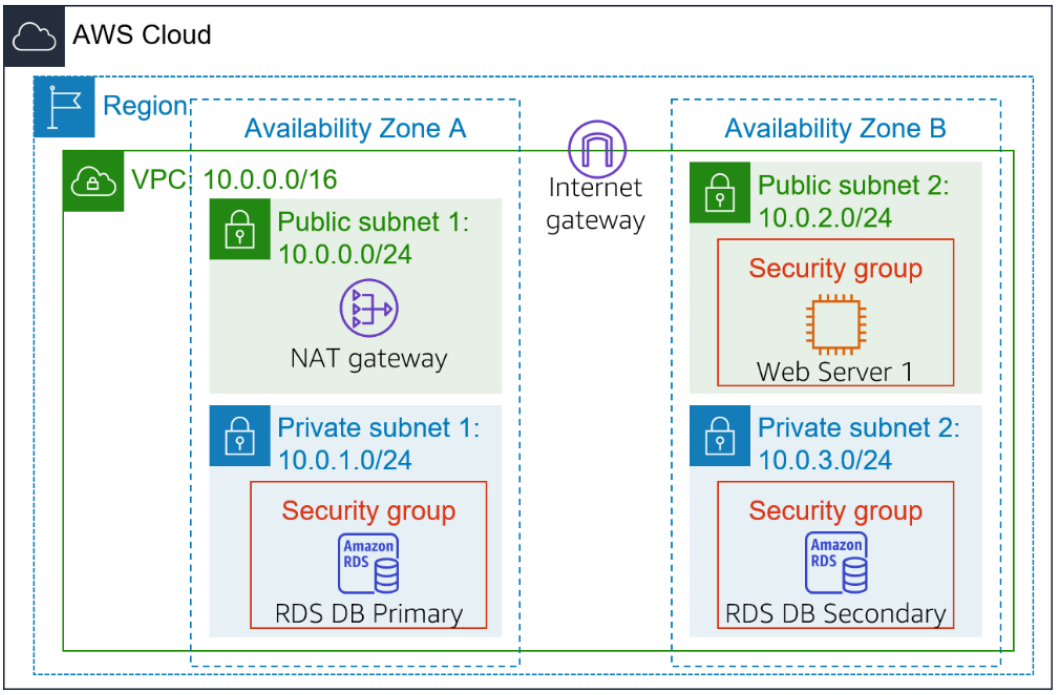
Carla Cuéllar Franco

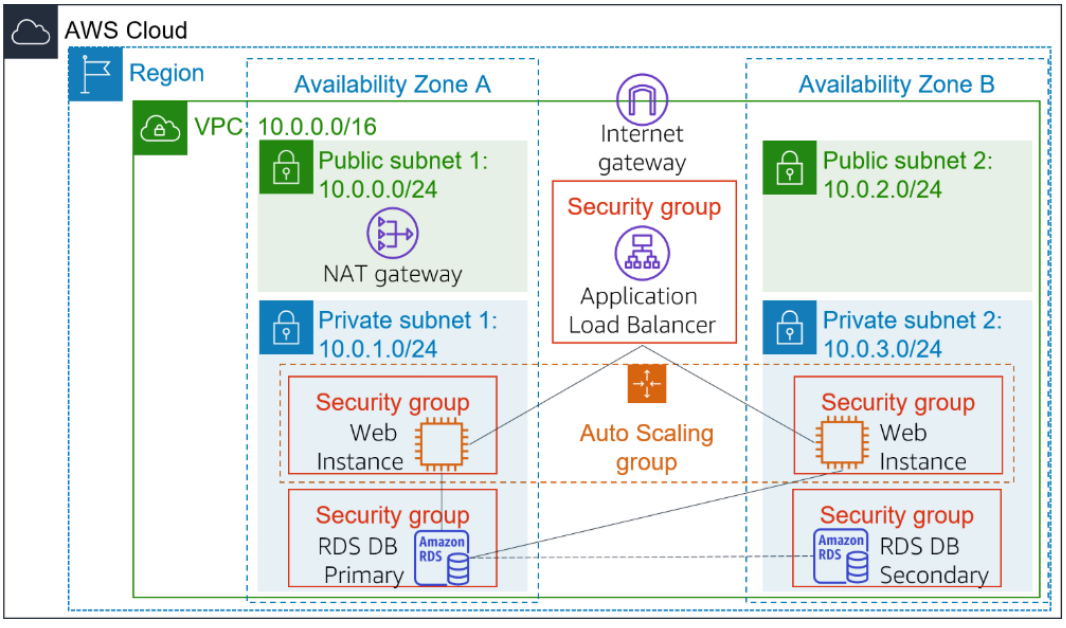
Lab 6: Scale and Load Balance Your Architecture

Scenario

You start with the following infrastructure:



The final state of the infrastructure is:



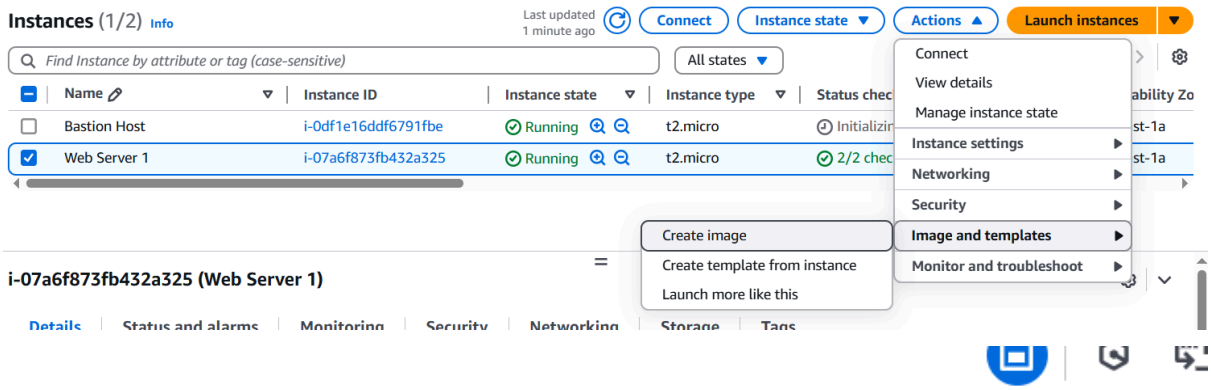
Resumen

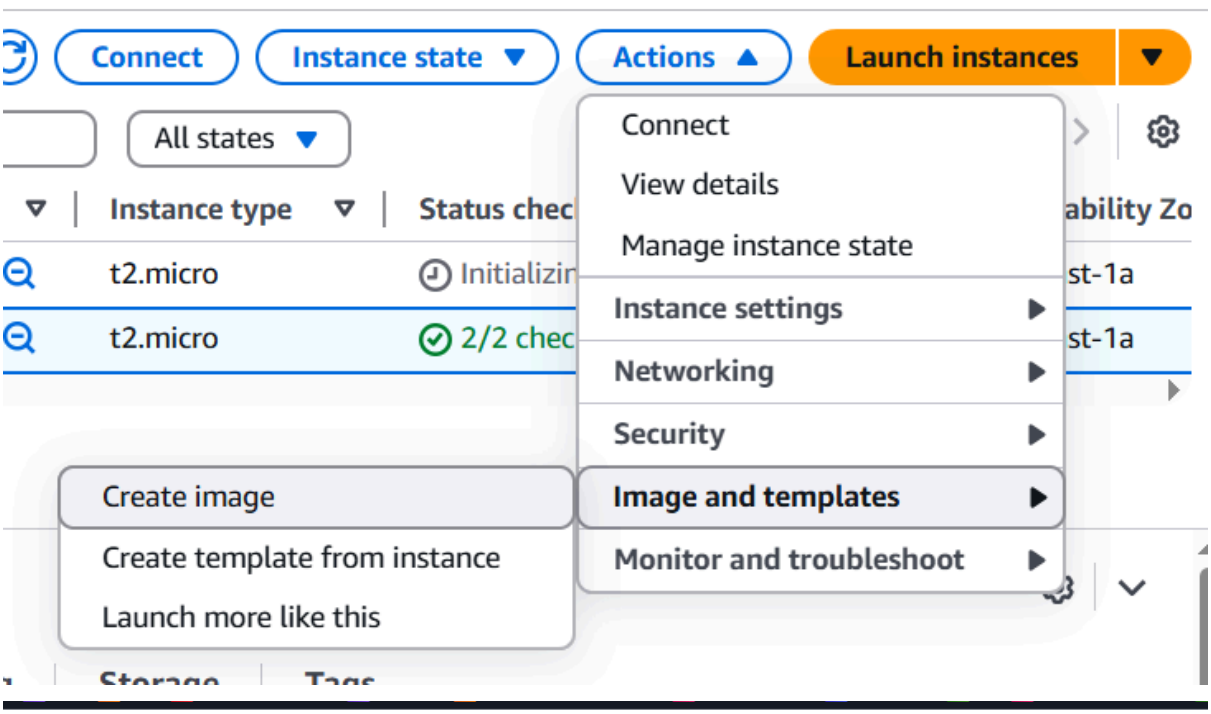
Hoy trabajé en un laboratorio práctico de AWS donde aprendí a configurar servicios clave para escalar y balancear cargas en una infraestructura en la nube. El objetivo era implementar Elastic Load Balancing (ELB) y Auto Scaling para asegurarme de que mi aplicación web pudiera manejar tráfico fluctuante de manera eficiente, sin preocuparme por sobrecargar los servidores o gastar de más cuando no hay demanda.

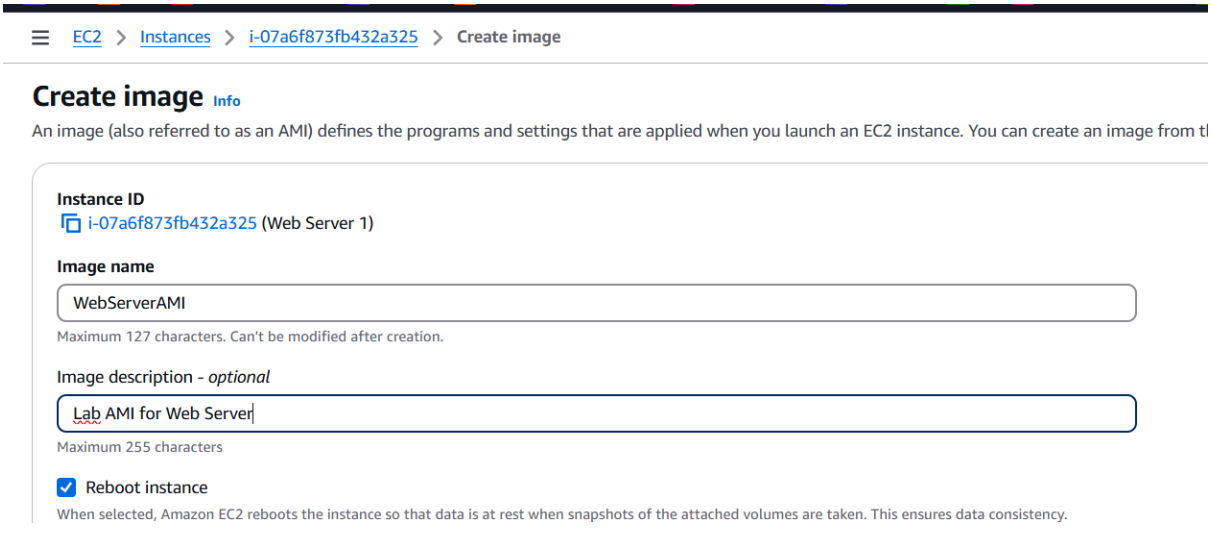
El proceso fue bastante interesante porque pude ver cómo AWS automatiza muchas tareas complejas, como agregar o eliminar servidores según la carga de trabajo.

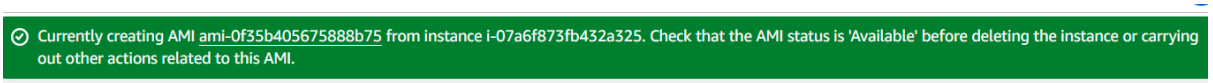
Procedimiento

En esta actividad describe paso a paso cómo configurar un sistema con balanceo de carga y escalado automático utilizando los servicios Elastic Load Balancing (ELB) y Auto Scaling de Amazon Web Services (AWS). El objetivo es crear una infraestructura altamente disponible, escalable y optimizada para manejar fluctuaciones en la demanda.

