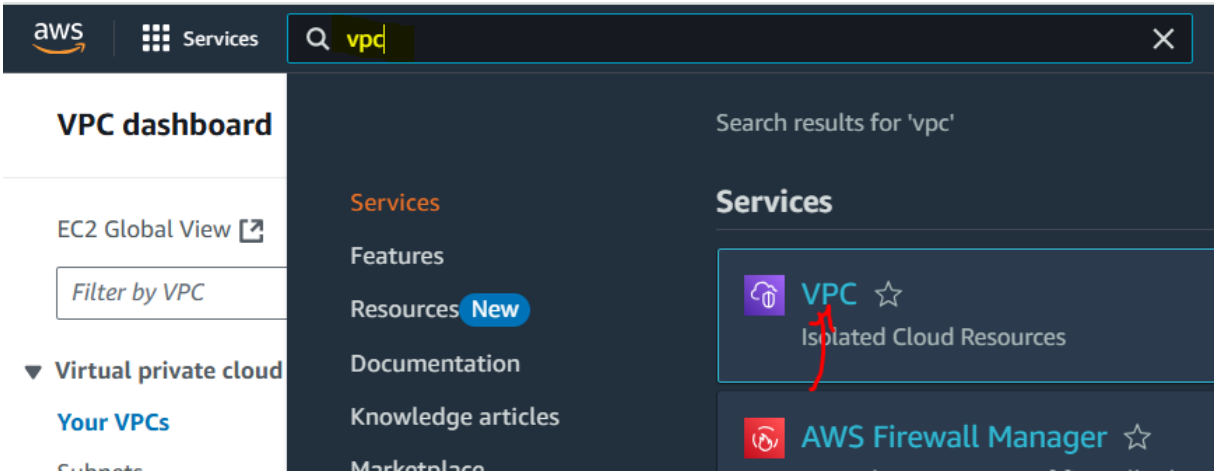
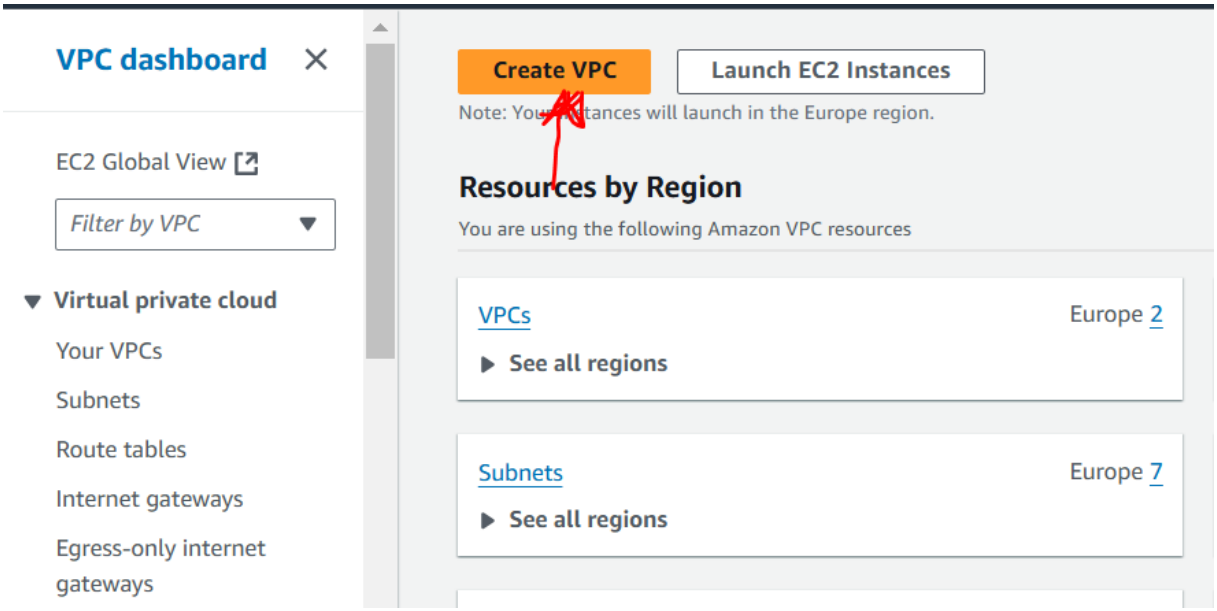
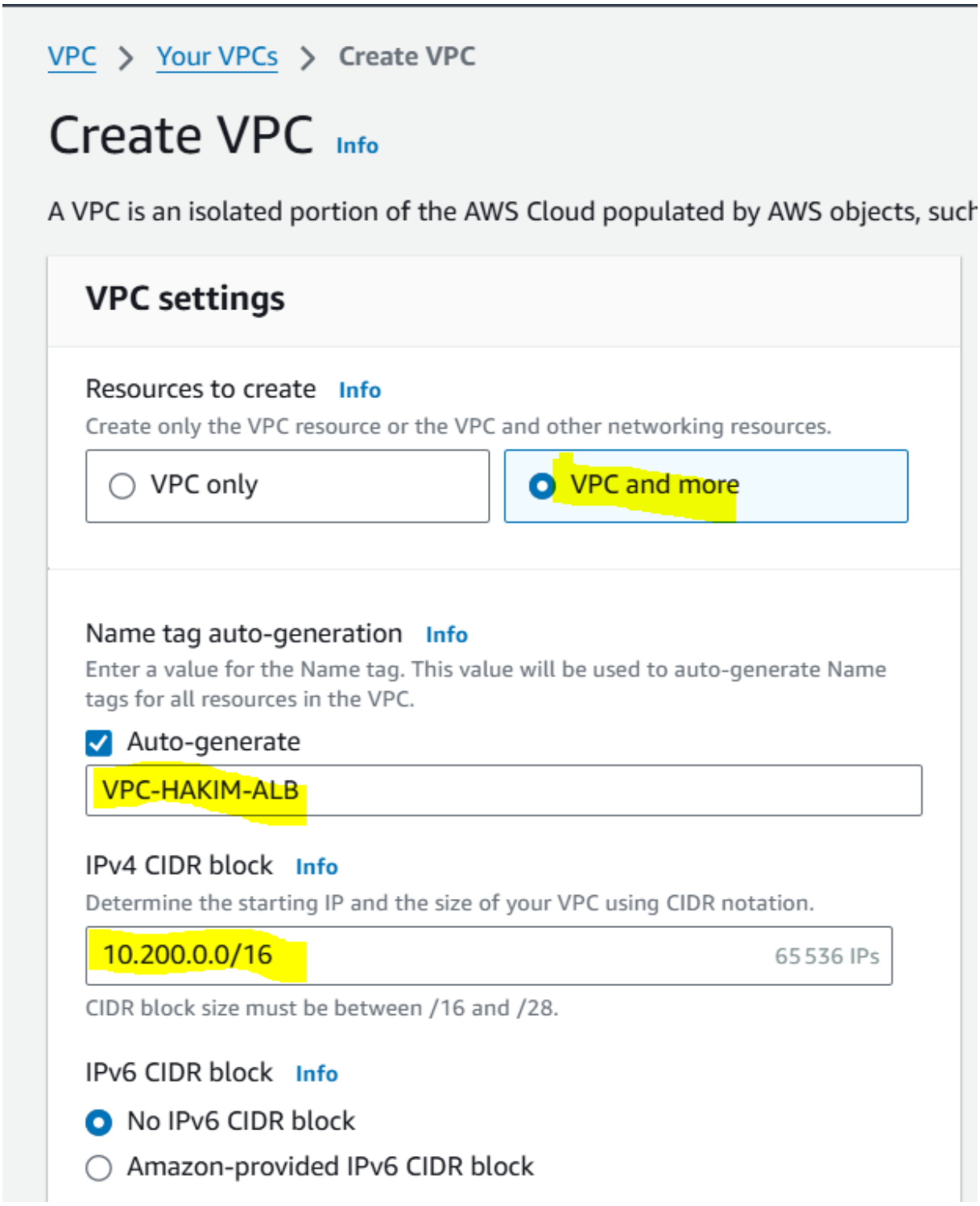
ALB & NLB

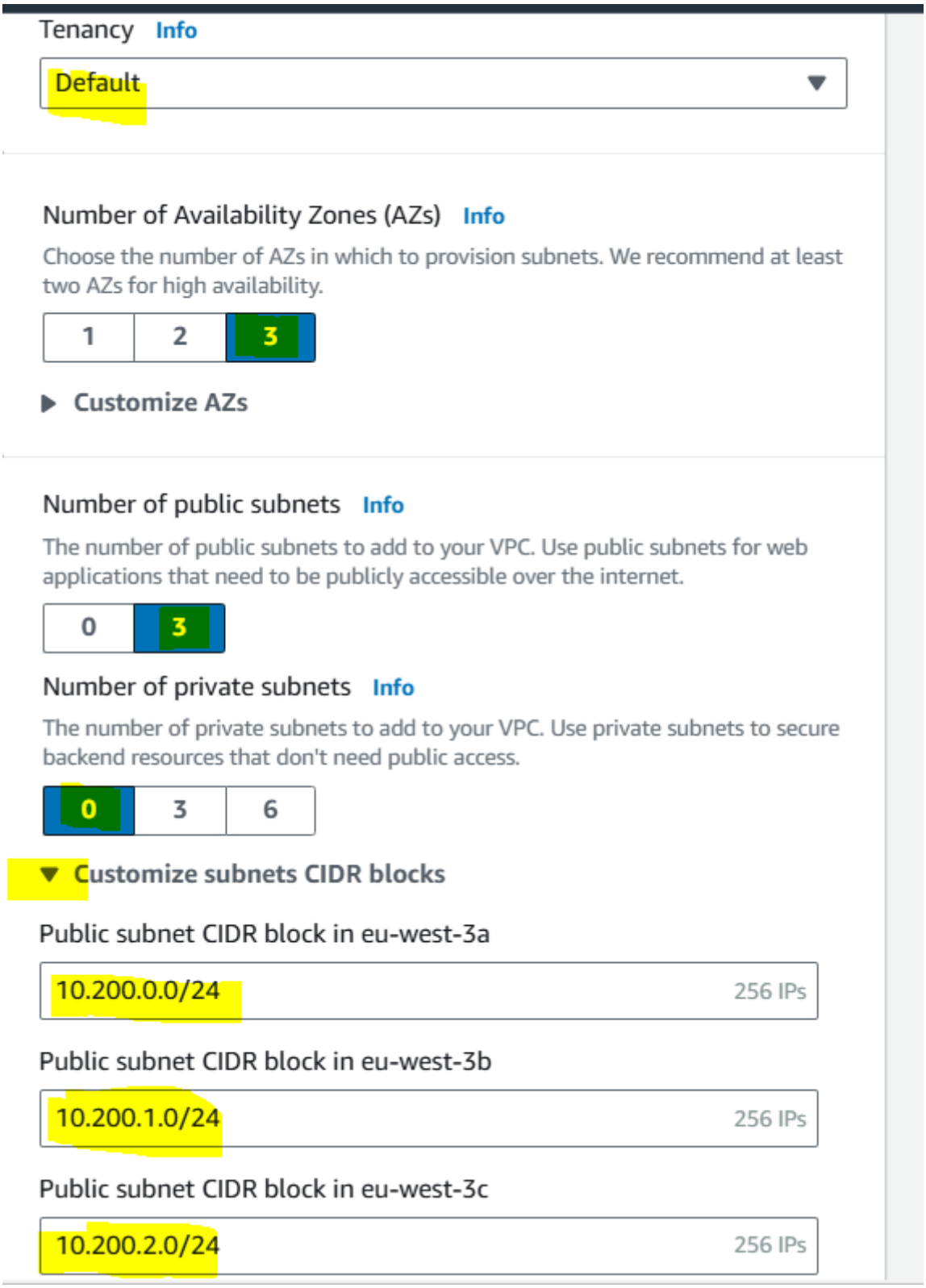
Commencez par supprimer l'ancien VPC dans la région Paris et ne conservez que votre VPC par défaut.

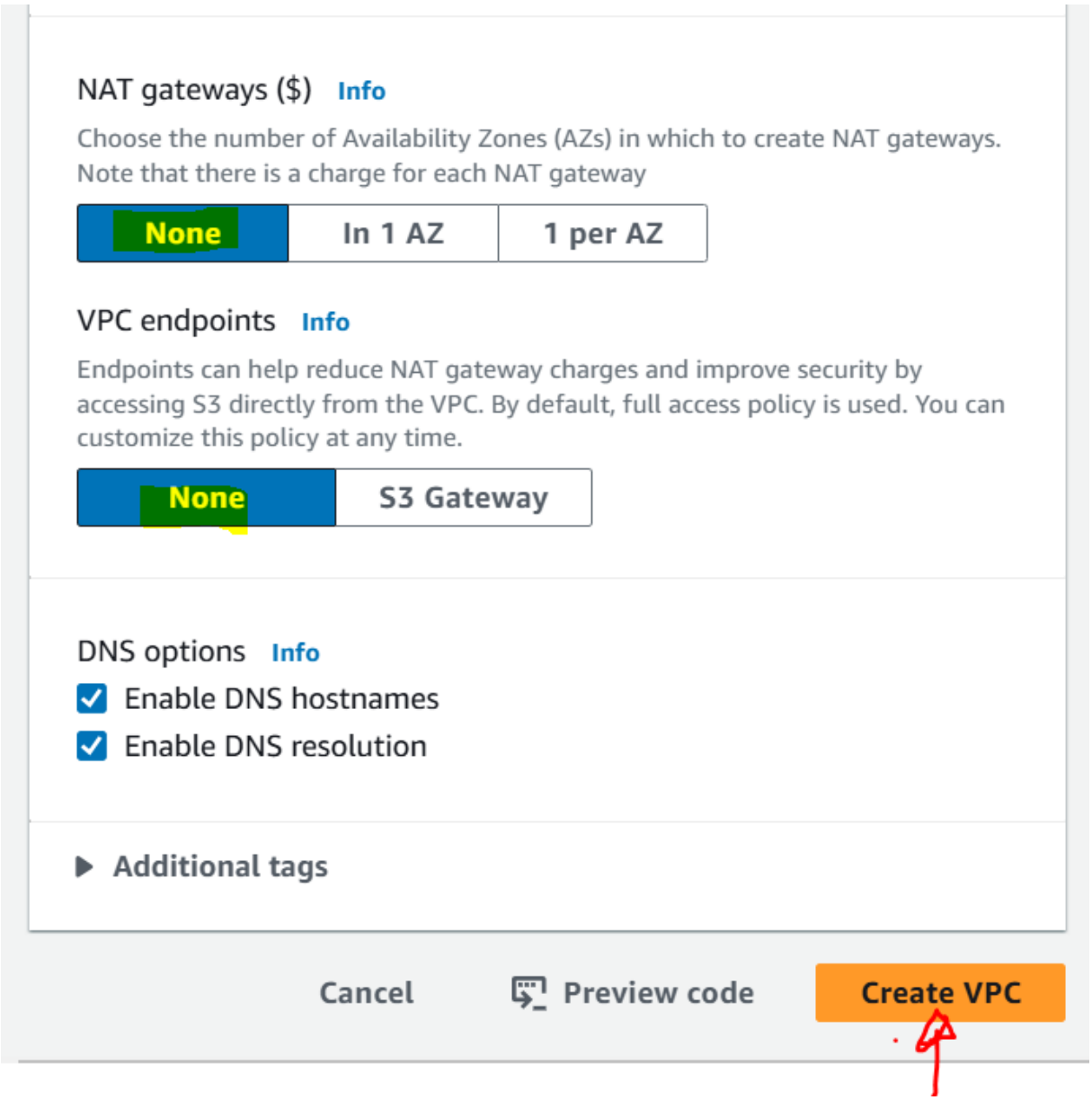
On va créer un VPC nommé « **VPC-VotreNom-ALB »** (par exemple : **VPC-HAKIM-ALB**) avec le CIDR **10.200.0.0/24** dans la région Paris.

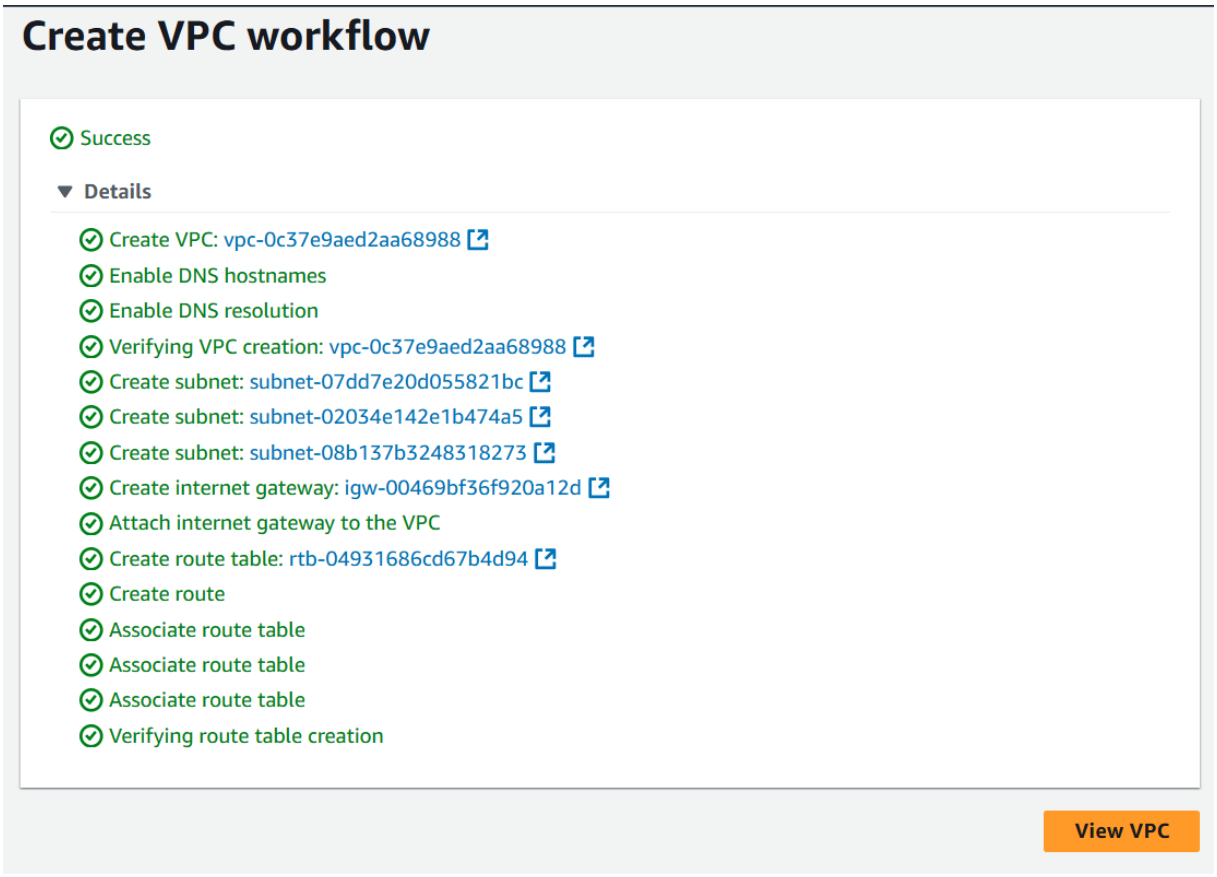


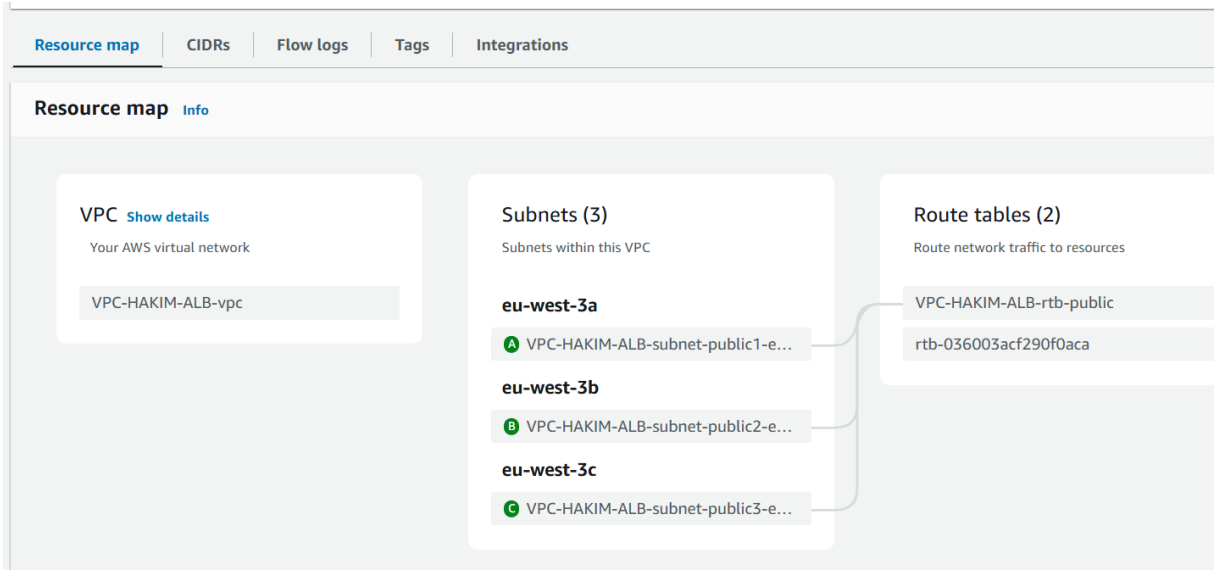



VPC > Your VPCs > Create VPC
Create VPC Info
A VPC is an isolated portion of the AWS Cloud populated by AWS objects, such
VPC settings
Resources to create Info
Create only the VPC resource or the VPC and other networking resources.
VPC only
VPC and more
Name tag auto-generation Info
Enter a value for the Name tag. This value will be used to auto-generate Name tags for all resources in the VPC.
Auto-generate
VPC-HAKIM-ALB
IPv4 CIDR block Info
Determine the starting IP and the size of your VPC using CIDR notation.
10.200.0.0/16
65 536 IPs
CIDR block size must be between /16 and /28.
IPv6 CIDR block Info
No IPv6 CIDR block
Amazon-provided IPv6 CIDR block

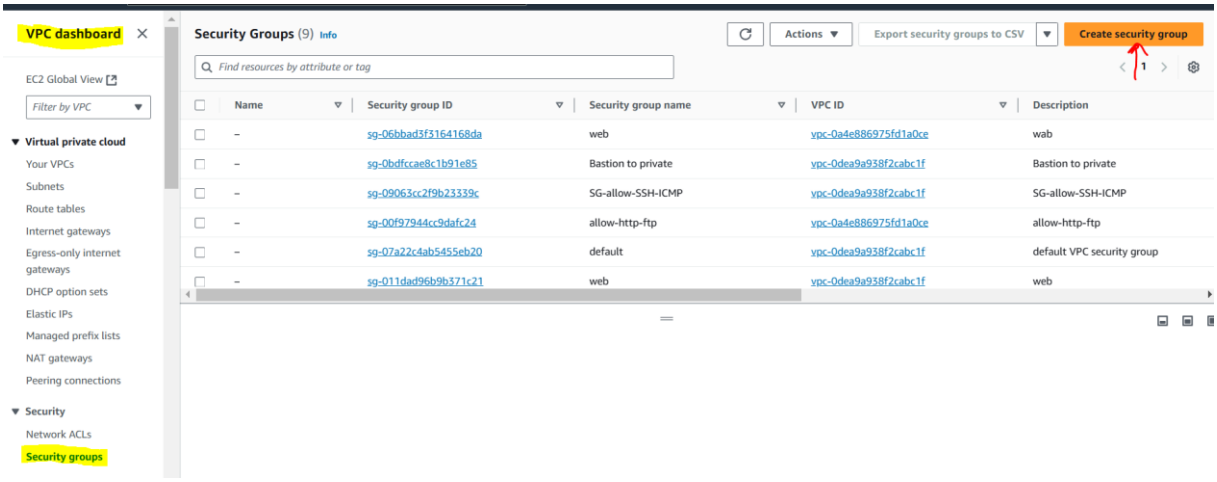

Tenancy Info
Default
Number of Availability Zones (AZs) Info
Choose the number of AZs in which to provision subnets. We recommend at least two AZs for high availability.
1
2
3
Customize AZs
Number of public subnets Info
The number of public subnets to add to your VPC. Use public subnets for web applications that need to be publicly accessible over the internet.
0
3
Number of private subnets Info
The number of private subnets to add to your VPC. Use private subnets to secure backend resources that don't need public access.
0
3
6
Customize subnets CIDR blocks
Public subnet CIDR block in eu-west-3a
10.200.0.0/24
256 IPs
Public subnet CIDR block in eu-west-3b
10.200.1.0/24
256 IPs
Public subnet CIDR block in eu-west-3c
10.200.2.0/24
256 IPs

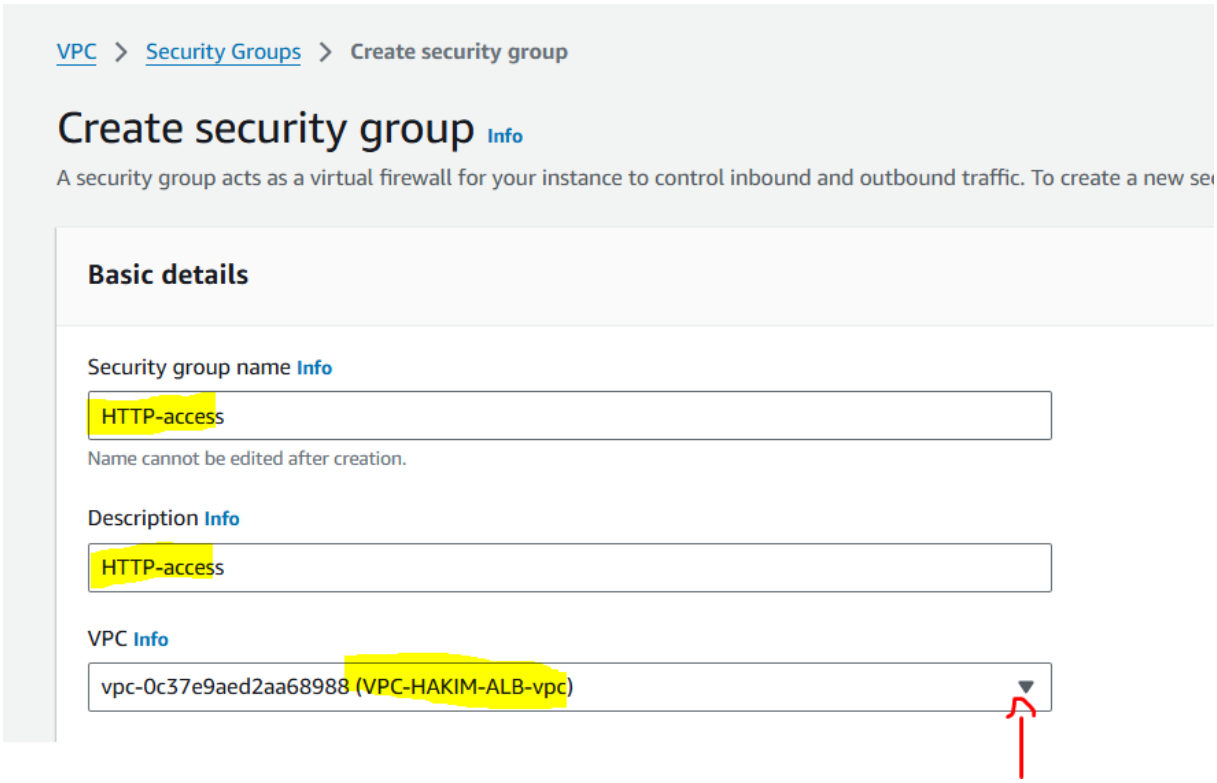

NAT gateways ($) Info
Choose the number of Availability Zones (AZs) in which to create NAT gateways. Note that there is a charge for each NAT gateway
None
In 1 AZ
1 per AZ
VPC endpoints Info
Endpoints can help reduce NAT gateway charges and improve security by accessing S3 directly from the VPC. By default, full access policy is used. You can customize this policy at any time.
None
S3 Gateway
DNS options Info
Enable DNS hostnames
Enable DNS resolution
Additional tags
Cancel
Preview code
Create VPC

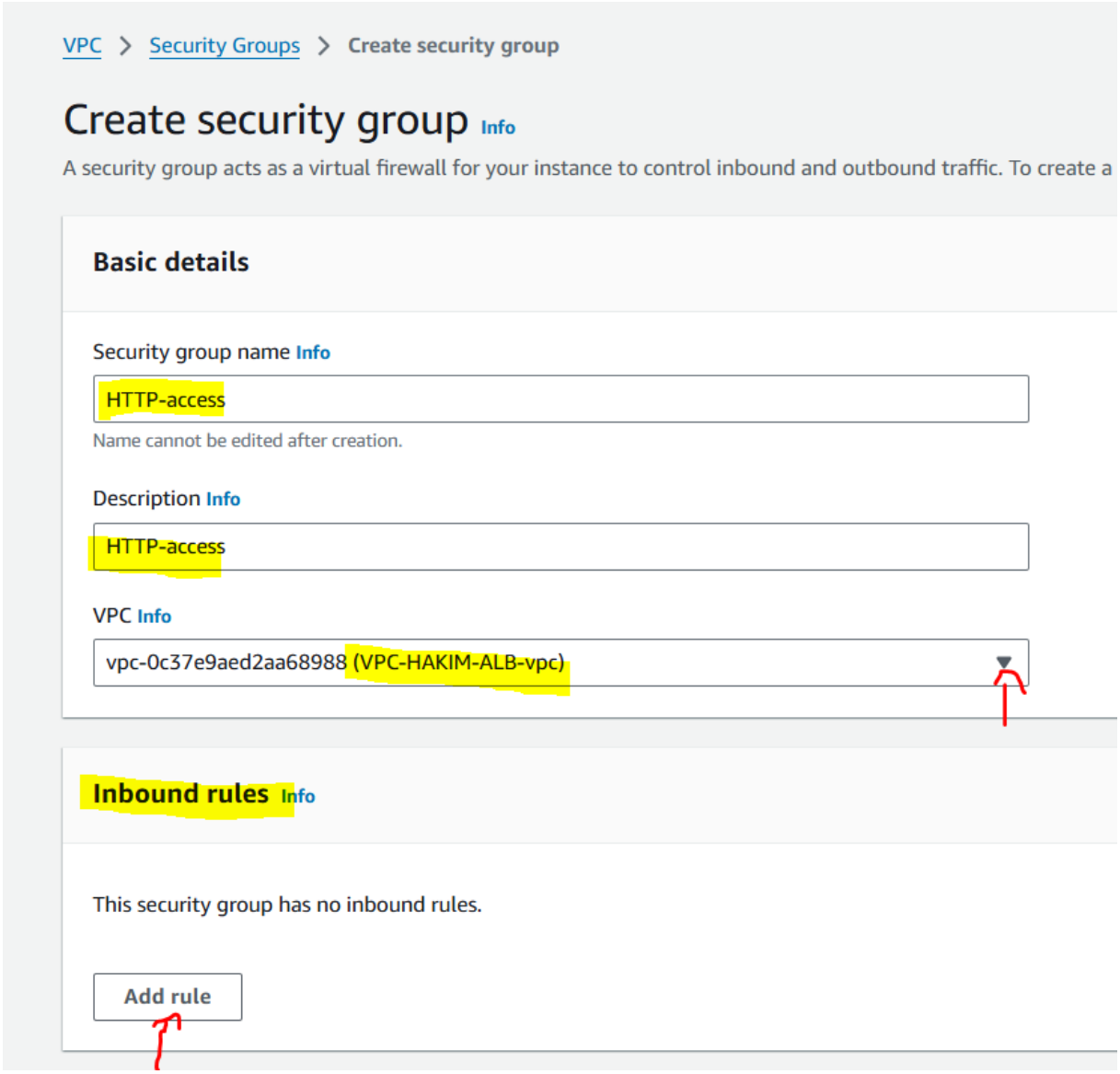

Create VPC workflow
Success
Details
Create VPC: vpc-0c37e9aed2aa68988
Enable DNS hostnames
Enable DNS resolution
Verifying VPC creation: vpc-0c37e9aed2aa68988
Create subnet: subnet-07dd7e20d055821bc
Create subnet: subnet-02034e142e1b474a5
Create subnet: subnet-08b137b3248318273
Create internet gateway: igw-00469bf36f920a12d
Attach internet gateway to the VPC
Create route table: rtb-04931686cd67b4d94
Create route
Associate route table
Associate route table
Associate route table
Verifying route table creation
View VPC

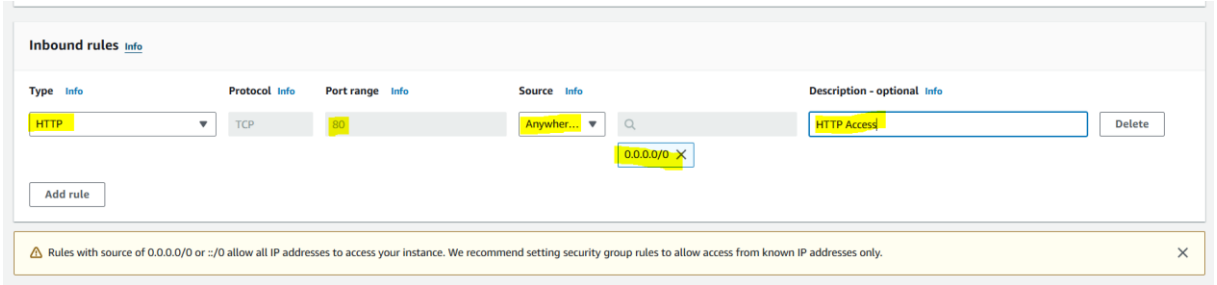

Resource map
CIDRs
Flow logs
Tags
Integrations
Resource map Info
VPC Show details
Your AWS virtual network
VPC-HAKIM-ALB-vpc
Subnets (3)
Subnets within this VPC
eu-west-3a
VPC-HAKIM-ALB-subnet-public1-e...
eu-west-3b
VPC-HAKIM-ALB-subnet-public2-e...
eu-west-3c
VPC-HAKIM-ALB-subnet-public3-e...
Route tables (2)
Route network traffic to resources
VPC-HAKIM-ALB-rtb-public
rtb-036003acf290f0aca

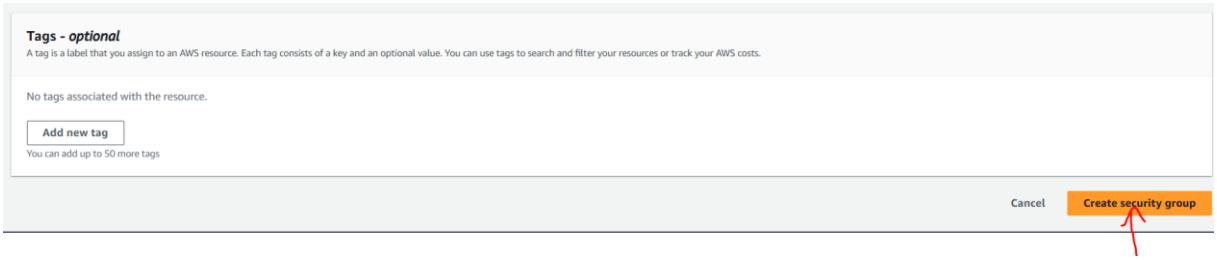
Créez un groupe de sécurité (Security Group) nommé « **HTTP-access »** et associez-le au « **VPC-VotreNom-ALB »**. Ce groupe de sécurité autorise l'accès HTTP depuis toutes les adresses IP.



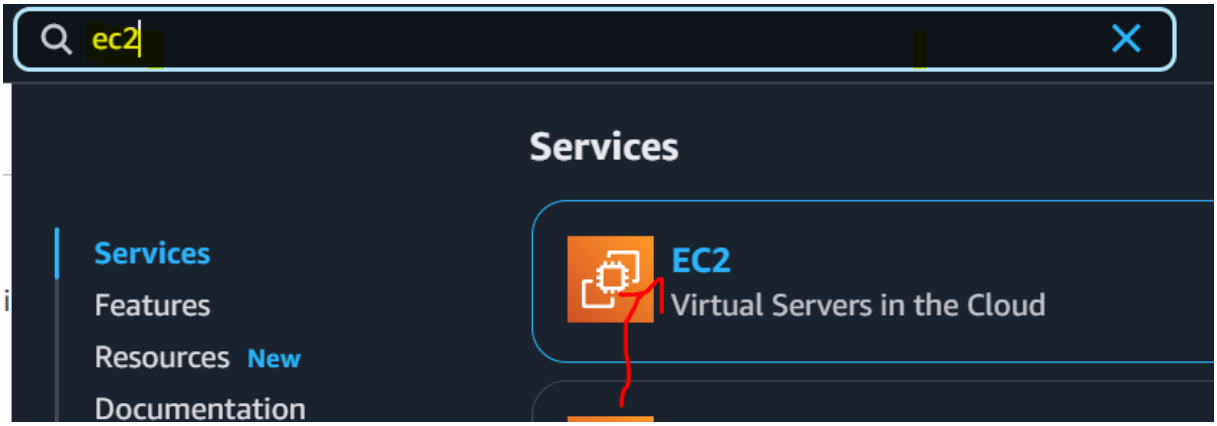


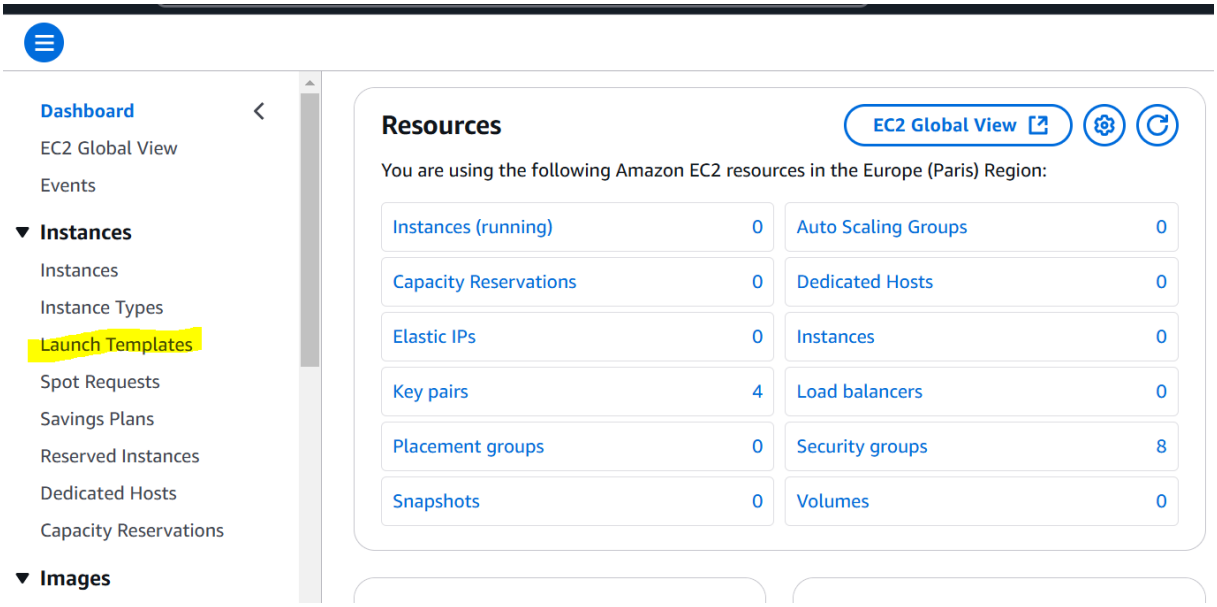

VPC > Security Groups > Create security group
Create security group Info
A security group acts as a virtual firewall for your instance to control inbound and outbound traffic. To create a
Basic details
Security group name Info
HTTP-access
Name cannot be edited after creation.
Description Info
HTTP-access
VPC Info
vpc-0c37e9aed2aa68988 (VPC-HAKIM-ALB-vpc)
Inbound rules Info
This security group has no inbound rules.
Add rule

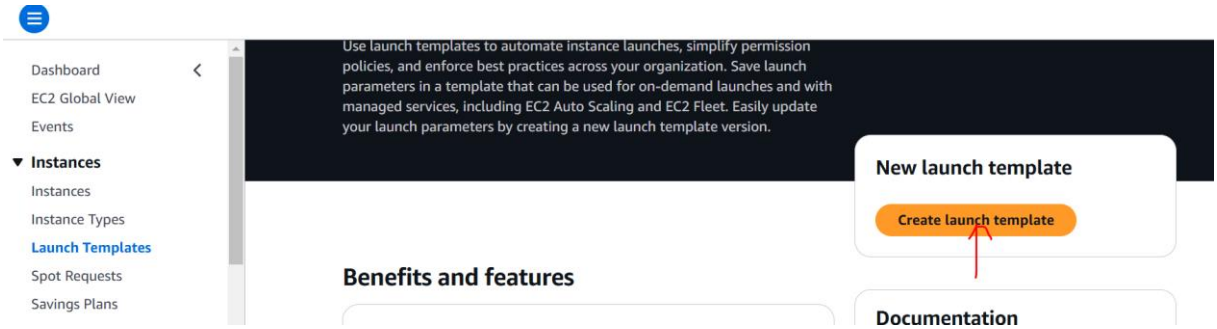

Inbound rules Info
Type Info
Protocol Info
Port range Info
Source Info
Description - optional Info
HTTP
TCP
80
Anywher...
0.0.0.0/0
HTTP Access
Delete
Add rule
Rules with source of 0.0.0.0/0 or ::/0 allow all IP addresses to access your instance. We recommend setting security group rules to allow access from known IP addresses only.

