

Assignment #4

Task #1 – Run web servers behind ALB

1. Launch server one

The screenshot shows the 'Launch an instance' wizard in the AWS EC2 console. The top navigation bar includes the AWS logo, search bar, and account information: United States (N. Virginia) and vclabs/user3826682=suman.adhikari @ 2522-6982-3994. The main steps are: EC2 > Instances > Launch an instance.

Name and tags: Name is set to "assignment-04-task-01-server-01".

Application and OS Images (Amazon Machine Image): Quick Start options include Amazon Linux, macOS, Ubuntu, Windows, Red Hat, SUSE Linux, and Debian. A search bar is available to find more AMIs.

Summary: Number of instances: 1. Software Image (AMI): Amazon Linux 2 Kernel 5.10 AMI... (ami-02a53b0d62d37a757). Virtual server type (instance type): t2.micro. Firewall (security group): 2 security groups. Storage (volumes): 1 volume(s) - 8 GiB.

Actions: Buttons for Cancel, Launch instance (highlighted in orange), and Preview code.

Bottom footer: CloudShell, Feedback, © 2025, Amazon Web Services, Inc. or its affiliates., Privacy, Terms, Cookie preferences.

Network settings

VPC - required | Info

VPC: vpc-008e5d022ac70cd9e (default) | 172.31.0.0/16

Subnet | Info

subnet-0df3ec5dccb98 | VPC: vpc-008e5d022ac70cd9e Owner: 252269823994 Availability Zone: us-east-1a Zone type: Availability Zone IP addresses available: 4091 CIDR: 172.31.32.0/20

Create new subnet

Auto-assign public IP | Info

Enable | Additional charges apply when outside of free tier allowance

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 | public-ssh-access-sg sg-0e644498089df1df0 | public-http-access-sg sg-0b1cfe39d12bc6a5f

Compare security group rules

Hide all selected

Security groups that you add or remove here will be added to or removed from all your network interfaces.

