ASSIGNMENT 5 : ELB and Route53

EC2 > Instances > Launch an instance

Launch an instance Info

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 Info

Name

Assignment5

Add additional tags

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

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

Quick Start

Amazon Linux | macOS | Ubuntu | Windows | Red Hat | SUSE L

Browse more AMIs

Including AMIs from AWS, Marketplace and the Community

Summary

Number of instances Info

1

Software Image (AMI)

Canonical, Ubuntu, 22.04 LTS, ...read more

ami-080e1f13689e07408

Virtual server type (instance type)

t2.micro

Firewall (security group)

New security group

Storage (volumes)

1 volume(s) - 8 GiB

Free tier: In your first year includes 750 hours of t2.micro (or t3.micro in the Regions in which t2.micro is unavailable) instance usage on free tier AMIs per month, 750 hours of public IPv4 address usage per month, 30 GiB of EBS storage, 2 million IOs, 1 GB of snapshots, and 100 GB of bandwidth to the internet.

Cancel

Launch instance

Amazon Machine Image (AMI)

Ubuntu Server 22.04 LTS (HVM), SSD Volume Type — Free tier eligible
ami-080e1f13689e07408 (64-bit (x86)) / ami-0a55ba1c20b74fc30 (64-bit (Arm))
Virtualization: hvm ENA enabled: true Root device type: ebs

Description

Canonical, Ubuntu, 22.04 LTS, amd64 jammy image build on 2024-03-01

Architecture: 64-bit (x86)

AMI ID: ami-080e1f13689e07408 — Verified provider

Instance type Info | Get advice

Instance type

t2.micro — Free tier eligible
Family: t2 1 vCPU 1 GiB Memory Current generation: true
On-Demand Windows base pricing: 0.0162 USD per Hour
On-Demand SUSE base pricing: 0.0116 USD per Hour
On-Demand RHEL base pricing: 0.0716 USD per Hour
On-Demand Linux base pricing: 0.0116 USD per Hour

All generations

Compare instance types

Additional costs apply for AMIs with pre-installed software

Key pair (login) Info

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

Key pair name - *required*

Assignment5KP

Create new key pair

Network settings Info

Edit

Network Info

vpc-0567159dac327792c

Subnet Info

No preference (Default subnet in any availability zone)

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

We'll create a new security group called '**launch-wizard-3**' with the following rules:

[x] Allow SSH traffic from
Helps you connect to your instance
Anywhere
0.0.0.0/0

[x] Allow HTTPS traffic from the internet
To set up an endpoint, for example when creating a web server

[x] Allow HTTP traffic from the internet
To set up an endpoint, for example when creating a web server

⚠ Rules with source of 0.0.0.0/0 allow all IP addresses to access your instance. We recommend setting security group rules to allow access from known IP addresses only. ✕

Configure storage Info

Advanced

1x 8 GiB gp2 Root volume (Encrypted)

Free tier eligible customers can get up to 30 GB of EBS General Purpose (SSD) or Magnetic storage

Add new volume

The selected AMI contains more instance store volumes than the instance allows. Only the first 0 instance store volumes from the AMI will be accessible from the instance

Click refresh to view backup information

The tags that you assign determine whether the instance will be backed up by any Data Lifecycle Manager policies.

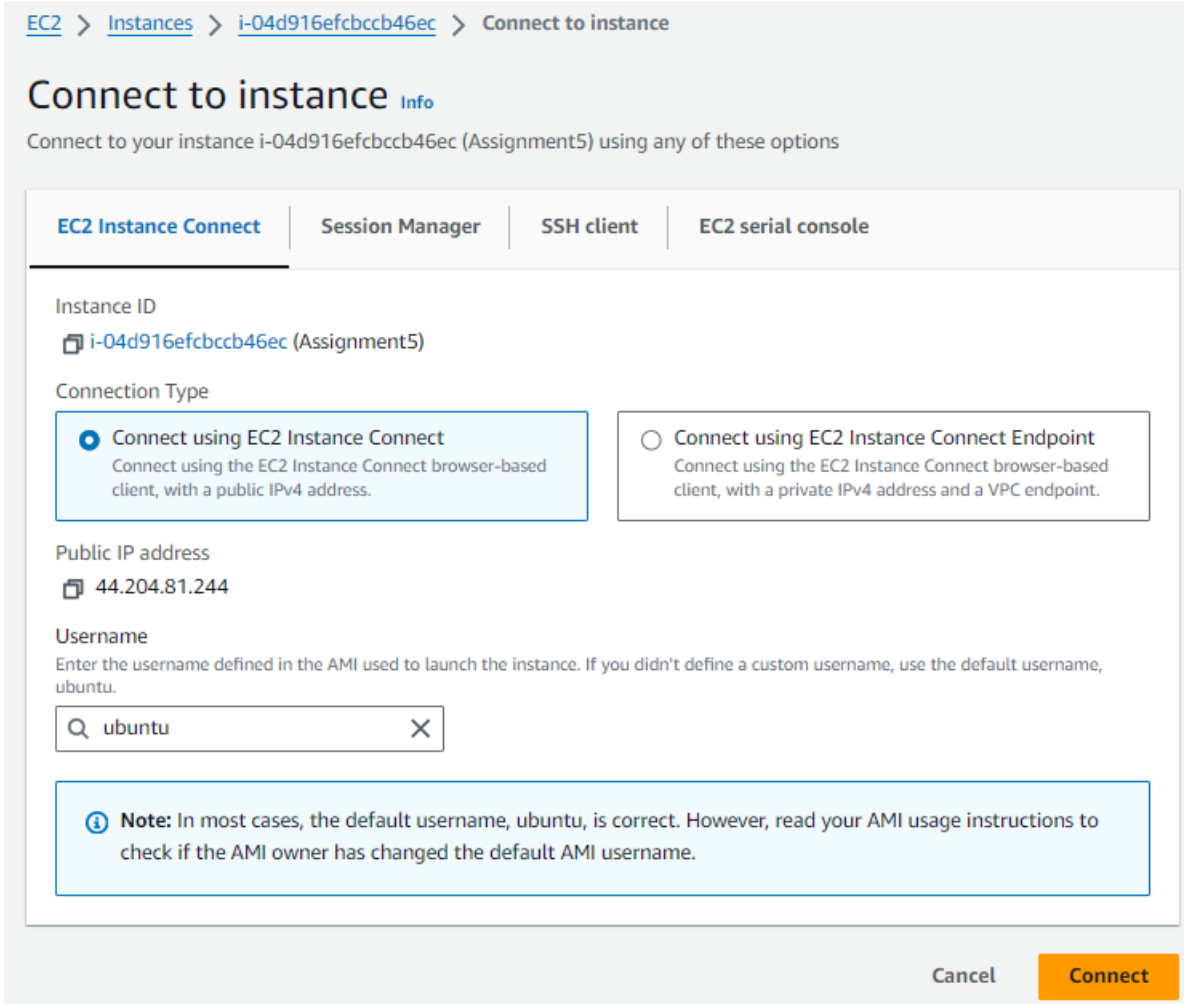
0 x File systems Edit

Advanced details Info

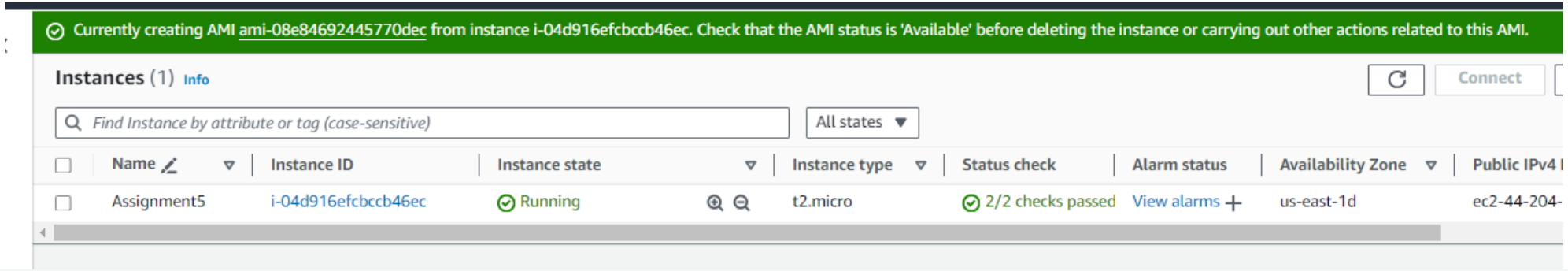
Instances (1) Info

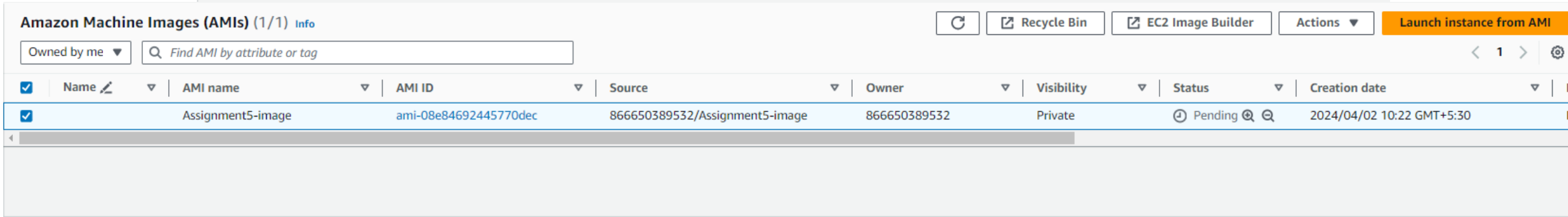
Find Instance by attribute or tag (case-sensitive) All states

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zo
Assignment5	i-04d916efcbccb46ec	Running	t2.micro	Initializing	View alarms	us-east-1d



Hello World! THIS IS THE ASSIGNMENT ON LOAD BALANCER AND AUTO SCALING





AMI ID: ami-08e84692445770dec

Details | Permissions | Storage | Tags

AMI ID ami-08e84692445770dec	Image type machine	Platform details Linux/UNIX	Root device type EBS
AMI name Assignment5-image	Owner account ID 866650389532	Architecture x86_64	Usage operation RunInstances
Root device name /dev/sda1	Status Pending	Source 866650389532/Assignment5-image	Virtualization type hvm
Boot mode uefi-preferred	State reason –	Creation date Tue Apr 02 2024 10:22:34 GMT+0530 (India Standard Time)	Kernel ID –
Description –	Product codes –	RAM disk ID –	Deprecation time –
Last launched time –	Block devices /dev/sda1=8:true:gp2:encrypted /dev/sdb=ephemeral0 /dev/sdc=ephemeral1		

EC2 > Launch templates > Create launch template

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*

Assignment5-LT

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

Template version description

A prod webserver for MyApp

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.