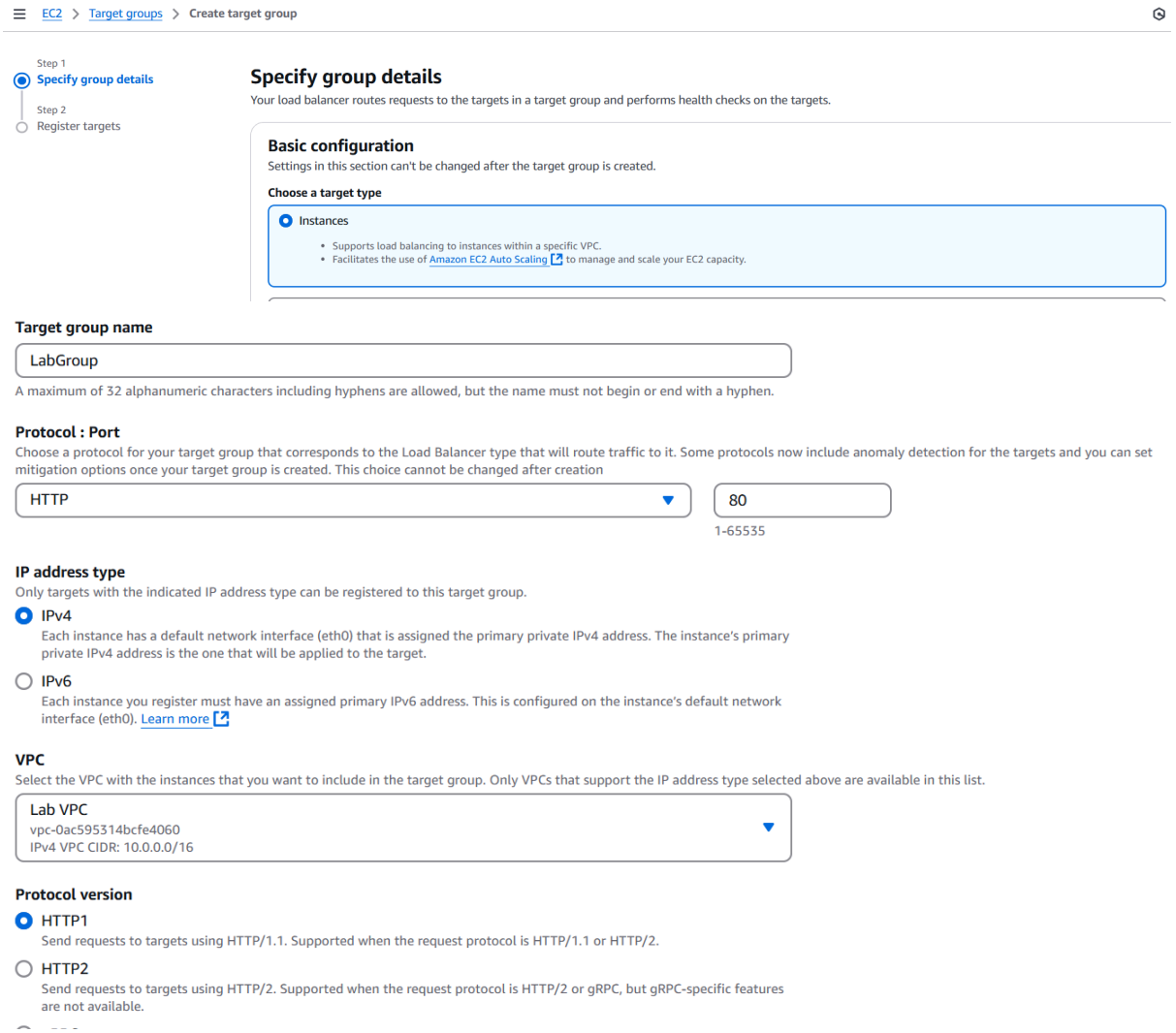

Instances (1/2) Info
Last updated 1 minute ago
Connect
Instance state
Actions
Launch instances
Find Instance by attribute or tag (case-sensitive)
All states
Name
Instance ID
Instance state
Instance type
Status chec
Bastion Host
i-0df1e16ddf6791fbe
Running
t2.micro
Initializir
Web Server 1
i-07a6f873fb432a325
Running
t2.micro
2/2 chec
Connect
View details
Manage instance state
Instance settings
Networking
Security
Image and templates
Monitor and troubleshoot
Create image
Create template from instance
Launch more like this
i-07a6f873fb432a325 (Web Server 1)
Details
Status and alarms
Monitoring
Security
Networking
Storage
Tags


Connect
Instance state
Actions
Launch instances
All states
Instance type
Status chec
ability Zo
t2.micro
Initializir
st-1a
t2.micro
2/2 chec
st-1a
Connect
View details
Manage instance state
Instance settings
Networking
Security
Image and templates
Monitor and troubleshoot
Create image
Create template from instance
Launch more like this
Storage
Tags

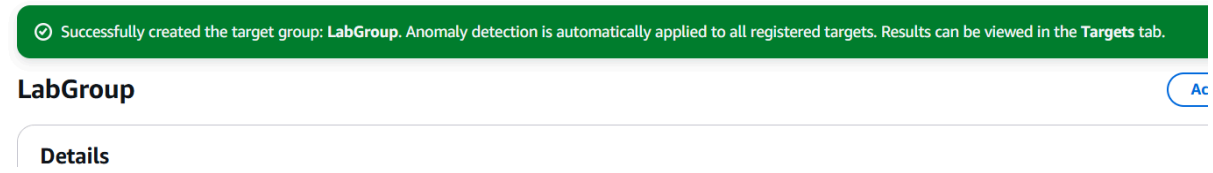

EC2 > Instances > i-07a6f873fb432a325 > Create image
Create image Info
An image (also referred to as an AMI) defines the programs and settings that are applied when you launch an EC2 instance. You can create an image from tl
Instance ID
i-07a6f873fb432a325 (Web Server 1)
Image name
WebServerAMI
Maximum 127 characters. Can't be modified after creation.
Image description - optional
Lab AMI for Web Server
Maximum 255 characters
Reboot instance
When selected, Amazon EC2 reboots the instance so that data is at rest when snapshots of the attached volumes are taken. This ensures data consistency.



Crear un tg



Sin registros



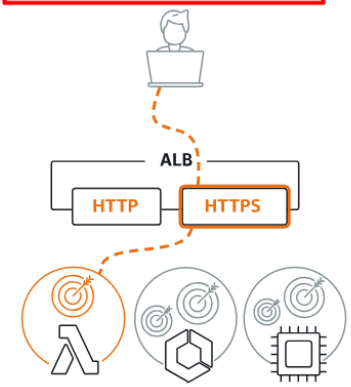
Crear un lb

EC2 > Load balancers > Compare and select load balancer type

A complete feature-by-feature comparison along with detailed highlights is also available. Learn more

Load balancer types

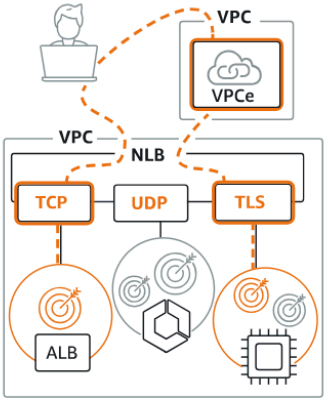
Application Load Balancer Info



Choose an Application Load Balancer when you need a flexible feature set for your applications with HTTP and HTTPS traffic. Operating at the request level, Application Load Balancers provide advanced routing and visibility features targeted at application architectures, including microservices and containers.

Create

Network Load Balancer Info



Choose a Network Load Balancer when you need ultra-high performance, TLS offloading at scale, centralized certificate deployment, support for UDP, and static IP addresses for your applications. Operating at the connection level, Network Load Balancers are capable of handling millions of requests per second securely while maintaining ultra-low latencies.

Create

Gateway Load Balancer Info

Choose a Gateway Load Balancer when you need to deploy and manage a fleet of third-party virtual appliances that support GENEVE. These appliances enable you to improve security, compliance, and policy controls.

Create

EC2 > Load balancers > Create Application Load Balancer

Application Load Balancers now support public IPv4 IP Address Management (IPAM)
You can get started with this feature by configuring **IP pools** in the **Network mapping** section.

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 attribute 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.

LabELB

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
  - Serves internet-facing traffic.
  - Has public IP addresses.
  - DNS name resolves to public IPs.
  - Requires a public subnet.
- ( ) Internal
  - Serves internal traffic.
  - Has private IP addresses.
  - DNS name resolves to private IPs.
  - Compatible with the **IPv4** and **Dualstack** IP address types.

Load balancer IP address type | Info
Select the front-end IP address type to assign to the load balancer. The VPC and subnets mapped to this load balancer must include the selected IP address types. Public IPv4 addresses have an additional cost.

- (•) IPv4
  Includes only IPv4 addresses.
- ( ) Dualstack
  Includes IPv4 and IPv6 addresses.
- ( ) Dualstack without public IPv4
  Includes a public IPv6 address, and private IPv4 and IPv6 addresses. Compatible with **internet-facing** load balancers only.

Network mapping Info

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

VPC | Info
The load balancer will exist and scale within the selected VPC. The selected VPC is also where the load balancer targets must be hosted unless routing to Lambda or on-premises targets, or if using VPC peering. To confirm the VPC for your targets, view target groups. For a new VPC, create a VPC.

Lab VPC
vpc-0ac595314bcfe4060
IPv4 VPC CIDR: 10.0.0.0/16

IP pools - *new* | Info
You can optionally choose to configure an IPAM pool as the preferred source for your load balancers IP addresses. Create or 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-az2)**
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-0676797d6ab069d5e — Public Subnet 1
IPv4 subnet CIDR: 10.0.0.0/24

☑ **us-east-1b (use1-az4)**
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-06aeef39910d04662 — Public Subnet 2
IPv4 subnet CIDR: 10.0.2.0/24

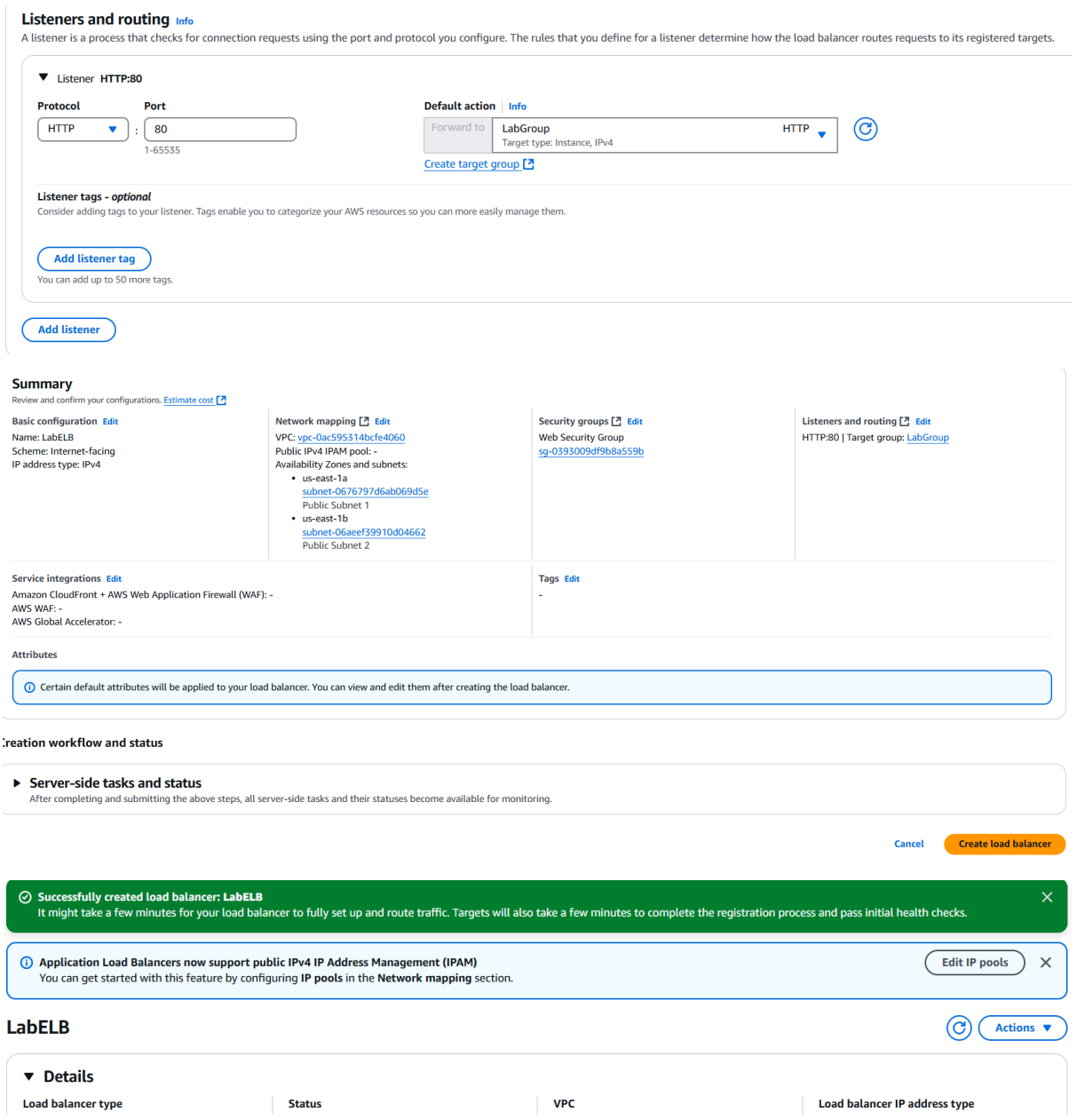
Security groups Info

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.