► Advanced network configuration

Metadata response hop limit | Info

2

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
# Use this for your user data (script from top to bottom)
# install httpd (Linux 2 version)
yum update -y
yum install -y httpd
systemctl start httpd
systemctl enable httpd
echo "<h1>I am a server one</h1>" > /var/www/html/index.html
```

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-02a53b0d62d37a757

Virtual server type (instance type)

t2.micro

Firewall (security group)

2 security groups

Storage (volumes)

1 volume(s) - 8 GiB

Cancel | Launch instance | Preview code

2. Launch server two.

Network settings

VPC - required: [Info](#)
vpc-008e5d022ac70cd9e (default)
172.31.0.16

Subnet - [Info](#)
subnet-08a8e8218c1210152
VPC: vpc-008e5d022ac70cd9e Owner: 252269823994 Availability Zone: us-east-1b Zone type: Availability Zone IP addresses available: 4091 CIDR: 172.31.0.0/16

Create new subnet [Create new subnet](#)

Auto-assign public IP - [Info](#)
Enable Additional charges apply when outside of free tier allowance

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
public-ssh-access-sg sg-0e644498089df1df0
VPC: vpc-008e5d022ac70cd9e
public-http-access-sg sg-0b1fce39d12bc6a5f
VPC: vpc-008e5d022ac70cd9e

Compare security group rules [Compare security group rules](#)

Hide all selected Security groups that you add or remove here will be added to or removed from all your network interfaces.

Advanced network configuration

[CloudShell](#) [Feedback](#)

Summary

Number of instances: [Info](#)
1

Software Image (AMI): Amazon Linux 2 Kernel 5.10 AMI... [read more](#)
ami-02a53b0d62d37a757

Virtual server type (instance type): t2.micro

Firewall (security group): 2 security groups

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

[Cancel](#) [Launch instance](#) [Preview code](#)

Launch an instance

Amazon EC2 allows you to create virtual machines, or instances, that run on the AWS Cloud. Quickly get started by following the simple steps below.

Name and tags

Name: assignment-04-task-01-server-02 [Add additional tags](#)

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

Recents [Quick Start](#)

Amazon Linux macOS Ubuntu Windows Red Hat SUSE Linux Debian

[Browse more AMIs](#)
Including AMIs from AWS, Marketplace and the Community

Amazon Machine Image (AMI)

Amazon Linux 2 AMI (HVM) - Kernel 5.10, SSD Volume Type
ami-02a53b0d62d37a757 (64-bit (x86)) / ami-08523976443f71beb (64-bit (Arm))
Virtualization: hvm ENA enabled: true Root device type: ebs

Free tier eligible [Free tier eligible](#)

[CloudShell](#) [Feedback](#)

Summary

Number of instances: [Info](#)
1

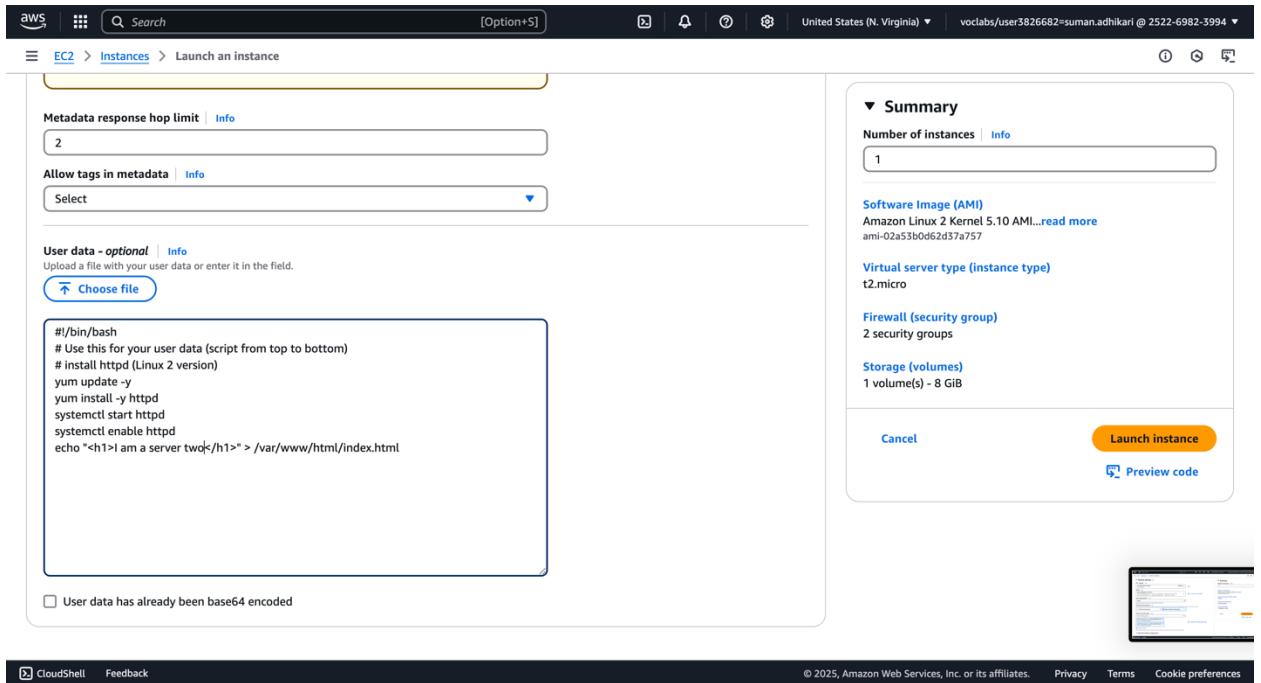
Software Image (AMI): Amazon Linux 2 Kernel 5.10 AMI... [read more](#)
ami-02a53b0d62d37a757

Virtual server type (instance type): t2.micro

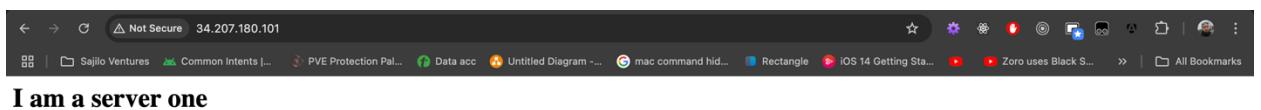
Firewall (security group): 2 security groups

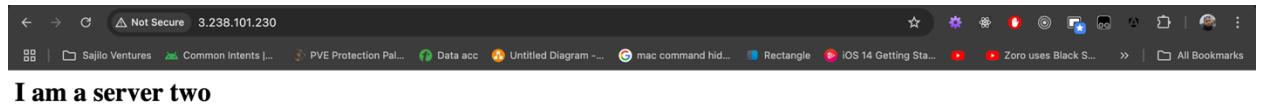
Storage (volumes): 1 volume(s) - 8 GiB

[Cancel](#) [Launch instance](#) [Preview code](#)



3. Check responses from two servers directly.





4. Create target group for ALB and register the two instances to the security groups.
Add a health check on path / .

The screenshot shows the 'Create target group' wizard in the AWS Management Console. The top navigation bar includes the AWS logo, search bar, and account information ('United States (N. Virginia) | vclabs/user5826682=suman.adhikari @ 2522-6982-3994'). The breadcrumb trail is 'EC2 > Target groups > Create target group'. The wizard is at Step 1: 'Specify group details'. A sidebar on the left shows 'Step 1 Specify group details' (selected), 'Step 2 Register targets', and 'Step 3 Configure health checks'. The main content area is titled 'Specify group details' with the sub-section 'Basic configuration'. It states: 'Your load balancer routes requests to the targets in a target group and performs health checks on the targets.' Under 'Choose a target type', the 'Instances' option is selected, highlighted with a blue border. Other options include 'IP addresses', 'Lambda function', and 'Application Load Balancer', each with their respective descriptions and bullet points. At the bottom, there is a 'Target group name' input field and a note: 'The target group name must be unique across all regions and accounts in your AWS account.' The footer contains links for CloudShell, Feedback, and various AWS terms like Privacy, Terms, and Cookie preferences.

aws | Search [Option+S] | United States (N. Virginia) | vclabs/user3826682=suman.adhikari @ 2522-6982-3994 ▾

☰ EC2 > Target groups > Create target group

tg-assignment-04-task-01-alb

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

Protocol : Port
Choose a protocol for your target group that corresponds to the Load Balancer type that will route traffic to it. Some protocols now include anomaly detection for the targets and you can set mitigation options once your target group is created. This choice cannot be changed after creation

HTTP 80
1-65535

IP address type
Only targets with the indicated IP address type can be registered to this target group.

IPv4
Each instance has a default network interface (eth0) that is assigned the primary private IPv4 address. The instance's primary private IPv4 address is the one that will be applied to the target.

IPv6
Each instance you register must have an assigned primary IPv6 address. This is configured on the instance's default network interface (eth0). [Learn more](#)

VPC
Select the VPC with the instances that you want to include in the target group. Only VPCs that support the IP address type selected above are available in this list.

-
vpc-008e5d022ac70cd9e
IPv4 VPC CIDR: 172.31.0.0/16

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.

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☰ EC2 > Target groups > Create target group

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 perform health checks on the root, or specify a custom path if preferred.
 /
Up to 1024 characters allowed.

► Advanced health check settings

Attributes

ⓘ Certain default attributes will be applied to your target group. You can view and edit them after creating the target group.

► Tags - optional
Consider adding tags to your target group. Tags enable you to categorize your AWS resources so you can more easily manage them.

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EC2 > Target groups > Create target group

Step 1
Specify group details
Step 2
Register targets

Register targets

This is an optional step to create a target group. However, to ensure that your load balancer routes traffic to this target group you must register your targets.

Available instances (2/2)

Name	State	Security groups	Zone	Private IPV4 address
assignment-04-task-01-server-02	Running	public-ssh-access-sg, public-http-access-sg	us-east-1b	172.31.5.201
assignment-04-task-01-server-01	Running	public-ssh-access-sg, public-http-access-sg	us-east-1a	172.31.44.229

2 selected

Ports for the selected instances
Ports for routing traffic to the selected instances.
80
1-65535 (separate multiple ports with commas)
Include as pending below

Review targets

Targets (0)

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5. Target group is now created and in healthy state.

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EC2 > Target groups > tg-assignment-04-task-01-alb

Details
arn:aws:elasticloadbalancing:us-east-1:252269823994:targetgroup/tg-assignment-04-task-01-alb/2385b6f3122e3bd2

Target type	Protocol : Port	Protocol version	VPC
Instance	HTTP: 80	HTTP1	vpc-008e5d022ac70cd9e
IP address type	Load balancer		
IPv4	None associated		

Total targets	Healthy	Unhealthy	Unused	Initial	Draining
2	0	0	2	0	0
	0 Anomalous				

Distribution of targets by Availability Zone (AZ)
Select values in this table to see corresponding filters applied to the Registered targets table below.

Targets | Monitoring | Health checks | Attributes | Tags

Registered targets (2) Info
Anomaly mitigation: Not applicable | Deregister | Register targets

Target groups route requests to individual registered targets using the protocol and port number specified. Health checks are performed on all registered targets according to the target group's health check settings. Anomaly detection is automatically applied to HTTP/HTTPS target groups with at least 3 healthy targets.

Instance ID	Name	Port	Zone	Health status	Health status details	Administ...	Overri...
i-0cf7966731797dec	assignment-04...	80	us-east-1b (us...)	Unused	Target group is not co...	-	-
i-085062c5a5c9b6446	assignment-04...	80	us-east-1a (us...)	Unused	Target group is not co...	-	-

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EC2

Target type: Instance
Protocol: Port
HTTP: 80

IP address type: IPv4
Load balancer: ag-assignment-04-task-01-alb

VPC: vpc-008e5d022ac70cd9e

Total targets	Healthy	Unhealthy	Unused	Initial	Draining
2	2	0	0	0	0
	0 Anomalous				

Distribution of targets by Availability Zone (AZ)

Select values in this table to see corresponding filters applied to the Registered targets table below.

Targets | Monitoring | Health checks | Attributes | Tags

Registered targets (2)

Anomaly mitigation: Not applicable

Instance ID	Name	Port	Zone	Health status	Health status details
i-0cf796b6731797dec	assignment-04...	80	us-east-1b (use1-az1)	Healthy	-
i-085062c5a5c9b6446	assignment-04...	80	us-east-1a (use1-az6)	Healthy	-

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6. Create an Application Load Balancer.

Basic configuration

Load balancer name: Name must be unique within your AWS account and can't be changed after the load balancer is created.
ag-assignment-04-task-01-alb

Scheme: Internet-facing

Load balancer IP address type: IPv4

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

VPC: vpc-008e5d022ac70cd9e

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EC2 > Load balancers > Create Application Load Balancer

vpc-008e5d022ac70cd9e
IPv4 VPC CIDR: 172.31.0.0/16

IP pools - new [Info](#)
You can optionally choose to configure an IPAM pool as the preferred source for your load balancer's IP addresses. View Pools in Amazon VPC IP Address Manager console [\[?\]](#)

Use IPAM pool for public IPv4 addresses
The IPAM pool you choose will be the preferred source of public IPv4 addresses. If the pool is depleted, IPv4 addresses will be assigned by AWS.

Availability Zones and subnets [Info](#)
Select at least two Availability Zones and a subnet for each zone. A load balancer node will be placed in each selected zone and will automatically scale in response to traffic. The load balancer routes traffic to targets in the selected Availability Zones only.

us-east-1a (use1-a2)
Subnet
Only CIDR blocks corresponding to the load balancer IP address type are used. At least 8 available IP addresses are required for your load balancer to scale efficiently.
subnet-0df3ec5dcdfbeac98
IPv4 subnet CIDR: 172.31.32.0/20

us-east-1b (use1-a21)
Subnet
Only CIDR blocks corresponding to the load balancer IP address type are used. At least 8 available IP addresses are required for your load balancer to scale efficiently.
subnet-08a8e8218c1210152
IPv4 subnet CIDR: 172.31.0.0/20

us-east-1c (use1-a22)

us-east-1d (use1-a24)

us-east-1e (use1-a23)

us-east-1f (use1-a25)

Security groups [Info](#)
A security group is a set of firewall rules that control the traffic to your load balancer. Select an existing security group, or you can [create a new security group](#) [\[?\]](#)

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EC2 > Load balancers > Create Application Load Balancer

default
sg-00f87a67ce3560bf0 VPC: vpc-008e5d022ac70cd9e

Listeners and routing [Info](#)
A listener is a process that checks for connection requests using the port and protocol you configure. The rules that you define for a listener determine how the load balancer routes requests to its registered targets.

