



COURSE CODE: CSC 472

COURSE NAME: CLOUD COMPUTING

SECTION: 01

Assignment 2

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Steps:

1. Create a New VPC.

The screenshot shows the AWS VPC Management Console interface. The top navigation bar includes the AWS logo, a search bar, and the current region (N. Virginia). The left sidebar contains a navigation menu with categories like Virtual private cloud, Security, DNS firewall, and Network Firewall. The main content area displays the details for a VPC named 'vpc-0d2490b4b30bd818b / assingment_vpc'. The details section includes fields for VPC ID, State (Available), Tenancy (Default), DHCP option set, IPv4 CIDR (10.1.0.0/24), Route 53 Resolver DNS Firewall rule groups, DNS hostnames (Disabled), DNS resolution (Enabled), Main route table, IPv6 pool, Owner ID, and Network Address Usage metrics. Below the details is the 'Resource map' section, which provides a visual overview of the VPC resources and their relationships. The resource map includes a VPC box, two subnets (us-east-1a and us-east-1c), two route tables (rtb-05d206cd920e6baa1 and assingment_route_public), and one network connection (assingment_internet_gateway). A tooltip titled 'Introducing the VPC resource map' explains that solid lines represent relationships between resources in the VPC, while dotted lines represent network traffic to network functions. The bottom of the screenshot shows the Windows taskbar with various application icons and the system clock.



2. Create 2 public subnet in different region.

The screenshot shows the AWS Management Console interface for the 'us-east-1' region. The 'Subnets' page is active, displaying a list of 8 subnets. The subnets are organized into a table with columns for Name, Subnet ID, State, VPC, IPv4 CIDR, IPv6 CIDR, and Available IPv4 addresses. All subnets are in the 'Available' state. The 'Create subnet' button is located in the top right corner of the console.

Name	Subnet ID	State	VPC	IPv4 CIDR	IPv6 CIDR	Available IPv4 addresses
-	subnet-056c5e4c60a7e9514	Available	vpc-02184da8ed24a2987	172.31.64.0/20	-	4091
-	subnet-047d114461e7cabe8	Available	vpc-02184da8ed24a2987	172.31.80.0/20	-	4091
-	subnet-0d06f3f7dbbd08114	Available	vpc-02184da8ed24a2987	172.31.0.0/20	-	4091
-	subnet-087b2a664e220c54e	Available	vpc-02184da8ed24a2987	172.31.16.0/20	-	4091
assignment_subnet1_public	subnet-037dc16634434d08c	Available	vpc-0d2490b4b30bd818b assi...	10.1.0.0/26	-	55
assignment_subnet2_public	subnet-047a16cc5f25a55c2	Available	vpc-0d2490b4b30bd818b assi...	10.1.0.64/26	-	57
-	subnet-002c9ebf070f5a61a	Available	vpc-02184da8ed24a2987	172.31.48.0/20	-	4091
-	subnet-0f98e03aa9c8a1382	Available	vpc-02184da8ed24a2987	172.31.32.0/20	-	4091

us-east-1.console.aws.amazon.com/vpc/home?region=us-east-1#SubnetDetails:subnetId=subnet-037dc16634434d08c

us-east-1.console.aws.amazon.com/vpc/home?region=us-east-1#SubnetDetails:subnetId=subnet-037dc16634434d08c

subnet-037dc16634434d08c / assingment_subnet1_public

VPC dashboard

EC2 Global View

Filter by VPC:

Select a VPC

Virtual private cloud

Your VPCs

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

Network ACLs

Security groups

DNS firewall

Rule groups

Domain lists

Network Firewall

Details

Subnet ID	Subnet ARN	State	IPv4 CIDR
subnet-037dc16634434d08c	arn:aws:ec2:us-east-1:435301122970:subnet/subnet-037dc16634434d08c	Available	10.1.0.0/26
Available IPv4 addresses	IPv6 CIDR	Availability Zone	Availability Zone ID
55	-	us-east-1a	use1-az5
Network border group	VPC	Route table	Network ACL
us-east-1	vpc-0d2490b4b30bd818b assingment_vpc	rtb-070ac0c186fa1eb93 assingment_route_public	acl-0a61f2ea98593b4b6
Default subnet	Auto-assign public IPv4 address	Auto-assign IPv6 address	Auto-assign customer-owned IPv4 address
No	No	No	No
Customer-owned IPv4 pool	Outpost ID	IPv4 CIDR reservations	IPv6 CIDR reservations
-	-	-	-
IPv6-only	Hostname type	Resource name DNS A record	Resource name DNS AAAA record
No	IP name	Disabled	Disabled
DNS64	Owner		
Disabled	435301122970		