Security groups

Select up to 5 security groups

Web Security Group
sg-0393009df9b8a559b VPC: vpc-0ac595314bcfe4060



Create a temple

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*

LabConfig

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**

▾ 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

Recents | My AMIs | Quick Start

○ Don't include in launch template ◉ Owned by me ○ Shared with me

Browse more AMIs

Including AMIs from AWS, Marketplace and the Community

Amazon Machine Image (AMI)

WebServerAMI
ami-0f35b405675888b75
2025-04-23T11:46:56.000Z Virtualization: hvm ENA enabled: true Root device type: ebs Boot mode: uefi-preferred

Description

Lab AMI for Web Server

Architecture	AMI ID
x86_64	ami-0f35b405675888b75

▾ 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 Ubuntu Pro base pricing: 0.0134 USD per Hour
On-Demand SUSE base pricing: 0.0116 USD per Hour On-Demand RHEL base pricing: 0.026 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

vockey — 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

Web Security Group sg-0393009df9b8a559b
VPC: vpc-0ac595314bcfe4060

Compare security group rules

▸ **Advanced network configuration**

Advanced details Info

IAM instance profile Info

Don't include in launch template — Create new IAM profile

Hostname type Info

Don't include in launch template

DNS Hostname Info

- [ ] Enable resource-based IPv4 (A record) DNS requests
- [ ] Enable resource-based IPv6 (AAAA record) DNS requests

Instance auto-recovery Info

Don't include in launch template

Shutdown behavior Info

Don't include in launch template

Stop - Hibernate behavior Info

Don't include in launch template

Termination protection Info

Don't include in launch template

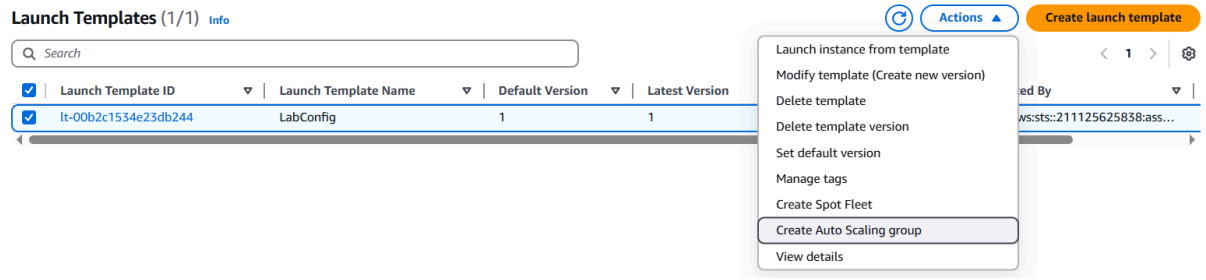
Stop protection Info

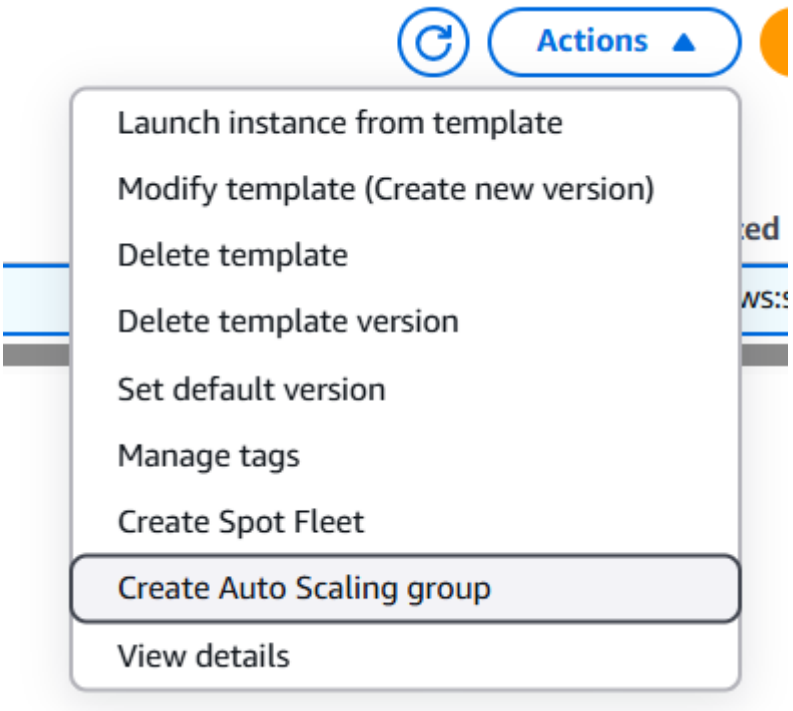
Don't include in launch template

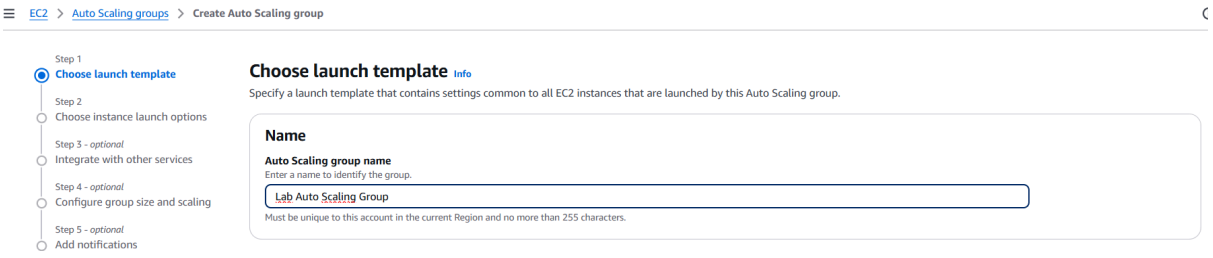
Detailed CloudWatch monitoring Info

Enable

Creasion auto scaling







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.

Lab Auto Scaling Group

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.

LabConfig

Create a launch template

Version

Default (1)

Create a launch template version

Description -	**Launch template** LabConfig lt-00b2c1534e23db244	**Instance type** t2.micro
AMI ID ami-0f35b405675888b75	**Security groups** -	**Request Spot Instances** No
Key pair name vockey	**Security group IDs** sg-0393009df9b8a559b	

Additional details

Storage (volumes) -	**Date created** Wed Apr 23 2025 14:01:33 GMT+0200 (Hora d'estiu del Centre d'Europa)

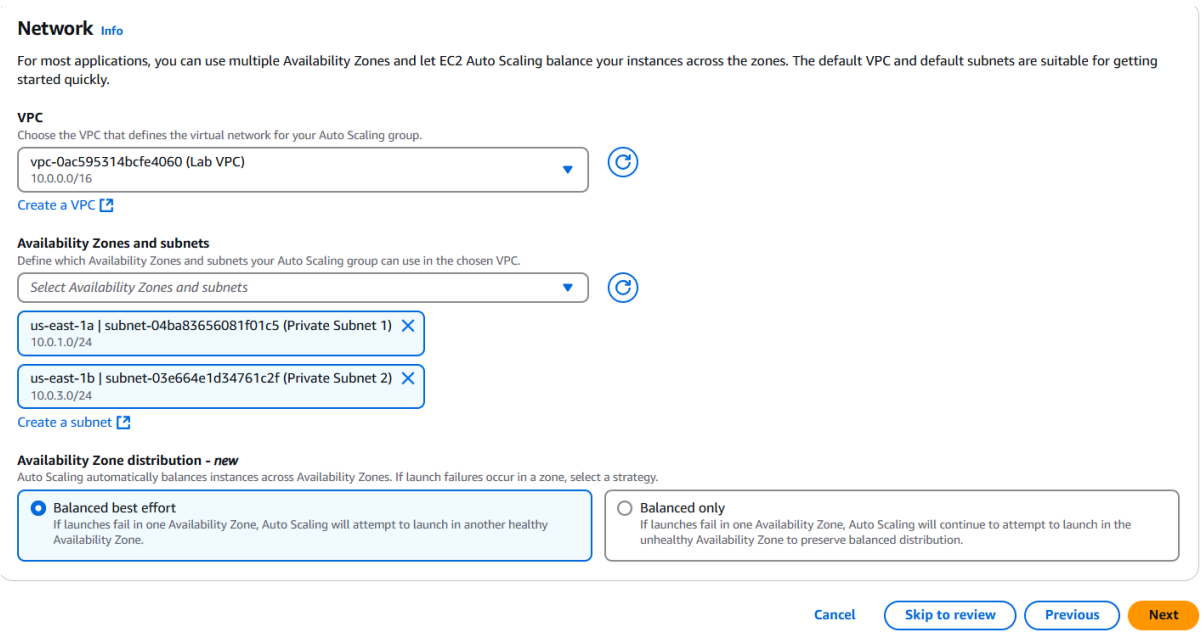
Cancel Next

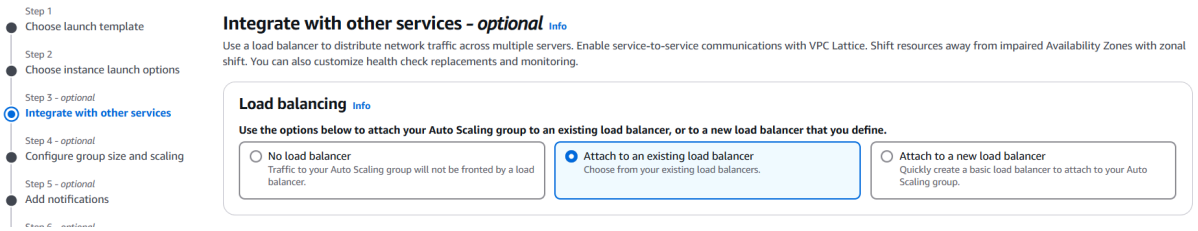
Launch template

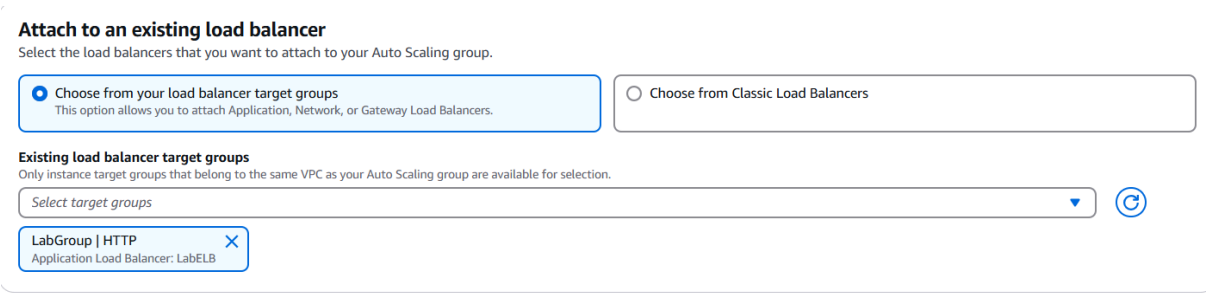
Choose a launch template that contains the instance-level settings, such as the Amazon Machine Image (AMI), instance type, key pair, and security groups.

