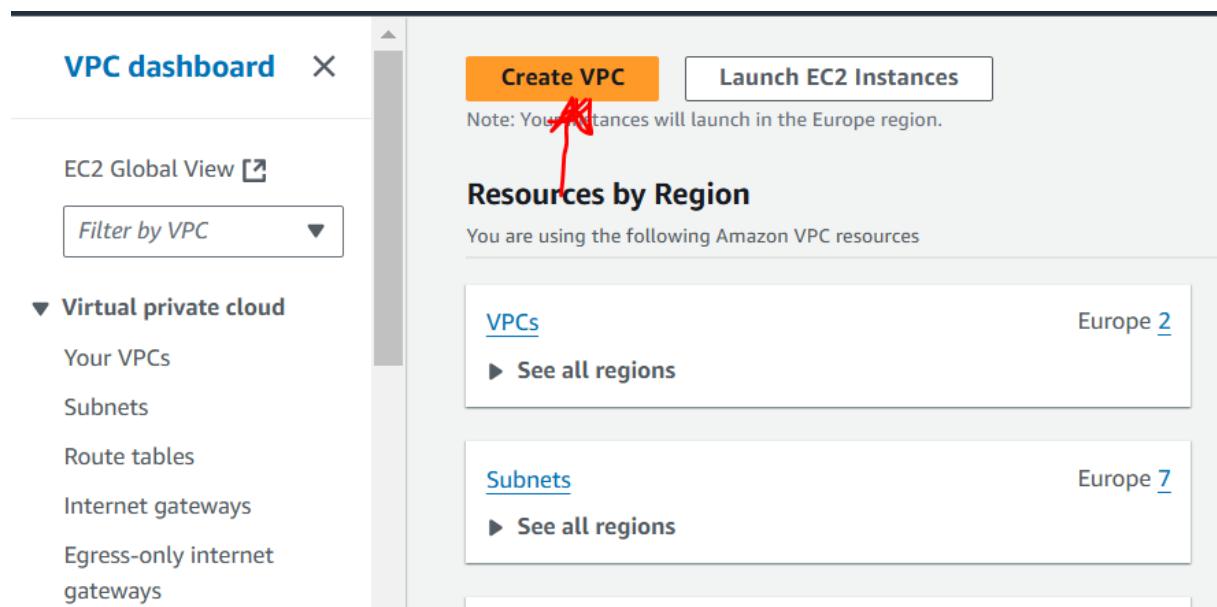
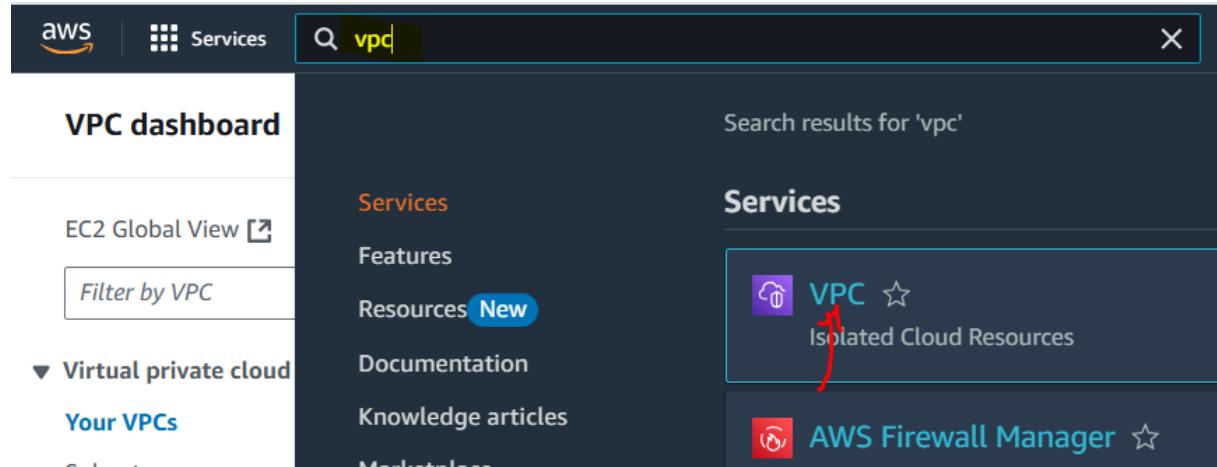


ALB & NLB

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 as Amazon EC2 instances, Amazon RDS databases, and Amazon S3 buckets.

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

TP8 : ALB & NLB

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

TP8 : ALB & NLB

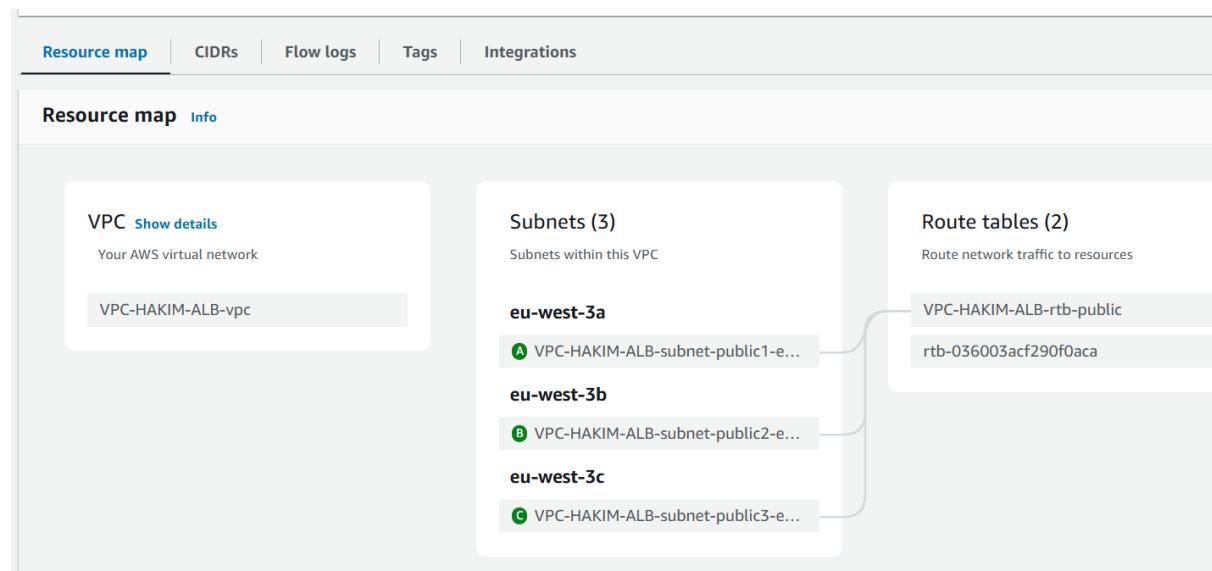
Create VPC workflow

✓ 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



TP8 : ALB & NLB

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.

The screenshot shows the AWS VPC dashboard with the 'Security groups' section selected. The 'Create security group' button is highlighted with a red arrow. Below, the 'Create security group' wizard is open, showing the 'Basic details' step. The 'Security group name' field contains 'HTTP-access', and the 'Description' field also contains 'HTTP-access'. In the 'VPC' dropdown, the value 'vpc-0c37e9aed2aa68988 (VPC-HAKIM-ALB-vpc)' is selected, indicated by a red arrow pointing to the dropdown icon.

Name	Security group ID	Security group name	VPC ID	Description
-	sg-06bbad3f5164168da	web	vpc-0ade886975fd1a0ce	wab
-	sg-0bdffcae8c1b91e85	Bastion to private	vpc-0dea9a938f2cabcf	Bastion to private
-	sg-09065cc2fb23339c	SG-allow-SSH-ICMP	vpc-0dea9a938f2cabcf	SG-allow-SSH-ICMP
-	sg-00f57944cc9dacf24	allow-http-ftp	vpc-0ade886975fd1a0ce	allow-http-ftp
-	sg-07a22c4ab5455eb20	default	vpc-0dea9a938f2cabcf	default VPC security group
-	sg-011dad96b9b371c21	web	vpc-0dea9a938f2cabcf	web

TP8 : ALB & NLB

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 <small>Info</small>	Protocol <small>Info</small>	Port range <small>Info</small>	Source <small>Info</small>	Description - optional <small>Info</small>
HTTP	TCP	80	Anywhere... <small>Info</small>	HTTP Access

0.0.0.0/0 X

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

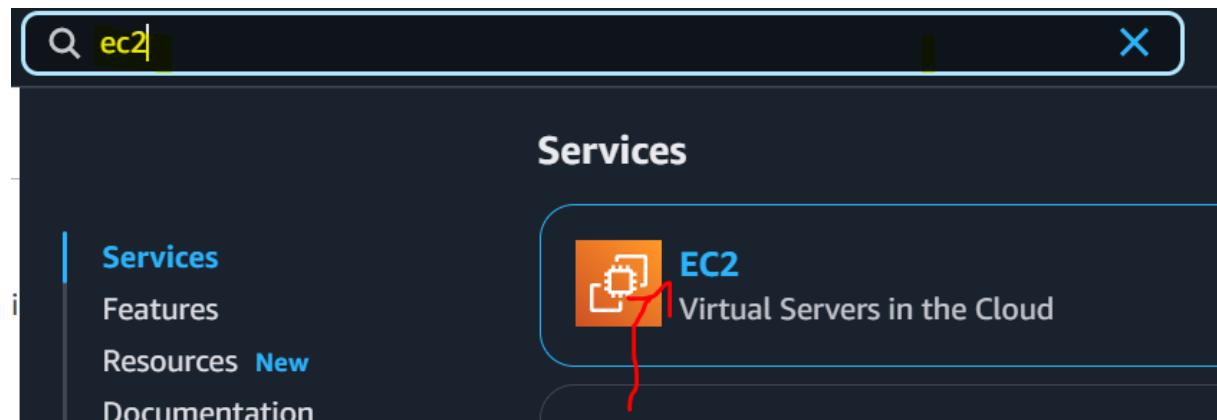
Cancel Create security group

7

Cloud Security
Abdelhakim Chattaoui

TP8 : ALB & NLB

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** ».



The screenshot shows the AWS EC2 Instances page. On the left, there is a sidebar with navigation links: 'Dashboard', 'EC2 Global View', 'Events', 'Instances' (with 'Launch Templates' highlighted), 'Spot Requests', 'Savings Plans', 'Reserved Instances', 'Dedicated Hosts', and 'Capacity Reservations'. On the right, the main content area is titled 'Resources' and displays a grid of EC2 resource counts. A red arrow points from the 'Launch Templates' link in the sidebar to the 'Launch Templates' link in the main content area.