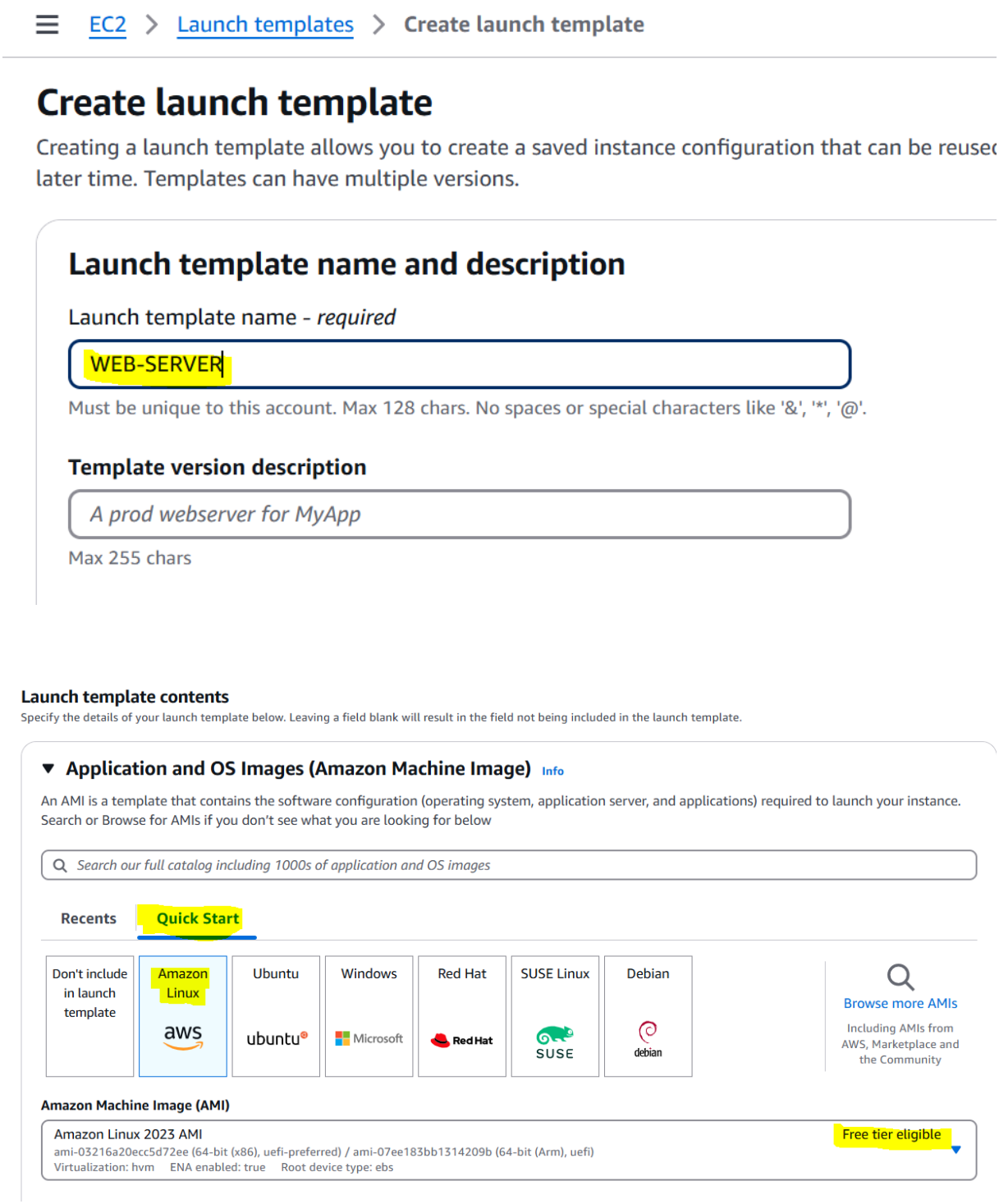

Tags - optional
A tag is a label that you assign to an AWS resource. Each tag consists of a key and an optional value. You can use tags to search and filter your resources or track your AWS costs.
No tags associated with the resource.
Add new tag
You can add up to 50 more tags
Cancel
Create security group

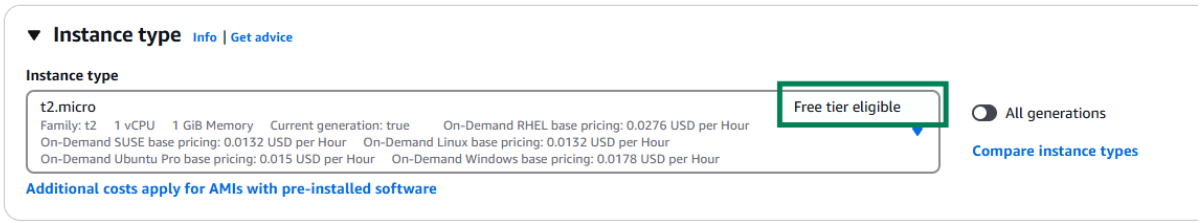
Créez un « **Launch Template »** en configurant les paramètres nécessaires, tels que le nom, l'AMI, le type d'instance et le groupe de sécurité, pour le déploiement des instances EC2 dans le « **VPC-VotreNom-ALB »**.

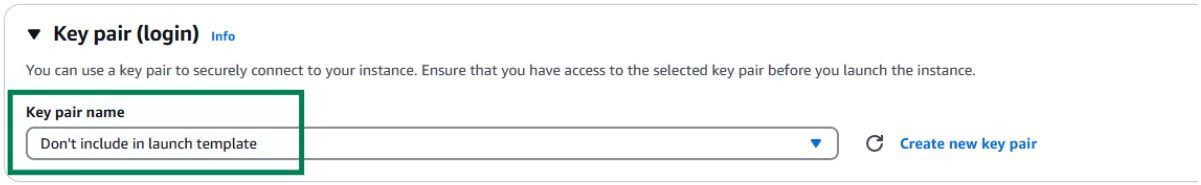


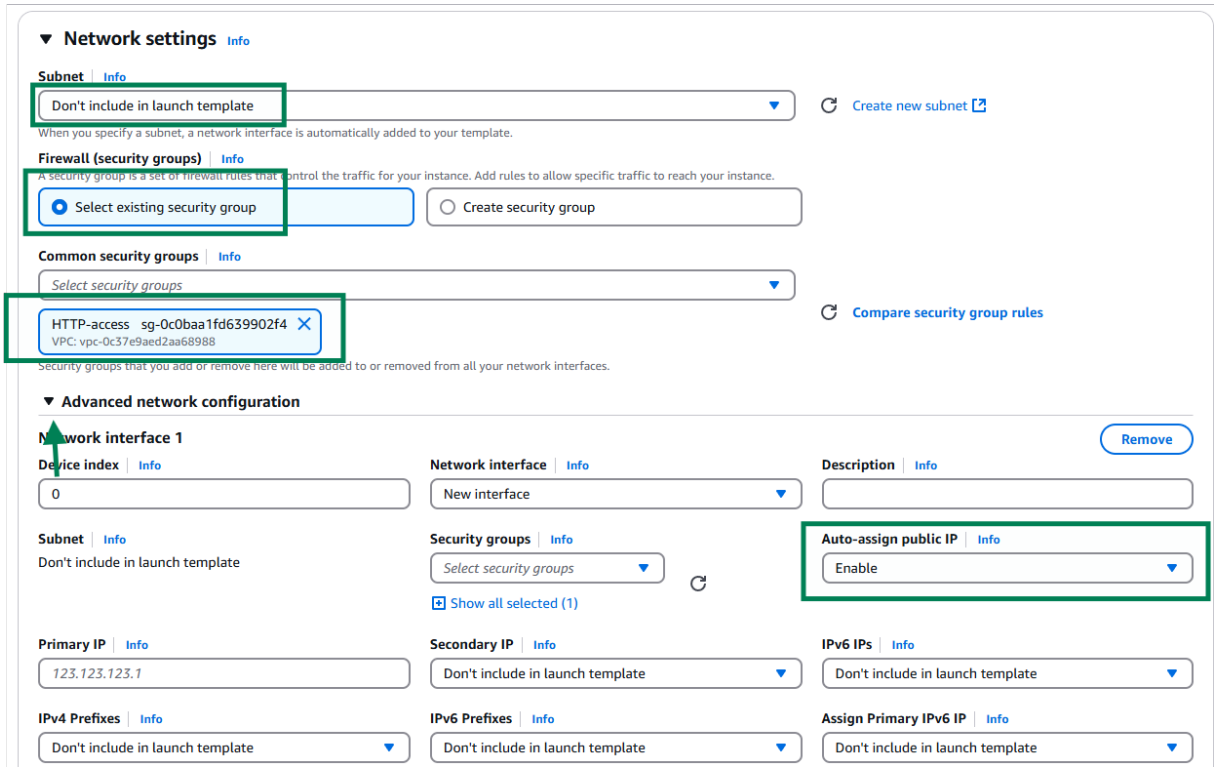


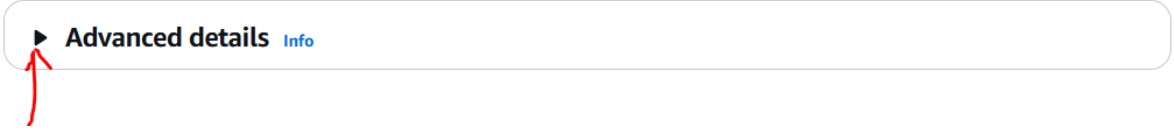



EC2 > Launch templates > Create launch template
Create launch template
Creating a launch template allows you to create a saved instance configuration that can be reuse
later time. Templates can have multiple versions.
Launch template name and description
Launch template name - required
WEB-SERVER
Must 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
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
Search our full catalog including 1000s of application and OS images
Recents
Quick Start
Don't include in launch template
Amazon Linux
Ubuntu
Windows
Red Hat
SUSE Linux
Debian
Browse more AMIs
Including AMIs from AWS, Marketplace and the Community
Amazon Machine Image (AMI)
Amazon Linux 2023 AMI
ami-03216a20ecc5d72ee (64-bit (x86), uefi-preferred) / ami-07ee183bb1314209b (64-bit (Arm), uefi)
Virtualization: hvm ENA enabled: true Root device type: ebs
Free tier eligible


Instance type Info | Get advice
Instance type
t2.micro
Family: t2 1 vCPU 1 GiB Memory Current generation: true On-Demand RHEL base pricing: 0.0276 USD per Hour
On-Demand SUSE base pricing: 0.0132 USD per Hour On-Demand Linux base pricing: 0.0132 USD per Hour
On-Demand Ubuntu Pro base pricing: 0.015 USD per Hour On-Demand Windows base pricing: 0.0178 USD per Hour
Free tier eligible
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
Don't include in launch template
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
Common security groups Info
Select security groups
HTTP-access sg-0c0baa1fd639902f4
VPC: vpc-0c37e9aed2aa68988
Compare security group rules
Security groups that you add or remove here will be added to or removed from all your network interfaces.
Advanced network configuration
Network interface 1
Remove
Device index Info
0
Network interface Info
New interface
Description Info
Subnet Info
Don't include in launch template
Security groups Info
Select security groups
Show all selected (1)
Auto-assign public IP Info
Enable
Primary IP Info
123.123.123.1
Secondary IP Info
Don't include in launch template
IPv6 IPs Info
Don't include in launch template
IPv4 Prefixes Info
Don't include in launch template
IPv6 Prefixes Info
Don't include in launch template
Assign Primary IPv6 IP Info
Don't include in launch template


Advanced details Info

Copiez et collez les « **User Data** » suivantes :

```
#!/bin/bash

# Update the system and install necessary packages
yum update -y
yum install -y httpd

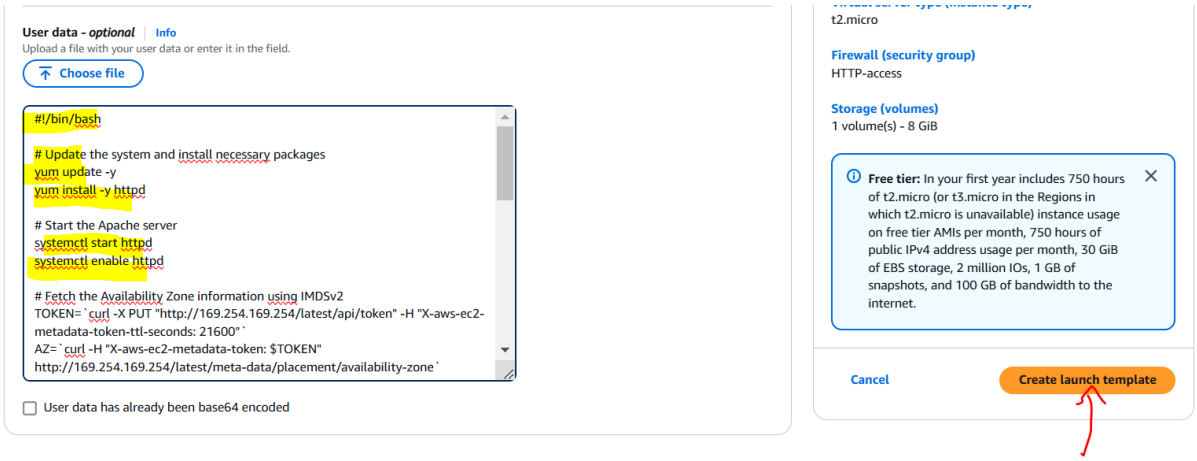
# Start the Apache server
systemctl start httpd
systemctl enable httpd

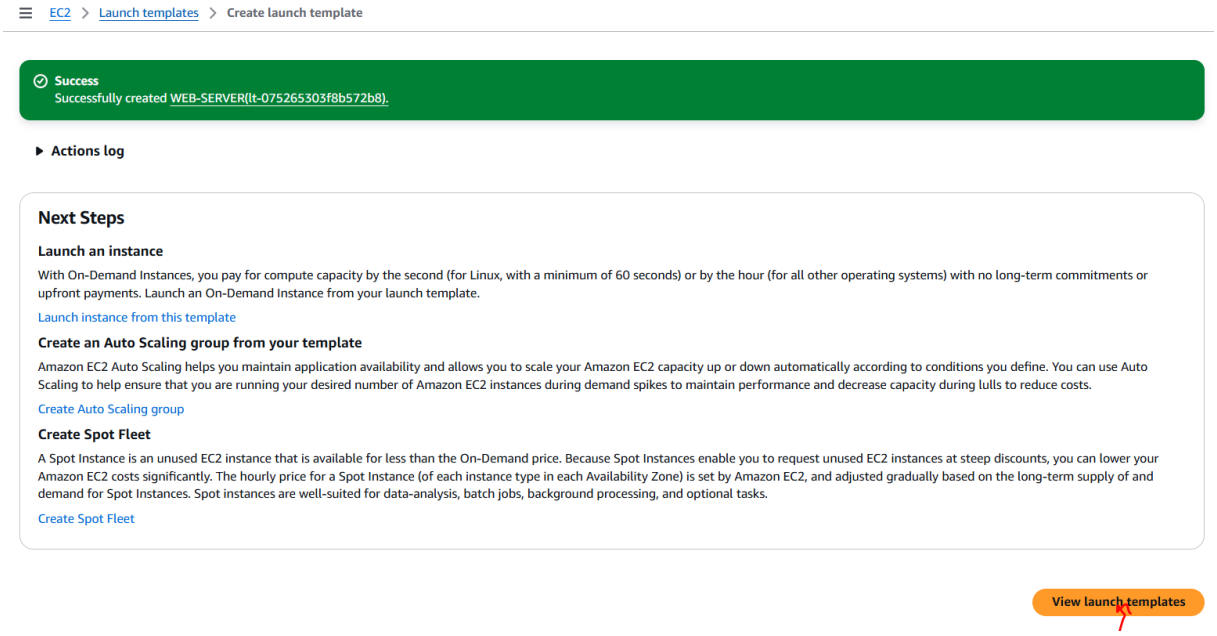
# Fetch the Availability Zone information using IMDSv2
TOKEN=`curl -X PUT "http://169.254.169.254/latest/api/token" -H "X-aws-ec2-metadata-token-ttl-seconds: 21600"`
AZ=`curl -H "X-aws-ec2-metadata-token: $TOKEN" http://169.254.169.254/latest/meta-data/placement/availability-zone`

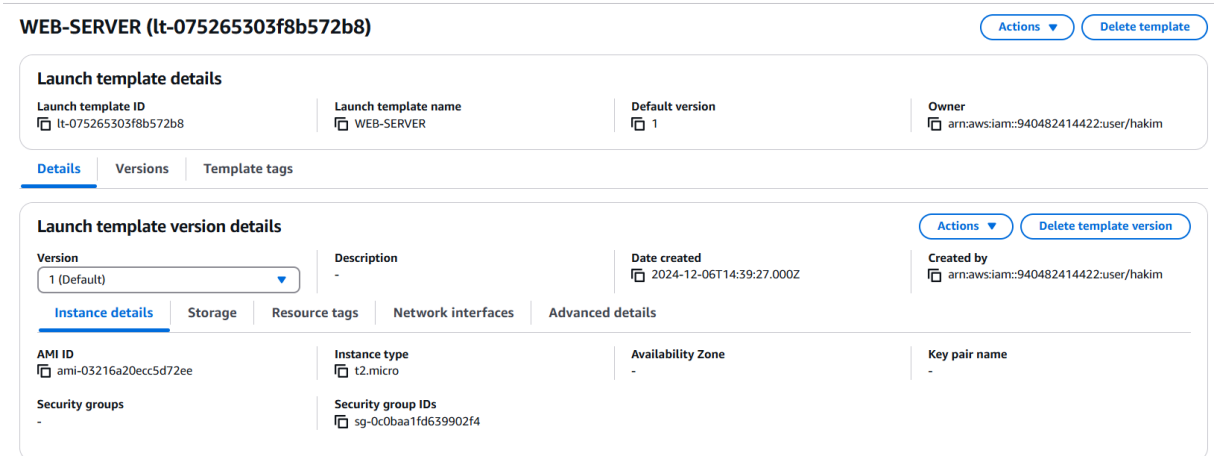
# Create the index.html file
cat > /var/www/html/index.html <<EOF
<html>
<head>
    <title>Instance Availability Zone</title>
    <style>
        body {
            background-color: #6495ED; /* Cornflower Blue - a darker shade */
            color: white;
            font-size: 36px; /* Significantly larger text */
            display: flex;
            justify-content: center;
            align-items: center;
            height: 100vh;
            margin: 0;
```

```
            font-family: Arial, sans-serif;
        }
    </style>
</head>
<body>
    <div> Cette instance est située dans une zone de disponibilité: $AZ</div>
</body>
</html>
EOF

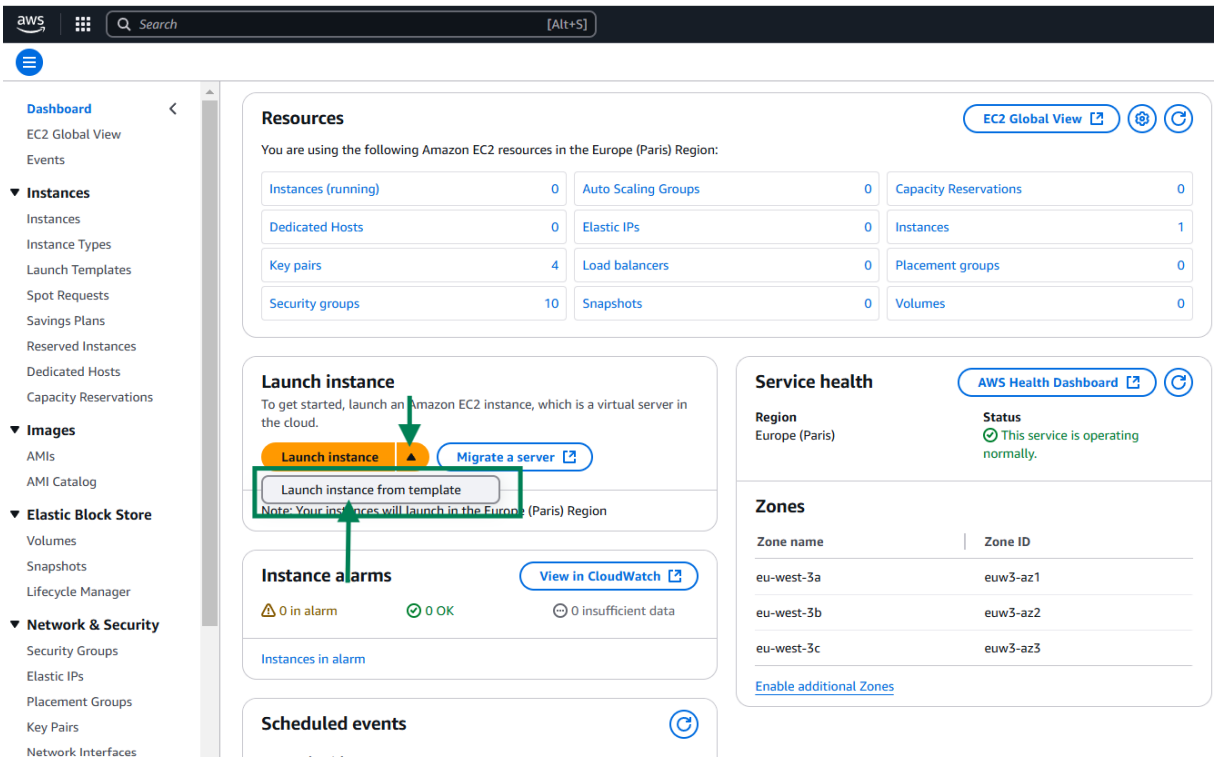
# Ensure the httpd service is correctly set up to start on boot
chkconfig httpd on
```



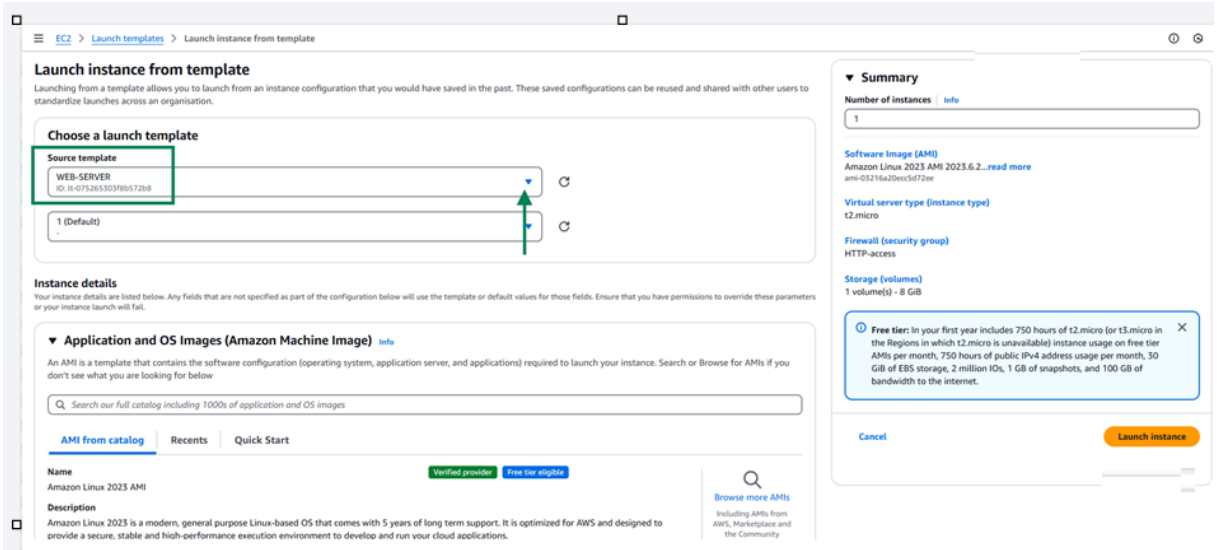


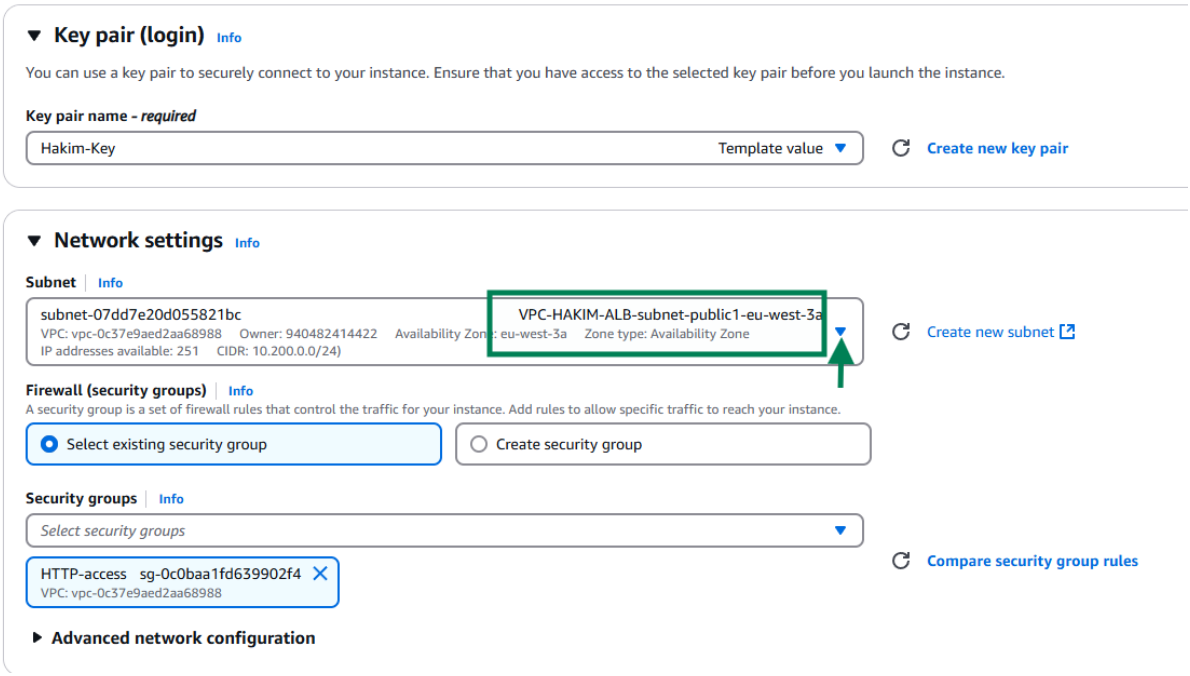


Vous allez commencer par tester si votre « L**aunch Template »** est fonctionnel comme attendu. Pour ce faire, vous allez lancer une instance via le **« Launch Template »**.

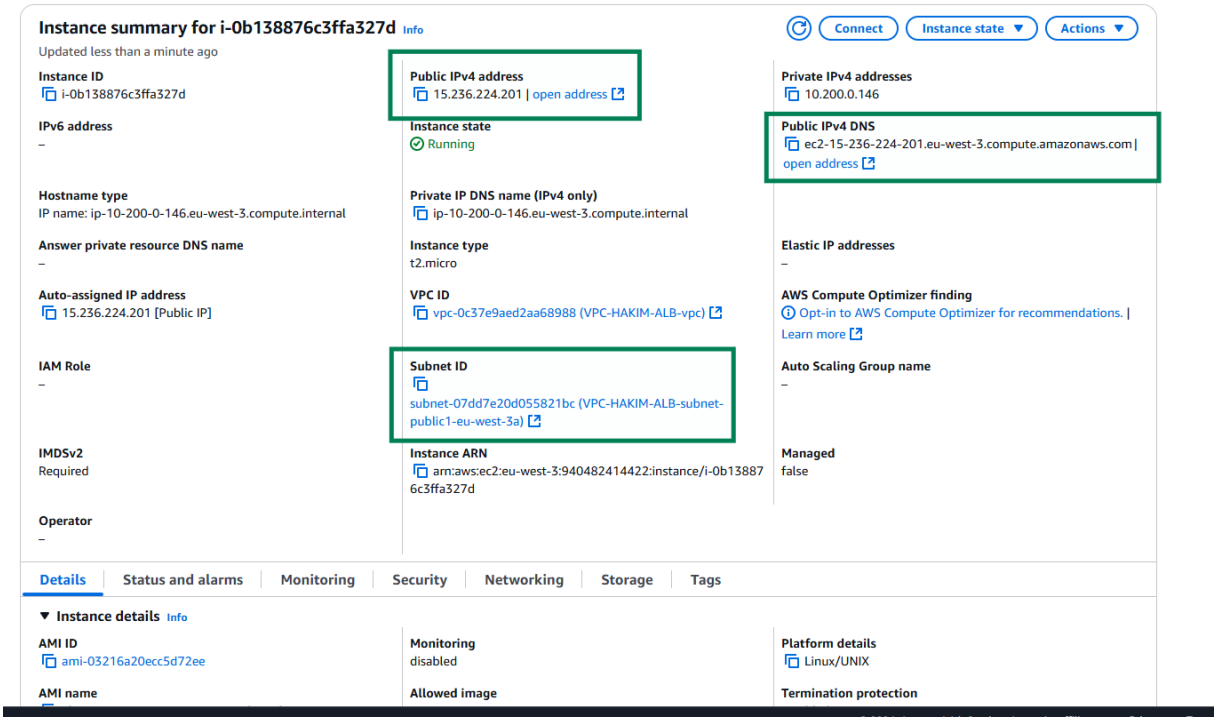


Appelez l'instance « **Test Launch Template** ».

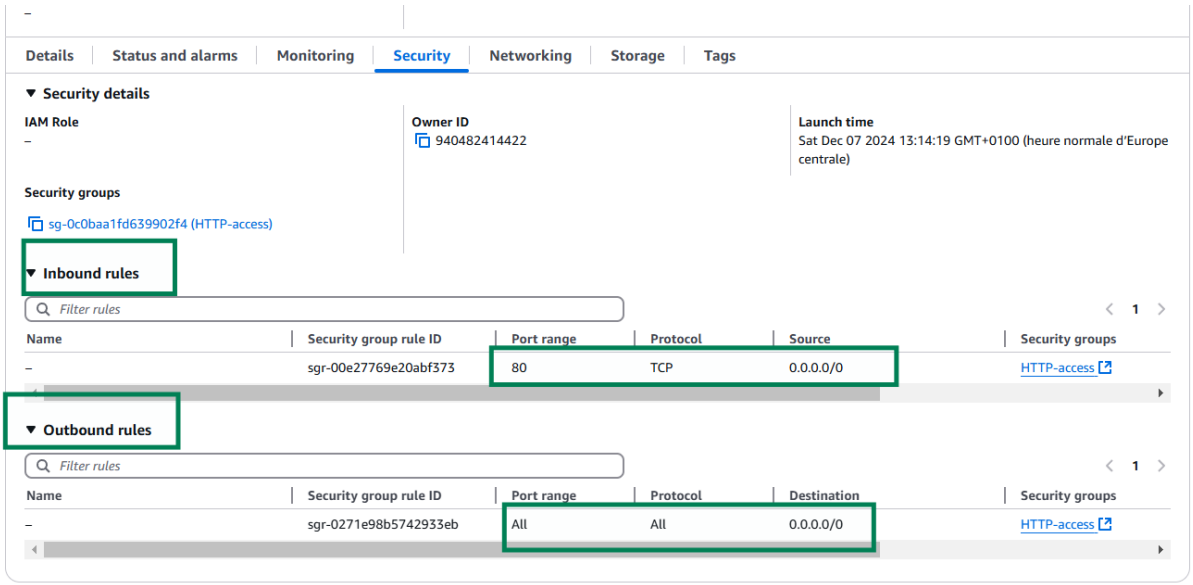




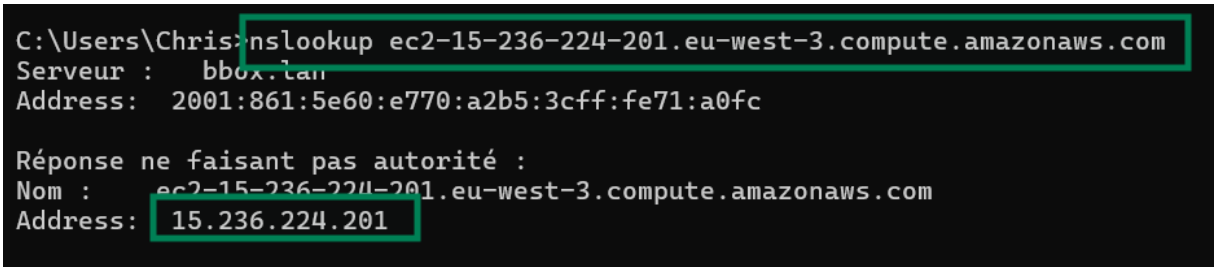
Vérifiez l'état de l'instance :



Vérifiez que le port 80 est autorisé sur le groupe de sécurité (SG).

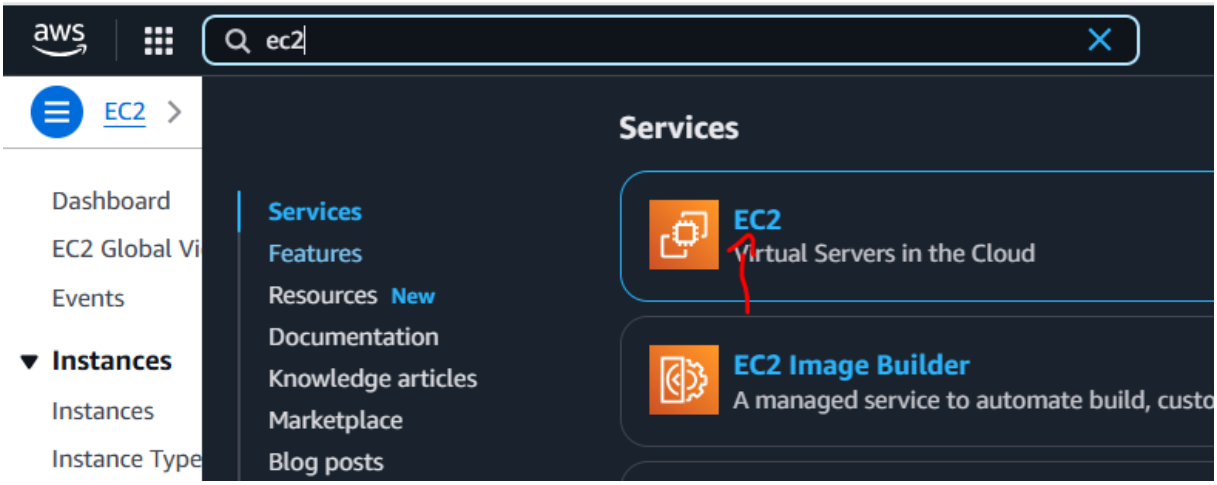


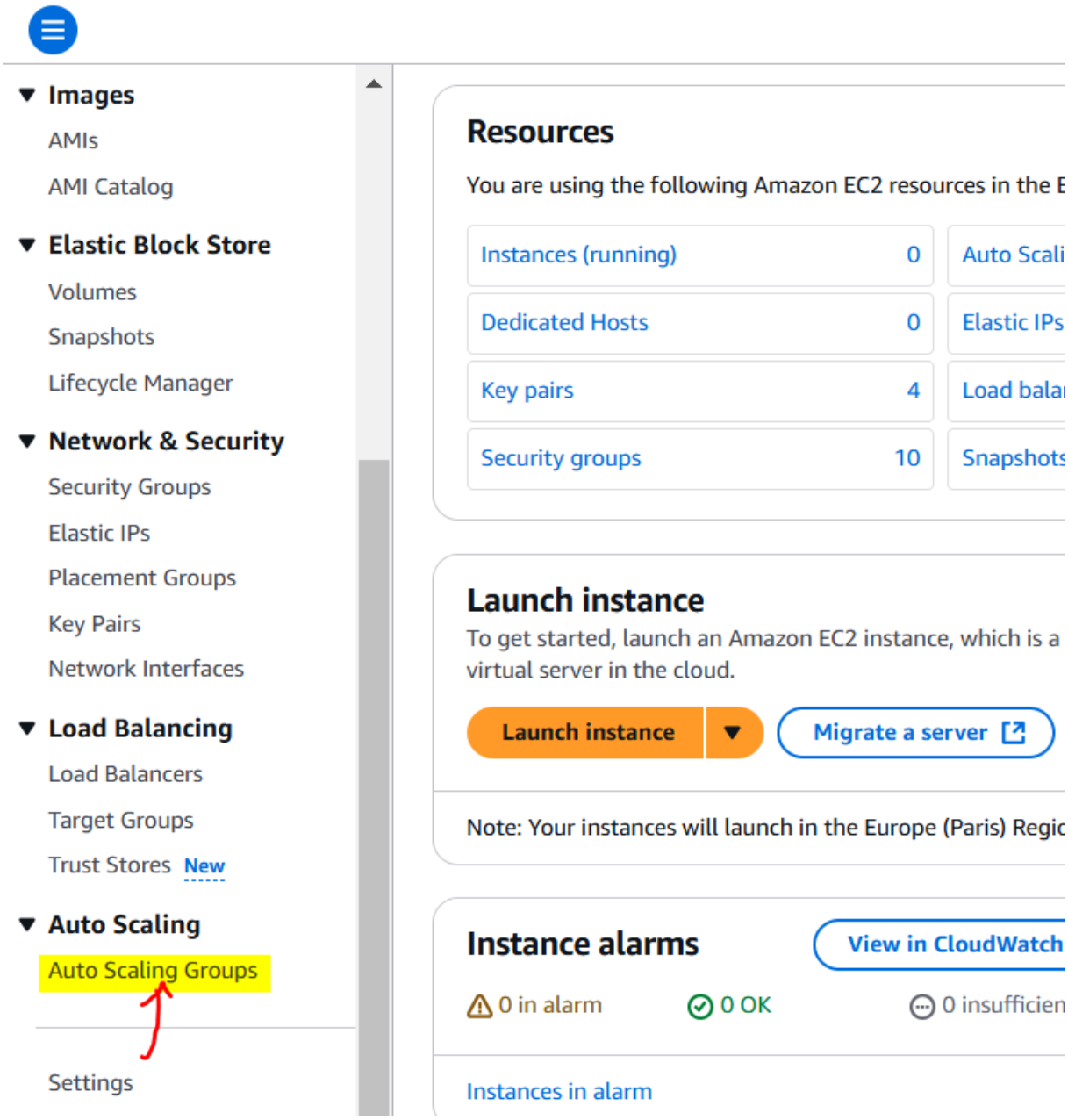
Vérifiez la résolution DNS de l'instance.

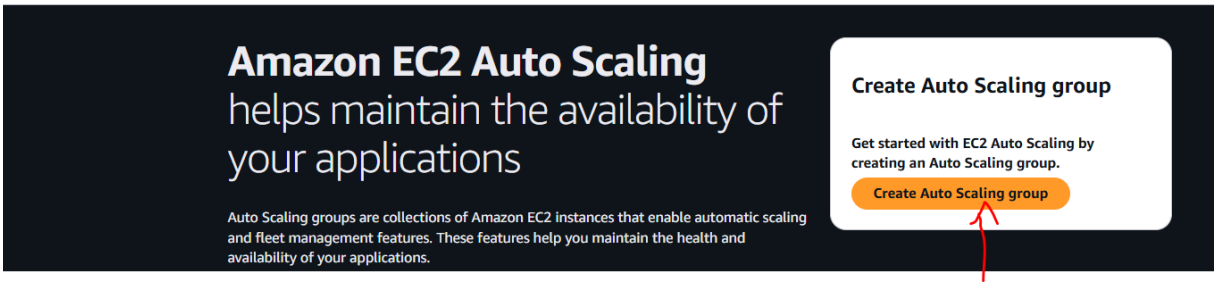


Testez l'accès web à votre instance.

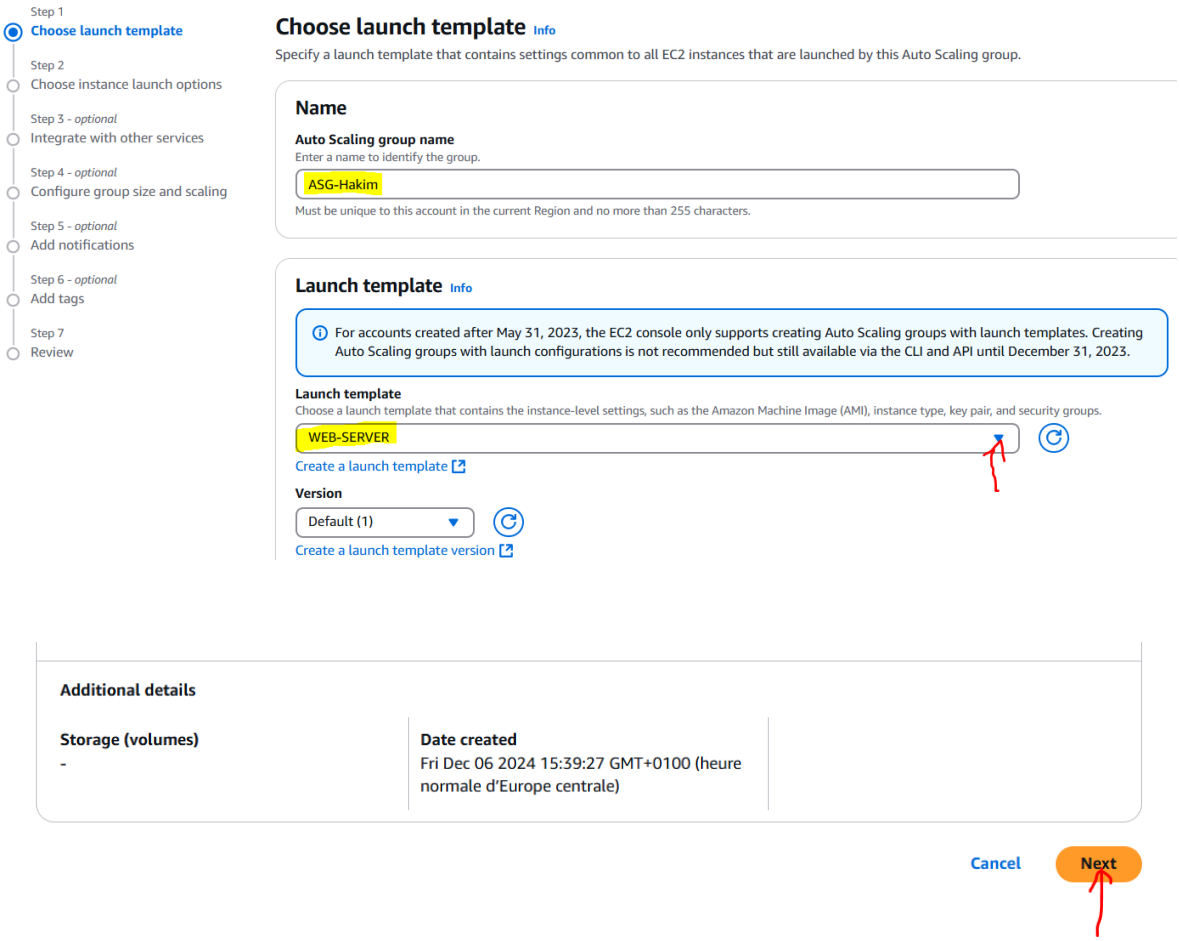
Si toutes les étapes sont concluantes, vous allez terminer l'instance EC2 et nous pourrons passer à l'étape suivante : la création de **l' « Auto Scaling Group »**.