▼ Summary

Software Image (AMI)

Assignment5-image

ami-08e84692445770dec

Virtual server type (instance type)

t2.micro

Firewall (security group)

-

Storage (volumes)

1 volume(s) - 8 GiB

Free tier: In your first year includes 750 hours of t2.micro (or t3.micro in the Regions in which t2.micro is unavailable) instance usage on free tier AMIs per month, 750 hours of public IPv4 address usage per month, 30 GiB of EBS storage, 2 million IOs, 1 GB of snapshots, and 100 GB of bandwidth to the internet.

Cancel | Create launch template

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

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

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

Recents | My AMIs | Quick Start

Owned by me | Shared with me

Browse more AMIs

Including AMIs from AWS, Marketplace and the Community

Amazon Machine Image (AMI)

Assignment5-image
ami-08e84692445770dec
2024-04-02T04:52:34.000Z Virtualization: hvm ENA enabled: true Root device type: ebs

Description

-

Architecture	AMI ID
x86_64	ami-08e84692445770dec

Instance type Info | Get advice

Advanced

Instance type

t2.micro Free tier eligible
Family: t2 1 vCPU 1 GiB Memory Current generation: true
On-Demand Windows base pricing: 0.0162 USD per Hour
On-Demand SUSE base pricing: 0.0116 USD per Hour
On-Demand RHEL base pricing: 0.0716 USD per Hour
On-Demand Linux base pricing: 0.0116 USD per Hour

All generations

Compare instance types

Additional costs apply for AMIs with pre-installed software

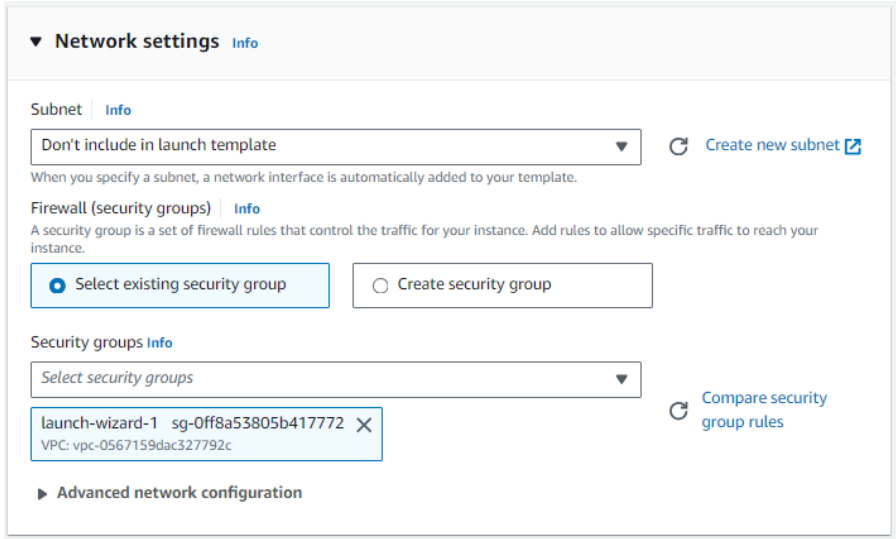
Key pair (login) Info

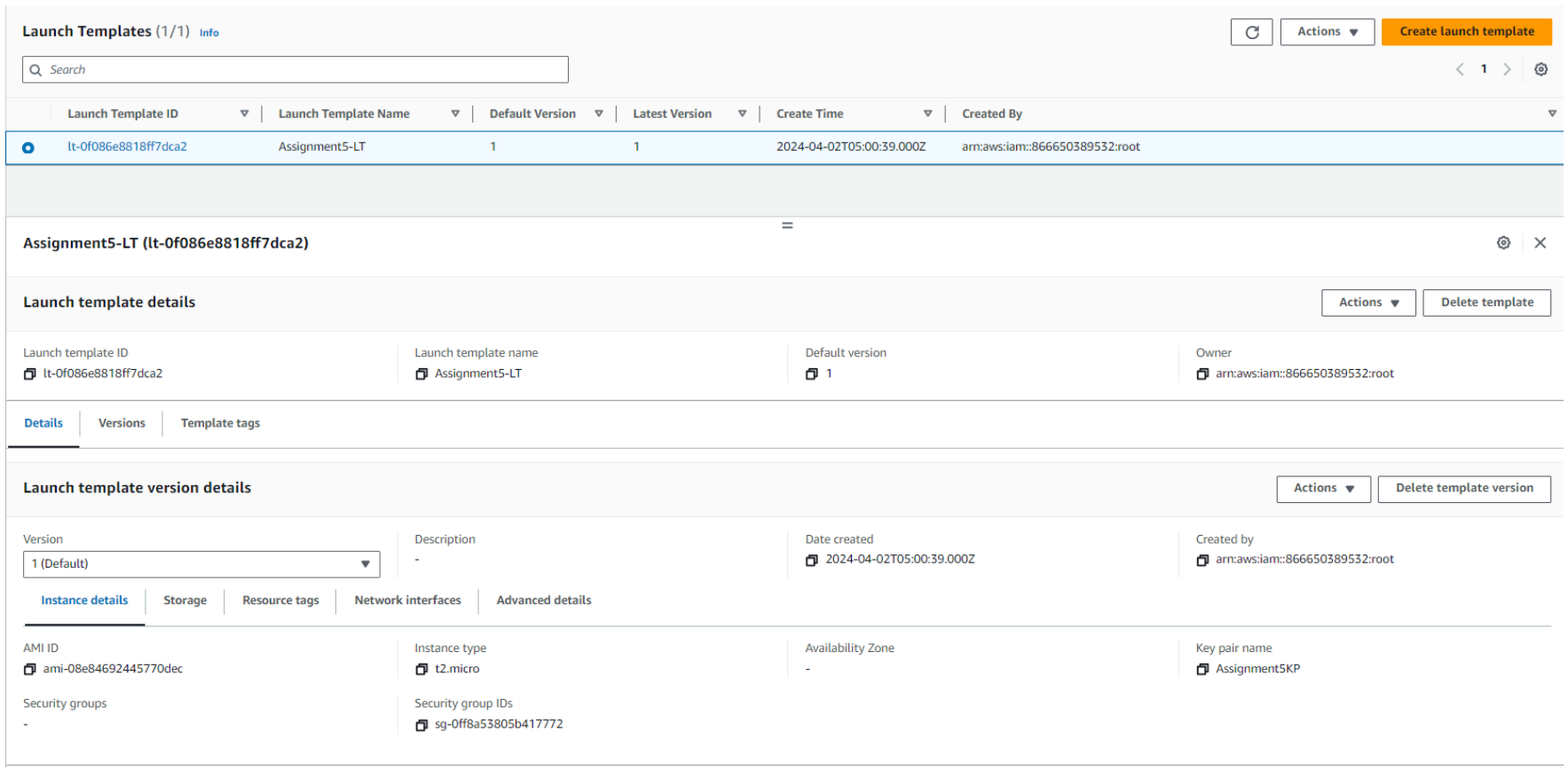
You can use a key pair to securely connect to your instance. Ensure that you have access to the selected key pair before you launch the instance.