Instances (running)	0	Auto Scaling Groups	0
Capacity Reservations	0	Dedicated Hosts	0
Elastic IPs	0	Instances	0
Key pairs	4	Load balancers	0
Placement groups	0	Security groups	8
Snapshots	0	Volumes	0

The screenshot shows the AWS Launch Templates page. On the left, there is a sidebar with navigation links: 'Dashboard', 'EC2 Global View', 'Events', 'Instances' (with 'Launch Templates' highlighted), 'Spot Requests', and 'Savings Plans'. The main content area contains a descriptive text about launch templates and a 'New launch template' button. A red arrow points from the 'Create launch template' button to the 'Create launch template' button in the main content area.

Create launch template

Creating a launch template allows you to create a saved instance configuration that can be reused 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](#)

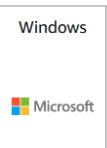
An AMI is a template that contains the software configuration (operating system, application server, and applications) required to launch your instance. Search or Browse for AMIs if you don't see what you are looking for below

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

Recents

Quick Start

Don't include
in launch
template



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

TP8 : ALB & NLB

▼ 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 [X](#)

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

Device index [Info](#)

0

Network interface [Info](#)

New interface

Description [Info](#)

[Remove](#)

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](#)



TP8 : ALB & NLB

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;
}
```

TP8 : ALB & NLB

```
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
```

TP8 : ALB & NLB

The screenshot shows the AWS EC2 'Create launch template' wizard. In the first step, 'Configure instance details', the user has selected the 't2.micro' instance type, set the 'Firewall (security group)' to 'HTTP-access', and attached a single 8 GiB volume. A note about the 'Free tier' is displayed. In the second step, 'Configure security and storage', the user has pasted a custom user data script that installs Apache and fetches an IAM token. A note states that user data must be base64 encoded. The 'Create launch template' button is highlighted with a red arrow. The third step, 'Review and launch', shows a success message: 'Successfully created WEB-SERVER(lt-075265303f8b572b8).'. The 'Actions log' and 'Next Steps' sections are also visible.

User data - optional | [Info](#)
Upload a file with your user data or enter it in the field.

[Choose file](#)

```
#!/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)
```

User data has already been base64 encoded

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

Success
Successfully created WEB-SERVER(lt-075265303f8b572b8).

[Actions log](#)

Next Steps

Launch an instance
With On-Demand Instances, you pay for compute capacity by the second (for Linux, with a minimum of 60 seconds) or by the hour (for all other operating systems) with no long-term commitments or upfront payments. Launch an On-Demand Instance from your launch template.
[Launch instance from this template](#)

Create an Auto Scaling group from your template
Amazon EC2 Auto Scaling helps you maintain application availability and allows you to scale your Amazon EC2 capacity up or down automatically according to conditions you define. You can use Auto Scaling to help ensure that you are running your desired number of Amazon EC2 instances during demand spikes to maintain performance and decrease capacity during lulls to reduce costs.
[Create Auto Scaling group](#)

Create Spot Fleet
A Spot Instance is an unused EC2 instance that is available for less than the On-Demand price. Because Spot Instances enable you to request unused EC2 instances at steep discounts, you can lower your Amazon EC2 costs significantly. The hourly price for a Spot Instance (of each instance type in each Availability Zone) is set by Amazon EC2, and adjusted gradually based on the long-term supply of and demand for Spot Instances. Spot instances are well-suited for data-analysis, batch jobs, background processing, and optional tasks.
[Create Spot Fleet](#)

[View launch templates](#)

WEB-SERVER (lt-075265303f8b572b8)

[Actions](#) [Delete template](#)

Launch template details

Launch template ID <input type="checkbox"/> lt-075265303f8b572b8	Launch template name <input type="checkbox"/> WEB-SERVER	Default version <input type="checkbox"/> 1	Owner <input type="checkbox"/> arn:aws:siam::940482414422:user/hakim
---	---	---	---

[Details](#) [Versions](#) [Template tags](#)

Launch template version details

Version <input type="checkbox"/> 1 (Default)	Description -	Date created <input type="checkbox"/> 2024-12-06T14:39:27.000Z	Created by <input type="checkbox"/> arn:aws:siam::940482414422:user/hakim
---	------------------	---	--

[Actions](#) [Delete template version](#)

[Instance details](#) [Storage](#) [Resource tags](#) [Network interfaces](#) [Advanced details](#)

AMI ID <input type="checkbox"/> ami-03216a20ecc5d72ee	Instance type <input type="checkbox"/> t2.micro	Availability Zone -	Key pair name -
Security groups -	Security group IDs <input type="checkbox"/> sg-0c0baa1fd639902f4		

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

TP8 : ALB & NLB

The screenshot shows the AWS EC2 Dashboard for the Europe (Paris) Region. On the left, a sidebar lists navigation options: Dashboard, Instances (with sub-options like Instances, Instance Types, Launch Templates, etc.), Images, Elastic Block Store, Network & Security. The main area displays EC2 resources: Instances (running: 0), Auto Scaling Groups (0), Capacity Reservations (0), Dedicated Hosts (0), Elastic IPs (0), Instances (1), Key pairs (4), Load balancers (0), Placement groups (0), Security groups (10), Snapshots (0), and Volumes (0). Below this, there's a 'Launch instance' section with a button to 'Launch instance from template'. A note says 'Your instances will launch in the Europe (Paris) Region'. To the right, there's a 'Service health' section showing 'AWS Health Dashboard' status as 'This service is operating normally'. Below that is a 'Zones' table with three entries: eu-west-3a (euw3-az1), eu-west-3b (euw3-az2), and eu-west-3c (euw3-az3).

Appelez l'instance « Test Launch Template ».

This screenshot shows the 'Launch instance from template' configuration page. In the 'Choose a launch template' section, 'WEB-SERVER' is selected from a dropdown menu. The 'Instance details' section includes fields for 'Application and OS Images (Amazon Machine Image)', 'AMI from catalog' (selected), 'Recents', and 'Quick Start'. The AMI listed is 'Amazon Linux 2023 AMI'. The 'Summary' section on the right shows 'Number of instances: 1'. Other settings include 'Software Image (AMI): Amazon Linux 2023 AMI 2023.6.2...', 'Virtual server type (instance type): t2.micro', 'Firewall (security group): HTTP-access', and 'Storage (volumes): 1 volume(s) - 8 GiB'. A large orange 'Launch instance' button is at the bottom right.

TP8 : ALB & NLB

▼ Key pair (login) [Info](#)

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

Key pair name - required

Hakim-Key Template value ▾  Create new key pair

▼ Network settings [Info](#)

Subnet | [Info](#)

subnet-07dd7e20d055821bc
VPC: vpc-0c37e9aed2aa68988 Owner: 940482414422 Availability Zone: eu-west-3a Zone type: Availability Zone
IP addresses available: 251 CIDR: 10.200.0.0/24

VPC-HAKIM-ALB-subnet-public1-eu-west-3a

 Create new subnet

Firewall (security groups) | [Info](#)

A security group is a set of firewall rules that control the traffic for your instance. Add rules to allow specific traffic to reach your instance.

Select existing security group Create security group

Security groups | [Info](#)

Select security groups

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

 Compare security group rules

► Advanced network configuration

Vérifiez l'état de l'instance :

Instance summary for i-0b138876c3ffa327d [Info](#)

Updated less than a minute ago

Instance ID: i-0b138876c3ffa327d

IPv6 address: -

Hostname type: IP name: ip-10-200-0-146.eu-west-3.compute.internal

Answer private resource DNS name: -

Auto-assigned IP address: 15.236.224.201 [Public IP]

IAM Role: -

IMDSv2: Required

Operator: -

Public IPv4 address: 15.236.224.201 

Instance state: Running

Private IP DNS name (IPv4 only): ip-10-200-0-146.eu-west-3.compute.internal

Instance type: t2.micro

VPC ID: vpc-0c37e9aed2aa68988 (VPC-HAKIM-ALB-vpc)

Subnet ID: subnet-07dd7e20d055821bc (VPC-HAKIM-ALB-subnet-public1-eu-west-3a)

Instance ARN: arn:aws:ec2:eu-west-3:940482414422:instance/i-0b138876c3ffa327d

Private IPv4 addresses: 10.200.0.146

Public IPv4 DNS: ec2-15-236-224-201.eu-west-3.compute.amazonaws.com 

Elastic IP addresses: -

AWS Compute Optimizer finding: Opt-in to AWS Compute Optimizer for recommendations. | Learn more

Auto Scaling Group name: -

Managed: false

Details | Status and alarms | Monitoring | Security | Networking | Storage | Tags

▼ Instance details [Info](#)

AMI ID: ami-03216a20ecc5d72ee	Monitoring: disabled	Platform details: Linux/UNIX
AMI name:	Allowed image:	Termination protection:

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

TP8 : ALB & NLB

The screenshot shows the AWS Management Console interface for managing security groups. The top navigation bar includes 'Details', 'Status and alarms', 'Monitoring', 'Security' (which is highlighted in blue), 'Networking', 'Storage', and 'Tags'. Under the 'Security details' section, there is an 'IAM Role' dropdown, an 'Owner ID' field containing '940482414422', and a 'Launch time' field showing 'Sat Dec 07 2024 13:14:19 GMT+0100 (heure normale d'Europe centrale)'. The 'Security groups' section lists 'sg-0c0baa1fd639902f4 (HTTP-access)'. Below this, two tables are displayed: 'Inbound rules' and 'Outbound rules'. The 'Inbound rules' table has one row with a green border: Name is empty, Security group rule ID is 'sgr-00e27769e20abf373', Port range is '80', Protocol is 'TCP', and Source is '0.0.0.0/0'. The 'Outbound rules' table also has one row with a green border: Name is empty, Security group rule ID is 'sgr-0271e98b5742933eb', Port range is 'All', Protocol is 'All', and Destination is '0.0.0.0/0'. Both tables have a 'Filter rules' search bar at the top.

Vérifiez la résolution DNS de l'instance.