Flow logs

Find resources by attribute or tag

Name	Flow log ID	Filter	Destination type	Destination name	IAM role ARN
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us-east-1.console.aws.amazon.com/vpc/home?region=us-east-1#SubnetDetails:subnetId=subnet-047a16cc5f25a55c2

us-east-1.console.aws.amazon.com/vpc/home?region=us-east-1#SubnetDetails:subnetId=subnet-047a16cc5f25a55c2

subnet-047a16cc5f25a55c2 / assingment_subnet2_public

VPC dashboard

EC2 Global View

Filter by VPC:

Select a VPC

Virtual private cloud

Your VPCs

Subnets

Route tables

Internet gateways

Egress-only internet gateways

Carrier gateways

DHCP option sets

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Managed prefix lists

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Network ACLs

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Domain lists

Network Firewall

Details

Subnet ID	Subnet ARN	State	IPv4 CIDR
subnet-047a16cc5f25a55c2	arn:aws:ec2:us-east-1:435301122970:subnet/subnet-047a16cc5f25a55c2	Available	10.1.0.64/26
Available IPv4 addresses	IPv6 CIDR	Availability Zone	Availability Zone ID
57	-	us-east-1c	use1-az2
Network border group	VPC	Route table	Network ACL
us-east-1	vpc-0d2490b4b30bd818b assingment_vpc	rtb-070ac0c186fa1eb93 assingment_route_public	acl-0a61f2ea98593b4b6
Default subnet	Auto-assign public IPv4 address	Auto-assign IPv6 address	Auto-assign customer-owned IPv4 address
No	No	No	No
Customer-owned IPv4 pool	Outpost ID	IPv4 CIDR reservations	IPv6 CIDR reservations
-	-	-	-
IPv6-only	Hostname type	Resource name DNS A record	Resource name DNS AAAA record
No	IP name	Disabled	Disabled
DNS64	Owner		
Disabled	435301122970		

Flow logs

Find resources by attribute or tag

Name	Flow log ID	Filter	Destination type	Destination name	IAM role ARN
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3. Create route table and association those subnets

The screenshot shows the AWS Management Console interface for the 'Route tables' section. The left sidebar contains navigation links for VPC dashboard, EC2 Global View, and various VPC resources. The main content area displays a list of route tables. The 'assignment_route_public' route table is selected, showing its details and associated subnets.

Name	Route table ID	Explicit subnet associati...	Edge associations	Main	VPC	Owner ID
-	rtb-05d206cc920efbba1	-	-	Yes	vpc-0d2490b4b30bd818b assi...	435301122970
assignment_route_public	rtb-070ac0c186fa1eb93	2 subnets	-	No	vpc-0d2490b4b30bd818b assi...	435301122970
-	rtb-0d7a53b41e2906b55	6 subnets	-	Yes	vpc-02184da8ed24a2987	435301122970

Below the table, the details for the selected route table 'rtb-070ac0c186fa1eb93 / assignment_route_public' are shown. The details include the Route table ID, VPC, Main status, Explicit subnet associations, and Edge associations.

The screenshot shows the AWS Management Console interface for the 'Routes' section. The left sidebar contains navigation links for VPC dashboard, EC2 Global View, and various VPC resources. The main content area displays the details for the 'assignment_route_public' route table, with the 'Routes' tab selected. The 'Routes' tab shows a list of routes.

