottom of this step are "Cancel", "Previous", and "Next" buttons.

Check Healthy:

Screenshot of the AWS CloudWatch Metrics Insights interface showing a query for CloudWatch Metrics Insights metrics. The results show two metrics: 'CloudWatch Metrics Insights Metrics' and 'CloudWatch Metrics Insights Metrics'. Both metrics have a value of 1.0000000000000001.

EC2 Management Console - Target groups

Target groups (1/1) Info

Name	ARN	Port	Protocol	Target type	Load balancer	VPC ID
TGA2	arn:aws:elasticloadbalancing:us-east-1:27908fd1ab5ba54f	80	HTTP	Instance	AS2ELB	vpc-0c8d26ac150279c10

Target group: TGA2

Details

Target type	Protocol : Port	Protocol version
Instance	HTTP: 80	HTTP1
IP address type	Load balancer	VPC
IPv4	AS2ELB	vpc-0c8d26ac150279c10

Total targets: 2 (Healthy: 2, Unhealthy: 0, Unused: 0)

Distribution of targets by Availability Zone (AZ)

Initial	Draining
0	0

Auto Scaling groups

Auto Scaling groups (1/1) Info

Name	Launch template/configuration	Instances	Status	Desired capacity	Min	Max	Availability Zones
ASasg2	LTA2 Version Default	2	-	2	2	3	us-east-1a, us-east-1b

Auto Scaling group: ASasg2

Instance management

Instances (2)

Instance ID	Lifecycle	Instance type	Weighted capacity	Launch template/c...	Availability Zone	Health status	Protected from
i-0591c5d6ff844a8e	InService	t2.micro	-	LTA2 Version 1	us-east-1b	Healthy	
i-084d7b932af303be	InService	t2.micro	-	LTA2 Version 1	us-east-1a	Healthy	

Lifecycle hooks (0) Info

Security group

Load Balancer:

The screenshot shows the AWS EC2 Management Console with the URL <https://us-east-1.console.aws.amazon.com/v2/home?region=us-east-1#SecurityGroups:sort=vpc-id>. The main pane displays a table of security groups, with one row for 'ELBA2' selected. A modal window titled 'Inbound security group rules successfully modified on security group (sg-01aeede60da83a2ea | ELBA2) > Details' is open, showing the modified inbound rules. The table has columns: Name, Security group ID, Security group name, VPC ID, Description, Owner, Inbound rules count, and Outbound rules count. The 'Inbound rules' section shows three entries: 'sg-02dfccbd75ae3f98' (DBSGA2), 'sg-0d5c6a4cb5553af09' (DevA2), and 'sg-026982edb0f68fb04' (WebA2). The 'Description' column for DevA2 and WebA2 indicates they are for the RDS instance and Dev server respectively.

The screenshot shows the AWS EC2 Management Console with the URL <https://us-east-1.console.aws.amazon.com/v2/home?region=us-east-1#SecurityGroups:sort=vpc-id>. The main pane displays a table of security groups, with one row for 'WebA2' selected. A modal window titled 'Inbound security group rules successfully modified on security group (sg-026982edb0f68fb04 | WebA2) > Details' is open, showing the modified inbound rules. The table has columns: Name, Security group rule..., IP version, Type, Protocol, Port range, Source, and Description. The 'Inbound rules' section shows four entries: 'sg-0b7b62e4a874b3...', 'sg-0c17279939619f9e', and 'sg-0f9ca0005a94796f' (all TCP), plus a new entry for 'sg-01aeede60da83a2ea' (ELBA2). The 'Description' column for the first three entries indicates they are for the RDS instance, Dev server, and all the web servers respectively.

Web security:

Screenshot of the AWS EC2 Management Console showing the Security Groups page. The page displays a list of security groups, including their names, VPC IDs, descriptions, owners, and rule counts.