```
C:\Users\Chris>nslookup ec2-15-236-224-201.eu-west-3.compute.amazonaws.com
Serveur :   bbox.lan
Address:  2001:861:5e60:e770:a2b5:3cff:fe71:a0fc

Réponse ne faisant pas autorité :
Nom :      ec2-15-236-224-201.eu-west-3.compute.amazonaws.com
Address:  15.236.224.201
```

Testez l'accès web à votre instance.

The screenshot shows a web browser window with the URL 'ec2-15-236-224-201.eu-west-3.compute.amazonaws.com'. The page content is a solid blue color with white text in the center that reads 'Cette instance est située dans une zone de disponibilité: eu-west-3a'.

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 »**.

TP8 : ALB & NLB

The screenshot shows the AWS Management Console with the search bar set to "ec2". The left sidebar has "EC2" selected. The main content area is titled "Services" and lists "EC2" with a sub-description "Virtual Servers in the Cloud". Below it is "EC2 Image Builder". A red arrow points to the "EC2" icon and text.

aws | grid x

EC2 >

Dashboard
EC2 Global View
Events

▼ Instances

Instances
Instance Type

Services
Features
Resources New
Documentation
Knowledge articles
Marketplace
Blog posts

EC2
Virtual Servers in the Cloud

EC2 Image Builder
A managed service to automate build, custo

TP8 : ALB & NLB

The screenshot shows the AWS EC2 console interface. On the left, a navigation sidebar lists several categories: Images, Elastic Block Store, Network & Security, Load Balancing, Auto Scaling, and Settings. The 'Auto Scaling' category is highlighted with a yellow box and has a red arrow pointing to the 'Auto Scaling Groups' link. In the main content area, there's a 'Resources' summary box containing information about instances, dedicated hosts, key pairs, and security groups. Below it is a 'Launch instance' section with a large orange 'Launch instance' button. Further down is an 'Instance alarms' section with a 'View in CloudWatch' button, showing 0 alarms, 0 OK instances, and 0 insufficient instances. A note states: 'Note: Your instances will launch in the Europe (Paris) Region'.

Resources

You are using the following Amazon EC2 resources in the Europe (Paris) Region:

Instances (running)	0	Auto Scaling groups
Dedicated Hosts	0	Elastic IPs
Key pairs	4	Load balancers
Security groups	10	Snapshots

Launch instance

To get started, launch an Amazon EC2 instance, which is a virtual server in the cloud.

Instance alarms

[View in CloudWatch](#)

0 in alarm 0 OK 0 insufficient

[Instances in alarm](#)

The screenshot shows the 'Amazon EC2 Auto Scaling' landing page. It features a main heading 'Amazon EC2 Auto Scaling helps maintain the availability of your applications'. Below this is a description: 'Auto Scaling groups are collections of Amazon EC2 instances that enable automatic scaling and fleet management features. These features help you maintain the health and availability of your applications.' To the right, there's a call-to-action box with a 'Create Auto Scaling group' button, which has a red arrow pointing to it. Above the button is the text: 'Get started with EC2 Auto Scaling by creating an Auto Scaling group.'

Amazon EC2 Auto Scaling
helps maintain the availability of your applications

Auto Scaling groups are collections of Amazon EC2 instances that enable automatic scaling and fleet management features. These features help you maintain the health and availability of your applications.

Create Auto Scaling group

Get started with EC2 Auto Scaling by creating an Auto Scaling group.

[Create Auto Scaling group](#)

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

TP8 : ALB & NLB

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.

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.

[Create a launch template](#) 

Version



[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](#)  

TP8 : ALB & NLB

Instance type

t2.micro

Network Info

For most applications, you can use multiple Availability Zones and let EC2 Auto Scaling balance your instances. 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-service integration away from impaired Availability Zones with zonal shift. You can also customize health check intervals.

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 balancer

Choose from your existing load balancers.

VPC Lattice integration options Info

To improve networking capabilities and scalability, integrate your Auto Scaling group with VPC Lattice. This integrates your Auto Scaling group with other AWS services and helps you connect and manage your applications across compute environments.

Select VPC Lattice service to attach

No VPC Lattice service

VPC Lattice will not manage your Auto Scaling group's network access and connectivity with other services.

Attach to VPC Lattice

Incoming requests to your Auto Scaling group will be routed through VPC Lattice.

Create new VPC Lattice service 

TP8 : ALB & NLB

Health checks

Health checks increase availability by replacing unhealthy instances. When you use multiple health checks, all are evaluated, and if at least one fails, instance replacement occurs.

EC2 health checks

Always enabled

Additional health check types - optional | Info

Turn on Elastic Load Balancing health checks

Elastic Load Balancing monitors whether instances are available to handle requests. When it reports an unhealthy instance, EC2 Auto Scaling can replace it on its next periodic check.

Turn on VPC Lattice health checks

VPC Lattice can monitor whether instances are available to handle requests. If it considers a target as failed a health check, EC2 Auto Scaling replaces it after its next periodic check.

Turn on Amazon EBS health checks

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

Health check grace period | Info

This time period delays the first health check until your instances finish initializing. It doesn't prevent an instance from terminating when placed into a non-running state.

300 seconds

Cancel

Skip to review

Previous

Next



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

- 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

Configure group size and scaling - optional Info

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

Group size Info

Set the initial size of the Auto Scaling group. After creating the group, you can change its size to meet demand automatically.

Desired capacity type

Choose the unit of measurement for the desired capacity value. vCPUs and Memory(GiB) are only supported for mixed instance attributes.

Units (number of instances)

Desired capacity

Specify your group size.

2

Scaling Info

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

Scaling limits

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

Min desired capacity

1

Equal or less than desired capacity

Max desired capacity

2

Equal or greater than desired capacity

TP8 : ALB & NLB

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](#)



TP8 : ALB & NLB

Step 5: Add notifications

Notifications
No notifications

Step 6: Add tags

Tags (0)

Key	Value	Tag new instances
No tags		

Preview code Cancel Previous Create Auto Scaling group

↑

EC2 > Auto Scaling groups

Auto Scaling groups (1)

Name	Launch template/configuration	Instances	Status	Desired capacity	Min	Max	Availability Zones
ASG-Hakim	WEB-SERVER Version Default	0	Updating capacity...	2	2	2	eu-west-3a, eu-west-3b

↑

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

Activity notifications (0)

Filter notifications Actions Create notification

Send to On instance action

No notifications are currently specified

Create notification

Activity history (2)

Filter activity history

Status	Description	Cause	Start time	End time
Not yet in service	Launching a new EC2 instance: i-03a6bc122d81bbe9a	At 2024-12-07T12:38:23Z a user request created an AutoScalingGroup changing the desired capacity from 0 to 2. At 2024-12-07T12:38:25Z an instance was started in response to a difference between desired and actual capacity, increasing the capacity from 0 to 2.	2024 December 07, 01:38:27 PM +01:00	
Not yet in service	Launching a new EC2 instance: i-0a9f0eafe9f14a1f2	At 2024-12-07T12:38:23Z a user request created an AutoScalingGroup changing the desired capacity from 0 to 2. At 2024-12-07T12:38:25Z an instance was started in response to a difference between desired and actual capacity, increasing the capacity from 0 to 2.	2024 December 07, 01:38:27 PM +01:00	

TP8 : ALB & NLB

ASG-Hakim

ASG-Hakim Capacity overview

arn:aws:autoscaling:eu-west-3:940482414422:autoScalingGroup:9f40ccb3-a7c0-4158-8bf0-2bba2b087ad2: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 10:25:01 GMT+0100 (heure normale d'Europe centrale)

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

Activity notifications (0)

Filter notifications Send to On instance action Create notification

No notifications are currently specified

Activity history (2)

Filter activity history

Status	Description	Cause	Start time	End time
Successful	Launching a new EC2 instance: i-0b46438178e9bcd6c	At 2024-12-07T09:25:01Z a user request created an AutoScalingGroup changing the desired capacity from 0 to 2. At 2024-12-07T09:25:12Z an instance was started in response to a difference between desired and actual capacity, increasing the capacity from 0 to 2.	2024 December 07, 10:25:14 AM +01:00	2024 December 07, 10:25:20 AM +01:00
Successful	Launching a new EC2 instance: i-0c794b7505a952134	At 2024-12-07T09:25:01Z a user request created an AutoScalingGroup changing the desired capacity from 0 to 2. At 2024-12-07T09:25:12Z an instance was started in response to a difference between desired and actual capacity, increasing the capacity from 0 to 2.	2024 December 07, 10:25:14 AM +01:00	2024 December 07, 10:25:20 AM +01:00

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

The screenshot shows the AWS EC2 dashboard. The left sidebar has a tree structure with 'EC2' highlighted by a green box. Other items in the sidebar include 'Dashboard', 'EC2 Global View', 'Events', 'Instances' (which is expanded), 'Images', 'Launch Templates', 'Spot Requests', 'Savings Plans', 'Reserved Instances', 'Dedicated Hosts', and 'Capacity Reservations'. The main content area shows the path 'Auto Scaling groups > ASG-Hakim'.

TP8 : ALB & NLB

EC2 > Auto Scaling groups > ASG-HAKIM

Instances (2) Info

Instance ID	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
i-0a90ef7f4a1f2	Running	t2.micro	Initializing	View alarms +	eu-west-3a	ec2-13-38-15-119.eu-w...	15.38.15.119

Instance summary for i-0b46438178e9bcd6c

Updated less than a minute ago

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

Security

Inbound 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

Name	Security group rule ID	Port range	Protocol	Destination	Security groups
-	sgr-0271e98b5742933eb	All	All	0.0.0.0/0	HTTP-access

TP8 : ALB & NLB

Instance summary for i-03a6bc122d81bbe9a Info	
Updated less than a minute ago	
Instance ID i-03a6bc122d81bbe9a	Public IPv4 address 15.236.179.133 open address
IPv6 address -	Instance state Running
Hostname type IP name: ip-10-200-1-184.eu-west-3.compute.internal	Private IP DNS name (IPv4 only) ip-10-200-1-184.eu-west-3.compute.internal
Answer private resource DNS name -	Instance type t2.micro
Auto-assigned IP address 15.236.179.133 [Public IP]	VPC ID vpc-0c37e9aed2aa68988 (VPC-HAKIM-ALB-vpc)
IAM Role -	Subnet ID subnet-02034e142e1b474a5 (VPC-HAKIM-ALB-subnet-public2-eu-west-3b)
IMDSv2 Required	Instance ARN arn:aws:ec2:eu-west-3:940482414422:instance/i-03a6bc122d81bbe9a
Operator -	Managed false

```
C:\Windows\System32>nslookup ec2-15-236-179-133.eu-west-3.compute.amazonaws.com
Serveur : bbox.lan
Address: 2001:861:5e60:e770:a2b5:3cff:fe71:a0fc