Listener HTTP:80 [Remove](#)

Protocol	Port	Default action
HTTP	80	Forward to tg-assignment-04-task-01-alb Target type: Instance, IPv4

[Create target group](#) [\[?\]](#)

Listener tags - optional
Consider adding tags to your listener. Tags enable you to categorize your AWS resources so you can more easily manage them.

[Add listener tag](#)
You can add up to 50 more tags.

[Add listener](#)

Load balancer tags - optional
Consider adding tags to your load balancer. Tags enable you to categorize your AWS resources so you can more easily manage them. The 'Key' is required, but 'Value' is optional. For example, you can have Key = production-webserver, or Key = webserver, and Value = production.

Optimize with service integrations - optional [Info](#)

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7. ALB is now created. We are receiving response from ALB endpoint as well.

The screenshot shows the AWS CloudWatch Metrics interface. A metric named 'Latency' is selected. The X-axis represents time from March 4, 2025, to March 5, 2025. The Y-axis represents Latency in milliseconds, ranging from 0 to 100. The data series shows a single point at approximately 10ms. The legend indicates the metric type is 'CloudWatch Metrics'.

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EC2 > Load balancers > ag-assignment-04-task-01-alb

ag-assignment-04-task-01-alb

Details

Load balancer type	Status	VPC	Load balancer IP address type
Application	Active	vpc-008e5d022ac70cd9e	IPv4
Scheme	Hosted zone	Availability Zones	Date created
Internet-facing	Z355XDOTRQ7X7K	subnet-08a8e821bc1210152 us-east-1b (use1-az1)	March 4, 2025, 05:05 (UTC-06:00)
		subnet-0df3ec5dcfcbeac98 us-east-1a (use1-az6)	
Load balancer ARN	arn:aws:elasticloadbalancing:us-east-1:252269823994:loadbalancer/app/ag-assignment-04-task-01-alb/cabe52c13fd4d4d3	DNS name Info	
		ag-assignment-04-task-01-alb-1409953049.us-east-1.elb.amazonaws.com (A Record)	

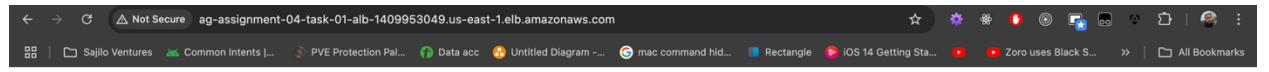
Listeners and rules Network mapping Resource map Security Monitoring Integrations Attributes Capacity Tags

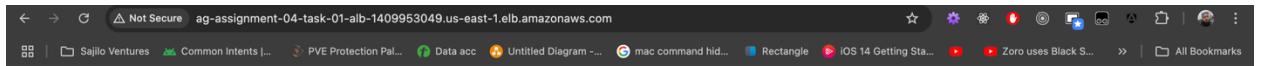
Security groups (1)

A security group is a set of firewall rules that control the traffic to your load balancer.

Security Group ID	Name	Description
sg-0b1cfe39d12bc6a5f	public-http-ac...	Allows public http access

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I am a server two



8. Now, hardening security to EC2 instances so that only ALB has access to it.

Below we see updates to ALB security group and EC2 instances security group. ALB has ‘assignment-04-task-01-alb-sg’ group and EC2 instances have ‘private-assignment-04-task-01-alb-only-access’ group.

The screenshot shows the AWS EC2 Security Groups console. On the left, there's a navigation sidebar with sections like EC2, Instances, Images, Elastic Block Store, and Network & Security. The main area displays the details for a security group named 'sg-02474a69de5c62713 - assignment-04-task-01-alb-sg'. The 'Details' section includes fields for Security group name (assignment-04-task-01-alb-sg), Security group ID (sg-02474a69de5c62713), Description (ALB security group with inbound HTTP access), Owner (252269823994), Inbound rules count (2 Permission entries), and Outbound rules count (2 Permission entries). Below this, the 'Inbound rules' tab is selected, showing a table with two entries:

Name	Security group rule ID	IP version	Type	Protocol	Port range
-	sgr-081c0ba154db754a4	IPv6	HTTP	TCP	80
-	sgr-020e210bc27471cf3	IPv4	HTTP	TCP	80

AWS CloudWatch Metrics Dashboard

Search: [Option+S]

United States (N. Virginia) | voclabs/user3826682=suman.adhikari @ 2522-6982-3994 ▾

EC2 > Security Groups > sg-02474a69de5c62713 - assignment-04-task-01-alb-sg

sg-02474a69de5c62713 - assignment-04-task-01-alb-sg Actions ▾

Details

Security group name assignment-04-task-01-alb-sg	Security group ID sg-02474a69de5c62713	Description ALB security group with inbound HTTP access	VPC ID vpc-008e5d022ac70cd9e
Owner 252269823994	Inbound rules count 2 Permission entries	Outbound rules count 2 Permission entries	

Inbound rules | **Outbound rules** | Sharing - new | VPC associations - new | Tags

Outbound rules (2)

Name	Security group rule ID	IP version	Type	Protocol	Port range
-	sgr-0fedb76a9942bae28	IPv6	All traffic	All	All
-	sgr-04510928b2eda7ca3	IPv4	All traffic	All	All

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AWS CloudWatch Metrics Dashboard

Search: [Option+S]

United States (N. Virginia) | voclabs/user3826682=suman.adhikari @ 2522-6982-3994 ▾

EC2 > Security Groups > sg-02b301321082bbe64 - private-assignment-04-task-01-alb-only-access

Security group (sg-02b301321082bbe64 | private-assignment-04-task-01-alb-only-access) was created successfully

Details

Security Groups (5) Info

Name	Security group ID	Security group name	VPC ID
-	sg-00f87a67ce5560bf0	default	vpc-008e5d022ac71
sg-assignment-04-task-01-alb	sg-02474a69de5c62713	assignment-04-task-01-alb-sg	vpc-008e5d022ac71
sg-private-assignment-04-task-01-alb-only-access	sg-02b301321082bbe64	private-assignment-04-task-01-alb-only-access	vpc-008e5d022ac71
sg-public-http-access	sg-0b1cf39d12bc6a5f	public-http-access-sg	vpc-008e5d022ac71
sg-public-ssh-access	sg-0e644498089df1df0	public-ssh-access-sg	vpc-008e5d022ac71

sg-02b301321082bbe64 - private-assignment-04-task-01-alb-only-access

Details | Inbound rules | Outbound rules | Sharing - new | VPC associations - new | Tags

Details

Security group name private-assignment-04-task-01-alb-only-access	Security group ID sg-02b301321082bbe64	Description Allow access only to task-01-ALB to the instances in target group	VPC ID vpc-008e5d022ac70cd9e
---	--	---	--

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EC2 > Security Groups > sg-02b301321082bbe64 - private-assignment-04-task-01-alb-only-access

Details																
Security group name sg-02b301321082bbe64 - private-assignment-04-task-01-alb-only-access	Security group ID sg-02b301321082bbe64															
Owner 252269823994	Description Allow access only to task-01-ALB to the instances in target group															
Inbound rules count 1 Permission entry	Outbound rules count 2 Permission entries															
Inbound rules Outbound rules Sharing - new VPC associations - new Tags																
Inbound rules (1) <table border="1"> <thead> <tr> <th colspan="5">Inbound rules (1)</th> </tr> <tr> <th>Type</th> <th>Protocol</th> <th>Port range</th> <th>Source</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>HTTP</td> <td>TCP</td> <td>80</td> <td>sg-02474a69de5c62713 / assignment-04-task-01-alb-sg</td> <td>-</td> </tr> </tbody> </table>		Inbound rules (1)					Type	Protocol	Port range	Source	Description	HTTP	TCP	80	sg-02474a69de5c62713 / assignment-04-task-01-alb-sg	-
Inbound rules (1)																
Type	Protocol	Port range	Source	Description												
HTTP	TCP	80	sg-02474a69de5c62713 / assignment-04-task-01-alb-sg	-												

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EC2 > Load balancers

Load balancers (1/1)																																														
Elastic Load Balancing scales your load balancer capacity automatically in response to changes in incoming traffic. <table border="1"> <thead> <tr> <th colspan="9">Load balancers (1/1)</th> </tr> <tr> <th colspan="9">Elastic Load Balancing scales your load balancer capacity automatically in response to changes in incoming traffic.</th> </tr> <tr> <th colspan="9"> <input type="checkbox"/> Filter load balancers < 1 > ⚙ </th> </tr> <tr> <th>Name</th> <th>DNS name</th> <th>State</th> <th>VPC ID</th> <th>Availability Zones</th> <th>Type</th> <th>Date created</th> <th colspan="2"></th> </tr> </thead> <tbody> <tr> <td>ag-assignment-04-task-01-alb</td> <td>ag-assignment-04-task-01-alb</td> <td>Active</td> <td>vpc-008e5d022ac70cd9e</td> <td>2 Availability Zones</td> <td>application</td> <td>March 4, 2025</td> <td colspan="2"> Edit Actions Create load balancer </td> </tr> </tbody> </table>		Load balancers (1/1)									Elastic Load Balancing scales your load balancer capacity automatically in response to changes in incoming traffic.									<input type="checkbox"/> Filter load balancers < 1 > ⚙									Name	DNS name	State	VPC ID	Availability Zones	Type	Date created			ag-assignment-04-task-01-alb	ag-assignment-04-task-01-alb	Active	vpc-008e5d022ac70cd9e	2 Availability Zones	application	March 4, 2025	Edit Actions Create load balancer	
Load balancers (1/1)																																														
Elastic Load Balancing scales your load balancer capacity automatically in response to changes in incoming traffic.																																														
<input type="checkbox"/> Filter load balancers < 1 > ⚙																																														
Name	DNS name	State	VPC ID	Availability Zones	Type	Date created																																								
ag-assignment-04-task-01-alb	ag-assignment-04-task-01-alb	Active	vpc-008e5d022ac70cd9e	2 Availability Zones	application	March 4, 2025	Edit Actions Create load balancer																																							

CloudShell Feedback [Option+S] United States (N. Virginia) vclabs/user3826682=suman.adhikari @ 2522-6982-3994

Load balancer: ag-assignment-04-task-01-alb

Listeners and rules		Network mapping		Resource map		Security		Monitoring		Integrations		Attributes		Capacity		Tags										
Security groups (1) <p>A security group is a set of firewall rules that control the traffic to your load balancer.</p> <table border="1"> <thead> <tr> <th colspan="3">Security groups (1)</th> </tr> <tr> <th>Security Group ID</th> <th>Name</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>sg-02474a69de5c62713</td> <td>assignment-04-task-01-alb-sg</td> <td>ALB security group with inbound HTTP access</td> </tr> </tbody> </table>		Security groups (1)			Security Group ID	Name	Description	sg-02474a69de5c62713	assignment-04-task-01-alb-sg	ALB security group with inbound HTTP access																
Security groups (1)																										
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CloudShell Feedback [Option+S] United States (N. Virginia) vclabs/user3826682=suman.adhikari @ 2522-6982-3994

Security details

IAM Role: -

Owner ID: 252269823994

Launch time: Tue Mar 04 2025 11:13:56 GMT-0600 (Central Standard Time)

Security groups:

- sg-02b301321082bbe64 (private-assignment-04-task-01-alb-only-access)

Inbound rules

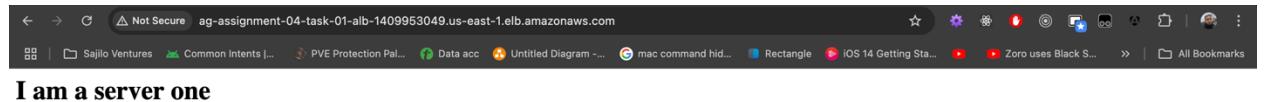
Filter rules	Security group rule ID	Port range	Protocol	Source	Security groups	De
	sgr-01bf8844eb4b67f42	80	TCP	sg-02474a69de5c62713	private-assignment-04-task-01-alb-o...	-

Outbound rules

Filter rules	Security group rule ID	Port range	Protocol	Destination	Security groups	De
	sgr-0e20bde3dccbabe08	All	All	0.0.0.0/0	private-assignment-04-task-01-alb-only-access	-
	sgr-0464701ff3d52df83	All	All	::/0	private-assignment-04-task-01-alb-only-access	-

9. Check response from ALB now. We are receiving response only from ALB now.

I am a server two



Task #2 – Run web servers behind NLB

We will be re-using the instances from Task #1. In summary, we will only create a new security group for EC2 instances to receive traffic from NLB and a security group for the NLB along with a new target group with TCP protocol for NLB to utilize. Everything else will work as Task #1 instances are already preconfigured with HTTP servers.

1. Create security group for NLB.

The screenshot shows the AWS EC2 Security Groups console. On the left, there is a navigation sidebar with sections for EC2, Instances, Images, Elastic Block Store, Network & Security, and more. The main area displays a security group named "sg-0e05a12acc4149cdc - assignment-04-task-02-nlb-public-access". The "Details" section includes the security group name, ID, description ("Allows access to NLB from public"), owner (252269823994), and VPC ID (vpc-008e5d022ac70cd9e). Below this, the "Inbound rules" tab is selected, showing two entries:

Name	Security group rule ID	IP version	Type	Protocol	Port range
-	sgr-0e2dddeb679a87845	IPv4	HTTP	TCP	80
-	sgr-0f5992845c3db950b	IPv6	HTTP	TCP	80

EC2 < sg-0e05a12acc4149cdc - assignment-04-task-02-nlb-public-access

Details

Security group name assignment-04-task-02-nlb-public-access	Security group ID sg-0e05a12acc4149cdc	Description Allows access to NLB from public	VPC ID vpc-008e5d022ac70cd9e
Owner 252269823994	Inbound rules count 2 Permission entries	Outbound rules count 1 Permission entry	

Inbound rules | **Outbound rules** | Sharing - new | VPC associations - new | Tags

Outbound rules (1)

Name	Security group rule ID	IP version	Type	Protocol	Port range
-	sgr-08f642a28c9b536b6	IPv4	All traffic	All	All

Manage tags | Edit outbound rules

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2. Create security group for EC2 instances to allow connection from NLB using TCP.

EC2 < sg-054cf92fe6efa45f9 - private-assignment-04-task-02-nlb-only-access

Details

Security group name private-assignment-04-task-02-nlb-only-access	Security group ID sg-054cf92fe6efa45f9	Description Allow inbound tcp access from nlb only	VPC ID vpc-008e5d022ac70cd9e
Owner 252269823994	Inbound rules count 1 Permission entry	Outbound rules count 2 Permission entries	

Inbound rules | Outbound rules | Sharing - new | VPC associations - new | Tags

Inbound rules (1)

Type	Protocol	Port range	Source
HTTP	TCP	80	sg-0e05a12acc4149cdc / assignment-04-task-02-nlb-public-access

Manage tags | Edit inbound rules

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The screenshot shows the AWS EC2 Security Groups page. A success message at the top right states: "Security group (sg-054cf92fe6efa45f9 | private-assignment-04-task-02-nlb-only-access) was created successfully". Below this, the security group details are shown:

Security group name	sg-054cf92fe6efa45f9 private-assignment-04-task-02-nlb-only-access	Security group ID	sg-054cf92fe6efa45f9	Description	Allow inbound tcp access from nlb only	VPC ID	vpc-008e5d022ac70cd9e
Owner	252269823994	Inbound rules count	1 Permission entry	Outbound rules count	2 Permission entries		

Below the details, there are tabs for **Inbound rules**, **Outbound rules**, **Sharing - new**, **VPC associations - new**, and **Tags**. The **Inbound rules** section shows one rule:

Name	Security group rule ID	IP version	Type	Protocol	Port range
-	sgr-03e332db66da8579b	-	HTTP	TCP	80

At the bottom, there are links for CloudShell and Feedback, and copyright information: © 2025, Amazon Web Services, Inc. or its affiliates. Privacy Terms Cookie preferences.

3. Attach 'private-assignment-04-task-02-nlb-only-access' security group to instances.

The screenshot shows the AWS EC2 Instances page for an instance with ID i-085062c5a5c9b6446. The instance details include:

- Security details**: IAM Role: -, Owner ID: 252269823994, Launch time: Tue Mar 04 2025 11:13:56 GMT-0600 (Central Standard Time)
- Security groups**: sg-054cf92fe6efa45f9 (private-assignment-04-task-02-nlb-only-access), sg-02b301321082bbe64 (private-assignment-04-task-01-alb-only-access)
- Inbound rules**: Two rules are listed:

Rule ID	Port range	Protocol	Source	Security groups	Description
03e332db66da8579b	80	TCP	sg-0e05a12acc4149cdc	private-assignment-04-task-02-nlb-only-access	-
01bf8844eb4b67f42	80	TCP	sg-02474a69de5c62713	private-assignment-04-task-01-alb-only-access	-
- Outbound rules**: Two rules are listed:

Name	Security group rule ID	Port range	Protocol	Destination	Security groups
-	2 IDs	All	All	::/0	private-assignment
-	2 IDs	All	All	0.0.0.0/0	private-assignment

At the bottom, there are links for CloudShell and Feedback, and copyright information: © 2025, Amazon Web Services, Inc. or its affiliates. Privacy Terms Cookie preferences.

4. Create a target group for NLB and register instances with it.

Screenshot of the AWS EC2 Target Groups page showing the creation of a new target group named "tg-assignment-04-task-02-nlb".

Details:

- Target type: Instance
- Protocol: Port
- VPC: vpc-008e5d022ac70cd9e
- IP address type: IPv4
- Total targets: 2
- Healthy: 0
- Unhealthy: 0
- Unused: 2
- Initial: 0
- Draining: 0

Distribution of targets by Availability Zone (AZ):

Zone	Total targets	Healthy	Unhealthy	Unused
us-east-1a (use1-az6)	1	0	0	1
us-east-1b (use1-az1)	1	0	0	1

Registered targets (2):

Instance...	Name	Port	Zone	Health s...	Health stat...	Adminis...	Overrid...	Launch t...
i-085062c5...	assignment...	80	us-east-1a ...	Unused	Target gro...	-	-	March 4, 2...
i-0cf796b6...	assignment...	80	us-east-1b ...	Unused	Target gro...	-	-	March 4, 2...

Screenshot of the AWS EC2 Instances page showing details for instance i-085062c5a5c9b6446.

EC2 < **Instances** > i-085062c5a5c9b6446

Required	arn:aws:ec2:us-east-1:252269823994:instance/i-085062c5a5c9b6446	false																					
Operator	-																						
Details Status and alarms Monitoring Security Networking Storage Tags																							
▼ Security details <table border="1"> <tr> <td>IAM Role</td> <td>Owner ID</td> <td>Launch time</td> </tr> <tr> <td>-</td> <td>252269823994</td> <td>Tue Mar 04 2025 11:13:56 GMT-0600 (Central Standard Time)</td> </tr> <tr> <td colspan="3">Security groups</td> </tr> <tr> <td colspan="3"> sg-054cf92fe6efa45f9 (private-assignment-04-task-02-nlb-only-access) sg-02b301321082bbe64 (private-assignment-04-task-01-alb-only-access) </td> </tr> </table>			IAM Role	Owner ID	Launch time	-	252269823994	Tue Mar 04 2025 11:13:56 GMT-0600 (Central Standard Time)	Security groups			sg-054cf92fe6efa45f9 (private-assignment-04-task-02-nlb-only-access) sg-02b301321082bbe64 (private-assignment-04-task-01-alb-only-access)											
IAM Role	Owner ID	Launch time																					
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sg-054cf92fe6efa45f9 (private-assignment-04-task-02-nlb-only-access) sg-02b301321082bbe64 (private-assignment-04-task-01-alb-only-access)																							
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Filter rules	security group rule ID	Port range	Protocol	Source	Security groups	Description																	
	:igr-03e332db66da8579b	80	TCP	sg-0e05a12acc4149cdc	private-assignment-04-task-02-nlb-only-access	-																	
	:igr-01bf8844eb4b67f42	80	TCP	sg-02474a69de5c62713	private-assignment-04-task-01-alb-only-access	-																	
▼ Outbound rules <table border="1"> <thead> <tr> <th>Filter rules</th> </tr> </thead> </table>			Filter rules																				
Filter rules																							

Review

Review the load balancer configurations and make changes if needed. After you finish reviewing the configurations, choose [Create load balancer](#).

Summary

Review and confirm your configurations. [Estimate cost](#)

Basic configuration Edit Name: assignment-04-task-02-nlb Scheme: Internet-facing IP address type: IPv4	Security groups Edit assignment-04-task-02-nlb-public-access sg-0e05a12acc4149cdc	Network mapping Edit VPC: vpc-008e5d022ac70cd9e Availability Zones and subnets: <ul style="list-style-type: none">us-east-1a subnet-0df3ec5dccfbec98us-east-1b subnet-08a8e8218c1210152	Listeners and routing Edit TCP:80 Target group: tg-assignment-04-task-02-nlb
Service integrations Edit AWS Global Accelerator: -	Tags Edit -		
Attributes (i) Certain default attributes will be applied to your load balancer. You can view and edit them after creating the load balancer.			

Creation workflow and status

► Server-side tasks and status
After completing and submitting the above steps, all server-side tasks and their statuses become available for monitoring.

[Cancel](#) [Create load balancer](#)

5. Instances are now healthy. And we are getting response from NLB.

The screenshot shows the AWS EC2 Target Groups console for a target group named "tg-assignment-04-task-02-nlb".

Details:

- Target type: Instance
- Protocol: Port
- Port: 80
- VPC: vpc-008e5d022ac70cd9e
- IP address type: IPv4

Health Summary:

Total targets	Healthy	Unhealthy	Unused	Initial	Draining
2	2	0	0	0	0

Distribution of targets by Availability Zone (AZ):

Zone	Total targets	Healthy	Unhealthy	Unused	Initial	Last fetched seconds ago
us-east-1a (use1-az6)	1	1	0	0	0	0
us-east-1b (use1-az1)	1	1	0	0	0	0

Registered targets (2):

Instance...	Name	Port	Zone	Health s...	Health stat...	Adminis...	Overrid...	Launch time
i-085062c...	assignment...	80	us-east-1a ...	Healthy	Green	No override...	No overrid...	March 4, 2025, 11:13 (UTC-06:00)
i-0cf796b6...	assignment...	80	us-east-1b ...	Healthy	Green	No override...	No overrid...	March 4, 2025, 11:13 (UTC-06:00)

I am a server one



I am a server two

Task #3 – Run the web server in ASG

Here, we will first need a launch template for the ASG to run on. Then we will need to create the ASG itself and assign the launch template to it. While assigning the launch template, for creating ASG, we will need to select the VPC and availability zones and the target group we will use for the ASG to manage. Along with that we need to specify the desired, min and max instances to have and a target metric for Cloud Watch to check for to trigger the auto scaling. We will use 60% CPU utilization for that and will be using the stress tool to simulate the CPU load.

Note: we will be reusing the ALB and target group from task #1 for cost and time effectiveness.

1. Create a launch template.

The screenshot shows the AWS EC2 console with the 'Launch templates' section selected. A new launch template is being created, titled 'Task-3-ASG-Launch-Template'. The 'Application and OS Images (Amazon Machine Image)' tab is active, showing a search bar and a grid of quick start options: Amazon Linux, macOS, Ubuntu, Windows, Red Hat, SUSE Linux, and Debi. Below this is a detailed view of the 'Amazon Linux 2 AMI (HVM) - Kernel 5.10, SSD Volume Type' option, which is marked as 'Free tier eligible'. The 'Description' section provides details about the AMI, mentioning five years support, kernel version 5.10, and various system components. The 'Architecture' dropdown is set to '64-bit (x86)', 'AMI ID' is 'ami-02a53b0d62d37a75', 'Username' is 'ec2-user', and 'Verified provider' is listed. On the right side, the 'Summary' section includes fields for 'Software Image (AMI)', 'Virtual server type (instance type)', 'Firewall (security group)', 'Storage (volumes)', and a large 'Create launch template' button. The bottom of the screen shows standard AWS navigation links like CloudShell, Feedback, and Copyright information.

Create launch template

Creating a launch template allows you to create a saved instance configuration that can be reused, shared and launched at a later time. Templates can have multiple versions.

Launch template name and description

Launch template name - **required**

assignment-04-task-03-launch-template

Must be unique to this account. Max 128 chars. No spaces or special characters like '&', "'", '@'.

Template version description

A template for launching EC2 for assignment-04-task-03

Max 255 chars

Auto Scaling guidance | [Info](#)

Select this if you intend to use this template with EC2 Auto Scaling

Provide guidance to help me set up a template that I can use with EC2 Auto Scaling

▶ Template tags

▶ Source template

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) [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

CloudShell Feedback

Search [Option+S]

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▼ Summary

Software Image (AMI)
Amazon Linux 2 Kernel 5.10 AMI...[read more](#)
ami-02a53b0d62d37a757

Virtual server type (instance type)
t2.micro

Firewall (security group)
private-assignment-04-task-01-alb-only-access

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

[Cancel](#) [Create launch template](#)

Modify template (Create new version)

Metadata response hop limit [Info](#)

2

Allow tags in metadata [Info](#)

Don't include in launch template

User data - optional [Info](#)

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

[Choose file](#)