Name	Security group ID	Security group name	VPC ID	Description	Owner	Inbound rules count	Outbound rules count
sg-04a893f09a0fb601e	vpc-0952ba1f13c8c5c06	default	vpc-0cd2d26ac150279c10	default VPC security gr...	532941750742	1 Permission entry	1 Permission entry
sg-02fcfc0cd75ae3f98	vpc-0cd2d26ac150279c10	DBSGA2	vpc-0cd2d26ac150279c10	for the RDS instance	532941750742	1 Permission entry	1 Permission entry
sg-0d5c6a4cb5553af09	vpc-0cd2d26ac150279c10	DevA2	vpc-0cd2d26ac150279c10	for the Dev server	532941750742	1 Permission entry	1 Permission entry
sg-03576d713bd7f92a	vpc-0cd2d26ac150279c10	default	vpc-0cd2d26ac150279c10	default VPC security gr...	532941750742	1 Permission entry	1 Permission entry
sg-01aeed60da3a2ea	vpc-0cd2d26ac150279c10	ELBA2	vpc-0cd2d26ac150279c10	for the ELB created ab...	532941750742	3 Permission entries	3 Permission entries
sg-026982edb0f68fb04	vpc-0cd2d26ac150279c10	WebA2	vpc-0cd2d26ac150279c10	for all the web servers ...	532941750742	3 Permission entries	3 Permission entries

The selected security group is WebA2. Below the table, there is a message about network connectivity and a "Run Reachability Analyzer" button. The "Outbound rules" section shows three rules:

Name	Security group rule...	IP version	Type	Protocol	Port range	Destination	Description
sgr-06ba96649b218...	IPv4	All TCP	TCP	0 - 65535	0.0.0.0/0	-	
sgr-07efcf9ef0cbe9257	IPv4	HTTP	TCP	80	0.0.0.0/0	-	
sgr-0af7e1a02199c3f53	IPv4	HTTPS	TCP	443	0.0.0.0/0	-	

Screenshot of the AWS EC2 Management Console showing the Security Groups page. The page displays a list of security groups, including their names, VPC IDs, descriptions, owners, and rule counts.

Name	Security group ID	Security group name	VPC ID	Description	Owner	Inbound rules count	Outbound rules count
sg-04a893f09a0fb601e	vpc-0952ba1f13c8c5c06	default	vpc-0cd2d26ac150279c10	default VPC security gr...	532941750742	1 Permission entry	1 Permission entry
sg-02fcfc0cd75ae3f98	vpc-0cd2d26ac150279c10	DBSGA2	vpc-0cd2d26ac150279c10	for the RDS instance	532941750742	1 Permission entry	1 Permission entry
sg-0d5c6a4cb5553af09	vpc-0cd2d26ac150279c10	DevA2	vpc-0cd2d26ac150279c10	for the Dev server	532941750742	1 Permission entry	1 Permission entry
sg-03576d713bd7f92a	vpc-0cd2d26ac150279c10	default	vpc-0cd2d26ac150279c10	default VPC security gr...	532941750742	1 Permission entry	1 Permission entry
sg-01aeed60da3a2ea	vpc-0cd2d26ac150279c10	ELBA2	vpc-0cd2d26ac150279c10	for the ELB created ab...	532941750742	3 Permission entries	3 Permission entries
sg-026982edb0f68fb04	vpc-0cd2d26ac150279c10	WebA2	vpc-0cd2d26ac150279c10	for all the web servers ...	532941750742	3 Permission entries	3 Permission entries

The selected security group is WebA2. Below the table, there is a message about network connectivity and a "Run Reachability Analyzer" button. The "Inbound rules" section shows three rules:

Name	Security group rule...	IP version	Type	Protocol	Port range	Source	Description
sgr-045ce4ecfd8f5db6	IPv4	All TCP	TCP	0 - 65535	0.0.0.0/0	-	
sgr-096505ad8d1fec011	IPv4	HTTP	TCP	80	0.0.0.0/0	-	
sgr-0ed5cd89cb635be	IPv4	HTTPS	TCP	443	0.0.0.0/0	-	

Dev Server:

Inbound security group rules successfully modified on security group (sg-0d5c6a4cb5553af09 | DevA2)