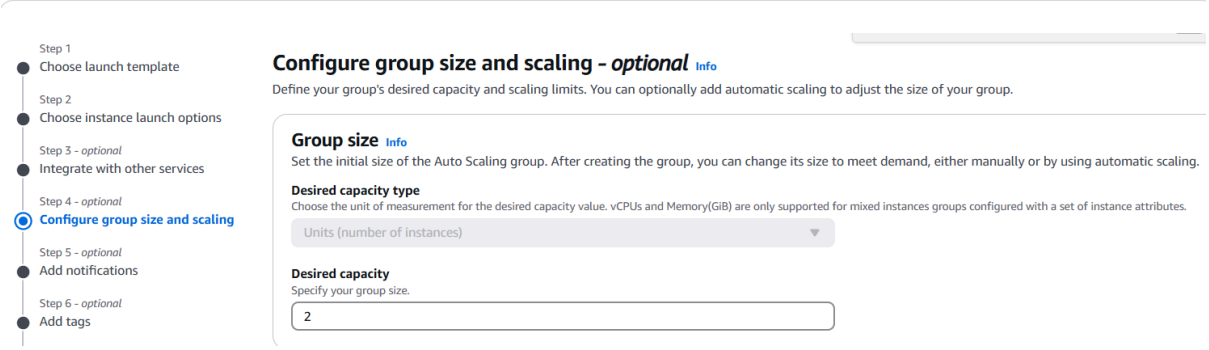
LabConfig

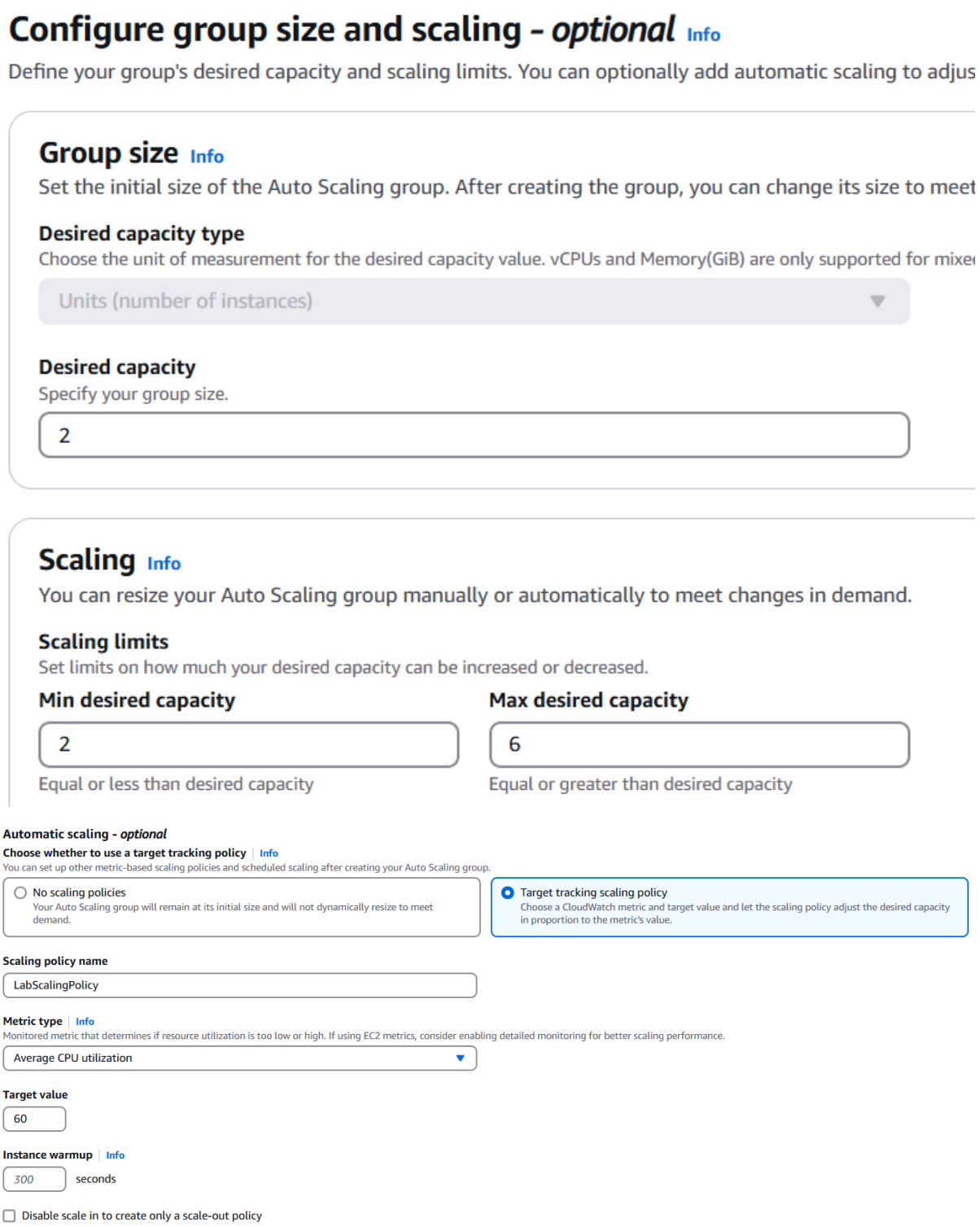
Create a launch template


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-0ac595314bcfe4060 (Lab VPC)
10.0.0.0/16
Create a VPC
Availability Zones and subnets
Define which Availability Zones and subnets your Auto Scaling group can use in the chosen VPC.
Select Availability Zones and subnets
us-east-1a | subnet-04ba83656081f01c5 (Private Subnet 1)
10.0.1.0/24
us-east-1b | subnet-03e664e1d34761c2f (Private Subnet 2)
10.0.3.0/24
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.
Cancel
Skip to review
Previous
Next


Step 1
Choose launch template
Step 2
Choose instance launch options
Step 3 - optional
Integrate with other services
Step 4 - optional
Configure group size and scaling
Step 5 - optional
Add notifications
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
LabGroup | HTTP
Application Load Balancer: LabELB


Step 1
Choose launch template
Step 2
Choose instance launch options
Step 3 - optional
Integrate with other services
Step 4 - optional
Configure group size and scaling
Step 5 - optional
Add notifications
Step 6 - optional
Add tags
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


Configure group size and scaling - optional Info
Define your group's desired capacity and scaling limits. You can optionally add automatic scaling to adjus
Group size Info
Set the initial size of the Auto Scaling group. After creating the group, you can change its size to meet
Desired capacity type
Choose the unit of measurement for the desired capacity value. vCPUs and Memory(GiB) are only supported for mixe
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
2
Equal or less than desired capacity
Max desired capacity
6
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
LabScalingPolicy
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
300
seconds
Disable scale in to create only a scale-out policy

Additional settings

Instance scale-in protection

If protect from scale in is enabled, newly launched instances will be protected from scale in by default.

☐ Enable instance scale-in protection

Monitoring | Info

☑ Enable group metrics collection within CloudWatch

Default instance warmup | Info

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

☐ Enable default instance warmup

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

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 (1)

Key	Value - optional	Tag new instances	
Name	Lab Instance	☑	Remove

Add tag

49 remaining

Cancel | Previous | Next

Review Info

Step 1: Choose launch template

Edit

Group details

Auto Scaling group name
Lab Auto Scaling Group

Launch template

Launch template	Version	Description
LabConfig lt-00b2c1534e23db244	Default	

Step 2: Choose instance launch options

Edit

Network

VPC
vpc-0ac595314bcfe4060

Availability Zones and subnets

Availability Zone	Subnet	Subnet CIDR range
us-east-1a	subnet-04ba83656081f01c5	10.0.1.0/24
us-east-1b	subnet-03e664e1d34761c2f	10.0.3.0/24

Availability Zone distribution
Balanced best effort

Step 6: Add tags

Edit

Tags (1)

Key	Value	Tag new instances
Name	Lab Instance	Yes

Preview code | Cancel | Previous | Create Auto Scaling group

Lab Auto Scaling Group, 1 Scaling policy created successfully. Group metrics collection is enabled.

Auto Scaling groups (1) Info

Last updated less than a minute ago | Launch configurations | Launch templates | Actions | Create Auto Scaling group

Search your Auto Scaling groups

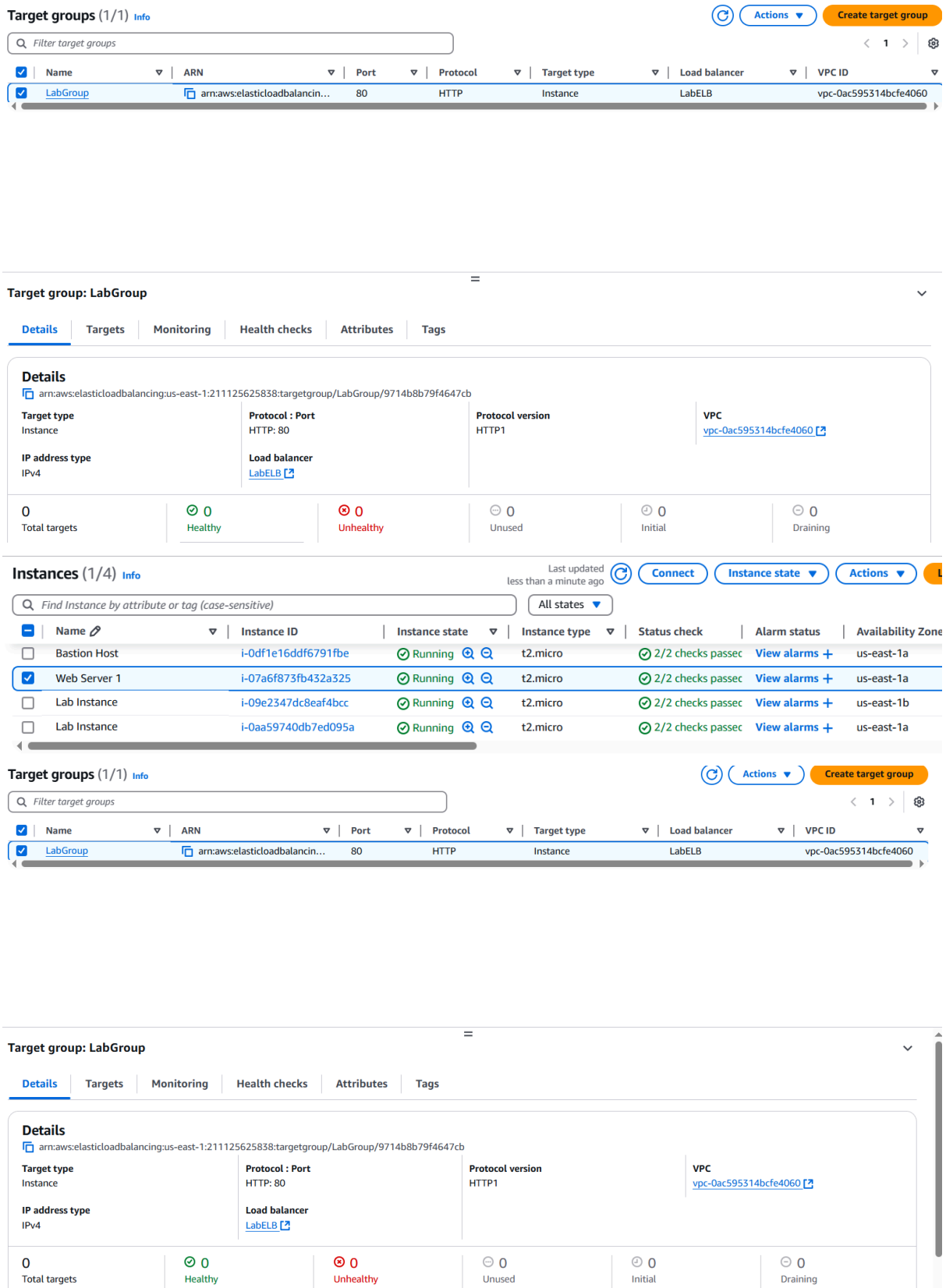
Name	Launch template/configuration	Instances	Status	Desired capacity	Min	Max	Availability Zones
Lab Auto Scaling Group	LabConfig | Version Default	2	-	2	2	6	us-east-1a, us-east-1b

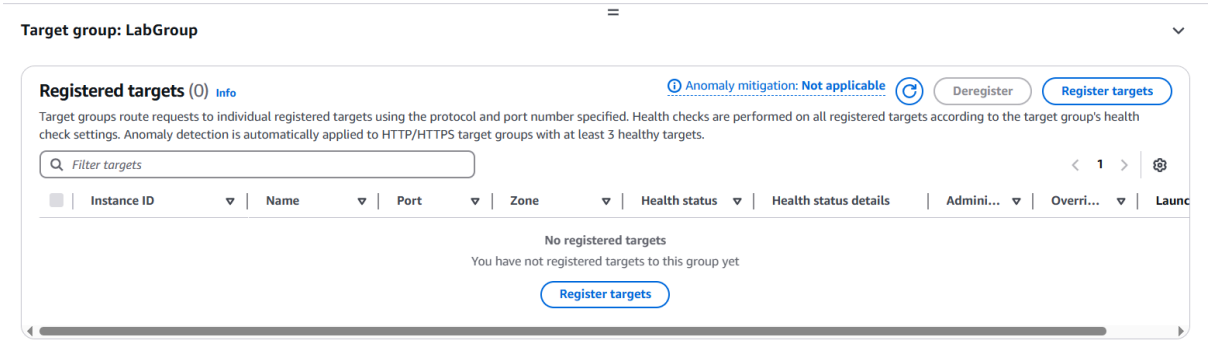
Instances (1/4) Info

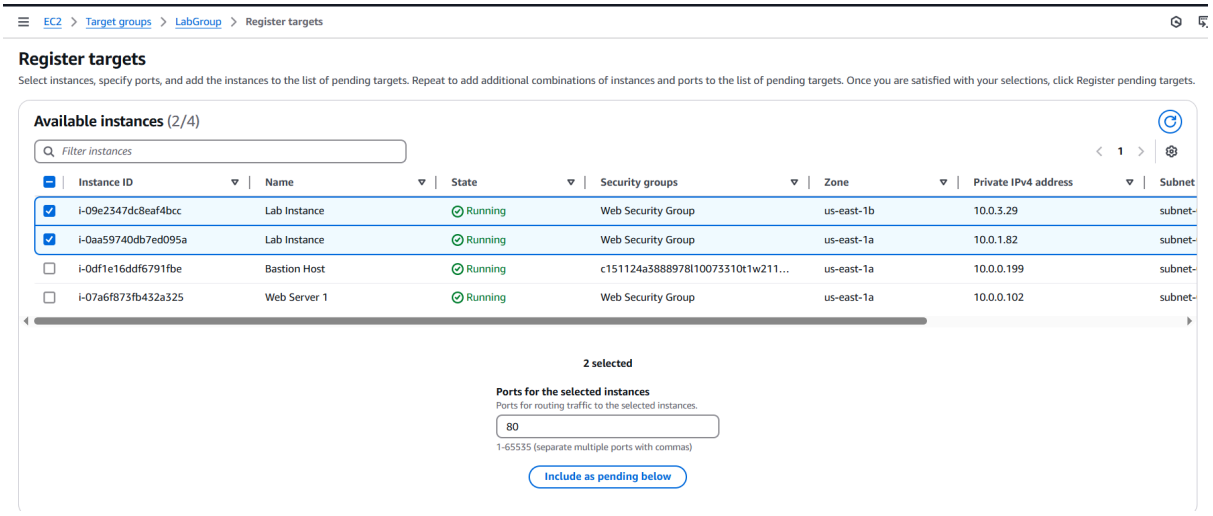
Last updated less than a minute ago | Connect | Instance state | Actions | Lau