```
#!/bin/bash
yum install -y httpd
systemctl start httpd
systemctl enable httpd
echo "<h1>Hello Suman from ${hostname -f}</h1>" > /var/www/html/index.html
```

User data has already been base64 encoded

CloudShell Feedback

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United States (N. Virginia) voclabs/user3826682=suman.adhikari@2522-6982-3994

▼ Summary

Software Image (AMI)
Amazon Linux 2 Kernel 5.10 AMI...[read more](#)
ami-02a53b0d62d37a757

Virtual server type (instance type)
t2.micro

Firewall (security group)
private-assignment-04-task-01-alb-only-access

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

[Cancel](#) [Create template version](#)

2. Create the Auto Scaling group (ASG) with above launch template.

Screenshot of the AWS EC2 Auto Scaling Groups "Create Auto Scaling group" wizard, Step 2: Choose launch template or configuration.

Name

Auto Scaling group name
Enter a name to identify the group.
assignment-04-task-03-asg

Launch template

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.
assignment-04-task-03-launch-template

Description
A template for launching EC2 for assignment-04-task-03

AMI ID
ami-02a53b0d62d37a757

Key pair name
-

Launch template
assignment-04-task-03-launch-template
lt-0b68325b53d68ae17

Security groups
-

Security group IDs
sg-02b301321082bbe64

Instance type
t2.micro

Request Spot Instances
No

Version
Default (1)

Create a launch template version

Switch to launch configuration

Choose instance launch options

Instance type requirements

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
assignment-04-task-03-launch-template
lt-0b68325b53d68ae17

Version
Default

Description
A template for launching EC2 for assignment-04-task-03

Instance type
t2.micro

Network

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-008e5d022ac70cd9e
172.31.0.0/16 Default

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

Screenshot of the AWS EC2 Auto Scaling group creation process, Step 7: Network.

VPC: Choose the VPC that defines the virtual network for your Auto Scaling group. Selected: `vpc-008e5d022ac70cd9e` (172.31.0.0/16 Default).

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

- `us-east-1a | subnet-0df3ec5dccfb9eac98` (172.31.32.0/20 Default)
- `us-east-1b | subnet-08a8e8218c1210152` (172.31.0.0/20 Default)
- `us-east-1c | subnet-08ab7f6a24864722c` (172.31.80.0/20 Default)
- `us-east-1d | subnet-06a213fa2fb984e67` (172.31.16.0/20 Default)
- `us-east-1e | subnet-0f30054c7c8c5eeb4` (172.31.48.0/20 Default)
- `us-east-1f | subnet-00305426f52ccb9a7` (172.31.64.0/20 Default)

Create a subnet

Availability Zone distribution - new: Auto Scaling automatically balances instances across Availability Zones. If launch failures occur in a zone, select a strategy.

Balanced best effort: If launches fail in one Availability Zone, Auto Scaling will attempt to launch in another healthy Availability Zone.

Balanced only: If launches fail in one Availability Zone, Auto Scaling will continue to attempt to launch in the unhealthy Availability Zone to preserve balanced distribution.

Buttons at the bottom: Cancel, Skip to review, Previous, Next.

Integrate with other services - optional Info

Use a load balancer to distribute network traffic across multiple servers. Enable service-to-service communications with VPC Lattice. Shift resources away from impaired Availability Zones with zonal shift. You can also customize health check replacements and monitoring.

Load balancing Info

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 ▼ 

tg-assignment-04-task-01-alb | HTTP X
Application Load Balancer: ag-assignment-04-task-01-alb

VPC Lattice integration options Info

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

Enable zonal shift
New instance launches will be retargeted towards healthy Availability Zones until the zonal shift is canceled.

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 Info

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.

EC2 Auto Scaling will start to detect and act on health checks performed by Elastic Load Balancing. To avoid unexpected terminations, first verify the settings of these health checks in the [Load Balancer console](#) 

Turn on VPC Lattice health checks
VPC Lattice can monitor 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.

Turn on Amazon EBS health checks
EBS monitors whether an instance's root volume or attached volume stalls. When it reports an unhealthy volume, EC2 Auto Scaling can replace the instance on its next periodic health check.

Health check grace period Info

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.

60 seconds

[Cancel](#) [Skip to review](#) [Previous](#) [Next](#)

Configure group size and scaling - optional Info

Define your group's desired capacity and scaling limits. You can optionally add automatic scaling to adjust the size of your group.

Group size Info

Set the initial size of the Auto Scaling group. After creating the group, you can change its size to meet demand, either manually or by using automatic scaling.

Desired capacity type

Choose the unit of measurement for the desired capacity value. vCPUs and Memory(GiB) are only supported for mixed instances groups configured with a set of instance attributes.

Desired capacity

Specify your group size.

Scaling Info

You can resize your Auto Scaling group manually or automatically to meet changes in demand.

Scaling limits

Set limits on how much your desired capacity can be increased or decreased.

Min desired capacity	Max desired capacity
1	10
Equal or less than desired capacity	Equal or greater than desired capacity

Automatic scaling - optional

Choose whether to use a target tracking policy Info

You can set up other metric-based scaling policies and scheduled scaling after creating your Auto Scaling group.

No scaling policies

Your Auto Scaling group will remain at its initial size and will not dynamically resize to meet demand.

Target tracking scaling policy

Choose a CloudWatch metric and target value and let the scaling policy adjust the desired capacity in proportion to the metric's value.

Scaling policy name

Target Tracking Policy

Metric type Info

Monitored metric that determines if resource utilization is too low or high. If using EC2 metrics, consider enabling detailed monitoring for better scaling performance.

Average CPU utilization

Target value

60

Instance warmup Info

60 seconds

Disable scale in to create only a scale-out policy

Instance maintenance policy Info

Control your Auto Scaling group's availability during instance replacement events. This includes health checks, instance refreshes, maximum instance lifetime features and events that happen automatically to keep your group balanced, called rebalancing events.

Screenshot of the AWS EC2 Auto Scaling groups 'Create Auto Scaling group' page.

Instance maintenance policy

Control your Auto Scaling group's availability during instance replacement events. This includes health checks, instance refreshes, maximum instance lifetime features and events that happen automatically to keep your group balanced, called rebalancing events.

Choose a replacement behavior depending on your availability requirements

- Mixed behavior** (selected)
 - No policy**: For rebalancing events, new instances will launch before terminating others. For all other events, instances terminate and launch at the same time.
- Prioritize availability**
 - Launch before terminating**: Launch new instances and wait for them to be ready before terminating others. This allows you to go above your desired capacity by a given percentage and may temporarily increase availability.
- Control costs**
 - Terminate and launch**: Terminate and launch instances at the same time. This allows you to go below your desired capacity by a given percentage and may temporarily reduce availability.
- Flexible**
 - Custom behavior**: Set custom values for the minimum and maximum amount of available capacity. This gives you greater flexibility in setting how far below and over your desired capacity EC2 Auto Scaling goes when replacing instances.

Additional capacity settings

Capacity Reservation preference

Select whether you want Auto Scaling to launch instances into an existing Capacity Reservation or Capacity Reservation resource group.

- Default** (selected): Auto Scaling uses the Capacity Reservation preference from your launch template.
- None**: Instances will not be launched into a Capacity Reservation.
- Capacity Reservations only**: Instances will only be launched into a Capacity Reservation. If capacity isn't available, the instances fail to launch.
- Capacity Reservations first**: Instances will attempt to launch into a Capacity Reservation first. If capacity isn't available, instances will run in On-Demand capacity.

3. Review the ASG settings.

Screenshot of the AWS EC2 Auto Scaling groups 'Create Auto Scaling group' page, showing the review step.

Step 1: Choose launch template or configuration

Group details

Auto Scaling group name: assignment-04-task-03-asg

Launch template: assignment-04-task-03-launch-template [Edit] **Version:** Default **Description:** A template for launching EC2 for assignment-04-task-03

Step 2: Choose instance launch options

Network
VPC: vpc-008e5d022ac70cd9e [Edit]

Availability Zones and subnets

Availability Zone	Subnet	Subnet CIDR range
us-east-1a	subnet-0df3ec5dccfbeac98 [Edit]	172.31.32.0/20
us-east-1b	subnet-08a8e8218c1210152 [Edit]	172.31.0.0/20
us-east-1c	subnet-08ab7f6a24864722c [Edit]	172.31.80.0/20

Review

Verify your settings for your Auto Scaling group, and edit the settings as needed. When you are satisfied with your settings, choose **Create Auto Scaling group**.

After Amazon EC2 Auto Scaling creates your Auto Scaling group, it immediately starts launching instances. The new instances appear in the list of instances on the console. After an instance is fully configured and passes the initial health checks, it is considered healthy by Amazon EC2 Auto Scaling and enters the **InService** state.

After creating your Auto Scaling group, you can open it in the console and configure other settings. Several additional features are available, such as:

- [Scheduled scaling](#)
- [Predictive scaling](#)
- [Termination policies](#)
- [Lifecycle hooks](#)

Step 2: Choose instance launch options

Network

VPC
vpc-008e5d022ac70cd9e

Availability Zones and subnets

Availability Zone	Subnet	Subnet CIDR range
us-east-1a	subnet-0df3ec5dccfbeac98	172.31.32.0/20
us-east-1b	subnet-08a8e8218c1210152	172.31.0.0/20
us-east-1c	subnet-08ab7f6a24864722c	172.31.80.0/20
us-east-1d	subnet-06a213fa2fb984e67	172.31.16.0/20
us-east-1e	subnet-0f30054c7c8c5eeb4	172.31.48.0/20
us-east-1f	subnet-00305426f52ccb9a7	172.31.64.0/20

Availability Zone distribution
Balanced best effort

Instance type requirements

This Auto Scaling group will adhere to the launch template.

Step 3: Integrate with other services

Load balancing

Load balancer 1

Name	Type	Target group
ag-assignment-04-task-01-alb	Application/HTTP	tg-assignment-04-task-01-alb

VPC Lattice integration options

VPC Lattice target groups
-

Application Recovery Controller (ARC) zonal shift

ARC zonal shift
Disabled

Health checks

Health check type	Health check grace period
EC2, ELB	60 seconds

Step 4: Configure group size and scaling policies

Review

Verify your settings for your Auto Scaling group, and edit the settings as needed. When you are satisfied with your settings, choose **Create Auto Scaling group**.

After Amazon EC2 Auto Scaling creates your Auto Scaling group, it immediately starts launching instances. The new instances appear in the list of instances on the console. After an instance is fully configured and passes the initial health checks, it is considered healthy by Amazon EC2 Auto Scaling and enters the **InService** state.

After creating your Auto Scaling group, you can open it in the console and configure other settings. Several additional features are available, such as:

- [Scheduled scaling](#)
- [Predictive scaling](#)
- [Termination policies](#)
- [Lifecycle hooks](#)



Screenshot of the AWS EC2 Auto Scaling Groups configuration page, Step 4: Configure group size and scaling policies.

Group size

Desired capacity	3	Desired capacity type	Units (number of instances)
------------------	---	-----------------------	-----------------------------

Scaling

Minimum desired capacity	1	Maximum desired capacity	10
Target tracking policy	Policy type	Scaling policy name	Execute policy when
Target tracking scaling		Target Tracking Policy	As required to maintain Average CPU utilization at 60
Take the action	Instances need	Scale in	
Add or remove capacity units as required	60 seconds to warm up before including in metric	Enabled	

Instance maintenance policy

Replacement behavior	No policy	Min healthy percentage	-
		Max healthy percentage	-

Additional settings

Instance scale-in protection	Disabled	Monitoring	Disabled
			Default instance warmup
			Disabled

Review

Verify your settings for your Auto Scaling group, and edit the settings as needed. When you are satisfied with your settings, choose **Create Auto Scaling group**.

After Amazon EC2 Auto Scaling creates your Auto Scaling group, it immediately starts launching instances. The new instances appear in the list of instances on the console. After an instance is fully configured and passes the initial health checks, it is considered healthy by Amazon EC2 Auto Scaling and enters the **InService** state.

After creating your Auto Scaling group, you can open it in the console and configure other settings. Several additional features are available, such as:

- [Scheduled scaling](#)
- [Predictive scaling](#)
- [Termination policies](#)
- [Lifecycle hooks](#)

4. ASG is now active and here is the initial activity.

Screenshot of the AWS EC2 Auto Scaling Groups activity history page.

Activity notifications (0)

No notifications are currently specified.

Activity history (3)

Status	Description	Cause	Start time
Successful	Launching a new EC2 instance: i-097a1794461591c0f	At 2025-03-04T20:53:01Z a user request created an AutoScalingGroup changing the desired capacity from 0 to 3. At 2025-03-04T20:53:02Z an instance was started in response to a difference between desired and actual capacity, increasing the capacity from 0 to 3.	2025 March 04, 02:53:00 PM -06:00
Successful	Launching a new EC2 instance: i-0837591ea8465ce4c	At 2025-03-04T20:53:01Z a user request created an AutoScalingGroup changing the desired capacity from 0 to 3. At 2025-03-04T20:53:02Z an instance was started in response to a difference between desired and actual capacity, increasing the capacity from 0 to 3.	2025 March 04, 02:53:00 PM -06:00
Successful	Launching a new EC2 instance: i-0228b5092fd247bd8	At 2025-03-04T20:53:01Z a user request created an AutoScalingGroup changing the desired capacity from 0 to 3. At 2025-03-04T20:53:02Z an instance was started in response to a difference between desired and actual capacity, increasing the capacity from 0 to 3.	2025 March 04, 02:53:00 PM -06:00

Auto Scaling groups

The Auto Scaling groups page lists all of your groups in the current Region. You can configure the table using its settings to adjust the number of rows and types of columns that are displayed. You can view or edit an individual Auto Scaling group by choosing its name. To view an Auto Scaling group in split pane mode, select the check box beside the name of the group.

Learn more

[Get started with Amazon EC2 Auto Scaling](#)

5. Add SSH access to instance for the stress test now.

Change security groups Info

Amazon EC2 evaluates all the rules of the selected security groups to control inbound and outbound traffic to and from your instance. You can use this window to add and remove security groups.

Instance details

Instance ID i-0228b3092fd247bd8	Network interface ID eni-0547f78401503e83b
------------------------------------	---

Associated security groups

Add one or more security groups to the network interface. You can also remove security groups.

Select security groups Add security group

Security groups associated with the network interface (eni-0547f78401503e83b)

Security group ID	Security group name	Description	Owner ID	Action
sg-02b301321082bbe64	private-assignment-04-task-01-alb-only-access	Allow access only to task-01-ALB to the instances in target group	252269823994	<button>Remove</button>
sg-0e644498089df1df0	public-ssh-access-sg	Allows SSH to developers	252269823994	<button>Remove</button>

Cancel Save