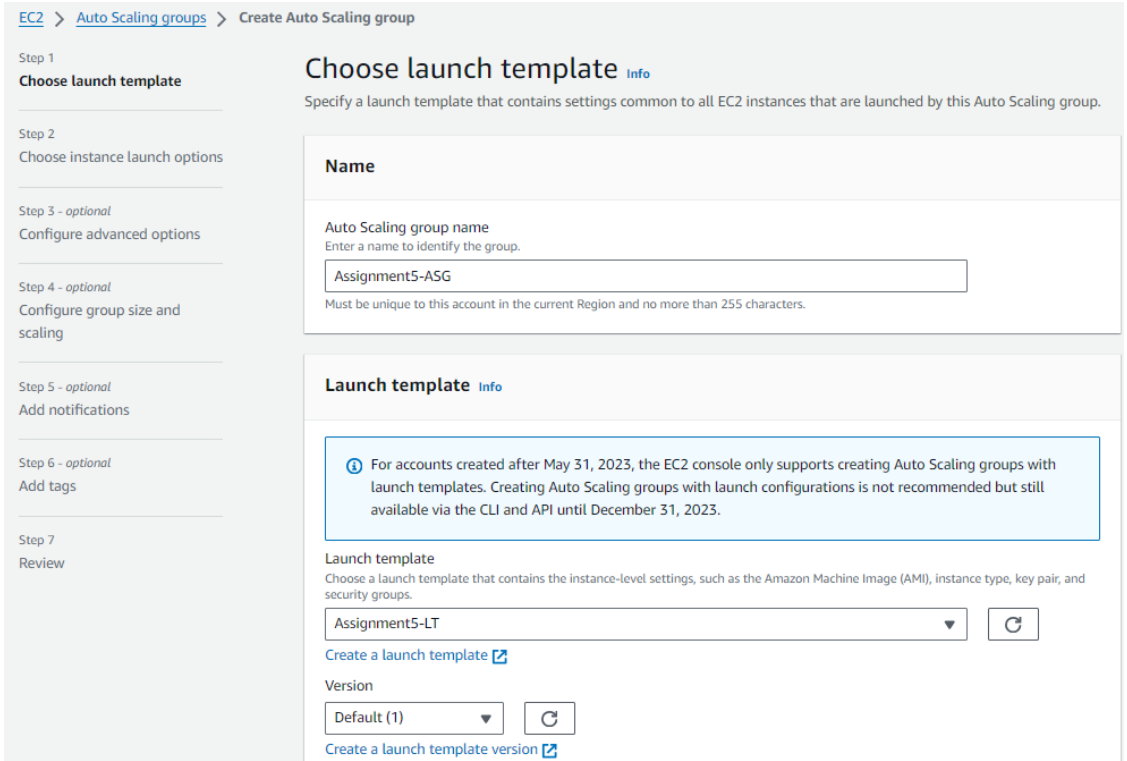
Key pair name

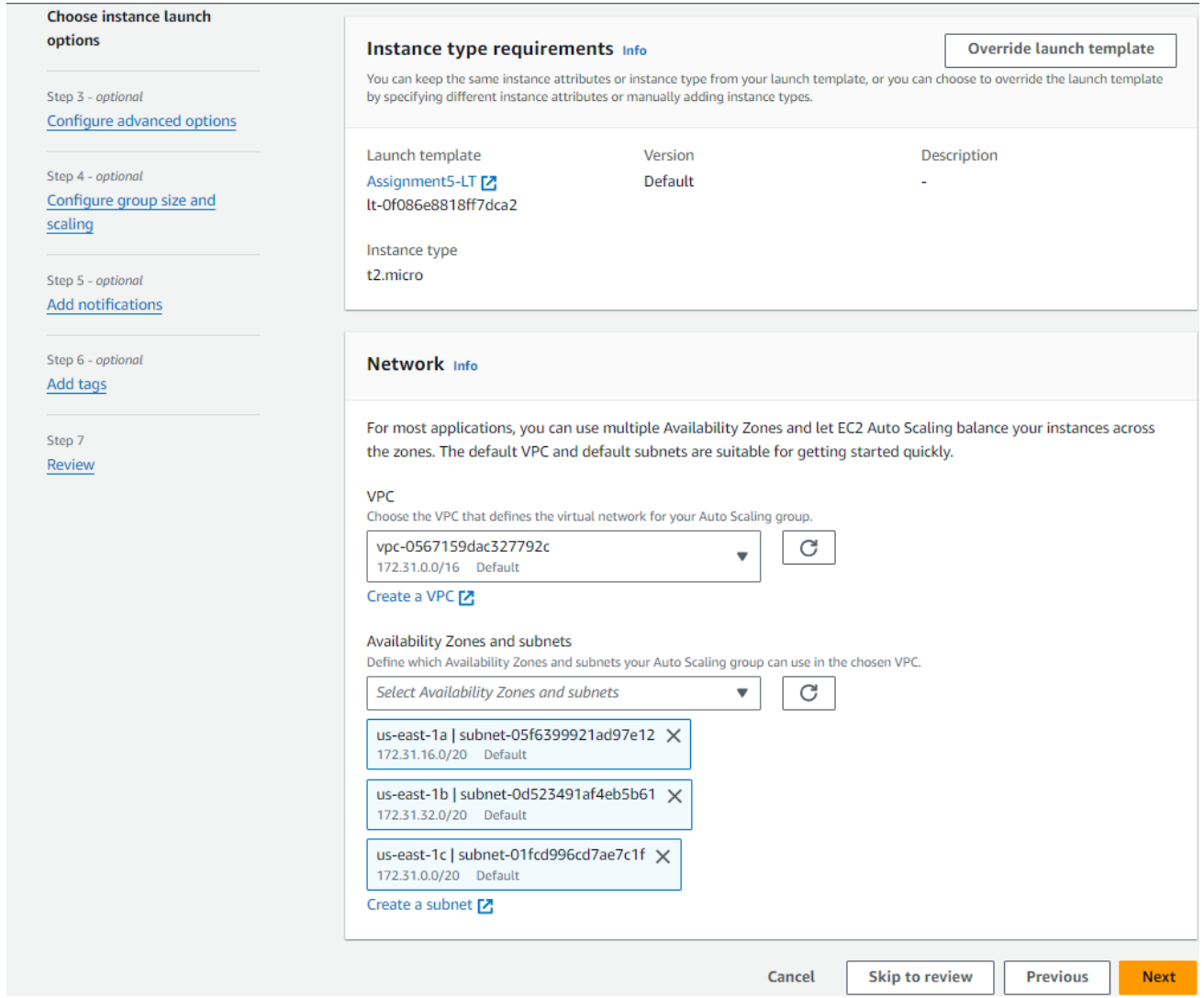
Assignment5KP

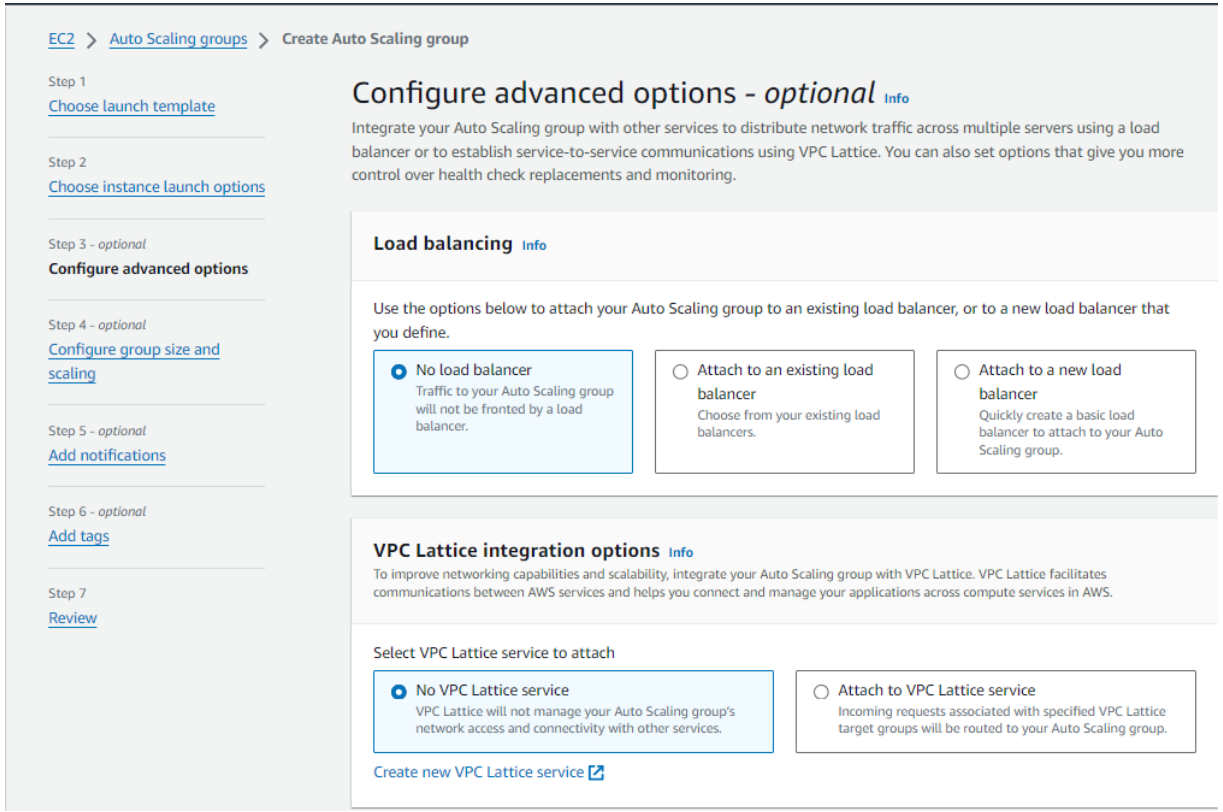
Create new key pair

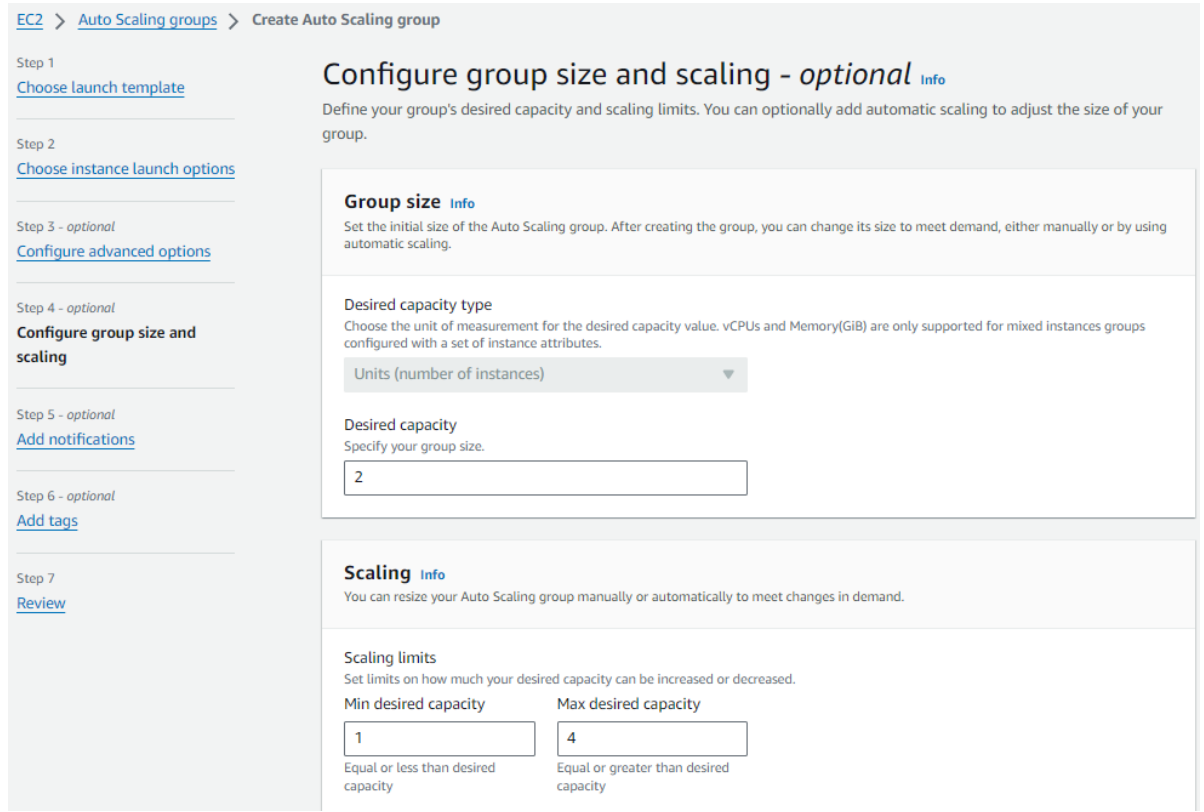

Network settings Info
Subnet Info
Don't include in launch template
Create new subnet
When you specify a subnet, a network interface is automatically added to your template.
Firewall (security groups) Info
A security group is a set of firewall rules that control the traffic for your instance. Add rules to allow specific traffic to reach your instance.
Select existing security group
Create security group
Security groups Info
Select security groups
launch-wizard-1 sg-0ff8a53805b417772
VPC: vpc-0567159dac327792c
Compare security group rules
Advanced network configuration