Réponse ne faisant pas autorité :
Nom : ec2-15-236-179-133.eu-west-3.compute.amazonaws.com
Address: 15.236.179.133
```



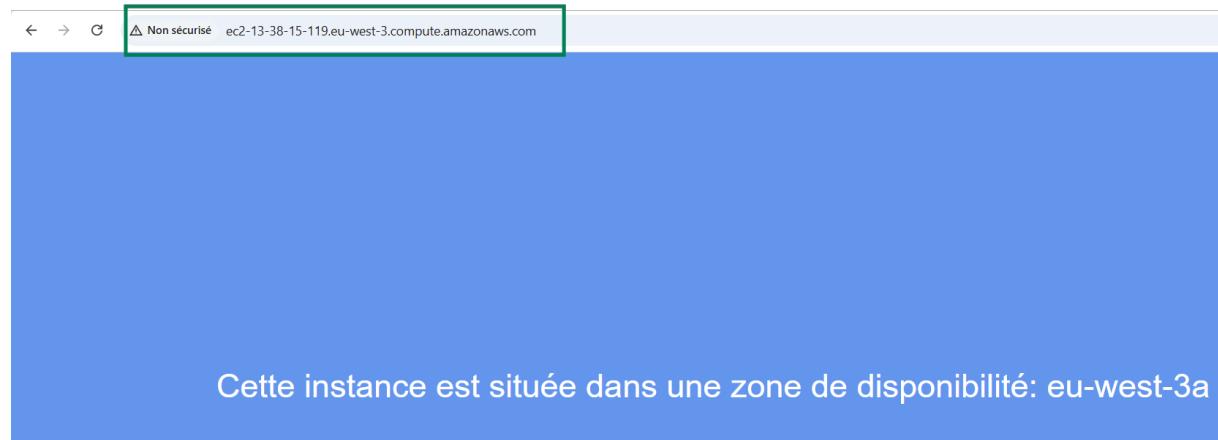
Vous allez essayer d'accéder en web à la deuxième instance.

TP8 : ALB & NLB

Instances (1/2) Info								
<input type="text"/> Find Instance by attribute or tag (case-sensitive)		Actions						
Instance state = running		Actions						
Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4 DNS	Public IPv4 ...
<input checked="" type="checkbox"/> i-03a6bc122d81bbe9a	i-03a6bc122d81bbe9a	Running	t2.micro	2/2 checks passed	View alarms +	eu-west-3b	ec2-15-236-179-133.eu...	15.236.179.133
<input type="checkbox"/> i-0a9f0eafe9f14a1f2	i-0a9f0eafe9f14a1f2	Running	t2.micro	2/2 checks passed	View alarms +	eu-west-3a	ec2-13-38-15-119.eu-w...	13.38.15.119

```
C:\Windows\System32\>nslookup ec2-13-38-15-119.eu-west-3.compute.amazonaws.com
Serveur : bbox.lan
Address: 2001:861:5e60:e770:a2b5:3cff:fe71:a0fc