```

Installing:
stress                  x86_64          1.0.4-16.el7          epel           39 k
=====
Transaction Summary
=====
Install 1 Package

Total download size: 39 k
Installed size: 94 k
Downloading packages:
warning: /var/cache/yum/x86_64/2/epel/packages/stress-1.0.4-16.el7.x86_64.rpm: Header V3 RSA/SHA256 Signature, key ID 352c64e5: NOKEY
Public key for stress-1.0.4-16.el7.x86_64.rpm is not installed
stress-1.0.4-16.el7.x86_64.rpm
Retrieving key from file:///etc/pki/rpm-gpg/RPM-GPG-KEY-EPEL-7
Importing GPG key 0x352c64e5:
  Userid : "Fedora EPEL (7) <epel@fedoraproject.org>"
  Fingerprint: 91e9 7d7c 4a5e 96f1 7f3e 888f 6a2f aea2 352c 64e5
  Package  : epel-release-7-11.noarch (@amzn2extra-epel)
  From     : /etc/pki/rpm-gpg/RPM-GPG-KEY-EPEL-7
Running transaction check
Running transaction test
Transaction test succeeded
Running transaction
  Installing : stress-1.0.4-16.el7.x86_64
  Verifying   : stress-1.0.4-16.el7.x86_64
                                                               1/1
                                                               1/1

Installed:
  stress.x86_64 0:1.0.4-16.el7

Complete!
[ec2-user@ip-172-31-83-145 ~]$ [ec2-user@ip-172-31-83-145 ~]$ stress -c 90
stress: info: [4405] dispatching hogs: 90 cpu, 0 io, 0 vm, 0 hdd

```

i-0228b3092fd247bd8 X

Public IPs: 44.211.130.186 Private IPs: 172.31.83.145

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```

aws CloudShell Search [Option+S] United States (N. Virginia) vocabs/user3826682=suman.adhikari@2522-6982-3994
=====
Package          Arch      Version       Repository      Size
=====
Installing:    stress      x86_64     1.0.4-16.el7      epel           39 k
=====
Transaction Summary
Install 1 Package
=====
Total download size: 39 k
Installed size: 94 k
Downloading packages:
warning: /var/cache/yum/x86_64/2/epel/packages/stress-1.0.4-16.el7.x86_64.rpm: Header V3 RSA/SHA256 Signature, key ID 352c64e5: NOKEY
Public key for stress-1.0.4-16.el7.x86_64.rpm is not installed
stress-1.0.4-16.el7.x86_64.rpm
Retrieving key from file:///etc/pki/rpm-gpg/RPM-GPG-KEY-EPEL-7
Importing GPG key 0x52C64E5:
  Userid   "Fedoraproject.org EPEL (7) <epel@fedoraproject.org>"
  Fingerprint: 91ea7d7c4a5e96f1753e889f6a2faea2352c64e5
  Package   : epel-release-7-11.noarch ({amn2extra-epel)
  From     : /etc/pki/rpm-gpg/RPM-GPG-KEY-EPEL-7
Running transaction check
Running transaction test
Transaction test succeeded
Running transaction
  Installing : stress-1.0.4-16.el7.x86_64
  Verifying  : stress-1.0.4-16.el7.x86_64
=====
1/1
1/1
=====
Installed:
  stress.x86_64 0:1.0.4-16.el7
=====
Complete!
[ec2-user@ip-172-31-10-198 ~]$ stress -c 90
stress: info: [3985] dispatching hogs: 90 cpu, 0 io, 0 vm, 0 hdd
i-097a1794461591c0f
PublicIPs: 3.236.200.175 PrivateIPs: 172.31.10.198

```

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6. Check activity now for updates to ASG.

Instance ID	Lifecycle	Instance Type	Weight...	Launch...	Available...	Health ...	Protect...
i-0228b3092fd247bd8	InService	t2.micro	-	assignment-04-	us-east-1c	Healthy	
i-0837591ea8465ce4c	InService	t2.micro	-	assignment-04-	us-east-1e	Healthy	
i-097a1794461591c0f	InService	t2.micro	-	assignment-04-	us-east-1b	Healthy	

Auto Scaling groups >

The Auto Scaling groups page lists all of your groups in the current Region. You can configure the table using its settings to adjust the number of rows and types of columns that are displayed. You can view or edit an individual Auto Scaling group by choosing its name. To view an Auto Scaling group in split pane mode, select the check box beside the name of the group.

Learn more Get started with Amazon EC2 Auto Scaling

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Capacity Reservations

▼ **Images**

- AMIs
- AMI Catalog

▼ **Elastic Block Store**

- Volumes
- Snapshots
- Lifecycle Manager

▼ **Network & Security**

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- Elastic IPs
- Placement Groups
- Key Pairs
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▼ **Load Balancing**

- Load Balancers
- Target Groups
- Trust Stores

▼ **Auto Scaling**

- Auto Scaling Groups

Settings

assignment-04-task-03-asg

assignment-04-task-03-asg Capacity overview

arn:aws:autoscaling:us-east-1:252269823994:autoScalingGroup:054bdb4a-3fc7-4847-bdd6-8065664def37:autoScalingGroupName/assignment-04-task-03-asg

Desired capacity	Scaling limits (Min - Max)	Desired capacity type	Status
10	1 - 10	Units (number of instances)	Updating capacity

Date created
Tue Mar 04 2025 14:53:01 GMT-0600 (Central Standard Time)

Details Integrations - new Automatic scaling Instance management Instance refresh **Activity** Monitoring

Activity notifications (0)

Filter notifications

Send to | On instance action

No notifications are currently specified

Create notification

Activity history (22)

Filter activity history

Status	Description	Cause	Start time
Successful	Launching a new EC2 instance: i-03e682e141e3be0f	At 2025-03-04T21:33:32Z an instance was launched in response to an unhealthy instance needing to be replaced.	2025 March 04, 03:33:34 PM -06:00
Successful	Launching a new EC2 instance: i-08231cecd2af31a4	At 2025-03-04T21:33:32Z an instance was launched in response to an unhealthy instance needing to be replaced.	2025 March 04, 03:33:34 PM -06:00
Connection draining in progress	Terminating EC2 instance: i-063dd7b961c5dc043 - Waiting For ELB Connection Draining.	At 2025-03-04T21:33:32Z an instance was taken out of service in response to an EC2 health check indicating it has been terminated or stopped.	2025 March 04, 03:33:32 PM -06:00
Connection draining in progress	Terminating EC2 instance: i-077a7f3bd1394a871 - Waiting For ELB Connection Draining.	At 2025-03-04T21:33:32Z an instance was taken out of service in response to an EC2 health check indicating it has been terminated or stopped.	2025 March 04, 03:33:32 PM -06:00
Successful	Launching a new EC2 instance: i-077a7f3bd1394a871	At 2025-03-04T21:31:24Z an instance was launched in response to an unhealthy instance needing to be replaced.	2025 March 04, 03:31:24
Connection draining in progress	Terminating EC2 instance: i-0e165db27d3cfcea0 -	At 2025-03-04T21:31:24Z an instance was taken out of service in response to an EC2 health check indicating it has been terminated or stopped.	2025 March 04, 03:31:24

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- Load Balancers
- Target Groups
- Trust Stores