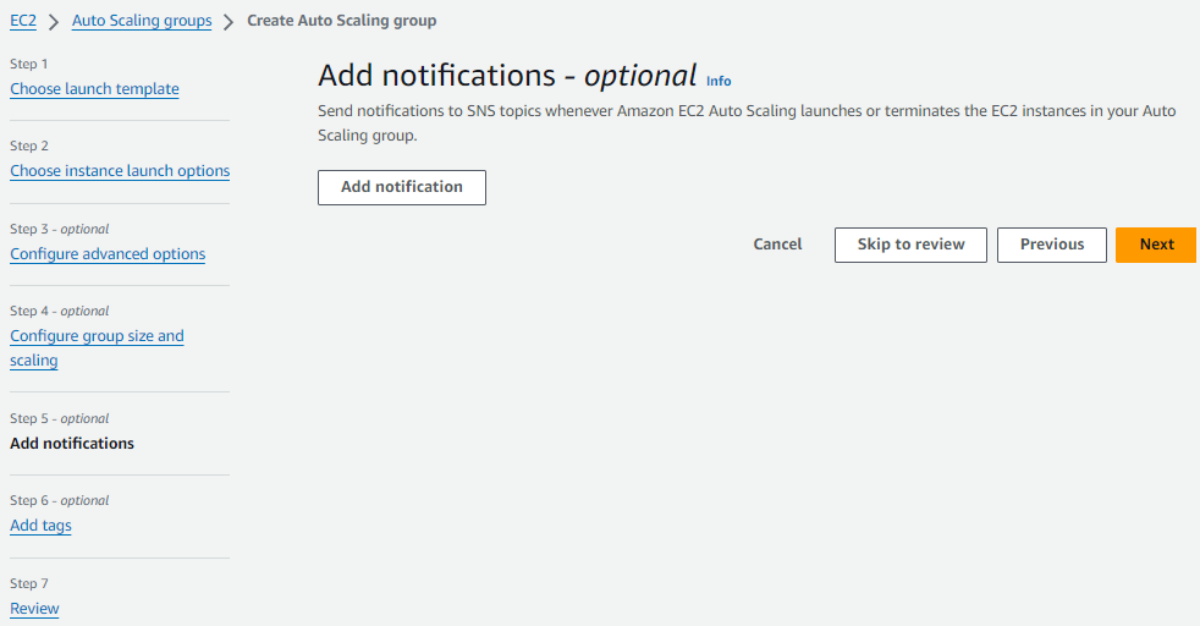

Launch Templates (1/1) Info
Actions
Create launch template
Search
1
Launch Template ID
Launch Template Name
Default Version
Latest Version
Create Time
Created By
lt-0f086e8818ff7dca2
Assignment5-LT
1
1
2024-04-02T05:00:39.000Z
arn:aws:iam::866650389532:root
Assignment5-LT (lt-0f086e8818ff7dca2)
Launch template details
Actions
Delete template
Launch template ID
lt-0f086e8818ff7dca2
Launch template name
Assignment5-LT
Default version
1
Owner
arn:aws:iam::866650389532:root
Details
Versions
Template tags
Launch template version details
Actions
Delete template version
Version
1 (Default)
Description
-
Date created
2024-04-02T05:00:39.000Z
Created by
arn:aws:iam::866650389532:root
Instance details
Storage
Resource tags
Network interfaces
Advanced details
AMI ID
ami-08e84692445770dec
Instance type
t2.micro
Availability Zone
-
Key pair name
Assignment5KP
Security groups
-
Security group IDs
sg-0ff8a53805b417772

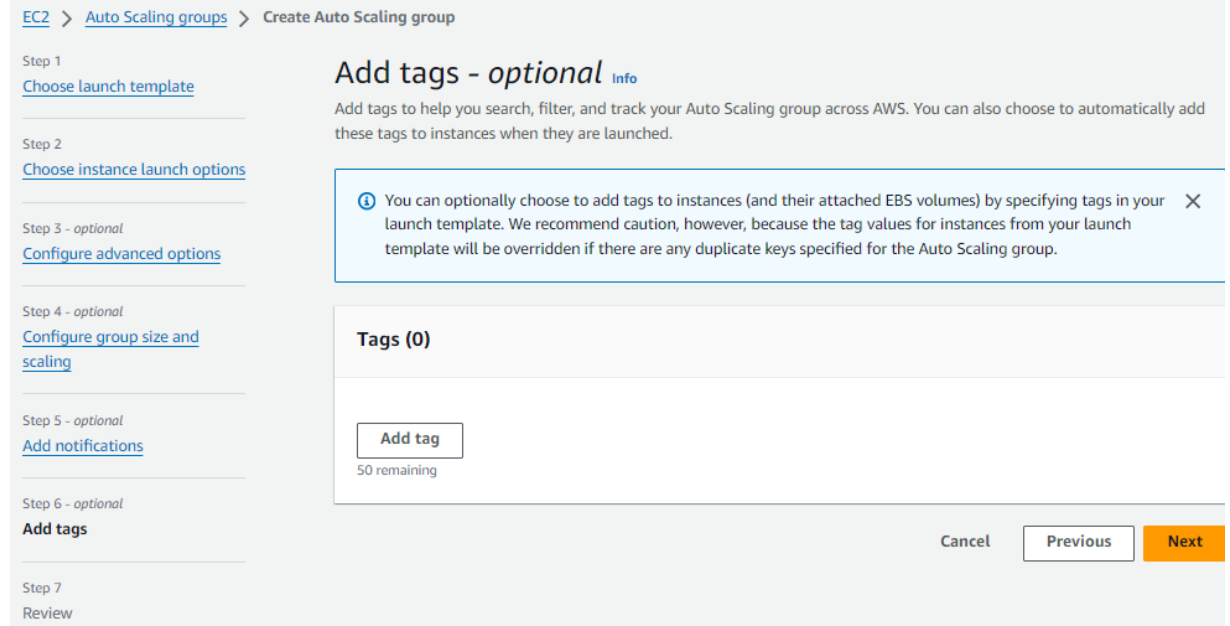

EC2 > Auto Scaling groups > Create Auto Scaling group
Step 1
Choose launch template
Step 2
Choose instance launch options
Step 3 - optional
Configure advanced options
Step 4 - optional
Configure group size and scaling
Step 5 - optional
Add notifications
Step 6 - optional
Add tags
Step 7
Review
Choose launch template Info
Specify a launch template that contains settings common to all EC2 instances that are launched by this Auto Scaling group.
Name
Auto Scaling group name
Enter a name to identify the group.
Assignment5-ASG
Must be unique to this account in the current Region and no more than 255 characters.
Launch template Info
For accounts created after May 31, 2023, the EC2 console only supports creating Auto Scaling groups with launch templates. Creating Auto Scaling groups with launch configurations is not recommended but still available via the CLI and API until December 31, 2023.
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.
Assignment5-LT
Create a launch template
Version
Default (1)
Create a launch template version

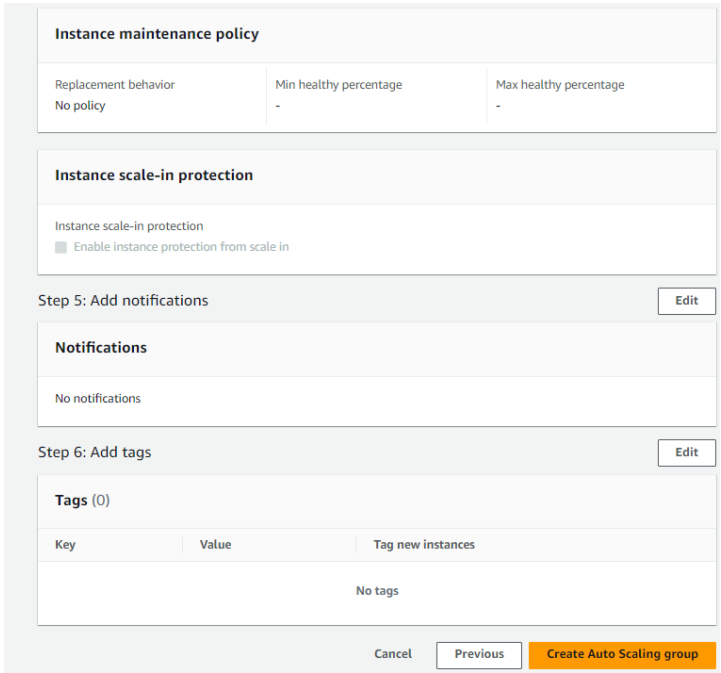

Choose instance launch options
Step 3 - optional
Configure advanced options
Step 4 - optional
Configure group size and scaling
Step 5 - optional
Add notifications
Step 6 - optional
Add tags
Step 7
Review
Instance type requirements Info
Override launch template
You can keep the same instance attributes or instance type from your launch template, or you can choose to override the launch template by specifying different instance attributes or manually adding instance types.
Launch template
Assignment5-LT
lt-0f086e8818ff7dca2
Version
Default
Description
-
Instance type
t2.micro
Network Info
For most applications, you can use multiple Availability Zones and let EC2 Auto Scaling balance your instances across the zones. The default VPC and default subnets are suitable for getting started quickly.
VPC
Choose the VPC that defines the virtual network for your Auto Scaling group.
vpc-0567159dac327792c
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
us-east-1a | subnet-05f6399921ad97e12
172.31.16.0/20 Default
us-east-1b | subnet-0d523491af4eb5b61
172.31.32.0/20 Default
us-east-1c | subnet-01fcd996cd7ae7c1f
172.31.0.0/20 Default
Create a subnet
Cancel
Skip to review
Previous
Next