Destination	Target	Status	Propagated
0.0.0.0/0	igw-07887636015d4ef5c	Active	No
10.1.0.0/24	local	Active	No

The screenshot shows the AWS VPC Management Console interface. The left sidebar contains navigation links for VPC dashboard, EC2 Global View, and various VPC resources. The main content area displays the details for the route table 'rtb-070ac0c186fa1eb93 / assingment_route_public'. The 'Details' section shows the route table ID, VPC ID, and a list of explicit subnet associations. The 'Subnet associations' section shows two subnets associated with the route table: 'assignment_subnet1_public' and 'assignment_subnet2_public'.

Name	Subnet ID	IPv4 CIDR	IPv6 CIDR
assignment_subnet1_public	subnet-037dc16634434d08c	10.1.0.0/26	-
assignment_subnet2_public	subnet-047a16cc5f25a55c2	10.1.0.64/26	-

4. Create internet gateway and attach to this with our created VPC

The screenshot shows the AWS VPC Management Console interface. The left sidebar contains navigation links for VPC dashboard, EC2 Global View, and various VPC resources. The main content area displays the details for the internet gateway 'igw-07887636013d4ef5c / assignment_internet_gateway'. The 'Details' section shows the internet gateway ID, state (Attached), VPC ID, and owner. The 'Tags' section shows a single tag with the key 'Name' and value 'assignment_internet_gateway'.

Key	Value
Name	assignment_internet_gateway

5. Now see all the connections on VPC Route map

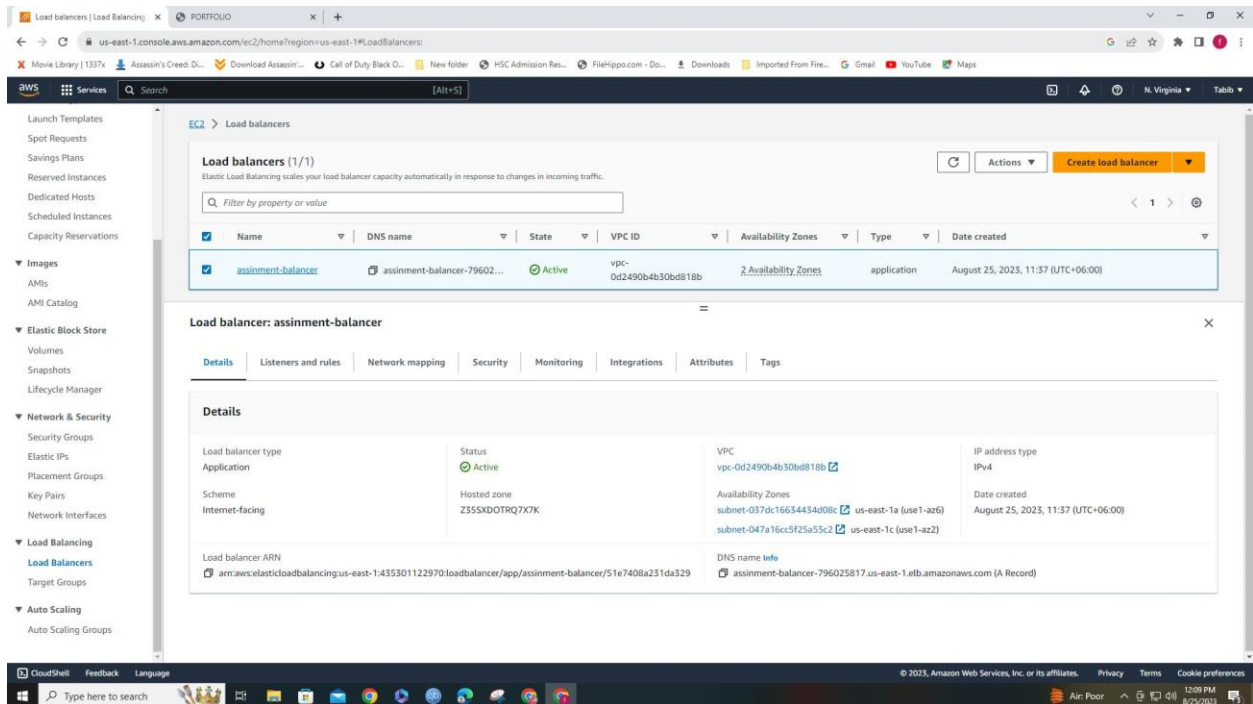


6. Create the Target group for Load Balancer

The screenshot shows the AWS Management Console for the 'assingment-target-group'. The details section indicates it is an Elastic Load Balancing target group in the us-east-1 region, associated with the 'Load balancer assingment-balancer' and VPC 'vpc-0d2490b4b30bc818b'. The status shows 4 total targets, all healthy. The 'Registered targets' table lists the following instances:

Instance ID	Name	Port	Zone	Health status	Health status details
i-06309c2bd5d3db66	server2autoscaling	80	us-east-1a	healthy	
i-0b29d0d7499f4c20a	server1autoscaling	80	us-east-1a	healthy	
i-0a1261dbfec920e9d	server1	80	us-east-1a	healthy	
i-00f0fe11e55f669f	server2	80	us-east-1c	healthy	

7. Create Two Ec2 instance for the load balancer and using those instance we create the load balancer.

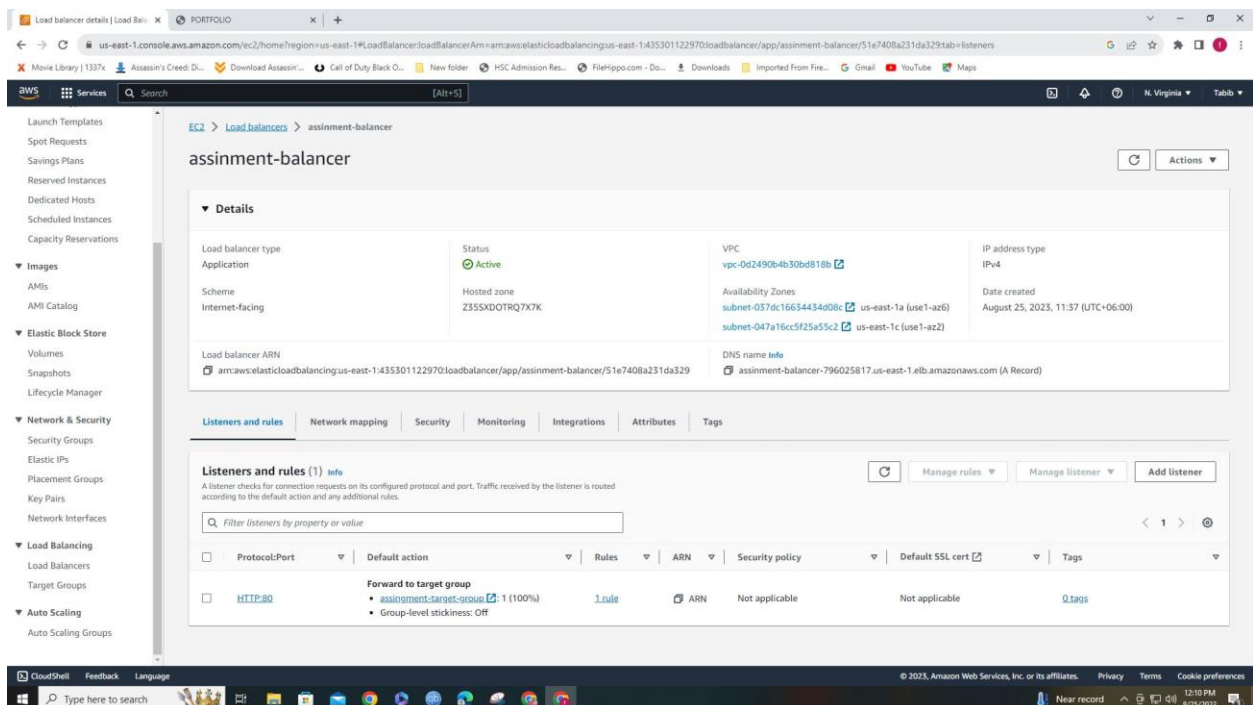


The screenshot shows the AWS Management Console interface for the 'Load balancers' section. The 'Load balancers (1/1)' table displays the following information:

Name	DNS name	State	VPC ID	Availability Zones	Type	Date created
assinment-balancer	assinment-balancer-79602...	Active	vpc-Od2490b4b30bd818b	2 Availability Zones	application	August 25, 2023, 11:37 (UTC+06:00)

The 'Details' tab for the 'assinment-balancer' load balancer shows the following configuration:

- Load balancer type:** Application
- Status:** Active
- Scheme:** Internet-facing
- Hosted zone:** Z355XDOTRQ7X7K
- VPC:** vpc-Od2490b4b30bd818b
- Availability Zones:** subnet-037dc16634434d08c (us-east-1a), subnet-047a16cc5f25a55c2 (us-east-1c)
- IP address type:** IPv4
- Date created:** August 25, 2023, 11:37 (UTC+06:00)
- Load balancer ARN:** arn:aws:elasticloadbalancing:us-east-1:435301122970:loadbalancer/app/assinment-balancer/51e7408a231da329
- DNS name:** assinment-balancer-796025817.us-east-1.elb.amazonaws.com (A Record)



The screenshot shows the 'Listeners and rules' page for the 'assinment-balancer' load balancer. The 'Listeners and rules (1)' table displays the following information:

Protocol/Port	Default action	Rules	ARN	Security policy	Default SSL cert	Tags
HTTP:80	Forward to target group <ul style="list-style-type: none">assinment-target-group (100%)Group-level stickiness: Off	1 rule	ARN	Not applicable	Not applicable	0 tags

8. Create template for those two Ec2 instance

The screenshot shows the AWS Management Console 'Launch templates' page. The 'saerver1_template' is selected, and its details are displayed. The console shows the following information:

- Launch templates (1/3)**
- Launch template details**
 - Launch template ID: lt-053624d7e01f35e3a
 - Launch template name: saerver1_template
 - Default version: 1
 - Owner: arn:aws:iam::435301122970:root
- Launch template version details**
 - Version: 1 (Default)
 - Description: server 1
 - Date created: 2023-08-25T05:38:56.000Z
 - Created by: arn:aws:iam::435301122970:root
- Instance details**
 - AMI ID: ami-08a528db321b32ab6
 - Instance type: t2.micro
 - Availability Zone: -
 - Key pair name: -
 - Security groups: sg-022ba988cf5f082a2

The screenshot shows the AWS Management Console 'Launch templates' page. The 'server2_template' is selected, and its details are displayed. The console shows the following information:

- Launch templates (1/3)**
- Launch template details**
 - Launch template ID: lt-02c86dac91017c7ff
 - Launch template name: server2_template
 - Default version: 1
 - Owner: arn:aws:iam::435301122970:root
- Launch template version details**
 - Version: 1 (Default)
 - Description: server 2
 - Date created: 2023-08-25T05:39:47.000Z
 - Created by: arn:aws:iam::435301122970:root
- Instance details**
 - AMI ID: ami-08a528db321b32ab6
 - Instance type: t2.micro
 - Availability Zone: -
 - Key pair name: -
 - Security groups: sg-022ba988cf5f082a2

9. Using those templates now we created two auto scaling group for manage the auto scaling easily and we also add our load balancer on auto scaling.

The image displays two screenshots of the AWS Management Console, specifically the 'Auto Scaling groups' page in the 'us-east-1' region. The first screenshot shows the 'assignment_server1' group, and the second shows the 'assignment_server2' group. Both groups are configured with a 'server1_template' or 'server2_template' launch template, a desired capacity of 1, and a minimum/maximum capacity of 1/3. They are associated with the 'sa-0228be988cf5f082e' security group and the 't2.micro' instance type. The groups are created on August 25, 2023, at 11:43:11 GMT+0600 (Bangladesh Standard Time).