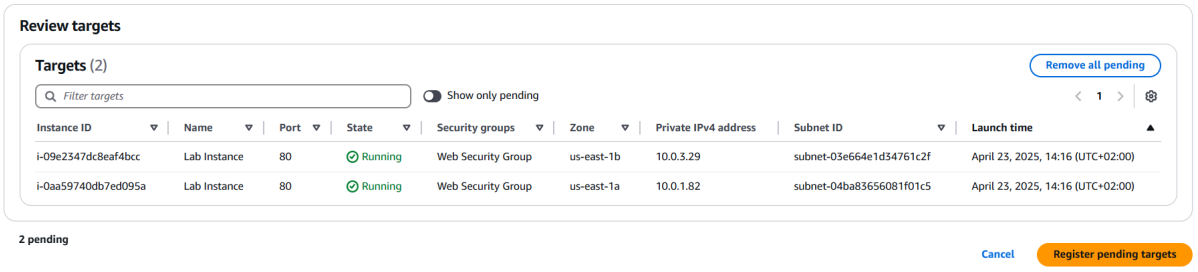
Find Instance by attribute or tag (case-sensitive) | All states

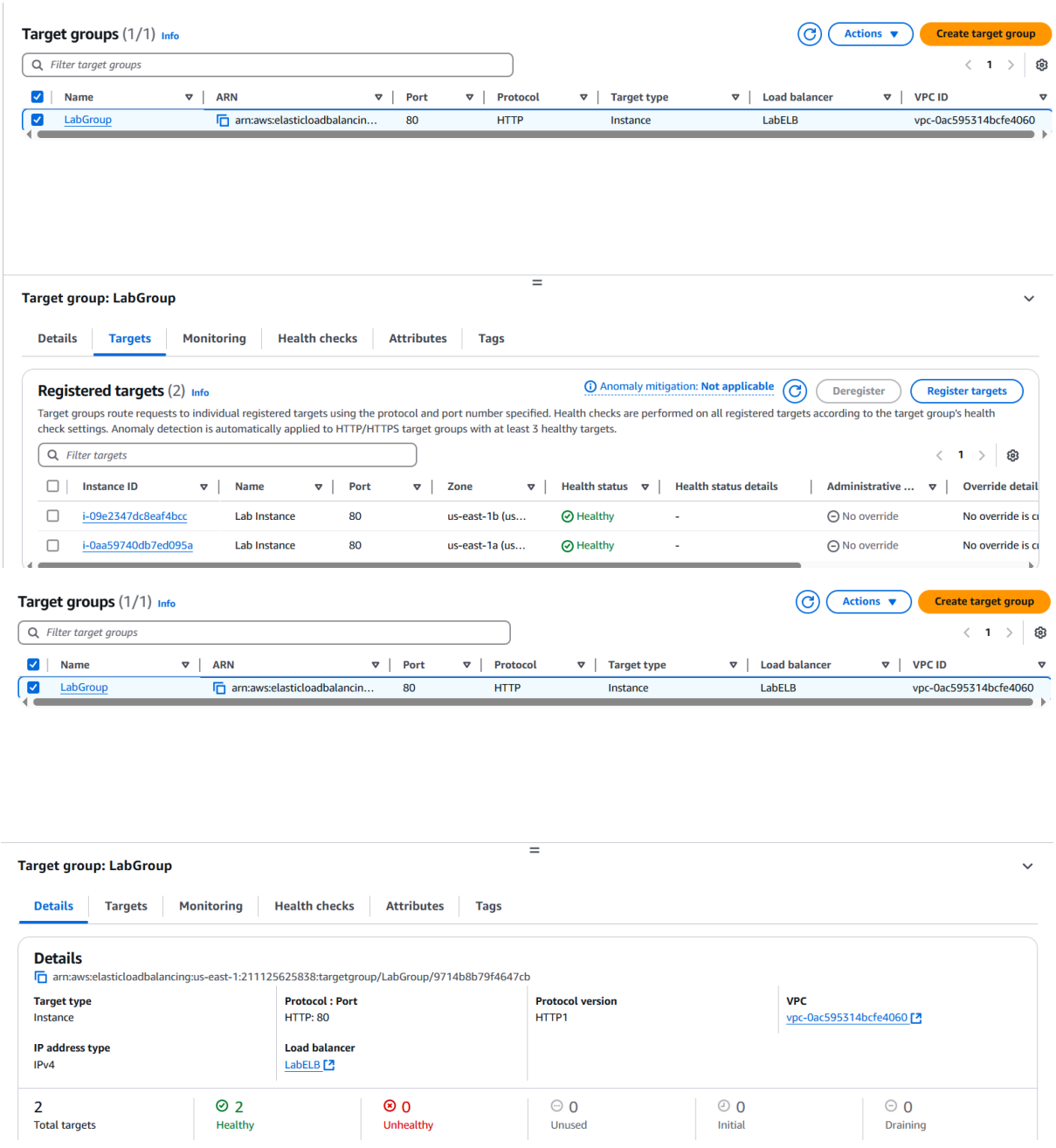
Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone
Bastion Host	i-0df1e16ddf6791fbe	Running	t2.micro	2/2 checks passec	View alarms +	us-east-1a
Web Server 1	i-07a6f873fb432a325	Running	t2.micro	2/2 checks passec	View alarms +	us-east-1a
Lab Instance	i-09e2347dc8eaf4bcc	Running	t2.micro	Initializing	View alarms +	us-east-1b
Lab Instance	i-0aa59740db7ed095a	Running	t2.micro	Initializing	View alarms +	us-east-1a


Target groups (1/1) Info
Actions
Create target group
Filter target groups
Name
ARN
Port
Protocol
Target type
Load balancer
VPC ID
LabGroup
arn:aws:elasticloadbalancin...
80
HTTP
Instance
LabELB
vpc-0ac595314bcfe4060
Target group: LabGroup
Details
Targets
Monitoring
Health checks
Attributes
Tags
Details
arn:aws:elasticloadbalancing:us-east-1:211125625838:targetgroup/LabGroup/9714b8b79f4647cb
Target type
Instance
Protocol : Port
HTTP: 80
Protocol version
HTTP1
VPC
vpc-0ac595314bcfe4060
IP address type
IPv4
Load balancer
LabELB
0
Total targets
0
Healthy
0
Unhealthy
0
Unused
0
Initial
0
Draining
Instances (1/4) Info
Last updated
less than a minute ago
Connect
Instance state
Actions
Find Instance by attribute or tag (case-sensitive)
All states
Name
Instance ID
Instance state
Instance type
Status check
Alarm status
Availability Zone
Bastion Host
i-0df1e16ddf6791fbe
Running
t2.micro
2/2 checks passec
View alarms
us-east-1a
Web Server 1
i-07a6f873fb432a325
Running
t2.micro
2/2 checks passec
View alarms
us-east-1a
Lab Instance
i-09e2347dc8eaf4bcc
Running
t2.micro
2/2 checks passec
View alarms
us-east-1b
Lab Instance
i-0aa59740db7ed095a
Running
t2.micro
2/2 checks passec
View alarms
us-east-1a
Target groups (1/1) Info
Actions
Create target group
Filter target groups
Name
ARN
Port
Protocol
Target type
Load balancer
VPC ID
LabGroup
arn:aws:elasticloadbalancin...
80
HTTP
Instance
LabELB
vpc-0ac595314bcfe4060
Target group: LabGroup
Details
Targets
Monitoring
Health checks
Attributes
Tags
Details
arn:aws:elasticloadbalancing:us-east-1:211125625838:targetgroup/LabGroup/9714b8b79f4647cb
Target type
Instance
Protocol : Port
HTTP: 80
Protocol version
HTTP1
VPC
vpc-0ac595314bcfe4060
IP address type
IPv4
Load balancer
LabELB
0
Total targets
0
Healthy
0
Unhealthy
0
Unused
0
Initial
0
Draining

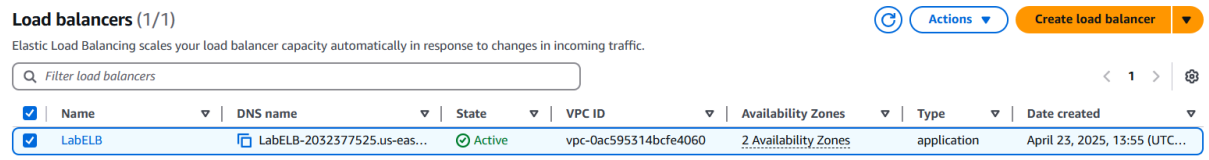

Target group: LabGroup
Registered targets (0) Info
Anomaly mitigation: Not applicable
Deregister
Register targets
Target groups route requests to individual registered targets using the protocol and port number specified. Health checks are performed on all registered targets according to the target group's health check settings. Anomaly detection is automatically applied to HTTP/HTTPS target groups with at least 3 healthy targets.
Filter targets
Instance ID
Name
Port
Zone
Health status
Health status details
Admini...
Overri...
Launc
No registered targets
You have not registered targets to this group yet
Register targets

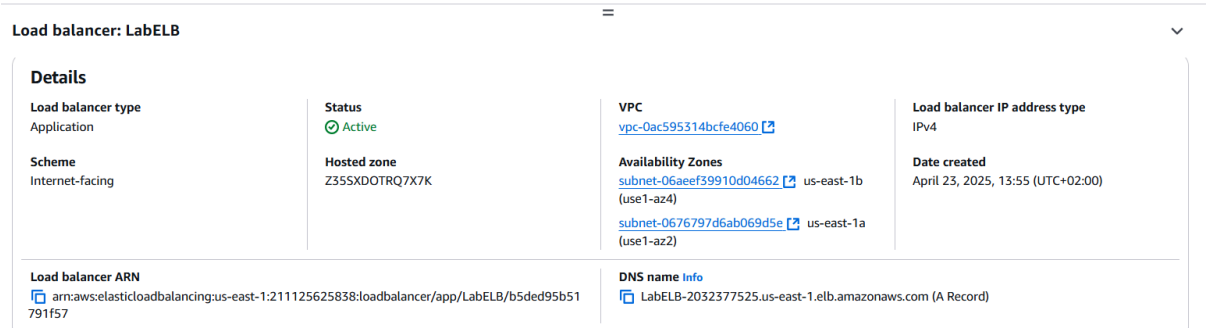

EC2 > Target groups > LabGroup > Register targets
Register targets
Select instances, specify ports, and add the instances to the list of pending targets. Repeat to add additional combinations of instances and ports to the list of pending targets. Once you are satisfied with your selections, click Register pending targets.
Available instances (2/4)
Filter instances
Instance ID
Name
State
Security groups
Zone
Private IPv4 address
Subnet
i-09e2347dc8eaf4bcc Lab Instance Running Web Security Group us-east-1b 10.0.3.29
i-0aa59740db7ed095a Lab Instance Running Web Security Group us-east-1a 10.0.1.82
i-0df1e16ddf6791fbe Bastion Host Running c151124a3888978l10073310t1w211... us-east-1a 10.0.0.199
i-07a6f873fb432a325 Web Server 1 Running Web Security Group us-east-1a 10.0.0.102
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