EC2 > Auto Scaling groups > Create Auto Scaling group
Step 1
Choose launch template
Step 2
Choose instance launch options
Step 3 - optional
Configure advanced options
Step 4 - optional
Configure group size and scaling
Step 5 - optional
Add notifications
Step 6 - optional
Add tags
Step 7
Review
Configure advanced options - optional Info
Integrate your Auto Scaling group with other services to distribute network traffic across multiple servers using a load balancer or to establish service-to-service communications using VPC Lattice. You can also set options that give you more control over health check replacements and monitoring.
Load balancing 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.
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 helps you connect and manage your applications across compute services in AWS.
Select VPC Lattice service to attach
No VPC Lattice service
VPC Lattice will not manage your Auto Scaling group's network access and connectivity with other services.
Attach to VPC Lattice service
Incoming requests associated with specified VPC Lattice target groups will be routed to your Auto Scaling group.
Create new VPC Lattice service


EC2 > Auto Scaling groups > Create Auto Scaling group
Step 1
Choose launch template
Step 2
Choose instance launch options
Step 3 - optional
Configure advanced options
Step 4 - optional
Configure group size and scaling
Step 5 - optional
Add notifications
Step 6 - optional
Add tags
Step 7
Review
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.
Units (number of instances)
Desired capacity
Specify your group size.
2
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
1
Equal or less than desired capacity
Max desired capacity
4
Equal or greater than desired capacity


EC2 > Auto Scaling groups > Create Auto Scaling group
Step 1
Choose launch template
Step 2
Choose instance launch options
Step 3 - optional
Configure advanced options
Step 4 - optional
Configure group size and scaling
Step 5 - optional
Add notifications
Step 6 - optional
Add tags
Step 7
Review
Add notifications - optional Info
Send notifications to SNS topics whenever Amazon EC2 Auto Scaling launches or terminates the EC2 instances in your Auto Scaling group.
Add notification
Cancel
Skip to review
Previous
Next


EC2 > Auto Scaling groups > Create Auto Scaling group
Step 1
Choose launch template
Step 2
Choose instance launch options
Step 3 - optional
Configure advanced options
Step 4 - optional
Configure group size and scaling
Step 5 - optional
Add notifications
Step 6 - optional
Add tags
Step 7
Review
Add tags - optional Info
Add tags to help you search, filter, and track your Auto Scaling group across AWS. You can also choose to automatically add these tags to instances when they are launched.
You can optionally choose to add tags to instances (and their attached EBS volumes) by specifying tags in your launch template. We recommend caution, however, because the tag values for instances from your launch template will be overridden if there are any duplicate keys specified for the Auto Scaling group.
Tags (0)
Add tag
50 remaining
Cancel
Previous
Next


Instance maintenance policy
Replacement behavior
No policy
Min healthy percentage
-
Max healthy percentage
-
Instance scale-in protection
Instance scale-in protection
Enable instance protection from scale in
Step 5: Add notifications
Edit
Notifications
No notifications
Step 6: Add tags
Edit
Tags (0)
Key
Value
Tag new instances
No tags
Cancel
Previous
Create Auto Scaling group

EC2 > Auto Scaling groups

Auto Scaling groups (1/1) Info

Launch configurations | Launch templates | Actions | Create Auto Scaling group

Search your Auto Scaling groups

1

Name	Launch template/configuration	Instances	Status	Desired capacity	Min	Max	Availability Zones
Assignment5-ASG	Assignment5-LT | Version Default	2	-	2	1	4	us-east-1a, us-east-1b, us-east-1c

Auto Scaling group: Assignment5-ASG

Activity notifications (0)

Actions | Create notification

Filter notifications

1

Send to	On instance action

No notifications are currently specified

Create notification

Activity history (2)

Filter activity history

1

Status	Description	Cause	Start time	End time
Successful	Launching a new EC2 instance: i-0747e77ac42f751c2	At 2024-04-02T05:10:32Z a user request created an AutoScalingGroup changing the desired capacity from 0 to 2. At 2024-04-02T05:10:36Z an instance was started in response to a difference between desired and actual capacity, increasing the capacity from 0 to 2.	2024 April 02, 10:40:38 AM +05:30	2024 April 02, 10:41:10 AM +05:30
Successful	Launching a new EC2 instance: i-0def9522e940a8dff	At 2024-04-02T05:10:32Z a user request created an AutoScalingGroup changing the desired capacity from 0 to 2. At 2024-04-02T05:10:36Z an instance was started in response to a difference between desired and actual capacity, increasing the capacity from 0 to 2.	2024 April 02, 10:40:38 AM +05:30	2024 April 02, 10:41:10 AM +05:30

Currently creating AMI ami-08e84692445770dec from instance i-04d916efcbccb46ec. Check that the AMI status is 'Available' before deleting the instance or carrying out other actions related to this AMI.

Instances (3) Info

Connect | Instance state | Actions | Launch instances

Find Instance by attribute or tag (case-sensitive) | All states | 1

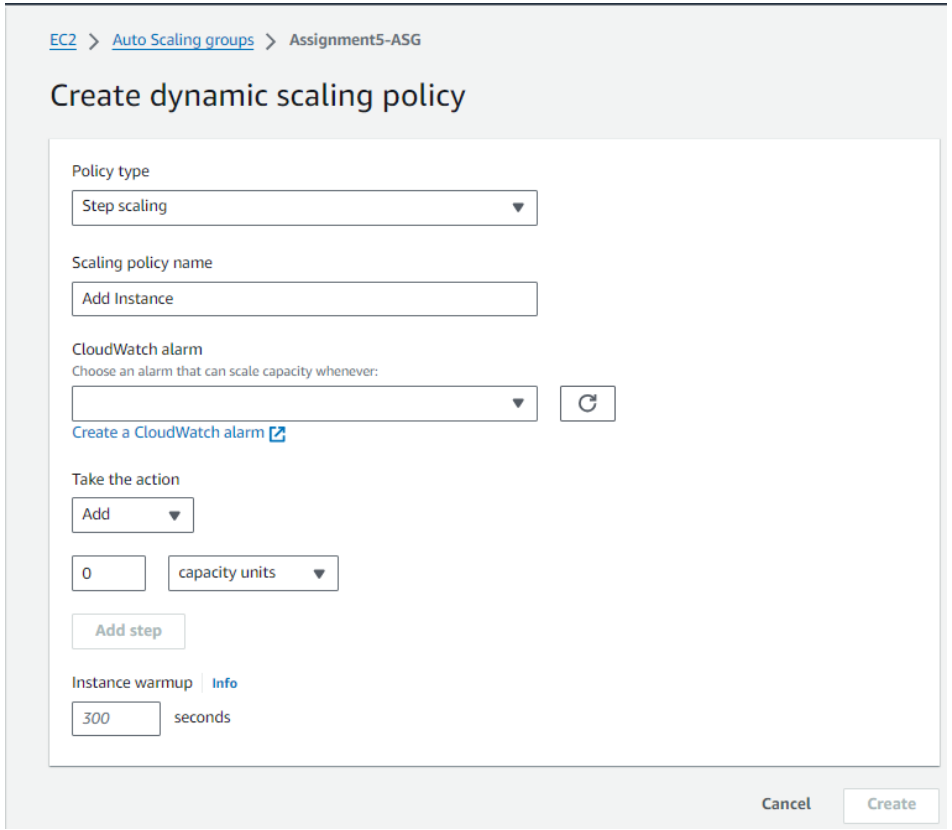
Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4 DNS	Public IPv4 ...	Elastic IP	IPv6 IPs
Assignment5	i-04d916efcbccb46ec	Running	t2.micro	2/2 checks passed	View alarms	us-east-1d	ec2-44-204-81-244.co...	44.204.81.244	–	–
	i-0747e77ac42f751c2	Running	t2.micro	Initializing	View alarms	us-east-1a	ec2-35-175-190-42.co...	35.175.190.42	–	–
	i-0def9522e940a8dff	Running	t2.micro	Initializing	View alarms	us-east-1b	ec2-184-73-40-63.com...	184.73.40.63	–	–