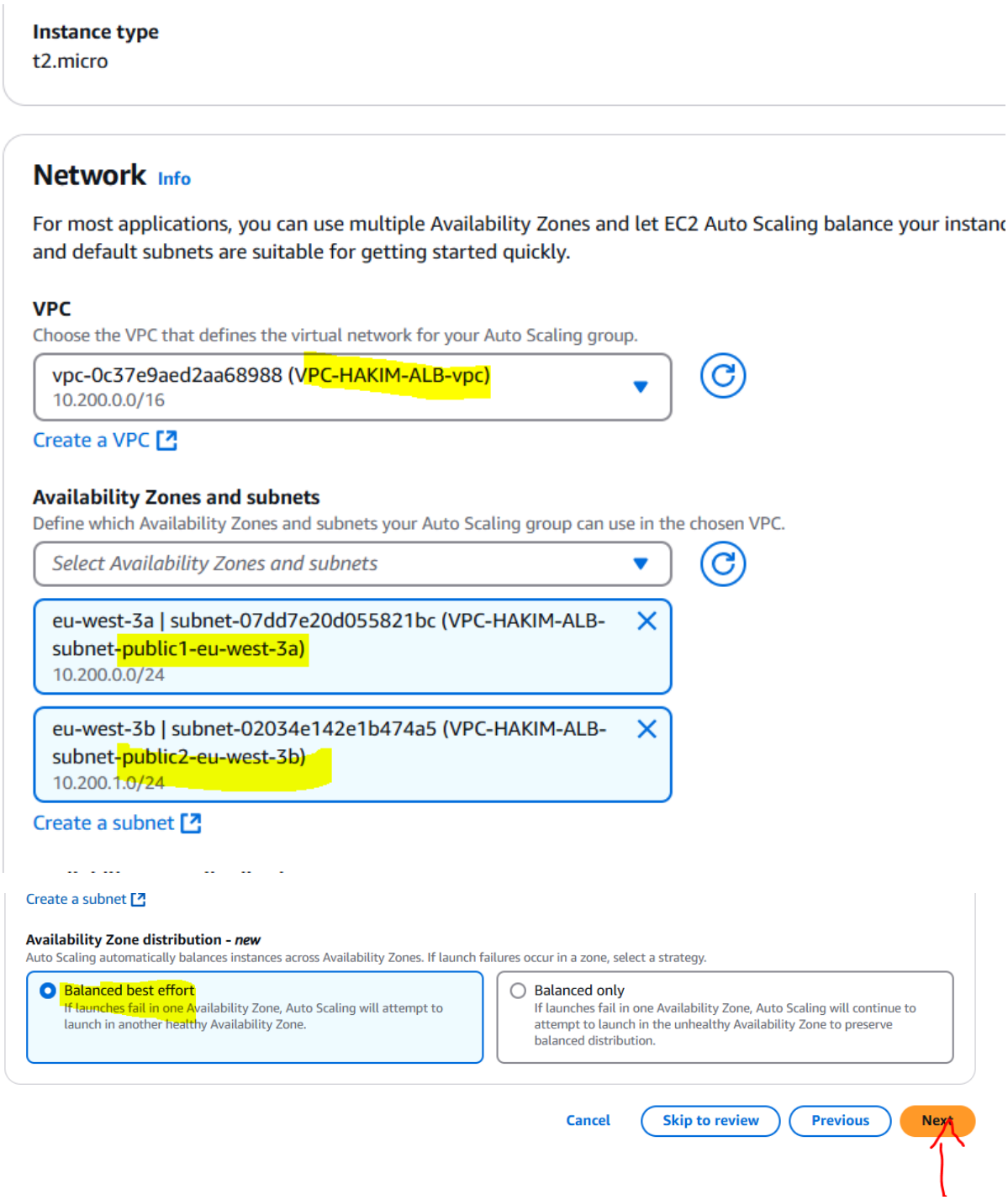

aws
ec2
EC2
Dashboard
EC2 Global Vi
Events
Instances
Instances
Instance Type
Services
Features
Resources New
Documentation
Knowledge articles
Marketplace
Blog posts
Services
EC2
Virtual Servers in the Cloud
EC2 Image Builder
A managed service to automate build, custo

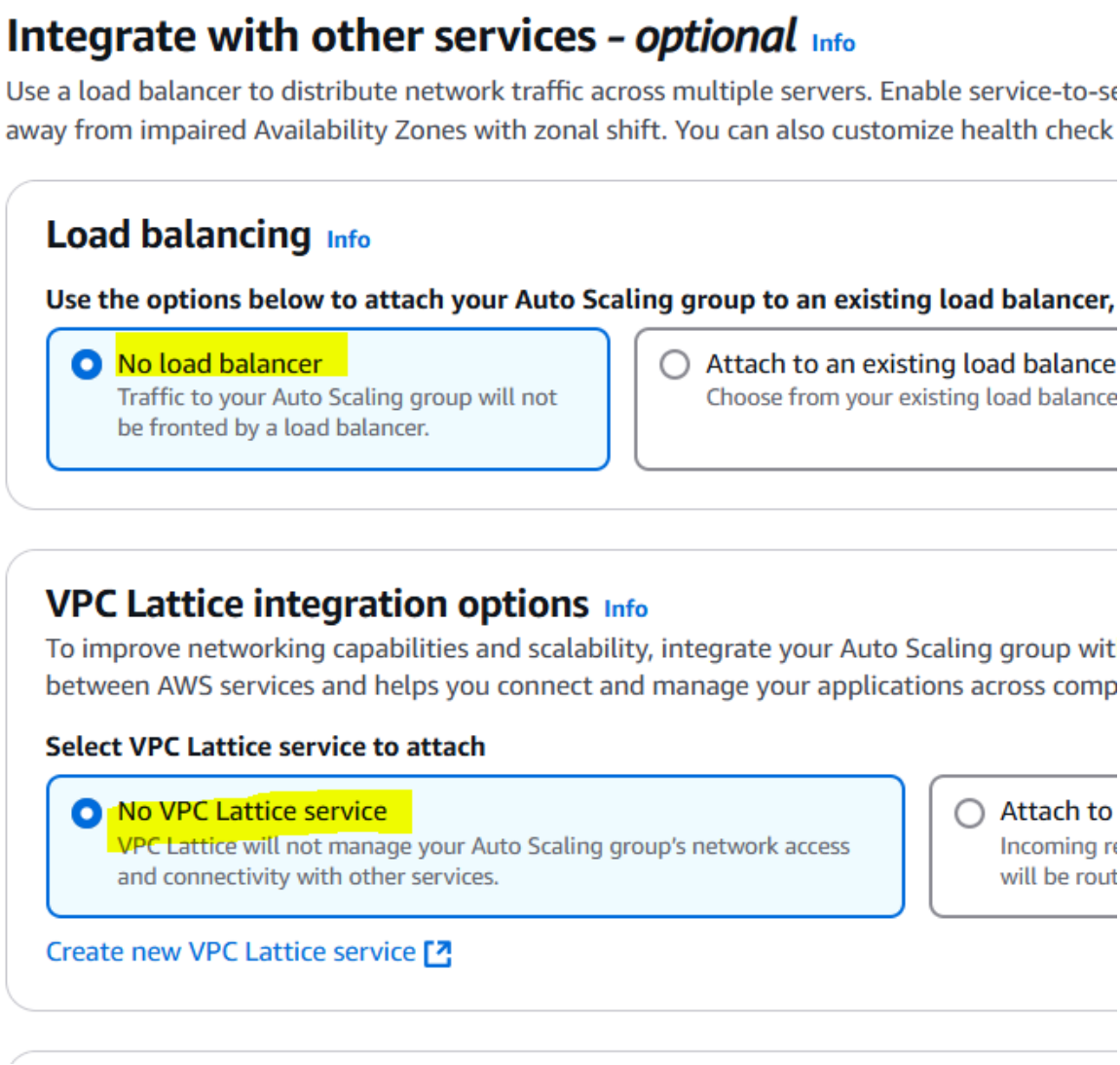


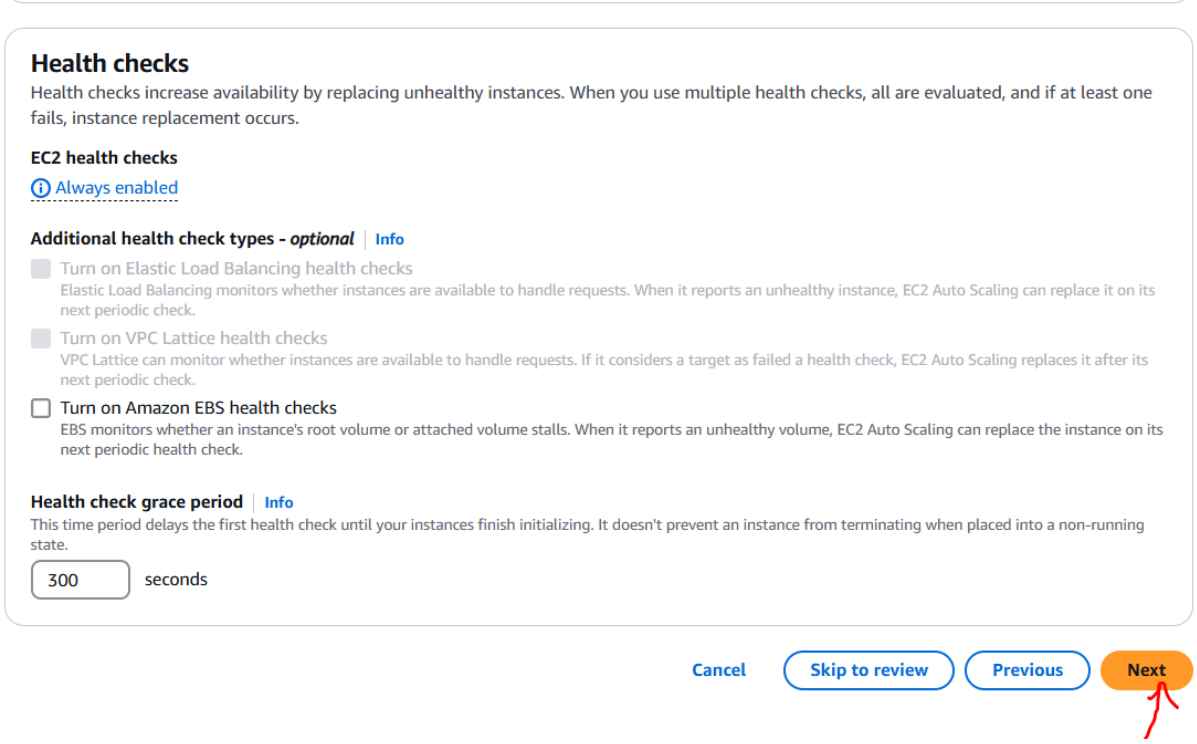


Choisissez « **ASG-VotreNom** » comme nom.

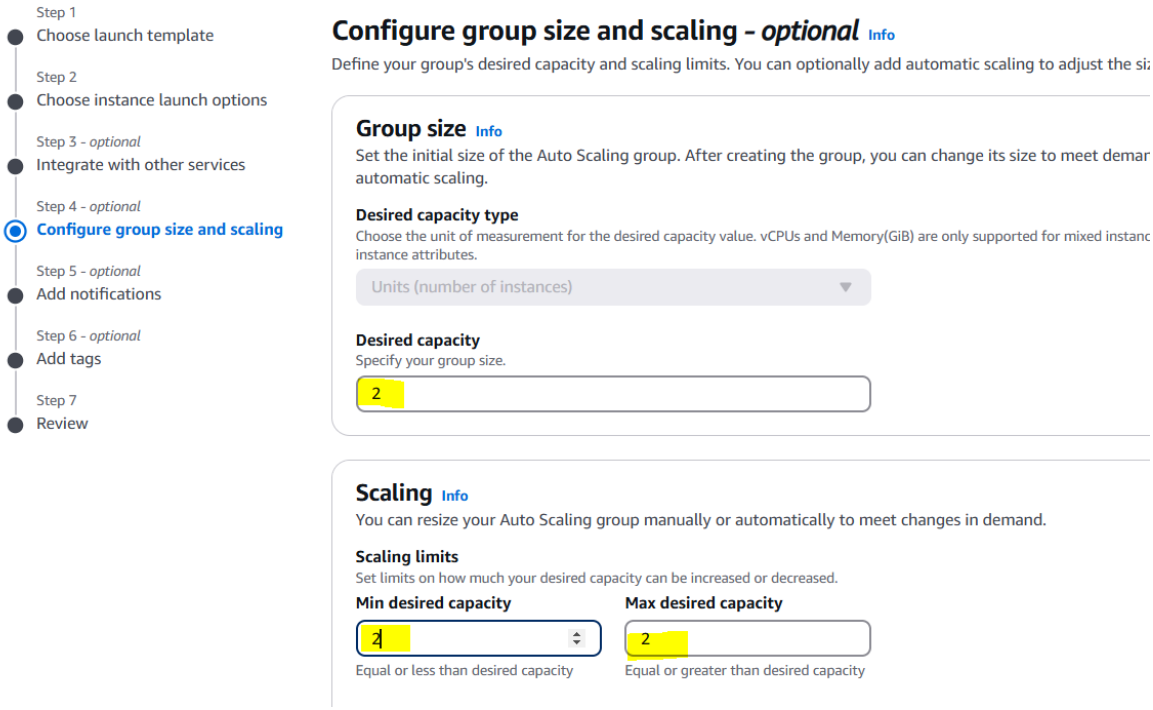

Step 1
Choose launch template
Step 2
Choose instance launch options
Step 3 - optional
Integrate with other services
Step 4 - optional
Configure group size and scaling
Step 5 - optional
Add notifications
Step 6 - optional
Add tags
Step 7
Review
Choose launch template Info
Specify a launch template that 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.
ASG-Hakim
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.
WEB-SERVER
Create a launch template
Version
Default (1)
Create a launch template version
Additional details
Storage (volumes)
-
Date created
Fri Dec 06 2024 15:39:27 GMT+0100 (heure normale d'Europe centrale)
Cancel
Next

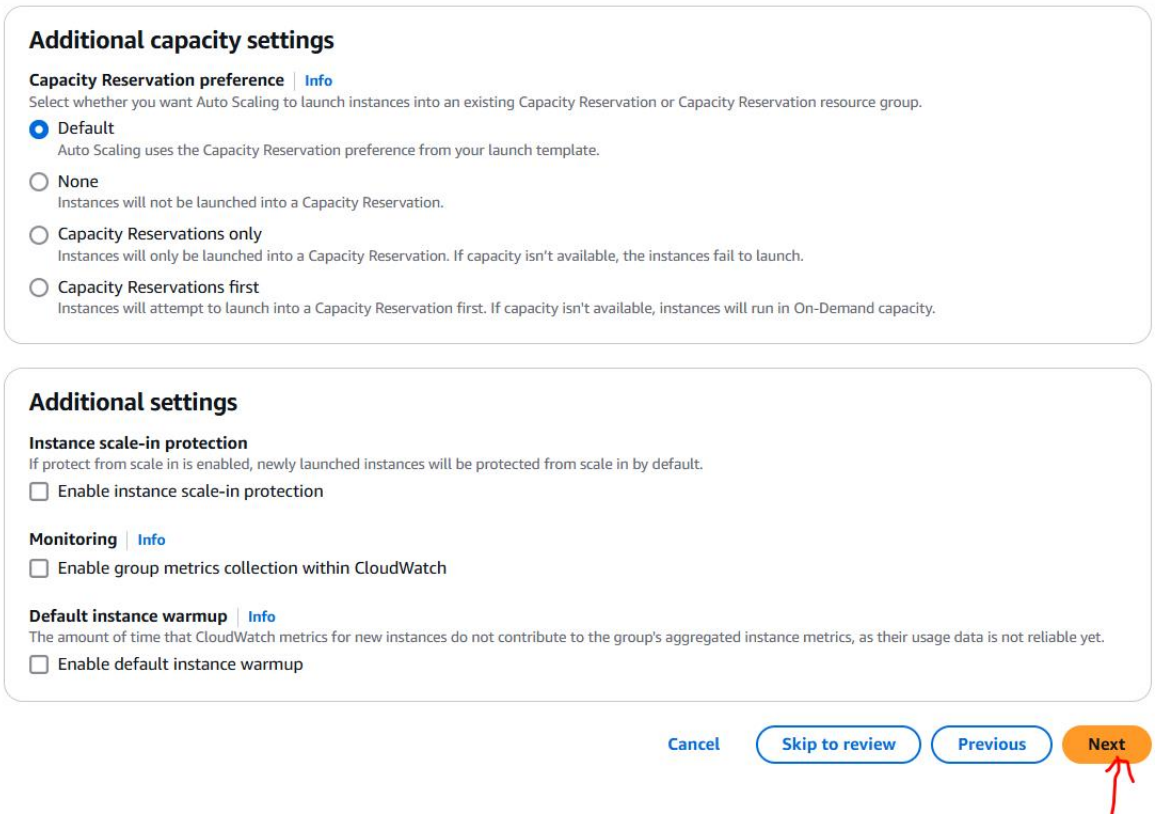

Instance type
t2.micro
Network Info
For most applications, you can use multiple Availability Zones and let EC2 Auto Scaling balance your instanc
and default subnets are suitable for getting started quickly.
VPC
Choose the VPC that defines the virtual network for your Auto Scaling group.
vpc-0c37e9aed2aa68988 (VPC-HAKIM-ALB-vpc)
10.200.0.0/16
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
eu-west-3a | subnet-07dd7e20d055821bc (VPC-HAKIM-ALB-subnet-public1-eu-west-3a)
10.200.0.0/24
eu-west-3b | subnet-02034e142e1b474a5 (VPC-HAKIM-ALB-subnet-public2-eu-west-3b)
10.200.1.0/24
Create a subnet
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

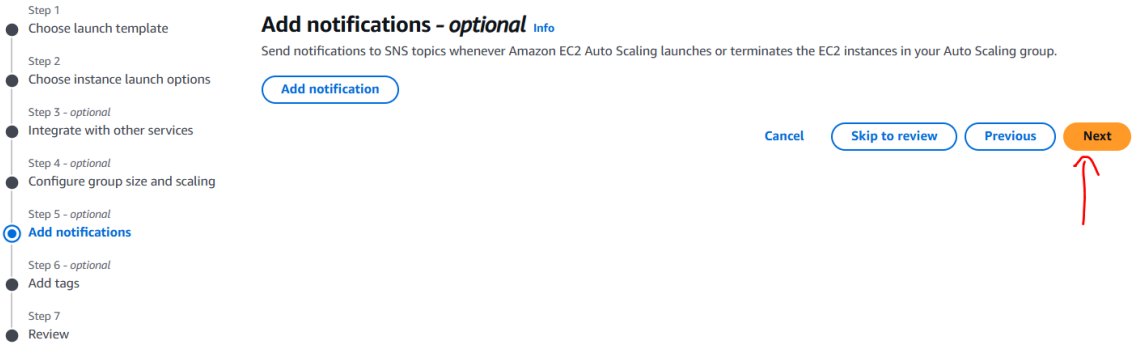

Integrate with other services - optional Info
Use a load balancer to distribute network traffic across multiple servers. Enable service-to-se
away from impaired Availability Zones with zonal shift. You can also customize health check
Load balancing Info
Use the options below to attach your Auto Scaling group to an existing load balancer,
No load balancer
Traffic to your Auto Scaling group will not be fronted by a load balancer.
Attach to an existing load balance
Choose from your existing load balance
VPC Lattice integration options Info
To improve networking capabilities and scalability, integrate your Auto Scaling group wit
between AWS services and helps you connect and manage your applications across comp
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
Incoming r
will be rout
Create new VPC Lattice service

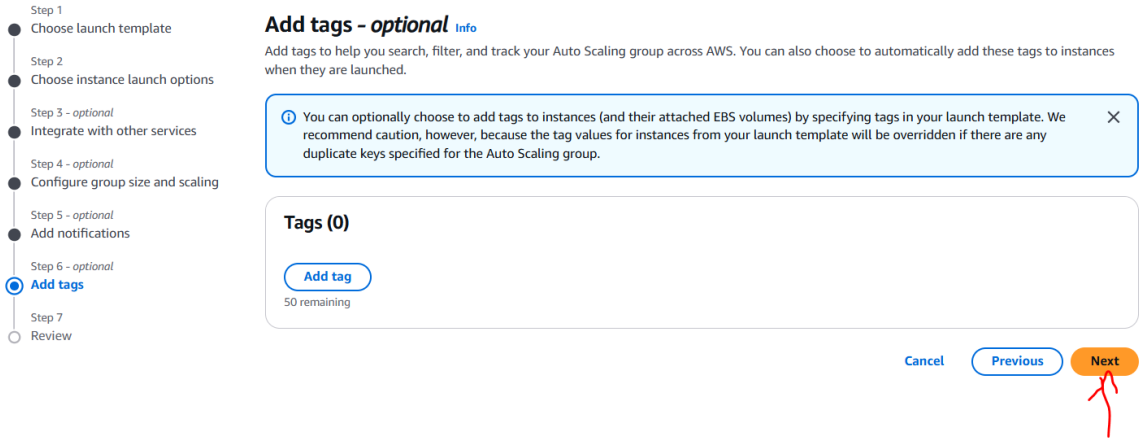


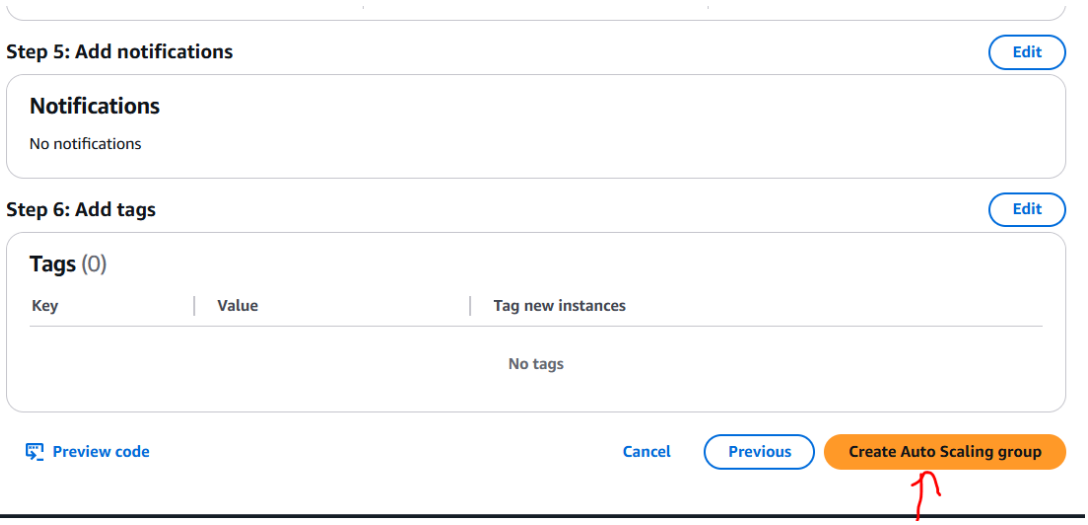
Vous allez choisir le nombre d'instances désiré (2), avec un minimum et un maximum de 2.

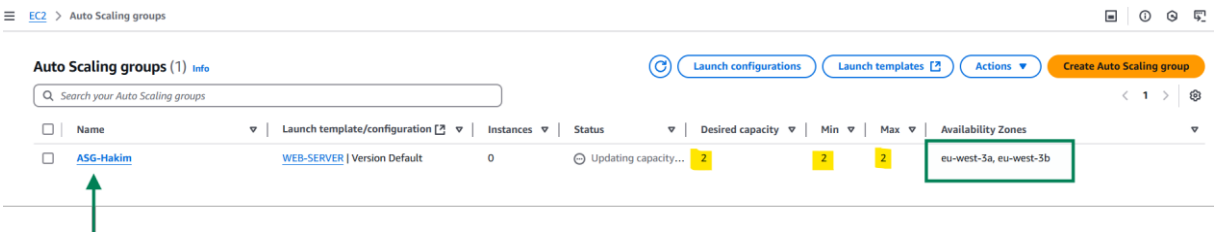



Additional capacity settings
Capacity Reservation preference | Info
Select whether you want Auto Scaling to launch instances into an existing Capacity Reservation or Capacity Reservation resource group.
Default
Auto Scaling uses the Capacity Reservation preference from your launch template.
None
Instances 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.
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
Cancel
Skip to review
Previous
Next

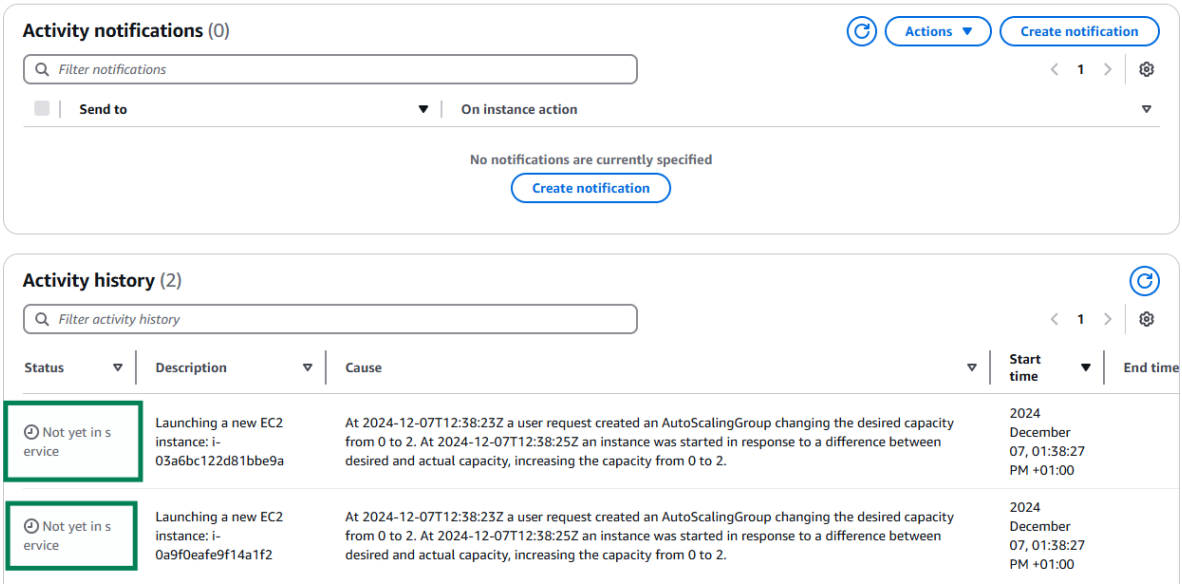

Step 1
Choose launch template
Step 2
Choose instance launch options
Step 3 - optional
Integrate with other services
Step 4 - optional
Configure group size and scaling
Step 5 - optional
Add notifications
Step 6 - optional
Add tags
Step 7
Review
Add notifications - optional Info
Send notifications to SNS 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

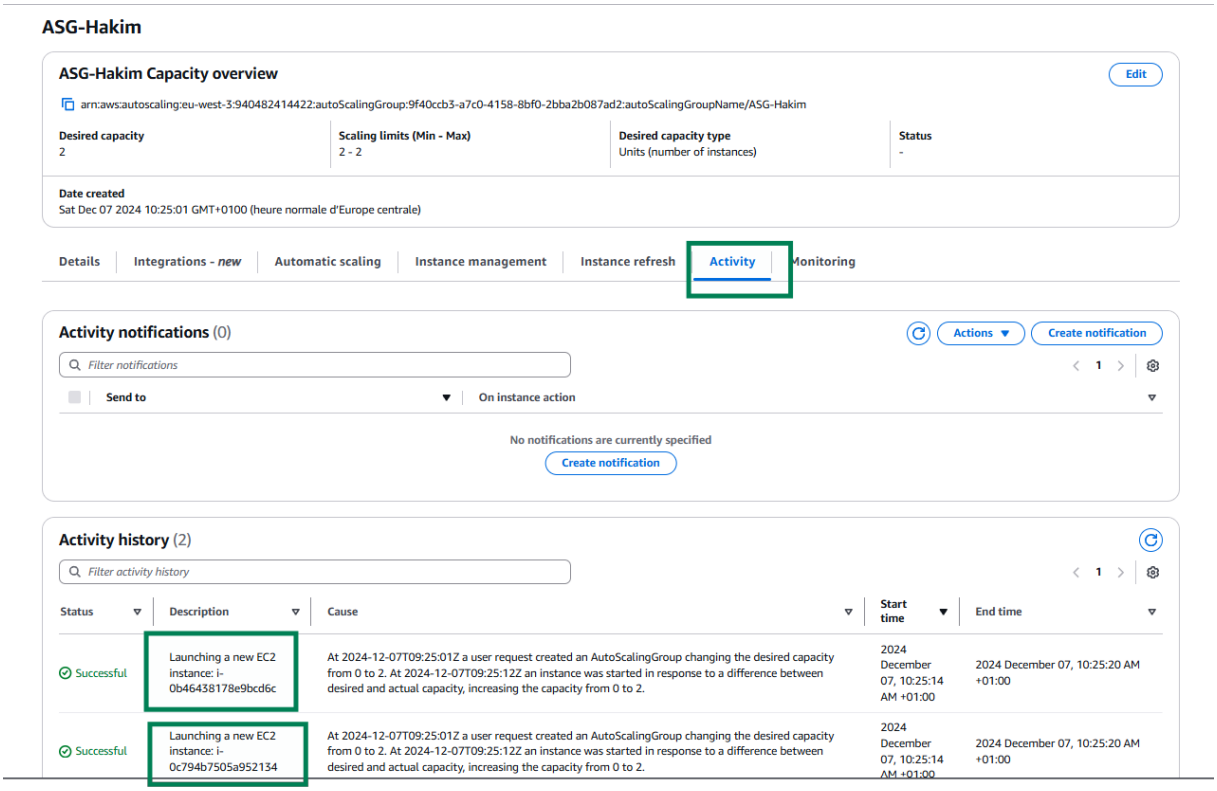

Step 1
Choose launch template
Step 2
Choose instance launch options
Step 3 - optional
Integrate with other services
Step 4 - optional
Configure group size and scaling
Step 5 - optional
Add notifications
Step 6 - optional
Add tags
Step 7
Review
Add tags - optional Info
Add tags to help you search, filter, 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



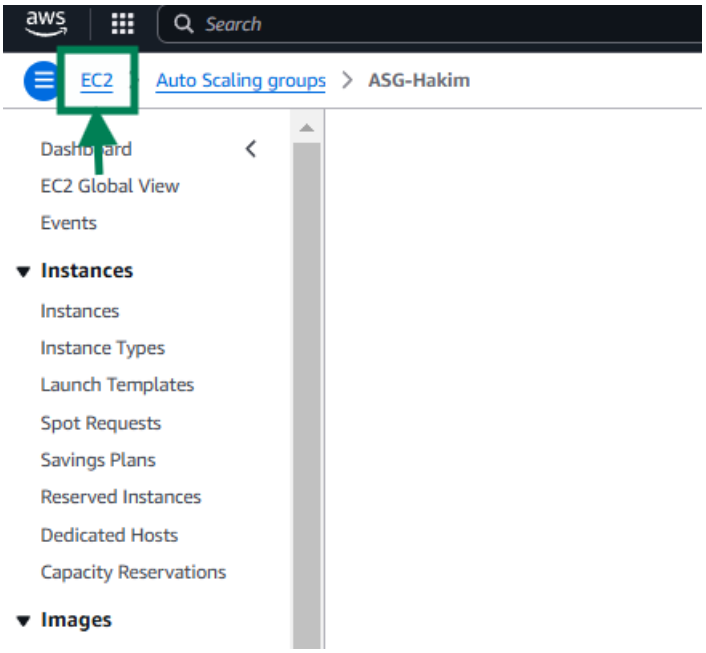


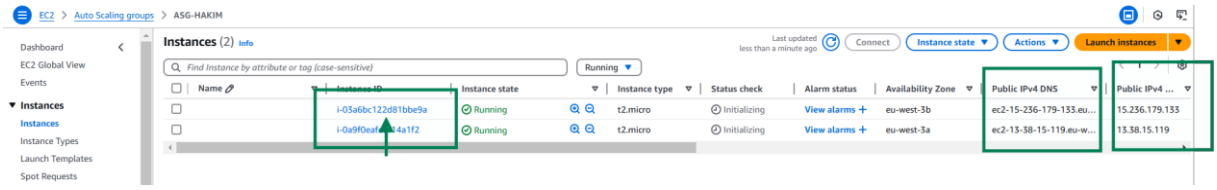
Il faut attendre un peu de temps pour que l'état de l' « **Auto Scaling Group** » passe de « **Not yet in service** » à « **Successful** ».

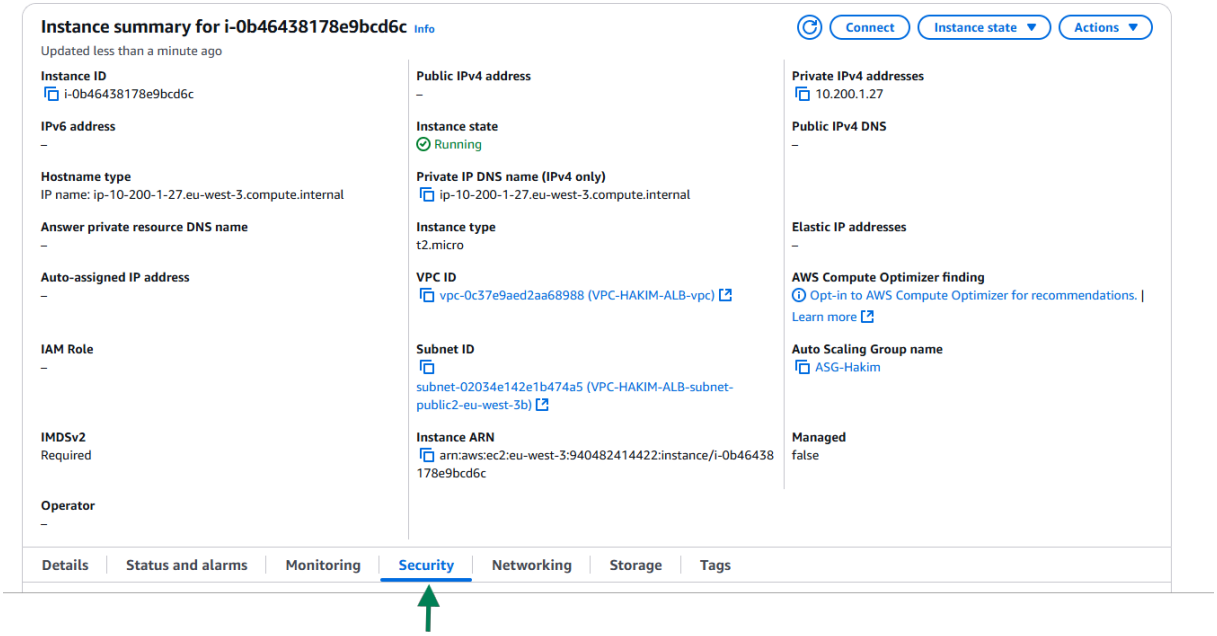


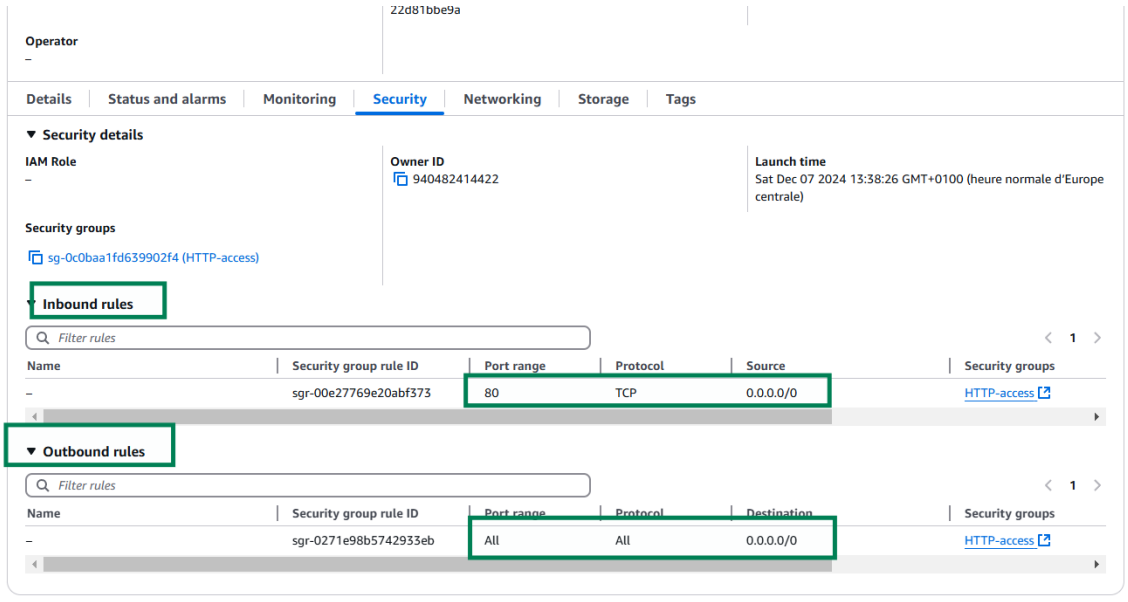


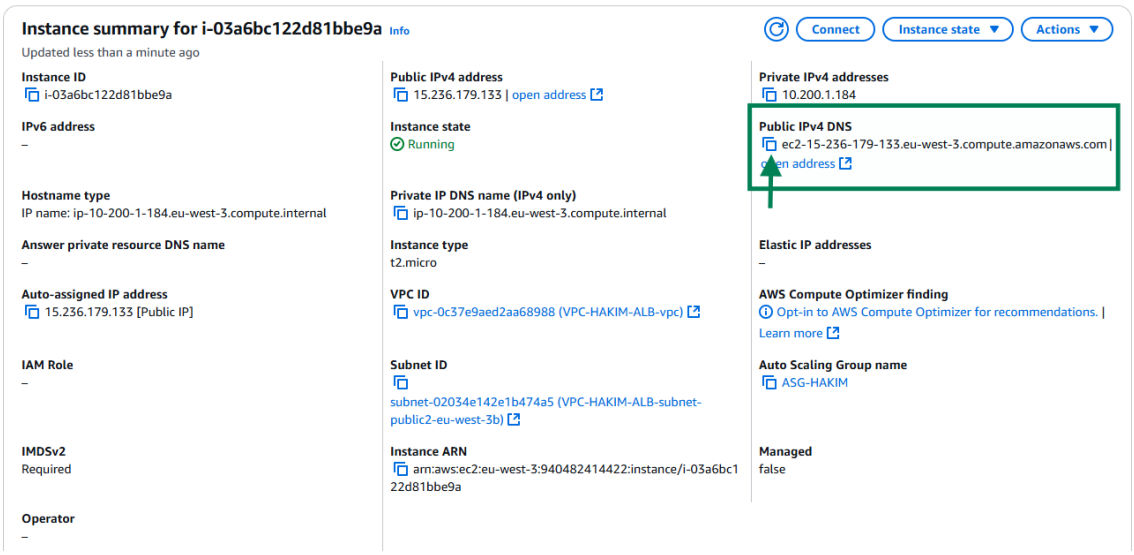
Vous allez essayer d'accéder en web à la première instance.