Auto Scaling group: assignment_server1

Name	Launch template/configuration	Instances	Status	Desired capacity	Min	Max	Availability Zones
assignment_server2	server2_template Version Default	1	-	1	1	3	us-east-1a, us-east-1c
assignment_server1	saerver1_template Version Default	1	-	1	1	3	us-east-1a, us-east-1c

Auto Scaling group: assignment_server1

Group details

Auto Scaling group name	Desired capacity	Status	Amazon Resource Name (ARN)
assignment_server1	1	-	arn:aws:autoscaling:us-east-1:435301122970:autoScalingGroup:6939d02-d654-4437-8d49-70c708e61147:autoScalingGroupname/assignment_server1

Launch template

Launch template	AMI ID	Instance type	Owner
lt-053624d7a01f35e3a saerver1_template	ami-08a52ddb321b32a0c	t2.micro	arn:aws:iam::435301122970:root

Auto Scaling group: assignment_server2

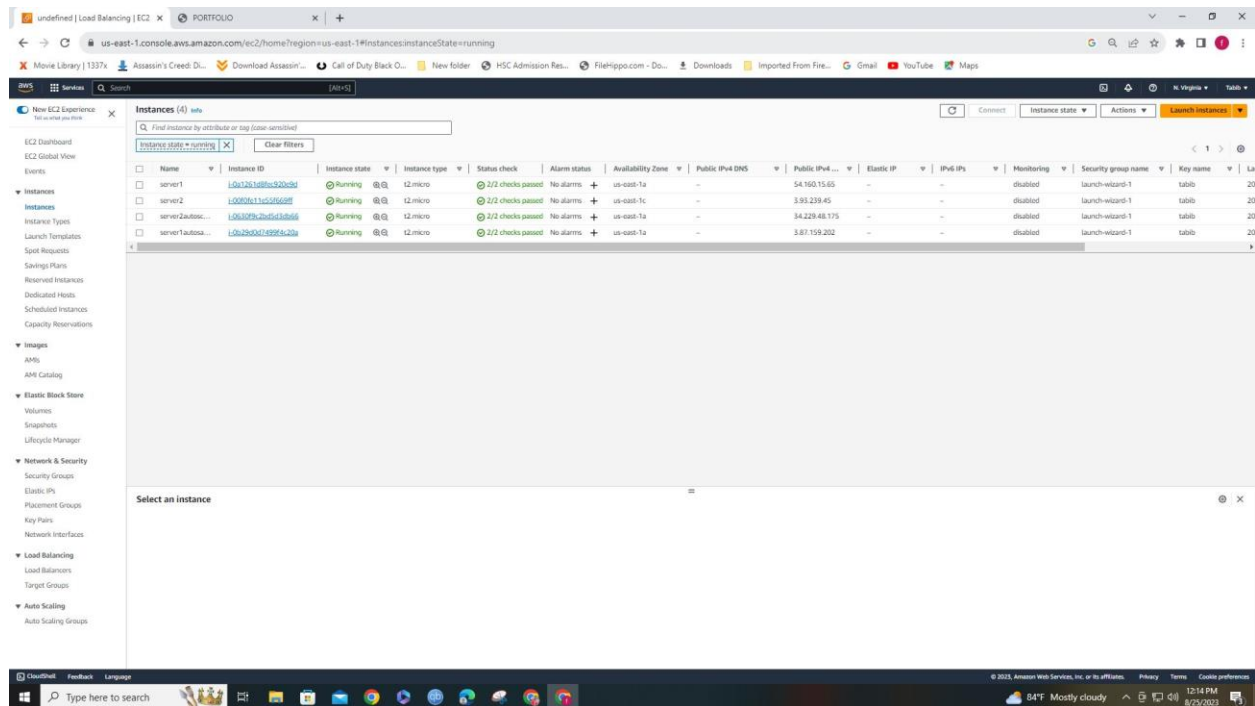
Group details

Auto Scaling group name	Desired capacity	Status	Amazon Resource Name (ARN)
assignment_server2	1	-	arn:aws:autoscaling:us-east-1:435301122970:autoScalingGroup:4645a93-e8c1-4509-9690-e4b6974546a2:autoScalingGroupname/assignment_server2

Launch template

Launch template	AMI ID	Instance type	Owner
lt-02c86da91017c7ff server2_template	ami-08a52ddb321b32a0c	t2.micro	arn:aws:iam::435301122970:root

10. Now in our Ec2 instance we see our auto scaling is appeared.



11. Then we run our website from auto scaling appeared instance also if we terminate our main Ec2.