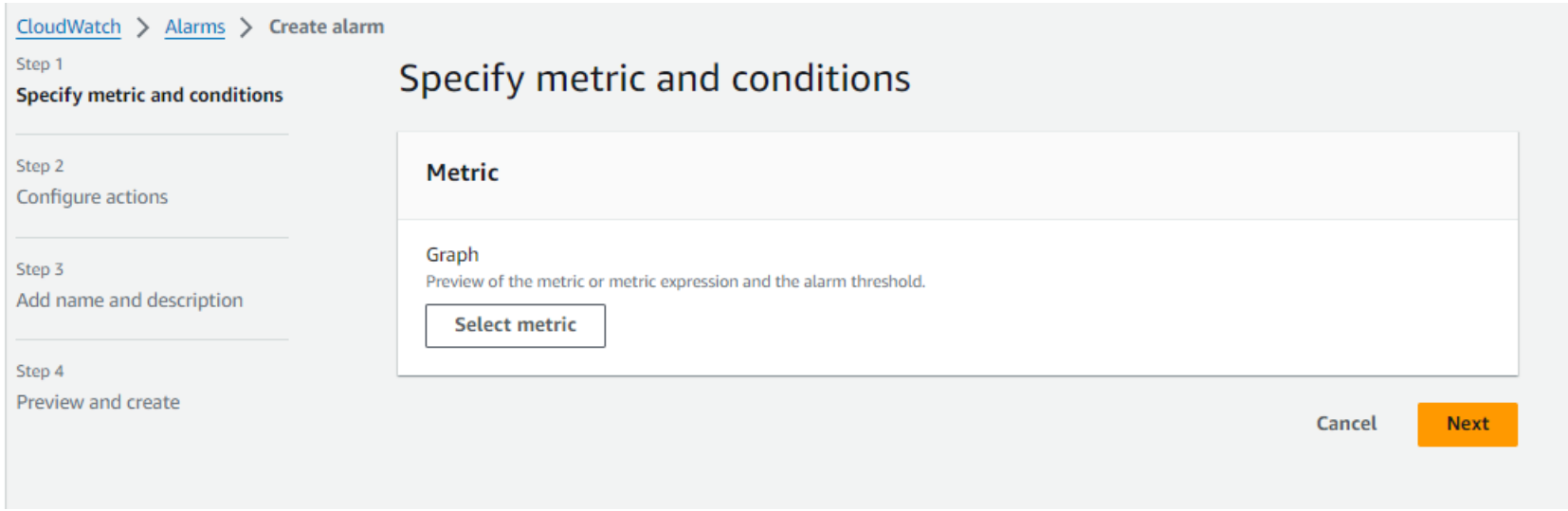
Not secure 35.175.190.42

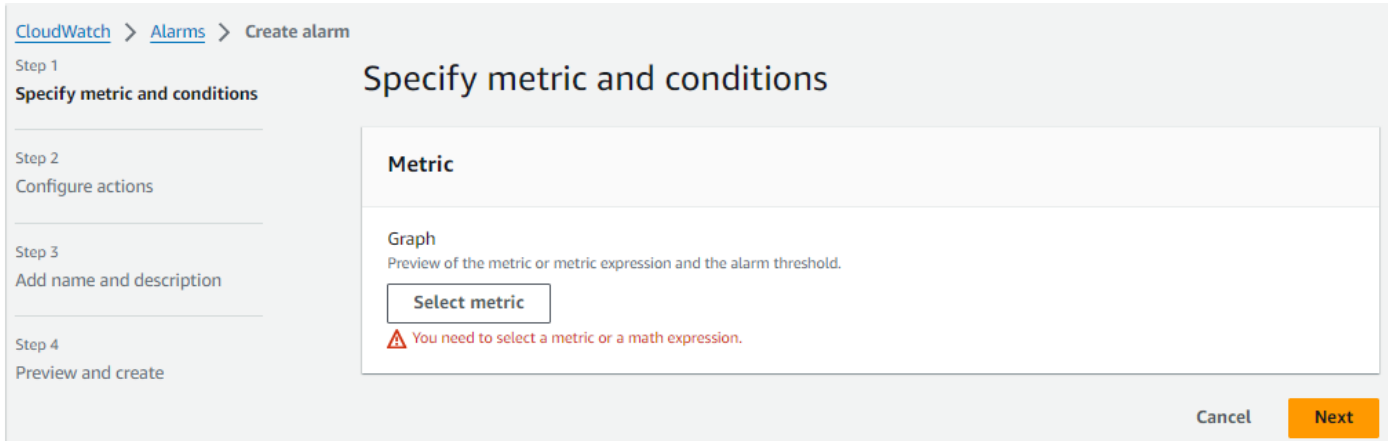
Hello World! THIS IS THE ASSIGNMENT ON LOAD BALANCER AND AUTO SCALING

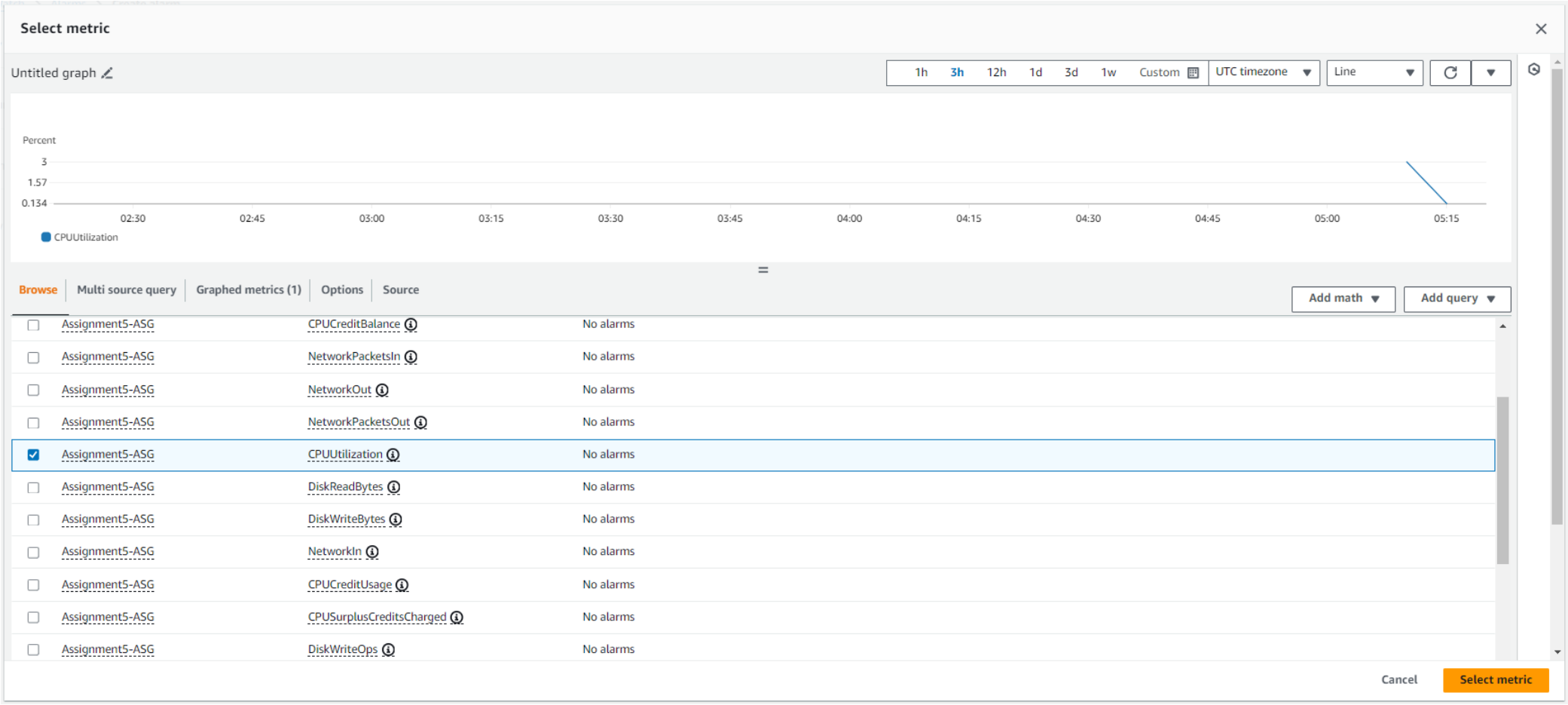
Not secure 184.73.40.63

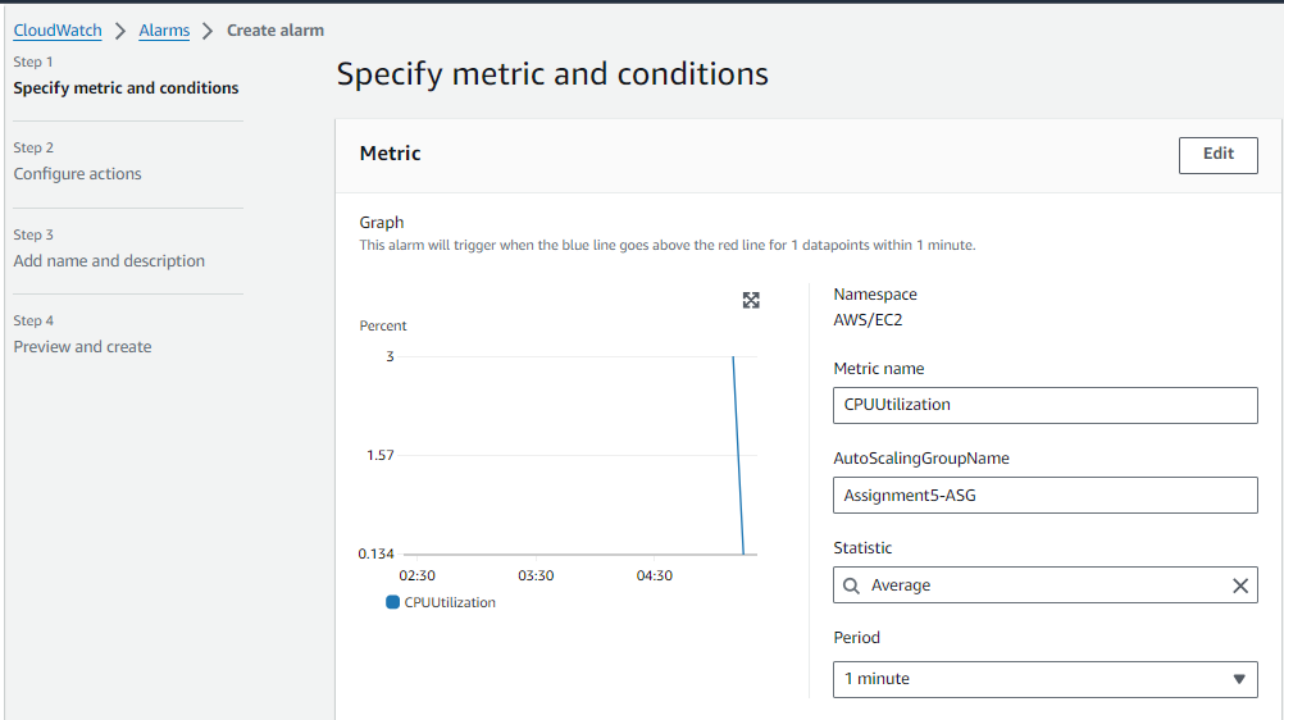
Hello World! THIS IS THE ASSIGNMENT ON LOAD BALANCER AND AUTO SCALING