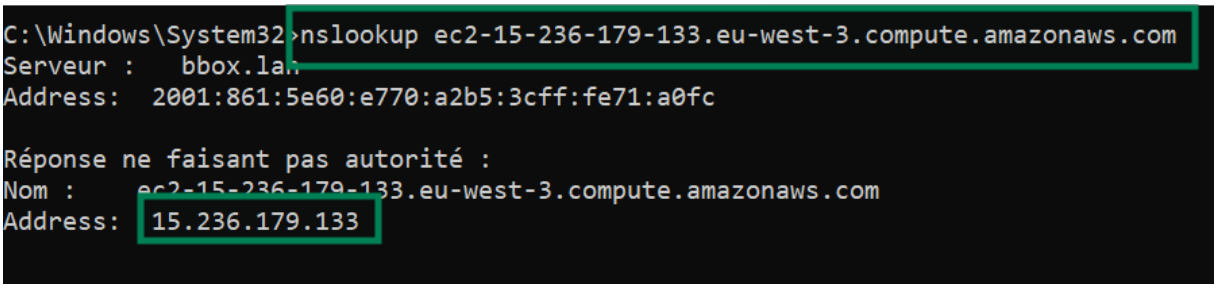



EC2 > Auto Scaling groups > ASG-HAKIM
Instances (2) Info
Dashboard
EC2 Global View
Events
Instances
Instances
Instance Types
Launch Templates
Spot Requests
Connect
Instance state
Actions
Launch instances
Running
Name
Instance state
Instance type
Status check
Alarm status
Availability Zone
Public IPv4 DNS
Public IPv4 ...
i-03a6bc122d81bbe9a
Running
t2.micro
Initializing
View alarms
eu-west-3b
ec2-15-236-179-133.eu...
15.236.179.133
Running
t2.micro
Initializing
View alarms
eu-west-3a
ec2-13-38-15-119.eu-w...
13.38.15.119

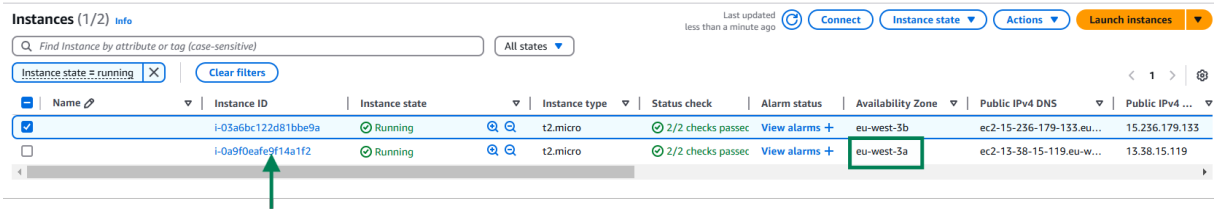

Instance summary for i-0b46438178e9bcd6c Info
Updated less than a minute ago
Connect
Instance state
Actions
Instance ID
i-0b46438178e9bcd6c
IPv6 address
–
Hostname type
IP name: ip-10-200-1-27.eu-west-3.compute.internal
Answer private resource DNS name
–
Auto-assigned IP address
–
IAM Role
–
IMDSv2
Required
Operator
–
Public IPv4 address
–
Instance state
Running
Private IP DNS name (IPv4 only)
ip-10-200-1-27.eu-west-3.compute.internal
Instance type
t2.micro
VPC ID
vpc-0c37e9aed2aa68988 (VPC-HAKIM-ALB-vpc)
Subnet ID
subnet-02034e142e1b474a5 (VPC-HAKIM-ALB-subnet-public2-eu-west-3b)
Instance ARN
arn:aws:ec2:eu-west-3:940482414422:instance/i-0b46438178e9bcd6c
Private IPv4 addresses
10.200.1.27
Public IPv4 DNS
–
Elastic IP addresses
–
AWS Compute Optimizer finding
Opt-in to AWS Compute Optimizer for recommendations.
Learn more
Auto Scaling Group name
ASG-Hakim
Managed
false
Details
Status and alarms
Monitoring
Security
Networking
Storage
Tags

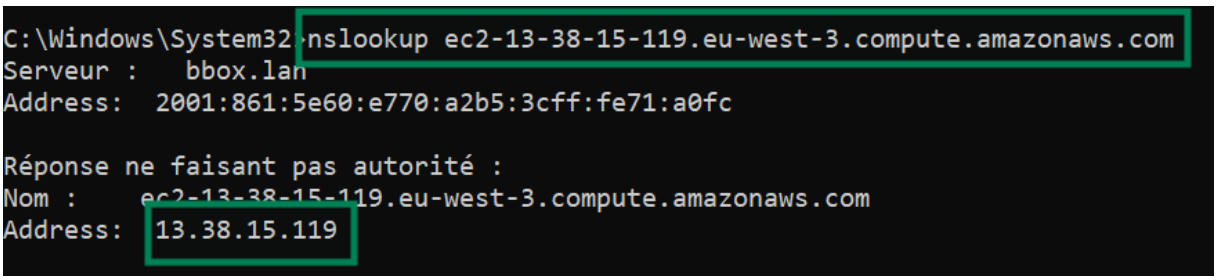

22d81bbe9a
Operator
–
Details
Status and alarms
Monitoring
Security
Networking
Storage
Tags
Security details
IAM Role
–
Owner ID
940482414422
Launch time
Sat Dec 07 2024 13:38:26 GMT+0100 (heure normale d'Europe centrale)
Security groups
sg-0c0baa1fd639902f4 (HTTP-access)
Inbound rules
Filter rules
Name
Security group rule ID
Port range
Protocol
Source
Security groups
–
sgr-00e27769e20abf373
80
TCP
0.0.0.0/0
HTTP-access
Outbound rules
Filter rules
Name
Security group rule ID
Port range
Protocol
Destination
Security groups
–
sgr-0271e98b5742933eb
All
All
0.0.0.0/0
HTTP-access

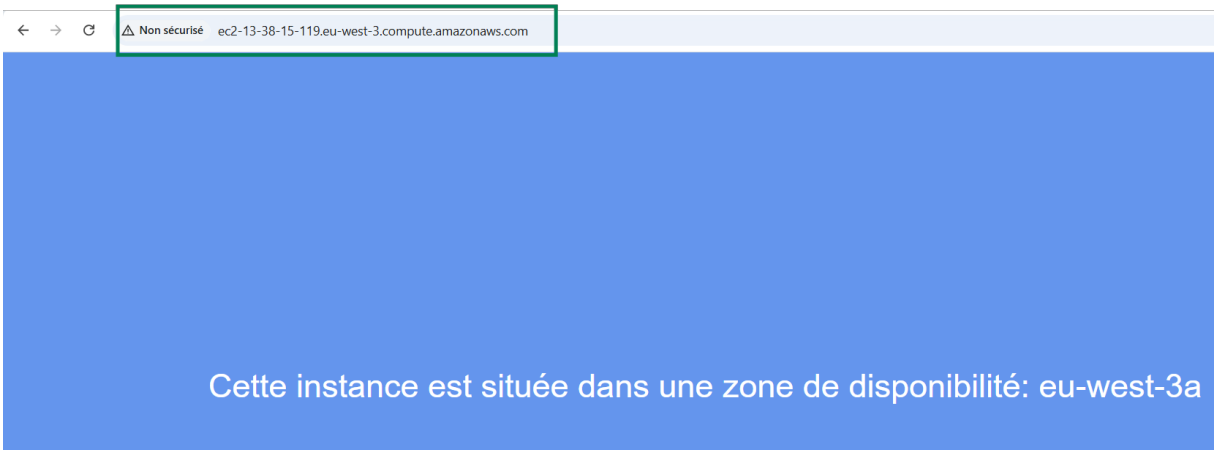




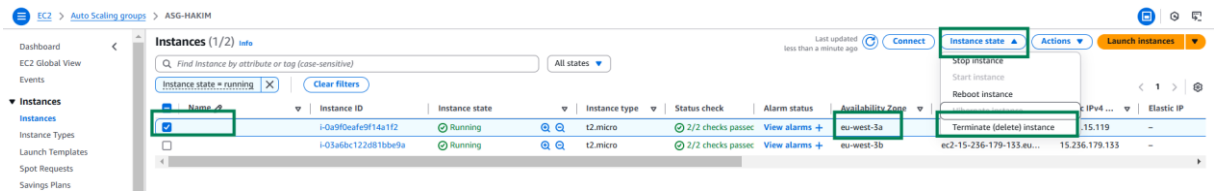
Vous allez essayer d'accéder en web à la deuxième instance.

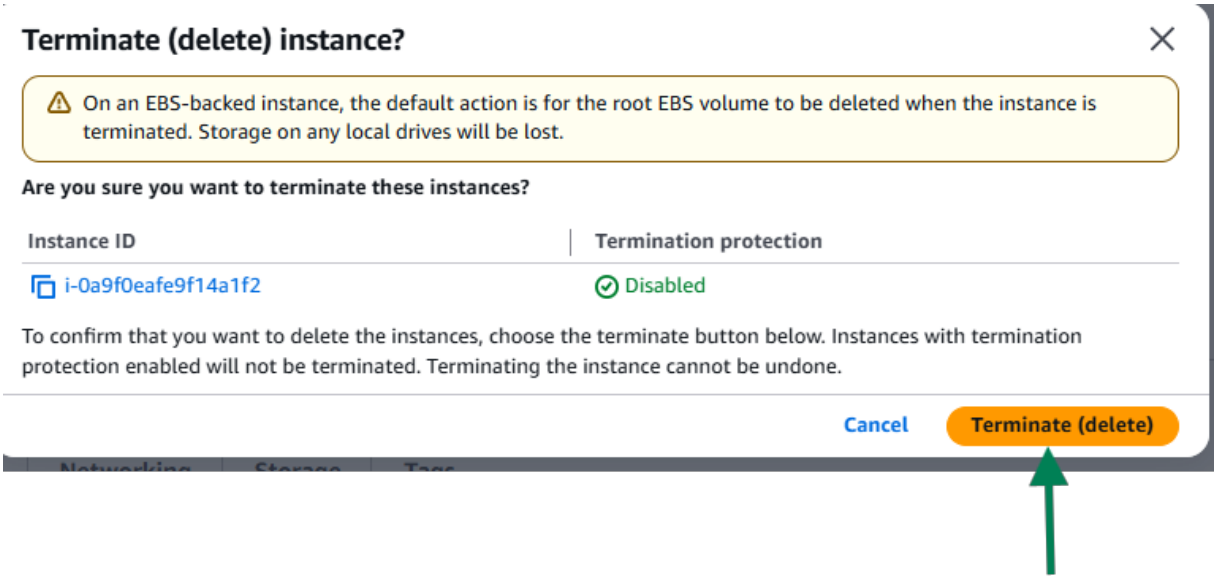


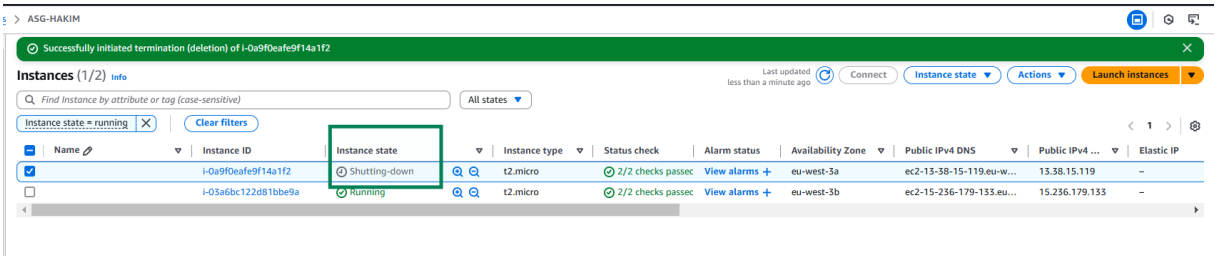


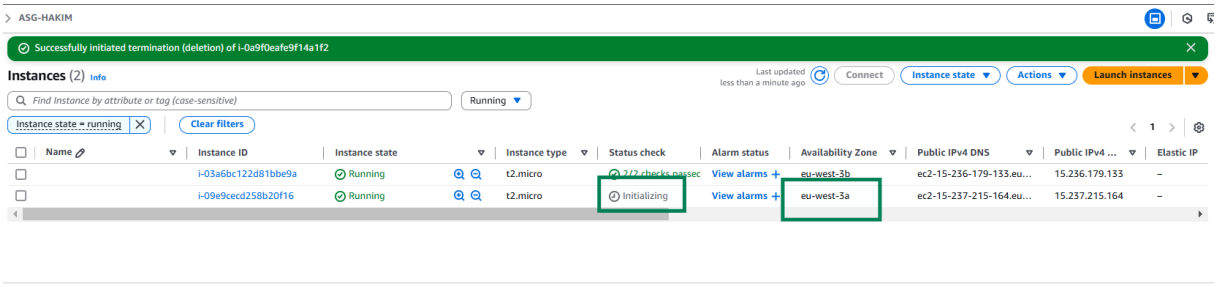


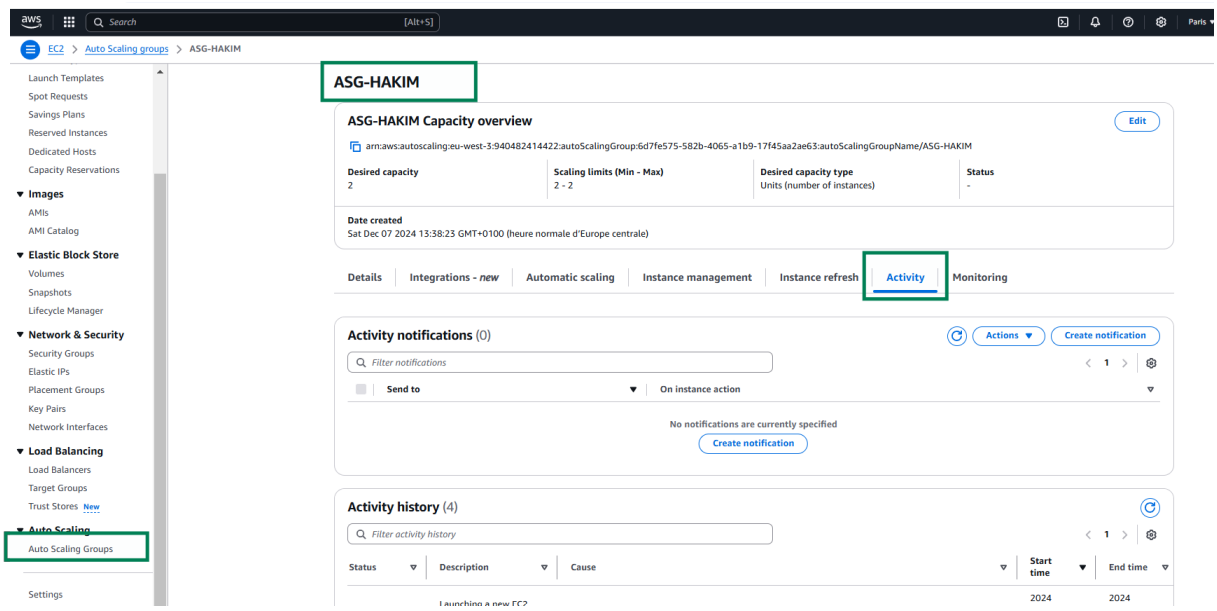
Vous allez tester votre « **Auto Scaling Group** » en terminant une instance EC2, puis vérifier que **l'Auto Scaling Group** la relance automatiquement.

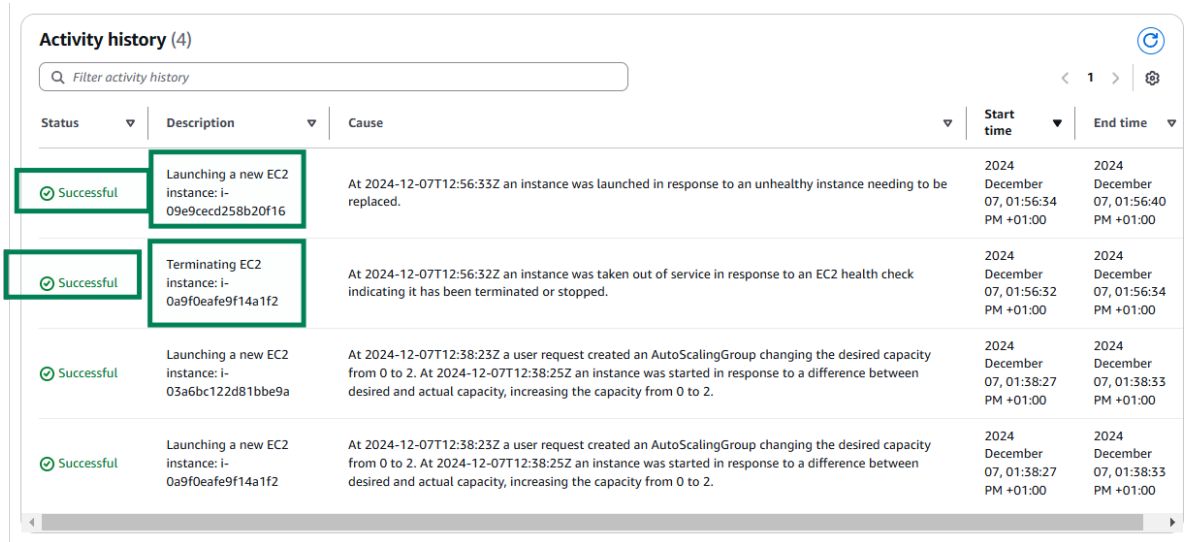

EC2 > Auto Scaling groups > ASG-HAKIM
Instances (1/2) Info
Dashboard
EC2 Global View
Events
Instances
Instances
Instance Types
Launch Templates
Spot Requests
Savings Plans
Find Instance by attribute or tag (case-sensitive)
All states
Instance state = running
Clear filters
Connect
Instance state
Actions
Launch instances
Stop instance
Start instance
Reboot instance
Terminate (delete) instance
Name
Instance ID
Instance state
Instance type
Status check
Alarm status
Availability Zone
Elastic IP
i-0a9f0eafe9f14a1f2
Running
t2.micro
2/2 checks passed
View alarms
eu-west-3a
i-03a6bc122d81bbe9a
eu-west-3b
15.236.179.133


Terminate (delete) instance?
On an EBS-backed instance, the default action is for the root EBS volume to be deleted when the instance is terminated. Storage on any local drives will be lost.
Are you sure you want to terminate these instances?
Instance ID
Termination protection
i-0a9f0eafe9f14a1f2
Disabled
To confirm that you want to delete the instances, choose the terminate button below. Instances with termination protection enabled will not be terminated. Terminating the instance cannot be undone.
Cancel
Terminate (delete)


ASG-HAKIM
Successfully initiated termination (deletion) of i-0a9f0eafe9f14a1f2
Instances (1/2) Info
Find Instance by attribute or tag (case-sensitive)
All states
Instance state = running
Clear filters
Connect
Instance state
Actions
Launch instances
Name
Instance ID
Instance state
Instance type
Status check
Alarm status
Availability Zone
Public IPv4 DNS
Public IPv4 ...
Elastic IP
i-0a9f0eafe9f14a1f2
Shutting-down
t2.micro
2/2 checks passed
View alarms
eu-west-3a
ec2-13-38-15-119.eu-w...
13.38.15.119
i-03a6bc122d81bbe9a
Running
eu-west-3b
ec2-15-236-179-133.eu...
15.236.179.133

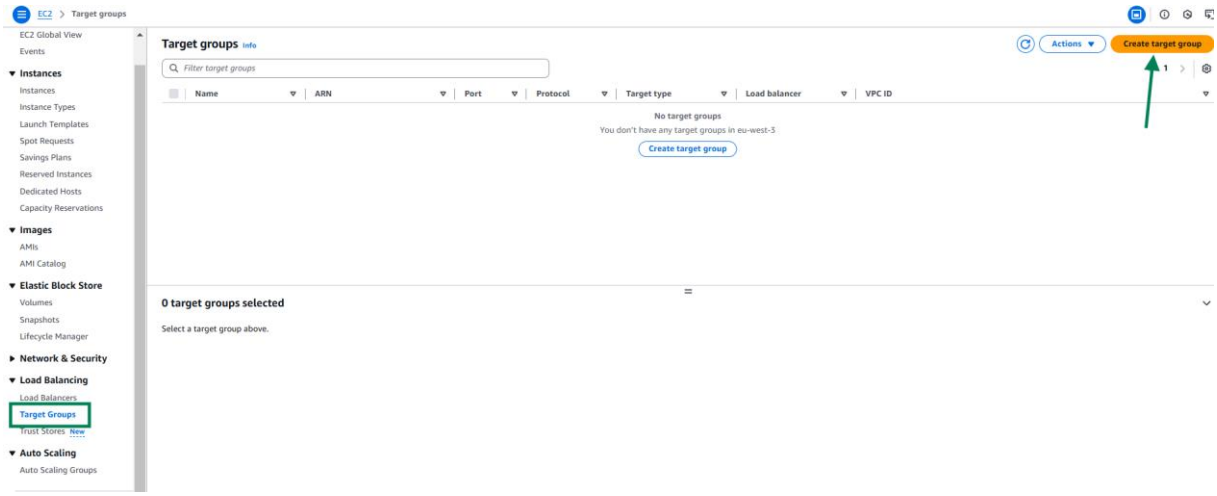

ASG-HAKIM
Successfully initiated termination (deletion) of i-0a9f0eafe9f14a1f2
Instances (2) Info
Find Instance by attribute or tag (case-sensitive)
Running
Instance state = running
Clear filters
Connect
Instance state
Actions
Launch instances
Name
Instance ID
Instance state
Instance type
Status check
Alarm status
Availability Zone
Public IPv4 DNS
Public IPv4 ...
Elastic IP
i-03a6bc122d81bbe9a
Running
t2.micro
View alarms
eu-west-3b
ec2-15-236-179-133.eu...
15.236.179.133
i-09e9cecd258b20f16
Initializing
eu-west-3a
ec2-15-237-215-164.eu...
15.237.215.164

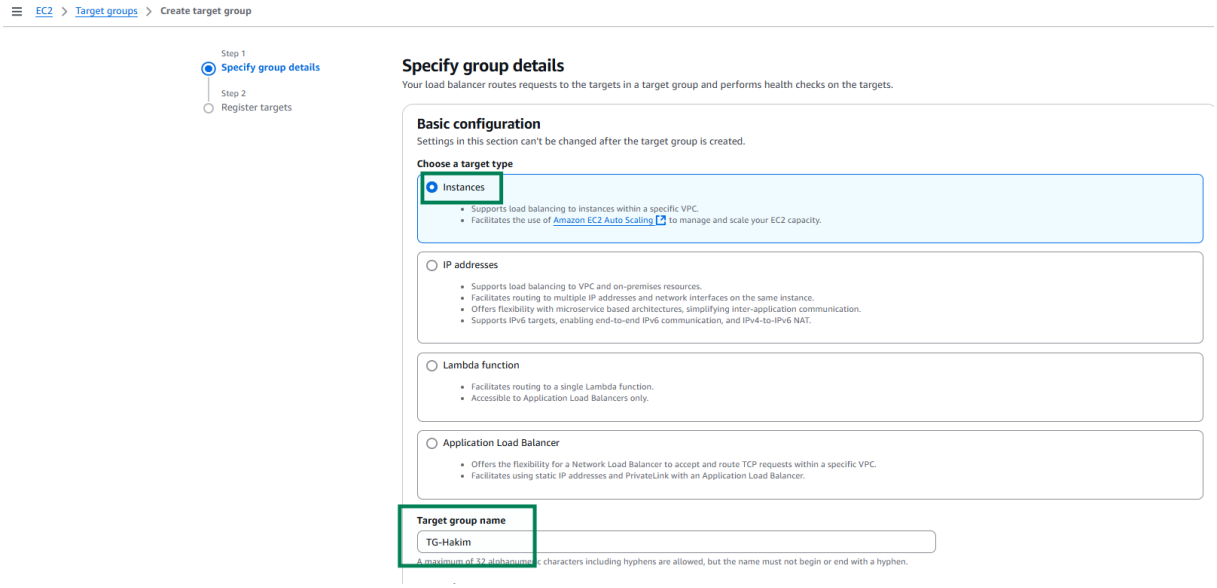


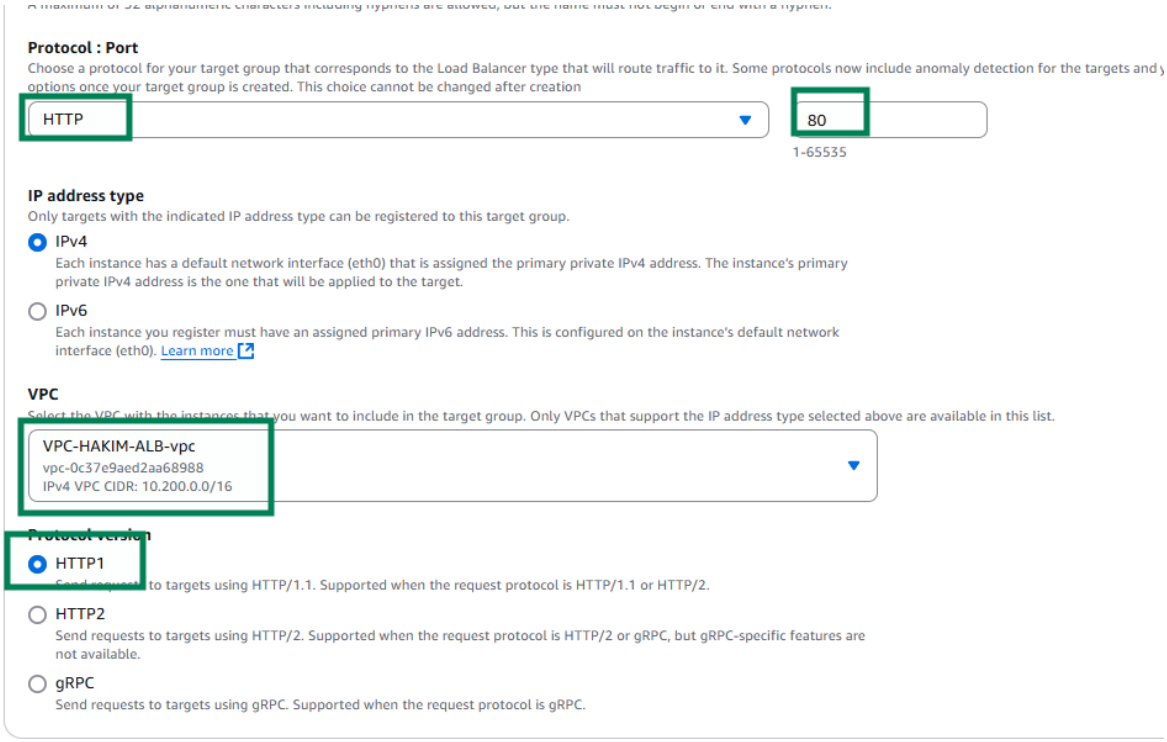


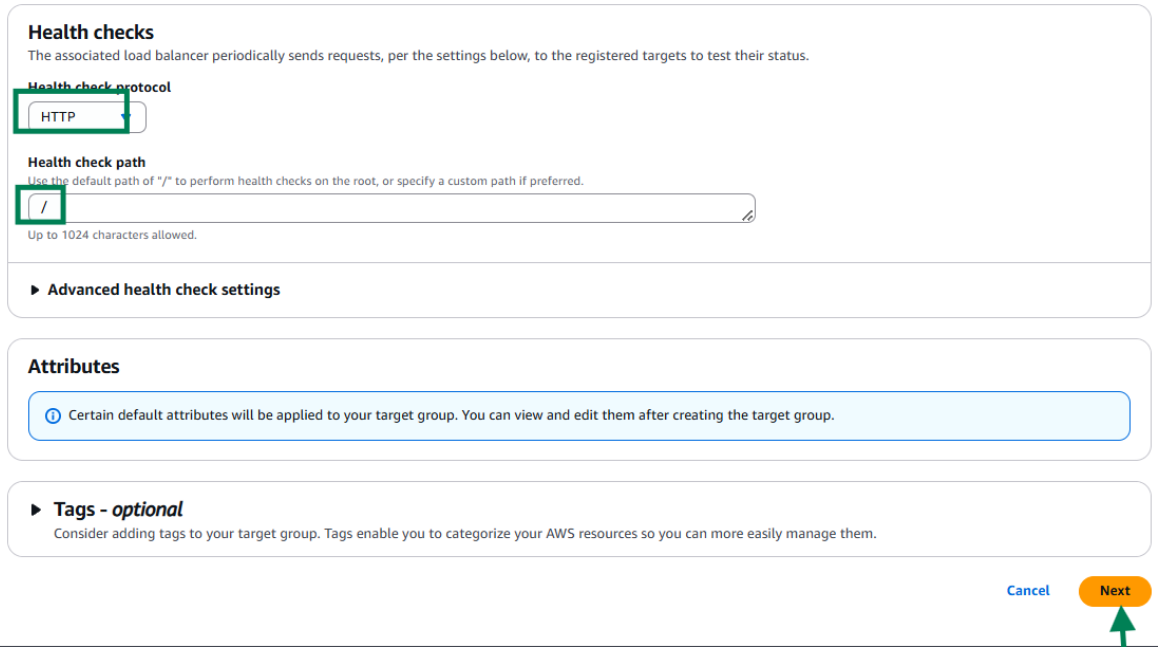
Vous allez passer ensuite à la création de l'**ALB**.
Vous allez commencer par créer les « **Target Groups »** nommés « **TG-VotreNom »**.

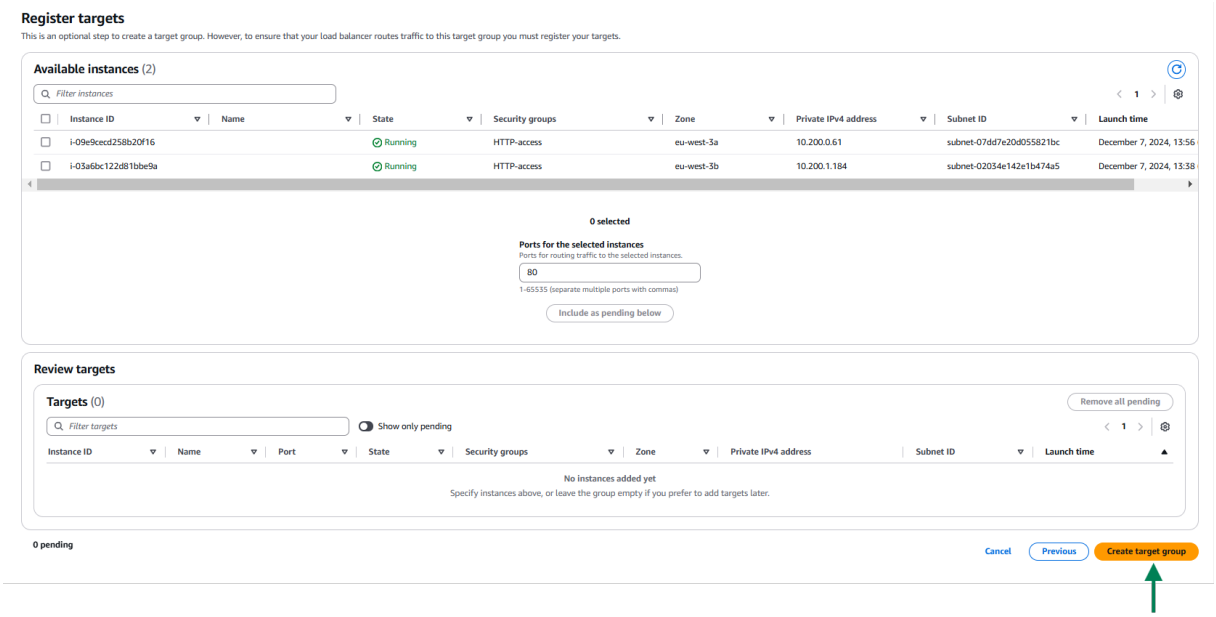
TP8 : ALB & NLB

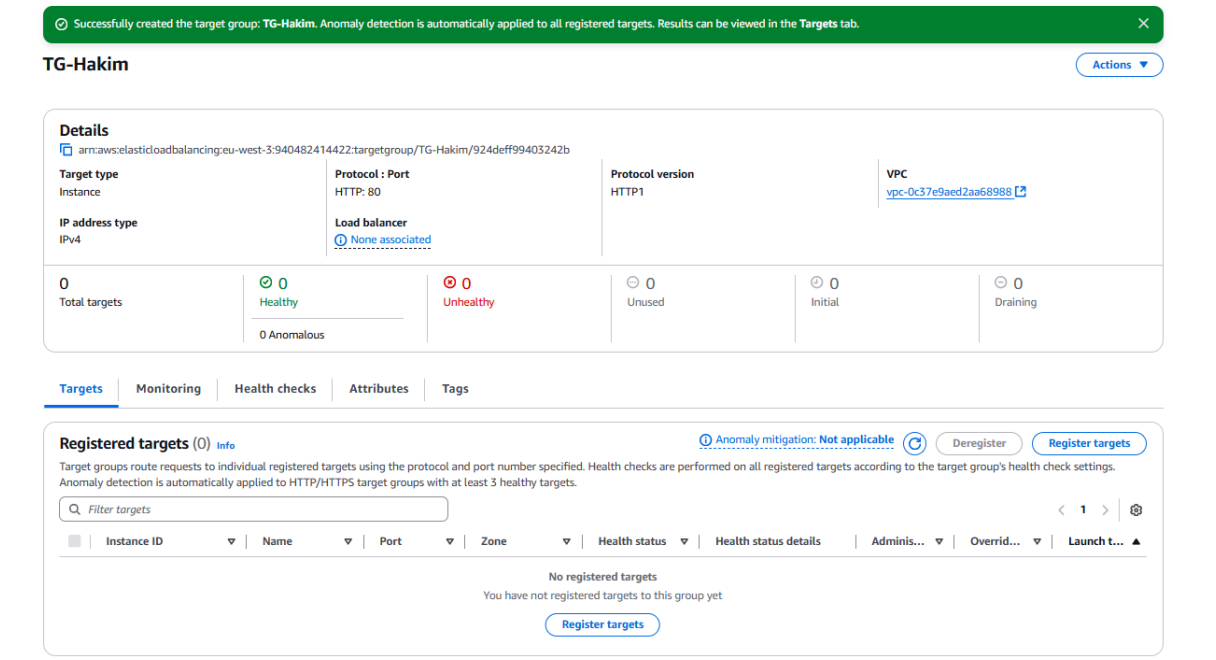

EC2 > Target groups
EC2 Global View
Events
Instances
Instances
Instance Types
Launch Templates
Spot Requests
Savings Plans
Reserved Instances
Dedicated Hosts
Capacity Reservations
Images
AMIs
AMI Catalog
Elastic Block Store
Volumes
Snapshots
Lifecycle Manager
Network & Security
Load Balancing
Load Balancers
Target Groups
Trust Stores New
Auto Scaling
Auto Scaling Groups
Target groups Info
Filter target groups
Actions
Create target group
Name
ARN
Port
Protocol
Target type
Load balancer
VPC ID
No target groups
You don't have any target groups in eu-west-3
Create target group
0 target groups selected
Select a target group above.


EC2 > Target groups > Create target group
Step 1
Specify group details
Step 2
Register targets
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
TG-Hakim
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
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-HAKIM-ALB-vpc
vpc-0c37e9aed2aa68988
IPv4 VPC CIDR: 10.200.0.0/16
HTTP1
to targets using HTTP/1.1. Supported when the request protocol is HTTP/1.1 or HTTP/2.
HTTP2
Send requests to targets using HTTP/2. Supported when the request protocol is HTTP/2 or gRPC, but gRPC-specific features are not available.
gRPC
Send requests to targets using gRPC. Supported when the request protocol is gRPC.

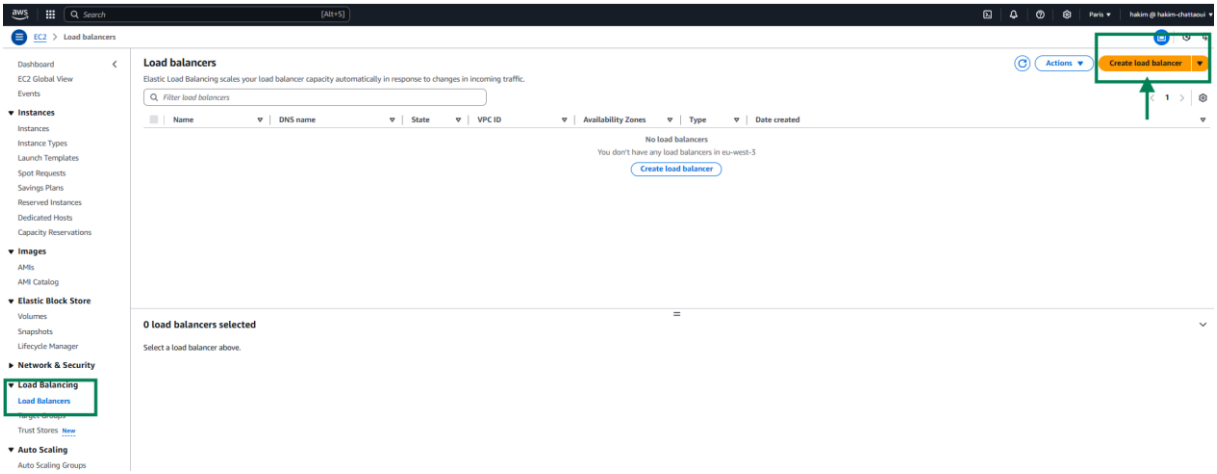

Health checks
The associated load balancer periodically sends requests, per the settings below, to the registered targets to test their status.
HTTP
Health check path
Use the default path of "/" to perform health checks on the root, or specify a custom path if preferred.
/
Up to 1024 characters allowed.
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.
Cancel
Next

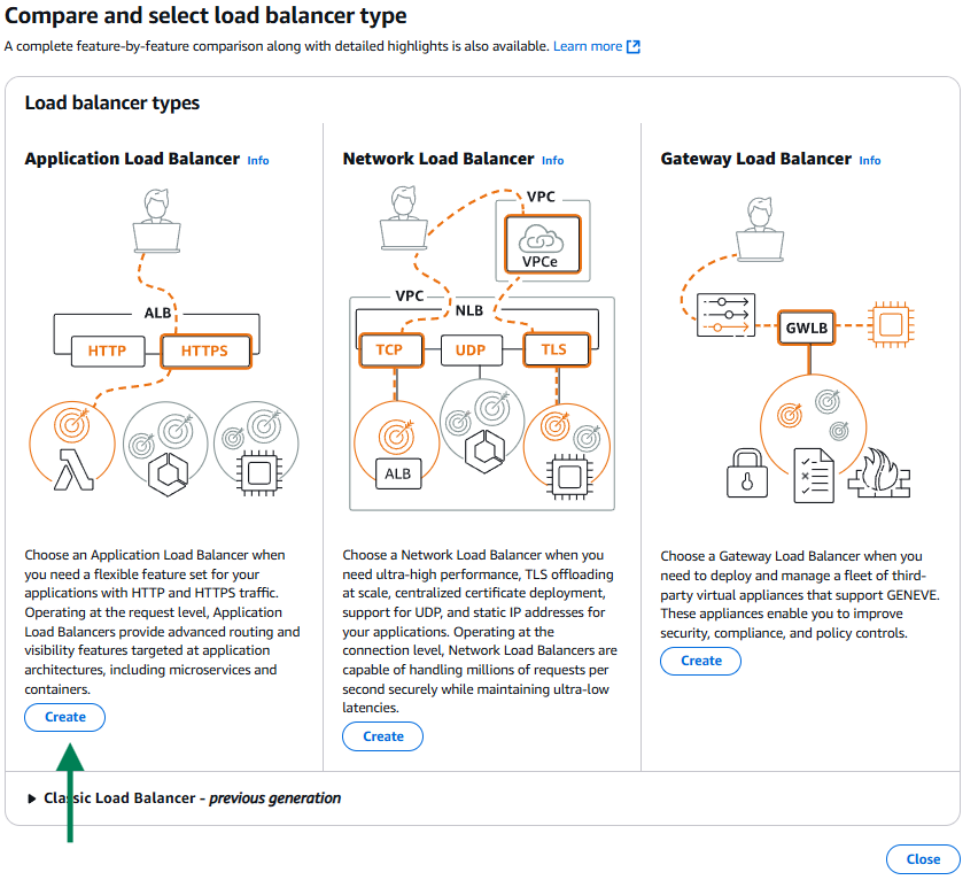




Vous allez créer « **Application Load Balancer** » (**ALB**).

TP8 : ALB & NLB


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
Name
DNS name
State
VPC ID
Availability Zones
Type
Date created
No load balancers
You don't have any load balancers in eu-west-3
Create load balancer
0 load balancers selected
Select a load balancer above.
Dashboard
EC2 Global View
Events
Instances
Instances
Instance Types
Launch Templates
Spot Requests
Savings Plans
Reserved Instances
Dedicated Hosts
Capacity Reservations
Images
AMIs
AMI Catalog
Elastic Block Store
Volumes
Snapshots
Lifecycle Manager
Network & Security
Load Balancing
Load Balancers
Trust Stores
Auto Scaling
Auto Scaling Groups


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
ALB
HTTP
HTTPS
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
VPC
VPCe
VPC
NLB
TCP
UDP
TLS
ALB
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
GWLB
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
Classic Load Balancer - previous generation
Close

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. 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.

ALB-Hakim

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 is publicly resolvable.
  - Requires a public subnet.
- ( ) Internal
  - Serves internal traffic.
  - Has private IP addresses.
  - DNS name is not publicly resolvable.
  - 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 target groups. For a new VPC, create a VPC.