Réponse ne faisant pas autorité :
Nom : ec2-13-38-15-119.eu-west-3.compute.amazonaws.com
Address: 13.38.15.119
```



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

TP8 : ALB & NLB

The screenshot shows the AWS EC2 Instances page for the ASG-HAKIM group. There are two instances listed: one with ID i-0a9f0eafe9f14a1f2 and another with ID i-03a6bc122d81bbe9a. Both instances are in the 'Running' state. The instance with ID i-0a9f0eafe9f14a1f2 is selected. The 'Actions' dropdown menu is open, and the 'Terminate (delete) instance' option is highlighted with a green box.

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)**

The screenshot shows the AWS EC2 Instances page for the ASG-HAKIM group. The instance with ID i-0a9f0eafe9f14a1f2 is now in the 'Shutting-down' state, indicated by a red box around the status column. The status bar at the top of the page displays a green message: 'Successfully initiated termination (deletion) of i-0a9f0eafe9f14a1f2'.

The screenshot shows the AWS EC2 Instances page for the ASG-HAKIM group. The instance with ID i-0a9f0eafe9f14a1f2 is now in the 'Running' state, indicated by a green box around the status column. The status bar at the top of the page displays a green message: 'Successfully initiated termination (deletion) of i-0a9f0eafe9f14a1f2'.

TP8 : ALB & NLB

ASG-HAKIM Capacity overview

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)

Activity | Monitoring

Activity notifications (0)

Activity history (4)

Status	Description	Cause	Start time	End time
Successful	Launching a new EC2 instance: i-09e9cecd258b20f16	At 2024-12-07T12:56:33Z an instance was launched in response to an unhealthy instance needing to be replaced.	2024 December 07, 01:56:34 PM +01:00	2024 December 07, 01:56:40 PM +01:00
Successful	Terminating EC2 instance: i-0a9f0eafe9f14a1f2	At 2024-12-07T12:56:32Z an instance was taken out of service in response to an EC2 health check indicating it has been terminated or stopped.	2024 December 07, 01:56:32 PM +01:00	2024 December 07, 01:56:34 PM +01:00
Successful	Launching a new EC2 instance: i-03a6bc122d81bbe9a	At 2024-12-07T12:38:23Z a user request created an AutoScalingGroup changing the desired capacity from 0 to 2. At 2024-12-07T12:38:25Z an instance was started in response to a difference between desired and actual capacity, increasing the capacity from 0 to 2.	2024 December 07, 01:38:27 PM +01:00	2024 December 07, 01:38:33 PM +01:00
Successful	Launching a new EC2 instance: i-0a9f0eafe9f14a1f2	At 2024-12-07T12:38:23Z a user request created an AutoScalingGroup changing the desired capacity from 0 to 2. At 2024-12-07T12:38:25Z an instance was started in response to a difference between desired and actual capacity, increasing the capacity from 0 to 2.	2024 December 07, 01:38:27 PM +01:00	2024 December 07, 01:38:33 PM +01:00

Activity history (4)					
<input type="text"/> Filter activity history					
Status	Description	Cause	Start time	End time	
Successful	Launching a new EC2 instance: i-09e9cecd258b20f16	At 2024-12-07T12:56:33Z an instance was launched in response to an unhealthy instance needing to be replaced.	2024 December 07, 01:56:34 PM +01:00	2024 December 07, 01:56:40 PM +01:00	
Successful	Terminating EC2 instance: i-0a9f0eafe9f14a1f2	At 2024-12-07T12:56:32Z an instance was taken out of service in response to an EC2 health check indicating it has been terminated or stopped.	2024 December 07, 01:56:32 PM +01:00	2024 December 07, 01:56:34 PM +01:00	
Successful	Launching a new EC2 instance: i-03a6bc122d81bbe9a	At 2024-12-07T12:38:23Z a user request created an AutoScalingGroup changing the desired capacity from 0 to 2. At 2024-12-07T12:38:25Z an instance was started in response to a difference between desired and actual capacity, increasing the capacity from 0 to 2.	2024 December 07, 01:38:27 PM +01:00	2024 December 07, 01:38:33 PM +01:00	
Successful	Launching a new EC2 instance: i-0a9f0eafe9f14a1f2	At 2024-12-07T12:38:23Z a user request created an AutoScalingGroup changing the desired capacity from 0 to 2. At 2024-12-07T12:38:25Z an instance was started in response to a difference between desired and actual capacity, increasing the capacity from 0 to 2.	2024 December 07, 01:38:27 PM +01:00	2024 December 07, 01:38:33 PM +01:00	

Vous allez passer ensuite à la création de l'ALB.

Vous allez commencer par créer les « Target Groups » nommés « TG-VotreNom ».

TP8 : ALB & NLB

The screenshot shows the AWS EC2 Target Groups page. On the left, there's a navigation sidebar with sections like Instances, Images, Elastic Block Store, Network & Security, Load Balancing, and Auto Scaling. Under Load Balancing, the 'Target Groups' option is selected and highlighted with a green box. At the top right, there's a 'Create target group' button. A large green arrow points upwards from the bottom of the page towards this button.

The screenshot shows the 'Specify group details' step of the 'Create target group' wizard. It's Step 1 of 2. The title is 'Specify group details' and it says 'Your load balancer routes requests to the targets in a target group and performs health checks on the targets.' Below this is a 'Basic configuration' section with a note that settings can't be changed after creation. The 'Choose a target type' section has 'Instances' selected (highlighted with a green box). Other options include 'IP addresses', 'Lambda function', and 'Application Load Balancer'. The 'Target group name' field contains 'TG-Hakim' (also highlighted with a green box). A note below says 'A maximum of 32 alphanumeric characters including hyphens are allowed, but the name must not begin or end with a hyphen.'

TP8 : ALB & NLB

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 ▼

Protocol version

HTTP1
Send requests to targets using HTTP/1.1. Supported when the request protocol is HTTP/1.1 or HTTP/2.

HTTP2
Send requests to targets using HTTP/2. Supported when the request protocol is HTTP/2 or gRPC, but gRPC-specific features are not available.

gRPC
Send requests to targets using gRPC. Supported when the request protocol is gRPC.

Health checks
The associated load balancer periodically sends requests, per the settings below, to the registered targets to test their status.

Health check protocol
 HTTP

Health check path
Use the default path of "/" to perform health checks on the root, or specify a custom path if preferred.
 / Up to 1024 characters allowed.

► Advanced health check settings

Attributes

i 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](#)

TP8 : ALB & NLB

Register targets

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

Available instances (2)

Instance ID	Name	State	Security groups	Zone	Private IPv4 address	Subnet ID	Launch time
i-09e9ec0d258b20f16		Running	HTTP-access	eu-west-3a	10.200.0.61	subnet-07dd7e20d055821bc	December 7, 2024, 13:56
i-03a6bc122d81bbe9a		Running	HTTP-access	eu-west-3b	10.200.1.184	subnet-02034e142e1b474a5	December 7, 2024, 13:38

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

Review targets

Targets (0)

Instance ID	Name	Port	State	Security groups	Zone	Private IPv4 address	Subnet ID	Launch time
-------------	------	------	-------	-----------------	------	----------------------	-----------	-------------

No instances added yet
Specify instances above, or leave the group empty if you prefer to add targets later.

0 pending

Cancel Previous Create target group

Successfully created the target group: TG-Hakim. Anomaly detection is automatically applied to all registered targets. Results can be viewed in the Targets tab.

TG-Hakim

Details

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 Unhealthy	0 Unused
	0 Anomalous		0 Initial
			0 Draining

Targets Monitoring Health checks Attributes Tags

Registered targets (0) Info

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.

Registered targets (0)

Anomaly mitigation: Not applicable

No registered targets
You have not registered targets to this group yet

Register targets

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

TP8 : ALB & NLB

The screenshot shows the AWS EC2 Load Balancers console. On the left, there's a navigation sidebar with sections like Dashboard, Instances, Images, Elastic Block Store, Network & Security, and Load Balancing (which is currently selected). The main area is titled 'Load balancers' and shows a table with columns for Name, DNS name, State, VPC ID, Availability Zones, Type, and Date created. A message at the top right says 'No load balancers' and 'You don't have any load balancers in eu-west-3'. At the bottom of the table, there's a blue 'Create load balancer' button. A green arrow points from the text 'Compare and select load balancer type' below to this button.

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	Network Load Balancer Info	Gateway Load Balancer Info
<p>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.</p> <p>Create</p>	<p>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.</p> <p>Create</p>	<p>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.</p> <p>Create</p>
<p>▶ Classic Load Balancer - previous generation</p> <p>Close</p>		

TP8 : ALB & NLB

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 balancer are listed here.

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)

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

TP8 : ALB & NLB

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 traffic to your targets.

▼ 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
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 <ul style="list-style-type: none">Internet-facingIPv4	Security groups Edit <ul style="list-style-type: none">HTTP-access sg-0c0baa1fd639902f4	Network mapping Edit <ul style="list-style-type: none">VPC vpc-0c37e9aed2aa68988 VPC-HAKIM-ALB-vpc<ul style="list-style-type: none">eu-west-3a subnet-07dd7e20d055821bc VPC-HAKIM-ALB-subnet-public1-eu-west-3aeu-west-3b subnet-02054e142e1b474a5 VPC-HAKIM-ALB-subnet-public2-eu-west-3b	Listeners and routing Edit <ul style="list-style-type: none">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
[\(i\) Certain default attributes will be applied to your load balancer. You can view and edit them after creating the load balancer.](#)

Creation workflow and status

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

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

TP8 : ALB & NLB

Successfully created load balancer: ALB-Hakim
It might take a few minutes for your load balancer to fully set up and route traffic. Targets will also take a few minutes to complete the registration process and pass initial health checks.

ALB-Hakim

Details

Load balancer type Application	Status Provisioning	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/7c23b7bdbdee1d4		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**

Listeners and rules (1) [Info](#)

A listener checks for connection requests on its configured protocol and port. Traffic received by the listener is routed according to the default action and any additional rules.

Protocol:Port	Default action	Rules	ARN	Security policy	Default SSL/TLS certificate	mTLS
HTTP:80	Forward to target group <ul style="list-style-type: none"> TG-Hakim 1 (100%) Target group stickiness: Off 	1 rule	ARN	Not applicable	Not applicable	Not applicable

EC2 > Load balancers > ALB-Hakim

ALB-Hakim

Details

Load balancer type Application	Status Provisioning	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/7c23b7bdbdee1d4		DNS name info ALB-Hakim-324075068.eu-west-3.elb.amazonaws.com (A Record)	

Listeners and rules (1) [Info](#)

A listener checks for connection requests on its configured protocol and port. Traffic received by the listener is routed according to the default action and any additional rules.

Protocol:Port	Default action	Rules	ARN	Security policy	Default SSL/TLS certificate	mTLS
HTTP:80	Forward to target group <ul style="list-style-type: none"> TG-Hakim 1 (100%) Target group stickiness: Off 	1 rule	ARN	Not applicable	Not applicable	Not applicable

EC2 > Load balancers

Load balancers (1)

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.

Name	DNS name	State	VPC ID	Availability Zones	Type	Date created
ALB-Hakim	ALB-Hakim-324075068.eu...	Provisioning...	vpc-0c37e9aed2aa68988	2 Availability Zones	application	December 7, 2024, 14:17 (UTC+01:00)

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

TP8 : ALB & NLB

The screenshot shows the AWS EC2 Load Balancers page. On the left, there's a navigation sidebar with sections like Dashboard, EC2 Global View, Events, Instances, Images, Elastic Block Store, Network & Security, Load Balancing, and Auto Scaling. The 'Load Balancing' section is expanded, and its 'Load Balancers' sub-section is also expanded, revealing 'Target Groups'. A green box highlights this 'Target Groups' link, and a green arrow points upwards to the 'Load Balancers' heading. The main content area shows a table for 'Load balancers (1)'. The table has columns for Name, DNS name, State, and VPC ID. One row is selected, showing 'ALB-Hakim' with 'ALB-Hakim-324075068.eu...' as the DNS name, 'Provisioning..' as the state, and 'vpc-0c37e9aed2aa68988' as the VPC ID. Below this, a message says '0 load balancers selected' and 'Select a load balancer above.' At the bottom, there's another table for 'Target groups (1)'. This table has columns for Name, ARN, Port, Protocol, Target type, Load balancer, and VPC ID. One row is selected, showing 'TG-Hakim' with 'arn:aws:elasticloadbalancing:eu...' as the ARN, port 80, protocol HTTP, target type Instance, load balancer 'None associated', and VPC ID 'vpc-0c37e9aed2aa68988'. A green arrow points upwards from the 'TG-Hakim' link in the 'Target groups' table back towards the 'Load Balancers' section.

Name	DNS name	State	VPC ID
ALB-Hakim	ALB-Hakim-324075068.eu...	Provisioning..	vpc-0c37e9aed2aa68988

Name	ARN	Port	Protocol	Target type	Load balancer	VPC ID
TG-Hakim	arn:aws:elasticloadbalancing:eu...	80	HTTP	Instance	None associated	vpc-0c37e9aed2aa68988

TP8 : ALB & NLB

TG-Hakim

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 <input checked="" type="radio"/> None associated				
0 Total targets	<input checked="" type="radio"/> 0 Healthy	<input checked="" type="radio"/> 0 Unhealthy	<input checked="" type="radio"/> 0 Unused	<input checked="" type="radio"/> 0 Initial	<input checked="" type="radio"/> 0 Draining
	0 Anomalous				

Targets | Monitoring | Health checks | Attributes | Tags

Registered targets (0) Info

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.

No registered targets

You have not registered targets to this group yet

[Register targets](#)

[Actions ▾](#)

EC2 > Target groups > TG-Hakim

Auto Scaling groups (1) Info

[Launch configurations](#)

<input type="checkbox"/>	Name	Launch template/configuration	Instances	Status	Desired capacity	Min	Max	Availability Zones
<input type="checkbox"/>	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

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**

TP8 : ALB & NLB

ASG-HAKIM

ASG-HAKIM Capacity overview

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

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

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

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

Load balancer target groups -	Classic Load Balancers -
----------------------------------	-----------------------------

VPC Lattice integration options

VPC Lattice target groups -

Application Recovery Controller (ARC) zonal shift - new

During an Availability Zone impairment, target instance launches towards other healthy Availability Zones.

ARC zonal shift Disabled

TP8 : ALB & NLB

Edit ASG-HAKIM [Info](#)

Load balancing - optional

Load balancers

Application, Network or Gateway Load Balancer target groups
Only instance target groups that belong to the same VPC as your Auto Scaling group are available for selection.

Select target groups

TG-Hakim | HTTP [X](#) [C](#)

Classic Load Balancers

Create and attach new load balancers

[Add a new load balancer](#)

Cancel [Update](#)

Auto Scaling group updated successfully

ASG-HAKIM

ASG-HAKIM Capacity overview

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

Load balancer target groups
[TG-Hakim](#) [Edit](#)

Classic Load Balancers
-

VPC Lattice integration options

VPC Lattice target groups
- [Edit](#)

Application Recovery Controller (ARC) zonal shift - new

During an Availability Zone impairment, target instance launches towards other healthy Availability Zones.

ARC zonal shift
Disabled [Edit](#)

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

TP8 : ALB & NLB

EC2 > Auto Scaling groups > ASG-HAKIM

TG-Hakim

Details

arn:aws:elasticloadbalancing:eu-west-3:940482414422:targetgroup/TG-Hakim/924deff99403242b

Target type Instance	Protocol : Port HTTP: 80	Protocol version HTTP1
IP address type IPv4	Load balancer ALB-Hakim	VPC vpc-0c37e9aed2aa68988

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

Distribution of targets by Availability Zone (AZ)

Targets Monitoring Health checks Attributes Tags

Registered targets (2) Info

Anomaly mitigation: Not applicable

Anomaly detection is automatically applied to HTTP/HTTPS target groups with at least 3 healthy targets.

Instance ID	Name	Port	Zone	Health status	Health status details	Administ...	Overrid...	Launch...
1-09efecd258b-20f16		80	eu-west-3a (eu...)	Healthy	-	<input checked="" type="radio"/> No override...	No overrid...	December...
1-03a6bc122d81bb9d		80	eu-west-3b (eu...)	Healthy	-	<input checked="" type="radio"/> No override...	No overrid...	December...

TG-Hakim

Details

arn:aws:elasticloadbalancing:eu-west-3:940482414422:targetgroup/TG-Hakim/924deff99403242b

Target type Instance	Protocol : Port HTTP: 80	Protocol version HTTP1
IP address type IPv4	Load balancer ALB-Hakim	VPC vpc-0c37e9aed2aa68988

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

Distribution of targets by Availability Zone (AZ)

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

Targets Monitoring **Health checks** Attributes Tags

Health check settings

Protocol HTTP	Path /	Port Traffic port	Healthy threshold 5 consecutive health check successes
Unhealthy threshold 2 consecutive health check failures	Timeout 5 seconds	Interval 30 seconds	Success codes 200

Vous allez passer au test de l'ALB.

TP8 : ALB & NLB

The screenshot shows the AWS EC2 console with the following details:

- Navigation Bar:** EC2 > Auto Scaling groups > ASG-HAKIM
- Left Sidebar:** Includes sections for Dashboard, EC2 Global View, Events, Instances, Instance Types, Launch Templates, Spot Requests, Savings Plans, Reserved Instances, Dedicated Hosts, Capacity Reservations, Images, AMIs, AM Catalog, Elastic Block Store, Volumes, Snapshots, Lifecycle Manager, Network & Security, Load Balancing (with Load Balancers selected), Target Groups, Trust Stores (New), Auto Scaling (with Auto Scaling Groups selected), and Settings.
- Main Content Area:**
 - ARC zonal shift for Application Load Balancers has changed:** A message stating that the use of Amazon Application Recovery Controller (ARC) zonal shift now requires the Application Load Balancer attribute ARC zonal shift integration to be enabled, and that ARC zonal shift now supports cross-zone enabled Application Load Balancers.
 - Load balancers (1/1):** A table showing one load balancer named "ALB-Hakim".

Name	DNS name	Status	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:** A detailed view of the ALB configuration.

Details		Listeners and rules	Network mapping	Resource map - new	Security	Monitoring	Integrations	Attributes	Capacity - new	Tags	
Load balancer type:	Application	Status:	Active	VPC:	vpc-0c37e9aed2aa68988						
Scheme:	Internet-facing	Hosted zone:	Z3Q77PNBQS71R4	Availability Zones:	subnet-07dd7e20d055821bc eu-west-3a (euw3-az1) subnet-02034e142e1b474a5 eu-west-3b (euw3-az2)						
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)							
- Bottom Status Bar:** Non sécurisé alb-hakim-324075068.eu-west-3.elb.amazonaws.com

Cette instance est située dans une zone de disponibilité: eu-west-3a

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

TP8 : ALB & NLB



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

EC2 > Auto Scaling groups

Auto Scaling groups (1) Info

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

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

TP8 : ALB & NLB

ASG-HAKIM

ASG-HAKIM Capacity overview

arn:aws:autoscaling:eu-west-3:94048241422: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)

Edit

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

Launch template

Launch template lt-0e0120df1a0fd9ca WEB-SERVER	AMI ID ami-03216a20ecc5d72ee	Instance type t2.micro	Owner arn:aws:iam::94048241422: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

arn:aws:autoscaling:eu-west-3:94048241422: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 -
-----------------------	-------------------------------------	--	-------------

Edit

TP8 : ALB & NLB

ASG-HAKIM

ASG-HAKIM Capacity overview

[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)

[Edit](#)

[Details](#) | [Integrations - new](#) | [Automatic scaling](#) | [Instance management](#) | [Instance refresh](#) | [Activity](#) | [Monitoring](#)

Launch template

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

[Edit](#)

[View details in the launch template console](#)

Network

Availability Zones
eu-west-3a, eu-west-3b

Subnet ID
subnet-07dd7e20d055821bc, subnet-02034e142e1b474a5

Availability Zone distribution
Balanced best effort

[Edit](#)

[Edit](#)

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 \(VPC-HAKIM-ALB-subnet-public1-eu-west-3a\)](#) [X](#)
10.200.0.0/24
- [eu-west-3b | subnet-02034e142e1b474a5 \(VPC-HAKIM-ALB-subnet-public2-eu-west-3b\)](#) [X](#)
10.200.1.0/24
- [eu-west-3c | subnet-08b137b5248318273 \(VPC-HAKIM-ALB-subnet-public3-eu-west-3c\)](#) [X](#)
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

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	
Application	Active	vpc-0c37e9aed2aa68988	
Scheme	Hosted zone	Availability Zones	Load balancer IP address type
Internet-facing	Z3Q77PNBQS71R4	subnet-07dd7e20d055821bc	IPv4
		eu-west-3a (euw3-az1)	Date created
		subnet-02034e142e1b474a5	December 7, 2024, 14:17 (UTC+01:00)
		eu-west-3b (euw3-az2)	
Load balancer ARN	DNS name Info		
arn:aws:elasticloadbalancing:eu-west-3:940482414422:loadbalancer/app/ALB-Hakim/7c23b7bdbdeecc1d4	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](#)

Targets in the listed zones and subnets are available for traffic from the load balancer using the IP addresses shown.

VPC [vpc-0c37e9aed2aa68988](#) Load balancer IP address type IPv4

IPv4 VPC CIDR: 10.200.0.0/16

IPv6 : -

[Edit IP address type](#) [Edit subnets](#)

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

TP8 : ALB & NLB

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	Load balancer IP address type
vpc-0c37e9aed2aa68988 <small>Copy</small>	IPv4
IPv4 VPC CIDR: 10.200.0.0/16	
IPv6: -	

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	VPC-HAKIM-ALB-subnet-public1-eu-west-3a
IPv4 subnet CIDR: 10.200.0.0/24	

IPv4 address
Assigned by AWS

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)

Subnet

subnet-08b157b3248318273	VPC-HAKIM-ALB-subnet-public3-eu-west-3c
IPv4 subnet CIDR: 10.200.2.0/24	

IPv4 address
Assigned by AWS

Cancel **Save changes**

EC2 > Auto Scaling groups

Auto Scaling group updated successfully

Auto Scaling groups (1) Info

ASG-HAKIM WEB-SERVER | Version Default 2 - 2 2 3 eu-west-3a, eu-west-3b, eu-west-3c

Launch configurations Launch

Auto Scaling Groups

TP8 : ALB & NLB

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](#)

No dynamic scaling policies have been created

Dynamic scaling policies use real-time data to scale your group based on configurable metrics.

Create dynamic scaling policy

Policy type: Target tracking scaling

Scaling policy name: Target Tracking Policy

Metric type: Application Load Balancer request count per target

Target group: TG-Hakim

Target value: 50

Instance warmup: 300 seconds

Disable scale in to create only a scale-out policy

Cancel | **Create**

Auto Scaling group updated successfully

TP8 : ALB & NLB

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

The screenshot shows the AWS CloudSearch results page. A green box highlights the search bar at the top containing the query "cloud wan". The results are categorized into "Features" and "Services".

Features

- Cloud WAN**
■ VPC feature
- CloudWatch dashboard**
■ Systems Manager feature
- Data sources**
■ Athena feature

Services

- CloudWatch**
Monitor Resources and Applications
- Athena**
Serverless interactive analytics service
- Amazon EventBridge**
Serverless service for building event-driven applications.

The screenshot shows the AWS CloudWatch Alarms page. A green box highlights the "Alarms" link in the navigation bar. The main table displays two alarms:

Name	Status	Last state update (UTC)	Conditions	Actions
TargetTracking-ASG-HAKIM-AlarmHigh-b8a909b2-8ea2-4430-8f48-feb245c8202b	OK	2024-12-07 20:22:56	RequestCountPerTarget > 50 for 3 datapoints within 5 minutes	Actions enabled
TargetTracking-ASG-HAKIM-AlarmLow-09fb5b43-c9cf-4421-b88a-4255ba03acd8	In alarm	2024-12-07 20:22:24	RequestCountPerTarget < 35 for 15 datapoints within 15 minutes	Actions enabled

TP8 : ALB & NLB

The screenshot shows the AWS EC2 Load Balancers console. The left sidebar has a tree view with 'Load Balancers' selected under 'Load Balancing'. A green box highlights the 'Load Balancers' link. The main area shows a table of load balancers with one entry:

Name	DNS name	State	VPC ID	Availability Zones	Type	Date created
ALB-Hakim	ALB-Hakim-324075068.eu-west-3.elb.amazonaws.com	Active	vpc-0c57e9aed2aa68988	3 Availability Zones	application	December 7, 2024, 14:17 (UTC+01:00)

A green arrow points upwards from the table towards the top of the page.

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
```