Security Groups (1/6) Info

Name	Security group ID	Security group name	VPC ID	Description	Owner	Inbound rules count	Outbound rules count
sg-0d5c6a4cb5553af09	vpc-0cd8d26ac150279c10	DevA2	vpc-0cd8d26ac150279c10	for the Dev server	532941750742	4 Permission entries	1 Permission entry
sg-04893f050a0fb601e	vpc-0952ba1ff13c8c5c06	default	vpc-0952ba1ff13c8c5c06	default VPC security gr...	532941750742	1 Permission entry	1 Permission entry
sg-020fcfc0bd75ae3f98	vpc-0cd8d26ac150279c10	DBSGA2	vpc-0cd8d26ac150279c10	for the RDS instance	532941750742	1 Permission entry	1 Permission entry
sg-01aeed6e0da3a2ea	vpc-0cd8d26ac150279c10	ELBA2	vpc-0cd8d26ac150279c10	for the ELB created ab...	532941750742	3 Permission entries	3 Permission entries
sg-026982edb0f68fb04	vpc-0cd8d26ac150279c10	WebA2	vpc-0cd8d26ac150279c10	for all the web servers ...	532941750742	3 Permission entries	3 Permission entries

You can now check network connectivity with Reachability Analyzer

Inbound rules (4)

Name	Security group rule...	IP version	Type	Protocol	Port range	Source	Description
sgr-020a6f20b24bf1f22	IPv4	HTTP	TCP	80	0.0.0.0/0	-	
sgr-0046bb8f91e58de9	IPv4	SSH	TCP	22	0.0.0.0/0	-	
sgr-0082cc23796189e1a	IPv4	All TCP	TCP	0 - 65535	0.0.0.0/0	-	
sgr-035b5d6a2b45a3cf	IPv4	HTTPS	TCP	443	0.0.0.0/0	-	

Outbound security group rules successfully modified on security group (sg-0d5c6a4cb5553af09 | DevA2)

Security Groups (1/6) Info

Name	Security group ID	Security group name	VPC ID	Description	Owner	Inbound rules count	Outbound rules count
sg-0d5c6a4cb5553af09	vpc-0cd8d26ac150279c10	DevA2	vpc-0cd8d26ac150279c10	for the Dev server	532941750742	4 Permission entries	4 Permission entries
sg-04893f050a0fb601e	vpc-0952ba1ff13c8c5c06	default	vpc-0952ba1ff13c8c5c06	default VPC security gr...	532941750742	1 Permission entry	1 Permission entry
sg-020fcfc0bd75ae3f98	vpc-0cd8d26ac150279c10	DBSGA2	vpc-0cd8d26ac150279c10	for the RDS instance	532941750742	1 Permission entry	1 Permission entry
sg-01aeed6e0da3a2ea	vpc-0cd8d26ac150279c10	ELBA2	vpc-0cd8d26ac150279c10	for the ELB created ab...	532941750742	3 Permission entries	3 Permission entries
sg-026982edb0f68fb04	vpc-0cd8d26ac150279c10	WebA2	vpc-0cd8d26ac150279c10	for all the web servers ...	532941750742	3 Permission entries	3 Permission entries

You can now check network connectivity with Reachability Analyzer

Outbound rules (4)

Name	Security group rule...	IP version	Type	Protocol	Port range	Destination	Description
sgr-05b10e2556fd4c3	IPv4	All TCP	TCP	0 - 65535	0.0.0.0/0	-	
sgr-02765373dfe9d4b	IPv4	SSH	TCP	22	0.0.0.0/0	-	
sgr-06cb7019082b37...	IPv4	HTTP	TCP	80	0.0.0.0/0	-	
sgr-075f733d6aec02ba	IPv4	HTTPS	TCP	443	0.0.0.0/0	-	

RDS:

The screenshot shows two side-by-side views of the AWS EC2 Management Console, specifically the Security Groups section. Both views show the same configuration for an RDS instance named DBSGA2.