▼ **Auto Scaling**

- Auto Scaling Groups

Settings

Activity history (22)

Filter activity history

Status	Description	Cause	Start time
Successful	Launching a new EC2 instance: i-03e682e141e3be0f	At 2025-03-04T21:33:32Z an instance was launched in response to an unhealthy instance needing to be replaced.	2025 March 04, 03:33:34 PM -06:00
Successful	Launching a new EC2 instance: i-08231cecd2af31a4	At 2025-03-04T21:33:32Z an instance was launched in response to an unhealthy instance needing to be replaced.	2025 March 04, 03:33:34 PM -06:00
Connection draining in progress	Terminating EC2 instance: i-063dd7b961c5dc043 - Waiting For ELB Connection Draining.	At 2025-03-04T21:33:32Z an instance was taken out of service in response to an EC2 health check indicating it has been terminated or stopped.	2025 March 04, 03:33:32 PM -06:00
Connection draining in progress	Terminating EC2 instance: i-077a7f3bd1394a871 - Waiting For ELB Connection Draining.	At 2025-03-04T21:33:32Z an instance was taken out of service in response to an EC2 health check indicating it has been terminated or stopped.	2025 March 04, 03:33:32 PM -06:00
Successful	Launching a new EC2 instance: i-077a7f3bd1394a871	At 2025-03-04T21:31:24Z an instance was launched in response to an unhealthy instance needing to be replaced.	2025 March 04, 03:31:24
Connection draining in progress	Terminating EC2 instance: i-0e165db27d3cfcea0 -	At 2025-03-04T21:31:24Z an instance was taken out of service in response to an EC2 health check indicating it has been terminated or stopped.	2025 March 04, 03:31:24



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- Load Balancers
- Target Groups
- Trust Stores

▼ **Auto Scaling**

- Auto Scaling Groups

Settings

[Create notification](#)

Activity history (22)

Status	Description	Cause	Start time
Successful	Launching a new EC2 instance: i-05e682e141e5be0f	At 2025-03-04T21:33:32Z an instance was launched in response to an unhealthy instance needing to be replaced.	2025 March 04, 03:33:34 PM -06:00
Successful	Launching a new EC2 instance: i-08231ceec2d2af31a4	At 2025-03-04T21:33:32Z an instance was launched in response to an unhealthy instance needing to be replaced.	2025 March 04, 03:33:34 PM -06:00
Connection draining in progress	Terminating EC2 instance: i-063add7b961c5dc043 - Waiting For ELB Connection Draining.	At 2025-03-04T21:33:32Z an instance was taken out of service in response to an EC2 health check indicating it has been terminated or stopped.	2025 March 04, 03:33:32 PM -06:00
Connection draining in progress	Terminating EC2 instance: i-077a7f3bd1394a871 - Waiting For ELB Connection Draining.	At 2025-03-04T21:33:32Z an instance was taken out of service in response to an EC2 health check indicating it has been terminated or stopped.	2025 March 04, 03:33:32 PM -06:00
Successful	Launching a new EC2 instance: i-077a7f3bd1394a871	At 2025-03-04T21:31:24Z an instance was launched in response to an unhealthy instance needing to be replaced.	2025 March 04, 03:31:26 PM -06:00

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▼ **Auto Scaling**

- Auto Scaling Groups

Settings

Waiting For ELB Connection Draining.	PM -06:00		
Successful	Launching a new EC2 instance: i-077a7f3bd1394a871	At 2025-03-04T21:31:24Z an instance was launched in response to an unhealthy instance needing to be replaced.	2025 March 04, 03:31:24 PM -06:00
Connection draining in progress	Terminating EC2 instance: i-0e165db27d3cfcea0 - Waiting For ELB Connection Draining.	At 2025-03-04T21:31:24Z an instance was taken out of service in response to an EC2 health check indicating it has been terminated or stopped.	2025 March 04, 03:31:24 PM -06:00
Successful	Launching a new EC2 instance: i-0e165db27d3cfcea0	At 2025-03-04T21:29:27Z an instance was launched in response to an unhealthy instance needing to be replaced.	2025 March 04, 03:29:27 PM -06:00
Connection draining in progress	Terminating EC2 instance: i-08edc30d452d8288a - Waiting For ELB Connection Draining.	At 2025-03-04T21:29:27Z an instance was taken out of service in response to an EC2 health check indicating it has been terminated or stopped.	2025 March 04, 03:29:27 PM -06:00
Successful	Launching a new EC2 instance: i-08edc30d452d8288a	At 2025-03-04T21:28:36Z a monitor alarm TargetTracking-assignment-04-task-03-asg-AlarmHigh-7d4becc0-0ec7-4183-83ef-ec3965b7fc42 in state ALARM triggered policy Target Tracking Policy changing the desired capacity from 8 to 10. At 2025-03-04T21:28:43Z an instance was started in response to a difference between desired and actual capacity, increasing the capacity from 8 to 10.	2025 March 04, 03:28:45 PM -06:00
Successful	Launching a new EC2 instance: i-08134c5b4aeac5e92	At 2025-03-04T21:28:36Z a monitor alarm TargetTracking-assignment-04-task-03-asg-AlarmHigh-7d4becc0-0ec7-4183-83ef-ec3965b7fc42 in state ALARM triggered policy Target Tracking Policy changing the desired capacity from 8 to 10. At 2025-03-04T21:28:43Z an instance was started in response to a difference between desired and actual capacity, increasing the capacity from 8 to 10.	2025 March 04, 03:28:45 PM -06:00

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EC2 > Auto Scaling groups > assignment-04-task-03-asg			
Capacity Reservations			
▼ Images	Launching a new EC2 instance: i-0e142628f083160bc	At 2025-03-04T21:26:36Z a monitor alarm TargetTracking-assignment-04-task-03-asg-AlarmHigh-7d4becc0-0ec7-4183-83ef-ec3965b7fc42 in state ALARM triggered policy Target Tracking Policy changing the desired capacity from 5 to 8. At 2025-03-04T21:26:46Z an instance was started in response to a difference between desired and actual capacity, increasing the capacity from 5 to 8.	2025 March 04, 03:26:48 PM -06:00
AMIs	Launching a new EC2 instance: i-030488249e68d0988	At 2025-03-04T21:26:36Z a monitor alarm TargetTracking-assignment-04-task-03-asg-AlarmHigh-7d4becc0-0ec7-4183-83ef-ec3965b7fc42 in state ALARM triggered policy Target Tracking Policy changing the desired capacity from 5 to 8. At 2025-03-04T21:26:46Z an instance was started in response to a difference between desired and actual capacity, increasing the capacity from 5 to 8.	2025 March 04, 03:26:48 PM -06:00
AMI Catalog	Launching a new EC2 instance: i-0eab47287786c143b	At 2025-03-04T21:26:36Z a monitor alarm TargetTracking-assignment-04-task-03-asg-AlarmHigh-7d4becc0-0ec7-4183-83ef-ec3965b7fc42 in state ALARM triggered policy Target Tracking Policy changing the desired capacity from 5 to 8. At 2025-03-04T21:26:46Z an instance was started in response to a difference between desired and actual capacity, increasing the capacity from 5 to 8.	2025 March 04, 03:26:48 PM -06:00
▼ Elastic Block Store	Launching a new EC2 instance: i-031a82ee959b0457a	At 2025-03-04T21:24:37Z a monitor alarm TargetTracking-assignment-04-task-03-asg-AlarmHigh-7d4becc0-0ec7-4183-83ef-ec3965b7fc42 in state ALARM triggered policy Target Tracking Policy changing the desired capacity from 3 to 5. At 2025-03-04T21:26:46Z an instance was started in response to a difference between desired and actual capacity, increasing the capacity from 3 to 5.	2025 March 04, 03:24:41 PM -06:00
Volumes	Launching a new EC2 instance: i-03886bafeba2688c7	At 2025-03-04T21:24:37Z a monitor alarm TargetTracking-assignment-04-task-03-asg-AlarmHigh-7d4becc0-0ec7-4183-83ef-ec3965b7fc42 in state ALARM triggered policy Target Tracking Policy changing the desired capacity from 3 to 5. At 2025-03-04T21:26:46Z an instance was started in response to a difference between desired and actual capacity, increasing the capacity from 3 to 5.	2025 March 04, 03:24:41 PM -06:00
Snapshots	Launching a new EC2 instance: i-063dd7b961c5dc043	At 2025-03-04T21:15:20Z an instance was launched in response to an unhealthy instance needing to be replaced.	2025 March 04, 03:15:22 PM -06:00
Lifecycle Manager	Terminating EC2 instance: i-097a1794461591c0f	At 2025-03-04T21:15:20Z an instance was taken out of service in response to an ELB system health check failure.	2025 March 04, 03:15:20 PM -06:00
▼ Network & Security	Launching a new EC2 instance: i-097a1794461591c0f	At 2025-03-04T21:11:01Z a user request update of AutoScalingGroup constraints to min: 3, max: 10, desired: 3 changing the desired capacity from 2 to 3. At 2025-03-04T21:11:07Z an instance was started in response to a difference between desired and actual capacity, increasing the capacity from 2 to 3.	2025 March 04, 03:11:09 PM -06:00
Security Groups	Terminating EC2 instance: i-0228b3092fd247bd8	At 2025-03-04T21:05:48Z a monitor alarm TargetTracking-assignment-04-task-03-asg-AlarmLow-d8ea7ecf-a985-4e22-9d56-944581d1d4c5 in state ALARM triggered policy Target Tracking Policy changing the desired capacity from 3 to 2. At 2025-03-04T21:06:02Z an instance was taken out of service in response to a difference between desired and actual capacity, shrinking the capacity from 3 to 2. At 2025-03-04T21:06:02Z instance i-0228b3092fd247bd8 was selected for termination.	2025 March 04, 03:06:02 PM -06:00
Elastic IPs	Launching a new EC2 instance: i-097a1794461591c0f	At 2025-03-04T20:53:01Z a user request created an AutoScalingGroup changing the desired capacity from 0 to 3. At 2025-03-04T20:53:02Z an instance was started in response to a difference between desired and actual capacity, increasing the capacity from 0 to 3.	2025 March 04, 03:53:04
Placement Groups			
Key Pairs			
Network Interfaces			
▼ Load Balancing			
Load Balancers			
Target Groups			
Trust Stores			
▼ Auto Scaling			
Auto Scaling Groups			
Settings			