VPC-HAKIM-ALB-vpc
vpc-0c37e9aed2aa68988
IPv4 VPC CIDR: 10.200.0.0/16

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 bala

Availability Zones

- [x] **eu-west-3a (euw3-az1)**
  Subnet
  subnet-07dd7e20d055821bc — VPC-HAKIM-ALB-subnet-public1-eu-west-3a
  IPv4 subnet CIDR: 10.200.0.0/24
  IPv4 address
  Assigned by AWS
- [x] **eu-west-3b (euw3-az2)**
  Subnet
  subnet-02034e142e1b474a5 — VPC-HAKIM-ALB-subnet-public2-eu-west-3b
  IPv4 subnet CIDR: 10.200.1.0/24
  IPv4 address
  Assigned by AWS
- [ ] **eu-west-3c (euw3-az3)**

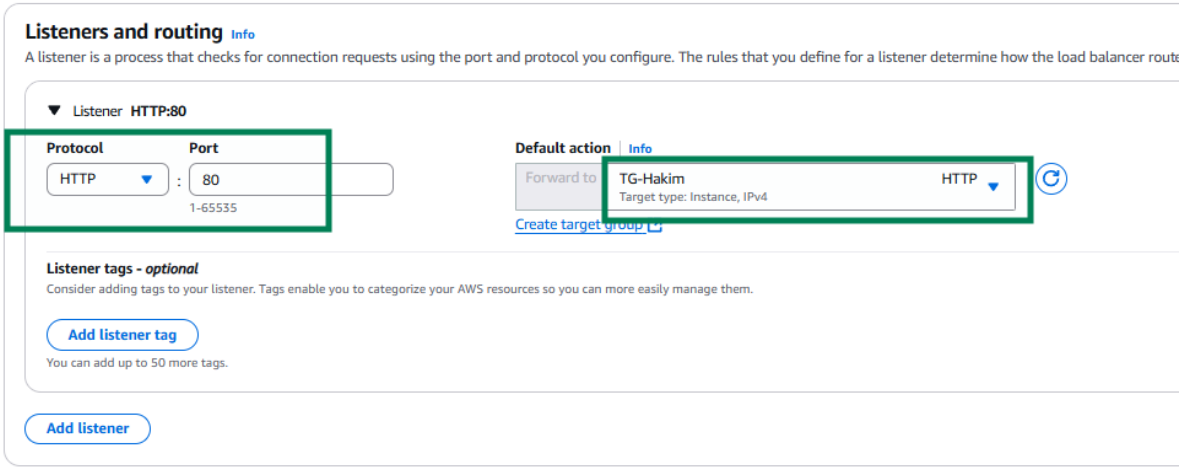
Security groups Info

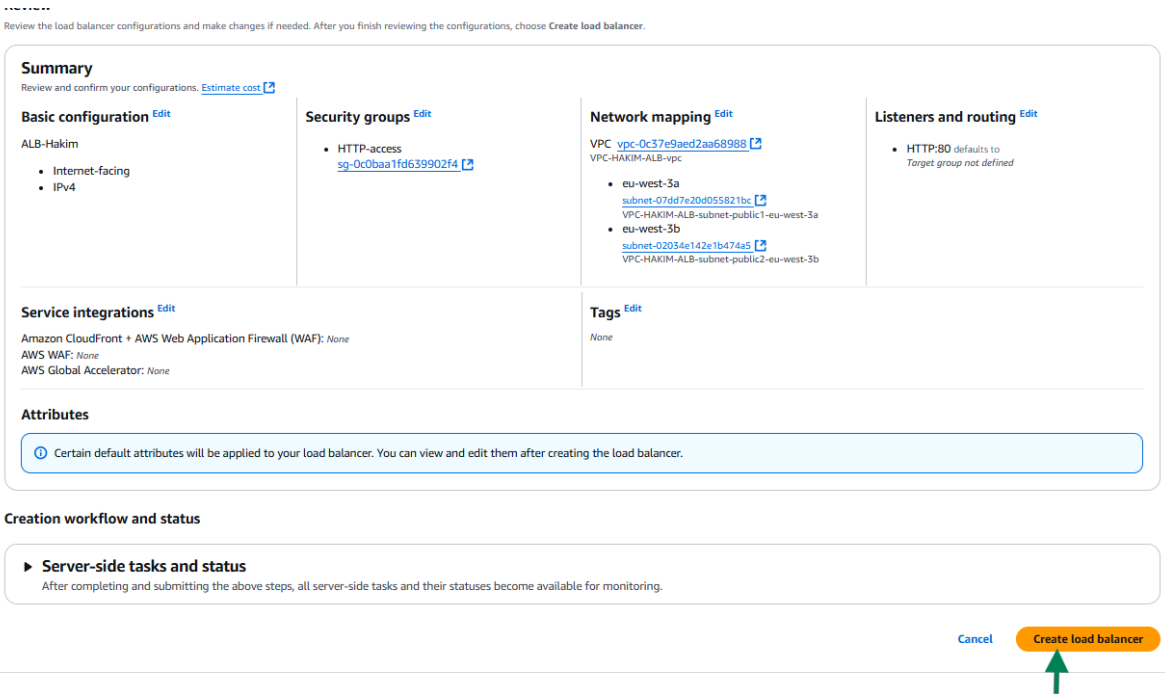
A security group is a set of firewall rules that control the traffic to your load balancer. Select an existing security group, or you can create a new security group.

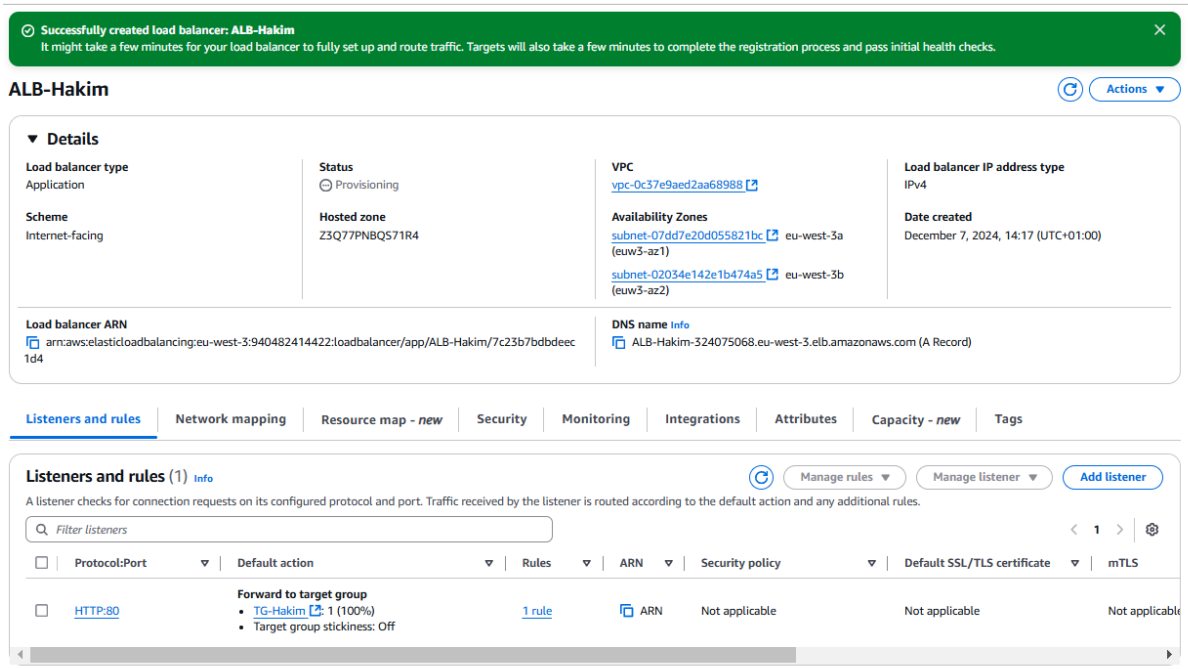
Security groups

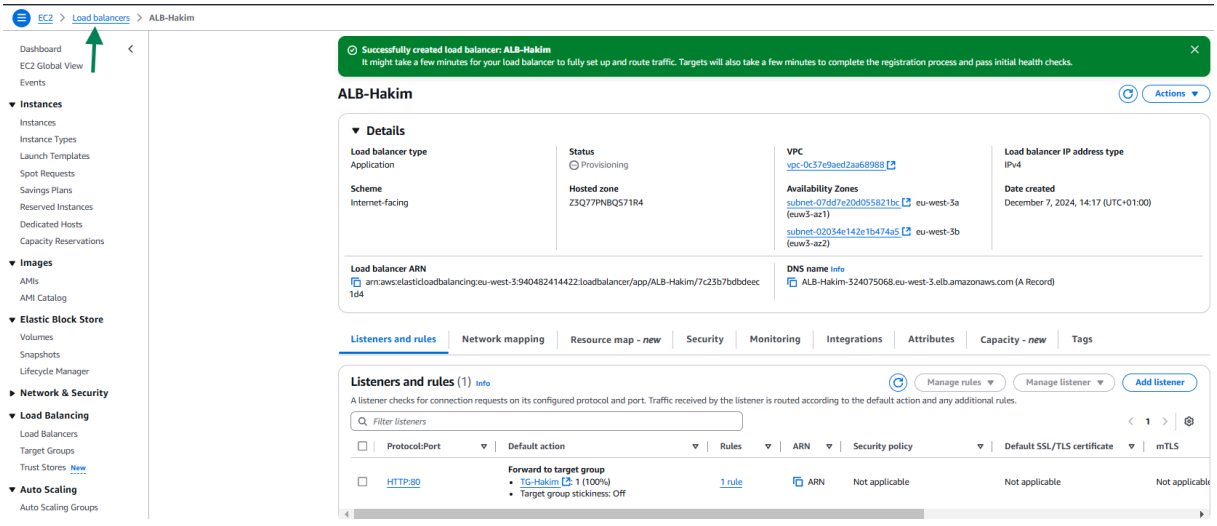
Select up to 5 security groups

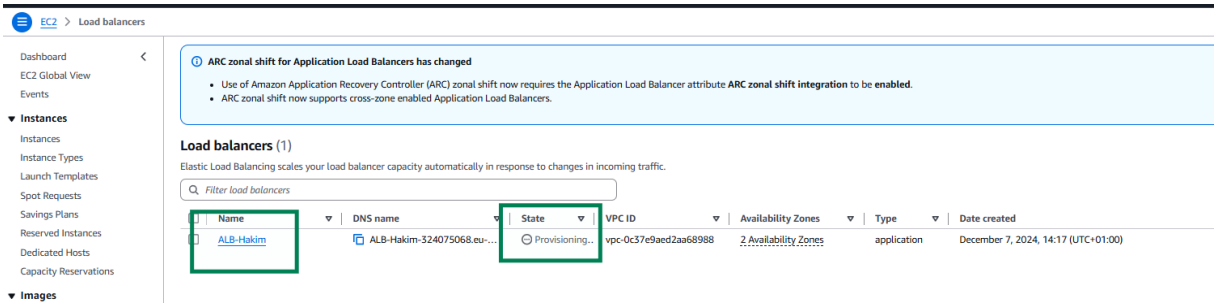
HTTP-access
sg-0c0baa1fd639902f4 VPC: vpc-0c37e9aed2aa68988


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 route
Listener HTTP:80
Protocol
Port
HTTP
80
1-65535
Default action Info
Forward to
TG-Hakim
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

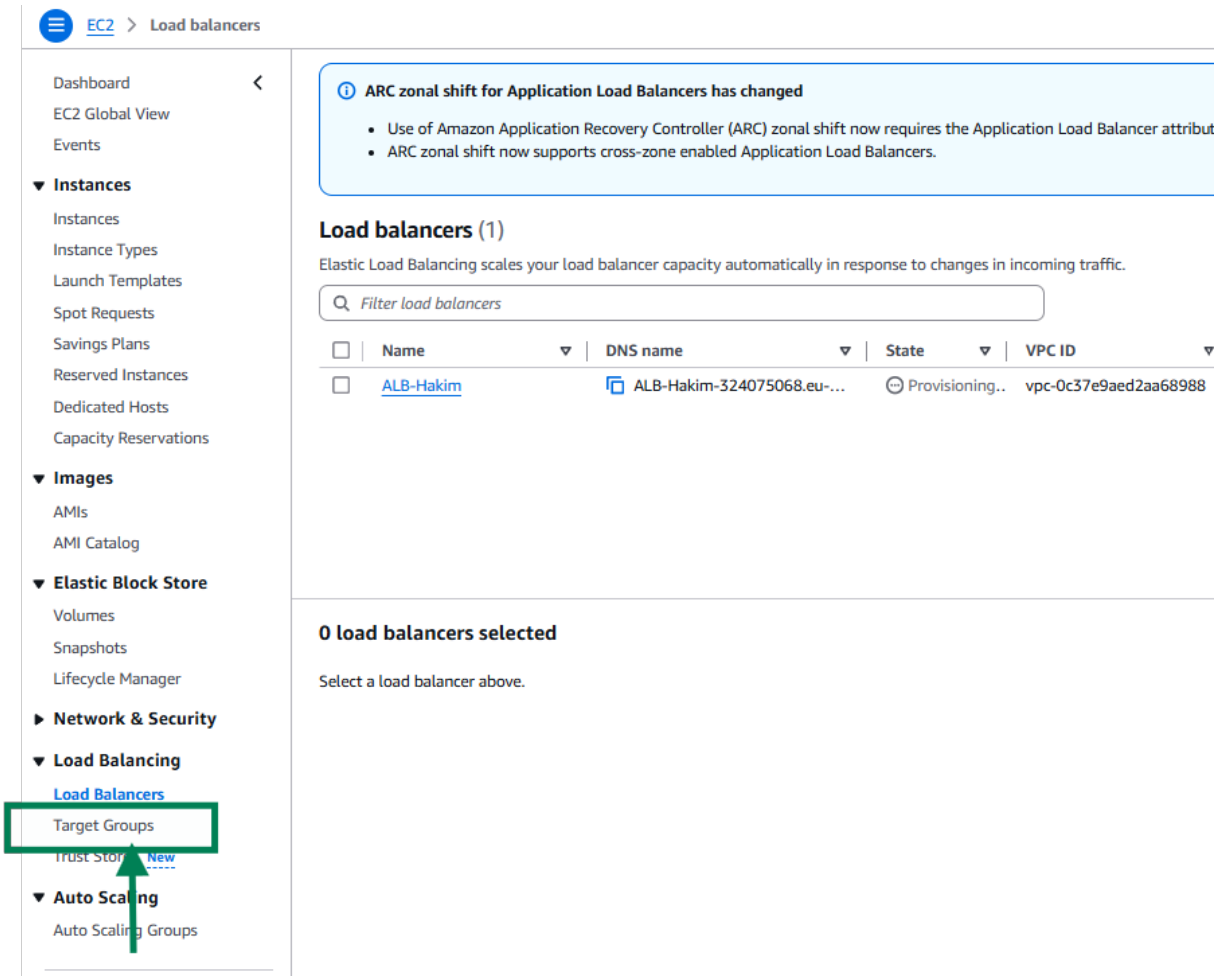

Review the load balancer configurations and make changes if needed. After you finish reviewing the configurations, choose Create load balancer.
Summary
Review and confirm your configurations. Estimate cost
Basic configuration Edit
ALB-Hakim
Internet-facing
IPv4
Security groups Edit
HTTP-access
sg-0c0baa1fd639902f4
Network mapping Edit
VPC vpc-0c37e9aed2aa68988
VPC-HAKIM-ALB-vpc
eu-west-3a
subnet-07dd7e20d055821bc
VPC-HAKIM-ALB-subnet-public1-eu-west-3a
eu-west-3b
subnet-02034e142e1b474a5
VPC-HAKIM-ALB-subnet-public2-eu-west-3b
Listeners and routing Edit
HTTP:80 defaults to
Target group not defined
Service integrations Edit
Amazon CloudFront + AWS Web Application Firewall (WAF): None
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.
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

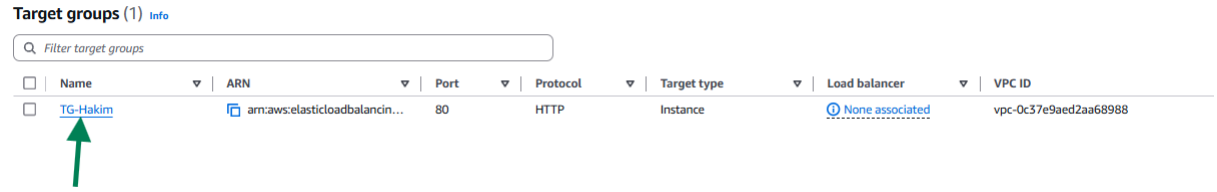


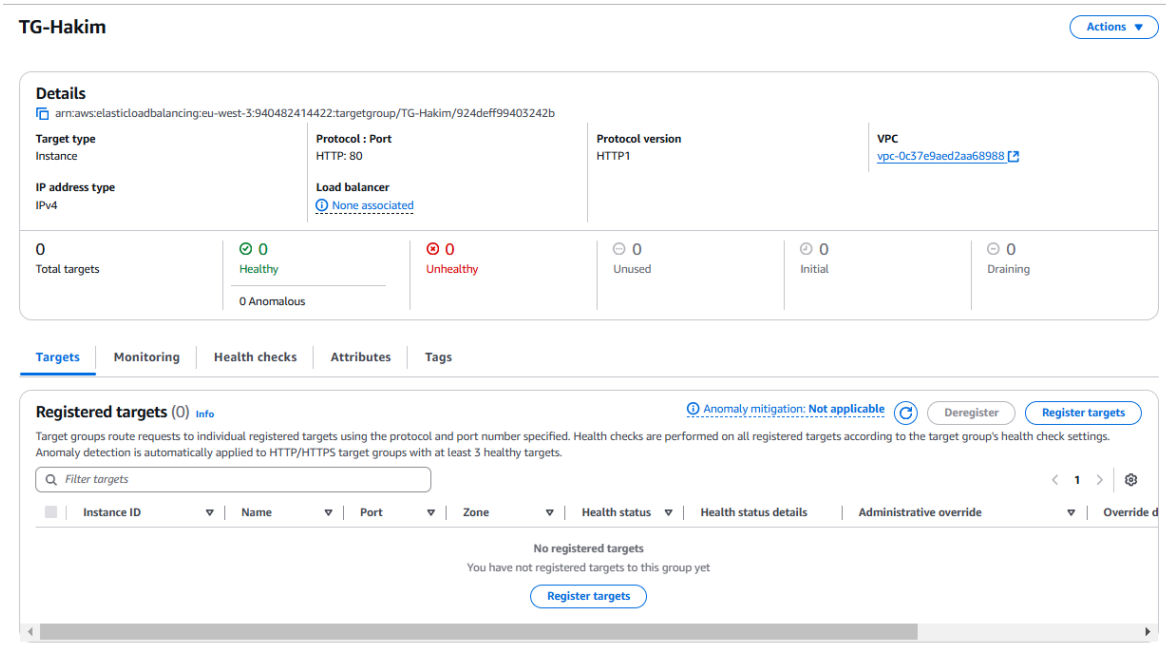


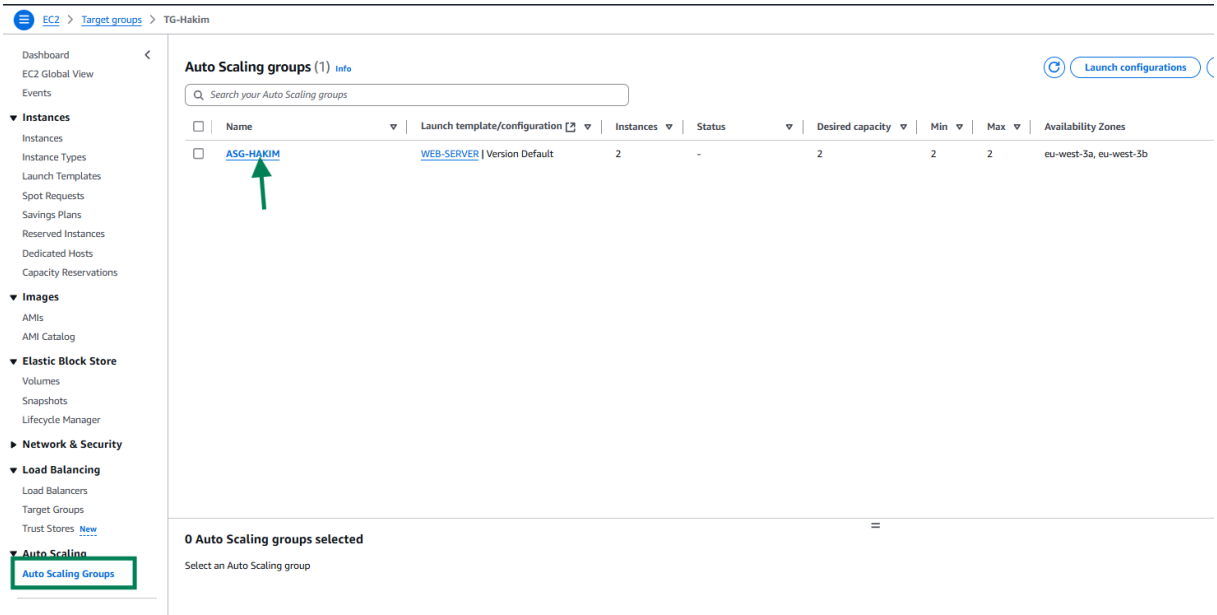


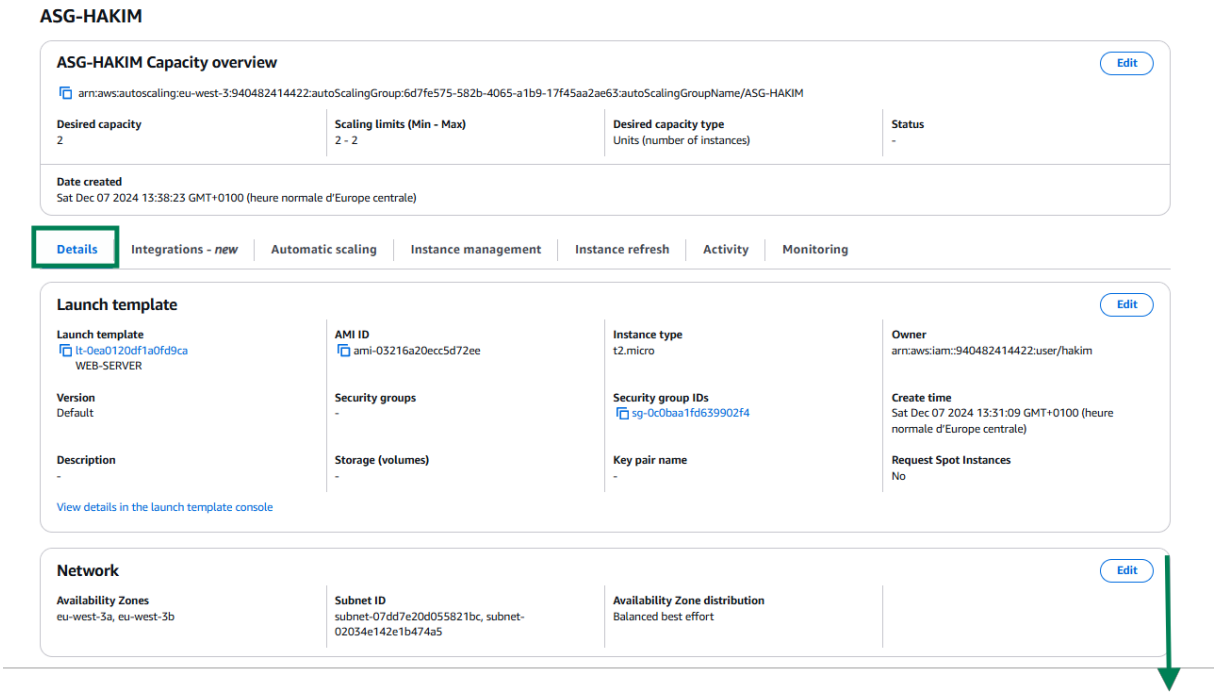
Il faut attendre un peu de temps pour que l'état de l'ALB passe de l'état **« Provisioning »** à l'état **« Active »**.

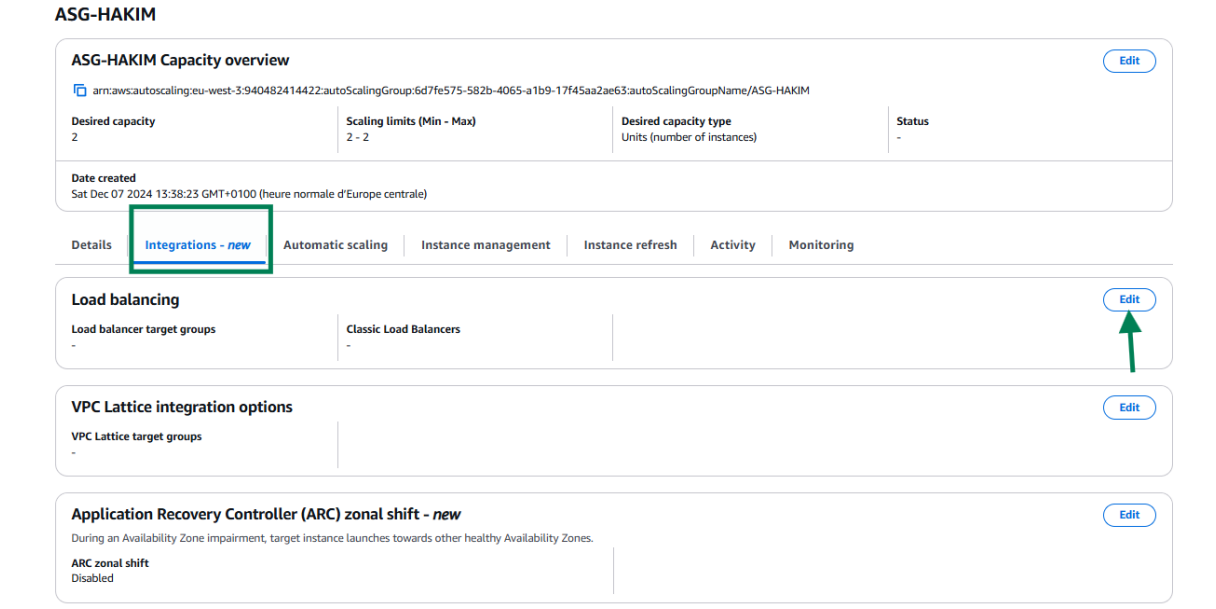

EC2 > Load balancers
Dashboard
EC2 Global View
Events
Instances
Instances
Instance Types
Launch Templates
Spot Requests
Savings Plans
Reserved Instances
Dedicated Hosts
Capacity Reservations
Images
AMIs
AMI Catalog
Elastic Block Store
Volumes
Snapshots
Lifecycle Manager
Network & Security
Load Balancing
Load Balancers
Target Groups
Auto Scaling
Auto Scaling Groups
ARC zonal shift for Application Load Balancers has changed
Use of Amazon Application Recovery Controller (ARC) zonal shift now requires the Application Load Balancer attribut
ARC zonal shift now supports cross-zone enabled Application Load Balancers.
Load balancers (1)
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
ALB-Hakim
ALB-Hakim-324075068.eu-...
Provisioning...
vpc-0c37e9aed2aa68988
0 load balancers selected
Select a load balancer above.

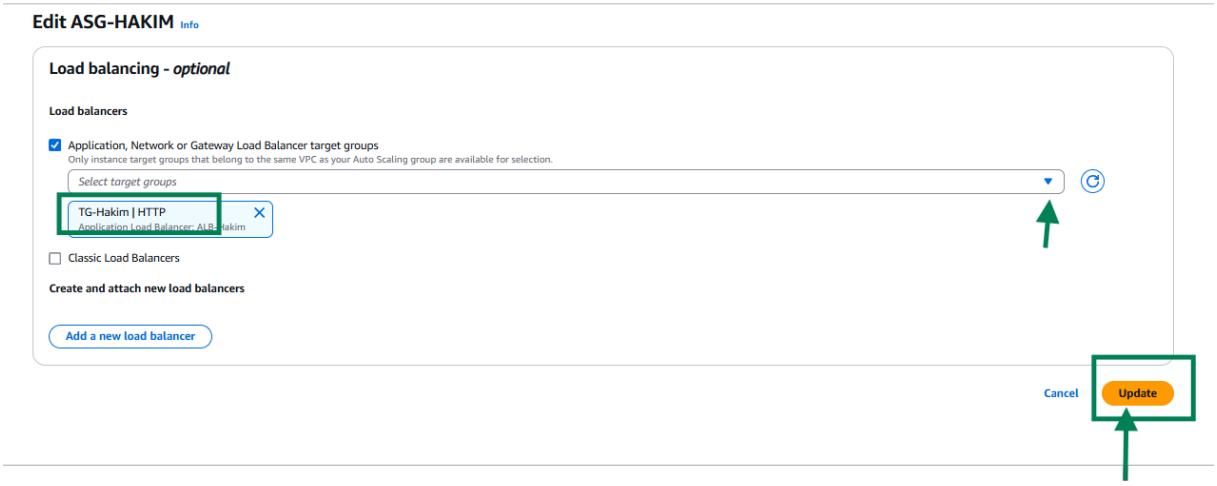

Target groups (1) Info
Filter target groups
Name
ARN
Port
Protocol
Target type
Load balancer
VPC ID
TG-Hakim
arn:aws:elasticloadbalancin...
80
HTTP
Instance
None associated
vpc-0c37e9aed2aa68988

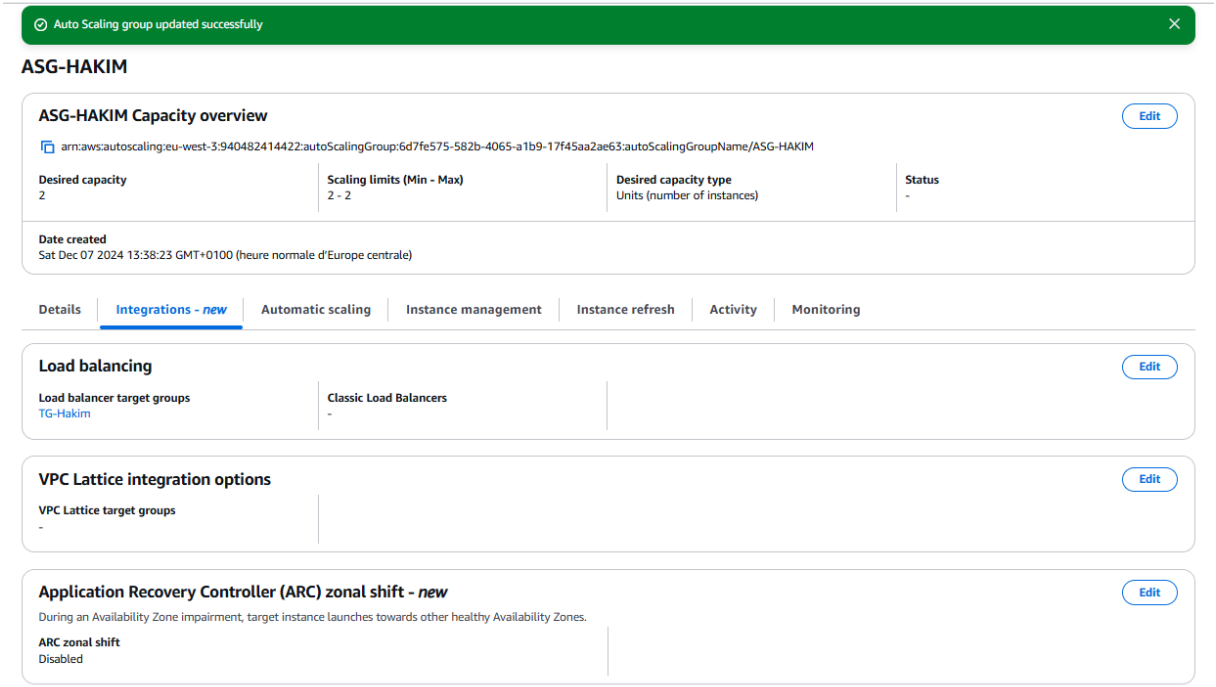

TG-Hakim
Actions
Details
arn:aws:elasticloadbalancing:eu-west-3:940482414422:targetgroup/TG-Hakim/924deff99403242b
Target type
Instance
Protocol : Port
HTTP: 80
Protocol version
HTTP1
VPC
vpc-0c37e9aed2aa68988
IP address type
IPv4
Load balancer
None associated
0
Total targets
0
Healthy
0 Anomalous
0
Unhealthy
0
Unused
0
Initial
0
Draining
Targets
Monitoring
Health checks
Attributes
Tags
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
Administrative override
No registered targets
You have not registered targets to this group yet
Register targets


EC2
Target groups
TG-Hakim
Dashboard
EC2 Global View
Events
Instances
Instances
Instance Types
Launch Templates
Spot Requests
Savings Plans
Reserved Instances
Dedicated Hosts
Capacity Reservations
Images
AMIs
AMI Catalog
Elastic Block Store
Volumes
Snapshots
Lifecycle Manager
Network & Security
Load Balancing
Load Balancers
Target Groups
Trust Stores New
Auto Scaling
Auto Scaling Groups
Auto Scaling groups (1) Info
Launch configurations
Search your Auto Scaling groups
Name
Launch template/configuration
Instances
Status
Desired capacity
Min
Max
Availability Zones
ASG-HAKIM
WEB-SERVER | Version Default
2
-
2
2
2
eu-west-3a, eu-west-3b
0 Auto Scaling groups selected
Select an Auto Scaling group

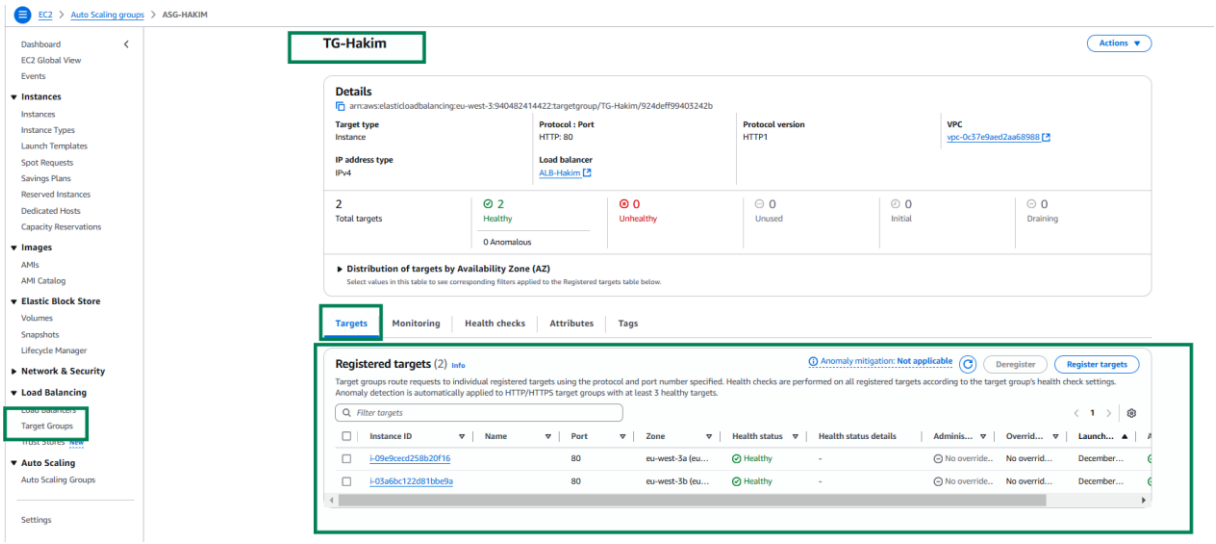

ASG-HAKIM
ASG-HAKIM Capacity overview
Edit
arn:aws:autoscaling:eu-west-3:940482414422:autoScalingGroup:6d7fe575-582b-4065-a1b9-17f45aa2ae63:autoScalingGroupName/ASG-HAKIM
Desired capacity
2
Scaling limits (Min - Max)
2 - 2
Desired capacity type
Units (number of instances)
Status
-
Date created
Sat Dec 07 2024 13:38:23 GMT+0100 (heure normale d'Europe centrale)
Details
Integrations - new
Automatic scaling
Instance management
Instance refresh
Activity
Monitoring
Launch template
Edit
Launch template
lt-0ea0120df1a0fd9ca
WEB-SERVER
AMI ID
ami-03216a20ecc5d72ee
Instance type
t2.micro
Owner
arn:aws:iam::940482414422:user/hakim
Version
Default
Security groups
-
Security group IDs
sg-0c0baa1fd639902f4
Create time
Sat Dec 07 2024 13:31:09 GMT+0100 (heure normale d'Europe centrale)
Description
-
Storage (volumes)
-
Key pair name
-
Request Spot Instances
No
View details in the launch template console
Network
Edit
Availability Zones
eu-west-3a, eu-west-3b
Subnet ID
subnet-07dd7e20d055821bc, subnet-02034e142e1b474a5
Availability Zone distribution
Balanced best effort

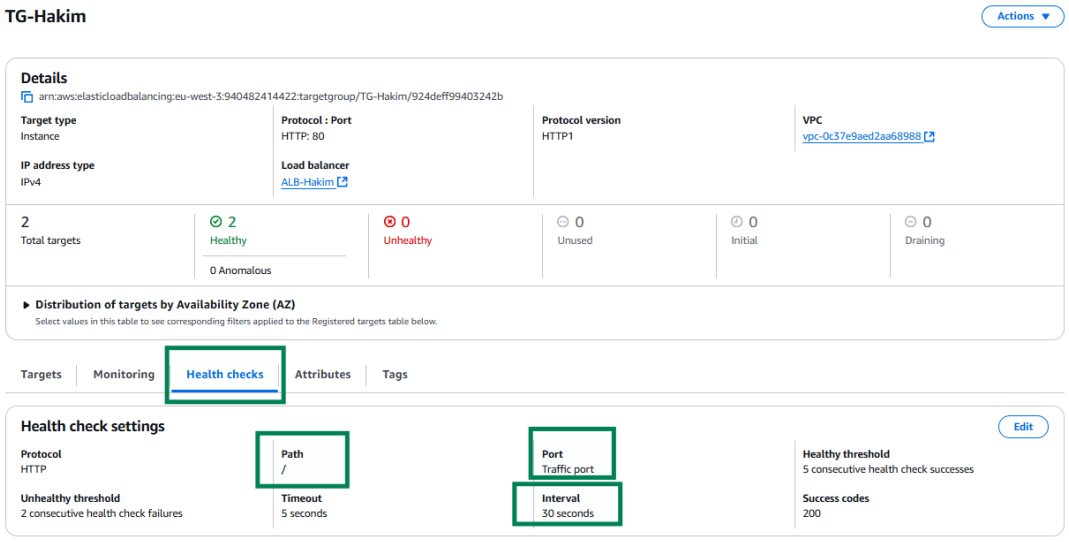

ASG-HAKIM
ASG-HAKIM Capacity overview
Edit
arn:aws:autoscaling:eu-west-3:940482414422:autoScalingGroup:6d7fe575-582b-4065-a1b9-17f45aa2ae63:autoScalingGroupName/ASG-HAKIM
Desired capacity
2
Scaling limits (Min - Max)
2 - 2
Desired capacity type
Units (number of instances)
Status
-
Date created
Sat Dec 07 2024 13:38:23 GMT+0100 (heure normale d'Europe centrale)
Details
Integrations - new
Automatic scaling
Instance management
Instance refresh
Activity
Monitoring
Load balancing
Edit
Load balancer target groups
-
Classic Load Balancers
-
VPC Lattice integration options
Edit
VPC Lattice target groups
-
Application Recovery Controller (ARC) zonal shift - new
Edit
During an Availability Zone impairment, target instance launches towards other healthy Availability Zones.
ARC zonal shift
Disabled



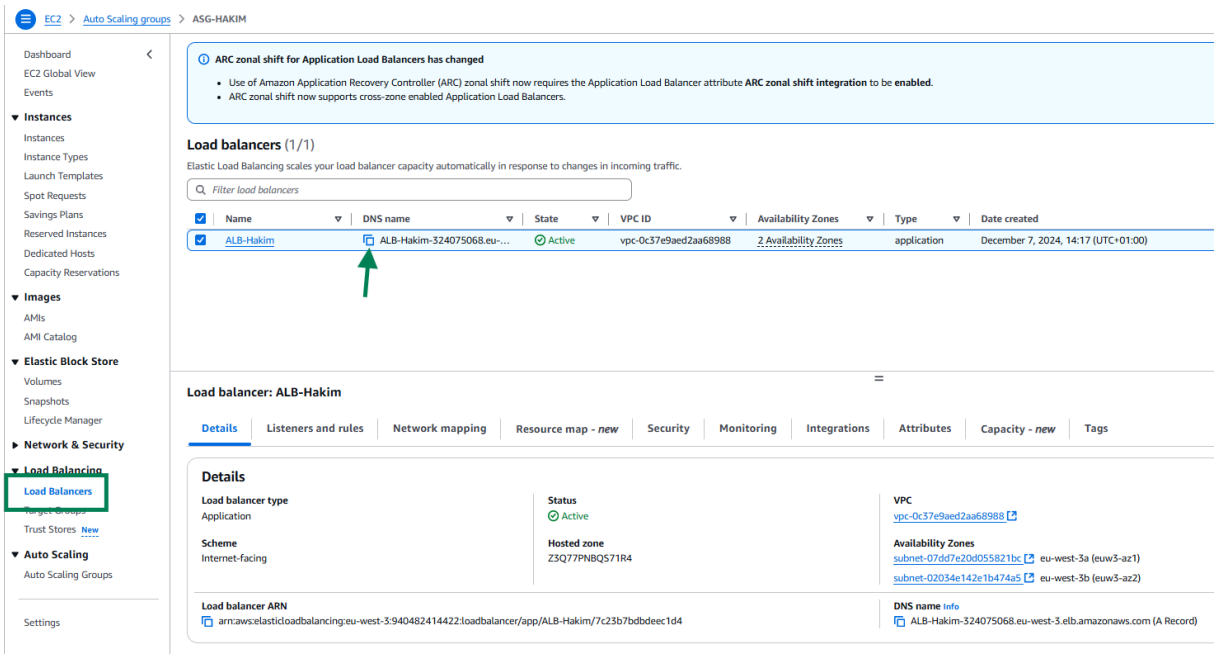


Il faut attendre un certain temps avant que les instances soient enregistrées.