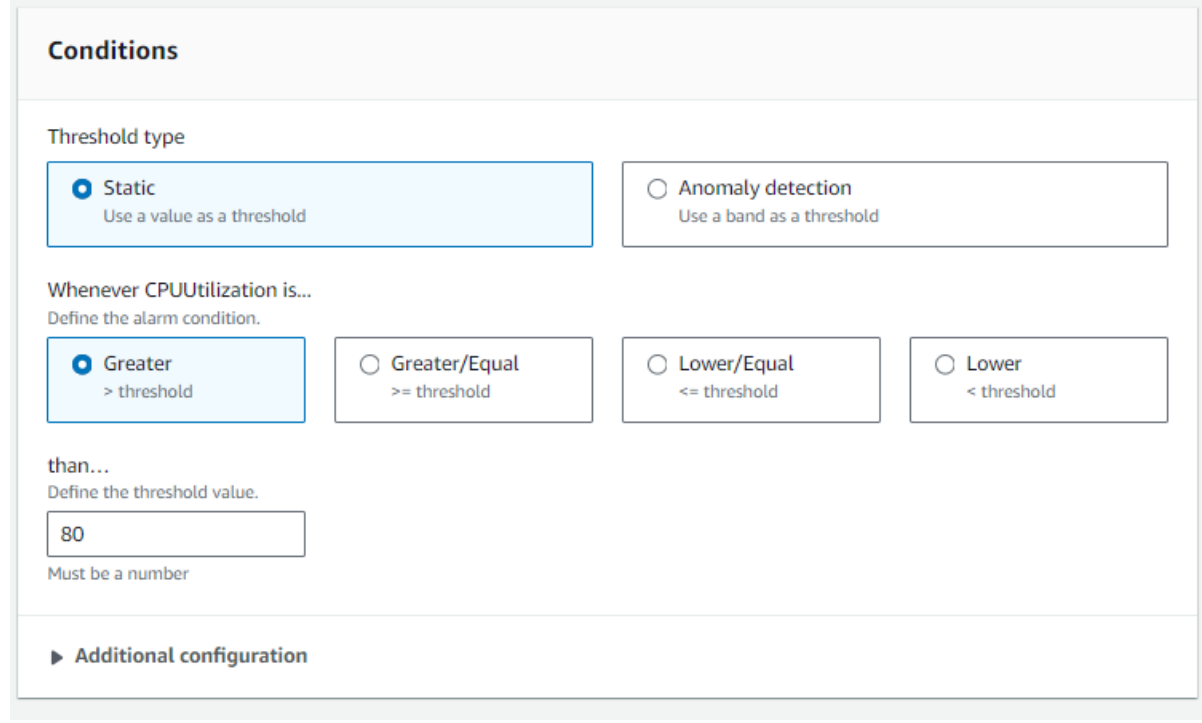

EC2 > Auto Scaling groups > Assignment5-ASG
Create dynamic scaling policy
Policy type
Step scaling
Scaling policy name
Add Instance
CloudWatch alarm
Choose an alarm that can scale capacity whenever:
Create a CloudWatch alarm
Take the action
Add
0
capacity units
Add step
Instance warmup
Info
300
seconds
Cancel
Create

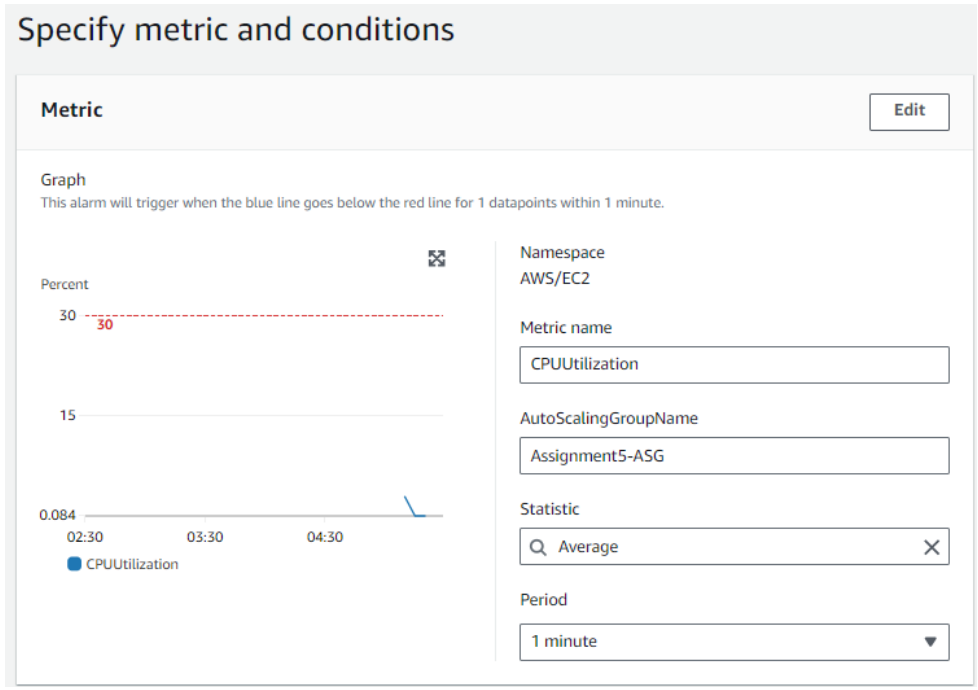

CloudWatch > Alarms > Create alarm
Step 1
Specify metric and conditions
Step 2
Configure actions
Step 3
Add name and description
Step 4
Preview and create
Specify metric and conditions
Metric
Graph
Preview of the metric or metric expression and the alarm threshold.
Select metric
Cancel
Next

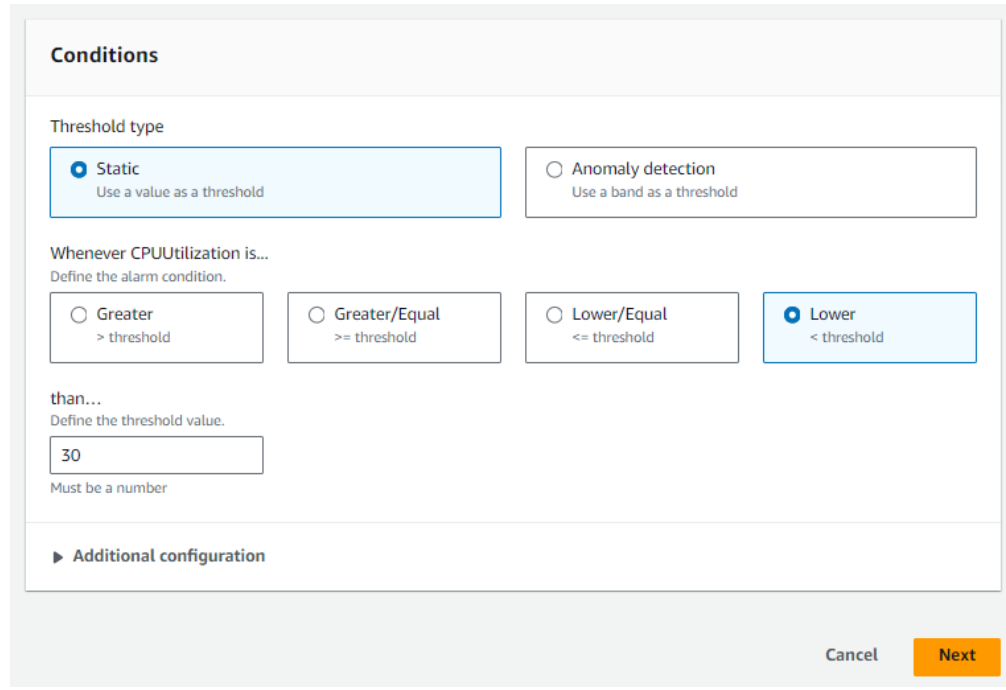

CloudWatch > Alarms > Create alarm
Step 1
Specify metric and conditions
Step 2
Configure actions
Step 3
Add name and description
Step 4
Preview and create
Specify metric and conditions
Metric
Graph
Preview of the metric or metric expression and the alarm threshold.
Select metric
You need to select a metric or a math expression.
Cancel
Next

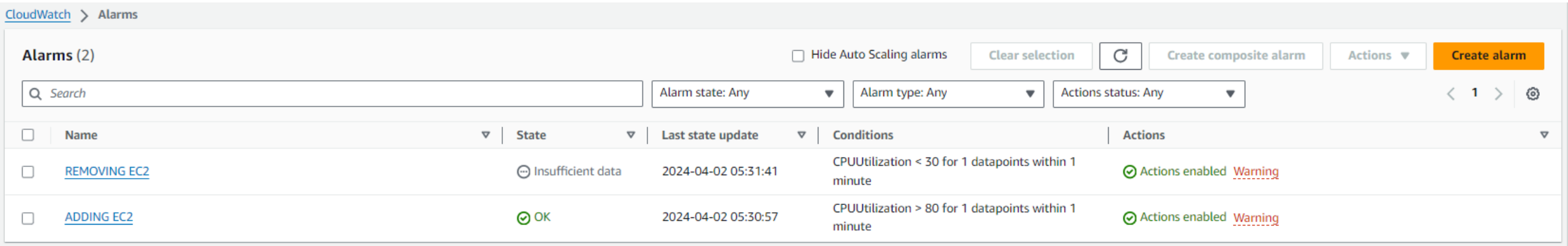

Select metric
Untitled graph
1h 3h 12h 1d 3d 1w Custom
UTC timezone
Line
Percent
3
1.57
0.134
02:30 02:45 03:00 03:15 03:30 03:45 04:00 04:15 04:30 04:45 05:00 05:15
CPUUtilization
Browse
Multi source query
Graphed metrics (1)
Options
Source
Add math
Add query
Assignment5-ASG CPUCreditBalance No alarms
Assignment5-ASG NetworkPacketsIn No alarms
Assignment5-ASG NetworkOut No alarms
Assignment5-ASG NetworkPacketsOut No alarms
Assignment5-ASG CPUUtilization No alarms
Assignment5-ASG DiskReadBytes No alarms
Assignment5-ASG DiskWriteBytes No alarms
Assignment5-ASG NetworkIn No alarms
Assignment5-ASG CPUCreditUsage No alarms
Assignment5-ASG CPUSurplusCreditsCharged No alarms
Assignment5-ASG DiskWriteOps No alarms
Cancel
Select metric