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EC2 > Auto Scaling groups > assignment-04-task-03-asg			
Capacity Reservations			
▼ Images	Launching a new EC2 instance: i-031a82ee959b0457a	At 2025-03-04T21:24:37Z a monitor alarm TargetTracking-assignment-04-task-03-asg-AlarmHigh-7d4becc0-0ec7-4183-83ef-ec3965b7fc42 in state ALARM triggered policy Target Tracking Policy changing the desired capacity from 3 to 5. At 2025-03-04T21:26:46Z an instance was started in response to a difference between desired and actual capacity, increasing the capacity from 3 to 5.	2025 March 04, 03:24:41 PM -06:00
AMIs	Launching a new EC2 instance: i-03886bafeba2688c7	At 2025-03-04T21:24:37Z a monitor alarm TargetTracking-assignment-04-task-03-asg-AlarmHigh-7d4becc0-0ec7-4183-83ef-ec3965b7fc42 in state ALARM triggered policy Target Tracking Policy changing the desired capacity from 3 to 5. At 2025-03-04T21:26:46Z an instance was started in response to a difference between desired and actual capacity, increasing the capacity from 3 to 5.	2025 March 04, 03:24:41 PM -06:00
AMI Catalog	Launching a new EC2 instance: i-063dd7b961c5dc043	At 2025-03-04T21:15:20Z an instance was launched in response to an unhealthy instance needing to be replaced.	2025 March 04, 03:15:22 PM -06:00
▼ Elastic Block Store	Terminating EC2 instance: i-097a1794461591c0f	At 2025-03-04T21:15:20Z an instance was taken out of service in response to an ELB system health check failure.	2025 March 04, 03:15:20 PM -06:00
Volumes	Launching a new EC2 instance: i-0a779bc65d8050682	At 2025-03-04T21:11:01Z a user request update of AutoScalingGroup constraints to min: 3, max: 10, desired: 3 changing the desired capacity from 2 to 3. At 2025-03-04T21:11:07Z an instance was started in response to a difference between desired and actual capacity, increasing the capacity from 2 to 3.	2025 March 04, 03:11:09 PM -06:00
Snapshots	Terminating EC2 instance: i-0228b3092fd247bd8	At 2025-03-04T21:05:48Z a monitor alarm TargetTracking-assignment-04-task-03-asg-AlarmLow-d8ea7ecf-a985-4e22-9d56-944581d1d4c5 in state ALARM triggered policy Target Tracking Policy changing the desired capacity from 3 to 2. At 2025-03-04T21:06:02Z an instance was taken out of service in response to a difference between desired and actual capacity, shrinking the capacity from 3 to 2. At 2025-03-04T21:06:02Z instance i-0228b3092fd247bd8 was selected for termination.	2025 March 04, 03:06:02 PM -06:00
Lifecycle Manager	Launching a new EC2 instance: i-097a1794461591c0f	At 2025-03-04T20:53:01Z a user request created an AutoScalingGroup changing the desired capacity from 0 to 3. At 2025-03-04T20:53:02Z an instance was started in response to a difference between desired and actual capacity, increasing the capacity from 0 to 3.	2025 March 04, 03:53:04
▼ Network & Security			
Security Groups			
Elastic IPs			
Placement Groups			
Key Pairs			
Network Interfaces			
▼ Load Balancing			
Load Balancers			
Target Groups			
Trust Stores			
▼ Auto Scaling			
Auto Scaling Groups			
Settings			

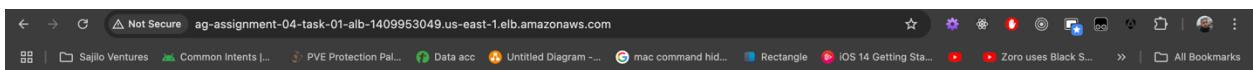
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The screenshot shows the AWS EC2 Auto Scaling groups activity page for the group 'assignment-04-task-03-asg'. The left sidebar includes sections for Capacity Reservations, Images (AMIs, AMI Catalog), Elastic Block Store (Volumes, Snapshots, Lifecycle Manager), Network & Security (Security Groups, Elastic IPs, Placement Groups, Key Pairs, Network Interfaces), Load Balancing (Load Balancers, Target Groups, Trust Stores), and Auto Scaling (Auto Scaling Groups, Settings). The main content area has tabs for Details, Integrations - new, Automatic scaling, Instance management, Instance refresh, Activity (selected), and Monitoring. The 'Activity notifications (0)' section contains a search bar, a 'Send to' dropdown set to 'On instance action', and a button to 'Create notification'. The 'Activity history (22)' section shows a table with columns for Status, Description, Cause, and Start time. Two successful entries are listed:

Status	Description	Cause	Start time
Successful	Launching a new EC2 instance: i-0837591ea8465ce4c	At 2025-03-04T20:53:01Z a user request created an AutoScalingGroup changing the desired capacity from 0 to 3. At 2025-03-04T20:53:02Z an instance was started in response to a difference between desired and actual capacity, increasing the capacity from 0 to 3.	2025 March 04, 02:53:04 PM -06:00
Successful	Launching a new EC2 instance: i-0228b3092fd247bd8	At 2025-03-04T20:53:01Z a user request created an AutoScalingGroup changing the desired capacity from 0 to 3. At 2025-03-04T20:53:02Z an instance was started in response to a difference between desired and actual capacity, increasing the capacity from 0 to 3.	2025 March 04, 02:53:04 PM -06:00

6. Check response from the ALB now.

The screenshot shows a web browser window with the URL 'ag-assignment-04-task-01-alb-1409953049.us-east-1.elb.amazonaws.com'. The page content displays the message 'Hello Suman from ip-172-31-84-35.ec2.internal'.



Hello Suman from ip-172-31-35-216.ec2.internal

Task #4 – Cleaning up all services

Nothing much to see here. First, we set the maximum, minimum and desired capacity to 0 in ASG. Then we remove the ASG. Next, the ALB and NLB are deleted. Then we remove the target groups. Afterwards, we terminate any EC2 instances still running on the server. Optionally, remove unused security groups as well.

1. Set capacity to 0 (min, max, desired) in ASG and delete ASG.

The screenshot shows the AWS Auto Scaling Groups console. A success message box is displayed at the top right, containing two items: "Auto Scaling group updated successfully" and "Instance refresh started successfully". Below this, the "Details" tab of an Auto Scaling group named "assignment-04-task-03-asg" is shown. The "Desired capacity" is set to 0. The "Scaling limits (Min - Max)" are 0 - 0. The "Desired capacity type" is "Units (number of instances)". The "Status" is "Updating capacity". A "Date created" timestamp is also present. The "Launch template" section shows details like AMI ID, Instance type (t2.micro), Owner (suman.adhikari), Security group IDs, and Create time (Tue Mar 04 2025 16:06:56 GMT-0600). The "Edit" button is visible in the top right corner of the launch template card.

The screenshot shows the AWS EC2 Auto Scaling Groups page. The left sidebar contains navigation links for Capacity Reservations, Images, AMIs, AMI Catalog, Elastic Block Store, Volumes, Snapshots, Lifecycle Manager, Network & Security, Security Groups, Elastic IPs, Placement Groups, Key Pairs, Network Interfaces, Load Balancing, Load Balancers, Target Groups, Trust Stores, and Auto Scaling. The 'Auto Scaling Groups' link under Auto Scaling is highlighted. The main content area displays the 'Auto Scaling groups (1/1)' section with a table. The table has columns for Name, Launch template/configuration, Instances, Status, Desired capacity, Min, and Max. One row is shown for 'assignment-04-task-03-asg' with a status of 'Deleting'. At the bottom, a modal window titled 'Auto Scaling group: assignment-04-task-03-asg' is open.

2. Delete ALB and NLB load balancers.

The screenshot shows the AWS EC2 Load balancers page. The left sidebar contains the same navigation links as the previous page. The main content area shows a green success message: 'Successfully deleted 2 load balancers.' Below this, the 'Load balancers' section is displayed. It includes a sub-section for 'Elastic Load Balancing scales your load balancer capacity automatically in response to changes in incoming traffic.' A search bar labeled 'Filter load balancers' and a table with columns for Name, DNS name, State, VPC ID, and Availability are present. The table shows 'No load balancers' and a note: 'You don't have any load balancers in us-east-1'. A 'Create load balancer' button is located at the bottom of the table. At the bottom of the page, a modal window titled '0 load balancers selected' is open, with the message 'Select a load balancer above.'

3. Delete target groups.

The screenshot shows the AWS EC2 Target Groups page. On the left, there's a navigation sidebar with sections like Capacity Reservations, Images, Elastic Block Store, Network & Security, Load Balancing, Auto Scaling, and Settings. The main area has a green header bar stating "Successfully deleted 2 target groups." Below it, there's a table header for "Target groups" with columns for Name, ARN, Port, Protocol, Target type, Load balancer, and VPC ID. A message says "No target groups" and "You don't have any target groups in us-east-1". There's a "Create target group" button. At the bottom, it says "0 target groups selected" and "Select a target group above."

4. Delete Launch Template.

The screenshot shows the AWS EC2 Launch Templates page. The left sidebar includes sections for Dashboard, Instances, Launch Templates, Images, Elastic Block Store, Network & Security, and Settings. The main area features a green header bar with "Delete Launch Template Request Succeeded". Below is a table header for "Launch Templates" with columns for Launch Template ID, Launch Template Name, Default Version, Latest Version, Create Time, and Created By. A message indicates "You do not have any Launch Templates in this region". At the bottom, it says "Select a launch template".

5. Delete any pending instances.

The screenshot shows the AWS EC2 Instances page. The left sidebar is collapsed. The main content area displays a table of instances. A green banner at the top indicates a successful termination of several instances. The table has columns for Name, Instance ID, Instance state, Instance type, Status check, and Alarm status. All instances listed are in the 'terminated' state. The status check for the first instance shows a red circle with a minus sign, while others show green circles with checkmarks. The alarm status for all instances is 'View alarms +'. The table header includes filters for 'All states' and 'Launch instances'.

Name	Instance ID	Instance state	Instance type	Status check	Alarm status
i-03e682e141e3eb0f	i-03e682e141e3eb0f	Terminated	t2.micro	-	View alarms +
i-04e23b1041bfc6801	i-04e23b1041bfc6801	Terminated	t2.micro	-	View alarms +
i-08231cec2d2af31a4	i-08231cec2d2af31a4	Terminated	t2.micro	-	View alarms +
i-0837591ea8465ce4c	i-0837591ea8465ce4c	Terminated	t2.micro	✖ The instance IDs '	View alarms +
i-0d3a74145fa63b58f	i-0d3a74145fa63b58f	Shutting-down	t2.micro	✓ 2/2 checks passed	View alarms +
i-0c969bfbfe829aad	i-0c969bfbfe829aad	Shutting-down	t2.micro	✓ 2/2 checks passed	View alarms +
i-0521add21b1d983c5	i-0521add21b1d983c5	Shutting-down	t2.micro	✓ 2/2 checks passed	View alarms +