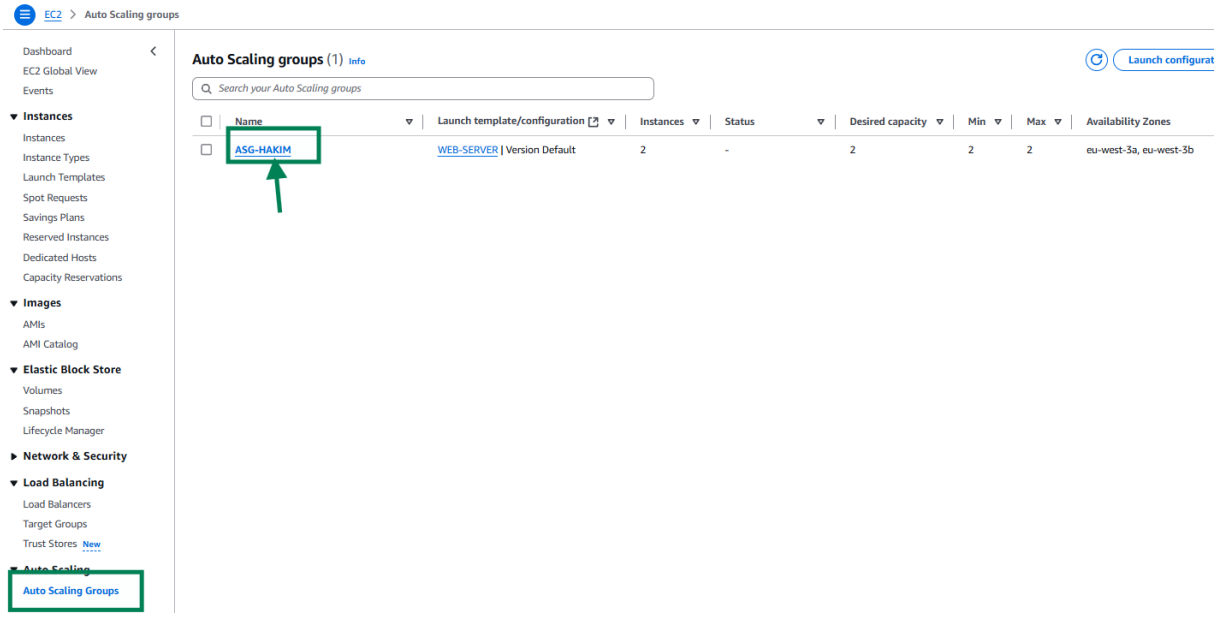


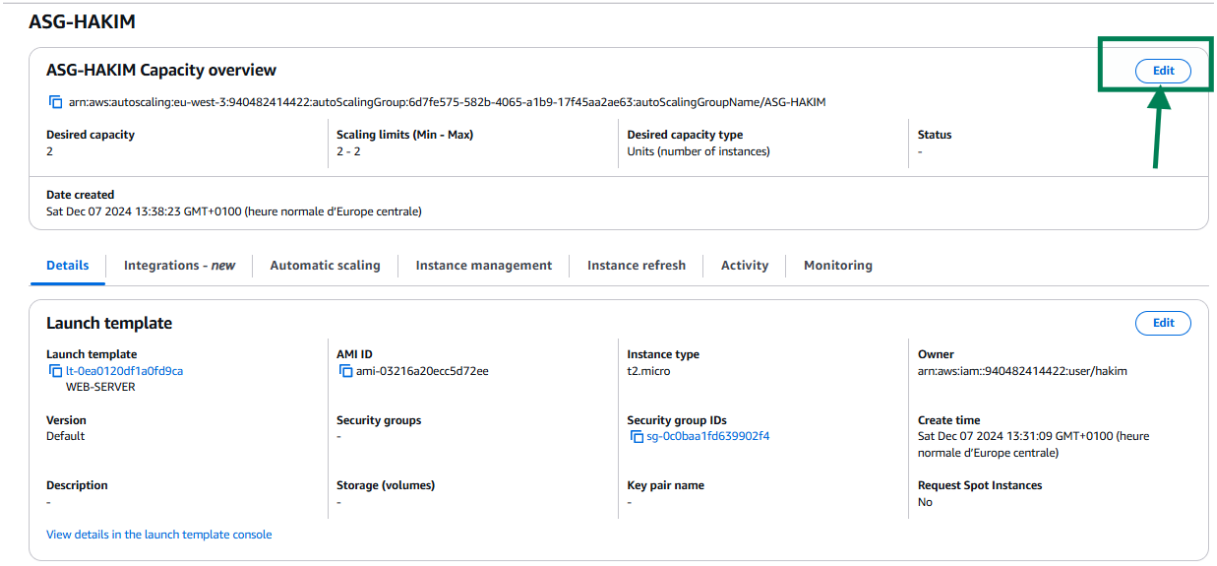
Vous allez passer au test de l'ALB.

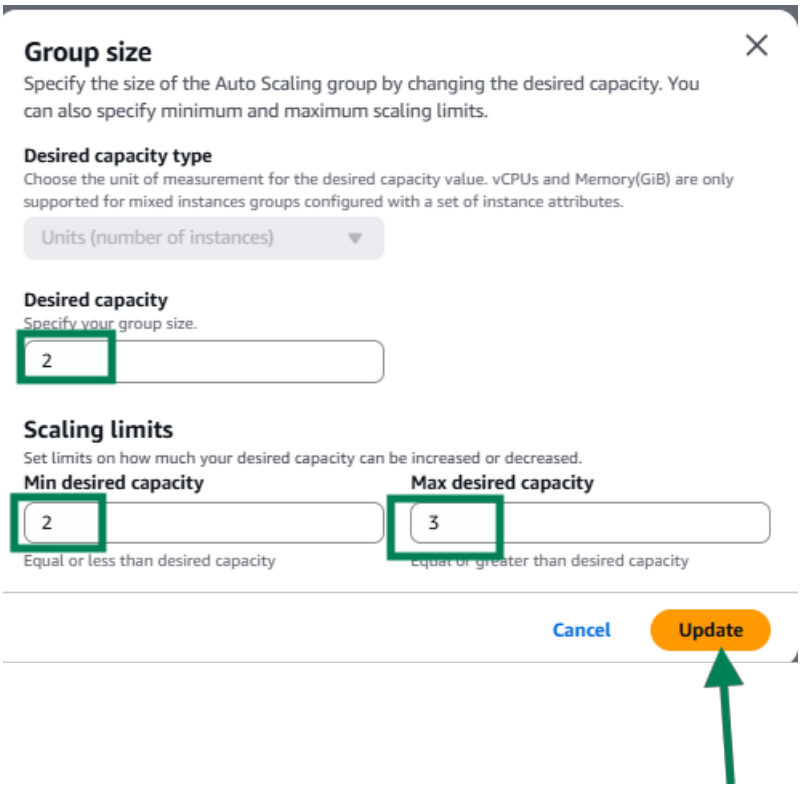


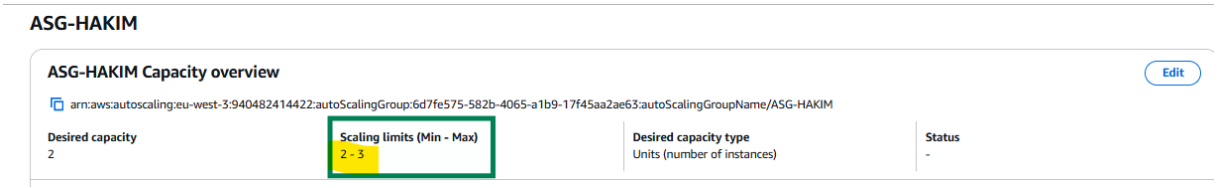
Rafraîchissez plusieurs fois la page et vérifiez que le trafic est bien équilibré entre les deux instances.

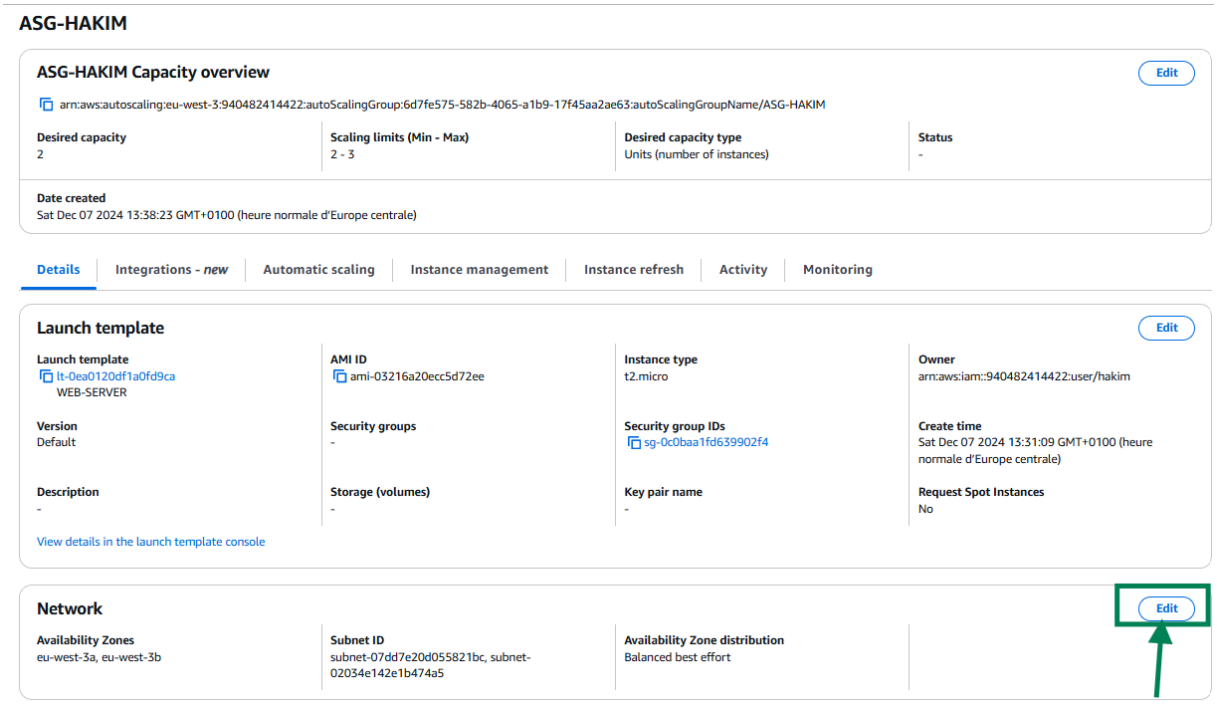
La dernière phase est de créer la politique d'**Auto Scaling Group**.

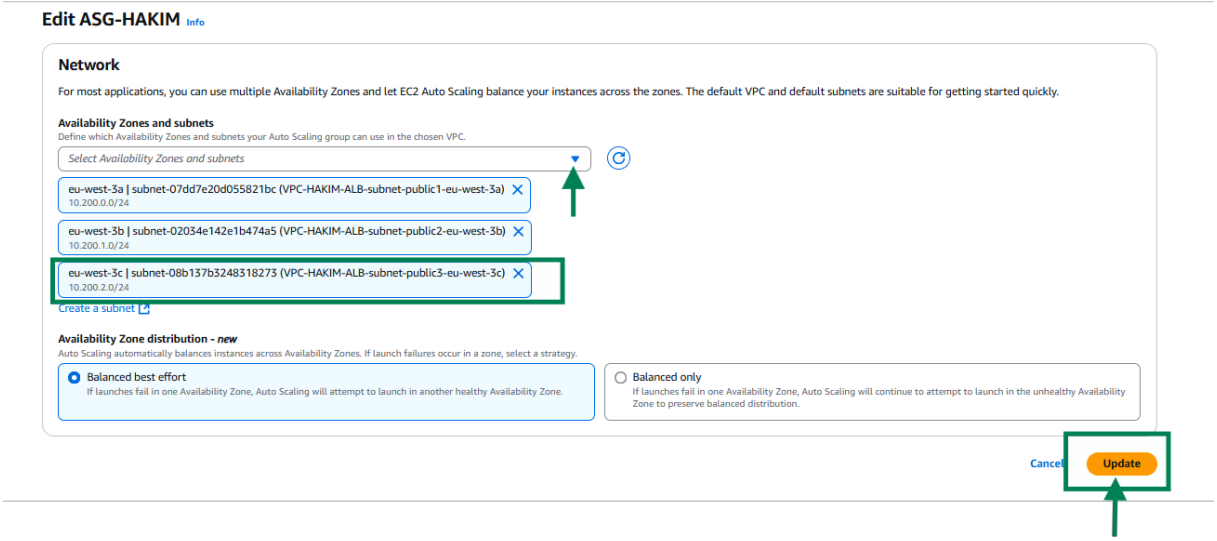



ASG-HAKIM
ASG-HAKIM Capacity overview
Edit
arn:aws:autoscaling:eu-west-3:940482414422:autoScalingGroup:6d7fe575-582b-4065-a1b9-17f45aa2ae63:autoScalingGroupName/ASG-HAKIM
Desired capacity
2
Scaling limits (Min - Max)
2 - 2
Desired capacity type
Units (number of instances)
Status
-
Date created
Sat Dec 07 2024 13:38:23 GMT+0100 (heure normale d'Europe centrale)
Details
Integrations - new
Automatic scaling
Instance management
Instance refresh
Activity
Monitoring
Launch template
Edit
Launch template
lt-0ea0120df1a0fd9ca
WEB-SERVER
AMI ID
ami-03216a20ecc5d72ee
Instance type
t2.micro
Owner
arn:aws:iam::940482414422:user/hakim
Version
Default
Security groups
-
Security group IDs
sg-0c0baa1fd639902f4
Create time
Sat Dec 07 2024 13:31:09 GMT+0100 (heure normale d'Europe centrale)
Description
-
Storage (volumes)
-
Key pair name
-
Request Spot Instances
No
View details in the launch template console

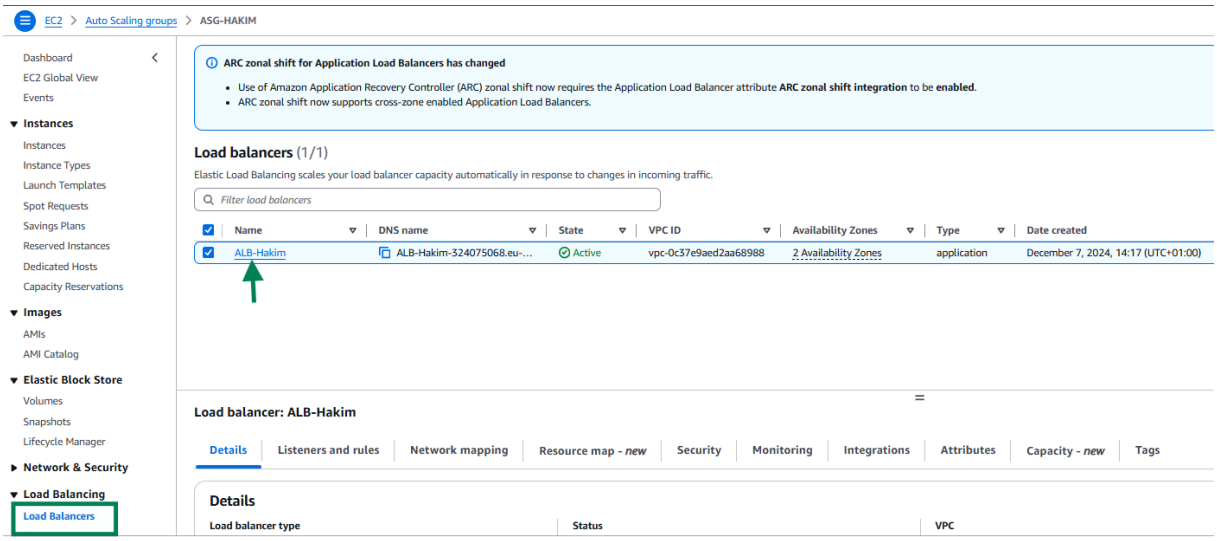

Group size
Specify the size of the Auto Scaling group by changing the desired capacity. You can also specify minimum and maximum scaling limits.
Desired capacity type
Choose the unit of measurement for the desired capacity value. vCPUs and Memory(GiB) are only supported for mixed instances groups configured with a set of instance attributes.
Units (number of instances)
Desired capacity
Specify your group size.
2
Scaling 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
3
Equal or greater than desired capacity
Cancel
Update

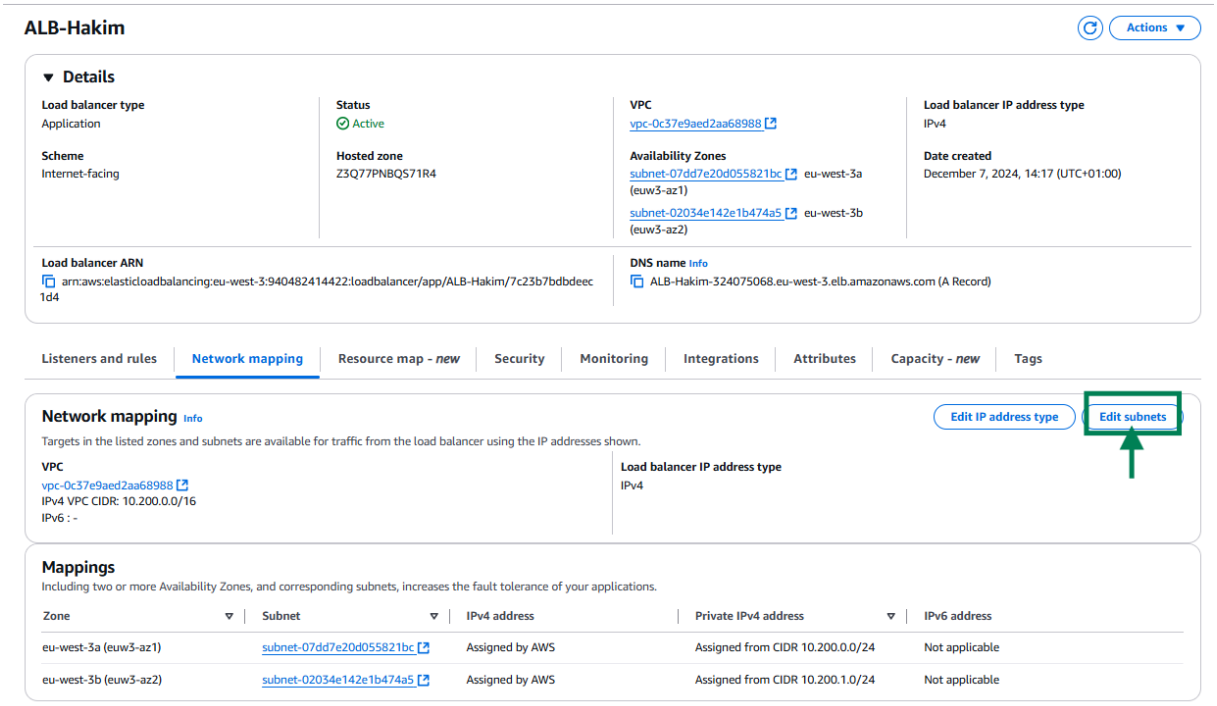

ASG-HAKIM
ASG-HAKIM Capacity overview
Edit
arn:aws:autoscaling:eu-west-3:940482414422:autoScalingGroup:6d7fe575-582b-4065-a1b9-17f45aa2ae63:autoScalingGroupName/ASG-HAKIM
Desired capacity
2
Scaling limits (Min - Max)
2 - 3
Desired capacity type
Units (number of instances)
Status
-

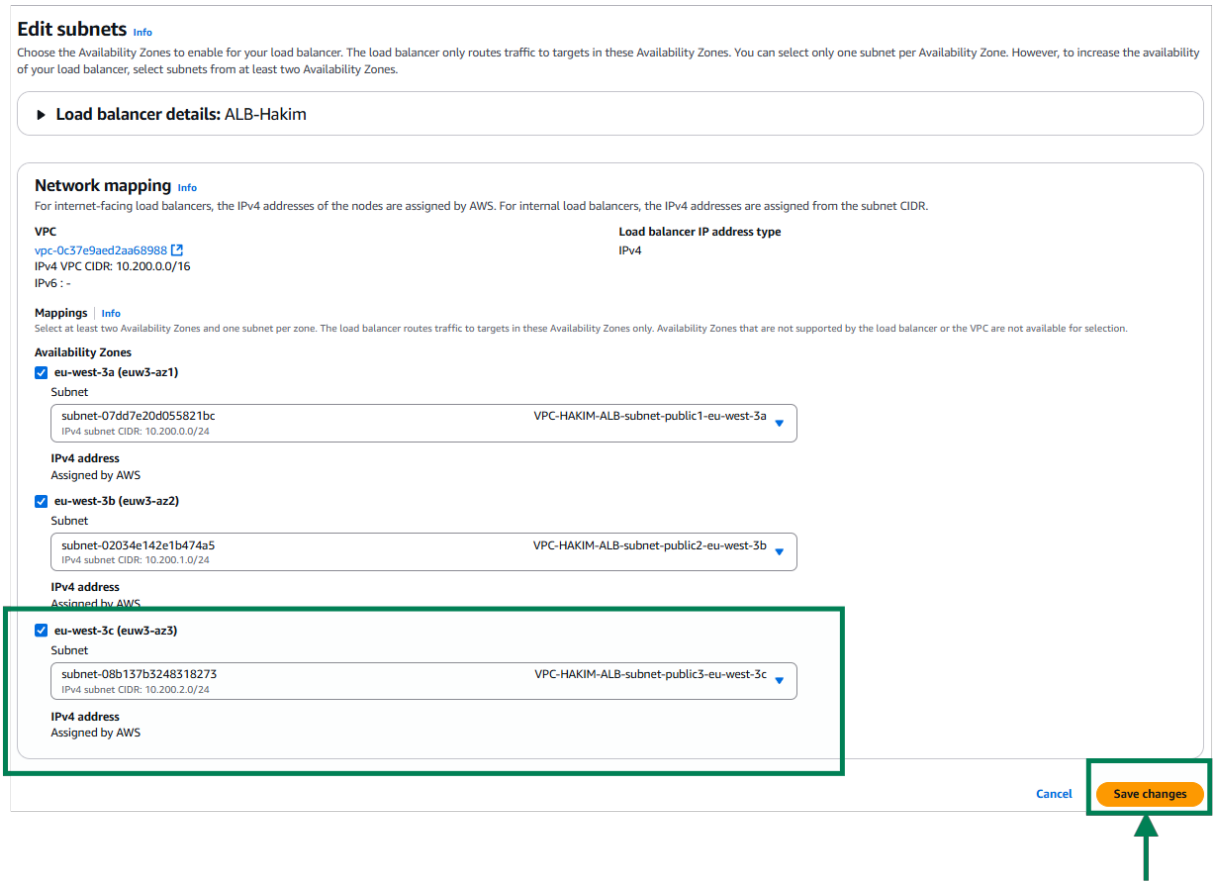

ASG-HAKIM
ASG-HAKIM Capacity overview
Edit
arn:aws:autoscaling:eu-west-3:940482414422:autoScalingGroup:6d7fe575-582b-4065-a1b9-17f45aa2ae63:autoScalingGroupName/ASG-HAKIM
Desired capacity
2
Scaling limits (Min - Max)
2 - 3
Desired capacity type
Units (number of instances)
Status
-
Date created
Sat Dec 07 2024 13:38:23 GMT+0100 (heure normale d'Europe centrale)
Details
Integrations - new
Automatic scaling
Instance management
Instance refresh
Activity
Monitoring
Launch template
Edit
Launch template
lt-0ea0120df1a0fd9ca
WEB-SERVER
AMI ID
ami-03216a20ecc5d72ee
Instance type
t2.micro
Owner
arn:aws:iam::940482414422:user/hakim
Version
Default
Security groups
-
Security group IDs
sg-0c0baa1fd639902f4
Create time
Sat Dec 07 2024 13:31:09 GMT+0100 (heure normale d'Europe centrale)
Description
-
Storage (volumes)
-
Key pair name
-
Request Spot Instances
No
View details in the launch template console
Network
Edit
Availability Zones
eu-west-3a, eu-west-3b
Subnet ID
subnet-07dd7e20d055821bc, subnet-02034e142e1b474a5
Availability Zone distribution
Balanced best effort

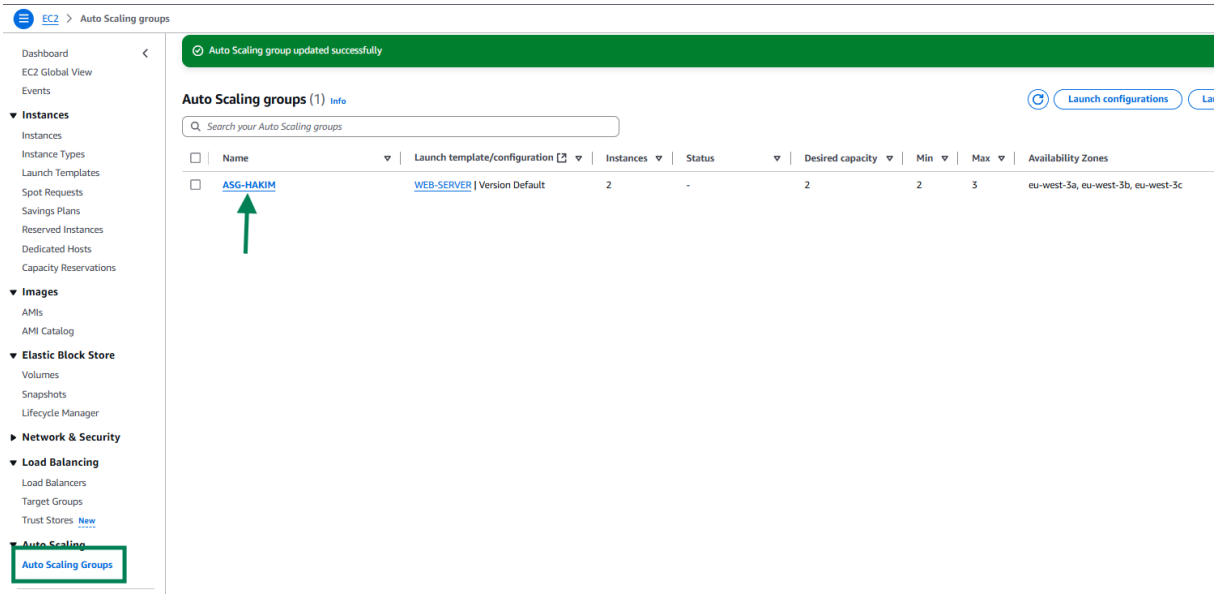

Edit ASG-HAKIM Info
Network
For most applications, you can use multiple Availability Zones and let EC2 Auto Scaling balance your instances across the zones. The default VPC and default subnets are suitable for getting started quickly.
Availability Zones and subnets
Define which Availability Zones and subnets your Auto Scaling group can use in the chosen VPC.
Select Availability Zones and subnets
eu-west-3a | subnet-07dd7e20d055821bc (VPC-HAKIM-ALB-subnet-public1-eu-west-3a)
10.200.0.0/24
eu-west-3b | subnet-02034e142e1b474a5 (VPC-HAKIM-ALB-subnet-public2-eu-west-3b)
10.200.1.0/24
eu-west-3c | subnet-08b137b3248318273 (VPC-HAKIM-ALB-subnet-public3-eu-west-3c)
10.200.2.0/24
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
Update

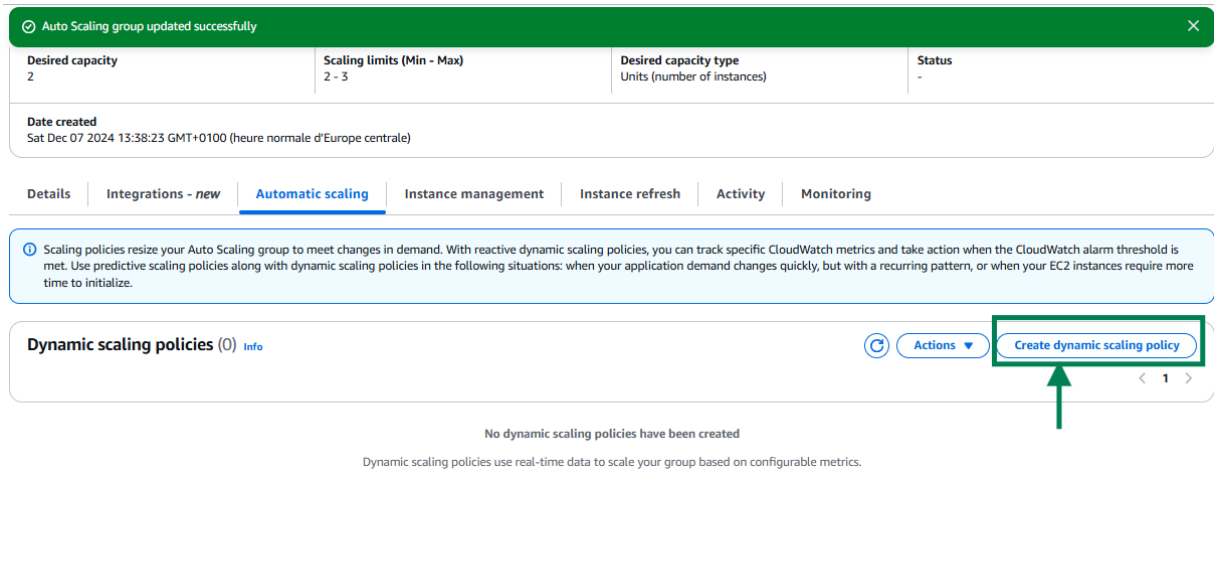
TP8 : ALB & NLB

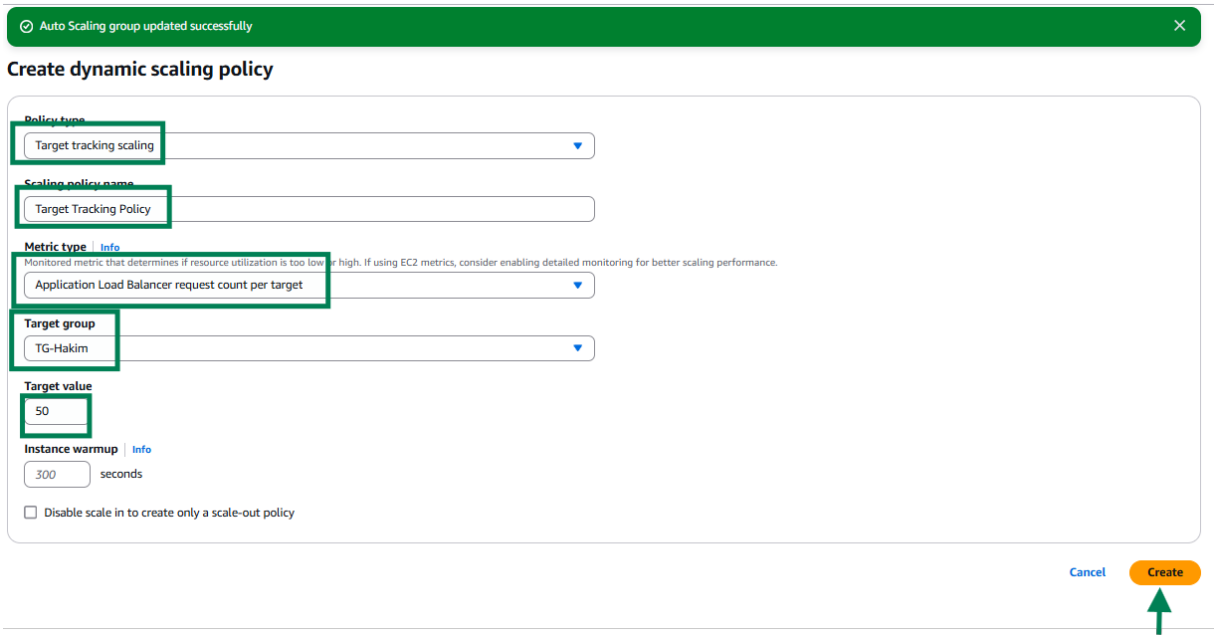

EC2 > Auto Scaling groups > ASG-HAKIM
Dashboard
EC2 Global View
Events
Instances
Instances
Instance Types
Launch Templates
Spot Requests
Savings Plans
Reserved Instances
Dedicated Hosts
Capacity Reservations
Images
AMIs
AMI Catalog
Elastic Block Store
Volumes
Snapshots
Lifecycle Manager
Network & Security
Load Balancing
Load Balancers
ARC zonal shift for Application Load Balancers has changed
Use of Amazon Application Recovery Controller (ARC) zonal shift now requires the Application Load Balancer attribute ARC zonal shift integration to be enabled.
ARC zonal shift now supports cross-zone enabled Application Load Balancers.
Load balancers (1/1)
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
ALB-Hakim
ALB-Hakim-324075068.eu-...
Active
vpc-0c37e9aed2aa68988
2 Availability Zones
application
December 7, 2024, 14:17 (UTC+01:00)
Load balancer: ALB-Hakim
Details
Listeners and rules
Network mapping
Resource map - new
Security
Monitoring
Integrations
Attributes
Capacity - new
Tags
Details
Load balancer type
Status
VPC


ALB-Hakim
Actions
Details
Load balancer type
Application
Status
Active
VPC
vpc-0c37e9aed2aa68988
Load balancer IP address type
IPv4
Scheme
Internet-facing
Hosted zone
Z3Q77PNBQS71R4
Availability Zones
subnet-07dd7e20d055821bc eu-west-3a (euw3-az1)
subnet-02034e142e1b474a5 eu-west-3b (euw3-az2)
Date created
December 7, 2024, 14:17 (UTC+01:00)
Load balancer ARN
arn:aws:elasticloadbalancing:eu-west-3:940482414422:loadbalancer/app/ALB-Hakim/7c23b7bdbdeec1d4
DNS name Info
ALB-Hakim-324075068.eu-west-3.elb.amazonaws.com (A Record)
Listeners and rules
Network mapping
Resource map - new
Security
Monitoring
Integrations
Attributes
Capacity - new
Tags
Network mapping Info
Edit IP address type
Edit subnets
Targets in the listed zones and subnets are available for traffic from the load balancer using the IP addresses shown.
VPC
vpc-0c37e9aed2aa68988
IPv4 VPC CIDR: 10.200.0.0/16
IPv6 : -
Load balancer IP address type
IPv4
Mappings
Including two or more Availability Zones, and corresponding subnets, increases the fault tolerance of your applications.
Zone
Subnet
IPv4 address
Private IPv4 address
IPv6 address
eu-west-3a (euw3-az1)
subnet-07dd7e20d055821bc
Assigned by AWS
Assigned from CIDR 10.200.0.0/24
Not applicable
eu-west-3b (euw3-az2)
subnet-02034e142e1b474a5
Assigned by AWS
Assigned from CIDR 10.200.1.0/24
Not applicable

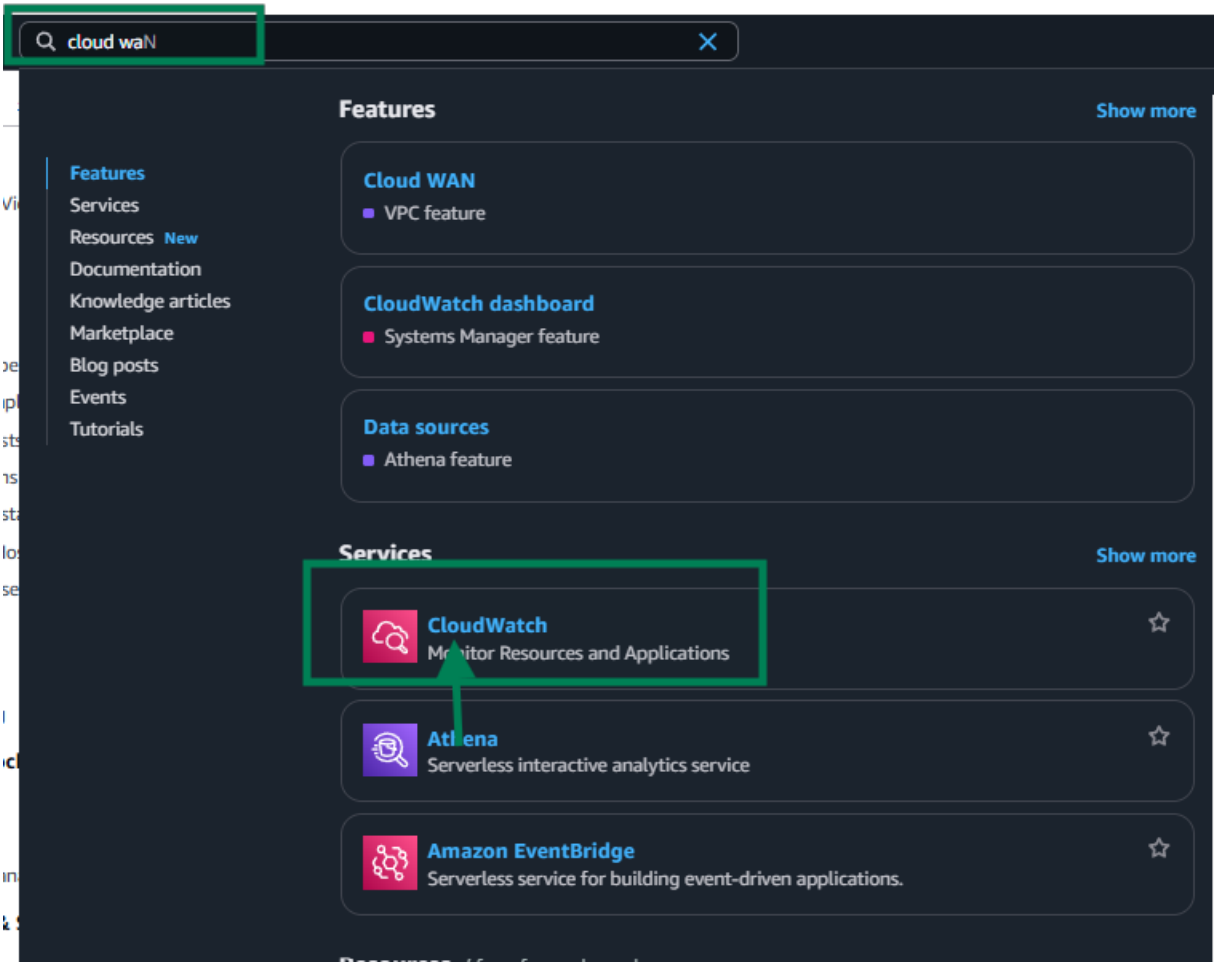

Edit subnets Info
Choose the Availability Zones to enable for your load balancer. The load balancer only routes traffic to targets in these Availability Zones. You can select only one subnet per Availability Zone. However, to increase the availability of your load balancer, select subnets from at least two Availability Zones.
Load balancer details: ALB-Hakim
Network mapping Info
For internet-facing load balancers, the IPv4 addresses of the nodes are assigned by AWS. For internal load balancers, the IPv4 addresses are assigned from the subnet CIDR.
VPC
vpc-0c37e9aed2aa68988
IPv4 VPC CIDR: 10.200.0.0/16
IPv6 : -
Load balancer IP address type
IPv4
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.
Availability Zones
eu-west-3a (euw3-az1)
Subnet
subnet-07dd7e20d055821bc
IPv4 subnet CIDR: 10.200.0.0/24
VPC-HAKIM-ALB-subnet-public1-eu-west-3a
IPv4 address
Assigned by AWS
eu-west-3b (euw3-az2)
Subnet
subnet-02034e142e1b474a5
IPv4 subnet CIDR: 10.200.1.0/24
VPC-HAKIM-ALB-subnet-public2-eu-west-3b
IPv4 address
Assigned by AWS
eu-west-3c (euw3-az3)
Subnet
subnet-08b137b3248318273
IPv4 subnet CIDR: 10.200.2.0/24
VPC-HAKIM-ALB-subnet-public3-eu-west-3c
IPv4 address
Assigned by AWS
Cancel
Save changes

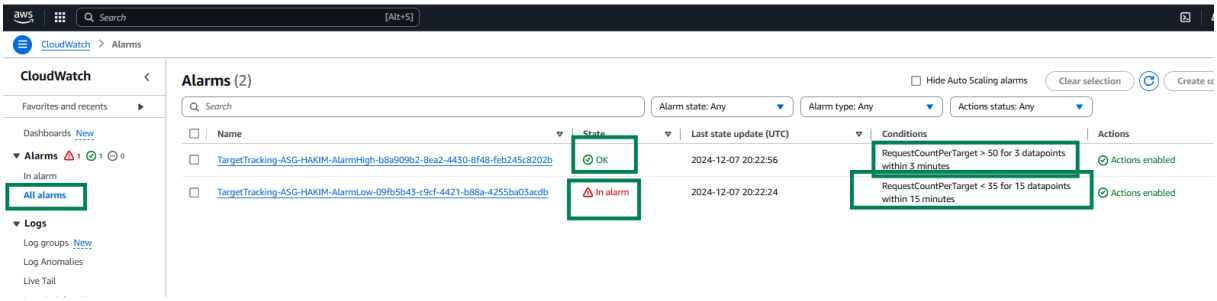

EC2 > Auto Scaling groups
Dashboard
EC2 Global View
Events
Instances
Instances
Instance Types
Launch Templates
Spot Requests
Savings Plans
Reserved Instances
Dedicated Hosts
Capacity Reservations
Images
AMIs
AMI Catalog
Elastic Block Store
Volumes
Snapshots
Lifecycle Manager
Network & Security
Load Balancing
Load Balancers
Target Groups
Trust Stores New
Auto Scaling
Auto Scaling Groups
Auto Scaling group updated successfully
Auto Scaling groups (1) Info
Launch configurations
Search your Auto Scaling groups
Name
Launch template/configuration
Instances
Status
Desired capacity
Min
Max
Availability Zones
ASG-HAKIM
WEB-SERVER | Version Default
2
-
2
2
3
eu-west-3a, eu-west-3b, eu-west-3c

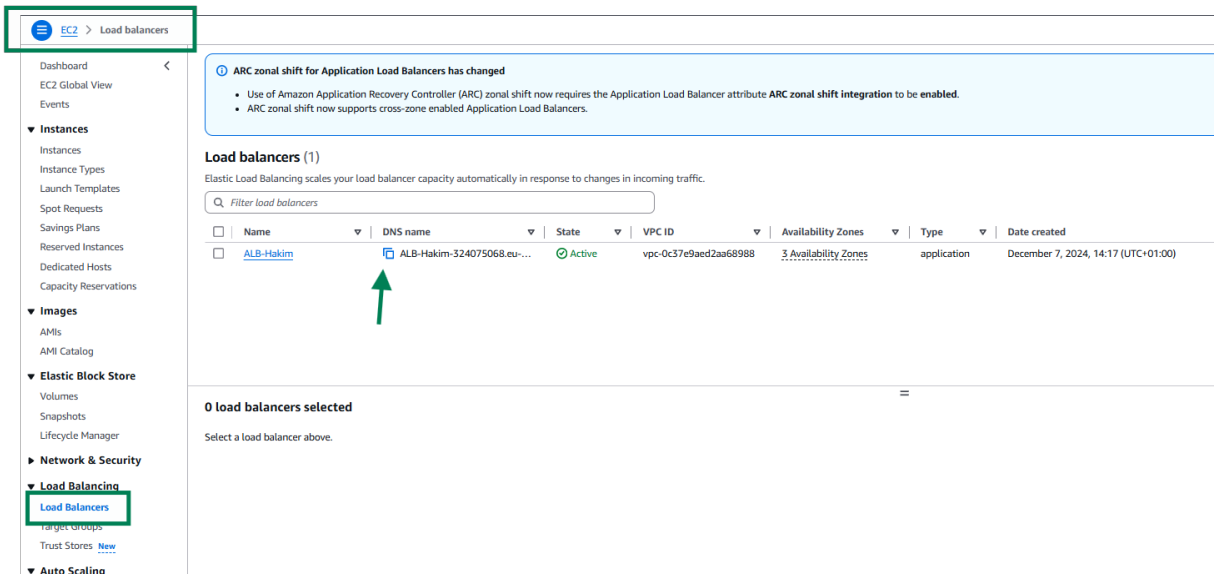

Auto Scaling group updated successfully
Desired capacity
2
Scaling limits (Min - Max)
2 - 3
Desired capacity type
Units (number of instances)
Status
-
Date created
Sat Dec 07 2024 13:38:23 GMT+0100 (heure normale d'Europe centrale)
Details
Integrations - new
Automatic scaling
Instance management
Instance 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 (0) Info
Actions
Create dynamic scaling policy
No dynamic scaling policies have been created
Dynamic scaling policies use real-time data to scale your group based on configurable metrics.