## TP8 : ALB & NLB

The screenshot shows the AWS CloudShell search results for the query 'ec2'. The search bar at the top has 'ec2' typed into it. Below the search bar, there is a sidebar with navigation links for CloudShell, eu-west-3, and various AWS services like Services, Features, Resources, Documentation, etc. The main content area is titled 'Services' and contains three items:

- EC2**: Virtual Servers in the Cloud
- EC2 Image Builder**: A managed service to automate build, customize and deploy OS images
- EC2 Global View**: EC2 Global View provides a global dashboard and search functionality that lets you...

Below the 'Services' section is another titled 'Features' which includes 'Dashboard', 'AMIs', and 'EC2 Instances'.

The screenshot shows the AWS CloudShell search results for the query 'cloud sh'. The search bar at the top has 'cloud sh' typed into it. Below the search bar, there is a sidebar with navigation links for CloudShell, eu-west-3, and various AWS services like Services, Features, Resources, Documentation, etc. The main content area is titled 'Services' and contains three items:

- CloudShell**: A browser-based shell with AWS CLI access from the AWS Management Console
- EFS**: Managed File Storage for EC2
- Athena**: Serverless interactive analytics service

Below the 'Services' section is another titled 'Features' which includes 'CloudWatch dashboard' and 'Dashboards'.

```
[cloudshell-user@ip-10-132-41-48 ~]$
[cloudshell-user@ip-10-132-41-48 ~]$ for i in {1..200}; do curl http:// ALB-Hakim-324075068.eu-west-3.elb.amazonaws.com & done; wait
```

Exécutez cette commande plusieurs fois.

## TP8 : ALB & NLB

The screenshot shows the AWS CloudWatch Metrics Insights interface. A query is being run against CloudWatch Metrics Insights metrics. The results table has columns for Name, State, Last state update (UTC), Conditions, and Actions. There are three rows of data:

- Name:** TargetTracking-ASG-HAKIM-AlarmHigh-b8a909b2-8ea2-4430-8f48-feb245c8202b  
**State:** In alarm  
**Last state update (UTC):** 2024-12-07 20:41:56  
**Conditions:** RequestCountPerTarget > 50 for 3 datapoints within 3 minutes  
**Actions:** Actions enabled
- Name:** TargetTracking-ASG-HAKIM-AlarmLow-09fb5b43-c9cf-4421-b88a-4255ba03acdb  
**State:** OK  
**Last state update (UTC):** 2024-12-07 20:39:30  
**Conditions:** RequestCountPerTarget < 35 for 15 datapoints within 15 minutes  
**Actions:** Actions enabled

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

The screenshot shows the AWS Lambda function configuration page for the 'Lambda Function' function. The Handler is set to `lambda.lambda_handler`, Runtime is Python 3.10, Memory is 128 MB, and Timeout is 3 seconds. Under Environment, both Environment variables and AWS Lambda layers are set to None.

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

## TP8 : ALB & NLB



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.

## TP8 : ALB & NLB

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

The screenshot shows the AWS EC2 Instances page for the ASG-HAKIM group. There are two instances listed:

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4 DNS	Public IPv4 IP	Elastic IP
	i-09829a7255714e53d	Running	t2.micro	2/2 checks passed	View alarms +	eu-west-3c	ec2-15-188-10-158.eu-west-3.compute.amazonaws.com	15.188.10.158	-
	i-09829a7255714e53d	Running	t2.micro	2/2 checks passed	View alarms +	eu-west-3a	ec2-15-237-215-164.eu-west-3.compute.amazonaws.com	15.237.215.164	-

The screenshot shows the Instance summary for the instance with ID i-09829a7255714e53d. The Public IPv4 DNS field is highlighted with a green box and has a red arrow pointing to it from above.

The screenshot shows a web browser window with the URL 'ec2-15-188-10-158.eu-west-3.compute.amazonaws.com' in the address bar. The URL is highlighted with a green box and has a red arrow pointing to it from above. Below the browser window, a message states: "Cette instance est située dans une zone de disponibilité: eu-west-3c".

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

## TP8 : ALB & NLB

The first screenshot shows the AWS EC2 Instances page for an Auto Scaling group named "ASG-HAKIM". It displays two running instances, with the second one highlighted by a green box. An arrow points from this instance to the second screenshot.