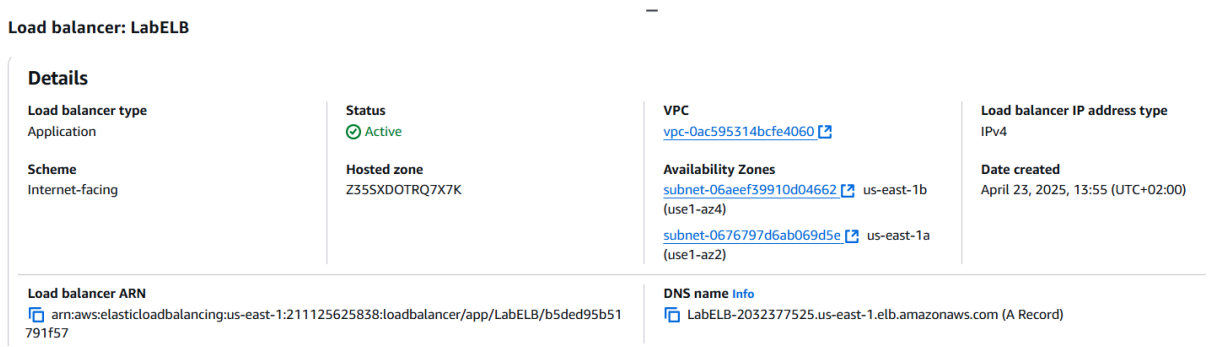

Review targets
Targets (2)
Remove all pending
Filter targets
Show only pending
Instance ID
Name
Port
State
Security groups
Zone
Private IPv4 address
Subnet ID
Launch time
i-09e2347dc8eaf4bcc Lab Instance 80 Running Web Security Group us-east-1b 10.0.3.29 subnet-03e664e1d34761c2f April 23, 2025, 14:16 (UTC+02:00)
i-0aa59740db7ed095a Lab Instance 80 Running Web Security Group us-east-1a 10.0.1.82 subnet-04ba83656081f01c5 April 23, 2025, 14:16 (UTC+02:00)
2 pending
Cancel
Register pending targets


Target groups (1/1) Info
Actions
Create target group
Filter target groups
Name
ARN
Port
Protocol
Target type
Load balancer
VPC ID
LabGroup
arn:aws:elasticloadbalancin...
80
HTTP
Instance
LabELB
vpc-0ac595314bcfe4060
Target group: LabGroup
Details
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.
Filter targets
Instance ID
Name
Port
Zone
Health status
Health status details
Administrative ...
Override detail
i-09e2347dc8eaf4bcc
Lab Instance
80
us-east-1b (us...
Healthy
No override
i-0aa59740db7ed095a
Lab Instance
80
us-east-1a (us...
Healthy
No override

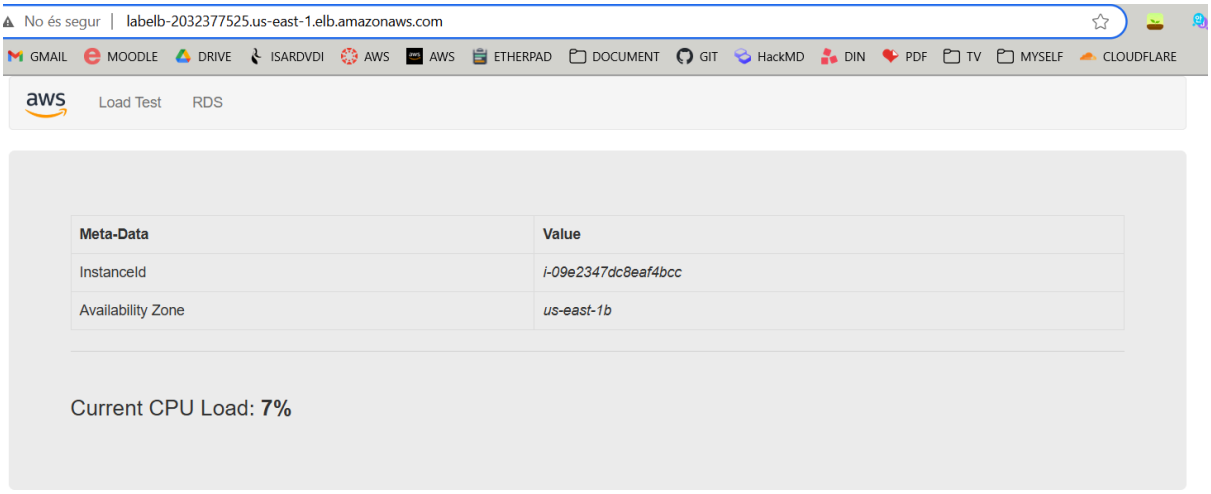
Target groups (1/1) Info
Actions
Create target group
Filter target groups
Name
ARN
Port
Protocol
Target type
Load balancer
VPC ID
LabGroup
arn:aws:elasticloadbalancin...
80
HTTP
Instance
LabELB
vpc-0ac595314bcfe4060
Target group: LabGroup
Details
Targets
Monitoring
Health checks
Attributes
Tags
Details
arn:aws:elasticloadbalancing:us-east-1:211125625838:targetgroup/LabGroup/9714b8b79f4647cb
Target type
Instance
Protocol : Port
HTTP: 80
Protocol version
HTTP1
VPC
vpc-0ac595314bcfe4060
IP address type
IPv4
Load balancer
LabELB
2
Total targets
2
Healthy
0
Unhealthy
0
Unused
0
Initial
0
Draining


Load balancers (1/1)
Actions
Create load balancer
Elastic Load Balancing scales your load balancer capacity automatically in response to changes in incoming traffic.
Filter load balancers
Name
DNS name
State
VPC ID
Availability Zones
Type
Date created
LabELB
LabELB-2032377525.us-eas...
Active
vpc-0ac595314bcfe4060
2 Availability Zones
application
April 23, 2025, 13:55 (UTC...


Load balancer: LabELB
Details
Load balancer type
Application
Status
Active
VPC
vpc-0ac595314bcfe4060
Load balancer IP address type
IPv4
Scheme
Internet-facing
Hosted zone
Z35SXDOTRQ7X7K
Availability Zones
subnet-06aeef39910d04662 us-east-1b (use1-az4)
subnet-0676797d6ab069d5e us-east-1a (use1-az2)
Date created
April 23, 2025, 13:55 (UTC+02:00)
Load balancer ARN
arn:aws:elasticloadbalancing:us-east-1:211125625838:loadbalancer/app/LabELB/b5ded95b51791f57
DNS name Info
LabELB-2032377525.us-east-1.elb.amazonaws.com (A Record)

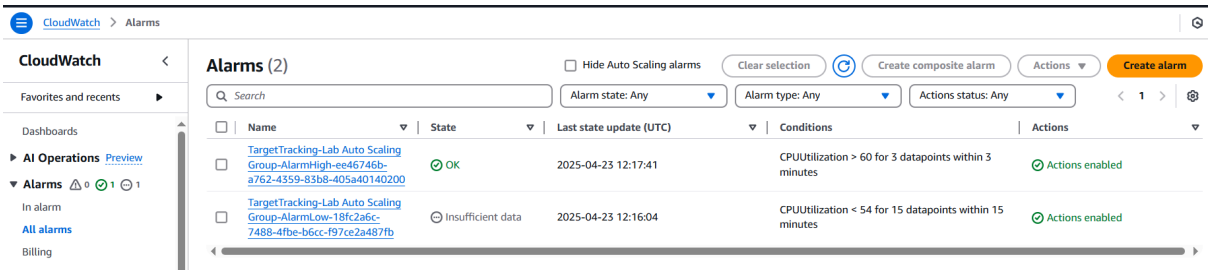

Load balancer: LabELB
Details
Load balancer type
Application
Status
Active
VPC
vpc-0ac595314bcfe4060
Load balancer IP address type
IPv4
Scheme
Internet-facing
Hosted zone
Z35SXDOTRQ7X7K
Availability Zones
subnet-06aeef39910d04662 us-east-1b (use1-az4)
subnet-0676797d6ab069d5e us-east-1a (use1-az2)
Date created
April 23, 2025, 13:55 (UTC+02:00)
Load balancer ARN
arn:aws:elasticloadbalancing:us-east-1:211125625838:loadbalancer/app/LabELB/b5ded95b51791f57
DNS name Info
LabELB-2032377525.us-east-1.elb.amazonaws.com (A Record)

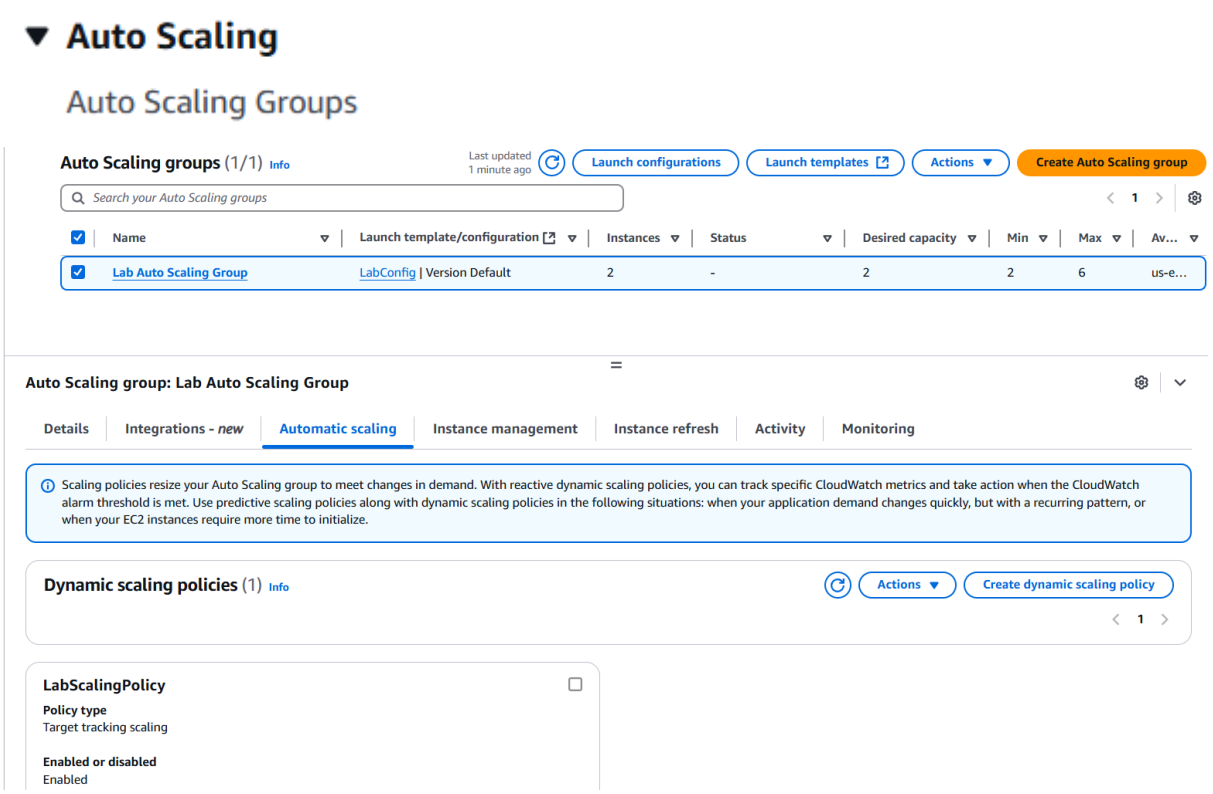

DNS name Info
LabELB-2032377525.us-east-1.elb.amazonaws.com (A Record)