Auto Scaling group updated successfully
Create dynamic scaling policy
Policy type
Target tracking scaling
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.
Application Load Balancer request count per target
Target group
TG-Hakim
Target value
50
Instance warmup Info
300
seconds
Disable scale in to create only a scale-out policy
Cancel
Create

Pour des raisons de test, vous allez limiter le nombre de connexions par serveur à 50 connexions simultanées.



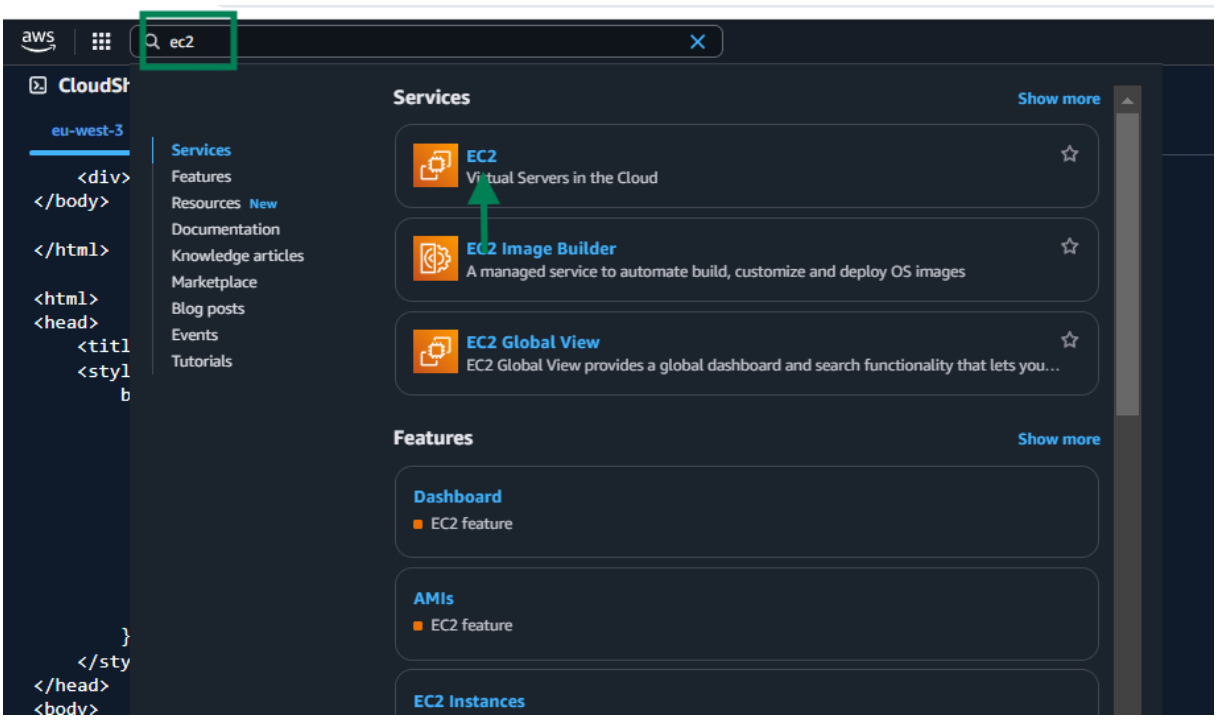


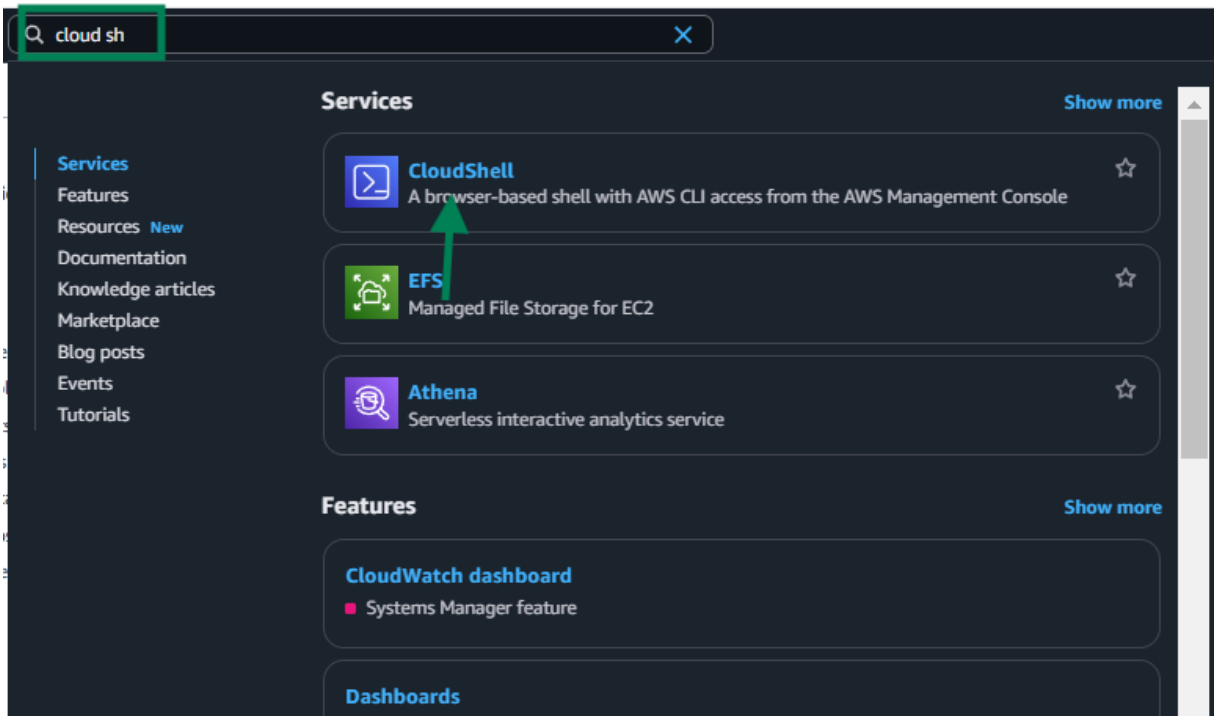


Remplacez par le nom **DNS** de votre **ALB** (écrite en bas en gras):

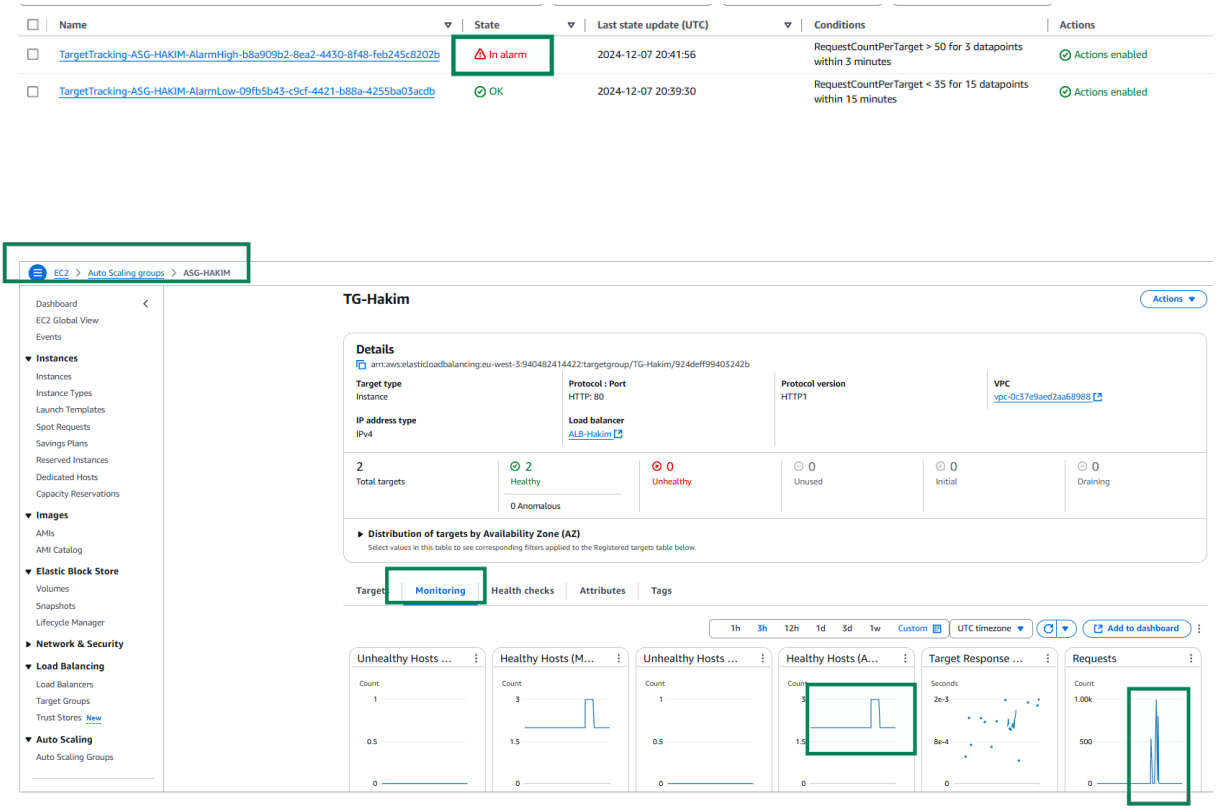
```for i in {1..200}; do curl http://**your-alb-address.com** & done; wait```

for i in {1..200}; do curl http://**ALB-Hakim-1539048181.eu-west-3.elb.amazonaws.com** & done; wait
```

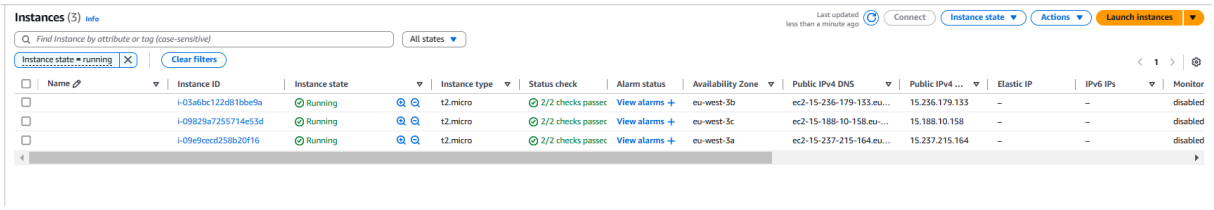




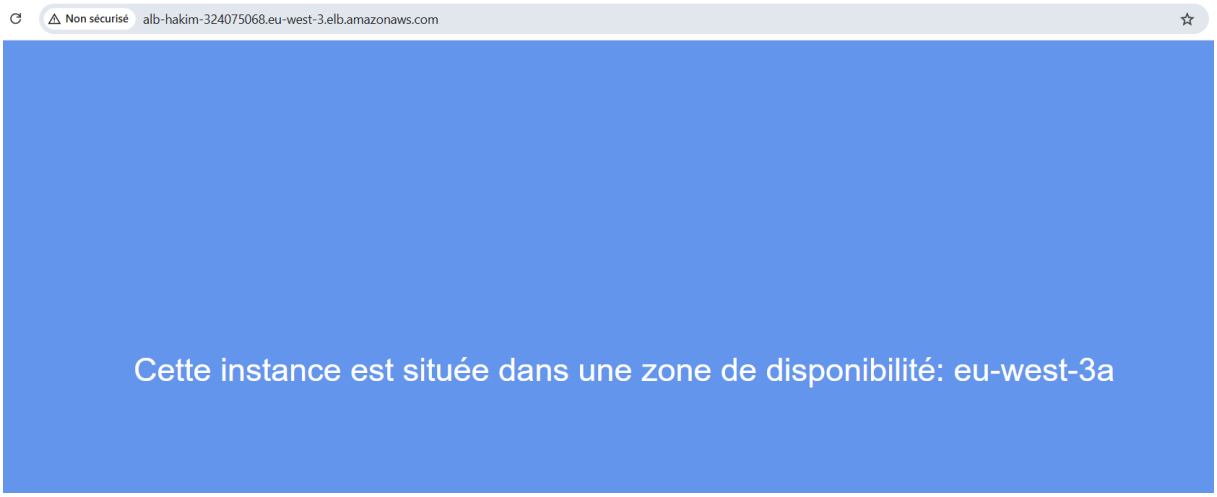
Exécutez cette commande plusieurs fois.



Après un certain temps, une troisième instance sera lancée et, après quelques instants, elle recevra le trafic.

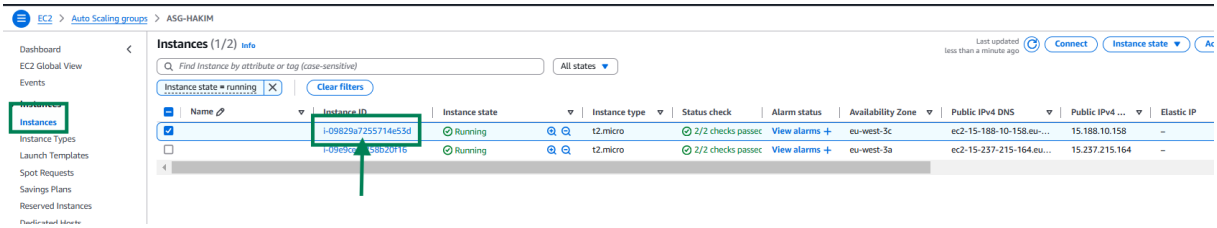


Vérifiez en rafraîchissant les pages que le trafic est bien réparti entre les 3 instances, qui se trouvent dans 3 zones de disponibilité différentes.

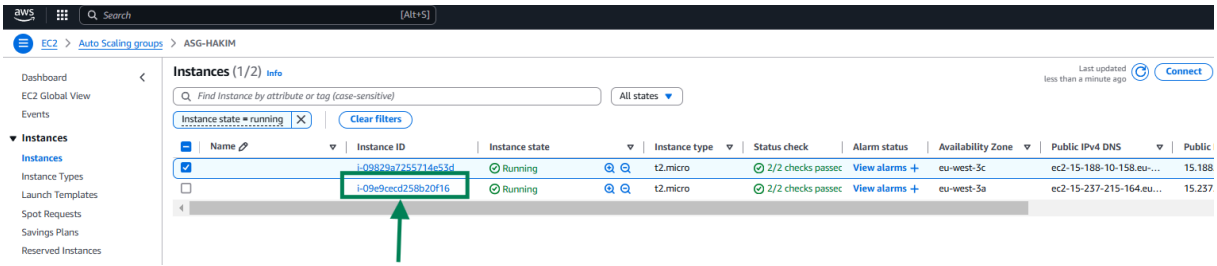


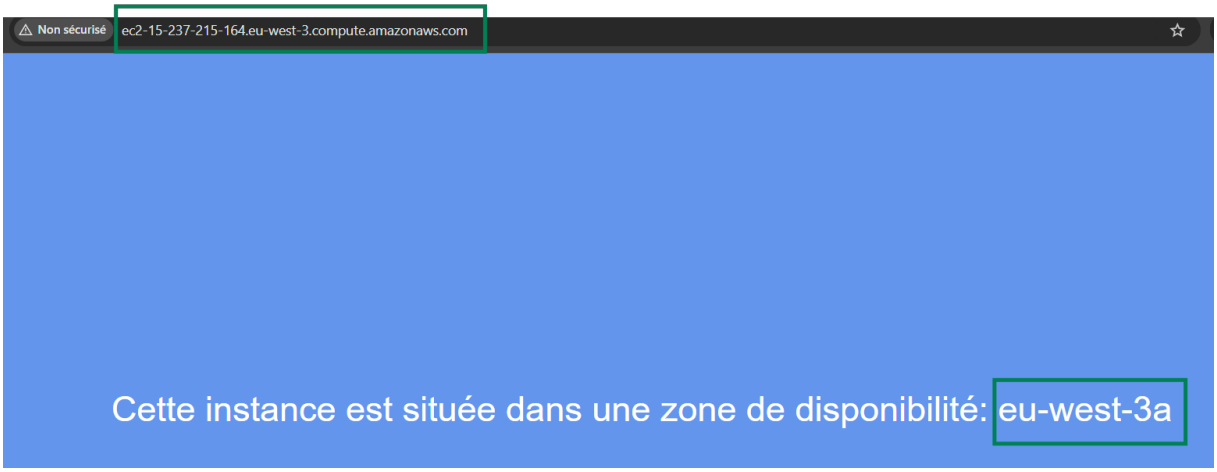
Après quelques temps, la troisième instance sera terminée, car il n'y a plus de charge, et le trafic sera réparti entre les deux instances restantes.

Actuellement, vous allez vérifier si vous pouvez accéder à l'instance directement sans passer par l'ALB.



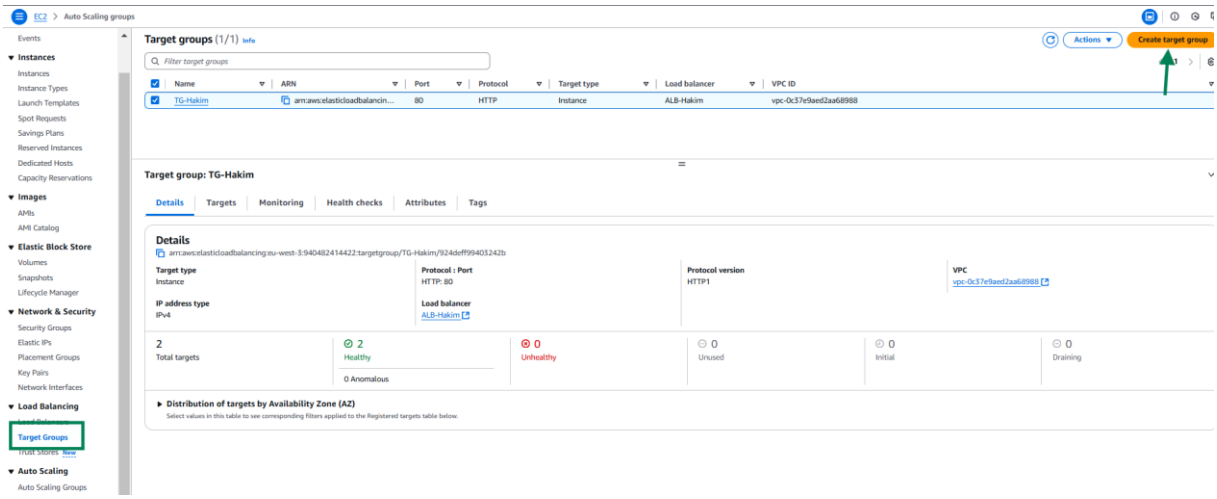
Vous allez faire le même test avec l'instance 2.

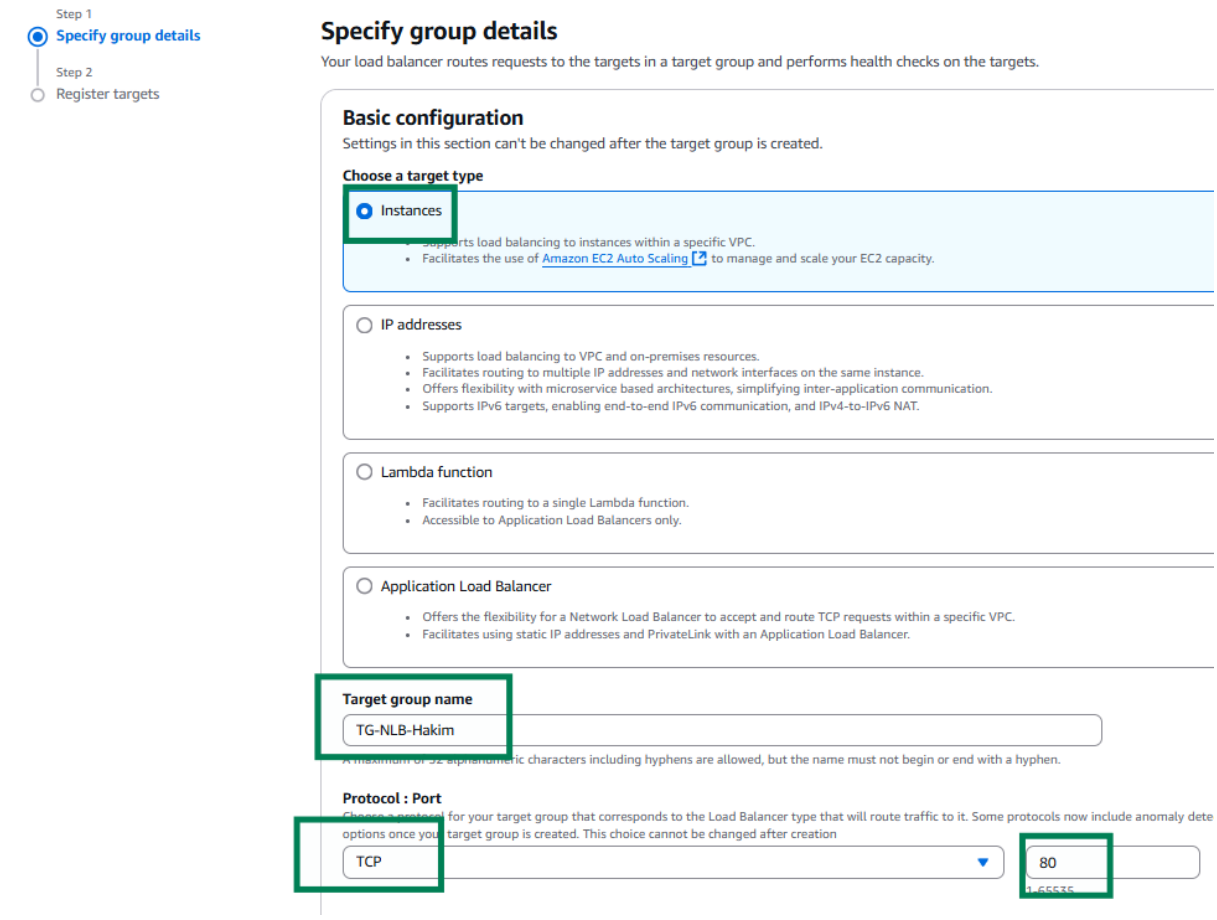


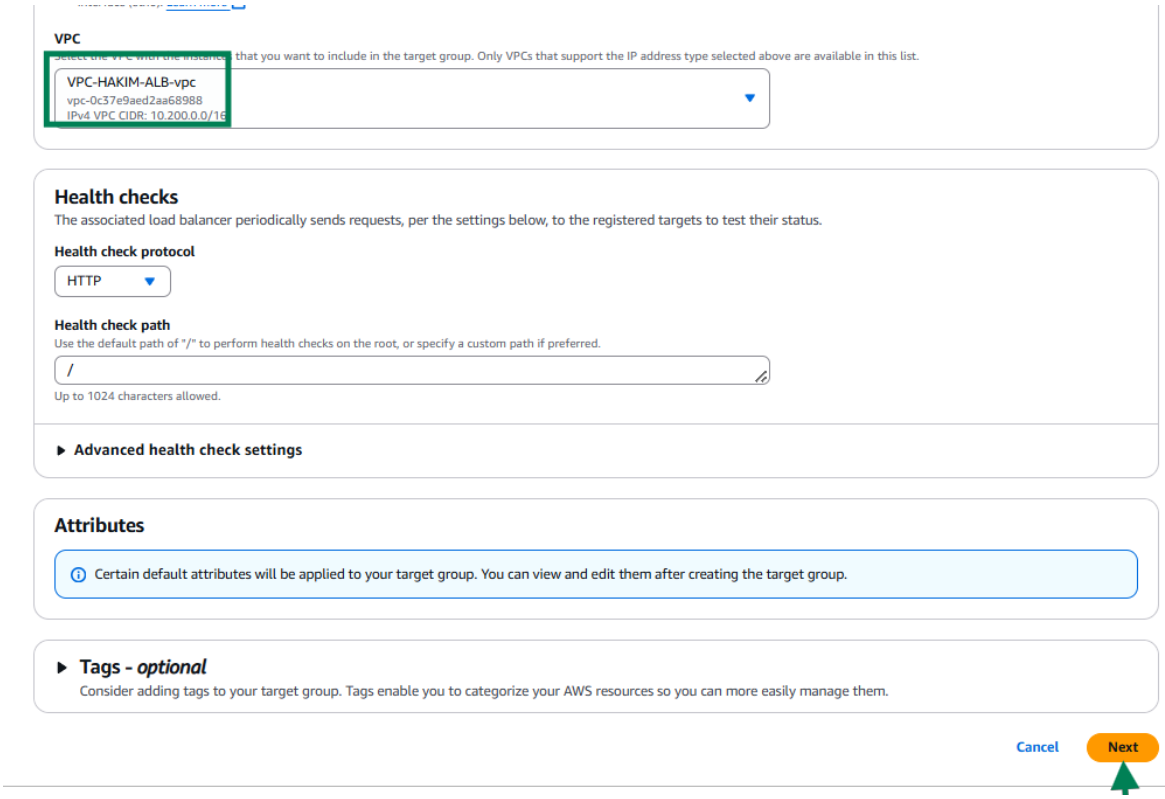


Tout ce qui a été fait peut également être réalisé avec le « **Network Load Balancer »** (**NLB**).

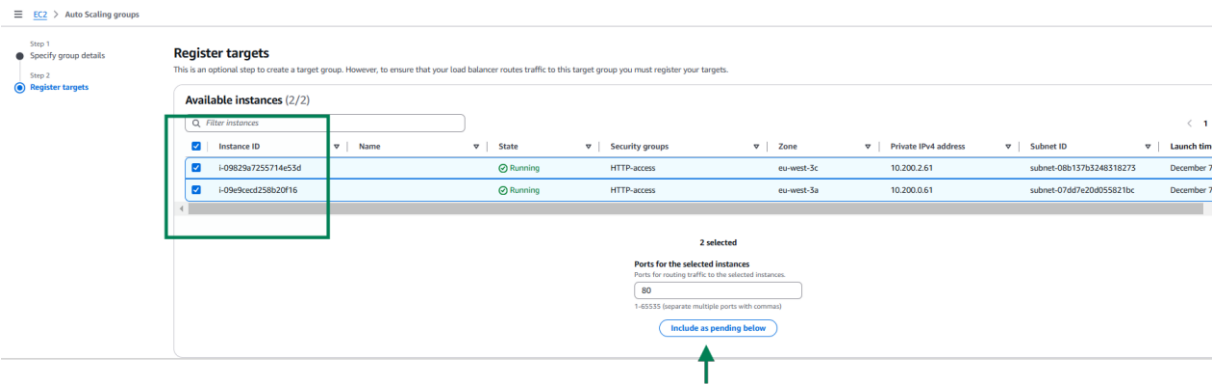
Vous allez commencer par la création d'un Target Group nommé « **TG-NLB-VotreNom »**.

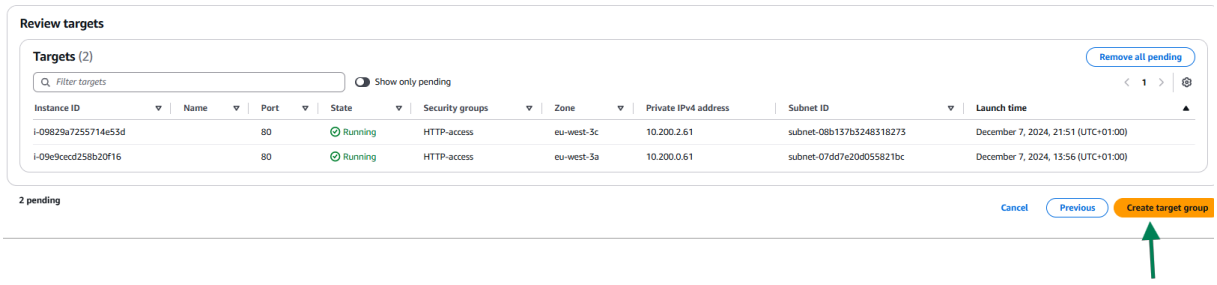

EC2 > Auto Scaling groups
Target groups (1/1) Info
Actions
Create target group
Filter target groups
Name
ARN
Port
Protocol
Target type
Load balancer
VPC ID
TG-Hakim
arn:aws:elasticloadbalancin...
80
HTTP
Instance
ALB-Hakim
vpc-0c37e9aed2aa68988
Target group: TG-Hakim
Details
Targets
Monitoring
Health checks
Attributes
Tags
Details
arn:aws:elasticloadbalancing:eu-west-3:940482414422:targetgroup/TG-Hakim/924deff99403242b
Target type
Instance
Protocol : Port
HTTP: 80
Protocol version
HTTP1
VPC
vpc-0c37e9aed2aa68988
IP address type
IPv4
Load balancer
ALB-Hakim
2
Total targets
2
Healthy
0 Anomalous
0
Unhealthy
0
Unused
0
Initial
0
Draining
Distribution of targets by Availability Zone (AZ)
Target Groups
Auto Scaling
Auto Scaling Groups

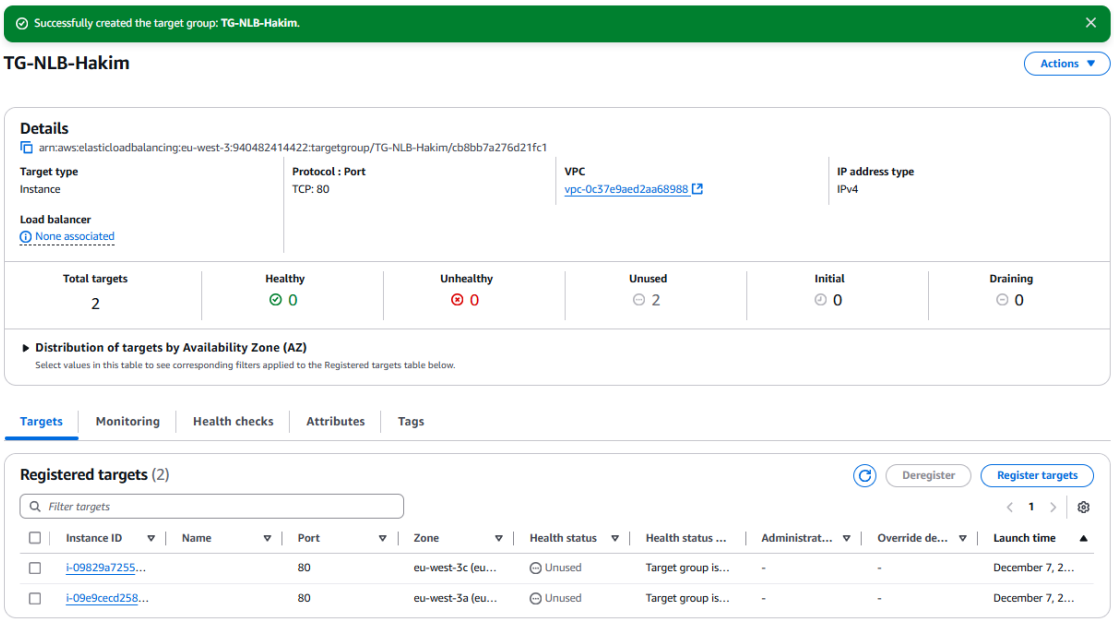

Step 1
Specify group details
Step 2
Register targets
Specify group details
Your load balancer routes requests to the targets in a target group and performs health checks on the targets.
Basic configuration
Settings in this section can't be changed after the target group is created.
Choose a target type
Instances
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
TG-NLB-Hakim
Protocol : Port
TCP
80



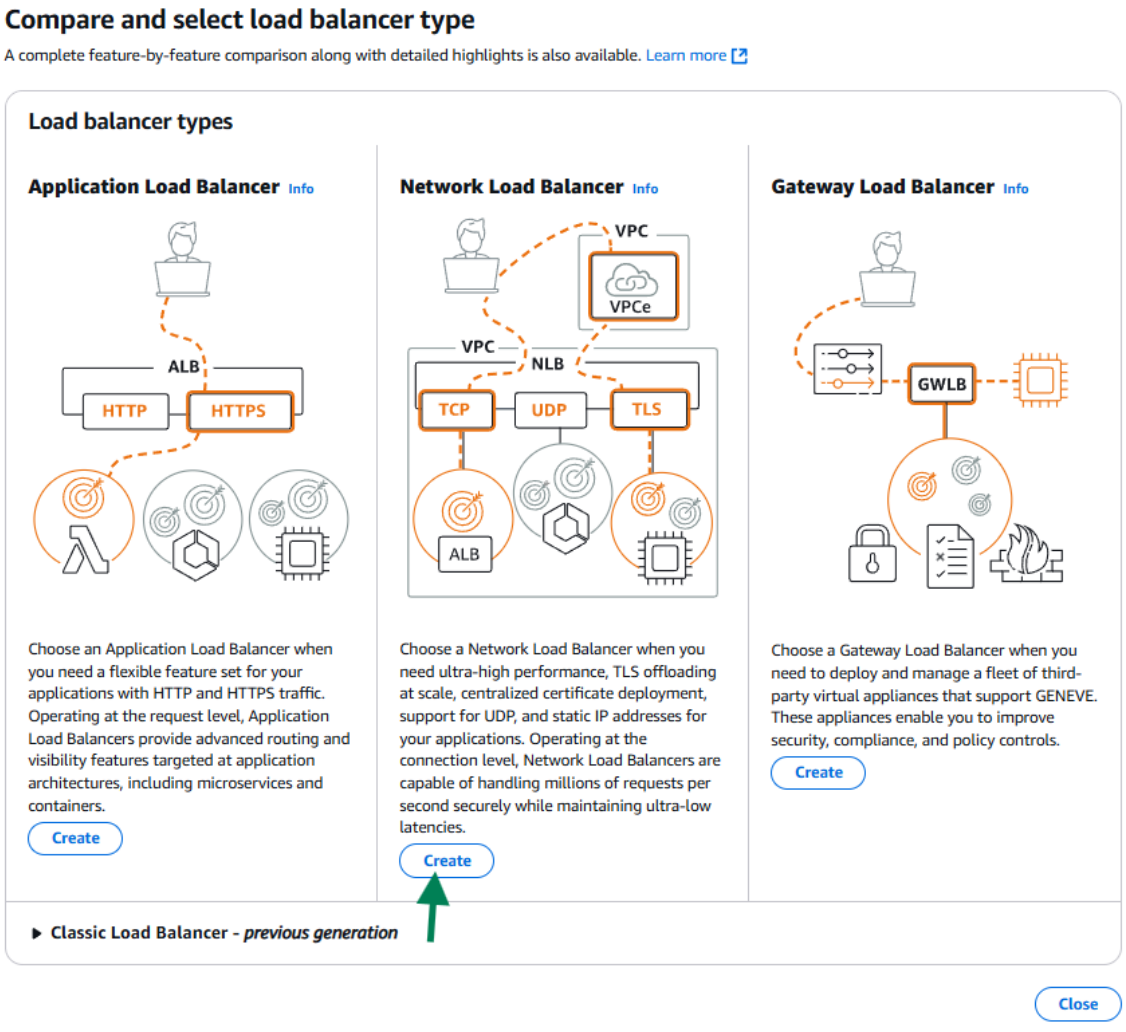
Vous allez inscrire les deux instances en état « ***Running*** » à ce Target Group.

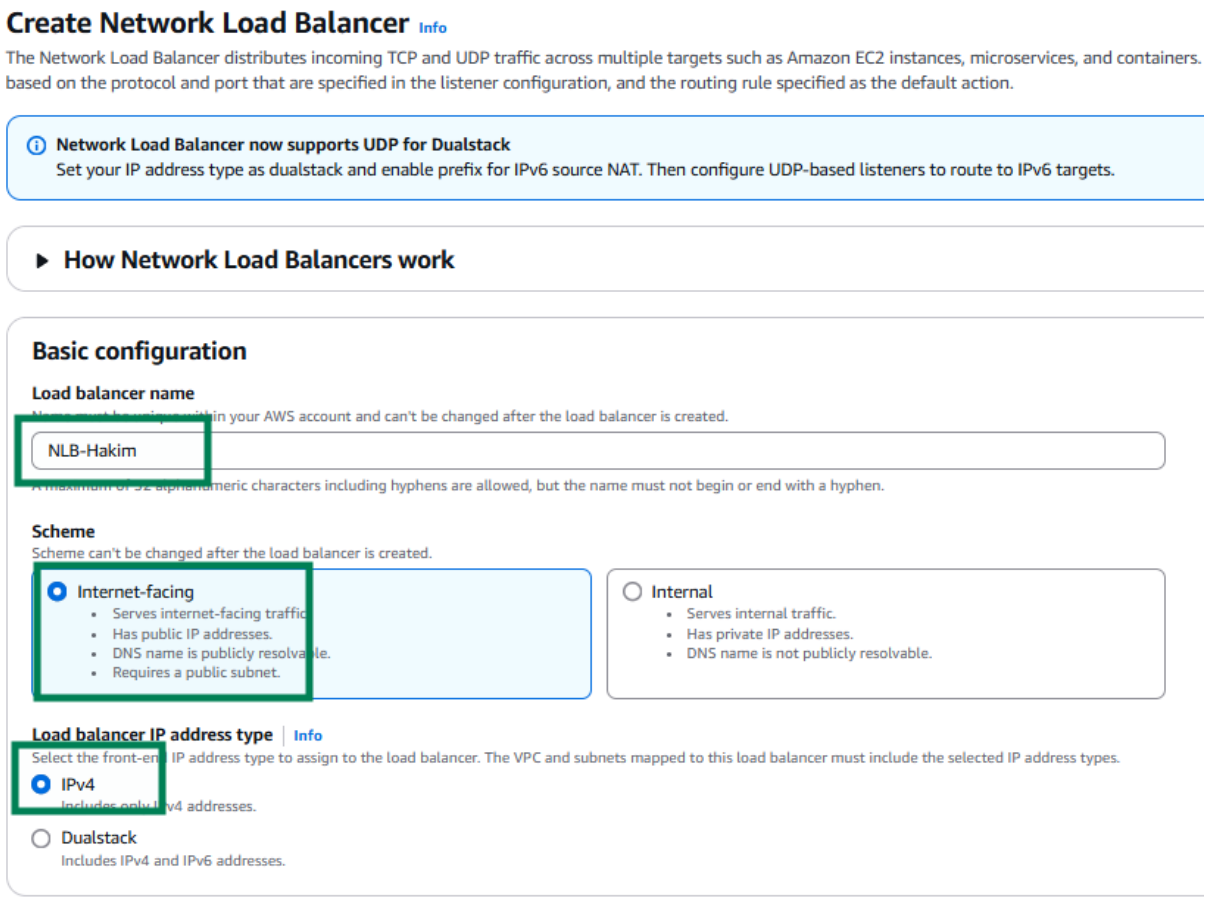


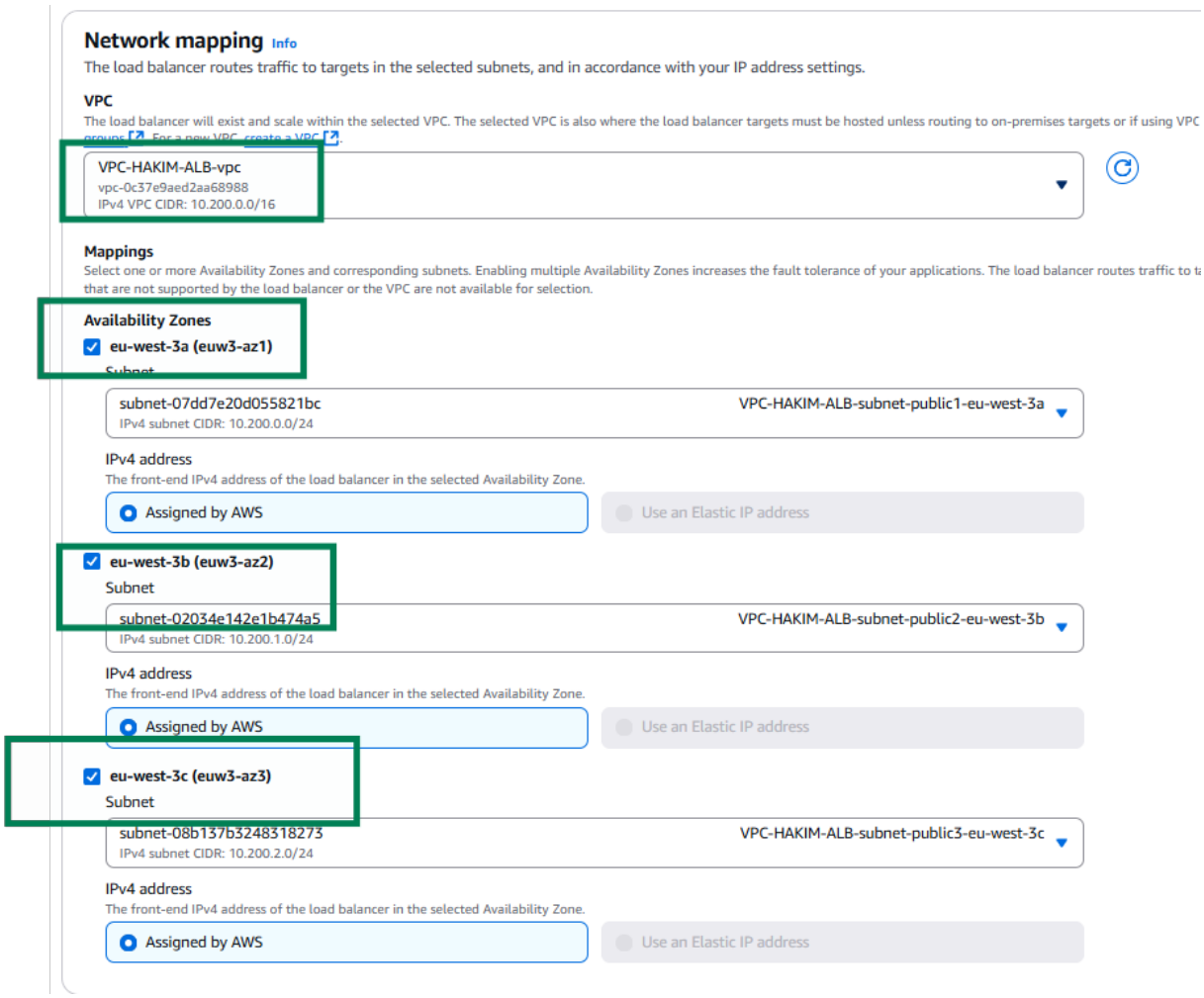


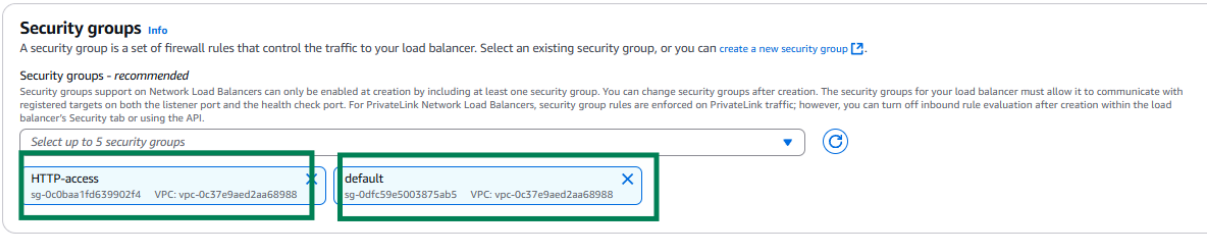


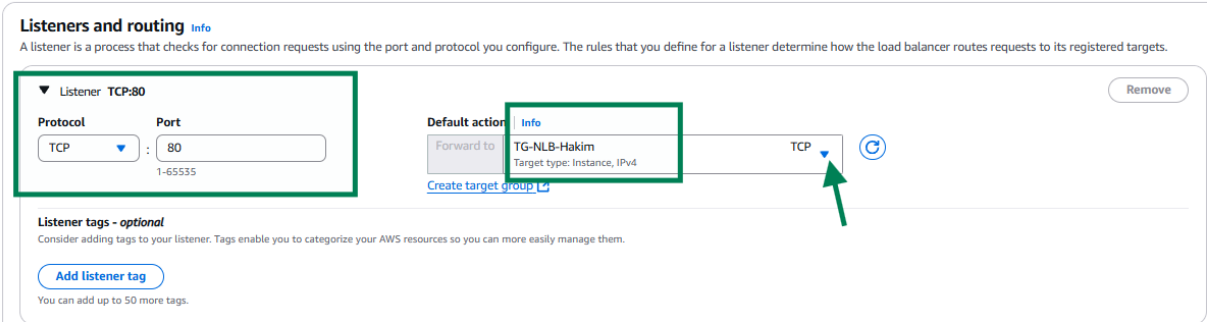
Vous allez créer le « **Network Load Balancer** » et le nommer « **NLB-VotreNom** ».