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4 DNS	Public
i-09829a725714e53d	Running	t2.micro	2/2 checks passed	<a href="#">View alarms</a>	eu-west-3c	ec2-15-188-10-158.eu...	15.188	
i-09e9cecd258b20f16	Running	t2.micro	2/2 checks passed	<a href="#">View alarms</a>	eu-west-3a	ec2-15-237-215-164.eu...	15.237	

The second screenshot shows the detailed view for the instance with ID i-09e9cecd258b20f16. It highlights the "Private IP address" section, which shows the private IP 10.200.0.61 and the public IP 15.237.215.164. A green box surrounds the public IP address.

The third screenshot is a browser window showing the EC2 instance at the URL [ec2-15-237-215-164.eu-west-3.compute.amazonaws.com](http://ec2-15-237-215-164.eu-west-3.compute.amazonaws.com). A green box highlights the URL bar.

**Cette instance est située dans une zone de disponibilité: eu-west-3a**

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** ».

## TP8 : ALB & NLB

Target groups (1/1) [Info](#)

Name	ARN	Port	Protocol	Target type	Load balancer	VPC ID
TG-Hakim	arn:aws:elasticloadbalancing:eu-west-3:94048214422:targetgroup/TG-Hakim/924defff9403242b	80	HTTP	Instance	ALB-Hakim	vpc-0c37e9aed2aa68988

**Target group: TG-Hakim**

[Details](#) [Targets](#) [Monitoring](#) [Health checks](#) [Attributes](#) [Tags](#)

**Details**

Target type Instance	Protocol : Port HTTP: 80	Protocol version HTTP1	VPC vpc-0c37e9aed2aa68988
IP address type IPv4	Load balancer ALB-Hakim		
2 Total targets	<input checked="" type="radio"/> 2 Healthy	<input type="radio"/> 0 Unhealthy	<input type="radio"/> 0 Unused
	0 Anomalous		<input type="radio"/> 0 Initial
			<input type="radio"/> 0 Draining

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

[Hosted services](#) [New](#)

[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

- 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-NLB-Hakim

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

**Protocol : Port**

Please select 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 options once your target group is created. This choice cannot be changed after creation.

TCP

80

1.65535

## TP8 : ALB & NLB

**VPC**  
Select the VPC where 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.

**Health checks**  
The associated load balancer periodically sends requests, per the settings below, to the registered targets to test their status.

**Health check protocol**  
HTTP

**Health check path**  
Use the default path of "/" to perform health checks on the root, or specify a custom path if preferred.  
/

Up to 1024 characters allowed.

► Advanced health check settings

**Attributes**

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

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

Cancel      Next Step

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

**Step 1** Specify group details  
**Step 2** Register targets

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

**Available instances (2/2)**

Instance ID	Name	State	Security groups	Zone	Private IPv4 address	Subnet ID	Launch time
<input checked="" type="checkbox"/> l-09829a7255714e53d		Running	HTTP-access	eu-west-3c	10.200.2.61	subnet-08b157b3248318273	December 7
<input checked="" type="checkbox"/> l-09e9cced258b20f16		Running	HTTP-access	eu-west-3a	10.200.0.61	subnet-07dd7e20d055821bc	December 7

2 selected  
Ports for the selected instances  
Ports for routing traffic to the selected instances.  
80  
1-45535 (separate multiple ports with commas)  
Include as pending below

**Review targets**

**Targets (2)**

Instance ID	Name	Port	State	Security groups	Zone	Private IPv4 address	Subnet ID	Launch time
l-09829a7255714e53d		80	Running	HTTP-access	eu-west-3c	10.200.2.61	subnet-08b157b3248318273	December 7, 2024, 21:51 (UTC+01:00)
l-09e9cced258b20f16		80	Running	HTTP-access	eu-west-3a	10.200.0.61	subnet-07dd7e20d055821bc	December 7, 2024, 13:56 (UTC-01:00)

2 pending      Cancel      Previous      Create target group

## TP8 : ALB & NLB

Successfully created the target group: TG-NLB-Hakim.

### TG-NLB-Hakim

[Actions](#)

Details		Protocol : Port		IP address type	
Target type Instance	Protocol : Port TCP: 80	VPC <a href="#">vpc-0c37e9aed2aa68988</a>	IPv4		
Load balancer <a href="#">None associated</a>					
Total targets 2	Healthy 0	Unhealthy 0	Unused 2	Initial 0	Draining 0

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

[Targets](#) [Monitoring](#) [Health checks](#) [Attributes](#) [Tags](#)

**Registered targets (2)**

[Filter targets](#) [Deregister](#) [Register targets](#)

Instance ID	Name	Port	Zone	Health status	Health status ...	Administrat...	Override de...	Launch time
<a href="#">i-09829a7255...</a>		80	eu-west-3c (eu...)	Unused	Target group is...	-	-	December 7, 2...
<a href="#">i-09e9ecd258...</a>		80	eu-west-3a (eu...)	Unused	Target group is...	-	-	December 7, 2...

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

### Compare and select load balancer type

A complete feature-by-feature comparison along with detailed highlights is also available. [Learn more](#)

**Load balancer types**

**Application Load Balancer** [Info](#)

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

[Create](#)

**Network Load Balancer** [Info](#)

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

[Create](#)

**Gateway Load Balancer** [Info](#)

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

[Create](#)

► **Classic Load Balancer - previous generation**

[Close](#)

## TP8 : ALB & NLB

### 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.

**i** 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

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

NLB-Hakim

A maximum of 32 alphanumeric 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.

## TP8 : ALB & NLB

**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 groups. [For a new VPC, create a 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 targets 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

**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

**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

**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**

Protocol: TCP Port: 80  
1-65535

**Default action**

Forward to: TG-NLB-Hakim  
Target type: Instance, IPv4

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

**Listener tags - optional**

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

[Add listener tag](#)

You can add up to 50 more tags.

## TP8 : ALB & NLB

### Review

Review the load balancer configurations and make changes if needed. After you finish reviewing the configurations, choose **Create load balancer**.

**Summary**

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

<b>Basic configuration</b> <a href="#">Edit</a>	<b>Security groups</b> <a href="#">Edit</a>	<b>Network mapping</b> <a href="#">Edit</a>	<b>Listeners and routing</b> <a href="#">Edit</a>
NLB-Hakim <ul style="list-style-type: none"> <li>Internet-facing</li> <li>IPv4</li> </ul>	<b>HTTP-access</b> <ul style="list-style-type: none"> <li><a href="#">sg-0c0baa1fd639902f4</a></li> <li><b>default</b> <a href="#">sg-0dfc59e5003875ab5</a></li> </ul>	<b>VPC</b> <a href="#">vpc-0c37e9aed2aa68988</a> <ul style="list-style-type: none"> <li>VPC-HAKIM-ALB-vpc</li> <li><b>eu-west-3a</b> <a href="#">subnet-07dd7e20d055821bc</a> <ul style="list-style-type: none"> <li>VPC-HAKIM-ALB-subnet-public1-eu-west-3a</li> </ul> </li> <li><b>eu-west-3b</b> <a href="#">subnet-02034e142e1b474a5</a> <ul style="list-style-type: none"> <li>VPC-HAKIM-ALB-subnet-public2-eu-west-3b</li> </ul> </li> <li><b>eu-west-3c</b> <a href="#">subnet-08b137b3248318273</a> <ul style="list-style-type: none"> <li>VPC-HAKIM-ALB-subnet-public3-eu-west-3c</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>TCP-80 defaults to <a href="#">TG-NLB-Hakim</a></li> </ul>
<b>Service integrations</b> <a href="#">Edit</a>	<b>Tags</b> <a href="#">Edit</a>	<b>None</b>	

**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](#)



ⓘ Successfully created load balancer

**NLB-Hakim**

[Actions](#)

**▼ Details**

Load balancer type Network	Status <a href="#">Provisioning</a>	VPC <a href="#">vpc-0c37e9aed2aa68988</a>	Load balancer IP address type IPv4
Scheme Internet-facing	Hosted zone Z1CMSOP5QUZ6DS	Availability Zones <a href="#">subnet-08b137b3248318273</a> eu-west-3c (euw3-az3) <a href="#">subnet-07dd7e20d055821bc</a> eu-west-3a (euw3-az1) <a href="#">subnet-02034e142e1b474a5</a> eu-west-3b (euw3-az2)	Date created December 7, 2024, 23:31 (UTC+01:00)
Load balancer ARN <a href="#">arn:aws:elasticloadbalancing:eu-west-3:940482414422:loadbalancer/net/NLB-Hakim/fb92da0079b3b8c8b</a>	DNS name <a href="#">Info</a> <a href="#">NLB-Hakim-fb92da0079b3b8c8b.elb.eu-west-3.amazonaws.com</a> (A Record)		

[Listeners](#) [Network mapping](#) [Resource map - new](#) [Security](#) [Monitoring](#) [Integrations](#) [Attributes](#) [Tags](#)

**Listeners (1)**

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.

<input type="checkbox"/> Protocol:Port	<input type="checkbox"/> Default action	<input type="checkbox"/> ARN	<input type="checkbox"/> Security policy	<input type="checkbox"/> Default SSL/TLS certificate	<input type="checkbox"/> ALPN policy	<input type="checkbox"/> Tags
<a href="#">TCP:80</a>	Forward to target group	<a href="#">ARN</a>	Not applicable	Not applicable	None	<a href="#">0 tags</a>

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

## TP8 : ALB & NLB

**EC2 > Auto Scaling groups**

**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** (highlighted)
- Target Groups
- Trust Stores New

**Load balancers (1/2)**

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

Name	DNS name	Status	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	ALB-Hakim-324075068.eu...	Active	vpc-0c37e9aed2aa68988	3 Availability Zones	application	December 7, 2024, 14:17 (UTC+01:00)

**Load balancer: NLB-Hakim**

**Details**

Load balancer type Network	Status <span style="color: green;">Active</span>	VPC <a href="#">vpc-0c37e9aed2aa68988</a>
Scheme Internet-facing	Hosted zone Z1CMSOP5QUZ6D5	Availability Zones <a href="#">subnet-08b137b3248318273</a> eu-west-3c (euw3-az3) <a href="#">subnet-07dd7e20d055821bc</a> eu-west-3a (euw3-az1) <a href="#">subnet-02034e142e1b474a5</a> eu-west-3b (euw3-az2)

**NLB-Hakim**

**Details**

Load balancer type Network	Status <span style="color: green;">Active</span>	VPC <a href="#">vpc-0c37e9aed2aa68988</a>	Load balancer IP address type IPv4
Scheme Internet-facing	Hosted zone Z1CMSOP5QUZ6D5	Availability Zones <a href="#">subnet-08b137b3248318273</a> eu-west-3c (euw3-az3) <a href="#">subnet-07dd7e20d055821bc</a> eu-west-3a (euw3-az1) <a href="#">subnet-02034e142e1b474a5</a> eu-west-3b (euw3-az2)	Date created December 7, 2024, 23:31 (UTC+01:00)

**Listeners (1)**

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.