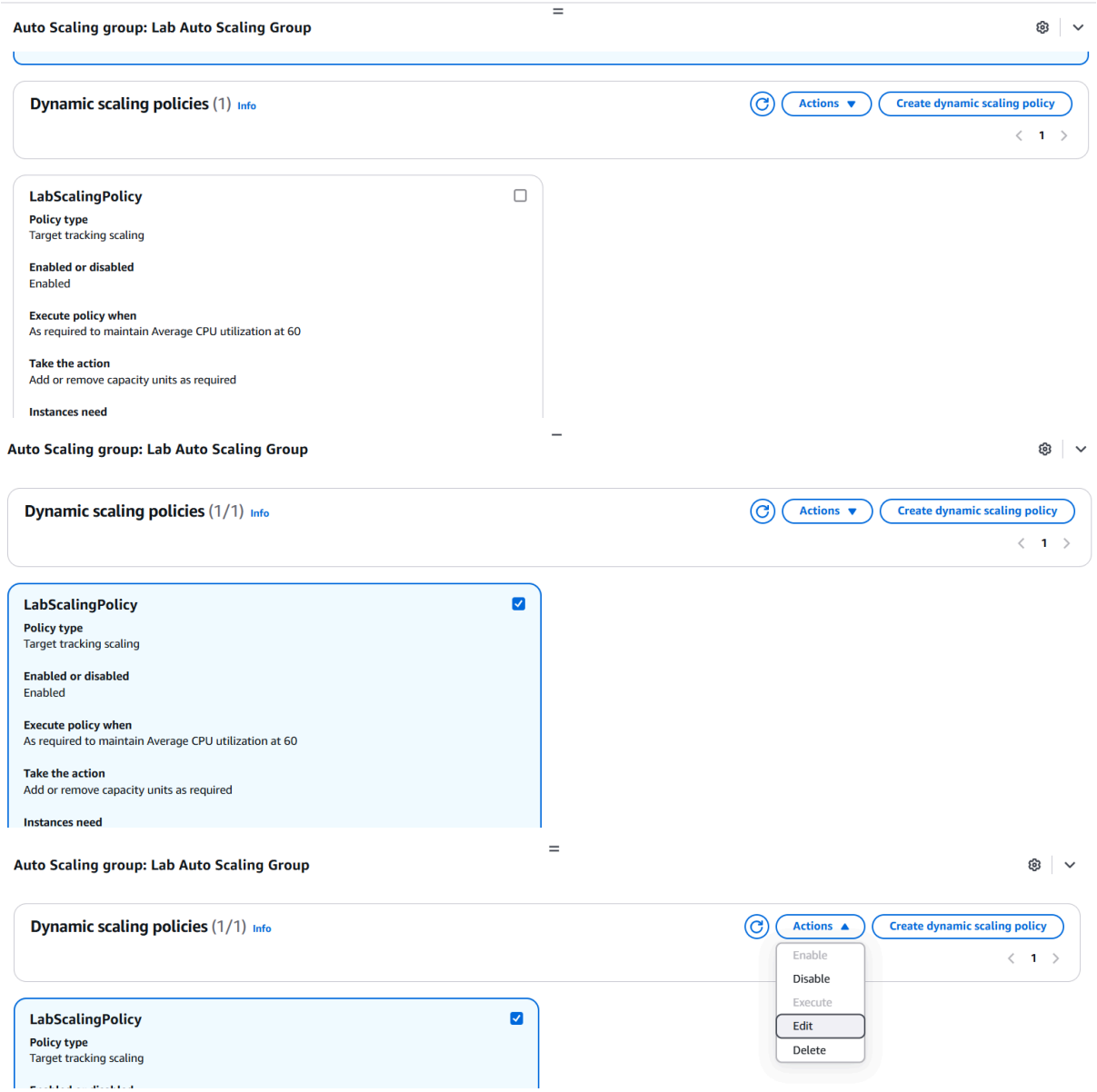

No és segur | labelb-2032377525.us-east-1.elb.amazonaws.com
GMAIL MOODLE DRIVE ISARDVDI AWS AWS ETHERPAD DOCUMENT GIT HackMD DIN PDF TV MYSELF CLOUDFLARE
aws
Load Test
RDS
Meta-Data
Value
InstanceId
i-09e2347dc8eaf4bcc
Availability Zone
us-east-1b
Current CPU Load: 7%

Meta-Data	Value
InstanceId	*i-09e2347dc8eaf4bcc*
Availability Zone	*us-east-1b*

Current CPU Load: **7%**






Auto Scaling group: Lab Auto Scaling Group
Dynamic scaling policies (1) Info
Actions
Create dynamic scaling policy
1
LabScalingPolicy
Policy type
Target tracking scaling
Enabled or disabled
Enabled
Execute policy when
As required to maintain Average CPU utilization at 60
Take the action
Add or remove capacity units as required
Instances need
Auto Scaling group: Lab Auto Scaling Group
Dynamic scaling policies (1/1) Info
Actions
Create dynamic scaling policy
1
LabScalingPolicy
Policy type
Target tracking scaling
Enabled or disabled
Enabled
Execute policy when
As required to maintain Average CPU utilization at 60
Take the action
Add or remove capacity units as required
Instances need
Auto Scaling group: Lab Auto Scaling Group
Dynamic scaling policies (1/1) Info
Actions
Create dynamic scaling policy
Enable
Disable
Execute
Edit
Delete
1
LabScalingPolicy
Policy type
Target tracking scaling

Edit dynamic scaling policy

Policy type

Target tracking scaling

Scaling policy name

LabScalingPolicy

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

50

Instance warmup | Info

300 seconds

Disable scale in to create only a scale-out policy

Cancel Update

Target value

50

Dynamic scaling policy created or edited successfully.

Auto Scaling groups (1/1) Info

Last updated less than a minute ago | Launch configurations | Launch templates | Actions | Create Auto Scaling group

Search your Auto Scaling groups

Name	Launch template/configuration	Instances	Status	Desired capacity	Min	Max	A..
Lab Auto Scaling Group	LabConfig | Version Default	2	-	2	2	6	u...

uto Scaling group: Lab Auto Scaling Group

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

Scaling policies resize your Auto Scaling group to meet changes in demand. With reactive dynamic scaling policies, you can track specific CloudWatch metrics and take action when the CloudWatch alarm threshold is met. Use predictive scaling policies along with dynamic scaling policies in the following situations: when your application demand changes quickly, but with a recurring pattern, or when your EC2 instances require more time to initialize.

Dynamic scaling policies (1) Info

Actions | Create dynamic scaling policy

CloudWatch > Alarms

CloudWatch

Favorites and recents

Dashboards

AI Operations Preview

Alarms 0 0 2

In alarm

All alarms

Billing

Logs

Log groups New

Log Anomalies

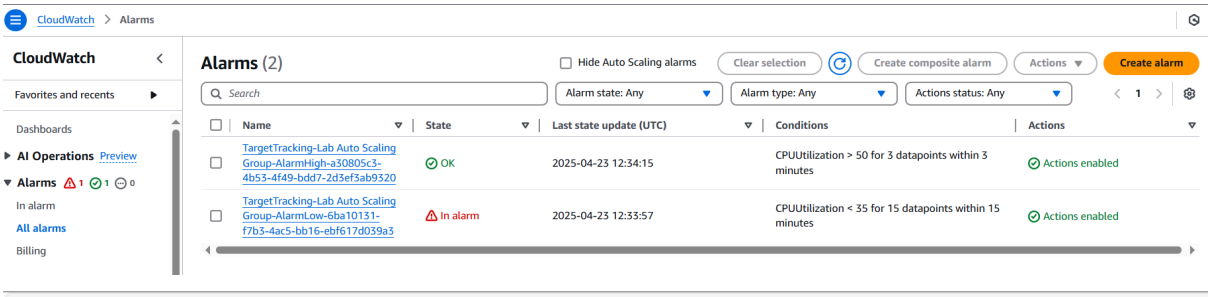
Live Tail

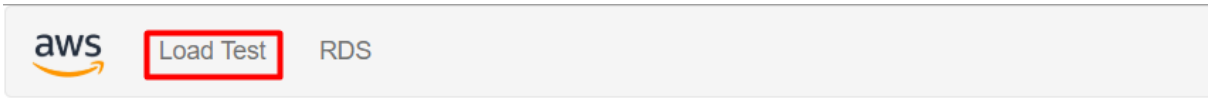
Alarms (2)

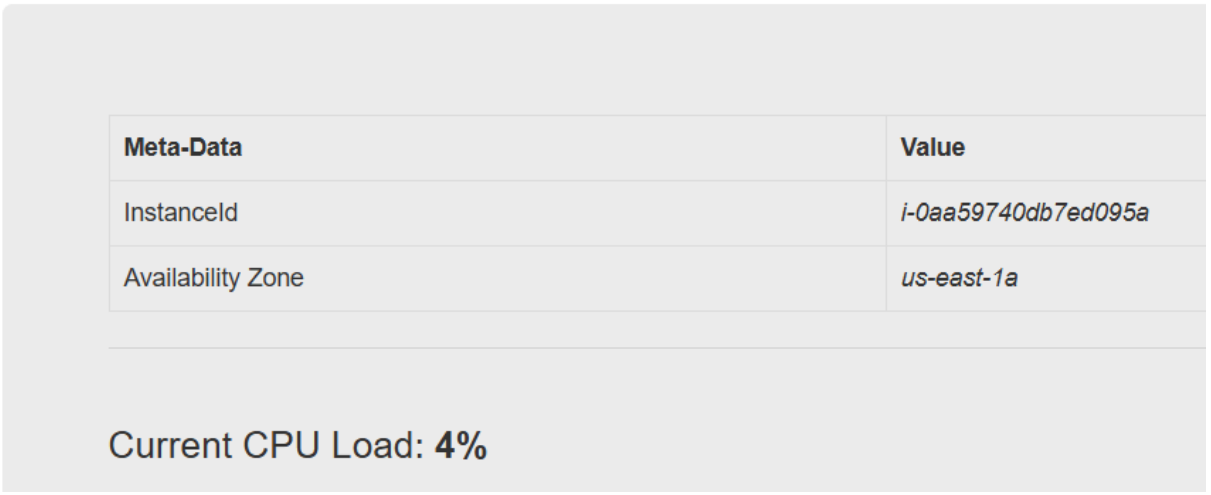
Hide Auto Scaling alarms | Clear selection | Create composite alarm | Actions | Create alarm

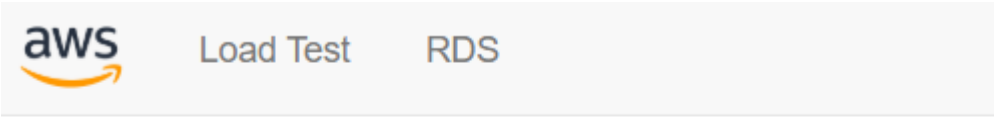
Search | Alarm state: Any | Alarm type: Any | Actions status: Any

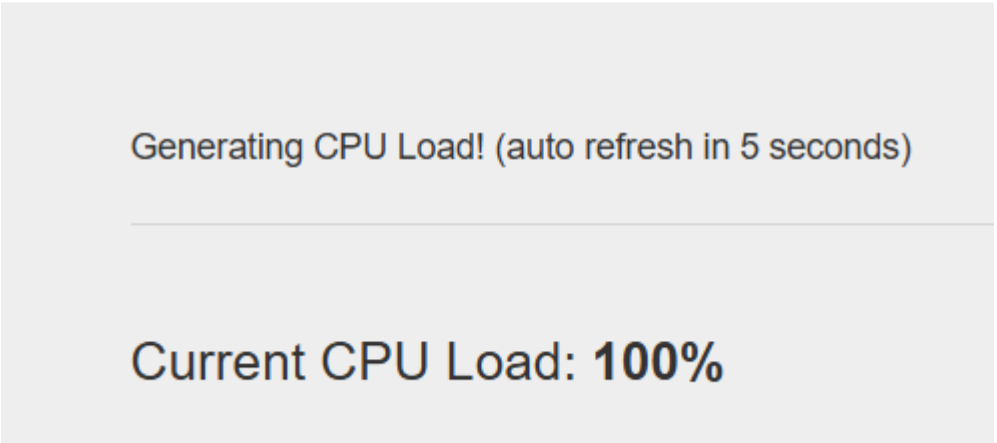
Name	State	Last state update (UTC)	Conditions	Actions
TargetTracking-Lab Auto Scaling Group-AlarmLow-6ba10131-f7b3-4ac5-bb16-ebf617d039a3	Insufficient data	2025-04-23 12:33:11	CPUUtilization < 45 for 15 datapoints within 15 minutes	Actions enabled
TargetTracking-Lab Auto Scaling Group-AlarmHigh-a30805c3-4b53-4f49-bdd7-2d3ef3ab9320	Insufficient data	2025-04-23 12:33:11	CPUUtilization > 50 for 3 datapoints within 3 minutes	Actions enabled

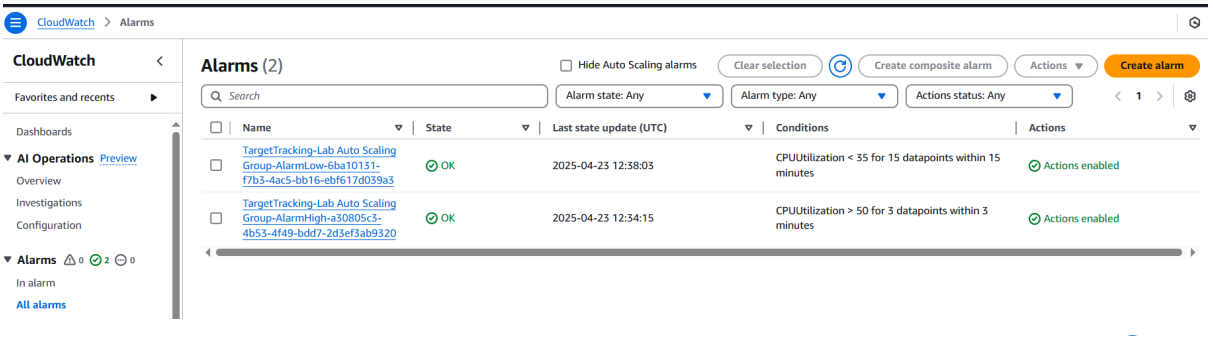

CloudWatch > Alarms
CloudWatch
Favorites and recents
Dashboards
AI Operations Preview
Alarms 1 1 0
In alarm
All alarms
Billing
Alarms (2)
Hide Auto Scaling alarms
Clear selection
Create composite alarm
Actions
Create alarm
Search
Alarm state: Any
Alarm type: Any
Actions status: Any
Name
State
Last state update (UTC)
Conditions
Actions
TargetTracking-Lab Auto Scaling Group-AlarmHigh-a30805c3-4b53-4f49-bdd7-2d3ef3ab9320
OK
2025-04-23 12:34:15
CPUUtilization > 50 for 3 datapoints within 3 minutes
Actions enabled
TargetTracking-Lab Auto Scaling Group-AlarmLow-6ba10131-f7b3-4ac5-bb16-ebf617d039a3
In alarm
2025-04-23 12:33:57
CPUUtilization < 35 for 15 datapoints within 15 minutes
Actions enabled