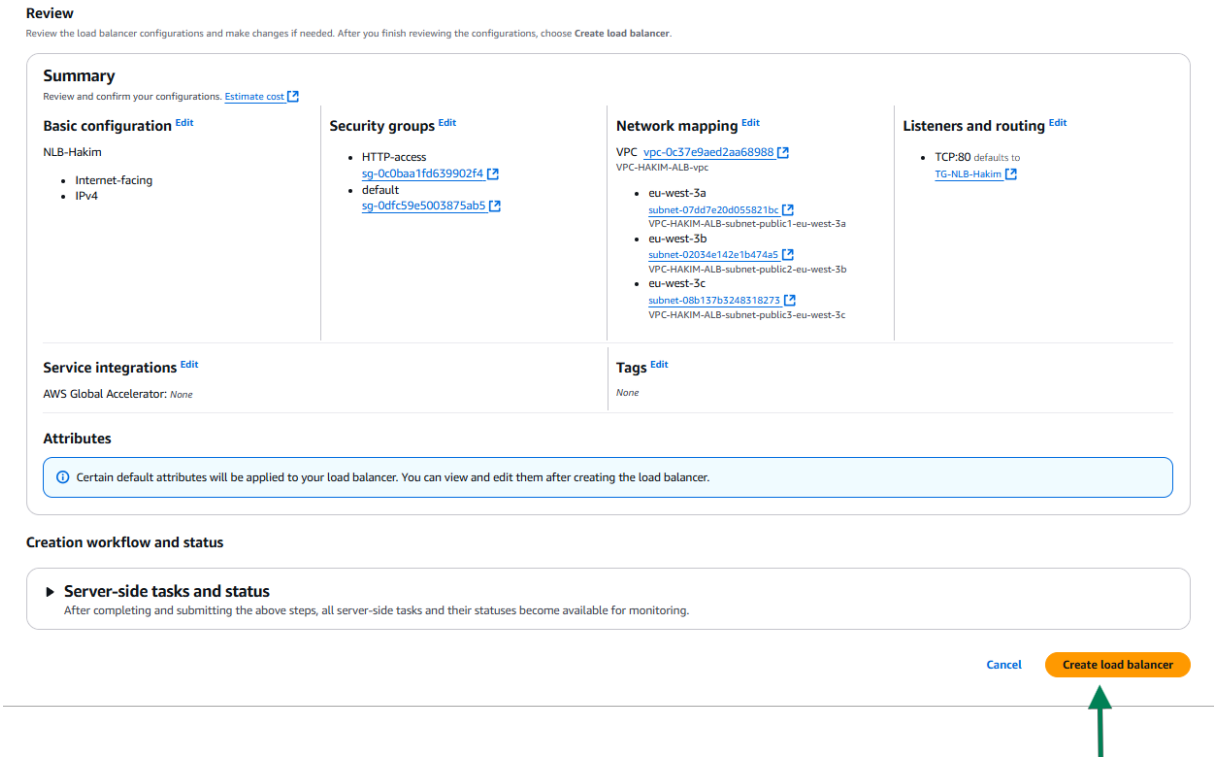


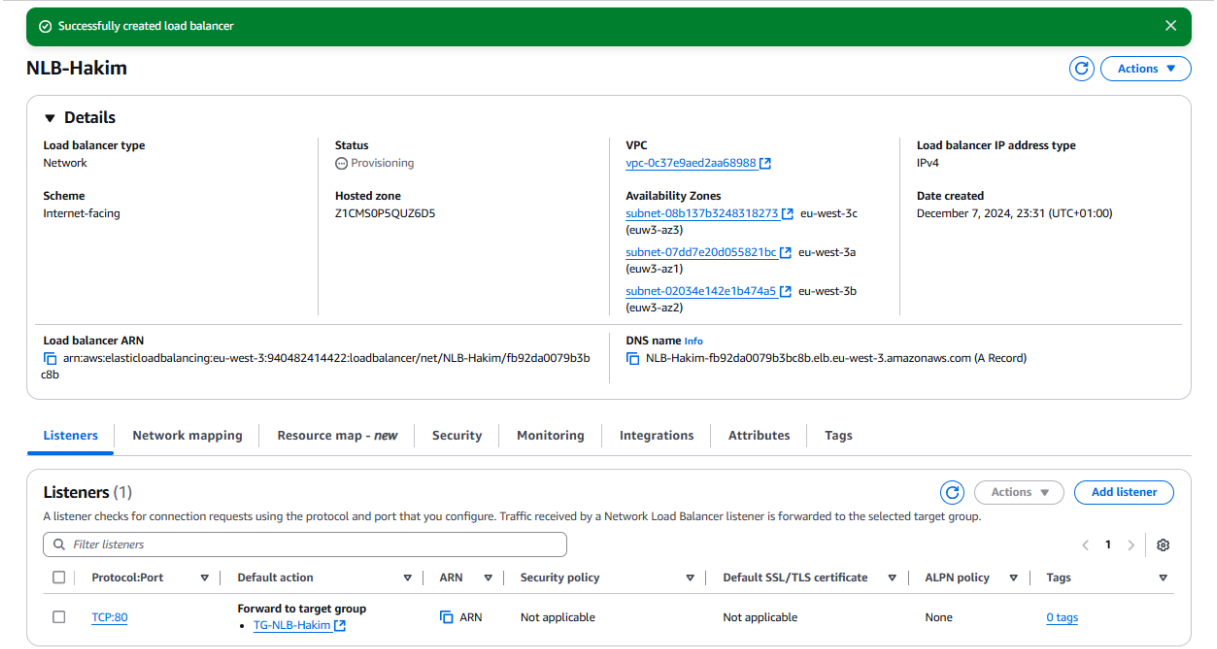

Create Network Load Balancer Info
The Network Load Balancer distributes incoming TCP and UDP traffic across multiple targets such as Amazon EC2 instances, microservices, and containers. based on the protocol and port that are specified in the listener configuration, and the routing rule specified as the default action.
Network Load Balancer now supports UDP for Dualstack
Set your IP address type as dualstack and enable prefix for IPv6 source NAT. Then configure UDP-based listeners to route to IPv6 targets.
How Network Load Balancers work
Basic configuration
Load balancer name
in your AWS account and can't be changed after the load balancer is created.
NLB-Hakim
meric characters including hyphens are allowed, but the name must not begin or end with a hyphen.
Scheme
Scheme can't be changed after the load balancer is created.
Internet-facing
Serves internet-facing traffic
Has public IP addresses.
DNS name is publicly resolvable.
Requires a public subnet.
Internal
Serves internal traffic.
Has private IP addresses.
DNS name is not publicly resolvable.
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.
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
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 on-premises targets or if using VPC
VPC-HAKIM-ALB-vpc
vpc-0c37e9aed2aa68988
IPv4 VPC CIDR: 10.200.0.0/16
Mappings
Select one or more Availability Zones and corresponding subnets. Enabling multiple Availability Zones increases the fault tolerance of your applications. The load balancer routes traffic to t
that are not supported by the load balancer or the VPC are not available for selection.
Availability Zones
eu-west-3a (euw3-az1)
Subnet
subnet-07dd7e20d055821bc
IPv4 subnet CIDR: 10.200.0.0/24
VPC-HAKIM-ALB-subnet-public1-eu-west-3a
IPv4 address
The front-end IPv4 address of the load balancer in the selected Availability Zone.
Assigned by AWS
Use an Elastic IP address
eu-west-3b (euw3-az2)
Subnet
subnet-02034e142e1b474a5
IPv4 subnet CIDR: 10.200.1.0/24
VPC-HAKIM-ALB-subnet-public2-eu-west-3b
IPv4 address
The front-end IPv4 address of the load balancer in the selected Availability Zone.
Assigned by AWS
Use an Elastic IP address
eu-west-3c (euw3-az3)
Subnet
subnet-08b137b3248318273
IPv4 subnet CIDR: 10.200.2.0/24
VPC-HAKIM-ALB-subnet-public3-eu-west-3c
IPv4 address
The front-end IPv4 address of the load balancer in the selected Availability Zone.
Assigned by AWS
Use an Elastic IP address

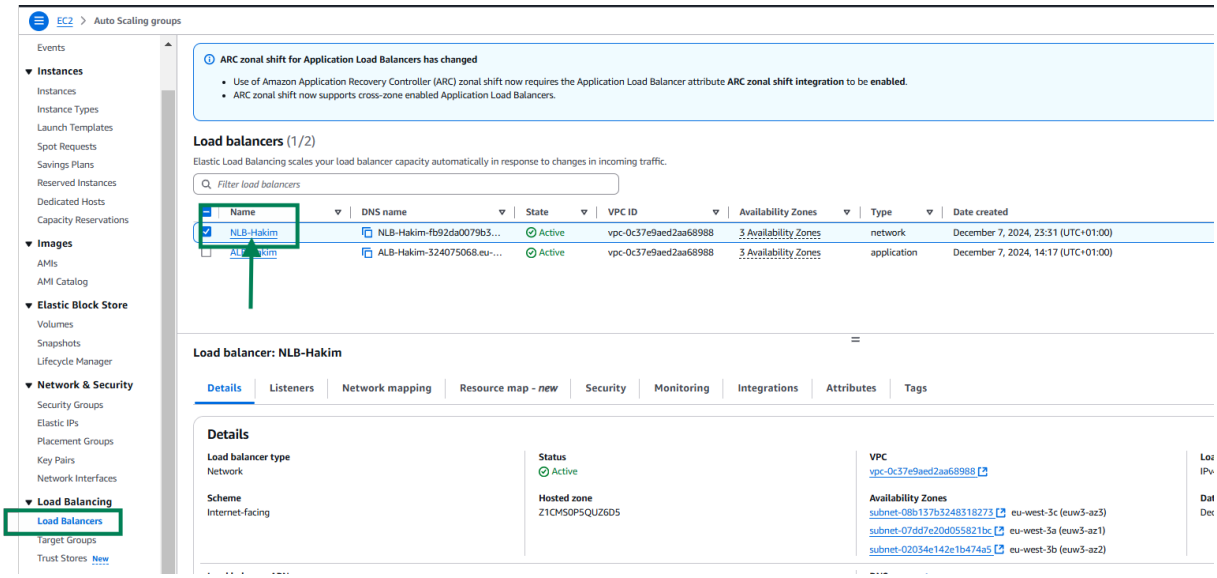

Security groups Info
A security group is a set of firewall rules that control the traffic to your load balancer. Select an existing security group, or you can create a new security group.
Security groups - recommended
Security groups support on Network Load Balancers can only be enabled at creation by including at least one security group. You can change security groups after creation. The security groups for your load balancer must allow it to communicate with registered targets on both the listener port and the health check port. For PrivateLink Network Load Balancers, security group rules are enforced on PrivateLink traffic; however, you can turn off inbound rule evaluation after creation within the load balancer's Security tab or using the API.
Select up to 5 security groups
HTTP-access
sg-0c0baa1fd639902f4 VPC: vpc-0c37e9aed2aa68988
default
sg-0dfc59e5003875ab5 VPC: vpc-0c37e9aed2aa68988

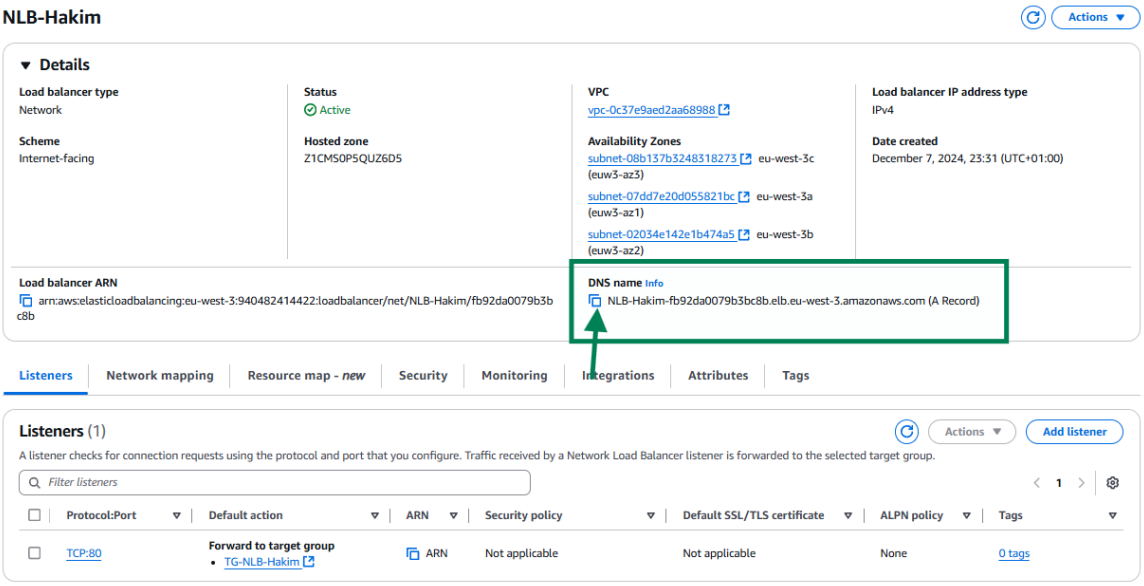

Listeners and routing Info
A listener is a process that checks for connection requests using the port and protocol you configure. The rules that you define for a listener determine how the load balancer routes requests to its registered targets.
Listener TCP:80
Remove
Protocol
TCP
Port
80
1-65535
Default action Info
Forward to
TG-NLB-Hakim
Target type: Instance, IPv4
TCP
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.





Une fois le **NLB** créé, récupérez son nom de domaine **DNS** et vérifiez son bon fonctionnement.


EC2 > Auto Scaling groups
Events
Instances
Instances
Instance Types
Launch Templates
Spot Requests
Savings Plans
Reserved Instances
Dedicated Hosts
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 New
ARC zonal shift for Application Load Balancers has changed
Use of Amazon Application Recovery Controller (ARC) zonal shift now requires the Application Load Balancer attribute ARC zonal shift integration to be enabled.
ARC zonal shift now supports cross-zone enabled Application Load Balancers.
Load balancers (1/2)
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
NLB-Hakim
NLB-Hakim-fb92da0079b3...
Active
vpc-0c37e9aed2aa68988
3 Availability Zones
network
December 7, 2024, 23:31 (UTC+01:00)
ALB-Hakim-324075068.eu-...
Active
vpc-0c37e9aed2aa68988
3 Availability Zones
application
December 7, 2024, 14:17 (UTC+01:00)
Load balancer: NLB-Hakim
Details
Listeners
Network mapping
Resource map - new
Security
Monitoring
Integrations
Attributes
Tags
Details
Load balancer type
Network
Status
Active
VPC
vpc-0c37e9aed2aa68988
Scheme
Internet-facing
Hosted zone
Z1CMS0P5QUZ6D5
Availability Zones
subnet-08b137b3248318273 eu-west-3c (euw3-az3)
subnet-07dd7e20d055821bc eu-west-3a (euw3-az1)
subnet-02034e142e1b474a5 eu-west-3b (euw3-az2)

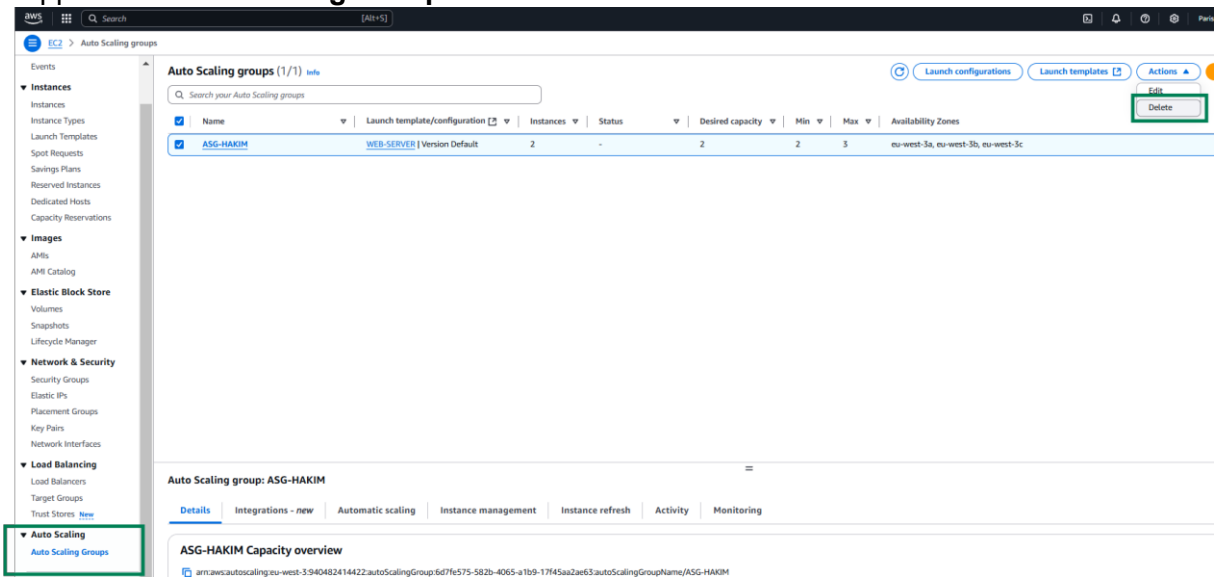

NLB-Hakim
Actions
Details
Load balancer type
Network
Status
Active
VPC
vpc-0c37e9aed2aa68988
Load balancer IP address type
IPv4
Scheme
Internet-facing
Hosted zone
Z1CMS0P5QUZ6D5
Availability Zones
subnet-08b137b3248318273 eu-west-3c (euw3-az3)
subnet-07dd7e20d055821bc eu-west-3a (euw3-az1)
subnet-02034e142e1b474a5 eu-west-3b (euw3-az2)
Date created
December 7, 2024, 23:31 (UTC+01:00)
Load balancer ARN
arn:aws:elasticloadbalancing:eu-west-3:940482414422:loadbalancer/net/NLB-Hakim/fb92da0079b3bc8b
DNS name Info
NLB-Hakim-fb92da0079b3bc8b.elb.eu-west-3.amazonaws.com (A Record)
Listeners
Network mapping
Resource map - new
Security
Monitoring
Integrations
Attributes
Tags
Listeners (1)
Actions
Add listener
A listener checks for connection requests using the protocol and port that you configure. Traffic received by a Network Load Balancer listener is forwarded to the selected target group.
Filter listeners
Protocol:Port
Default action
ARN
Security policy
Default SSL/TLS certificate
ALPN policy
Tags
TCP:80
Forward to target group
TG-NLB-Hakim
ARN
Not applicable
Not applicable
None
0 tags

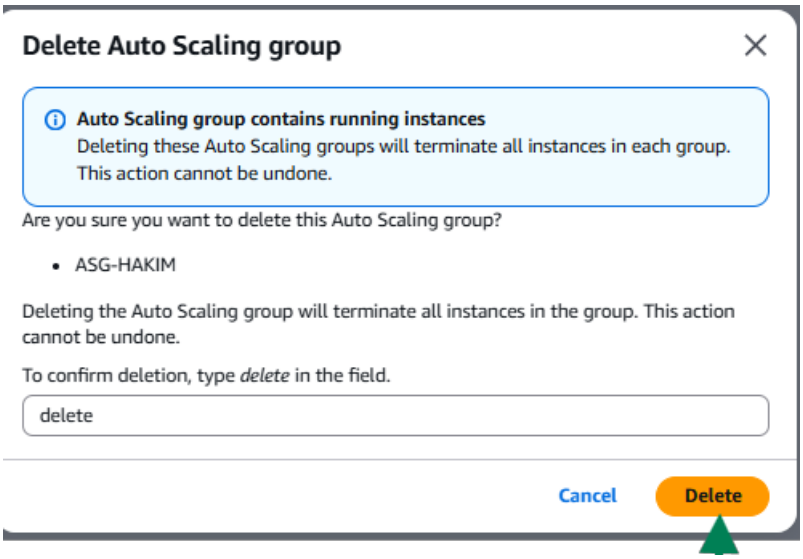
Vous allez ouvrir une autre fenêtre de navigation privée et refaire le même test.

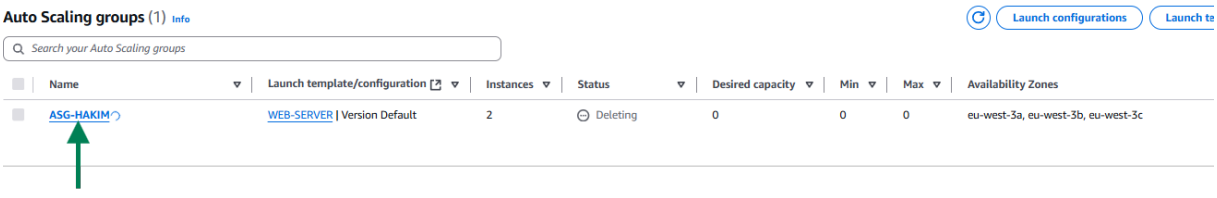
Vous allez refaire la même action jusqu'à ce que vous vous connectiez à la deuxième instance dans la deuxième zone de disponibilité.

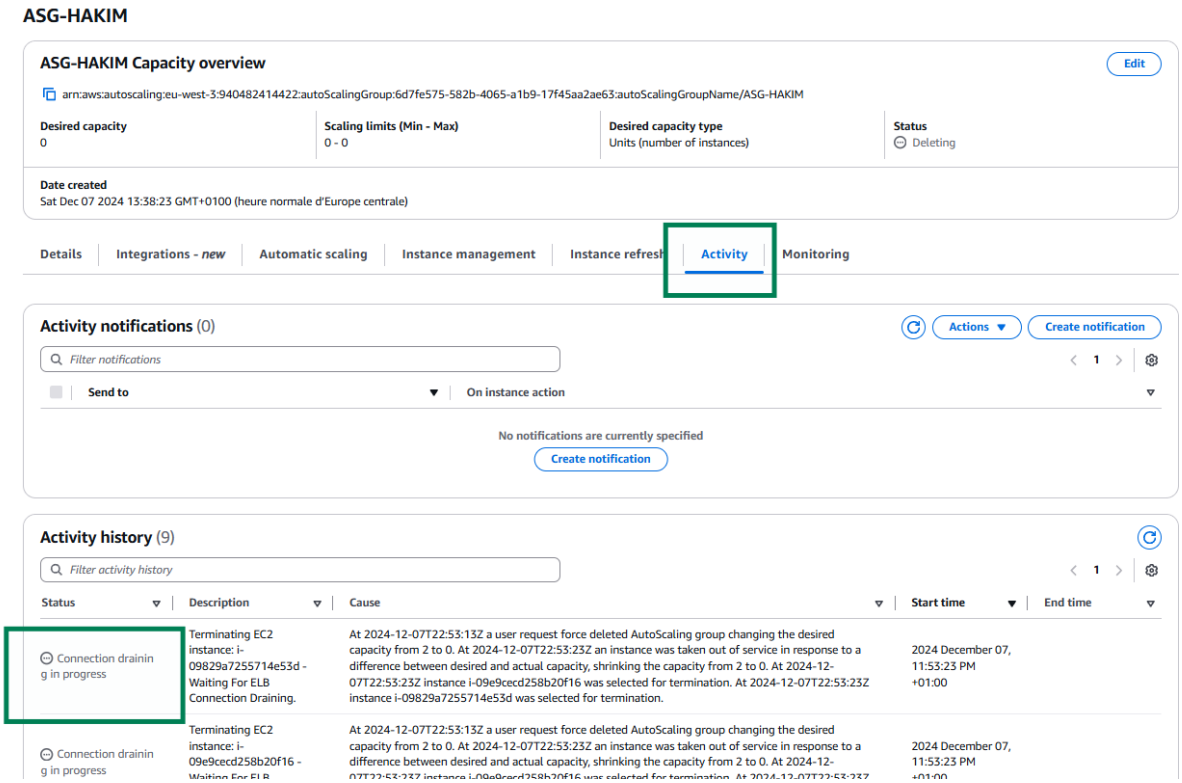
À la fin du TP, vous allez supprimer les ressources créées.

Supprimez **l'Auto Scaling Group**.

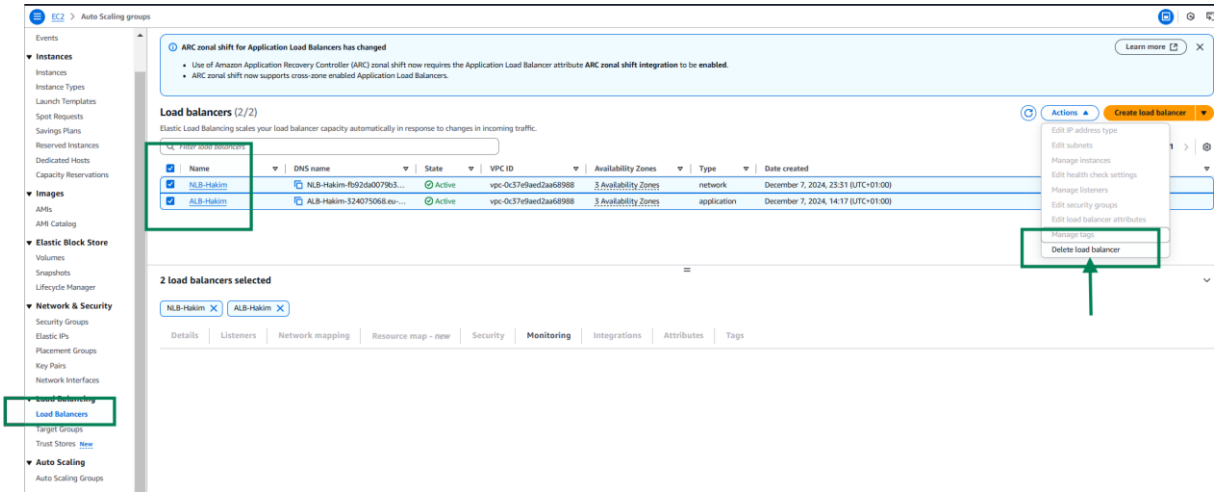


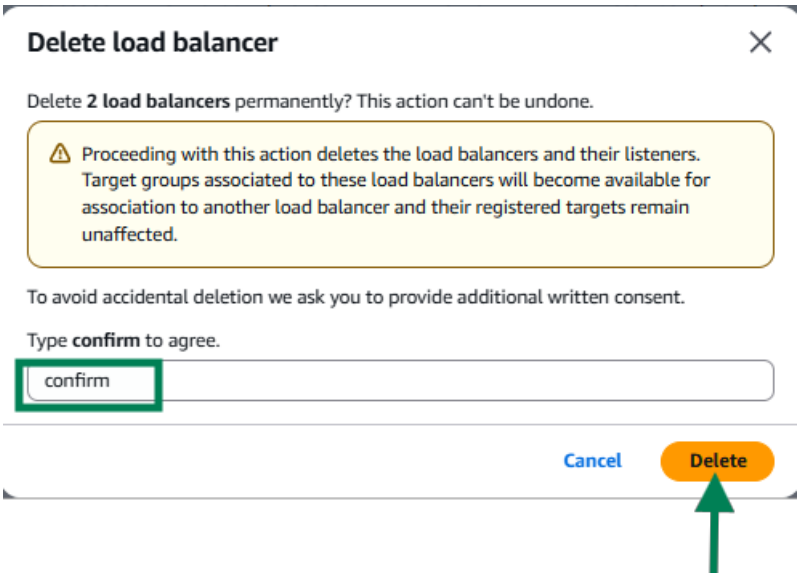


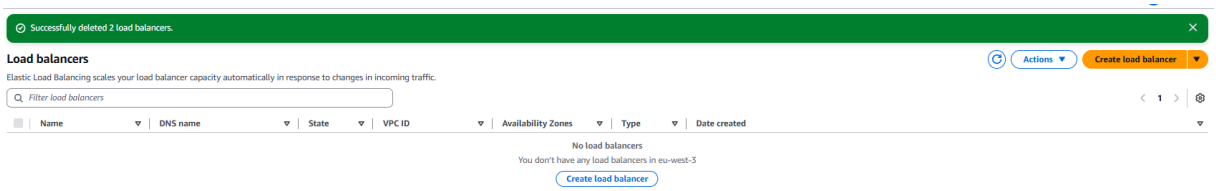


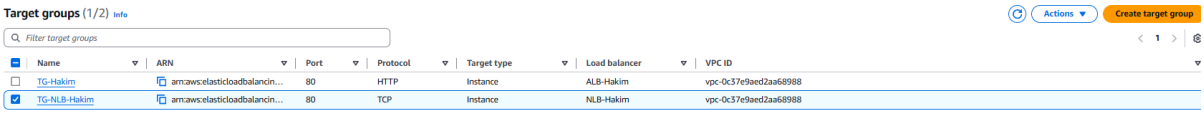


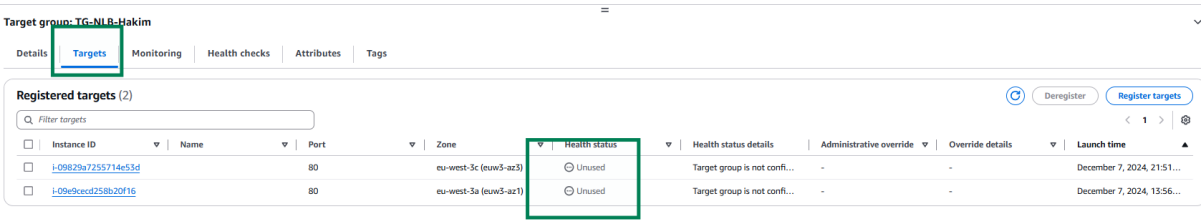
Supprimez l'**ALB** et le **NLB**.

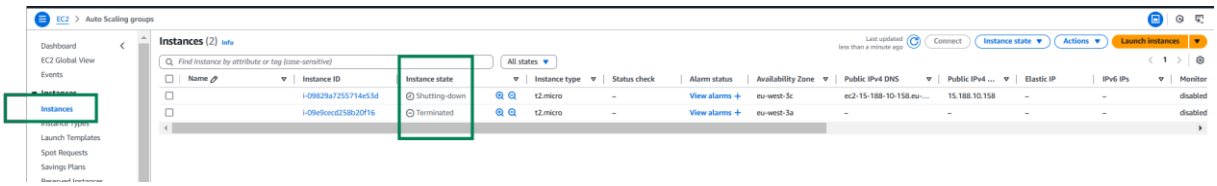




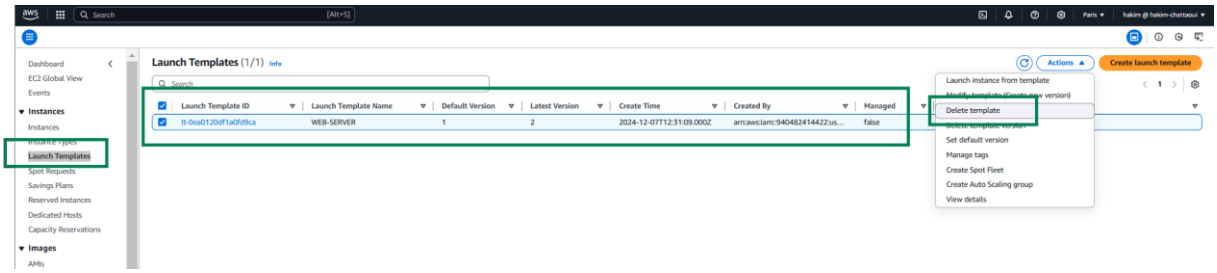


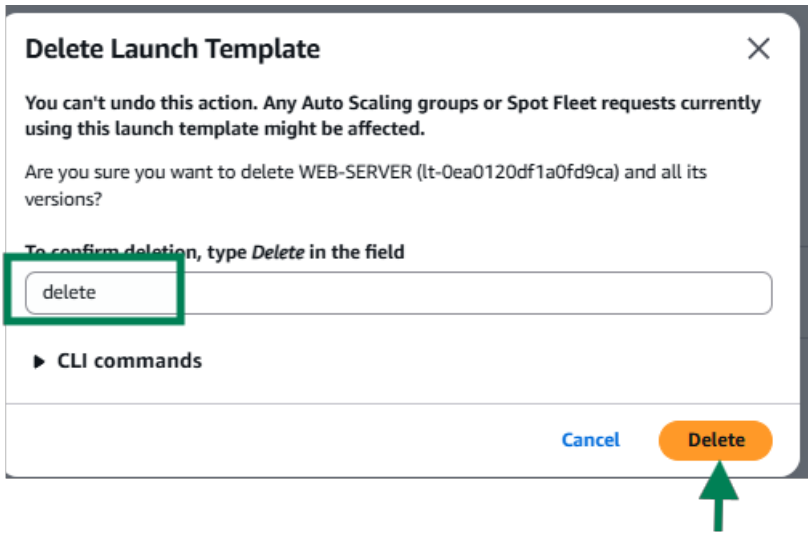




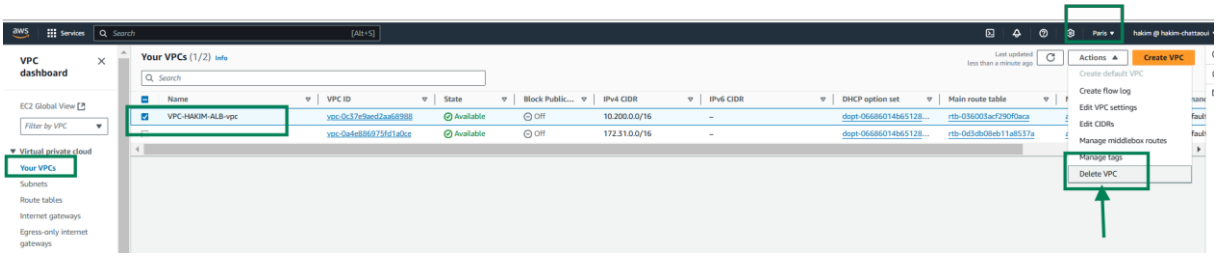


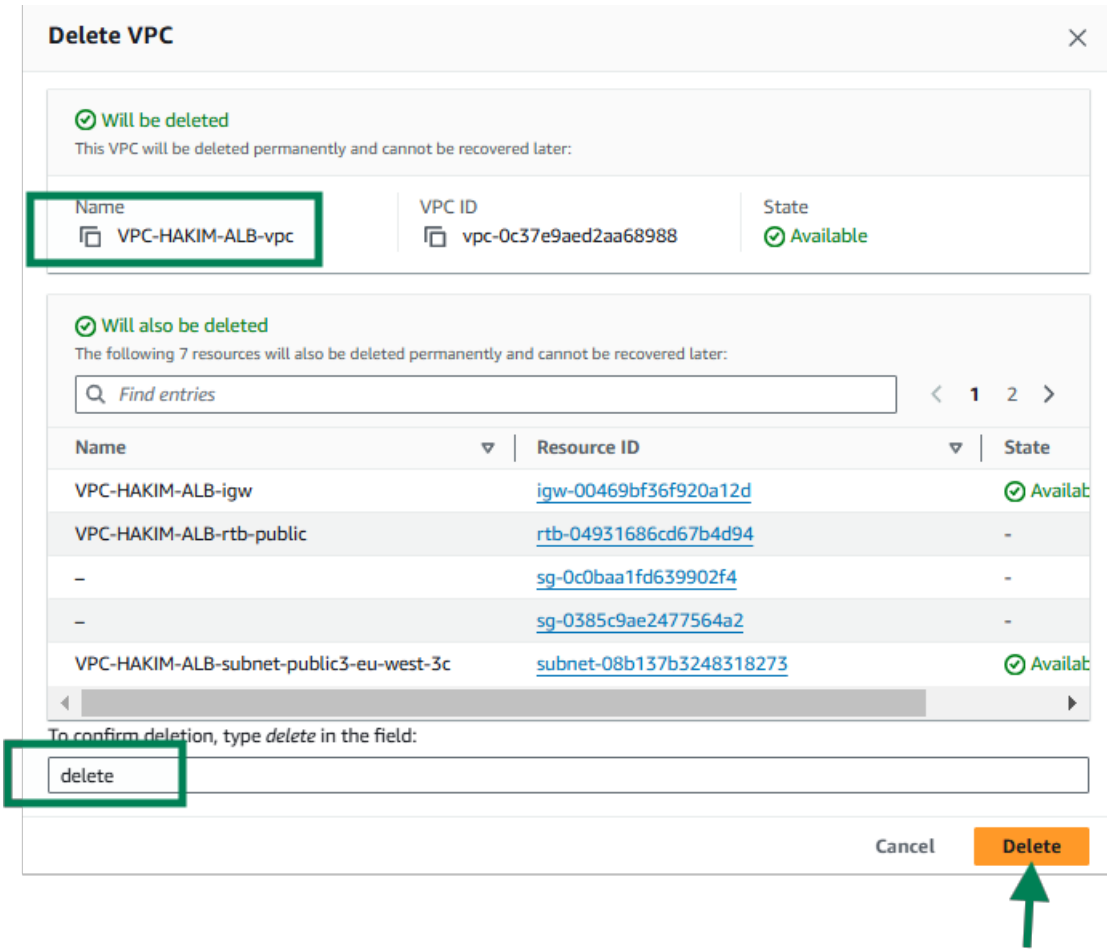
Supprimez le Launch Templates





Supprimez du VPC « **VPC-VotreNom-ALB »**




Delete VPC
Will be deleted
This VPC will be deleted permanently and cannot be recovered later:
Name
VPC-HAKIM-ALB-vpc
VPC ID
vpc-0c37e9aed2aa68988
State
Available
Will also be deleted
The following 7 resources will also be deleted permanently and cannot be recovered later:
Find entries
Name
Resource ID
State
VPC-HAKIM-ALB-igw
igw-00469bf36f920a12d
VPC-HAKIM-ALB-rtb-public
rtb-04931686cd67b4d94
sg-0c0baa1fd639902f4
sg-0385c9ae2477564a2
VPC-HAKIM-ALB-subnet-public3-eu-west-3c
subnet-08b137b3248318273
To confirm deletion, type delete in the field:
delete
Cancel
Delete