Top View (Outbound Rules):

Security Groups (1/6) - Info

Name	Security group ID	Security group name	VPC ID	Description	Owner	Inbound rules count	Outbound rules count
-	sg-04893f050fb601e	default	vpc-0952ba1f13c8c5c06	default VPC security gr...	532941750742	1 Permission entry	1 Permission entry
-	sg-03576d713bd7f92a	default	vpc-0cb026ac150279c10	default VPC security gr...	532941750742	1 Permission entry	1 Permission entry
-	sg-01aeed60da83a2ea	ELBA2	vpc-0cb026ac150279c10	for the ELB created ab...	532941750742	3 Permission entries	3 Permission entries
✓	sg-02fcfc0bd75ae3f98	DBSGA2	vpc-0cb026ac150279c10	for the RDS instance	532941750742	4 Permission entries	4 Permission entries
-	sg-0d5c6a4c5553a109	DevA2	vpc-0cb026ac150279c10	for the Dev server	532941750742	4 Permission entries	4 Permission entries
-	sg-026982edb0f68fb04	WebA2	vpc-0cb026ac150279c10	for all the web servers ...	532941750742	3 Permission entries	3 Permission entries

Inbound rules (4)

Name	Security group rule...	IP version	Type	Protocol	Port range	Source	Description
-	sgr-0533cc083c62152cd	IPv4	HTTP	TCP	80	0.0.0.0/0	-
-	sgr-06db775b188579...	IPv4	HTTPS	TCP	443	0.0.0.0/0	-
-	sgr-0b5d2890dc5ddce...	IPv4	MySQL/Aurora	TCP	3306	0.0.0.0/0	-
-	sgr-0aa0a805b6edd62a81	IPv4	All TCP	TCP	0 - 65535	0.0.0.0/0	-

Bottom View (Outbound Rules):

Security Groups (1/6) - Info

Name	Security group ID	Security group name	VPC ID	Description	Owner	Inbound rules count	Outbound rules count
-	sg-04893f050fb601e	default	vpc-0952ba1f13c8c5c06	default VPC security gr...	532941750742	1 Permission entry	1 Permission entry
-	sg-03576d713bd7f92a	default	vpc-0cb026ac150279c10	default VPC security gr...	532941750742	1 Permission entry	1 Permission entry
-	sg-01aeed60da83a2ea	ELBA2	vpc-0cb026ac150279c10	for the ELB created ab...	532941750742	3 Permission entries	3 Permission entries
✓	sg-02fcfc0bd75ae3f98	DBSGA2	vpc-0cb026ac150279c10	for the RDS instance	532941750742	4 Permission entries	4 Permission entries
-	sg-0d5c6a4c5553a109	DevA2	vpc-0cb026ac150279c10	for the Dev server	532941750742	4 Permission entries	4 Permission entries
-	sg-026982edb0f68fb04	WebA2	vpc-0cb026ac150279c10	for all the web servers ...	532941750742	3 Permission entries	3 Permission entries

Outbound rules (4)

Name	Security group rule...	IP version	Type	Protocol	Port range	Destination	Description
-	sgr-069887b8e78d40...	IPv4	MySQL/Aurora	TCP	3306	0.0.0.0/0	-
-	sgr-05070728226445...	IPv4	HTTPS	TCP	443	0.0.0.0/0	-
-	sgr-0269115d64f155...	IPv4	HTTP	TCP	80	0.0.0.0/0	-
-	sgr-00c83876fe6499bf	IPv4	All TCP	TCP	0 - 65535	0.0.0.0/0	-

Network ACL:

The screenshot shows the AWS VPC Network ACLs page. A success message at the top states: "You have successfully updated inbound rules for acl-02e338b1beee5eed0 / PrivateSubnetsNACL". The main table displays three Network ACL entries:

Name	Network ACL ID	Associated with	Default	VPC ID	Inbound rules count	Outbound rules count	Owner
act-0b6bcc63fb5d24e0a	4 Subnets	Yes	vpc-0c8d26ac150279c10 / NLvPC-vpc	2 Inbound rules	2 Outbound rules	532941750	
act-0912e4bfad15bb78c	6 Subnets	Yes	vpc-0952ba1f13c8c5c06	2 Inbound rules	2 Outbound rules	532941750	
PrivateSubnetsNACL	act-02e338b1beee5eed0	No	vpc-0c8d26ac150279c10 / NLvPC-vpc	3 Inbound rules	1 Outbound rule	532941750	

The "Inbound rules" tab is selected, showing three rules:

Rule number	Type	Protocol	Port range	Source	Allow/Deny
1	All ICMP - IPv4	ICMP (1)	All	0.0.0.0/0	<input checked="" type="radio"/> Deny
2	All traffic	All	All	0.0.0.0/0	<input checked="" type="radio"/> Allow
*	All traffic	All	All	0.0.0.0/0	<input checked="" type="radio"/> Deny

At the bottom right, there is a "Run Reachability Analyzer" button.