Protocol:Port	Default action	ARN	Security policy	Default SSL/TLS certificate	ALPN policy	Tags
TCP:80	Forward to target group • <a href="#">TG-NLB-Hakim</a>	<a href="#">ARN</a>	Not applicable	Not applicable	None	0 tags

## TP8 : ALB & NLB



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



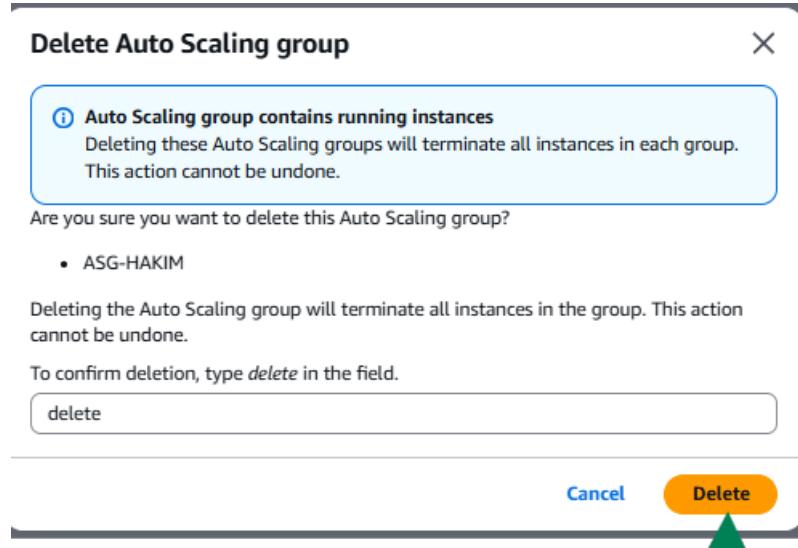
Vous allez refaire la même action jusqu'à ce que vous vous connectiez à la deuxième instance dans la deuxième zone de disponibilité.

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

## TP8 : ALB & NLB

### Supprimez l'Auto Scaling Group.

The screenshot shows the AWS Auto Scaling Groups page. On the left, a navigation sidebar includes sections like Instances, Images, Elastic Block Store, Network & Security, Load Balancing, and Auto Scaling. Under Auto Scaling, 'Auto Scaling Groups' is selected and highlighted with a green box. In the main content area, the heading 'Auto Scaling groups (1/1) Info' is displayed. A table lists one group: ASG-HAKIM, which is selected (indicated by a blue border). The table columns include Name (ASG-HAKIM), Launch template/configuration (WEB-SERVER | Version Default), Instances (2), Status (-), Desired capacity (2), Min (2), Max (3), and Availability Zones (eu-west-3a, eu-west-3b, eu-west-3c). To the right of the table are buttons for Launch configurations, Launch templates, Actions (with an 'Edit' and 'Delete' option), and a search bar. The 'Delete' button is also highlighted with a green box.



The screenshot shows the AWS Auto Scaling Groups page again. The ASG-HAKIM group is listed in the table with a status of 'Deleting'. An orange arrow points to the 'ASG-HAKIM' row. The table columns are identical to the previous screenshot. Buttons for Launch configurations, Launch templates, and Actions are visible at the top right.

## TP8 : ALB & NLB

### ASG-HAKIM

**ASG-HAKIM Capacity overview**

Desired capacity 0	Scaling limits (Min - Max) 0 - 0	Desired capacity type Units (number of instances)	Status Deleting
-----------------------	-------------------------------------	------------------------------------------------------	--------------------

Date created  
Sat Dec 07 2024 13:38:23 GMT+0100 (heure normale d'Europe centrale)

**Activity**

**Activity notifications (0)**

No notifications are currently specified

**Activity history (9)**

Status	Description	Cause	Start time	End time
Terminating EC2 instance: i-09e29a7255714e53d - Waiting For ELB Connection Draining.	At 2024-12-07T22:53:13Z a user request force deleted AutoScaling group changing the desired capacity from 2 to 0. At 2024-12-07T22:53:23Z an instance was taken out of service in response to a difference between desired and actual capacity, shrinking the capacity from 2 to 0. At 2024-12-07T22:53:23Z instance i-09e29a7255714e53d was selected for termination. At 2024-12-07T22:53:23Z instance i-09e29a7255714e53d was selected for termination.		2024 December 07, 11:53:23 PM +01:00	
Terminating EC2 instance: i-09e9cccd258b20f16 - Waiting For ELB Connection Draining.	At 2024-12-07T22:53:13Z a user request force deleted AutoScaling group changing the desired capacity from 2 to 0. At 2024-12-07T22:53:23Z an instance was taken out of service in response to a difference between desired and actual capacity, shrinking the capacity from 2 to 0. At 2024-12-07T22:53:23Z instance i-09e9cccd258b20f16 was selected for termination. At 2024-12-07T22:53:23Z instance i-09e9cccd258b20f16 was selected for termination.		2024 December 07, 11:53:23 PM +01:00	

Supprimez l'ALB et le NLB.

**Load balancers (2/2)**

Name	DNS name	State	VPC ID	Availability Zones	Type	Date created
NLB-Hakim	NLB-Hakim-fb52d400795...	Active	vpc-0c57e9aeed2aa68988	3 Availability Zones	network	December 7, 2024, 23:51 (UTC+01:00)
ALB-Hakim	ALB-Hakim-324075068.eu...	Active	vpc-0c57e9aeed2aa68988	3 Availability Zones	application	December 7, 2024, 14:17 (UTC+01:00)

**2 load balancers selected**

**Actions**

- Edit IP address type
- Edit subnets
- Manage instances
- Edit health check settings
- Manage listeners
- Edit security groups
- Edit load balancer attributes
- Delete load balancer

## TP8 : ALB & NLB

**Delete load balancer**

Delete 2 load balancers permanently? This action can't be undone.

**⚠ Proceeding with this action deletes the load balancers and their listeners. Target groups associated to these load balancers will become available for association to another load balancer and their registered targets remain unaffected.**

To avoid accidental deletion we ask you to provide additional written consent.

Type **confirm** to agree.

**confirm**

**Cancel**      **Delete**

↑

**Successfully deleted 2 load balancers.**

**Load balancers**

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

**Create load balancer**

**Target groups (1/2) Info**

**Targets**

Name	ARN	Port	Protocol	Target type	Load balancer	VPC ID
TG-Hakim	arn:aws:elasticloadbalancing:eu-west-3:123456789012:targetgroup/TG-Hakim/5678901234567890	80	HTTP	Instance	ALB-Hakim	vpc-0c37e9eed2aa68988
TG-NLB-Hakim	arn:aws:elasticloadbalancing:eu-west-3:123456789012:targetgroup/TG-NLB-Hakim/5678901234567890	80	TCP	Instance	NLB-Hakim	vpc-0c37e9eed2aa68988

**Target group: TG-NLB-Hakim**

**Targets**

Instance ID	Name	Port	Zone	Health status	Health status details	Administrative override	Override details	Launch time
i-09829a7255714e53d		80	eu-west-3c (euw3-az3)	Unused	Target group is not config...	-	-	December 7, 2024, 21:51...
i-09e9cecd258b20f16		80	eu-west-3a (euw3-az1)	Unused	Target group is not config...	-	-	December 7, 2024, 15:56...

**EC2 > Auto Scaling groups**

**Instances (2) Info**

**Instances**

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4 DNS	Public IPv4 IP	Elastic IP	IPv6 IPs	Monitor
i-09829a7255714e53d	i-09829a7255714e53d	Shutting-down	t2.micro	-	View alarms +	eu-west-3c	ec2-15-188-10-158.eu...	15.188.10.158	-	-	disabled
i-09e9cecd258b20f16	i-09e9cecd258b20f16	Terminated	t2.micro	-	View alarms +	eu-west-3a	-	-	-	-	disabled

Supprimez le Launch Templates

## TP8 : ALB & NLB

The screenshot shows the AWS Launch Templates page. A single launch template named 'WEB-SERVER' is listed. A context menu is open over this entry, with the 'Delete template' option highlighted.

**Delete Launch Template**

You can't undo this action. Any Auto Scaling groups or Spot Fleet requests currently using this launch template might be affected.

Are you sure you want to delete WEB-SERVER (lt-0ea0120df1a0fd9ca) and all its versions?

To confirm deletion, type **Delete** in the field

delete

▶ CLI commands

Cancel Delete

Supprimez du VPC « VPC-VotreNom-ALB »

The screenshot shows the AWS VPC dashboard. A VPC named 'VPC-HAKIM-ALB-vpc' is selected. A context menu is open over this VPC entry, with the 'Delete VPC' option highlighted.

## TP8 : ALB & NLB

**Delete VPC**

Will be deleted  
This VPC will be deleted permanently and cannot be recovered later:

Name <input checked="" type="checkbox"/> VPC-HAKIM-ALB-vpc	VPC ID <input checked="" type="checkbox"/> vpc-0c37e9aed2aa68988	State <input checked="" type="checkbox"/> Available
---------------------------------------------------------------	---------------------------------------------------------------------	--------------------------------------------------------

Will also be deleted  
The following 7 resources will also be deleted permanently and cannot be recovered later:

Name	Resource ID	State
VPC-HAKIM-ALB-igw	igw-00469bf36f920a12d	<input checked="" type="checkbox"/> Available
VPC-HAKIM-ALB-rtb-public	rtb-04931686cd67b4d94	-
-	sg-0c0baa1fd639902f4	-
-	sg-0385c9ae2477564a2	-
VPC-HAKIM-ALB-subnet-public3-eu-west-3c	subnet-08b137b3248318273	<input checked="" type="checkbox"/> Available

To confirm deletion, type *delete* in the field:

**Cancel** **Delete**

You successfully deleted vpc-0c37e9aed2aa68988 / VPC-HAKIM-ALB-vpc and 7 other resources.

Name	VPC ID	State	Block Public...	IPv4 CIDR	IPv6 CIDR	DHCP option set	Main route table	Main network ACL	Tenant
-	vpc-0c37e9aed2aa68988	<input checked="" type="checkbox"/> Available	<input type="radio"/> Off	172.31.0.0/16	-	dopt-06586014b655128...	rtb-0f3db08eb11a8537a	ad-0987113f325af81a	Default