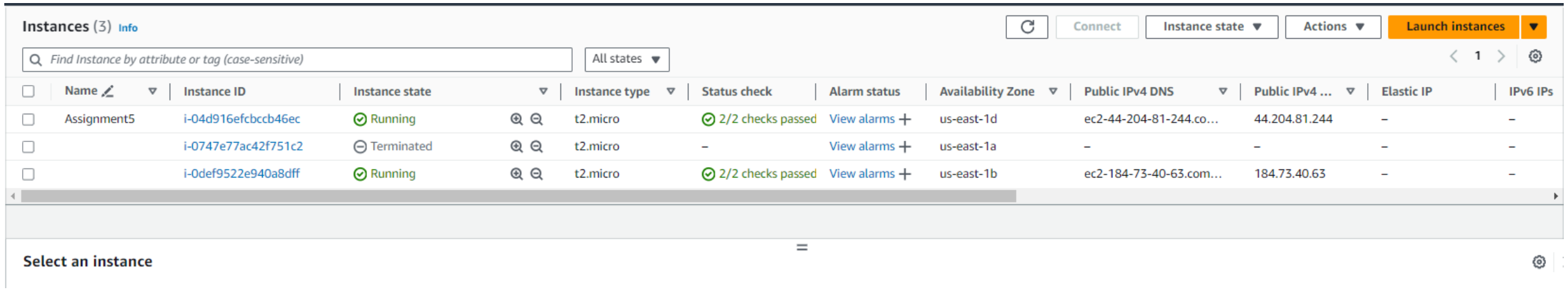

CloudWatch > Alarms > Create alarm
Step 1
Specify metric and conditions
Step 2
Configure actions
Step 3
Add name and description
Step 4
Preview and create
Specify metric and conditions
Metric
Edit
Graph
This alarm will trigger when the blue line goes above the red line for 1 datapoints within 1 minute.
Percent
3
1.57
0.134
02:30
03:30
04:30
CPUUtilization
Namespace
AWS/EC2
Metric name
CPUUtilization
AutoScalingGroupName
Assignment5-ASG
Statistic
Average
Period
1 minute


Conditions
Threshold type
Static
Use a value as a threshold
Anomaly detection
Use a band as a threshold
Whenever CPUUtilization is...
Define the alarm condition.
Greater
> threshold
Greater/Equal
>= threshold
Lower/Equal
<= threshold
Lower
< threshold
than...
Define the threshold value.
80
Must be a number
Additional configuration


Specify metric and conditions
Metric
Edit
Graph
This alarm will trigger when the blue line goes below the red line for 1 datapoints within 1 minute.
Percent
30
30
15
0.084
02:30
03:30
04:30
CPUUtilization
Namespace
AWS/EC2
Metric name
CPUUtilization
AutoScalingGroupName
Assignment5-ASG
Statistic
Average
Period
1 minute


Conditions
Threshold type
Static
Use a value as a threshold
Anomaly detection
Use a band as a threshold
Whenever CPUUtilization is...
Define the alarm condition.
Greater
> threshold
Greater/Equal
>= threshold
Lower/Equal
<= threshold
Lower
< threshold
than...
Define the threshold value.
30
Must be a number
Additional configuration
Cancel
Next


CloudWatch > Alarms
Alarms (2)
Hide Auto Scaling alarms
Clear selection
Create composite alarm
Actions
Create alarm
Search
Alarm state: Any
Alarm type: Any
Actions status: Any
1
Name
State
Last state update
Conditions
Actions
REMOVING EC2
Insufficient data
2024-04-02 05:31:41
CPUUtilization < 30 for 1 datapoints within 1 minute
Actions enabled
Warning
ADDING EC2
OK
2024-04-02 05:30:57
CPUUtilization > 80 for 1 datapoints within 1 minute
Actions enabled
Warning


Instances (3) Info
Connect
Instance state
Actions
Launch instances
Find Instance by attribute or tag (case-sensitive)
All states
1
Name
Instance ID
Instance state
Instance type
Status check
Alarm status
Availability Zone
Public IPv4 DNS
Public IPv4 ...
Elastic IP
IPv6 IPs
Assignment5
i-04d916efcbccb46ec
Running
t2.micro
2/2 checks passed
View alarms
us-east-1d
ec2-44-204-81-244.co...
44.204.81.244
–
–
i-0747e77ac42f751c2
Terminated
t2.micro
–
View alarms
us-east-1a
–
–
–
–
i-0def9522e940a8dff
Running
t2.micro
2/2 checks passed
View alarms
us-east-1b
ec2-184-73-40-63.com...
184.73.40.63
–
–

Select an instance

EC2 > Load balancers

Introducing resource map for Application Load Balancers
Resource map is a visual representation of the relationships between load balancer resources and provides the ability to view, explore, and troubleshoot the architecture of your load balancer. Resource map can be viewed on the load balancers detail page. Share feedback to help us improve your experience.

Give feedback

Load balancers

Elastic Load Balancing scales your load balancer capacity automatically in response to changes in incoming traffic.

Actions

Create load balancer

Filter load balancers

1

Name	DNS name	State	VPC ID	Availability Zones	Type	Date created

No load balancers

You don't have any load balancers in us-east-1

Create load balancer

0 load balancers selected

Select a load balancer above.

EC2 > Load balancers > Create Application Load Balancer

Create Application Load Balancer Info

The Application Load Balancer distributes incoming HTTP and HTTPS traffic across multiple targets such as Amazon EC2 instances, microservices, and containers, based on request attributes. When the load balancer receives a connection request, it evaluates the listener rules in priority order to determine which rule to apply, and if applicable, it selects a target from the target group for the rule action.

▶ **How Application Load Balancers work**

Basic configuration

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

Assignment5-LB

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

Scheme | Info
Scheme can't be changed after the load balancer is created.

- (•) Internet-facing
  An internet-facing load balancer routes requests from clients over the internet to targets. Requires a public subnet. Learn more
- ( ) Internal
  An internal load balancer routes requests from clients to targets using private IP addresses.

IP address type | Info
Select the type of IP addresses that your subnets use.

- (•) IPv4
  Includes only IPv4 addresses.
- ( ) Dualstack
  Includes IPv4 and IPv6 addresses.

Network mapping Info

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

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

-
vpc-0567159dac327792c
IPv4 VPC CIDR: 172.31.0.0/16

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

- [x] **us-east-1a (use1-az4)**
  Subnet: subnet-05f6399921ad97e12
  IPv4 address
  Assigned by AWS
- [x] **us-east-1b (use1-az6)**
  Subnet: subnet-0d523491af4eb5b61
  IPv4 address
  Assigned by AWS
- [x] **us-east-1c (use1-az1)**
  Subnet: subnet-01fcd996cd7ae7c1f
  IPv4 address
  Assigned by AWS
- [x] **us-east-1d (use1-az2)**
  Subnet: subnet-05f98ad1cf6ba23bd
  IPv4 address
  Assigned by AWS

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 Info
HTTP	80 (1-65535)	Forward to *Select a target group*

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

Specify group details

Your load balancer routes requests to the targets in a target group and performs health checks on the targets.

Basic configuration

Settings in this section can't be changed after the target group is created.

Choose a target type

- (●) **Instances**
  - Supports load balancing to instances within a specific VPC.
  - Facilitates the use of Amazon EC2 Auto Scaling to manage and scale your EC2 capacity.
- ( ) **IP addresses**
  - Supports load balancing to VPC and on-premises resources.
  - Facilitates routing to multiple IP addresses and network interfaces on the same instance.
  - Offers flexibility with microservice based architectures, simplifying inter-application communication.
  - Supports IPv6 targets, enabling end-to-end IPv6 communication, and IPv4-to-IPv6 NAT.
- ( ) **Lambda function**
  - Facilitates routing to a single Lambda function.
  - Accessible to Application Load Balancers only.
- ( ) **Application Load Balancer**
  - Offers the flexibility for a Network Load Balancer to accept and route TCP requests within a specific VPC.
  - Facilitates using static IP addresses and PrivateLink with an Application Load Balancer.

Target group name

Assignment5-TG

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-0567159dac327792c
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.

Review targets

Targets (2)

Remove all pending

Filter targets | Show only pending | 1

Instance ID	Name	Port	State	Security groups	Zone	Private IPv4 address	Subnet ID	Launch time
i-0def9522e940a8dff		80	Running	launch-wizard-1	us-east-1b	172.31.47.67	subnet-0d523491af4eb5b61	April 2, 2024, 10:40 (UTC+05:30)
i-04d916efcbccb46ec	Assignment5	80	Running	launch-wizard-3	us-east-1d	172.31.95.168	subnet-05f98ad1cf6ba23bd	April 2, 2024, 10:03 (UTC+05:30)

2 pending

Cancel | Register pending targets

2 targets registered successfully to Assignment5-TG.

EC2 > Target groups

Target groups (1/1) Info

Actions | Create target group

Filter target groups | 1

Name	ARN	Port	Protocol	Target type	Load balancer	VPC ID
Assignment5-TG	arn:aws:elasticloadbalanci...	80	HTTP	Instance	None associated	vpc-0567159dac327792c

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 Info
HTTP	80 (1-65535)	Forward to: Assignment5-TG (Target type: Instance, IPv4) HTTP

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

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

Load balancer name not defined

- Internet-facing
- IPv4

Security groups Edit

- default
  sg-09f4111f02c04ff30

Network mapping Edit

VPC vpc-0567159dac327792c

- us-east-1a
  subnet-05f6399921ad97e12
- us-east-1b
  subnet-0d523491af4eb5b61
- us-east-1c
  subnet-01fcd996cd7ae7c1f
- us-east-1d
  subnet-05f98ad1cf6ba23bd
- us-east-1e
  subnet-0f92fe87857c6b12c
- us-east-1f
  subnet-07c8ceebfd90ea760

Listeners and routing Edit

- HTTP:80 defaults to
  Assignment5-TG

Service integrations Edit

AWS WAF: *None*

AWS Global Accelerator: *None*

Tags Edit

None

Attributes

Certain default attributes will be applied to your load balancer. You can view and edit them after creating the load balancer.

EC2 > Load balancers

Load balancers (1/1)

Elastic Load Balancing scales your load balancer capacity automatically in response to changes in incoming traffic.

Actions | Create load balancer

Filter load balancers

1

Name	DNS name	State	VPC ID	Availability Zones	Type	Date created
Assignment5-LB	Assignment5-LB-1601139...	Provisioning..	vpc-0567159dac3277...	6 Availability Zones	application	April 2, 2024, 12:21 (UTC+05:30)

EC2 > Target groups

Target groups (1/1) Info

Actions | Create target group

Filter target groups

1

Name	ARN	Port	Protocol	Target type	Load balancer	VPC ID
Assignment5-TG	arn:aws:elasticloadbalanci...	80	HTTP	Instance	Assignment5-LB	vpc-0567159dac327792c

Target group: Assignment5-TG

Details | Targets | Monitoring | Health checks | Attributes | Tags

Details

arn:aws:elasticloadbalancing:us-east-1:866650389532:targetgroup/Assignment5-TG/82cd405e8ae72e7d

Target type Instance	Protocol : Port HTTP: 80	Protocol version HTTP1	VPC vpc-0567159dac327792c
IP address type IPv4	Load balancer Assignment5-LB		

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