Network ACLs | VPC Manager

You have successfully updated outbound rules for acl-02e338b1abee5eed0 / PrivateSubnetsNACL

Network ACLs (1/3) Info

Name	Network ACL ID	Associated with	Default	VPC ID	Inbound rules count	Outbound rules count	Owner
acl-0b6bcc63fb5d24e0a	vpc-0c8d26ac150279c10 / NLeVPC-vpc	4 Subnets	Yes	2 Inbound rules	2 Outbound rules	532941750	
PrivateSubnetsNACL	acl-02e338b1abee5eed0	—	No	3 Inbound rules	3 Outbound rules	532941750	
acl-0912e4bfad15bb78c	vpc-0952baff13cb5c06	6 Subnets	Yes	2 Inbound rules	2 Outbound rules	532941750	

Details | Inbound rules | **Outbound rules** | Subnet associations | Tags

You can now check network connectivity with Reachability Analyzer

Outbound rules (3)

Rule number	Type	Protocol	Port range	Destination	Allow/Deny
1	All ICMP - IPv4	ICMP (1)	All	0.0.0.0/0	<input checked="" type="radio"/> Deny
2	All traffic	All	All	0.0.0.0/0	<input checked="" type="radio"/> Allow
*	All traffic	All	All	0.0.0.0/0	<input checked="" type="radio"/> Deny

CloudShell Feedback Language

You have successfully updated subnet associations for acl-02e338b1abee5eed0 / PrivateSubnetsNACL.

Network ACLs (1/3) Info

Name	Network ACL ID	Associated with	Default	VPC ID	Inbound rules count	Outbound rules count	Owner
acl-0b6bcc63fb5d24e0a	vpc-0c8d26ac150279c10 / NLeVPC-vpc	2 Subnets	Yes	2 Inbound rules	2 Outbound rules	532941750	
PrivateSubnetsNACL	acl-02e338b1abee5eed0	2 Subnets	No	3 Inbound rules	3 Outbound rules	532941750	
acl-0912e4bfad15bb78c	vpc-0952baff13cb5c06	6 Subnets	Yes	2 Inbound rules	2 Outbound rules	532941750	

Details | Inbound rules | Outbound rules | **Subnet associations** | Tags

Subnet associations (2)

Name	Subnet ID	Associated with	Availability Zone	IPv4 CIDR	IPv6 CIDR
NLeVPC-subnet-private2-us-east-1b	subnet-0e6341c4770e7de0a	acl-02e338b1abee5eed0 / PrivateSubn...	us-east-1b	10.0.4.0/24	—
NLeVPC-subnet-private1-us-east-1a	subnet-03e5b4a7dfb9beb34	acl-02e338b1abee5eed0 / PrivateSubn...	us-east-1a	10.0.3.0/24	—

Additional Tests:

S3 Bucket Policy to specific HTTP

The screenshot shows the 'Edit bucket policy' page for the 'photobucket1b' S3 bucket. The policy allows 'Allow' access for 'GetObject' and 'GetObjectVersion' actions on objects in the 'photobucket1a' bucket to principals matching the IP ranges '34.200.59.65/*' and '34.200.59.65/*'. The policy is versioned at '2023-07-16'.

```
1 ~ {  
2     "Version": "2023-07-16",  
3     "Statement": [  
4         {  
5             "Effect": "Allow",  
6             "Principal": "*",  
7             "Action": [  
8                 "s3:GetObject",  
9                 "s3:GetObjectVersion"  
10            ],  
11             "Resource": "arn:aws:s3:::photobucket1a/*",  
12             "Condition": [  
13                 {"StringLike": {  
14                     "aws:Referer": [  
15                         "http://a2elb-2033544481.us-east-1.elb.amazonaws.com/*",  
16                         "http://34.200.59.65/*"  
17                     ]  
18                 }  
19             }  
20         ]  
21     ]  
22 }
```

Check connection with Load balancer DNS:

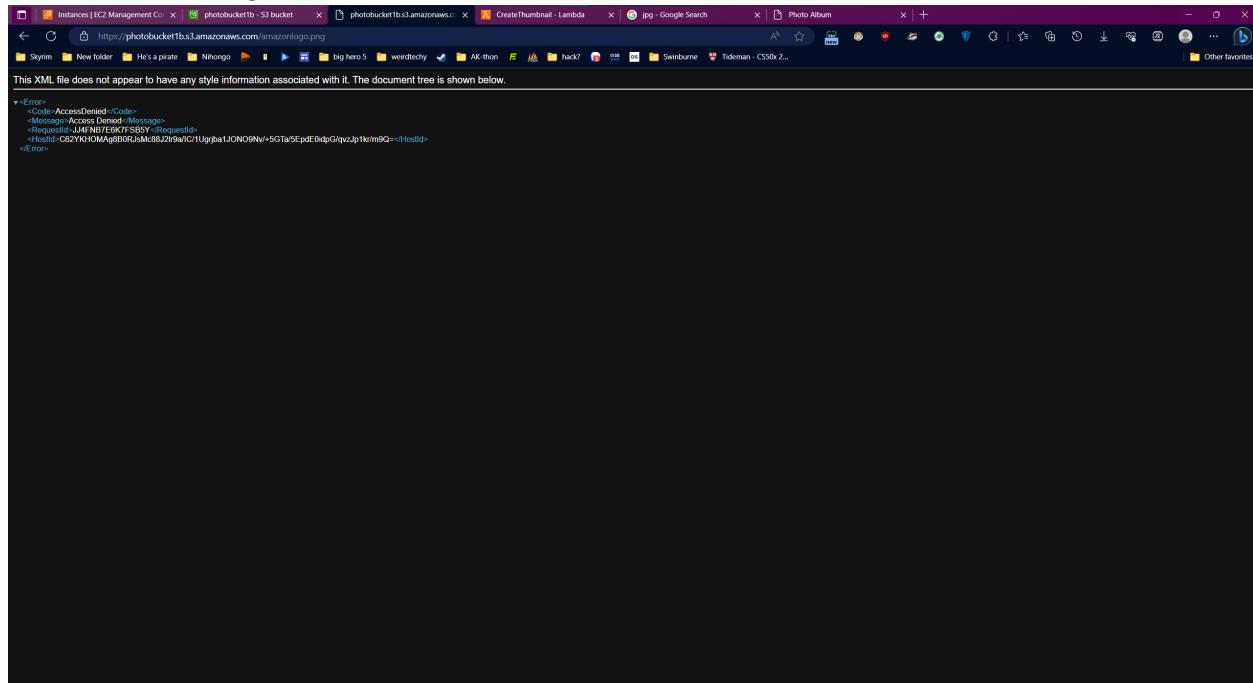
The screenshot shows a web browser displaying a successful connection to a load balancer endpoint. The URL is 'a2elb-2033544481.us-east-1.elb.amazonaws.com/photosallum/gallery.php'. The page displays a photo album with three images: 'ieee' (uploaded on 2023-07-16), 'test' (uploaded on 2023-07-06), and 'cat' (uploaded on 2023-07-15). The student information at the top of the page is: Student name: Xuan Nhat Le, Student ID: 104169523, and Tutorial session: Sat 09:15AM.