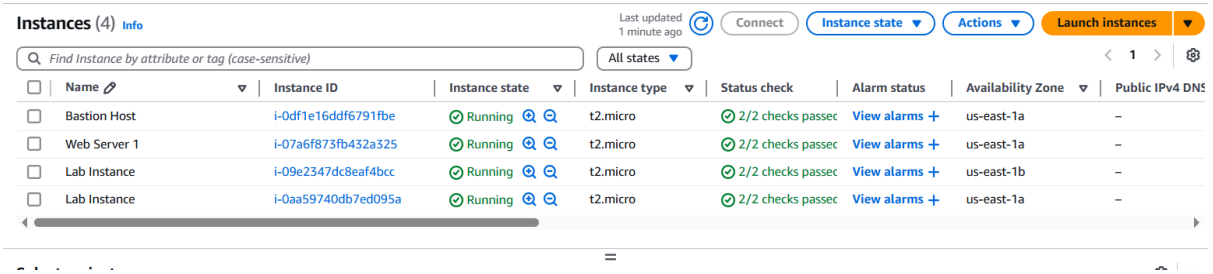

aws
Load Test
RDS


Meta-Data
Value
InstanceId
i-0aa59740db7ed095a
Availability Zone
us-east-1a
Current CPU Load: 4%

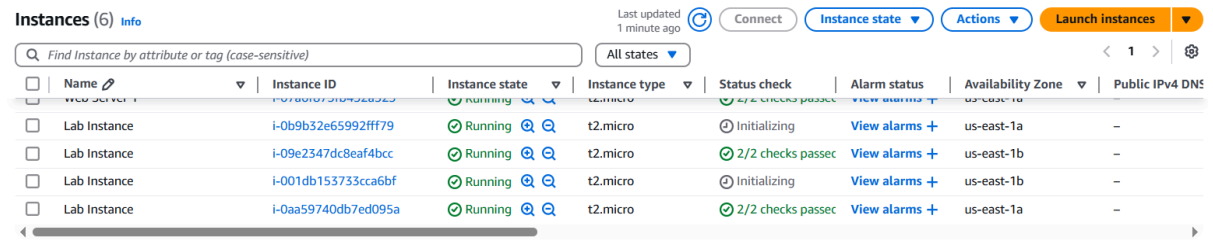

aws
Load Test
RDS


Generating CPU Load! (auto refresh in 5 seconds)
Current CPU Load: 100%

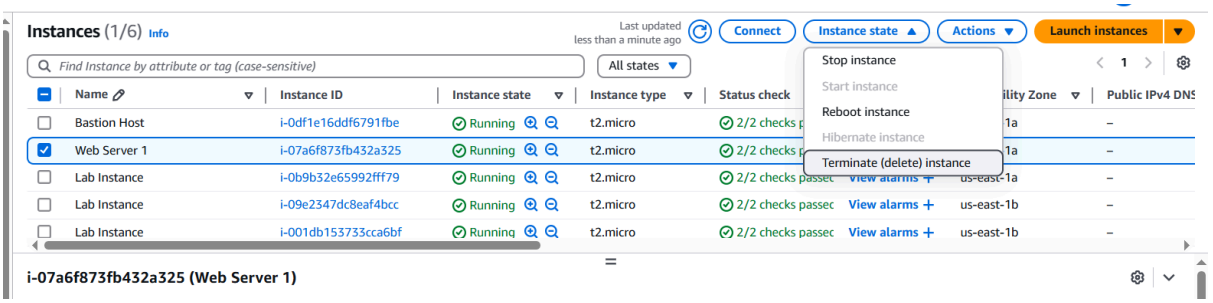


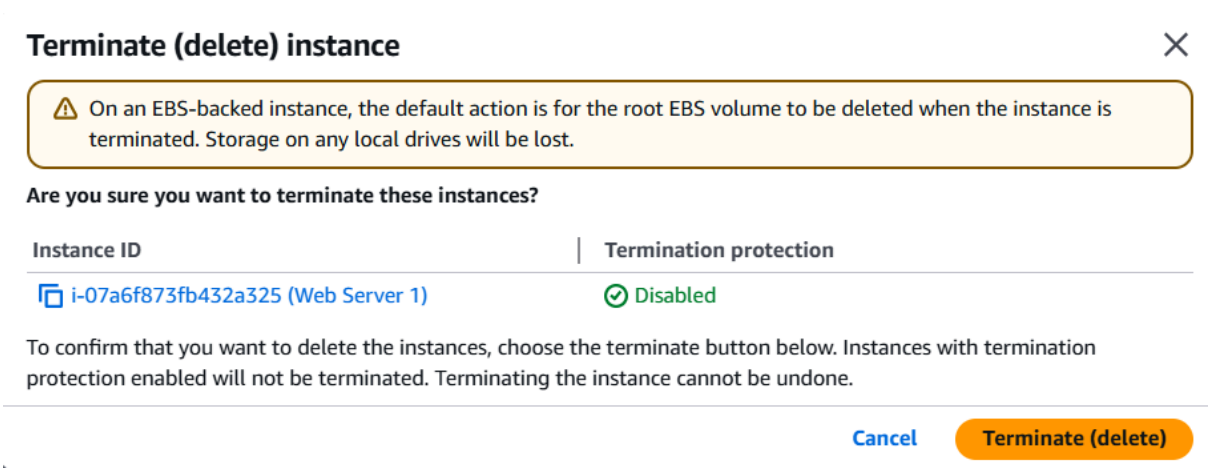


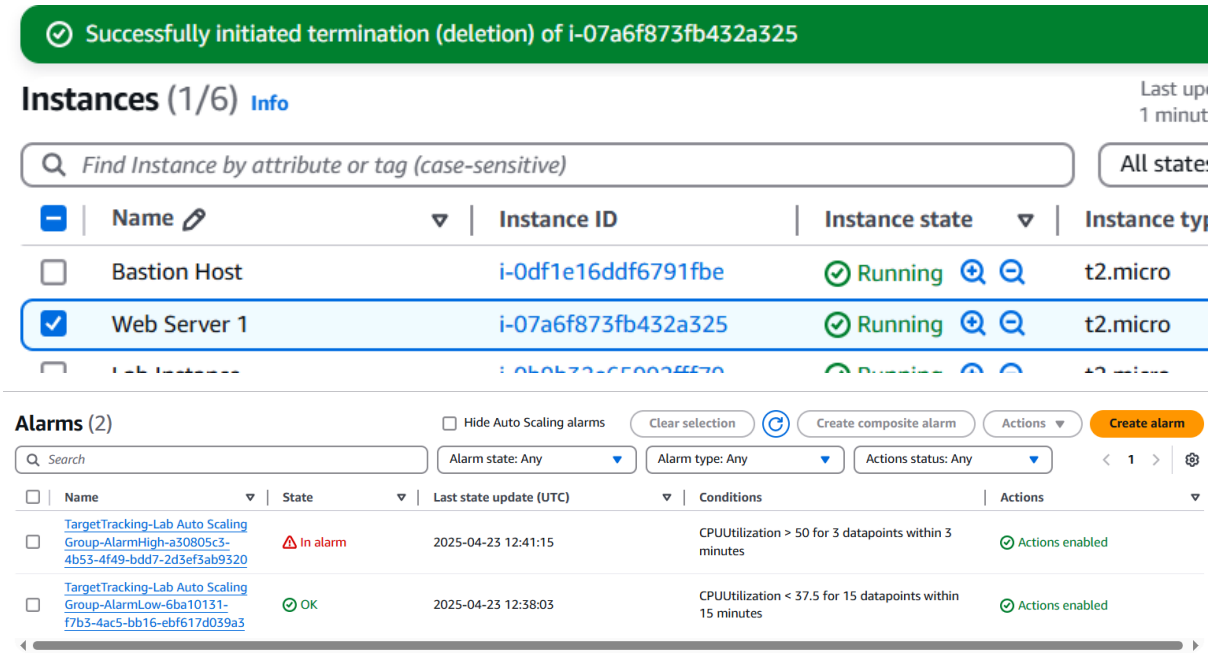
hay que esperar



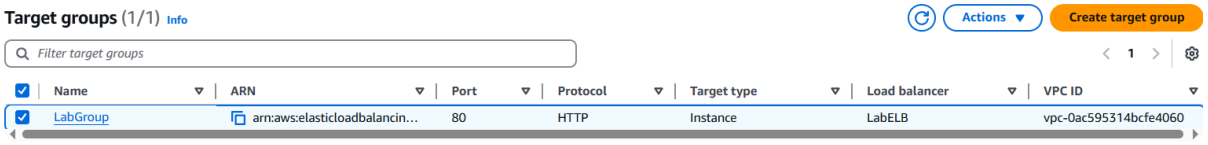
Se creo dos ec2 mas.

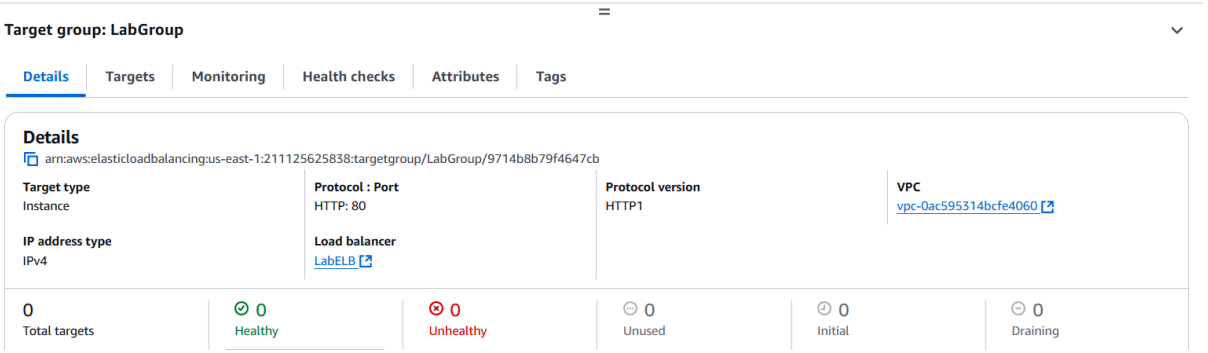




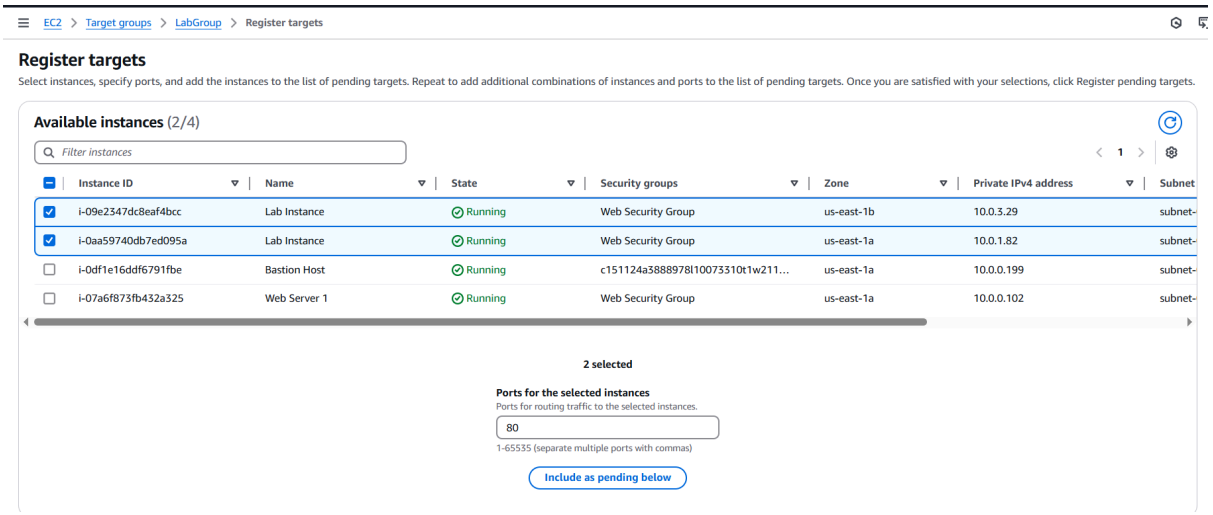


Error → Solución





Hay que añadir las ec2 para que salgan.



Conclusión

Al finalizar esta actividad, habrás configurado una infraestructura escalable y resiliente que utiliza Elastic Load Balancing y Auto Scaling para manejar cargas variables de manera eficiente. Este diseño asegura alta disponibilidad y optimización de costos.

Submit del lab

Submit | Submission Report | Grades

Total score	35/35
Task 1 - AMI created	5/5
Task 2 - Load Balancer created	5/5
Task 3a - Launch Template created	5/5
Task 3b - Auto Scaling Group created	5/5
Task 4 - Load Balancer check	5/5
Task 5 - Auto Scaling check	5/5
Task 6 - Web Server 1	5/5