Student name: Xuan Nhat Le
Student ID: 104169523
Tutorial session: Sat 09:15AM

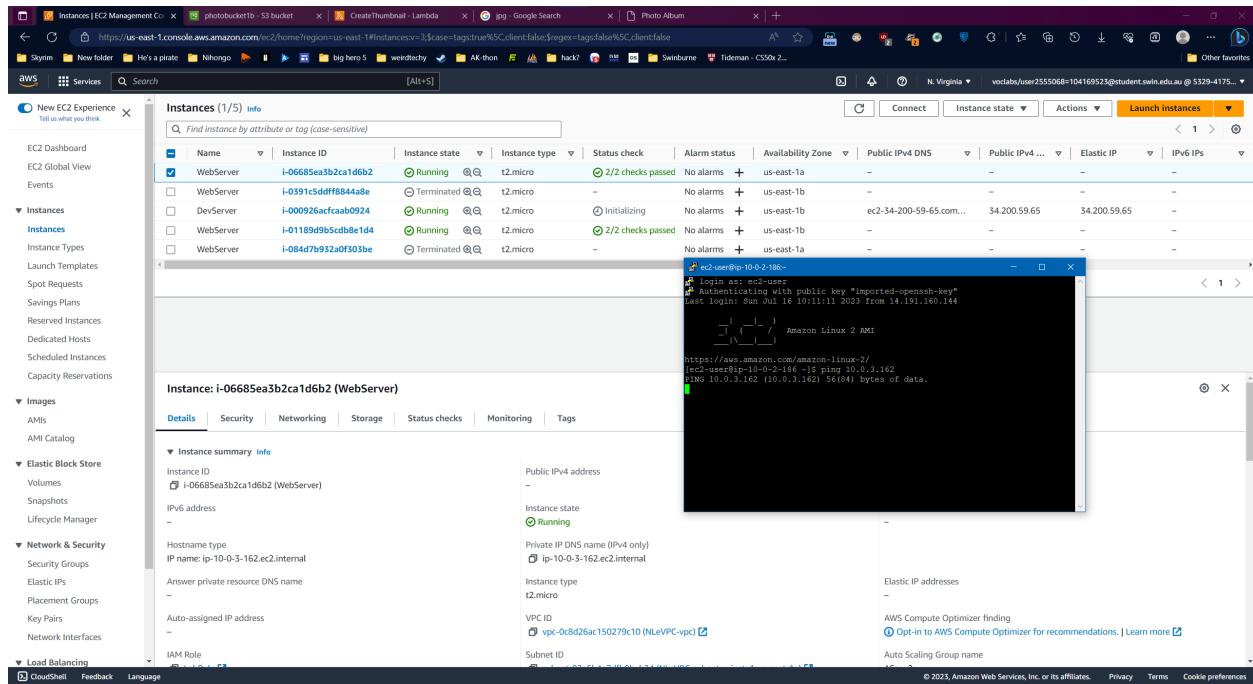
Uploaded photos:

Photo	Name	Description	Creation date	Keywords
	ieee	ieee	2023-07-16	ieee
	test	test	2023-07-06	test
	cat	cat	2023-07-15	cat

Direct link to S3 images does not work:



Cannot ping from elastic IP



Terminate instance to check.

The screenshot shows the AWS EC2 Instances page. A modal dialog titled "Terminate instance?" is displayed over the instance details. The dialog contains a warning message about terminating an EBS-backed instance and losing root EBS volume data. It asks for confirmation to proceed with termination. The "Terminate" button is highlighted in orange.

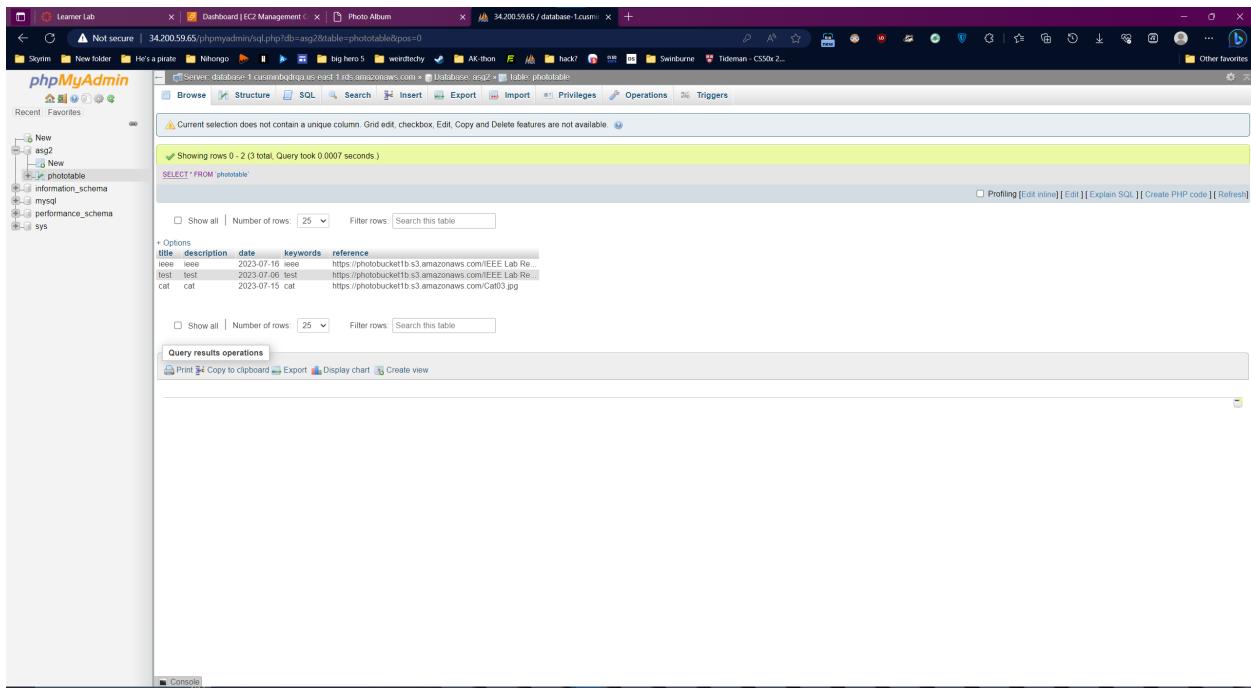
Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4 DNS	Public IPv4 IP	Elastic IP	IPv6 IPs
WebServer	i-06685ea3b2ca1d6b2	Terminated	t2.micro	-	No alarms	us-east-1a	-	-	-	-
WebServer	i-0391c5daff8844a8	Pending	t2.micro	-	No alarms	us-east-1a	-	-	-	-
DevServer	i-000926acfcaab0924	Running	t2.micro	2/2 checks passed	No alarms	us-east-1b	ec2-54-200-59-65.com...	34.200.59.65	34.200.59.65	-
WebServer	i-01189d9b5cd8e1d4	Running	t2.micro	2/2 checks passed	No alarms	us-east-1b	-	-	-	-
WebServer	i-084d7b932a0f503be	Terminated	t2.micro	-	No alarms	us-east-1a	-	-	-	-

Another one appear

The screenshot shows the AWS EC2 Instances page. A modal dialog titled "Terminate instance?" is displayed over the instance details. The dialog contains a warning message about terminating an EBS-backed instance and losing root EBS volume data. It asks for confirmation to proceed with termination. The "Terminate" button is highlighted in orange.

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4 DNS	Public IPv4 IP	Elastic IP	IPv6 IPs
WebServer	i-06685ea3b2ca1d6b2	Terminated	t2.micro	-	No alarms	us-east-1a	-	-	-	-
WebServer	i-0d0b0174f190b6b9c	Pending	t2.micro	-	No alarms	us-east-1a	-	-	-	-
WebServer	i-0391c5daff8844a8	Terminated	t2.micro	-	No alarms	us-east-1b	-	-	-	-
DevServer	i-000926acfcaab0924	Running	t2.micro	2/2 checks passed	No alarms	us-east-1b	ec2-54-200-59-65.com...	34.200.59.65	34.200.59.65	-
WebServer	i-01189d9b5cd8e1d4	Running	t2.micro	2/2 checks passed	No alarms	us-east-1b	-	-	-	-
WebServer	i-084d7b932a0f503be	Terminated	t2.micro	-	No alarms	us-east-1a	-	-	-	-

The database



Showing rows 0 - 2 (3 total). Query took 0.0007 seconds.

	title	description	date	keywords	reference
1	test	test	2023-07-10	test	https://photobucket1.s3.amazonaws.com/IEEE%20Lab%20-%20Test/test1.jpg
2	test	test	2023-07-09	test	https://photobucket1.s3.amazonaws.com/IEEE%20Lab%20-%20Test/test2.jpg
3	cat	cat	2023-07-15	cat	https://photobucket1.s3.amazonaws.com/Cat03.jpg

<http://34.200.59.65/phpmyadmin/index.php>

<http://34.200.59.65/photoalbum/album.php>

<http://as2elb-2033544481.us-east-1.elb.amazonaws.com/photoalbum/album.php>